ANNUAL REPORT FOR 2006
(Year 4)

Fork Creek Tributaries Stream Mitigation Site (Deaton Site)
Randolph County
EEP Project No. 110

Submitted to:

NCDENR EEP
1619 Mail Service Center
Raleigh, NC 27699-1619

January 2007

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICIES

DEATON 2006 SUMMARY

The following report summarizes the stream monitoring activities that have occurred during 2006 at the Deaton Site. The site is located in southeastern Randolph County, North Carolina. This site was designed during 2001 and constructed in 2003 by the North Carolina Department of Transportation (NCDOT). This report provides the monitoring results for the fourth documented year of monitoring. The Deaton Site will be monitored through the Year 2007 or until success criteria are met.

The Deaton Site was constructed to provide mitigation for stream impacts associated with Transportation Improvement Program (TIP) number R-2417 for 4,545 linear feet. This site provided 5,050 linear feet of stream mitigation credit. Per a letter from the Ecosystem Enhancement Program (EEP) to NCDOT dated August 25, 2004, EEP has accepted the transfer of all off-site mitigation projects. The EEP will be responsible for fulfilling the monitoring requirements and future remediation for this project.

Two unnamed tributaries to Fork Creek were restored as a result of this project; both remain stable. The 2006 vegetation monitoring of the restored riparian buffers revealed an average density of 323 trees per acre, which is above the 260 trees per acre minimum requirement after five growing seasons. Based on surveyed cross sections and profile surveys, and bed material analysis the Deaton channels are stable and meeting success criteria. USGS gauge data indicate the Deaton Site has met the hydrology criteria. Several small problem areas were observed. However, no remedial actions are proposed at this time.

A composite benthic macroinvertebrate sample was collected at two stations (19+00 and 57+00) along the restoration reach in September 2006. The North Carolina Division of Water Quality (NCDWQ) Qual-4 collection method was utilized. Overall, macroinvertebrates collected at Deaton were pollution tolerant and characteristic of substrates with high amounts of sediments. Very few ephemeroptera, plecoptera, and trichoptera (EPT) species were collected. The EPT taxa collected were among the most pollution tolerant species.

1.0 INTRODUCTION: DEATON MITIGATION SITE

1.1 Project Description

The following report summarizes the stream monitoring activities that have occurred during 2006 at the Deaton Site. The site is situated along two unnamed tributaries (UTs) to Fork Creek, immediately adjacent to Erect Road (SR 1003) in the southeastern portion of Randolph County, North Carolina (Figure 1). It is approximately six miles (9.7 kilometers) southeast of Coleridge and nearly one mile (1.6 kilometers) north of Erect. The Deaton Site was constructed to provide mitigation for stream impacts associated with Transportation Improvement Program (TIP) number R-2417 in Lee County, North Carolina.

The mitigation project covers approximately 5,050 linear feet of unnamed tributaries (UT) to Fork Creek, identified as the northern UT and the southern UT in this report. Priority Level I and II restorations were completed along both tributaries. Construction involved establishing a new planform and bed elevation along each reach. Cross vanes were installed for grade control and bank stability. The adjacent streambanks were re-sloped to reduce erosion. It also included the installation of native vegetation and livestock management practices, including a 50-foot riparian buffer and at-grade stream crossings in several locations.

1.2 Project Objectives

According to the Deaton approved stream mitigation plan, the following objectives were proposed:

- Protection of riparian zone vegetation by fencing livestock out of the easement area and installing watering tanks, stream crossings, etc.;
- Enhancement of overall stream stability by establishing the correct width to depth ratio, reducing entrenchment, sloping banks, and planting woody vegetation along the northern UT and southern UT tributaries to Fork Creek;
- Installation of rock cross vanes along eroding sections of the creek to stabilize the bed elevation and provide habitat diversity;
- Enhancement of in-stream habitat by constructing a series of cross vanes;
- Establishment of the proper width/depth by narrowing the channel and establishing a floodplain; and
- Planting of native trees, shrubs, and ground cover in the riparian zone that will help to stabilize the stream banks, establish shade, and provide wildlife cover and food.

Based on the 2006 stream surveys these objectives are being met.

Table I. Project Structure and Objectives

Project Segment	Mitigation Type	Approach	Linear Footage	Stationing	Comment
Reach I (Southern Tributary)	R	PI/PII	2,687 ft	0+00 to 26+87	Level Priority I and Priority II restoration was performed on both streams
Reach II (Northern Tributary)	R	PI/PII	1,366 ft	0+00 to 13+66	Level Priority I and Priority II restoration was performed on both streams

R=Restoration

PI=Priority I

PII=Priority II

1.3 Project History and Background

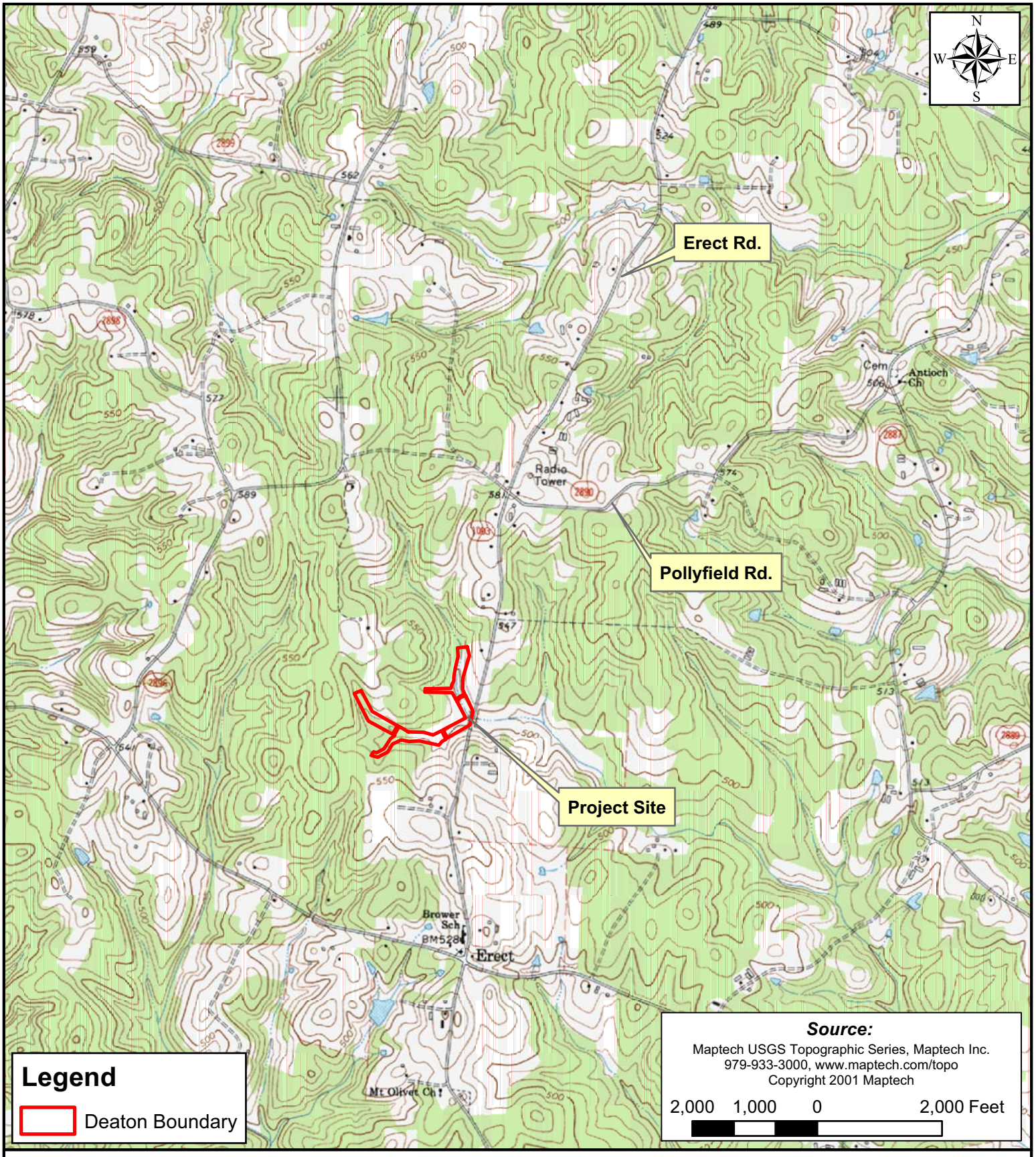
Table II describes the Deaton project history. Table III gives the Deaton project contacts.

Table II. Deaton Project History

Date	Activity
January 2003	Construction Completed
February 2003	Site Planted
Fall 2003	Year 1 Monitoring
Fall 2004	Year 2 Monitoring
Fall 2005	Year 3 Monitoring
Fall 2006	Year 4 Monitoring
Fall 2007	Year 5 Monitoring

Table III. Project Contact Table

Monitoring Performers (2003 and 2004)	Mulkey Engineers & Consultants 6750 Tryon Road Cary, North Carolina 27511
Monitoring Performers (2005)	Earth Tech 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607
Stream Monitoring POC (2005)	Ron Johnson (919) 854-6210
Monitoring Performers (2006)	WK Dickson & Co., Inc. 3101 John Humphries Wynd Raleigh, NC 27612
Stream Monitoring POC (2006)	Daniel Ingram (919) 782-0495



Ecosystem Enhancement PROGRAM

FIGURE 01
VICINITY MAP

Deaton Stream Mitigation Site
Randolph County, North Carolina

Map Produced: February 2006

Table IV provides the Deaton project background.

Table IV. Project Background Table

Project County	Randolph
Drainage Area	
Southern Tributary	0.15 sq. mi.
Northern Tributary	0.5 sq. mi.
Drainage impervious cover estimate (%)	
Northern unnamed tributary	<1%
Southern unnamed tributary	<1%
Stream order	
Northern unnamed tributary	1st order
Southern unnamed tributary	1st order
Physiographic region	Piedmont
Ecoregion	Carolina Slate Belt (45c)
Rosgen classification of As-built	C4
Dominant soil types	Callison and Lignum
Table IV. Project Background Table (Cont'd)	
Reference site ID	N/A
USGS HUC for Project	USGS Unit: 03030003 (Deep River)
NCDWQ sub-basin for project	03-06-09
NCDWQ classification for project and reference	C (Fork Creek and unnamed tributaries)
Any portion of project segment upstream of a 303(d) listed segment?	No
Reasons for 303d listing or stressor N/A	N/A
Percent of project easement fenced 100	100%

2.0 STREAM ASSESSMENT

2.1 Success Criteria

The success criteria, as defined by federal guidelines for stream mitigation, includes the following main parameters: no less than two bankfull events for the five-year monitoring period, reference photos, plant survival analyses, and channel stability analyses. Biological data was not required; however, benthic monitoring was conducted in November 2006 per EEP guidance.

Natural streams are dynamic systems that are in a constant state of change. Longitudinal profile and cross section surveys may differ somewhat from year to year. Natural channel stability is achieved by allowing the stream to develop a proper dimension, pattern, and profile such that, over time, channel features are maintained and the stream system neither aggrades nor degrades. A stable stream consistently transports its sediment load; however, there may be local deposition and scour. Channel instability occurs when the scouring process leads to degradation, or excessive sediment deposition results in aggradation. The following surveys were conducted in support of the monitoring assessment:

- Longitudinal Profile Survey. This survey addressed the overall slope of the reach, as well as slopes of bed features including riffles, runs, pools, and glides. The surveys are compared on a yearly basis to note changes in the profile. The longitudinal profile may adjust slightly from year to year. Significant changes may require additional monitoring.

