



**Restoration Plan Addendum
Final**

January 15, 2016

Little Pine Creek II Restoration Project

Alleghany County, North Carolina
DEQ Contract No. D13022S
SCO No. 07-07088-01
DMS ID No. 856

New River Basin
HUC 05050001

PREPARED FOR:

**NC Department of Environmental Quality
Division of Mitigation Services
1652 Mail Service Center
Raleigh, NC 27699-1652**

FINAL RESTORATION PLAN ADDENDUM

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Raleigh, NC 27699-1652

PREPARED BY:



Wildlands Engineering, Inc.

1430 South Mint Street, Suite 104

Charlotte, NC 28203

Phone: 704-332-7754

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1.0 Project Background

Wildlands Engineering (Wildlands) is completing a design update for the Little Pine II Restoration Design-Bid-Build Project for the North Carolina Department of Environmental Quality - Division of Mitigation Services (DMS). This project will include restoration of approximately 3,362 existing linear feet (LF) of Little Pine Creek and three unnamed tributaries (UTs) to Little Pine Creek, enhancement of 1.20 acres of wetlands, and preservation 4.42 acres of wetlands.

This report functions as an addendum to the approved 2008 Little Pine Creek Restoration Plan (Ward Consulting Engineers, Inc., 2008), herein referred to as the 2008 Plan. Where appropriate, this document references relevant sections of that report. This addendum is intended only to verify existing baseline information provided in the 2008 Plan and provide necessary background information to support the updated design approach. Site maps are included with the original restoration plan as Figure 1.

2.0 Restoration Project Goals and Objectives

The Project is located in the Little River & Brush Creek Local Watershed Plan (LWP) planning area. Planning documents for that LWP can be found at: <http://portal.ncdenr.org/web/eep/rbrps/new>. The project is located in Hydrologic Unit (HU) 05050001030030 which was identified as a Targeted Local Watershed in DMS's 2009 New River Basin Restoration Priority (RBRP) plan and is identified in the Little River & Brush Creek LWP Project Atlas as sites LPC1-04 (stream) and LPC1-W10 (wetland).

DMS developed an LWP for the 111-square mile drainage area that included land use analysis, water quality monitoring and stakeholder input to identify problems with water quality, habitat and hydrology. The Little River watershed (HUC 05050001030030) and Brush Creek watershed (HUC 05050001030020) are characterized as primarily agricultural and mixed hardwood forest lands and Brush Creek has a history of habitat degradation issues due to embedded riffles and a lack of functional riparian areas. DMS completed the Little River & Brush Creek LWP in June 2007.

The Little River & Brush Creek LWP identified the following major stressors in the watershed: unforested buffers that are heavily grazed; livestock access to streams; heavily eroded stream banks; land-disturbing activities on steep slopes; and storm water runoff in and around the town of Sparta. The LWP identified the Little Pine Creek II Restoration Project (LPC1-04) as a stream restoration opportunity with the potential to improve water quality, habitat, and hydrology within the Brush Creek watershed.

The primary goals of the Little Pine Creek II Restoration Project address multiple stressors identified in the LWP and described in Table 1.

Table 1. Project Goals and Objectives*Little Pine Creek II Restoration Project – Mitigation Plan Addendum*

Goal	Objective	Expected Outcomes
Restore riparian buffers.	Plant native tree and understory species in riparian zone	Create and improve forested riparian habitats. Provide a canopy to shade streams and reduce thermal loadings. Create a source of woody inputs for streams. Reduce flood flow velocities on floodplain and allow pollutants and sediment to settle.
Exclude cattle from project streams.	Install fencing around conservation easements adjacent to cattle pastures	Reduce pollutant inputs including fecal coliform, nitrogen, and phosphorous.
Stabilize eroding stream banks.	Reconstruct stream channels with stable dimensions. Add bank revetments and in-stream structures to protect restored/enhanced streams.	Reduce inputs of sediment into streams.
Construct stream channels that are laterally and vertical stable.	Construct stream channels that will maintain a stable pattern and profile considering the hydrologic and sediment inputs to the system, the landscape setting, and the watershed conditions.	Return a network of streams to a stable form that is capable of supporting hydrologic, biologic, and water quality functions.
Improve instream habitat.	Install habitat features such as constructed riffles and brush toes into restored/enhanced streams. Add woody materials to channel beds. Construct pools of varying depth.	Improve aquatic communities in project streams.
Improve channel and floodplain connectivity.	Reconstruct stream channels with bankfull at or near the floodplain elevation (with bank height ratios ranging from 1.0 to 1.1).	Raise local groundwater elevations. Inundate floodplain wetlands and vernal pools. Reduce shear stress on channels during larger flow events.
Permanently protect the project site from harmful uses.	Establish a conservation easement on the site.	Ensure that development and agricultural uses that would damage the site or reduce the benefits of project are prevented.

3.0 Baseline Information –Project Site and Watershed Summary

3.1 Watershed Historical Land Use and Development Trends

The Little Pine Creek II watershed (Watershed) is located in a rural area approximately eight miles east of the Town of Sparta (refer to Figure 4 in the 2008 Plan). Land use within the Watershed is historically rural and dominated by agriculture and forest. A review of historical aerials from 1964, 1983, and 1998 verified that land use on the project site and in the Watershed has remained relatively consistent for the past 50 years (historic aerial photos are provided in Appendix 13 of the 2008 Plan).

There are no signs of impending land use changes or development pressure evident in the watershed. Mr. Travis Dalton, the Allegheny County Planner, reviewed the Watershed conditions and, during a telephone interview, confirmed that the historic agricultural and timber production land uses in the Watershed are expected to continue for the foreseeable future with no indications of land use shifts. No transportation projects or major roadway improvements are planned for the area (T. Dalton, personal communication, June 4, 2012).

3.2 Watershed Assessment

On June 15, 2012, Wildlands conducted a watershed reconnaissance visit to verify current land uses observed from the aerial photography and to identify potential stressors. Consistent with information depicted in aerial photography, land use within the Watershed is predominantly timber and agricultural production. Disturbed areas within the Watershed consist of large (several acres) fields with recent farm waste applications or recent tillage for new crop installation. A few single-family homes have been built in the past five years, but there is no evidence of significant new development. No areas of widespread floodplain or overland erosion were noted within the Watershed. Stream banks throughout the Watershed are eroded and appear to be the primary source of fine grain sediment to the downstream reaches.

The Watershed perimeter closely follows Glade Valley Road, Glade Creek School Road, and Barrett Road (as shown in Figure 4 of the 2008 Restoration Plan). Topography can be described as somewhat hilly to gently rolling. There are no impoundments that significantly affect hydrology or sediment transport in the Watershed. Culverts at various road crossings throughout the Watershed influence sediment transport at isolated locations. Channel substrate ranges from cobble to fines.

4.0 Baseline Information – Review of Previously Collected Stream Existing Conditions

On-site existing conditions assessments were conducted by Wildlands in June 2013. The intent of the existing conditions assessment effort was to verify previous, detailed surveys completed for the 2008 Plan and to identify any geomorphic changes or apparent disturbances that had occurred since that date.

4.1 Stream Alignment Verification

Wildlands was unable to recover existing control points, therefore review of the existing topographic survey was largely qualitative. Wildlands compared the existing stream alignments and floodplain areas to the 2008 survey during field assessments. In general, the 2008 survey appears to be an accurate representation of the current site and stream condition. Although stream banks have clearly continued to erode since 2008, the stream centerline or thalweg did not appear to have shifted significantly and depositional features within the channels were still located in the same approximate locations.

4.2 Cross Section Resurvey Results

As part of the survey verification effort, Wildlands also conducted additional surveys at four cross sections that were surveyed for the 2008 Plan. The resurveyed cross sections included Little Pine Creek XS6 (located upstream of Glade Creek School Road), Little Pine Creek XS14 (located downstream of the road), Tributary A XS1, and Tributary C XS6. Cross sections of Little Pine Creek and Tributary A were field located with a handheld GPS unit. However, no spatial data were provided for Tributary C so Wildlands located the cross section using photographs and maps from the 2008 Plan. Data from the additional survey efforts are provided in Appendix 1. The locations of the project reaches and surveyed cross sections are shown in Section 12 on Plan Sheets 1 and 3 of the 2008 Plan, as well as on Figure 1 of this

document. The additional survey performed by Wildlands was not tied to grid, but was adjusted based on point elevations provided in the existing survey data.

Based on a review of the additional survey data, it appears continued deposition has occurred on the bar features present on both Little Pine XS6 and Little Pine XS14. Tributary A XS1 was noted as a riffle section during the 2008 survey; however, during Wildlands resurvey this area was noted as a pool. Because of this, Wildlands resurveyed the next downstream riffle to provide an additional comparison. For this cross section, the cross-sectional area between the 2008 riffle survey and the 2013 riffle survey are similar. A precise analysis of the Tributary C XS6 resurvey was not possible due to the uncertainty of the location of the new surveyed cross section as compared to the original surveyed in 2008. However, the comparison of the two cross sections suggests that Tributary C has enlarged somewhat since 2008. Existing conditions data from the new cross sectional surveys are shown in Table 2.

4.3 Bed Material Size Verification

To verify the existing sediment distributions, Wildlands also conducted pebble count on Little Pine XS14 and collected a sample from a nearby, well developed point bar. Comparisons to the original particle size distributions indicate that significant changes in the bed material sizes have not occurred (Table 2). Originally, Little Pine Creek was characterized with a D50 of 59 which is near the top end of the coarse gravel size range. The results of Wildland's pebble counts indicate that the stream has a D50 of 72 which is near the lower end of the small cobble size class range.

Table 2. Existing Conditions Resurvey Data*Little Pine Creek II Restoration Project – Mitigation Plan Addendum*

	Notation	Units	Little Pine XS6	Little Pine XS14	Tributary A XS1	Tributary C XS6
stream type			C	C/F	E	G
drainage area	DA	sq mi	2.57	3.34	0.37	0.11
bankfull cross-sectional area	A_{bkf}	SF	45.6	52.9	10.5	7.1
width at bankfull	w_{bkf}	feet	23.7	31.9	6.6	8.0
maximum depth at bankfull	d_{max}	feet	3.4	3.5	2.2	1.6
mean depth at bankfull	d_{bkf}	feet	1.9	1.7	1.6	0.9
bankfull width to depth ratio	w_{bkf}/d_{bkf}		12.3	19.2	4.1	8.9
low bank height		feet	4.7	5.0	2.2	3.2
bank height ratio	BHR		1.4	1.5	1.0	2.0
floodprone area width	w_{fpa}	feet	100+	106+	61.1	16.9
entrenchment ratio	ER		4.2+	3.3+	9.3	2.1
Particle Size Distribution from Pebble Count						
d_{50} Description				Small Cobble		
	d_{16}	mm	-	28	-	-
	d_{35}	mm	-	57	-	-
	d_{50}	mm	-	72	-	-
	d_{84}	mm	-	144	-	-
	d_{95}	mm	-	174	-	-
	d_{100}	mm	-	362	-	-
Particle Size Distribution from Bar Sample						
	d_{15}	mm	-	7	-	-
	d_{30}	mm	-	38	-	-
	d_{50}	mm	-	59	-	-
	d_{85}	mm	-	117	-	-
	d_{95}	mm	-	123	-	-
	d_{100}	mm	-	183	-	-

4.4 Bankfull Verification

Bankfull stage indicators on Little Pine included flat depositional features and prominent breaks in slope. Bankfull stage was determined to be the top of bank on Tributary A. Bankfull calls on Tributary C were difficult because the stream has been heavily manipulated, however, bankfull was approximated for classification purposes at a prominent break in slope. Manning's equation was applied to the surveyed cross-sections to calculate an estimated bankfull discharge. The results are presented in Table 3.

Existing conditions bankfull area and discharge estimates were compared to drainage area and discharge estimates from two Little Pine II reference reaches described in the 2008 Plan, the two Little Pine III reference reaches described in the approved Mitigation Plan for the project (Wildlands

Engineering, Inc., 2014), the North Carolina Mountain Regional Curve (Harman et. al., 2000), the regional flood frequency relationships developed for the Little River and Laurel Branch Local Watershed Plans (LWP) (WK Dickson & Co., Inc., 2005), and the revised NC Rural Regional Curve (Walker, unpublished). It should be noted that the study area for the LWP includes the project site. The Little River and Laurel Branch LWP regional flood frequency curve was developed from analysis of three USGS gages in North Carolina and five USGS gages in southern Virginia. Section 4 of the LWP describes, in detail, the methodology and results. The analysis presented in the LWP shows that the regional flood frequency curve predicts lower discharge values per unit drainage area than other published regional curves applicable to the physiographic area. The results of each of these analyses for each of the project reaches are presented in Figure 2.

Bankfull discharge estimates developed with Manning's equation for the project reaches were regressed against drainage area and plotted with discharge-drainage area relations for the other hydrologic methods described above (Figure 2). The Manning's equation discharge estimates plot below the North Carolina Mountain regional curve and slightly above the 1.8-year recurrence interval discharges from the Little River and Laurel Branch LWP regional flood frequency curve. The discharge – drainage area relation for Meadow Fork (also estimated with Manning's equation), a reference reach of similar drainage area, also plots near the 1.8-year LWP discharge. This suggests that the regional hydrology may be better represented by the LWP regional flood frequency curve than the mountain regional curve.

4.5 Design Discharge

Based on the results of the analysis presented in Section 4.4 and Figure 2, design discharges were selected for the Little Pine Creek reaches that were lower than the design discharges documented in the 2008 Plan. Design discharges for each of the project reaches were selected to fall between the 1.2- and 1.8-year recurrence interval predictions of the LWP regional flood frequency curves and to be generally consistent relative to other estimates of existing bankfull discharges. Table 3 summarizes the results of each of the discharge analyses described in this section.

Table 3. Design Discharge Analysis Summary

Little Pine Creek II Restoration Project – Mitigation Plan Addendum

Reach	Drainage Area (sq. miles)	Existing Cross Section, Manning's n value	Estimated Bankfull Flow (Manning's) Qbkf (cfs)	NC Mountain Regional Curve Qbkf (cfs)	Walker NC Rural Regional Curve Qbkf (cfs)	Little River LWP Gage Analysis Q 1.2 YR (cfs)	Little River LWP Gage Analysis Q 1.8 YR (cfs)	Design Qbkf (cfs)
Little Pine u/s of Glade Creek School Road	2.57	XS6, 0.05	170	207	117	124	156	140
Little Pine d/s of Glade Creek School Road	3.34	XS14, 0.05	185	252	144	154	194	170
Meadow Fork – Reference ¹	4.37	--	224	--	---	--	--	--
Tributary A	0.37	XS1, 0.045	56	47	26	24	31	28
Tributary B	0.26	--	--	36	19	18	23	21
Tributary C	0.11	XS6, 0.04	46	19	10	9	11	10
UT to Little Pine Creek - Reference ²	0.05	--	23	--	---	--	--	--
UT2A – Reference ¹	0.12	--	20	--	---	--	--	--

1: Reference from the approved Little Pine III Restoration Plan (DMS, 2014)

2: Reference from the 2008 Plan.

5.0 Baseline Information – Review of Existing Wetland Conditions

Wildlands conducted a limited review of existing jurisdictional wetlands (Wetlands 2A, 2B, and 3) which were delineated and mapped by the previous consultant using guidance from the United States Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual. Previously delineated Wetland 1 wasn't reviewed because it's no longer in the project area. A re-delineation was performed by Wildlands on April 27, 2015. The re-delineation was fairly consistent with the previous delineation with minor deviations including the addition of a new Wetland 1 and the removal old Wetland 3. Wetland 3 was removed due to a lack of hydric soils during the 2015 review. Re-delineated wetlands range in size from 0.32 to 4.42 acres. The wetlands exhibited areas of inundation, saturation within the upper 12 inches of the soil profile, drainage patterns, water stained leaves, and sediment deposits. Low-chroma soils within the wetlands ranged from 7.5YR 3/1 to 10YR 2/1 with redox concentrates of 5YR 4/6 to 7.5YR 3/4. Vegetation in Wetland 1 is primarily herbaceous and includes soft rush (*Juncus effusus*), sedges (*Carex spp.*), and purplestem aster (*Symphotrichum puniceum*). Wetlands 2A and 2B are primarily forested. Wetland 2A is primarily a white pine canopy with skunk cabbage (*Symplocarpus foetidus*), sedges, and soft rush common in the underlying herbaceous. Canopy species within Wetland 2B include green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), and tulip poplar (*Liriodendron tulipifera*). Common understory species include elderberry (*Sambucus canadensis*), silky dogwood (*Cornus amomum*), spicebush (*Lindera benzoin*), and tag alder (*Alnus serrulata*). Observed herbaceous species include skunk cabbage, jewelweed (*Impatiens capensis*), sedges, and soft rush. Wetland 1 and Wetland 2A are proposed for enhancement credit. Wetland data forms, which were submitted to the US Army Corps of

Engineers for verification on June 29, 2015, are included in Appendix 2. Wetland boundaries were field verified with the US Army Corps of Engineers on September 4, 2015.

6.0 Reference Sites

6.1 Reference Streams

Reference reaches are one source of information in the development of design parameters. Most reference quality reaches in the North Carolina Mountains are in heavily wooded areas and the mature vegetation contributes greatly to their stability. In addition, reference reaches tend to be located in higher gradient valleys with smaller drainage areas that are less prone to past and present disturbance. For this project, two reference reaches from the 2008 Plan were utilized in combination with two reference reaches that were recently surveyed for the Little Pine Creek III Restoration Project. Table 4 provides a summary of the reference geomorphic parameters. More information on the reference reaches can be found in the 2008 Plan and in the approved 2014 Little Pine III Mitigation Plan.

6.2 Reference Wetland

Wetland 2B located along the lower portion of Little Pine Creek was identified as a reference condition wetland for the project site. Wetland 2B is an undisturbed forested wetland proposed for preservation. Using the North Carolina Wetland Assessment Method (NCWAM) and the observer's best professional judgement, Wetland 2B classifies as a bottomland hardwood forest. Dominant canopy species include red maple, green ash, and tulip poplar. Primary understory species include elderberry, silky dogwood, spicebush, and tag alder. The herbaceous vegetation is dominated by skunk cabbage. Other common herbaceous species include jewelweed, sedges, and soft rush.

Table 4. Summary of Reference Reach Geomorphic Parameters

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Parameter	Notation	Units	Meadow Fork ¹		Basin Creek ²		UT to Little Pine Creek ²		UT2A – Ref ¹	
			min	max	min	max	min	max	min	max
stream type			E4		C4		B4a/C4a		A/B4/1	
drainage area	DA	sq mi	4.4		6.8		0.051		0.12	
bankfull discharge	Q _{bkf}	cfs	224		--		23		20	
bankfull cross-sectional area	A _{bkf}	SF	44		57.4		3.79	5.08	18.1	
average velocity during bankfull event	V _{bkf}	fps	5.1		---		4.18	5.86	--	
width at bankfull	w _{bkf}	feet	21.4		16.4		6.17	11.11	12.6	
maximum depth at bankfull	d _{max}	feet	3.1		2.5		0.82	1.03	2	
mean depth at bankfull	d _{bkf}	feet	2.1		1.9		0.046	0.69	1.4	
bankfull width to depth ratio	w _{bkf} /d _{bkf}		10.2		16.4		9.11	24.3	8.7	
depth ratio	d _{max} /d _{bkf}		1.5		1.32		0.92	1.84	1.4	

Parameter	Notation	Units	Meadow Fork ¹		Basin Creek ²		UT to Little Pine Creek ²		UT2A – Ref ¹	
			min	max	min	max	min	max	min	max
bank height ratio	BHR		1.1		1		1.01	2.12	1	
floodprone area width	w _{fpa}	feet	>200		70		14.31	46.33	31	
entrenchment ratio	ER		>2.2		2.3		1.29	7.49	2.4	
valley slope	S _{valley}	ft/ft	---		0.0139		0.0516		--	
channel slope	S _{channel}	ft/ft	0.01		0.0126		0.0473		0.0433	
sinuosity	K		---		1.1		1.09		1.7	
riffle slope	S _{riffle}	ft/ft	0.0239		---	---	---	---	0.0404	0.0517
riffle slope ratio	S _{riffle} /S _{channel}		2		---	---	---	---	0.9	1.2
pool slope	S _{pool}	ft/ft	---		0.0049	0.0061	0.0029	0.0351	0.01	0.014
pool slope ratio	S _{pool} /S _{channel}		---		0.346	0.43	0.09	1.05	0.2	0.3
pool-to-pool spacing	L _{p-p}	feet	---		224		15.77	90.45	78	
pool spacing ratio	L _{p-p} /w _{bkf}		---		3.9	7.8	2.09	11.99	6.2	
maximum pool depth at bankfull	d _{pool}	feet	---		3.1		0.7	1.5	2.2	2.5
pool depth ratio	d _{pool} /d _{bkf}		---		1.66		1.17	2.5	1.5	1.7
pool width at bankfull	w _{pool}	feet	---		40.6		4.15	7.4	16.3	
pool width ratio	w _{pool} /w _{bkf}		---		1.32		0.55	0.98	1.3	
pool cross-sectional area at bankfull	A _{pool}	SF	---		64.4		1.26	6.93	23.2	
pool area ratio	A _{pool} /A _{bkf}		---		1.12		0.29	1.59	1.3	
belt width	w _{bkt}	feet	---		105		19	26	---	
meander width ratio	w _{bkt} /w _{bkf}		---		3.2		2.52	3.45	---	
meander length	L _m	feet	---		350		55	140	---	
meander length ratio	L _m /w _{bkf}		---		11.4		7.29	18.56	---	
radius of curvature	R _c	feet	---		76.7	133.8	22	66	---	
radius of curvature ratio	R _c /w _{bkf}		---		2.5	4.36	2.65	8.75	---	

1: Reference from the approved 2014 Little Pine III Restoration Plan

2: Reference from the 2008 Plan.

7.0 Determination of Credits

Mitigation credits presented in Table 5 are projections based upon the site design. Upon completion of construction, the project components and credits data will be revised to be consistent with the as-built condition.

Table 5. Determination of Credits

Little Pine Creek II Restoration Project – Mitigation Plan Addendum

Mitigation Credits										
	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorus Nutrient Offset	
Type	R	RE	R	RE	R	RE				
Totals	3,131	172	0	1.47	N/A	N/A	N/A	N/A	N/A	
Project Components										
Project Component or Reach ID	Existing Footage / Acreage	Proposed Stationing/Location	Approach (P1, P2, etc.)	Restoration or Restoration Equivalent	Restoration Footage or Acreage	Mitigation Ratio	Proposed Credit			
Little Pine Reach 1	2,894	100+00 – 105+30	P2	Restoration	530	1:1	530			
Little Pine Reach 2A		106+19 – 121+31	P1	Restoration	1,512	1:1	1,512			
Little Pine Reach 2B		121+31 – 124+51	P1	Restoration	321	1:1	321			
Tributary A	119	200+00 – 200+86	P2	Restoration	86	1:1	86			
Tributary B	50	300+00 – 301+04	P1	Restoration	104	1:1	104			
Tributary C	299	400+49 to 406+27	P1	Restoration	578	1:1	578			
Tributary D	899	500+00 to 506+55	Preservation	Restoration Equivalent	655	5:1	131			
Tributary E	50	600+00 to 600+50	Preservation	Restoration Equivalent	50	5:1	10			
Tributary F	153	700+00 to 701+53	Preservation	Restoration Equivalent	153	5:1	31			

Project Components							
Project Component or Reach ID	Existing Footage / Acreage	Proposed Stationing/Location	Approach (P1, P2, etc.)	Restoration or Restoration Equivalent	Restoration Footage or Acreage	Mitigation Ratio	Proposed Credit
Wetland 1	0.32	N/A	Planting, fencing	Enhancement	0.32	2:1	0.15
Wetland 2A	0.88	N/A	Planting, fencing	Enhancement	0.88	2:1	0.44
Wetland 2B	4.42	N/A	Fencing	Preservation	4.42	5:1	0.88
Component Summation							
Restoration Level	Stream (linear feet)	Riparian Wetland (acres)	Non-Riparian Wetland (acres)	Buffer (square feet)	Upland (acres)		
Restoration	3,131	N/A	N/A	N/A	N/A		
Enhancement	N/A	1.2	N/A	N/A	N/A		
Enhancement I	N/A	N/A	N/A	N/A	N/A		
Enhancement II	N/A	N/A	N/A	N/A	N/A		
Creation	N/A	N/A	N/A	N/A	N/A		
Preservation	858	4.42	N/A	N/A	N/A		

- 1: Stream lengths and wetlands areas are not the same as original restoration plan due to design and easement changes.
- 2: Proposed stream lengths and credits do not include easement breaks.

8.0 Project Site Mitigation Plan

8.1 Stream Design

The project includes stream restoration and preservation as well as wetland enhancement and preservation. The specific proposed stream types are described below. Stream types were selected based on the surrounding landscape, climate, watershed conditions, and natural vegetation communities. Design parameters for each reach are shown in Tables 6a and 6b. The conservation easement, which was laid out and recorded during the 2008 Plan design, established the project boundaries for this design update. The proposed conceptual design and the existing conservation easement boundaries are depicted on Figure 3.

Little Pine Creek Reaches 1, 2A, and 2B; Tributary A; Tributary B; and Tributary C will be constructed as a C type streams according to the Rosgen classification system (Rosgen, 1996). Type C streams are slightly entrenched, meandering streams with well-developed floodplains and gentle gradients of 2% or less. They occur within a wide range of valley types and are appropriate for the project landscape. For Little Pine Reach 1, which begins at the upstream project boundary and ends at the Glade Creek School Road bridge, the existing conservation easement boundary lies either on or close to Little Pine Creek's existing right top of bank from the upstream project boundary downstream 300 LF. Approximately halfway

down Reach 1, Wetland 1 is present in the left floodplain. Little Pine Creek Reach 1 is designed between these two constraints with a meander belt width ratio at the lower end of the typical reference reach and design ratios. The design alignment falls well within design parameters and is expected to provide adequate lateral energy dissipation; however, instream bank structures including brush toe and root wad wrapping are proposed for installation on the outside meander banks to strengthen the bank toe throughout this reach as added insurance against scour prior to vegetation establishment.

Downstream of the bridge, through the Murphy property, Little Pine Reach 2's easement was established to closely meander with the 2008 Plan design. The easement here is narrow and dictates the proposed stream alignment. The design utilizes a compound bend to carry the stream through the Murphy property within the conservation easement provided. Here as with upstream, the outside meander banks will be revetted with brush toe structures to strengthen the toe against scour prior to vegetation establishment.

The morphologic design parameters as shown in Tables 6a and 6b for the project reaches fall within the ranges specified for C streams (Rosgen, 1996). However, the specific values for the design parameters were selected based on designer experience and judgment and were verified with morphologic data from reference reach data sets.

The designed channel slopes for the Little Pine Creek reaches range from approximately 0.4% to 1.5% (at the downstream end to connect back to the existing channel bed grade) with an overall reach slope of 0.82%. The design width to depth ratio for Reach 1 is 14 and the design width to depth ratio for Reach 2 is 14.6. Reach 1 is designed as Priority 2 restoration and a floodplain bench will be constructed along this entire reach. Reach 2A is designed to fully reconnect with its existing floodplain (Priority 1). In order to connect Reach 2B back to the existing channel bed grade at the downstream end, this reach is also designed as Priority 1 but will become slightly incised towards the tie-in point. This type of design will prevent the need for a Priority 2 with significant floodplain cut and a sudden rise in floodplain elevations at the tie-in. These reaches are all designed to have entrenchment ratios greater than 2.2. The design sinuosity for Reach 1 is 1.09 and the design sinuosity for Reach 2A and 2B is 1.23.

The design reaches for Tributaries A and B are very short reaches that connect perennial streams to Little Pine II. The design slopes of these reaches are 1.7% and 0.6%, respectively, and the design width to depth ratios are 13.2 and 14.2, respectively. Both tributaries are designed to incise slightly in order to connect to the proposed bed elevation of Little Pine Creek. This approach is the same as that described above for the downstream end of Little Pine Creek and is proposed for the same reasons. Both tributaries are designed with a sinuosity of 1.09.

Tributary C is a longer design reach that will meander through Wetland 2A and discharge to Little Pine Creek. This design slope for this reach is 1.66 ft/ft, the design width to depth ratio is 13.7, and the design sinuosity is 1.23. This stream will be constructed to have an entrenchment ratio greater than 2.2. The Priority 1 design connects Tributary C to its existing floodplain wetland. Like the other reaches described above, this channel will become slightly incised at the downstream end to connect to the proposed bed of Little Pine Creek. Three very small tributaries (D, E, and F) are also designed to connect to the new alignment of Little Pine Creek. These tributaries are proposed for preservation credit.

Table 6a. Design Morphologic Parameters – Little Pine Creek
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	Notation	Units	Little Pine R1 (u/s of Glade Creek School Road)		Little Pine R2 (d/s of Glade Creek School Road)	
			Min	Max	Min	Max
Stream Type			C		C	
Drainage Area	DA	sq mi	2.57		3.34	
Design Discharge	Q	cfs	140		170	
Bankfull Cross-Sectional Area	A _{bkf}	SF	41.3		39.3	
Average Velocity During Bankfull Event	v _{bkf}	fps	3.7		4.5	
Width at Bankfull	w _{bkf}	feet	24.0		24.0	
Maximum Depth at Bankfull	d _{max}	feet	2.5		2.3	
Mean Depth at Bankfull	d _{bkf}	feet	1.7		1.6	
Bankfull Width to Depth Ratio	w _{bkf} /d _{bkf}		14.0		14.6	
Low Bank Height			2.5		2.3	
Bank Height Ratio	BHR		1.0		1.0	
Floodprone Area Width	w _{fpa}	feet	>49		>53	
Entrenchment Ratio	ER		>2.2		>2.2	
Valley Slope	S _{valley}	ft/ft	0.0055		0.0131	
Channel Slope	S _{channel}	ft/ft	0.0050		0.0106	
Riffle Slope	S _{riffle}	ft/ft	0.0067	0.0131	0.0036	0.0566
Riffle Slope Ratio	S _{riffle} /S _{channel}		1.4	2.5	1.4	2.5
Pool Slope	S _{pool}	ft/ft	0.0000	0.0026	0.0000	0.0077
Pool Slope Ratio	S _{pool} /S _{channel}		0.0	0.5	0.0	0.5
Pool-to-Pool Spacing	L _{p-p}	feet	36	168	36	168
Pool Spacing Ratio	L _{p-p} /w _{bkf}		1.5	7.0	1.5	7.0
Sinuosity	K		1.09		1.23	
Belt Width	w _{blt}	feet	48	120	48	120
Meander Width Ratio	w _{blt} /w _{bkf}		2.0	5.0	2.0	5.0
Meander Length	L _m	feet	168	288	168	288
Meander Length Ratio	L _m /w _{bkf}		7.0	12.0	7.0	12.0
Radius of Curvature	R _c	feet	48	96	48	96
Radius of Curvature Ratio	R _c /w _{bkf}		2.0	4.0	2.0	4.0

Table 6b. Design Morphologic Parameters – Tributaries
Little Pine Creek II Restoration Project – Mitigation Plan Addendum

	Notation	Units	Tributary A		Tributary B		Tributary C	
			Min	Max	Min	Max	Min	Max
Stream Type			C		C		C	
Drainage Area	DA	sq mi	0.38		0.26		0.11	
Design Discharge	Q	cfs	28		21		10	
Bankfull Cross-Sectional Area	A _{bkf}	SF	6.8		8.5		3.1	
Average Velocity During Bankfull Event	v _{bkf}	fps	3.7		2.5		2.9	
Width at Bankfull	w _{bkf}	feet	9.5		11.0		6.5	
Maximum Depth at Bankfull	d _{max}	feet	1.1		1.1		0.7	
Mean Depth at Bankfull	d _{bkf}	feet	0.72		0.77		0.47	
Bankfull Width to Depth Ratio	w _{bkf} /d _{bkf}		13.2		14.3		13.7	
Low Bank Height			1.1		1.1		0.7	
Bank Height Ratio	BHR		1.0		1.0		1.0	
Floodprone Area Width	w _{fpa}	feet	>18		>18		>13	
Entrenchment Ratio	ER		>2.2		>2.2		>2.2	
Valley Slope	S _{valley}	ft/ft	0.018		0.0065		0.0199	
Channel Slope	S _{channel}	ft/ft	0.017		0.006		0.0166	
Riffle Slope	S _{riffle}	ft/ft	0.018	0.0321	0.0084	0.0150	0.0232	0.0415
Riffle Slope Ratio	S _{riffle} /S _{channel}		1.1	1.8	1.4	2.5	1.4	2.5
Pool Slope	S _{pool}	ft/ft	0.00	0.0089	0.0000	0.003	0.0000	0.0083
Pool Slope Ratio	S _{pool} /S _{channel}		0.0	0.5	0	0.5	0	0.5
Pool-to-Pool Spacing	L _{p-p}	feet	14	67	17	77	10	46
Pool Spacing Ratio	L _{p-p} /w _{bkf}		1.5	7.0	1.5	7.0	1.5	7.0
Sinuosity	K		1.06		1.09		1.23	
Belt Width	w _{blt}	feet	19	77	22	77	13	46
Meander Width Ratio	w _{blt} /w _{bkf}		2.0	5.0	2.0	5.0	2.0	5.0
Meander Length	L _m	feet	77	124	77	132	46	78
Meander Length Ratio	L _m /w _{bkf}		7.0	12.0	7.0	12.0	7.0	12.0
Radius of Curvature	R _c	feet	19	43	22	44	13	26
Radius of Curvature Ratio	R _c /w _{bkf}		2.0	4.0	2.0	4.0	2.0	4.0

8.2 Wetland Design

The proposed stream and wetland restoration project includes three distinct riparian wetland zones referred to as Wetland 1, Wetland 2A, and Wetland 2B (Figure 3). Wetland 1 is an area upstream of Glade Creek School Road. This area is in an open pasture adjacent to Little Pine Creek and was previously used for cattle (though now it is fenced). Wetland 1 is proposed for wetland enhancement and work done on this zone will primarily involve planting with native species. Wetland 2A is located

south of the road adjacent to Tributary C. This wetland is currently partially forested with primarily white pine canopy and herbaceous plants such as skunk cabbage, sedges, and soft rush. Portions of this wetland do not have tree canopy. Work proposed on Wetland 2A includes planting of understory species under the canopy and planting native wetland tree species in the open areas. Some of the pine trees will be harvested for use in the construction of the stream channels and these will be replaced with native wetland trees. Wetland 2B is a fairly large bottomland hardwood forested wetland proposed for preservation. This wetland will serve as the reference community for Wetlands 1 and 2A. Planting for the wetland enhancement zones is described in the following section.

8.3 Wetland and Buffer Planting

The target communities for the restored riparian buffer zones will be based on the following:

- Reference conditions from forested areas within or near to the project site;
- Native trees, appropriate for the physiographic setting, with proven success in early successional restoration sites; and
- Vegetation listed for the community types in Guide to the Natural Communities of North Carolina (Schafale, 2012) likely to occur on the site.

The natural community type for the conversion of the Little Pine Creek floodplain from pasture to forest is Montane Alluvial Forest.

8.4 Design Justification

Based on assessments of the watershed and existing channels, the project design has been developed to correct system wide channel instability observed along Little Pine Creek and its tributaries caused by past livestock access, channelization, and lack of woody riparian vegetation. The streams are actively eroding, and in the case of Little Pine Creek, the stream is cutting laterally at a fairly rapid pace. The eroding stream banks are a major source of sediment to the project streams and downstream trout waters. The buffer along much of the site's stream length and portions of the wetland communities have been denuded. Habitat within the streams is degraded due to lack of floodplain vegetation for shading and cover and lack of diverse habitats within the channel. The active erosion will not cease without intervention and, in this case, full restoration is warranted to stabilize the system and improve aquatic habitat. In addition, the natural wetland and floodplain vegetation communities can be greatly improved through planting and protecting the site with a conservation easement.

8.5 Sediment Transport Analysis

To begin an analysis of sediment supply a watershed assessment must be performed. Wildlands staff performed a watershed reconnaissance, reviewed a series of aerial photographs dating back to 1964, and reviewed land cover data in order to assess the current condition of the watersheds and identify time periods when the watersheds underwent changes that would affect the sediment load such as development or land clearing. As previously described, land cover within the watersheds has remained relatively consistent since 1964 (see Section 3 for more information). During the period between the summer of 2012 and the summer of 2013, Wildlands visited the project site frequently to conduct existing conditions surveys and perform design analysis. Depositional features observed within the project streams remained relatively stable with little or no change in dimension or location during that period. Wildlands also conducted a review of the 2008 detailed topographic survey of Little Pine Creek upstream of the project site in 2013, approximately five years after the date of the survey. Bars and islands noted on the survey were still evident in the field and appeared to be to the same dimensions

and elevations as they were when originally surveyed. Based on Wildlands review of onsite sediment deposition patterns and the upstream survey, it appears that the Project streams have relatively low sediment supplies. Low sediment supply channels are less prone to morphologic adjustment and, therefore, are less risky restoration projects. However, to further verify the stability of the proposed design, Wildlands performed a sediment transport analysis on Little Pine Creek described in the following sections.

8.5.1 Competence Analysis

A competence analysis was performed for each of the design reaches to compare shear stresses along the channel at the design bankfull discharge with the size distribution of the bed material. Standard equations were used to calculate the critical dimensionless shear stress needed to move the bed material and the depth and slope combination needed to produce that stress for Little Pine Creek. The shear stress calculated with this method for Little Pine Creek was also verified with a HEC-RAS model. The results of the competence analysis for Little Pine Creek indicate that the proposed channel will have the shear stress to move the majority of the larger particles supplied to the channel during bankfull events. It also indicates that the design depth and slope are adequate to move the bed material. However, grade control will be used to ensure that downcutting does not occur after construction. This analysis is not appropriate for very small streams and was not performed in the tributaries.

During the onsite existing conditions survey, only one well developed sediment bar was determined to be adequately built to represent transport at a bankfull event. This bar was present on the interior of an unstable meander bend. Large branches from a tree rooted to the outside of the bend were overhanging the bar and could have potentially acted as an obstruction during high flow events, influencing the material which deposited on the bar. The two largest particles on the lower third of this bar were 183 mm and 104 mm, respectively. See Appendix 1 for the bar distribution and photos of the bar and the tree overhang (located on Page 2 of the Photo Log in Appendix 1). Wildlands conducted pavement/subpavement samples on the same stream just downstream on the DMS owned Little Pine III project. In order to determine whether the tree branches influence the deposition on the bar, Wildlands reviewed the subpavement samples taken from the downstream project. The largest subpavement material on the downstream project was 113 mm, which is within the range of larger material found on the bar on the project site. Therefore, the bar sample taken on the project site was determined to be a reliable indicator of transport at bankfull flow.

Table 7. Dimensionless Critical Shear Stress Calculations – Little Pine Creek
Little Pine Creek II Restoration Project – Mitigation Plan Addendum

	Little Pine Creek	Tributary A	Tributary B	Tributary C
Overall Channel Average Shear Stress (lbs./ft ²)	0.74	N/A	N/A	N/A
Largest Particle Entrained by Channel Shear Stress from Shields Curve (mm) ¹	57	N/A	N/A	N/A
Largest Particle Entrained by Channel Shear Stress from Revised Shields Curve (mm) ¹	122	N/A	N/A	N/A
Largest Particles from Bar Sample (mm) First largest, Second largest	183, 104	N/A	N/A	N/A
Largest Particle from Riffle Pebble Count (mm)	362	N/A	N/A	N/A
Predicted Mean Depth to Move Largest Particle on the Bar (ft) ¹ First largest, Second largest	2.7, 1.3	N/A	N/A	N/A
Design Depth (ft)	1.6	N/A	N/A	N/A
Predicted Slope to Move Largest Particles (ft/ft) ¹ First largest, Second largest	0.0124, 0.0058	N/A	N/A	N/A
Design Slope (ft/ft)	0.0079	N/A	N/A	N/A

1: From Revised Shields Diagram from Wildland Hydrology 2001

8.5.2 Capacity Analysis

A capacity analysis is necessary to determine if a stream has the ability to pass the sediment load supplied by the watershed. This analysis was done using the sediment transport capacity hydraulic design module in HEC-RAS. HEC-RAS models were built for existing and proposed bankfull conditions of Little Pine Creek. The sediment transport capacity module uses the hydraulic model along with bed material data to estimate the sediment load that the modeled stream can move at a bankfull discharge. For this analysis, the Meyer-Peter Muller transport equation was selected based on consideration of the channel size and slope, bed material size ranges, and channel velocities. For information on this and other equations please consult the HEC-RAS user’s manual (HEC, 2010). The results for the existing channel and proposed channel analyses are shown in Table 8.

Table 8. Sediment Transport Capacity Analysis
Little Pine Creek III Stream & Wetland Restoration Project

Reach	Existing, tons/day	Proposed, tons/day
Little Pine Creek Total Load	35,430	37,402
Little Pine Creek Average Load	844	891

The results in Table 8 indicate that sediment transport capacity for Little Pine Creek will increase somewhat when the proposed design is implemented. These results indicate that aggradation is not likely a problem. As discussed above, the upstream watershed has remained stable for decades and is not supplying significant amount of sediment. If the watershed supply remains static and the model results are accurate, the system will be at a slight risk for degradation. Stream power, in-stream velocities, energy slope, shear stress, bed and bank resistance and turbulence were considered during the design process and grade control structures and constructed riffles were incorporated and manipulated to manage stream power and reduce or eliminate the potential for degradation and incision following construction activities. Excess stream power over substantial distances nor degradation are anticipated following construction. Grade control structures are described in Section 8.6

8.6 Project Implementation Summary

The stream and wetland restoration will be constructed as described in this section. A full set of preliminary design plans is included with this mitigation plan for review.

8.6.1 Stream Restoration Grading and Structure Installation

Stream restoration is proposed for all project reaches. Most of this stream restoration work will be Priority 1 restoration. Priority 1 restoration will include raising the bed of the channel so that bankfull stage is at the existing floodplain elevation. New channel will be excavated for much of the restored reaches, but in some locations the new stream will cross or run within the existing channel. Little Pine Creek Reach 1 will be constructed as Priority 2 restoration meaning that a floodplain bench will be cut at a lower elevation than the original floodplain. The downstream end of each project reach will become slightly incised in order to tie the proposed bed into the bed grade of the receiving stream. This will eliminate the need to cut priority 2 benches along these reaches.

For all project reaches, the cross sections will be constructed to accommodate the design bankfull discharge, the pattern will be reconstructed so that the channel meanders through the floodplain, and riffle-pool bed morphology will be reestablished. The cross-sectional dimensions of the design channels will be constructed to flood the adjacent floodplain and existing wetlands frequently. The reconstructed channel banks will be built with stable side slopes, planted with native materials, and matted for long-term stability. The slightly meandering planform of the channels will be built to mimic natural mountain streams. Pools will generally be built in the outside of the meander bends and riffles will be built in the straight sections of channel between meanders. Various types of constructed riffles have been designed for the restoration reaches to provide grade control throughout the entire length of the project reaches. Constructed riffles will incorporate native stone and alluvium and, in many cases, woody materials. Other grade control structures such as j-hooks and cross vanes will also be installed at certain points in Little Pine Creek. On-site alluvial and excavated rock will be used to construct riffles and in-stream structures. Details of each type of constructed riffle are included with the draft plans. Wood structures will also be incorporated into the restoration reaches including root wads and brush toe for bank protection and angled log drops. Details for each of these structures are also included with the draft plans. Locations of all proposed structures can be seen of the plan and profile sheets.

8.6.2 Natural Plant Community Restoration

As a final stage of construction, riparian stream buffers and wetland enhancement zones will be planted with native trees and herbaceous plants. Wetland 2B located along the lower portion of Little Pine Creek was identified as a reference condition wetland for the project site and best classifies as a montane alluvial forest system. The woody and herbaceous species selected for the planting plan are based on

this community type, observations of the occurrence of species in the reference site buffers, and best professional judgment on species establishment and anticipated site conditions in the early years following project implementation. Enhancement zones will be planted with canopy species in areas where no canopy currently exists. In areas where the canopy is present, understory species will be planted to supplement the existing community. Some of the white pines will be removed from Wetland 2A to use for woody material in the construction of the stream.

Individual tree and shrub species will be planted within the project easement including stream banks, floodplains zones, and wetland enhancement areas. These species will be planted as bare root (floodplain zones and wetland enhancement zones) and live stakes (stream banks) and will provide additional stabilization to the outsides of constructed meander bends and side slopes. Juncus and carex plugs will be installed at the toe of banks of the restoration reaches. Species planted as bare roots will be spaced at an initial density of 520 plants per acre (12 feet by 6 feet spacing). Live stakes will be planted on channel banks at 3-foot spacing and point bars will not be planted with live stakes. Targeted densities after monitoring year 3 are 320 woody stems per acre. Juncus and carex species plug spacing will be three to five feet. Permanent herbaceous seed will be placed on stream banks and bench areas and all disturbed areas within the project easement. The stream banks will be planted with live stakes. The riparian buffers and wetland areas will be planted with bare root seedlings. Proposed permanent herbaceous species are shown in the plan set.

9.0 Maintenance Plan

The site shall be monitored on a regular basis and a physical inspection of the site shall be conducted a minimum of once per year throughout the post-construction monitoring period until performance standards are met. These site inspections may identify site components and features that require routine maintenance. Routine maintenance should be expected most often in the first two years following site construction and may include the following:

Table 9. Maintenance Plan

Little Pine Creek II Stream & Wetland Restoration Project

Component/Feature	Maintenance through project close-out
Stream	Routine channel maintenance and repair activities may include chinking of in-stream structures to prevent piping, securing of loose coir matting, and supplemental installations of live stakes and other target vegetation along the channel. Areas where storm water and floodplain flows intercept the channel may also require maintenance to prevent bank failures and head-cutting. Beaver activity will be monitored and beaver dams on project streams will typically be removed during the monitoring period by a contracted entity to allow for bank stabilization and stream development outside of this type of influence.
Wetland	Routine wetland maintenance and repair activities may include supplemental installations of live stakes and other target vegetation within the wetland. Areas where floodplain flows intersect the wetland may also require maintenance to prevent scour.
Vegetation	Vegetation shall be maintained to ensure the health and vigor of the targeted community. Routine vegetation maintenance and repair activities may include supplemental planting, pruning, mulching, and fertilizing. Exotic invasive plant species or excessive native volunteer tree growth that threatens the viability of planted species shall be controlled by mechanical and/or chemical methods. Any vegetation control requiring herbicide application will be performed in accordance with NC Department of Agriculture (NCDCA) rules and regulations.
Site boundary	Site boundaries shall be identified in the field to ensure clear distinction between the mitigation site and adjacent properties. Boundaries may be identified by fence, marker, bollard, post, tree-blazing, or other means as allowed by site conditions and/or conservation easement. Boundary markers disturbed, damaged, or destroyed will be repaired and/or replaced on an as-needed basis.
Ford and Culvert Crossings	Permanent crossings within the site may be maintained only as allowed by Conservation Easement or existing easement, deed restrictions, rights of way, or corridor agreements.

Any identified high priority problem areas will be visually monitored and remedial actions will be discussed with DMS staff to determine a plan of action. A remedial action plan will be submitted if maintenance is required.

10.0 Performance Standards

The stream restoration performance criteria for the project site will follow approved performance criteria presented in the NCDMS Mitigation Plan Template (version 2.1, 09/01/2011), NCDMS Annual Monitoring Report Format, Data Requirements, and Content Guidance (April 2015), and the Stream Mitigation Guidelines issued in April 2003 by the USACE and NCDWQ. Annual monitoring and semi-annual site visits will be conducted to assess the condition of the finished project. The stream restoration sections of the project will be assigned specific performance criteria components for hydrology, vegetation, and morphology. The wetland enhancement sections will be assigned specific performance criteria for vegetation. Performance criteria will be evaluated throughout the five year post-construction monitoring. If all performance criteria have been successfully met and two bankfull

events have occurred in separate years during the five year period, DMS or monitoring consultant may propose to terminate stream and/or vegetation monitoring pending little to no prevalent invasive species issues are occurring. An outline of the performance criteria components follows. An outline of the performance criteria components follows.

10.1 Streams

Dimension

Riffle cross sections on the restoration reaches should be stable and should show little change in bankfull area, maximum depth ratio, and width-to-depth ratio. Per NCDMS guidance, bank height ratios shall not exceed 1.2 for restored channels to be considered stable. For restored, meandering streams, such as Rosgen C and E-type streams, entrenchment ratios shall be at least 2.2. All riffle cross sections should fall within the parameters defined for channels of the appropriate Rosgen stream type. If any changes do occur, these changes will be evaluated to assess whether the stream channel is showing signs of instability. Indicators of instability include a vertically incising stream bed or eroding channel banks. Changes in the channel that indicate a movement toward stability or enhanced habitat include a decrease in the width-to-depth ratio in meandering channels or an increase in pool depth. Remedial action would not be taken if channel changes indicate a movement toward stability.

In order to assess channel dimension success, seven permanent cross sections will be installed on Little Pine Creek, and one per 20 bankfull widths along tributaries on restoration reaches, with riffle and pool sections in proportion to NCDMS guidance. Each cross section will be permanently marked with pins to establish its location. Cross section surveys will include points measured at all breaks in slope, including top of bank, bankfull, edge of water, and thalweg. If moderate bank erosion is observed within permanent pool cross sections during the monitoring period, an array of bank pins will be installed in the permanent cross section where erosion is occurring for reaches with a bankfull width of greater than three feet. Bank pins will be installed on the outside bend of the cross section in at least three locations (one in upper third of the pool, one at the permanent cross section, and one in the lower third of the pool). Bank pins will be monitored by measuring exposed rebar and maintaining pins flush to bank to capture bank erosion progression. Annual cross section and bank pin survey (if applicable) will be conducted during the five year monitoring period.

Profile and Pattern

Longitudinal profile data for the stream restoration reaches should show that the bedform features are remaining stable. The riffles should be steeper and shallower than the pools, while the pools should be deep with nearly flat water surface slopes. The relative percentage of riffles and pools should not change significantly from the design parameters. Adjustments in length and slope of run and glide features are expected and will not be considered a sign of instability. The longitudinal profile should show that the bank height ratio remains very near to 1.0 for the majority of the restoration reaches.

Substrate

Substrate materials in the restoration reaches should indicate a progression towards or the maintenance of coarser materials in the riffle features and smaller particles in the pool features.

A reach-wide pebble count will be performed in each restoration reach each year for classification purposes. A pebble count will be performed at each surveyed riffle to characterize the pavement.

10.2 Hydrology

Stream

Two bankfull flow events must be documented on the restoration reaches within the five-year monitoring period. The two bankfull events must occur in separate years. Stream monitoring will continue until success criteria in the form of two bankfull events in separate years have been documented.

Bankfull events will be documented using photographs and either a crest gage or a pressure transducer, as appropriate for site conditions. The selected measurement device will be installed in the stream within a surveyed riffle cross section. The device will be checked at each site visit to determine if a bankfull event has occurred. Photographs will also be used to document the occurrence of debris lines and sediment deposition.

10.3 Vegetation

The final vegetative success criteria will be the survival of 260 planted stems per acre in the riparian corridor at the end of the required monitoring period (year five). The interim measure of vegetative success for the site will be the survival of at least 320 planted stems per acre at the end of the third monitoring year. The extent of invasive species coverage will also be monitored and controlled as necessary during year 1 post construction, then as needed throughout the required monitoring period (five years).

Vegetation monitoring plots will be installed across the restoration site to measure the survival of the planted trees. The number of monitoring quadrants required will be based on the NCDMS monitoring guidance documents. Vegetation monitoring will occur in the fall.

10.4 Other Parameters

Photo Reference Stations

Photographs will be taken once a year to visually document stability for five years following construction. Permanent markers will be established and located with GPS equipment so that the same locations and view directions on the site are photographed each year. Photos will be used to monitor restoration reaches as well as vegetation plots.

Longitudinal reference photos will be established at the tail of riffles approximately every 300 LF along the channel by taking a photo looking upstream and downstream. Cross sectional photos will be taken of each permanent cross section looking upstream and downstream. Reference photos will also be taken for each of the vegetation plots. Representative digital photos of each permanent photo point, cross section and vegetation plot will be taken on the same day that the stream and vegetation assessments are conducted. The photographer will make every effort to consistently maintain the same area in each photo over time.

Photographs should illustrate the site's vegetation and morphological stability on an annual basis. Cross section photos should demonstrate no excessive erosion or degradation of the banks. Longitudinal photos should indicate the absence of persistent bars within the channel or vertical incision. Grade control structures should remain stable. Deposition of sediment on the bank side of vane arms is preferable. Maintenance of scour pools on the channel side of vane arms is expected.

Visual Assessments

Visual assessments will be performed along stream reaches on a semi-annual basis during the five year monitoring period. Problem areas will be noted such as channel instability (i.e. lateral and/or vertical instability, instream structure failure/instability and/or piping, head cuts), vegetation health (e.g. low stem density, vegetation mortality, invasive species or encroachment), beaver activity, or livestock access. Areas of concern will be mapped and photographed accompanied by a written description in the

annual report. Problem areas will be re-evaluated during each subsequent visual assessment. Should remedial actions be required, recommendations will be provided in the annual monitoring report.

11.0 Monitoring Plan

Using the NCDMS Baseline Monitoring Report Template (02/2014), a baseline monitoring document and as-built record drawings of the project will be developed within 60 days of the completion of planting and monitoring device installation on the site. Complete monitoring reports will be prepared annually in the fall and submitted to NCDMS using the NCDMS Annual Monitoring Report Format, Data Requirements, and Content Guidance (April 2015). The monitoring report shall provide a project data chronology that will facilitate an understanding of project status and trends, population of NCDMS databases for analysis, research purposes, and assist in decision making regarding close-out. The monitoring period will extend five years beyond completion of construction or until performance criteria have been met. All survey will be tied to grid.

11.1 Site Specific Monitoring

Project monitoring requirements are listed in more detail in Table 10. Approximate locations of the proposed vegetation plots and cross section monitoring components are illustrated in Figure 4.

Table 10. Monitoring Requirements
Little Pine Creek II Stream & Wetland Restoration Project

Parameter	Monitoring Feature	Quantity/ Length by Reach					Frequency	Notes
		Little Pine Creek	Trib A	Trib B	Trib C	Wetland Enhancement		
Dimension	Riffle Cross Sections	3	1	1	1	n/a	Annual	
	Pool Cross Section	2	n/a	n/a	1	n/a		
Pattern	Pattern	n/a	n/a	n/a	n/a	n/a	n/a	1
Profile	Longitudinal Profile	Y	Y	Y	Y	n/a	Annual	2
Substrate	Reach wide (RW), Riffle (RF) 100 pebble count	1 RW, 3 RF	1 RW, 1 RF	1 RW, 1 RF	1 RW, 1 RF	n/a	Annual	
Hydrology	Crest Gage/ Transducer	1	1	1	1	2	Quarterly	3, 4
Vegetation	Stem Counts	8					Annual	5
Exotic and nuisance vegetation							Annual	6
Project Boundary							Annual	7
Reference Photos	Photographs	14					Annual	

1. Pattern will be collected during as-built baseline monitoring survey only, unless observations indicate lack of lateral stability.
2. Entire profile will be surveyed on an annual basis for restoration and enhancement level 1 streams since the proposed stream lengths are less than 3000 LF
3. Crest gages and/or transducers will be inspected during semi-annual site visits, evidence of bankfull events will be documented with a photo when possible. Transducers will be set to record stage once every two hours. Device will be inspected and downloaded semi-annually.
4. One wetland gage will be placed in Wetland 1 and one wetland gage will be placed in Wetland 2A.
5. The size of individual quadrants will be 100 square meters for woody tree species and shrubs. Vegetation assessments will be conducted following the Carolina Vegetation Survey (CVS) Level 2 Protocol for Recording Vegetation (2006).
6. Locations of exotic and nuisance vegetation will be mapped.
7. Locations of fence damage, vegetation damage, boundary encroachments, etc. will be mapped.

12.0 Long-Term Management Plan

Upon approval for close-out by the Interagency Review Team (IRT) the site will be transferred to the NCDEQ Division of Natural Resource Planning and Conservation’s Stewardship Program. This party shall be responsible for periodic inspection of the site to ensure that restrictions required in the conservation easement or the deed restriction document(s) are upheld. Endowment funds required to uphold easement and deed restrictions shall be negotiated prior to site transfer to the responsible party.

The NCDEQ Division of Natural Resource Planning and Conservation's Stewardship Program currently houses DMS stewardship endowments within the non-reverting, interest-bearing Conservation Lands Stewardship Endowment Account. The use of funds from the Endowment Account is governed by North Carolina General Statute GS 113A-232(d)(3). Interest gained by the endowment fund may be used only for the purpose of stewardship, monitoring, stewardship administration, and land transaction costs, if applicable. The NCDEQ Stewardship Program intends to manage the account as a non-wasting endowment. Only interest generated from the endowment funds will be used to steward the compensatory mitigation sites. Interest funds not used for those purposes will be re-invested in the Endowment Account to offset losses due to inflation.

13.0 Adaptive Management Plan

Upon completion of site construction DMS will implement the post-construction monitoring protocols previously defined in this document. Project maintenance will be performed as described previously in this document. If, during the course of annual monitoring it is determined the site's ability to achieve site performance standards are jeopardized, DMS will notify the USACE of the need to develop a Plan of Corrective Action. The Plan of Corrective Action may be prepared using in-house technical staff or may require engineering and consulting services. Once the Corrective Action Plan is prepared and finalized DMS will:

- Notify the USACE as required by the Nationwide 27 permit general conditions.
- Revise performance standards, maintenance requirements, and monitoring requirements as necessary and/or required by the USACE.
- Obtain other permits as necessary.
- Implement the Corrective Action Plan.
- Provide the USACE a Record Drawing of Corrective Actions. This document shall depict the extent and nature of the work performed.

14.0 Financial Assurances

Pursuant to Section IV H and Appendix III of the Division of Mitigation Service's In-Lieu Fee Instrument dated July 28, 2010, the North Carolina Department of Environmental Quality has provided the US Army Corps of Engineers Wilmington District with a formal commitment to fund projects to satisfy mitigation requirements assumed by DMS. This commitment provides financial assurance for all mitigation projects implemented by the program.

