Valley Fields Farm Stream Restoration Project

Monitoring Report: Year 04

Davidson County, North Carolina
Upper Yadkin River Basin
Cataloging Unit 030401030
EEP Project ID #407

Prepared for:

North Carolina Department of Environment and Natural Resources
Ecosystem Enhancement Program
217 West Jones St, Suite 3000A
Raleigh, NC 27603

Monitoring Firm:

KCI Associates of North Carolina, PA
4601 Six Forks Rd, Suite 220
Raleigh, NC 27609
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Project Manager: Adam Spiller
Email: adam.spiller@kci.com
Project No: 16133830

December 2014

Design Firm:

Kimley-Horn and Associates, Inc.
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Raleigh, NC 27636
(704) 333-5131

CONTENTS

Appendices

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Valley Fields Farm (VFF) stream and wetland restoration project comprises 10,071 linear feet of stream restoration and 8,730 linear feet of stream preservation with approximately 3.1 acres of wetland restoration and 5.5 acres of wetland enhancement/preservation. Site construction was completed in June 2008 and plantings were completed in December 2008. This report represents the 4th year of monitoring data collection.

1.2 PROJECT LOCATION

The project is within USGS Hydrologic Cataloging Unit (HUC) 03040103030030 of the Yadkin River Basin. This 14-digit HUC has been identified as a Targeted Local Watershed (TLW) by EEP's *Upper Yadkin River Basin Restoration Priorities Plan 2009*. The project is in Davidson County approximately four miles northwest of High Point and located off of Shadow Valley Road.

1.3 PROJECT DESCRIPTION

The restoration of the Valley Fields Farm Site offers an opportunity to add functional stream and wetland uplift to the Yadkin River Basin. The project goals include the following:

- Preserve stable on-site streams, wetlands, and riparian buffers in catchments draining into the primary enhancement/restoration reaches
- Enhance and restore (pattern, dimension, and profile) unstable streams using natural channel design techniques
- Improve water quality of non-point source storm water through Best Management Practices

These goals will be accomplished through implementation of the following objectives:

- Installing in-stream structures such as rock vanes, log vanes, and constructed riffles
- Removing invasive vegetation
- Removing crowns from wetland areas and reconnecting the floodplain by raising the streambed and/or lowering the floodplain
- Re-establishing a riparian buffer

2.0 MONITORING RESULTS

The survey data were collected with a survey-grade GPS unit between April 2 and 3, 2014. The stationing for the longitudinal profile is based on the thalweg stationing and has been adjusted to match grade control structures from previous longitudinal profiles.

The CVS-EEP protocol, Level 2 (http://cvs.bio.unc.edu/methods.htm) was used to collect vegetation data from the site. The vegetation monitoring was completed on July 17, 2014.

2.1 HYDROLOGY

Four automatic recording groundwater gauges were installed to monitor soil saturation within the upper 12 inches and any surface ponding within the wetland area of the site. Daily data were collected from the automatic gauges over the growing season to ensure that the water table was within 12 inches of the surface for a minimum of 7.5% (18 days) of the growing season (March 26th – November 6th). During the 2014 growing season, 3 of the 4 gauges met this success criteria. The gauge that did not meet the success criteria (CE4) is located outside of the wetland restoration area. This gauge recorded a water table above the jurisdictional depth for 3.5% of the growing season (8 days). The other three gauges averaged 22.8% of the growing season (51 days) with the water table above jurisdictional depth.

2.2 VEGETATION

The vegetation monitoring success criterion for the planted stream riparian zone is a density of 320 stems per acre after the third year of monitoring and an allowance for 10% mortality in the fourth and fifth years with a final density of 260 stems per acre. The fourth-year vegetation monitoring was based on the Level 2 CVS-EEP vegetation monitoring protocol. There are eighteen permanent vegetation monitoring plots within the site.

The site's average density for this monitoring period is 342 planted stems per acre. There are many volunteer woody stems throughout the site. Including volunteers, the monitoring plots averaged 1,398 total stems per acre. Eight of the eighteen plots had a planted stem density of less than 288 stems per acre, but of those eight, only one had a total stem density (including volunteers) of less than 288 stems per acre. Invasives do not represent a problem within the site, although isolated patches of multiflora rose (*Rosa multiflora*), Callery pear (*Pyrus calleryana*), broadleaf cattail (*Typha latifolia*), sweet autumn clematis (*Clematis terniflora*), and Japanese stiltgrass (*Microstegium vimineum*) occur. On the CCPV in Appendix B, *P. calleryana* and *T. latifolia* are represented by two polygons within wetland A-5 (*T. latifolia* is the polygon further from the stream). On the left bank around Station 82+00, *C. terniflora* is represented by a polygon bordering the easement. All other polygons represent *R. multiflora*. Additionally, during the end of year site walk in December, it was noted that vegetation was being cut within the easement on both banks from the beginning of Reach B to approximately Station 1520+00. EEP was notified of this cutting and is aware that this vegetation maintenance is occurring due to a 2013 agreement between NCDOT and the landowner.

2.3 STREAM

Fourth-year monitoring found the Valley Fields Farm streams to be stable, with only minor changes from the previous monitoring conditions. One new beaver dam (Stationing 98+00) has been noted on the site since beaver dam removal was completed during MY-03. Reaches A and B both still show the effects of these beaver dams along their lengths, but are significantly improved from the previous monitoring year. Several structures buried under impounded sediment last year have been uncovered, many of the large point bars formed within the channel have begun washing out and areas of severe aggradation are beginning to trend back towards their baseline condition. Areas of bank scour and erosion noted in previous monitoring years are still present but show similar levels of improvement and are all trending towards stability. Please see Appendix B Stream Problem Area Photos. These areas will continue to be watched closely in Monitoring Year Five. The longitudinal and cross-section data reflect the overall stability of the site. Areas of aggradation noted in last year's monitoring report have not shown signs of

worsening, and in many cases have washed out completely. These yearly fluctuations are to be expected in a sandy system, such as the Valley Fields Farm Site, and as a whole the site appears to be stable and trending towards success. As a part of the stream success criteria, the stream must experience at least two bankfull events, each in separate monitoring years. The site has experienced multiple bankfull events since construction. See Appendix E for verification of bankfull events. Summary information/data related to the occurrence of items such as beaver or encroachment and statistics related to performance of various project and monitoring elements can be found in the tables and figures in the report appendices. Stream centerlines for tributaries D through N provided by EEP. Narrative background and supporting information formerly found in these reports can be found in the Baseline Monitoring Report and in the Mitigation Plan documents available on the EEP's website. All raw data supporting the tables and figures in the appendices are available from EEP upon request.

2.4 WETLANDS

During the fourth monitoring year, wetlands on the site were investigated for the purpose of confirming delineations performed at the beginning of the project. This investigation followed the routine wetland determination procedure outlined in the 1987 COE Wetlands Delineation Manual. The results of this investigation found Wetlands A-7, B-2, and B-3 to no longer be present. The boundaries of Wetlands A-8, B-1, and D-1 were also adjusted using the data collected from this investigation. This resulted in a decrease of 1.03 acres of wetland preservation and 1.13 acres of wetland enhancement from the original assests. For more information see Table 1. Project Components, the Current Condition Plan View, and Appendix F.

3.0 REFERENCES

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. Technical Report Y-87-1. (http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf)

Lee, M.T., R.K. Peet, S.D. Roberts, and T.R. Wentworth. 2006. CVS-EEP Protocol for Recording Vegetation, Version 4.0 (http://cvs.bio.unc.edu/methods.htm)

NCEEP. 2009. Upper Yadkin River Basin Restoration Priorities. (http://portal.ncdenr.org/c/document_library/get_file?uuid=7f49dbf7-ac1f-4d56-83d6-8ab892d5c672&groupId=60329)

USACE. 2003. Stream Mitigation Guidelines. USACE, NCDENR-DWQ, USEPA, NCWRC.

APPENDIX A – PROJECT VICINITY MAP AND BACKGROUND TABLES

FIGURE 1. SITE VICINITY MAP

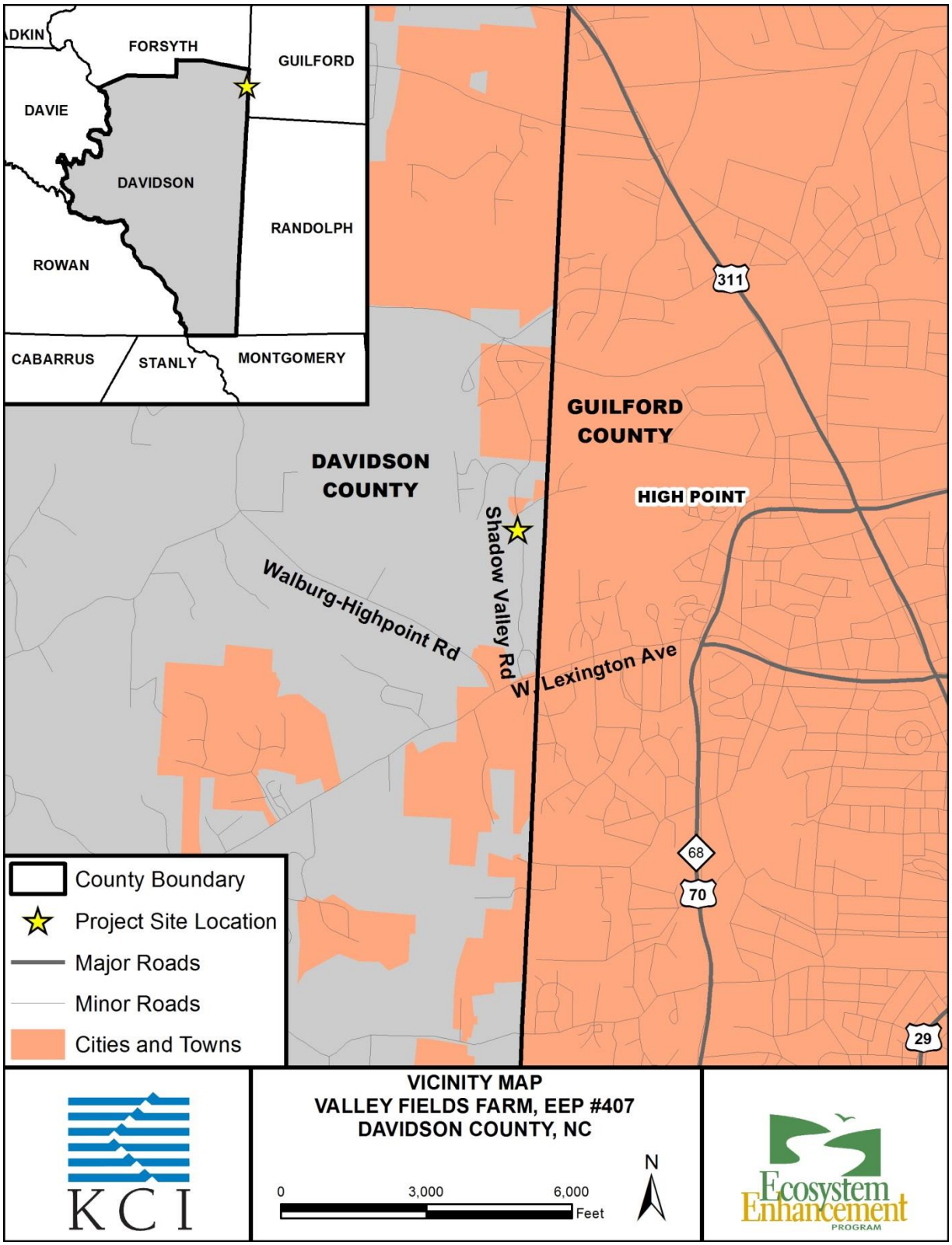


FIGURE 2. MITIGATION PLANVIEW

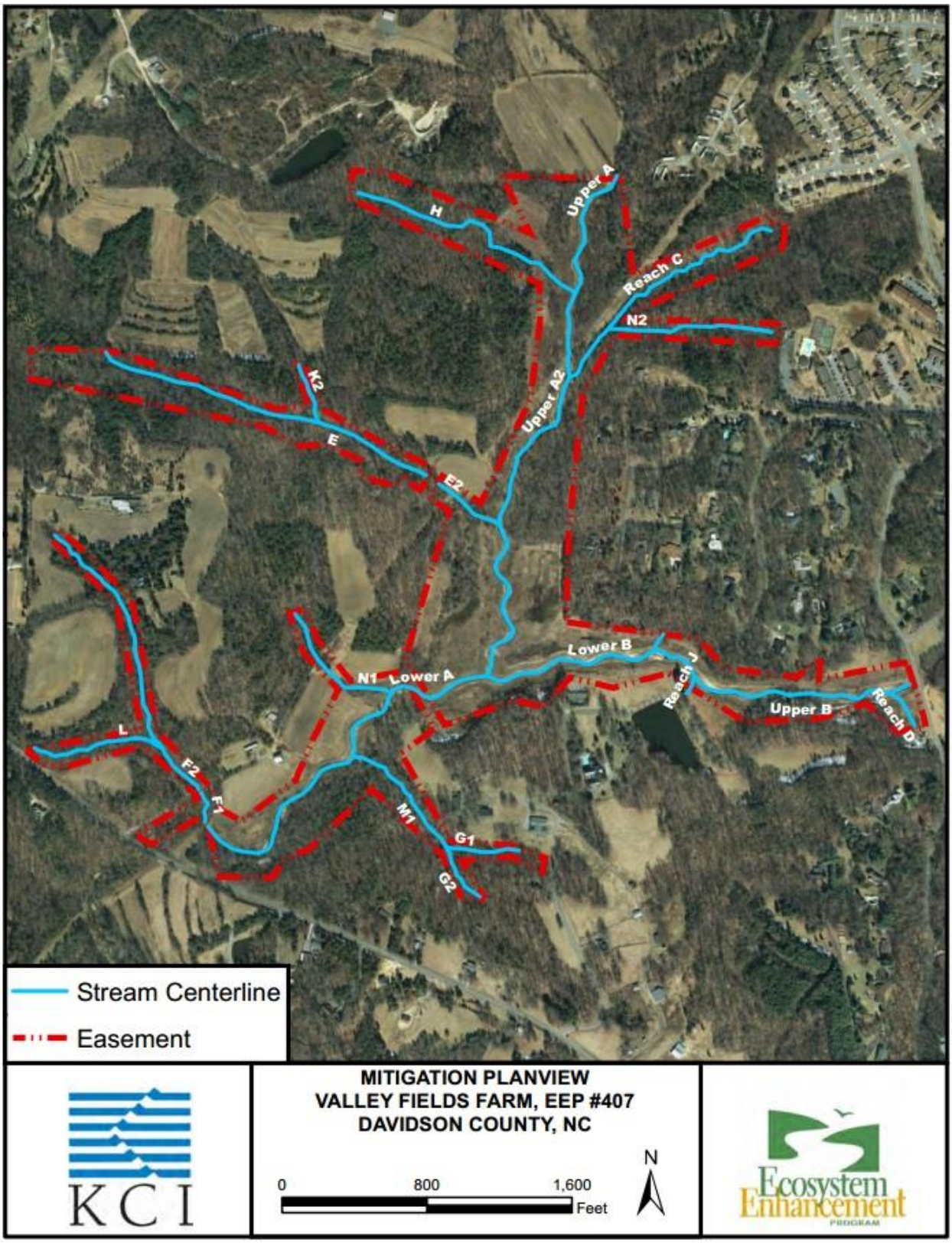


TABLE 1. PROJECT COMPONENTS

Mitigation Credits									
	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	R	RE	R	RE	R	RE			
LF/Acres	10,071	8,730	3.1	5.5	-	-	-	-	-
Credits	10,071	1,746	3.1	2.2	-	-	-	-	-
TOTAL CREDITS	11,817		5.3		-		-	-	-

Project Components						
Project Component - or - Reach ID	**Stationing/ Location**	**Existing Footage/ Acreage**	**Approach (PI, PII, etc.)**	**Restoration - or - Restoration Equivalent**	**Restoration Footage or Acreage**	**Mitigation Ratio**
Upper A	50+00 – 80+78	3,100	P2	Restoration	3,078	1:1
Lower A	80+78 – 100+13	2,284	P2	Restoration	1,935	1:1
Reach B	1500+00 – 1524+92	2,550	P2	Restoration	2,492	1:1
Reach C	1000+00 – 1014+89	1,560	P1	Restoration	1,489	1:1
Reach D	200+00 – 202+95	240	P1	Restoration	295	1:1
Reach J (Pond Tributary)	350+00 – 350+61	61	P2	Restoration	61	1:1
Reach A	100+13 – 102+89	276	-	Restoration	276	1:1
Reach E	-	2,930	-	Preservation	2,930	5:1
Reach F	-	1,840	-	Preservation	1,840	5:1
Reach G	-	1,200	-	Preservation	1,200	5:1
Reach H	-	1,400	-	Preservation	1,400	5:1
Reach K	-	240	-	Preservation	240	5:1
Reach L	-	700	-	Preservation	700	5:1
Reach M	-	420	-	Preservation	420	5:1
Wetland A-5	-	-	-	Restoration	3.00	1:1
Wetland A-4	-	-	-	Restoration	0.10	1:1
Wetland B-1	-	0.10	-	Enhancement	0.02	2:1
Wetland B-2	-	0.70	-	Enhancement	-	2:1
Wetland B-3	-	0.20	-	Enhancement	-	2:1
Wetland D-1	-	0.20	-	Enhancement	0.05	2:1
Wetland A-6	-	1.70	-	Enhancement	1.70	2:1
Wetland A-4	-	1.80	-	Enhancement	1.80	2:1
Wetland A-3	-	0.20	-	Enhancement	0.20	2:1
Wetland A-1	-	0.60	-	Preservation	0.60	5:1
Wetland A-2	-	0.50	-	Preservation	0.50	5:1
Wetland A-7	-	0.40	-	Preservation	-	5:1
Wetland A-8	-	1.20	-	Preservation	0.57	5:1

Component Summation						
Restoration Level	**Stream (linear feet)**	**Riparian Wetland (acres)**		**Non-riparian Wetland (acres)**	**Buffer (acres)**	**Upland (acres)**
		Riverine	Non-riverine			
Restoration	10,071	3.1	-	-	-	-
Enhancement		3.8	-	-	-	-
Enhancement I	-					
Enhancement II	-					
Creation		-	-	-	-	-
Preservation	8,730	1.7	-	-	-	-
High Quality Preservation	-	-	-	-	-	-
TOTAL	18,801	8.6	-	-	-	-

TABLE 2. PROJECT ACTIVITY AND REPORTING HISTORY

Elapsed Time Since Grading Complete: 6 yrs 7 months
Elapsed Time Since Planting Complete: 6 yrs 7 months
Number of Reporting Years: 1

Activity or Report	**Data Collection Complete**	**Actual Completion or Delivery**
Mitigation Plan	N/A	3/1/2006
Final Design – Construction Plans	N/A	1/31/2007
Construction	N/A	5/16/2008
Planting	N/A	5/16/2008
Repair	N/A	11/15/2008
Baseline Monitoring/Report	6/1/2009	8/17/2009
Year 1 Monitoring	10/15/2010	3/28/2011
Year 2 Monitoring	11/4/2010	12/15/2011
Year 3 Monitoring	12/6/2013	1/23/2014
Year 4 Monitoring	6/17/2014	12/2014
Year 5 Monitoring		

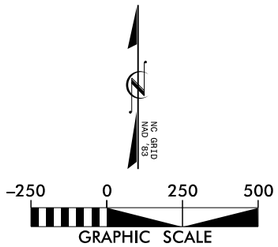
TABLE 3. PROJECT CONTACTS

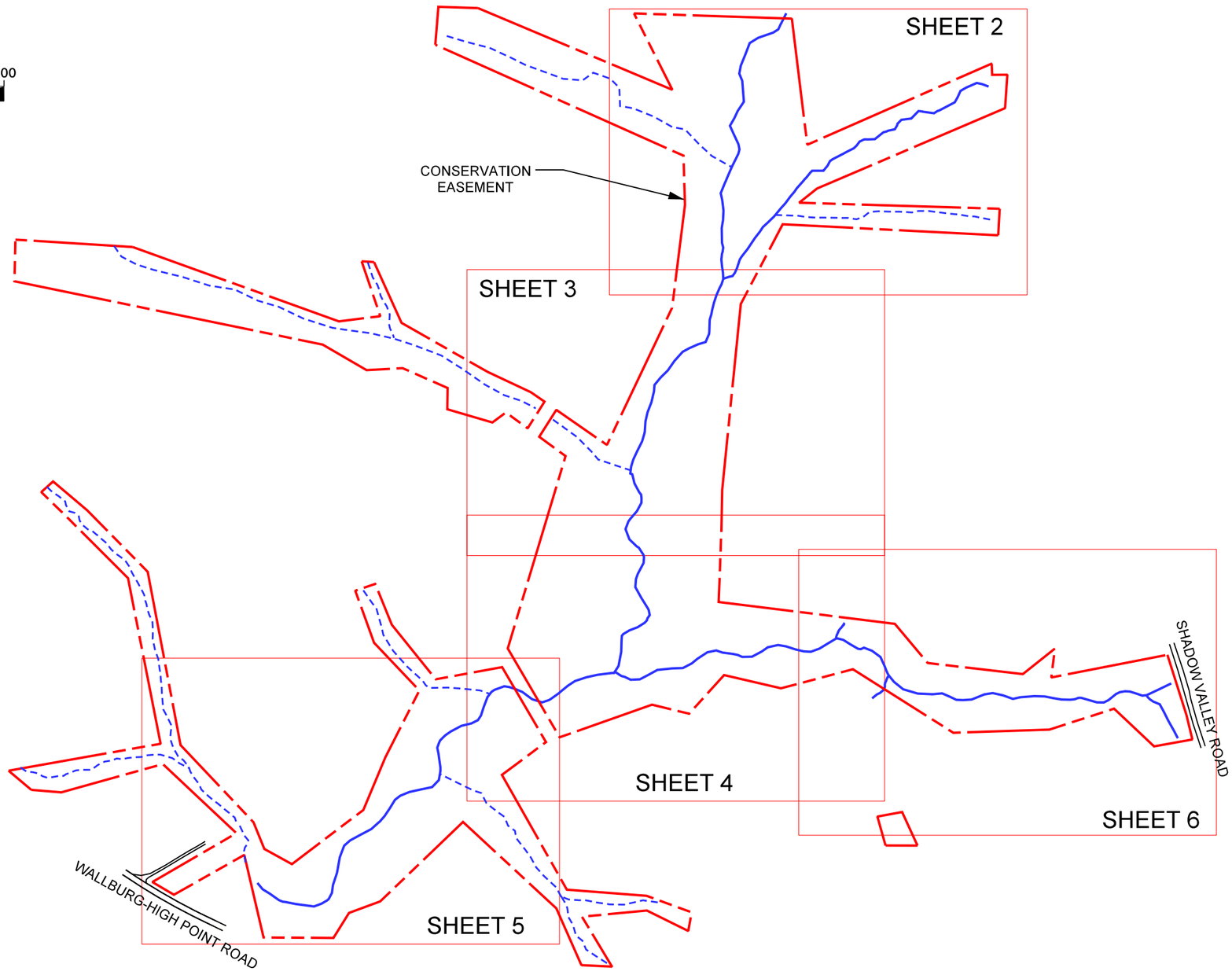
Design Firm	Kimley-Horn and Associates, Inc. P.O. Box 33068 Raleigh, North Carolina 27636 Phone: (704)333-5131
Construction Contractor	North State Environmental 2889 Lowery Street Winston-Salem, NC 27101 Phone: (336)725-2010
Planting Contractor	North State Environmental 2889 Lowery Street Winston-Salem, NC 27101 Phone: (336)725-2010
Monitoring Performers	
MY01-02	Kimley-Horn and Associates, Inc. P.O. Box 33068 Raleigh, North Carolina 27636 Phone: (704)333-5131
MY03-MY04	KCI Associates of North Carolina, PA Landmark Center II, Suite 220 4601 Six Forks Rd. Raleigh, NC 27609 Contact: Mr. Adam Spiller Phone: (919) 278-2514 Fax: (919) 783-9266

TABLE 4. PROJECT ATTRIBUTE TABLE

Project County	Davidson County					
Physiographic Region	Piedmont					
Ecoregion	Southern Outer Piedmont					
River Basin	Yadkin					
USGS HUC	3040103030030					
NCDWQ Sub-Basin	Yadkin Sub Basin					
Within Extent of EEP Watershed Plan	Upper Yadkin River Basin Restoration Priorities 2009					
WRC Class	Cool					
% of Project Easement Demarcated	0%					
Beaver Activity Observed During Design Phase	Yes					
Restoration Component Attributes						
	Reach A	Reach B	Reach C	Reach D	Reach J	Wetland A-5
Drainage Area (sq.mi.)	6.5	2.3	0.2	0.2	0.1	N/A
Stream Order	3	2	1	1	1	N/A
Restored Length (feet)	5660	2492	1489	295	61	N/A
Perennial or Intermittent	P	P	P	P	P	N/A
Watershed Type	Developing	Developing	Developing	Developing	Developing	N/A
Watershed LULC Distribution						
Forest/Wetland	43%					
Cultivated	22%					
Developed	35%					
Watershed Impervious Cover	47%	23.5	1.9	1	1	N/A
NCDWQ AU/Index Number	C/3	C/2	C/1	C/1	C/1	N/A
NCDWQ Classification	C	C	C	C	C	N/A
303d Listed	Yes	Yes	Yes	Yes	Yes	N/A
Upstream of 303d Listed Segment	Yes	Yes	Yes	Yes	Yes	N/A
Reasons for 303d Listing or Stressor	Degraded water quality due to sediment					
Total Acreage of Easement	31.0	8.5	2.3	0.5	0.1	N/A
Total Vegetated Acreage within Easement	22.4	6.9	1.7	0.4	0.1	N/A
Total Planted Acreage as Part of Restoration	22.4	6.9	1.7	0.4	0.08	N/A
Rosgen Classification of Pre-Existing	G5	G5	Incised B5	Incised B5	G	N/A
Rosgen Classification of As-Built	B5	B5c	C5	B5c	Ba	N/A
Valley Type	VIII	VIII	VIII	VIII	VIII	N/A
Valley Slope	0.003	0.005	0.011	0.011	0.15	N/A
Valley Side Slope Range	15-20%	12-20%	15-40%	25-30%	30-35%	N/A
Valley Toe Slope Range	2-3%	1-3%	3-5%	10-14%	1-2%	N/A
Cowardin Classification	N/A	N/A	N/A	N/A	N/A	NC
Trout Waters Designation	No	No	No	No	No	N/A
Species of Concern, Endangered, Etc.	Greensboro burrowing crayfish is of concern					
Dominant Soil Series and Characteristics	Chewacla loam and Wehadkee loam					
Series	N/A	N/A	N/A	N/A	N/A	ChA
Depth	N/A	N/A	N/A	N/A	N/A	80"
Clay%	N/A	N/A	N/A	N/A	N/A	5-40%
K	N/A	N/A	N/A	N/A	N/A	0.28
T	N/A	N/A	N/A	N/A	N/A	5

APPENDIX B – VISUAL ASSESMENT DATA





REVISIONS

DESCRIPTION	DATE

Ecosystem Enhancement Program

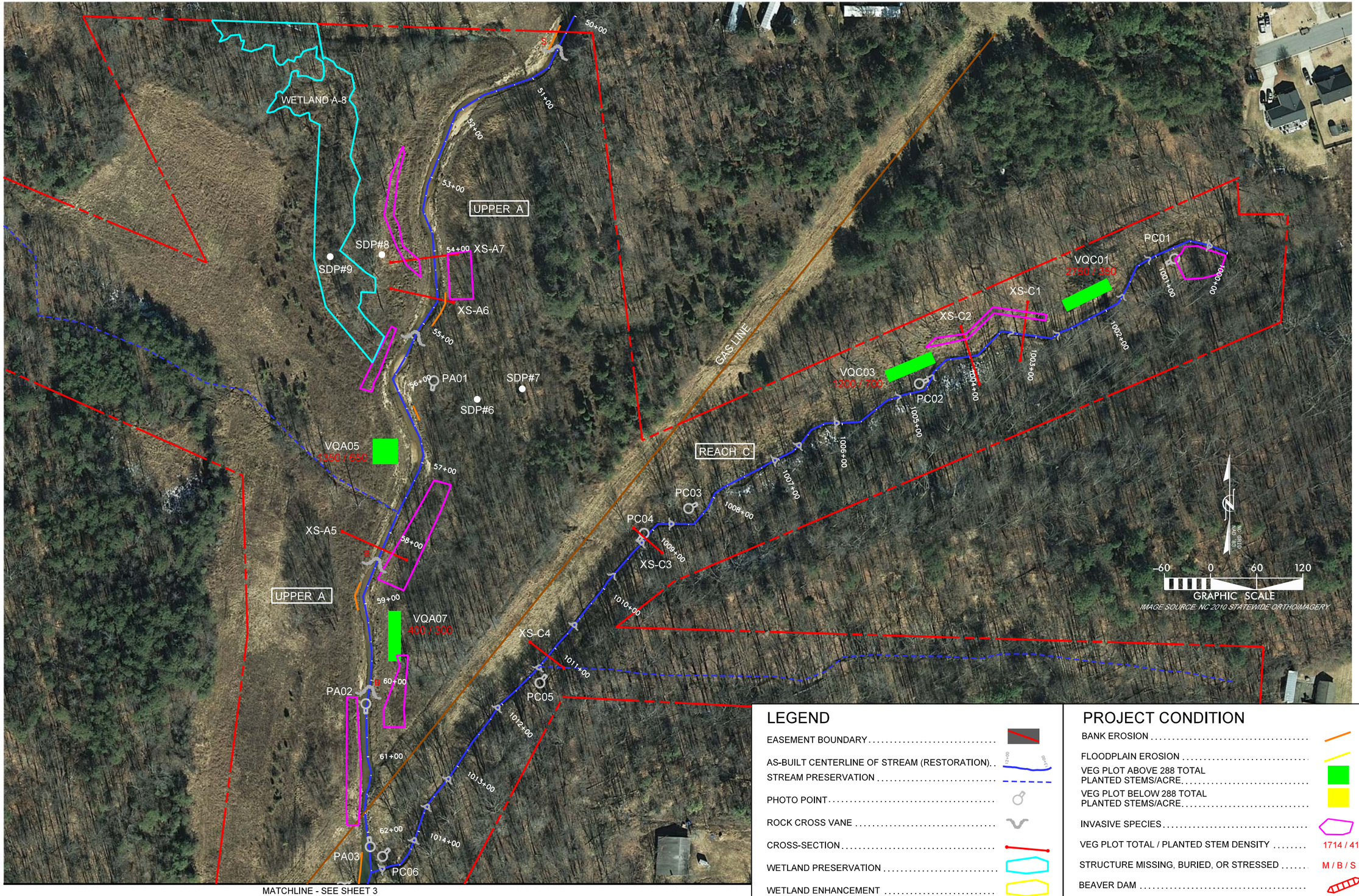
KCI TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS
460 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

VALLEY FIELDS FARM
STREAM & WETLAND RESTORATION PROJECT
(MONITORING YEAR 4)
DAVIDSON COUNTY, NORTH CAROLINA

DATE: NOV 2014
SCALE: GRAPHIC

CURRENT
CONDITION
PLAN VIEW

SHEET 1 OF 6



LEGEND

- EASEMENT BOUNDARY
- AS-BUILT CENTERLINE OF STREAM (RESTORATION)
- STREAM PRESERVATION
- PHOTO POINT
- ROCK CROSS VANE
- CROSS-SECTION
- WETLAND PRESERVATION
- WETLAND ENHANCEMENT
- WETLAND RESTORATION
- EASEMENT ENCROACHMENT

PROJECT CONDITION

- BANK EROSION
- FLOODPLAIN EROSION
- VEG PLOT ABOVE 288 TOTAL PLANTED STEMS/ACRE
- VEG PLOT BELOW 288 TOTAL PLANTED STEMS/ACRE
- INVASIVE SPECIES
- VEG PLOT TOTAL / PLANTED STEM DENSITY — 1714 / 414
- STRUCTURE MISSING, BURIED, OR STRESSED — M / B / S
- BEAVER DAM
- BLUE=ACHIEVING HYDROLOGIC CRITERION
  RED=BELOW HYDROLOGIC CRITERION
- SOIL DATA POINT (SDP)