- Cross Section Surveys. These surveys are conducted to assess cross-sectional geometry including entrenchment ratio, cross-sectional area, and width to depth ratio. The entrenchment ratio is a computed index value used to describe the degree of vertical containment. The width to depth ratio is an index value which describes the shape of the channel cross section.

2.2 Stream Description

The proposed design for the southern UT to Fork Creek was an E4 stream type. A total of five cross sections (two pools and three riffles) were surveyed along the tributary. Survey data indicate that the channel is stable and there has been little change in physical parameters since construction. Overall the channel appears to be narrowing and deepening slightly. Bed material analysis (pebble count) data indicate riffle bed materials are becoming more coarse.

The proposed design for the northern UT to Fork Creek was an E4 stream type. Three cross sections (one pool and two riffles) were surveyed along the tributary. Survey data indicates that the channel is stable and there has been little change in physical parameters. Overall the channel appears to be widening slightly. Pebble count data indicate little change in riffle bed material.

A comparison of channel morphology is presented in Table V.

Table V. 2006 Deaton Abbreviated Morphological Summary

Variable		Southern Tributary (Combined Cross Sections # 1 Thru #5)					
		Pre-Const.	Year 1	Year 2	Year 3	Year 4	Year 5
Drainage Area (mi^2)		0.15	0.15	0.15	0.15	0.15	
Bankfull Width (ft)	Mean	3 – 20	14.3	10.0	12.0	13.0	
Bankfull Mean Depth (ft)	Mean	0.4 – 1.3	0.6	0.6	0.8	0.7	
Width/Depth Ratio	Mean	6.5	30.9	31.1	15.6	18.6	
Bankfull Cross Sectional Area (ft^2)	Mean	2 – 18	8.2	5.9	9.8	9.4	
Maximum Bankfull Depth (ft)	Mean	0.8 – 2.7	1.4	1.2	1.6	1.7	
Width of Floodprone Area (ft)	Mean	8 – 160	44	46	NA	34.6	
Entrenchment Ratio	Mean	2.6	4.2	6.3	4.1	2.5	
Bank Height Ratio	Mean	NA	1.00	1.00	NA	1.00	
Slope		0.008 – 0.02	0.014	0.015	0.03	0.016	
Particle Sizes (Riffle Sections)							
D_{16} (mm)		0.1	<0.0062	<0.0062	NA	<0.0062	
D_{35} (mm)		1	0.31	<0.0062	NA	6	
D_{50} (mm)		9	6.6	2.0	0.5	12	
D_{84} (mm)		29	23	16	18.4	27.5	
D_{95} (mm)		128	42	38	NA	NA	

NA-Historical data not available at the final submission of this report.

(Table V continued)

Variable		Northern Tributary (Combined Cross Sections #6 Thru #8)					
		Pre-Const.	Year 1	Year 2	Year 3	Year 4	Year 5
Drainage Area (mi^2)		0.35	0.35	0.35	0.35	0.35	
Bankfull Width (ft)	Mean	3 – 20	13.1	14.6	13.6	15.0	
Bankfull Mean Depth (ft)	Mean	0.4 – 1.3	1.06	1.0	1.0	0.9	
Width/Depth Ratio	Mean	10.2	14	18.3	13.8	16.7	
Bankfull Cross Sectional Area (ft^2)	Mean	2 – 18	13.8	14.8	13.8	13.7	
Maximum Bankfull Depth (ft)	Mean	0.8 – 2.7	1.9	2	1.8	1.9	
Width of Floodprone Area (ft)	Mean	8 – 160	70	70	NA	37	
Entrenchment Ratio	Mean	4.9	5.7	4.7	3.0	2.6	
Bank Height Ratio (BHR)	Mean	NA	1.02	1.00	NA	1.00	
Slope (ft/ft)		0.008 – 0.02	0.008	0.008	0.02	0.006	
Particle Sizes (Riffle Sections)							
D_{16} (mm)		0.1	<0.0062	<0.0062	NA	<0.0062	
D_{35} (mm)		1	4.8	<0.0062	NA	3.4	
D_{50} (mm)		9	9.9	<0.0062	0.4	7.2	
D_{84} (mm)		29	29	23	16.3	27.5	
D_{95} (mm)		128	49	41	NA	NA	

NA-Historical data not available at the final submission of this report.

2.3 Results of the Stream Assessment

Site Data

The assessment included the survey of eight cross sections associated with both tributaries, as well as the longitudinal profiles. Approximately 1410 linear feet of channel was surveyed along the northern UT. Approximately 1767 linear feet of channel was surveyed along the southern UT.

- Cross Section #1. Southern UT, Station 0+69, midpoint of pool
- Cross Section #2. Southern UT, Station 8+63, midpoint of riffle
- Cross Section #3. Southern UT, Station 19+00, midpoint of riffle
- Cross Section #4. Southern UT, Station 23+36, midpoint of riffle

- Cross Section #6. Northern UT, Station 4+51, midpoint of pool
- Cross Section #7. Northern UT, Station 5+76, midpoint of riffle
- Cross Section #8. Northern UT, Station 10+91, midpoint of riffle

The cross sections were established during the 2003 monitoring survey and were compared to later surveys to determine the extent of aggradation or degradation. All of the cross section locations appear stable with little or no bank erosion. The 2006 cross sections are presented in Appendix A.

Pebble counts were conducted at each riffle cross section to determine the composition of bed material during the monitoring period. The comparison of pre-construction bed material data with subsequent monitoring data indicates that a drop in particle size in years 2 and 3 may have been temporary. Charts noting the particle size distributions are presented for the northern and southern UTs in Figures 2 and 3.

Figure 2. 2006 Deaton South Particle Size Distribution

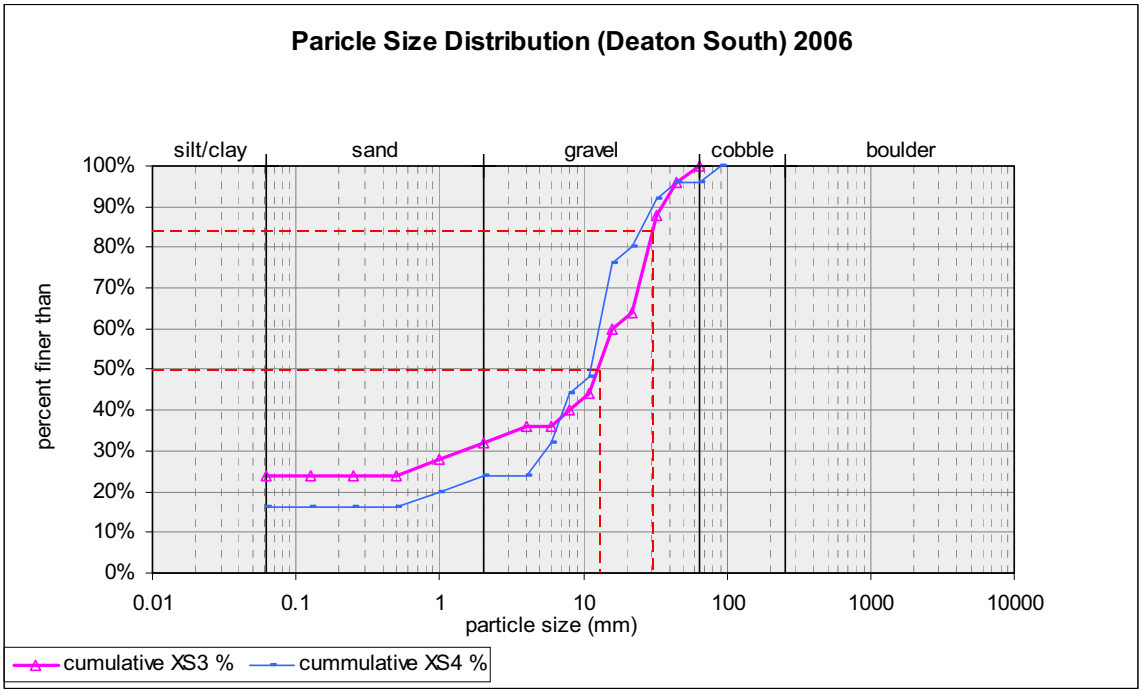
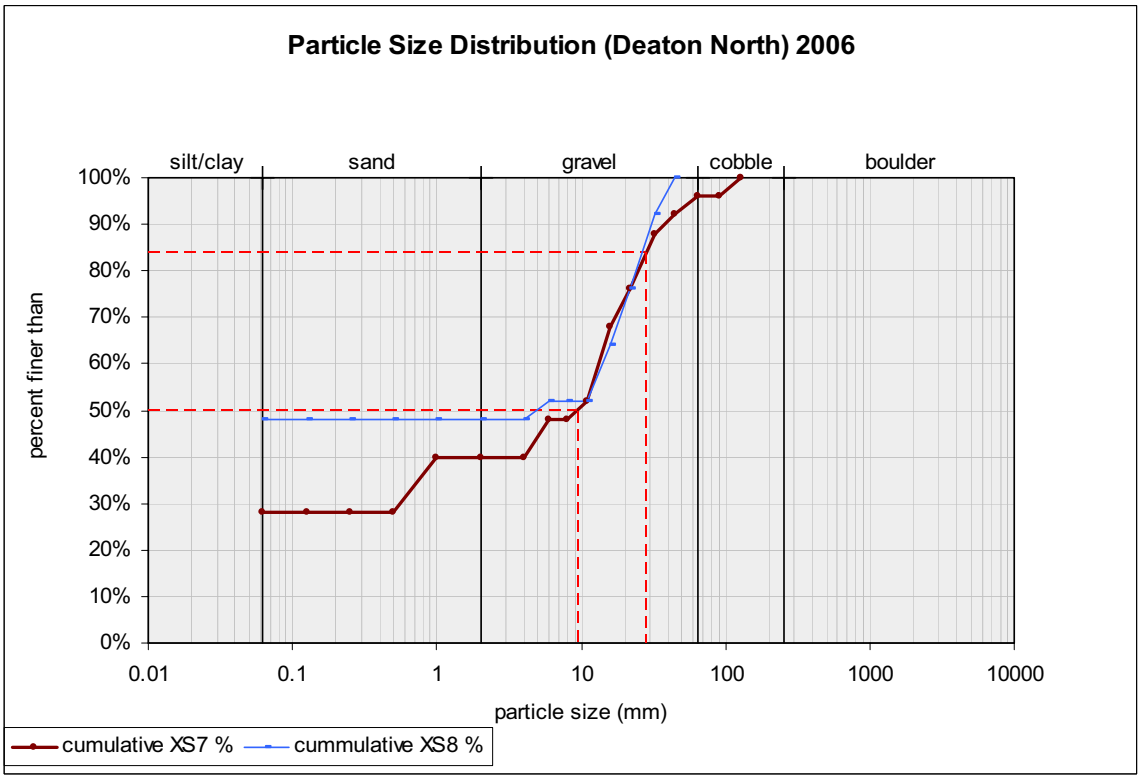


Figure 3. 2006 Deaton North Particle Size Distribution



Longitudinal profile surveys were conducted on predetermined segments of both streams (Appendix A). In the course of monitoring activities several problem areas were identified. These areas are discussed below and in Appendix C.

Southern UT

- STA 11+10. There is an active headcut approximately one foot deep at this location. If not repaired the headcut is expected to migrate upstream. This should be assessed during the future monitoring periods.

- STA 27+90. The left bank is eroded on the outside meander bend. This location should be assessed during the next monitoring period.

Northern UT

- STA 58+80. A cross vane structure has failed at this location. This is most likely due to improper installation. This area may remain stable if the grade is controlled by adjacent structures. However, repairs may be required if a headcut forms and migrates upstream. This should continue to be assessed during the future monitoring periods to determine whether or not remedial actions are necessary.