15.0 References

- Harman, W.H. et. al. 2000. Bankfull Regional Curves for North Carolina Mountain Streams. NC Mountain Curve. Proc. AWRA Conf. Water Resources in Extreme Environments, Anchorage, AK. Pp. 185-190.
- Rosgen, D.L. 1996. *Applied River Morphology*. Pagosa Springs, CO: Wildland Hydrology Books.
- Schafale, M.P. 2012. Guide to the Natural Communities of North Carolina, 4th approx. North Carolina Natural Heritage Program, Raleigh, North Carolina.
- U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC), 2010. HEC-RAS River Analysis System User's Manual, Version 4.1. Accessed online at: http://www.hec.usace.army.mil/software/hec-ras/documentation/HEC-RAS_4.1_Users_Manual.pdf
- Walker, Alan, unpublished. NC Rural Mountain and Piedmont Regional Curve.
- Ward Consulting Engineers, P.C., 2008. Little Pine Creek Restoration Plan. Prepared for the North Carolina Division of Mitigation Services.
- Wildlands Engineering, Inc., 2014. Little Pine Creek III Mitigation Plan. Prepared for the North Carolina Division of Mitigation Services.
- W.K. Dickson and Co., Inc., 2005. Little River and Brush Creek Local Watershed Plans, Preliminary Findings and Recommendations Report. Prepared for the North Carolina Division of Mitigation Services.
- W.K. Dickson & Co., Inc., 2006. Little River and Brush Creek Local Watershed Plan: Technical Memorandum and Preliminary Project Atlas. Prepared for the North Carolina Division of Mitigation Services.

FIGURES

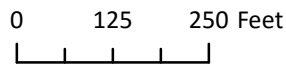
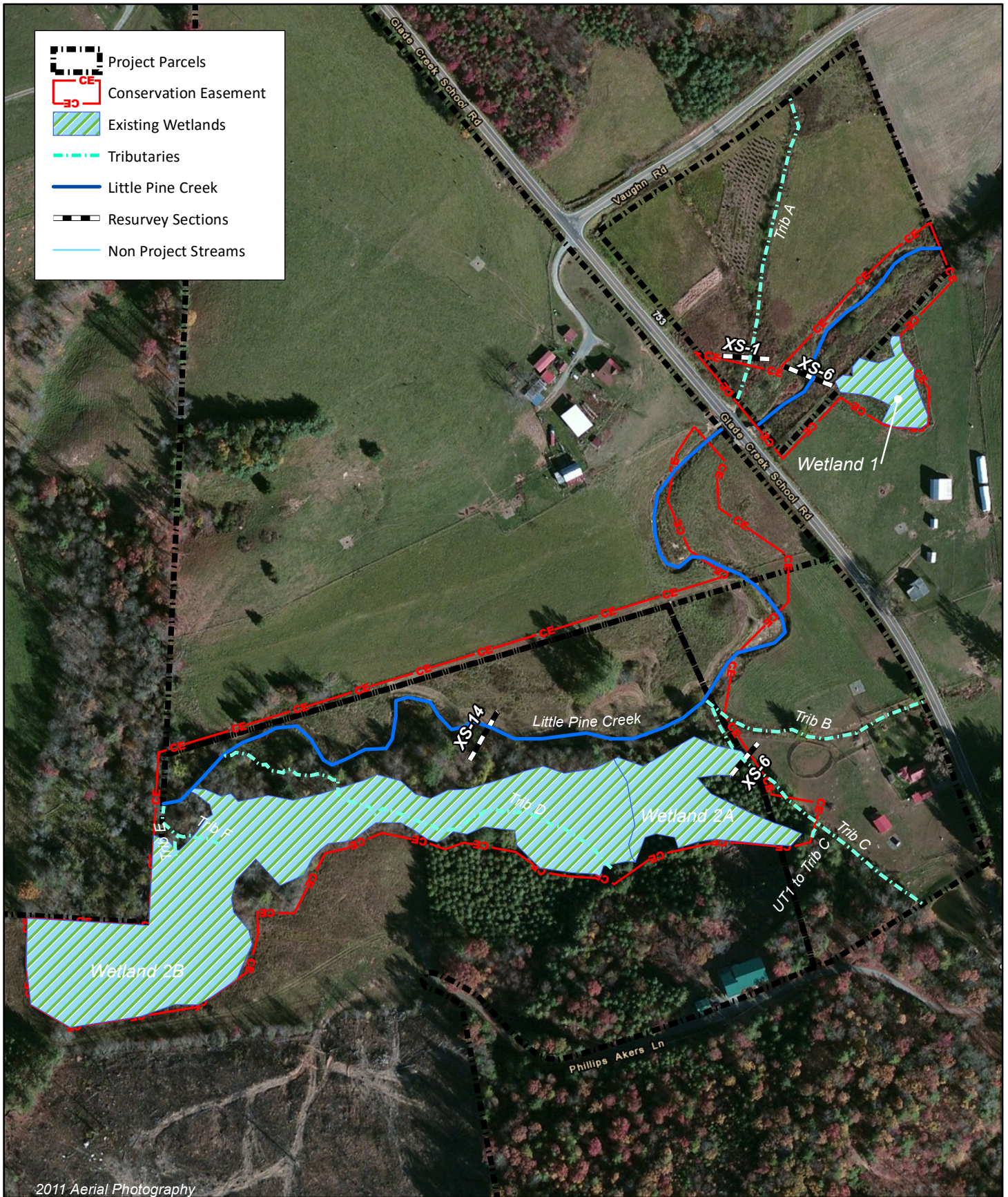


Figure 1 Hydrologic Features Map
 Little Pine Creek II Restoration Project
 Mitigation Plan Addendum
 New River Basin 05050001
 Allegheny County, NC

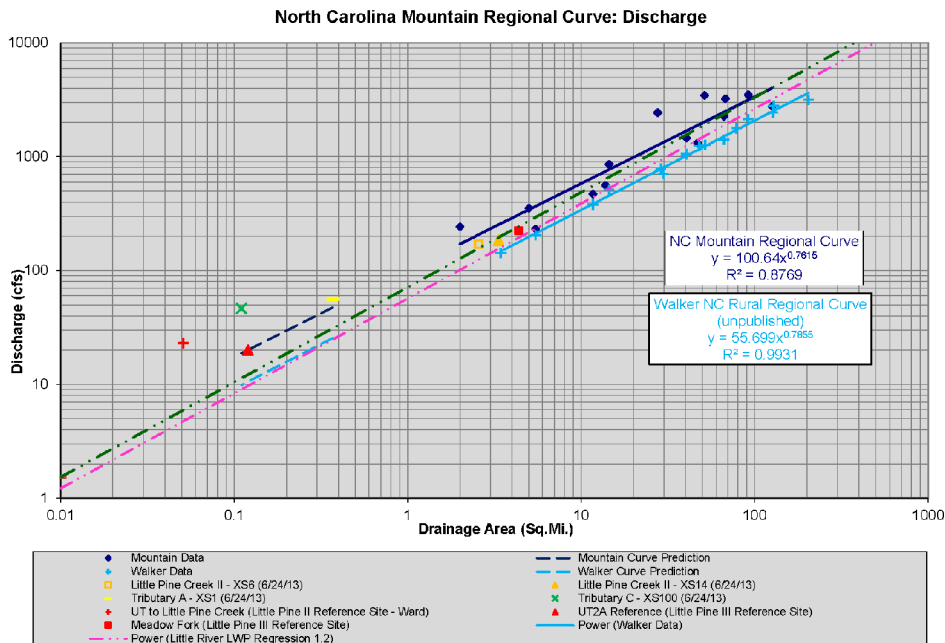
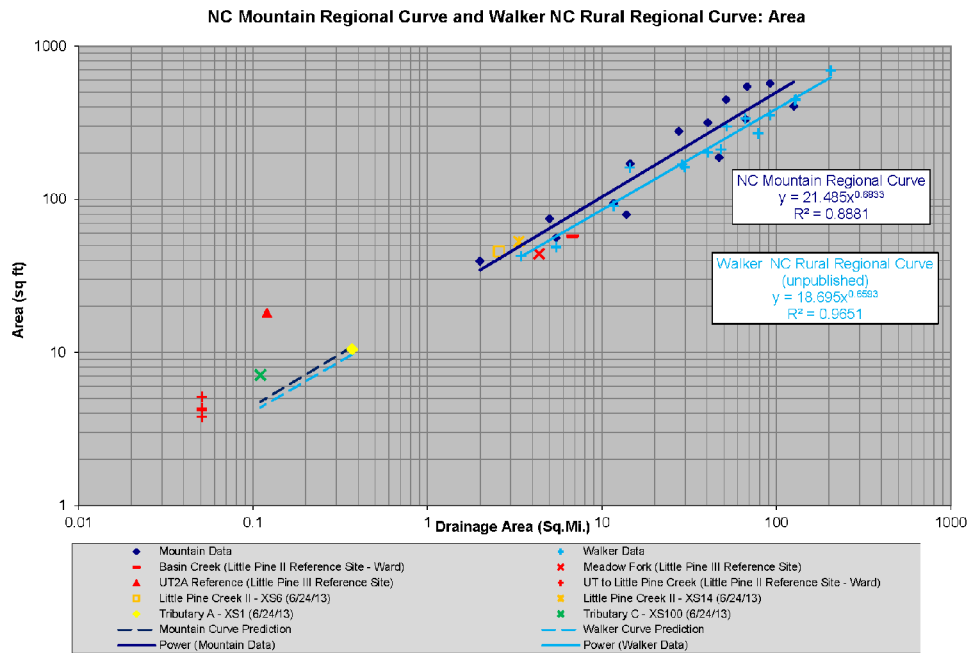


Figure 2 NC Mountain Regional Curves
 With Project Data Overlay
 Little Pine Creek II Restoration Project
 Mitigation Plan Addendum
 New River Basin (05050001)
 Alleghany County, NC

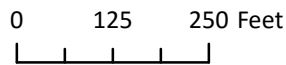
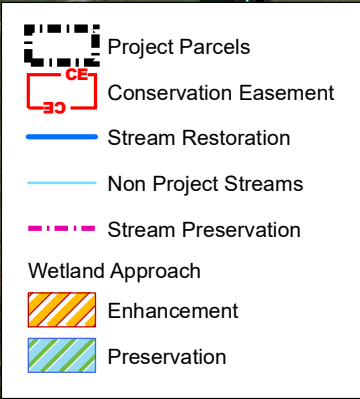
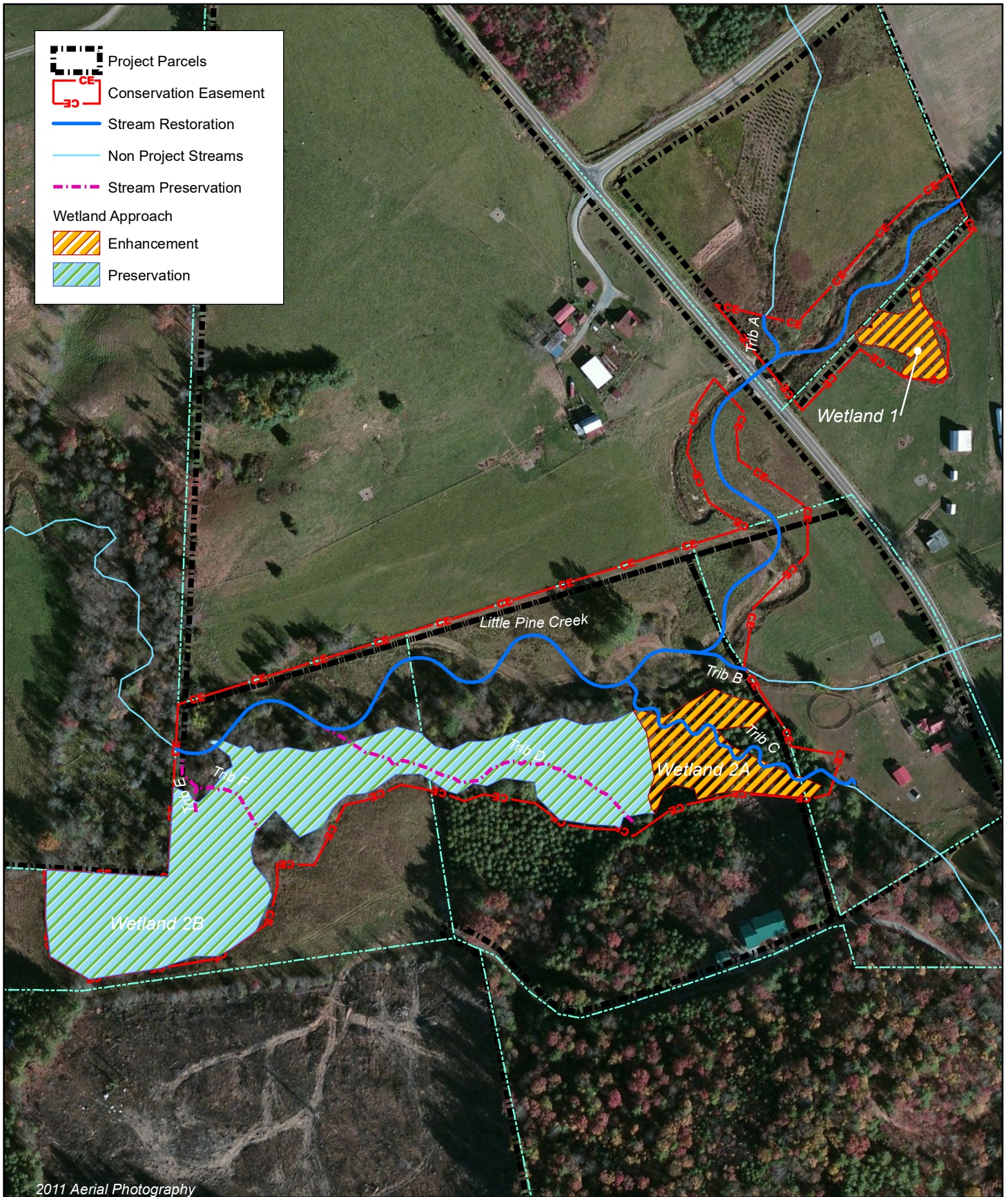


Figure 3 Concept Design
 Little Pine Creek II Restoration Project
 Mitigation Plan Addendum
 New River Basin 05050001
 Alleghany County, NC

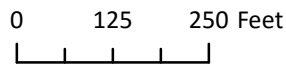
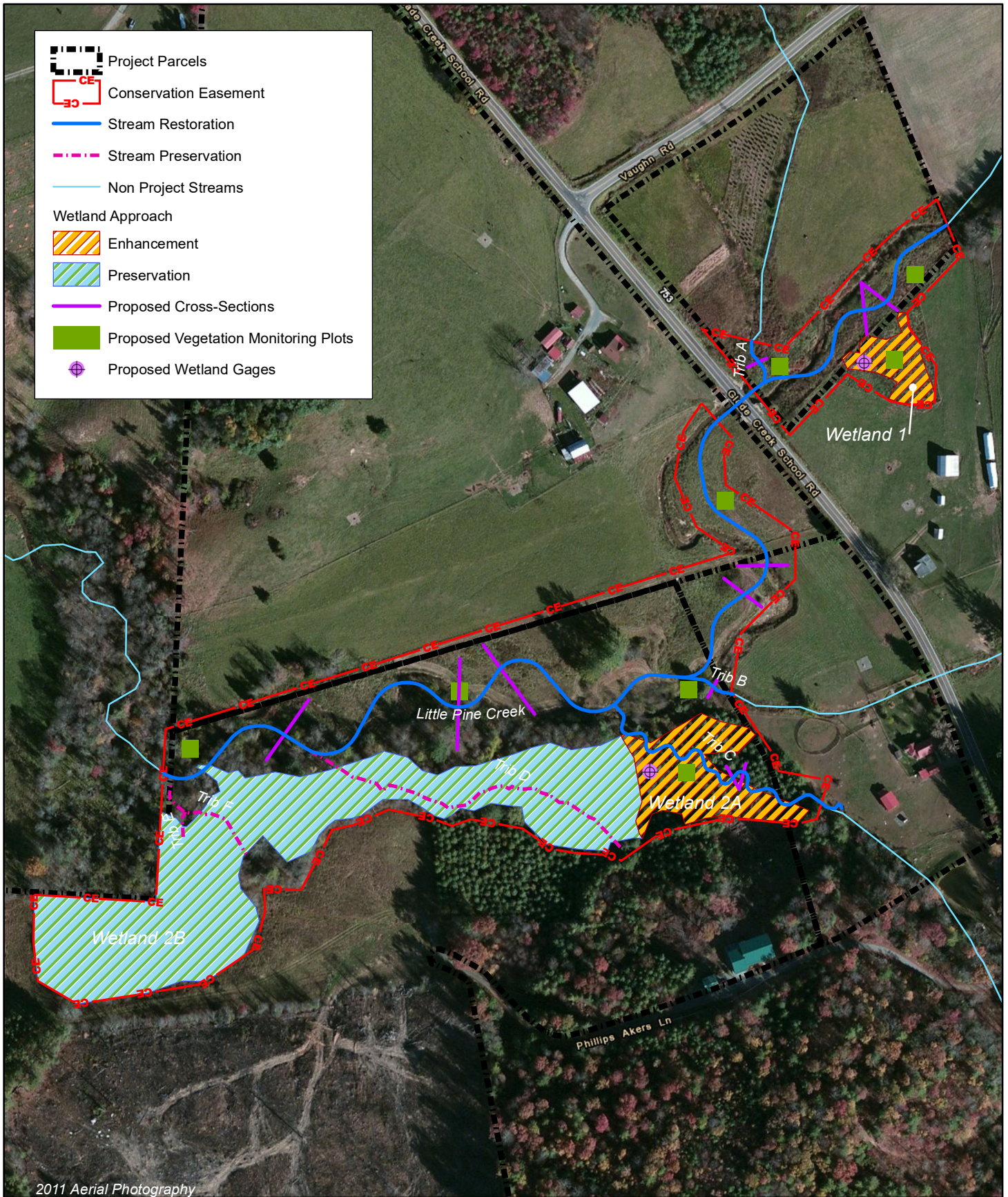


Figure 4 Monitoring Components
 Little Pine Creek II Restoration Project
 Mitigation Plan Addendum
 New River Basin 05050001
 Allegheny County, NC

APPENDIX 1. Existing Geomorphic Survey Data and Photo Log

Cross-Section Plots

Little Pine Creek II Restoration Project (NCEEP Project Number 856)

Little Pine Creek - Reach 1

Resurvey

River Basin	New 05050001
Watershed	Upper New
XS ID	XS6 (Riffle)
Drainage Area	2.57 sq. miles
Date	6/24/13
Field Crew	Wildlands, IE, AKT

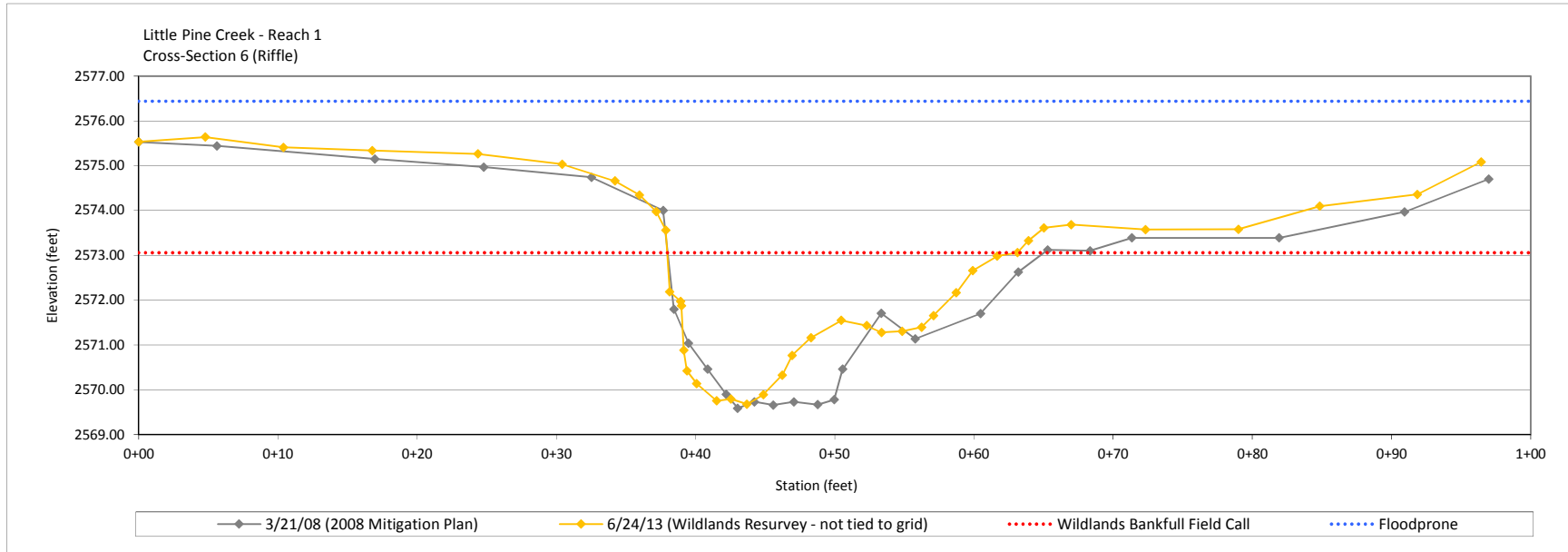
Summary Data	
Bankfull Elevation (ft)	2571.8
Bankfull Cross-Sectional Area (ft2)	45.6
Bankfull Width (ft)	23.7
Flood Prone Area Elevation (ft)	2576.4
Flood Prone Width (ft)	96+
Max Depth at Bankfull (ft)	3.4
Mean Depth at Bankfull (ft)	1.9
W/D Ratio	12.3
Entrenchment Ratio	4.1+
Bank Height Ratio	1.4
Stream Type	C



Cross-Section 6: View Upstream



Cross-Section 6: View Downstream



Cross-Section Plots
 Little Pine Creek II Restoration Project (NCEEP Project Number 856)
 Little Pine Creek - Reach 2
 Resurvey

River Basin	New 05050001
Watershed	Upper New
XS ID	XS14 (Riffle)
Drainage Area	3.34 sq. miles
Date	6/24/13
Field Crew	Wildlands, IE, AKT

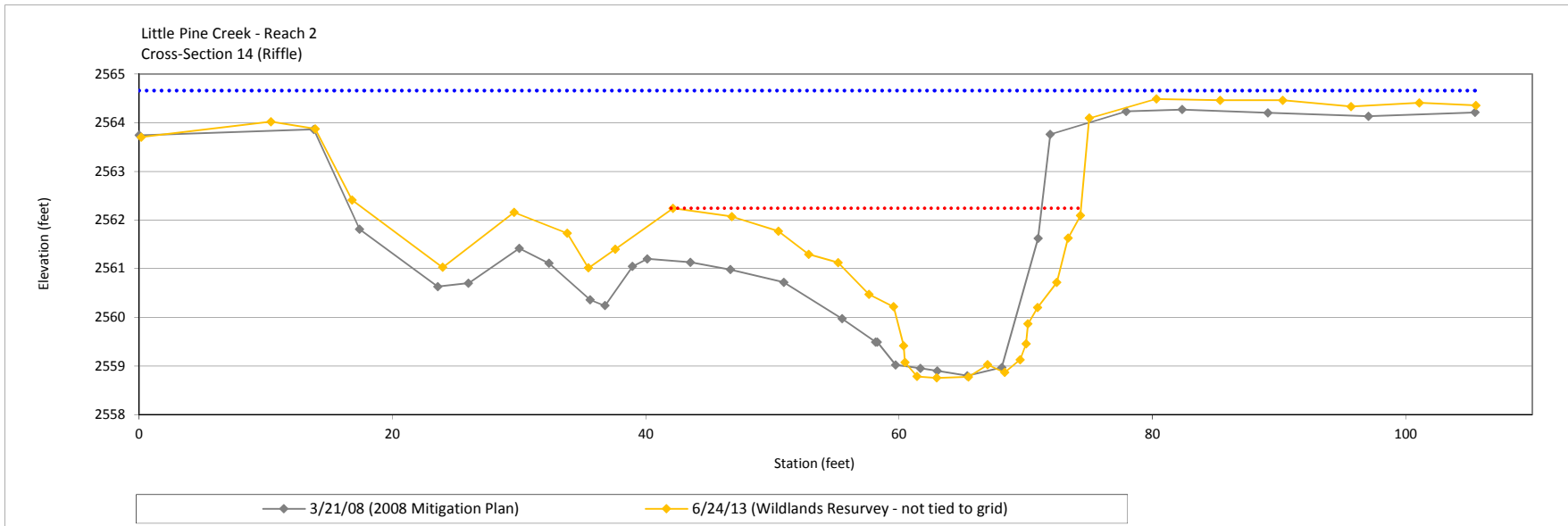
Summary Data	
Bankfull Elevation (ft)	2562.2
Bankfull Cross-Sectional Area (ft ²)	52.9
Bankfull Width (ft)	31.9
Flood Prone Area Elevation (ft)	2564.7
Flood Prone Width (ft)	106+
Max Depth at Bankfull (ft)	3.5
Mean Depth at Bankfull (ft)	1.7
W/D Ratio	19.2
Entrenchment Ratio	3.3+
Bank Height Ratio	1.5
Stream Type	C



Cross-Section 14: View Upstream



Cross-Section 14: View Downstream



Cross-Section Plots
 Little Pine Creek II Restoration Project (NCEEP Project Number 856)
 Tributary A
 Resurvey

River Basin	Catawba 03050101
Watershed	Upper New
XS ID	Trib A XS1 (Riffle)
Drainage Area	0.38 sq. miles
Date	5/21/2013
Field Crew	Wildlands, IE, AKT

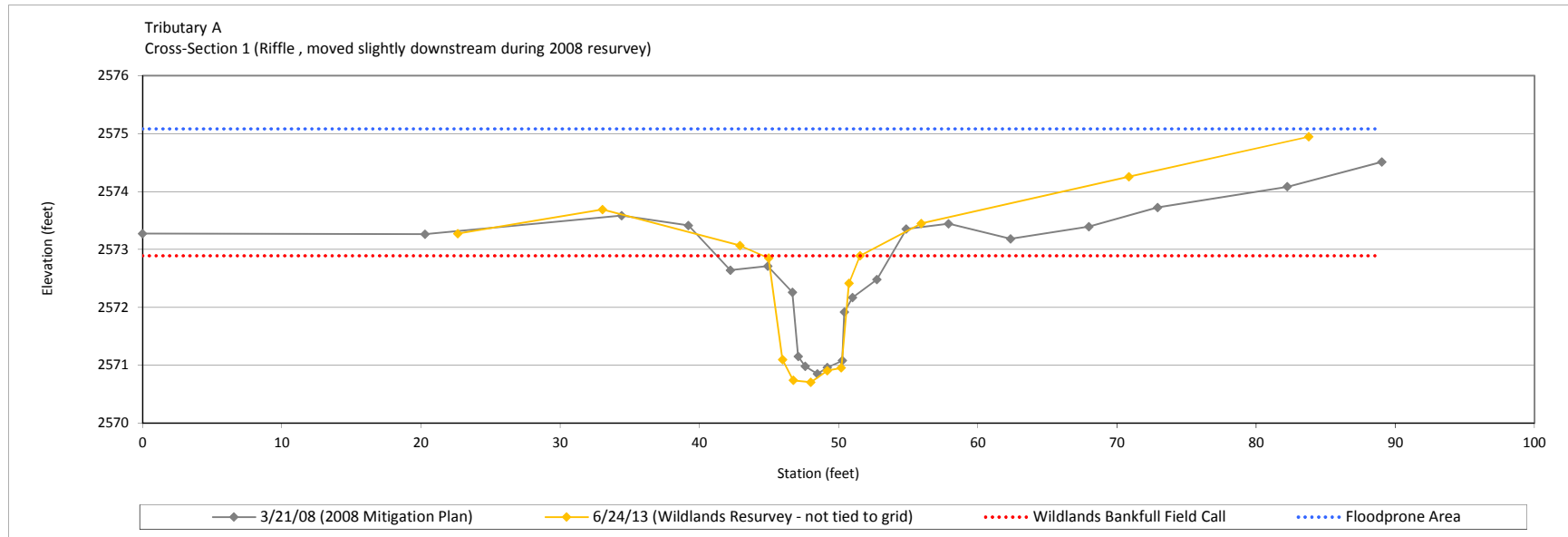
Summary Data	
Bankfull Elevation (ft)	2572.9
Bankfull Cross-Sectional Area (ft ²)	10.5
Bankfull Width (ft)	6.6
Flood Prone Area Elevation (ft)	2575.1
Flood Prone Width (ft)	61.1
Max Depth at Bankfull (ft)	2.2
Mean Depth at Bankfull (ft)	1.6
W/D Ratio	4.1
Entrenchment Ratio	9.3
Bank Height Ratio	1.0
Stream Type	E



Trib A - Cross-Section 1: View Upstream



Trib A - Cross-Section 1: View Downstream



Cross-Section Plots

Little Pine Creek II Restoration Project (NCEEP Project Number 856)

Tributary C

Resurvey

River Basin	Catawba 03050101
Watershed	Upper New
XS ID	Trib C XS6 (Riffle/Run)
Drainage Area	0.11 sq. miles
Date	5/21/2013
Field Crew	Wildlands, IE, AKT

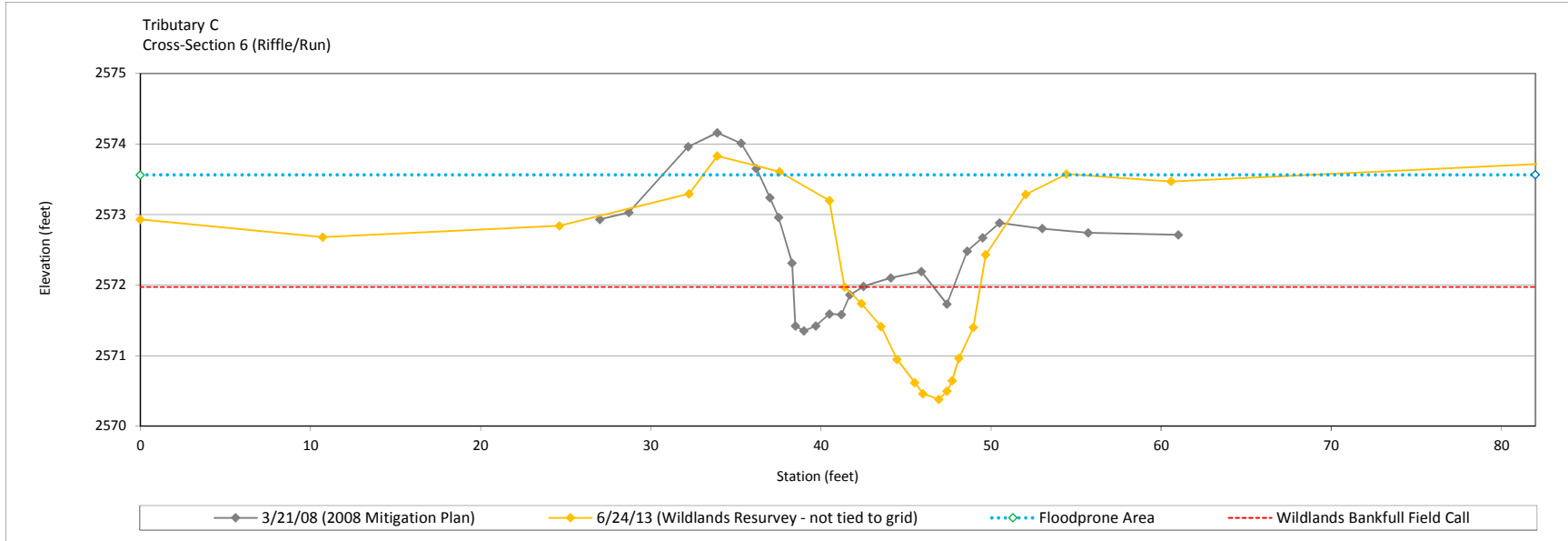
Summary Data	
Bankfull Elevation (ft)	2572.0
Bankfull Cross-Sectional Area (ft ²)	7.1
Bankfull Width (ft)	8.0
Flood Prone Area Elevation (ft)	2573.6
Flood Prone Width (ft)	16.9
Max Depth at Bankfull (ft)	1.6
Mean Depth at Bankfull (ft)	0.9
W/D Ratio	8.9
Entrenchment Ratio	2.1
Bank Height Ratio	2.0
Stream Type	G



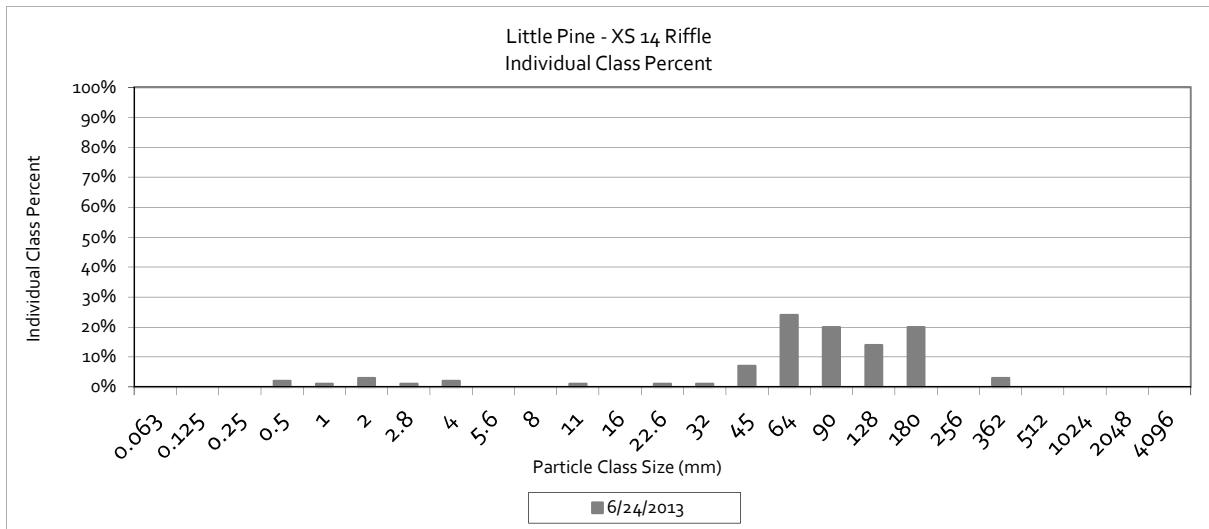
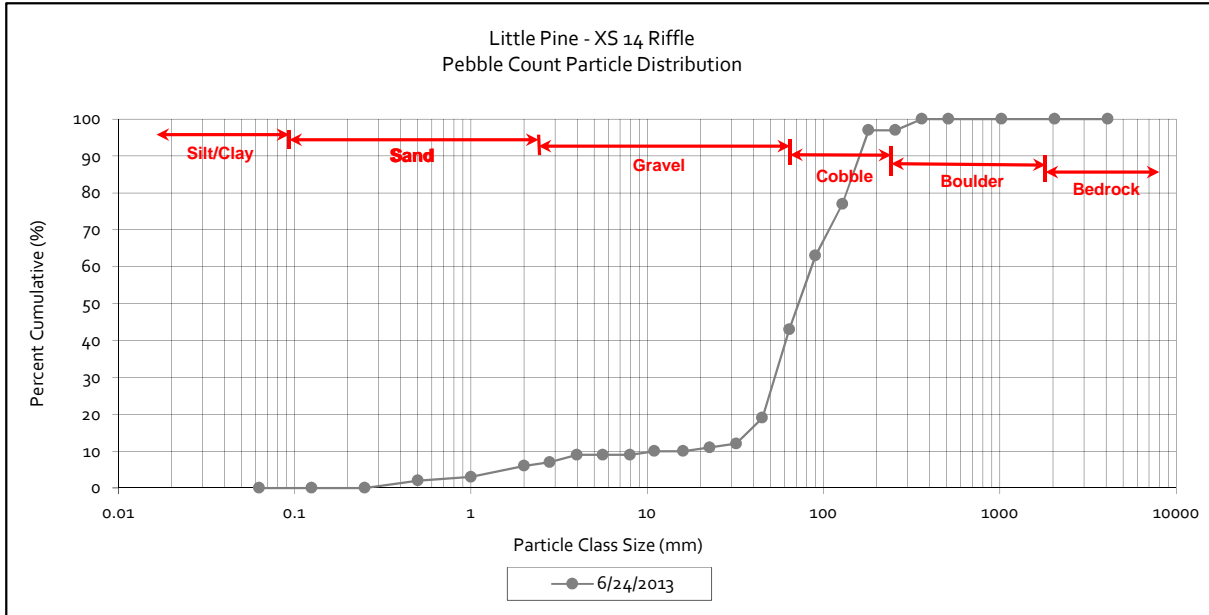
Trib C - Cross-Section 6: View Upstream



Trib C - Cross-Section 6: View Downstream

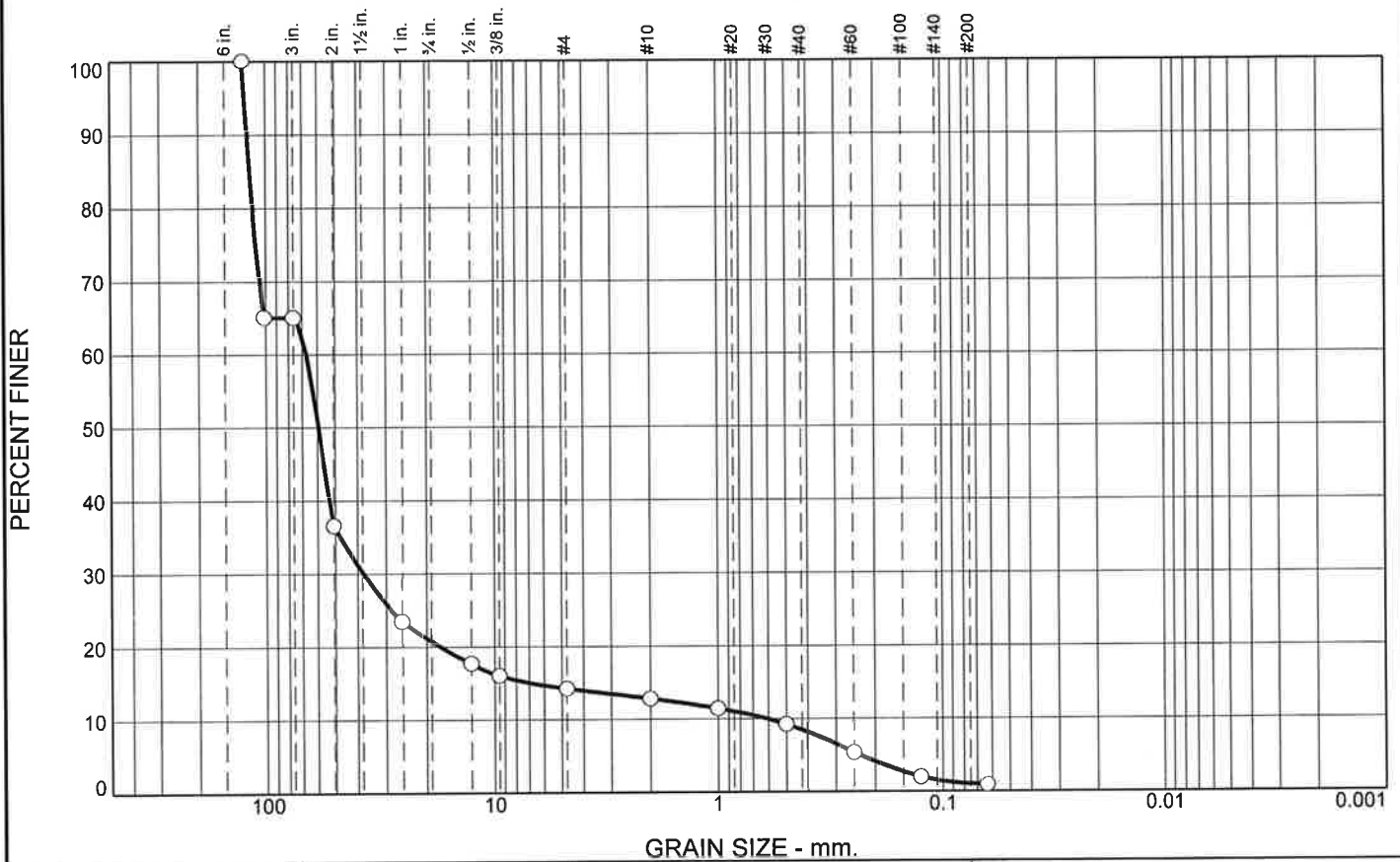


Pebble Count Plots
Little Pine - XS14 Riffle
Existing Conditions- 06/24/2013



Summary	
d16 (mm)	28
d35 (mm)	57
d50 (mm)	72
d84 (mm)	144
d95 (mm)	174

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
35.0	44.3	6.5	1.4	4.4	7.4	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
5	100.0		
4	65.0		
3	65.0		
2	36.6		
1	23.4		
0.5	17.7		
0.375	16.0		
#4	14.2		
#10	12.8		
#18	11.4		
#35	9.2		
#60	5.4		
#120	1.9		
#230	0.9		

* (no specification provided)

Material Description

PL= Atterberg Limits PI=

LL=

Coefficients

D₉₀= 120.6542 D₈₅= 117.4687 D₆₀= 67.0063

D₅₀= 59.2566 D₃₀= 37.7168 D₁₅= 6.9850

D₁₀= 0.6120 C_u= 109.49 C_c= 34.69

Classification

USCS= GP AASHTO=

Remarks

Total Weight of Sample: 7859.0g
Secondary Axis: 7.20", 4.10"

Location: Coarse Bar Sediment (Sample #1)

Date: 07-16-13

<p>Summit Engineering</p> <p>Ft. Mill, South Carolina</p>	<p>Client: Wildlands Engineering</p> <p>Project: Little Pine II</p> <p>Project No: SL-262-11</p> <p style="text-align: right;">Figure</p>
---	---

Tested By: Mimi Hourani

GRAIN SIZE DISTRIBUTION TEST DATA

7/18/2013

Client: Wildlands Engineering

Project: Little Pine II

Project Number: SL-262-11

Location: Coarse Bar Sediment (Sample #1)

Date: 07-16-13

USCS Classification: GP

Testing Remarks: Total Weight of Sample: 7859.0g

Secondary Axis: 7.20", 4.10"

Tested by: Mimi Hourani

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
7859.00	0.00	0.00	5	0.00	100.0
			4	2747.00	65.0
			3	2747.00	65.0
			2	4985.40	36.6
			1	6019.50	23.4
			0.5	6469.00	17.7
			0.375	6600.30	16.0
			#4	6743.02	14.2
			#10	6853.05	12.8
			#18	6963.07	11.4
			#35	7135.97	9.2
			#60	7434.61	5.4
			#120	7709.68	1.9
			#230	7788.27	0.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
35.0	44.3	6.5	50.8	1.4	4.4	7.4	13.2			1.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.6120	6.9850	17.4256	37.7168	59.2566	67.0063	114.1836	117.4687	120.6542	123.8125

Fineness Modulus	C _u	C _c
8.10	109.49	34.69



Looking downstream along Little Pine Creek, above Glade Creek School Road. 04/2015



Little Pine Creek upstream of road. Eroded bank with exposed cobble layer. Shawn points to bankfull. 06/2013



Little Pine Creek upstream of Glade Creek School Road. Vegetated mid-channel bar with steep riffle below. 06/2013



Little Pine Creek, just upstream of Glade Creek School Road bridge. Eroded bend. 06/2013



Looking upstream along Little Pine Creek, at Glade Creek School Road bridge. 06/2013



Glade Creek School Road bridge over Little Pine Creek, looking upstream.



Little Pine Creek in horse pasture, just below Glade Creek School Road bridge. 06/2013



Little Pine Creek meander bend erosion in horse pasture. 06/2013



Little Pine Creek bank erosion. 06/2013



Little Pine Creek active bank erosion. 06/2013



Coarse bar sampled on Little Pine Creek. 06/2013



Coarse bar sampled on Little Pine Creek. 06/2013



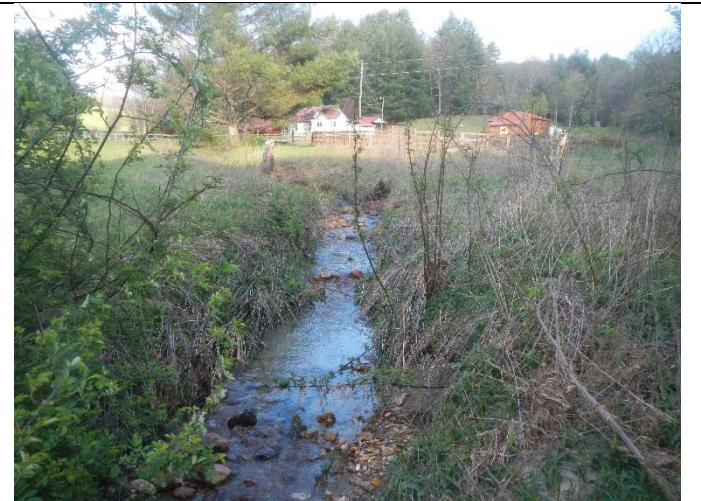
Little Pine Creek, near downstream project extents. 06/2013



Looking upstream along Tributary A. 04/2015



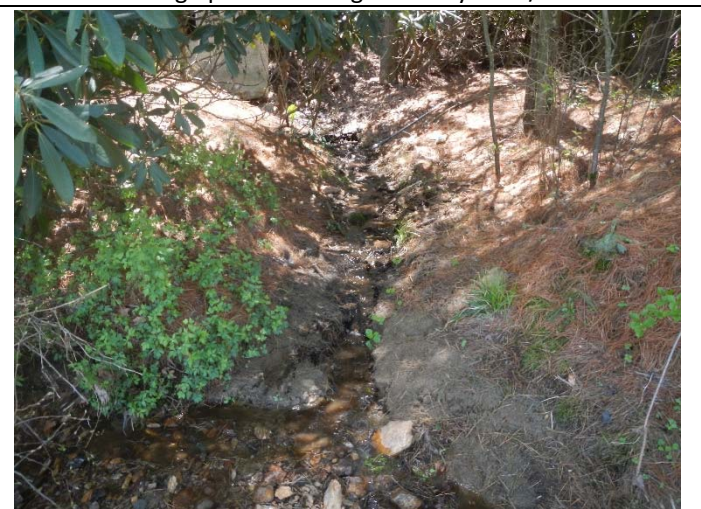
Tributary A at Little Pine Creek confluence. 06/2013



Looking upstream along Tributary B. 04/2015



Looking upstream along Tributary C. 04/2015



Looking upstream at UT1 to Tributary C. 04/2015



Looking downstream along Tributary D. 04/2015



Looking upstream along Tributary E. 04/2015



Looking upstream along Tributary F. 04/2015



View of Wetland 1. 04/2015



View of Wetland 2A. 04/2015



View of Wetland 2B 04/2015

APPENDIX 2. USACE Routine Wetland Determination,
NCWAM Data Forms and Stream Classification Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP1 - Wetland 1
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.507205 Long: W -80.986821 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: Sampling point located within an a previously grazed pasture. Trees and saplings have been removed.	

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0 (at surface)</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0 (Saturated at surface)</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
---	---

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

Remarks:

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

Sampling Point: DP1 - Wetland 1

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Carex lurida</u>	60	Yes	OBL	
2. <u>Juncus effusus</u>	30	Yes	FACW	
3. <u>Symphyotrichum puniceum</u>	10	No	OBL	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.)				

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP2 - Upland 1
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.507096 Long: W -80.986983 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Sampling point located within an a previously grazed pasture. Trees and saplings have been removed.	

HYDROLOGY

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

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

Remarks:

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

Sampling Point: DP2 - Upland 1

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 30')				Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: 15')				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: 5')				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Festuca sp.</u>	<u>100</u>	<u>Yes</u>	<u>FAC-UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: 30')				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.)				
Sampling location covered in an unknown fescue that likely has a wetland rating ranging from FAC to UPL. A FAC rating was used to complete this form.				

SOIL

Sampling Point: DP2 - Upland 1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/4	100					loam	
5-14	10YR 3/3	100					loam	

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)			

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

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

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP3 - Upland
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): _____ Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.507323 Long: W -80.987757 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Sampling location in the vicinity of previously delineated wetland (2008). Area has hydrophytic vegetation and hydrology (wrackline) but lacks indicators of hydric soils.	

HYDROLOGY

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

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

Remarks:
 Wracklines visible from recent out of bank event.

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

Sampling Point: DP3 - Upland

<u>Tree Stratum</u> (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u>)				
1. <u>Sambucus nigra</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>30</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <u>Festuca sp.</u>	<u>65</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>65</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP4 - Wetland 2A
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.505221 Long: W -80.98809 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

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

HYDROLOGY

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

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

DP4 - Wetland 2A
Sampling Point: _____

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. <u>Pinus strobus</u>	25	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
25 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Alnus serrulata</u>	15	Yes	OBL	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
15 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Carex lurida</u>	60	Yes	OBL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Symplorcarpus foetidus</u>	15	Yes	OBL	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
75 = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
Hydrophytic Vegetation Present?				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: DP4 - Wetland 2A

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/3	100					silt loam	
2-14	10YR 4/1	80	5YR 4/6	20	C	PL	silt loam	

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)			

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP5 - Upland
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): _____ Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.505093 Long: W -80.987702 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

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

HYDROLOGY

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

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

Sampling Point: DP5 - Upland

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: <u>30'</u>)					
1. <u>Pinus strobus</u>	<u>80</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
<u>80</u> = Total Cover					Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species _____ x 5 = _____ Column Totals: <u>90</u> (A) <u>350</u> (B) Prevalence Index = B/A = <u>3.9</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
Herb Stratum (Plot size: <u>5'</u>)					
1. <u>Rubus sp.</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.	
Woody Vine Stratum (Plot size: <u>30'</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
_____ = Total Cover					Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: (Include photo numbers here or on a separate sheet.)					

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP6 - Wetland 2B
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.50516 Long: W -80.98861 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

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

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0 (at surface)</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0 (Saturated at surface)</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
--	--

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

Remarks:

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

DP6 - Wetland 2B
Sampling Point: _____

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Acer rubrum</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____	_____	_____	_____	
<u>30</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Alnus serrulata</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Symplorcarpus foetidus</u>	<u>90</u>	<u>Yes</u>	<u>OBL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: DP6 - Wetland 2B

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/1	85	7.5YR 3/4	15	C	PL	silt loam	
6-14	7.5YR 3/1	85	7.5YR 3/4	15	C	PL	silt loam	

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)			

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

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

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP7 - Upland 2B
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): _____ Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.505242 Long: W -80.988742 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Sampling location exhibits wracklines from recent out of bank event and hydrophytic vegetation but lacks indicators of hydric soils.	

HYDROLOGY

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

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

Remarks:
 Wrackline deposits from recent over bank event present.

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

Sampling Point: DP7 - Upland 2B

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. <u>Pinus strobus</u>	<u>20</u>	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. <u>Acer rubrum</u>	<u>15</u>	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>35</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Acer rubrum</u>	<u>10</u>	Yes	FAC	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u>Lindera benzoin</u>	<u>10</u>	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
	<u>20</u>	= Total Cover		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplorcarpus foetidus</u>	<u>10</u>	Yes	OBL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>10</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
6. _____				
		_____ = Total Cover		
Hydrophytic Vegetation Present?				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: (Include photo numbers here or on a separate sheet.)				

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Little Pine II Restoration Project City/County: Alleghany Sampling Date: 4/27/15
 Applicant/Owner: Wildlands Engineering State: NC Sampling Point: DP8 - Upland 2B
 Investigator(s): Ian Eckardt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): LRR N Lat: N 36.505594 Long: W -80.988585 Datum: _____
 Soil Map Unit Name: Alluvial land (Ad) NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Sampling location in a concave depression at toe of slope. Depression has approximately 6" of standing water from recent out of bank event. Area exhibits indicators of hydrology but lacks hydrophytic vegetation and indicators of hydric soils.	

HYDROLOGY

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

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

Remarks:
 Concave depression with standing water from recent out of bank event.

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

Sampling Point: DP8 - Upland 2B

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) Concave depression devoid of vegetation.				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

SOIL

Sampling Point: DP8 - Upland 2B

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 3/3	100					silt loam	

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

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

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

NC DWQ Stream Identification Form Version 4.11

Date: 4/27/15	Project/Site: Little Pine II	Latitude: 36.504871°N
Evaluator: I Eckardt	County: Allegheny	Longitude: -80.987223°W
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* 20.5	Stream Determination (circle one) Ephemeral/ <u>Intermittent</u> / Perennial	Other UTI to Trib C e.g. Quad Name:

A. Geomorphology (Subtotal = 6.5)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)

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

C. Biology (Subtotal = 6.5)

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

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

Notes: Ditched channel that had continuous baseflow originating from old springhouse.

Sketch:

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID: 2009-00591 County: Alleghany U.S.G.S. Quad: VA-Cumberland Knob

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner: NC Division of Mitigation Services / Harry Tsomides
Address: 5 Ravenscroft Drive, Suite 102
Telephone Number: 828-545-7057

Size (acres): 14.7 (within the conservation easement)
Nearest Town: Sparta
Nearest Waterway: Little Pine Creek Coordinates: 36.506937 °N, -80.987760 °W
River Basin/ HUC: New River /05050001

Location description: The project is located off Glade Creek School Road, east of Sparta, Alleghany County, North Carolina.

Indicate Which of the Following Apply:

A. Preliminary Determination

Based on preliminary information, there may be waters of the U.S. including wetlands on the above described project area. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

B. Approved Determination

There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

There are waters of the U.S. including wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

The waters of the U.S. including wetlands on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

— The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Tasha Alexander** at 828-271-7980, ext. 226 or tasha.l.alexander@usace.army.mil.

C. Basis for Determination:

D. Remarks: Site visit was conducted on September 3, 2015 with Steve Kichefski, USACE and Ian Eckardt, Wildlands Engineering, Inc. The potential waters of the U.S. including wetlands approximate boundaries are depicted on the map labeled Figure 3: Delineation Map, Little Pine Creek II Restoration Project, provided via email on September 18, 2015.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by _____.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: _____


Tasha Alexander

Issue Date of JD: **October 28, 2015**

Expiration Date: N/A

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at <http://regulatory.usacesurvey.com/>.

Copy furnished:

Ian Eckardt, Wildlands Engineering, Inc., 1430 South Mint Street, Suite 104, Charlotte, NC 28203

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: **NC Division of Mitigation Services / Harry
Tsomides**

File Number: **SAW-2009-00591**

Date: **October 28, 2015**

Attached is:	See Section below
<input type="checkbox"/> INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/> PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/> PERMIT DENIAL	C
<input type="checkbox"/> APPROVED JURISDICTIONAL DETERMINATION	D
<input checked="" type="checkbox"/> PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,
Attn: Tasha Alexander
828-271-7980**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Date:

Telephone number:

Signature of appellant or agent.

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Attn.: Tasha Alexander, 69 Darlington Avenue, Wilmington, North Carolina 28403

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): *October 28, 2015*

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
North Carolina Department of Environment and Natural Resources –
Division of Mitigation Services
POC: Harry Tsomides, 828-545-7057
5 Ravenscroft Drive, #102
Asheville, NC 28801

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:
CE SAW RGA 2009-00591 Little Pine Creek II

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
Little Pine II Restoration Project

DMS

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: North Carolina County/parish/borough: Alleghancy City: N/A

Center coordinates of site (lat/long in degree decimal format): Lat. 36.506937° N, Long. -80.987760° W.

Universal Transverse Mercator:

Name of nearest waterbody: Little Pine Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 3,972 linear feet: 1 - 25 width (ft) and/or acres.

Cowardin Class: Riverine

Stream Flow: Perennial & Intermittent

Wetlands: 5.74 acres.

Cowardin Class: Palustrine forested

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date: *October 28, 2015*

Field Determination. Date(s): *September 3, 2015*

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or

to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Submitted by Wildlands Engineering on behalf of CMSWS.

Data sheets prepared/submitted by or on behalf of the applicant/consultant.

Office concurs with data sheets/delineation report.

Office does not concur with data sheets/delineation report.

Data sheets prepared by the Corps:

Corps navigable waters' study:

U.S. Geological Survey Hydrologic Atlas:

USGS NHD data.

USGS 8 and 12 digit HUC maps.

U.S. Geological Survey map(s). Cite scale & quad name: Charlotte East 7.5 Quadrangle.

USDA Natural Resources Conservation Service Soil Survey. Citation: Mecklenburg County Soils.

National wetlands inventory map(s). Cite name:

State/Local wetland inventory map(s):

FEMA/FIRM maps:

100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

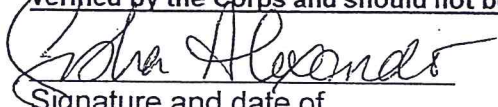
Photographs: Aerial (Name & Date): 2011.

or Other (Name & Date): photolog included with this submittal

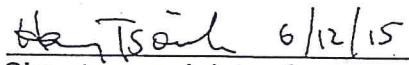
Previous determination(s). File no. and date of response letter:

Other information (please specify): A previous delineation was completed as part of a prior issued permit SAW-2009-00591.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.