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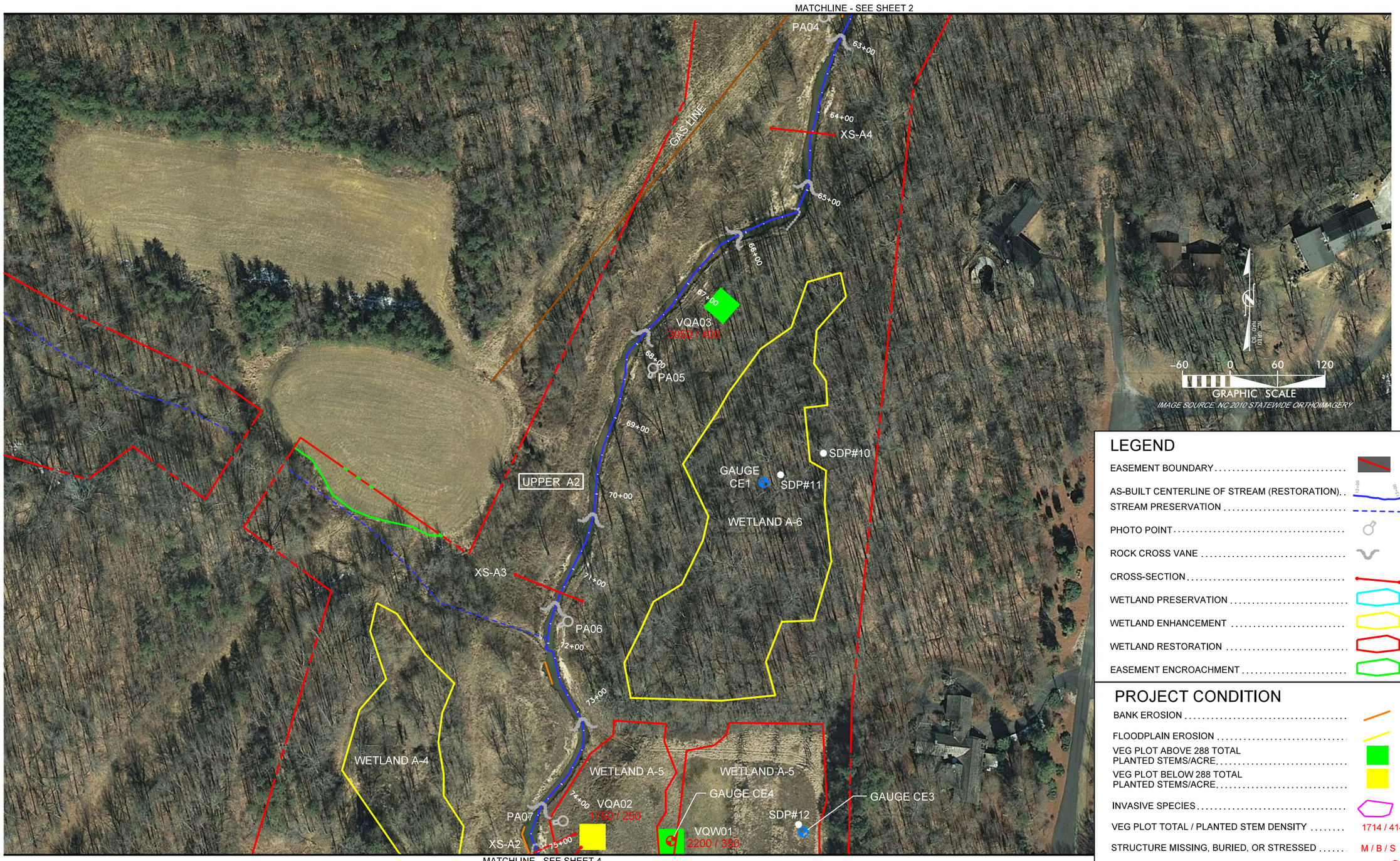
SHEET 2 OF 6



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CURRENT CONDITION PLAN VIEW

SHEET 3 OF 6

MATCHLINE - SEE SHEET 3

XS-A2
XS-A1
PA08
SDP#13
VQA08
2000 / 400
VQW04
1650 / 343
GAUGE CE6
UPPER A2
HERBACEOUS THINNING
TO SHADOW VALLEY RD.
(MY04)
WETLAND B-1
SDP#2
UTILITY LINE
VQB03
2000 / 650
WETLAND A-4
LOWER B
PA09
PB07
PB08
SMALL HEADCUT
FORMING AT
TERRACE SLOPE
WETLAND A-3
VQA01
1900 / 750
PA10
PA11
PB11
PB10
PB09
XS-B4
XS-B3
VQA11
800 / 300
PA13
VQB06
1400 / 400
PA12
LOWER A
VQA12
2400 / 400
WETLAND
A-2
MATCHLINE - SEE SHEET 5
MATCHLINE - SEE SHEET 6
NC GRID
NAD 83
–60 0 60 120
GRAPHIC SCALE
IMAGE SOURCE: NC 2010 STATEWIDE ORTHOIMAGERY

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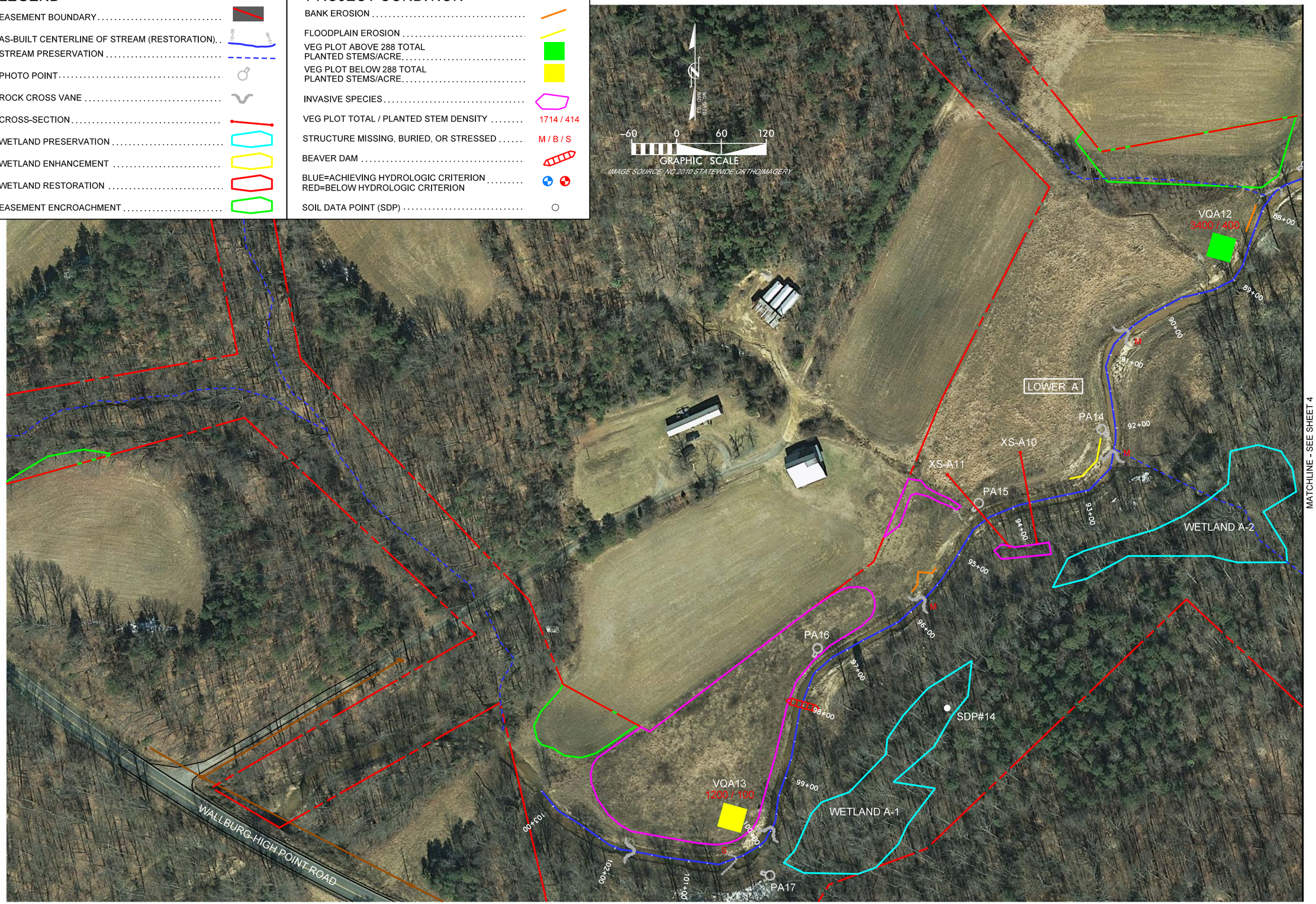

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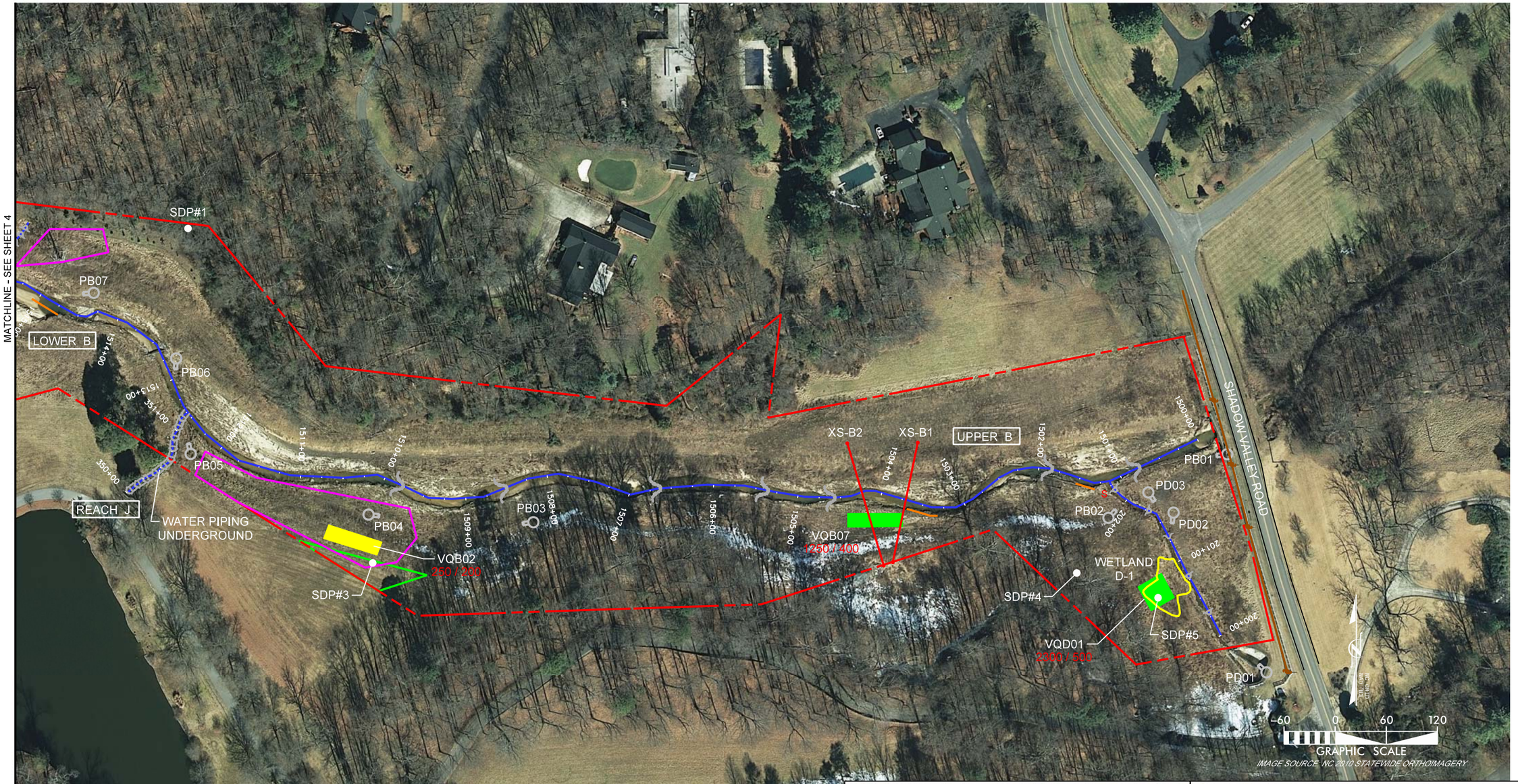

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- VEG PLOT ABOVE 288 TOTAL PLANTED STEMS/ACRE
- VEG PLOT BELOW 288 TOTAL PLANTED STEMS/ACRE
- INVASIVE SPECIES
- VEG PLOT TOTAL / PLANTED STEM DENSITY — 1714 / 414
- STRUCTURE MISSING, BURIED, OR STRESSED — M / B / S
- BEAVER DAM
- BLUE=ACHIEVING HYDROLOGIC CRITERION RED=BELOW HYDROLOGIC CRITERION
- SOIL DATA POINT (SDP)

SYM.	DESCRIPTION	DATE
	REVISIONS	

Ecosystem Enhancement Program

KCI TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS
460I SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

VALLEY FIELDS FARM
STREAM & WETLAND RESTORATION PROJECT (MONITORING YEAR 4)
DAVIDSON COUNTY, NORTH CAROLINA

DATE: NOV 2014
SCALE: GRAPHIC

CURRENT CONDITION PLAN VIEW

TABLE 5. VISUAL STREAM MORPHOLOGY STABILITY ASSESMENT

Project Number and Name: 407 - Valley Fields Farm							
	Assessed Length 1,250		Reach - Upper A				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	5			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	2	5			40%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	2	5			40%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	5	5			100%
		2. Thalweg centering at downstream of meander (Glide)	5	5			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			4	65	97%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	4	65	97%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	4	4			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	4	4			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	4	4			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	3	4			75%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	2	4			50%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	2,050	Reach - Upper A2					
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	20			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	11	20			55%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	11	20			55%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	20	20			100%
		2. Thalweg centering at downstream of meander (Glide)	20	20			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			4	150	96%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	4	150	96%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	13	13			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	13	13			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	13	13			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	13	13			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	13	13			100%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	2,000		Reach - Lower A				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	10			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	0	10			0%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	0	10			0%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	9	10			90%
		2. Thalweg centering at downstream of meander (Glide)	9	10			90%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			4	100	98%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	4	100	98%
3. Engineered Structures **	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	6	6			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	6	6			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	6	6			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	6	6			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	2	6			33%

*=sand based system lacking identifiable riffles

**=Though present, several of these structures have been buried by sand due to a history of beaver dams trapping sediment in this reach

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	1,275	Reach - Upper B					
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	2			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	2	2			100%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	2	2			100%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	2	2			100%
		2. Thalweg centering at downstream of meander (Glide)	2	2			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			2	61	98%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	2	61	98%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	2	2			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	2	2			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	2	2			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	2	2			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	2	2			100%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	1,275		Reach - Lower B				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	2			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	0	2			0%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	0	2			0%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	2	2			100%
		2. Thalweg centering at downstream of meander (Glide)	2	2			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			3	105	96%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	3	105	96%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	1	1			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	1	1			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	1	1			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	1	1			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	1	1			100%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	1,500		Reach - C				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	24			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	1	24			4%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	1	24			4%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	24	24			100%
		2. Thalweg centering at downstream of meander (Glide)	24	24			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	0	0	100%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	17	17			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	17	17			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	17	17			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	17	17			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	17	17			100%

*=sand based system lacking identifiable riffles

TABLE 6. VEGETATION CONDITION ASSESMENT

Table 6. Vegetation Condition Assessment
Project Number and Name: 407 - Valley Fields Farm

Planted Acreage 81.9 **Easement Acreage 97.5**

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Planted Acreage
1. Bare Areas	Very limited cover of both woody and herbaceous material.	0.1 acre	Pattern and Color	0	0.00	0.0%
2. Low Stem Density Areas	Woody stem densities clearly below target levels based on MY3, 4, or 5 stem count criteria.	0.1 acre	Pattern and Color	0	0.00	0.0%
			Total	0	0.00	0.0%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year.	0.25 acre	Pattern and Color	0	0.00	0.0%
			Cumulative Total	0	0.00	0.0%
4. Invasive Areas of Concern	Areas or points (if too small to render as polygons at map scale).	1,000 SF	Purple Polygon	16	1.20	1.2%
5. Easement Encroachment Areas	Areas or points (if too small to render as polygons at map scale).	none	Green Polygon	7	1.50	1.5%

STREAM AND WETLAND PHOTOS

PA 01 – 12/18/2014

PA 02 – 12/18/2014

PA 03 – 12/18/2014

PA 04 – 12/18/2014

PA 05 – 12/18/2014

PA 06 – 12/18/2014

PA 07 – 12/18/2014

PA 08 – 12/18/2014

PA 09 – 12/18/2014

PA 10 – 12/18/2014

PA 11 – 12/18/2014

PA 12 – 12/18/2014

PA 13 – 12/18/2014

PA 14 – 12/18/2014

PA 15 – 12/18/2014

PA 16 – 12/18/2014

PA 17 – 12/18/2014

PB 01 – 12/18/2014

PB 02 – 12/18/2014

PB 03 – 12/18/2014

PB 04 – 12/18/2014

PB 05 – 12/18/2014

PB 06 – 12/18/2014

PB 07 – 12/18/2014

PB 08 – 12/18/2014

PB 09 – 12/18/2014

PB 10 – 12/18/2014

PB 11 – 12/18/2014

PC 01 – 12/18/2014

PC 02 – 12/18/2014

PC 03 – 12/18/2014

PC 04 – 12/18/2014

PC 05 – 12/18/2014

PC 06 – 12/18/2014

PD 01 – 12/18/2014

PD 02 – 12/18/2014

PD 03 – 12/18/2014

STREAM PROBLEM AREA PHOTOS

Bank erosion (Station 55+00) – 12/18/2014

Thalweg shift (Station 84+00) – 12/18/2014

Bank erosion (Station 95+75) – 12/18/2014

Beaver dam (Station 98+00) – 12/4/2014

Bank erosion (Station 1515+00) and deposition (typical along Reaches A and B) – 12/18/2014

VEGETATION PLOT PHOTOS

Plot VQA01 – 6/17/2014

Plot VQA05 – 6/17/2014

Plot VQA02 – 6/17/2014

Plot VQA07 – 6/17/2014

Plot VQA03 – 6/17/2014

Plot VQA08 – 6/12/2014

Plot VQA11 – 6/12/2014

Plot VQB02 – 6/17/2014

Plot VQA12 – 6/12/2014

Plot VQB03 – 6/17/2014

Plot VQA13 – 6/12/2014

Plot VQB06 – 6/17/2014

Plot VQB07 – 6/17/2014

Plot VQD01 – 6/17/2014

Plot VQC01 – 6/12/2014

Plot VQW01 – 6/17/2014

Plot VQC03 – 6/12/2014

Plot VQW04 – 6/17/2014

APPENDIX C – VEGETATION PLOT DATA

TABLE 7. VEGETATION PLOTS WOODY STEM SUCCESS CRITERIA ATTAINMENT TABLE

Success Criteria Achieved/Number of Planted Stems per Acre					
Plot Name	MY-01 (2010)	MY-02 (2011)	MY-03 (2013)	MY-04 (2014)	MY-05 (2015)
VQA1	No	Yes	No/0	No/243	
VQA2	No	No	No/150	No/202	
VQA3	No	No	No/50	Yes/324	
VQA5	Yes	Yes	No/300	Yes/648	
VQA7	No	Yes	No/250	No/243	
VQA8	No	No	Yes/400	Yes/324	
VQA11	Yes	Yes	No/300	No/243	
VQA12	No	Yes	Yes/400	Yes/324	
VQA13	Yes	Yes	No/100	No/81	
VQB2	No	No	No/200	No/162	
VQB3	Yes	Yes	Yes/450	Yes/526	
VQB6	No	No	No/300	Yes/324	
VQB7	No	Yes	Yes/350	Yes/324	
VQC1	Yes	Yes	Yes/400	No/283	
VQC3	Yes	Yes	Yes/700	Yes/567	
VQD1	No	No	No/150	Yes/445	
VQW1	Yes	Yes	No/300	No/283	
VQW4	No	No	No/300	No/283	

TABLE 8. VEGETATION PLOT SAMPLING METADATA

Report Prepared By	Dale Prihoda
Date Prepared	6/20/2014 9:06
database name	ValleyFields-KCI-2013-A.mdb
database location	M:\2013\16133830_Valley Fields Monitoring
computer name	12-3ZV4FP1
file size	46272512
DESCRIPTION OF WORKSHEETS IN THIS DOCUMENT----------	
Metadata	Description of database file, the report worksheets, and a summary of project(s) and project data.
Proj, planted	Each project is listed with its PLANTED stems per acre, for each year. This excludes live stakes.
Proj, total stems	Each project is listed with its TOTAL stems per acre, for each year. This includes live stakes, all planted stems, and all natural/volunteer stems.
Plots	List of plots surveyed with location and summary data (live stems, dead stems, missing, etc.).
Vigor	Frequency distribution of vigor classes for stems for all plots.
Vigor by Spp	Frequency distribution of vigor classes listed by species.
Damage	List of most frequent damage classes with number of occurrences and percent of total stems impacted by each.
Damage by Spp	Damage values tallied by type for each species.
Damage by Plot	Damage values tallied by type for each plot.
Planted Stems by Plot and Spp	A matrix of the count of PLANTED living stems of each species for each plot; dead and missing stems are excluded.
ALL Stems by Plot and spp	A matrix of the count of total living stems of each species (planted and natural volunteers combined) for each plot; dead and missing stems are excluded.
Project Code	407
project Name	Valley Fields Farm
Description	Stream and Wetland Restoration
River Basin	Yadkin-Pee Dee
Sampled Plots	18

TABLE 9. TOTAL AND PLANTED STEM COUNT BY PLOT AND SPECIES

EEP Project Code 407. Project Name: Valley Fields Farm			Current Plot Data (MY4 2014)																												
			407-01-VQA01			407-01-VQA02			407-01-VQA03			407-01-VQA05			407-01-VQA07			407-01-VQA08			407-01-VQA11			407-01-VQA12			407-01-VQA13			407-01-VQB02		
Scientific Name	Common Name	Species Type	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer floridanum	Florida Maple	Tree																													
Acer negundo	boxelder	Tree			1	2	2	11	2	2	5				1	1	2	1	1	24	2	2	4	1	1	8			1			
Acer rubrum	red maple	Tree															1														
Acer saccharinum	silver maple	Tree																													
Aesculus flava	yellow buckeye	Tree									16																				
Aesculus sylvatica	painted buckeye	Shrub																													
Albizia julibrissin	silktree	Exotic																													
Alnus serrulata	hazel alder	Shrub	5	5	5										2	2	2														
Aronia arbutifolia	Red Chokeberry	Shrub																						1	1	1					
Asimina triloba	pawpaw	Tree																													
Betula nigra	river birch	Tree							1	1	7				1	1	1														
Carpinus caroliniana	American hornbeam	Tree																													
Celtis laevigata	sugarberry	Tree									1																				
Cephalanthus occidentali	common buttonbush	Shrub																												1	
Cercis canadensis	eastern redbud	Tree																													
Cornus amomum	silky dogwood	Shrub	3	3	3													1	1	1				3	3	4					
Corylus americana	American hazelnut	Shrub							2	2	7	1	1	1				2	2	2											
Diospyros virginiana	common persimmon	Tree							1	1	1			2										1	1	1	2	2	6	1	1	1
Elaeagnus umbellata	autumn olive	Exotic												1																	
Fagus grandifolia	American beech	Tree									2																				
Fraxinus pennsylvanica	green ash	Tree	3	2	16	3	3	21			1	2	2	2						3	4	4	9	1	1	6			14			
Hamamelis virginiana	American witchhazel	Tree																		1											
Juglans nigra	black walnut	Tree									1			2				2	2	5											
Juniperus virginiana	eastern redcedar	Tree									1															2			2			
Lindera benzoin	northern spicebush	Shrub									15																				
Liquidambar styraciflua	sweetgum	Tree			2															2			3			45			1			
Liriodendron tulipifera	tuliptree	Tree																						1	1	1					
Nyssa sylvatica	blackgum	Tree																													
Pinus taeda	loblolly pine	Tree						1																							
Platanus occidentalis	American sycamore	Tree	1	1	6							11	11	20	2	2	2	2	2	2											
Pyrus calleryana	Callery pear	Exotic																													
Quercus lyrata	overcup oak	Tree																												1	1	1
Quercus phellos	willow oak	Tree							2	2	2	1	1	1																	
Quercus rubra	northern red oak	Tree									1																				
Salix nigra	black willow	Tree	1	1	2							1	1	1																	
Salix sericea	silky willow	Shrub	2	2	2																										
Ulmus alata	winged elm	Tree																												2	2	2
Ulmus americana	American elm	Tree																														1
Ulmus parvifolia	Chinese elm							2																								
	Stem count		15	14	37	5	5	35	8	8	60	16	16	30	6	6	8	8	8	40	6	6	16	8	8	68	2	2	25	4	4	5
	size (ares)		1			1			1			1			1			1			1			1			1			1		
	size (ACRES)		0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
	Species count		6	6	8	2	2	4	5	5	13	5	5	8	4	4	5	5	5	8	2	2	3	6	6	8	1	1	6	3	3	4
	Stems per ACRE		607	567	1,497	202	202	1,416	324	324	2,428	647	647	1,214	243	243	324	324	324	1,619	243	243	647	324	324	2,752	81	81	1,012	162	162	202

EEP Project Code 407. Project Name: Valley Fields Farm			Current Plot Data (MY4 2014)																						Annual Means					
			407-01-VQB03			407-01-VQB06			407-01-VQB07			407-01-VQC01			407-01-VQC03			407-01-VQD01			407-01-VQW01			407-01-VQW04			MY4 (2014)			MY3 (2013)		
Scientific Name	Common Name	Species Type	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer floridanum	Florida Maple	Tree						2												1								3			
Acer negundo	boxelder	Tree				5	5	25			1									4			9			6	14	14	101	9	9	48
Acer rubrum	red maple	Tree												4														5			5
Acer saccharinum	silver maple	Tree																								1			1			
Aesculus flava	yellow buckeye	Tree																										16			
Aesculus sylvatica	painted buckeye	Shrub																													9
Albizia julibrissin	silktree	Exotic																													1
Alnus serrulata	hazel alder	Shrub	1	1	1										6	6	7										14	14	15	8	8	8
Aronia arbutifolia	Red Chokeberry	Shrub																									1	1	1			
Asimina triloba	pawpaw	Tree												1															1			1
Betula nigra	river birch	Tree	5	5	8									4				1	1	1							8	8	21	4	4	11
Carpinus caroliniana	American hornbeam	Tree																													5
Celtis laevigata	sugarberry	Tree																						1	1	1	1	1	2	1	1	2
Cephalanthus occidentali	common buttonbush	Shrub																6	6	6							6	6	7	2	2	2
Cercis canadensis	eastern redbud	Tree									1																		1			1
Cornus amomum	silky dogwood	Shrub	1	1	1																						8	8	9	6	6	6
Corylus americana	American hazelnut	Shrub																									5	5	10	3	3	7
Diospyros virginiana	common persimmon	Tree									1										1	1	4	1	1	1	7	7	17	6	6	13
Elaeagnus umbellata	autumn olive	Exotic																											1			
Fagus grandifolia	American beech	Tree																											2			
Fraxinus pennsylvanica	green ash	Tree	1	1	2	1	1	1						1						1	4	4	25	4	4	22	22	22	124	16	16	80
Hamamelis virginiana	American witchhazel	Tree																			1	1	1				1	1	2	1	1	1
Juglans nigra	black walnut	Tree												2													2	2	10	2	2	7
Juniperus virginiana	eastern redcedar	Tree																											5			2
Lindera benzoin	northern spicebush	Shrub												1															16			14
Liquidambar styraciflua	sweetgum	Tree			7						6			3						24			1						94			74
Liriodendron tulipifera	tuliptree	Tree							1	1	1	1	1	5													3	3	7	3	3	8
Nyssa sylvatica	blackgum	Tree																														1
Pinus taeda	loblolly pine	Tree																											1			1
Platanus occidentalis	American sycamore	Tree	4	4	20				4	4	11			2	3	3	7			3							27	27	73	17	17	65
Pyrus calleryana	Callery pear	Exotic																					2						2			3
Quercus lyrata	overcup oak	Tree	1	1	1				1	1	1																3	3	3	1	1	1
Quercus phellos	willow oak	Tree							1	1	1																4	4	4	2	2	4
Quercus rubra	northern red oak	Tree																											1			
Salix nigra	black willow	Tree										5	5	31	5	5	10	2	2	4							14	14	48	12	12	55
Salix sericea	silky willow	Shrub							1	1	2							2	2	3							5	5	7	2	2	2
Ulmus alata	winged elm	Tree																									2	2	2	2	2	2
Ulmus americana	American elm	Tree				2	2	2				1	1	2							1	1	1	1	1	1	5	5	7	5	5	6
Ulmus parvifolia	Chinese elm																						1						3			1
		Stem count	13	13	40	8	8	30	8	8	25	7	7	56	14	14	24	11	11	47	7	7	44	7	7	32	152	152	622	102	102	446
		size (ares)	1			1			1			1			1			1			1			1			18			18		
		size (ACRES)	0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.44			0.44		
		Species count	6	6	7	3	3	4	5	5	9	3	3	11	3	3	3	4	4	9	4	4	8	4	4	6	20	20	35	19	19	32
		Stems per ACRE	526	526	1,619	324	324	1,214	324	324	1,012	283	283	2,266	567	567	971	445	445	1,902	283	283	1,781	283	283	1,295	342	342	1,398	229	229	1,003

APPENDIX D – STREAM SURVEY DATA

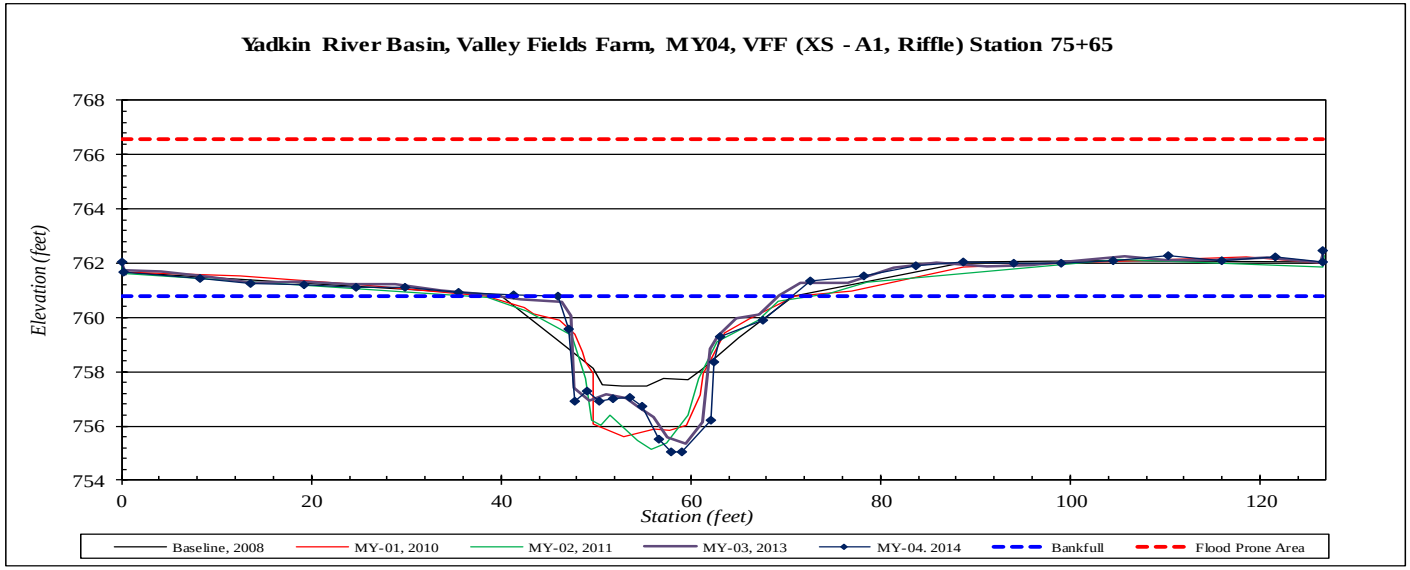
CROSS-SECTION PLOTS

River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A1, Riffle) Station 75+65
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	762.07
0.2	761.69
8.2	761.43
13.6	761.26
19.3	761.22
24.8	761.13
30.0	761.13
35.5	760.93
41.4	760.82
46.1	760.80
47.1	759.56
47.7	756.90
49.0	757.28
50.3	756.93
51.8	757.02
53.5	757.06
54.8	756.71
56.6	755.52
57.9	755.04
59.1	755.06
62.1	756.19
62.4	758.34
63.1	759.28
67.6	759.90
72.5	761.35
78.2	761.54
83.7	761.89
88.7	762.06
94.0	761.98
99.1	762.01
104.6	762.11
110.2	762.29
115.9	762.10
121.5	762.25
126.6	762.03
126.7	762.45

SUMMARY DATA	
Bankfull Elevation:	760.8
Bankfull Cross-Sectional Area:	72.2
Bankfull Width:	23.8
Flood Prone Area Elevation:	766.6
Flood Prone Width:	>120
Max Depth at Bankfull:	5.8
Mean Depth at Bankfull:	3.0
W / D Ratio:	7.8
Entrenchment Ratio:	5.0
Bank Height Ratio:	1.0

Stream Type	C5

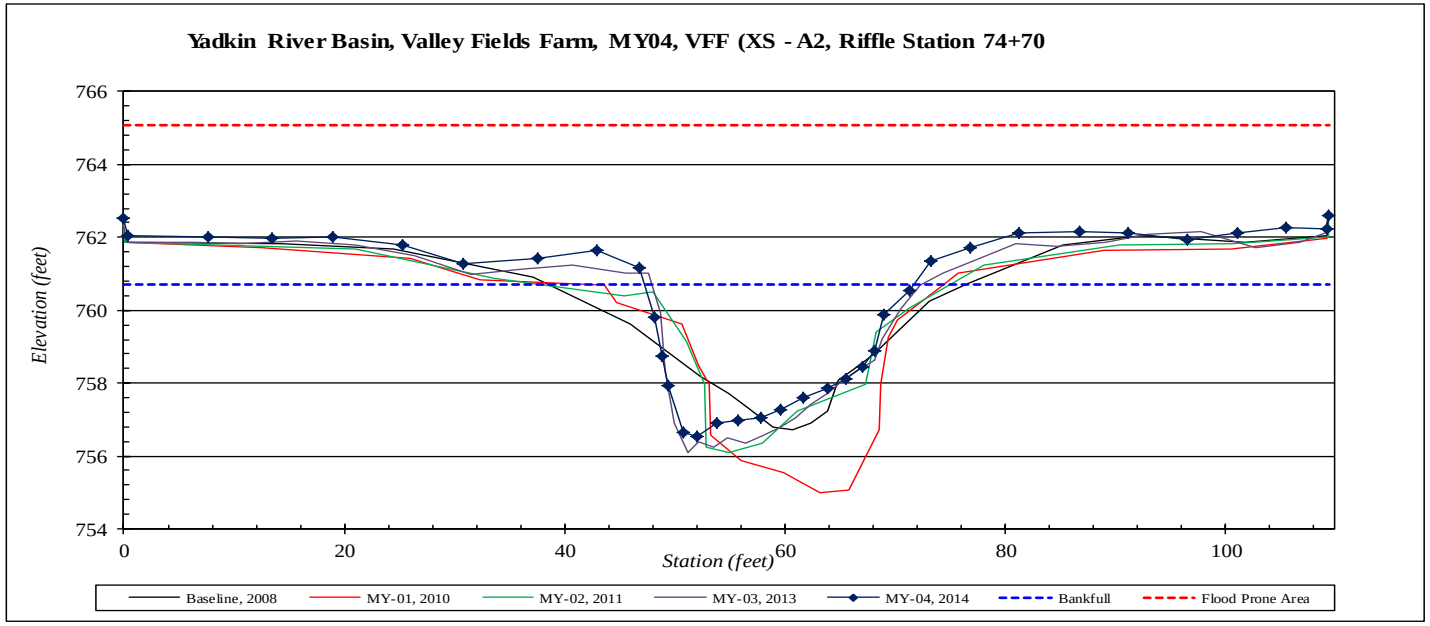


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A2, Riffle Station 74+70
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	762.32
0.4	761.84
7.7	761.82
13.4	761.76
18.9	761.82
25.4	761.59
30.8	761.08
37.6	761.21
43.0	761.45
46.8	760.95
48.2	759.60
48.9	758.56
49.4	757.75
50.8	756.46
52.1	756.34
53.8	756.70
55.7	756.78
57.8	756.85
59.7	757.06
61.8	757.40
63.9	757.67
65.5	757.90
67.1	758.23
68.2	758.70
69.1	759.68
71.3	760.34
73.2	761.16
76.8	761.51
81.2	761.92
86.8	761.94
91.2	761.93
96.6	761.75
101.1	761.94
105.5	762.07
109.2	762.04
109.4	762.41