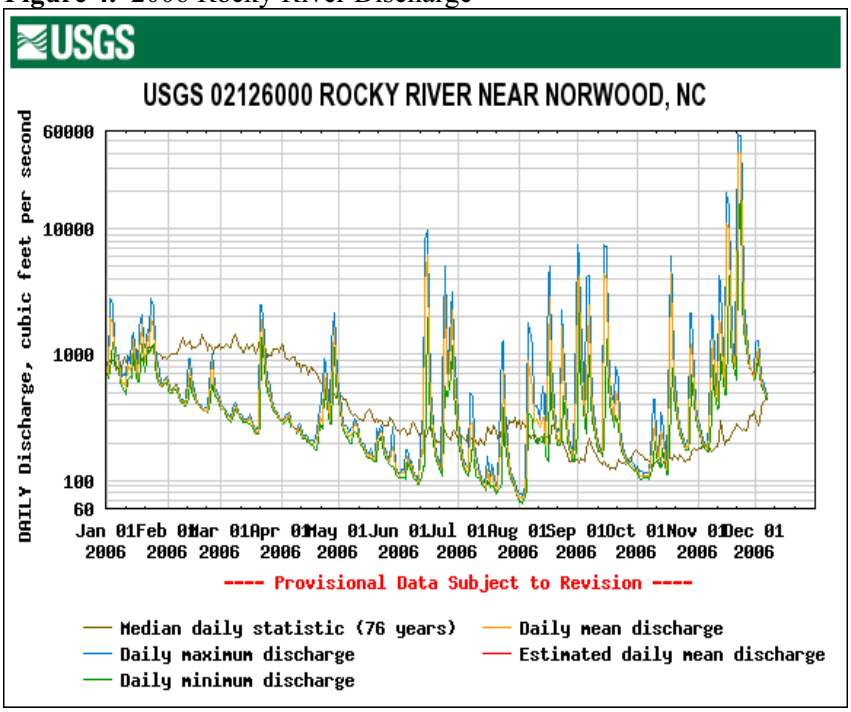
Other minor areas of erosion and aggradation were noted during field investigations. These areas were deemed minor and no threat to channel stability or project goals. Appendix C contains a discussion of problem areas and Integrated Project Problem Areas Plan View drawing.

Climatic Data and Stream Flow Analysis

Monitoring requirements state that at least two bankfull discharge events must be documented during the five year monitoring period in order for the project to be deemed successful. No stream gauging station exists on Fork Creek or the two unnamed tributaries restored as a result of this project. No crest gauge was installed during monitoring set up. Previous monitoring reports identified the Rocky River USGS stream gauge (02126000) as a suitable gauge to make inferences about flow events at the Deaton project site (Figure 4). This stream gauge has been used to establish the occurrence of bankfull flows for the history of this project. The technique used involves the comparison of discharge data at the gauge site with North Carolina Rural Piedmont discharge regional curve predictions of bankfull discharge. The number of flow events that exceeded the regional curve prediction of bankfull discharge at the gauge was assumed to be the number of bankfull or out-of-bank flow events at the project site. The technique described above utilizing the Rocky River stream gauge would indicate that multiple bankfull or out-of-bank events occurred during 2006. Field observations of bankfull flows at Deaton include wrack lines and flattened vegetation

It is not possible to definitively establish the occurrence of a bankfull flow event at the project site utilizing the above methodology. WKD recommends that a crest gauge be properly installed on each of the two project reaches.

Figure 4. 2006 Rocky River Discharge



Benthic Macroinvertebrates

Benthic macroinvertebrate sampling was completed in September 2006. Results of laboratory analysis of the samples are provided in Table VI below.

Table VI. 2006 Benthic Macroinvertebrate Survey Results

Order	Family	Species	Tolerance Value	No.
Odonata	Aeshnidae	Basiaeschna janata	7.4	1
Odonata	Corduliidae	Sematochlora spp	9.2	1
Odonata	Calopterygidae	Calopteryx spp	7.8	1
Odonata	Coanagrionidae	Argia bipunctulata	8.2	1
Megaloptera	Sialidae	Sialis spp	7.2	6
Coleoptera	Dytiscidae	Hydaticus bimarginatus	9.1	1
Hemiptera	Belostomatidae	Belostoma spp	9.8	3
Hemiptera	Corixidae		9	2
Epemeroptera	Baetidae	Centroptilum spp	6.6	2
Epemeroptera	Baetidae	Callibaetis spp	9.8	1
Epemeroptera	Baetidae	Cloeon spp	6.6	9
Trichoptera	Phryganeidae	Ptilostomis spp	6.4	2
Diptera	Culcidae	Anopheles spp	8.6	3
			Total Number of Taxa	**33**
			Taxa Richness	**13**

A composite benthic macroinvertebrate sample was collected at two stations (19+00 and 57+00) along the restoration reach in September 2006. The North Carolina Division of Water Quality (NCDWQ) Qual-4 collection method was utilized. In addition to benthic sampling, NCDWQ habitat assessment forms were completed at each monitoring station. Station 19+00 received a

habitat score of 61 out of 95 possible points. Station 57+00 received a habitat score of 70 out of 95 possible points. Both stations scored low for percent embeddedness and quality riffle habitat.

Benthos samples were preserved in alcohol and later identified to the lowest possible taxonomic level by an aquatic ecologist. Table VI lists the taxa collected, relative abundance, and tolerance values. The NCDWQ Standard Operating Procedures for Benthic Macroinvertebrates (2006) assigns tolerance values for common macroinvertebrates in North Carolina. Tolerance values range from 0 to 10 with low scores indicating species that are pollution intolerant.

Overall, macroinvertebrates collected at Deaton were moderately to very pollution tolerant and characteristic of substrates with high amounts of sediments. Very few ephemeroptera, plecoptera, and trichoptera (EPT) species were collected. The EPT taxa collected were pollution tolerant species.

2.4 Conclusions

Overall, the two UTs to Fork Creek remain stable. Minor areas of degradation exist along both stream reaches. Work associated with corrective actions would likely cause more sedimentation than actual benefit at the current time.

The majority of the cross vane structures along both stream reaches remain intact. Failure of one structure was noted on the northern UT. Localized areas of active bank scour and erosion exist. These areas and all other areas will continue to be monitored during 2007. If significant problems are noted during the next monitoring period, supplemental corrective-action work may be required.

Based on vegetation monitoring and field observations , the Deaton Site is meeting the success criteria for vegetation and hydrology. No supplemental work is proposed at this time.

3.0 VEGETATION: DEATON MITIGATION SITE

3.1 Vegetation Success Criteria

Success Criteria states that there must be a minimum of 320 trees per acre living after three years and 260 trees per acre after five years.

3.2 Description of Species

The following species were planted in the Wetland Restoration Area:

Fraxinus pennsylvanica, Green Ash

Quercus phellos, Willow Oak

Quercus nigra, Water Oak

Quercus laurifolia, Laurel Oak

Quercus falcata var. *falcata*, Southern Red Oak

3.3 Results of Vegetation Monitoring

Table 3.3 details the results of 2006 vegetation monitoring at the Deaton site.

Table VII. 2006 Deaton Vegetation Monitoring Results

Plot	Green Ash	Willow Oak	Water Oak	Laurel Oak	Southern Red Oak	Year 4 Total	Baseline Total	Density (trees per acre)
1	5	12	2			19	44	331
2	7	9	1		1	18	50	314
							Average Density	323

Site Notes: Other species observed include soft rush (*Juncus* effusus), fescue (*Festuca* sp), goldenrod (*Solidago rugosa*), dog fennel (*Eupatorium capillifolium*), smartweed (*Polygonum pennsylvanicum*), ragweed (*Ambrosia artemisifolia*), multi-flora rose (*Rosa multiflora*), Chinese privet (*Ligustrum sinense*), and Nepalese brown-top (*Microstegium vimineum*). The invasive species present are not impacting the planted and native vegetation.