Signature and date of
Regulatory Project Manager
(REQUIRED)

October 28, 2015

 6/12/15
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Jurisdictional features within the Little Pine II Restoration Project

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1 Little Pine Creek	36.507115°N	-80.987421°W	Riverine	2,535 linear feet	non-section 10 – non-wetland
2 Tributary A	36.507199°N	-80.987726°W	Riverine	67 linear feet	non-section 10 – non-wetland
3 Tributary B	36.505510°N	-80.987861°W	Riverine	50 linear feet	non-section 10 – non-wetland
4 Tributary C	36.505233°N	-80.987677°W	Riverine	305 linear feet	non-section 10 – non-wetland
4 UT1 to Tributary C	36.504870°N	-80.987232°W	Riverine	34 linear feet	non-section 10 – non-wetland
5 Tributary D	36.504879°N	-80.988923°W	Riverine	744 linear feet	non-section 10 – non-wetland
6 Tributary E	36.504697°N	-80.991297°W	Riverine	132 linear feet	non-section 10 – non-wetland
7 Tributary F	36.504813°N	-80.9910704°W	Riverine	105 linear feet	non-section 10 – non-wetland
8 Wetland 1	36.507208°N	-80.986825°W	Palustrine, Forest	0.32 acres	non-section 10 – wetland
8 Wetland 2A	36.505232°N	-80.988076°W	Palustrine, Forest	0.88 acres	non-section 10 – wetland
8 Wetland 2B	36.505020°N	-80.988639°W	Palustrine, Forest	4.42 acres	non-section 10 – wetland

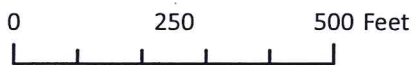


Figure 3: Delineation Map
Little Pine Creek II Restoration Project
New River Basin 05050001

APPENDIX 3. Conservation Easements and Plats

FILED
ALLEGHANY COUNTY
LIZABETH REEVES ROUPE
REGISTER OF DEEDS

FILED	Nov 10, 2009
AT	04:21:56 pm
BOOK	00332
START PAGE	1021
END PAGE	1029
INSTRUMENT #	02735

STATE OF NORTH CAROLINA

**CONSERVATION EASEMENT
AND ACCESS EASEMENT**

ALLEGHANY COUNTY

SPO File Number 003-AJ

EEP Site ID Number 856

Prepared by: Office of the Attorney General

Property Control Section

Return to: NC Department of Administration

State Property Office: Blane Rice

1321 Mail Service Center

Raleigh, NC 27699-1321

THIS CONSERVATION EASEMENT AND ACCESS EASEMENT, pursuant to the provisions of N.C. General Statutes Chapter 121, Article 4 and made this 16 day of SEPTEMBER, 2009, by Gregory G. Walker and wife Melissa R. Walker, (“**Grantor**”), whose mailing address is 5324 Olive Rd. Raleigh NC 27606, and Katrina Walker Brittain and Charles M. Brittain (“**Grantor**”) whose mailing address is 1013 Blue Wren Dr. Fayetteville NC 28012 to the State of North Carolina, (“**Grantee**”), whose mailing address is State of North Carolina, Department of Administration, State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESSETH:

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 *et seq.*, the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources has approved acceptance of this instrument; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Agreement, (MOA) duly executed by all parties in Greensboro, NC on July 22, 2003. This MOA recognizes that the Ecosystem Enhancement Program is to provide for compensatory mitigation by effective protection of the land, water and natural resources of the State by restoring, enhancing and preserving ecosystem functions; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and being in Glade Creek Township, Alleghany County, North Carolina (the "**Property**"), and being more particularly described as that certain parcel of land containing approximately 127.72 acres and being conveyed to the Grantor by deed as recorded in **Estate File Number** 03E 2841 of the Wake County Registry, North Carolina; and

WHEREAS, Grantor is willing to grant a Conservation Easement over the herein described areas of the Property, thereby restricting and limiting the use of the included areas of the Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept such Conservation Easement. This Conservation Easement shall be for the protection and benefit of the waters of Little Pine Creek

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement of the nature and character and to the extent hereinafter set forth, over a described area of the Property, referred to hereafter as the "**Easement Area**", for the benefit of the people of North Carolina, and being all of the tract of land as identified as Conservation Easement Area acres and Conservation Easement Area 0.70 acres together along with a 60' wide Right of Way as shown on a plat of survey entitled "Conservation Easement Survey for the State of North Carolina, Ecosystem Enhancement Program Big Harris Creek " Dated March 23, 2009, certified by Ken Suttles #L-2678 ,and recorded in Map Book 11, Page 119, June 26, 2009 in Alleghany County Registry. Conservation Easement Area being more particularly described as follows:

See Attached Exhibit A

I. DURATION OF EASEMENT

Pursuant to law, including the above referenced statutes, this Conservation Easement shall be perpetual and it shall run with, and be a continuing restriction upon the use of, the Property, and it shall be enforceable by the Grantee against the Grantor and against Grantor's heirs, successors and assigns, personal representatives, agents, lessees, and licensees.

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITIES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. Without limiting the generality of the foregoing, the following specific uses are prohibited, restricted, or reserved as indicated:

A. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, bird watching, hunting and fishing, and access to the Easement Area for the purposes thereof. Usage of motorized vehicles in the Easement Area is prohibited, except as they are used exclusively for management, maintenance, or stewardship purposes, and on existing trails, paths or roads.

B. Educational Uses. The Grantor reserves the right to engage in and permit others to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

C. Vegetative Cutting. Except as related to the removal of non-native plants, diseased or damaged trees, and vegetation that obstructs, destabilizes or renders unsafe the Easement Area to persons or natural habitat, all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

D. Industrial, Residential and Commercial Uses. All are prohibited in the Easement Area.

E. Agricultural Use. All agricultural uses within the Easement Area including any use for cropland, waste lagoons, or pastureland are prohibited.

F. New Construction. There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

G. Roads and Trails. There shall be no construction of roads, trails, walkways, or paving in the Easement Area. Existing roads or trails located in the Easement Area may be maintained by Grantor in order to minimize runoff, sedimentation and for access to the interior

of the Property for management, maintenance, stewardship purposes, or undeveloped recreational and educational uses of the Easement Area. Existing roads, trails or paths may be maintained with loose gravel or permanent vegetation to stabilize or cover the surfaces.

H. Signs. No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs identifying the owner of the Property and the holder of the Conservation Easement, signs giving directions, or signs prescribing rules and regulations for the use of the Easement Area may be allowed.

I. Dumping or Storing. Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances or machinery, or other material in the Easement Area is prohibited.

J. Grading, Mineral Use, Excavation, Dredging. There shall be no grading, filling, excavation, dredging, mining, or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

K. Water Quality and Drainage Patterns. There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or diverting, causing, allowing or permitting the diversion of surface or underground water. No altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides is prohibited. In the event of an emergency interruption or shortage of all other water sources, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock and agricultural production.

L. Subdivision and Conveyance. Grantor voluntarily agrees that no subdivision, partitioning, or dividing of the underlying fee that is subject to this Easement is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the underlying fee for the Easement Area and the rights as conveyed herein shall be as a single block of property. Any future transfer of the fee simple shall be subject to this Conservation Easement. Any transfer of the fee is subject to the Grantee's right of unlimited and repeated ingress and egress over and across the Property to the Easement Area for the purposes set forth herein.

M. Development Rights. All development rights are removed from the Easement Area and shall not be transferred.

N. Disturbance of Natural Features. Any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species by Grantor is prohibited.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is consistent with the purposes of this Conservation Easement. The Grantor shall not vary from the above restrictions without first obtaining written approval from the N.C. Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699-1652.

III. GRANTEE RESERVED USES

A. Ingress, Egress, and Inspection. The Grantee, its employees and agents, successors and assigns, receive the perpetual right of unlimited and repeated ingress and egress to the Easement Area over the Property at reasonable times to undertake any activities to restore, manage, maintain, enhance, and monitor the wetland and riparian resources of the Easement Area, in accordance with restoration activities or a long-term management plan. Unless otherwise specifically set forth in this Conservation Easement, the rights granted herein do not include or establish for the public any access rights.

B. Restoration Activities. These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterranean water flow.

IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features of the Easement Area that may have been damaged by such activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, their successors or assigns, that comes to the attention of the Grantee, the Grantee shall, except as provided below, notify the Grantor, their successors or assigns in writing of such breach. The Grantor shall have ninety (90) days after receipt of such notice to correct the conditions constituting such breach. If the breach remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by appropriate legal proceedings including damages, injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief if the breach of the term of this Conservation Easement is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement. The Grantor and Grantee acknowledge that under such circumstances damage to the Grantee would be irreparable and remedies at law will be inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area over the Property at reasonable times for the purpose of inspection to determine whether the Grantor, their successors or assigns are complying with the terms, conditions and restrictions of this Conservation Easement.

C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor, their successors or assigns, for any injury or change in the Easement Area caused by third parties,

resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, damage to property or harm to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, their successors or assigns, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

E. No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance, delay or omission by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be construed to be a waiver by Grantee.

V. MISCELLANEOUS

A. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

B. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown above or to other address(es) as either party establishes in writing upon notification to the other.

C. Grantor shall notify Grantee in writing of the name and address and any party to whom the Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees to make any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed subject to the Conservation Easement herein created.

D. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

E. This Conservation Easement may be amended, but only in writing signed by all parties hereto, and provided such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement.

F. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the

transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area.

TO HAVE AND TO HOLD the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

Gregory G. Walker (SEAL)
Gregory G. Walker

Melissa R. Walker (SEAL)
Melissa R. Walker

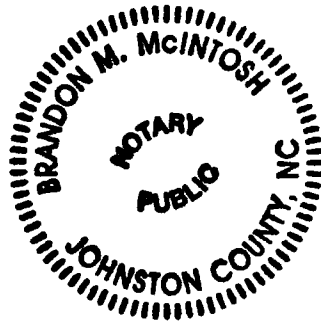
NORTH CAROLINA

COUNTY OF Wake

I, *Brandon M. McIntosh*, a Notary Public in and for the County and State aforesaid, do hereby certify that Gregory G. Walker and wife Melissa R. Walker, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 10 day of September, 2009.

Brandon M. McIntosh
Notary Public



My commission expires:

December 29, 2011

Katrina Walker Brittain (SEAL)
Katrina Walker Brittain

Charles M. Brittain (SEAL)
Charles M. Brittain

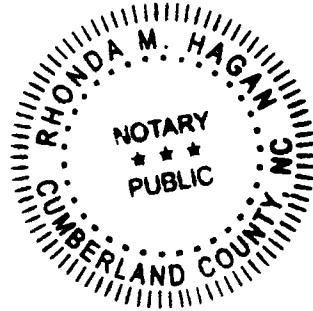
NORTH CAROLINA

COUNTY OF Cumberland

I, Rhonda M. Hagan, a Notary Public in and for the County and State aforesaid, do hereby certify that Katrina Walker Brittain and spouse Charles M. Brittain, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 29th day of September, 2009.

Rhonda M. Hagan
Notary Public



My commission expires:

8-21-2010

NORTH based on a survey by Suttles Surveying, P.A.
MAP FILE NO. 13680

Subdivision Exception
This plat represents a survey or division of property that does not require approval from the Alleghany County Planning Board/Planner for the following reasons:
Base Easement Only. This is not a subdivision. Ordinance does not apply.
4/25/09
Date Review Officer

State of North Carolina, County of Alleghany
I, Don Adams, Review Officer of Alleghany County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.
4/25/09
Date Review Officer

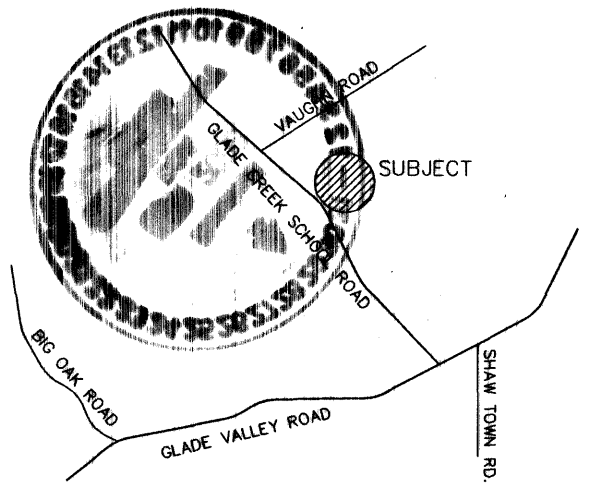
This Plat of Land shown hereon does not lie within the Alleghany County Water Supply Watershed Management & Protection Ordinance as Adopted December 28, 1983 and Amended December 1, 1997.

This Plat of Land hereon does not lie within a Protected Mountain Ridge as identified by the map entitled "Identification of Protected Mountain Ridges in the County of Alleghany."

This Plat of Land hereon does not lie within a Flood Hazard Area as determined by the Federal Emergency Management Agency.

This plat of land shown hereon does not lie within an area designated by the State of North Carolina as High Quality Water (HQW) or Outstanding Resource Waters (ORW).
6/05/09
Date Review Officer

Landowner Signatures
I have reviewed the survey located in Alleghany County and I am in agreement with the survey as it is prepared by Suttles Surveying, P.A., Kenneth D. Suttles, P.L.S., License # 2678.
OWNER Gregory Walker DATE 5-13-09
OWNER Melissa R. Walker DATE 5-13-09
OWNER Katrina W. Brittain DATE 6-1-09
OWNER CHITMAN DATE 6-1-09

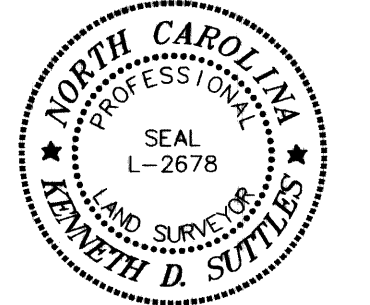


10-119

FILED
ALLEGHANY COUNTY
LIZABETH REEVES ROUPE
REGISTER OF DEEDS

FILED Jun 26, 2009
AT 12:58:11 pm
BOOK 00010
START PAGE 0119
END PAGE 0119
INSTRUMENT # 01612

NORTH CAROLINA, BURKE COUNTY
I, KENNETH SUTTLES, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM AN ACTUAL FIELD LAND SURVEY MADE UNDER MY DIRECTION AND SUPERVISION, DEED DESCRIPTION RECORDED IN DEED BOOK 130, PAGE 349.
THAT THE ERROR OF CLOSURE CALCULATED BY LATITUDES AND DEPARTURES IS 1:10,000. THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN SEE PLAT.
THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF NORTH CAROLINA.
WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 9th DAY OF JANUARY, A.D., 2009. 23rd
K.D. Suttles
P.L.S. No L-2678



I, **KENNETH D. SUTTLES**, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM CONTROL ESTABLISHED BY GPS. THAT THIS GPS SURVEY WAS PERFORMED TO CLASS "C" FGCC SPECIFICATIONS AND THAT I USED STATIC GPS FIELD PROCEDURES AND COORDINATES WERE OBTAINED BY LEAST SQUARES ADJUSTMENT. THAT THIS SURVEY WAS PERFORMED ON JULY 2008 USING TOPCON HYPER PLUS RECEIVERS AND ALL COORDINATES ARE BASED ON NAD '83/2003, NAVD 1988 AND GROID 2003.

THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

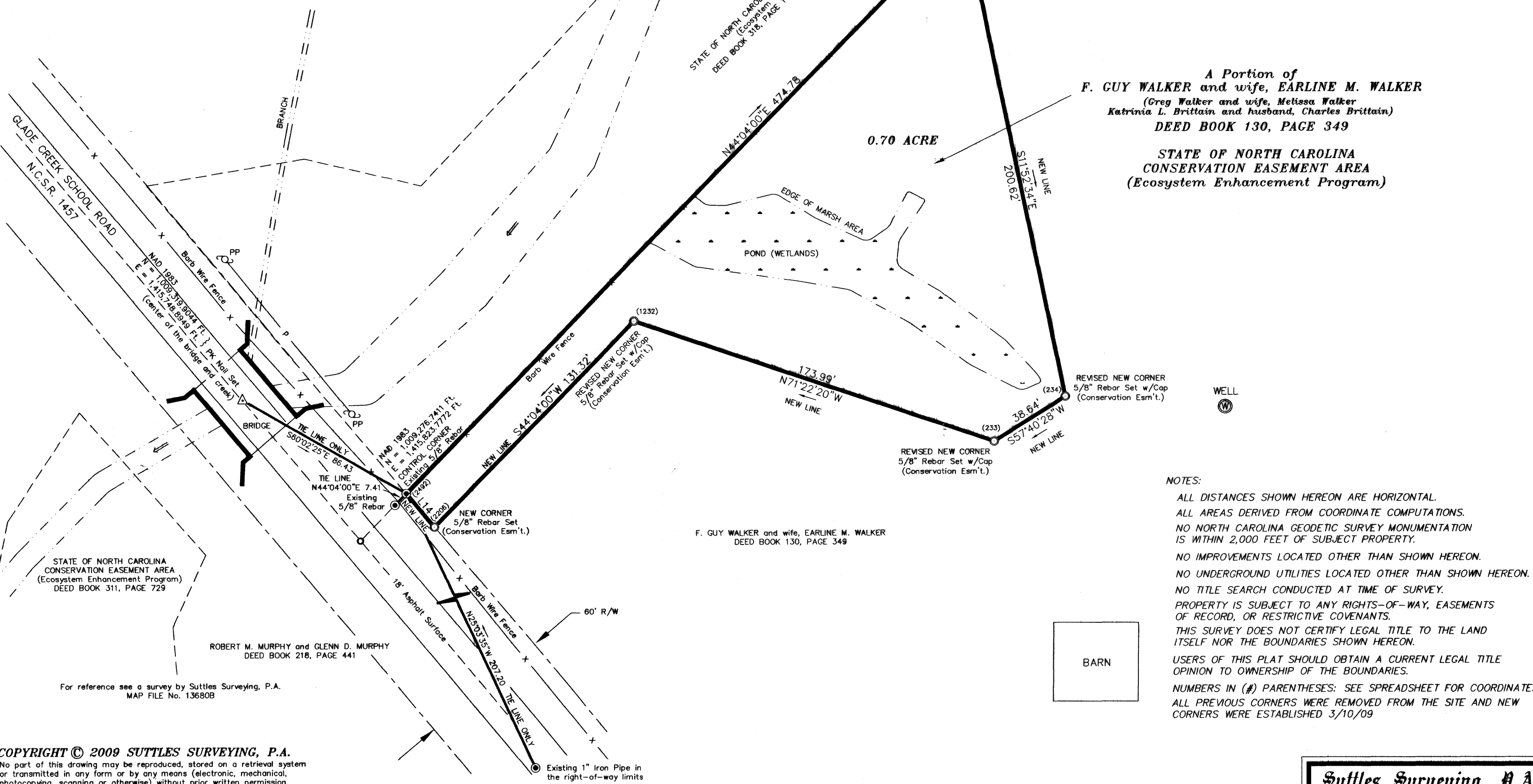
REVISIONS:
r1 (3/25/09) - Revised lines of easement per land owner request; added barn and well locations

40 20 0 40 80

SCALE: 1" = 40'	DRAWN BY: FRANK POUNDS/PS
DATE: 4/25/08 3/10/09	APPROVED BY: KDS
FIELD CREW: CG, JJ, JA, DC, JP	

LEGEND

- POINT
- IRON PIPE SET
- EXISTING IRON PIPE
- CONCRETE MONUMENT
- P.K. NAIL, RAILROAD SPIKE or COTTON GIN SPIKE
- POWER POLE

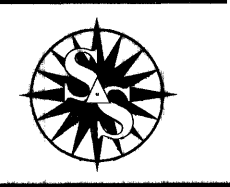


NOTES:
ALL DISTANCES SHOWN HEREON ARE HORIZONTAL.
ALL AREAS DERIVED FROM COORDINATE COMPUTATIONS.
NO NORTH CAROLINA GEODETIC SURVEY MONUMENTATION IS WITHIN 2,000 FEET OF SUBJECT PROPERTY.
NO IMPROVEMENTS LOCATED OTHER THAN SHOWN HEREON.
NO UNDERGROUND UTILITIES LOCATED OTHER THAN SHOWN HEREON.
NO TITLE SEARCH CONDUCTED AT TIME OF SURVEY.
PROPERTY IS SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS OF RECORD, OR RESTRICTIVE COVENANTS.
THIS SURVEY DOES NOT CERTIFY LEGAL TITLE TO THE LAND ITSELF NOR THE BOUNDARIES SHOWN HEREON.
USERS OF THIS PLAT SHOULD OBTAIN A CURRENT LEGAL TITLE OPINION TO OWNERSHIP OF THE BOUNDARIES.
NUMBERS IN (#) PARENTHESES: SEE SPREADSHEET FOR COORDINATES.
ALL PREVIOUS CORNERS WERE REMOVED FROM THE SITE AND NEW CORNERS WERE ESTABLISHED 3/10/09

TAX MAP INFORMATION	
PIN: 4010788660	
SUBDIVISION: LAURA BEDSAUL ESTATE	

PROJECT DESCRIPTION	
SPO FILE NUMBER 003-AJ	
NC Ecosystem Enhancement Program	
Project Name: Little Pine Creek II	
Owner: Greg Walker and wife, Melissa Walker Katrina L. Brittain and husband, Charles Brittain	

CONSERVATION EASEMENT SURVEY for the STATE OF NORTH CAROLINA
Ecosystem Enhancement Program - Little Pine Creek II
Glade Creek Township Alleghany County, N.C.



Suttles Surveying, P.A.
40 South Main Street Suite 200
MARION, NORTH CAROLINA 28752
828.652.9382
FAX 828.659.9800
TOLL FREE 800.652.9382
doug@suttlessurvey.com ken@suttlessurvey.com

COMPUTER: 13680.DCA	FIELD BOOK: 08-14
FILE NAME: 13680C-r1.DWG	MAP FILE NO. 13680C-r1

FILED
ALLEGHANY COUNTY
LIZABETH REEVES ROUPE
REGISTER OF DEEDS

FILED Jan 29, 2009
AT 03:57:53 pm
BOOK 00325
START PAGE 0296
END PAGE 0304
INSTRUMENT # 00209

Alleghany County 01-29-2009
NORTH CAROLINA
Real Estate
Excise Tax \$180.00

STATE OF NORTH CAROLINA

CONSERVATION EASEMENT

ALLEGHANY COUNTY

SPO File Number 003-ZH

Prepared by: Office of the Attorney General
Property Control Section: Blane Rice
Return to: NC Department of Administration
State Property Office
1321 Mail Service Center
Raleigh, NC 27699-1321

180.00

TAX INFORMATION RECORDED
ALLEGHANY TAX COLLECTOR
[Signature]
1/29/09

THIS CONSERVATION EASEMENT DEED, pursuant to the provisions of N.C. General Statutes Chapter 121, Article 4 and made this 29 day of JANUARY, 2009, by Clifford C. Phillips and Roberta S. Phillips Trustees for Clifford C. Phillips Revocable Trust, and Trustee; for Roberta S. Phillips Revocable Trust, as Tenants in Common and Clifford C. Phillips and Roberta S. Phillips as Tenants by the Entirety ("Grantor"), whose mailing address is 154 Akers Lane, Ennice, NC 28623, ("Grantee"), whose mailing address is State of North Carolina, Department of Administration, State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESSETH:

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 et seq., the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources has approved acceptance of this instrument; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Agreement, (MOA) duly executed by all parties in

Greensboro, NC on July 22, 2003. This MOA recognizes that the Ecosystem Enhancement Program is to provide for compensatory mitigation by effective protection of the land, water and natural resources of the State by restoring, enhancing and preserving ecosystem functions; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and being in **Glade Creek Township, Alleghany County, North Carolina** (the "**Property**"), and being more particularly described as that certain parcel of land containing approximately 22.104 acres and being conveyed to the Grantor by deed as recorded in **Deed Book 229 Page 583** of the **Alleghany County Register of Deeds, North Carolina**; and

WHEREAS, Grantor is willing to grant a Conservation Easement over the herein described areas of the Property, thereby restricting and limiting the use of the included areas of the Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept such Conservation Easement. This Conservation Easement shall be for the protection and benefit of the waters of **(Little Pine Creek II)**.

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement of the nature and character and to the extent hereinafter set forth, over a described area of the Property, referred to hereafter as the "**Conservation Easement Area**", for the benefit of the people of North Carolina, and being all of the tract of land as identified as **Conservation Area 11.27 acres. Conservation Easement Area is shown on a plat of survey entitled "Conservation Easement Survey for the State of North Carolina Ecosystem Enhancement Program" dated _____ and certified by Kenneth D Suttles License # L2678 and recorded in Plat Book 10 Page 100 Alleghany Registry: Conservation Easement Area being more particularly described as follows:**

[LEGAL DESCRIPTION ATTACHED]

The purposes of this Conservation Easement are to maintain, restore, enhance, create and preserve wetland and/or riparian resources in the Easement Area that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; to maintain permanently the Easement Area in its natural condition, consistent with these purposes; and to prevent any use of the Easement Area that will significantly impair or interfere with these purposes. To achieve these purposes, the following conditions and restrictions are set forth:

I. DURATION OF EASEMENT

Pursuant to law, including the above referenced statutes, this Conservation Easement shall be perpetual and it shall run with, and be a continuing restriction upon the use of, the

Property, and it shall be enforceable by the Grantee against the Grantor and against Grantor's heirs, successors and assigns, personal representatives, agents, lessees, and licensees.

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITIES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. Without limiting the generality of the foregoing, the following specific uses are prohibited, restricted, or reserved as indicated:

A. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, bird watching, hunting and fishing, and access to the Easement Area for the purposes thereof. Usage of motorized vehicles in the Easement Area is prohibited, except as they are used exclusively for management, maintenance, or stewardship purposes, and on existing trails, paths or roads.

B. Educational Uses. The Grantor reserves the right to engage in and permit others to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

C. Vegetative Cutting. Except as related to the removal of non-native plants, diseased or damaged trees, and vegetation that obstructs, destabilizes or renders unsafe the Easement Area to persons or natural habitat, all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

D. Industrial, Residential and Commercial Uses. All are prohibited in the Easement Area.

E. Agricultural Use. All agricultural uses within the Easement Area including any use for cropland, waste lagoons, or pastureland are prohibited.

F. New Construction. There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

G. Roads and Trails. There shall be no construction of roads, trails, walkways, or paving in the Easement Area. Existing roads or trails located in the Easement Area may be maintained by Grantor in order to minimize runoff, sedimentation and for access to the interior of the Property for management, maintenance, stewardship purposes, or undeveloped recreational and educational uses of the Easement Area. Existing roads, trails or paths may be maintained with loose gravel or permanent vegetation to stabilize or cover the surfaces.

H. Signs. No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs

identifying the owner of the Property and the holder of the Conservation Easement, signs giving directions, or signs prescribing rules and regulations for the use of the Easement Area may be allowed.

I. Dumping or Storing. Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances or machinery, or other material in the Easement Area is prohibited.

J. Grading, Mineral Use, Excavation, Dredging. There shall be no grading, filling, excavation, dredging, mining, or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

K. Water Quality and Drainage Patterns. There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or diverting, causing, allowing or permitting the diversion of surface or underground water. No altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides is prohibited. In the event of an emergency interruption or shortage of all other water sources, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock and agricultural production.

L. Subdivision and Conveyance. Grantor voluntarily agrees that no subdivision, partitioning, or dividing of the underlying fee that is subject to this Easement is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the underlying fee for the Easement Area and the rights as conveyed herein shall be as a single block of property. Any future transfer of the fee simple shall be subject to this Conservation Easement. Any transfer of the fee is subject to the Grantee's right of unlimited and repeated ingress and egress over and across the Property to the Easement Area for the purposes set forth herein.

M. Development Rights. All development rights are removed from the Easement Area and shall not be transferred.

N. Disturbance of Natural Features. Any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species by Grantor is prohibited.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is consistent with the purposes of this Conservation Easement. The Grantor shall not vary from the above restrictions without first obtaining written approval from the N.C. Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699-1652.

III. GRANTEE RESERVED USES

A. Ingress, Egress, and Inspection. The Grantee, its employees and agents, successors and assigns, receive the perpetual right of unlimited and repeated ingress and egress to the Easement Area over the Property at reasonable times to undertake any activities to restore,

manage, maintain, enhance, and monitor the wetland and riparian resources of the Easement Area, in accordance with restoration activities or a long-term management plan. Unless otherwise specifically set forth in this Conservation Easement, the rights granted herein do not include or establish for the public any access rights.

B. Restoration Activities. These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterranean water flow.

IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features of the Easement Area that may have been damaged by such activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, their successors or assigns, that comes to the attention of the Grantee, the Grantee shall, except as provided below, notify the Grantor, their successors or assigns in writing of such breach. The Grantor shall have ninety (90) days after receipt of such notice to correct the conditions constituting such breach. If the breach remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by appropriate legal proceedings including damages, injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief if the breach of the term of this Conservation Easement is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement. The Grantor and Grantee acknowledge that under such circumstances damage to the Grantee would be irreparable and remedies at law will be inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area over the Property at reasonable times for the purpose of inspection to determine whether the Grantor, their successors or assigns are complying with the terms, conditions and restrictions of this Conservation Easement.

C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor, their successors or assigns, for any injury or change in the Easement Area caused by third parties, resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, damage to property or harm to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, their successors or assigns, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

E. No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance, delay or omission by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be construed to be a waiver by Grantee.

V. MISCELLANEOUS

A. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

B. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown above or to other address(es) as either party establishes in writing upon notification to the other.

C. Grantor shall notify Grantee in writing of the name and address and any party to whom the Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees to make any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed subject to the Conservation Easement herein created.

D. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

E. This Conservation Easement may be amended, but only in writing signed by all parties hereto, and provided such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement.

F. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area.

TO HAVE AND TO HOLD the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

Clifford C. Phillips Trustee
Roberta S. Phillips Trustee (SEAL)
 Clifford C. Phillips and Roberta S. Phillips Trustees for Clifford C. Phillips Revocable Trust

Clifford C. Phillips Trustee
Roberta S. Phillips Trustee (SEAL)
 Clifford C. Phillips and Roberta S. Phillips Trustees for Roberta S. Phillips Revocable Trust

Clifford C. Phillips
Roberta S. Phillips (SEAL)
 Clifford C. Phillips and Roberta S. Phillips

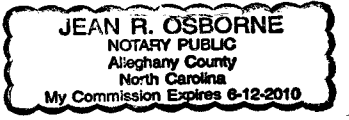
NORTH CAROLINA

COUNTY OF Alleghany

I, Jean R. Osborne, a Notary Public in and for the County and State aforesaid, do hereby certify that Clifford C. Phillips and Roberta S. Phillips Trustees for Clifford C. Phillips Revocable Trust, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 29 day of January, 2009.

Jean R. Osborne
Notary Public



My commission expires:
6-12-2010

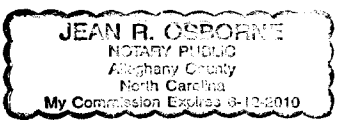
NORTH CAROLINA

COUNTY OF Alleghany

I, Jean R. Osborne, a Notary Public in and for the County and State aforesaid, do hereby certify that **Clifford C. Phillips and Roberta S. Phillips Trustees for Roberta S. Phillips Revocable Trust**, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 29 day of January, 2009.

Jean R. Osborne
Notary Public



My commission expires:
6-12-2010

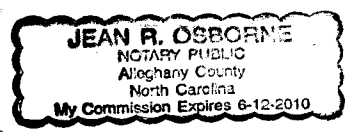
NORTH CAROLINA

COUNTY OF Alleghany

I, Jean R. Osborne, a Notary Public in and for the County and State aforesaid, do hereby certify that **Clifford C. Phillips and Roberta S. Phillips as Tenants by the Entirety**, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 29 day of January, 2009.

Jean R. Osborne
Notary Public



My commission expires:
6-12-2010

L E G A L D E S C R I P T I O N

Legal description of the conservation easement survey for the State of North Carolina Ecosystem Enhancement Program and being a portion of the property known as the Clifford Phillips and wife Roberta S. Phillips property as recorded in Deed Book 162, Page 768 and being located in the Glade Creek Township, Alleghany County, North Carolina and being described as a portion of that certain tract as follows:

BEGINNING on 5/8" rebar set, a new corner (N=1,008,388.5649 ft, E=1,414,416.4140 ft), said rebar lying North 24 degrees 35 minutes 44 seconds East - 166.91 feet from a 12" spike having NAD83 coordinates of N=1,008,236.7950 ft, E=1,414,346.9430 ft, Elevation 2562.82 feet and CSF = 0.99999417; thence, South 86 degrees 33 minutes 38 seconds East - 230.60 feet to an existing 3/8" rebar; thence, North 03 degrees 13 minutes 49 seconds East and crossing Little Pine Creek - 326.62 feet to an existing 3/8" rebar; thence, North 72 degrees 42 minutes 07 seconds East - 449.69 feet to an existing 3/8" rebar; thence, North 72 degrees 42 minutes 07 seconds East - 565.38 feet to a 5/8" rebar set, said rebar set lying South 19 degrees 52 minutes 53 seconds West - 337.35 feet from a PK nail set in the center of a bridge over the center of a creek, said rebar also lying South 72 degrees 42 minutes 07 seconds West - 290.51 feet from an existing 1" iron pipe; thence, from said 5/8" rebar set, twenty-eight (28) new lines the following courses and distances: South 18 degrees 19 minutes 46 seconds East - 176.81 feet to a 5/8" rebar set, South 33 degrees 28 minutes 21 seconds East and crossing Little Pine Creek - 221.90 feet to a 5/8" rebar set, South 16 degrees 20 minutes 32 seconds East - 131.94 feet to a 5/8" rebar set, North 85 degrees 10 minutes 34 seconds West - 9.57 feet to a 5/8" rebar set, North 84 degrees 29 minutes 05 seconds West - 70.51 feet to a 5/8" rebar set, North 87 degrees 46 minutes 54 seconds West - 54.06 feet to a 5/8" rebar set, South 77 degrees 23 minutes 01 second West - 94.88 feet to a 5/8" rebar set, South 69 degrees 08 minutes 57 seconds West - 37.08 feet to a 5/8" rebar set, South 55 degrees 01 minute 34 seconds West - 86.84 feet to a 5/8" rebar set, North 25 degrees 32 minutes 35 seconds West - 16.24 feet to a 5/8" rebar set, North 86 degrees 43 minutes 21 seconds West - 74.97 feet to a 5/8" rebar set, North 79 degrees 43 minutes 45 seconds West - 44.48 feet to a 5/8" rebar set, North 54 degrees 21 minutes 15 seconds West - 66.21 feet to a 5/8" rebar set, North 79 degrees 55 minutes 18 seconds West - 99.15 feet to a 5/8" rebar set, South 70 degrees 41 minutes 35 seconds West - 37.98 feet to a 5/8" rebar set, North 69 degrees 52 minutes 32 seconds West - 43.48 feet to a 5/8" rebar set, North 78 degrees 26 minutes 54 seconds West - 79.88 feet to a 5/8" rebar set, South 66 degrees 04 minutes 25 seconds West - 73.38 feet to a 5/8" rebar set, South 77 degrees 30 minutes 56 seconds West - 40.22 feet to a 5/8" rebar set, South 27 degrees 14 minutes 06 seconds West - 127.52 feet to a 5/8" rebar set, North 88 degrees 18 minutes 55 seconds West - 70.38 feet to a 5/8" rebar set, South 01 degree 51 minutes 21 seconds East - 41.84 feet to a 5/8" rebar set, South 13 degrees 26 minutes 34 seconds West - 70.49 feet to a 5/8" rebar set, South 55 degrees 34 minutes 28 seconds West - 122.17 feet to a 5/8" rebar set, South 80 degrees 52 minutes 53 seconds West - 239.96 feet to a 5/8" rebar set, North 59 degrees 33 minutes 46 seconds West - 86.20 feet to a 5/8" rebar set, North 06 degrees 21 minutes 09 seconds West - 72.74 feet to a 5/8" rebar set, North 00 degrees 53 minutes 01 second East - 89.57 feet to the point of BEGINNING; containing 11.27 acres as shown by Suttles Surveying, PA on Map File No. 13680 and recorded in the Alleghany County Register of Deeds as Plat Book 10, Page 100.

Together with and subject to covenants, easements, and restrictions of record.

RSP
CCP

This Plat of Land shown hereon does not lie within the Allegheny County Water Supply Watershed Management & Protection Ordinance as Adopted December 28, 1983 and Amended December 1, 1997.

This Plat of Land hereon does not lie within a Protected Mountain Ridge as identified by the map entitled "Identification of Protected Mountain Ridges in the County of Allegheny."

This Plat of Land hereon does not lie within a Flood Hazard Area as determined by the Federal Emergency Management Agency.

This plat of land shown hereon does not lie within an area designated by the State of North Carolina as High Quality Water (HQW) or Outstanding Resource Waters (ORW).

1-23-2009
Date Review Officer

Subdivision Exception
This plat represents a survey or division of property that does not require approval from the Allegheny County Planning Board/Planner for the following reasons:
Article 5.18
Conservation Easement
1-23-2009
Date Review Officer

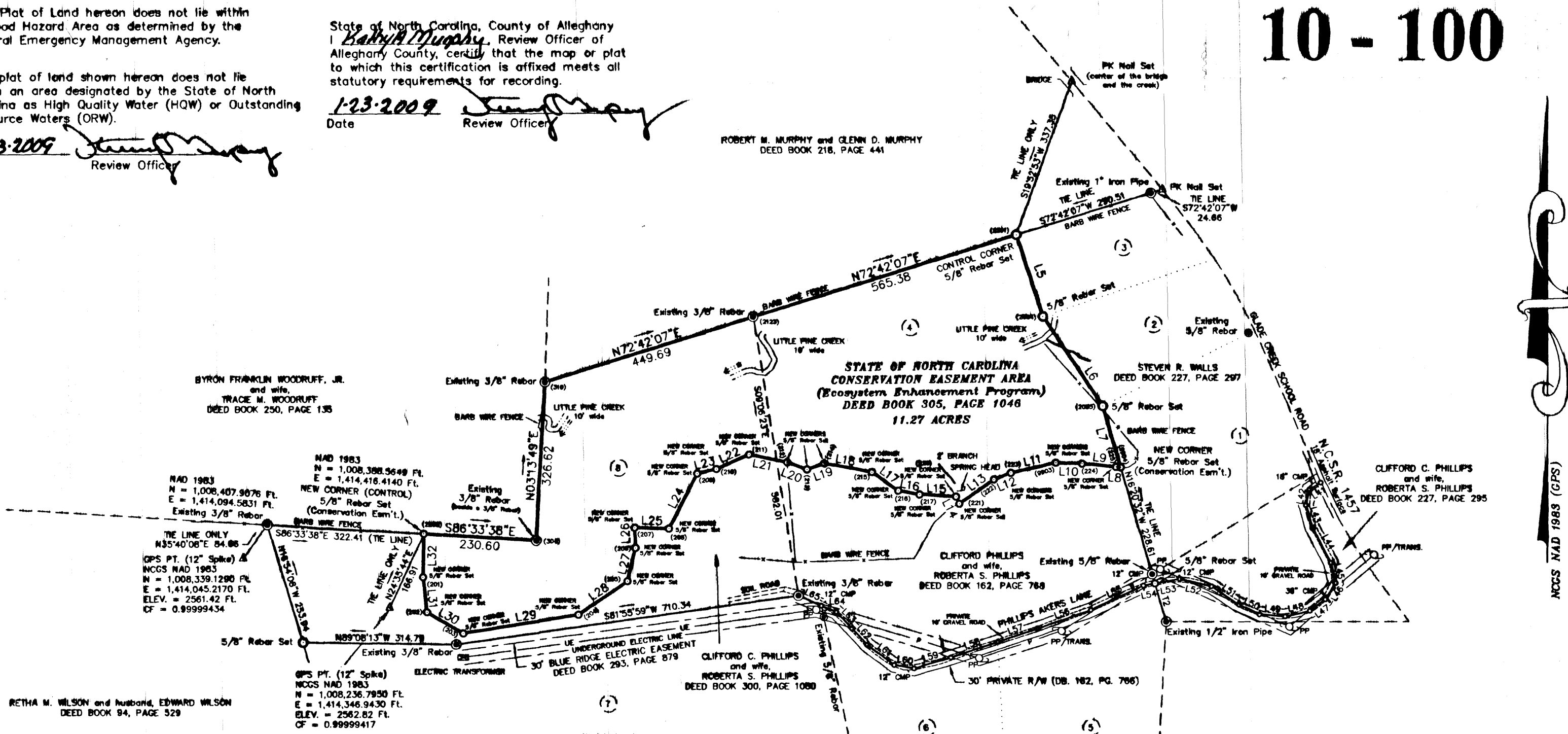
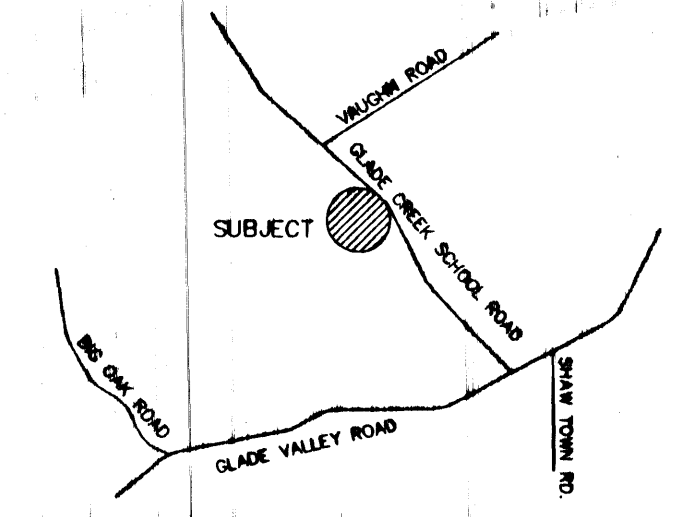
State of North Carolina, County of Allegheny
I, Robby A. Murphy, Review Officer of Allegheny County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.
1-23-2009
Date Review Officer

Private Road Disclosure
A privately maintained road serves this parcel of land. As a private road, and not a public road, the responsibility for maintenance of this road is upon the property owners. School Bus service is not provided on private roads by the Allegheny County School system. State road maintenance and snow removal are not provided on private roads by the NCDOT. Road conditions may adversely affect the timely delivery of emergency services.

Landowner Signatures
I have reviewed the survey located in Allegheny County and I am in agreement with the survey as it is prepared by Suttles Surveying, P.A., Kenneth D. Suttles, P.L.S., License # 2678.

Clifford C. Phillips
Roberta S. Phillips
DATE 01/22/2009
DATE 01/22/2009

10 - 100



BEARINGS AND DISTANCES ALONG THE PRIVATE 10' GRAVEL ROAD

LINE	LENGTH	BEARING
L41	27.94	S58°49'52"W
L42	32.82	S11°26'03"W
L43	48.52	S15°28'25"E
L44	80.57	S27°51'07"E
L45	43.25	S12°51'01"E
L46	39.70	S31°15'43"W
L47	40.05	S53°04'15"W
L48	51.73	S77°32'20"W
L49	52.92	N85°34'09"W
L50	46.38	N64°29'11"W
L51	69.00	N55°36'54"W
L52	67.06	N77°19'46"W
L53	51.36	S79°54'38"W
L54	24.33	S78°57'49"W
L55	118.95	S64°46'23"W
L56	116.22	S70°59'40"W
L57	86.37	S71°26'32"W
L58	101.45	S71°26'32"W
L59	78.86	S73°37'15"W
L60	41.75	N79°45'10"W
L61	69.46	N52°42'22"W
L62	45.43	N42°58'42"W
L63	46.82	N43°41'17"W
L64	33.33	N66°29'18"W
L65	51.76	N66°29'18"W

BEARINGS AND DISTANCES ALONG THE TIE LINES

LINE	LENGTH	BEARING
T1	20.00	S16°20'32"E
T2	82.62	N16°20'32"W

BEARINGS AND DISTANCES ALONG THE BOUNDARY OF THE NEW CONSERVATION EASEMENT

LINE	LENGTH	BEARING
L5	176.81	S18°19'46"E
L6	221.90	S33°28'21"E
L7	131.94	S16°20'32"E
L8	9.57	N85°10'34"W
L9	70.51	N84°29'05"W
L10	54.06	N87°46'54"W
L11	94.88	S77°23'01"W
L12	37.08	S69°08'57"W
L13	86.84	S55°01'34"W
L14	16.24	N25°32'35"W
L15	74.97	N86°43'21"W
L16	44.48	N79°43'45"W
L17	66.21	N54°21'15"W
L18	99.15	N79°55'18"W
L19	37.98	S70°41'35"W
L20	43.48	N69°52'32"W
L21	79.88	N78°26'54"W
L22	73.38	S66°04'25"W
L23	40.22	S77°30'56"W
L24	127.52	S27°14'06"W
L25	70.38	N88°18'55"W
L26	41.84	S01°51'21"E
L27	70.49	S13°26'34"W
L28	122.17	S55°34'28"W
L29	239.96	S80°52'53"W
L30	86.20	N59°33'46"W
L31	72.74	N06°21'09"W
L32	89.57	N00°53'01"E

NOTES:
ALL DISTANCES SHOWN HEREON ARE HORIZONTAL.
ALL AREAS DERIVED FROM COORDINATE COMPUTATIONS.
NO NORTH CAROLINA GEODETIC SURVEY MONUMENTATION IS WITHIN 2,000 FEET OF SUBJECT PROPERTY.
NO IMPROVEMENTS LOCATED OTHER THAN SHOWN HEREON.
NO UNDERGROUND UTILITIES LOCATED OTHER THAN SHOWN HEREON.
NO TITLE SEARCH CONDUCTED AT TIME OF SURVEY.
PROPERTY IS SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS OF RECORD, OR RESTRICTIVE COVENANTS.
THIS SURVEY DOES NOT CERTIFY LEGAL TITLE TO THE LAND ITSELF NOR THE BOUNDARIES SHOWN HEREON.
USERS OF THIS PLAT SHOULD OBTAIN A CURRENT LEGAL TITLE OPINION TO OWNERSHIP OF THE BOUNDARIES.
NUMBERS IN (#) PARENTHESES; SEE SPREADSHEET FOR COORDINATES.

COPYRIGHT © 2009 SUTTLES SURVEYING, P.A.
No part of this drawing may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, scanning or otherwise) without prior written permission.

FOR REFERENCE SEE A RECORDED PLAT OF THE PROPERTY OF ALPHAGEAN ANDERS ESTATE RECORDED IN MAP BOOK 8, PAGE 90 IN THE OFFICE OF THE REGISTER OF DEEDS OF ALLEGHENY COUNTY, NORTH CAROLINA.

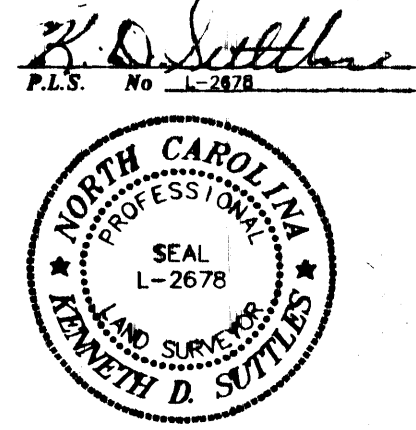
Suttles Surveying, P.A.
40 South Main Street Suite 200
MORRISON, NORTH CAROLINA 28752
828.652.9382
FAX 828.659.9600
TOLL FREE 800.652.9382
ken@suttlesurvey.com

419 SOUTH KING ST.
MORGANTON, NORTH CAROLINA 28655
828.433.0423
FAX 828.433.9577
TOLL FREE 800.652.9382
ken@suttlesurvey.com

NORTH CAROLINA, BURKE COUNTY
I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM AN ACTUAL FIELD SURVEY MADE UNDER MY DIRECTION AND SUPERVISION. DEED DESCRIPTION RECORDED IN DEED BOOK 300, PAGE 1080 and DEED BOOK 182, PAGE 788. THAT THE ERROR OF CLOSURE CALCULATED BY LATITUDES AND DEPARTURES IS 1: 10,000 + THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN SEE PLAT.

THIS MAP WAS PREPARED IN ACCORDANCE WITH THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF NORTH CAROLINA PER G.S. 47-30 AS AMENDED.

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 21th DAY OF JANUARY, A.D., 2009.



I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM CONTROL ESTABLISHED BY GPS. THAT THIS GPS SURVEY WAS PERFORMED TO CLASS "C" FCCC SPECIFICATIONS AND THAT I USED STATIC GPS FIELD PROCEDURES AND COORDINATES WERE OBTAINED BY LEAST SQUARES ADJUSTMENT. THAT THIS SURVEY WAS PERFORMED ON JULY 2008 USING TOPCON HYPER PLUS RECEIVERS AND ALL COORDINATES ARE BASED ON NAD '83/2008, NAD 1983 AND GRID 2008.

THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

REVISIONS:
FILED ALLEGHENY COUNTY LIZABETH REEVES ROUPE REGISTER OF DEEDS
FILED Jan 23, 2009
AT 11:30:54 am
BOOK 00010
START PAGE 0100
END PAGE 0100
INSTRUMENT # 00152

SCALE: 1" = 200'
DRAWN BY: FRANK POUNDS
DATE: OCTOBER 30, 2008
APPROVED BY: KDS
FIELD CREW: CG, JJ, JA, BM

LEGEND
POINT
IRON PIPE SET
EXISTING IRON PIPE
CONCRETE MONUMENT
P.E. NAIL, RAILROAD SPIKE or COTTON GIN SPIKE
POWER POLE

TAX MAP INFORMATION	PROJECT DESCRIPTION
NC PIN: 4010580202	SPD FILE NUMBER 003-2H
	NC Ecosystem Enhancement Program
	Project Name: Little Pine Creek II
	Owner: Clifford Phillips

Conservation Easement Survey for the State of North Carolina, Ecosystem Enhancement Program
Clade Creek Township
Allegheny County, N.C.

COMPUTER: 13680.dca	FIELD BOOK: 08-09, 08-10
FILE NAME: 13680.dwg	MAP FILE No. 13680

BK:00325 PG:0287

FILED
ALLEGHANY COUNTY
LIZABETH REEVES ROUPE
REGISTER OF DEEDS

FILED Jan 29, 2009
AT 03:56:35 pm
BOOK 00325
START PAGE 0287
END PAGE 0295
INSTRUMENT # 00208

STATE OF NORTH CAROLINA

CONSERVATION EASEMENT

ALLEGHANY COUNTY

SPO File Number 003-ZI

Prepared by: Office of the Attorney General

Property Control Section: Blane Rice

Return to: NC Department of Administration

State Property Office

1321 Mail Service Center

Raleigh, NC 27699-1321

13.00

Alleghany County 01-29-2009

NORTH CAROLINA

Real Estate

Excise Tax \$13.00

THIS CONSERVATION EASEMENT DEED, pursuant to the provisions of N.C. General Statutes Chapter 121, Article 4 and made this 29 day of January, 2009, by **Steven R. Walls**, ("Grantor"), whose mailing address is **525 Glade Creek School Road, Ennice North Carolina 28623** ("Grantee"), whose mailing address is State of North Carolina, Department of Administration, State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

TAX INFORMATION RECORDED
ALLEGHANY TAX COLLECTOR

WITNESSETH:

[Signature]
1/29/09

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 et seq., the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources has approved acceptance of this instrument; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Agreement, (MOA) duly executed by all parties in Greensboro, NC on July 22, 2003. This MOA recognizes that the Ecosystem Enhancement Program is to provide for compensatory mitigation by effective protection of the land, water and natural resources of the State by restoring, enhancing and preserving ecosystem functions; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and being in Glade Creek Township, Alleghany County, North Carolina (the "**Property**"), and being more particularly described as that certain parcel of land containing approximately **5.842** acres being conveyed to the Grantor by deed as recorded in **Deed Book 227 Page 297** of the Alleghany County Registry of Deeds, North Carolina; and

WHEREAS, Grantor is willing to grant a Conservation Easement over the herein described areas of the Property, thereby restricting and limiting the use of the included areas of the Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept such Conservation Easement. This Conservation Easement shall be for the protection and benefit of the waters of (Little Pine Creek II).

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement of the nature and character and to the extent hereinafter set forth, over a described area of the Property, referred to hereafter as the "**Conservation Easement Area**", for the benefit of the people of North Carolina, and being all of the tract of land as identified as **Conservation Easement Area A, 0.62 acres, Conservation Easement Area B, 0.05 acres, and Conservation Easement Area D 0.14 acres**", identified as shown on a plat of survey entitled "**Conservation Easement Survey for the State of North Carolina, Ecosystem Enhancement Program dated 1-08-09**", certified by Kenneth D. Suttles License #L2678 and recorded in Plat Book 10, Page 99, Alleghany Registry: Conservation Easement Area being more particularly described as follows:

[**LEGAL DESCRIPTION ATTACHED**]

The purposes of this Conservation Easement are to maintain, restore, enhance, create and preserve wetland and/or riparian resources in the Easement Area that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; to maintain permanently the Easement Area in its natural condition, consistent with these purposes; and to prevent any use of the Easement Area that will significantly impair or interfere with these purposes. To achieve these purposes, the following conditions and restrictions are set forth:

I. DURATION OF EASEMENT

Pursuant to law, including the above referenced statutes, this Conservation Easement shall be perpetual and it shall run with, and be a continuing restriction upon the use of, the Property, and it shall be enforceable by the Grantee against the Grantor and against Grantor's heirs, successors and assigns, personal representatives, agents, lessees, and licensees.

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITIES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. Without limiting the generality of the foregoing, the following specific uses are prohibited, restricted, or reserved as indicated:

A. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, bird watching, hunting and fishing, and access to the Easement Area for the purposes thereof. Usage of motorized vehicles in the Easement Area is prohibited, except as they are used exclusively for management, maintenance, or stewardship purposes, and on existing trails, paths or roads.

B. Educational Uses. The Grantor reserves the right to engage in and permit others to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

C. Vegetative Cutting. Except as related to the removal of non-native plants, diseased or damaged trees, and vegetation that obstructs, destabilizes or renders unsafe the Easement Area to persons or natural habitat, all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

D. Industrial, Residential and Commercial Uses. All are prohibited in the Easement Area.

E. Agricultural Use. All agricultural uses within the Easement Area including any use for cropland, waste lagoons, or pastureland are prohibited.

F. New Construction. There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

G. Roads and Trails. There shall be no construction of roads, trails, walkways, or paving in the Easement Area. Existing roads or trails located in the Easement Area may be maintained by Grantor in order to minimize runoff, sedimentation and for access to the interior of the Property for management, maintenance, stewardship purposes, or undeveloped recreational and educational uses of the Easement Area. Existing roads, trails or paths may be maintained with loose gravel or permanent vegetation to stabilize or cover the surfaces.

H. Signs. No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs identifying the owner of the Property and the holder of the Conservation Easement, signs giving

directions, or signs prescribing rules and regulations for the use of the Easement Area may be allowed.

I. Dumping or Storing. Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances or machinery, or other material in the Easement Area is prohibited.

J. Grading, Mineral Use, Excavation, Dredging. There shall be no grading, filling, excavation, dredging, mining, or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

K. Water Quality and Drainage Patterns. There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or diverting, causing, allowing or permitting the diversion of surface or underground water. No altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides is prohibited. In the event of an emergency interruption or shortage of all other water sources, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock and agricultural production.

L. Subdivision and Conveyance. Grantor voluntarily agrees that no subdivision, partitioning, or dividing of the underlying fee that is subject to this Easement is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the underlying fee for the Easement Area and the rights as conveyed herein shall be as a single block of property. Any future transfer of the fee simple shall be subject to this Conservation Easement. Any transfer of the fee is subject to the Grantee's right of unlimited and repeated ingress and egress over and across the Property to the Easement Area for the purposes set forth herein.

M. Development Rights. All development rights are removed from the Easement Area and shall not be transferred.

N. Disturbance of Natural Features. Any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species by Grantor is prohibited.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is consistent with the purposes of this Conservation Easement. The Grantor shall not vary from the above restrictions without first obtaining written approval from the N.C. Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699-1652.

III. GRANTEE RESERVED USES

A. Ingress, Egress, and Inspection. The Grantee, its employees and agents, successors and assigns, receive the perpetual right of unlimited and repeated ingress and egress to the Easement Area over the Property at reasonable times to undertake any activities to restore, manage, maintain, enhance, and monitor the wetland and riparian resources of the Easement

Area, in accordance with restoration activities or a long-term management plan. Unless otherwise specifically set forth in this Conservation Easement, the rights granted herein do not include or establish for the public any access rights.

B. Restoration Activities. These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterranean water flow.

IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features of the Easement Area that may have been damaged by such activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, their successors or assigns, that comes to the attention of the Grantee, the Grantee shall, except as provided below, notify the Grantor, their successors or assigns in writing of such breach. The Grantor shall have ninety (90) days after receipt of such notice to correct the conditions constituting such breach. If the breach remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by appropriate legal proceedings including damages, injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief if the breach of the term of this Conservation Easement is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement. The Grantor and Grantee acknowledge that under such circumstances damage to the Grantee would be irreparable and remedies at law will be inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area over the Property at reasonable times for the purpose of inspection to determine whether the Grantor, their successors or assigns are complying with the terms, conditions and restrictions of this Conservation Easement.

C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor, their successors or assigns, for any injury or change in the Easement Area caused by third parties, resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, damage to property or harm to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, their

successors or assigns, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

E. No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance, delay or omission by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be construed to be a waiver by Grantee.

V. MISCELLANEOUS

A. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

B. And Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances except those exceptions to title as noted, and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

C. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown above or to other address(es) as either party establishes in writing upon notification to the other.

D. Grantor shall notify Grantee in writing of the name and address and any party to whom the Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees to make any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed subject to the Conservation Easement herein created.

E. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

F. This Conservation Easement may be amended, but only in writing signed by all parties hereto, and provided such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement.

G. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area.

TO HAVE AND TO HOLD the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

Steven R. Walls (SEAL)
Steven R. Walls

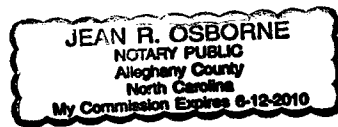
NORTH CAROLINA

COUNTY OF Alleghany

I, Jean R. Osborne, a Notary Public in and for the County and State aforesaid, do hereby certify that Steven R. Walls, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 29 day of JANUARY, 2009.

Jean R. Osborne
Notary Public



My commission expires:
6-12-2010

Legal descriptions of a 0.14 acre tract, a 0.05 acre tract, and a 0.62 acre tract located upon the lands of Steven R. Walls as recorded in Deed Book 227, Page 297, and being located in Glade Creek Township, Alleghany County, North Carolina as shown on a plat prepared by Suttles Surveying, PA captioned Conservation Easement Survey for the State of North Carolina Ecosystem Enhancement Program, map file number 13680B, dated January 8, 2009 and recorded in the Alleghany County Register of Deeds as Plat Book 10, Page 99.