SUMMARY DATA	
Bankfull Elevation:	760.7
Bankfull Cross-Sectional Area:	66.9
Bankfull Width:	24.4
Flood Prone Area Elevation:	765.1
Flood Prone Width:	>100
Max Depth at Bankfull:	4.4
Mean Depth at Bankfull:	2.7
W / D Ratio:	8.9
Entrenchment Ratio:	4.1
Bank Height Ratio:	1.0

Stream Type	C5

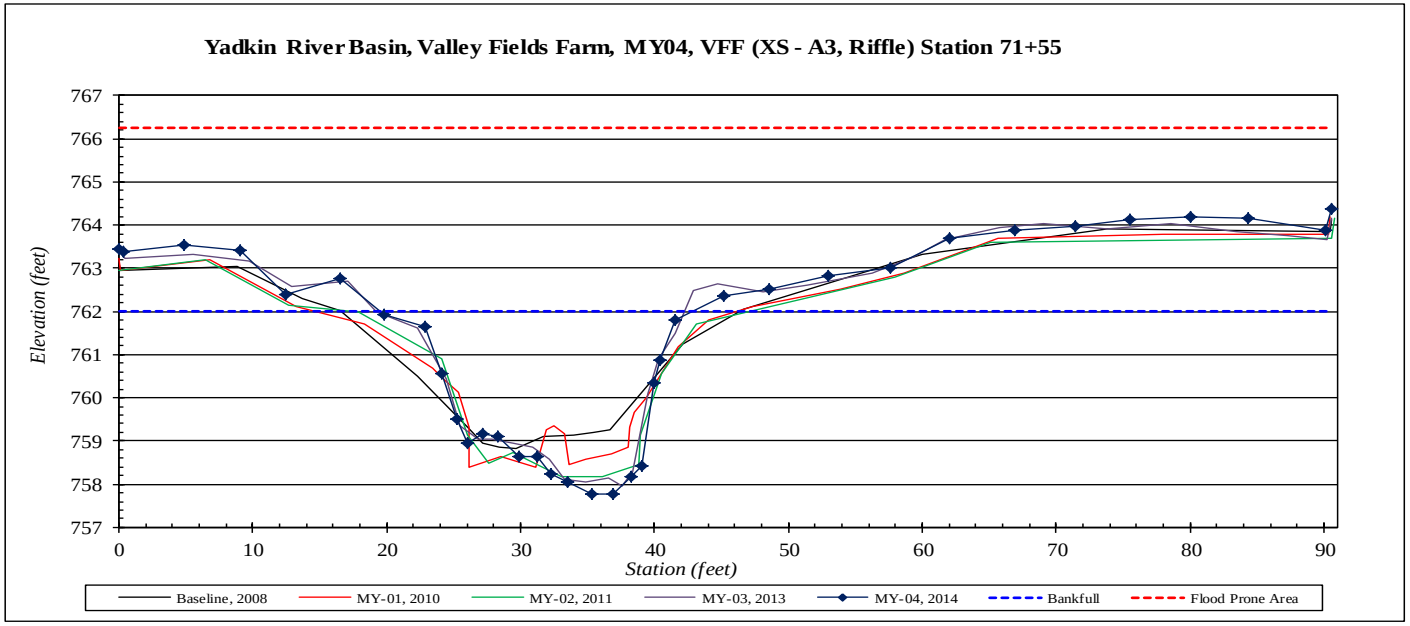


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A3, Riffle) Station 71+55
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	763.46
0.3	763.39
4.8	763.54
9.0	763.41
12.5	762.38
16.5	762.76
19.8	761.93
22.8	761.65
24.1	760.56
25.3	759.49
26.1	758.95
27.2	759.16
28.3	759.10
29.9	758.65
31.3	758.65
32.3	758.24
33.5	758.05
35.3	757.78
36.9	757.76
38.2	758.17
39.0	758.44
39.9	760.35
40.5	760.87
41.6	761.80
45.2	762.35
48.6	762.53
52.9	762.83
57.6	763.01
62.1	763.70
66.9	763.87
71.4	763.98
75.5	764.13
80.0	764.19
84.3	764.16
90.1	763.88
90.5	764.39

SUMMARY DATA	
Bankfull Elevation:	762.0
Bankfull Cross-Sectional Area:	57.1
Bankfull Width:	23.4
Flood Prone Area Elevation:	766.2
Flood Prone Width:	>90
Max Depth at Bankfull:	4.2
Mean Depth at Bankfull:	2.4
W / D Ratio:	9.6
Entrenchment Ratio:	3.8
Bank Height Ratio:	1.0

Stream Type	C5

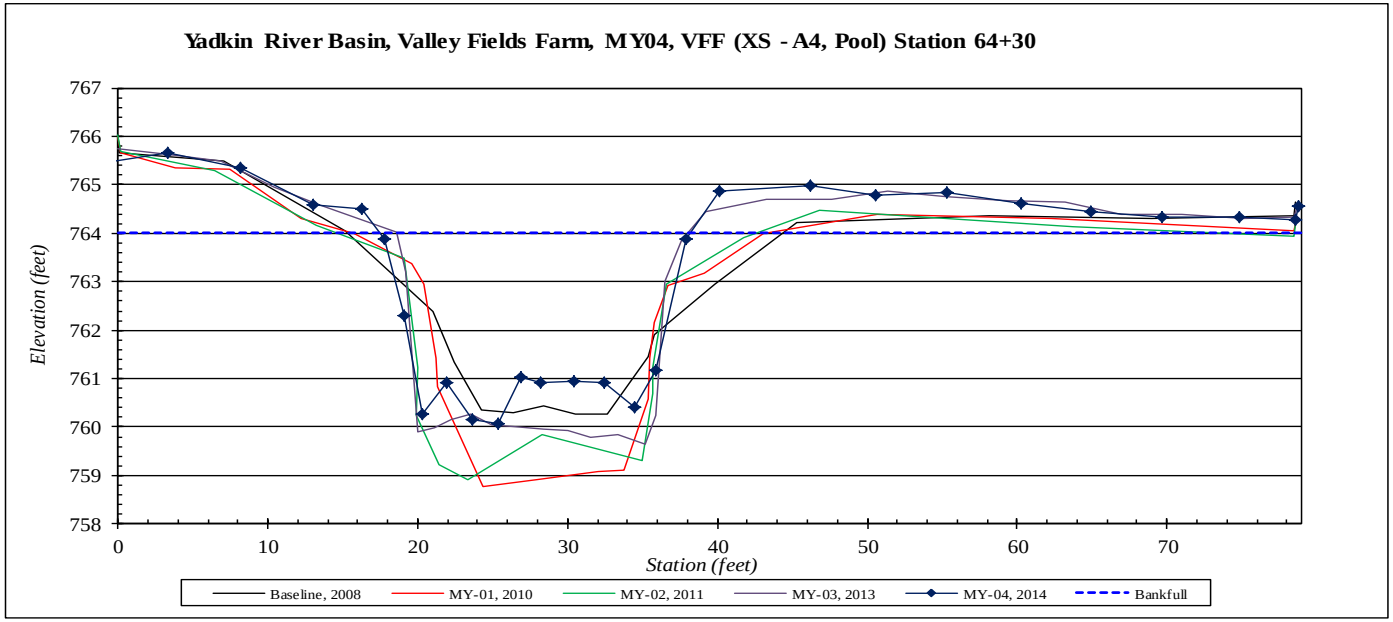


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A4, Pool) Station 64+30
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	765.94
0.2	765.68
6.1	765.40
11.4	765.67
16.3	765.36
21.1	764.59
24.3	764.51
25.9	763.89
27.2	762.31
28.4	760.28
30.0	760.90
31.8	760.15
33.4	760.07
34.9	761.03
36.3	760.92
38.5	760.95
40.6	760.91
42.6	760.41
44.0	761.19
46.0	763.90
48.2	764.88
54.3	764.98
58.6	764.78
63.4	764.83
68.3	764.62
73.1	764.46
77.8	764.34
82.9	764.32
86.6	764.28
86.9	764.55

SUMMARY DATA	
Bankfull Elevation:	764.0
Bankfull Cross-Sectional Area:	59.1
Bankfull Width:	20.6
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	3.9
Mean Depth at Bankfull:	2.9
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	C5

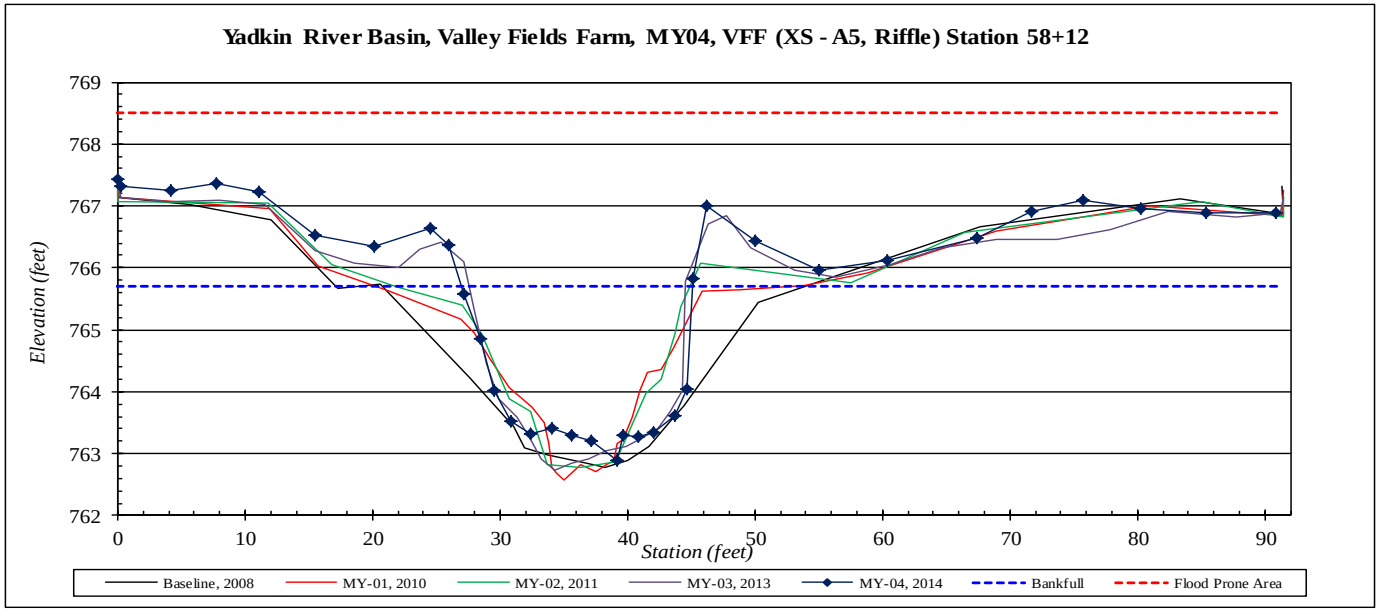


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A5, Riffle) Station 58+12
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	767.43
0.3	767.31
4.1	767.26
7.8	767.37
11.1	767.22
15.4	766.52
20.1	766.35
24.6	766.65
26.0	766.36
27.2	765.59
28.4	764.85
29.6	764.01
30.9	763.52
32.4	763.33
34.1	763.41
35.6	763.31
37.1	763.20
39.2	762.90
39.6	763.30
40.8	763.28
42.1	763.34
43.7	763.61
44.7	764.04
45.2	765.82
46.2	766.99
50.0	766.44
55.0	765.97
60.4	766.12
67.4	766.48
71.7	766.92
75.8	767.08
80.2	766.95
85.3	766.88
90.9	766.89

SUMMARY DATA	
Bankfull Elevation:	765.7
Bankfull Cross-Sectional Area:	34.0
Bankfull Width:	17.8
Flood Prone Area Elevation:	768.5
Flood Prone Width:	>90
Max Depth at Bankfull:	2.8
Mean Depth at Bankfull:	1.9
W / D Ratio:	9.3
Entrenchment Ratio:	5.1
Bank Height Ratio:	1.0

Stream Type	C5

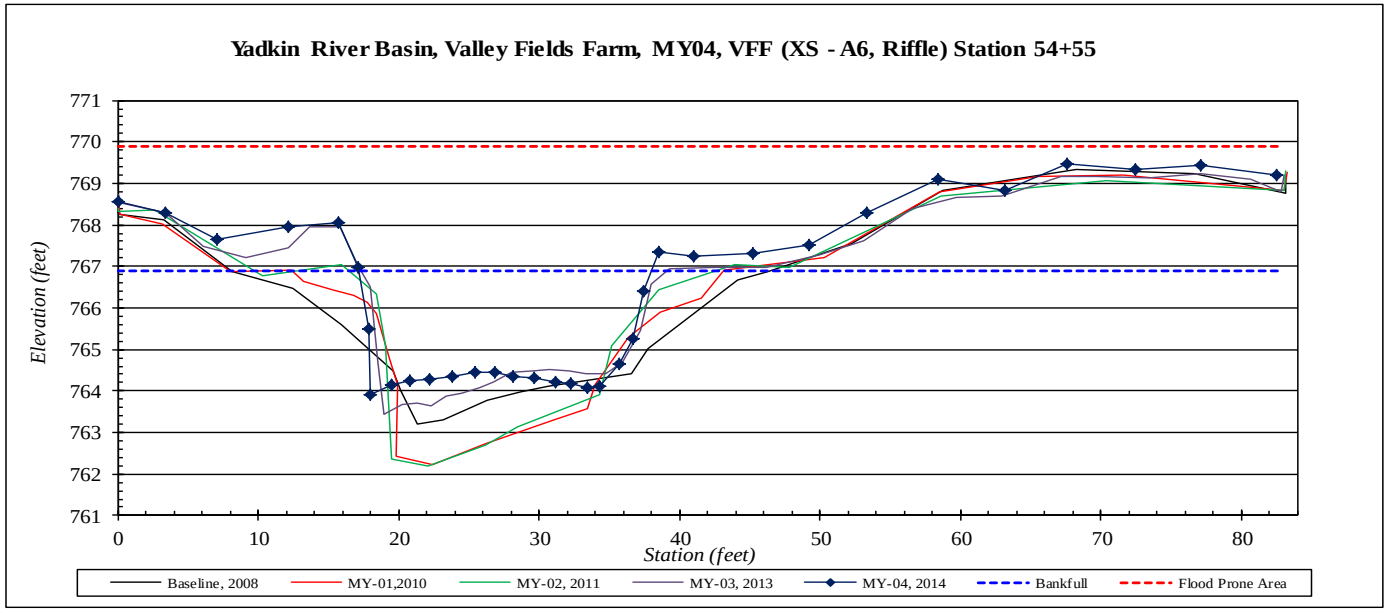


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A6, Riffle) Station 54+55
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	768.57
3.3	768.30
7.1	767.66
12.1	767.94
15.7	768.05
17.1	766.98
17.9	765.51
17.9	763.92
19.4	764.14
20.8	764.24
22.2	764.30
23.8	764.35
25.4	764.46
26.8	764.44
28.1	764.36
29.6	764.31
31.1	764.21
32.2	764.18
33.4	764.07
34.3	764.12
35.7	764.67
36.6	765.26
37.4	766.41
38.5	767.36
41.0	767.26
45.2	767.31
49.2	767.52
53.3	768.29
58.4	769.09
63.2	768.85
67.5	769.46
72.5	769.34
77.1	769.42
82.5	769.20

SUMMARY DATA	
Bankfull Elevation:	766.9
Bankfull Cross-Sectional Area:	50.1
Bankfull Width:	20.9
Flood Prone Area Elevation:	769.9
Flood Prone Width:	>90
Max Depth at Bankfull:	3.0
Mean Depth at Bankfull:	2.4
W / D Ratio:	8.7
Entrenchment Ratio:	4.3
Bank Height Ratio:	1.0

Stream Type	C5

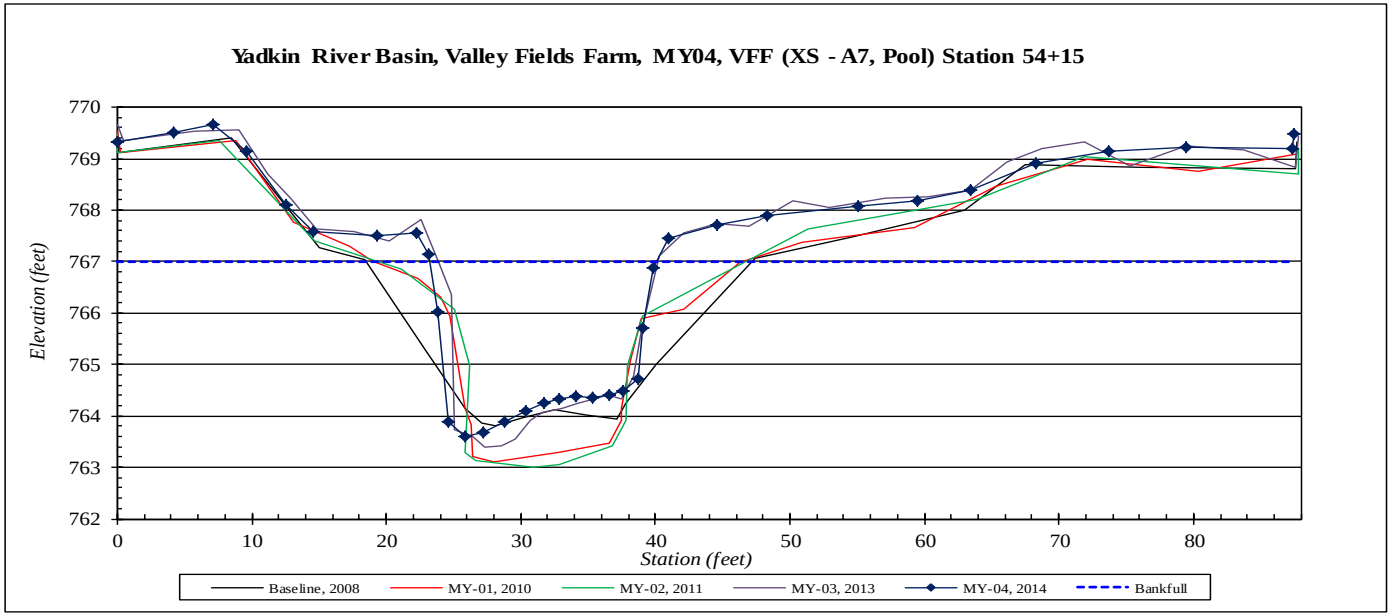


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A7, Pool) Station 54+15
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	769.33
4.2	769.52
7.1	769.66
9.6	769.15
12.5	768.11
14.5	767.58
19.3	767.51
22.2	767.55
23.1	767.14
23.9	766.03
24.7	763.89
25.8	763.60
27.2	763.68
28.8	763.90
30.4	764.10
31.7	764.26
32.9	764.34
34.1	764.38
35.3	764.36
36.5	764.40
37.6	764.48
38.7	764.73
39.1	765.70
39.8	766.89
41.0	767.45
44.5	767.73
48.3	767.90
55.0	768.09
59.5	768.19
63.4	768.38
68.3	768.90
73.7	769.14
79.4	769.23
87.3	769.19
87.5	769.49

SUMMARY DATA	
Bankfull Elevation:	767.0
Bankfull Cross-Sectional Area:	43.4
Bankfull Width:	16.9
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	3.4
Mean Depth at Bankfull:	2.6
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	C5

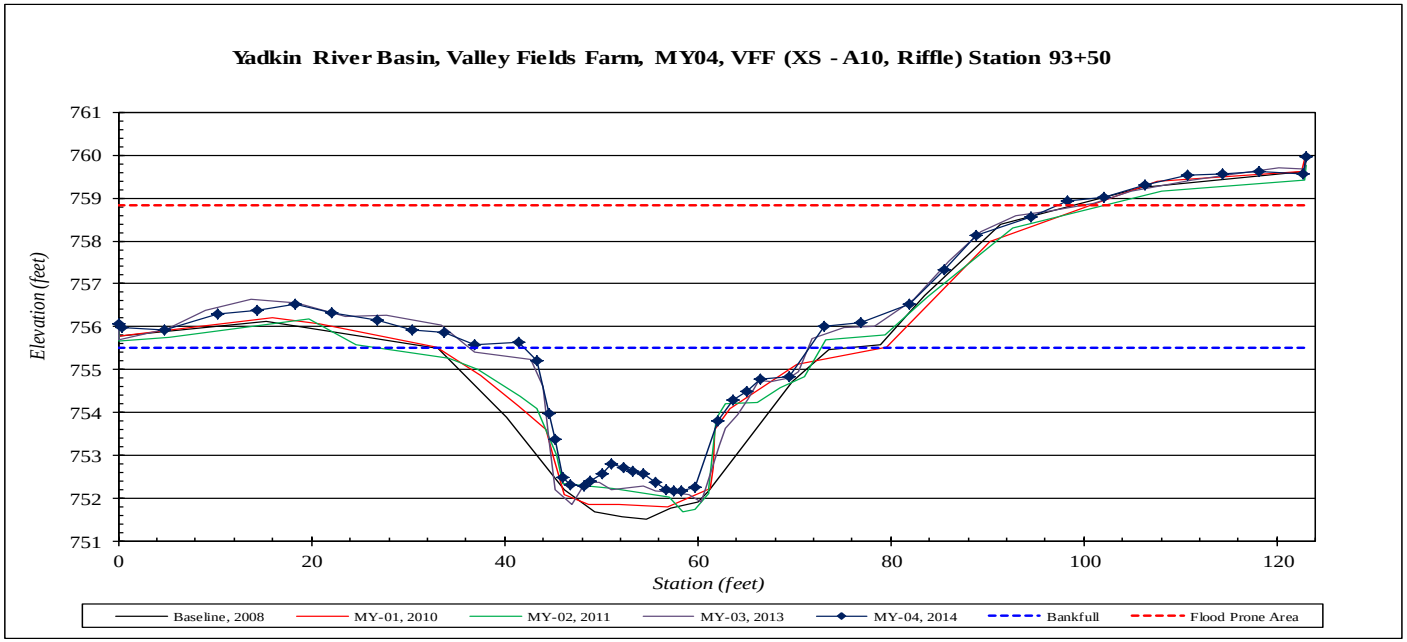


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A10, Riffle) Station 93+50
Drainage Area (sq mi):	6.5
Date:	4/3/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation	Station	Elevation
0.0	756.07	94.54	758.55
0.4	755.98	98.3	758.95
4.8	755.93	102.1	759.0
10.3	756.30	106.3	759.3
14.5	756.37	110.7	759.5
18.3	756.52	114.3	759.6
22.2	756.34	118.1	759.6
26.8	756.16	122.8	759.6
30.5	755.91	123.0	760.0
33.8	755.86		
36.9	755.57		
41.4	755.65		
43.3	755.22		
44.7	753.97		
45.2	753.38		
46.0	752.50		
46.9	752.31		
48.2	752.30		
48.8	752.41		
50.1	752.59		
51.1	752.81		
52.3	752.71		
53.2	752.65		
54.4	752.59		
55.6	752.37		
56.8	752.22		
57.6	752.18		
58.3	752.17		
59.7	752.25		
62.1	753.80		
63.6	754.29		
65.0	754.49		
66.5	754.78		
69.5	754.85		
73.1	756.01		
76.9	756.10		
81.85	756.53		
85.6	757.34		
88.8	758.14		

SUMMARY DATA	
Bankfull Elevation:	755.5
Bankfull Cross-Sectional Area:	59.9
Bankfull Width:	29.5
Flood Prone Area Elevation:	758.8
Flood Prone Width:	>90
Max Depth at Bankfull:	3.3
Mean Depth at Bankfull:	2.0
W / D Ratio:	14.5
Entrenchment Ratio:	3.1
Bank Height Ratio:	1.0

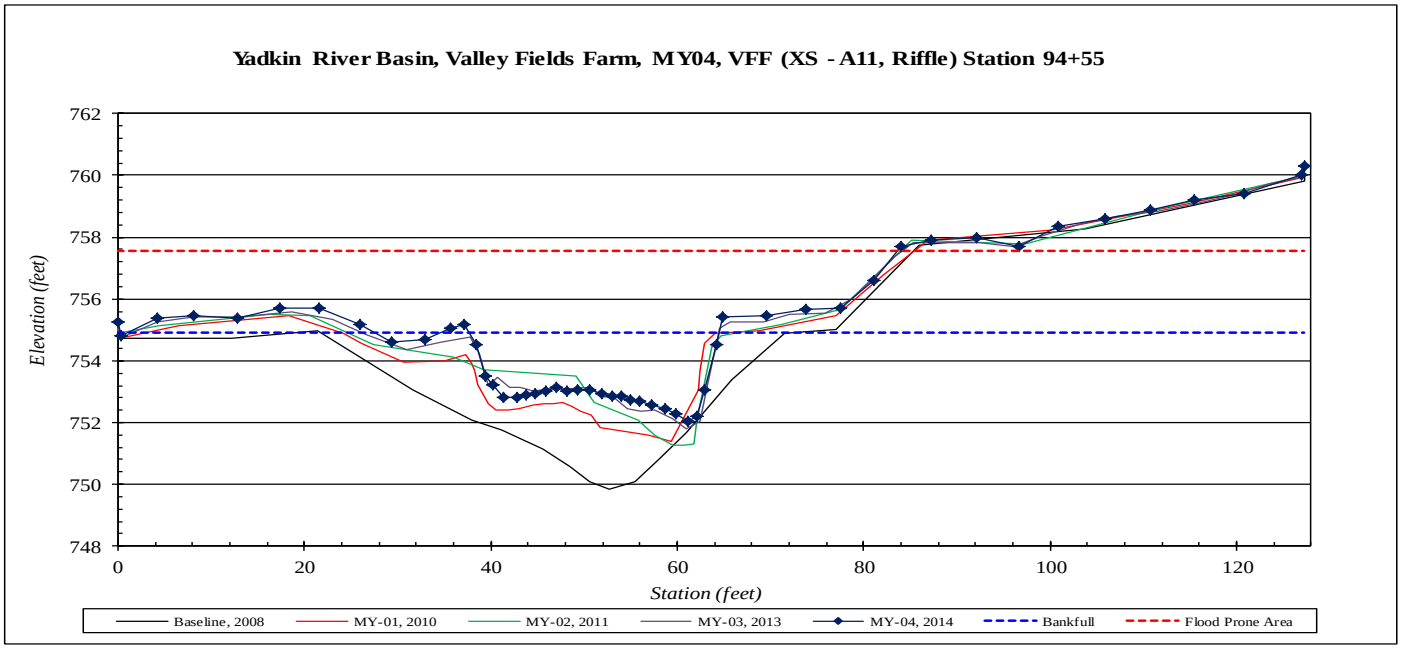
Stream Type	C5



River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - A11, Riffle) Station 94+55
Drainage Area (sq mi):	6.5
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation	Station	Elevation	SUMMARY DATA	
0.0	755.45	73.7	755.85	**Bankfull Elevation:**	754.9
0.4	755.03	77.484841	755.91	**Bankfull Cross-Sectional Area:**	46.7
4.2	755.56	81.1	756.80	**Bankfull Width:**	26.1
8.1	755.67	84.1	757.9	**Flood Prone Area Elevation:**	757.6
12.8	755.58	87.3	758.1	**Flood Prone Width:**	>90
17.3	755.91	92.1	758.2	**Max Depth at Bankfull:**	2.7
21.7	755.92	96.7	757.9	**Mean Depth at Bankfull:**	1.8
26.0	755.39	101.0	758.6	**W / D Ratio:**	14.6
29.4	754.79	105.9	758.8	**Entrenchment Ratio:**	3.4
32.9	754.88	127.3	760.5	**Bank Height Ratio:**	1.0
35.7	755.26				
37.2	755.38				
38.5	754.73				
39.4	753.72				
40.2	753.41				
41.4	753.01				
42.8	753.02				
43.8	753.12				
44.8	753.12				
46.0	753.23				
47.1	753.35				
48.2	753.22				
49.4	753.27				
50.6	753.25				
51.9	753.12				
53.0	753.06				
54.0	753.04				
55.0	752.92				
56.0	752.88				
57.3	752.75				
58.8	752.63				
59.9	752.50				
61.2	752.25				
62.1	752.40				
63.0	753.26				
64.2	754.71				
64.91	755.64				
69.6	755.66				

Stream Type	C5

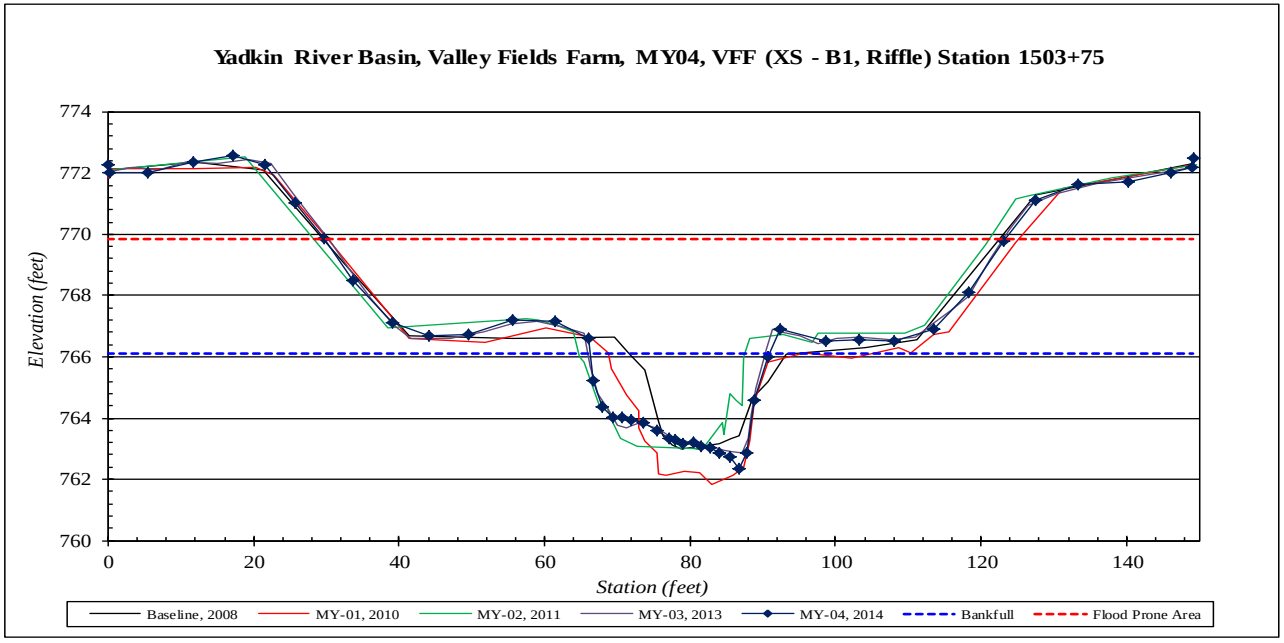


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - B1, Riffle) Station 1503+75
Drainage Area (sq mi):	2.3
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation	Station	Elevation
0.0	772.25	108.0	766.51
0.3	772.02	113.4	766.91
5.5	772.00	118.4	768.12
11.7	772.34	123.0	769.78
17.1	772.56	127.5	771.1
21.4	772.28	133.3	771.6
25.7	771.02	140.3	771.7
29.6	769.85	146.0	772.0
33.6	768.48	149.1	772.2
39.0	767.12	149.1	772.5
44.1	766.71		
49.5	766.74		
55.7	767.20		
61.4	767.17		
66.0	766.59		
66.6	765.23		
67.9	764.38		
69.4	764.01		
70.6	764.03		
71.9	763.94		
73.5	763.84		
75.3	763.60		
77.0	763.33		
78.0	763.29		
79.0	763.17		
80.4	763.19		
81.5	763.10		
82.8	763.03		
84.0	762.88		
85.4	762.73		
86.8	762.37		
87.7	762.86		
88.7	764.58		
90.7	766.00		
92.3	766.88		
98.5	766.53		
103.29	766.55		

SUMMARY DATA	
Bankfull Elevation:	766.1
Bankfull Cross-Sectional Area:	59.8
Bankfull Width:	24.7
Flood Prone Area Elevation:	769.8
Flood Prone Width:	93.5
Max Depth at Bankfull:	3.7
Mean Depth at Bankfull:	2.4
W / D Ratio:	10.2
Entrenchment Ratio:	3.8
Bank Height Ratio:	1.0