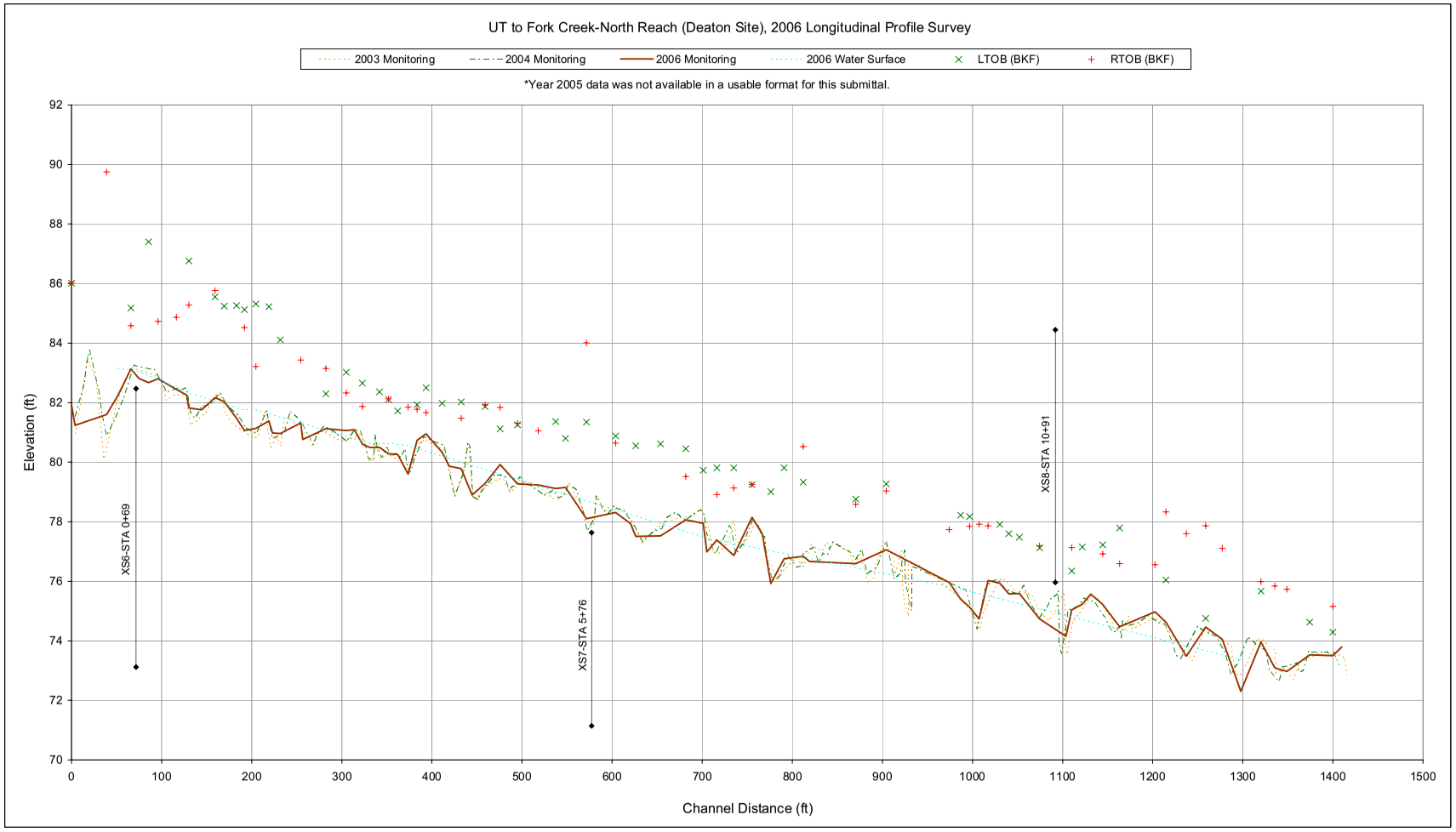
3.4 Vegetation Conclusions

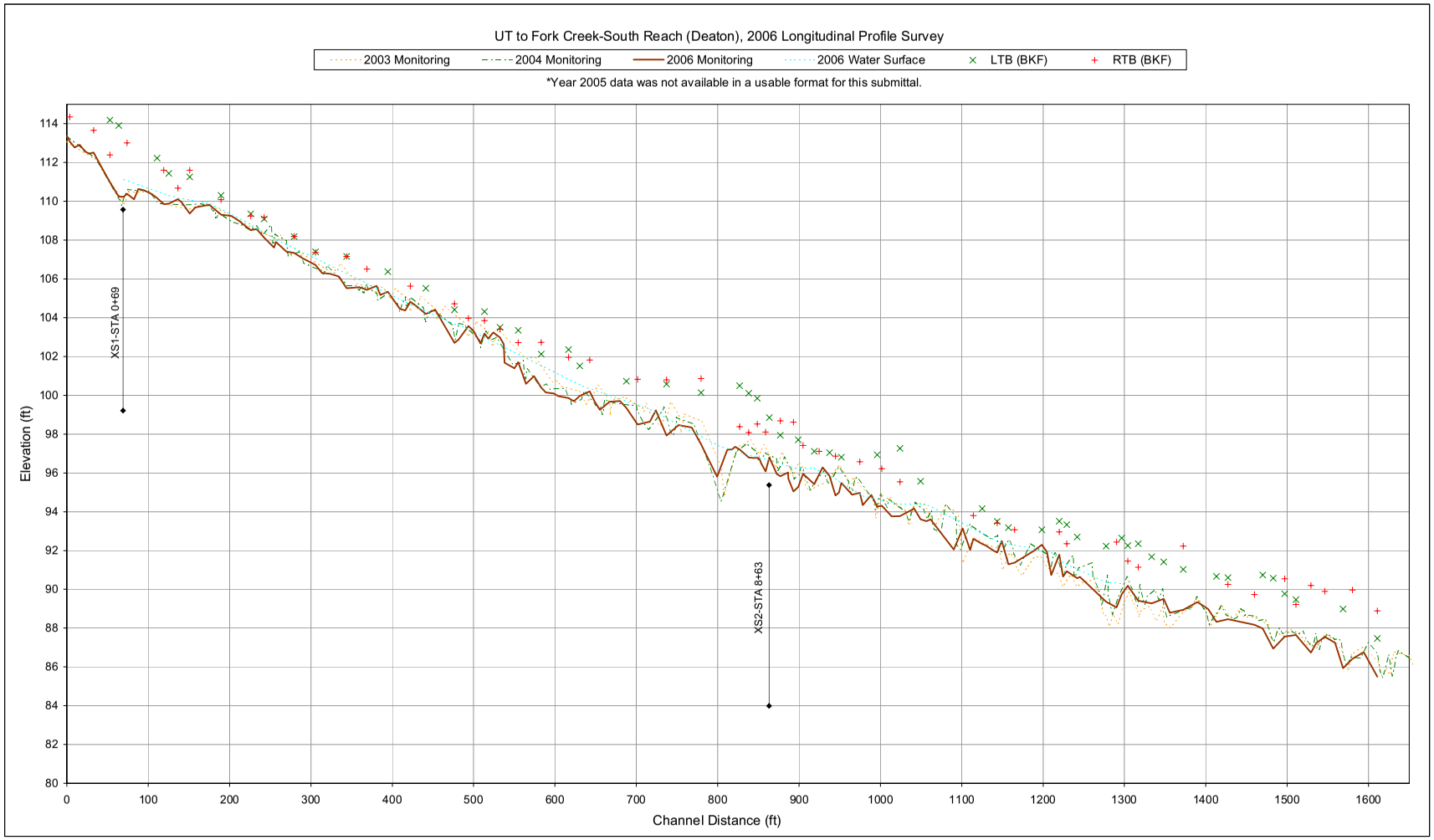
There are 2 50-foot x 50-foot vegetation monitoring plots established throughout the 13 acre planting area. The 2006 vegetation monitoring of the site revealed an average tree density of 323 trees per acre. This average exceeds the minimum success criteria of 260 trees per acre after five growing seasons.

APPENDIX A

DEATON 2006 (YEAR 4)
CROSS SECTIONS AND LONGITUDINAL PROFILES

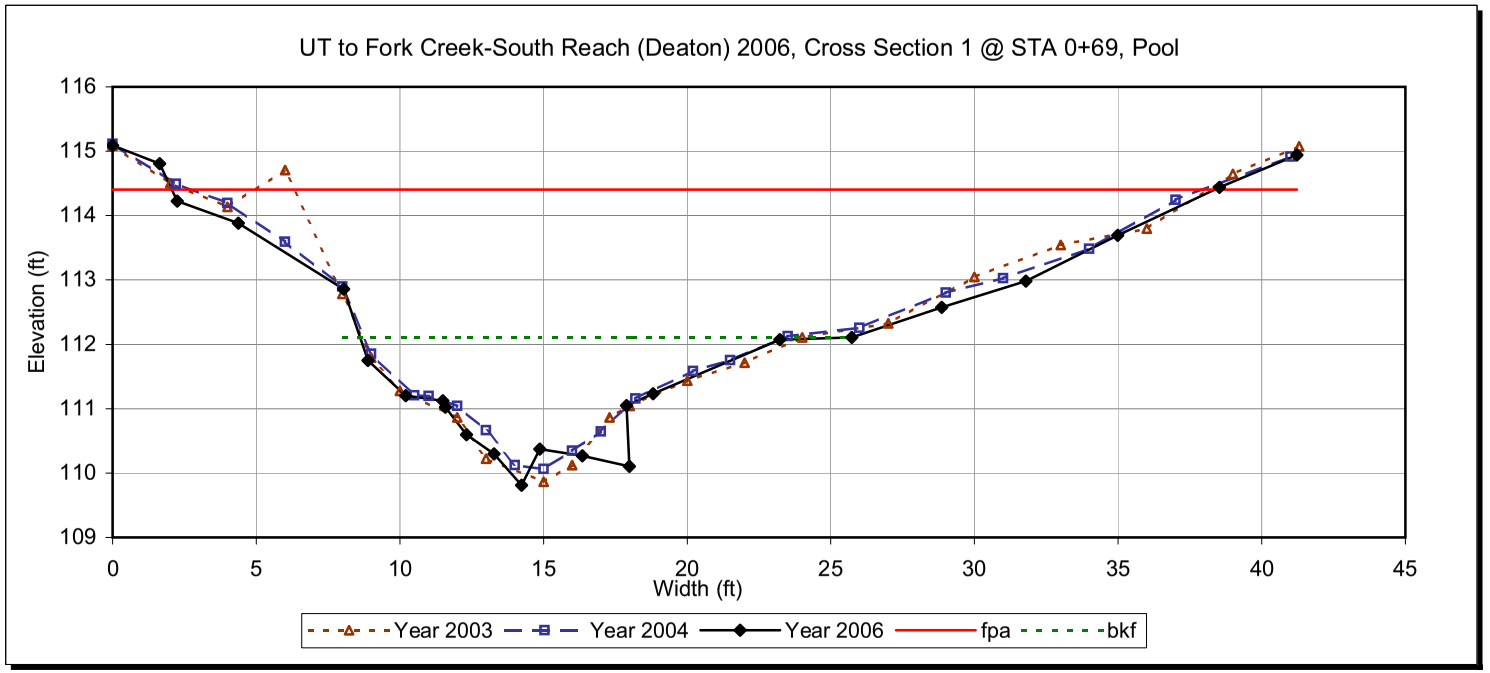
Deaton Site Longitudinal Profile Plots




UT to Fork Creek-South Reach (Deaton), 2006 Longitudinal Profile Survey
2003 Monitoring
2004 Monitoring
2006 Monitoring
2006 Water Surface
LTB (BKF)
RTB (BKF)
*Year 2005 data was not available in a usable format for this submittal.
Elevation (ft)
Channel Distance (ft)
XS1-STA 0+69
XS2-STA 8+63
114
112
110
108
106
104
102
100
98
96
94
92
90
88
86
84
82
80
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Looking at Left Bank.

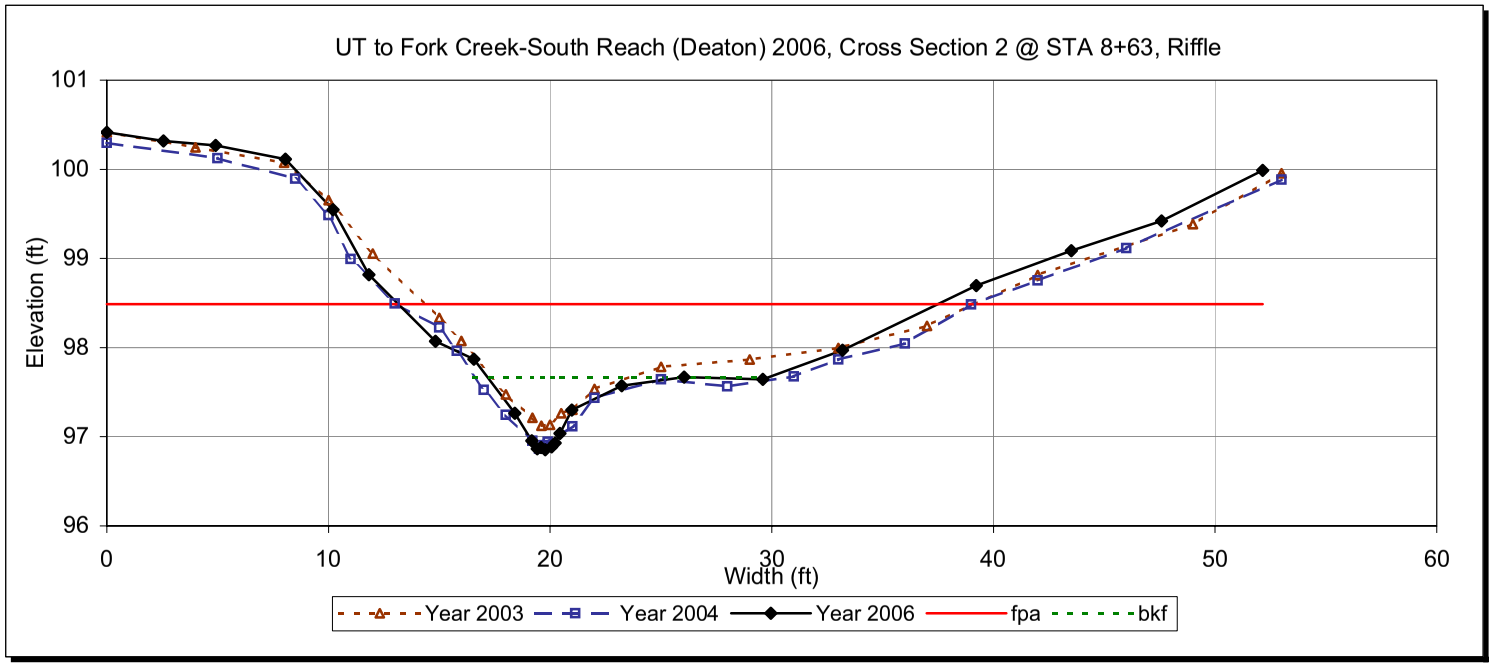
Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

Looking at Left Bank.