First Tract:

BEGINNING on a 5/8 inch rebar set (station 9904) at a barb wire fence having NAD83 coordinates of N = 1,008,523.1045 feet and E = 1,415,849.2876 feet and being located North 16 degrees 20 minutes 32 seconds West -228.61 feet from a 5/8 inch existing rebar which is the Southwest corner of the aforementioned Deed Book 227, Page 297; thence, from said point of BEGINNING North 16 degrees 20 minutes 32 seconds West - 103.55 feet with the common line of a portion of the Clifford C. Phillips and wife Roberta S. Phillips property as recorded in Deed Book 162, Page 768 to be conveyed to the State of North Carolina as recorded in Deed Book 305, Page 1046 to a 5/8 inch rebar set (station 2036) in the Phillips Eastern boundary line; thence, leaving said Phillips line and running a new line through the aforementioned Walls property, South 79 degrees 54 minutes 02 seconds East - 95.47 feet to a 5/8 inch rebar set as a new corner (station 2035); thence, continuing a new line South 16 degrees 24 minutes 21 seconds West - 76.63 feet to a 5/8 inch rebar set (station 2034), a new corner; thence, continuing a new line, South 78 degrees 05 minutes 14 seconds West - 44.16 feet to the point of BEGINNING and containing 0.14 acres.

Second Tract:

BEGINNING on a new corner, a 5/8 inch rebar set near a small stream in the Eastern boundary line of a portion of the Clifford C. Phillips and wife Roberta S. Phillips property as recorded in Deed Book 162, Page 768 to be conveyed to the State of North Carolina as recorded in Deed Book 305, Page 1046 and being located North 33 degrees 28 minutes 21 seconds West - 146.62 feet from a 5/8 inch rebar set, the Northwest corner of Deed Book 227, Page 297 Tract One and the Southwest corner of Tract Two of the same; thence, with the Eastern line crossing Little Pine Creek, North 33 degrees 28 minutes 21 seconds West - 75.28 feet to a 5/8 inch rebar set (station 2084); thence, continuing with the Phillips line, a new bearing of North 18 degrees 19 minutes 46 seconds West - 50.53 feet to a 5/8 inch rebar set (station 2039) in the Phillips line, said point being located South 18 degrees 19 minutes 46 seconds East - 126.28 feet from a 5/8 inch rebar set as a control corner (station 2201); thence, leaving the Phillips line and running a new line, North 74 degrees 40 minutes 36 seconds East - 27.60 feet to a 5/8 inch rebar set (station 2038), a new corner; thence, another new line, South 14 degrees 37 minutes 00 seconds East - 122.00 feet to the point of BEGINNING and containing 0.05 acres.

Third Tract:

BEGINNING on a 5/8 inch rebar set (station 2040) in the Northern line of the Walls tract as recorded in Deed Book 227, Page 297 and being in the Southern boundary line of the Robert M. Murphy and Glenn D. Murphy tract as recorded in Deed Book 218, Page 441 and is located South 72 degrees 42 minutes 07 seconds West - 63.58 feet from a control point, an existing 1" inch iron pipe having NAD83 coordinates of N = 1,009,089.0409 and E = 1,415,911.9412; thence, a new line through the Walls property, South 35 degrees 37 minutes 37 seconds East - 74.99 feet to a 5/8 inch rebar set, a new corner (station 2013); thence, continuing a new line South 05 degrees 31 minutes 41 seconds West - 112.35 feet to a 5/8 inch rebar set, a new corner (station 2014); thence, continuing another new line, South 34 degrees 39 minutes 18 seconds West - 67.81 feet to a 5/8 inch rebar set, a new corner (station 2203); thence, continuing South 66 degrees 10 minutes 06 seconds West - 94.13 feet to a 5/8 inch rebar set, a new corner (station 2001); thence, continuing another new line and crossing Little Pine Creek, North

SRW

17 degrees 08 minutes 01 second West - 97.91 feet to a 5/8 inch rebar set, a new corner (station 2002); thence, continuing a new line, North 65 degrees 44 minutes 33 seconds East - 59.21 feet to a 5/8 inch rebar set, a new corner (station 2003); thence, continuing another new line North 00 degrees 56 minutes 07 seconds East - 84.59 feet to a 5/8 inch rebar set, a new corner (station 2004); thence, continuing with a new line North 62 degrees 08 minutes 57 seconds West - 58.98 feet to a 5/8 inch rebar set near a barb wire fence in the aforementioned common line with Murphy and Walls; thence, along the common line North 72 degrees 42 minutes 07 seconds East - 123.00 feet to the point of BEGINNING and containing 0.62 acres.

SRW

Landowner Signature
 I have reviewed the survey located in Allegheny County and I am in agreement with the survey as it is prepared by Suttles Surveying, P.A., Kenneth D. Suttles, P.L.S. License # 2678.
St. R. Walls 1-15-09
 OWNER DATE

NORTH based on a survey by Suttles Surveying, P.A.
 MAP FILE No. 13680

ROBERT M. MURPHY and GLENN D. MURPHY
 DEED BOOK 218, PAGE 441

10 - 99

F. GUY WALKER and wife, EARLINE M. WALKER
 DEED BOOK 130, PAGE 349

F. GUY WALKER and wife, EARLINE M. WALKER
 DEED BOOK 137, PAGE 684

STATE OF NORTH CAROLINA
 CONSERVATION EASEMENT AREA "B"
 (Ecosystem Enhancement Program)
 DEED BOOK 307, PAGE 1022

STATE OF NORTH CAROLINA
 CONSERVATION EASEMENT AREA "A"
 (Ecosystem Enhancement Program)
 DEED BOOK 307, PAGE 1022

5.03 ACRES
 STEVEN R. WALLS
 DEED BOOK 227, PAGE 297

STATE OF NORTH CAROLINA
 CONSERVATION EASEMENT AREA "D"
 (Ecosystem Enhancement Program)
 DEED BOOK 307, PAGE 1022

STATE OF NORTH CAROLINA CONSERVATION EASEMENT AREA
 DEED BOOK 305, PAGE 1046
 For reference see a survey by Suttles Surveying, P.A.
 MAP FILE No. 13680

This Plot of Land herein does not lie within a Protected Mountain Ridge as identified by the map entitled "Identification of Protected Mountain Ridges in the County of Allegheny."

This Plot of Land herein does not lie within a Flood Hazard Area as determined by the Federal Emergency Management Agency.

This plot of land shown herein does not lie within an area designated by the State of North Carolina as High Quality Water (HQW) or Outstanding Resource Waters (ORW).

This Plot of Land shown herein does not lie within the Allegheny County Water Supply Watershed Management & Protection Ordinance as Adopted December 28, 1983 and Amended December 1, 1997.

Date 1-23-2009 Review Officer [Signature]

Subdivision Exception
 This plot represents a survey or division of property that does not require approval from the Allegheny County Planning Board/Planner for the following reasons:
Parcel B, 10 Conservation Easement

Date 1-23-2009 Review Officer [Signature]

State of North Carolina, County of Allegheny
 I, [Signature], Review Officer of Allegheny County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

Date 1-23-2009 Review Officer [Signature]

FOR REFERENCE SEE A RECORDED PLAT OF THE PROPERTY OF ALPHAGEAN ANDERS ESTATE RECORDED IN MAP BOOK 8, PAGE 90 IN THE OFFICE OF THE REGISTER OF DEEDS OF ALLEGHENY COUNTY, NORTH CAROLINA.

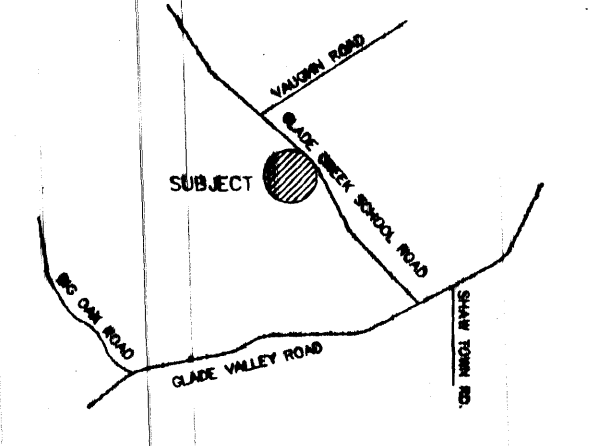
A Portion of:
 CLIFFORD C. PHILLIPS and wife, ROBERTA S. PHILLIPS
 DEED BOOK 182, PAGE 788

CLIFFORD C. PHILLIPS and wife, ROBERTA S. PHILLIPS
 DEED BOOK 227, PAGE 295

DANNY RAY ANDERS and wife, DESREE R. ANDERS
 DEED BOOK 182, PAGE 692

NOTES:
 ALL DISTANCES SHOWN HEREON ARE HORIZONTAL.
 ALL AREAS DERIVED FROM COORDINATE COMPUTATIONS.
 NO NORTH CAROLINA GEODETIC SURVEY MONUMENTATION IS WITHIN 2,000 FEET OF SUBJECT PROPERTY.
 NO IMPROVEMENTS LOCATED OTHER THAN SHOWN HEREON.
 NO UNDERGROUND UTILITIES LOCATED OTHER THAN SHOWN HEREON.
 NO TITLE SEARCH CONDUCTED AT TIME OF SURVEY.
 PROPERTY IS SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS OF RECORD, OR RESTRICTIVE COVENANTS.
 THIS SURVEY DOES NOT CERTIFY LEGAL TITLE TO THE LAND ITSELF NOR THE BOUNDARIES SHOWN HEREON.
 USERS OF THIS PLAT SHOULD OBTAIN A CURRENT LEGAL TITLE OPINION TO OWNERSHIP OF THE BOUNDARIES.
 NUMBER IN (#) PARENTHESES, SEE SPREAD SHEET FOR COORDINATES.

COPYRIGHT © 2009 SUTTLES SURVEYING, P.A.
 No part of this drawing may be reproduced, stored on a retrieval system or transmitted in any form or by any means (electronic, mechanical, photocopying, scanning or otherwise) without prior written permission.



VICINITY MAP NOT TO SCALE

NORTH CAROLINA, BURKE COUNTY

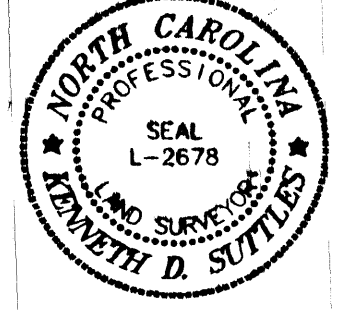
I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM AN ACTUAL FIELD LAND SURVEY MADE UNDER MY DIRECTION AND SUPERVISION, DEED DESCRIPTION RECORDED IN DEED BOOK 227, 297

THAT THE ERROR OF CLOSURE CALCULATED BY LATITUDES AND DEPARTURES IS 1: 10,000 ± THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN SEE PLAT

THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF NORTH CAROLINA PER G.S. 47-30 AS AMENDED.

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 8th DAY OF JANUARY A.D., 2009.

[Signature]
 P.L.S. No. L-2678



I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM CONTROL ESTABLISHED BY GPS. THAT THIS GPS SURVEY WAS PERFORMED TO CLASS "C" PCCC SPECIFICATIONS AND THAT I USED STATIC, GPS FIELD PROCEDURES AND COORDINATES WERE OBTAINED BY LEAST SQUARES ADJUSTMENT. THAT THIS SURVEY WAS PERFORMED ON JULY 2008 USING TOPCON HYPER PLUS RECEIVERS AND ALL COORDINATES ARE BASED ON NAD '83/2003, NAVD 1988 AND GEOID 2003.

THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

REVISIONS:

FILED ALLEGHENY COUNTY LIZABETH REEVES ROUPE REGISTER OF DEEDS

FILED Jan 23, 2009
 AT 11:30:27 am
 BOOK 00010
 START PAGE 0099
 END PAGE 0099
 INSTRUMENT # 00151



SCALE: 1" = 60'
 DATE: OCTOBER 30, 2008
 FIELD CREW: CG, JJ, JA, EM

LEGEND

- POINT
- ⊙ IRON PIPE SET
- ⊖ EXISTING IRON PIPE
- ⊕ CONCRETE MONUMENT
- ⚓ P.E. NAIL, RAILROAD SPIKE OR COTTON GIN SPIKE
- ⚡ POWER POLE

Suttles Surveying, P.A.
 40 South Main Street Suite 200 MARION, NORTH CAROLINA 28752
 628.652.9382 FAX 628.659.9600 TOLL FREE 800.832.9382
 419 SOUTH KING ST. BURGANTON, NORTH CAROLINA 28655
 828.433.0423 FAX 828.433.9577
 ken@suttlesurvey.com

Conservation Easement Survey for the State of North Carolina
 Ecosystem Enhancement Program
 Clade Creek Township Allegheny County, N.C.

TAX MAP INFORMATION
 NC PIN 4010680637

PROJECT DESCRIPTION
 SPO FILE NUMBER 003-21
 NC Ecosystem Enhancement Program
 Project Name: Little Pine Creek II
 Owner: Steven R. Walls

FILED May 22, 2008
AT 10:25:33 am
BOOK 00318
START PAGE 1405
END PAGE 1412
INSTRUMENT # 01418

STATE OF NORTH CAROLINA

CONSERVATION EASEMENT

Alleghany COUNTY

SPO File Number 003-ZJ

Prepared by: Office of the Attorney General

Property Control Section

Return to: NC Department of Administration

State Property Office: Blane Rice

1321 Mail Service Center

Raleigh, NC 27699-1321

THIS CONSERVATION EASEMENT DEED, made this 22 day of MAY, 2008, by Dewayne L. Roberts and wife Jennie S. Roberts, ("Grantor"), whose mailing address is 223 Wilson Rd. Ennice, NC 28623, to the State of North Carolina, ("Grantee"), whose mailing address is State of North Carolina, Department of Administration, State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESSETH:

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 et seq., the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources has approved acceptance of this instrument; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Agreement, (MOA) duly executed by all parties in Greensboro, NC on July 22, 2003. This MOA recognizes that the Ecosystem Enhancement Program is to provide for compensatory mitigation by effective protection of the land, water and natural resources of the State by restoring, enhancing and preserving ecosystem functions; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and being in Glade Creek Township, Alleghany County, North Carolina (the "**Property**"), and being more particularly described as that certain parcel of land containing approximately 24.43 acres and being conveyed to the Grantor by deed as recorded in **Deed Book 213 at Page 473** of the Alleghany County Registry, North Carolina; and

WHEREAS, Grantor is willing to grant a Conservation Easement over the herein described areas of the Property, thereby restricting and limiting the use of the included areas of the Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept such Conservation Easement. This Conservation Easement shall be for the protection and benefit of the waters of **Little Pine Creek II**

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement of the nature and character and to the extent hereinafter set forth, over a described area of the Property, referred to hereafter as the "**Easement Area**", for the benefit of the people of North Carolina, and being all of the tract of land as identified as Conservation Easement Area, approximately 1.17 Acres as shown on a plat of survey entitled "**Conservation Easement Survey**" dated January 3, 2008, certified by Kenneth D.Suttles and recorded in **Map Book 0010, Page 0030** Alleghany County Registry. Easement Area being more particularly described as follows:

[SEE ATTACHED EXHIBIT]
Legal Description

The purposes of this Conservation Easement are to maintain, restore, enhance, create and preserve wetland and/or riparian resources in the Easement Area that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; to maintain permanently the Easement Area in its natural condition, consistent with these purposes; and to prevent any use of the Easement Area that will significantly impair or interfere with these purposes. To achieve these purposes, the following conditions and restrictions are set forth:

I. DURATION OF EASEMENT

This Conservation Easement shall be perpetual. It is an easement in gross, runs with the land, and is enforceable by Grantee against Grantor, their personal representatives, heirs, successors, and assigns, lessees, agents, and licensees.

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. The following specific uses are prohibited, restricted, or reserved as indicated:

A. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, bird watching, hunting and fishing, and access to the Easement Area for the purposes thereof. Usage of motorized vehicles in the Easement Area is prohibited, except as they are used exclusively for management, maintenance, or stewardship purposes, and on existing trails, paths or roads.

B. Educational Uses. The Grantor reserves the right to engage in and permit others to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

C. Vegetative Cutting. Except as related to the removal of non-native plants, diseased or damaged trees, and vegetation that obstructs, destabilizes or renders unsafe the Easement Area to persons or natural habitat, all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

D. Industrial, Residential and Commercial Uses. All are prohibited in the Easement Area.

E. Agricultural Use. All agricultural uses within the Easement Area including any use for cropland, waste lagoons, or pastureland are prohibited.

F. New Construction. There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

G. Roads and Trails. There shall be no construction of roads, trails, walkways, or paving in the Easement Area. Existing roads or trails located in the Easement Area may be maintained by Grantor in order to minimize runoff, sedimentation and for access to the interior of the Property for management, maintenance, stewardship purposes, or undeveloped recreational and educational uses of the Easement Area. Existing roads, trails or paths may be maintained with loose gravel or permanent vegetation to stabilize or cover the surfaces.

H. Signs. No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs identifying the owner of the Property and the holder of the Conservation Easement, signs giving directions, or signs prescribing rules and regulations for the use of the Easement Area may be allowed.

I. Dumping or Storing. Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances or machinery, or other material in the Easement Area is prohibited.

J. Grading, Mineral Use, Excavation, Dredging. There shall be no grading, filling, excavation, dredging, mining, or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

K. Water Quality and Drainage Patterns. There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or diverting, causing, allowing or permitting the diversion of surface or underground water. No altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides is prohibited. In the event of an emergency interruption or shortage of all other water sources, drought, or current irrigation system fails, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock, agricultural and nursery production. In addition, portable pumps with attached hoses are allowed in the Easement Area provided they do not unnecessarily uproot the vegetation therein.

Any Grantor impacts to the Easement Area because of irrigation, repairs, or maintenance, shall be done in a manner that restores any disturbed soils and vegetation to the previous condition to the greatest extent practicable.

Grantor will need to seek permission from the Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699, if access to the stream waters becomes a routine or permanent process.

L. Subdivision and Conveyance. Grantor voluntarily agrees that no subdivision, partitioning, or dividing of the underlying fee that is subject to this Easement is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the underlying fee for the Easement Area and the rights as conveyed herein shall be as a single block of property. Any future transfer of the fee simple shall be subject to this Conservation Easement. Any transfer of the fee is subject to the Grantee's right of ingress, egress, and regress over and across the Property to the Easement Area for the purposes set forth herein.

M. Development Rights. All development rights are removed from the Easement Area and shall not be transferred.

N. Disturbance of Natural Features. Any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species by Grantor is prohibited.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is consistent with the purposes of this Conservation Easement. The Grantor shall not vary from the above restrictions without first obtaining written approval from the N.C. Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699-1652.

III. GRANTEE RESERVED USES

A. Ingress, Egress, Regress, and Inspection. The Grantee, its employees and agents, successors and assigns, receive the perpetual right of general ingress, egress, and regress to the Easement Area over the Property at reasonable times to undertake any activities to restore, manage, maintain, enhance, and monitor the wetland and riparian resources of the Easement Area, in accordance with restoration activities or a long-term management plan. Unless otherwise specifically set forth in this Conservation Easement, the rights granted herein do not include or establish for the public any access rights.

B. Restoration Activities. These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterranean water flow.

IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features of the Easement Area that may have been damaged by such activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, their successors or assigns, that comes to the attention of the Grantee, the Grantee shall, except as provided below, notify the Grantor, their successors, or assigns in writing of such breach. The Grantor shall have ninety (90) days after receipt of such notice to correct the conditions constituting such breach. If the breach remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by appropriate legal proceedings including damages, injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief if the breach of the term of this Conservation Easement is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement. The Grantor and Grantee acknowledge that under such circumstances damage to the Grantee would be irreparable and remedies at law will be inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area over the Property at reasonable times for the purpose of inspection to determine whether the Grantor, their successors or assigns are complying with the terms, conditions and restrictions of this Conservation Easement.

C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor, their successors or assigns, for any injury or change in the Easement Area caused by third parties,

resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, damage to property or harm to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, their successors or assigns, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance, delay or omission by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be construed to be a waiver by Grantee.

V. MISCELLANEOUS

A. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

B. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown above or to other address (es) as either party establishes in writing upon notification to the other.

C. Grantor shall notify Grantee in writing of the name and address and any party to whom the Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees to make any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed subject to the Conservation Easement herein created.

D. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

E. This Conservation Easement may be amended, but only in writing signed by all parties hereto, and provided such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement.

F. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the

transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area.

TO HAVE AND TO HOLD the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

Wayne L. Roberts (SEAL)
Jennie S. Roberts (SEAL)

NORTH CAROLINA

COUNTY OF Allegheny

I, Jean R. Osborne a Notary Public in and for the County and State aforesaid, do hereby certify that Wayne L. Roberts and Jennie S. Roberts Grantor, personally appeared before me this day, and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 22 day of May, 2008.

Jean R. Osborne
Notary Public

My commission expires:

6-12-10

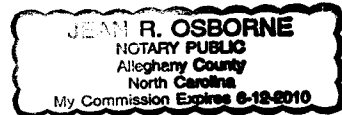
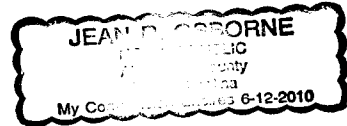


Exhibit A Legal Description

State Property Office, Roberts 13638

Legal description of the conservation easement for the State of North Carolina and being a portion of the DeWayne L. Roberts and wife Jennie S. Roberts property located in Glade Creek Township, Alleghany County, North Carolina and being a portion of Deed Book 213, Page 473. Beginning on a 5/8 inch rebar set, a new corner of said easement; said rebar is located North 13 degrees 05 minutes 59 seconds West, 96.27 feet from the west corner of the bridge on State Road 1457 commonly known as Glade Creek School Road; said iron pipe is also located a bearing of South 41 degrees 02 minutes 17 seconds east 359.31 feet from a 12 inch spike, a GPS point whose coordinates are NAD 1983, North 1,009,689.248; East 1,415,468.807; elevation 2594.65 feet; combined scale factor.99999420 also said iron pipe is being located in the northeastern line of the right of way of State Road 1457, known as Glades Creek School Road and runs seven new courses and distances through the Roberts property and said line being also located northwest of the stream; thence North 80 degrees 28 minutes 31 seconds East, 73.67 feet to a half inch rebar set with a cap; thence South 76 degrees 48 minutes 50 seconds East, 54.82 feet to a one half inch rebar set with cap; thence North 43 degrees 15 minutes 28 seconds East, 107.38 feet to a one half inch rebar set with cap; thence North 42 degrees 22 minutes 35 seconds East, 127.64 feet to a one half inch rebar set with cap; thence continuing North 45 degrees 51 minutes 46 seconds East, 79.16 feet to a one half inch rebar set with cap; thence North 54 degrees 08 minutes 42 seconds East, 45.28 feet to a one half inch rebar set with cap; thence North 54 degrees 08 minutes 42 seconds East, 44.64 feet to a 5/8 inch rebar set in the eastern boundary line of the said Roberts property and being located in the western boundary of the Dallas Bedsaul property as recorded in Deed Book 310, Page 223, the first tract; thence with the outside line of the DeWayne Roberts property and the west line of the Dallas Bedsaul property South 22 degrees 54 minutes 19 seconds East, 87.20 feet to a 5/8 inch rebar set at a fence corner; said rebar being the fifteenth corner of Deed Book 213, Page 473, being the eleventh corner of Deed Book 130, Page 349, and being the thirteenth corner of Deed Book 310, Page 223, of the fourth tract, said corner also being a northwest corner of the F. Guy Walker and wife Earline M. Walker property as recorded in Deed Book 130, Page 349, thence with the outside line of the DeWayne Roberts property and the northern line of the F. Guy Walker property South 44 degrees 04 minutes 00 seconds West, 474.78 feet to a 5/8 inch rebar set, a new corner of said Easement in the old outside line, said corner is also located a bearing of North 44 degrees 04 minutes 00 seconds East, 7.41 feet from a 5/8 inch rebar which is in the outside line of the Walker and Roberts property; said new corner in the Easement is also located thirty feet northeast of the centerline of Glades Creek School Road, State Road 1457; thence with the northeastern right of way line of State Road 1457 and known as Glades Creek School Road, North 40 degrees 04 minutes 50 seconds West, 184.92 feet crossing the centerline of the stream and a small branch to the point of beginning, containing 1.17 acres and being a portion of the DeWayne.L. Roberts and wife Jennie S. Roberts property as recorded in Deed Book 213, Page 473, and shown on a plat prepared by Suttles Surveying, P.A. and dated December 18, 2007, captioned Conservation Easement Survey for the State of North Carolina, Glade Creek Township, Alleghany County, North Carolina.

FILED
ALLEGHANY COUNTY
LIZABETH REEVES ROUPE
REGISTER OF DEEDS

FILED Mar 06, 2008
AT 10:14:33 am
BOOK 00010
START PAGE 0030
END PAGE 0030
INSTRUMENT # 00595

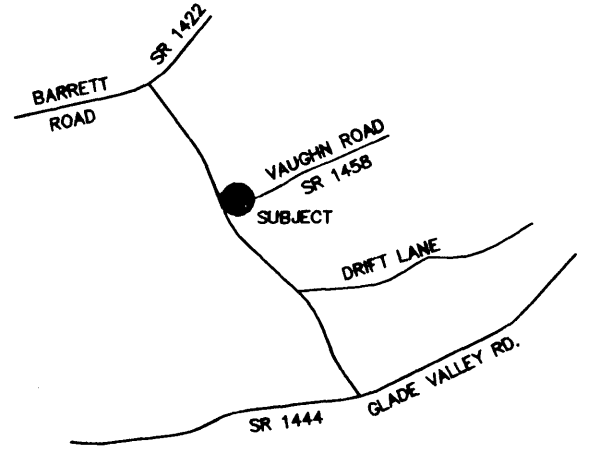
EDITH C. DeBORD and husband, RONALD DeBORD
DEED BOOK 139, PAGE 11
PLAT BOOK 7, PAGE 23, TRACT 3

DeWAYNE L. ROBERTS
and wife,
JENNIE S. ROBERTS
DEED BOOK 224, PAGE 32

DeWAYNE L. ROBERTS and wife, JENNIE S. ROBERTS
DEED BOOK 213, PAGE 473
For reference see a map by Lands End Surveying, dated September 1, 1998,
entitled, "Boundary Division For 'GLENN D. MURPHY HEIRS.'" DRAWING No. 98-042

State of North Carolina, County of Alleghany
I, Barth A. Muehler, Review Officer of Alleghany County,
certify that the map or plat to which this certification is
affixed meets all statutory requirements for recording.

Barth A. Muehler Review Officer Date March 9, 2008



Certificate of Exception
I (we) hereby certify that I am (we are) the owners(s) of the
property shown and described hereon, which was conveyed to me (us)
by deed recorded in Book 213, Page 473, and that the subdivision
of the property shown on this plat is an exception to the Subdivision Ordinance
of Alleghany County, North Carolina under Section 32-1.

OWNER DeWayne L. Roberts DATE 3/5/08
OWNER Jennie S. Roberts DATE 3/5/08

SUBDIVISION ADMINISTRATOR _____ DATE _____
Alleghany County

REVISIONS:
REVISED DECEMBER 31, 2007, ADDED WORDS CONSERVATION EASEMENT.
REVISED JANUARY 3, 2008, ADDED CERTIFICATE OF EXCEPTION STATEMENT.

NORTH CAROLINA, ALLEGHANY COUNTY
THE FOREGOING CERTIFICATE OF
NOTARY PUBLIC FOR ALLEGHANY COUNTY IS CERTIFIED
TO BE CORRECT AND FILED FOR REGISTRATION ON
THIS _____ DAY OF _____, 20____ AT
_____ AM PM IN BOOK _____ PC _____

REGISTER OF DEEDS



SCALE: 1" = 100'
DATE: DECEMBER 19, 2007
FIELD CREW: JOHN JOLLY, SCOTT HANNA, LARRY CORPENING

LEGEND
● POINT
○ IRON PIPE SET
⊖ EXISTING IRON PIPE
⊖ CONCRETE MONUMENT
⊖ P.I. NAIL, RAILROAD SPIKE or COTTON GIN SPIKE
⊖ POWER POLE

COMPUTER 13638.DCA FIELD BOOK 07-17
FILE NAME 13638.DWG MAP FILE No. 13638-R1

NORTH CAROLINA, BURKE COUNTY
I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY
DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM
AN ACTUAL FIELD LAND SURVEY MADE UNDER MY DIRECTION
AND SUPERVISION, DEED DESCRIPTION RECORDED IN _____
DEED BOOK 213, PAGE 473

THAT THE ERROR OF CLOSURE CALCULATED BY LATITUDES AND
DEPARTURES IS 1:10,000+ THAT THE BOUNDARIES
NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM
INFORMATION FOUND IN _____ SEE PLAT

THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH THE
STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE
OF NORTH CAROLINA PER G.S. 47-30 AS AMENDED.

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND
SEAL THIS 3rd DAY OF JANUARY, 2008.



I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY
DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM
CONTROL ESTABLISHED BY GPS. THAT THIS GPS SURVEY WAS
PERFORMED TO CLASS "C" FCCC SPECIFICATIONS AND
THAT I USED STATIC GPS FIELD PROCEDURES AND
COORDINATES WERE OBTAINED BY LEAST SQUARES ADJUSTMENT.
THAT THIS SURVEY WAS PERFORMED ON DECEMBER 2007 USING
TOPCON HYPER PLUS RECEIVERS AND ALL COORDINATES
ARE BASED ON NAD '83/2003, NAVD 1988 AND GROID 2003.

THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION
OF EXISTING PARCELS, A COURT ORDERED SURVEY, OR OTHER
EXCEPTION TO THE DEFINITION OF SUBDIVISION.

BEARINGS AND DISTANCES ALONG THE
NEW BOUNDARY OF THE CONSERVATION EASEMENT

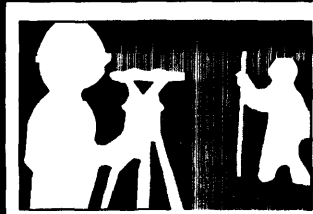
LINE	LENGTH	BEARING
L1	73.67	N80°28'31"E
L2	54.82	S76°48'50"E
L3	107.38	N43°15'28"E
L4	127.64	N42°22'35"E
L5	79.16	N45°51'46"E
L6	45.28	N54°08'42"E
L7	44.64	N54°08'42"E
L8	87.20	S22°54'19"E

NOTES:
ALL DISTANCES SHOWN HEREON ARE HORIZONTAL.
ALL AREAS DERIVED FROM COORDINATE COMPUTATIONS.
NO NORTH CAROLINA GEODETIC SURVEY MONUMENTATION
IS WITHIN 2,000 FEET OF SUBJECT PROPERTY.
NO IMPROVEMENTS LOCATED OTHER THAN SHOWN HEREON.
NO UNDERGROUND UTILITIES LOCATED OTHER THAN SHOWN HEREON.
NO TITLE SEARCH CONDUCTED AT TIME OF SURVEY.
PROPERTY IS SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS
OF RECORD, OR RESTRICTIVE COVENANTS.
THIS SURVEY DOES NOT CERTIFY LEGAL TITLE TO THE LAND
ITSELF NOR THE BOUNDARIES SHOWN HEREON.
USERS OF THIS PLAT SHOULD OBTAIN A CURRENT LEGAL TITLE
OPINION TO OWNERSHIP OF THE BOUNDARIES.

COPYRIGHT © 2008 SUTTLES SURVEYING, P.A.

TAX MAP INFORMATION
PIN: 4011504288
SUBDIVISION: K3-043

Conservation Easement Survey For:
STATE OF NORTH CAROLINA
Glade Creek Township Alleghany County, N.C.



Suttles Surveying, P.A.
40 South Main Street Suite 200
MARION, NORTH CAROLINA 28752
828.652.9382
FAX 828.659.9600
TOLL FREE 800.652.9382
doug@suttlessurveying.com

419 SOUTH KING ST.
MORGANTON, NORTH CAROLINA 28655
828.433.0423
FAX 828.433.9577
ken@suttlessurveying.com

FILED
ALLEGHANY COUNTY
LIZABETH REEVES ROUPE
REGISTER OF DEEDS

FILED Jan 29, 2009
AT 03:54:18 pm
BOOK 00325
START PAGE 0278
END PAGE 0286
INSTRUMENT # 00207

STATE OF NORTH CAROLINA

CONSERVATION EASEMENT

ALLEGHANY COUNTY
SPO File Number 003-ZL

Prepared by: Office of the Attorney General
Property Control Section: Blane Rice
Return to: NC Department of Administration
State Property Office
1321 Mail Service Center
Raleigh, NC 27699-1321

Alleghany County 01-29-2009
NORTH CAROLINA
Real Estate
Excise Tax \$12.00

12.00

THIS CONSERVATION EASEMENT, pursuant to the provisions of N.C. General Statutes Chapter 121, Article 4 and made this 23 day of January, 2009, by **Glenn D. Murphy and wife Judy S. Murphy**, ("Grantor"), whose mailing address is **703 Glade Creek School Rd. Ennice, NC 28623**, and **Robert M. Murphy and Michelle D. Murphy** whose mailing address is **2314 Dogwood Lane, Clarksville, TN 37043**, ("Grantee"), whose mailing address is State of North Carolina, Department of Administration, State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESSETH:

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 et seq., the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources has approved acceptance of this instrument; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Agreement, (MOA) duly executed by all parties in Greensboro, NC on July 22, 2003. This MOA recognizes that the Ecosystem Enhancement

Greensboro, NC on July 22, 2003. This MOA recognizes that the Ecosystem Enhancement Program is to provide for compensatory mitigation by effective protection of the land, water and natural resources of the State by restoring, enhancing and preserving ecosystem functions; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and being in **Glade Township, Alleghany County, North Carolina** (the "**Property**"), and being more particularly described as that certain parcel of land containing **approximately 25.96 acres** and being conveyed to the Grantor by deed as recorded in **Deed Book 218 Page 441** of the **Alleghany County Registry of Deeds in , North Carolina**; and

WHEREAS, Grantor is willing to grant a Conservation Easement over the herein described areas of the Property, thereby restricting and limiting the use of the included areas of the Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept such Conservation Easement. This Conservation Easement shall be for the protection and benefit of the waters of **(Little Pine Creek II)**.

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement of the nature and character and to the extent hereinafter set forth, over a described area of the Property, referred to hereafter as the "**Easement Area**", for the benefit of the people of North Carolina, and being all of the tract of land as identified as **Conservation Easement with 0.62 acres as shown on a plat of survey entitled "Conservation Easement Survey for the State of North Carolina "dated _____, certified by Kenneth D. Suttles, License#L2678 and recorded in Plat Book 10 Page 98, Alleghany Registry: Conservation Easement Area being more particularly described as follows:**

[LEGAL DESCRIPTION ATTACHED]

The purposes of this Conservation Easement are to maintain, restore, enhance, create and preserve wetland and/or riparian resources in the Easement Area that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; to maintain permanently the Easement Area in its natural condition, consistent with these purposes; and to prevent any use of the Easement Area that will significantly impair or interfere with these purposes. To achieve these purposes, the following conditions and restrictions are set forth:

I. DURATION OF EASEMENT

Pursuant to law, including the above referenced statutes, this Conservation Easement shall be perpetual and it shall run with, and be a continuing restriction upon the use of, the Property, and it shall be enforceable by the Grantee against the Grantor and against Grantor's heirs, successors and assigns, personal representatives, agents, lessees, and licensees.

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITIES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. Without limiting the generality of the foregoing, the following specific uses are prohibited, restricted, or reserved as indicated:

A. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, bird watching, hunting and fishing, and access to the Easement Area for the purposes thereof. Usage of motorized vehicles in the Easement Area is prohibited, except as they are used exclusively for management, maintenance, or stewardship purposes, and on existing trails, paths or roads.

B. Educational Uses. The Grantor reserves the right to engage in and permit others to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

C. Vegetative Cutting. Except as related to the removal of non-native plants, diseased or damaged trees, and vegetation that obstructs, destabilizes or renders unsafe the Easement Area to persons or natural habitat, all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

D. Industrial, Residential and Commercial Uses. All are prohibited in the Easement Area.

E. Agricultural Use. All agricultural uses within the Easement Area including any use for cropland, waste lagoons, or pastureland are prohibited.

F. New Construction. There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

G. Roads and Trails. There shall be no construction of roads, trails, walkways, or paving in the Easement Area. Existing roads or trails located in the Easement Area may be maintained by Grantor in order to minimize runoff, sedimentation and for access to the interior of the Property for management, maintenance, stewardship purposes, or undeveloped recreational and educational uses of the Easement Area. Existing roads, trails or paths may be maintained with loose gravel or permanent vegetation to stabilize or cover the surfaces.

H. Signs. No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs identifying the owner of the Property and the holder of the Conservation Easement, signs giving

directions, or signs prescribing rules and regulations for the use of the Easement Area may be allowed.

I. Dumping or Storing. Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances or machinery, or other material in the Easement Area is prohibited.

J. Grading, Mineral Use, Excavation, Dredging. There shall be no grading, filling, excavation, dredging, mining, or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

K. Water Quality and Drainage Patterns. There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or diverting, causing, allowing or permitting the diversion of surface or underground water. No altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides is prohibited. In the event of an emergency interruption or shortage of all other water sources, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock and agricultural production.

L. Subdivision and Conveyance. Grantor voluntarily agrees that no subdivision, partitioning, or dividing of the underlying fee that is subject to this Easement is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the underlying fee for the Easement Area and the rights as conveyed herein shall be as a single block of property. Any future transfer of the fee simple shall be subject to this Conservation Easement. Any transfer of the fee is subject to the Grantee's right of unlimited and repeated ingress and egress over and across the Property to the Easement Area for the purposes set forth herein.

M. Development Rights. All development rights are removed from the Easement Area and shall not be transferred.

N. Disturbance of Natural Features. Any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species by Grantor is prohibited.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is consistent with the purposes of this Conservation Easement. The Grantor shall not vary from the above restrictions without first obtaining written approval from the N.C. Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699-1652.

III. GRANTEE RESERVED USES

A. Ingress, Egress, and Inspection. The Grantee, its employees and agents, successors and assigns, receive the perpetual right of unlimited and repeated ingress and egress to the Easement Area over the Property at reasonable times to undertake any activities to restore, manage, maintain, enhance, and monitor the wetland and riparian resources of the Easement

Area, in accordance with restoration activities or a long-term management plan. Unless otherwise specifically set forth in this Conservation Easement, the rights granted herein do not include or establish for the public any access rights.

B. Restoration Activities. These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterranean water flow.

IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features of the Easement Area that may have been damaged by such activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, their successors or assigns, that comes to the attention of the Grantee, the Grantee shall, except as provided below, notify the Grantor, their successors or assigns in writing of such breach. The Grantor shall have ninety (90) days after receipt of such notice to correct the conditions constituting such breach. If the breach remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by appropriate legal proceedings including damages, injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief if the breach of the term of this Conservation Easement is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement. The Grantor and Grantee acknowledge that under such circumstances damage to the Grantee would be irreparable and remedies at law will be inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area over the Property at reasonable times for the purpose of inspection to determine whether the Grantor, their successors or assigns are complying with the terms, conditions and restrictions of this Conservation Easement.

C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor, their successors or assigns, for any injury or change in the Easement Area caused by third parties, resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, damage to property or harm to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, their

successors or assigns, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

E. No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance, delay or omission by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be construed to be a waiver by Grantee.

V. MISCELLANEOUS

A. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

B. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown above or to other address(es) as either party establishes in writing upon notification to the other.

C. Grantor shall notify Grantee in writing of the name and address and any party to whom the Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees to make any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed subject to the Conservation Easement herein created.

D. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

E. This Conservation Easement may be amended, but only in writing signed by all parties hereto, and provided such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement.

F. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not

inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area.

TO HAVE AND TO HOLD the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

Glenn D. Murphy and wife Judy S. Murphy (SEAL)
Glenn D. Murphy and wife Judy S. Murphy

Robert M. Murphy and wife Michelle D. Murphy (SEAL)

NORTH CAROLINA

COUNTY OF Alleghany

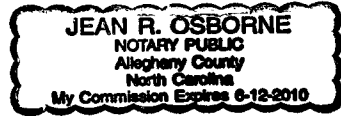
I, *Jean R. Osborne*, a Notary Public in and for the County and State aforesaid, do hereby certify that *Glenn D. Murphy* and *Judy S. Murphy*, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 28 day of January, 2009.

Jean R. Osborne
Notary Public

My commission expires:

6-12-2010



inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area.

TO HAVE AND TO HOLD the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same are free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

Glenn D. Murphy and wife Judy S. Murphy (SEAL)

Robert M. Murphy / Michelle D. Murphy (SEAL)
Robert M. Murphy and wife Michelle D. Murphy

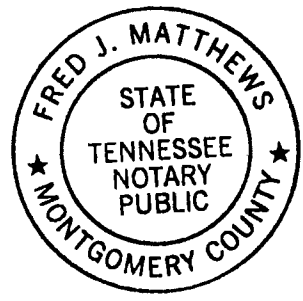
~~NORTH CAROLINA~~
TENNESSEE
COUNTY OF Montgomery

I, Fred J. Matthews, a Notary Public in and for the County and State aforesaid, do hereby certify that Robert M. Murphy and Michelle D. Murphy, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 26 day of January, 2009.

Fred J. Matthews
Notary Public

My commission expires:
9/20/11



Legal Description of the conservation easement survey for the State of North Carolina Ecosystem Enhancement Program and being a portion of the Robert M. Murphy and Glen D. Murphy property as recorded in Deed Book 218, Page 441, and being part of that certain tract as described as follows:

Said tract being located in Glade Creek Township, Alleghany County, North Carolina and being bounded on the North by the Robert M. Murphy and Glen D. Murphy tract and on the East by the same, on the South by a portion of the Steven R. Walls property as recorded in Deed Book 227, Page 297 to be conveyed to the State of North Carolina as recorded in Deed Book 307, Page 1022 (see a plat prepared by Suttles Surveying, PA; Map File No. 13680A; Plat Book 10, Page 99 of the Alleghany County Registry).

BEGINNING on a 5/8 inch rebar set, a new corner of the conservation easement, said corner being located South 85 degrees 43 minutes 45 seconds West - 75.23 feet from a PK nail set in the centerline of the bridge over Little Pine Creek and in the centerline of Glade Creek School Road (North Carolina State Road 1457); the conservation easement runs a new line, from said new corner, South 41 degrees 31 minutes 43 seconds East - 87.51 feet crossing said Little Pine Creek to a new corner, a 5/8 inch rebar set (station 8000); thence, continuing a new line South 24 degrees 24 minutes 10 seconds West - 36.60 feet to a new corner, a 5/8 inch rebar set (station 8001); thence, continuing another new line South 04 degrees 55 minutes 03 seconds East - 53.52 feet to a new corner, a 5/8 inch rebar set (station 8002); thence, continuing a new line South 54 degrees 36 minutes 09 seconds East - 158.83 feet to a new corner, a 5/8 inch rebar set (station 2040), said rebar being located in the Northern line of the aforementioned Walls property and also being located South 72 degrees 42 minutes 07 seconds West - 63.58 feet from an existing one inch iron pipe, said iron pipe being located South 72 degrees 42 minutes 07 seconds West - 24.66 feet from the aforementioned PK nail in the centerline of SR 1457, total distance from said centerline point to the new corner is 88.24 feet; thence, with the common boundary line of the Walls property, South 72 degrees 42 minutes 07 seconds West - 123.00 feet to a new corner, a 5/8 inch rebar set (station 2041), said corner being located North 72 degrees 42 minutes 07 seconds East - 103.93 feet from a 5/8 inch rebar set which is the Northwest corner of the aforementioned Walls property; thence, leaving said Walls line, a new line through the Murphy property North 55 degrees 29 minutes 46 seconds West - 83.28 feet crossing Little Pine Creek to a new corner, a 5/8 inch rebar set (station 8003); thence, continuing a new line North 23 degrees 58 minutes 14 seconds West - 102.21 feet to a new corner, a 5/8 inch rebar set (station 8004); thence, continuing a new line North 11 degrees 11 minutes 57 seconds East - 91.90 feet to a new corner, a 5/8 inch rebar set (station 8005); thence, continuing a new line North 33 degrees 14 minutes 37 seconds East - 59.80 feet to the point of BEGINNING, containing 0.62 acres as shown on a plat by Suttles Surveying, PA; captioned Conservation Easement Survey for the State of North Carolina Ecosystem Enhancement Program, Glade Creek Township, Alleghany County, North Carolina, map number 13680B and being dated January 8, 2009 and recorded in the Alleghany County Register of Deeds as Plat Book 10, Page 98.

I have reviewed the survey located in Alleghany County and I am in agreement with the survey as it is prepared by Suttles Surveying, P.A., Kenneth D. Suttles, PLS, License # 2678.

OWNER: Robert M. Murphy DATE: 1-15-09

OWNER: _____ DATE: _____

10 - 98

This Plat of Land shown hereon does not lie within the Alleghany County Water Supply Watershed Management & Protection Ordinance as Adopted December 28, 1983 and Amended December 1, 1997.

This Plat of Land hereon does not lie within a Protected Mountain Ridge as Identified by the map entitled "Identification of Protected Mountain Ridges in the County of Alleghany."

This Plat of Land hereon does not lie within a Flood Hazard Area as determined by the Federal Emergency Management Agency.

This plat of land shown hereon does not lie within an area designated by the State of North Carolina as High Quality Water (HQW) or Outstanding Resource Waters (ORW).

1-23-2009 Jeffrey May
Date Review Officer

Subdivision Exception

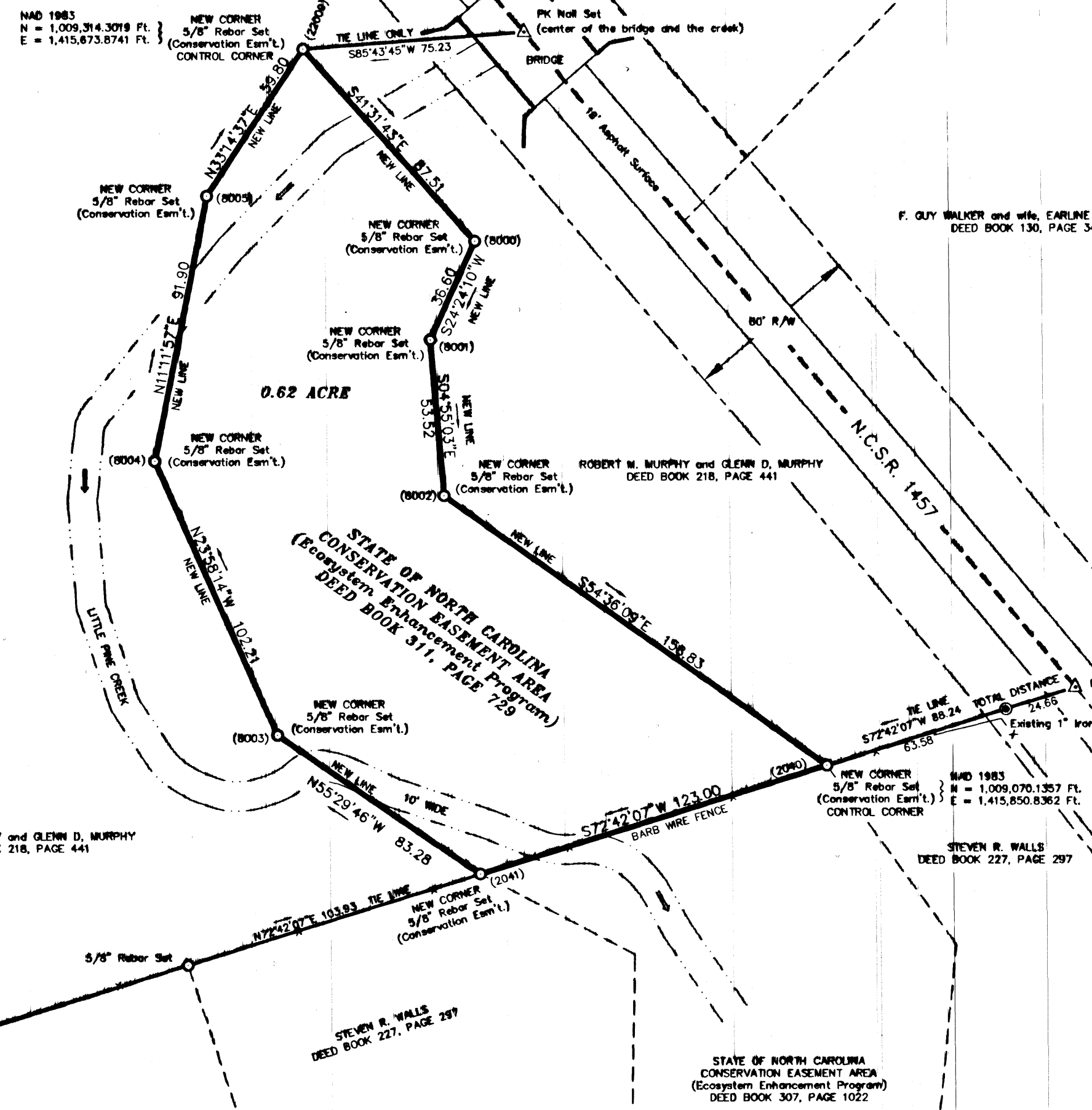
This plat represents a survey or division of property that does not require approval from the Alleghany County Planning Board/Planner for the following reasons:

Article 3, 18
Conservation Easement

1-23-2009 Jeffrey May
Date Review Officer

State of North Carolina, County of Alleghany
Robert M. Murphy Review Officer of Alleghany County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

1-23-2009 Jeffrey May
Date Review Officer



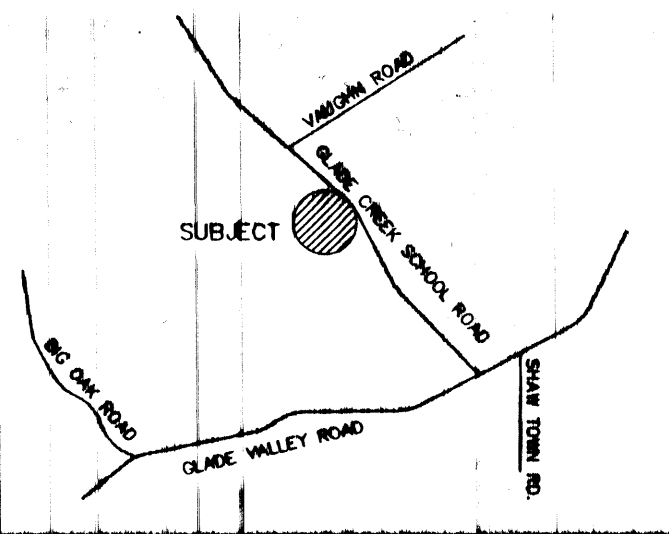
NORTH based on a survey by Suttles Surveying, P.A. MAP FILE No. 13680



FILED
ALLEGHANY COUNTY
LIZABETH REEVES ROUPE
REGISTER OF DEEDS

FILED Jan 23, 2009
AT 11:30:06 am
BOOK 00010
START PAGE 0098
END PAGE 0098
INSTRUMENT # 00150

NOTES:
ALL DISTANCES SHOWN HEREON ARE HORIZONTAL.
ALL AREAS DERIVED FROM COORDINATE COMPUTATIONS.
NO NORTH CAROLINA GEODETIC SURVEY MONUMENTATION IS WITHIN 2,000 FEET OF SUBJECT PROPERTY.
NO IMPROVEMENTS LOCATED OTHER THAN SHOWN HEREON.
NO UNDERGROUND UTILITIES LOCATED OTHER THAN SHOWN HEREON.
NO TITLE SEARCH CONDUCTED AT TIME OF SURVEY.
PROPERTY IS SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS OF RECORD, OR RESTRICTIVE COVENANTS.
THIS SURVEY DOES NOT CERTIFY LEGAL TITLE TO THE LAND ITSELF NOR THE BOUNDARIES SHOWN HEREON.
USERS OF THIS PLAT SHOULD OBTAIN A CURRENT LEGAL TITLE OPINION TO OWNERSHIP OF THE BOUNDARIES.
NUMBERS IN (N) PARENTHESES; SEE SPREADSHEET FOR COORDINATES.



VICINITY MAP NOT TO SCALE

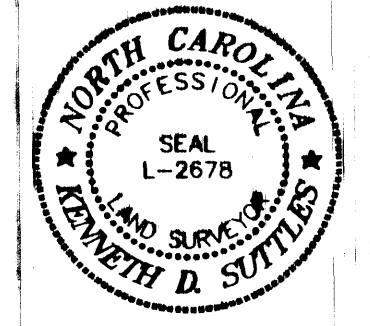
NORTH CAROLINA, BURKE COUNTY

I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM AN ACTUAL FIELD LAND SURVEY MADE UNDER MY DIRECTION AND SUPERVISION, DEED DESCRIPTION RECORDED IN DEED BOOK 218, PAGE 441.
THAT THE ERROR OF CLOSURE CALCULATED BY LATITUDES AND DEPARTURES IS 1: 15,000 + THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN SEE PLAT.

THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF NORTH CAROLINA PER C.S. 47-30 AS AMENDED.

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 8th DAY OF JANUARY, A.D., 2009.

K. D. Suttles
P.L.S. No. L-2678



I, KENNETH D. SUTTLES, CERTIFY THAT UNDER MY DIRECTION AND SUPERVISION THIS MAP WAS DRAWN FROM CONTROL ESTABLISHED BY CPS. THAT THIS CPS SURVEY WAS PERFORMED TO CLASS "C" FCCC SPECIFICATIONS AND THAT I USED STATIC CPS FIELD PROCEDURES AND COORDINATES WERE OBTAINED BY LEAST SQUARES ADJUSTMENT. THAT THIS SURVEY WAS PERFORMED ON JULY 2008 USING TOPCON HYPER PLUS RECEIVERS AND ALL COORDINATES ARE BASED ON NAD '83/2003, NAVD 1988 AND CROID 2003.

THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

REVISIONS:

SCALE: 1" = 40'
DRAWN BY: FRANK POUNDS
DATE: NOVEMBER 18, 2008
APPROVED BY: KDS
FIELD CREW: CG, JJ, JA, BM

LEGEND

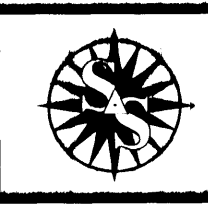
- POINT
- ⊙ IRON PIPE SET
- ⊙ EXISTING IRON PIPE
- ⊙ CONCRETE MONUMENT
- ⊙ P.K. WAIL, RAILROAD SPIKE or COTTON GIN SPIKE
- ⊙ POWER POLE

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No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form or by any means (electronic, mechanical, photocopying, scanning or otherwise) without prior written permission.

TAX MAP INFORMATION
NC PIN 4010590582

PROJECT DESCRIPTION
SPO FILE NUMBER 003-ZL
NC Ecosystem Enhancement Program
Project Name: Little Pine Creek II
Owner: Robert M. Murphy
Glenn D. Murphy

CONSERVATION EASEMENT SURVEY for the STATE OF NORTH CAROLINA
Ecosystem Enhancement Program
Glade Creek Township
Alleghany County, N.C.



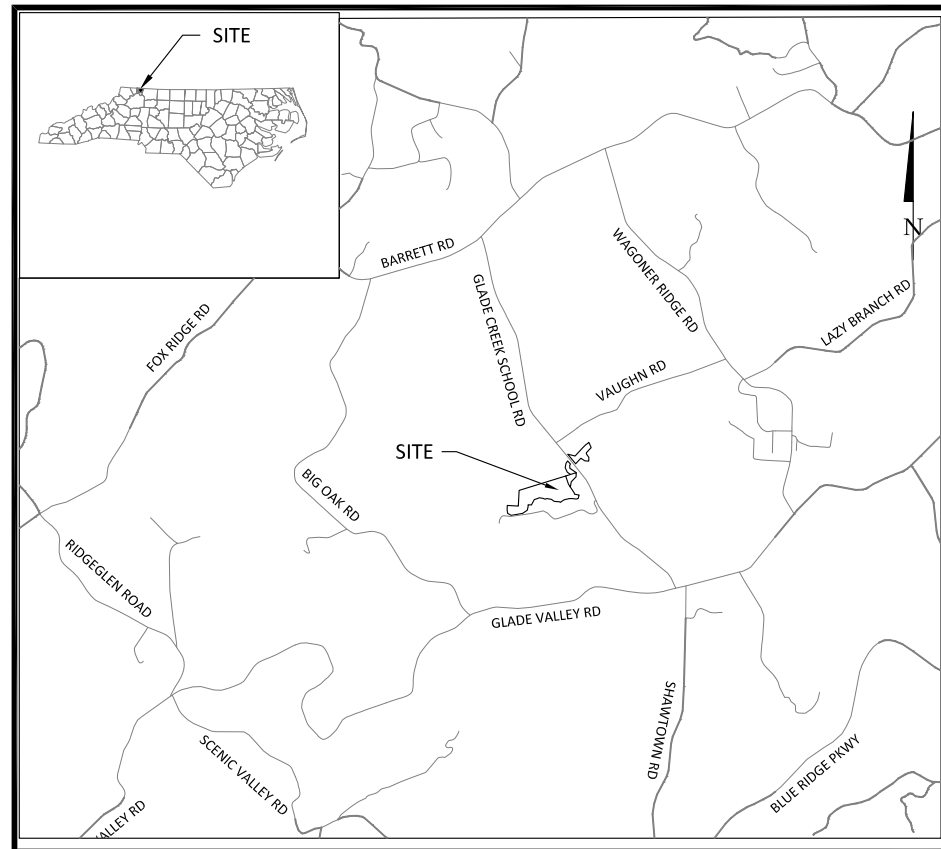
Suttles Surveying, P.A.
40 South Main Street Suite 200
MARION, NORTH CAROLINA 28752
828.652.9382 FAX 828.659.9600
419 SOUTH KING ST.
WYOMINGTON, NORTH CAROLINA 28655
828.433.0423 FAX 828.433.9577
TOLL FREE 800.852.9382
doug@suttlessurvey.com ken@suttlessurvey.com

COMPUTER: 13680.dwg FIELD BOOK: 08-09; 08-10
FILE NAME: 13680.dwg MAP FILE No. 13680B

Little Pine Creek II Restoration Project

Alleghany County, North Carolina

Prepared for
NCDEQ Division of
Mitigation Services



Vicinity Map
Not to Scale



BEFORE YOU DIG!
CALL 1-800-632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW!