Stream Type	C5

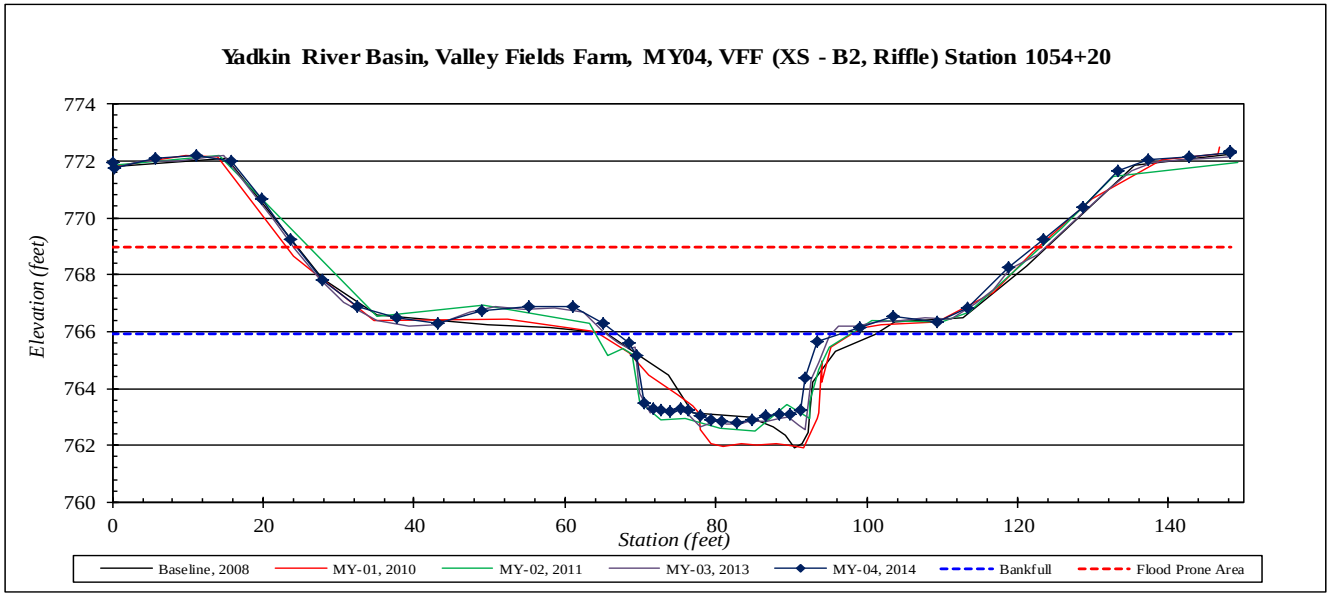


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - B2, Riffle) Station 1054+20
Drainage Area (sq mi):	2.3
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation	Station	Elevation
0.0	771.95	99.2	766.17
0.2	771.75	103.5	766.55
5.7	772.10	109.23	766.34
11.2	772.19	113.4	766.81
15.8	771.99	118.7	768.27
19.8	770.66	123.49862	769.25
23.6	769.25	128.6	770.37
27.9	767.82	133.3	771.7
32.6	766.88	137.4	772.0
37.6	766.47	142.8	772.2
43.1	766.27	148.1	772.3
48.9	766.75	148.2	772.4
55.2	766.90		
61.0	766.88		
65.1	766.30		
68.5	765.61		
69.6	765.18		
70.5	763.51		
71.6	763.27		
72.8	763.24		
74.0	763.20		
75.3	763.29		
76.4	763.23		
77.9	763.03		
79.3	762.89		
80.9	762.84		
82.8	762.82		
84.9	762.89		
86.5	763.02		
88.3	763.07		
89.8	763.11		
91.2	763.23		
91.9	764.39		
93.4	765.66		

SUMMARY DATA	
Bankfull Elevation:	765.9
Bankfull Cross-Sectional Area:	58.5
Bankfull Width:	25.9
Flood Prone Area Elevation:	769.0
Flood Prone Width:	94.6
Max Depth at Bankfull:	3.1
Mean Depth at Bankfull:	2.3
W / D Ratio:	11.5
Entrenchment Ratio:	3.7
Bank Height Ratio:	1.0

Stream Type	C5

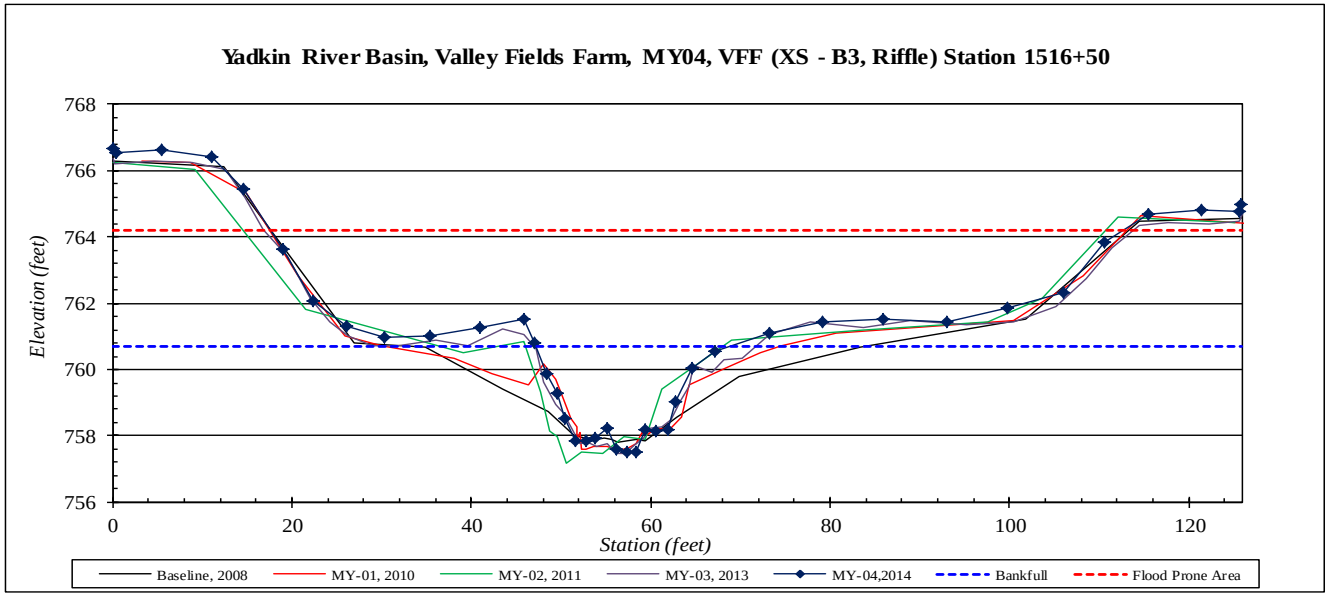


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - B3, Riffle) Station 1516+50
Drainage Area (sq mi):	2.3
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation	Station	Elevation
0.0	766.35	99.8	761.58
0.3	766.23	106.0	762.03
5.4	766.32	110.6	763.54
11.0	766.10	115.46	764.37
14.6	765.13	121.5	764.50
19.0	763.33	125.6	764.47
22.5	761.78	125.87677	764.68
26.1	761.00		
30.4	760.69		
35.4	760.72		
40.9	760.95		
45.8	761.23		
47.1	760.51		
48.4	759.56		
49.6	758.98		
50.5	758.21		
51.5	757.56		
52.8	757.53		
53.8	757.62		
55.2	757.92		
56.2	757.29		
57.4	757.20		
58.4	757.20		
59.4	757.88		
60.6	757.86		
61.9	757.88		
62.7	758.74		
64.6	759.75		
67.2	760.26		
73.3	760.79		
79.2	761.12		
85.9	761.22		
93.1	761.12		

SUMMARY DATA	
Bankfull Elevation:	760.7
Bankfull Cross-Sectional Area:	40.1
Bankfull Width:	21.6
Flood Prone Area Elevation:	764.2
Flood Prone Width:	92.6
Max Depth at Bankfull:	3.5
Mean Depth at Bankfull:	1.9
W / D Ratio:	11.6
Entrenchment Ratio:	4.3
Bank Height Ratio:	1.0

Stream Type	B5

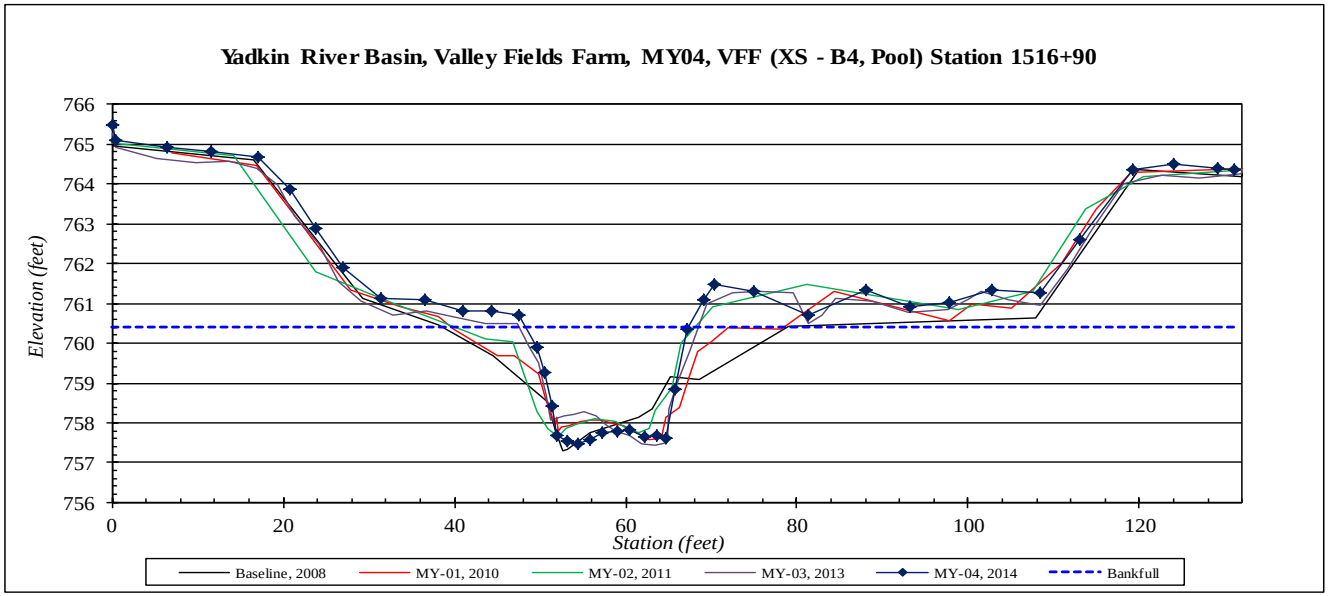


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - B4, Pool) Station 1516+90
Drainage Area (sq mi):	2.3
Date:	4/3/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation	Station	Elevation
0.0	765.47	93.2	760.92
0.4	765.09	97.9	761.01
6.5	764.93	102.7	761.34
11.6	764.81	108.38	761.26
17.0	764.69	113.1	762.61
20.7	763.87	119.2	764.34
23.8	762.90	123.93064	764.50
27.0	761.88	129.2	764.40
31.4	761.13	131.1	764.4
36.5	761.10		
41.0	760.83		
44.3	760.82		
47.5	760.70		
49.7	759.88		
50.5	759.27		
51.5	758.42		
52.0	757.69		
53.2	757.54		
54.5	757.49		
55.8	757.58		
57.3	757.77		
59.0	757.78		
60.5	757.81		
62.2	757.65		
63.6	757.67		
64.6	757.60		
65.7	758.86		
67.2	760.34		
69.1	761.08		
70.3	761.49		
74.9	761.30		
81.4	760.71		
88.1	761.35		

SUMMARY DATA	
Bankfull Elevation:	760.4
Bankfull Cross-Sectional Area:	22.9
Bankfull Width:	11.9
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	2.9
Mean Depth at Bankfull:	1.9
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	B5

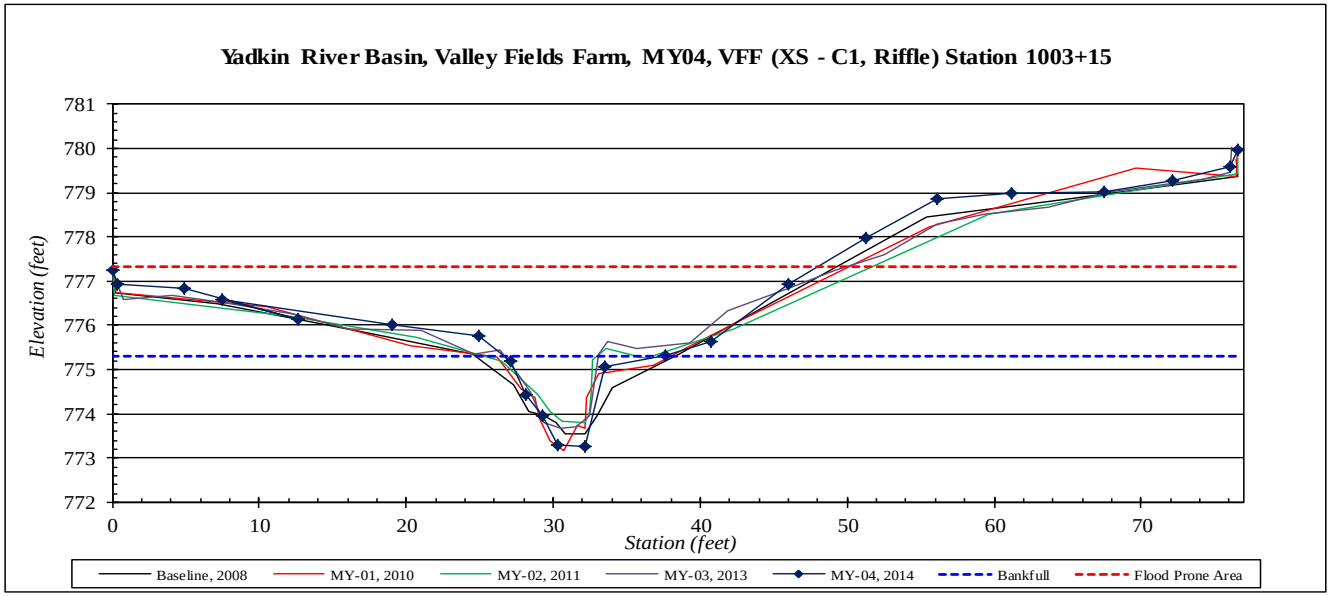


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - C1, Riffle) Station 1003+15
Drainage Area (sq mi):	0.2
Date:	4/2/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	777.26
0.3	776.93
4.9	776.83
12.6	776.14
7.5	776.58
19.0	776.01
25.0	775.75
27.1	775.20
28.2	774.45
29.3	773.96
30.3	773.31
32.1	773.26
33.5	775.08
37.6	775.33
40.7	775.63
46.0	776.94
51.3	777.98
56.1	778.86
61.2	778.97
67.5	779.02
72.1	779.28
76.1	779.57
76.6	779.96

SUMMARY DATA	
Bankfull Elevation:	775.3
Bankfull Cross-Sectional Area:	8.7
Bankfull Width:	6.7
Flood Prone Area Elevation:	777.3
Flood Prone Width:	48.0
Max Depth at Bankfull:	2.0
Mean Depth at Bankfull:	1.3
W / D Ratio:	5.2
Entrenchment Ratio:	7.2
Bank Height Ratio:	1.0

Stream Type	C5

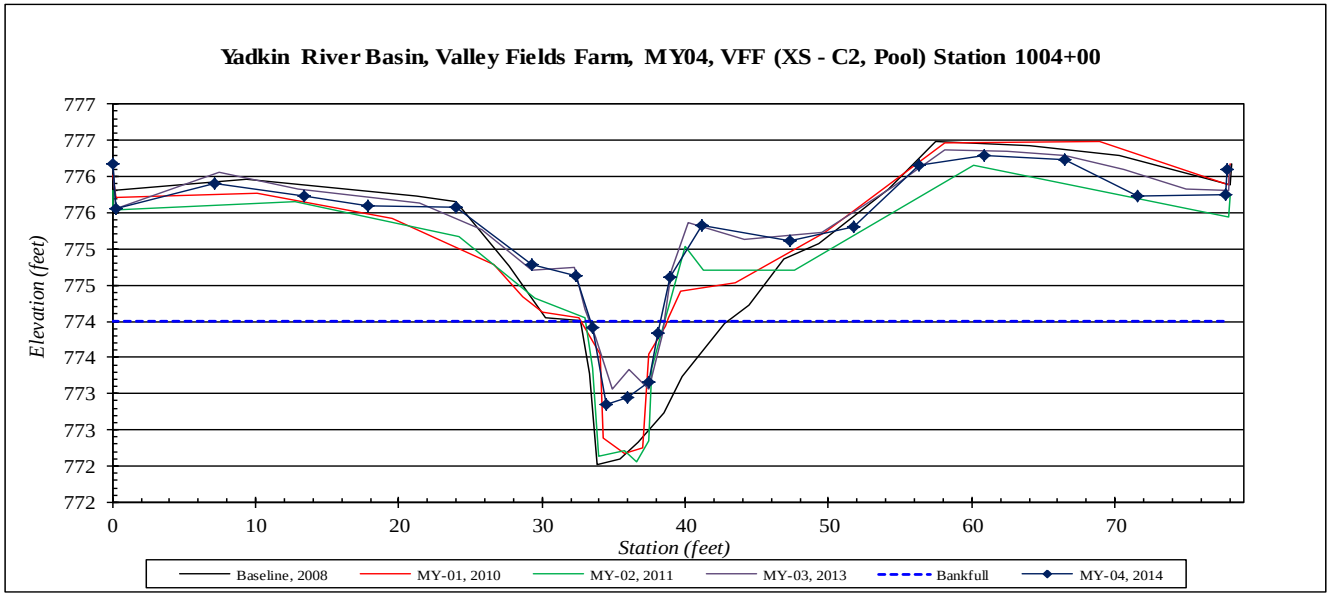


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - C2, Pool) Station 1004+00
Drainage Area (sq mi):	0.2
Date:	4/2/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	776.17
0.2	775.56
7.1	775.90
13.4	775.73
17.8	775.60
24.0	775.58
29.2	774.79
32.3	774.63
33.5	773.91
34.5	772.85
35.9	772.95
37.4	773.15
38.1	773.83
39.0	774.61
41.1	775.32
47.3	775.10
51.7	775.31
56.3	776.16
60.9	776.29
66.5	776.24
71.6	775.73
77.7	775.75
77.8	776.10

SUMMARY DATA	
Bankfull Elevation:	774.0
Bankfull Cross-Sectional Area:	4.0
Bankfull Width:	4.9
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	1.1
Mean Depth at Bankfull:	0.8
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	C5

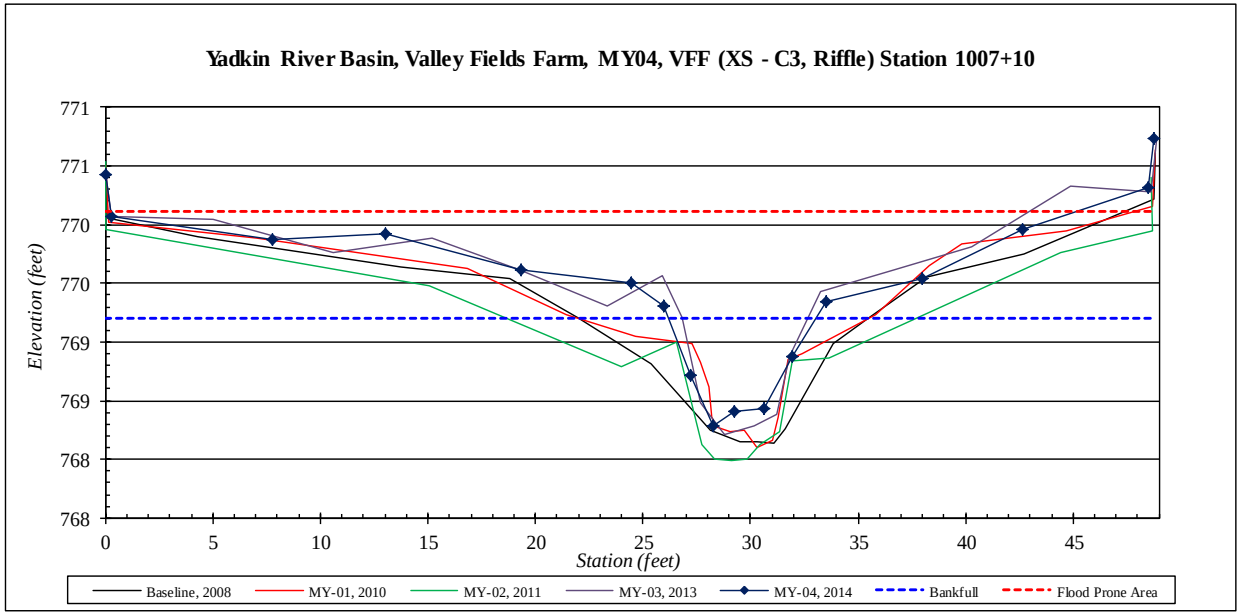


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - C3, Riffle) Station 1007+10
Drainage Area (sq mi):	0.2
Date:	4/2/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	770.43
0.3	770.07
7.7	769.87
13.0	769.92
19.3	769.61
24.5	769.50
26.0	769.31
27.2	768.72
28.3	768.28
29.3	768.41
30.6	768.44
32.0	768.87
33.5	769.35
38.0	769.55
42.7	769.95
48.5	770.31
48.8	770.73

SUMMARY DATA	
Bankfull Elevation:	769.2
Bankfull Cross-Sectional Area:	3.8
Bankfull Width:	6.8
Flood Prone Area Elevation:	770.1
Flood Prone Width:	37.8
Max Depth at Bankfull:	0.9
Mean Depth at Bankfull:	0.6
W / D Ratio:	12.2
Entrenchment Ratio:	5.6
Bank Height Ratio:	1.0

Stream Type	C5

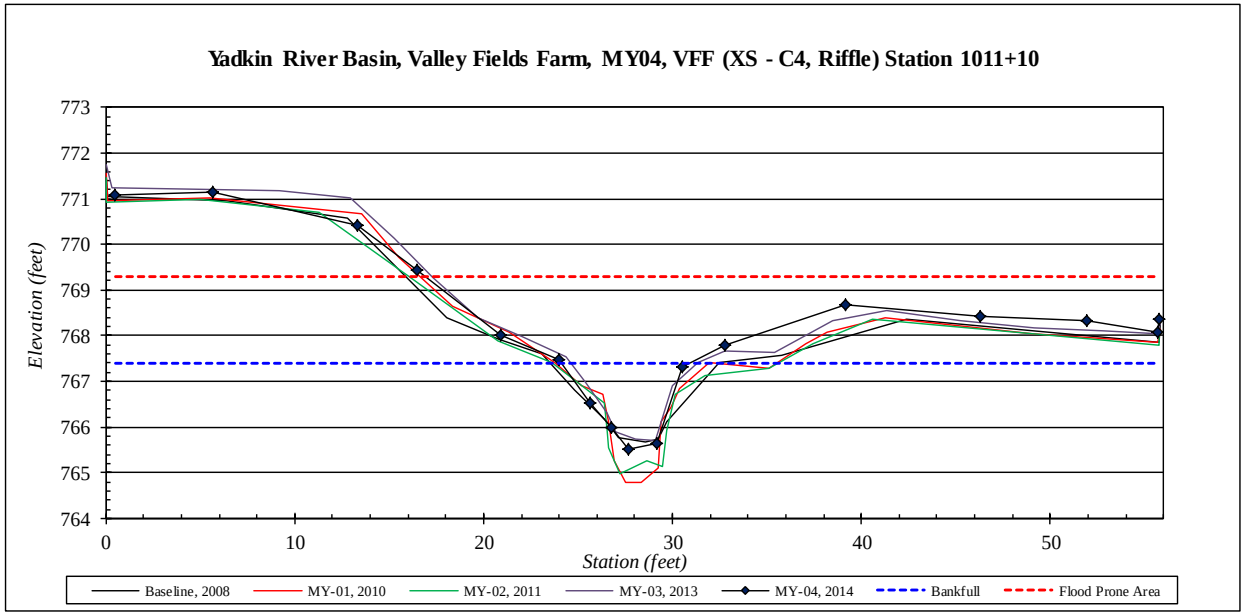


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY04
XS ID	VFF (XS - C4, Riffle) Station 1011+10
Drainage Area (sq mi):	0.2
Date:	4/2/2014
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.5	771.08
5.6	771.14
13.3	770.41
16.5	769.44
20.9	768.00
24.0	767.49
25.7	766.52
26.7	765.98
27.7	765.51
29.2	765.65
30.5	767.33
32.8	767.79
39.1	768.68
46.3	768.42
51.9	768.33
55.7	768.09
55.8	768.36

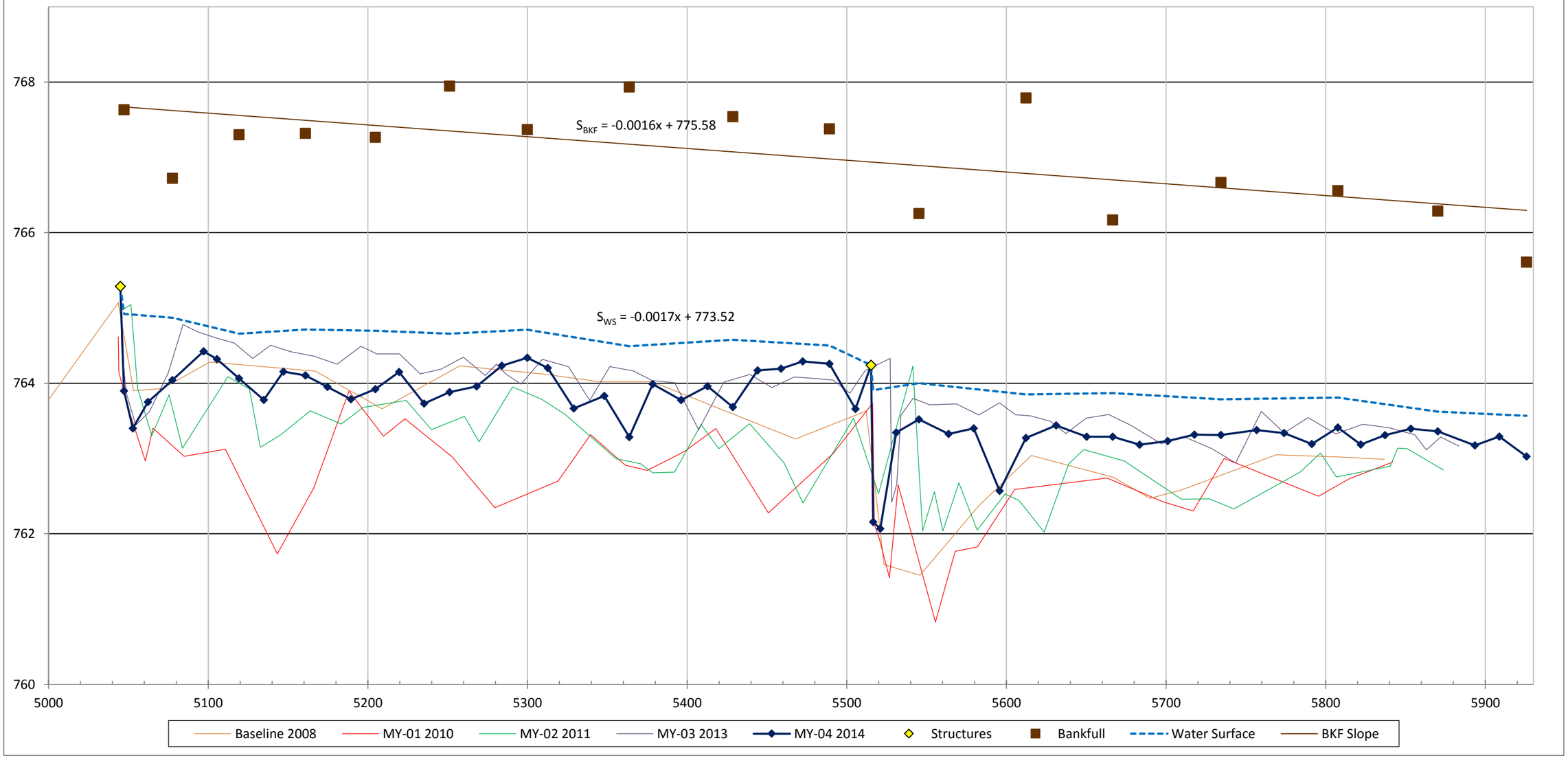
SUMMARY DATA	
Bankfull Elevation:	767.4
Bankfull Cross-Sectional Area:	7.4
Bankfull Width:	6.7
Flood Prone Area Elevation:	769.3
Flood Prone Width:	38.9
Max Depth at Bankfull:	1.9
Mean Depth at Bankfull:	1.1
W / D Ratio:	6.1
Entrenchment Ratio:	5.8
Bank Height Ratio:	1.0

Stream Type	C5

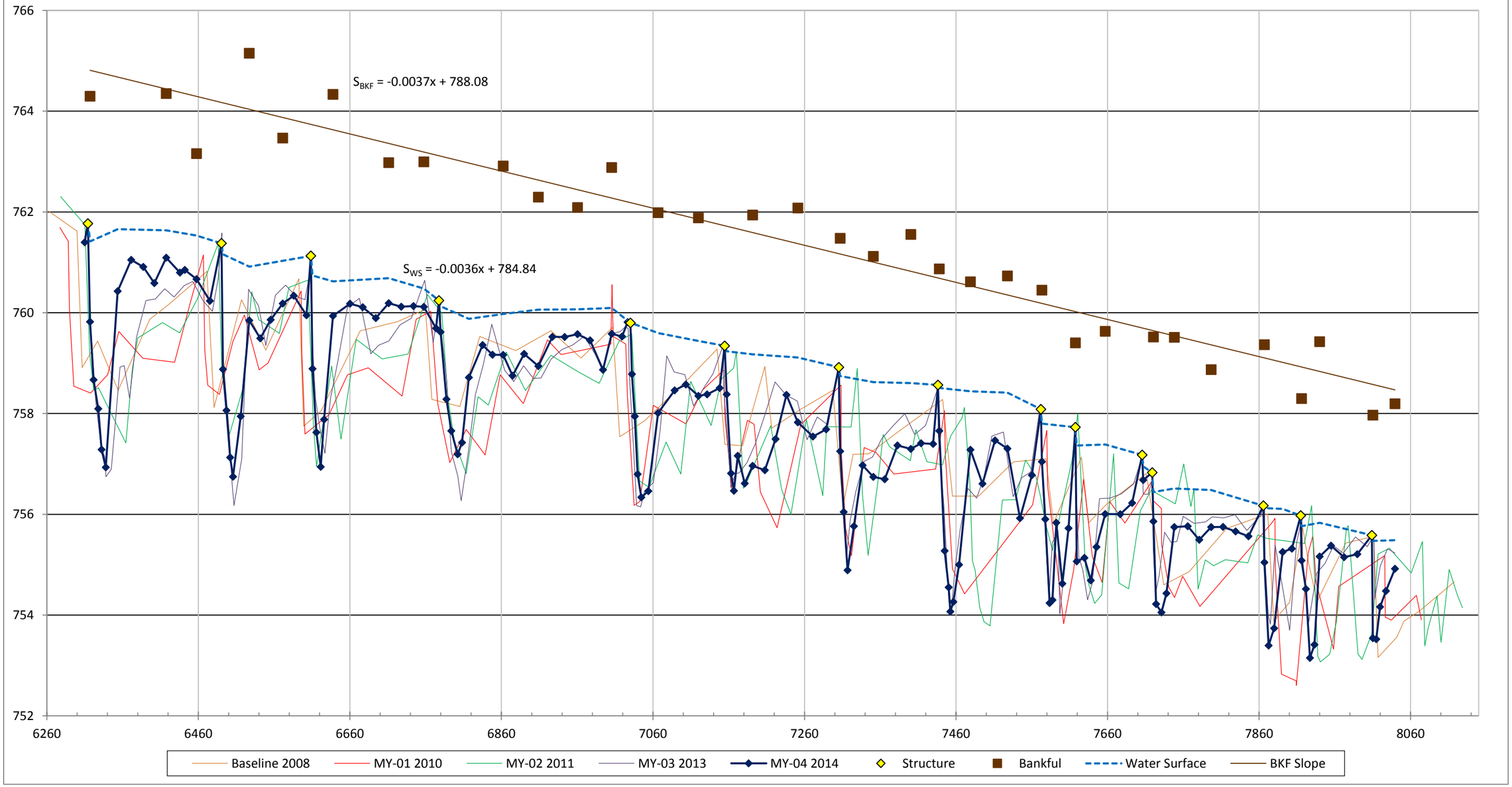


LONGITUDINAL PROFILE PLOTS

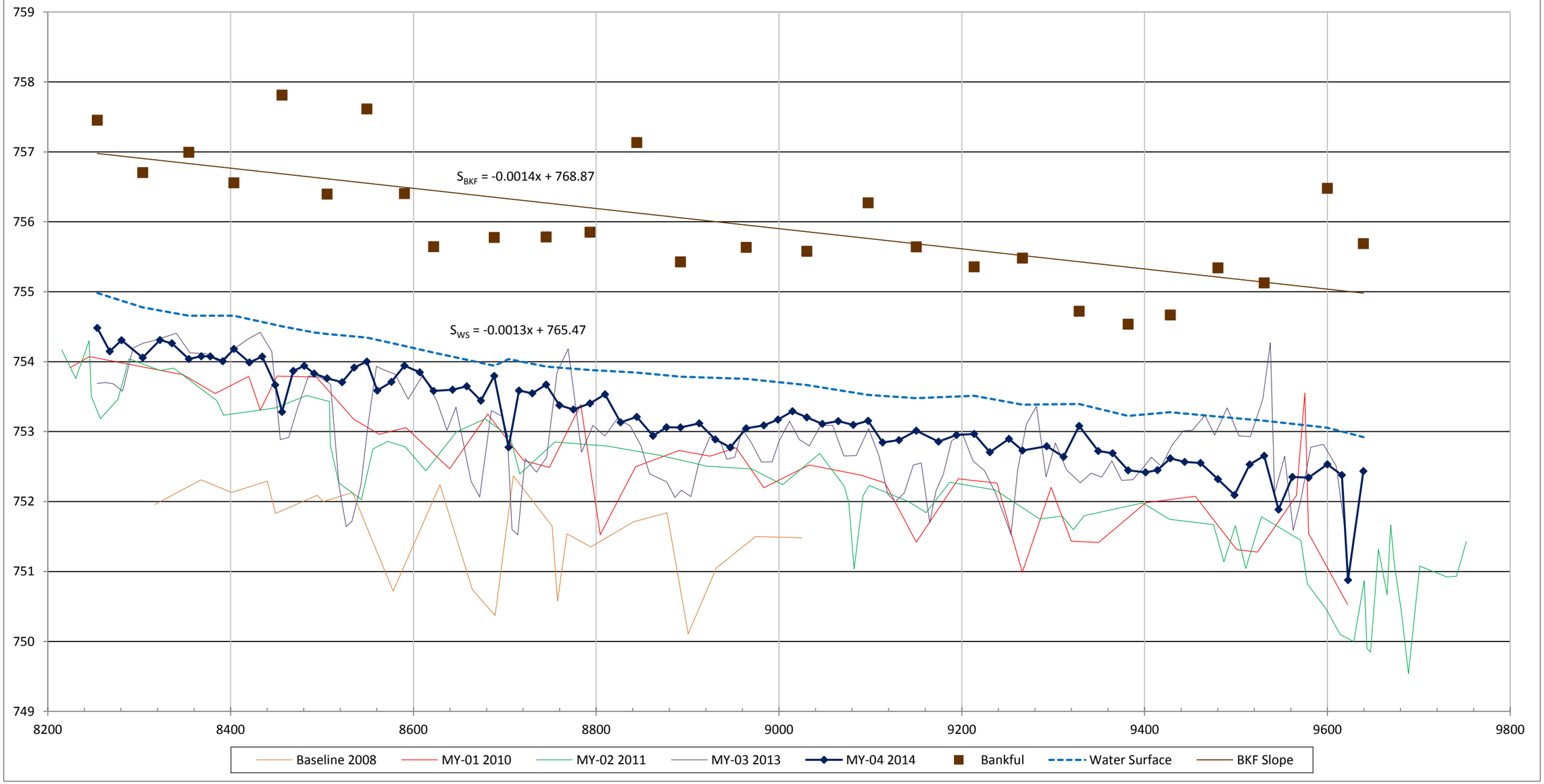
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 50+00-59+30 (Upper A)