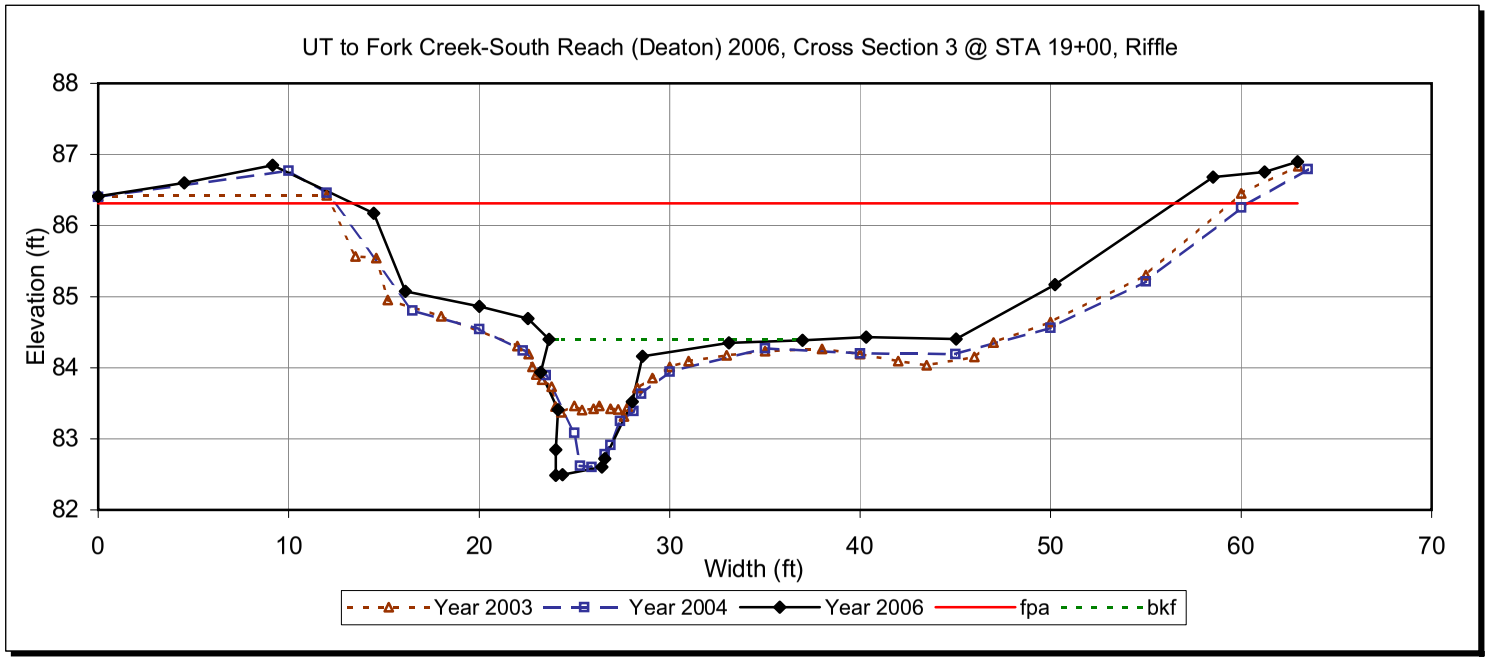
Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

Looking at Left Bank.

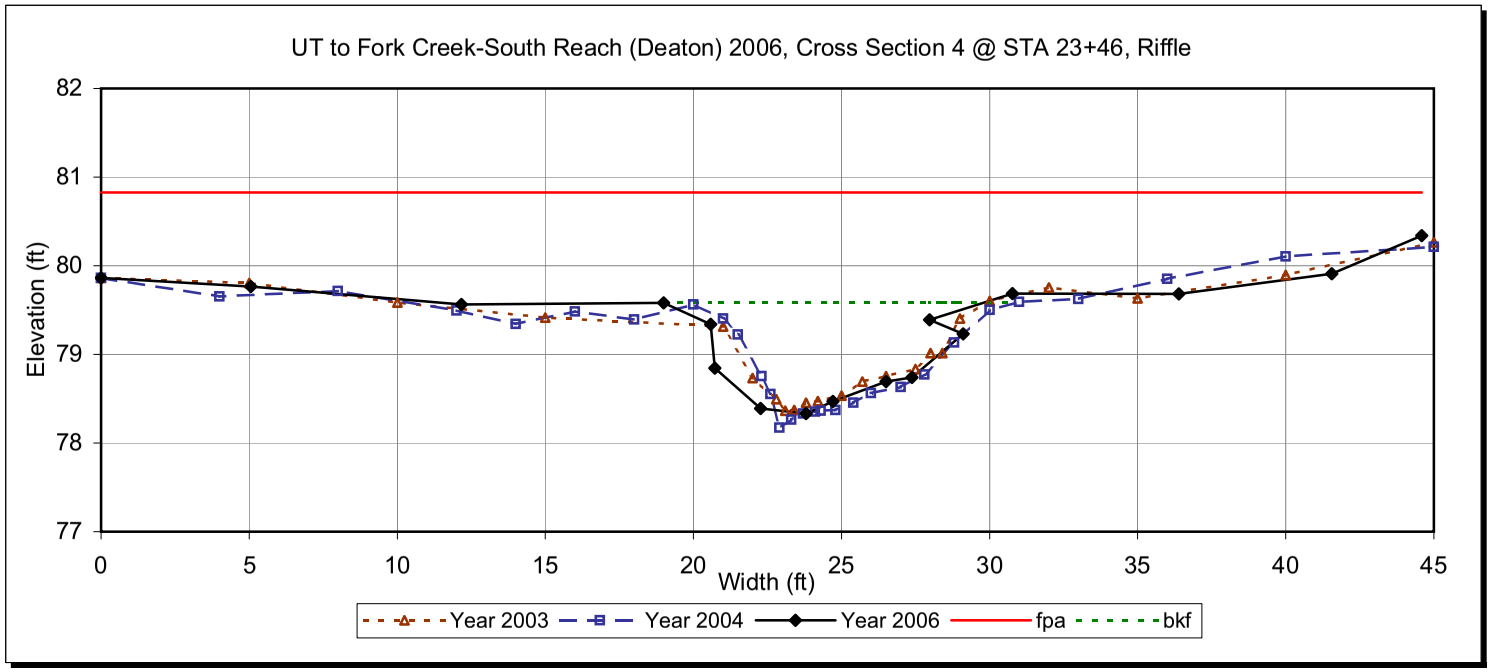
Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

Looking at Left Bank.

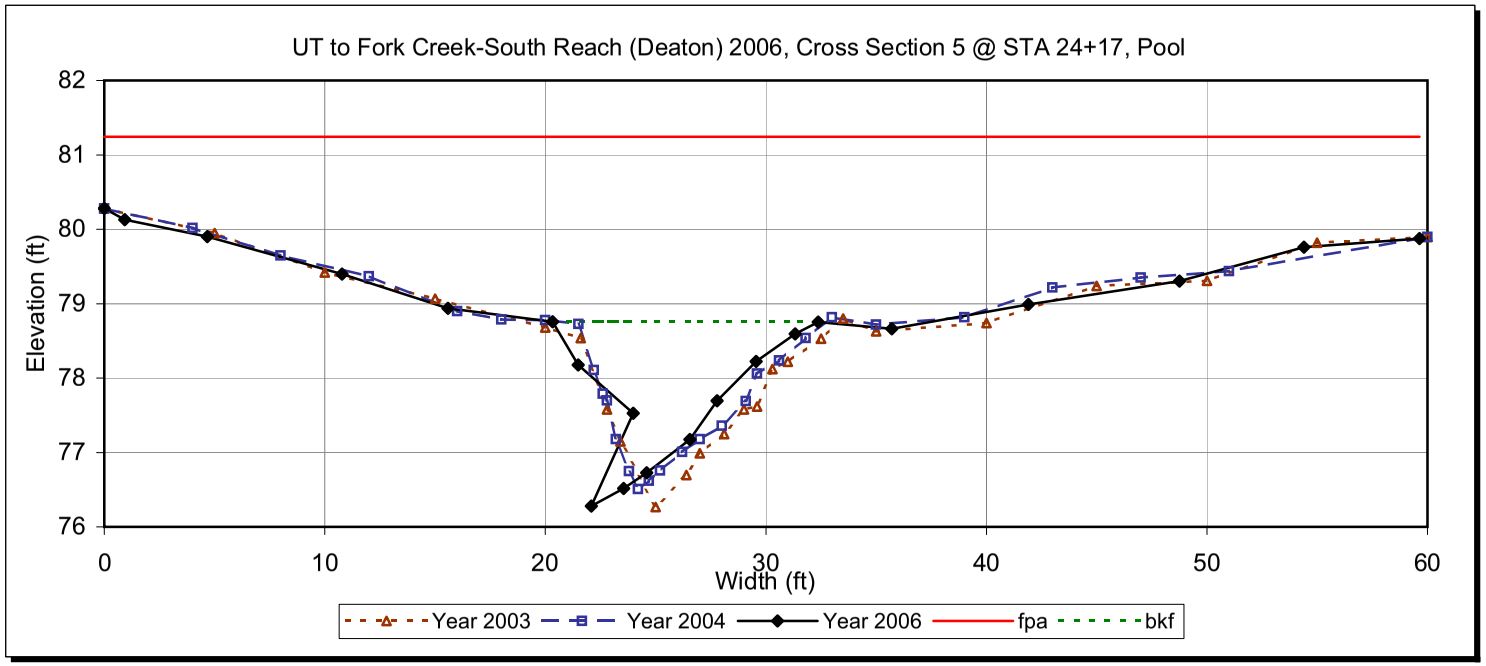
Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

Looking at Left Bank.

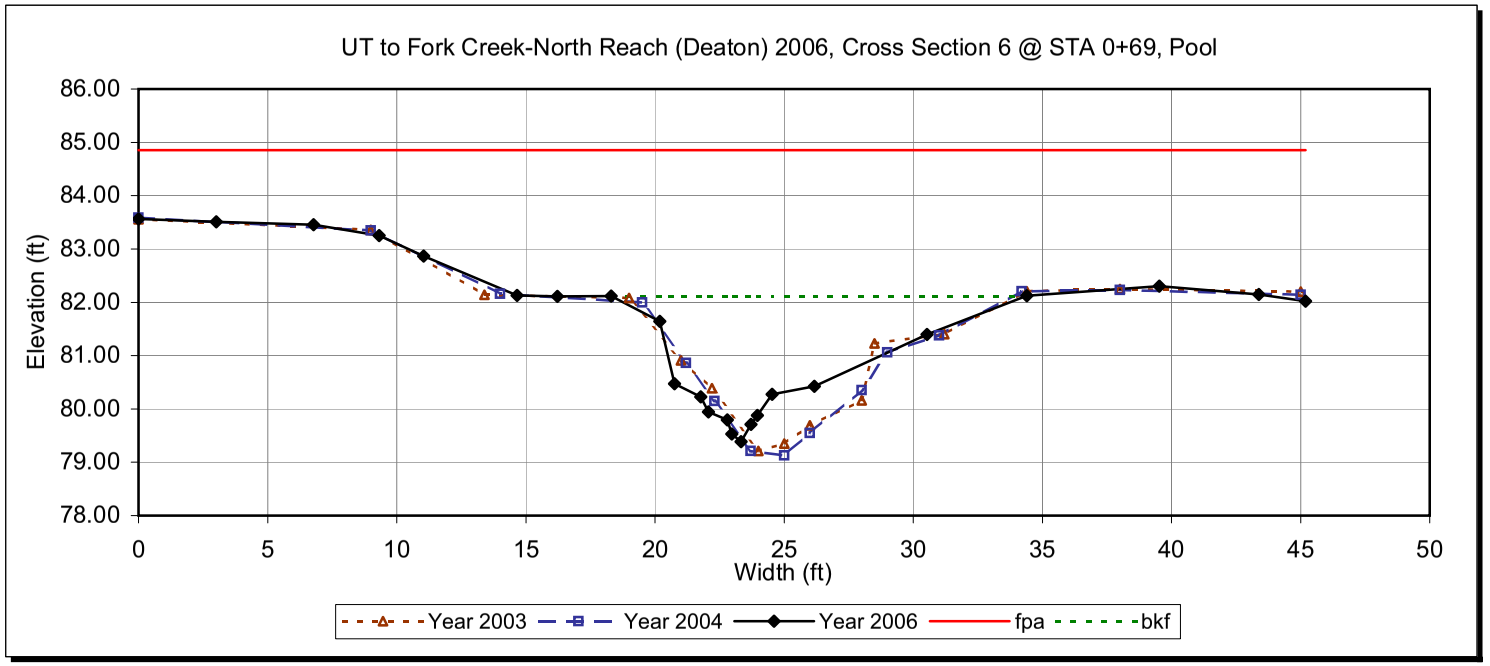
Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

Looking at Left Bank.