PRELIMINARY PLANS
ISSUED JANUARY 11, 2016

Stream Origins

Stream	Latitude	Longitude
Little Pine Creek	N 36° 30' 28.47"	W 80° 59' 11.36"
Tributary A	N 36° 30' 26.24"	W 80° 59' 15.81"
Tributary B	N 36° 30' 19.65"	W 80° 59' 16.07"
Tributary C	N 36° 30' 17.57"	W 80° 59' 13.51"

Sheet Index

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Project Overview	0.3
Typical Sections	1.1-1.5
Stream Plan and Profile	2.1-2.10
Planting Plan	3.1-3.5
Cross-Sections	4.1-4.9
Details	5.1-5.6

Project Directory

Engineering:
Wildlands Engineering, Inc
License No. F-0831
312 West Millbrook Road
Suite 225
Raleigh, NC 27609
Jeff Keaton, PE
919-851-9986

Owner:
NCDEQ Division of
Mitigation Services
5 Ravenscroft Dr, Suite 102
Asheville, NC 28801
Harry Tsomides
828-545-7057

Surveying:
Cavanugh & Associates PA
37 Montford Ave.
Asheville, NC 28801
828-251-0728

DEQ Contract No. D13022S
DMS ID No. 856
SCO No. 07-07088-01

WILDLANDS
ENGINEERING
312 West Millbrook Road
Suite 225
Raleigh, NC 27609
Tel: 919-851-9986
Fax: 919-851-9986
Firm License No. F-0831

PRELIMINARY
DO NOT
USE FOR
CONSTRUCTION

Little Pine Creek II Restoration Project
Alleghany County, North Carolina

Title Sheet

Revisions:

Date: January 11, 2016
Job Number: 005-02137
Project Engineer: JK
Drawn By: RP/JCK
Checked By: JH














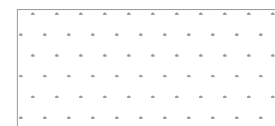
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Sheet

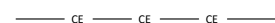

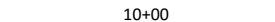



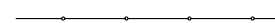
General Notes
(To be included in final plans.)

Construction Sequence
(To be included in final plans.)

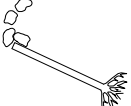




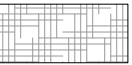

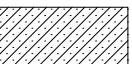
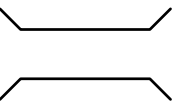
Existing Conditions

-  Existing Property Line
-  Existing Right of Way
-  Existing Thalweg
-  Existing Major Contour (5' Interval)
-  Existing Minor Contour
-  Existing Overhead Electric
-  Existing Power Pole
-  Existing Easement
-  Existing Fence
-  Existing Tree Line
-  Existing Pine Tree
-  Existing Maple Tree
-  Existing Oak Tree
-  Existing Wetlands

Proposed Conditions

-  Conservation Easement
-  Temporary Construction Easement
-  Proposed Thalweg Alignment
-  Proposed Bankfull
-  Proposed Major Contour (5' Interval)
-  Proposed Minor Contour
-  Proposed Fence

Proposed Structures

-  Proposed Log J-Hook
See Detail 4, Sheet 5.3
-  Proposed Cross Vane
See Detail 1, Sheet 5.6
-  Proposed Angled Log Drop
See Detail 2, Sheet 5.3
-  Proposed Root Wad
See Detail 3, Sheet 5.3
-  Proposed Various Constructed Riffles
See Details 1-4, Sheets 5.1-5.2
-  Proposed Brush Toe
See Detail 1, Sheet 5.3
-  Proposed Sod Mats
See Details 1-2, Sheet 5.5
-  Proposed Channel Plug
See Detail 2, Sheet 5.6
-  Proposed Permanent Ford Crossing
See Detail 3, Sheet 5.6

Little Pine Creek II Restoration Project
Alleghany County, North Carolina
General Notes and Symbols

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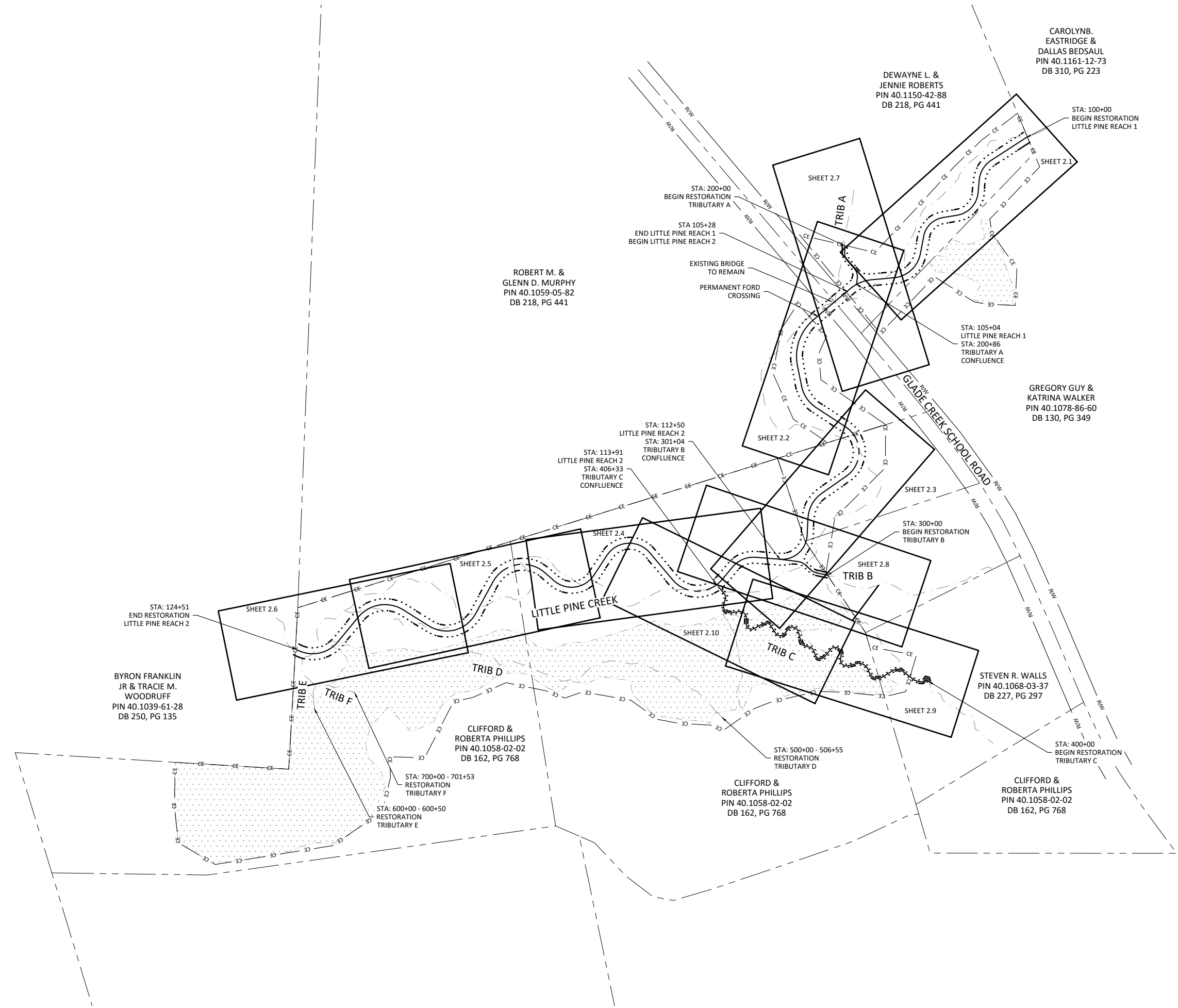
Revisions:

Date: January 11, 2016
Job Number: 005-02157
Project Engineer: JK
Drawn By: RP/JCK
Checked By: JH

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January 11, 2016
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DB 310, PG 223

DEWAYNE L. & JENNIE ROBERTS
PIN 40.1150-42-88
DB 218, PG 441

ROBERT M. & GLENN D. MURPHY
PIN 40.1059-05-82
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GREGORY GUY & KATRINA WALKER
PIN 40.1078-86-60
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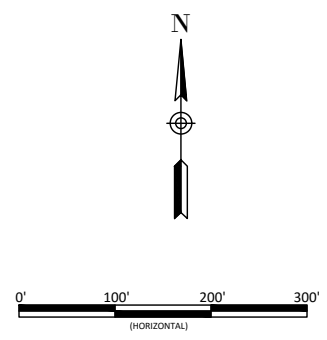
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CLIFFORD & ROBERTA PHILLIPS
PIN 40.1058-02-02
DB 162, PG 768

CLIFFORD & ROBERTA PHILLIPS
PIN 40.1058-02-02
DB 162, PG 768

STEVEN R. WALLS
PIN 40.1068-03-37
DB 227, PG 297

CLIFFORD & ROBERTA PHILLIPS
PIN 40.1058-02-02
DB 162, PG 768



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Little Pine Creek II Restoration Project
Alleghany County, North Carolina

Project Overview

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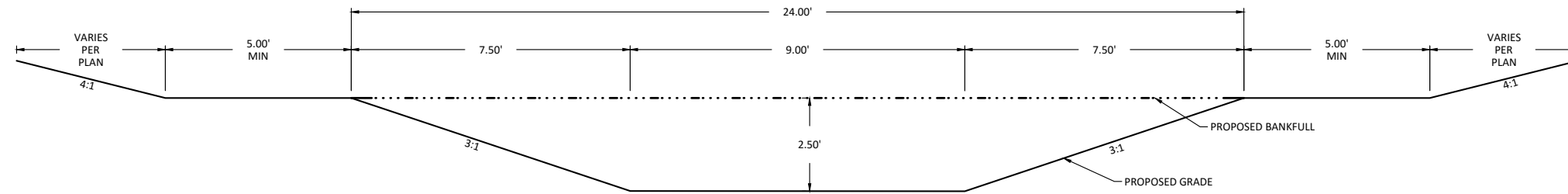
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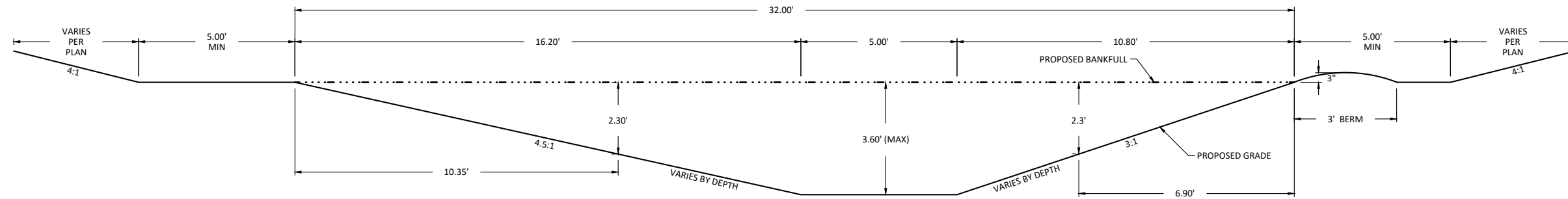
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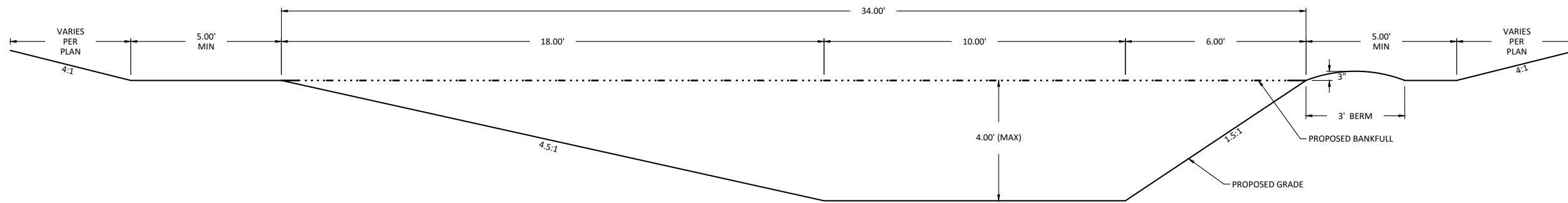
- 1.) Typical sections are provided as reference for in channel grading only.
- 2.) Pool depth will vary per profile.
- 3.) All pools shall have bank revetments on outside of bend.
- 4.) Typical pool sections are shown as right meander bends only. The flatter side slope is on the inside of the meander bend and for left meander bends should be on the opposite side than shown on the typical sections.



Little Pine Creek Reach 1 - Riffle
STA: 100+00 - 105+28



Little Pine Creek Reach 1 - Shallow Pool
STA: 100+00 - 105+28



Little Pine Creek Reach 1 - Deep Pool
STA: 100+00 - 105+28

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 Alleghany County, North Carolina

Little Pine Creek Reach 1
 Typical Sections

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Date:	January 11, 2016
Job Number:	005-02157
Project Engineer:	JK
Drawn By:	RP/JCK
Checked By:	JH

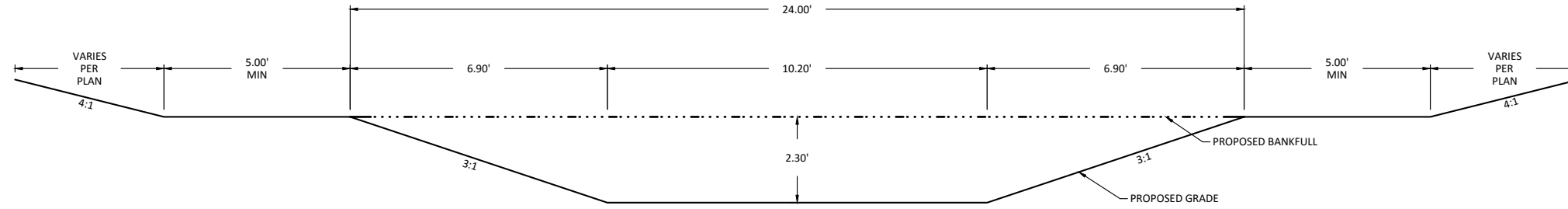
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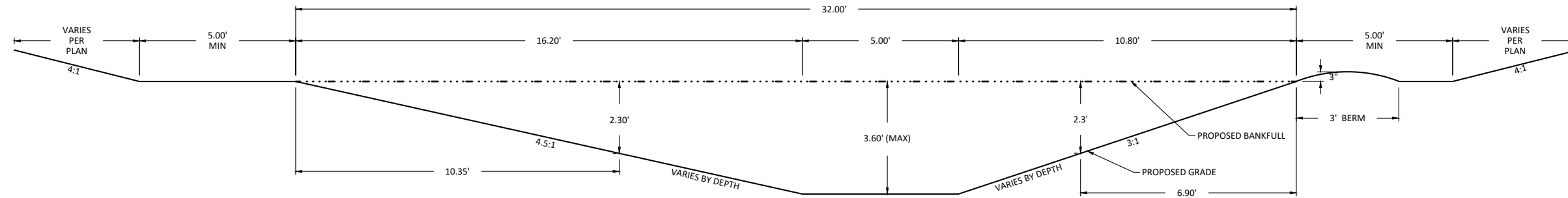
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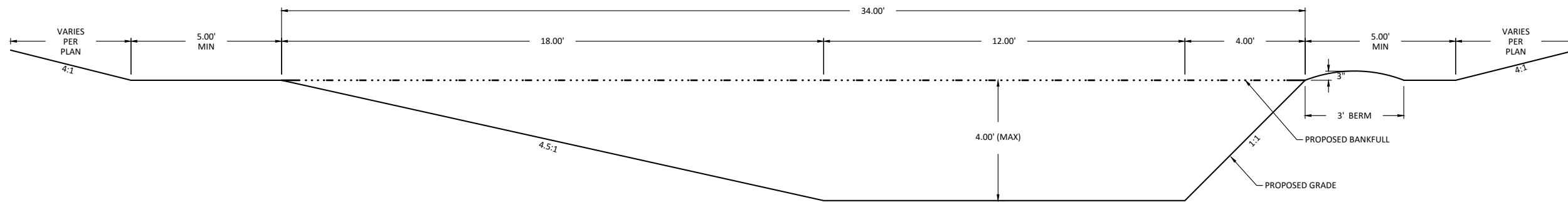
- 1.) Typical sections are provided as reference for in channel grading only.
- 2.) Pool depth will vary per profile.
- 3.) All pools shall have bank revetments on outside of bend.
- 4.) Typical pool sections are shown as right meander bends only. The flatter side slope is on the inside of the meander bend and for left meander bends should be on the opposite side than shown on the typical sections.



Little Pine Creek Reach 2 - Riffle
STA: 105+28 - 124+51



Little Pine Creek Reach 2 - Shallow Pool
STA: 105+28 - 124+51



Little Pine Creek Reach 2 - Deep Pool
STA: 105+28 - 124+51

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 Alleghany County, North Carolina
 Little Pine Creek Reach 2
 Typical Sections

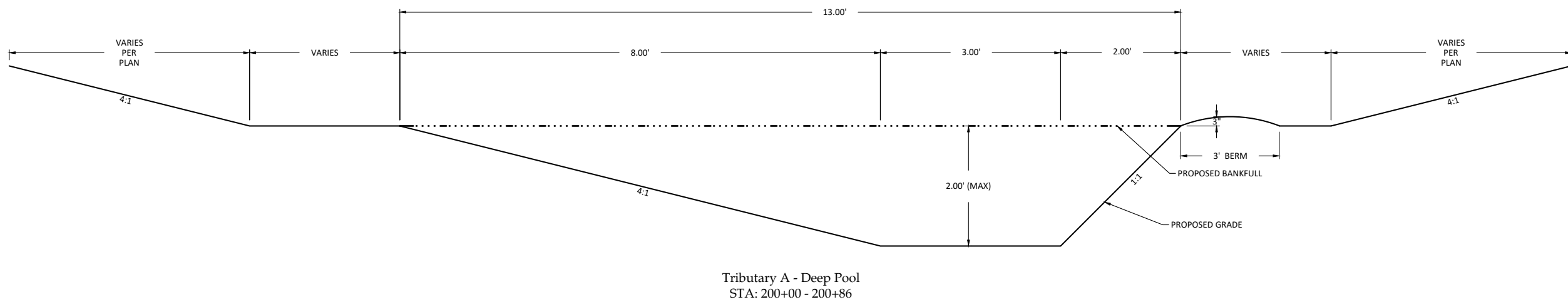
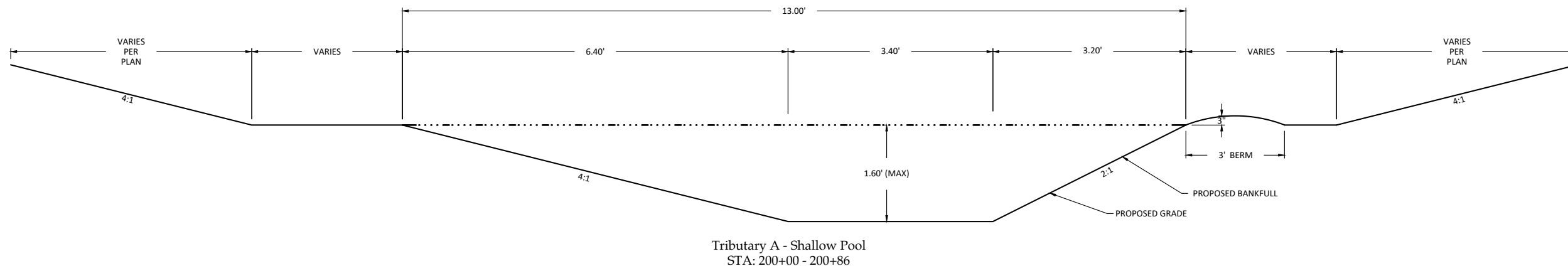
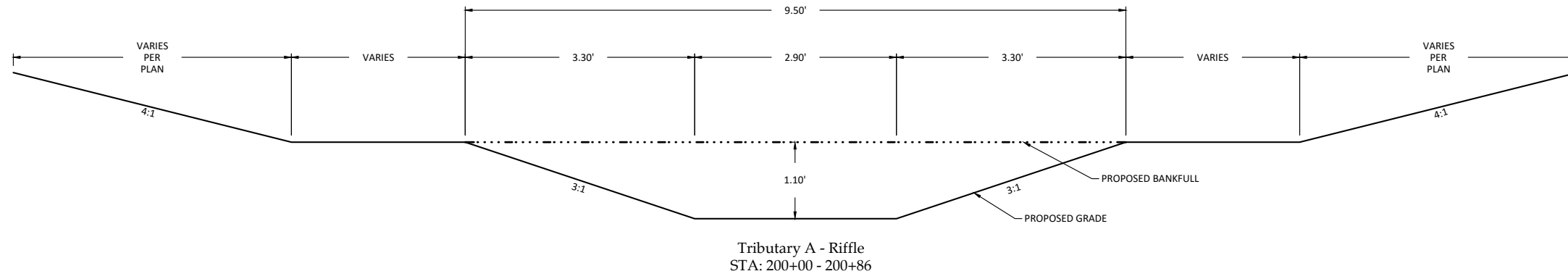
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Date: January 11, 2016
 Job Number: 005-02157
 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

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Notes:

- 1.) Typical sections are provided as reference for in channel grading only.
- 2.) Pool depth will vary per profile.
- 3.) All pools shall have bank revetments on outside of bend.
- 4.) Typical pool sections are shown as right meander bends only. The flatter side slope is on the inside of the meander bend and for left meander bends should be on the opposite side than shown on the typical sections.



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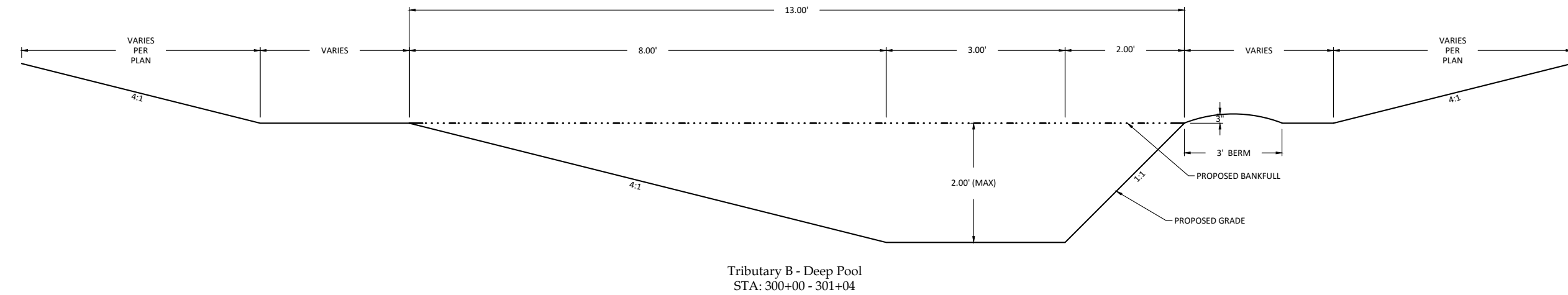
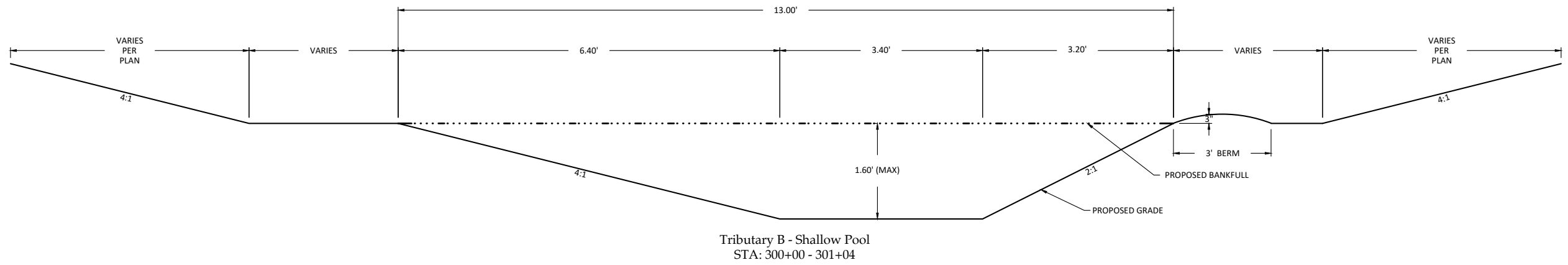
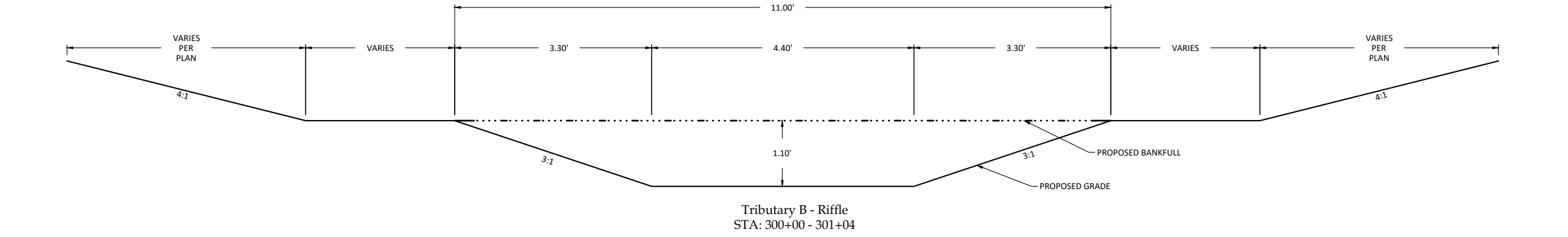
Little Pine Creek II Restoration Project
 Alleghany County, North Carolina
 Tributary A
 Typical Sections

Revisions:

Date: January 11, 2016
 Job Number: 005-00137
 Project Engineer: JK
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- Notes:
- 1.) Typical sections are provided as reference for in channel grading only.
 - 2.) Pool depth will vary per profile.
 - 3.) All pools shall have bank revetments on outside of bend.
 - 4.) Typical pool sections are shown as right meander bends only. The flatter side slope is on the inside of the meander bend and for left meander bends should be on the opposite side than shown on the typical sections.



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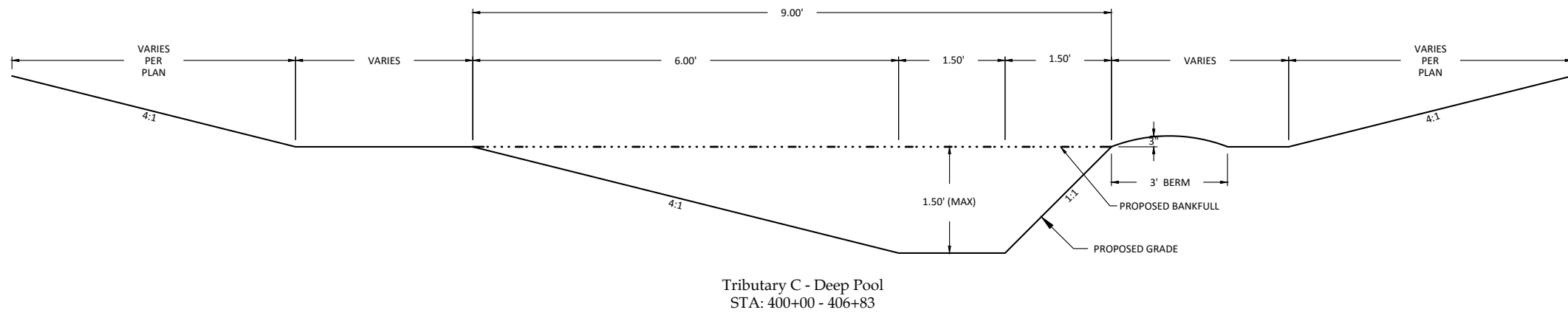
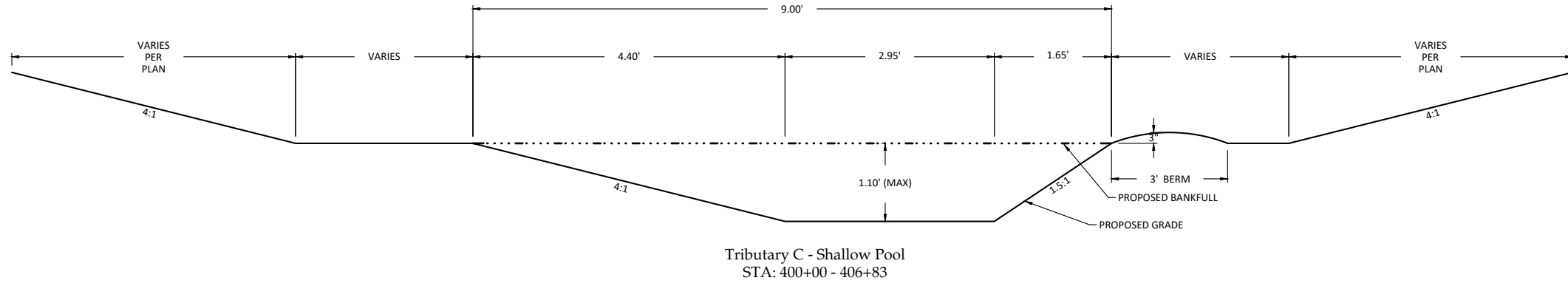
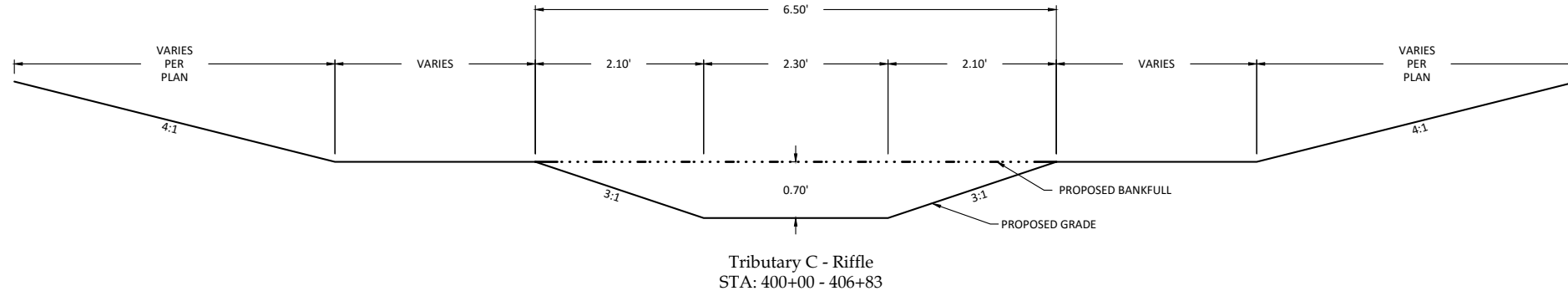
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Typical Sections

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Job Number: 005-02157
Project Engineer: JK
Drawn By: RP/JCK
Checked By: JH

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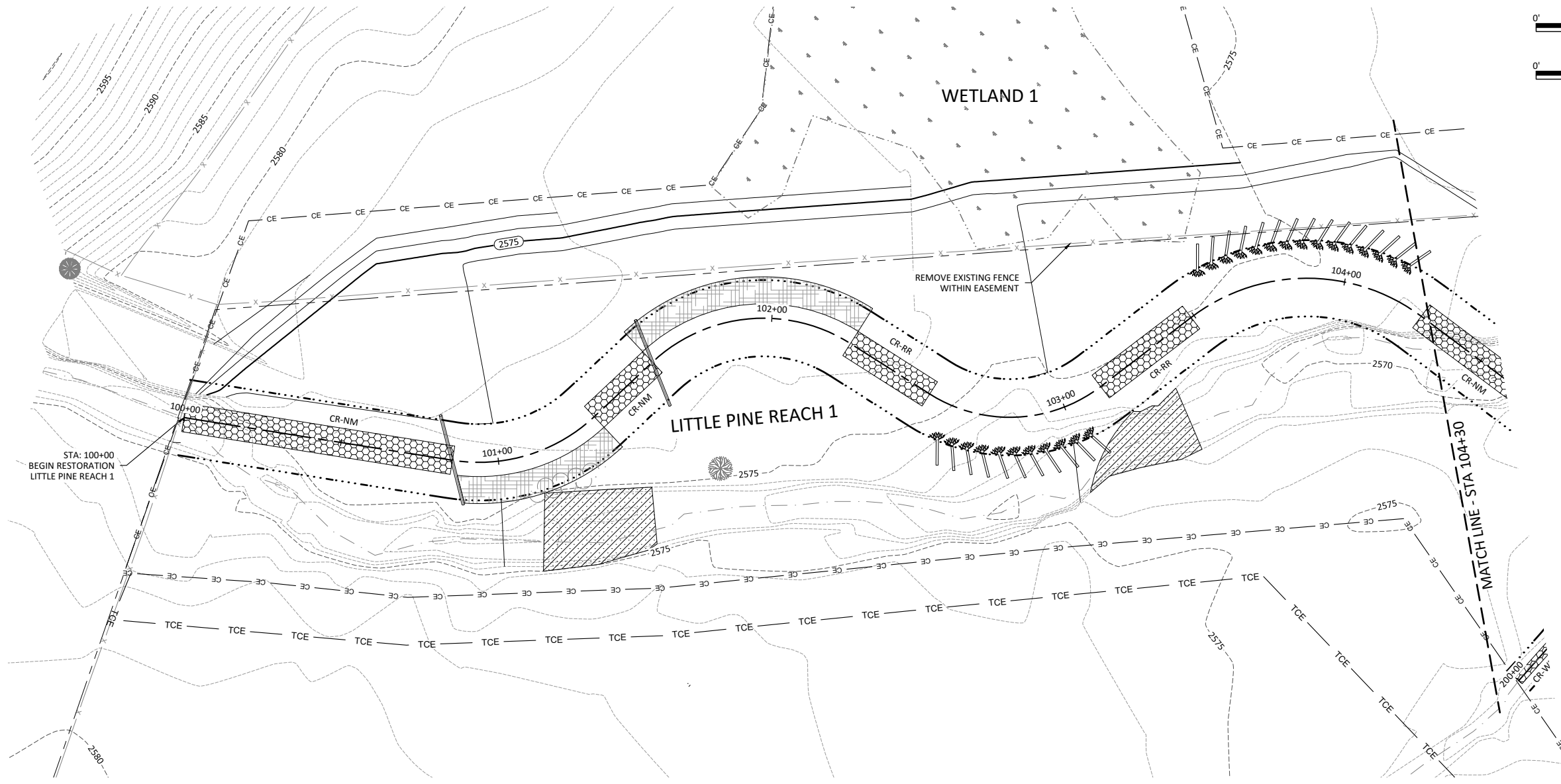
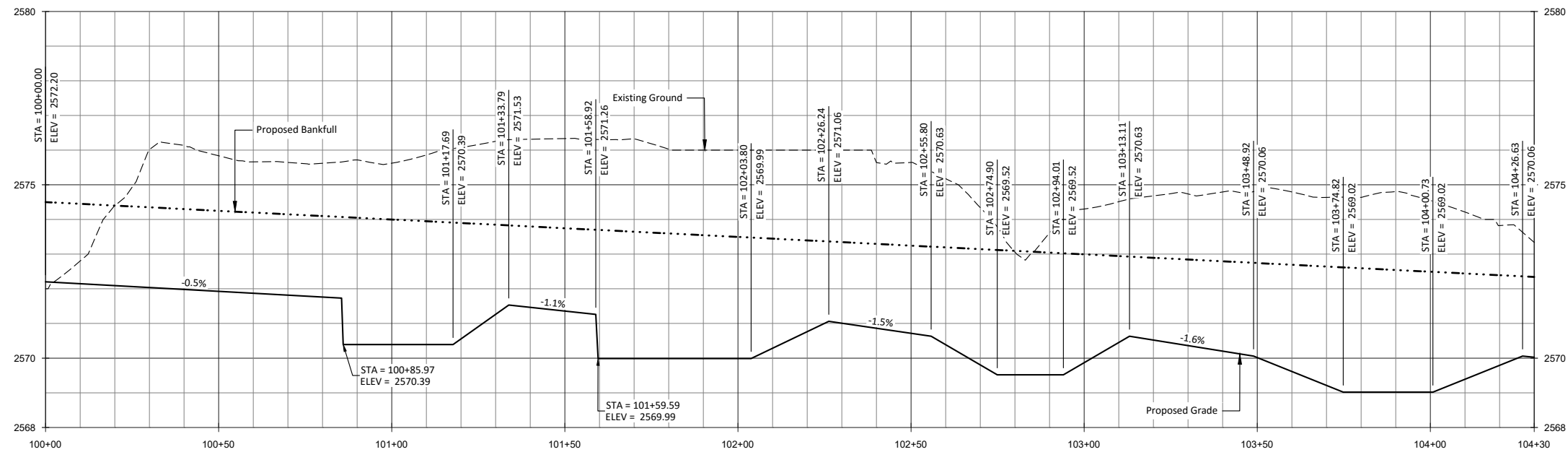
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Little Pine Creek II Restoration Project
 Allegheny County, North Carolina
 Tributary C
 Typical Sections

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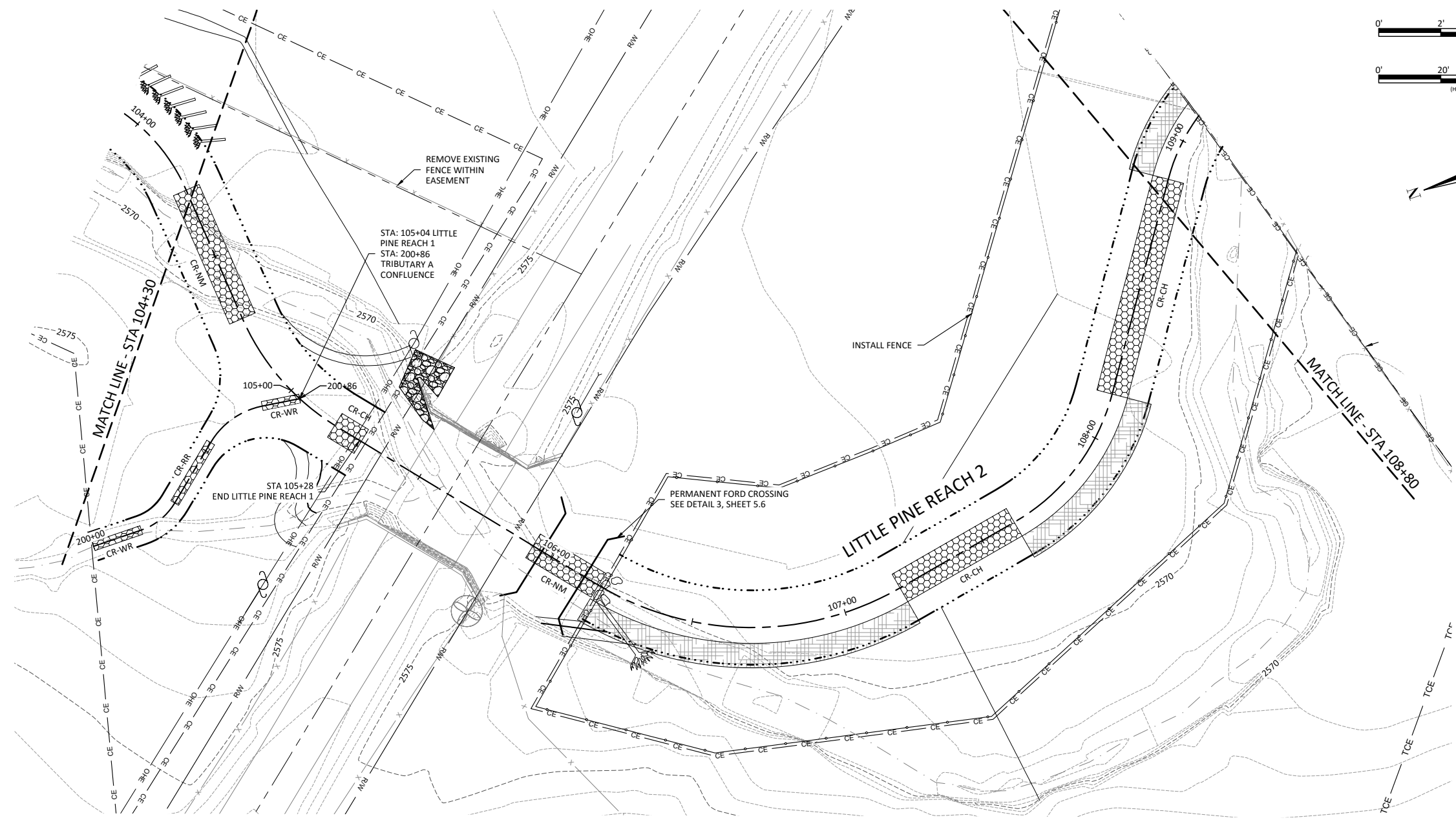
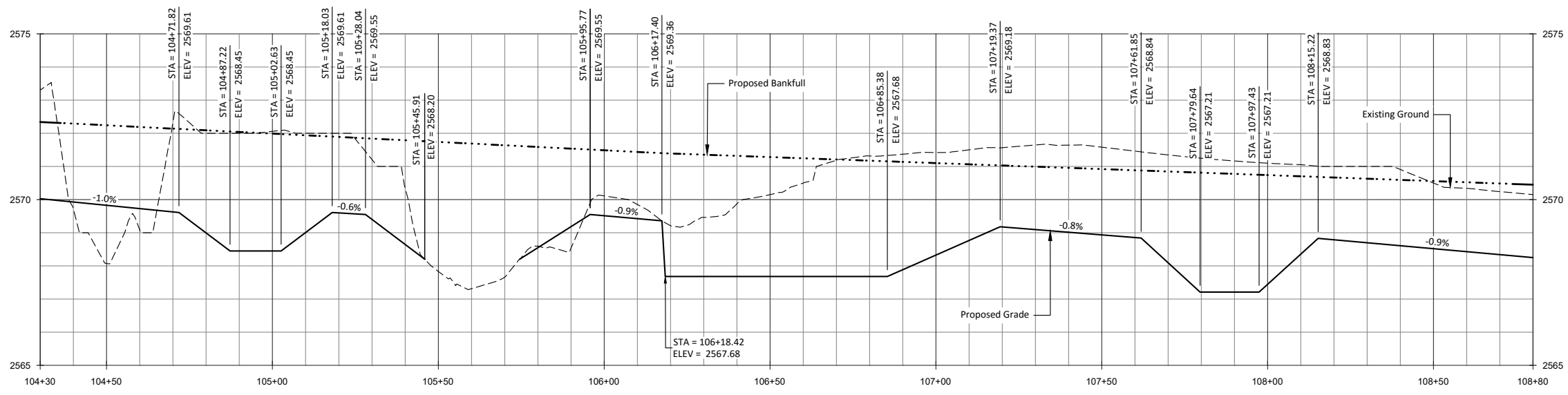
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 Alleghany County, North Carolina
 Little Pine Creek
 Stream Plan and Profile

Revisions:

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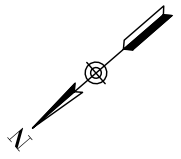
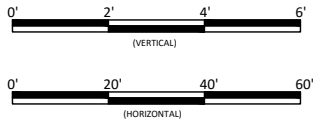
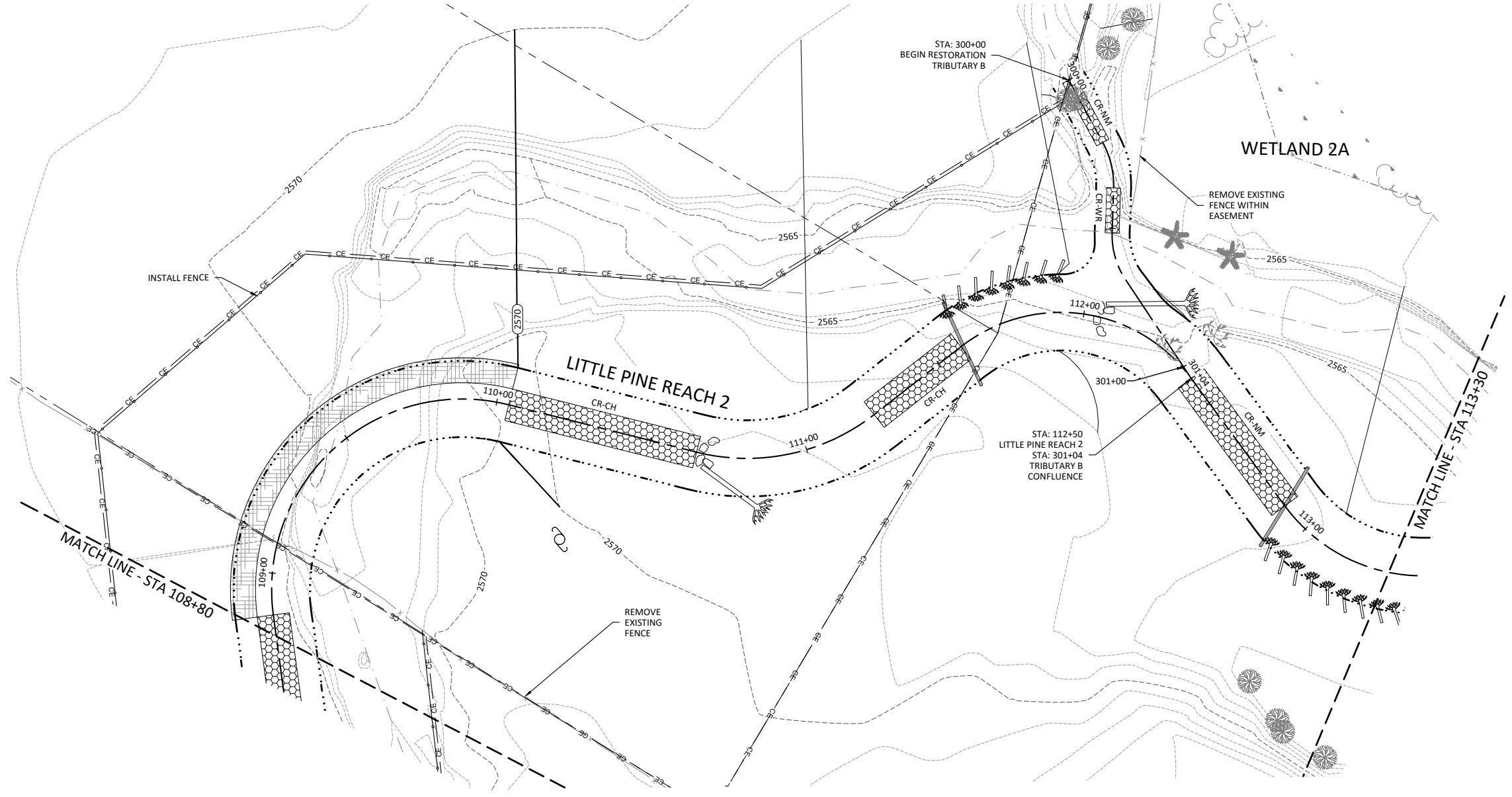
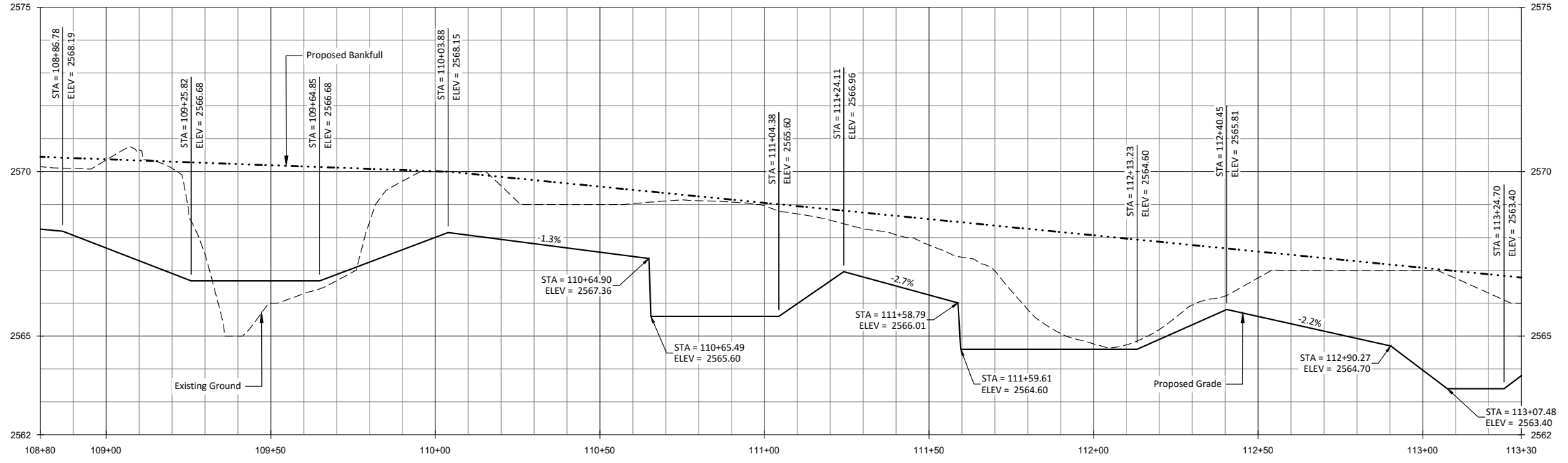
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Alleghany County, North Carolina
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 Stream Plan and Profile