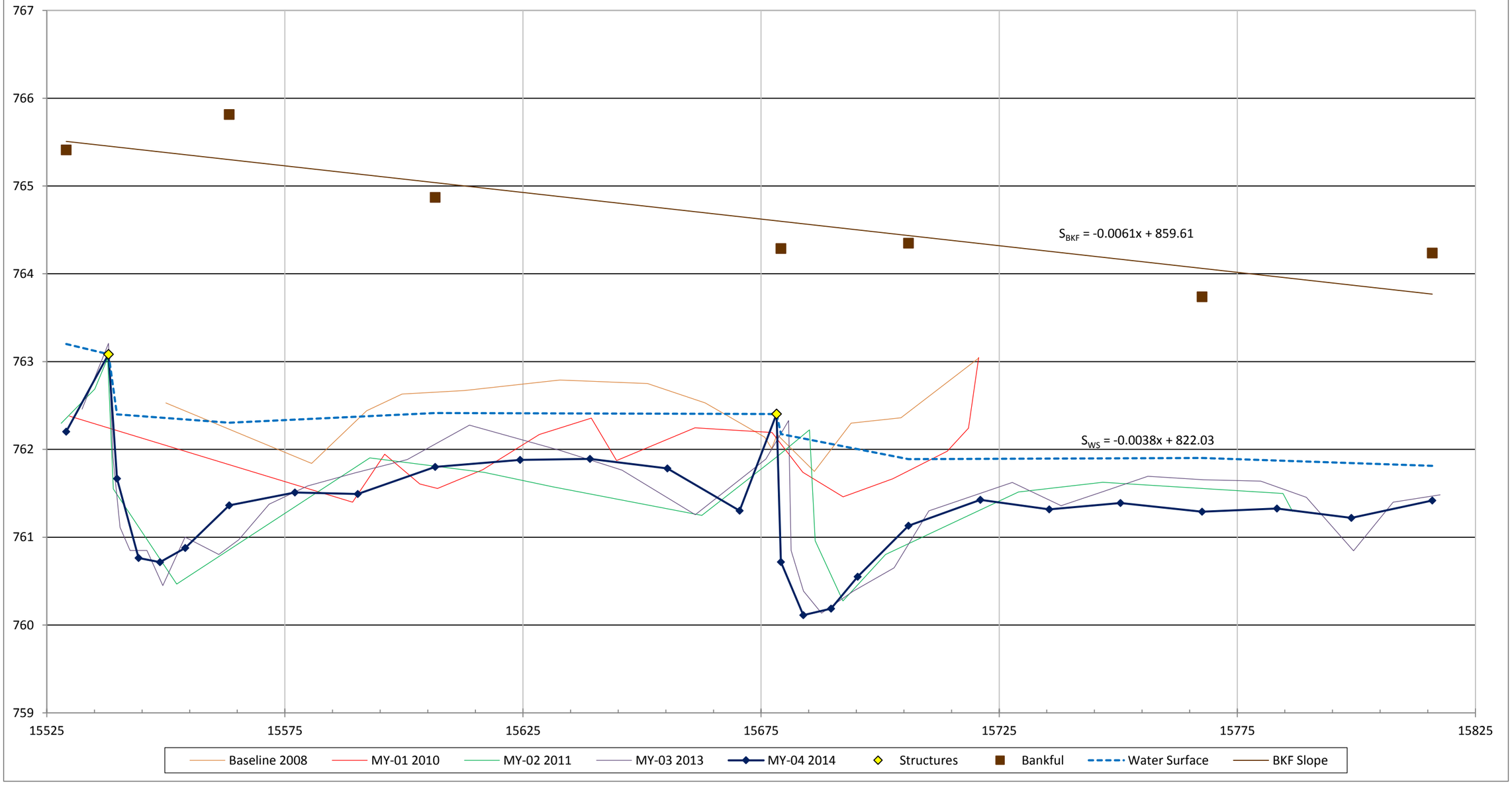
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 62+60-81+50 (Upper A2)



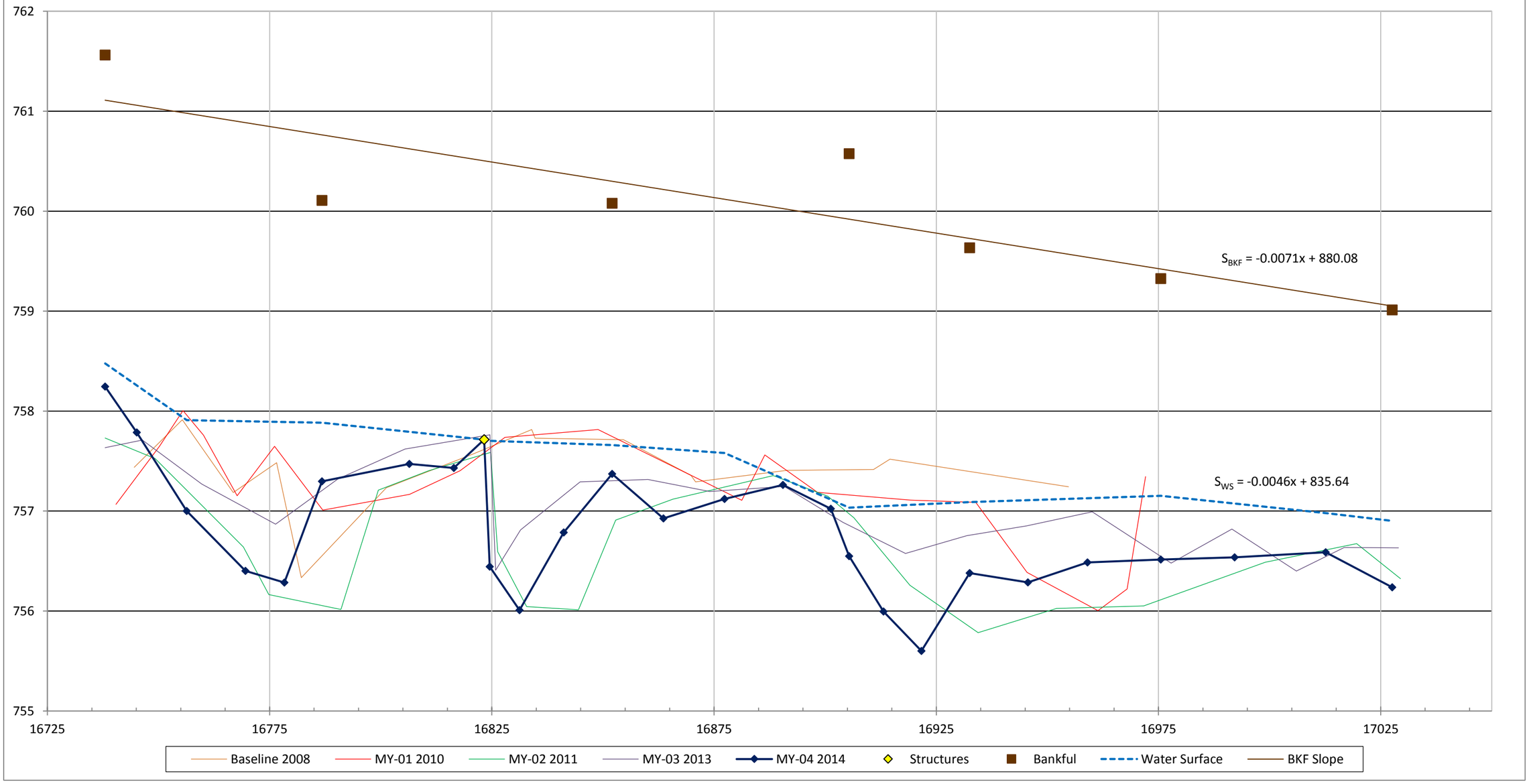
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 82+00-98+00 (Lower A)



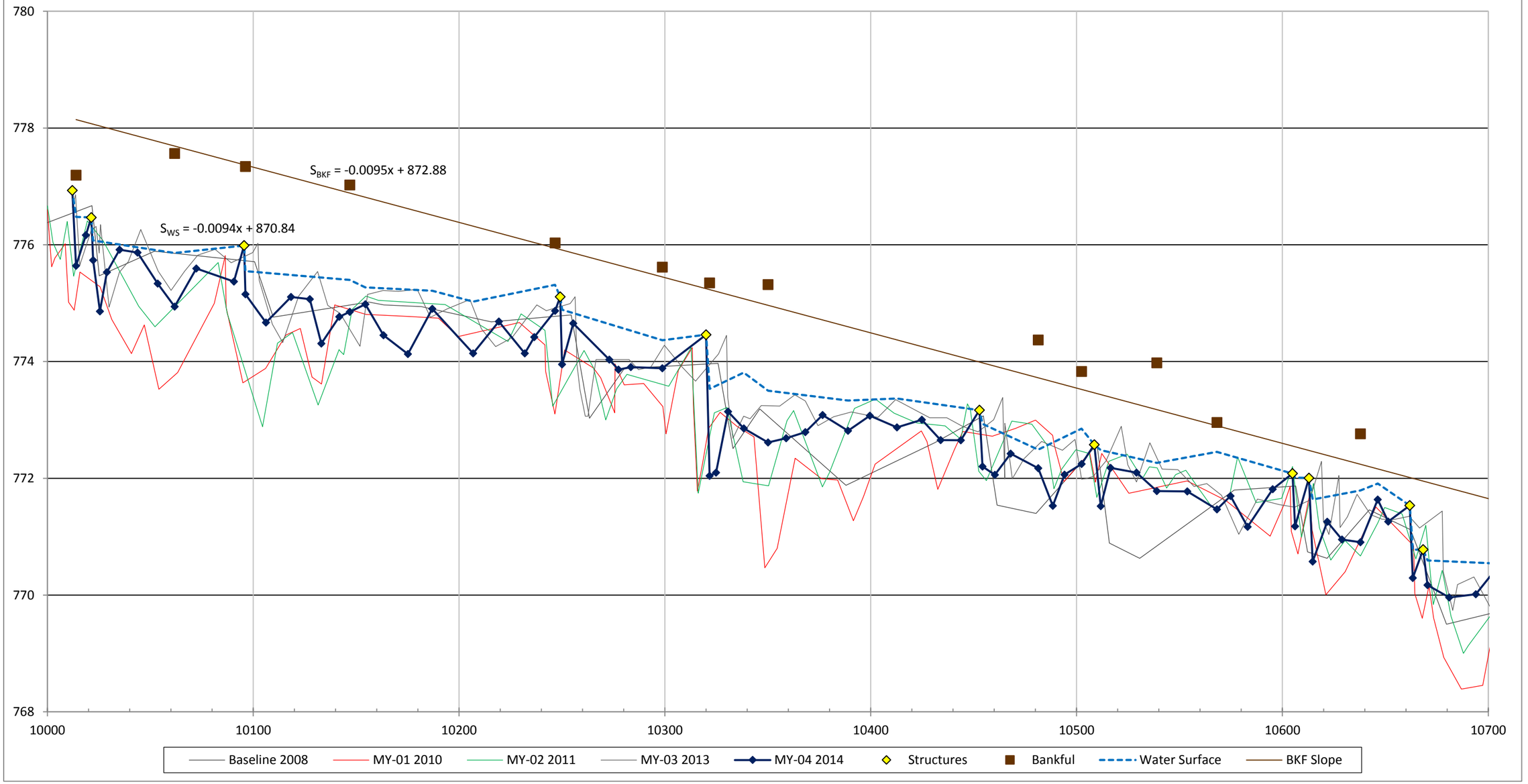
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 155+25 - 158+25 (Upper B)



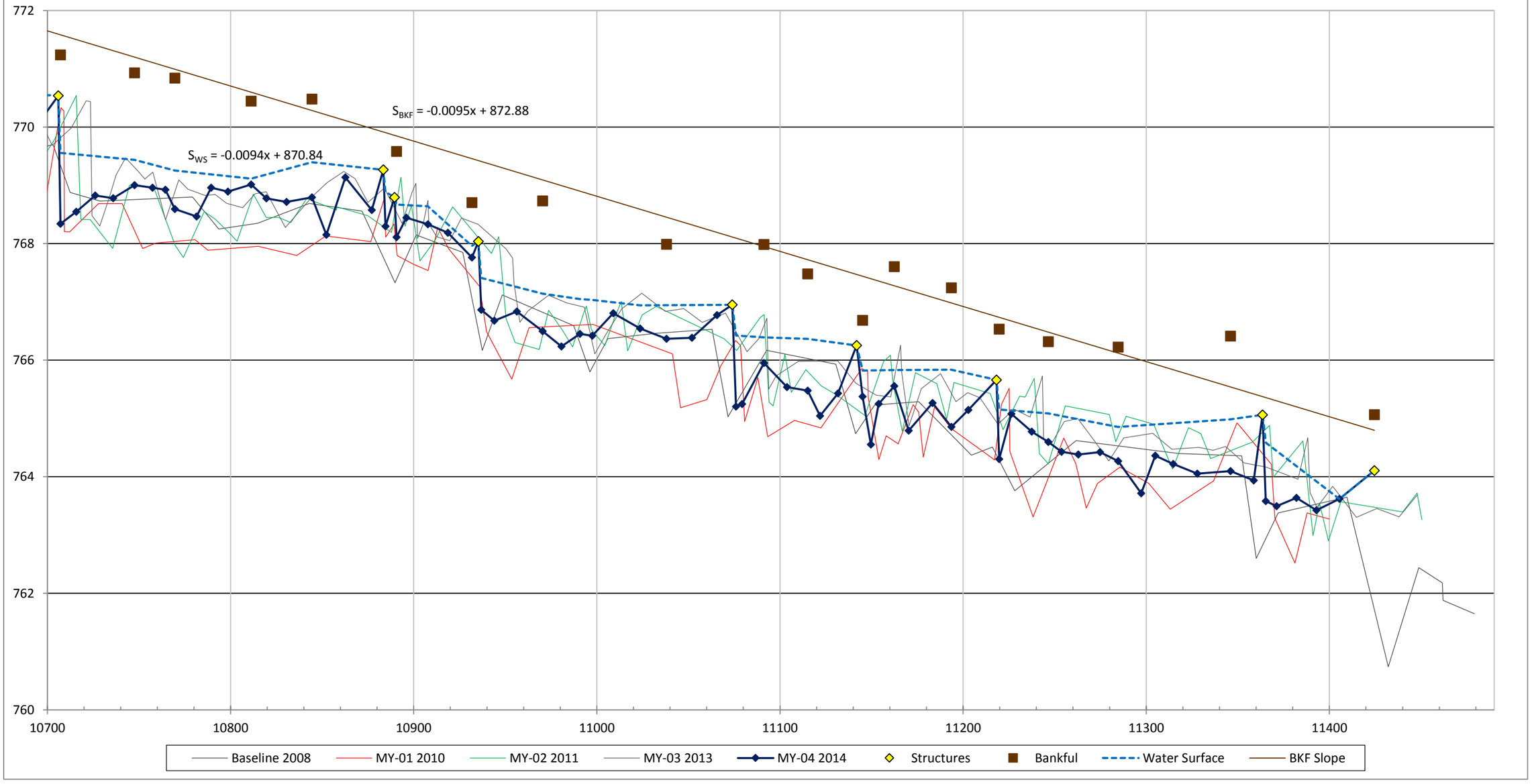
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 167+25 - 170+50 (Lower B)



Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 100+00 - 107+00 (Reach C)



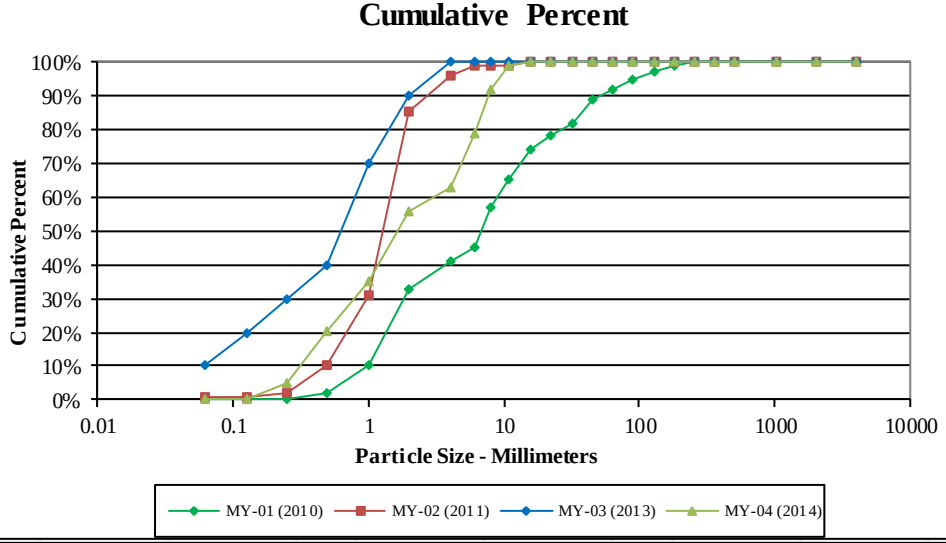
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 107+00 - 114+90 (Reach C)

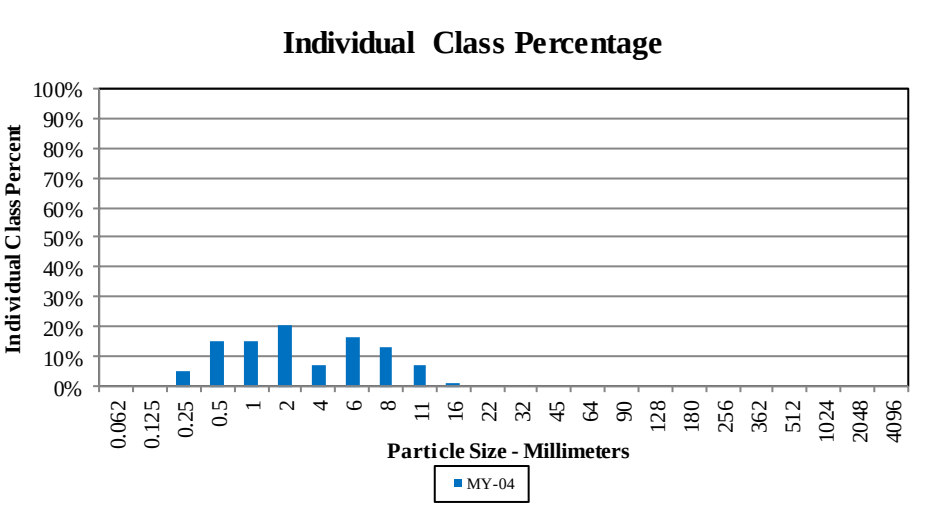


PEBBLE COUNT PLOTS

Cross-Section A1 Riffle - VFF MY-04					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A	5	5%	5%
Medium	.25 - .50	N	15	15%	20%
Coarse	.50 - 1	D	15	15%	35%
Very Coarse	1 - 2	S	20	20%	56%
Very Fine	2 - 4		7	7%	63%
Fine	4 - 5.7	G	16	16%	79%
Fine	5.7 - 8	R	13	13%	92%
Medium	8 - 11.3	A	7	7%	99%
Medium	11.3 - 16	V	1	1%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	99	100%	100%

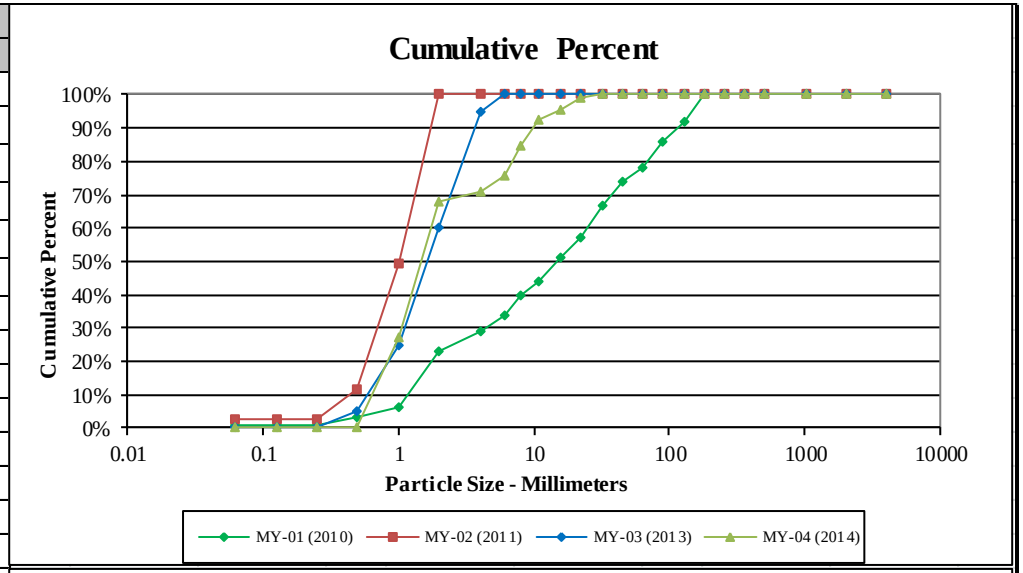
Size (mm)		Type	
D50	1.7	silt/clay	0%
D84	6.7	sand	56%
D95	9.2	gravel	44%
		cobble	0%

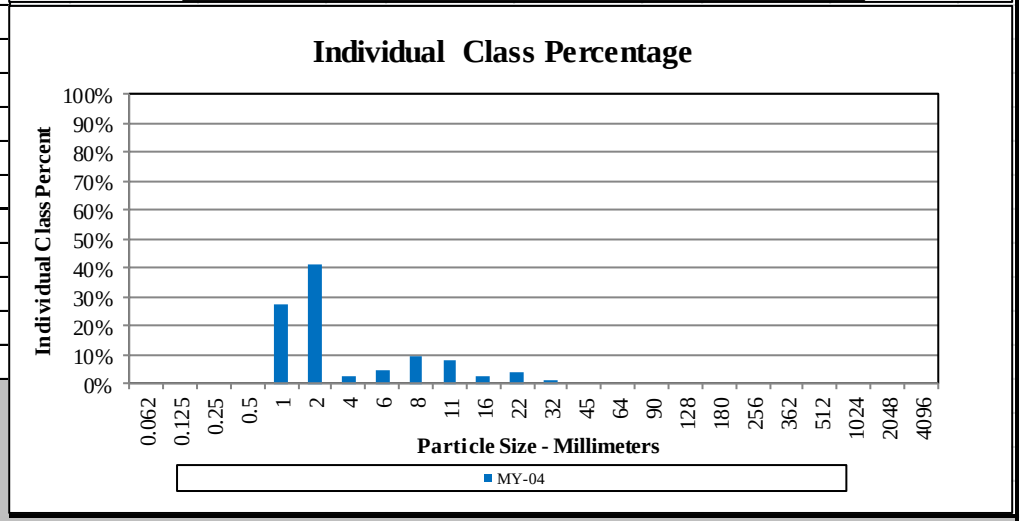




Cross-Section A2 Pool - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N		0%	0%
Coarse	.50 - 1	D	30	27%	27%
Very Coarse	1 - 2	S	45	41%	68%
Very Fine	2 - 4		3	3%	71%
Fine	4 - 5.7	G	5	5%	75%
Fine	5.7 - 8	R	10	9%	85%
Medium	8 - 11.3	A	9	8%	93%
Medium	11.3 - 16	V	3	3%	95%
Coarse	16 - 22.6	E	4	4%	99%
Coarse	22.6 - 32	L	1	1%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	110	100%	100%

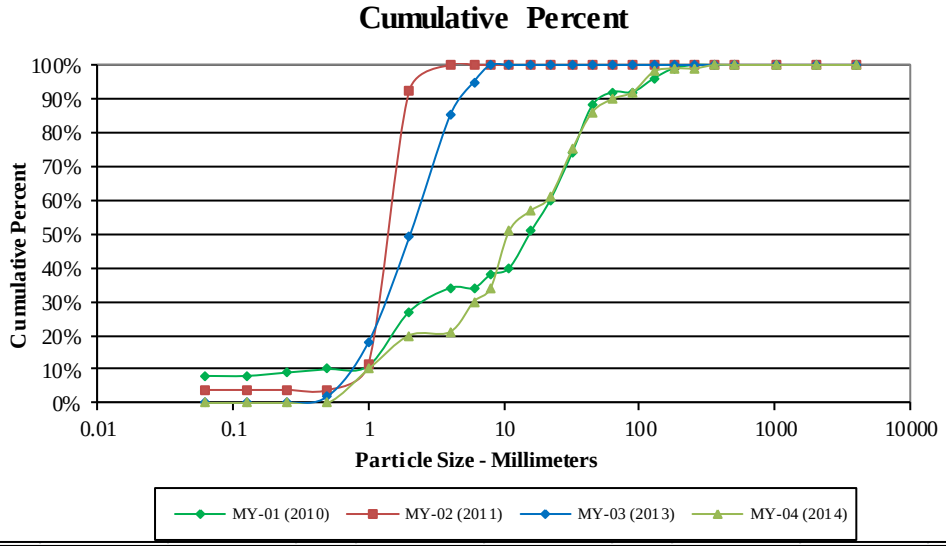
Size (mm)		Type	
D50	1.5	silt/clay	0%
D84	7.9	sand	68%
D95	15	gravel	32%
		cobble	0%

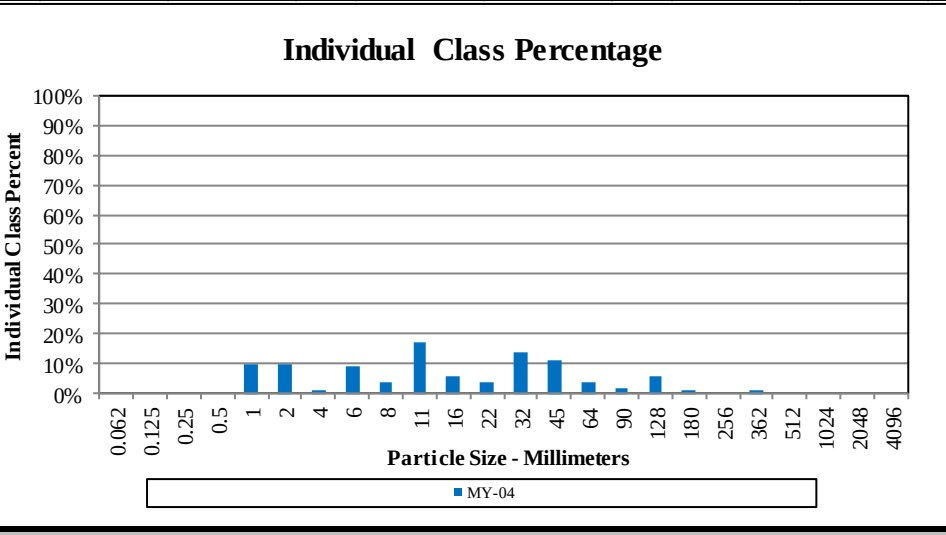




Cross-Section A3 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N		0%	0%
Coarse	.50 - 1	D	10	10%	10%
Very Coarse	1 - 2	S	10	10%	20%
Very Fine	2 - 4		1	1%	21%
Fine	4 - 5.7	G	9	9%	30%
Fine	5.7 - 8	R	4	4%	34%
Medium	8 - 11.3	A	17	17%	51%
Medium	11.3 - 16	V	6	6%	57%
Coarse	16 - 22.6	E	4	4%	61%
Coarse	22.6 - 32	L	14	14%	75%
Very Coarse	32 - 45	S	11	11%	86%
Very Coarse	45 - 64		4	4%	90%
Small	64 - 90	C	2	2%	92%
Small	90 - 128	O	6	6%	98%
Large	128 - 180	B	1	1%	99%
Large	180 - 256	L		0%	99%
Small	256 - 362	B	1	1%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

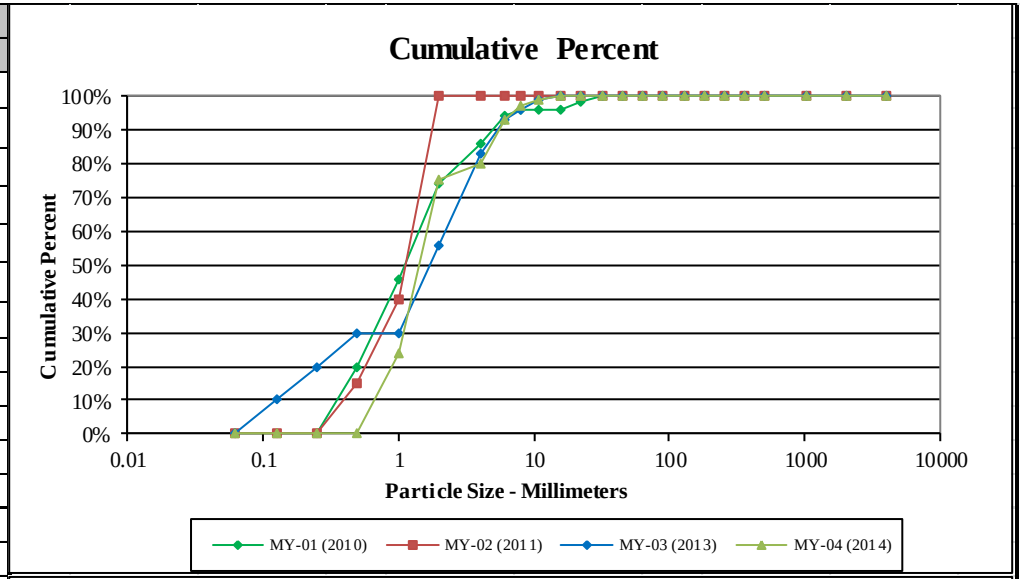
Size (mm)		Type	
D50	11	silt/clay	0%
D84	42	sand	20%
D95	110	gravel	70%
		cobble	9%

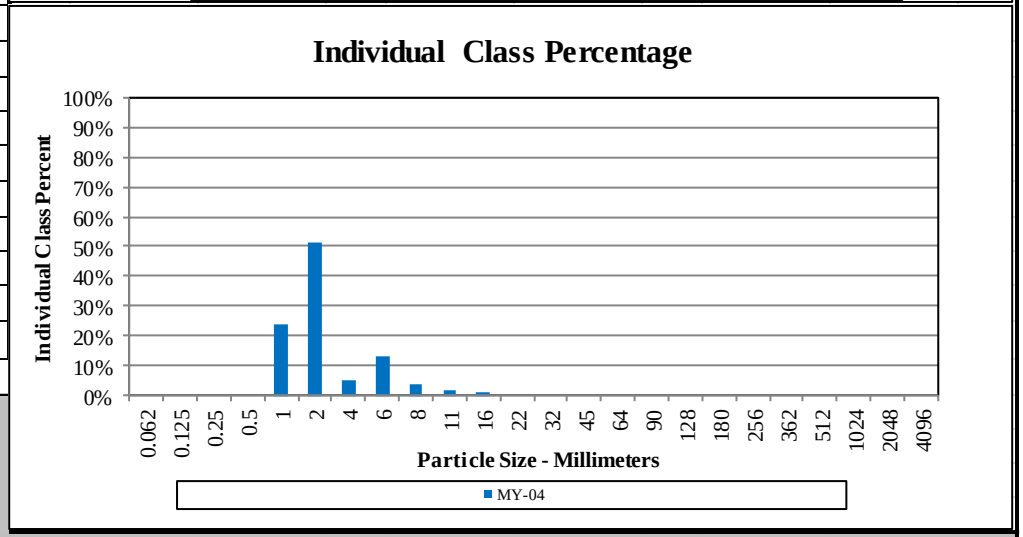




Cross-Section A10 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N		0%	0%
Coarse	.50 - 1	D	24	24%	24%
Very Coarse	1 - 2	S	51	51%	75%
Very Fine	2 - 4		5	5%	80%
Fine	4 - 5.7	G	13	13%	93%
Fine	5.7 - 8	R	4	4%	97%
Medium	8 - 11.3	A	2	2%	99%
Medium	11.3 - 16	V	1	1%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