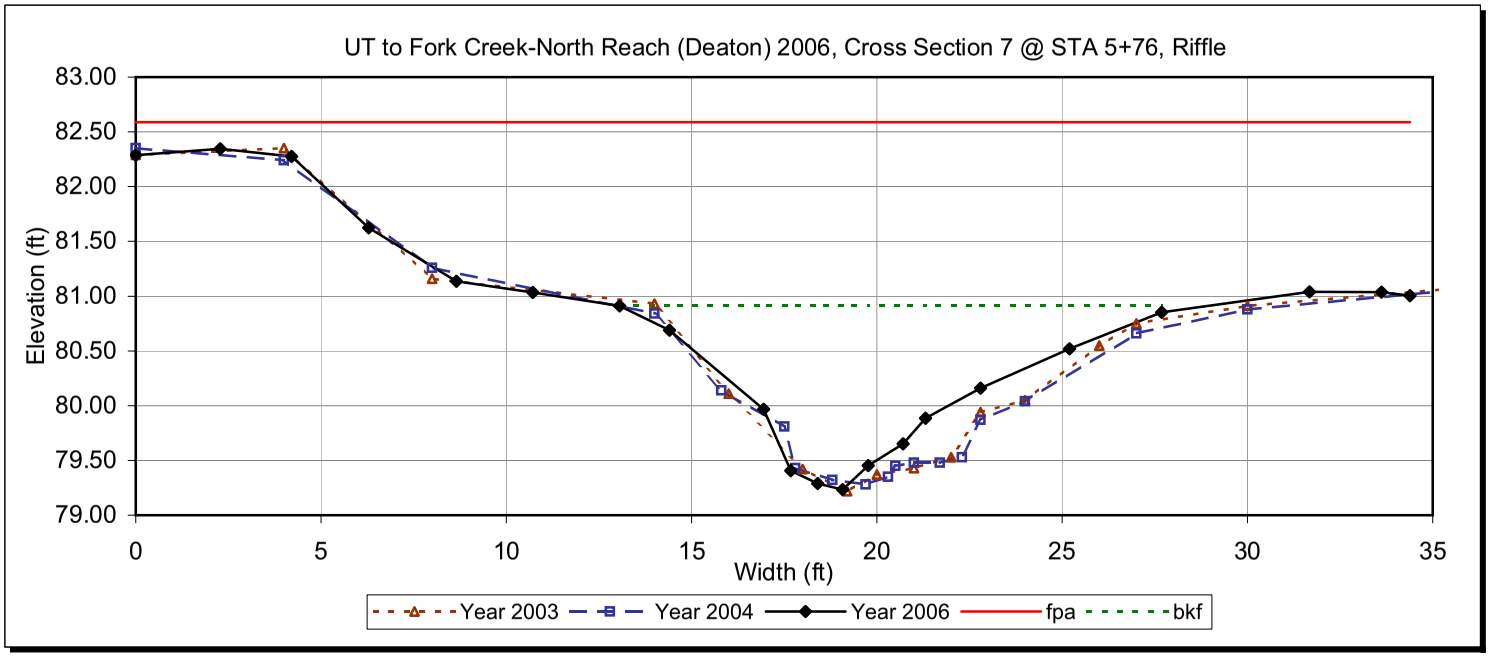
Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

Looking at Left Bank.

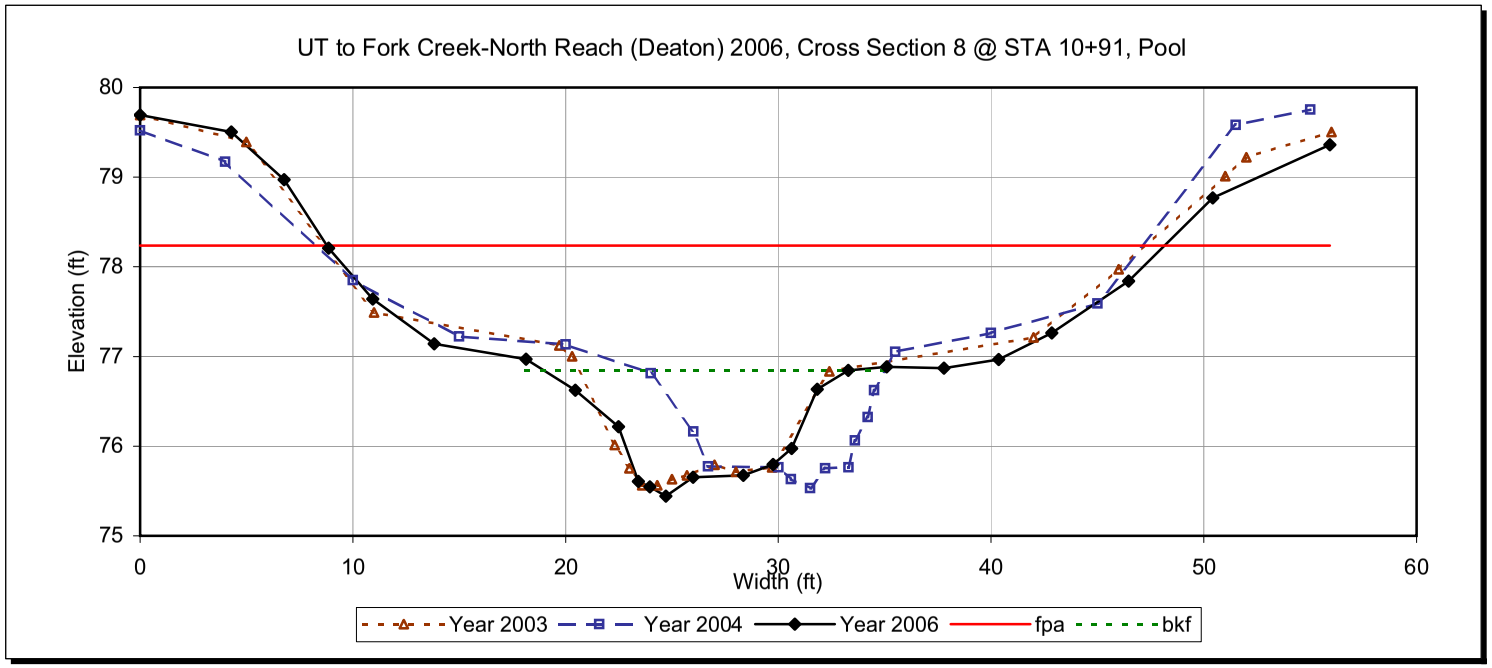
Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

Looking at Left Bank.

Looking at Right Bank.



*Year 2005 data was not available in a usable format for this submittal.