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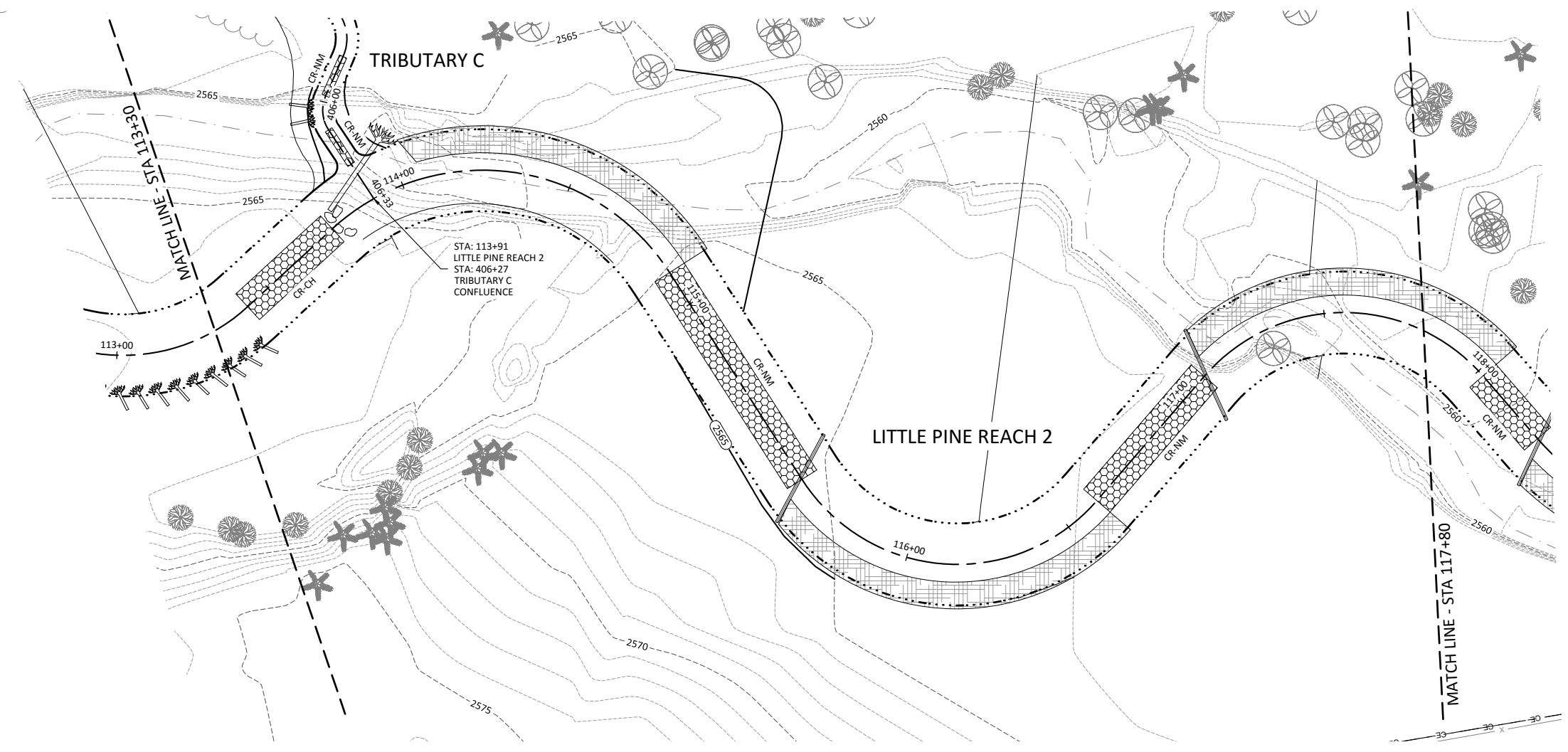
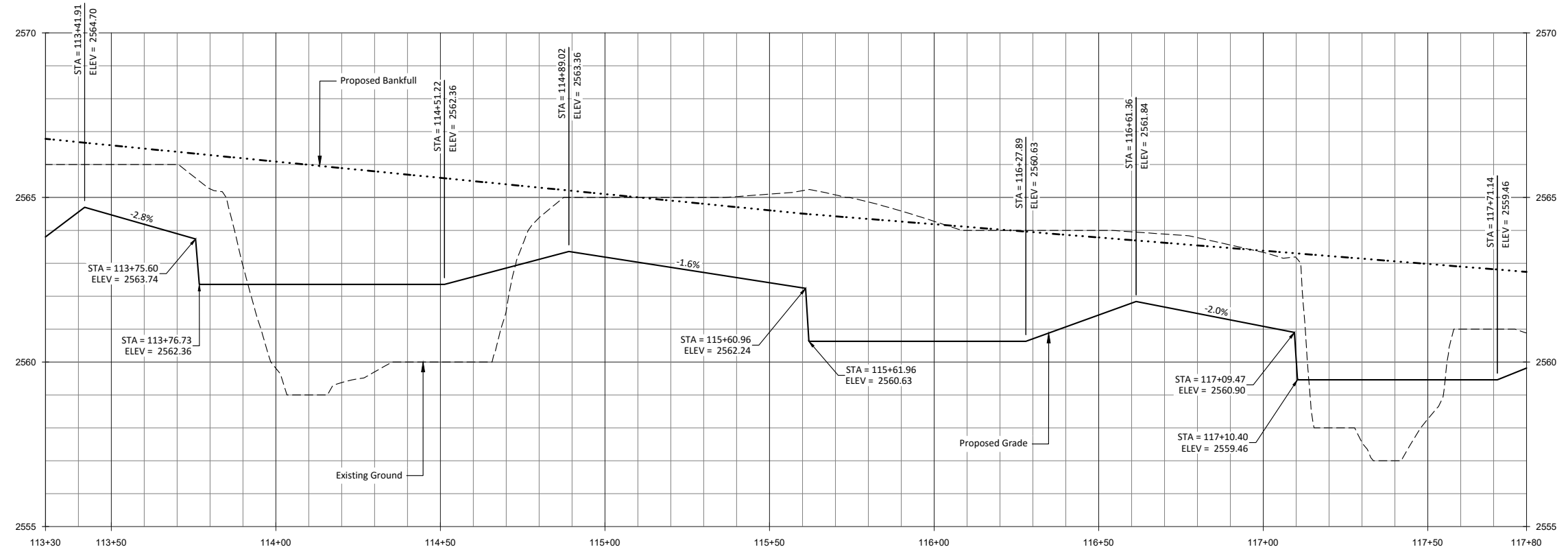
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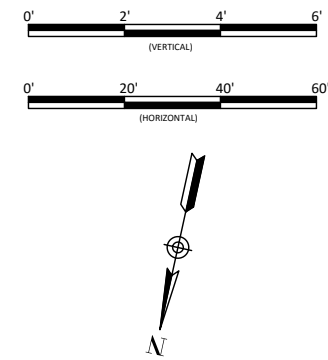
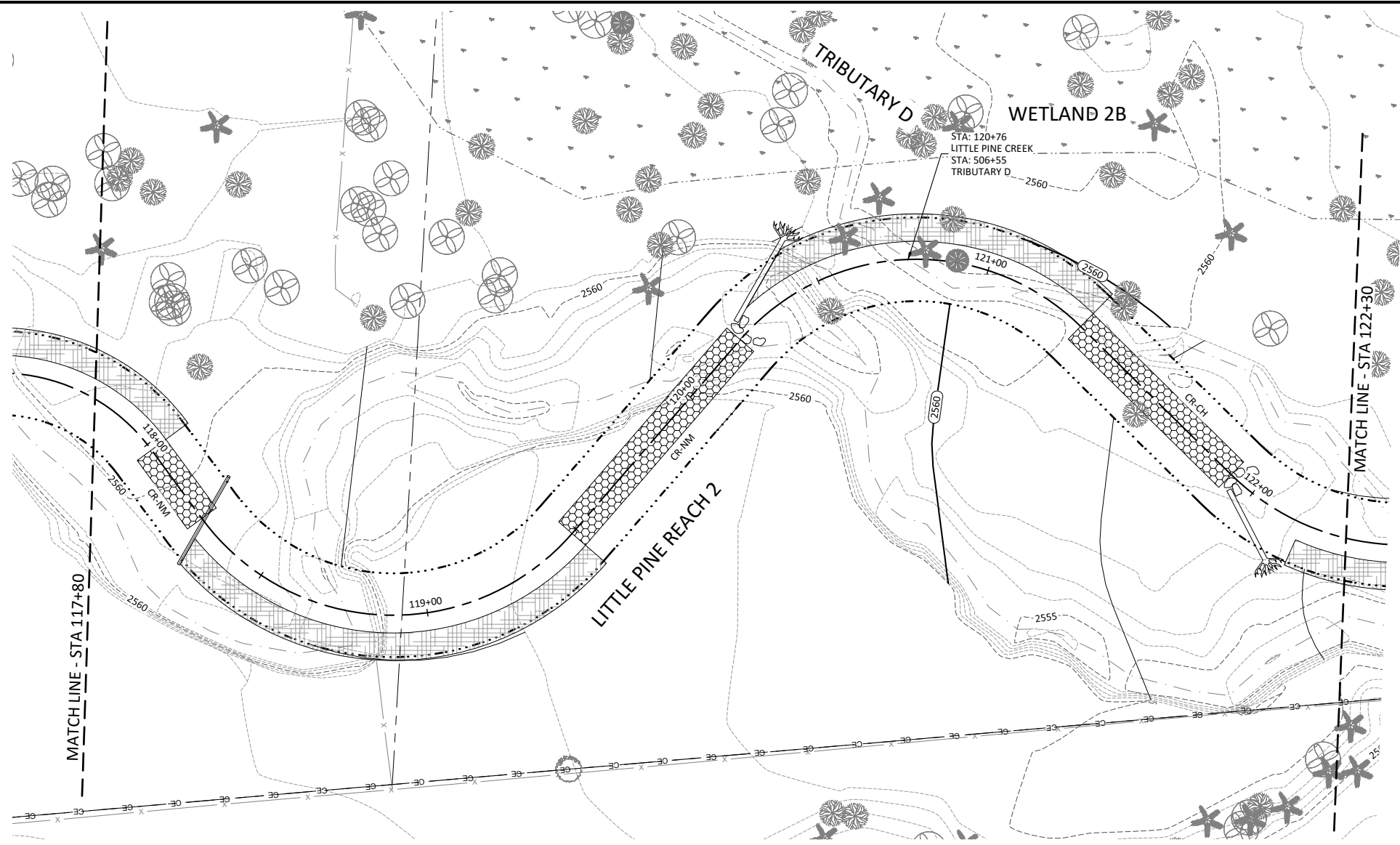
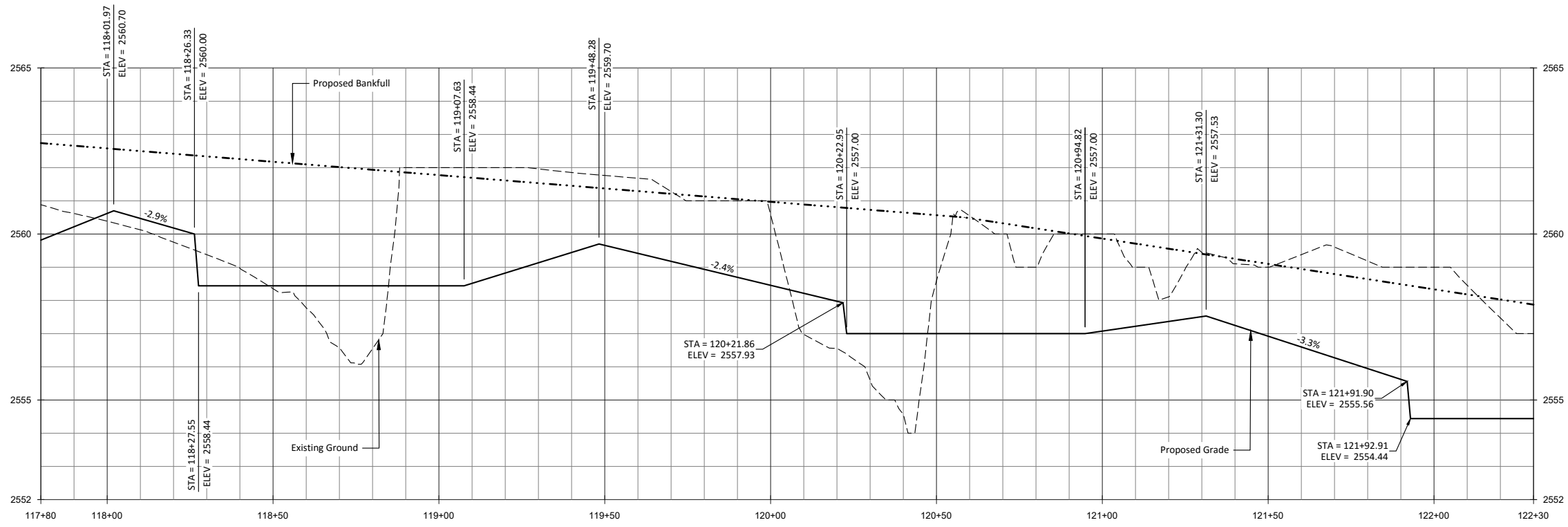
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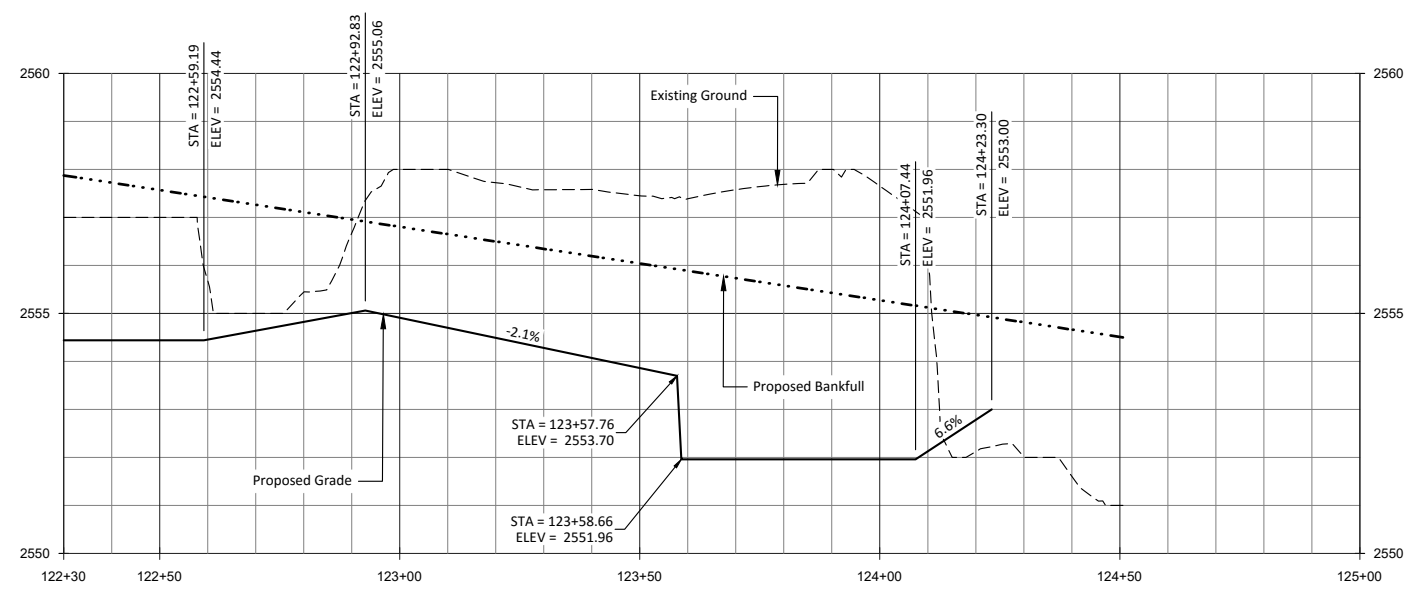
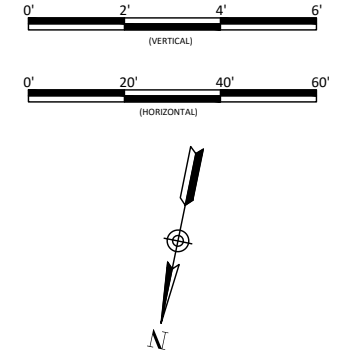
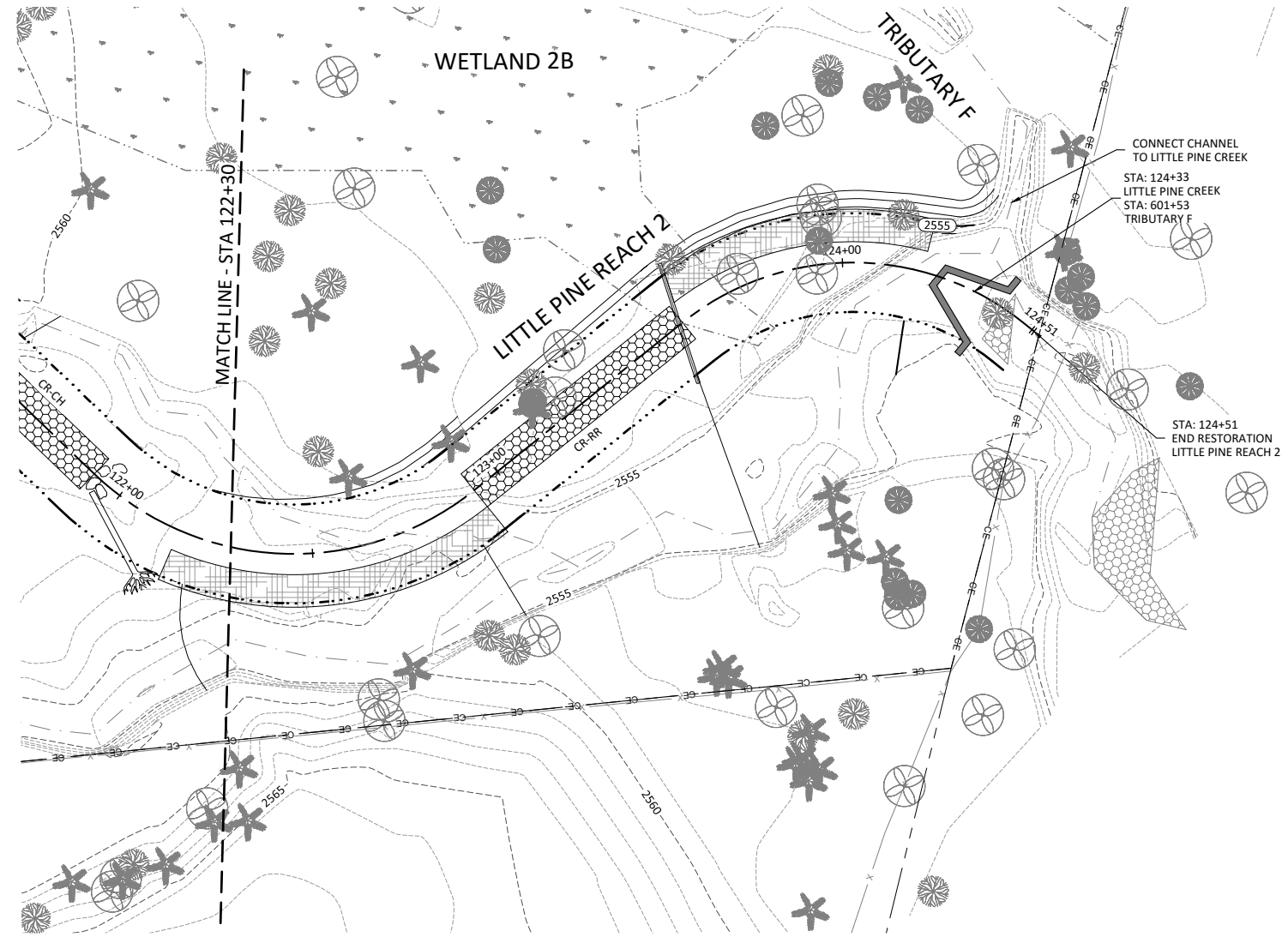
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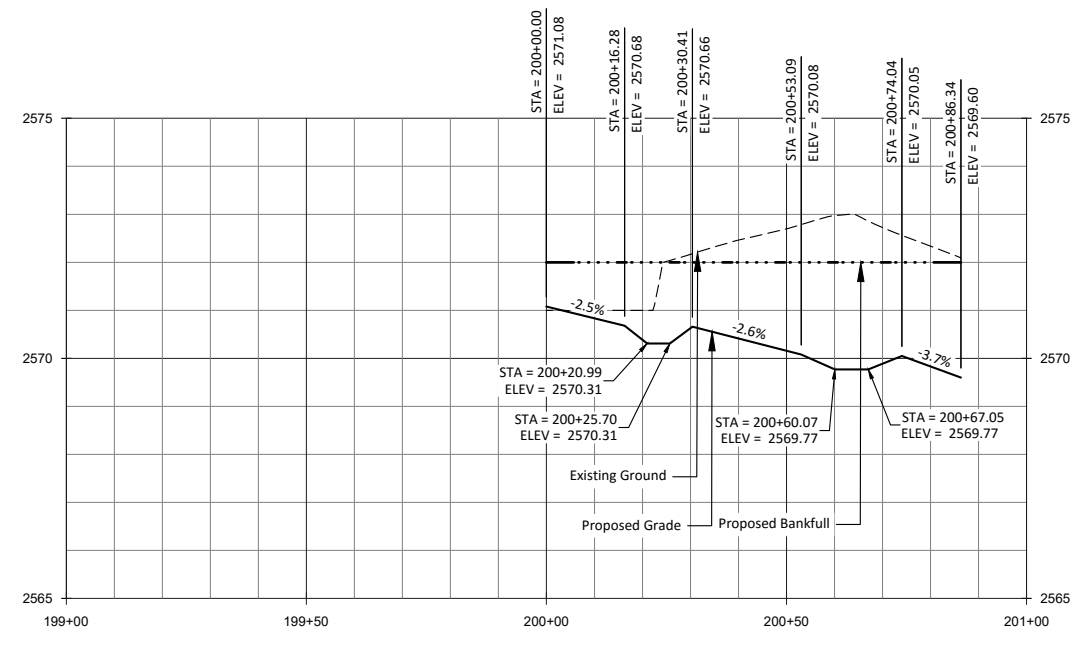
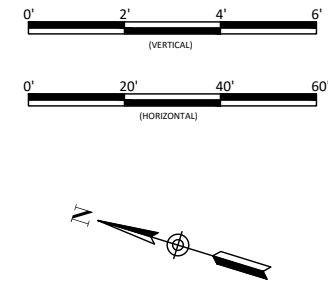
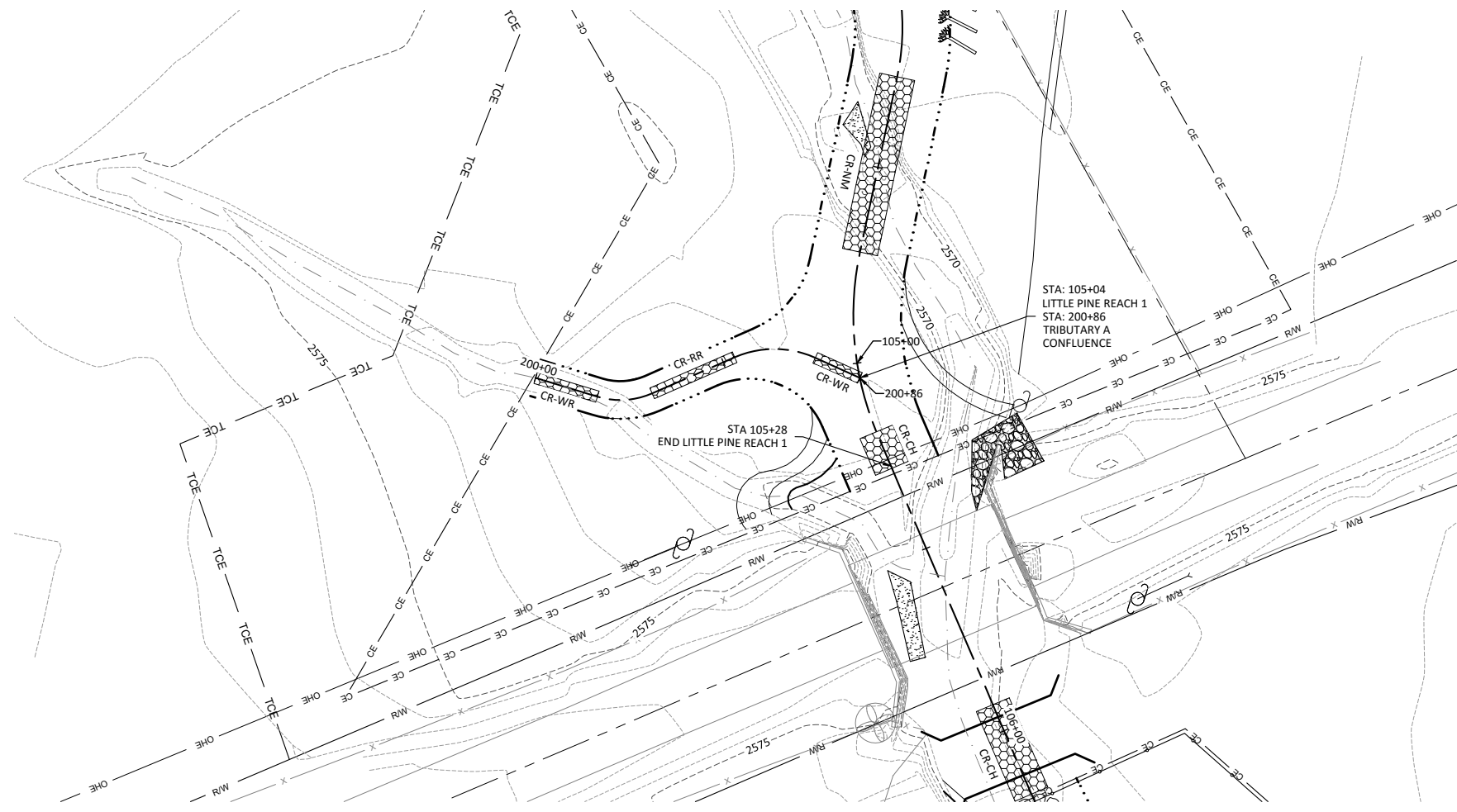
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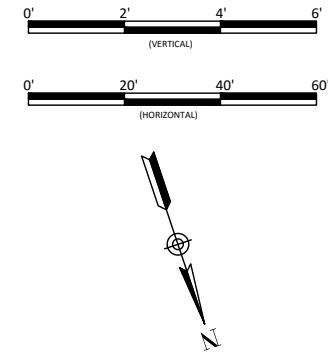
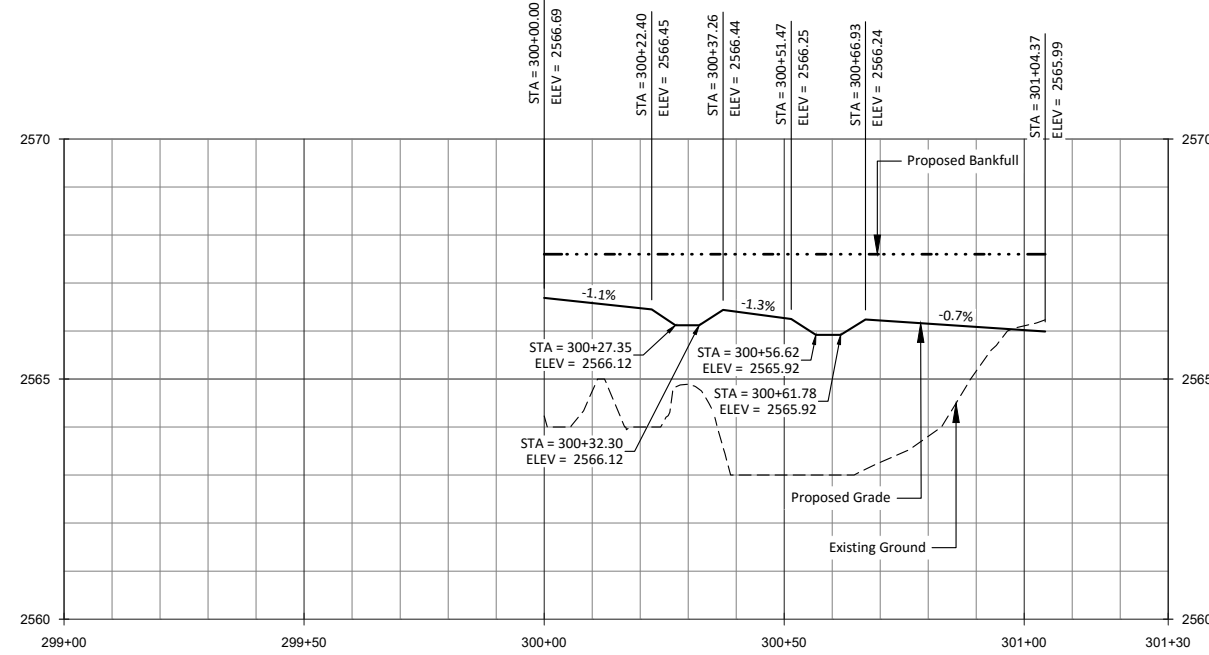
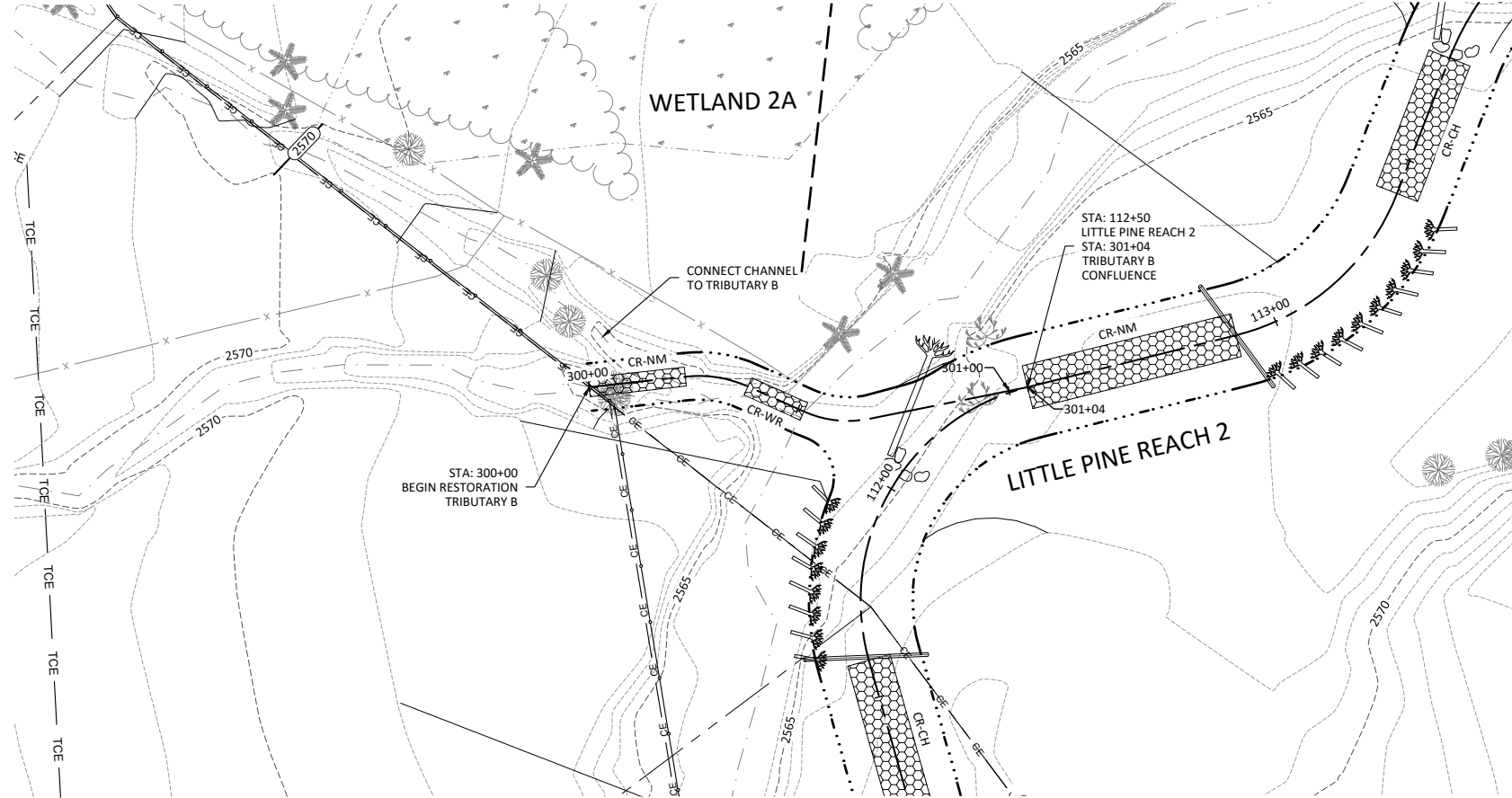
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Little Pine Creek II Restoration Project
 Alleghany County, North Carolina
 Tributary A
 Stream Plan and Profile

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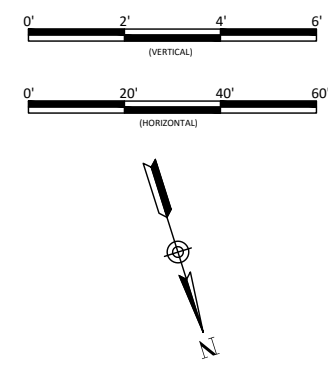
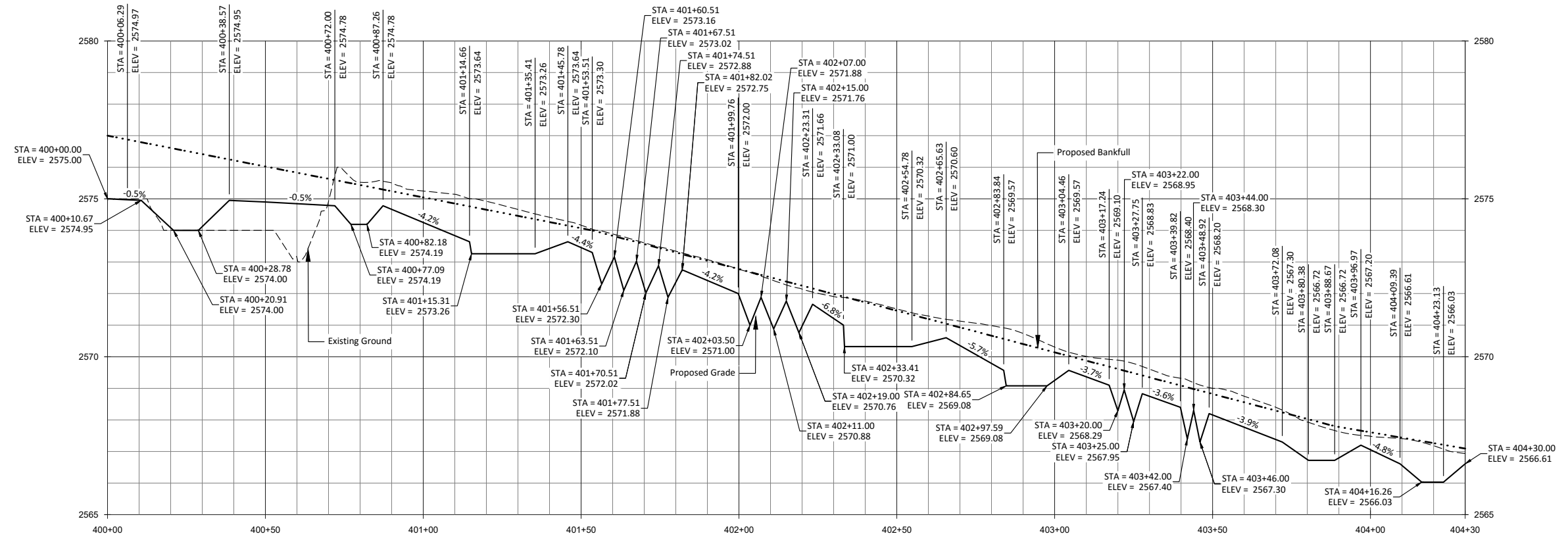
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Little Pine Creek II Restoration Project
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 Tributary B
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NOTE: PINES WITHIN 20 FEET OF THE NEW STREAM CHANNELS WILL BE REMOVED.

January 11, 2016

Job Number: 005-02157

Project Engineer: JK

Drawn By: RP/JCK

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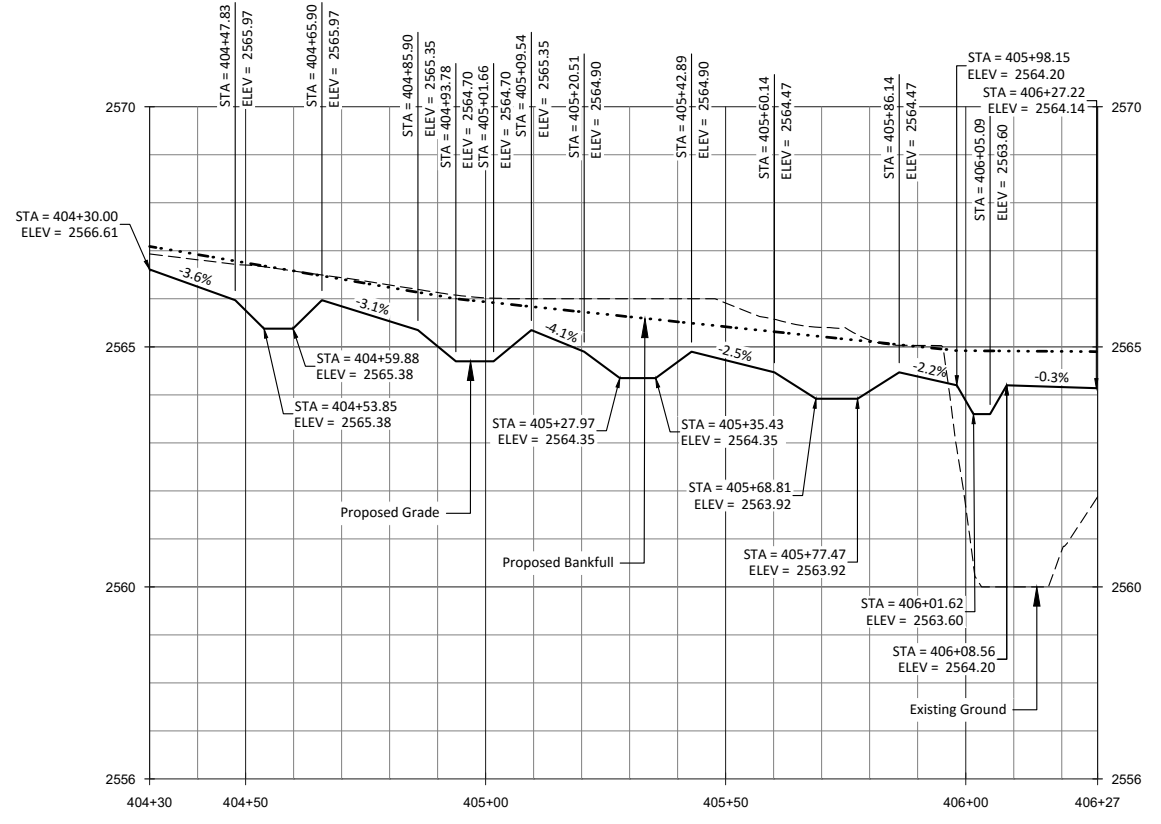
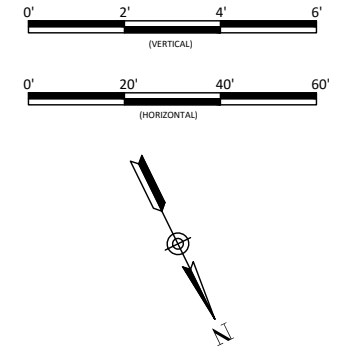
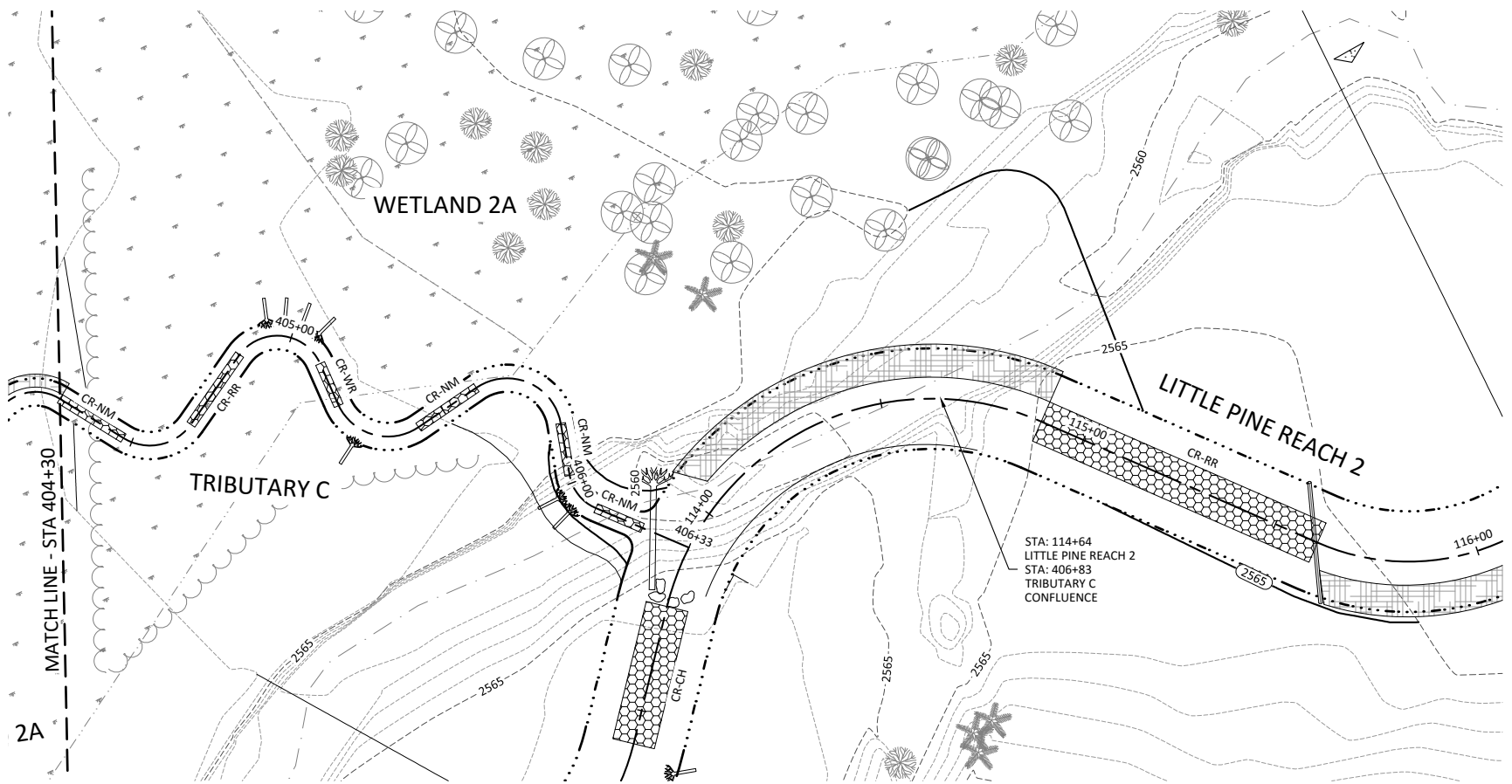
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Tributary C
Stream Plan and Profile

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NOTE:
 PINES WITHIN 20 FEET OF THE NEW STREAM
 CHANNELS WILL BE REMOVED.

Date:	January 11, 2016
Job Number:	005-02137
Project Engineer:	JK
Drawn By:	RP/JCK
Checked By:	JH

Revisions:	

Little Pine Creek II Restoration Project
 Allegheny County, North Carolina

Tributary C
 Stream Plan and Profile


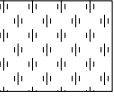
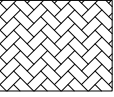

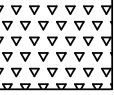
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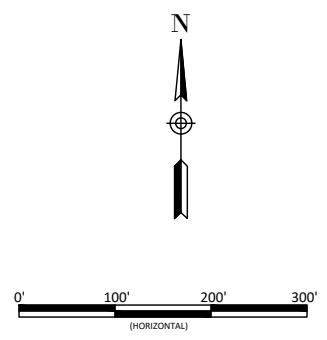
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 January 11, 2016

- 
 ZONE 1 - STREAM BANK PLANTING ZONE
- 
 ZONE 2 - BUFFER PLANTING ZONE
- 
 ZONE 3 - HILL SLOPE BUFFER PLANTING ZONE
- 
 ZONE 4 - WETLAND 1 PLANTING ZONE
- 
 ZONE 5 - WETLAND 2A PLANTING ZONE



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Little Pine Creek II Restoration Project
Allegheny County, North Carolina
 Planting Overview
 Planting Plan

Revisions:

Date: January 11, 2016
 Job Number: 005-02157
 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

3.1

Sheet

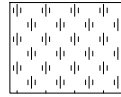
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Streambank Planting Zone			
Bare Root Species	Common Name	Stratum	% of Stems
<i>Cornus amomum</i>	Silky dogwood	Shrub	25
<i>Salix sericea</i>	Silky willow	shurb	25
<i>Cephalanthus occidentalis</i> L.	Common buttonbush	Shurb	25
<i>Physocarpus opulifolius</i>	Ninebark	Shrub	25
<i>Carex stricata</i>	Tussock sedge	Herb	N/A
<i>Juncus effusus</i>	Common rush	Herb	N/A



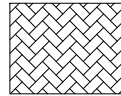
ZONE 1 - STREAM BANK PLANTING ZONE

Riparian Buffer Planting Zone			
Bare Root Species	Common Name	Stratum	% of Stems
<i>Acer rubrum</i>	Red maple	Canopy	5
<i>Betula nigra</i>	River birch	Canopy	20
<i>Fraxinus pennsylvanica</i>	Green ash	Canopy	20
<i>Liriodendron tulipifera</i>	Tulip poplar	Canopy	20
<i>Platanus occidentalis</i>	Sycamore	Canopy	20
<i>Oxydendrum arboreum</i>	Sourwood	Canopy	15



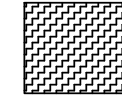
ZONE 2 - BUFFER PLATING ZONE

Hill Slope Buffer Planting Zone			
Bare Root Species	Common Name	Stratum	% of Stems
<i>Acer rubrum</i>	Red maple	Canopy	5
<i>Aesculus ocrandra</i>	Yellow buckeye	Canopy	15
<i>Fraxinus americana</i>	White ash	Canopy	20
<i>Liriodendron tulipifera</i>	Tulip poplar	Canopy	20
<i>Nyssa sylvatica</i>	Blackgum	Canopy	15
<i>Querus rubra</i>	Northern red oak	Canopy	20
<i>Oxydendrum arboreum</i>	Sourwood	Canopy	5



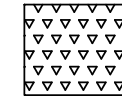
ZONE 3 - HILL SLOPE BUFFER PLANTING ZONE

Wetland 1 Planting Zone and Wetland 2A within 20' of Trib C Top of Bank			
Bare Root Species	Common Name	Stratum	% of Stems
<i>Acer negundo</i>	Box elder	Canopy	5
<i>Acer rubrum</i>	Red maple	Canopy	5
<i>Betula nigra</i>	River birch	Canopy	20
<i>Cornus amomum</i>	Silky dogwood	shrub	10
<i>Fraxinus pennsylvanica</i>	Green ash	Canopy	20
<i>Nyssa sylvatica</i>	Black gum	Canopy	10
<i>Platanus occidentalis</i>	Sycamore	Canopy	20
<i>Quercus michauxii</i>	Swamp Chestnut Oak	Canopy	10



ZONE 4 - WETLAND 1 PLANTING ZONE

Wetland 2A Planting Zone (under existing canopy)			
Species	Common Name	Stratum	% of Stems
<i>Alnus serrulata</i>	Tag alder	shrub	20
<i>Carpinus carolinana</i>	Ironwood	small tree/shrub	20
<i>Cornus amomum</i>	Silky dogwood	shrub	20
<i>Lindera benzion</i>	Spicebush	shrub	20
<i>Sambucus nigra</i>	Elderberry	shrub	20



ZONE 5 - WETLAND 2A PLANTING ZONE

Permanent Riparian Seeding		
Pure Live Seed (20 lbs/acre)		
Species Name	Common Name	Density (lbs/acre)
<i>Agrostis stolonifera</i>	Creeping Bentgrass	1.8
<i>Andropogon ternarius</i>	Split Beardgrass	0.6
<i>Bouteloua curtipendula</i>	Side Oats Grama	2.6
<i>Bouteloua gracilis</i>	Blue Grama	3.2
<i>Carex vulpinoidea</i>	Fox Sedge	0.8
<i>Chasmanthium latifolium</i>	River Oats	1.6
<i>Careopsis lanceolata</i>	Lanceleaf Coreopsis	1.0
<i>Panicum clandestinum</i>	Deertongue	3.6
<i>Rudbeckia hirta</i>	Blackeyed Susan	1.0
<i>Schizachyrium scoparium</i>	Little Bluestem	2.6
<i>Sporobolus clandestinus</i>	Rough Dropseed	1.2

Pasture Seeding		
Pure Live Seed (42 lbs/acre)		
Species Name	Common Name	Density (lbs/acre)
<i>Festuca arundinacea</i>	Tall Fescue	40
<i>Trifolium repens</i>	White Ladino Clover	2

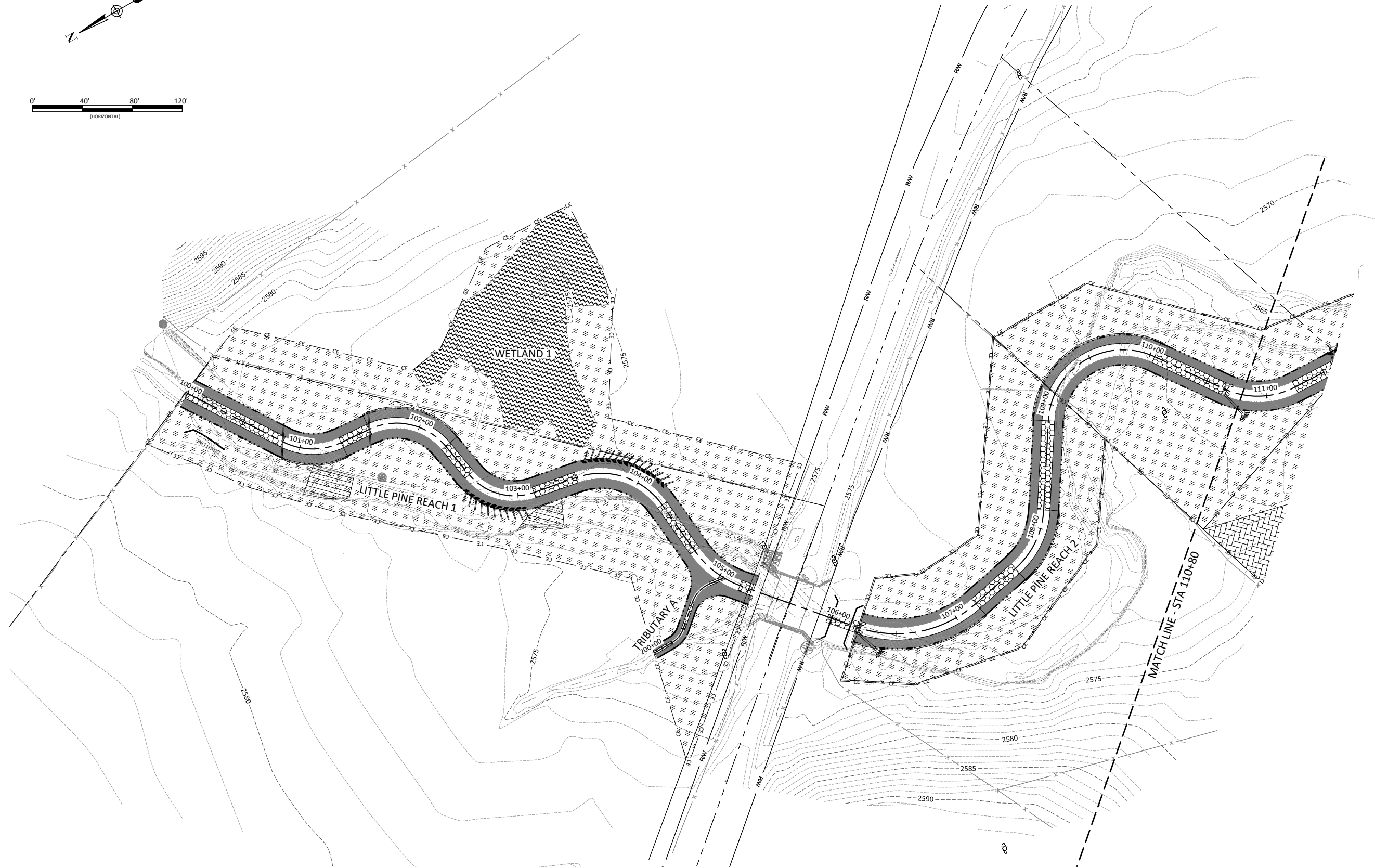
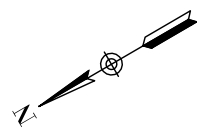
Temporary Seeding			
Approved Date	Species Name	Common Name	Density (lbs/acre)
August 15 - May 1	<i>Secale cereale</i>	Rye Grain	130
April 30 - August 14	<i>Panicum ramosum</i>	Browntop Millet	45

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Little Pine Creek II Restoration Project
 Allegheny County, North Carolina
 Planting Summary
 Planting Plan

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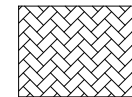
January 11, 2016
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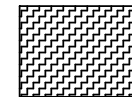
ZONE 1 - STREAM BANK PLANTING ZONE



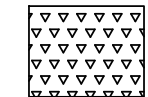
ZONE 2 - BUFFER PLANTING ZONE



ZONE 3 - HILL SLOPE BUFFER PLANTING ZONE



ZONE 4 - WETLAND 1 PLANTING ZONE



ZONE 5 - WETLAND 2A PLANTING ZONE

Revisions:
Date: January 11, 2016
Job Number: 005-02157
Project Engineer: JK
Drawn By: RP/JCK
Checked By: JH

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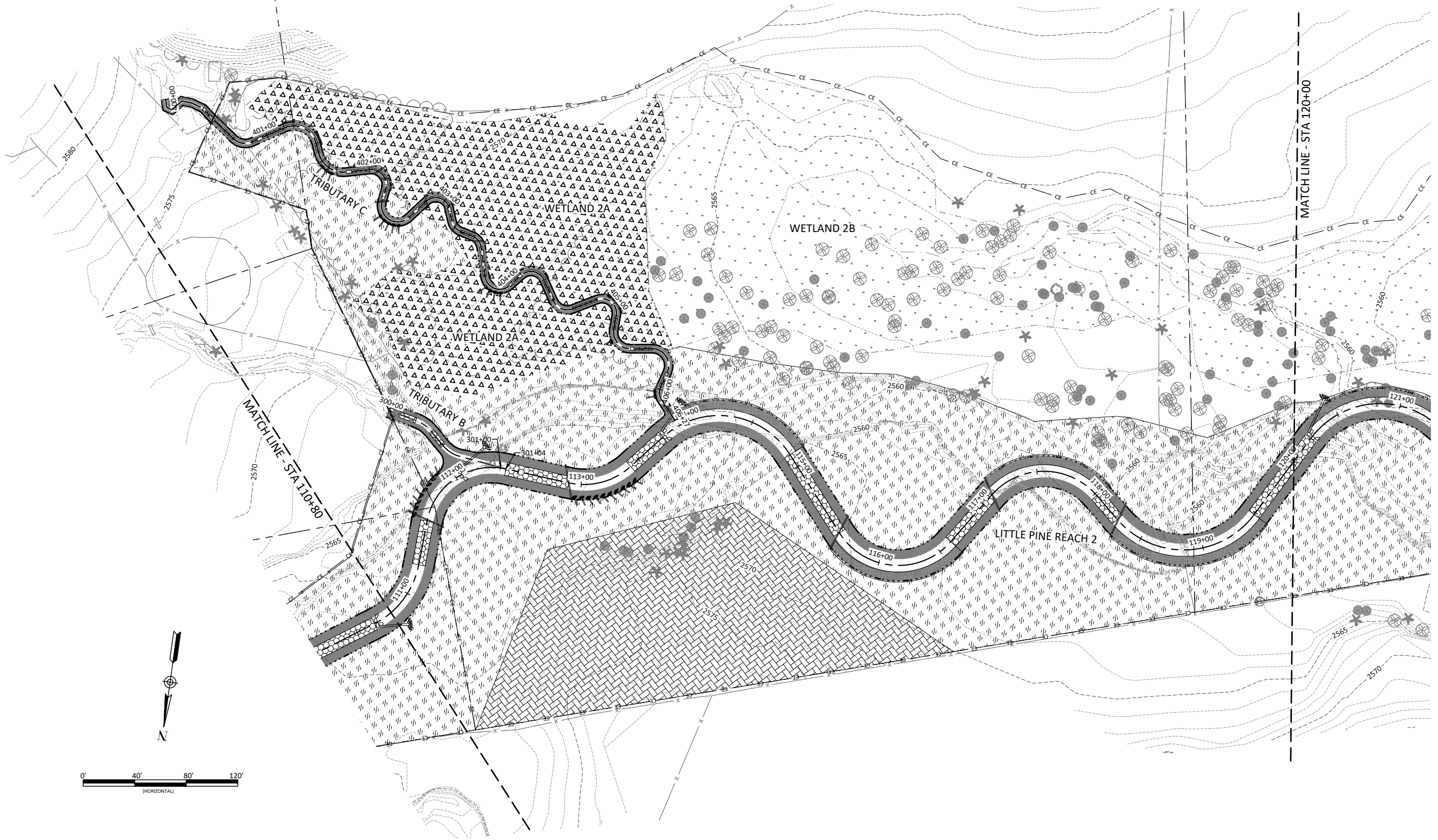
Little Pine Creek II Restoration Project
Alleghany County, North Carolina

Little Pine Reach 1 Reach 2 & Trib A
Planting Plan

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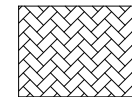
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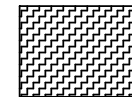
ZONE 1 - STREAM BANK PLANTING ZONE



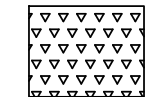
ZONE 2 - BUFFER PLANTING ZONE



ZONE 3 - HILL SLOPE BUFFER PLANTING ZONE



ZONE 4 - WETLAND 1 PLANTING ZONE



ZONE 5 - WETLAND 2A PLANTING ZONE

Revisions:

Date: January 11, 2016
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 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

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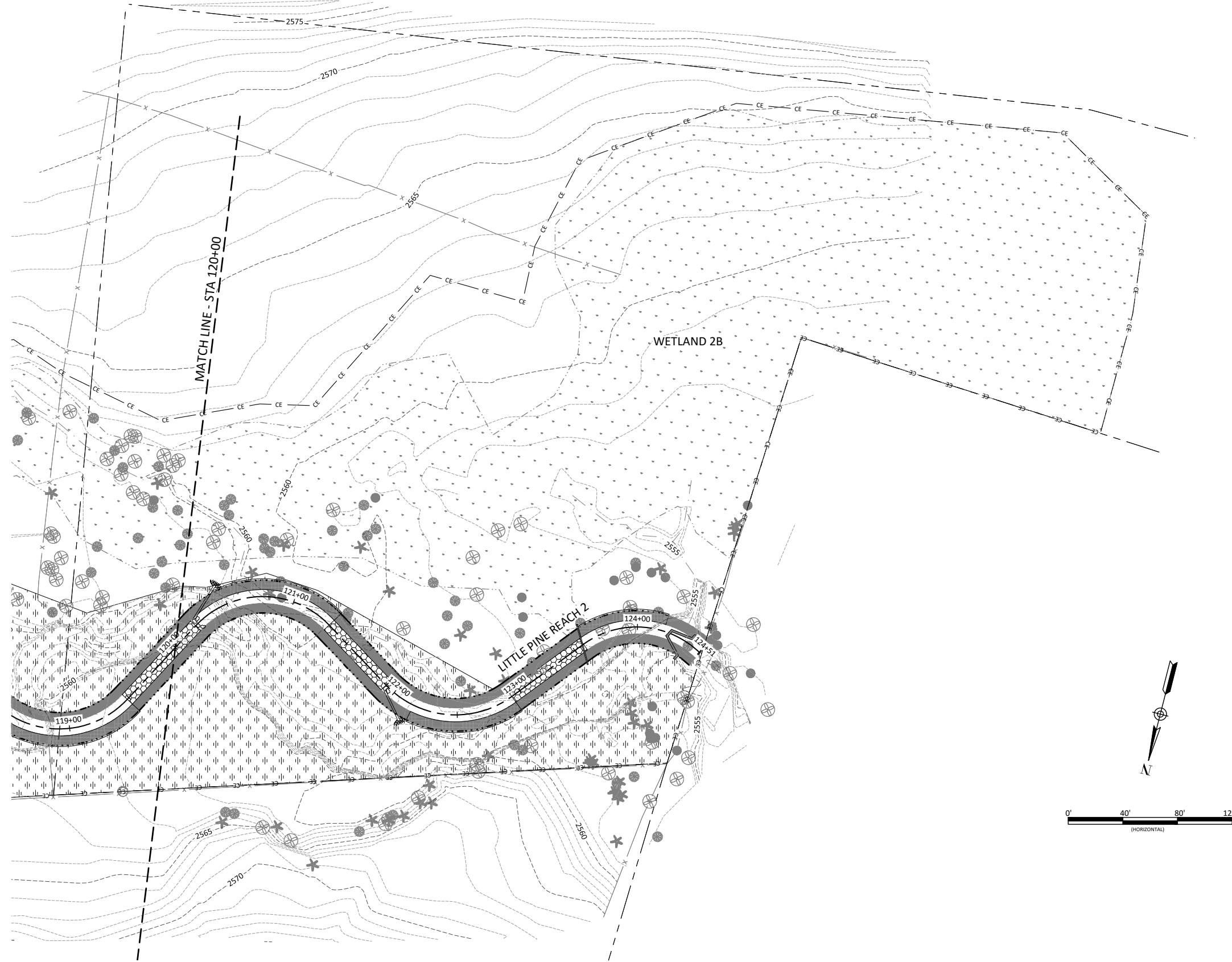
Little Pine Creek II Restoration Project
 Allegheny County, North Carolina
 Little Pine Reach 3 Trib B and Trib C
 Planting Plan

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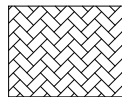
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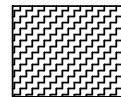
ZONE 1 - STREAM BANK PLANTING ZONE



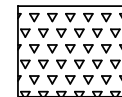
ZONE 2 - BUFFER PLANTING ZONE



ZONE 3 - HILL SLOPE BUFFER PLANTING ZONE



ZONE 4 - WETLAND 1 PLANTING ZONE



ZONE 5 - WETLAND 2A PLANTING ZONE

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Job Number: 005-02157
Project Engineer: JK
Drawn By: RP/JCK
Checked By: JH