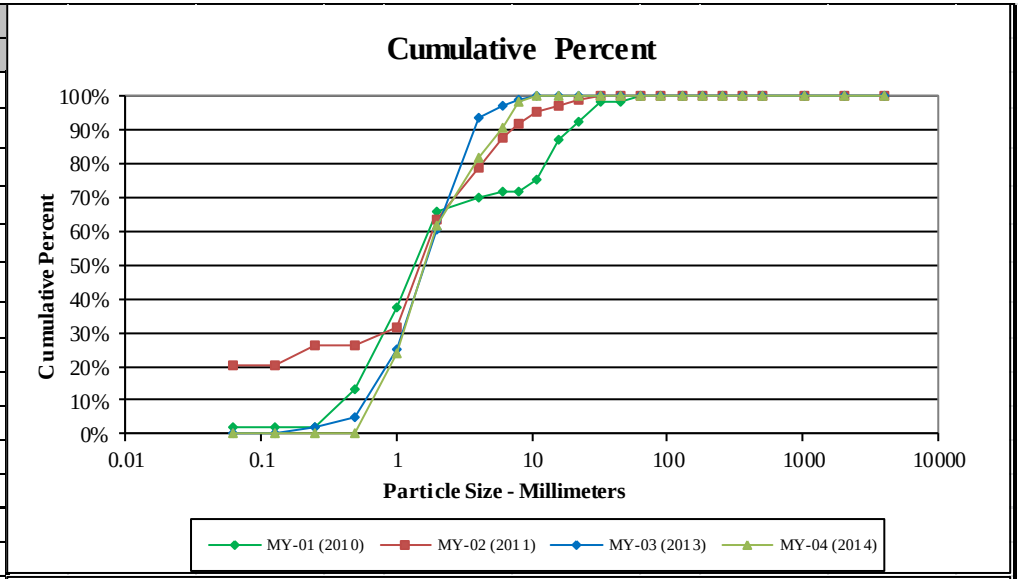
Size (mm)		Type	
D50	1.4	silt/clay	0%
D84	4.5	sand	75%
D95	6.9	gravel	25%
		cobble	0%

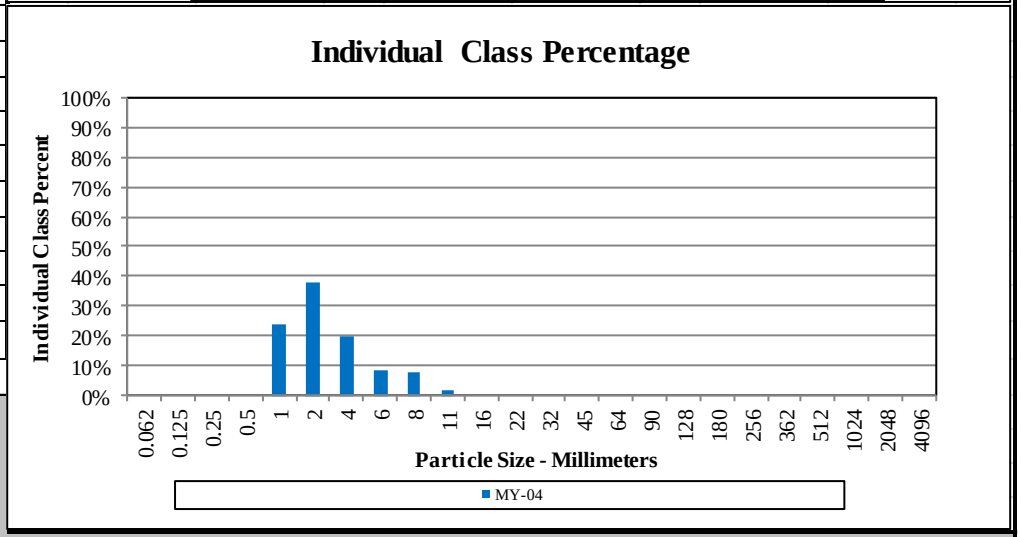




Cross-Section B1 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N		0%	0%
Coarse	.50 - 1	D	25	24%	24%
Very Coarse	1 - 2	S	40	38%	62%
Very Fine	2 - 4		21	20%	82%
Fine	4 - 5.7	G	9	9%	90%
Fine	5.7 - 8	R	8	8%	98%
Medium	8 - 11.3	A	2	2%	100%
Medium	11.3 - 16	V		0%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	105	100%	100%

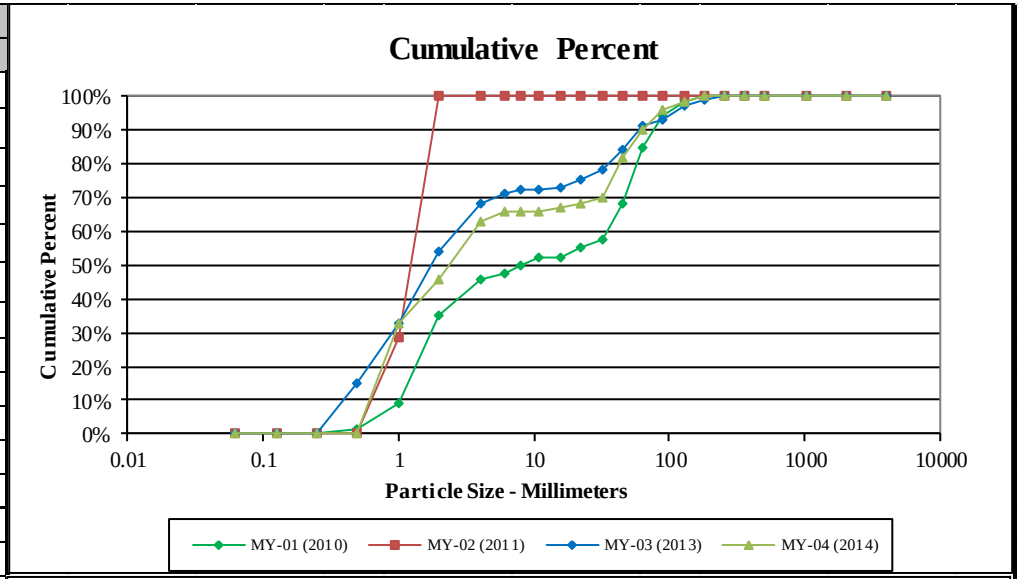
Size (mm)		Type	
D50	1.6	silt/clay	0%
D84	4.4	sand	62%
D95	7.1	gravel	38%
		cobble	0%





Cross-Section C3 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N		0%	0%
Coarse	.50 - 1	D	33	33%	33%
Very Coarse	1 - 2	S	13	13%	46%
Very Fine	2 - 4		17	17%	63%
Fine	4 - 5.7	G	3	3%	66%
Fine	5.7 - 8	R		0%	66%
Medium	8 - 11.3	A		0%	66%
Medium	11.3 - 16	V	1	1%	67%
Coarse	16 - 22.6	E	1	1%	68%
Coarse	22.6 - 32	L	2	2%	70%
Very Coarse	32 - 45	S	12	12%	82%
Very Coarse	45 - 64		8	8%	90%
Small	64 - 90	C	6	6%	96%
Small	90 - 128	O	2	2%	98%
Large	128 - 180	B	2	2%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

Size (mm)		Type	
D50	2.4	silt/clay	0%
D84	49	sand	46%
D95	85	gravel	36%
		cobble	10%



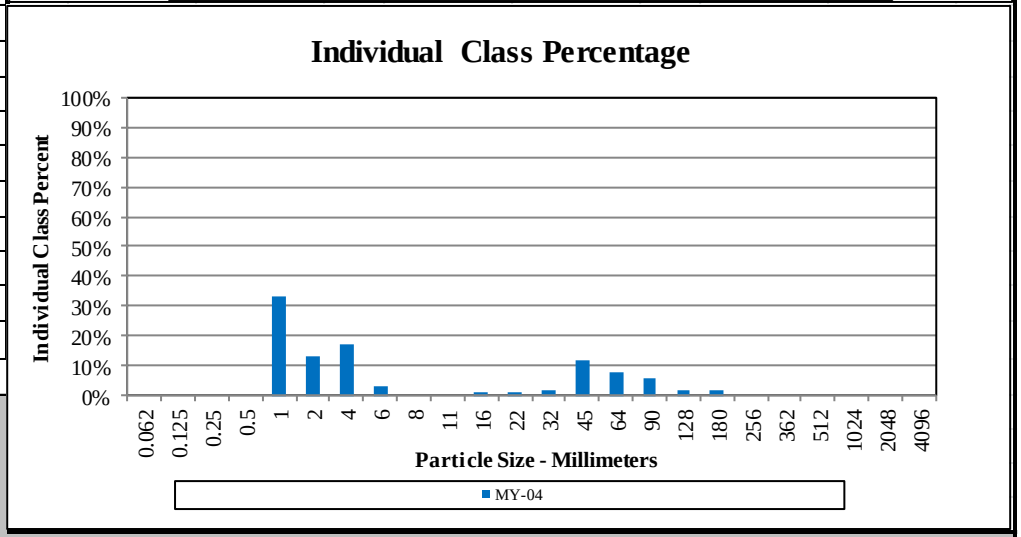


TABLE 10. BASELINE STREAM DATA SUMMARY TABLE

Table 10a.1 Baseline Stream Data Summary
Valley Fields Farm/407 - Upper A: 800 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		20.502	22.66	21.581			18.2			1	5.7	10.1	9.4	15.2		3		30		29.1	30.05		31		2
Floodprone Width (ft)							20.8			1	23.3	53.033	49.9	85.9		3		66		90	90.7		91.4		2
Bankfull Mean Depth (ft)		2.2206	2.4544	2.3375			1.7			1	0.5	0.9	1	1.2		3		1.9		1.6	1.85		2.1		2
[1]Bankfull Max Depth (ft)							1.9			1	1.2	1.5333	1.5	1.9		3		2.9		2.8	3		3.2		2
Bankfull Cross Sectional Area (ft^2)		52.257	57.758	55.008			30.9			1	2.7	10.2	8.9	19		3		57.5		50.1	55.1		60.1		2
Width/Depth Ratio							10.7			1	9.4	11.167	11.4	12.7		3		15.8		14.2	16.65		19.1		2
Entrenchment Ratio							1.1			1	1.5	6.4667	8.8	9.1		3		2.2		3	3		3		2
[1]Bank Height Ratio							2.8			1	1.1	1.3333	1.4	1.5		3		1		1	1		1		2
Profile																									
Riffle Length (ft)																				56.5	88.5		120.4		1
Riffle Slope (ft/ft)					0.0026	0.003		0.0033		2	0.0061	0.0337	0.0173	0.0961	0.0361	6	0.0031	0.0031	0.0064	0.0034	0.0034		0.0034		1
Pool Length (ft)																				38.5	74.1		98.5		3
Pool Max depth (ft)					2.6	2.6		2.6		1	0.9	1.9	1.4	3.9	1.13	6	2.5	3.8	4.8	3.72	4.21		5.1		3
Pool Spacing (ft)					30	42		77		2	15.3	31.7	31.6	52.4	13.8	6	120	120	150	155.7	248.2		340.6		2
Pattern																									
Channel Beltwidth (ft)					36		59	79		3	43.2	79.2	84.3	105.1	26.1	4	201	229	256	22.1	118.1	126	197.2	71.914	4
Radius of Curvature (ft)					17		72	248		3	16.4	29.5	22	51	14.7	5	60	90	120	10.1	45.7	49.2	79.8	28.527	5
Rc:Bankfull width (ft/ft)					0.9341		3.956	13.626		3	1.7	4.1	3.7	6.8	1.7	6	2	3	4	0.3	1.5		2.6	1.1141	6
Meander Wavelength (ft)					76		143	196		3	44.7	141.3	114	320.6	106.5	6	240	300	360	117	302.2	292..4	613.9	251.12	6
Meander Width Ratio					4.1758		7.8571	10.769		3	7.6	10.9	11.2	15.5	3.1	5	8	10	12	4.0	10.1		19.8	7.9637	5
Transport parameters																									
Reach Shear Stress (competency) lb/ft^2							0.31824										0.560976				0.386724				
Max part size (mm) mobilized at bankfull							23.64698193										42.68793974				28.97191657				
Stream Power (transport capacity) W/m^2							45.2088										46.71576				50.48316				
Additional Reach Parameters																									
Rosgen Classification							G5c/F5						B4/E5/C4				B5c/C5				C5				
Bankfull Velocity (fps)		4.1722	4.6114	4.3918			6.9										4.2				4.382940109				
Bankfull Discharge (cfs)		229.5	253.66	241.58			213.1																		
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)							1.1						1.1-1.3				1.2								
Water Surface Slope (Channel) (ft/ft)							0.003						0.0080-0.0215				0.0028				0.0029				
BF slope (ft/ft)							0.003						0.0082-0.0522				0.0031				0.0024				
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.2 Baseline Stream Data Summary
Valley Fields Farm/407 - Upper A2: 1,850 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		20.502	22.66	21.581	14.6	16.55		18.5		2	5.7	10.1	9.4	15.2		3		30		30.1	30.8		31.1		3
Floodprone Width (ft)					23.7	75.25		126.8		2	23.3	53.033	49.9	85.9		3		66		78.6	98.6		126.6		3
Bankfull Mean Depth (ft)		2.2206	2.4544	2.3375	2.7	2.75		2.8		2	0.5	0.9	1	1.2		3		1.9		1.8	2		2.2		3
[1]Bankfull Max Depth (ft)					3.4	3.45		3.5		2	1.2	1.5333	1.5	1.9		3		2.9		3.2	3.5		4		3
Bankfull Cross Sectional Area (ft^2)		52.257	57.758	55.008	40.4	45		49.6		2	2.7	10.2	8.9	19		3		57.5		55.2	62.2		69		3
Width/Depth Ratio					5.2	6.05		6.9		2	9.4	11.167	11.4	12.7		3		15.8		14	15.3		16.4		3
Entrenchment Ratio					1.6	4.25		6.9		2	1.5	6.4667	8.8	9.1		3		2.2		2.5	3.2		4.1		3
[1]Bank Height Ratio					1.5	1.8		2.1		2	1.1	1.3333	1.4	1.5		3		1		1	1		1		3
Profile																									
Riffle Length (ft)																				33.3	52		86.3		3
Riffle Slope (ft/ft)					0.0026	0.003	0.0044	0.0033	0.0008	4	0.0061	0.0337	0.0173	0.0961	0.0361	6	0.0031	0.0031	0.0064	0.0016	0.0086		0.0135		5
Pool Length (ft)																				60.8	110.4		238.6		3
Pool Max depth (ft)					2.5	2.8	2.6	3.2		3	0.9	1.9	1.4	3.9	1.13	6	2.5	3.8	4.8	4.15	5.03		5.94		11
Pool Spacing (ft)					30	42	53.7	77		3	15.3	31.7	31.6	52.4	13.8	6	120	120	150	142.7	238		300.6		5
Pattern																									
Channel Beltwidth (ft)					36	60	59.2	79	16	6	43.2	79.2	84.3	105.1	26.1	4	201	229	256	22.1	118.1	126	197.2	71.914	
Radius of Curvature (ft)					14	87.4	58.5	248	87.4	6	16.4	29.5	22	51	14.7	5	60	90	120	10.1	45.7	49.2	79.8	28.527	
Rc:Bankfull width (ft/ft)					0.8459	5.3	3.7	17	6	6	1.7	4.1	3.7	6.8	1.7	6	2	3	4	0.3	1.5		2.6	1.1153	
Meander Wavelength (ft)					58	139.8	58.5	228	65.9	6	44.7	141.3	114	320.6	106.5	6	240	300	360	117	302.2	292..4	613.9	251.12	
Meander Width Ratio					2.5	3.6	3.6	5.4	1.1	6	7.6	10.9	11.2	15.5	3.1	5	8	10	12	3.9	9.8		19.7	8.0101	
Transport parameters																									
Reach Shear Stress (competency) lb/ft^2							0.5148											0.560976					1.07328		
Max part size (mm) mobilized at bankfull							39.03306101											42.68793974					83.92826353		
Stream Power (transport capacity) W/m^2							45.2088											46.71576					129.59856		
Additional Reach Parameters																									
Rosgen Classification							G5/Incised E5						B4/E5/C4					B5c/C5					C5		
Bankfull Velocity (fps)		4.1722	4.6114	4.3918			4.9-5.7											4.2					3.882636656		
Bankfull Discharge (cfs)		229.5	253.66	241.58			241.1																		
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)							1.0-1.1						1.1-1.3					1.2							
Water Surface Slope (Channel) (ft/ft)							0.0025-0.0040						0.0080-0.0215					0.0028					0.0036		
BF slope (ft/ft)							0.0030-0.0035						0.0082-0.0522					0.0031					0.0036		
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.3 Baseline Stream Data Summary
Valley Fields Farm/407 - Lower A: 1,400 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		25.261	27.921	26.591			45.1			1	5.7	10.1	9.4	15.2		3		30		30.1	30.8		31.1		3
Floodprone Width (ft)							63.3			1	23.3	53.033	49.9	85.9		3		66		78.6	98.6		126.6		3
Bankfull Mean Depth (ft)		2.5939	2.8669	2.7304			2			1	0.5	0.9	1	1.2		3		1.9		1.8	2		2.2		3
[1]Bankfull Max Depth (ft)							3.5			1	1.2	1.5333	1.5	1.9		3		2.9		3.2	3.5		4		3
Bankfull Cross Sectional Area (ft^2)		72.699	80.351	76.525			91.3			1	2.7	10.2	8.9	19		3		57.5		55.2	62.2		69		3
Width/Depth Ratio							22.6			1	9.4	11.167	11.4	12.7		3		15.8		14	15.3		16.4		3
Entrenchment Ratio							1.4			1	1.5	6.4667	8.8	9.1		3		2.2		2.5	3.2		4.1		3
[1]Bank Height Ratio							1.7			1	1.1	1.3333	1.4	1.5		3		1		1	1		1		3
Profile																									
Riffle Length (ft)																				36.8	44.4		51.6		3
Riffle Slope (ft/ft)					0.0075	0.0089		0.0102		2	0.0061	0.0337	0.0173	0.0961	0.0361	6	0.0031	0.0031	0.0064	0.0016	0.0086		0.0135		5
Pool Length (ft)																				89.6	119.8		152.8		3
Pool Max depth (ft)					4	4.6		5.3		2	0.9	1.9	1.4	3.9	1.13	6	2.5	3.8	4.8	4.15	5.03		5.94		11
Pool Spacing (ft)					53	104		156		2	15.3	31.7	31.6	52.4	13.8	6	120	120	150	142.7	238		300.6		5
Pattern																									
Channel Beltwidth (ft)					36	60	59.2	79	16	6	43.2	79.2	84.3	105.1	26.1	4	201	229	256	22.1	118.1	126	197.2	71.914	
Radius of Curvature (ft)					14	87.4	58.5	248	87.4	6	16.4	29.5	22	51	14.7	5	60	90	120	10.1	45.7	49.2	79.8	28.527	
Rc:Bankfull width (ft/ft)					2	5.3	3.7	17	6	6	1.7	4.1	3.7	6.8	1.7	6	2	3	4	0.3	1.5		2.6	1.1153	
Meander Wavelength (ft)					58	139.8	58.5	228	65.9	6	44.7	141.3	114	320.6	106.5	6	240	300	360	117	302.2	292..4	613.9	251.12	
Meander Width Ratio					2.5	3.6	3.6	5.4	1.1	6	7.6	10.9	11.2	15.5	3.1	5	8	10	12	3.9	9.8		19.7	8.0101	
Transport parameters																									
Reach Shear Stress (competency) lb/ft^2							1.11072										0.560976				1.07328				
Max part size (mm) mobilized at bankfull							86.98116865										42.68793974				83.92826353				
Stream Power (transport capacity) W/m^2							134.11944										46.71576				129.59856				
Additional Reach Parameters																									
Rosgen Classification							G5/Incised E5						B4/E5/C4				B5c/C5				C5				
Bankfull Velocity (fps)		4.2541	4.7019	4.478			4.9-5.7										4.2				3.882636656				
Bankfull Discharge (cfs)		325.54	359.81	342.68			241.1																		
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)							1.0-1.1						1.1-1.3				1.2								
Water Surface Slope (Channel) (ft/ft)							0.0025-0.0040						0.0080-0.0215				0.0028				0.0015				
BF slope (ft/ft)							0.0030-0.0035						0.0082-0.0522				0.0031				0.002				
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.4 Baseline Stream Data Summary
Valley Fields Farm/407 - Upper B: 200 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		15.54	17.176	16.358	14.3	15.4		16.4		2	5.7	10.1	9.4	15.2		3		27.5				21.4			1
Floodprone Width (ft)					20	20.8		21.6		2	23.3	53.033	49.9	85.9		3		60.5				88.1			1
Bankfull Mean Depth (ft)		1.8069	1.9971	1.902	1.9	2.1		2.2		2	0.5	0.9	1	1.2		3		1.6				2			1
[1]Bankfull Max Depth (ft)					2.5	2.7		2.8		2	1.2	1.5333	1.5	1.9		3		2.3				3.1			1
Bankfull Cross Sectional Area (ft^2)		33.717	37.267	35.492	27.1	31.7		36.2		2	2.7	10.2	8.9	19		3		43.1				42.4			1
Width/Depth Ratio					7.3	7.4		7.5		2	9.4	11.167	11.4	12.7		3		17.5				10.8			1
Entrenchment Ratio					1.3	1.4		1.4		2	1.5	6.4667	8.8	9.1		3		2.2				4.1			1
[1]Bank Height Ratio					2.6	2.8		3		2	1.1	1.3333	1.4	1.5		3		1				1			1
Profile																									
Riffle Length (ft)																						18.4			1
Riffle Slope (ft/ft)					0.0053	0.0131		0.0181		2	0.0061	0.0337	0.0173	0.0961	0.0361	6		0.0039				0.0005			1
Pool Length (ft)																				41.1	41.6		42.2		2
Pool Max depth (ft)					2.8	3		3.2		2	0.9	1.9	1.4	3.9	1.13	6	2	3.2	3.9	3.23	3.24		3.24		2
Pool Spacing (ft)					31	42		61		2	15.3	31.7	31.6	52.4	13.8	6	110	110	138			107.5			1
Pattern																									
Channel Beltwidth (ft)					29	50	46	75		3	43.2	79.2	84.3	105.1	26.1	4	101	109	120	108.7	170.8	164.6	261..6	34.204	4
Radius of Curvature (ft)					15	105.67	76	226		3	16.4	29.5	22	51	14.7	5	55	83	110	23.8	55.4	50.5	110.1	36.202	5
Rc:Bankfull width (ft/ft)					1	6.8667	4.9	14.7		3	1.7	4.1	3.7	6.8	1.7	6	2	3.0182	4			2.4			6
Meander Wavelength (ft)					108	358.67	296	672		3	44.7	141.3	114	320.6	106.5	6	220	275	330	148.2	327.6	266.7	621	201.06	6
Meander Width Ratio					7	23.267	19.2	43.6		3	7.6	10.9	11.2	15.5	3.1	5	8	10	12			12.5			5
Transport parameters																									
Reach Shear Stress (competency) lb/ft^2					1.716624												0.559728			0.067392					
Max part size (mm) mobilized at bankfull					136.9105109												42.58898812			4.691537038					
Stream Power (transport capacity) W/m^2					197.41176												58.77144			8.137584					
Additional Reach Parameters																									
Rosgen Classification					G5/Incised E5						B4/E5/C4						B5c/C5			E5					
Bankfull Velocity (fps)		4.0661	4.4941	4.2801	4.5-5.6												4.2			3.837264151					
Bankfull Discharge (cfs)		144.31	159.5	151.91	162.7																				
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)					1.1						1.1-1.3						1.1								
Water Surface Slope (Channel) (ft/ft)					0.0046						0.0080-0.0215						0.0039			Flat					
BF slope (ft/ft)					0.0131						0.0082-0.0522						0.0047			0.0047					
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.5 Baseline Stream Data Summary
Valley Fields Farm/407 - Lower B: 230 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		16.16	17.861	17.011	14.3	15.4		16.4		2	5.7	10.1	9.4	15.2		3		27.5				48.4			1
Floodprone Width (ft)					20	20.8		21.6		2	23.3	53.033	49.9	85.9		3		60.5				91.3			1
Bankfull Mean Depth (ft)		1.8602	2.056	1.9581	1.9	2.1		2.2		2	0.5	0.9	1	1.2		3		1.6				1.4			1
[1]Bankfull Max Depth (ft)					2.5	2.7		2.8		2	1.2	1.5333	1.5	1.9		3		2.3				2.9			1
Bankfull Cross Sectional Area (ft^2)		35.869	39.645	37.757	27.1	31.7		36.2		2	2.7	10.2	8.9	19		3		43.1				67.8			1
Width/Depth Ratio					7.3	7.4		7.5		2	9.4	11.167	11.4	12.7		3		17.5				34.5			1
Entrenchment Ratio					1.3	1.4		1.4		2	1.5	6.4667	8.8	9.1		3		2.2				1.9			1
[1]Bank Height Ratio					2.6	2.8		3		2	1.1	1.3333	1.4	1.5		3		1				1			1
Profile																									
Riffle Length (ft)																				14	25.5		40.2		2
Riffle Slope (ft/ft)					0.0053	0.0131		0.0181		2	0.0061	0.0337	0.0173	0.0961	0.0361	6		0.0039		0.0027	0.0067		0.0087		2
Pool Length (ft)																				19.1	20.3		21.5		2
Pool Max depth (ft)					2.8	3		3.2		2	0.9	1.9	1.4	3.9	1.13	6	2	3.2	3.9			4.1			1
Pool Spacing (ft)					31	42		61		2	15.3	31.7	31.6	52.4	13.8	6	110	110	138			88.9			1
Pattern																									
Channel Beltwidth (ft)					29	50	46	75		3	43.2	79.2	84.3	105.1	26.1	4	97	106	122	108.7	170.8	164.6	261..6	34.204	4
Radius of Curvature (ft)					15	105.67	76	226		3	16.4	29.5	22	51	14.7	5	57	85	114	23.8	55.4	50.5	110.1	36.202	5
Rc:Bankfull width (ft/ft)					1	6.8667	4.9	14.7		3	1.7	4.1	3.7	6.8	1.7	6	2.0727	3.0909	4.1455			1.0			6
Meander Wavelength (ft)					108	358.67	296	672		3	44.7	141.3	114	320.6	106.5	6	227	284	341	148.2	327.6	266.7	621	201.06	6
Meander Width Ratio					7	23.267	19.2	43.6		3	7.6	10.9	11.2	15.5	3.1	5	8.2545	10.327	12.4			5.5			5
Transport parameters																									
Reach Shear Stress (competency) lb/f^2					1.716624												0.559728			0.5826912					
Max part size (mm) mobilized at bankfull					136.9105109												42.58898812			44.41116115					
Stream Power (transport capacity) W/m^2					197.41176												58.77144			100.514232					
Additional Reach Parameters																									
Rosgen Classification					G5/Incised E5						B4/E5/C4						B5c/C5			B5					
Bankfull Velocity (fps)		4.0809	4.5105	4.2957	4.5-5.6												4.2			2.399705015					
Bankfull Discharge (cfs)		154.08	170.3	162.19	162.7																				
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)					1.1						1.1-1.3						1.1								
Water Surface Slope (Channel) (ft/ft)					0.0046						0.0080-0.0215						0.0039			0.0035					
BF slope (ft/ft)					0.0131						0.0082-0.0522						0.0047			0.0047					
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.6 Baseline Stream Data Summary
Valley Fields Farm/407 - Reach C: 1,400 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		5.1366	5.6773	5.407			7			1	5.7	10.1	9.4	15.2		3		11.5		8.9	12.133	13.5	14		3
Floodprone Width (ft)							14.1			1	23.3	53.033	49.9	85.9		3		25.3		39.6	45.6	48.5	48.7		3
Bankfull Mean Depth (ft)		0.7927	0.8762	0.8345			0.6			1	0.5	0.9	1	1.2		3		0.7		0.6	0.8333	0.9	1		3
[1]Bankfull Max Depth (ft)							0.9			1	1.2	1.5333	1.5	1.9		3		1.2		1.1	1.5333	1.7	1.8		3
Bankfull Cross Sectional Area (ft^2)		5.8553	6.4716	6.1634			3.3			1	2.7	10.2	8.9	19		3		7.8		7.5	9.6	8.9	12.4		3
Width/Depth Ratio							11.7			1	9.4	11.167	11.4	12.7		3		17.2		8.9	16.267	15.9	24		3
Entrenchment Ratio							2			1	1.5	6.4667	8.8	9.1		3		2.2		3.5	3.8333	3.6	4.4		3
[1]Bank Height Ratio							1			1	1.1	1.3333	1.4	1.5		3		1		1	1	1	1		3
Profile																									
Riffle Length (ft)																				21.7	41.6	36.7	90.8	23.5	7
Riffle Slope (ft/ft)											0.0061	0.0337	0.0173	0.0961	0.0361	6		0.0086		0.0017	0.0066	0.0082	0.0104	0.0035	7
Pool Length (ft)																				25.8	50.2	56.4	66.7	16.7	6
Pool Max depth (ft)											0.9	1.9	1.4	3.9	1.13	6	0.9	1.5	1.7	2.18	2.52	2.58	2.78	0.25	7
Pool Spacing (ft)											15.3	31.7	31.6	52.4	13.8	6	45	69	92	46	92.5	91.9	152.2	37.9	9
Pattern																									
Channel Beltwidth (ft)											43.2	79.2	84.3	105.1	26.1	4	33	46	58	84.1	97.4	96.4	112	11.417	4
Radius of Curvature (ft)											16.4	29.5	22	51	14.7	5	23	35	46	20.8	32.5	30.7	59.4	16.521	5
Rc:Bankfull width (ft/ft)											1.7	4.1	3.7	6.8	1.7	6	2	3.0435	4	2.3	2.7	2.3	4.2	0.9237	6
Meander Wavelength (ft)											44.7	141.3	114	320.6	106.5	6	92	115	138	72.5	187.8	131.2	595.1	237.02	6
Meander Width Ratio											7.6	10.9	11.2	15.5	3.1	5	8	10	12	8.1	15.5	9.7	42.5	16.01	5
Transport parameters																									
Reach Shear Stress (competency) lb/f^2																	0.643968			0.370656					
Max part size (mm) mobilized at bankfull																	49.28807318			27.71871363					
Stream Power (transport capacity) W/m^2																	129.59856			123.57072					
Additional Reach Parameters																									
Rosgen Classification							Incised B5						B4/E5/C4				C5/E5			E5					
Bankfull Velocity (fps)		3.6682	4.0543	3.8612			6.5										3.1			18.28089888					
Bankfull Discharge (cfs)		22.609	24.989	23.799			21.6																		
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)													1.1-1.3				1.1								
Water Surface Slope (Channel) (ft/ft)													0.0080-0.0215				0.0066			0.0099					
BF slope (ft/ft)													0.0082-0.0522				0.0086			0.0095					
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10b. Baseline Stream Data Summary (Substrate, Bed, Bank, and Hydrologic Containment Parameter Distributions)
Valley Fields Farm/407

	Parameter	Pre-Existing Condition							Reference Reach(es) Data							Design							As-built/Baseline						
Upper A (800 feet)	[1]Ri% / Ru% / P% / G% / S%	10	20	30	40	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	16	1.18	69.41	29.41	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.6	0.93	1.35	6.49	9.96			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	800	0	0	0	0						X	X										0	0	0	300	500		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	200	600				X														800	0	0	0			
Upper A2 (1,850 feet)	Parameter	Pre-Existing Condition							Reference Reach(es) Data							Design							As-built/Baseline						
	[1]Ri% / Ru% / P% / G% / S%	10	10	20	60	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	14	60	26	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.09	0.65	1.25	6.16	11.3			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	1500	350	0	0	0						X	X										0	0	0	0	1850		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	1000	850				X														1850	0	0	0			
Lower A (1,400 feet)	Parameter	Pre-Existing Condition							Reference Reach(es) Data							Design							As-built/Baseline						
	[1]Ri% / Ru% / P% / G% / S%	5	10	5	80	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	8.33	33.3	58.3	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.19	1.5	2.62	8.88	11.3			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	100	900	400	0	0						X	X										0	0	1400	0	0		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	1200	200				X														1400	0	0	0			
Reach B (430 feet)	Parameter	Pre-Existing Condition							Reference Reach(es) Data							Design							As-built/Baseline						
	[1]Ri% / Ru% / P% / G% / S%	10	10	30	50	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	0	19	81	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	1.81	4	7.01	22.23	29.83			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	430	0	0	0	0						X	X										0	0	430	0	0		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	0	430				X														430	0	0	0			
Reach C (1,400 feet)	Parameter	Pre-Existing Condition							Reference Reach(es) Data							Design							As-built/Baseline						
	[1]Ri% / Ru% / P% / G% / S%															30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	18.63	34.31	47.06	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.05	1.17	1.86	5.67	7.49			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	600	800	0	0	0						X	X										0	0	1000	400	0		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	1000	400	0	0				X														1400	0	0	0			

Shaded cells indicate that these will typically not be filled in.