APPENDIX B

DEATON 2006 (YEAR 4)
SITE PHOTOGRAPHS

Deaton 2006 Photo Point 1

Deaton 2006 Photo Point 2

Deaton 2006 Photo Point 3

Deaton 2006 Photo Point 4

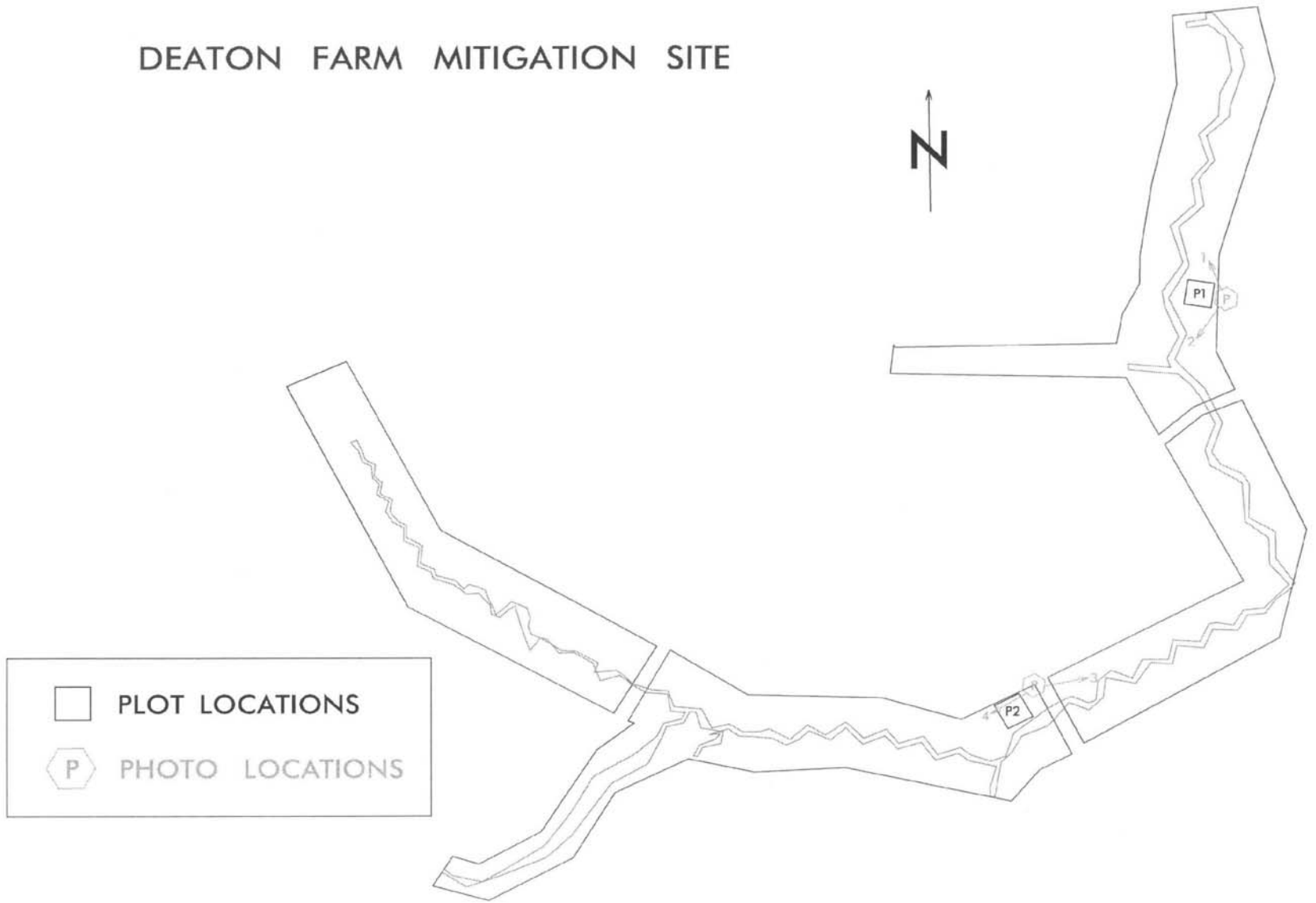
Deaton 2006 Photo Point 5

Deaton 2006 Photo Point 6

Deaton 2006 Veg Plot 1

Deaton 2006 Veg Plot 2

DEATON FARM MITIGATION SITE



APPENDIX C

DEATON 2006 (YEAR 4)
INTEGRATED PROJECT PROBLEM AREAS PLAN VIEW

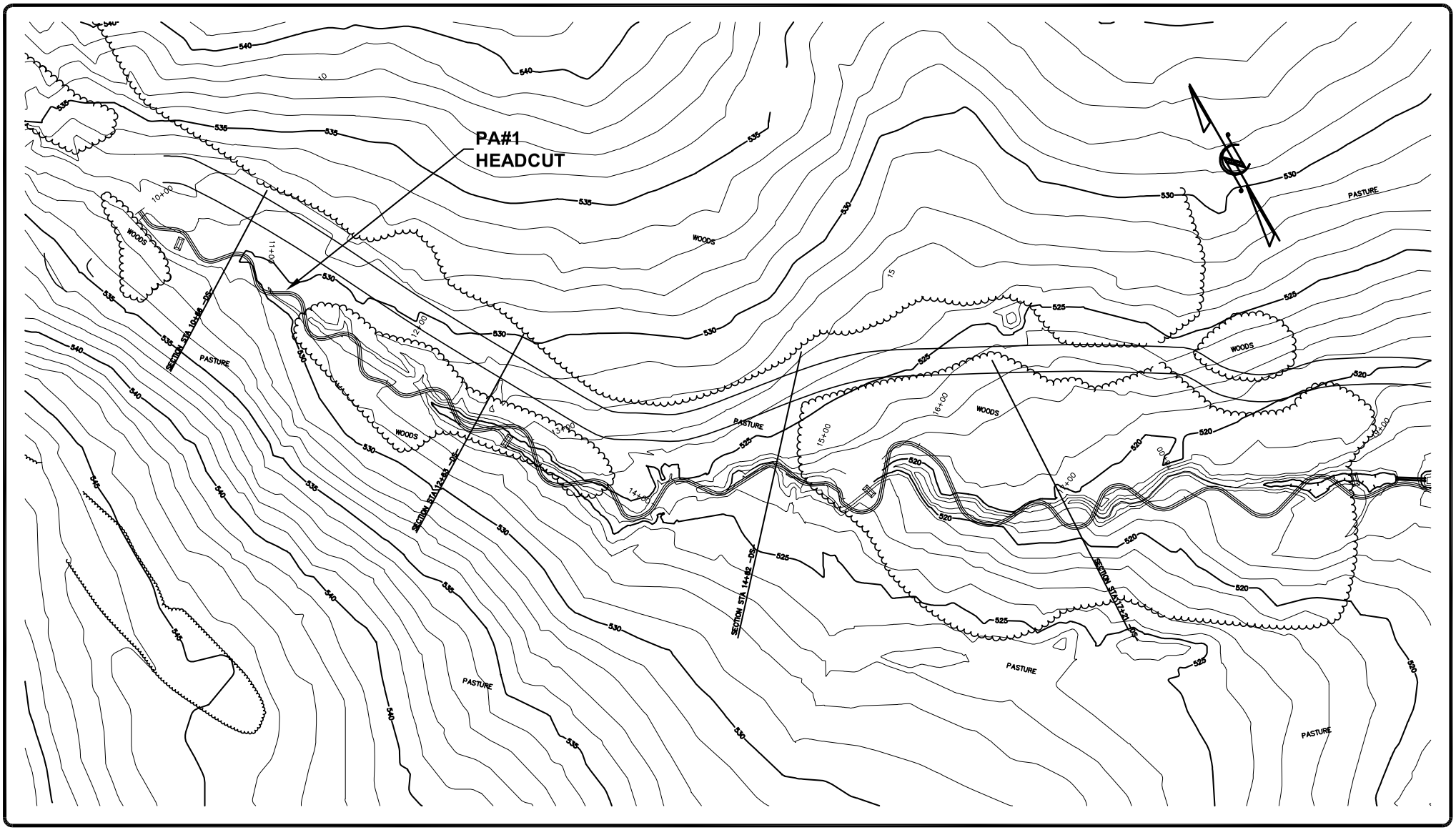
DEATON 2006 (YEAR 4)
Integrated Project Problem Areas Plan View

Exhibit Table C.1. Integrated Project Problem Areas Deaton (EEP Project No. 110)			
Feature Issue	**Station Numbers**	**Suspected Cause**	**Photo Number**
Headcut approximately one foot hight	11+10	Downstream structure failure	PA #1
Erosion on left bank	27+90	Lack of bank stabilization, improper design	PA #2
Cross vane failure	58+80	Improper installation	PA #3

Deaton 2006. PA #1

Deaton 2006. PA #2

Deaton 2006. PA #3



PROJECT MANAGER	DRAWING SCALE
DPI	1"=500'
DRAWN BY	SURVEY DATE
TRS	
APPROVED BY	MAP DATE
PROJECT NUMBER	
5045700RA	

WK DICKSON
Engineers • Planners • Surveyors
Landscape Architects

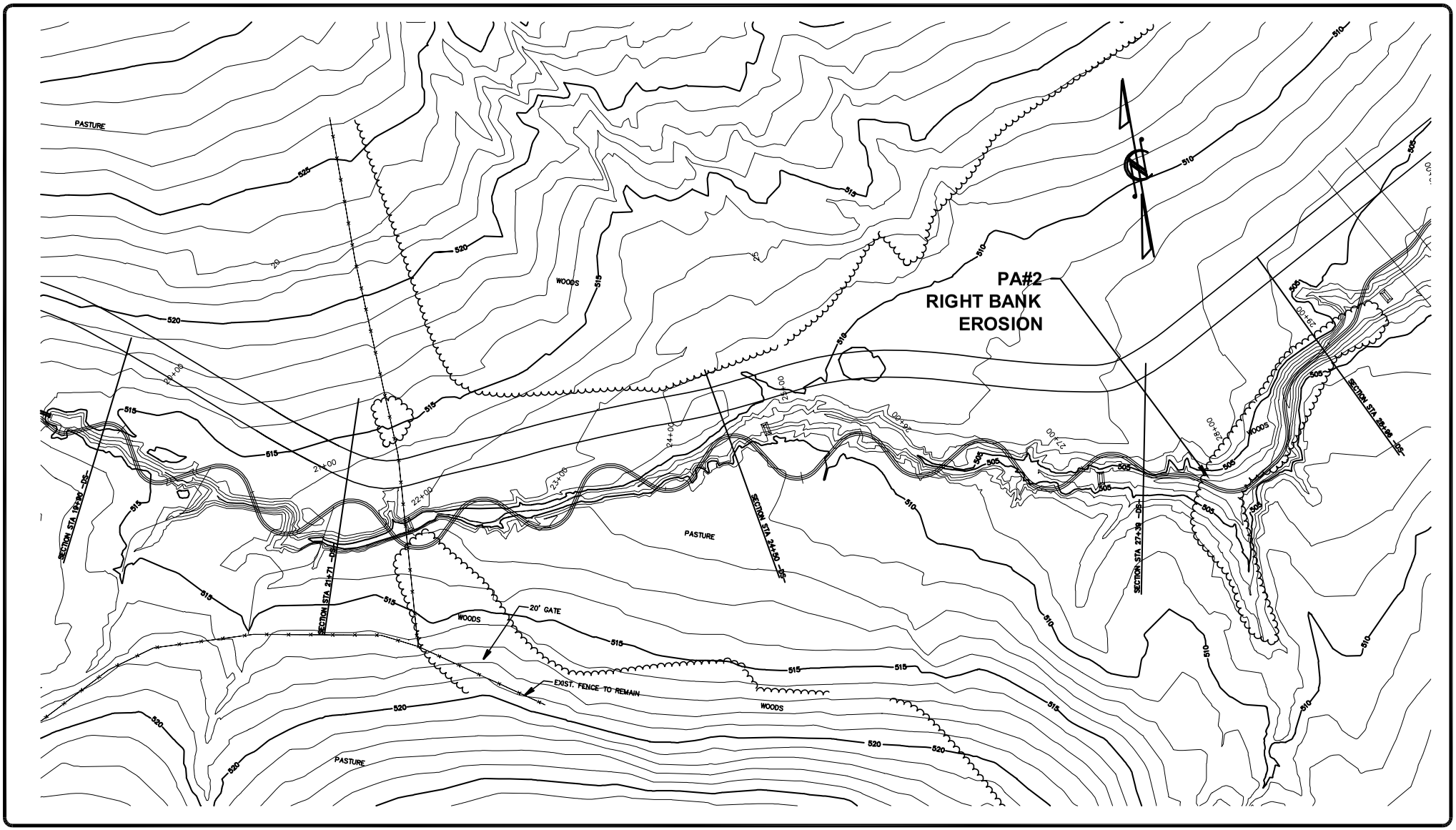
3101 JOHN HUMPHRIES WYND
RALEIGH, NC 27612
(919) 782-0495

Office Locations:
North Carolina Georgia
South Carolina Florida

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

TITLE: INTEGRATED PROJECT PROBLEM AREAS
2006 (YEAR 4) PLAN VIEW
DEATON MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA



PROJECT MANAGER	DRAWING SCALE
DPI	1"=500'
DRAWN BY	SURVEY DATE
TRS	
APPROVED BY	MAP DATE
PROJECT NUMBER	
5045700RA	

WK DICKSON
Engineers • Planners • Surveyors
Landscape Architects

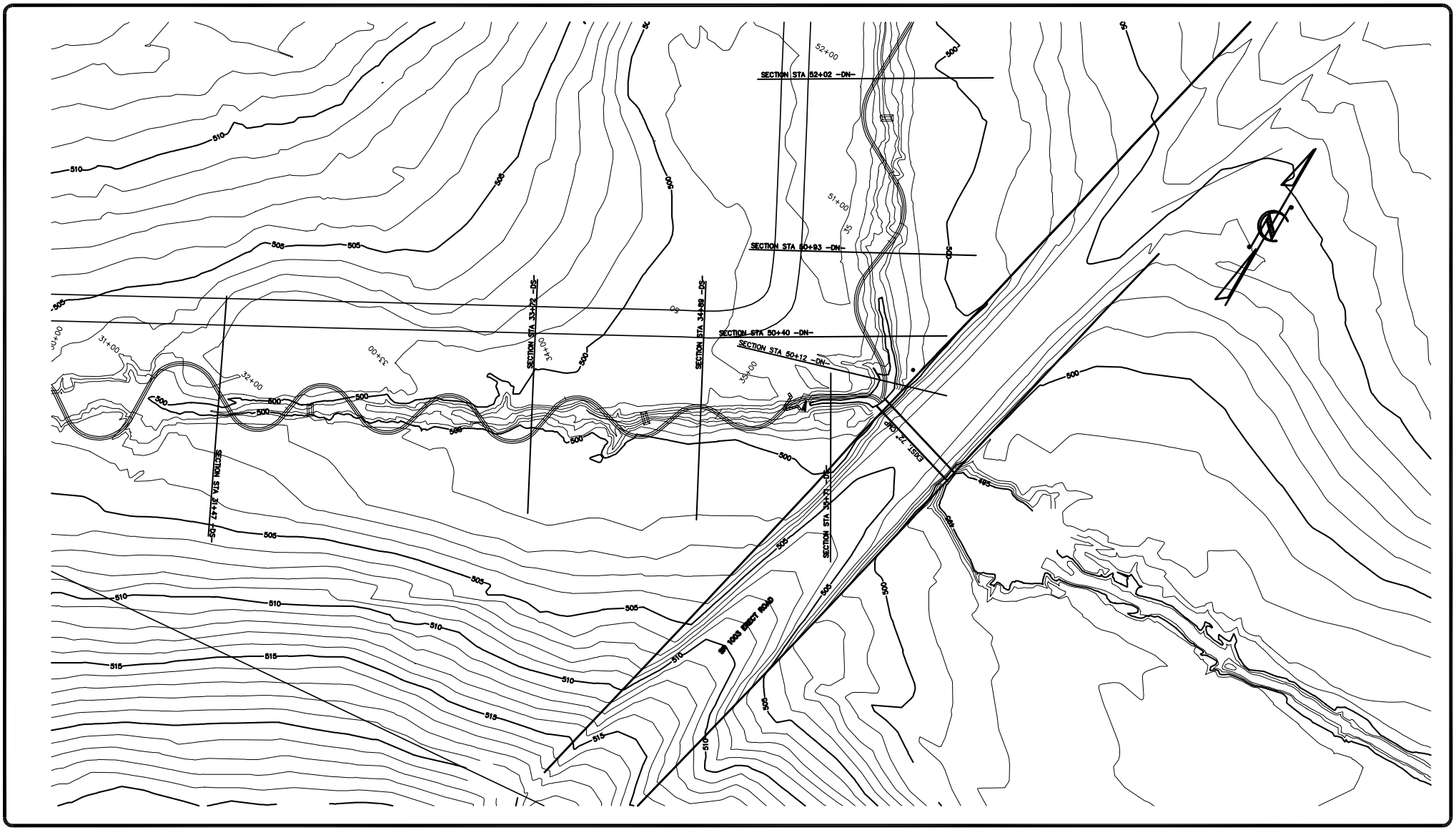
3101 JOHN HUMPHRIES WYND
RALEIGH, NC 27612
(919) 782-0495