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Sheet

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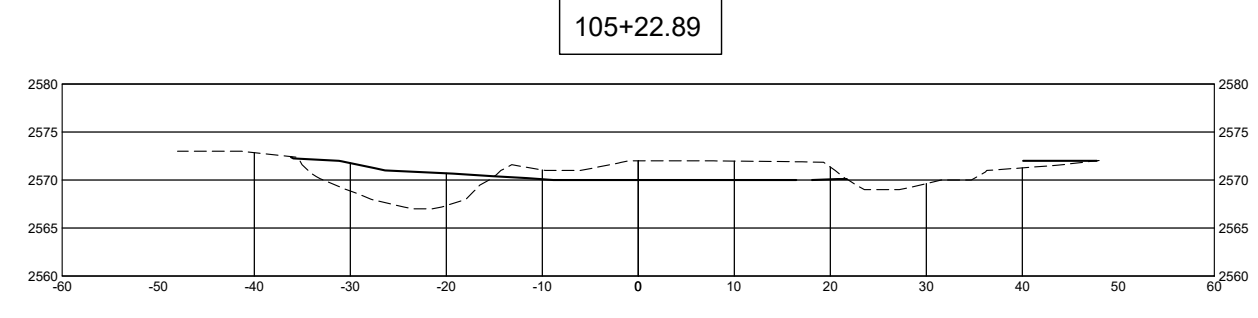
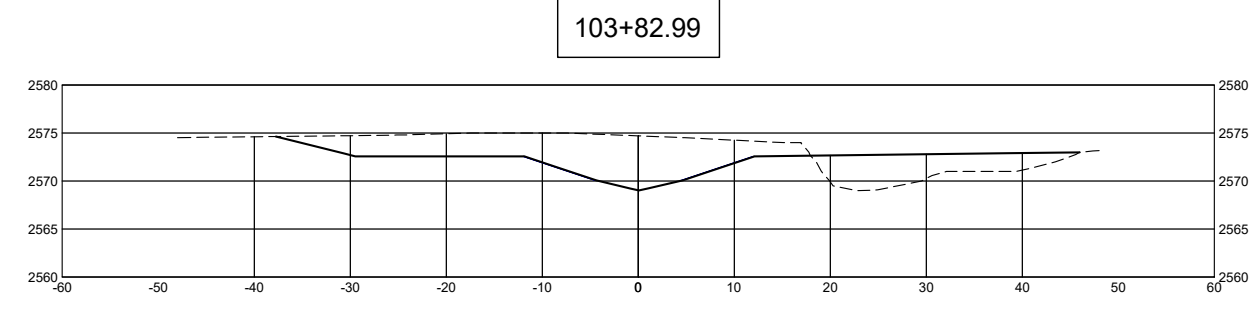
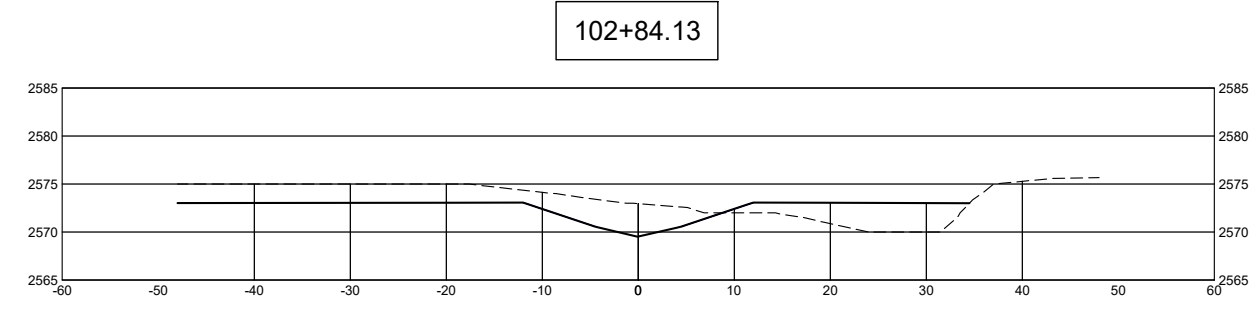
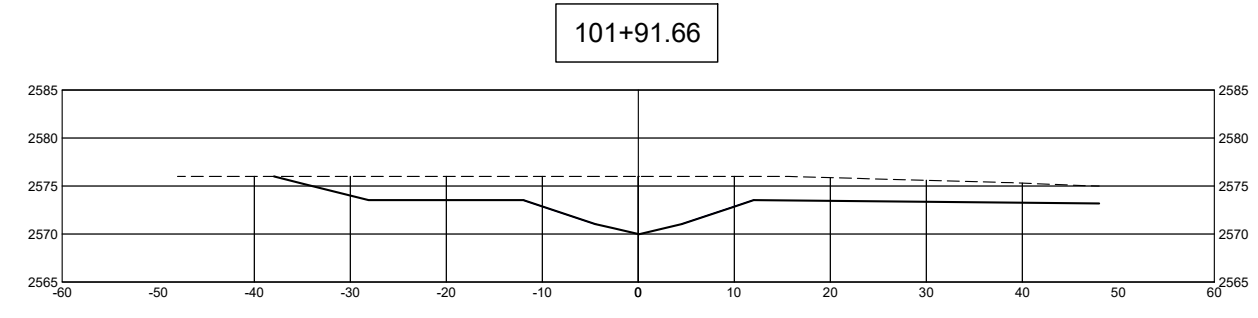
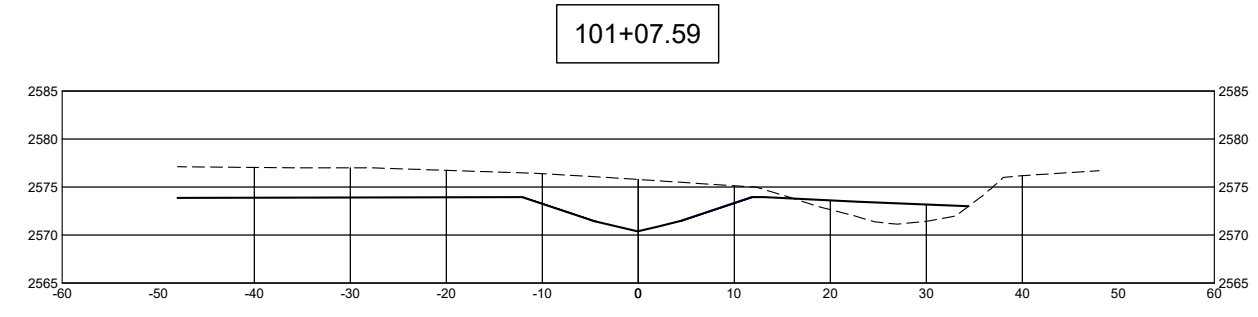
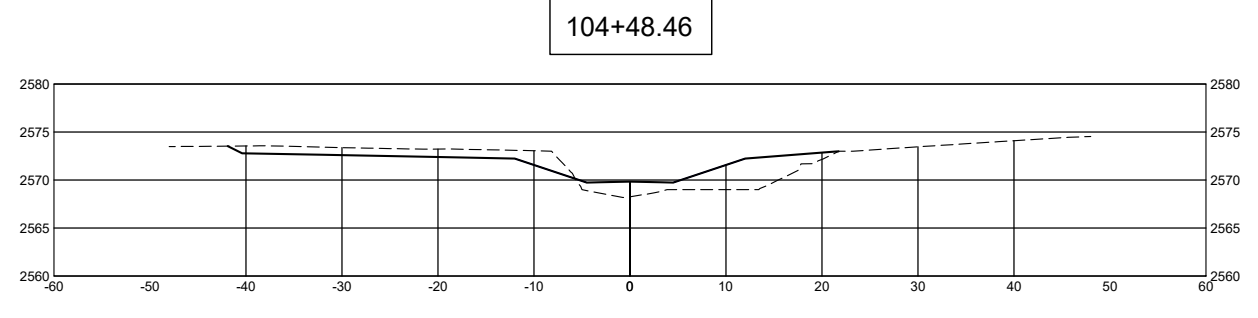
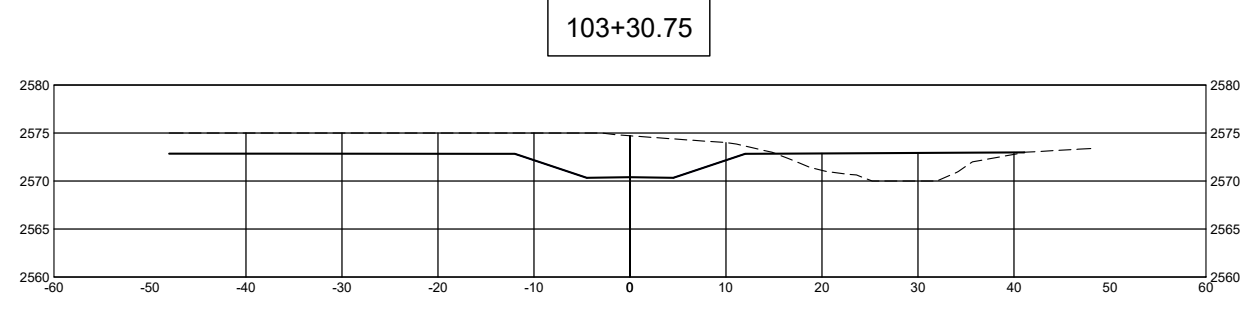
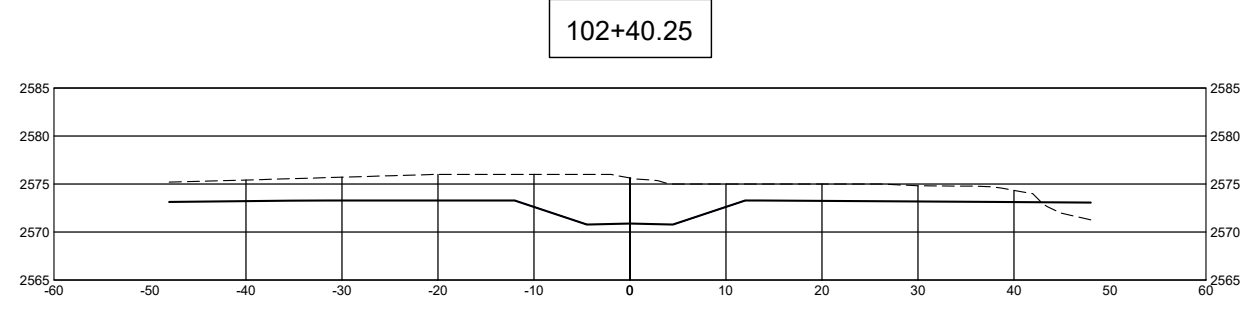
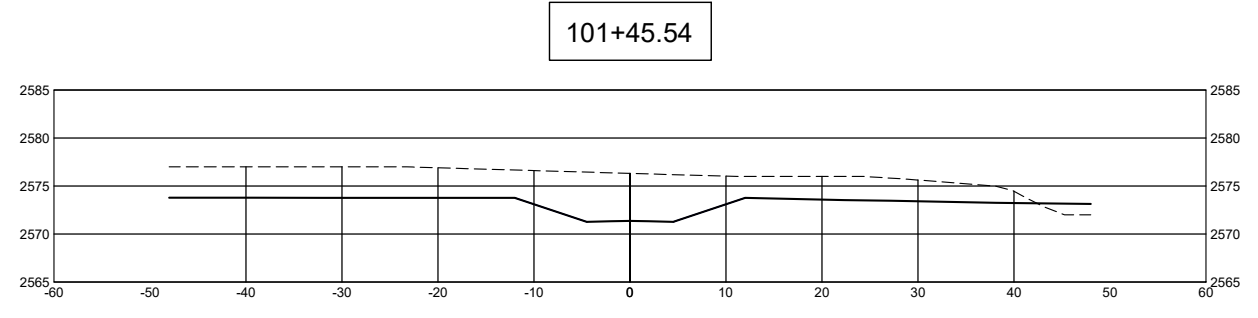
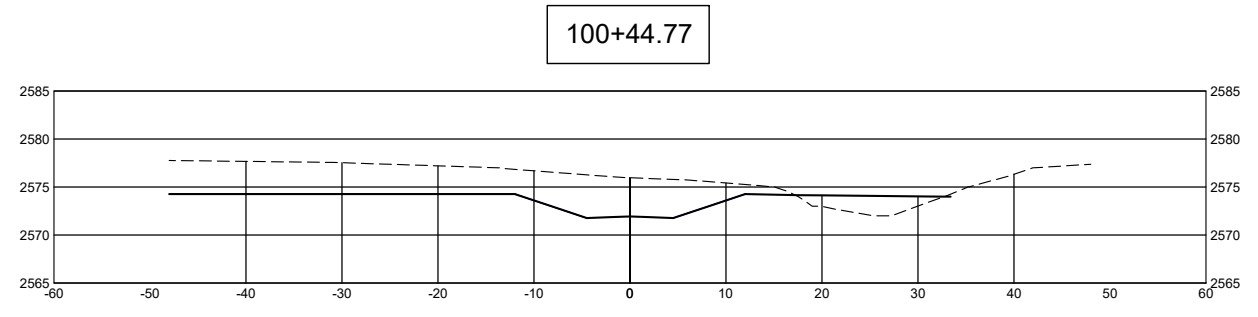
Little Pine Creek II Restoration Project
Allegheny County, North Carolina

Little Pine Reach 2
Planting Plan

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----- Existing Ground
————— Proposed Grade




Date: January 11, 2016
Job Number: 005-02157
Project Engineer: JK
Drawn By: RP/CK
Checked By: JH

4.1

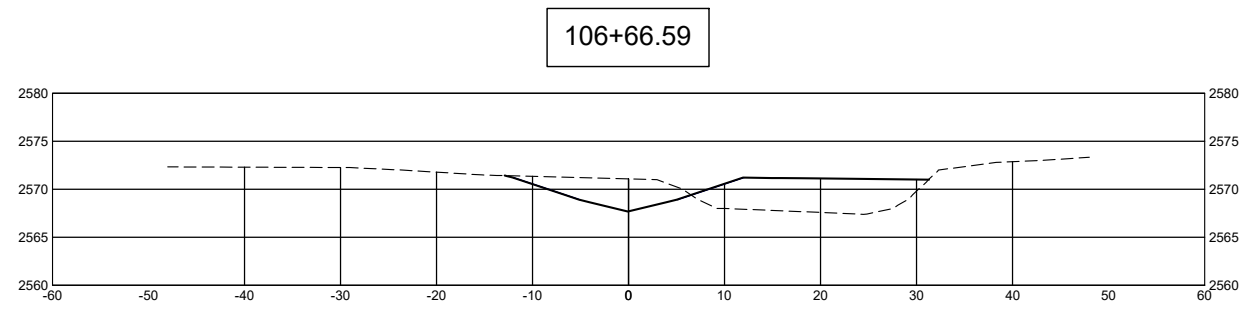
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Little Pine Creek II Restoration Project
Allegheny County, North Carolina
Little Pine Creek
Cross-Sections

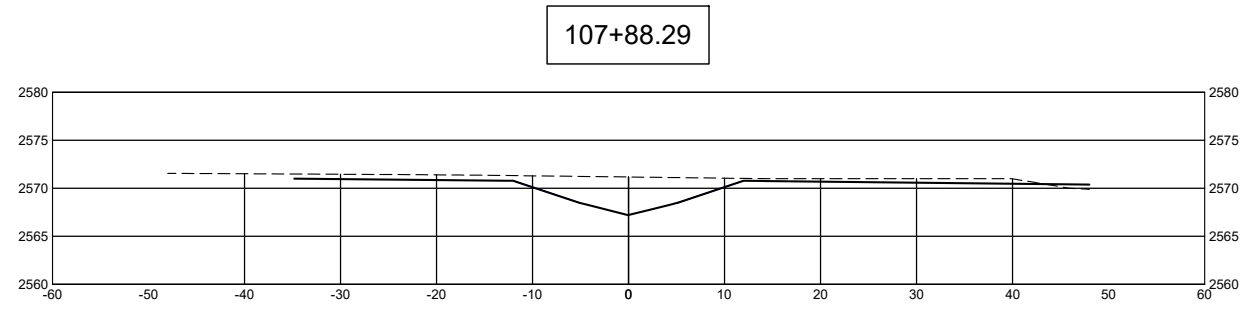
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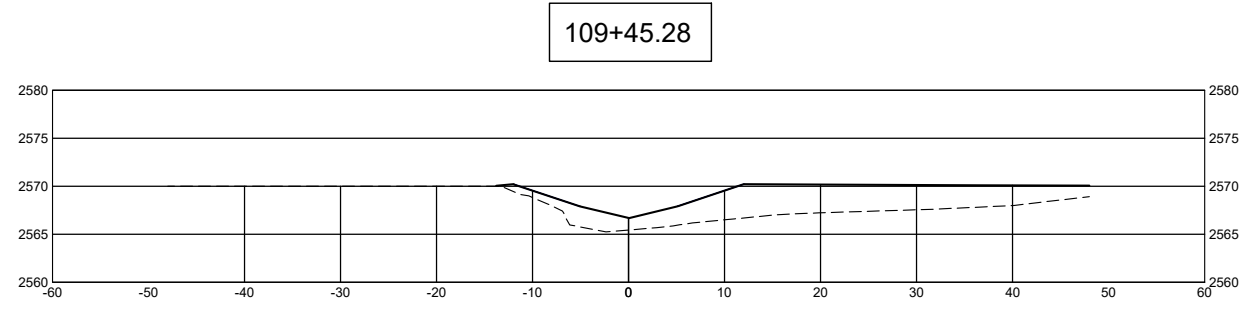
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 January 11, 2016



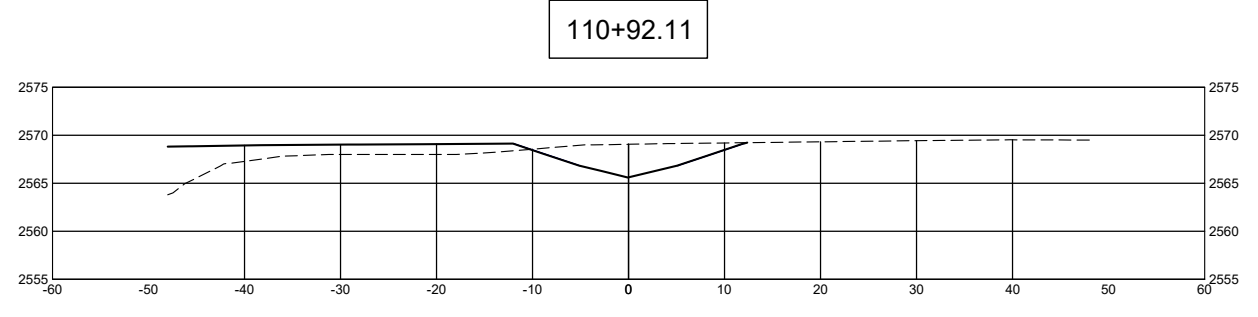
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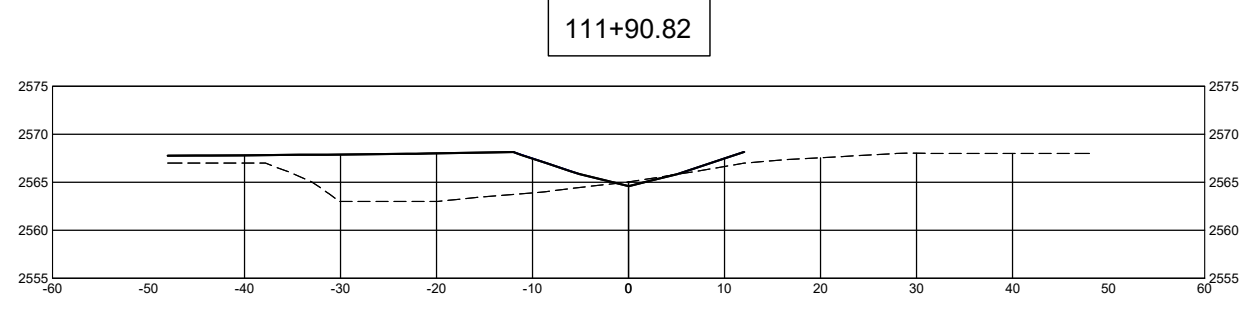
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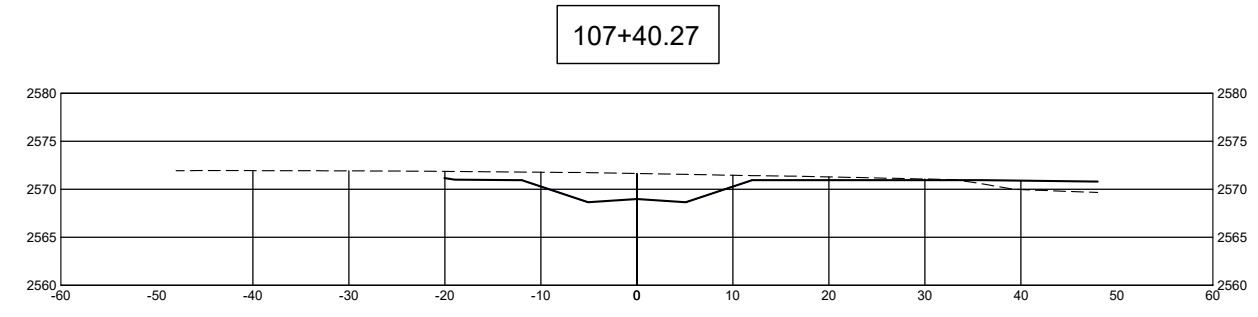
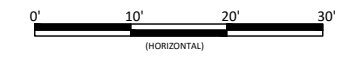


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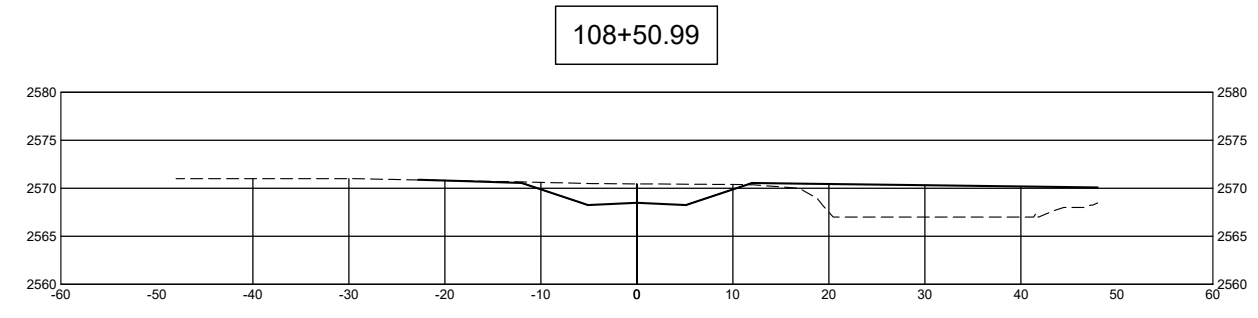


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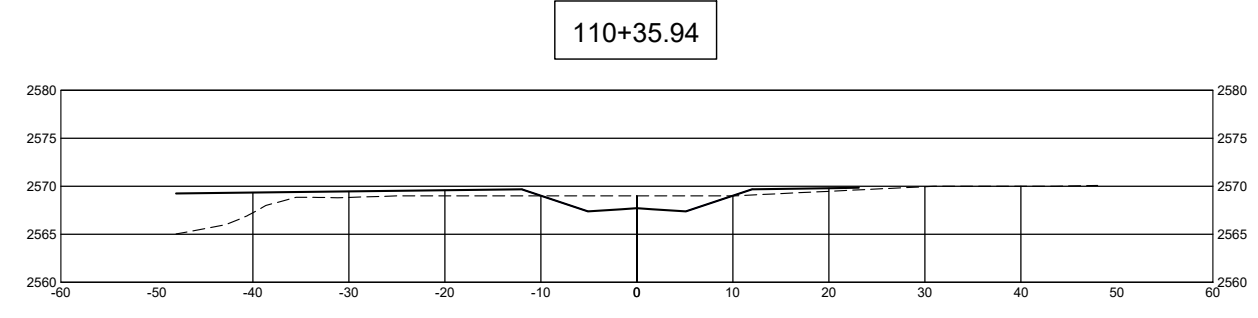
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 ——— Proposed Grade



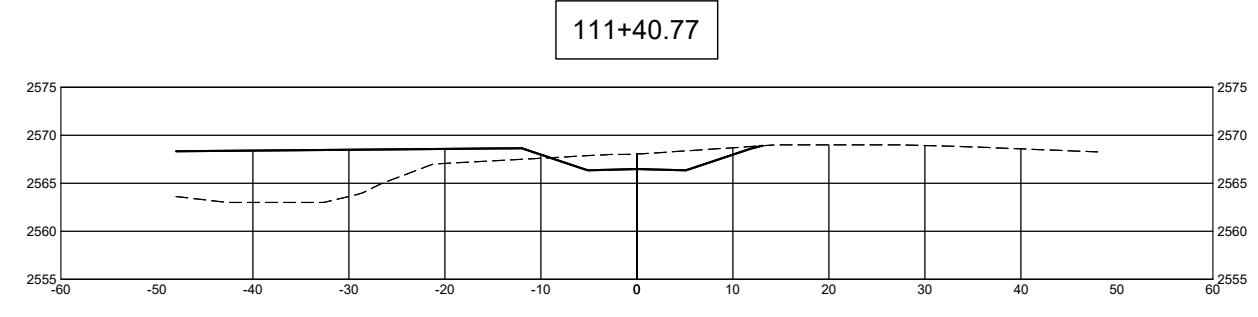
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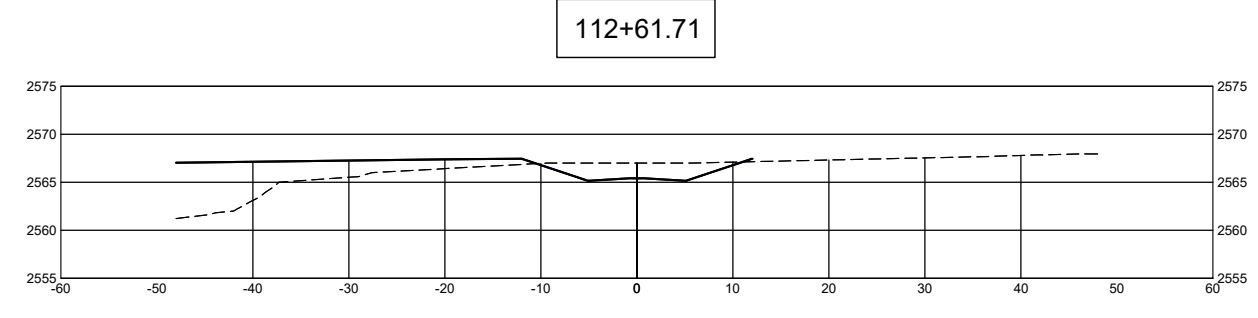
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Little Pine Creek II Restoration Project
 Alleghany County, North Carolina
 Little Pine Creek
 Cross-Sections

Revisions:

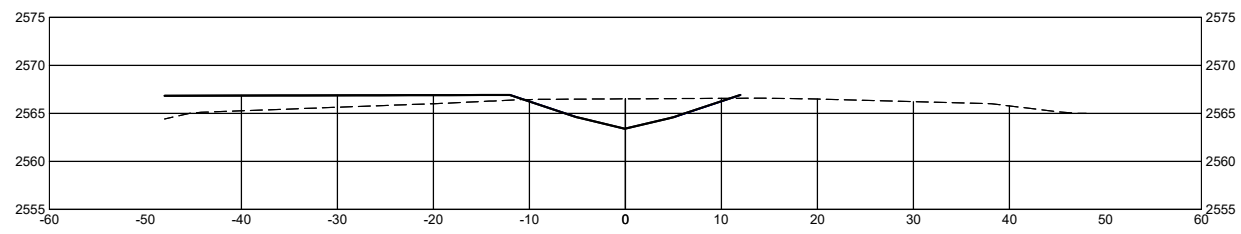
Date:	January 11, 2016
Job Number:	005-02137
Project Engineer:	JK
Drawn By:	RP/CK
Checked By:	JH

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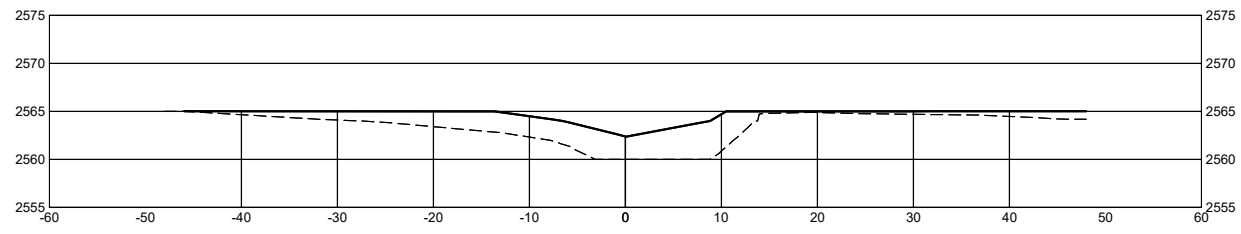
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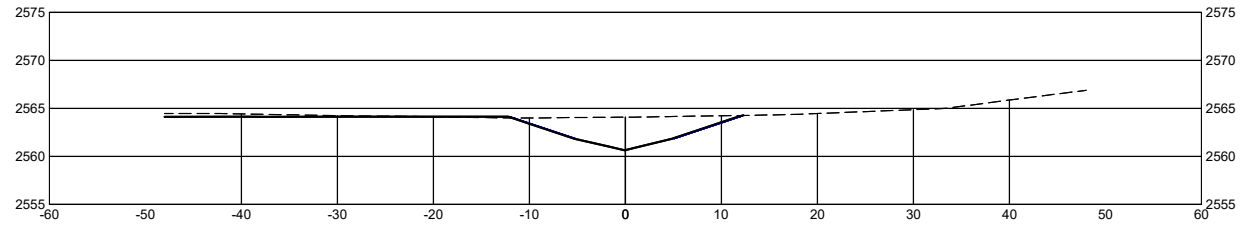
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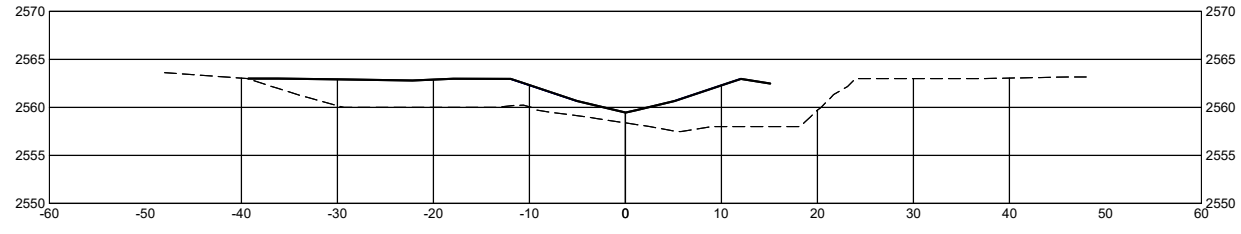
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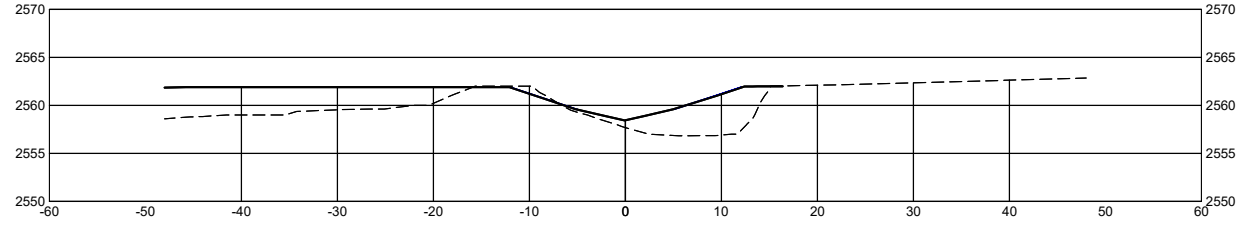
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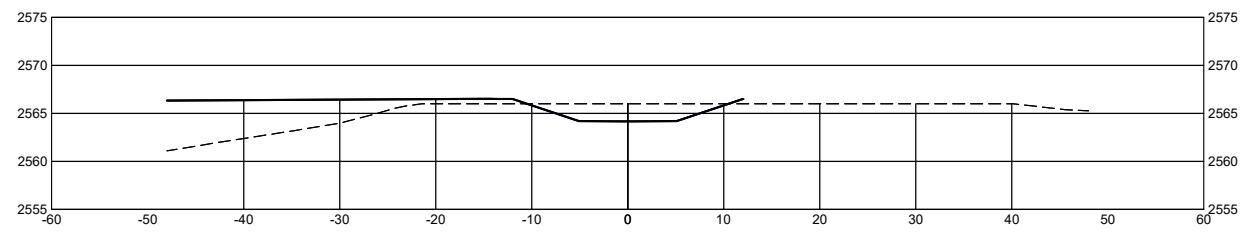
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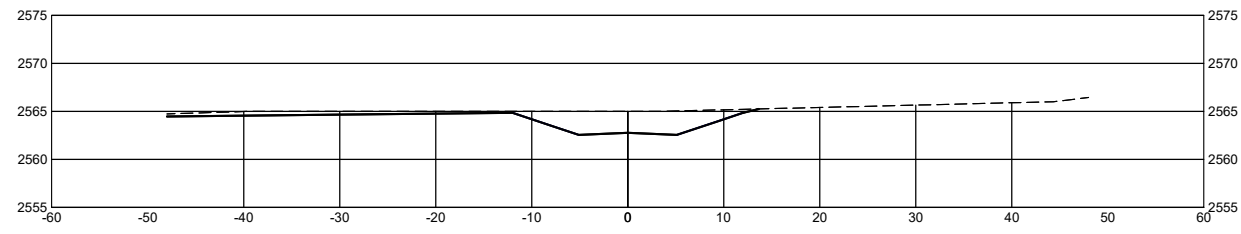
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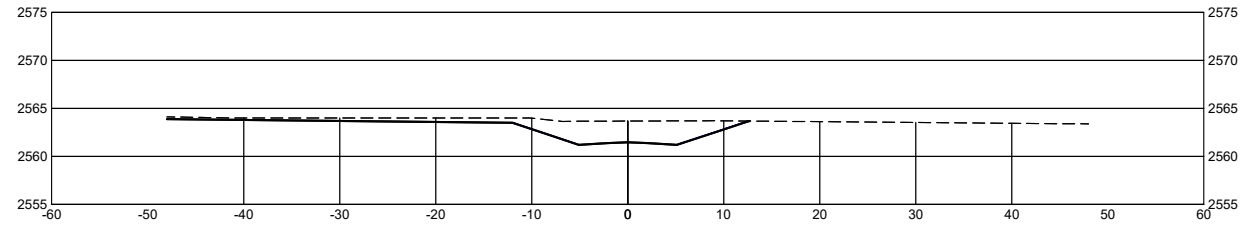
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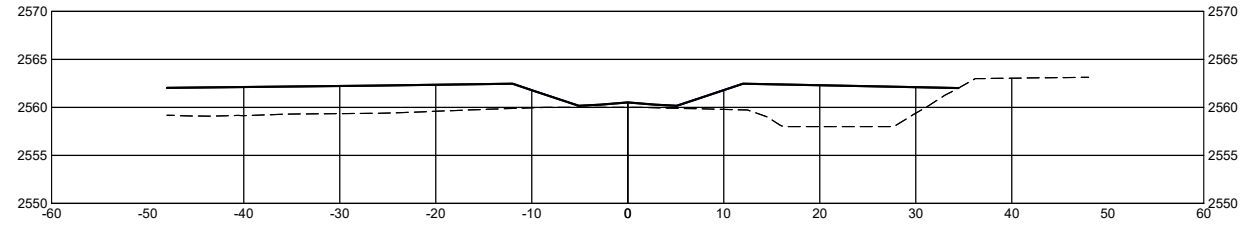
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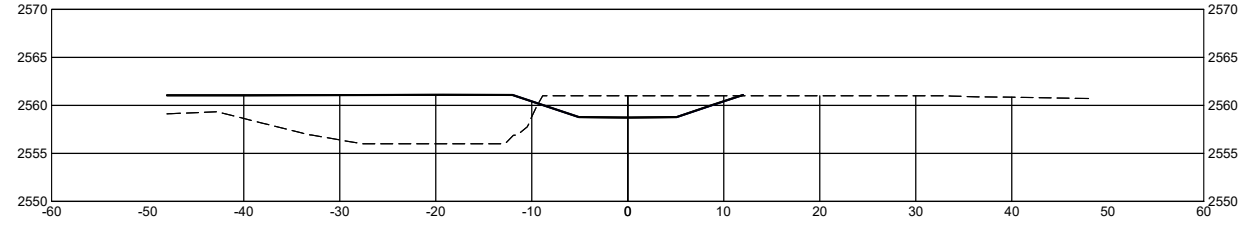
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118+13.66



119+84.71



--- Existing Ground
— Proposed Grade



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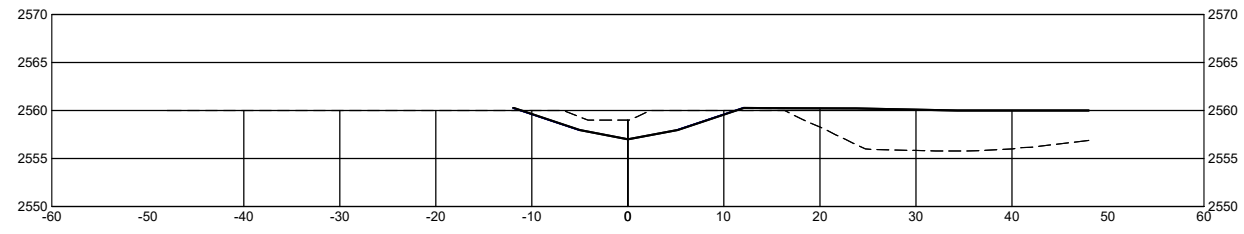
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Little Pine Creek II Restoration Project
Alleghany County, North Carolina
Little Pine Creek
Cross-Sections

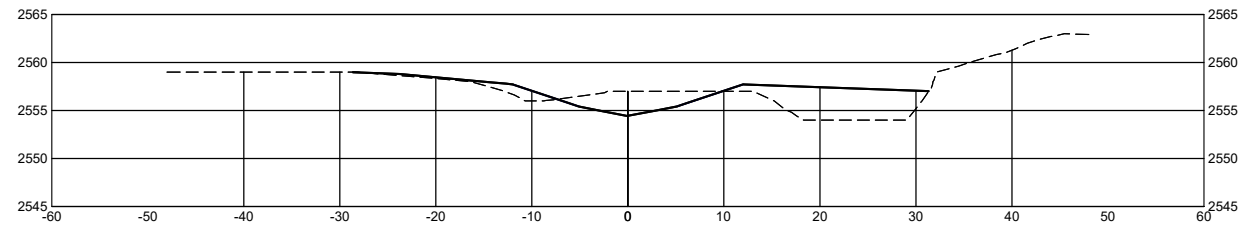
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Drawn By: RP/JCK
Checked By: JH

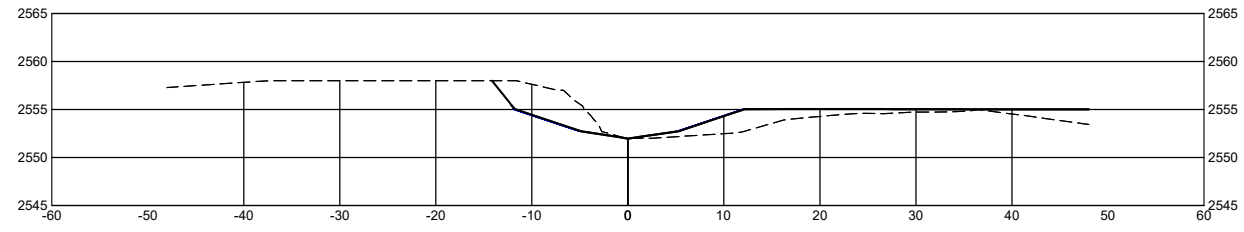
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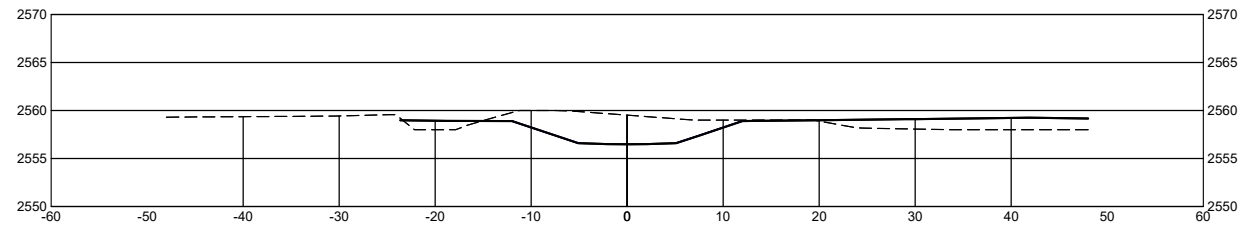
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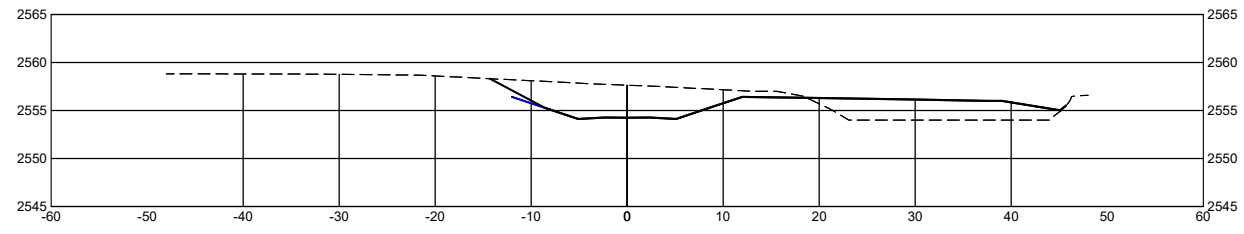
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121+63.47



123+25.06



----- Existing Ground
————— Proposed Grade



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Little Pine Creek II Restoration Project
Alleghany County, North Carolina
Little Pine Creek
Cross-Sections

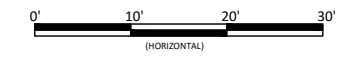
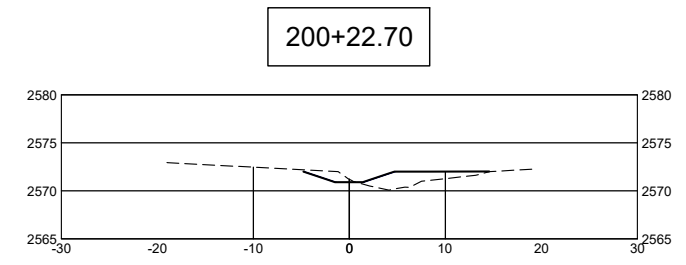
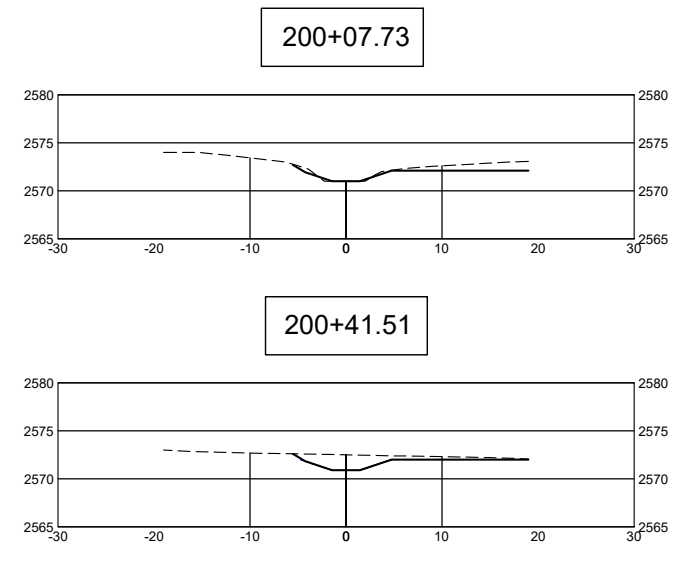
Revisions:

Date:	January 11, 2016
Job Number:	005-02157
Project Engineer:	JK
Drawn By:	RP/JCK
Checked By:	JH



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----- Existing Ground
———— Proposed Grade



Date: January 11, 2016
 Job Number: 005-02157
 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

Revisions:

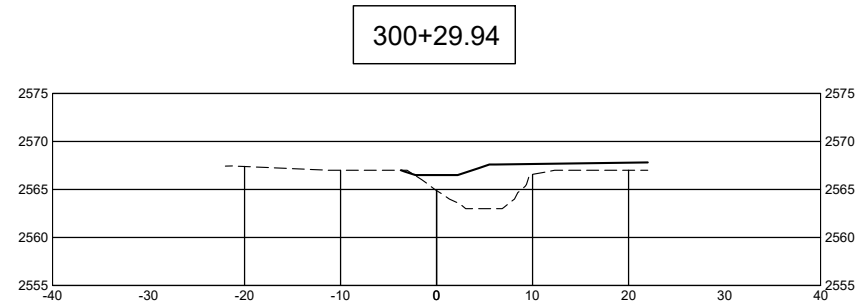
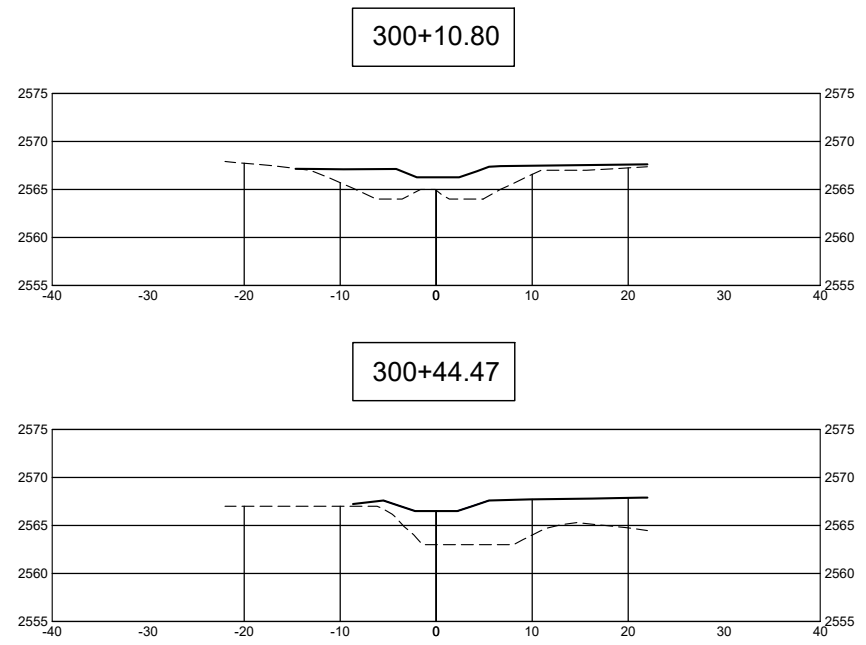
Little Pine Creek II Restoration Project
 Alleghany County, North Carolina
 Tributary A
 Cross-Sections

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----- Existing Ground
———— Proposed Grade



Date: January 11, 2016
 Job Number: 005-02157
 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

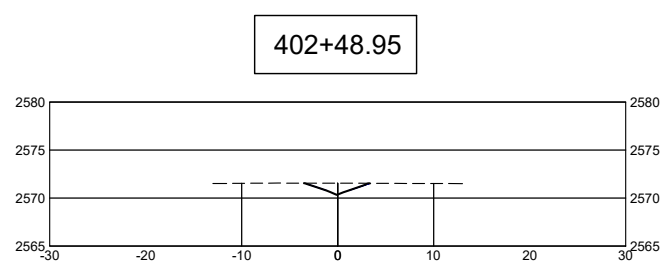
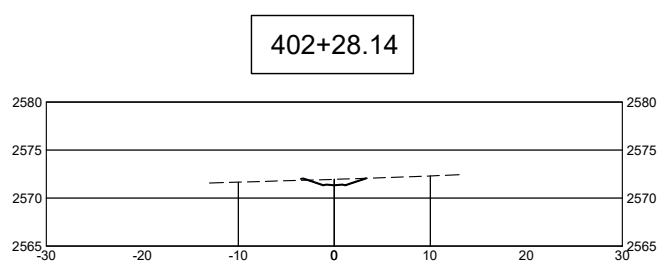
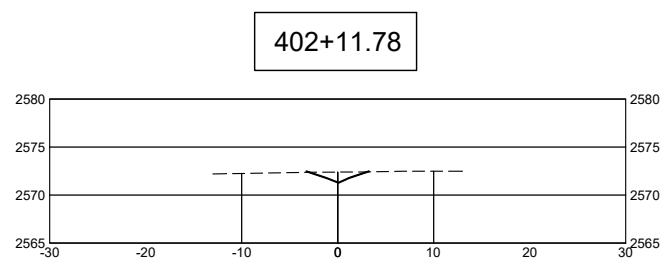
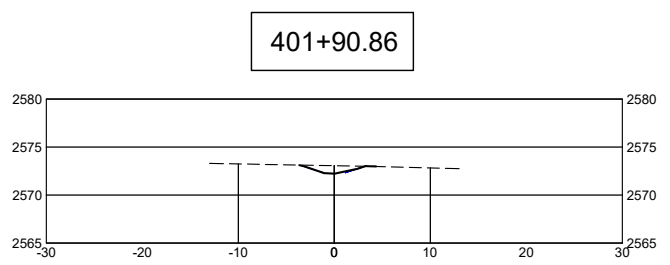
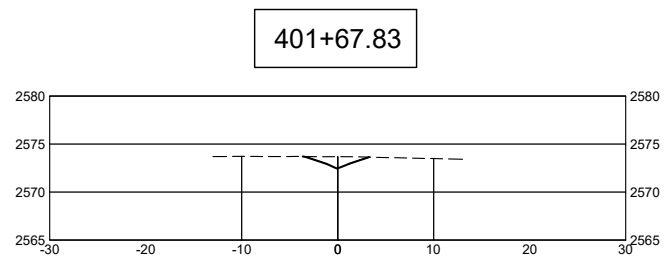
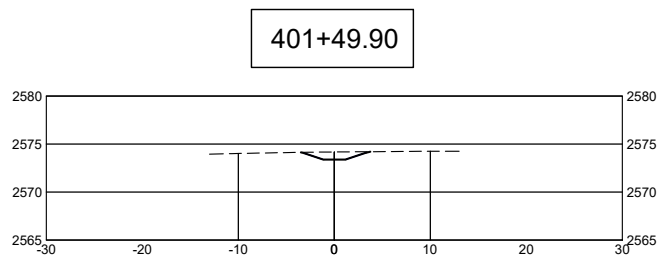
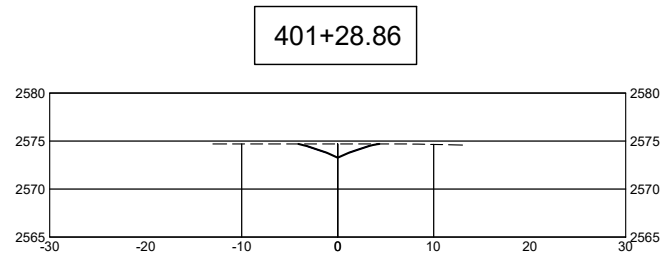
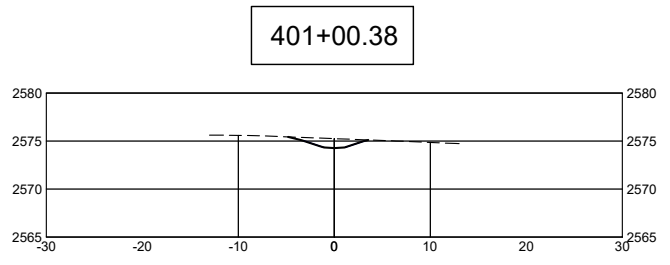
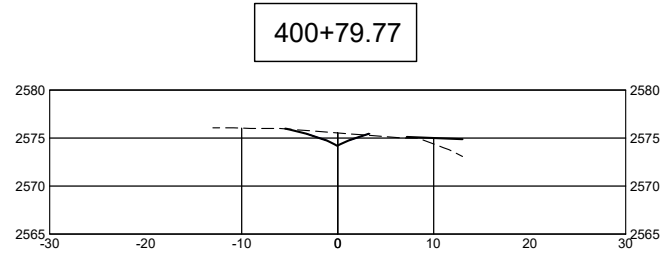
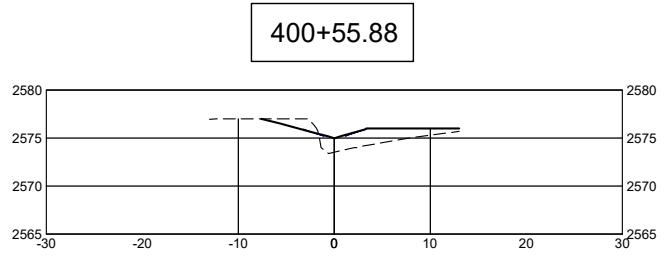
Revisions:

Little Pine Creek II Restoration Project
 Alleghany County, North Carolina
 Tributary B
 Cross-Sections

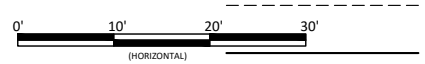
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----- Existing Ground
 _____ Proposed Grade



Date: January 11, 2016
 Job Number: 005-02157
 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

Revisions:

4.7

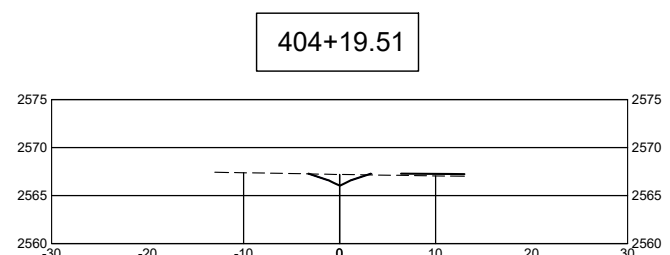
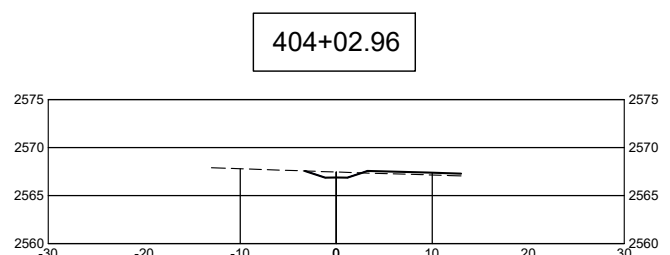
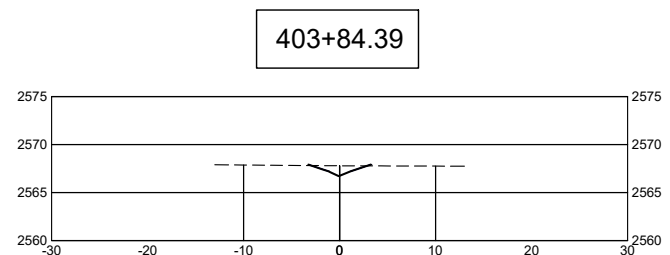
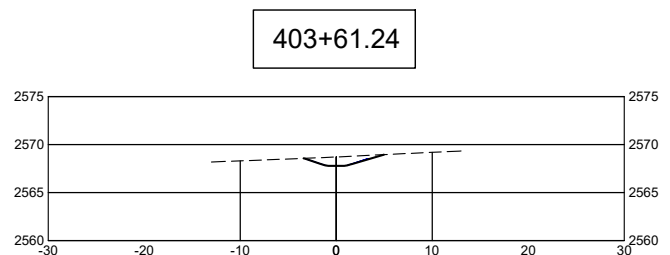
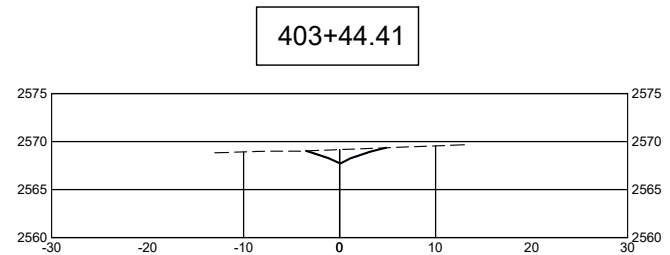
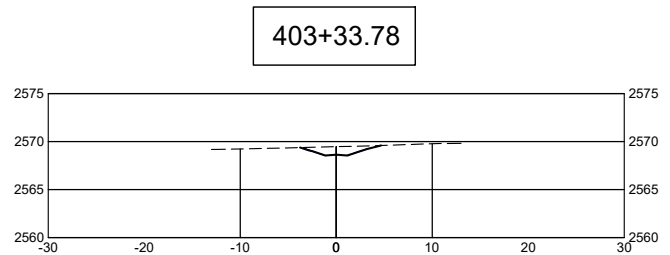
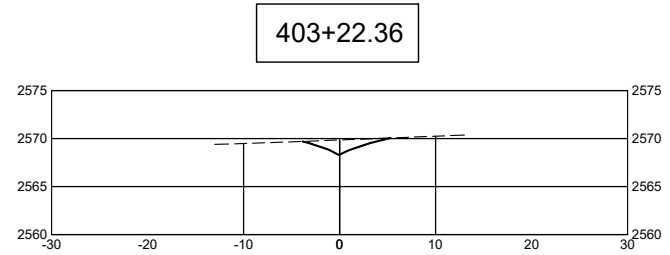
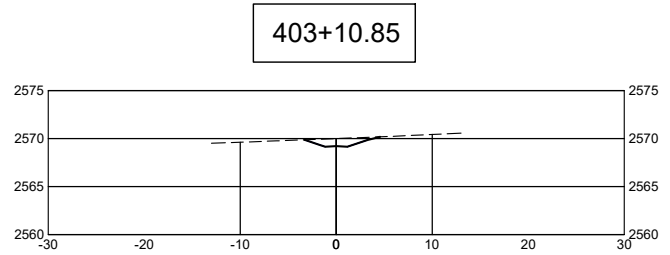
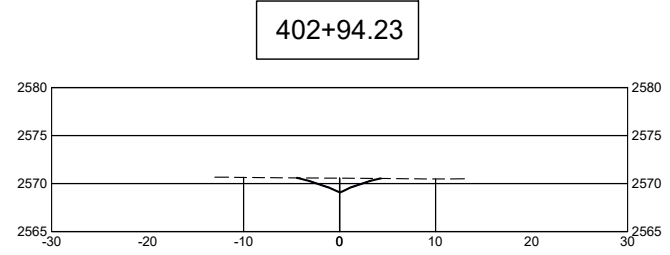
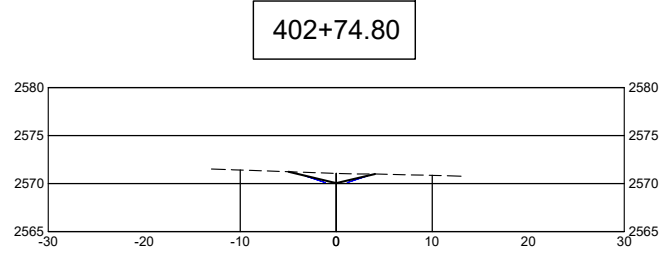
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Little Pine Creek II Restoration Project
Alleghany County, North Carolina
 Tributary C
 Cross-Sections

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----- Existing Ground
 _____ Proposed Grade



Date: January 11, 2016
 Job Number: 005-00137
 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

4.8

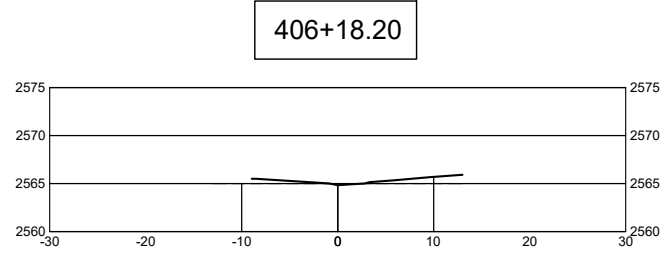
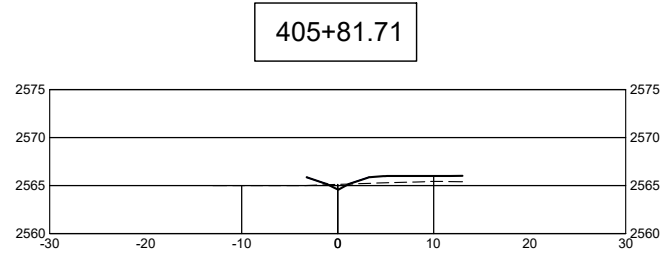
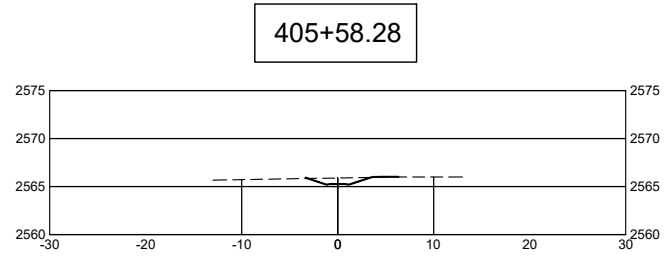
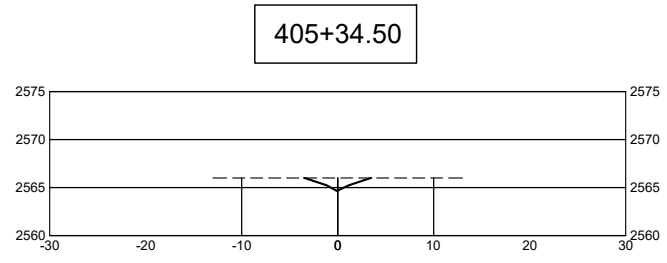
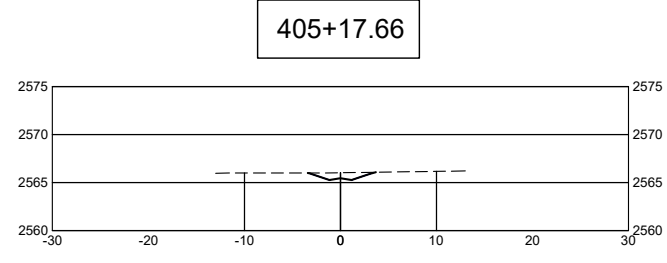
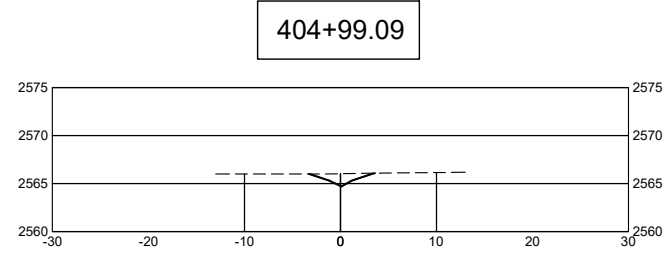
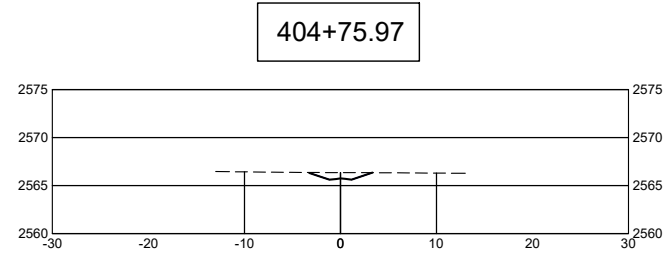
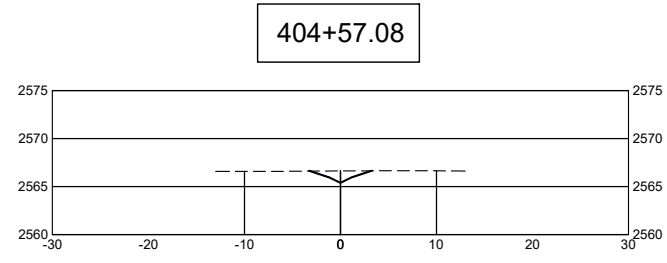
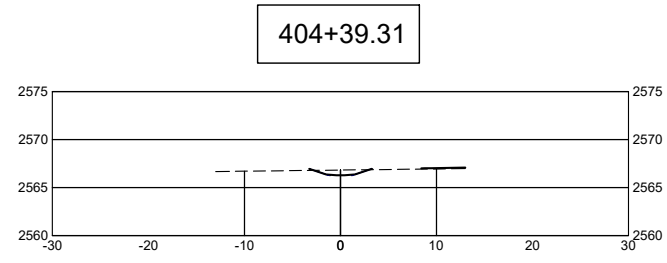
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Little Pine Creek II Restoration Project
 Alleghany County, North Carolina
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 Cross-Sections

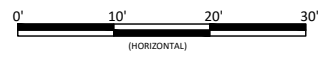
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----- Existing Ground
 _____ Proposed Grade



Date: January 11, 2016
 Job Number: 005-02157
 Project Engineer: JK
 Drawn By: RP/JCK
 Checked By: JH

4.9

Sheet

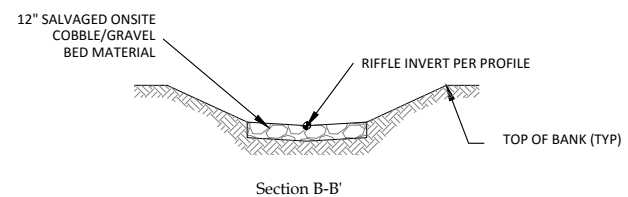
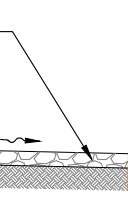
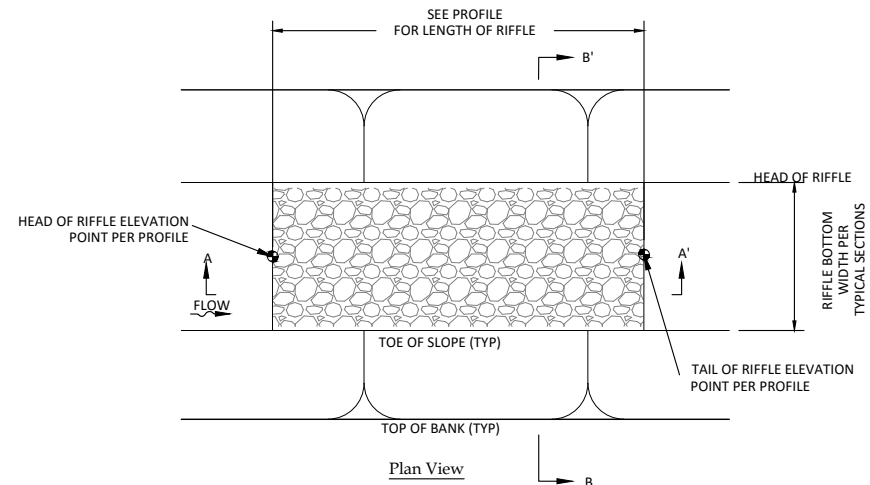
Revisions:

Little Pine Creek II Restoration Project
 Alleghany County, North Carolina
 Tributary C
 Cross-Sections

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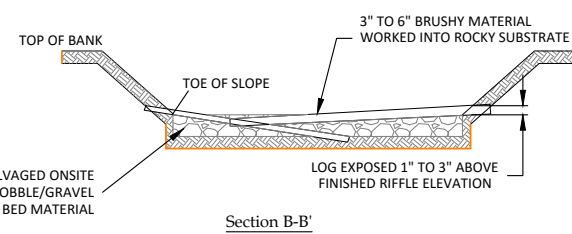
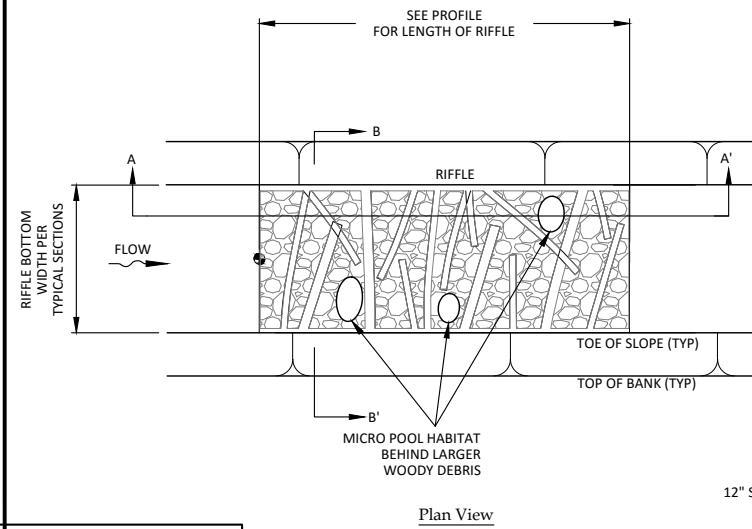
March 2, 2012



NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-12" ROCK.

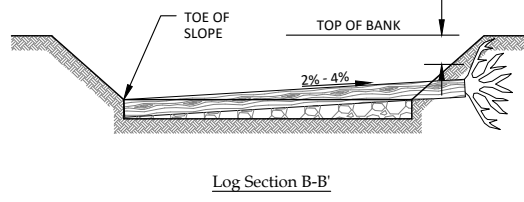
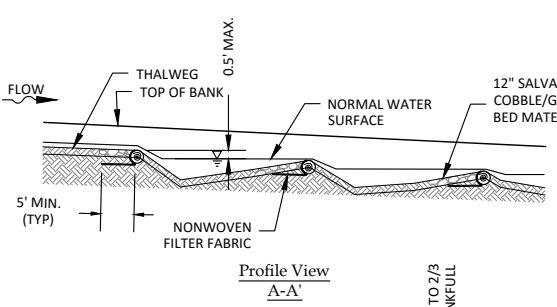
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5.1 Constructed Riffle - Little Pine Creek
Not to Scale

 CR-NM	 CR-WR
 CR-RR	 CR-CH

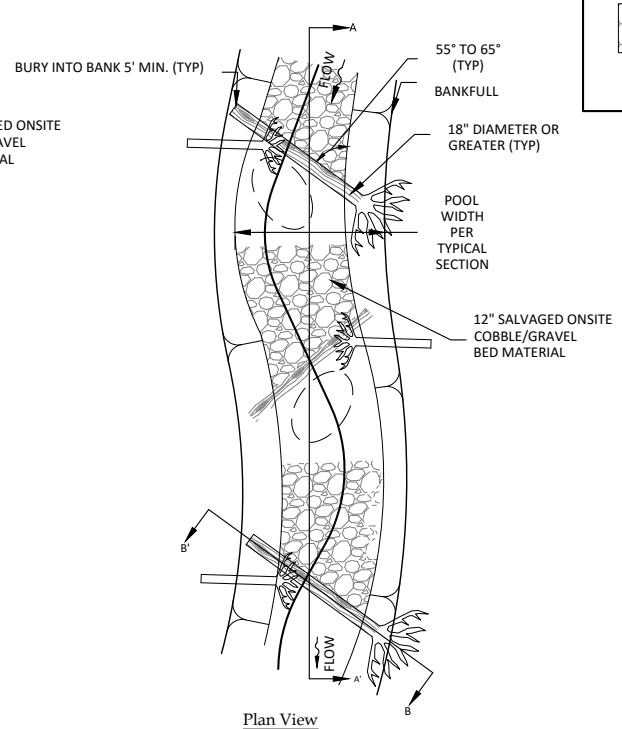


2
5.1 Woody Riffle - Little Pine Creek
Not to Scale

NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-12" ROCK.

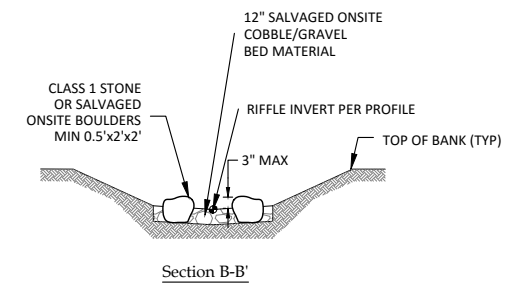
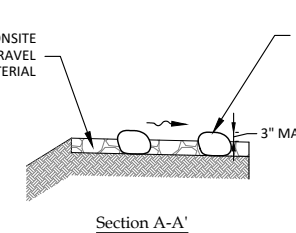
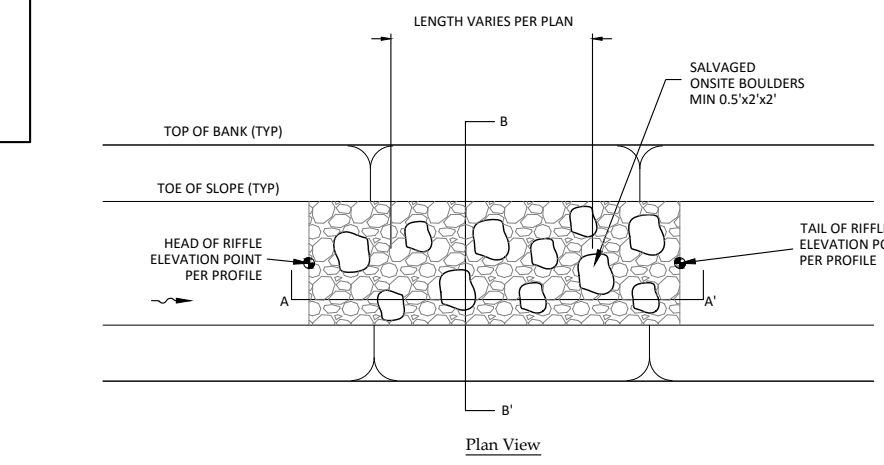


- NOTE:
- LOGS WITHOUT ROOT MASS MAY BE USED ONLY IF APPROVED BY THE PROJECT ENGINEER.
 - BOULDER MATERIAL CAN BE SUBSTITUTED IN PLACE OF ANGLED LOGS WITH APPROVAL OF ENGINEER.



NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-12" ROCK.

3
5.1 Rock and Roll Riffle - Little Pine Creek
Not to Scale



4
5.1 Chunky Riffle - Little Pine Creek
Not to Scale

NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-12" ROCK.

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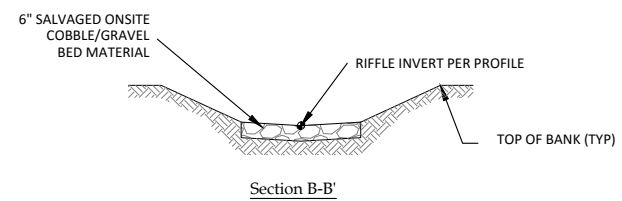
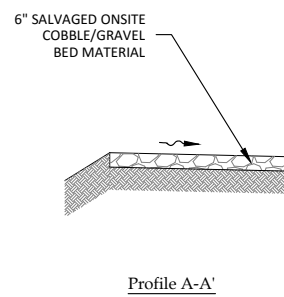
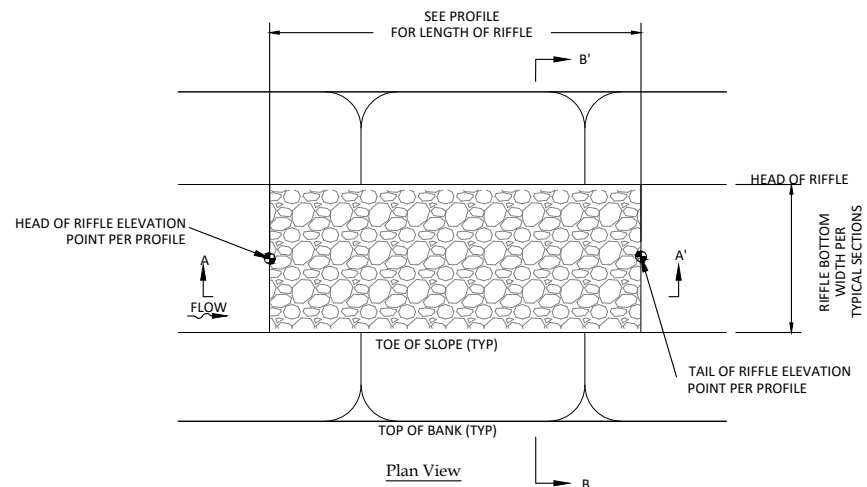
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Little Pine Creek II Restoration Project
Allegheny County, North Carolina

Details

Date: January 11, 2016
Job Number: 005-02157
Project Engineer: JK
Drawn By: RP/CK
Checked By: JH

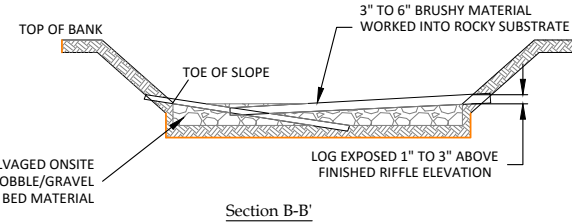
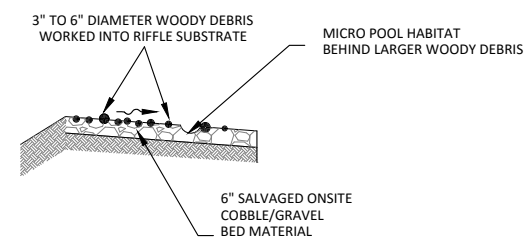
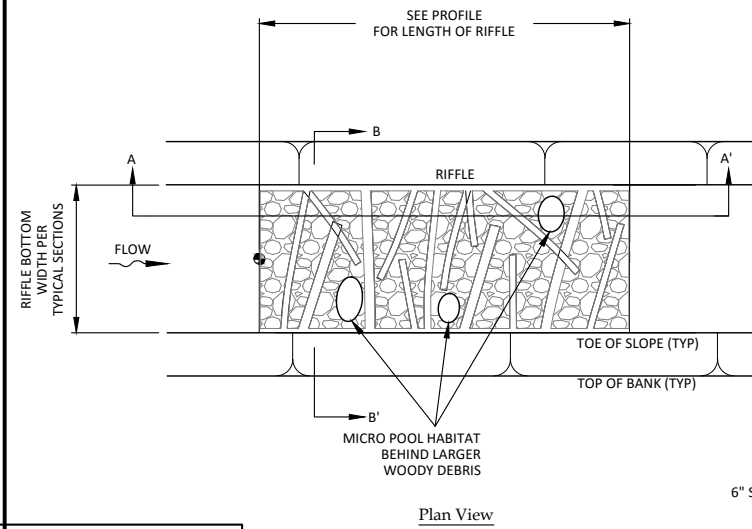
March 2, 2012
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NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-8" ROCK.

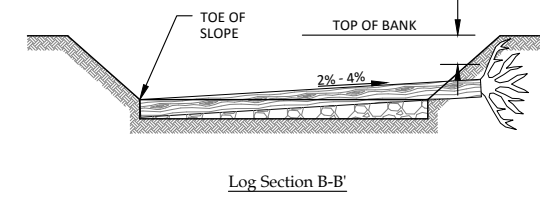
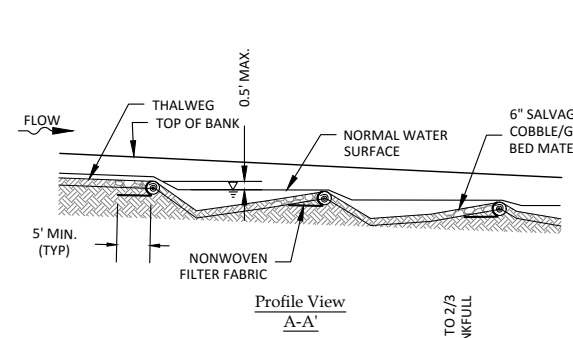
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5.2
Constructed Riffle - Tributaries
Not to Scale

CR-NM	CR-WR
CR-RR	CR-CH

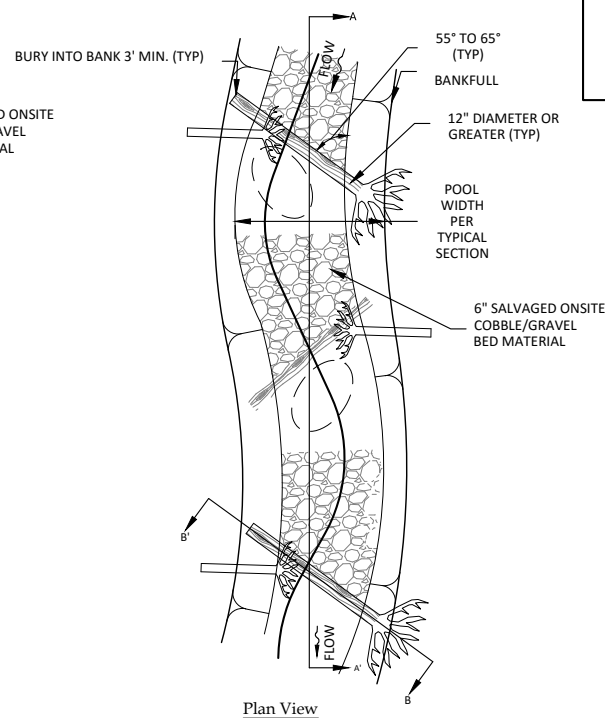


2
5.2
Woody Riffle - Tributaries
Not to Scale

NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-8" ROCK.

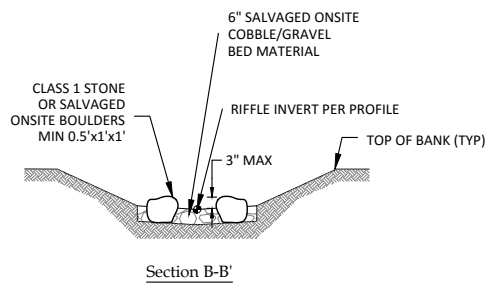
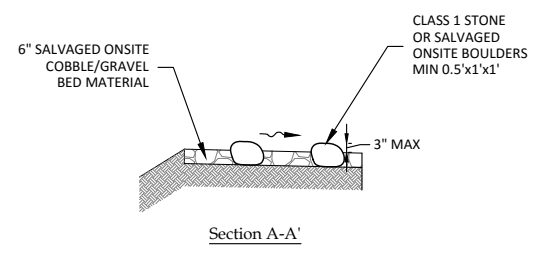
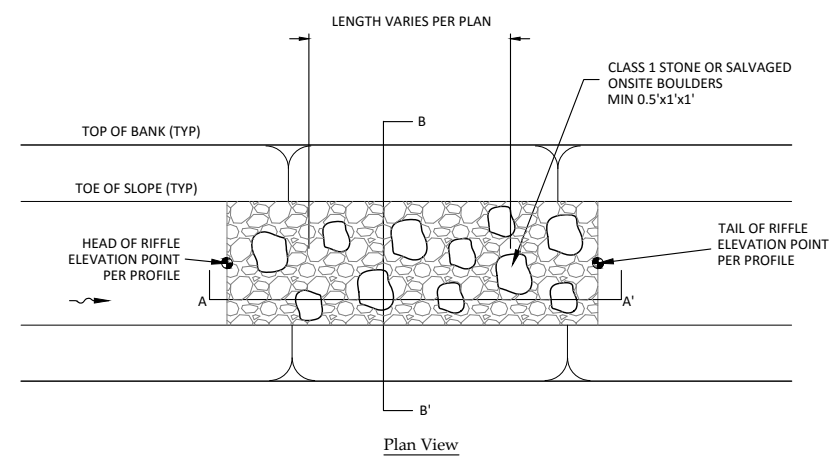


- NOTE:
- LOGS WITHOUT ROOT MASS MAY BE USED ONLY IF APPROVED BY THE PROJECT ENGINEER.
 - BOULDER MATERIAL CAN BE SUBSTITUTED IN PLACE OF ANGLED LOGS WITH APPROVAL OF ENGINEER.



NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-8" ROCK.

3
5.2
Rock and Roll Riffle - Tributaries
Not to Scale



4
5.2
Chunky Riffle - Tributaries
Not to Scale

NOTE: ONSITE COBBLE/GRAVEL BED MATERIAL SHALL CONSIST OF A MIX OF 3"-8" ROCK.

Little Pine Creek II Restoration Project
Allegheny County, North Carolina

Details

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Firm License No. F-0831

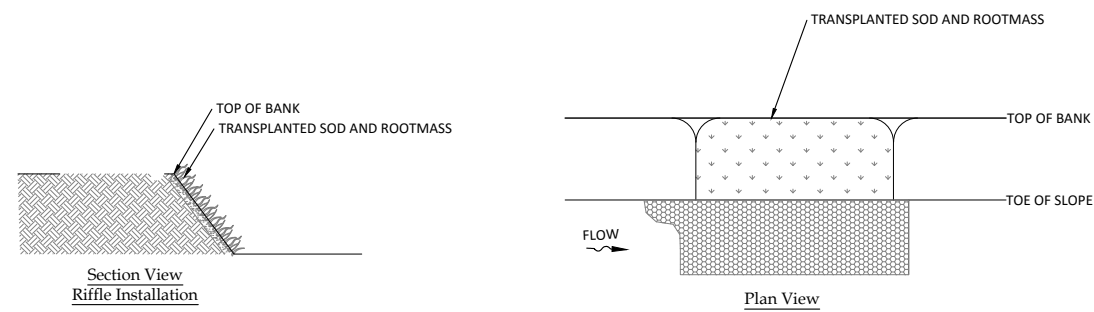
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Date:	January 11, 2016
Job Number:	005-02157
Project Engineer:	JK
Drawn By:	RP/CK
Checked By:	JH

5.2

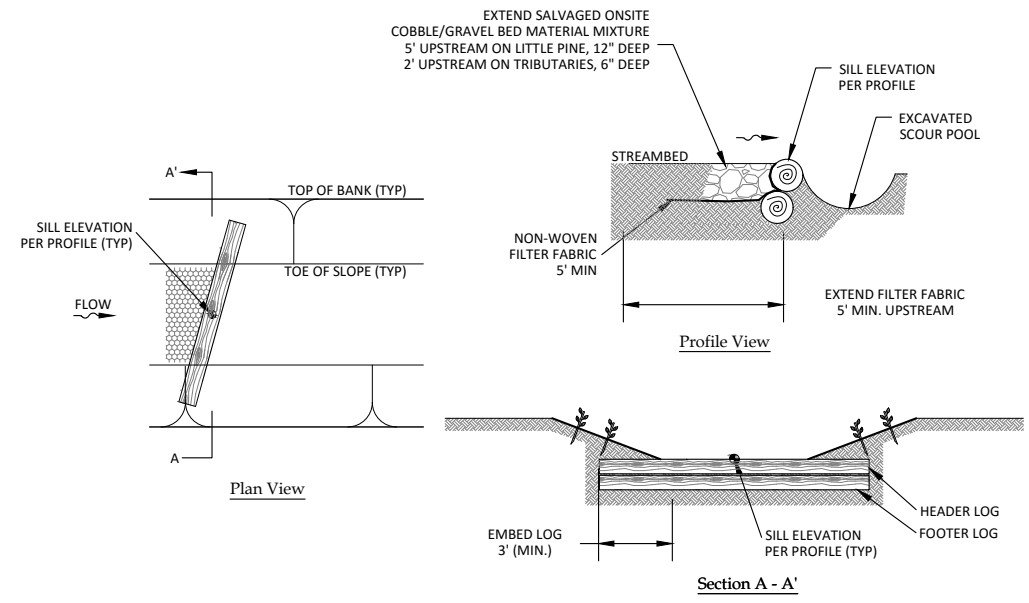
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March 2, 2012
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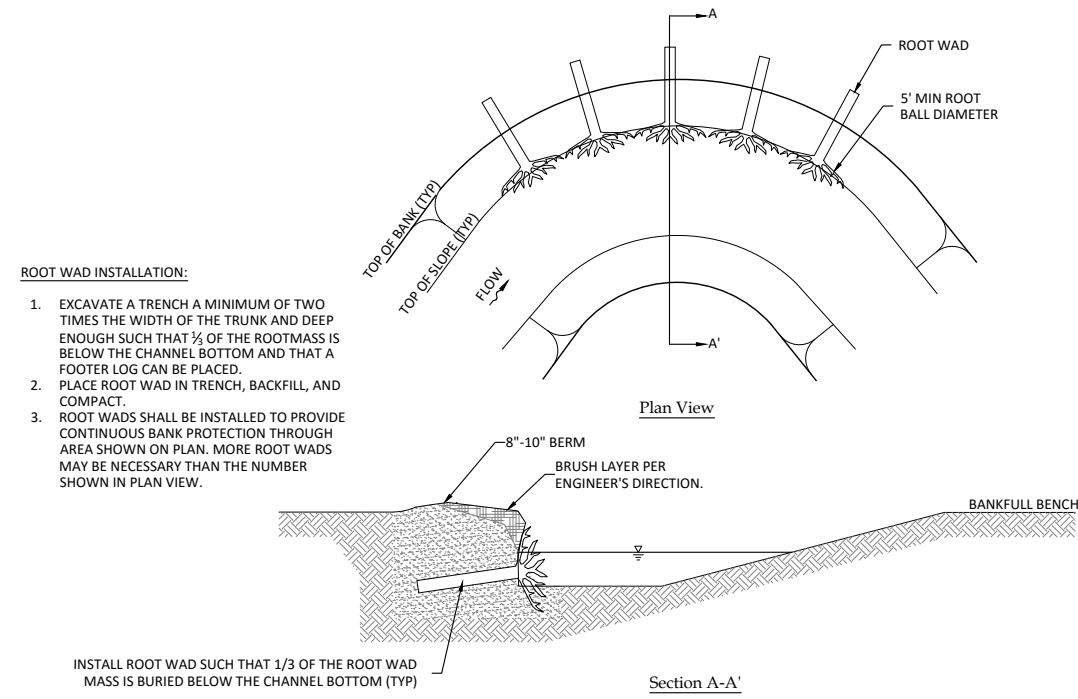
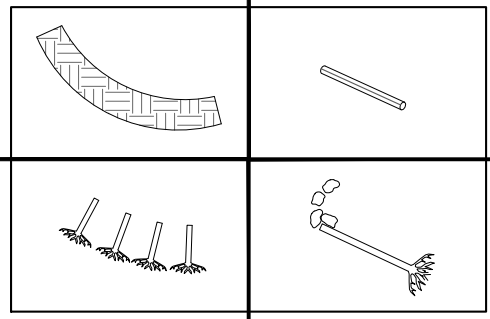


- Section View Riffle Installation**
- Plan View**
- NOTES:**
1. PREPARE THE BANK WHERE THE SOD MAT WILL BE TRANSPLANTED BY RAKING & FERTILIZING. OVER-EXCAVATE BANK AS NEEDED SO FINISHED BANK SLOPE WILL BE AT GRADE AFTER PLACEMENT OF SOD MAT.
 2. EXCAVATE TRANSPLANT SOD MATS WITH A WIDE BUCKET AND AS MUCH ADDITIONAL SOIL MATERIAL AS POSSIBLE.
 3. PLACE TRANSPLANT ON THE BANK TO BE STABILIZED.
 4. SECURE WITH SOD STAPLES.
 5. FILL IN ANY HOLES AROUND THE TRANSPLANT AND COMPACT.
 6. ANY LOOSE SOIL LEFT IN THE STREAM SHOULD BE REMOVED.
 7. PLACE MULTIPLE TRANSPLANTS CLOSE TOGETHER SUCH THAT THEY TOUCH.
 8. INSTALL EROSION CONTROL MATTING ABOVE TRANSPLANTED SOD MATS.

1
5.3 Transplanted Sod Mats
Not to Scale

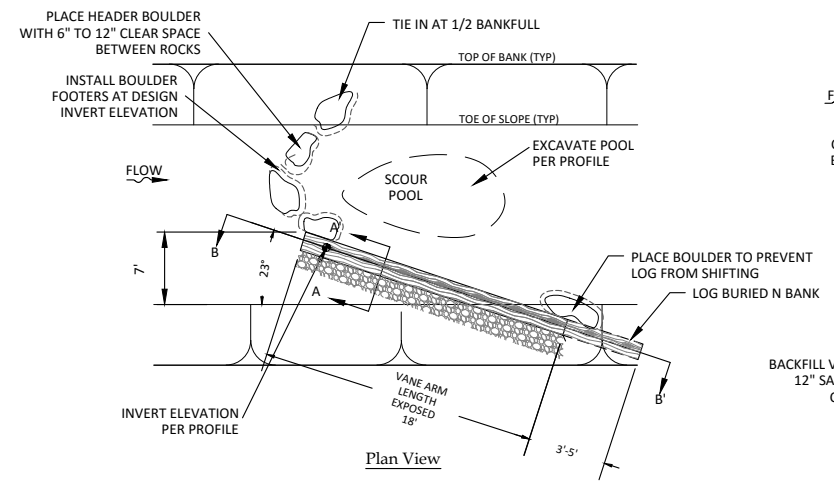


2
5.3 Angled Log Drop
Not to Scale

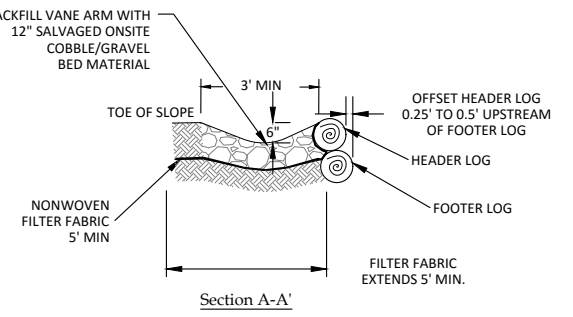
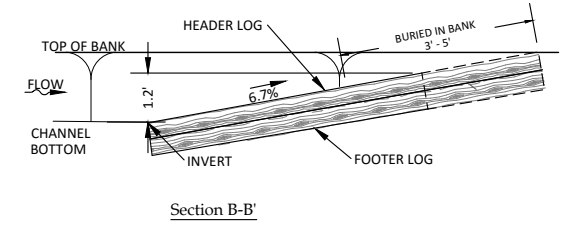


- ROOT WAD INSTALLATION:**
1. EXCAVATE A TRENCH A MINIMUM OF TWO TIMES THE WIDTH OF THE TRUNK AND DEEP ENOUGH SUCH THAT 2/3 OF THE ROOTMASS IS BELOW THE CHANNEL BOTTOM AND THAT A FOOTER LOG CAN BE PLACED.
 2. PLACE ROOT WAD IN TRENCH, BACKFILL, AND COMPACT.
 3. ROOT WADS SHALL BE INSTALLED TO PROVIDE CONTINUOUS BANK PROTECTION THROUGH AREA SHOWN ON PLAN. MORE ROOT WADS MAY BE NECESSARY THAN THE NUMBER SHOWN IN PLAN VIEW.

3
5.3 Root Wad with Brush Layer
Not to Scale



4
5.3 Log J-Hook
Not to Scale



Little Pine Creek II Restoration Project
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Details

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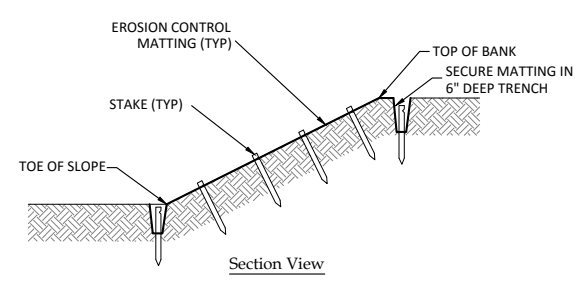
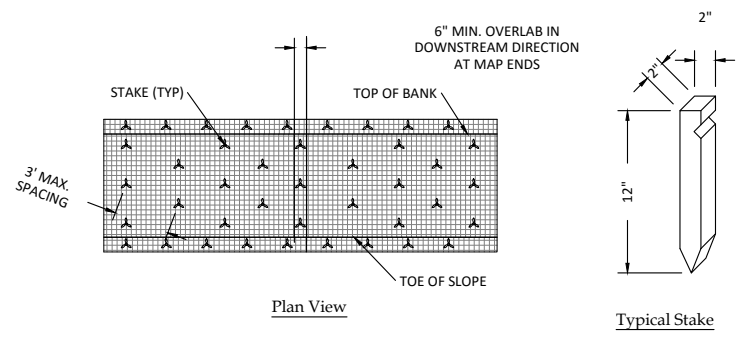
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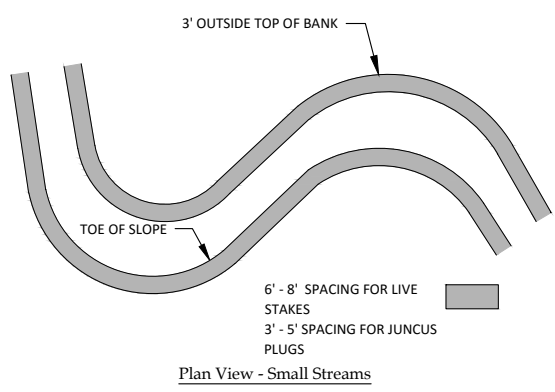
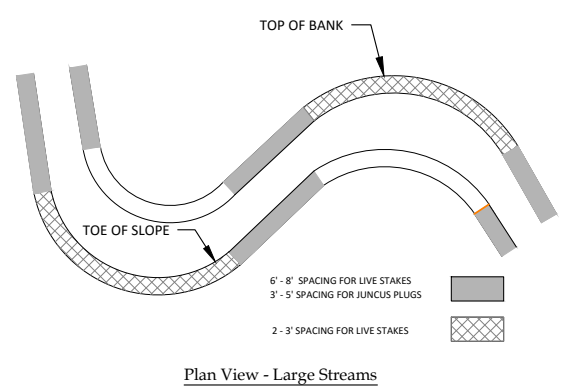
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 CONSULTANTS
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 Raleigh, NC 27609
 Tel: 919-851-9986
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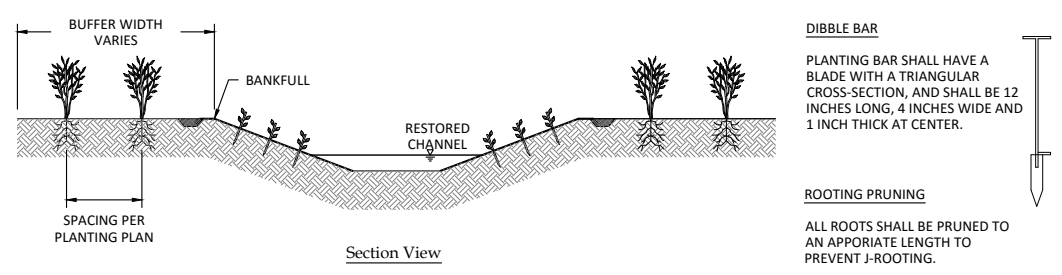
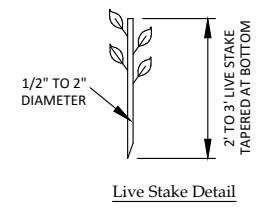


1
5.4 Erosion Control Matting
Not to Scale

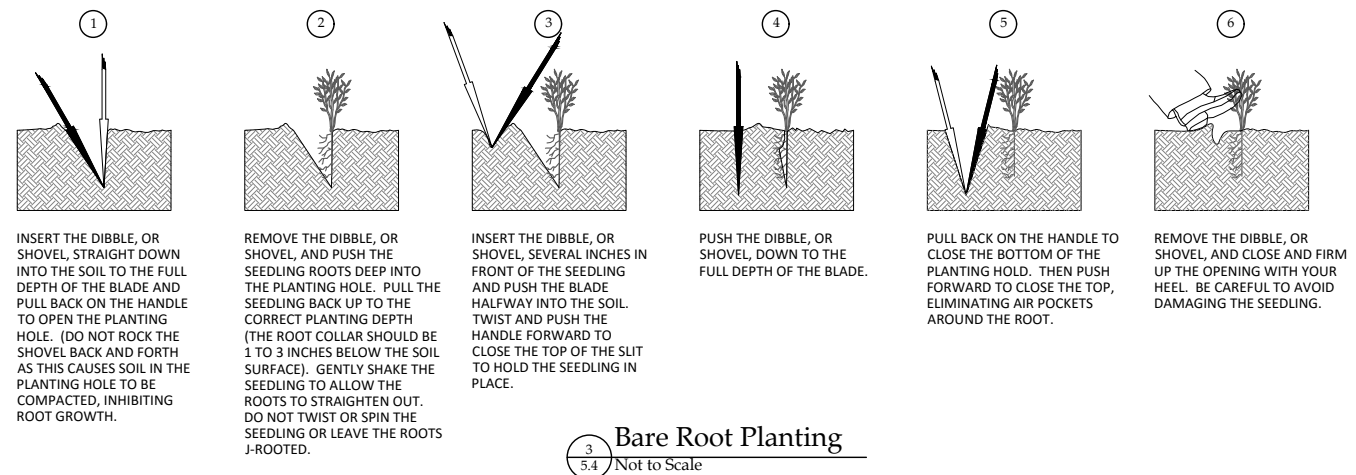


2
5.4 Live Staking & Juncus Plugs
Not to Scale

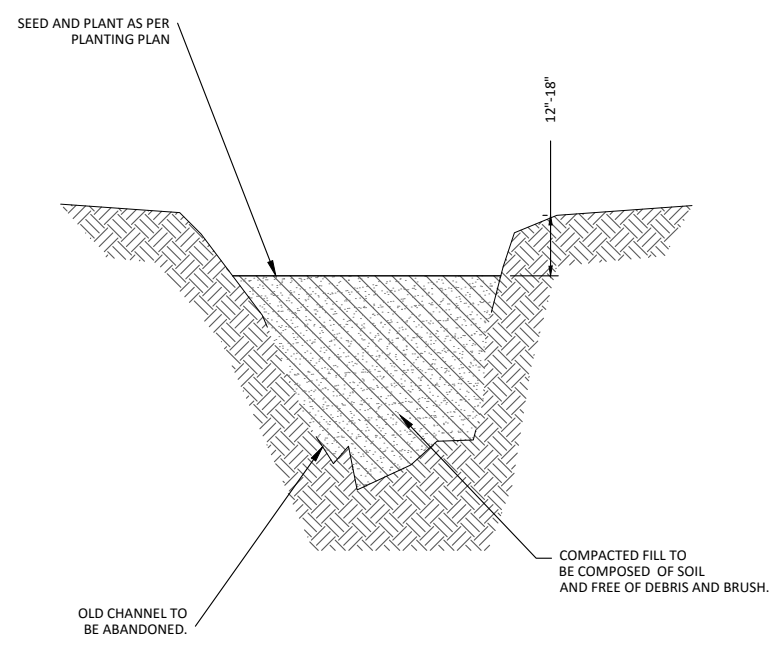
NOTE:
1. LIVE STAKES TO BE PLANTED IN AREAS AS SHOWN ON PLANS AND DIRECTED BY THE ENGINEER.



NOTES:
1. ALL SOILS WITHIN THE BUFFER PLANTING AREA SHALL BE DISKED, AS REQUIRED, PRIOR TO PLANTING.
2. ALL PLANTS SHALL BE PROPERLY HANDLED PRIOR TO INSTALLATION TO INSURE SURVIVAL.



3
5.4 Bare Root Planting
Not to Scale



4
5.4 Ephemeral Pool
Not to Scale

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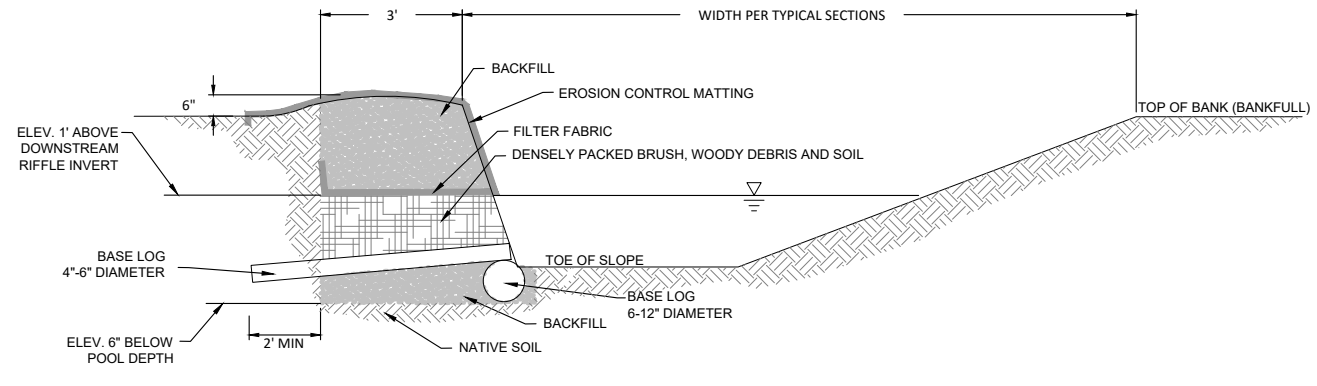
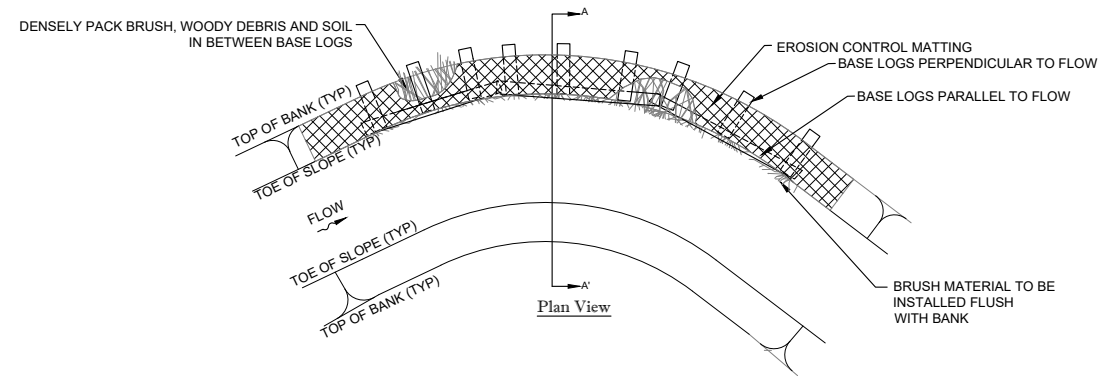
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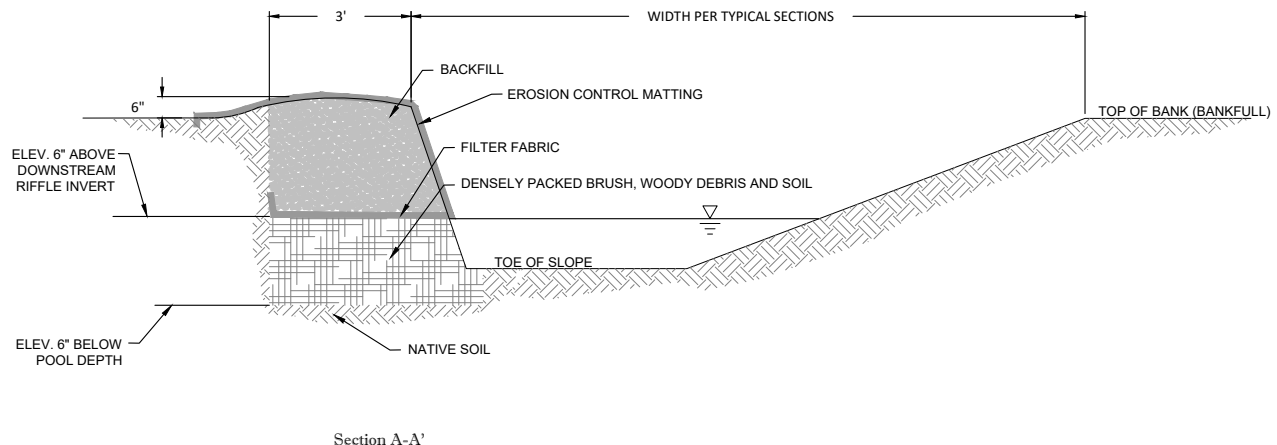
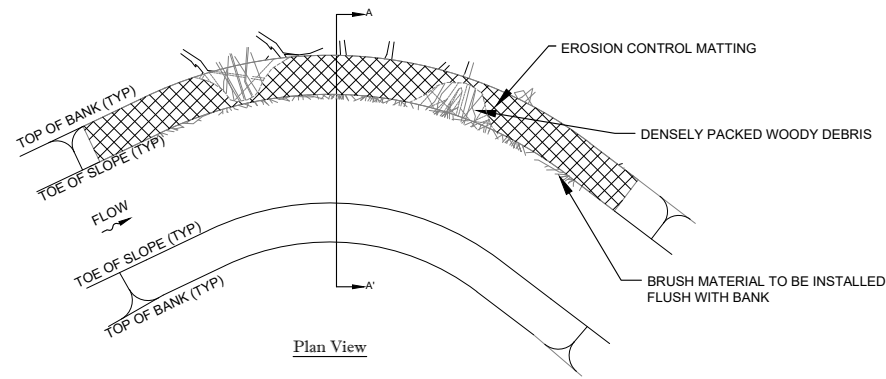
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1
5.5
Brush Toe - Little Pine Creek
Not to Scale

- NOTES:
1. OVEREXCAVATE 3' OUTSIDE OF TOP OF BANK (BANKFULL).
 2. INSTALL BASE LOGS PARALLEL TO FLOW AT TOE OF SLOPE. DIAMETER 6"-12".
 3. INSTALL BASE LOGS PERPENDICULAR TO FLOW AT INTERVALS ALONG BANK, RESTING ON TOP OF PARALLEL BASE LOGS. BASE LOGS SHALL BE 6"-12" DIAMETER.
 4. INSTALL A DENSE LAYER OF BRUSH/WOODY DEBRIS, WHICH SHALL CONSIST OF SMALL BRANCHES AND ROOTS COLLECTED ON-SITE AND SOIL TO FILL ANY VOID SPACE. LIGHTLY COMPACT BRUSH/WOODY DEBRIS LAYER.
 5. BRUSH SHOULD BE ALIGNED SO STEMS ARE ROUGHLY PARALLEL AND IS INSTALLED POINTING SLIGHTLY UPSTREAM.
 6. INSTALL FILTER FABRIC OVER BRUSH/WOODY DEBRIS.
 7. INSTALL EARTH BACKFILL OVER BRUSH/WOODY LAYER ACCORDING TO TYPICAL SECTION DIMENSIONS.
 8. SEED, MULCH AND INSTALL EROSION CONTROL MATTING AND BANK STABILIZATION PER PLANS.



2
5.5
Brush Toe - Tributaries
Not to Scale

- NOTES:
1. OVEREXCAVATE 3' OUTSIDE OF TOP OF BANK (BANKFULL).
 2. INSTALL A DENSE LAYER OF BRUSH/WOODY DEBRIS, WHICH SHALL CONSIST OF SMALL BRANCHES AND ROOTS COLLECTED ON-SITE AND SOIL TO FILL ANY VOID SPACE. LIGHTLY COMPACT BRUSH/WOODY DEBRIS LAYER.
 3. BRUSH SHOULD BE ALIGNED SO STEMS ARE ROUGHLY PARALLEL AND IS INSTALLED POINTING SLIGHTLY UPSTREAM.
 4. INSTALL FILTER FABRIC OVER BRUSH/WOODY DEBRIS.
 5. INSTALL EARTH BACKFILL OVER BRUSH/WOODY LAYER ACCORDING TO TYPICAL SECTION DIMENSIONS.
 6. SEED, MULCH AND INSTALL EROSION CONTROL MATTING AND BANK STABILIZATION PER PLANS.

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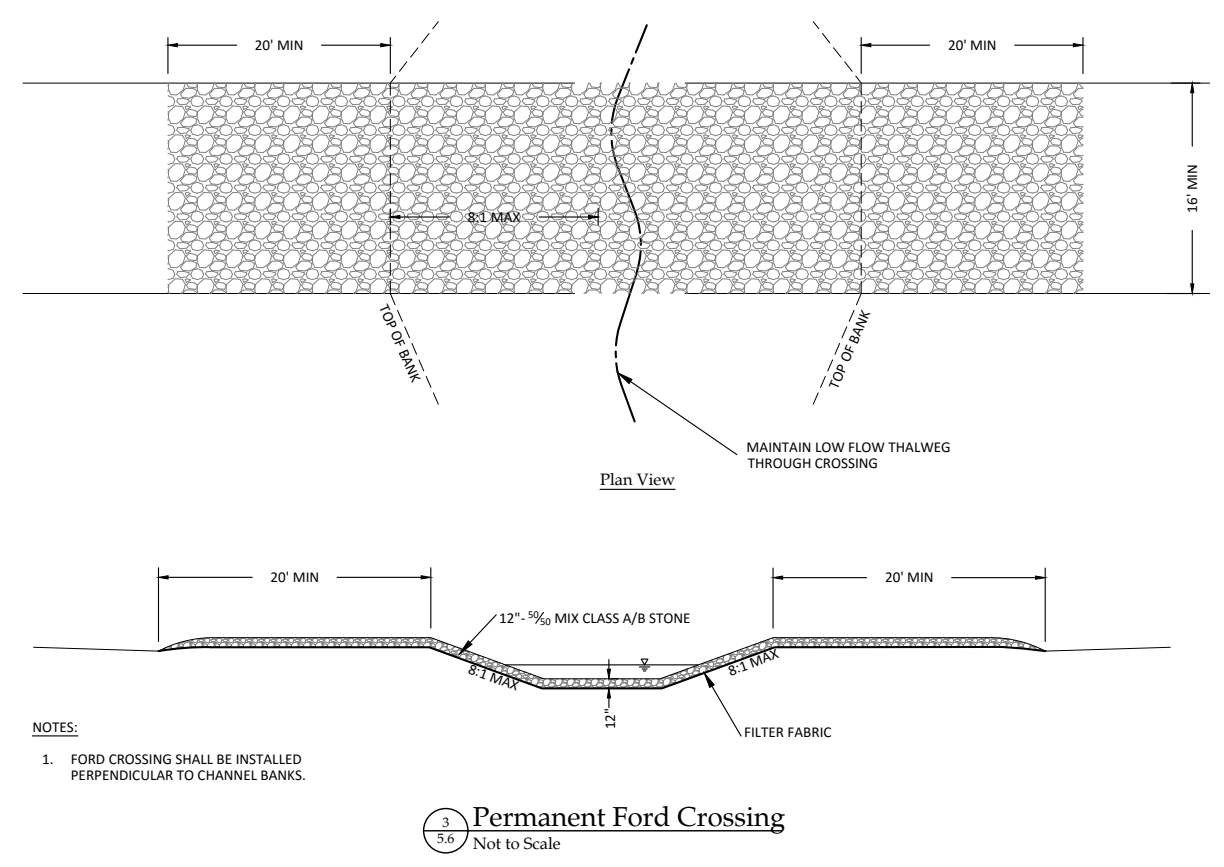
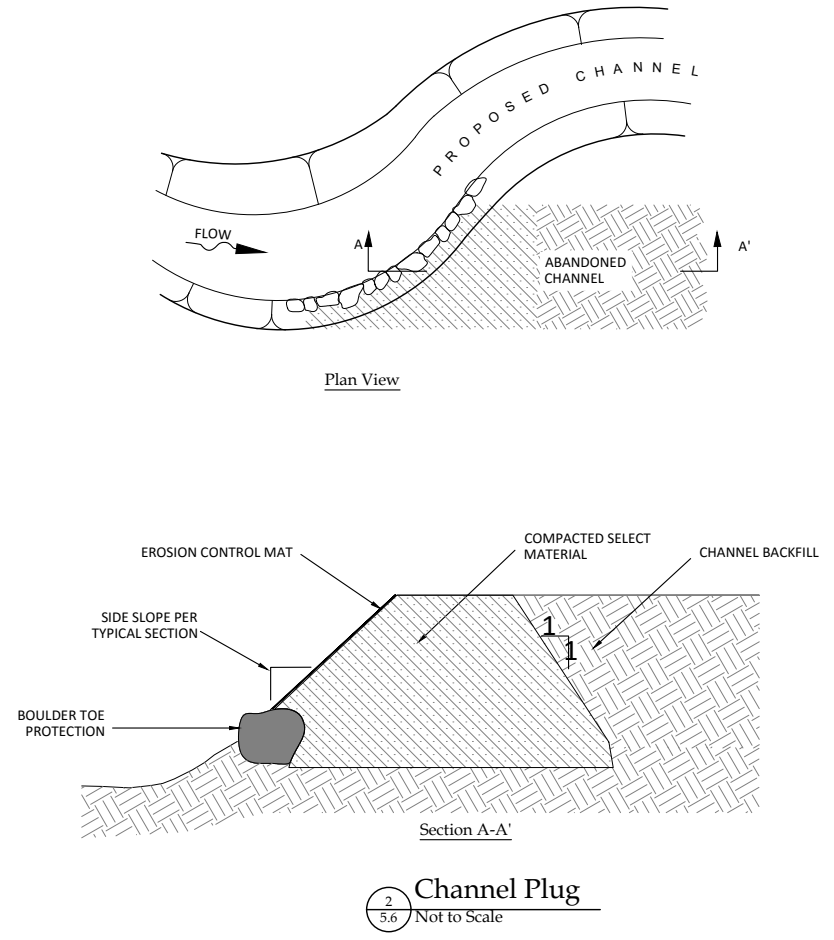
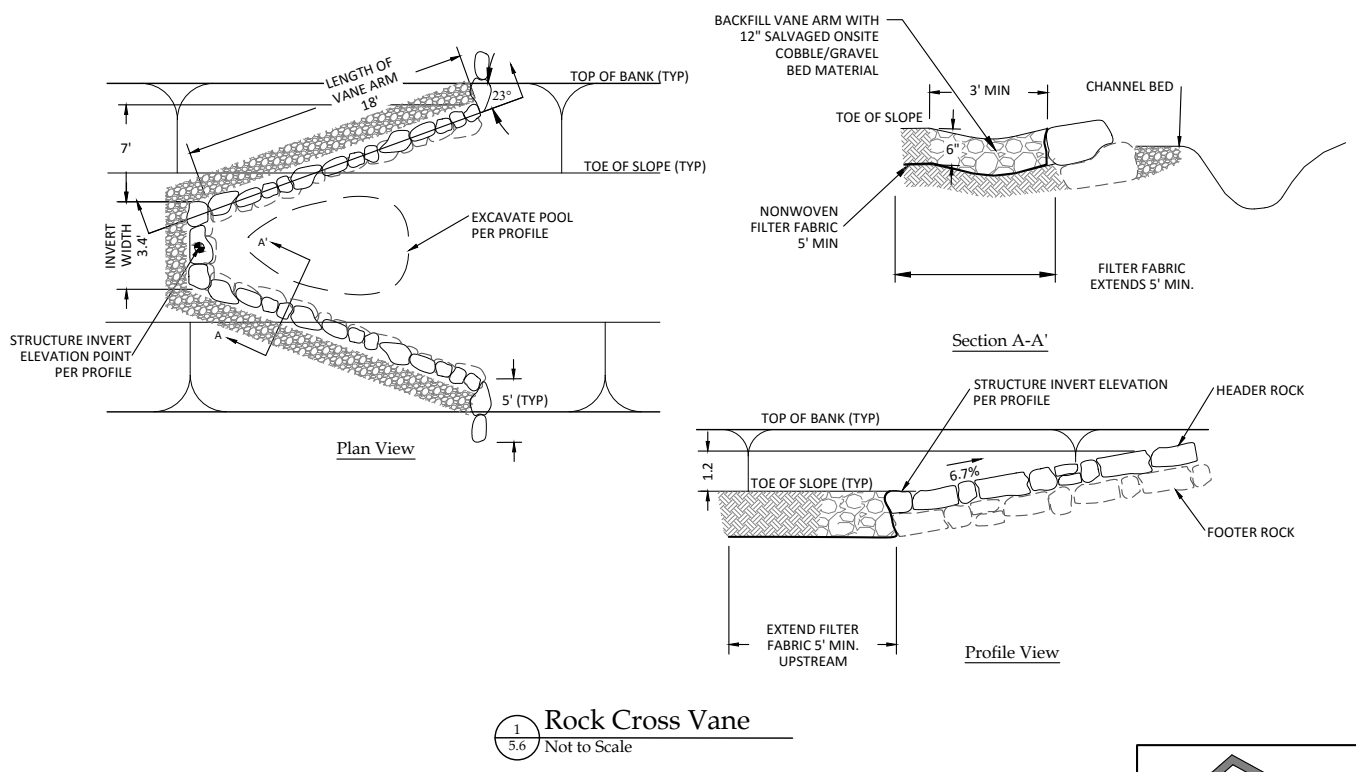
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Raleigh, NC 27609
Tel: 919-851-9986
Fax: 919-851-9986
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