1 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

2 = Entrenchment Class - Assign/bin the reach footage into the classes indicated and provide the percentage of the total reach footage in each class in the table. This will result from the measured cross-sections as well as visual estimates

3 = Assign/bin the reach footage into the classes indicated and provide the percentage of the total reach footage in each class in the table. This will result from the measured cross-sections as well as the longitudinal profile

TABLE 11. MONITORING MORPHOLOGY DATA TABLE

Table 11a. Monitoring Data - Dimensional Morphology Summary (Dimensional Parameters – Cross Sections)
Valley Fields Farm/407

	Cross Section A1 (Riffle)							Cross Section A2 (Riffle)							Cross Section A3 (Riffle)							Cross Section A4 (Pool)							Cross Section A5 (Riffle)						
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+
Record elevation (datum) used	760.8	760.8	760.8	760.8	760.8			760.7	760.7	760.7	760.7	760.7			762.0	762.0	762.0	762.0	762.0			764.0	764.0	764.0	764.0	764.0			765.7	765.7	765.7	765.7	765.7		
Bankfull Width (ft)	31.1	33.3	37.3	23.6	23.8			38.2	30.8	37.1	23.6	24.4			30.1	33.4	29.7	23.1	23.4			31.1	27.5	32.0	19.4	20.6			31.0	29.9	23.2	16.6	17.8		
Floodprone Width (ft)	>120	>120	>120	>120	>120			>100	>100	>100	>100	>100			>90	>90	>90	>90	>90			-	-	-	-	-			>90	>90	>90	>90	>90		
Bankfull Mean Depth (ft)	2.0	2.3	2.1	2.7	3.0			1.9	3.0	1.9	2.9	2.7			1.8	1.7	2.0	2.4	2.4			2.2	2.8	2.4	3.5	2.9			1.6	1.2	1.5	2.0	1.9		
Bankfull Max Depth (ft)	3.4	5.2	5.6	5.5	5.8			4.0	5.7	4.6	4.6	4.4			3.2	3.6	3.8	4.0	4.2			4.0	5.2	5.1	4.3	3.9			2.8	3.1	2.9	3.0	2.8		
Bankfull Cross Sectional Area (ft^2)	62.5	76.4	79.1	64.2	72.2			72.8	92.8	69.1	67.7	66.9			55.2	57.4	59.5	54.6	57.1			69.0	75.9	78.2	68.5	59.1			50.1	35.5	35.3	33.4	34.0		
Bankfull Width/Depth Ratio	15.5	14.6	17.6	8.7	7.8			20.1	10.2	19.9	8.2	8.9			16.4	19.4	14.8	10.1	9.6			-	-	-	-	-			19.1	25.1	15.2	8.3	9.3		
Bankfull Entrenchment Ratio	4.1	3.8	3.4	5.1	5.0			2.9	3.6	3.0	4.2	4.1			3.0	2.7	3.1	3.9	3.8			-	-	-	-	-			3.0	3.1	4.0	5.4	5.1		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0			-	-	-	-	-			1.0	1.0	1.0	1.0	1.0		
Cross Sectional Area between end pins (ft^2)	147.0	156.0	199.5	190.2	202.8			154.0	176.0	193.1	185.8	177.5			149.0	154.0	189.6	162.1	180.7			165.0	184.0	215.4	187.0	170.6			133.0	114.0	125.7	136.9	121.7		
d50 (mm)		6.7	1.4						15.3	1.4						15.6	26.6																		

	Cross Section A6 (Riffle)							Cross Section A7 (Pool)							Cross Section A10 (Riffle)							Cross Section A11 (Riffle)													
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+							
Record elevation (datum) used	766.9	766.9	766.9	766.9	766.9			767.0	767.0	767.0	767.0	767.0			755.5	755.5	755.5	755.5	755.5			754.9	754.9	754.9	754.9	754.9									
Bankfull Width (ft)	38.3	34.7	26.2	20.2	20.9			29.1	27.2	27.4	16.3	16.9			41.3	47.1	42.9	35.0	29.5			72.2	41.6	41.5	26.1	26.1									
Floodprone Width (ft)	>90	>90	>90	>90	>90			-	-	-	-	-			>90	>90	>90	>90	>90			>90	>90	>90	>90	>90									
Bankfull Mean Depth (ft)	1.9	2.2	2.6	2.2	2.4			2.1	2.0	2.0	2.7	2.6			2.3	2.3	1.7	2.0	2.0			1.9	1.8	1.5	1.7	1.8									
Bankfull Max Depth (ft)	3.7	4.7	4.7	3.4	3.0			3.2	3.9	4.0	3.6	3.4			4.0	3.8	3.8	3.6	3.3			5.1	3.5	3.6	3.1	2.7									
Bankfull Cross Sectional Area (ft^2)	71.0	75.6	68.7	45.4	50.1			60.1	54.8	54.7	43.2	43.4			95.5	85.4	74.0	69.3	59.9			137.4	74.6	61.4	44.9	46.7									
Bankfull Width/Depth Ratio	20.6	16.0	10.0	9.0	8.7			-	-	-	-	-			17.9	26.0	24.8	17.7	14.5			38.0	23.1	28.0	15.2	14.6									
Bankfull Entrenchment Ratio	2.2	2.4	3.2	4.5	4.3			-	-	-	-	-			2.8	2.3	2.9	2.6	3.1			1.8	2.5	2.6	3.4	3.4									
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	1.0			-	-	-	-	-			1.0	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0									
Cross Sectional Area between end pins (ft^2)	166.0	172.0	200.0	166.7	149.4			168.0	162.0	189.1	166.9	155.5			448.0	440.0	456.7	455.2	440.1			596.0	539.0	565.0	354.2	543.1									
d50 (mm)																																			

	Cross Section B1 (Riffle)							Cross Section B2 (Riffle)							Cross Section B3 (Riffle)							Cross Section B4 (Pool)													
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+							
Record elevation (datum) used	766.1	766.1	766.1	766.1	766.1			765.9	765.9	765.9	765.9	765.9			760.7	760.7	760.7	760.7	760.7			760.4	760.4	760.4	760.4	760.4									
Bankfull Width (ft)	21.4	36.4	22.8	24.3	24.7			35.7	34.3	33.7	27.5	25.9			48.4	44.4	22.1	23.1	21.6			44.1	38.3	27.9	15.1	11.9									
Floodprone Width (ft)	88.1	98.7	88.6	89.9	93.5			106.1	106.7	99.6	97.2	94.6			91.3	93.7	96.5	90.8	92.6			-	-	-	-	-									
Bankfull Mean Depth (ft)	2.0	1.8	2.4	2.4	2.4			1.9	2.4	2.3	2.3	2.3			1.4	1.2	2.0	1.6	1.9			1.3	1.3	1.6	2.0	1.9									
Bankfull Max Depth (ft)	3.1	4.3	3.1	3.2	3.7			4.0	4.0	3.4	3.1	3.1			2.9	3.2	3.5	3.2	3.5			3.2	2.8	2.8	3.0	2.9									
Bankfull Cross Sectional Area (ft^2)	42.4	66.6	54.7	58.0	59.8			67.7	81.5	75.9	62.1	58.5			67.8	55.3	44.0	37.5	40.1			57.7	49.1	43.8	30.1	22.9									
Bankfull Width/Depth Ratio	10.8	19.9	9.5	10.2	10.2			18.8	14.4	15.0	12.2	11.5			34.5	35.8	11.1	14.2	11.6			-	-	-	-	-									
Bankfull Entrenchment Ratio	4.1	2.7	3.9	3.7	3.8			3.0	3.1	3.0	3.5	3.7			1.9	2.1	4.4	3.9	4.3			-	-	-	-	-									
Bankfull Bank Height Ratio	1.0	1.0	1.2	1.0	1.0			1.0	1.0	1.1	1.0	1.0			1.0	1.0	1.0	1.0	1.0			-	-	-	-	-									
Cross Sectional Area between end pins (ft^2)	586.0	619.0	574.2	616.2	620.7			690.0	718.0	638.3	688.0	678.2			582.0	571.0	549.2	563.8	567.5			479.0	431.0	444.3	433.3	430.7									
d50 (mm)		1.4	1.6																																

	Cross Section C1 (Riffle)							Cross Section C2 (Pool)							Cross Section C3 (Riffle)							Cross Section C4 (Riffle)													
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+							
Record elevation (datum) used	775.3	775.3	775.3	775.3	775.3			774.0	774.0	774.0	774.0	774.0			769.2	769.2	769.2	769.2	769.2			767.4	767.4	767.4	767.4	767.4									
Bankfull Width (ft)	14.0	11.7	7.6	5.8	6.7			12.9	5.9	5.5	5.2	4.9			13.5	14.1	19.0	5.8	6.8			8.9	11.2	11.9	4.6	6.7									
Floodprone Width (ft)	48.5	50.4	48.0	36.0	48.0			59.2	54.5	71.3	-	-			48.7	48.7	48.7	43.4	37.8			39.6	40.8	41.5	38.0	38.9									
Bankfull Mean Depth (ft)	0.9	0.8	0.8	1.0	1.3			0.9	1.1	1.4	0.6	0.8			0.6	0.4	0.4	0.7	0.6			1.0	0.8	0.9	1.1	1.1									
Bankfull Max Depth (ft)	1.8	2.1	1.5	1.6	2.0			2.0	1.9	2.0	0.9	1.1			1.1	1.2	1.2	1.0	0.9			1.7	2.6	2.4	1.7	1.9									
Bankfull Cross Sectional Area (ft^2)	12.4	9.1	6.1	5.6	8.7			12.0	6.3	7.6	3.3	4.0			7.5	5.7	8.4	3.9	3.8			8.9	9.4	10.2	5.1	7.4									
Bankfull Width/Depth Ratio	15.9	14.9	9.4	6.0	5.2			13.9	5.5	4.0	-	-			24.0	34.4	43.3	8.6	12.2			8.9	13.3	13.8	4.1	6.1									
Bankfull Entrenchment Ratio	3.5	4.3	6.3	6.2	7.2			4.6	9.3	12.9	-	-			3.6	3.5	2.6	7.5	5.6			4.4	3.7	3.5	8.3	5.8									
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	1.0			1.0	1.1	1.0	-	-			1.0	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0									
Cross Sectional Area between end pins (ft^2)	199.0	199.0	238.1	241.9	229.0			53.0	52.0	53.5	52.1	56.8			39.0	33.0	60.7	51.9	50.4			142.0	133.0	165.1	102.7	128.8									
d50 (mm)																8.6	57.0																		

1 = Widths and depths for monitoring resurvey will be based on the baseline bankfull datum regardless of dimensional/depositional development. Input the elevation used as the datum, which should be consistent and based on the baseline datum established. If the performer has inherited the project and cannot acquire the datum used for prior years this must be discussed with EEP. If this cannot be resolved in time for a given years report submission a footnote in this should be included that states: "It is uncertain if the monitoring datum has been consistent over the monitoring history, which may influence calculated values. Additional data from a prior performer is being acquired to provide confirmation. Values will be recalculated in a future submission based on a consistent datum if determined to be necessary."

Exhibit Table 11b.1 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Upper A: 800 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	29.1	30.1		31.0		2	33.3	33.3		33.4		2	23.2	25.6		27.4		3	16.6	18.4		20.2		2	17.8	19.4		20.9		2						
Floodprone Width (ft)	90.0	90.7		91.4		2	90.5	108.6		126.7		2	83.2	87.5		91.5		3	>90	>90		>90		2	>90	>90		>90		2						
Bankfull Mean Depth (ft)	1.6	1.9		2.1		2	1.7	2.0		2.3		2	1.5	2.0		2.6		3	2.0	2.1		2.2		2	1.9	2.2		2.4		2						
[1]Bankfull Max Depth (ft)	2.8	3.0		3.2		2	3.6	4.4		5.2		2	2.9	3.9		4.7		3	3.0	3.2		3.4		2	2.8	2.9		3.0		2						
Bankfull Cross Sectional Area (ft^2)	50.1	55.1		60.1		2	57.4	66.9		76.4		2	35.3	52.9		68.7		3	33.4	39.4		45.4		2	34.0	42.1		50.1		2						
Width/Depth Ratio	14.2	16.7		19.1		2	14.6	17.0		19.4		2	10.0	13.0		15.2		3	8.3	8.7		9.0		2	8.7	9.0		9.3		2						
Entrenchment Ratio	3.0	3.0		3.0		2	2.7	3.3		3.8		2	3.2	3.4		4.0		3	4.5	5.0		5.4		2	4.3	4.7		5.1		2						
[1]Bank Height Ratio	1.0	1.0		1.0		2	1.0	1.0		1.0		2	1.0	1.0		1.0		3	1.0	1.0		1.0		2	1.0	1.0		1.0		2						
Profile																																				
Riffle Length (ft)	56.5	88.5		120.4		1	21.7	63.7		105.7		2	14.9	30.0		52.1			No identifiable riffles						No identifiable riffles											
Riffle Slope (ft/ft)	0.0034	0.0034		0.0034		1	0.0032	0.0038		0.0043		2	0.0064	0.0109		0.0137																				
Pool Length (ft)	38.5	74.1		98.5		3	36.9	72.0		95.9		2	47.5	103.2		164.8			5.8	10.1		14.4		2	4.5	27.2		49.9		2						
Pool Max depth (ft)	3.7	4.2		5.1		3	3.3	4.0		4.5		3	2.1	2.6		3.2			1.4	1.6		1.7		2	1.5	1.7		1.8		2						
Pool Spacing (ft)	155.7	248.2		340.6		2	80.2	102.9		134.0		3	48.4	122.4		179.7			464.9	464.9		464.9		1	419.4	419.4		419.4		1						
Pattern																																				
Channel Beltwidth (ft)	22.1	118.1	126.0	197.2	71.9	4																														
Radius of Curvature (ft)	10.1	45.7	49.2	79.8	28.5	5																														
Rc:Bankfull width (ft/ft)	0.3	1.5		2.6	1.1	6																														
Meander Wavelength (ft)	117.0	302.2	292..4	613.9	251.1	6																														
Meander Width Ratio	4.0	10.1		19.8	8.0	5																														
Additional Reach Parameters																																				
Rosgen Classification	C5						C5						C5						C5						C5											
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.1						1.1						1.1						1.1						1.1											
Water Surface Slope (Channel) (ft/ft)	0.0029						0.0025						0.0002						0.0017						0.0017											
BF slope (ft/ft)	0.0024						0.0020						0.0010						0.0010						0.0016											
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			3%/61%/36%/0%/0%/0%						0%/55%/43%/2%/0%/0%											
[3] d50 / d84 / d95 /																			1.5/3.2/5.0						3.9/15.3/35.3											
[2]% of Reach with Eroding Banks																			3.0%						3.0%											
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.2 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Upper A2: 1,850 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	30.1	30.8		31.1		3	27.2	28.6		29.9		2	29.7	34.0		37.3	3.8	4	23.1	23.4		23.6		3	23.4	23.9		24.4		3						
Floodprone Width (ft)	78.6	98.6		126.6		3	87.7	89.6		91.5		2	78.6	101.4		126.7	21.1	4	>90	>90		>90		3	>90	>90		>90		3						
Bankfull Mean Depth (ft)	1.8	2.0		2.2		3	1.2	1.6		2.0		2	1.9	2.1		2.4	0.2	4	2.4	2.7		2.9		3	2.4	2.7		3.0		3						
[1]Bankfull Max Depth (ft)	3.2	3.5		4.0		3	3.1	3.5		3.9		2	3.8	4.8		5.6	0.8	4	4.0	4.7		5.5		3	4.2	4.8		5.8		3						
Bankfull Cross Sectional Area (ft^2)	55.2	62.2		69.0		3	35.5	45.2		54.8		2	59.5	71.5		79.1	9.2	4	54.6	62.2		67.7		3	57.1	65.4		72.2		3						
Width/Depth Ratio	14.0	15.3		16.4		3	13.6	19.3		25.1		2	13.1	16.4		19.9	3.0	4	8.2	9.0		10.1		3	7.8	8.8		9.6		3						
Entrenchment Ratio	2.5	3.2		4.1		3	3.1	3.1		3.2		2	2.5	3.0		3.4	0.4	4	3.9	4.4		5.1		3	3.8	4.3		5.0		3						
[1]Bank Height Ratio	1.0	1.0		1.0		3	1.0	1.0		1.0		2	1.0	1.0		1.0	0.0	4	1.0	1.0		1.0		3	1.0	1.0		1.0		3						
Profile																																				
Riffle Length (ft)	33.3	52.0		86.3		3	18.8	35.8		52.8		3	5.5	19.2		45.6			18.0	18.0		18.0		1	20.0	20.5		20.9		2						
Riffle Slope (ft/ft)	0.002	0.009		0.01		5	0.002	0.004		0.005		5	0.006	0.07		0.2			0.008	0.008		0.008		1	0.006	0.008		0.01		2						
Pool Length (ft)	60.8	110.4		238.6		3	77.4	141.2		405.4		3	14.0	50.9		84.7			7.1	18.6		28.7	6.9	11	9.5	18.7		26.1	4.8	14						
Pool Max depth (ft)	4.2	5.0		5.9		11	4.6	4.9		5.4		11	1.9	3.1		4.7			1.8	3.3		4.9	1.1	11	2.0	3.3		4.6	1.0	14						
Pool Spacing (ft)	142.7	238.0		300.6		5	50.7	142.4		244.4		5	38.2	122.3		249.5			31.3	117.8		212.4	47.8	10	27.0	110.8		224.3	52.9	13						
Pattern																																				
Channel Beltwidth (ft)	22.1	118.1	126.0	197.2	71.9	4																														
Radius of Curvature (ft)	10.1	45.7	49.2	79.8	28.5	5																														
Rc:Bankfull width (ft/ft)	0.3	1.5		2.6	1.1	6																														
Meander Wavelength (ft)	117.0	302.2	292.4	613.9	206.7	6																														
Meander Width Ratio	3.9	9.8		19.7	8.0	5																														
Additional Reach Parameters																																				
Rosgen Classification	C5						C5						C5						C5						C5											
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.18						1.18						1.18						1.18						1.18											
Water Surface Slope (Channel) (ft/ft)	0.0036						0.004						0.0035						0.0038						0.0036											
BF slope (ft/ft)	0.0036						0.004						0.0036						0.0042						0.0037											
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			3%/61%/36%/0%/0%/0%						0%/55%/43%/2%/0%/0%											
[3]d50 / d84 / d95 /																			1.5/3.2/5.0						3.9/15.3/35.3											
[2]% of Reach with Eroding Banks																			4.1%						4.1%											
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.3 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/447 - Lower A: 1,400 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	30.1	30.8	31.1	31.1		3			47.1			1	27.4	35.1		42.9		2	26.1	30.6		35.0		2	26.1	27.8		29.5		2						
Floodprone Width (ft)	78.6	98.6	90.6	126.6		3			109.3			1	87.8	105.4		122.9		2	>90	>90		>90		2	>90	>90		>90		2						
Bankfull Mean Depth (ft)	1.8	2.0	2.0	2.2		3			1.8			1	1.7	1.9		2.0		2	1.7	1.9		2.0		2	1.8	1.9		2.0		2						
[1]Bankfull Max Depth (ft)	3.2	3.5	3.4	4.0		3			3.8			1	3.8	3.9		4.0		2	3.1	3.4		3.6		2	2.7	3.0		3.3		2						
Bankfull Cross Sectional Area (ft^2)	55.2	62.2	62.5	69.0		3			85.4			1	54.7	64.4		74.0		2	44.9	57.1		69.3		2	46.7	53.3		59.9		2						
Width/Depth Ratio	14.0	15.3	15.5	16.4		3			26.0			1	13.7	19.2		24.8		2	15.2	16.5		17.7		2	14.5	14.6		14.6		2						
Entrenchment Ratio	2.5	3.2	3.0	4.1		3			2.3			1	2.9	3.0		3.2		2	2.6	3.0		3.4		2	3.1	3.3		3.4		2						
[1]Bank Height Ratio	1.0	1.0	1.0	1.0		3			1.0			1	1.0	1.0		1.0		2	1.0	1.0		1.0		2	1.0	1.0		1.0		2						
Profile																																				
Riffle Length (ft)	36.8	44.4		51.6		3							25.1	63.2		118.2									14.3	14.3		14.3		1						
Riffle Slope (ft/ft)	0.002	0.009		0.014		5							0.002	0.006		0.017									0.005	0.005		0.005		1						
Pool Length (ft)	89.6	119.8		152.8		3							30.7	58.4		97.7																				
Pool Max depth (ft)	4.2	5.0		5.9		11							0.9	1.2		2.1																				
Pool Spacing (ft)	142.7	238.0		300.6		5							54.0	126.7		288.6																				
Pattern																																				
Channel Beltwidth (ft)	22.1	118.1	126.0	197.2	71.9	4																														
Radius of Curvature (ft)	10.1	45.7	49.2	79.8	28.5	5																														
Rc:Bankfull width (ft/ft)	0.3	1.5		2.6	1.1	6																														
Meander Wavelength (ft)	117.0	302.2	292..4	613.9	251.1	6																														
Meander Width Ratio	3.9	9.8		19.7	8.0	5																														

No identifiable riffles or pools

No identifiable pools

Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline

Additional Reach Parameters																																				
Rosgen Classification	C5						C5						C5						C5						C5											
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.14						1.14						1.14						1.14						1.14											
Water Surface Slope (Channel) (ft/ft)	0.0015						0.0004						0.002						0.0005						0.0013											
BF slope (ft/ft)	0.002						0.002						0.0012						0.0015						0.0014											
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			3%/61%/36%/0%/0%/0%						0%/55%/43%/2%/0%/0%											
[3]d50 / d84 / d95 /																			1.5/3.2/5.0						3.9/15.3/35.3											
[2]% of Reach with Eroding Banks																			3.6%						3.6%											
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.4 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Upper B: 200 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)			21.4			1			36.36			1	22.77	28.25		33.73		2	24.3	25.9		27.5		2	24.7	25.3		25.9		2						
Floodprone Width (ft)			88.1			1			98.67			1	88.56	94.09		99.62		2	89.9	93.6		97.2		2	93.5	94.05		94.6		2						
Bankfull Mean Depth (ft)			2			1			1.83			1	2.25	2.325		2.4		2	2.3	2.4		2.4		2	2.3	2.35		2.4		2						
[1]Bankfull Max Depth (ft)			3.1			1			4.26			1	3.1	3.255		3.41		2	3.1	3.2		3.2		2	3.1	3.4		3.7		2						
Bankfull Cross Sectional Area (ft^2)			42.4			1			66.57			1	54.67	65.27		75.87		2	58	60.1		62.1		2	58.5	59.15		59.8		2						
Width/Depth Ratio			10.8			1			19.87			1	9.49	12.24		14.99		2	10.2	11.2		12.2		2	10.2	10.85		11.5		2						
Entrenchment Ratio			4.1			1			2.71			1	2.95	3.42		3.89		2	3.5	3.6		3.7		2	3.7	3.75		3.8		2						
[1]Bank Height Ratio			1.0			1			1.0			1	1.12	1.1		1.16		2	1.0	1.0		1.0		**2**	1.0	1.0		1.0		2						
Profile																																				
Riffle Length (ft)			18.4			1													No identifiable riffles						No identifiable riffles											
Riffle Slope (ft/ft)			5E-04			1																														
Pool Length (ft)	41.1	41.6		42.2		2			79.3			1	44.25	49.4		136.64			21.6	24.0		26.4		2	21.6	24.0		26.4		2						
Pool Max depth (ft)	3.23	3.24		3.24		2			3.3				1.5	1.7		1.89			2.0	2.0		2.0		2	2.0	2.0		2.0		2						
Pool Spacing (ft)			107.5			1								136.64					116.0	116.0		116.0		1	116.0	116.0		116		1						
Pattern																																				
Channel Beltwidth (ft)	108.7	170.8	164.6	261..6	34.2	4																														
Radius of Curvature (ft)	23.8	55.4	50.5	110.1	36.2	5							Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline																							
Rc:Bankfull width (ft/ft)			2.4			6																														
Meander Wavelength (ft)	148.2	327.6	266.7	621	201.1	6																														
Meander Width Ratio			12.5			5																														
Additional Reach Parameters																																				
Rosgen Classification			E5						C5						C5						C5						C5									
Channel Thalweg length (ft)																																				
Sinuosity (ft)			1.13						1.13						1.13						1.13						1.13									
Water Surface Slope (Channel) (ft/ft)			Flat						0.00004						0.0041						0.0036						0.0038									
BF slope (ft/ft)			0.0047						0.0047						0.0033						0.0052						0.0061									
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																					0%/61%/39%/0%/0%/0%						0%/62%/38%/0%/0%/0%								
[3]d50 / d84 / d95 /																					1.6/3.3/4.8						1.6/4.4/7.1								
[2]% of Reach with Eroding Banks																					15.2%						2.0%									
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.5 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 -Lower B: 230 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)			48.4			1			44.41			1	22.1	25.0		27.9		2	23.1	23.1		23.1		1	21.6	21.6		21.6		1						
Floodprone Width (ft)			91.3			1			93.68			1	93.9	95.2		96.5		2	90.8	90.8		90.8		1	92.6	92.6		92.6		1						
Bankfull Mean Depth (ft)			1.4			1			1.24			1	1.6	1.8		2.0		2	1.6	1.6		1.6		1	1.9	1.9		1.9		1						
[1]Bankfull Max Depth (ft)			2.9			1			3.17			1	2.8	3.1		3.5		2	3.2	3.2		3.2		1	3.5	3.5		3.5		1						
Bankfull Cross Sectional Area (ft^2)			67.8			1			55.25			1	43.8	43.9		44.0		2	37.5	37.5		37.5		1	40.1	40.1		40.1		1						
Width/Depth Ratio			34.5			1			35.81			1	11.1	14.5		17.8		2	14.2	14.2		14.2		1	11.6	11.6		11.6		1						
Entrenchment Ratio			1.9			1			2.11			1	3.4	3.9		4.4		2	3.9	3.9		3.9		1	4.3	4.3		4.3		1						
[1]Bank Height Ratio			1.0			1			1.0			1	1.0	1.0		1.0		2	1.0	1.0		1.0		1	1.0	1.0		1.0		1						
Profile																																				
Riffle Length (ft)	14	25.5		40.2		2			23			1	10.9	19.4		29.8			21.7	21.7		21.7		1	15.0	20.5		28.0		3						
Riffle Slope (ft/ft)	0.0027	0.00667		0.0087		2			0.005			1	0.0	0.0		0.0			0.02	0.02		0.02		1	0.02	0.04		0.07		3						
Pool Length (ft)	19.1	20.3		21.5		2	40.2	47.1		54.1		2	27.6	59.3		99.9			No identifiable pools						16.7	16.7		16.7		1						
Pool Max depth (ft)			4.1			1	3.9	4.2		4.4		2	1.2	1.5		1.7									1.7	1.7		1.7		1						
Pool Spacing (ft)			88.9			1	82.4	87.8		93.1		2	54.2	99.8		145.3																				
Pattern																																				
Channel Beltwidth (ft)	108.7	170.8	164.6	261..6	34.2	4																														
Radius of Curvature (ft)	23.8	55.4	50.5	110.1	36.2	5							Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline																							
Rc:Bankfull width (ft/ft)			1.0			6																														
Meander Wavelength (ft)	148.2	327.6	266.7	621	201.1	6																														
Meander Width Ratio			5.5			5																														
Additional Reach Parameters																																				
Rosgen Classification	B5						B5						B5						B5						B5											
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.17						1.17						1.17						1.17						1.17											
Water Surface Slope (Channel) (ft/ft)	0.0035						0.0027						0.0044						0.0041						0.0046											
BF slope (ft/ft)	0.0047						0.0047						0.0021						0.0088						0.0071											
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			0%/61%/39%/0%/0%/0%						0%/62%/38%/0%/0%/0%											
[3]d50 / d84 / d95 /																			1.6/3.3/4.8						1.6/4.4/7.1											
[2]% of Reach with Eroding Banks																			22.8%						4.0%											
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.6 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Reach C: 1,400 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	8.9	12.1	13.5	14.0		3	11.2	12.3	11.7	14.1		3	5.5	11.0	9.7	19.0	6.0	4	4.6	5.4	5.8	5.8		3	6.7	6.7	6.7	6.8		3						
Floodprone Width (ft)	39.6	45.6	48.5	48.7		3	40.8	46.7	48.7	50.4		3	41.5	52.4	48.3	71.3	13.0	4	36.0	39.1	38.0	43.4		3	37.8	41.6	38.9	48		3						
Bankfull Mean Depth (ft)	0.6	0.8	0.9	1.0		3	0.4	0.7	0.8	0.8		3	0.4	0.9	0.8	1.4	0.4	4	0.7	0.9	1.0	1.1		3	0.6	1.0	1.1	1.3		3						
[1]Bankfull Max Depth (ft)	1.1	1.5	1.7	1.8		3	1.2	2.0	2.1	2.6		3	1.2	1.8	1.7	2.4	0.5	4	1.0	1.4	1.6	1.7		3	0.9	1.6	1.9	2		3						
Bankfull Cross Sectional Area (ft^2)	7.5	9.6	8.9	12.4		3	5.7	8.1	9.1	9.4		3	6.1	8.1	8.0	10.2	1.7	4	3.9	4.9	5.1	5.6		3	3.8	6.6	7.4	8.7		3						
Width/Depth Ratio	8.9	16.3	15.9	24.0		3	13.3	20.9	14.9	34.4		3	4.0	17.6	11.6	43.3	17.6	4	4.1	6.2	6.0	8.6		3	5.2	7.8	6.1	12.2		3						
Entrenchment Ratio	3.5	3.8	3.6	4.4		3	3.5	3.8	3.7	4.3		3	2.6	6.3	4.9	12.9	4.7	4	6.2	7.3	7.5	8.3		3	5.6	6.2	5.8	7.2		3						
[1]Bank Height Ratio	1.0	1.0	1.0	1.0		3	1.0	1.0	1.0	1.0		3	1.0	1.0	1.0	1.0	0.0	4	1.0	1.0	1.0	1.0		3	1.0	1.0	1.0	1.0		**3**						
Profile																																				
Riffle Length (ft)	21.7	41.6	36.7	90.8	23.5	7	18.8	31.3		50.4		3	2.3	22.2		51.5			11.6	18.0		24.4		2	5.1	10.7		24.0		5						
Riffle Slope (ft/ft)	0.0	0.0	0.0	0.0	0.0	7	0.0	0.0		0.0		3	0.0	0.0		0.3			0.0	0.0		0.0		2	0.005	0.03		0.07		5						
Pool Length (ft)	25.8	50.2	56.4	66.7	16.7	6	9.4	74.9		166.3		3	11.6	24.0		38.6			3.8	3.8		3.8		1	3.1	6.2		10.0		3						
Pool Max depth (ft)	2.2	2.5	2.6	2.8	0.3	7	2.5	2.8		3.1		3	0.7	1.1		1.6			1.8	1.8		1.8		1	0.2	1.1		1.5		3						
Pool Spacing (ft)	46.0	92.5	91.9	152.2	37.9	9	22.8	88.5		195.7		3	11.2	39.3		88.6			-	-		-		-	66.3	105		143.9		3						
Pattern																																				
Channel Beltwidth (ft)	84.1	97.4	96.4	112.0	11.4	4																														
Radius of Curvature (ft)	20.8	32.5	30.7	59.4	16.5	5					Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline																									
Rc:Bankfull width (ft/ft)	2.3	2.7	2.3	4.2	0.9	6																														
Meander Wavelength (ft)	72.5	187.8	131.2	595.1	237.0	6																														
Meander Width Ratio	8.1	15.5	9.7	42.5	16.0	5																														
Additional Reach Parameters																																				
Rosgen Classification							C5						C5						C5						C5											
Channel Thalweg length (ft)																																				
Sinuosity (ft)			1.09						1.09						1.09						1.09						1.09									
Water Surface Slope (Channel) (ft/ft)			0.0099						0.0086						0.0093						0.0093						0.0094									
BF slope (ft/ft)			0.0095						0.0094						0.0093						0.0094						0.0095									
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																					0%/54%/30%/9%/0%/0%						0%/46%/36%/10%/0%/0%									
[3]d50 / d84 / d95 /																					1.8/45/110						2.4/49/85									
[2]% of Reach with Eroding Banks																					0%						0%									
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

APPENDIX E – HYDROLOGIC DATA

TABLE 12. VERIFICATION OF BANKFULL EVENTS

Date of Data Collection	Date of Occurrence	Method	Photo # (if available)
7/8/2010	N/A	Wrackline observed in floodplain	See MY-02 report
11/4/2010	N/A	Wrackline observed at bankfull	See MY-02 report
4/10/2010	N/A	Wrackline observed at bankfull	See MY-02 report
11/2/2011	N/A	Wrackline observed at bankfull	See MY-02 report
12/18/2014	N/A	Wracklines and flattened vegetation observed at bankfull	Photos 1 – 3

Photo 1. Wracklines along Reach A

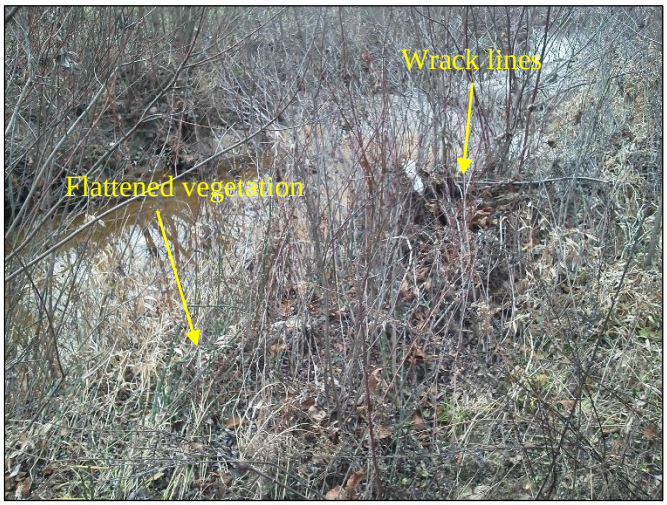


Photo 2. Wracklines and flattened vegetation along Reach B

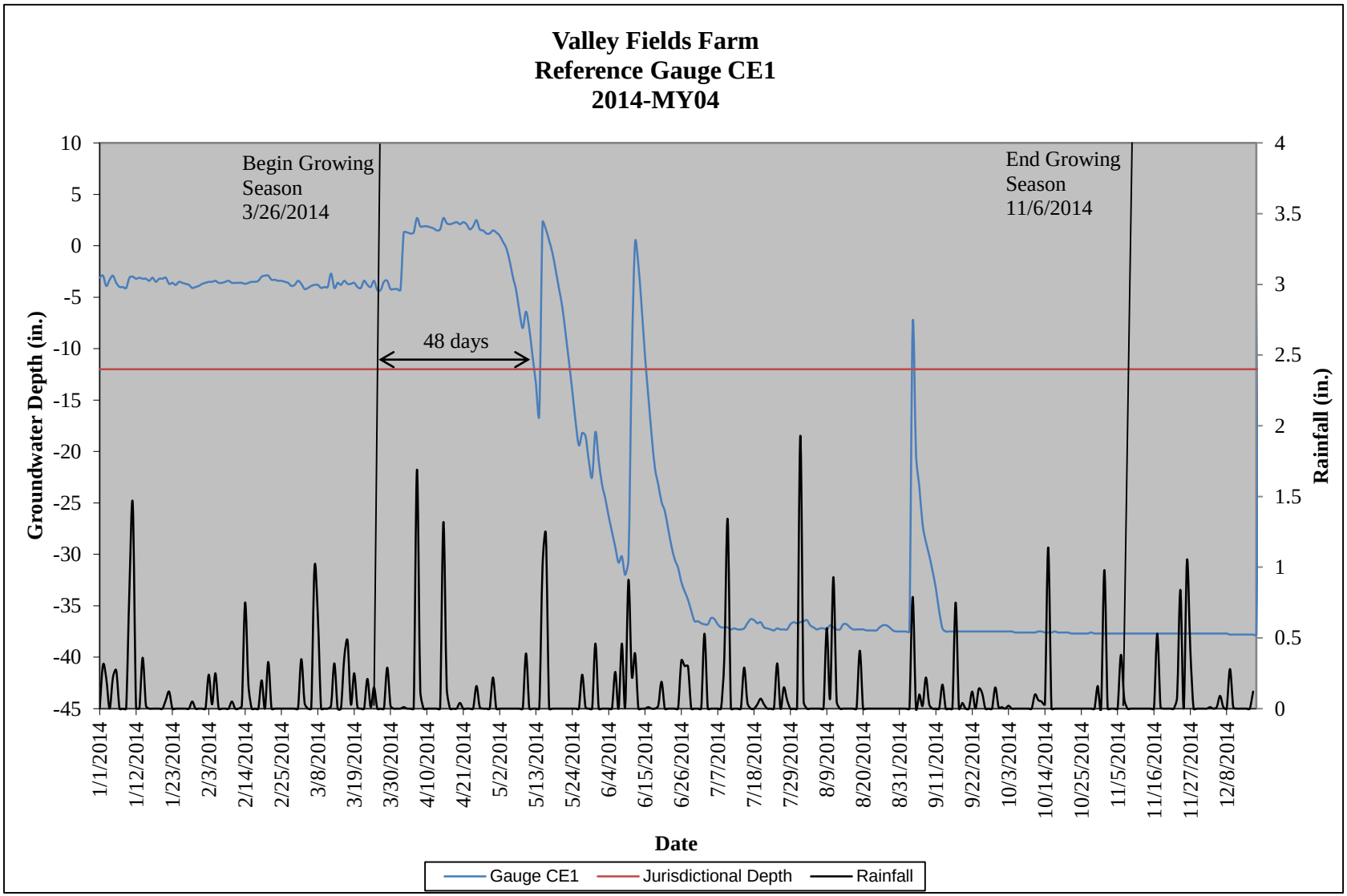
Photo 3. Wracklines along Reach C

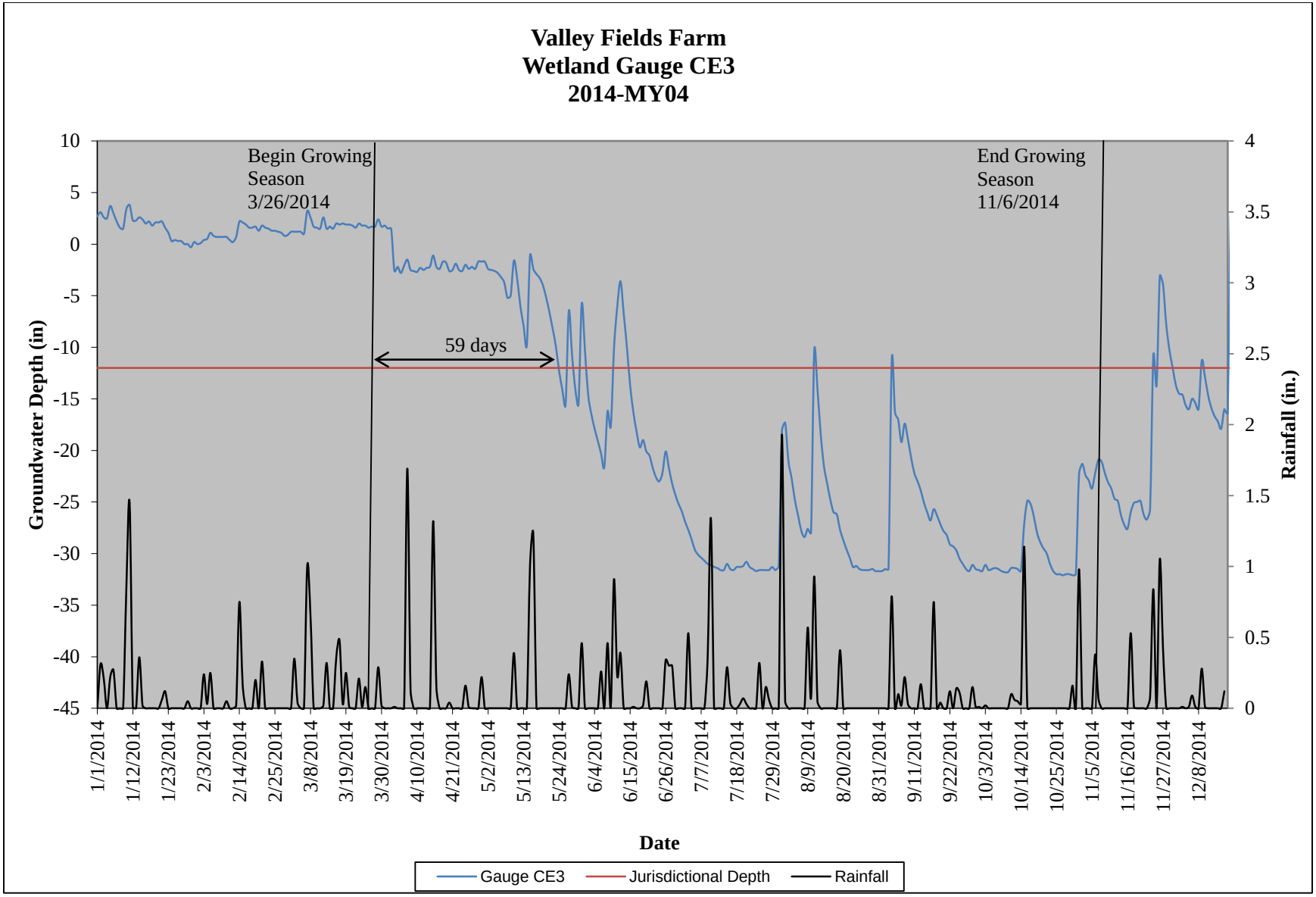
TABLE 13. WETLAND HYDROLOGY CRITERIA ATTAINMENT TABLE

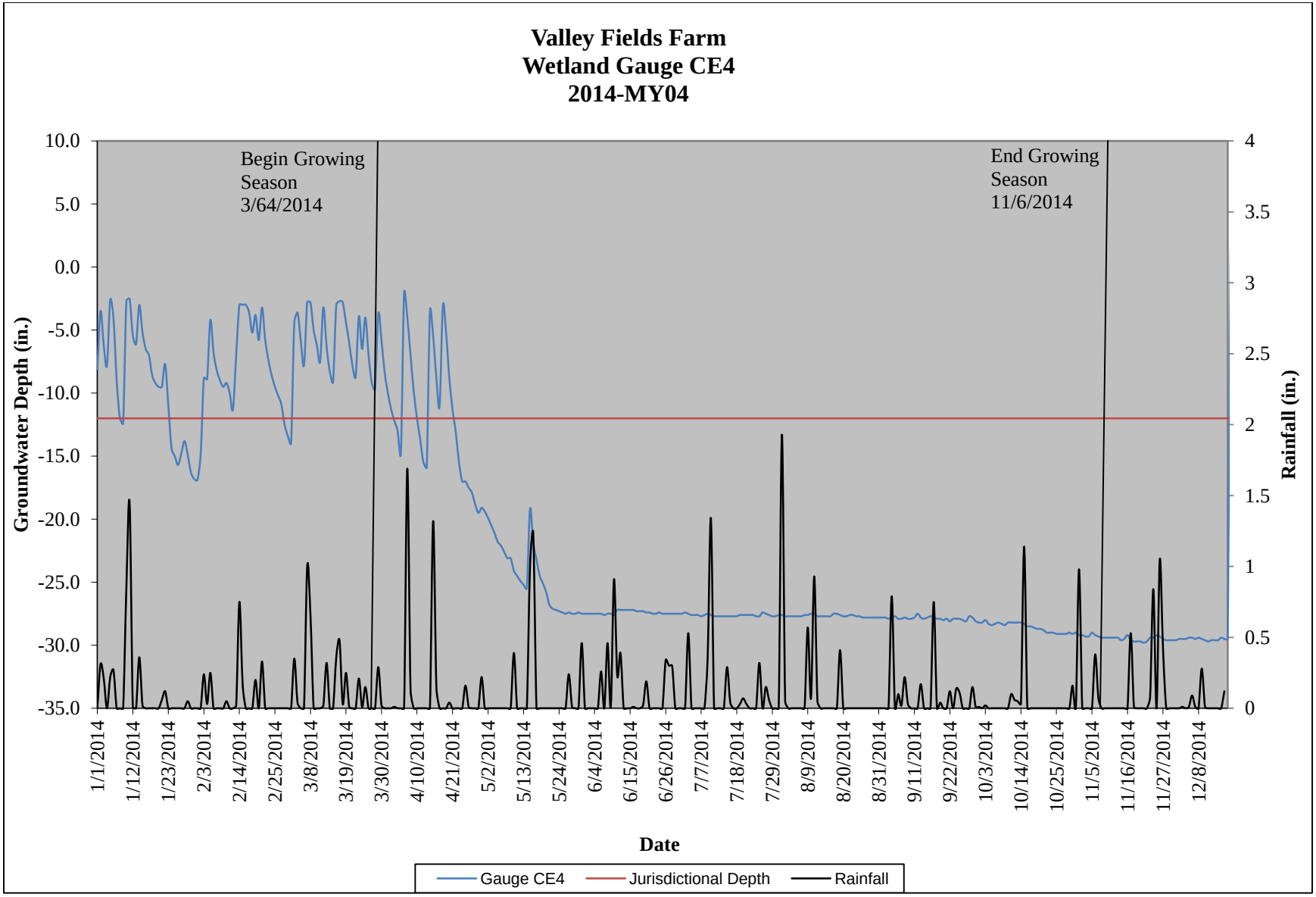
Success Criteria Achieved/Max Consecutive Days During Growing Season (Percentage)					
Gauge Name	MY-01 (2010)	MY-02 (2011)	MY-03 (2013)*	MY-04 (2014)	MY-05 (2015)
CE1	Yes/103 (45.6%)	Yes/67 (29.6%)	No/0 (0%)	Yes/48 (21.2%)	
CE3	Yes/109 (48.2%)	Yes/68 (30.1%)	No/0 (0%)	Yes/59 (26.1%)	
CE4	Yes/86 (38.1%)	Yes/21 (9.3%)	No/0 (0%)	No/8 (3.5%)	
CE6	Yes/97 (42.9%)	Yes/38 (16.8%)	No/0 (0%)	Yes/48 (21.2%)	

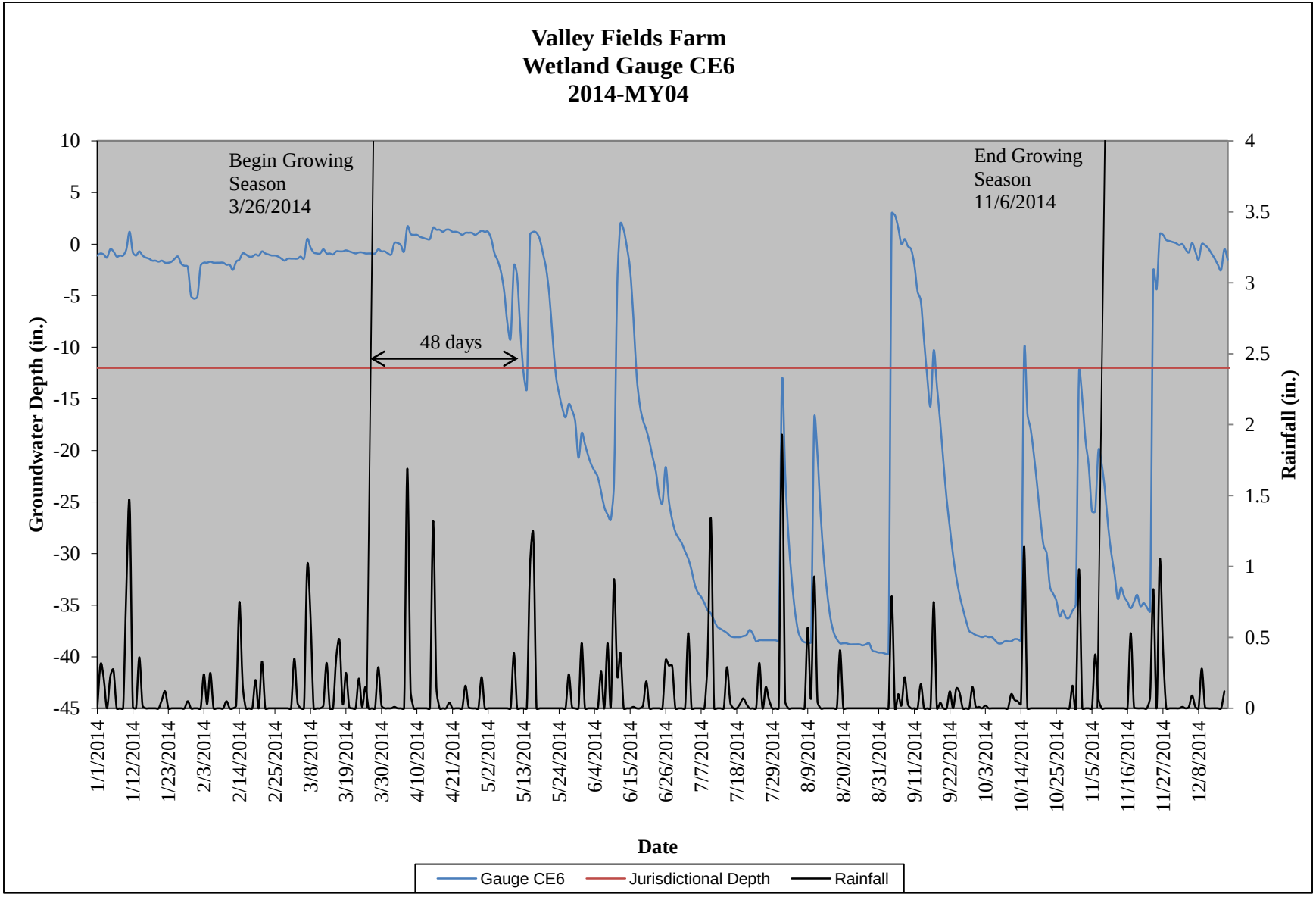
*Gauges reinstalled 9/23/2013, monitoring only occurred for 21% of MY-03 growing season

GROUNDWATER LEVEL MONITORING WELL PLOTS




Valley Fields Farm
Wetland Gauge CE3
2014-MY04
Begin Growing Season 3/26/2014
End Growing Season 11/6/2014
59 days
Groundwater Depth (in)
Rainfall (in.)
Date
Gauge CE3
Jurisdictional Depth
Rainfall


Valley Fields Farm
Wetland Gauge CE4
2014-MY04
Begin Growing Season 3/64/2014
End Growing Season 11/6/2014
Groundwater Depth (in.)
Rainfall (in.)
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
4
3.5
3
2.5
2
1.5
1
0.5
0
1/1/2014
1/12/2014
1/23/2014
2/3/2014
2/14/2014
2/25/2014
3/8/2014
3/19/2014
3/30/2014
4/10/2014
4/21/2014
5/2/2014
5/13/2014
5/24/2014
6/4/2014
6/15/2014
6/26/2014
7/7/2014
7/18/2014
7/29/2014
8/9/2014
8/20/2014
8/31/2014
9/11/2014
9/22/2014
10/3/2014
10/14/2014
10/25/2014
11/5/2014
11/16/2014
11/27/2014
12/8/2014
Date
Gauge CE4
Jurisdictional Depth
Rainfall


Valley Fields Farm
Wetland Gauge CE6
2014-MY04
Begin Growing Season 3/26/2014
End Growing Season 11/6/2014
48 days
Groundwater Depth (in.)
Rainfall (in.)
Date
Gauge CE6
Jurisdictional Depth
Rainfall

APPENDIX F – WETLAND DATA FORMS

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Fields Farm Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven F. Stokes, Tommy Seelinger	Date: 11-21-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: B-2 Transect ID: Plot ID: DP#1 NW

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Bambusa vulgaris	1	FACW	9.		
2. Liquidambar styraciflua	1	FAC	10.		
3. Fraxinus pennsylvanica	1	FACW	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 66%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ✓ No Recorded Data Available Field Observations: Depth of Surface Water: – (in.) Depth to Free Water in Pit: >20 (in.) Depth to Saturated Soil: > 20 (in.)	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Chewacla

Drainage Class: Somewhat Poorly

Field Observations Confirm Mapped Type? Yes (No)

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4	A1	10yr 5/2			
4-11	Bw1	10yr 5/3	5yr 4/6 c2d		sl, 1fsbk, few concretions (1%)
11-13	Bw2	10yr 5/3	7.5yr 5/6 c2d		scl, 1fsbk
			5yr 4/6 f1d		
13-18	Bw3	10yr 5/3	5yr 4/6 c2d	10yr 6/2 c1f 10%	scl, 1msbk

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Somewhat Poorly to moderately well drained.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	(Circle)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	
Is this Sampling Point Within a Wetland?	Yes (No)	(Circle)

Remarks:

Permit this wetland must based on soils.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Fields Town Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven A. Stokes, Tommy Seelinger	Date: 11-21-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: B-1 Transect ID: Plot ID: DP#2W

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Salix nigra	2	OBL
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: ~ (in.)

Depth to Free Water in Pit: >18 (in.)

Depth to Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
✓ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
✓ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Chewaela Variant

Drainage Class: Somewhat poorly

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-6	A1	10yr 5/3	5yr 4/4 c2d		sl
6-12	Bg1	10yr 5/2	5yr 4/4 c2d		sel, 1msbk
12-14	Bw1	10yr 5/4			s
14-18	Bw2	10yr 5/4			sel, 2msbk

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ✓ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Chewaela variant - the 6-12 inch horizon indicates saturation for long to very long duration.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	
Is this Sampling Point Within a Wetland?	(Yes) No	(Circle)

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Fields Farm Monitoring Applicant/Owner: KAI / NCEEP Investigator: Steven F. Stokes, Tommy Seelinger	Date: 11-21-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: B-3 Transect ID: Plot ID: DP#3 NW

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Juncus effusus	3	FACW	9.		
2. Lysimachia nummularia	3	FACW	10.		
3. Lespedeza cuneata	3	FACU	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 66%

Remarks: Lespedeza cuneata is Sericea lespedeza - for fire Area was bush hogged.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: – (in.)

Depth to Free Water in Pit: >20 (in.)

Depth to Saturated Soil: >20 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
✓ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: B-3 is located 27' from excavated floodplain on 3-5% slope.

SOILS

Map Unit Name (Series and Phase): Chewacla

Drainage Class: Somewhat Poorly

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2	A1	10yr 5/4			sl, 1fgr
2-7	A2	10yr 5/4			sl, 1msbk
7-13	Bw1	10yr 5/3	7.5yr 4/6 c2d	10yr 5/2 f1p	sl 1fsbk
			7.5yr 5/8 f1d		
13-18	Bw2	10yr 5/3	7.5yr 4/6 c2d	7.5yr 5/8 f1d	ls, 1fsbk
			10yr 5/2 f2f		

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Field Farm Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven E. Stokes, Tommy Seelinger	Date: 11-21-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: D-1 Transect ID: Plot ID: DP# 9 NW

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Lysimachia nummularia	3	FACW
2. Juniperus virginiana	3	FACU
3. Lonicera japonica	3	FAC
4. Juncus effusus	3	FACW
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 75 %

Remarks: Area Bushwhacked.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: — (in.)

Depth to Free Water in Pit: >30 (in.)

Depth to Saturated Soil: >30 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ✓ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Chewacla

Drainage Class: Moderately well

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2	A1	10yr 5/3			ls, 1fgr
2-9	Bw1	10yr 5/4			ls, 1fgr
9-10					1 cm litter
10-20	Ab1	10yr 5/4			sl, 1fsbk

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)
Hydric Soils Present?	Yes (No)	

Remarks:

The majority of this D-1 area was determined to be not wetland due to non hydric soils and hydrology.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Forge Farm Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven K. Stokes, Tommy Scalingere	Date: 11-21-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: D-1 (check w.m. #) Transect ID: Plot ID: DP# 5 W

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Lysimachia nummularia	3	FACW
2. Microstegium vimineum	3	FAC
3. Salix nigra	2	OBL
4. Cephalanthus occidentalis	3	OBL
5. Lonicera japonica	3	FAC
6. Festuca spp.	3	FAC*
7. Solanum carolinense	3	FACW
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 71 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water:	– (in.)
Depth to Free Water in Pit:	>20 (in.)
Depth to Saturated Soil:	>20 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ✓ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ✓ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Wetland located in sideslope drainage/spring seepage.

SOILS

Map Unit Name (Series and Phase): Chewacla Variant

Drainage Class: Somewhat Poorly

Taxonomy (Subgroup): Fluvaquentic Dystrudept

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2	A1	10yr 4/2			sl, 1fgr
2-4	A2	10yr 5/3			sl, 1fsbk
4-7	Bw1	10yr 5/3	5yr 4/6 fid		
7-9	Bw2	10yr 5/3	5yr 4/4 c2d	10yr 5/2 c2p(10%)	sl, 1fsbk
9-20	Bg1	10yr 5/2	5yr 4/4 c2d		scl - sl

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ✓ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

This is a wetter Chewacla soil with chroma 2 starting at 9 inches.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Field Farm Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven F. Stokes, Tammy Seelinger	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-7 Transect ID: Plot ID: DP#6 NWI

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Betula nigra	1	FACW
2. Liquidambar styraciflua	1	FAC
3. Acer rubrum	1	FAC
4. Quercus phellos	2	FAC
5. Quercus phellos	3	FAC
6. Liquidambar styraciflua	2	FAC
7. Ligustrum japonica	4	FAC
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water:	– (in.)
Depth to Free Water in Pit:	> 20 (in.)
Depth to Saturated Soil:	> 20 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ✓ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: no visual observation of inundation or wrack lines

SOILS

Map Unit Name (Series and Phase): Chewaela

Drainage Class: Somewhat Poorly

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-1	A1	10yR 4/2			fSL, 1fgr
1-5	Bw1	10yR 5/3	2.5yR 4/8 c1p		scL, 1fsbk
5-12	Bw2	10yR 5/3	2.5yR 4/8 C1p	10yR 5/2 c2p(20%)	scL, 1fsbk
12-15	Bg1	2.5y 5/2	7.5yR 4/6 c2d		scL, 1fsbk
15-20	Bg2	10yR 5/2	7.5yR 4/4 m2d(30%)		SL, 1fsbk

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: I don't believe the soils have reducing conditions for a significant portion of the growing season in a major portion of the root zone and they aren't frequently saturated within 12 inches of the soil surface. (FY93.32). This soil does not meet the definition for a hydric soil. This is the wettest area identified in A-7. Criteria for hydric soils not met 37.6(1).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: Data Point within wetland A-7 unit.
Recommend installing MW.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Fields Farm Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven F. Stokes, Tommy Seelinger	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-77 Transect ID: _____ Plot ID: DP#9 NW

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Juniperus virginiana	1	FACU
2. Platanus occidentalis	1	FACW-
3. Betula nigra	1	FACW
4. Fraxinus pensylvanica	1	FACW
5. Lonicera japonica	3	FAC
6. Toxicodendron radicans	4	FAC
7. Vitis rotundifolia	4	FAC
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 85 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: — (in.)
Depth to Free Water in Pit: >20 (in.)
Depth to Saturated Soil: >20 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
✓ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Chewacla

Drainage Class: Somewhat Poorly

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4	A1	10yr 4/3			lfs, 1fgr
4-7	Bw1	10yr 5/3			sl, 1fsbk
7-11	Bw2	10yr 5/3	10yr 3/2 f1f	10yr 6/6 c2d	sl, 1fsbk few concretions
11-17	Bw3	10yr 5/3	10yr 6/6 c2d	10yr 3/4 c2f	sl, 1msbk few concretions
17-20	Bw4	10yr 5/3	10yr 6/2 c2f	10yr 4/4 c2f	sl, 1msbk

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Field Farm Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven E. Stokes, Tommy Seallinger	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? Yes (No) Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-8 Transect ID: ____ Plot ID: DP#8 NW

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Rosa multiflora	2	FACU
2. Platanus occidentalis	1	FACW-
3. Solidago canadensis	3	FACU
4. Ligustrum japonicum	4	FAC
5. Platanus occidentalis	2	FACW-
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 60 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: — (in.)

Depth to Free Water in Pit: > 20 (in.)

Depth to Saturated Soil: > 20 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Chewacla

Drainage Class: Moderately well

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-10	A1	10yr 5/3	10yr 4/4 fir		l, 1fsbk
10-12	Bw1	7.5yr 4/6			s, sg
12-20	Bw2	10yr 5/4			l, 1msbk

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: Adjacent wetland preservation line so as not to include fill & spoil pile. Additionally, the wetland appears to be drained by the excessively large drainage ditch that branches entering wetland.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Field Farm Monitoring Applicant/Owner: KCI / NCEEP Investigator: Steven R. Stokes, Tammy Seelinger	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? Yes (No) Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-8 Transect ID: Plot ID: DP#9 W

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Alnus serrulata	2	OBL	9.		
2. Cornus amomum	2	FACW	10.		
3. Lonicera japonica	4	FAC-	11.		
4. Vitis Rotundifolia	4	FAC	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 75%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ✓ No Recorded Data Available Field Observations: Depth of Surface Water: – (in.) Depth to Free Water in Pit: 20 (in.) Depth to Saturated Soil: 20 (in.)	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ✓ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ✓ Oxidized Root Channels in Upper 12 Inches ✓ Water-Stained Leaves ✓ Local Soil Survey Data ✓ FAC-Neutral Test ___ Other (Explain in Remarks)

Remarks: Wetland in drainage ditch exhibiting wetland characteristics.

SOILS

Map Unit Name (Series and Phase): Wehadkee

Drainage Class: Poorly

Taxonomy (Subgroup): Fluvaquentic Endoaquepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4	A1	10yr 5/2	7.5yr 4/6 c2d		l, 1fsbk
4-12	Bg1	10yr 5/2	5yr 4/6 m2d	30% redox	l, 1fsbk
12-20	Bg2	10yr 5/2	5yr 4/6 m2d	50% redox	l, 1fsbk, Mn masses

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ✓ Listed on Local Hydric Soils List
- ✓ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Field Farm Mitigation Applicant/Owner: KCI / NCEEP Investigator: Steven F. Stokes, Tommy Seelinger	Date: 12-9-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-6 Transect ID: Plot ID: DP# 10 NW

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Carpinus caroliniana	1	FAC	9.		
2. Liquidambar styraciflua	1	FAC	10.		
3. Liquidambar styraciflua	3	FAC	11.		
4. Platanus occidentalis	1	FACW-	12.		
5. Lonicera japonica	4	FAC	13.		
6. Prunus serotina	3	FACU	14.		
7. Quercus michauxii	3	FACW	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 85 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ✓ No Recorded Data Available Field Observations: Depth of Surface Water: — (in.) Depth to Free Water in Pit: >20 (in.) Depth to Saturated Soil: >20 (in.)	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ✓ FAC-Neutral Test ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Chewacla

Drainage Class: Somewhat Poorly

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-1	A1	10yr 3/2			l, 1fgr
1-3	A2	10yr 4/2			l, 1fgr
3-13	Bw1	10yr 6/4			ls, 1fsbk
13-20	Bg1	10yr 5/2	7.5yr 5/6 c2d		sl, 1fsbk

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Overwash from Residuum soil, no formed 10yr 6/4 horizon.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Fields Farm Monitoring Applicant/Owner: KBK / NCEEP Investigator: Steven F Stokes, Tommy Seelinger	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-6 Transect ID: _____ Plot ID: DP#11 W

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Platanus occidentalis	1	FACW
2. Carpinus caroliniana	1	FAC
3. Liquidambar styraciflua	2	FAC
4. Liquidambar styraciflua	1	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ✓ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	0 (in.)
Depth to Free Water in Pit:	>20 (in.)
Depth to Saturated Soil:	>20 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ✓ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ✓ Water-Stained Leaves
- ✓ Local Soil Survey Data
- ✓ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Reference Monitoring Well = CE01

SOILS

Map Unit Name (Series and Phase): Wehadkee

Drainage Class: Poorly

Taxonomy (Subgroup): Fluvaquentic Endoaquepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-1	A1	10yR 3/2			2, 1fgr
1-9	Bg1	10yR 5/2	5yR 4/6 c2d		scl, 1fsbk
9-18	Bg2	10yR 5/2	7.5yR 4/4c3d		scl, 1msbk
18-20	Bg3	10yR 5/2	7.5yR 4/6 c2d		scl, 1msbk

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ✓ Listed on Local Hydric Soils List
- ✓ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	
Is this Sampling Point Within a Wetland?	(Yes) No	(Circle)

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Field Farm Monitoring Applicant/Owner: EBX / NCEEP Investigator: Steven E. Stokes, Timothy Seelinger	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? Yes (No) Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-5 Transect ID: ____ Plot ID: DP#12 W

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1.			9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). ____

Remarks: [illegible]

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: – (in.)

Depth to Free Water in Pit: >20 (in.)

Depth to Saturated Soil: 15 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
✓ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
✓ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: See Monitoring Well Data Guage CE3.

SOILS

Map Unit Name (Series and Phase): Wehadkee Variant

Drainage Class: Poorly

Taxonomy (Subgroup): Fluvaquentic Endoaquepts

Field Observations Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-6	A1	10yr 5/2	7.5yr 4/6 cmd.		sl, 1fsbk
6-20	Bg1	10yr 6/1	7.5yr 3/4 cmd.		sl, 1msbk.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Soils appear to have been excavated slightly.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No

Remarks: Wetland Determination A-5.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Water Fields Farm Mitigation Applicant/Owner: KCP/NCEEP Investigator: Steven F. Stiles, Tammy Seabrooks	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-H Transect ID: ____ Plot ID: DP#13W

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	2	FACW
2. Salix nigra	1	OBL
3. Liquidambar styraciflua	2	FAC
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: — (in.)
Depth to Free Water in Pit: >20 (in.)
Depth to Saturated Soil: >20 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
✓ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
✓ Water-Stained Leaves
___ Local Soil Survey Data
✓ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Wetland B mitigation unit.

SOILS

Map Unit Name (Series and Phase): Wehadkee Variant

Taxonomy (Subgroup): Fluvaquentic Endoaquepts

Drainage Class: Poorly

Field Observations Confirm Mapped Type? Yes (No) [No circled]

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4	A1	10YR 5/3	7.5YR 4/6 c2d		sl, 1fgr
4-9	A2	10YR 5/3	7.5YR 4/6 c2d	10YR 5/2 f1f	sl, 1fsbk
9-18	Bg1	10YR 5/2	7.5YR 4/6 c2d		sl, 1msbk
18-20	Bg2	10YR 5/2	7.5YR 3/4 c2d		scl, 1msbk

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ✓ Listed on Local Hydric Soils List
- ✓ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Surface [illegible]

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	
Is this Sampling Point Within a Wetland? (Circle)	(Yes) No	

Remarks: Wetland Enhancement (A4).

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Valley Fields Farm Monitoring Applicant/Owner: KCI / UCEP Investigator: Steven F. Stokes, Tommy Secrest	Date: 12-4-14 County: Davidson State: NC
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: A-1 Transect ID: Plot ID: DP#14

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Liriodendron tulipifera	1	FAC
2. Carpinus caroliniana	2	FAC
3. Liquidambar Styraciflua	1	FAC
4. Liriodendron pinense	2	FACW
5. Platanus occidentalis	1	FACW-
6. Betula nigra	1	FACW
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 83 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water:	— (in.)
Depth to Free Water in Pit:	> 2.0 (in.)
Depth to Saturated Soil:	> 2.0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ✓ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ✓ Oxidized Root Channels in Upper 12 Inches
- ✓ Water-Stained Leaves
- ___ Local Soil Survey Data
- ✓ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Chewacla Variant

Drainage Class: Somewhat Poorly

Taxonomy (Subgroup): Fluvaquentic Dystrudepts

Field Observations
Confirm Mapped Type? Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-1	A1	10yr 4/2			l, 1fgr
1-6	A2	10yr 5/2	7.5yr 4/6 c2d		l, 1fsbk
6-11	Bw1	10yr 5/3	7.5yr 3/3 c2d		s-ls, sg
11-20	Bg1	10yr 4/2	7.5yr 3/3 c2d		l, 1msbk

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ✓ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Wet x Observation -

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks: Wetland Observation Site (A-1).

Approved by HQUSACE 3/92