Office Locations:
North Carolina Georgia
South Carolina Florida

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

TITLE: INTEGRATED PROJECT PROBLEM AREAS
2006 (YEAR 4) PLAN VIEW
DEATON MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA



PROJECT MANAGER	DRAWING SCALE
DPI	1"=500'
DRAWN BY	SURVEY DATE
TRS	
APPROVED BY	MAP DATE
PROJECT NUMBER	
5045700RA	

WK DICKSON
Engineers • Planners • Surveyors
Landscape Architects

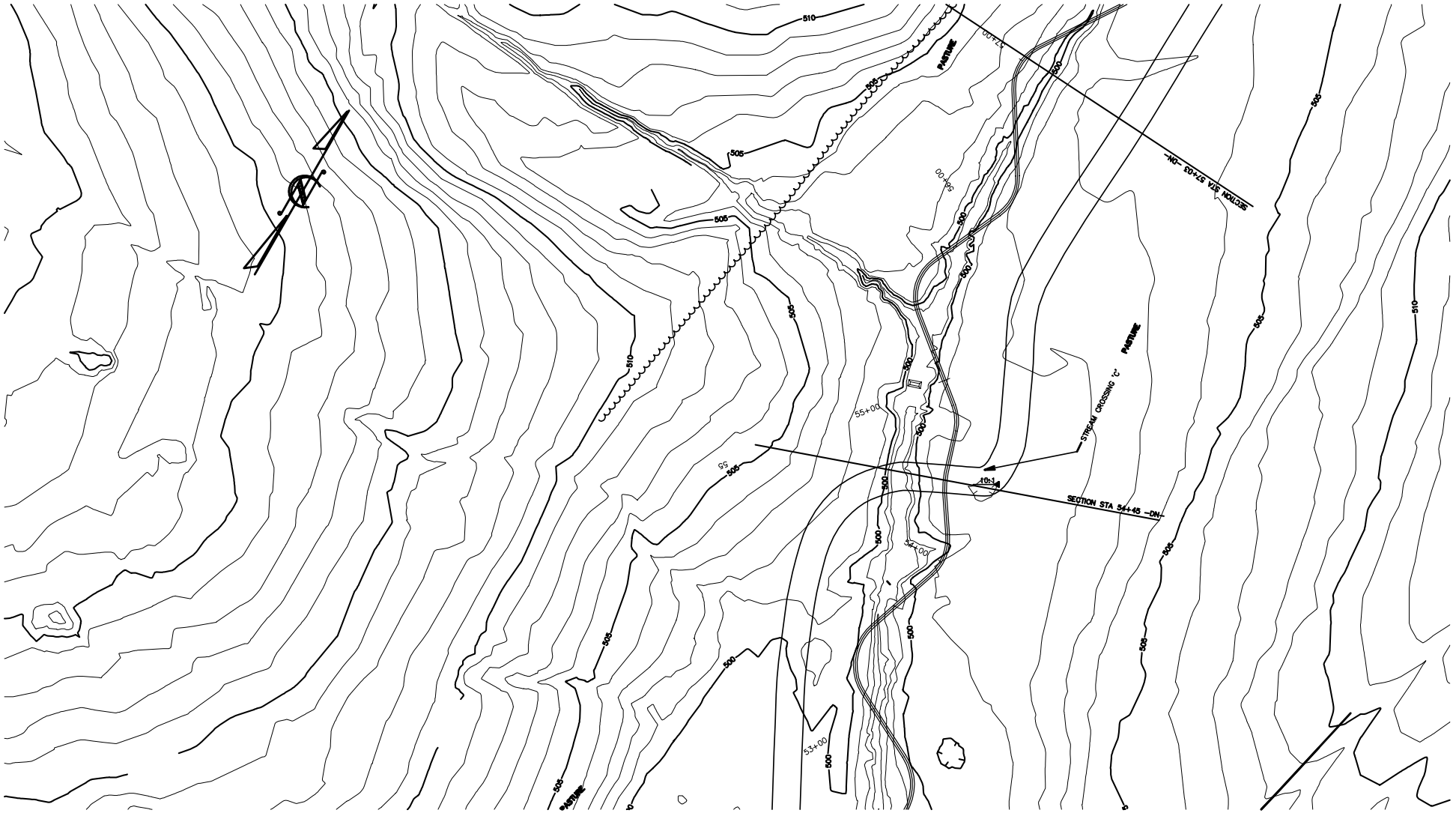
3101 JOHN HUMPHRIES WYND
RALEIGH, NC 27612
(919) 782-0495

Office Locations:
North Carolina
South Carolina
Georgia
Florida

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

TITLE: INTEGRATED PROJECT PROBLEM AREAS
2006 (YEAR 4) PLAN VIEW
DEATON MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA



PROJECT MANAGER	DRAWING SCALE
DPI	1"=500'
DRAWN BY	SURVEY DATE
TRS	
APPROVED BY	MAP DATE
PROJECT NUMBER	
5045700RA	

WK DICKSON
Engineers • Planners • Surveyors
Landscape Architects

3101 JOHN HUMPHRIES WYND
RALEIGH, NC 27612
(919) 782-0495

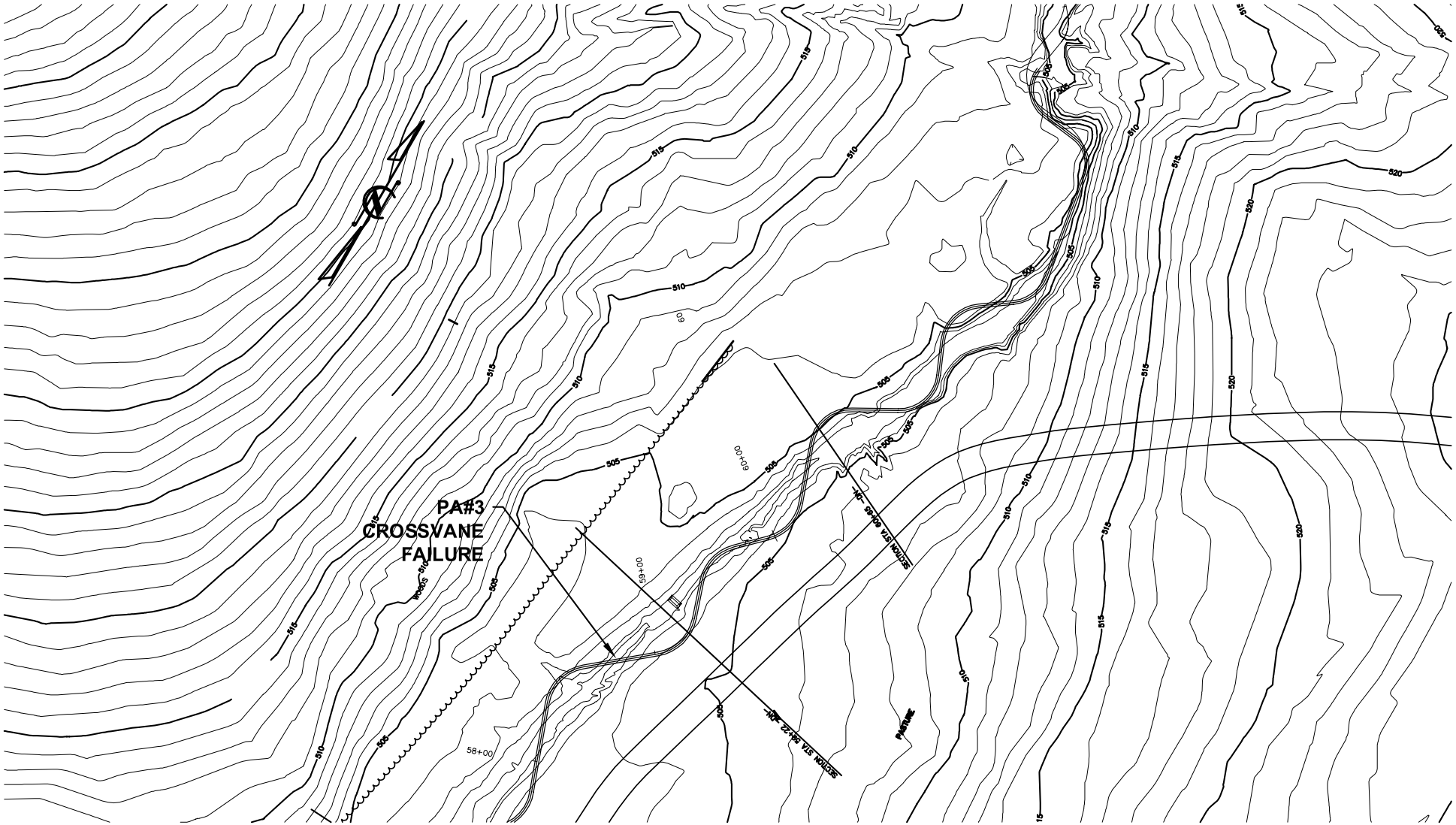
Office Locations:
North Carolina
South Carolina
Georgia
Florida

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

TITLE:

INTEGRATED PROJECT PROBLEM AREAS
2006 (YEAR 4) PLAN VIEW
DEATON MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA



PROJECT MANAGER	DRAWING SCALE
DPI	1"=500'
DRAWN BY	SURVEY DATE
TRS	
APPROVED BY	MAP DATE
PROJECT NUMBER	
5045700RA	

WK DICKSON
Engineers • Planners • Surveyors
Landscape Architects

3101 JOHN HUMPHRIES WYND
RALEIGH, NC 27612
(919) 782-0495

Office Locations:
North Carolina
South Carolina
Georgia
Florida

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

TITLE:

INTEGRATED PROJECT PROBLEM AREAS
2006 (YEAR 4) PLAN VIEW
DEATON MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA