

Lone Hickory Mitigation Site

Yadkin County, North Carolina

for

NCDEQ

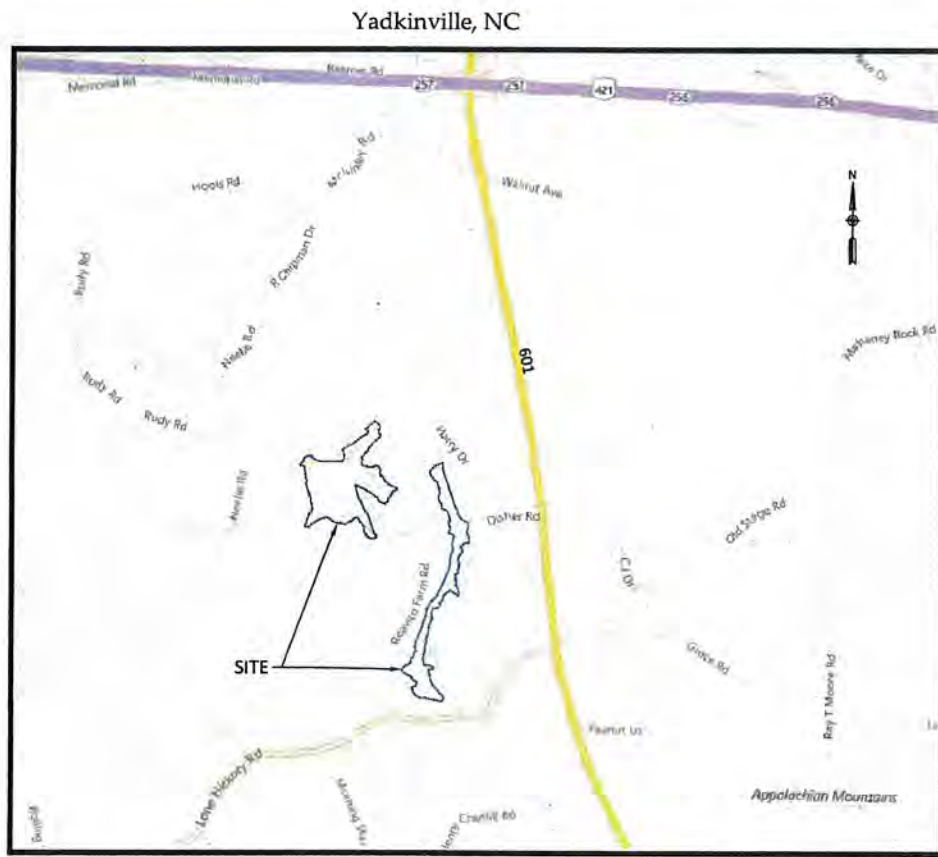
Division of Mitigation Services

WILDLANDS
ENGINEERING
1430 S. Mint Street, Ste. 104
Charlotte, NC 28203
Tel: 704-332-7754
Fax: 704-332-3306
Firm License No. F-0831



Lone Hickory Mitigation Site Record Drawings
Yadkin County, North Carolina

Title Sheet



Vicinity Map
Not to Scale



RECORD DRAWINGS
ISSUED JULY 10, 2019

CERTIFICATE OF SURVEY AND ACCURACY

I, DAVID S. TURNER, CERTIFY THAT THE GROUND TOPOGRAPHIC SURVEY PORTION OF THIS PROJECT WAS COMPLETED UNDER MY DIRECT SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY DIRECT SUPERVISION, THAT THE RECORD DRAWINGS WERE PREPARED BY WILDLANDS ENGINEERING, INC FROM DIGITAL FILES PROVIDED BY TURNER LAND SURVEYING, PLLC AS SHOWN ON AN AS-BUILT SURVEY FOR "THE STATE OF NC, DIVISION OF MITIGATION SERVICES" DATED MAY 30, 2019; THAT THIS SURVEY WAS PERFORMED AT THE 95% CONFIDENCE LEVEL TO MEET THE FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC SURVEY TO THE ACCURACY OF CLASS A HORIZONTAL AND CLASS C VERTICAL WHERE APPLICABLE; THAT THE ORIGINAL DATA WAS OBTAIN BETWEEN THE DATES OF JAN 16 & MAY 15 2019; THAT THE CONTOURS SHOWN AS BROKEN LINES MAY NOT MEET THE STATED STANDARD AND ALL COORDINATES ARE BASED ON NAD 83 (NSRS 2011) AND ALL ELEVATIONS ARE BASE ON NAVD 88; THAT THIS MAP MEETS THE SPECIFICATIONS FOR TOPOGRAPHIC SURVEYS AS STATED IN TITLE 21, CHAPTER 56, SECTION .1606; THAT THIS MAP WAS NOT PREPARED IN ACCORDANCE WITH G.S. 47-30, AS AMENDED AND DOES NOT REPRESENT AN OFFICIAL BOUNDARY SURVEY.

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS THE 0th DAY OF July 2019.

OFFICIAL SEAL



David S. Turner
DAVID S. TURNER, PLS L-4551

Sheet Index

Title Sheet	0.1
General Notes and Symbols	0.2
Project Overview	0.3 - 0.5
Stream Plan and Profile	
UT1	1.1 - 1.15
UT2	1.16 - 1.19
UT2A	1.20 - 1.21
UT2B	1.22 - 1.23
UT3	1.24 - 1.29
Additional Grading Overview	2.0
BMP Grading	2.1 - 2.3
Wetland Grading	2.4 - 2.5
Planting	3.0 - 3.10

Project Directory

Engineering: Wildlands Engineering, Inc. License No. F-0831 1430 South Mint Street, Ste 104 Charlotte, NC 28203 Emily G. Reinicker, PE 704-332-7754	Owner: NCDEQ - Division of Mitigation Services 217 West Jones Street, 3rd floor Raleigh, NC 27603
As-Built Survey: Turner Land Surveying, PLLC P.O. Box 148 Swannanoa, NC 28778 Telephone: (919) 827-0745	DMS Project No. 97135 Yadkin River Basin HUC 03040101
Initial Topographic Survey: Kee Mapping and Surveying, PA 88 Central Avenue Asheville, NC 28801 Nolan Carmack, PLS 828-575-9021	

Revisions:

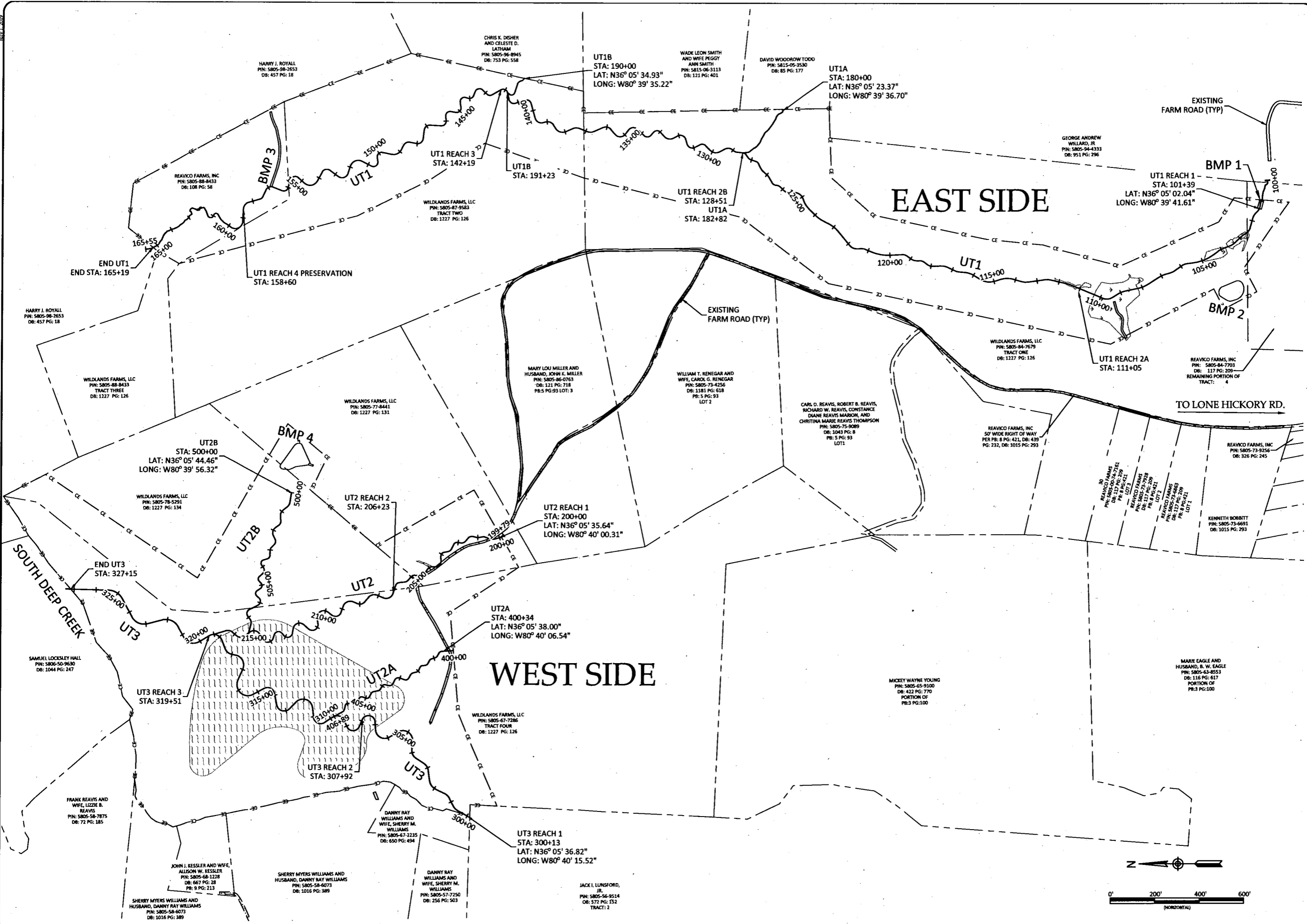
Date: July 10, 2019
Job Number: 005-02163
Project Engineer: EGR
Drawn By: JCK
Checked By: EGR/JCK

0.1

Sheet

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Lone Hickory Mitigation Site Record Drawings
Yadkin County, North Carolina

Project Overview

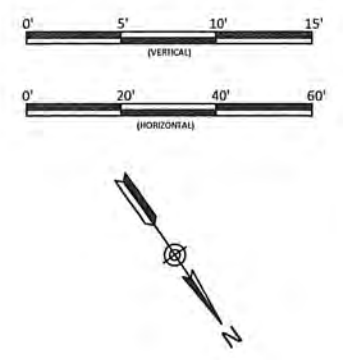
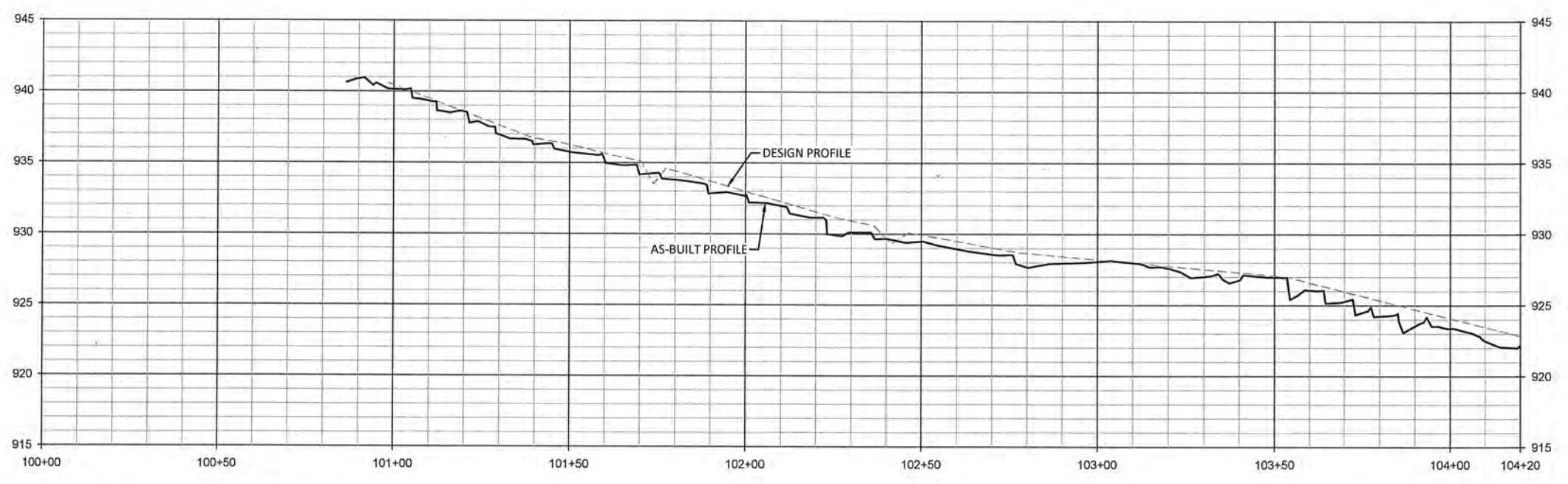
Revisions:

Date:	July 10, 2019
Job Number:	005-07163
Project Engineer:	EGR
Drawn By:	JCK
Checked By:	EGR/JCK

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July 1, 2019
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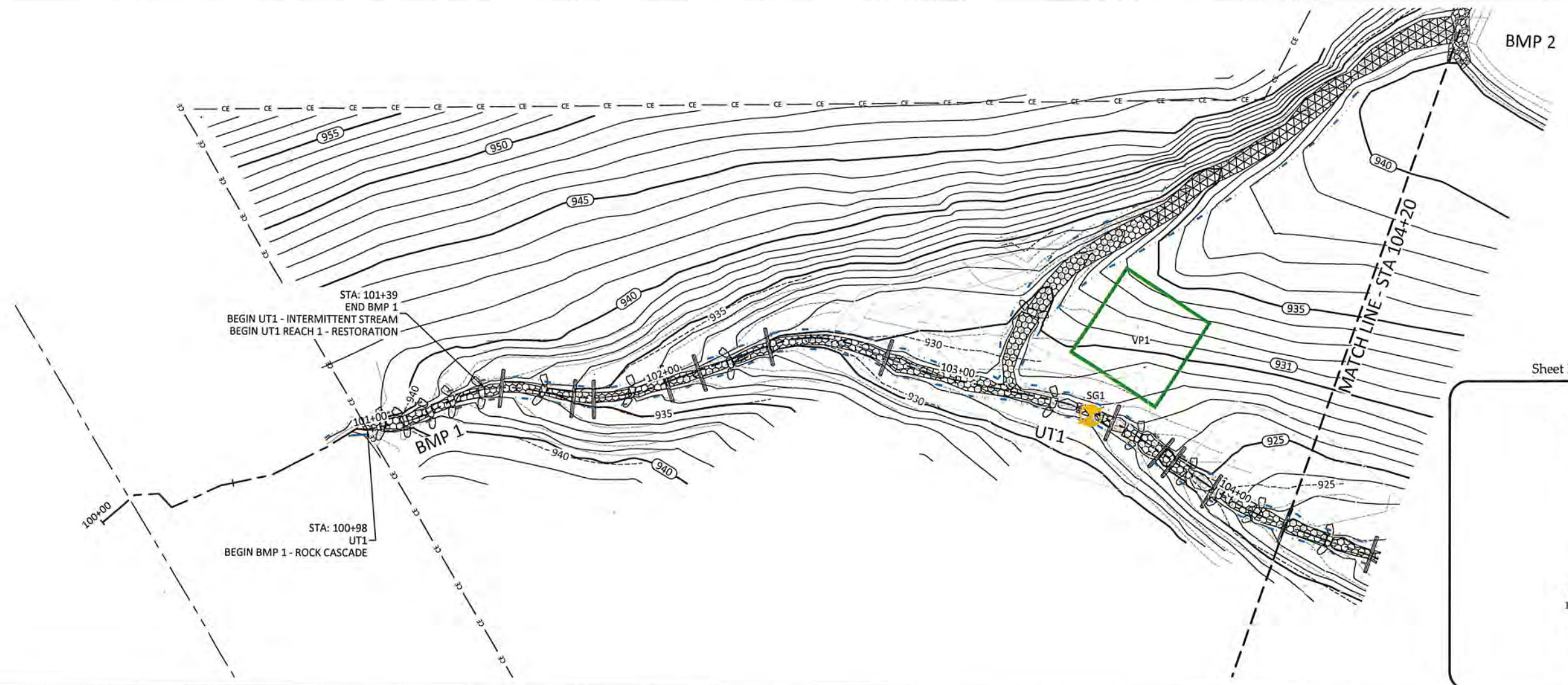


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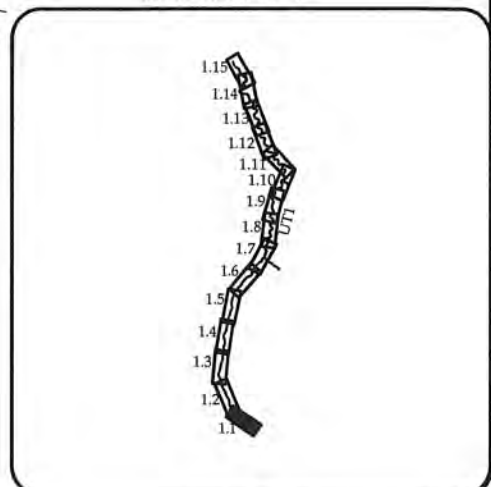


Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

UT1
 Stream Plan and Profile



Sheet Index - East

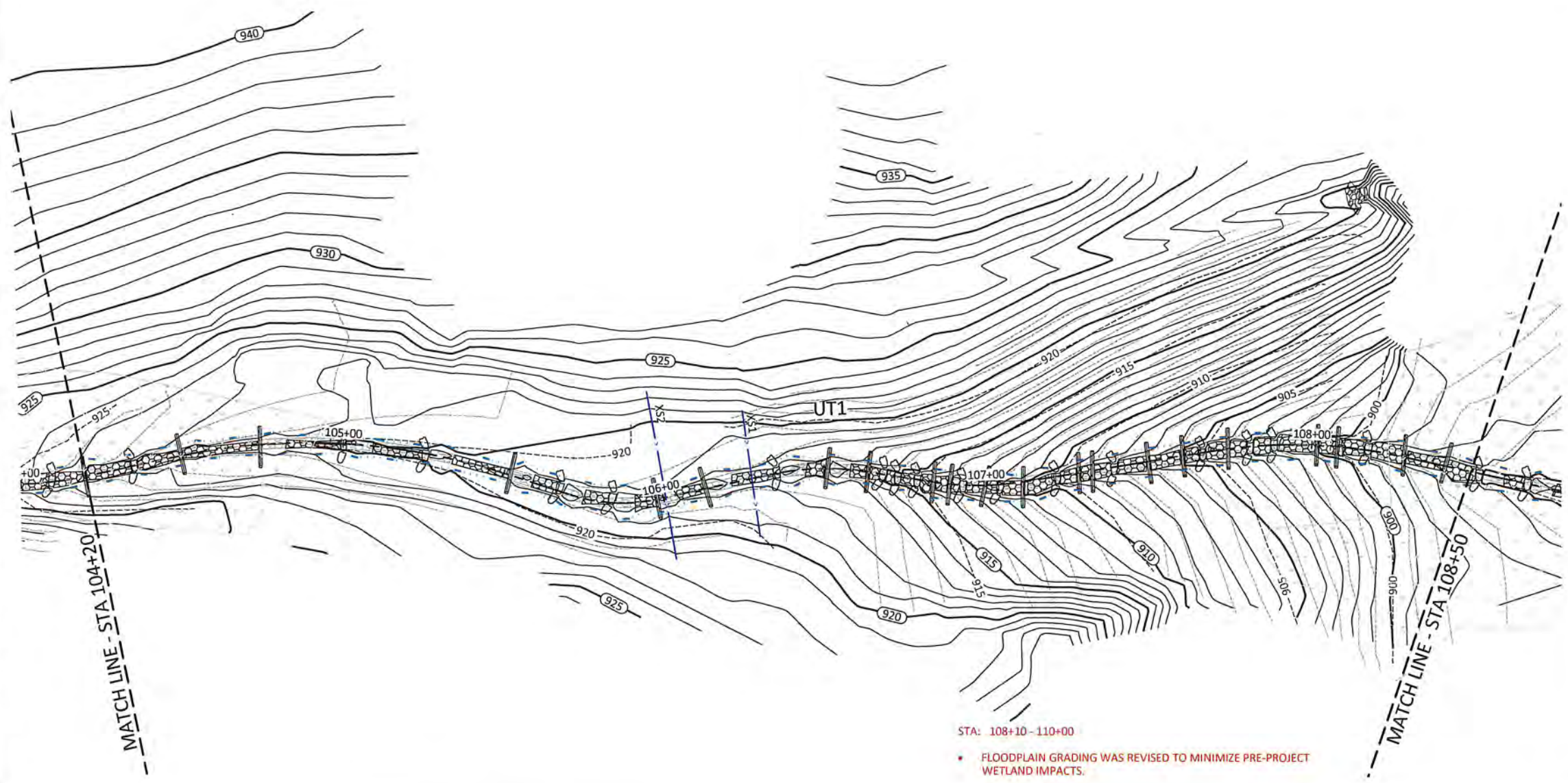
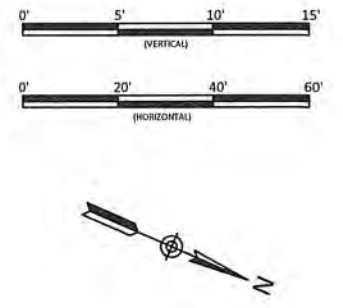
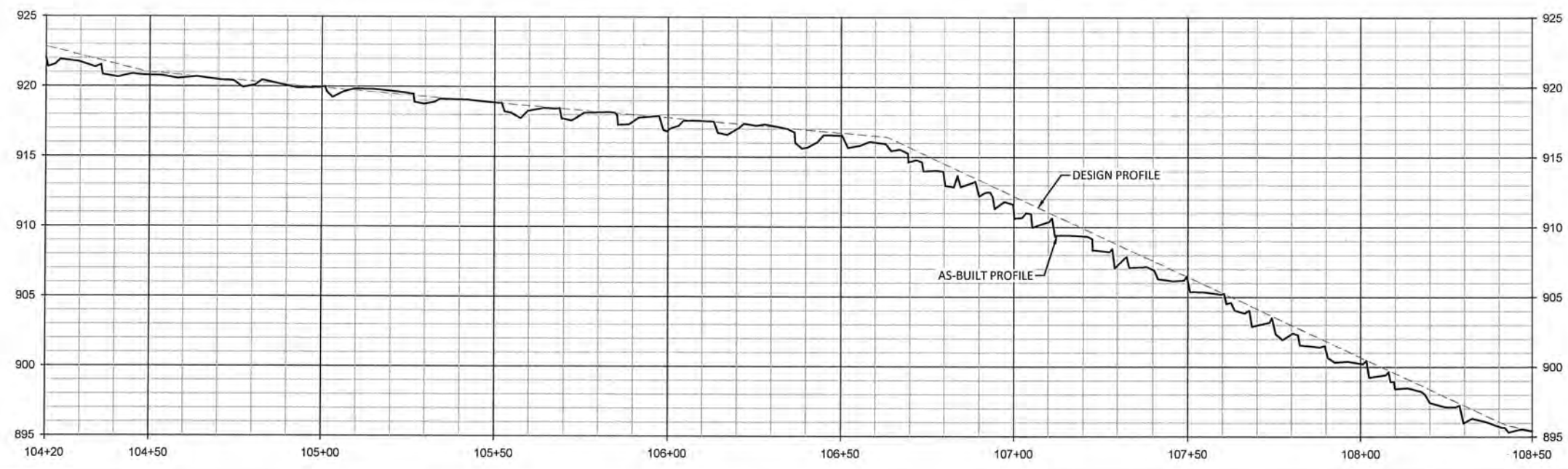


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Project Engineer:	EGR
Drawn By:	JCK
Checked By:	EGR/JCK
Revisions:	

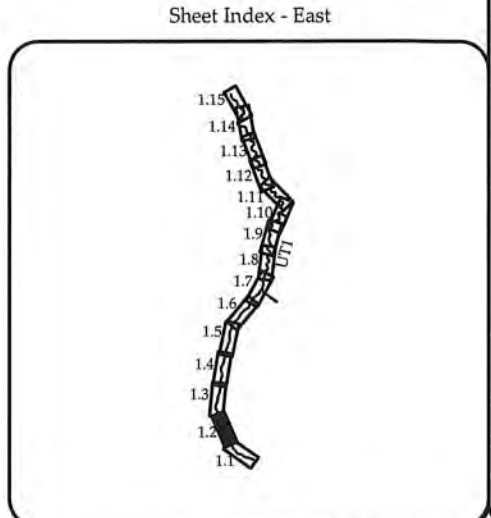
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STA: 108+10 - 110+00
 • FLOODPLAIN GRADING WAS REVISED TO MINIMIZE PRE-PROJECT WETLAND IMPACTS.



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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

UT1
 Stream Plan and Profile

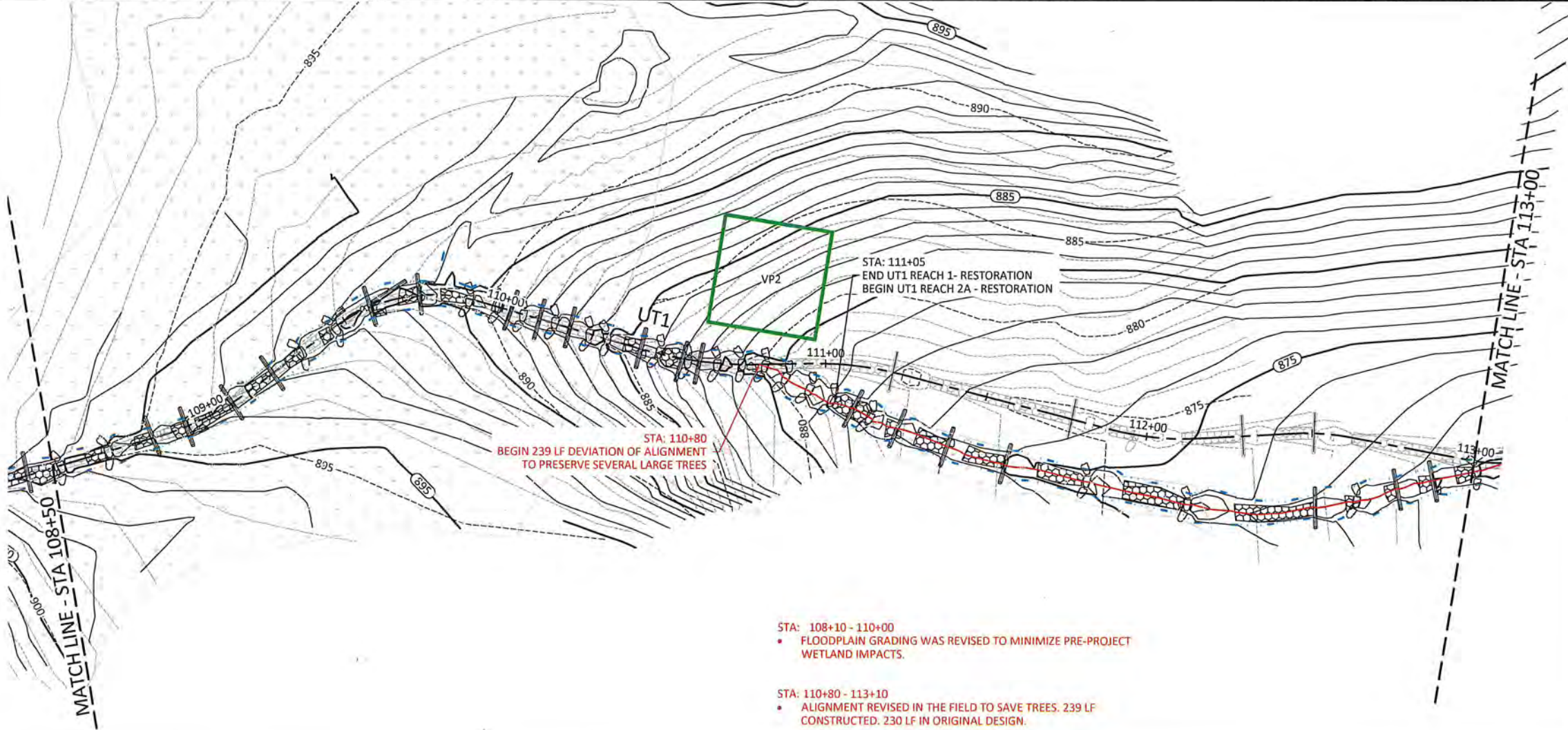
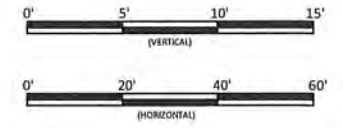
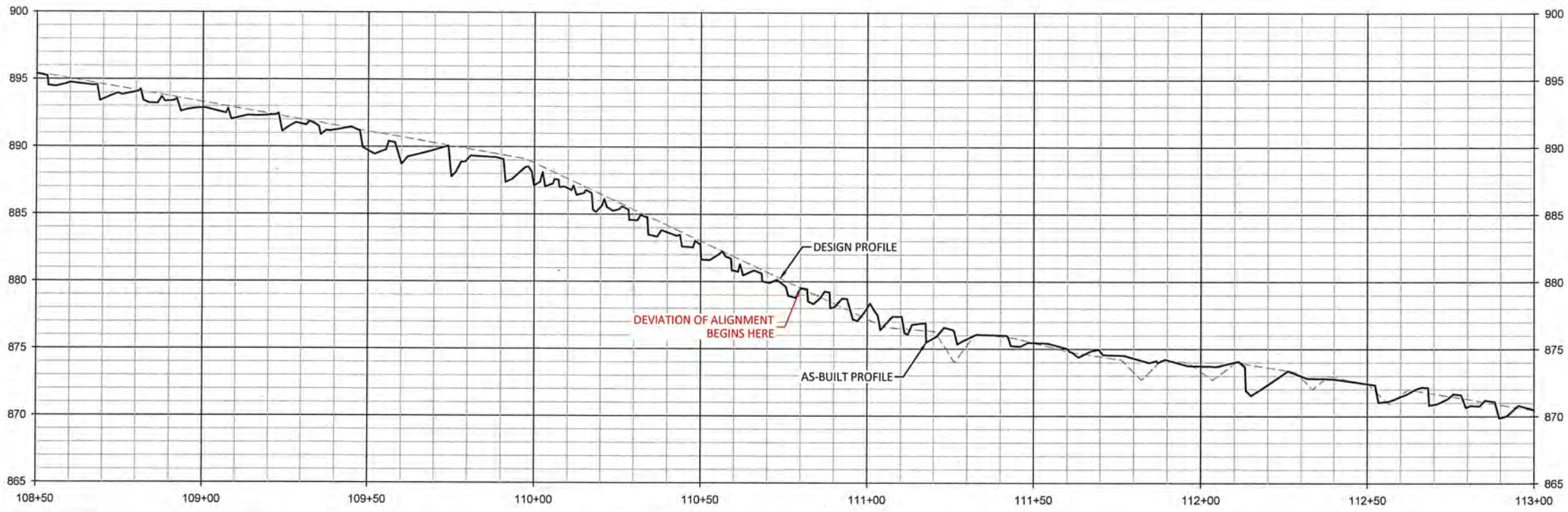
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Drawn By:	JCK
Checked By:	EGR/JCK
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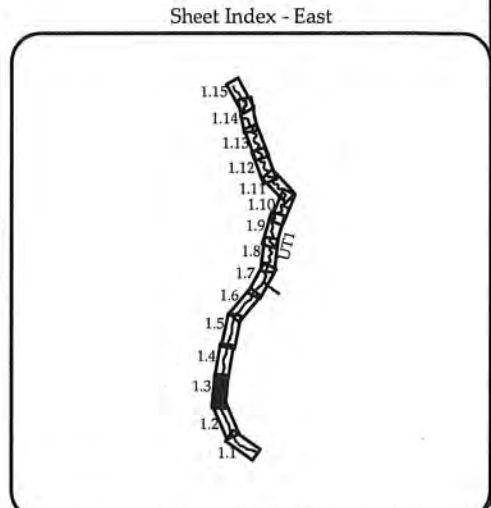
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July 1, 2019

For Active Projects: 005-02163 - Lone Hickory #1 DM Mitigation Baseline Modification - Items 107103 - A13 Profile - Final.dwg



- STA: 108+10 - 110+00
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- STA: 110+80 - 113+10
 - ALIGNMENT REVISED IN THE FIELD TO SAVE TREES. 239 LF CONSTRUCTED. 230 LF IN ORIGINAL DESIGN.



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 Yadkin County, North Carolina

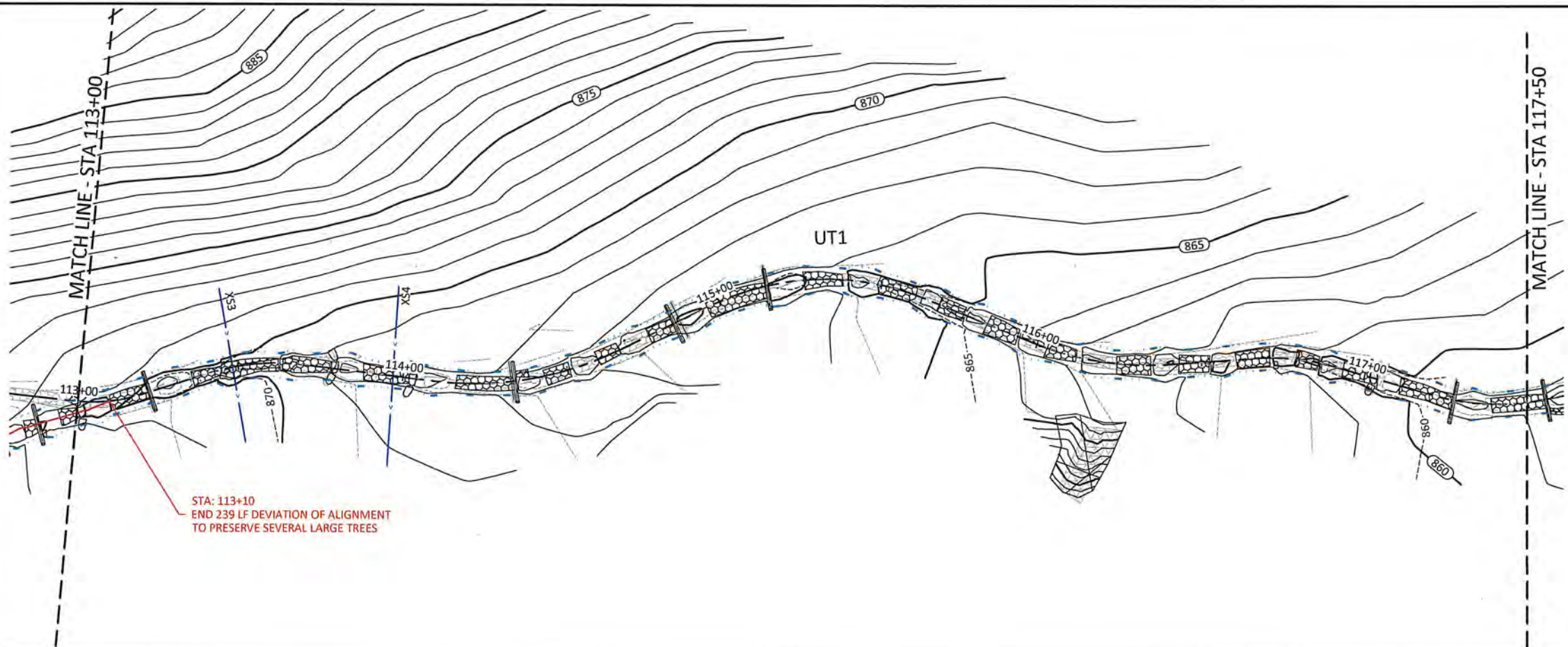
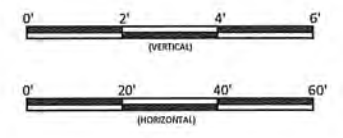
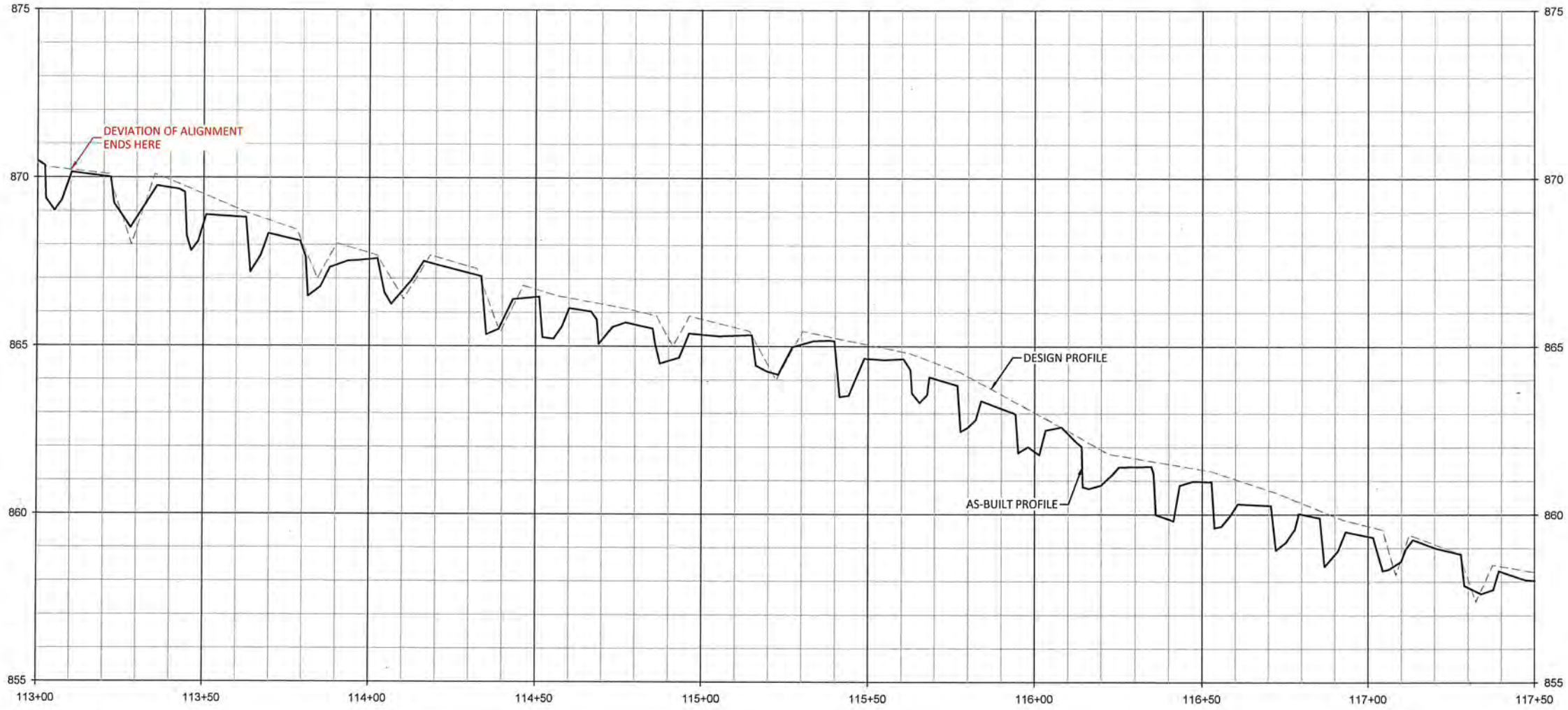
UT1
 Stream Plan and Profile

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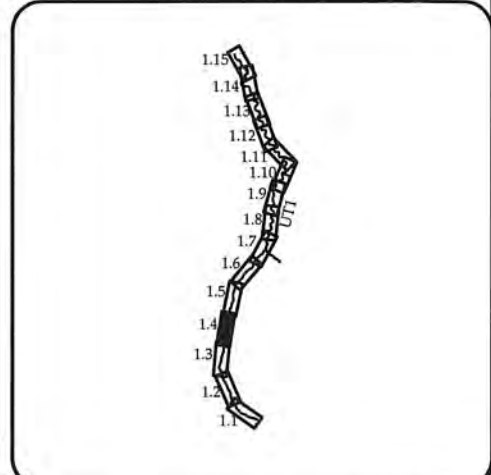
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July 1, 2019



Sheet Index - East



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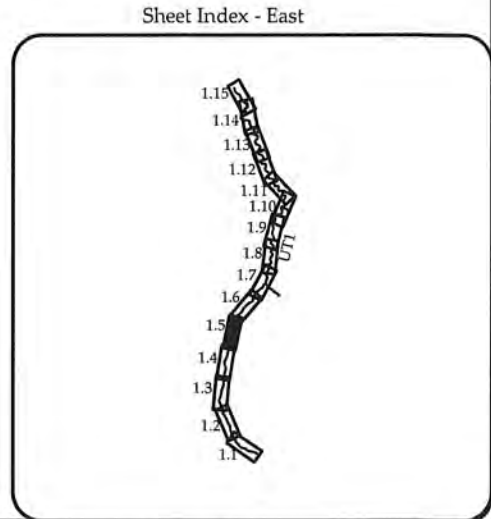
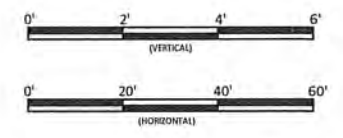
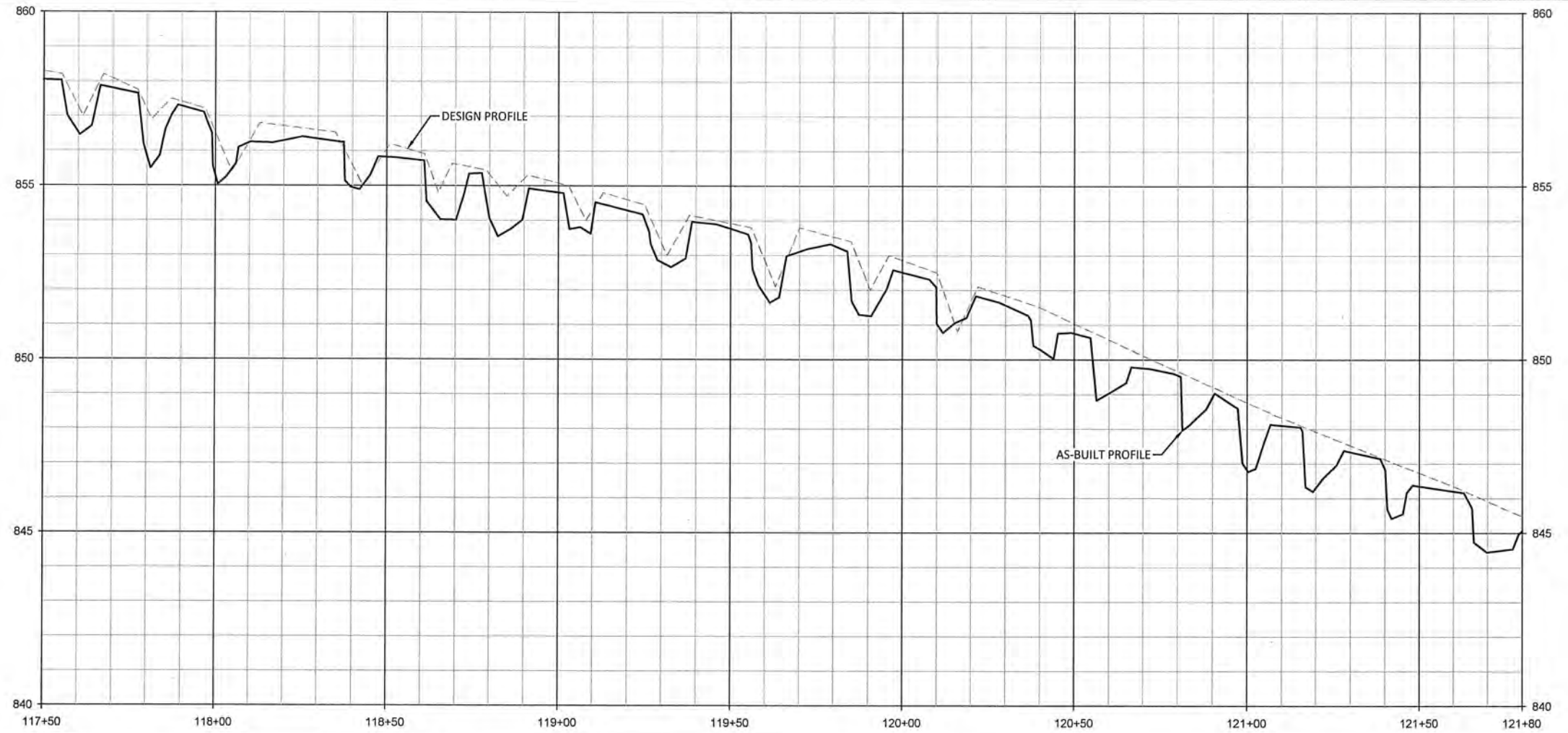
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UT1
 Stream Plan and Profile

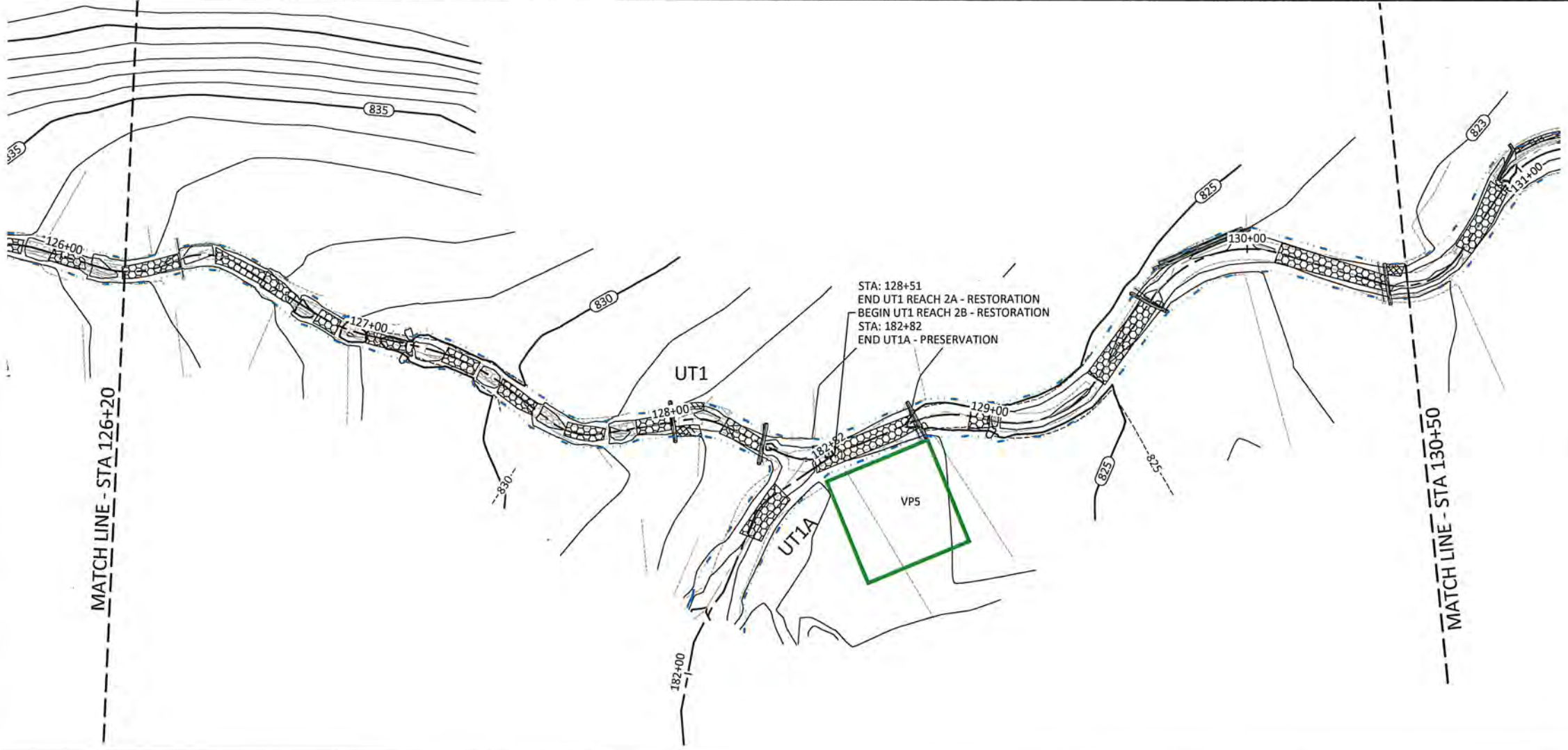
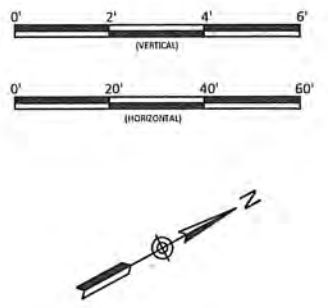
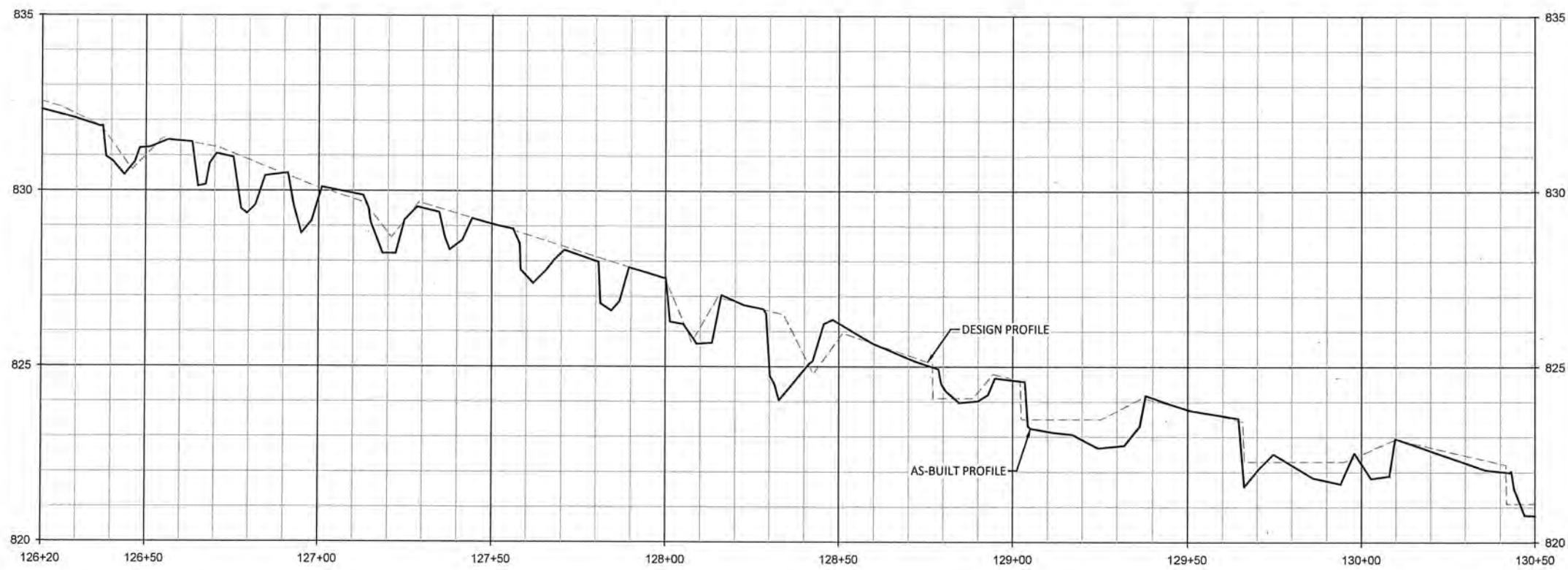
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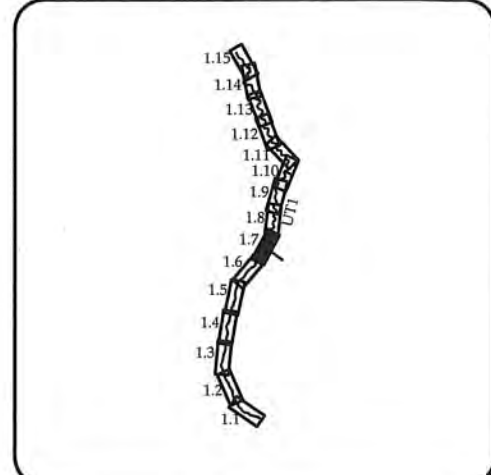
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July 1, 2019
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STA: 128+51
END UT1 REACH 2A - RESTORATION
BEGIN UT1 REACH 2B - RESTORATION
STA: 182+82
END UT1A - PRESERVATION

Sheet Index - East



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STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
REINICHER

Lone Hickory Mitigation Site Record Drawings

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UT1

Stream Plan and Profile

Revisions	Date	By	Check	Description

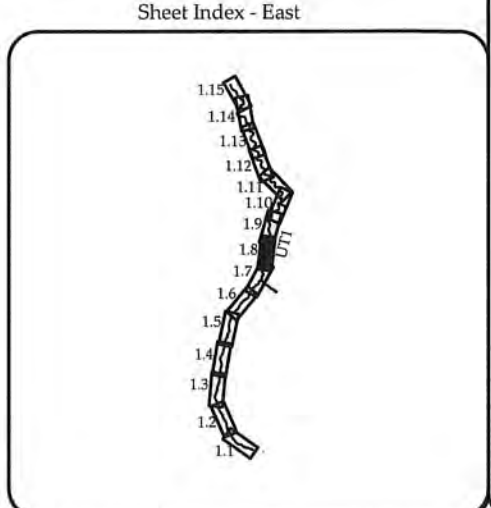
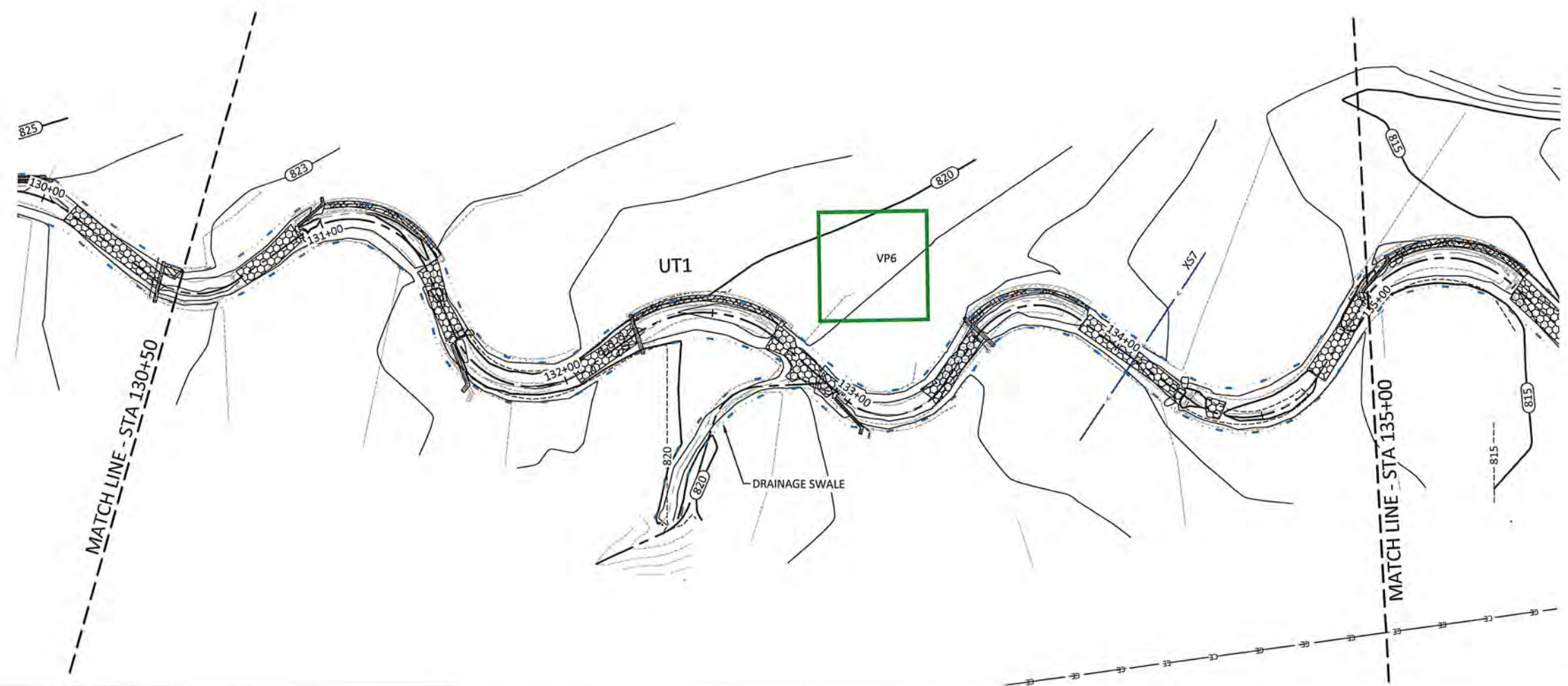
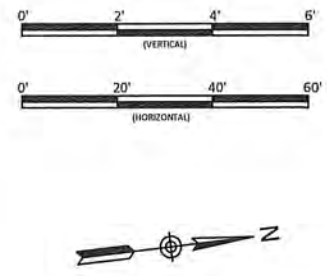
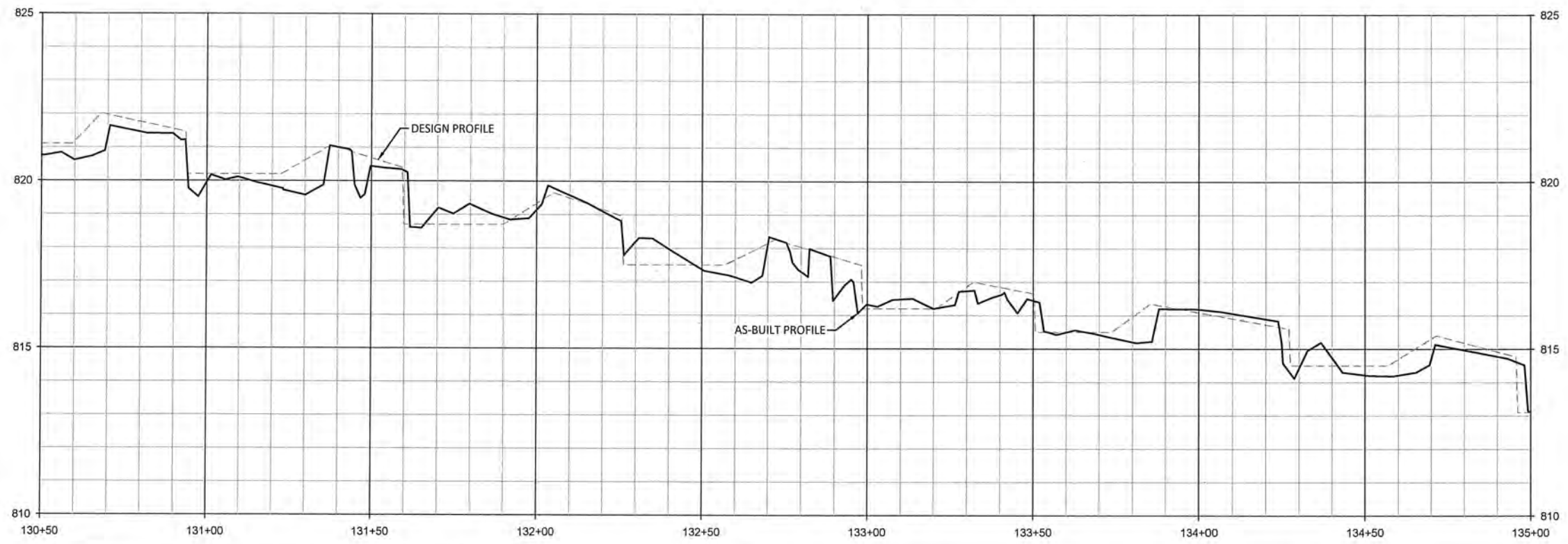
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UT1
 Stream Plan and Profile

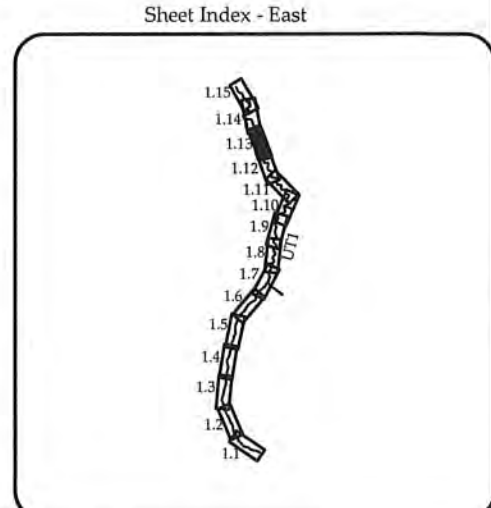
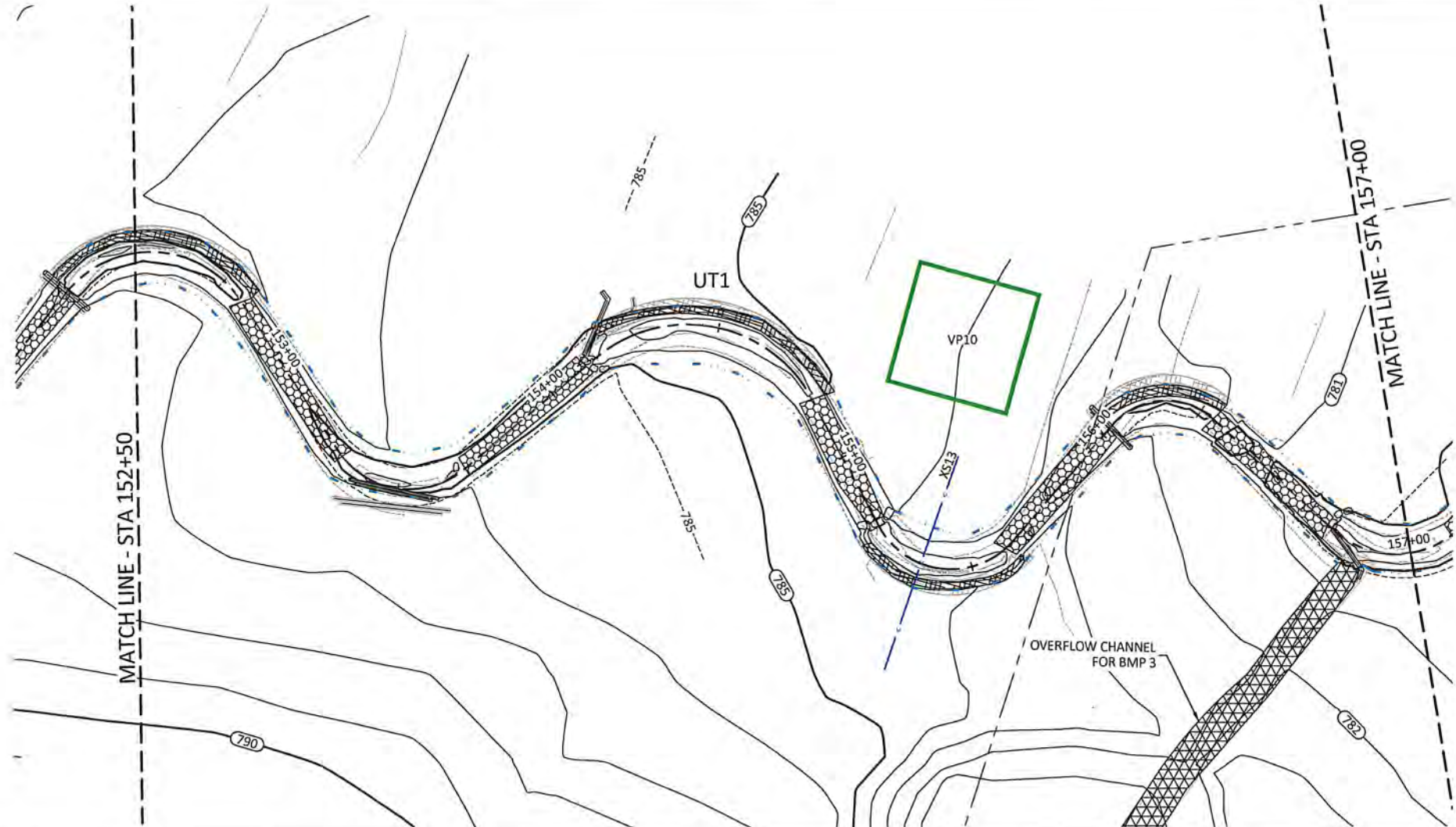
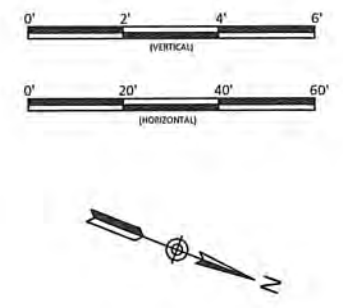
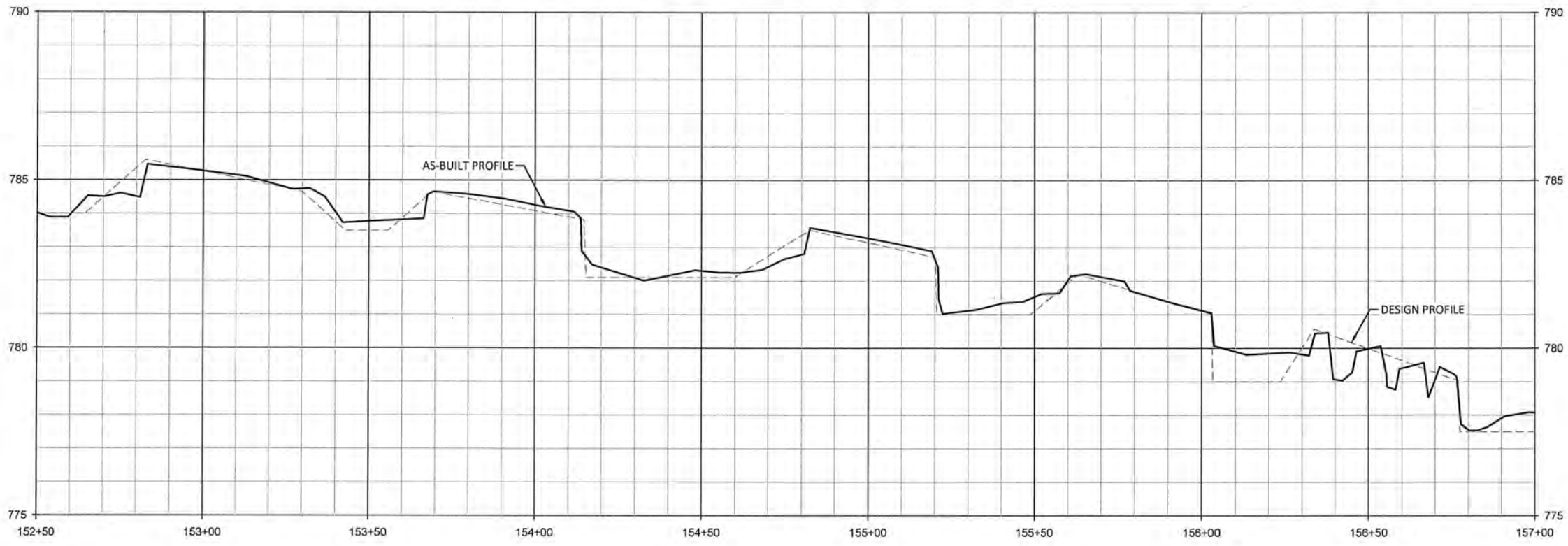
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Date:	July 10, 2019
Job Number:	005-07163
Project Engineer:	EGR
Drawn By:	JCK
Checked By:	EGR/JCK

1.8

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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

UT1
 Stream Plan and Profile

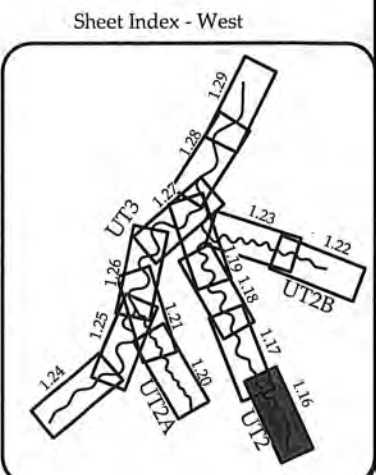
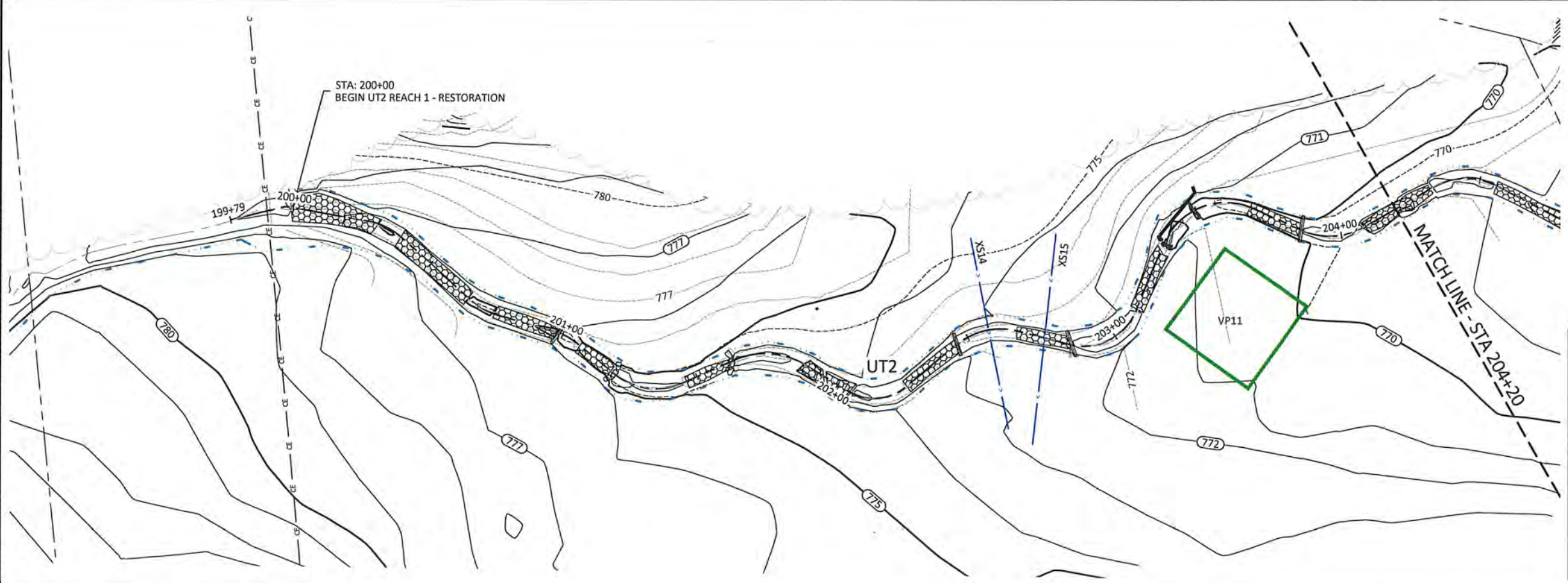
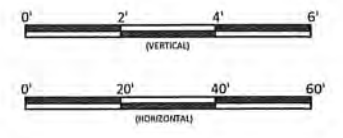
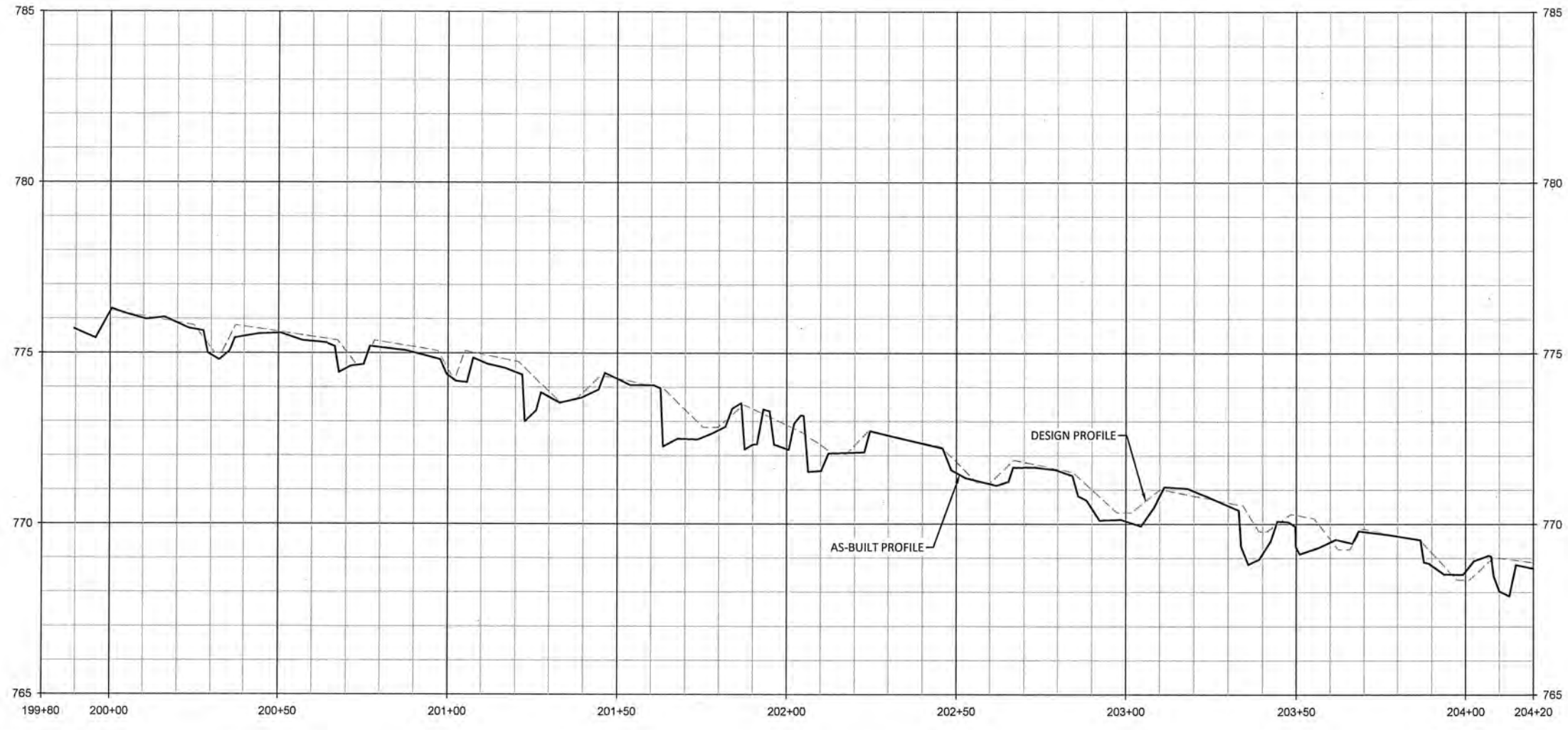
Date:	July 10, 2019
Job Number:	005-02163
Project Engineer:	EGR
Drawn By:	JCK
Checked By:	EGR/JCK

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1.13

Sheet

1.4. Drawn: 07/10/2019, Lone Hickory ERM, Mountainside, Mountain Plains, 02/10/19, A/E Profile - West Side



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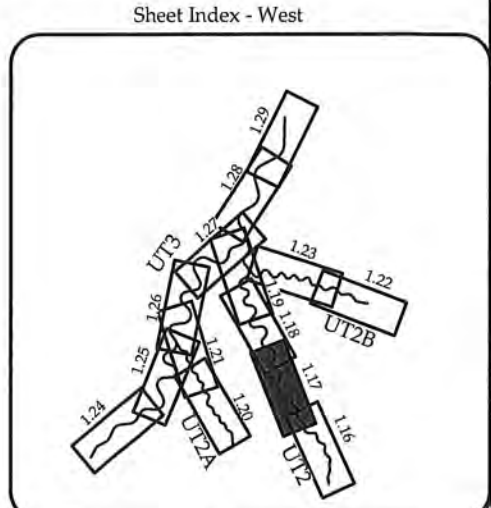
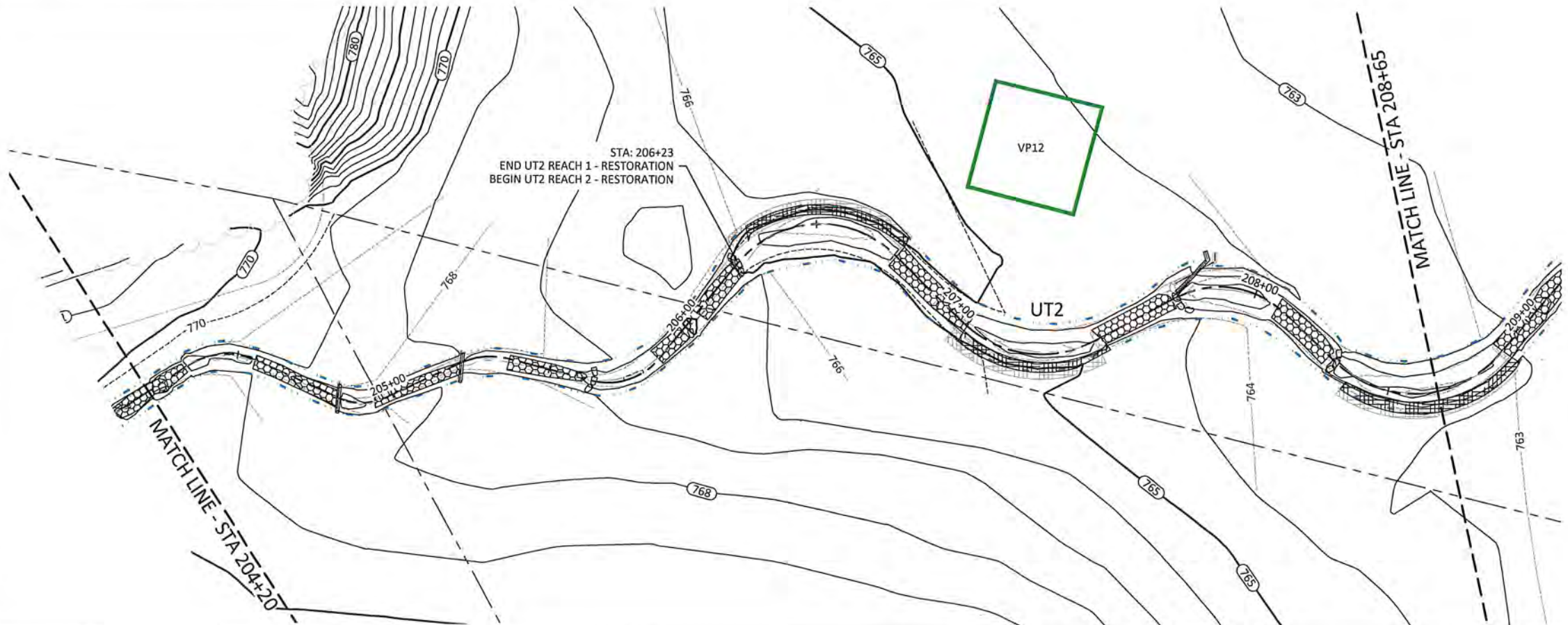
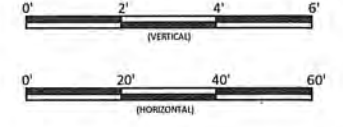
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Job Number:	05-02163
Project Engineer:	EGR
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1.16

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Lone Hickory Mitigation Site Record Drawings
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UT2
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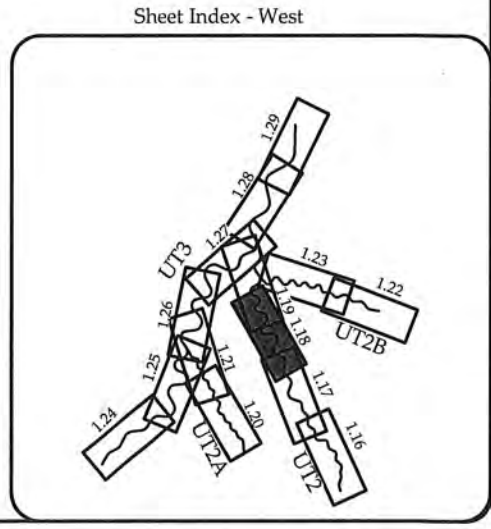
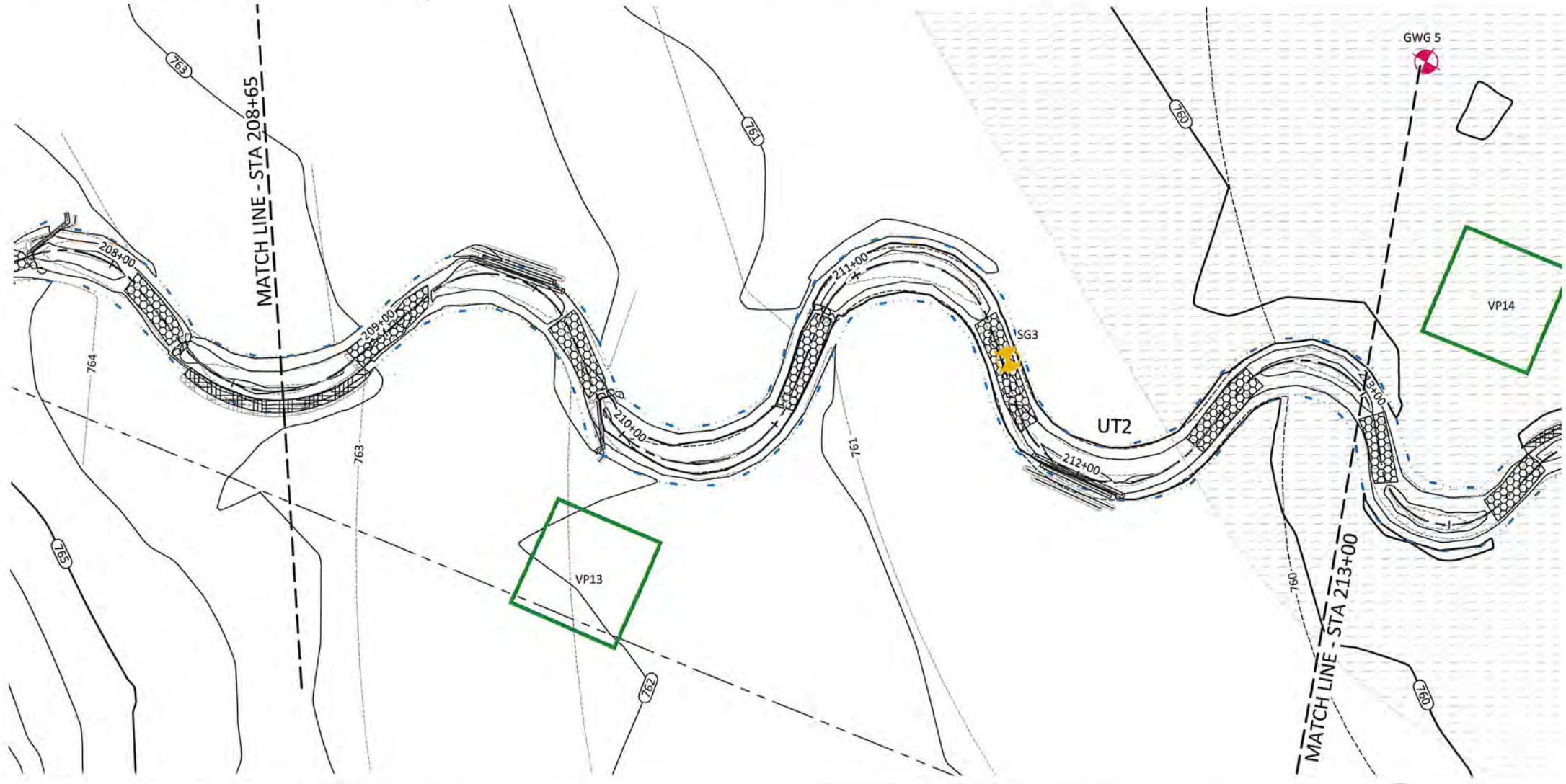
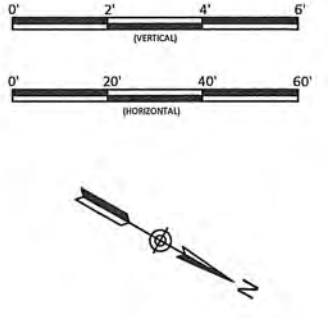
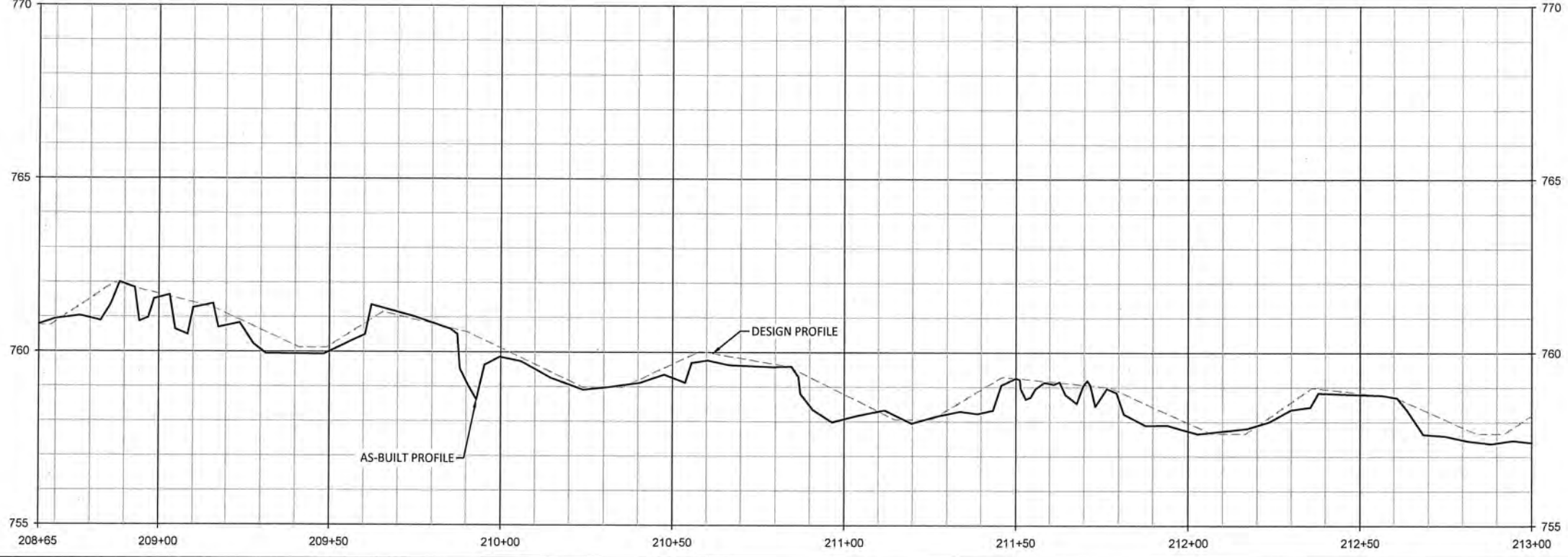
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Job Number:	005-02163
Project Engineer:	EGR
Drawn By:	JCK
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1.17

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UT2
 Stream Plan and Profile

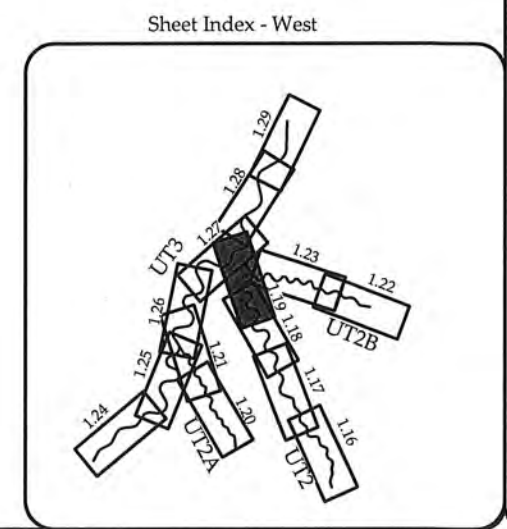
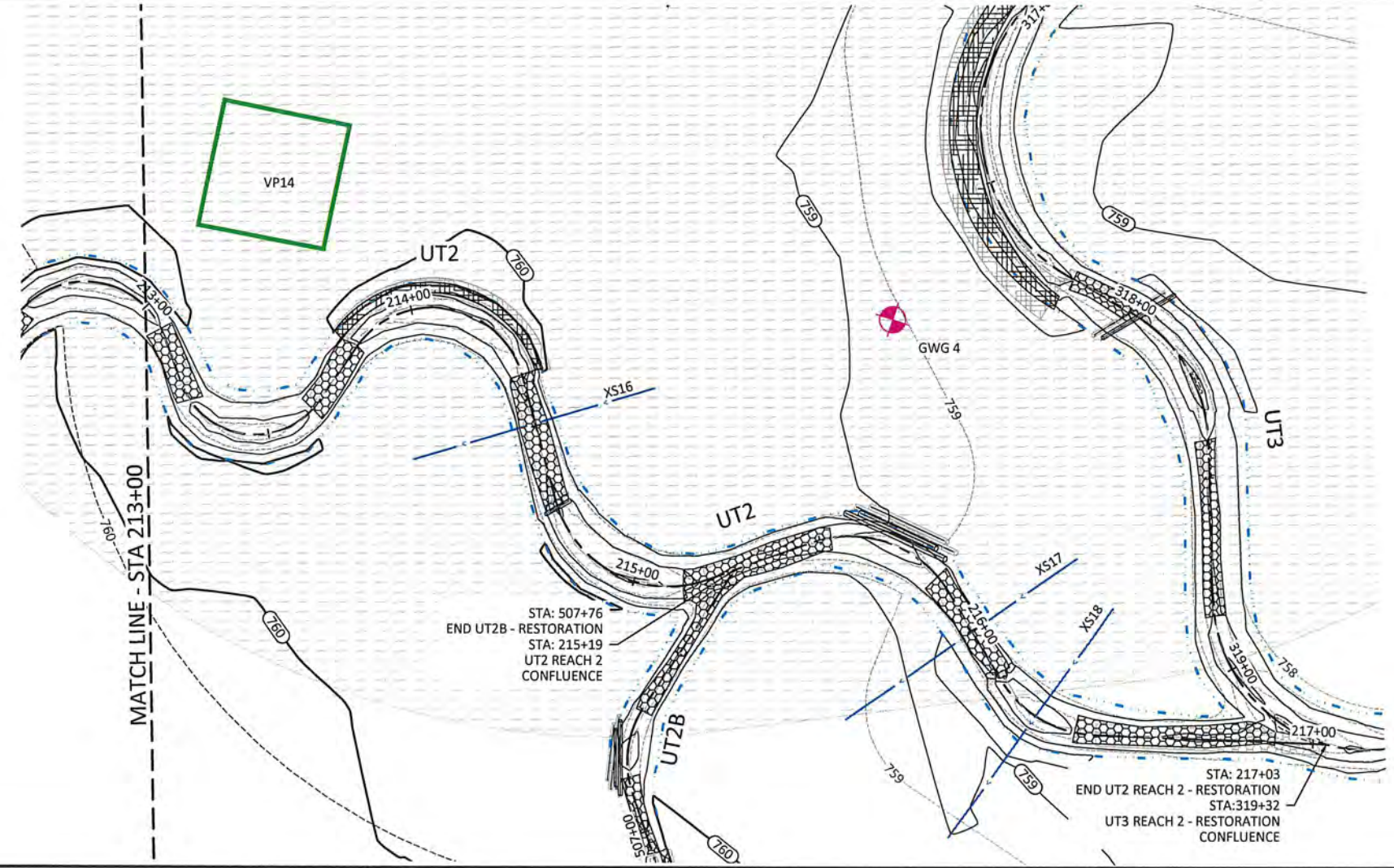
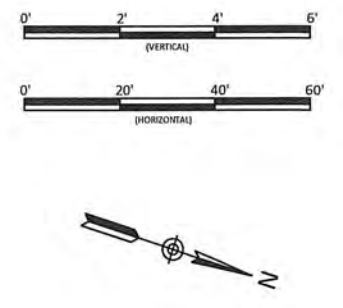
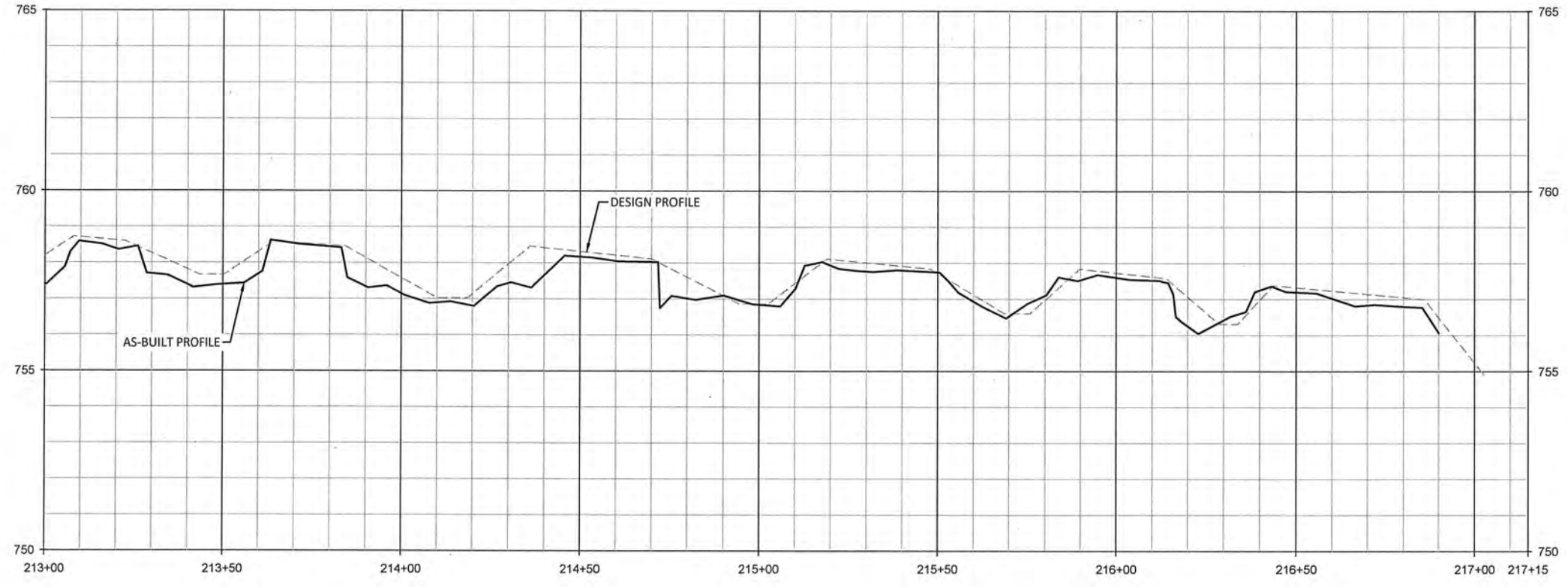
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Date: July 10, 2019
 Job Number: 105-07163
 Project Engineer: EGR
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1.18

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 Yadkin County, North Carolina

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1.19

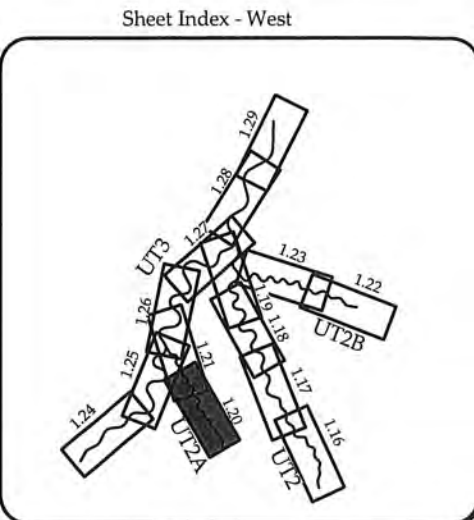
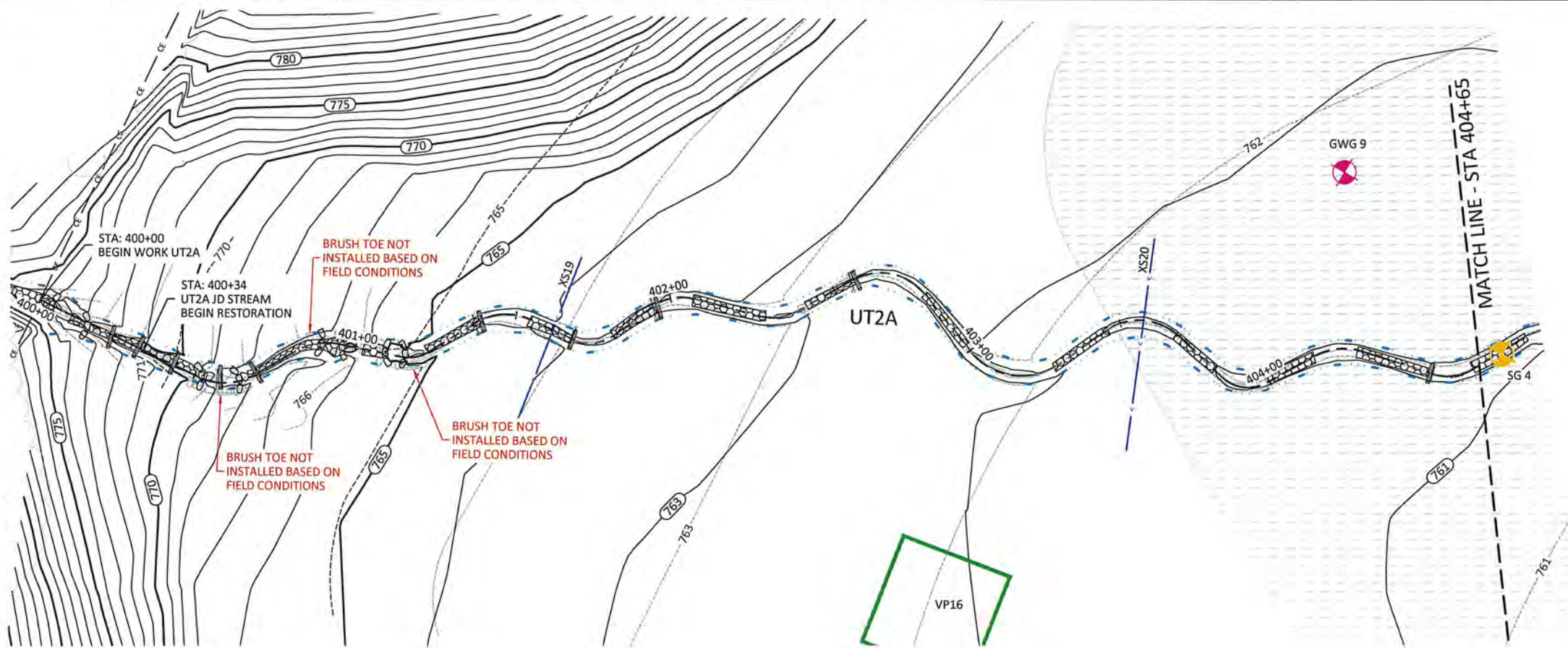
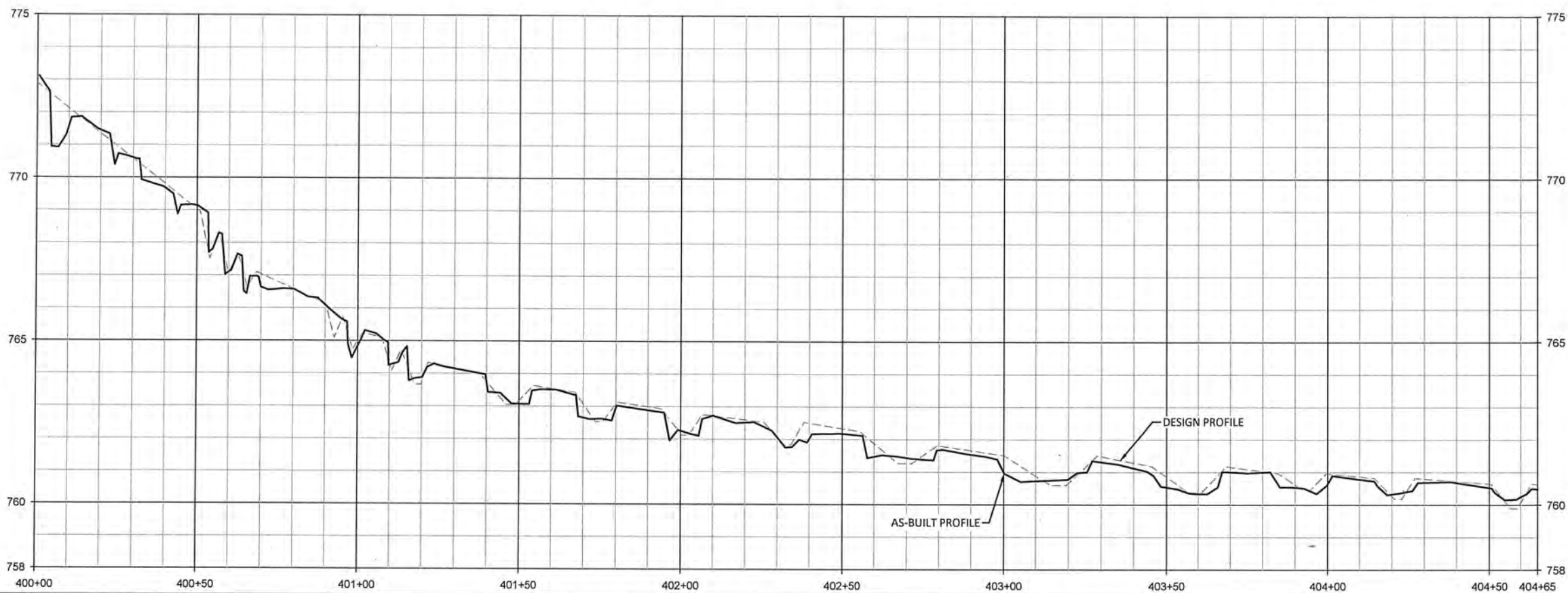
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UT2
 Stream Plan and Profile

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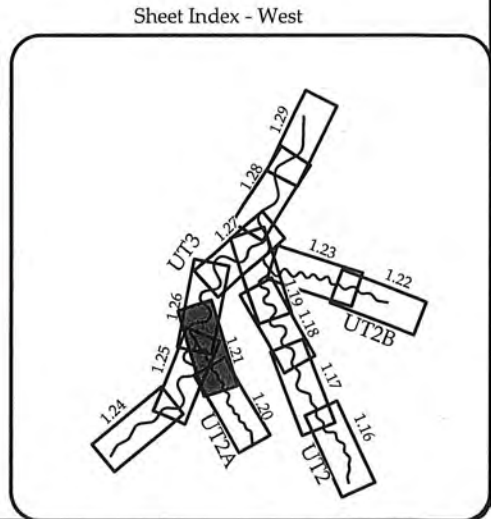
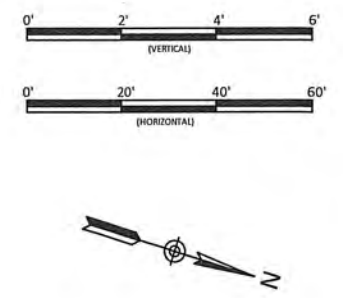
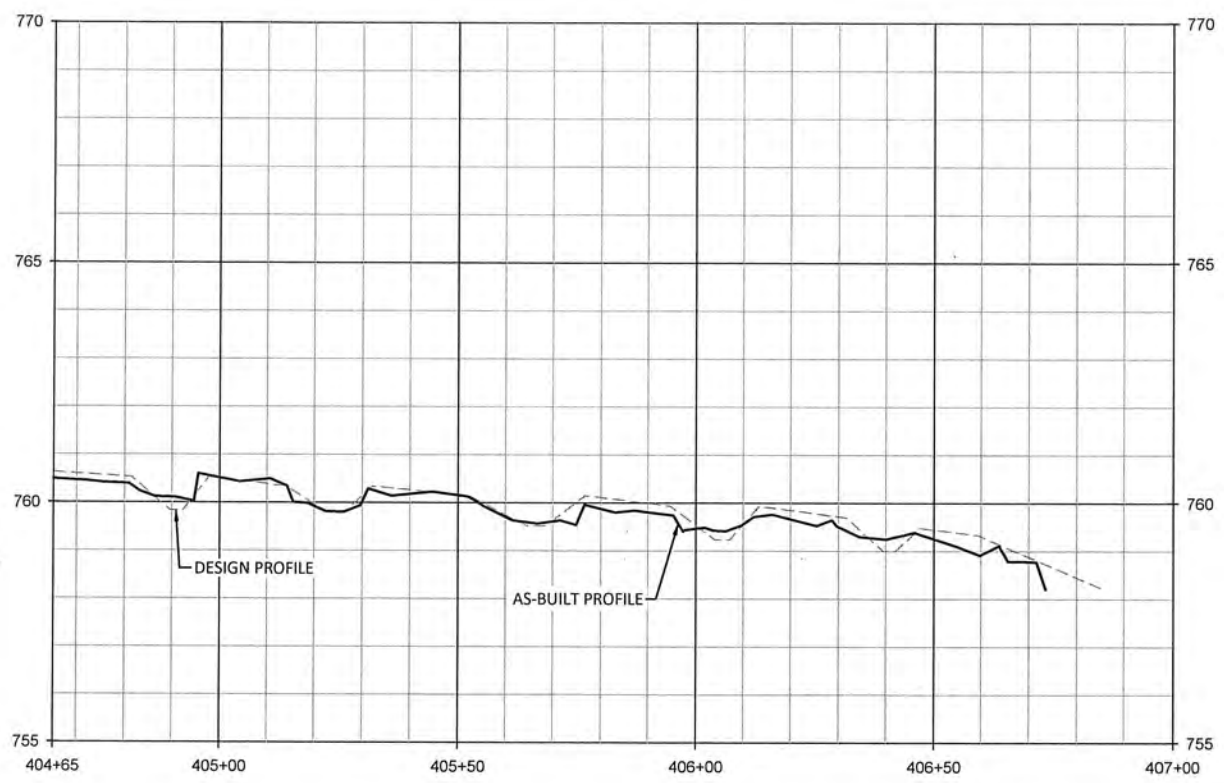
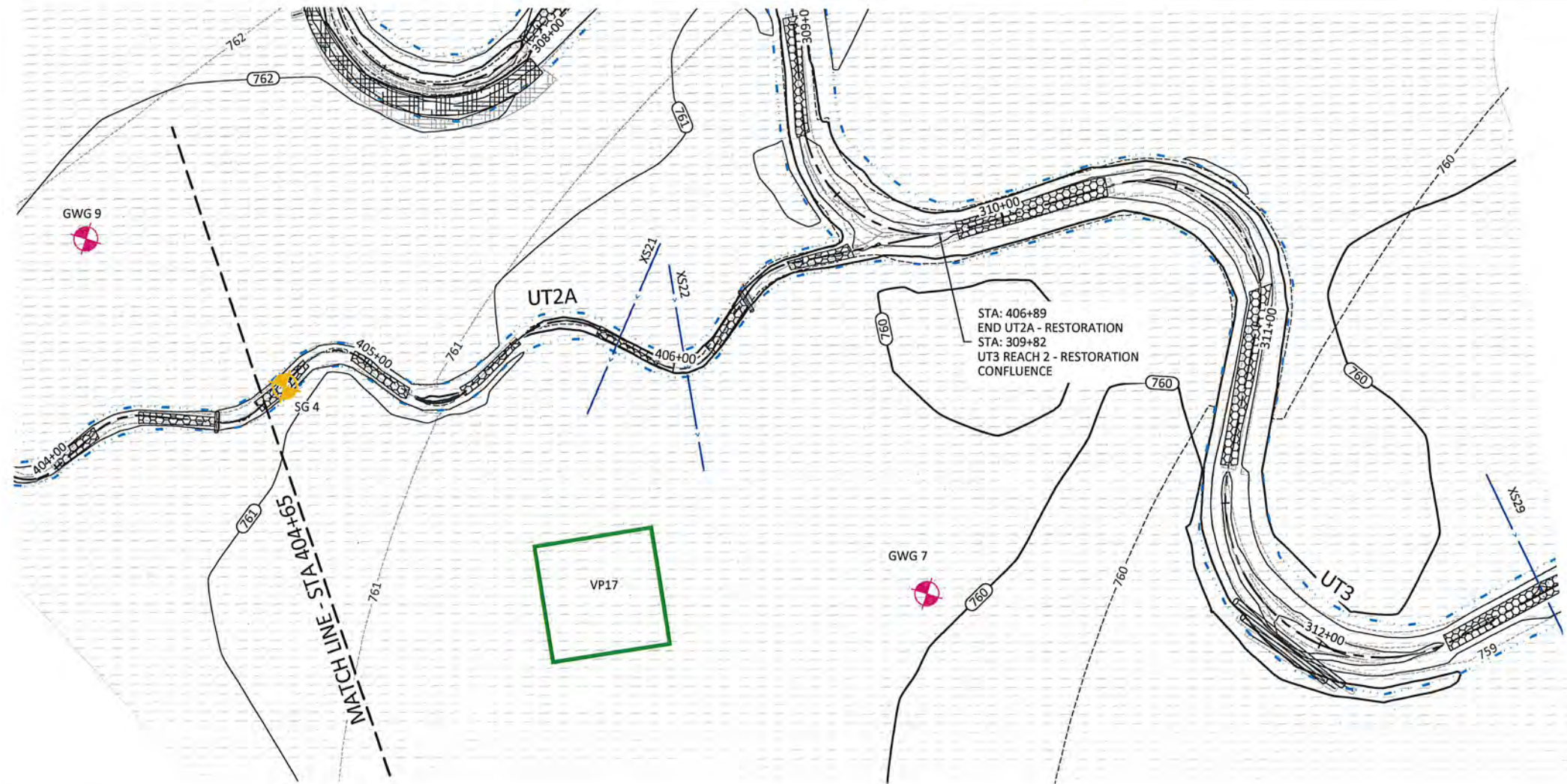
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1.20

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Lone Hickory Mitigation Site Record Drawings
Yadkin County, North Carolina

UT2A
Stream Plan and Profile

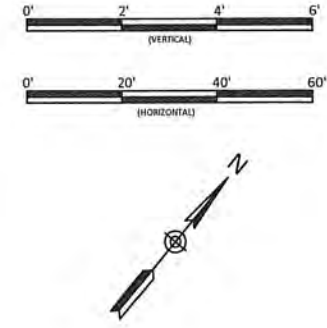
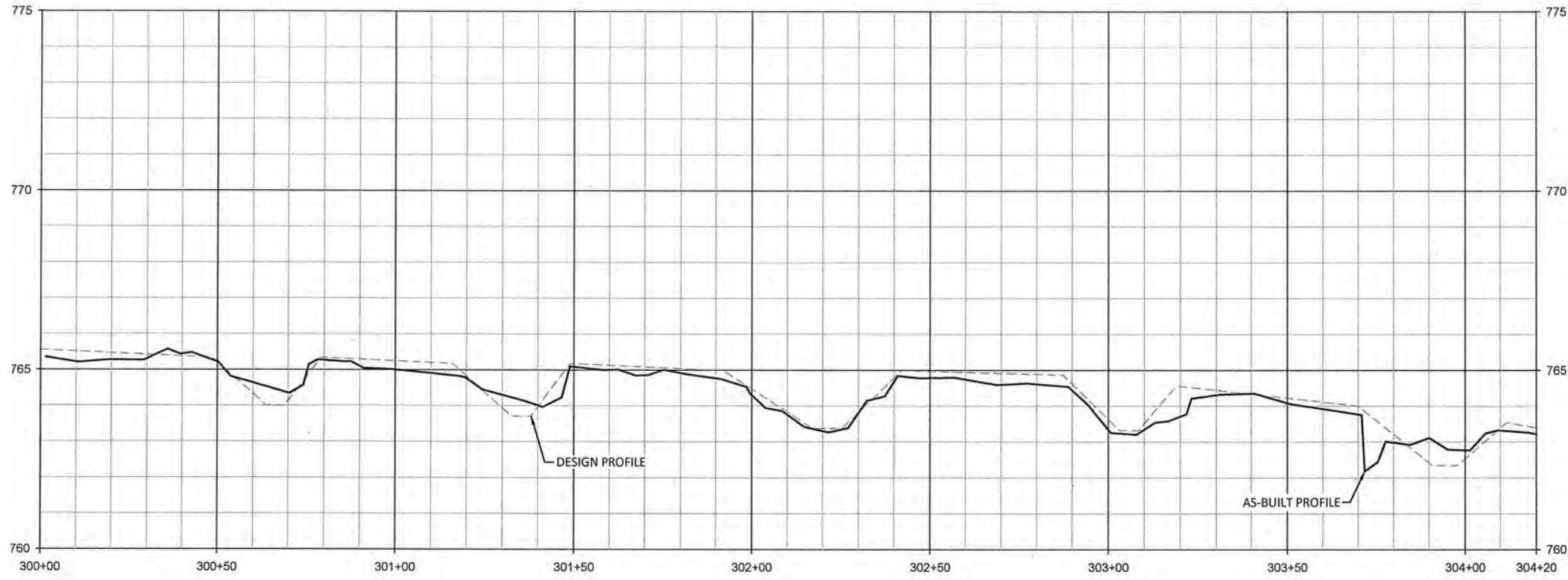
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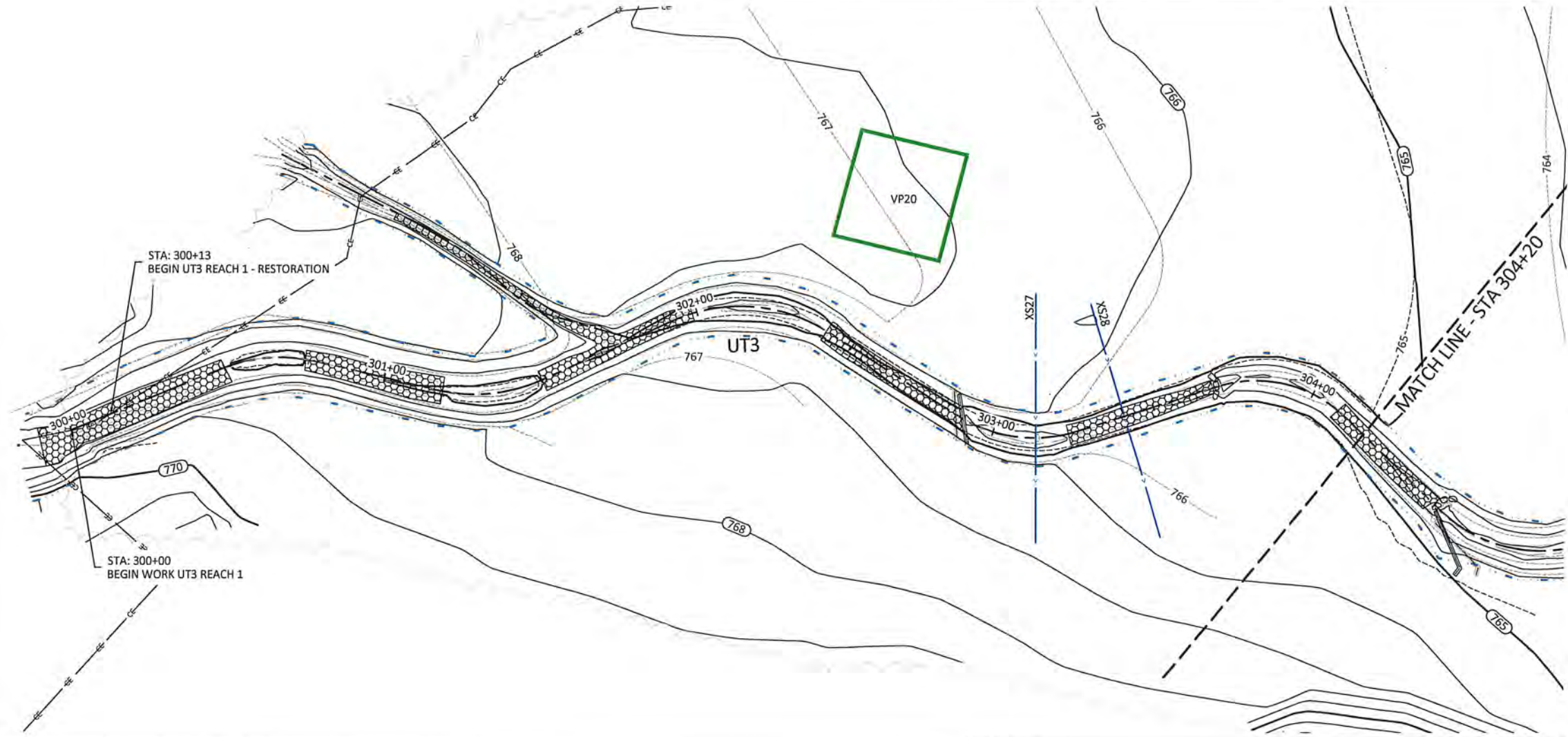


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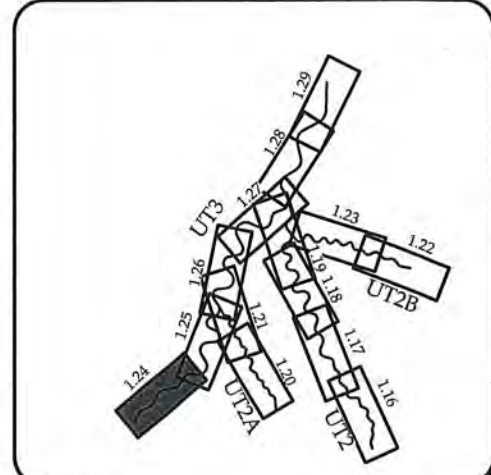


Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

UT3
 Stream Plan and Profile



Sheet Index - West

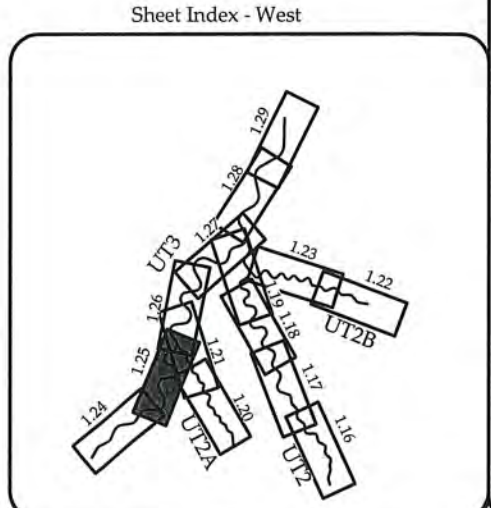
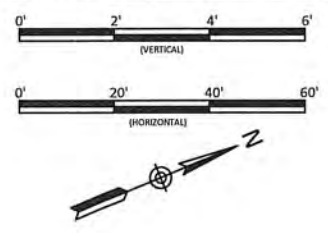
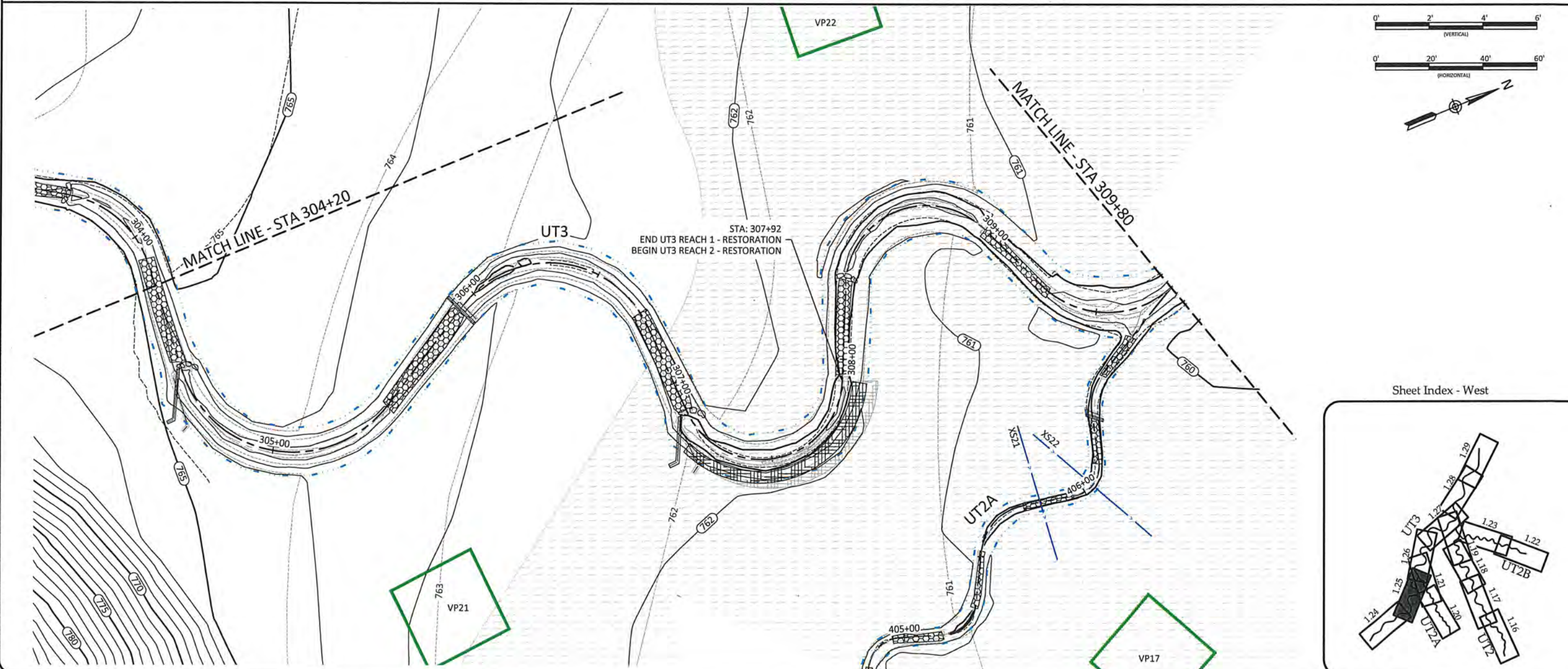
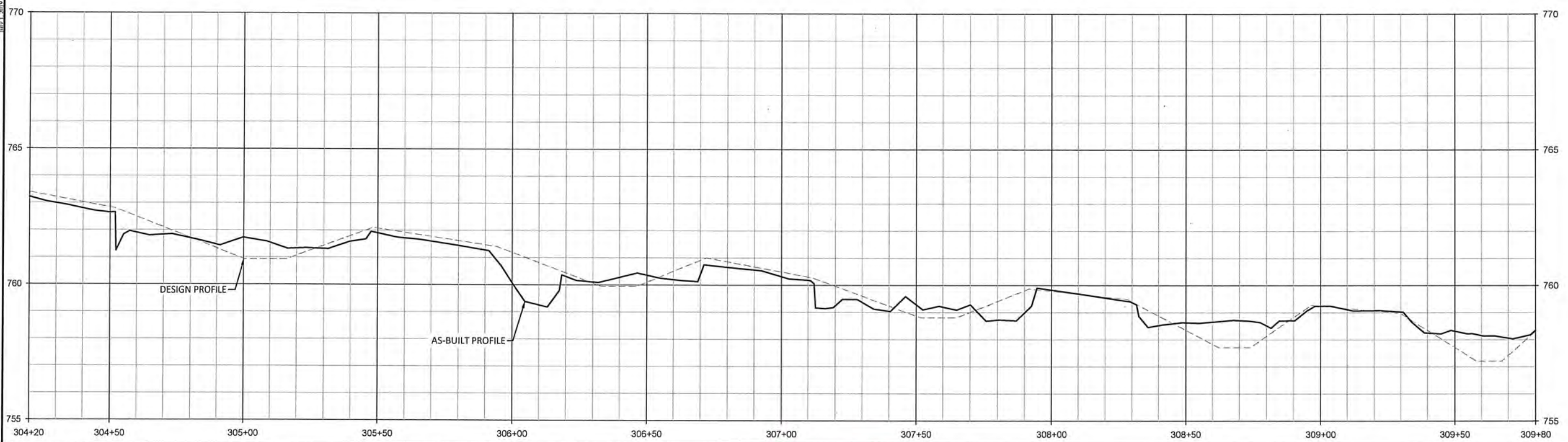


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Date:	July 10, 2019
Job Number:	005-02163
Project Engineer:	EGR
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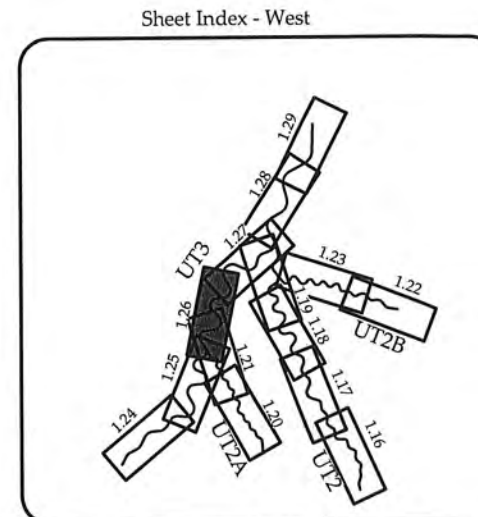
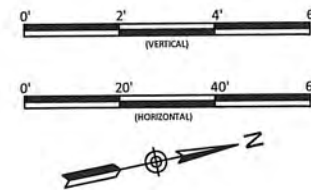
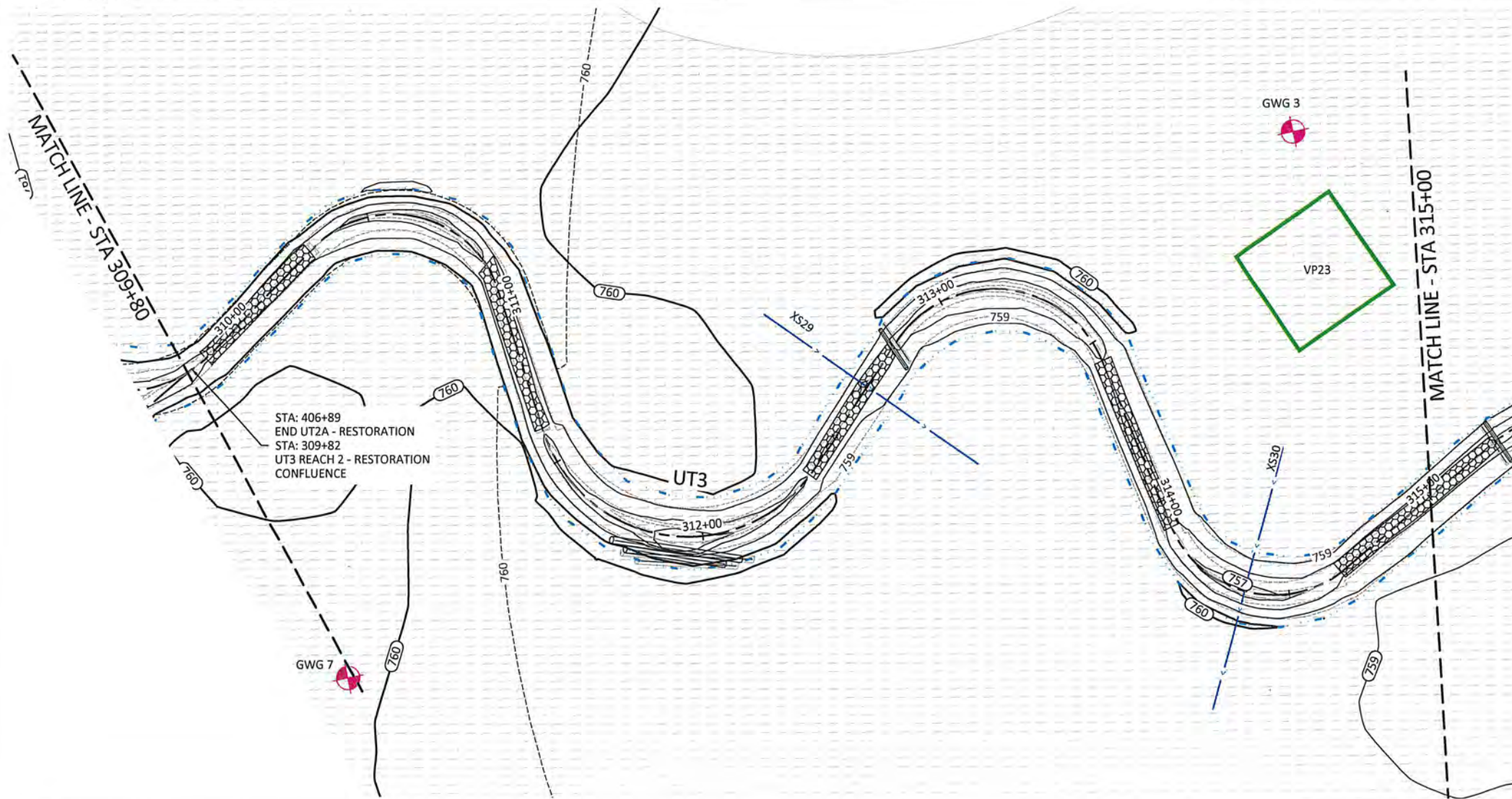
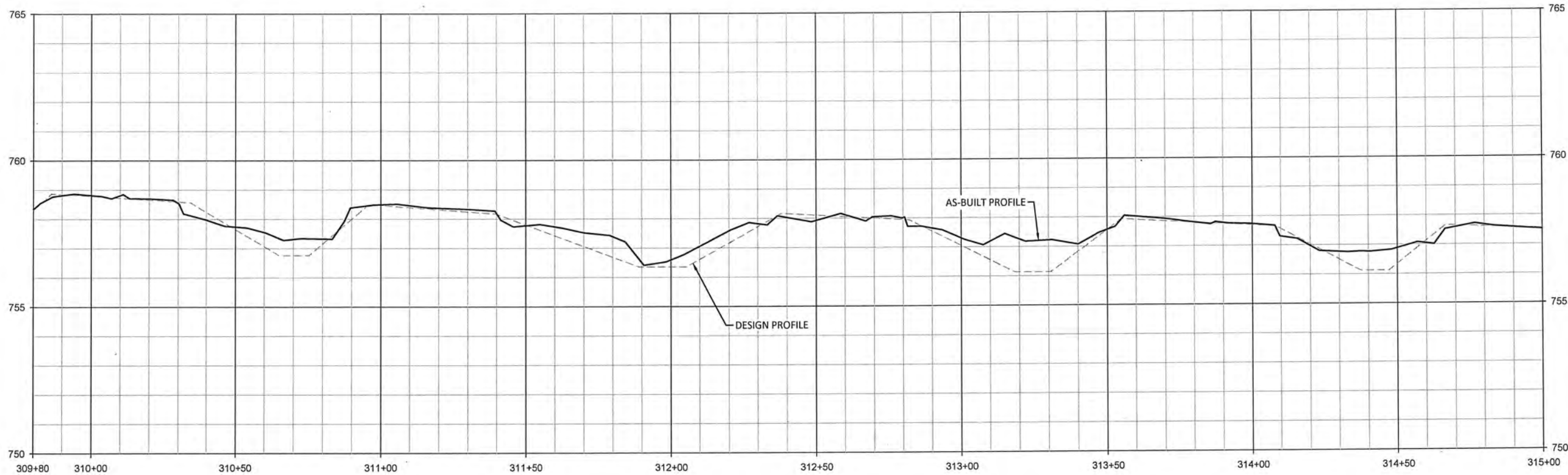
Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

UT3
 Stream Plan and Profile

Date:	July 10, 2019
Job Number:	1005-07163
Project Engineer:	EGR
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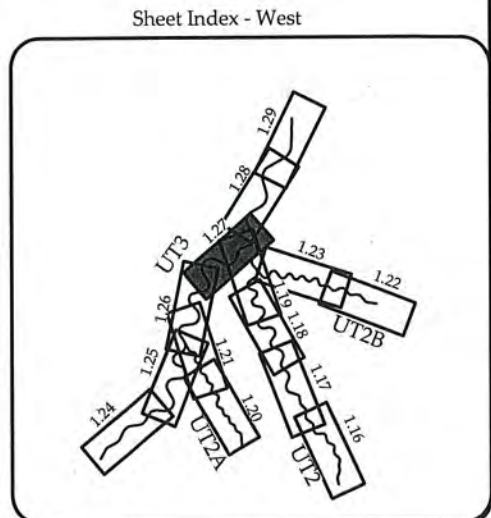
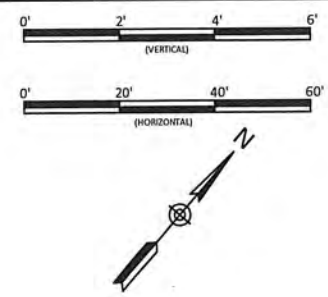
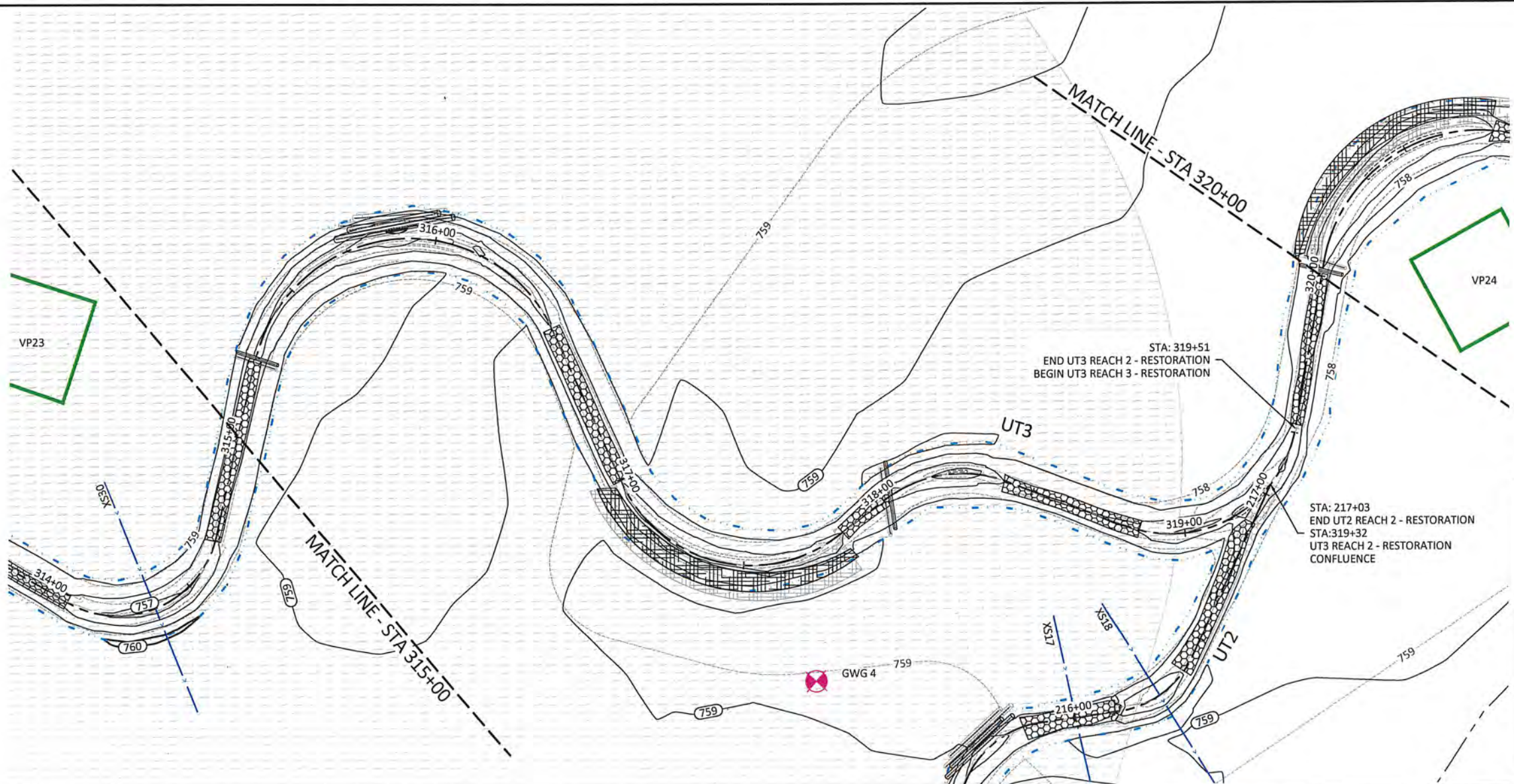
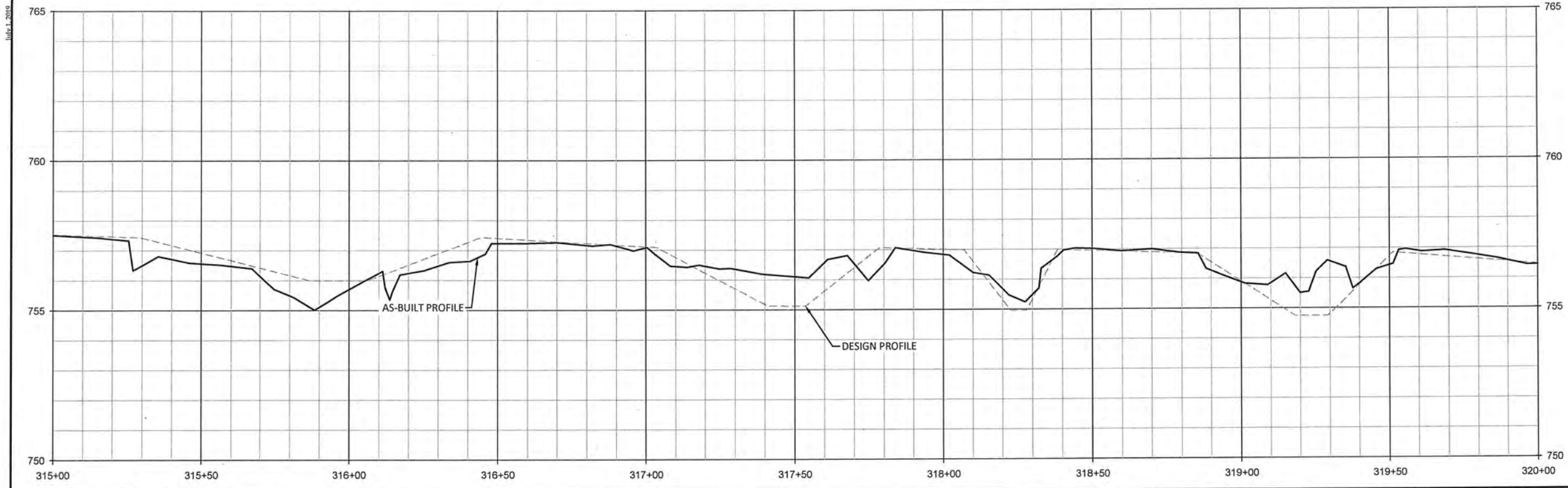
Lone Hickory Mitigation Site Record Drawings
Yadkin County, North Carolina

UT3
Stream Plan and Profile

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Job Number: 005-02163
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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

UT3
 Stream Plan and Profile

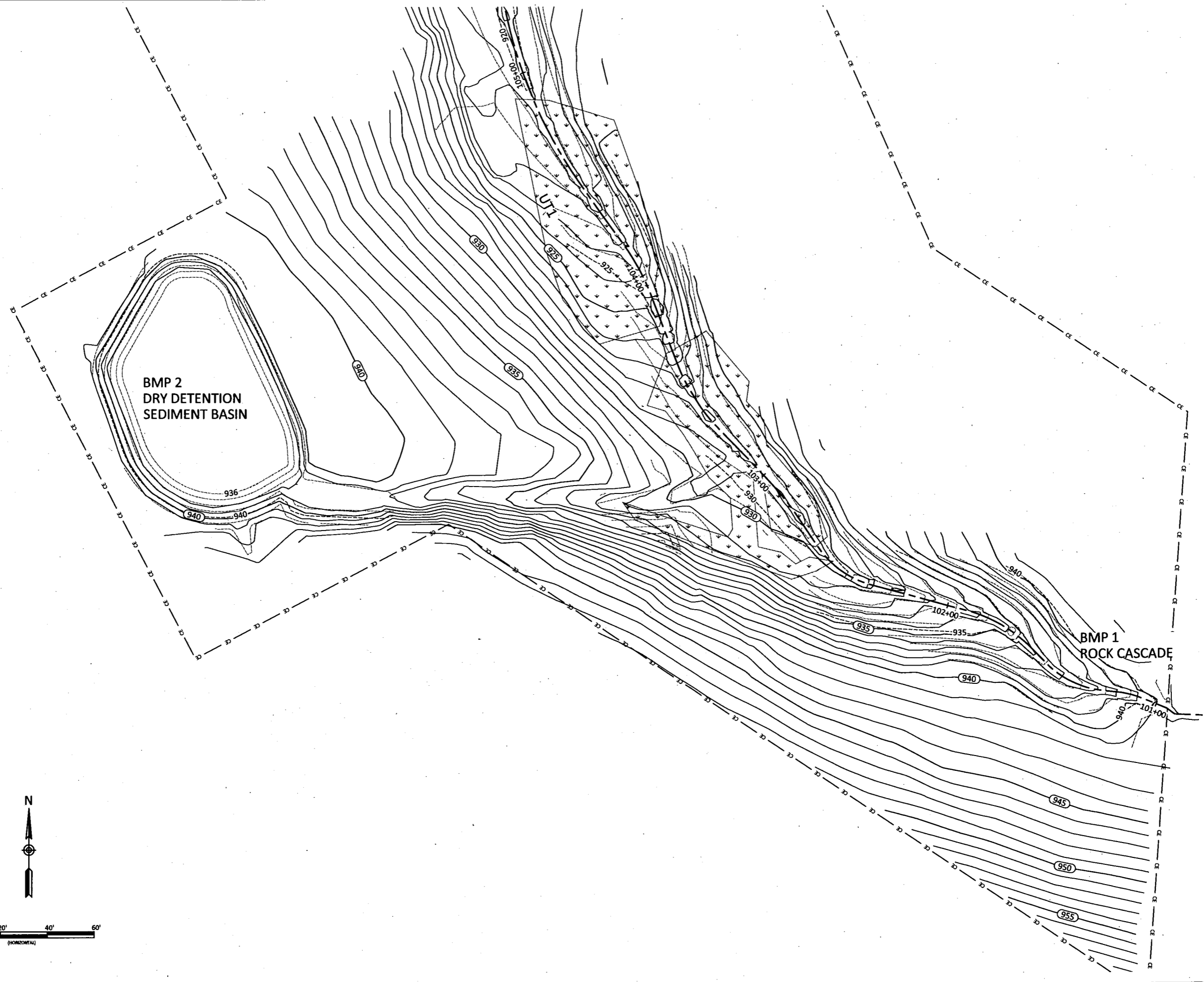


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Date:	July 10, 2019
Job Number:	06-02163
Project Engineer:	EGR
Drawn By:	JCK
Checked By:	EGR/JCK

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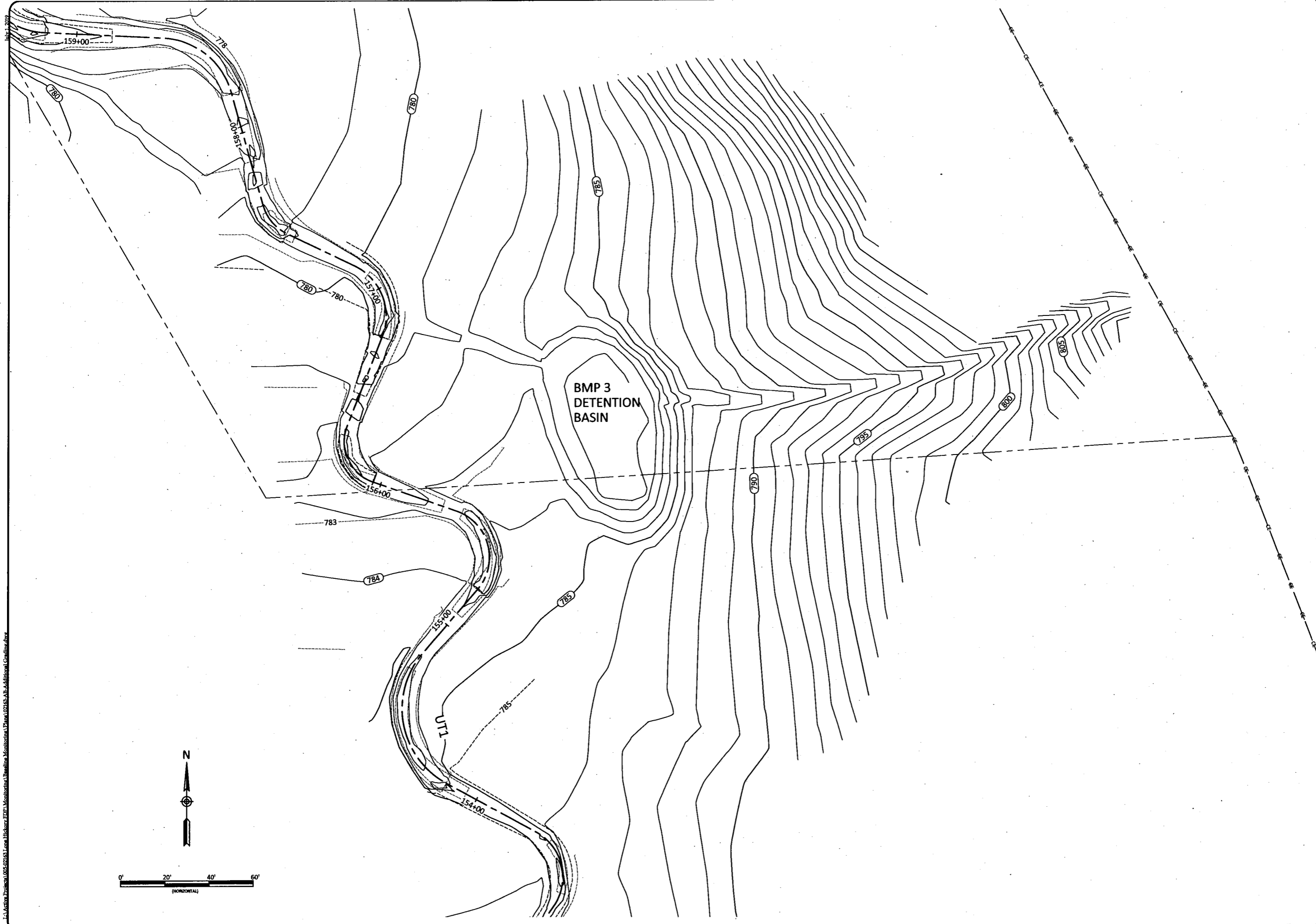
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Date: July 10, 2019
 Job Number: 06-07163
 Project Engineer: EGR
 Drawn By: JCK
 Checked By: EGR/JCK

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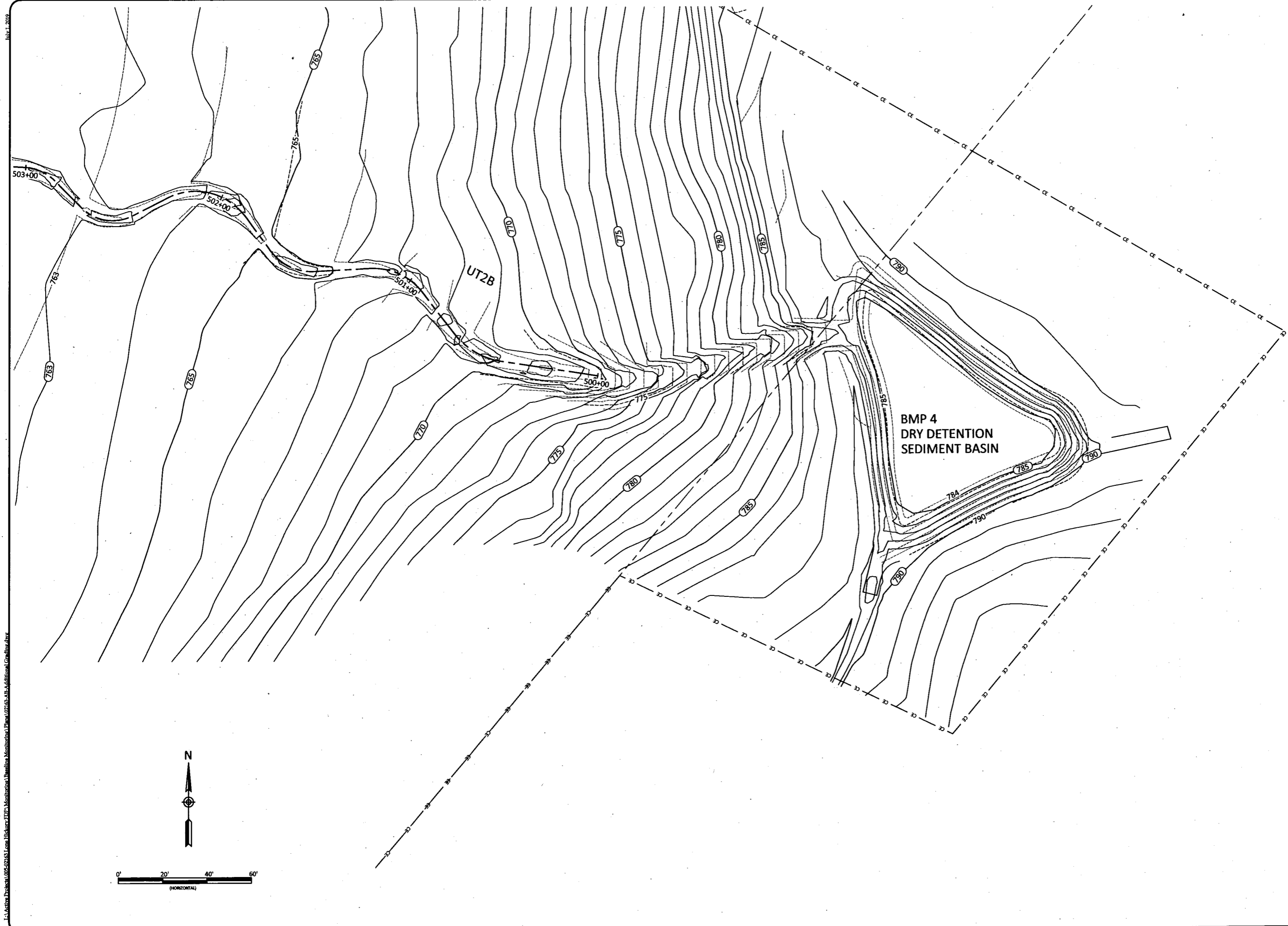
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BMP #3
 Additional Grading



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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

BMP #4
 Additional Grading

Revision	Date	By	Check

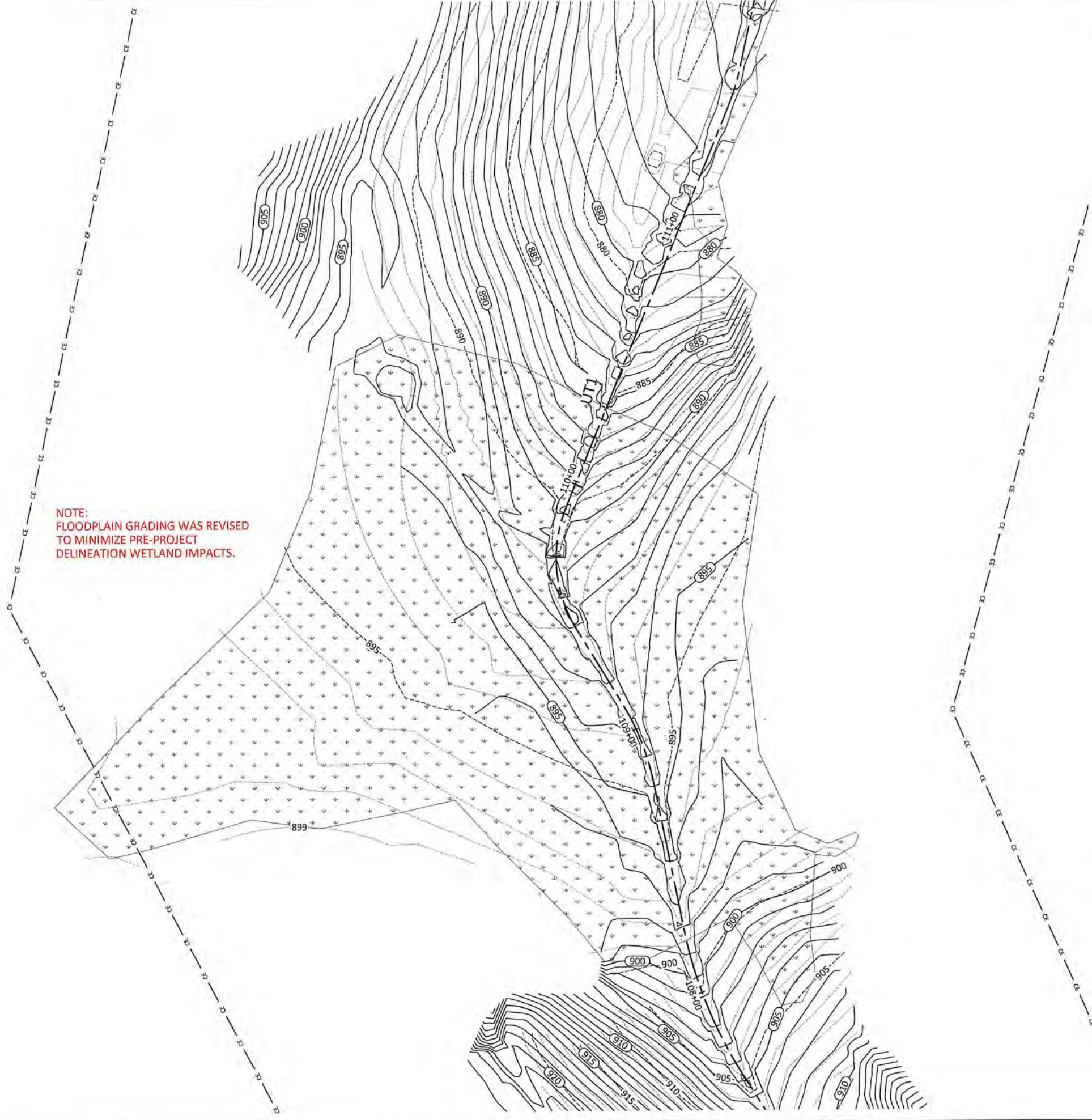
Date: July 10, 2019
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 Project Engineer: EGR
 Drawn By: JCK
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2.3

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Drawn By:	ICK
Checked By:	EGR/ICK

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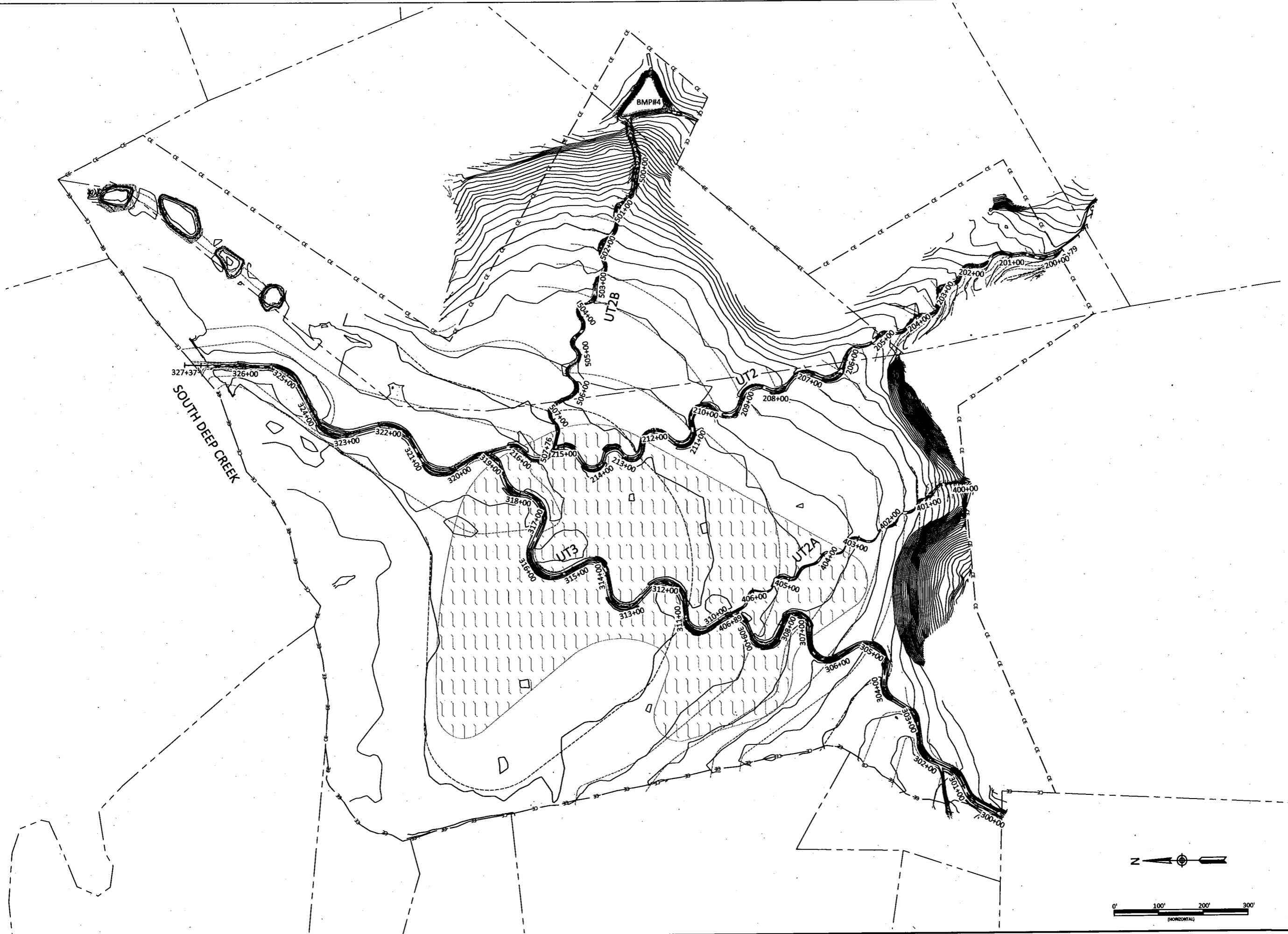
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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina
 Wetland Grading



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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina
 Wetland Grading

Revisions

Drawn: July 10, 2019
 Job Number: 1005-02163
 Project Engineer: EGR
 Drawn By: JCK
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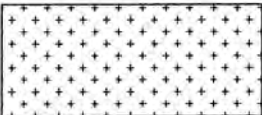
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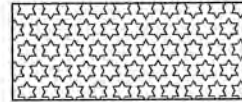


Buffer Planting Zone						
Open/Graded Bare Roots (605 stems / acre)						
Species	Common Name	Max Spacing	Indiv. Spacing	Min. Caliper Size	Stratum	% of Stems
<i>Quercus phellos</i>	Willow Oak	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	10%
<i>Platanus occidentalis</i>	Sycamore	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	20%
<i>Betula nigra</i>	River Birch	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	15%
<i>Liriodendron tulipifera</i>	Tulip Poplar	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	20%
<i>Fraxinus pennsylvanica</i>	Green Ash	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	5%
						70%
Alternatives						
<i>Alnus serrulata</i>	Tag Alder	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	10%
<i>Quercus pagoda</i>	Cherrybark Oak	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	-10% 15%
<i>Quercus michauxii</i>	Swamp Chestnut Oak	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	-10% 5%
<i>Quercus lyrata</i>	Overcup Oak	12 ft.	6-12 ft.	0.25"-1.0"	Canopy	10%
						Total 100%
Permanent Riparian Seeding - Open Canopy						
Pure Live Seed (20 lbs/ acre)						
Approved Date	Species Name	Common Name	Stratum	Density (lbs/acre)		
All Year	<i>Panicum rigidulum</i>	Redtop Panicgrass	Herb	1.5		
All Year	<i>Agrostis hyemalis</i>	Winter Bentgrass	Herb	4.0		
All Year	<i>Chasmanthium latifolium</i>	River Oats	Herb	2.0		
All Year	<i>Rudbeckia hirta</i>	Blackeyed Susan	Herb	1.0		
All Year	<i>Coreopsis lanceolata</i>	Lanceleaf Coreopsis	Herb	1.0		
All Year	<i>Carex vulpinoidea</i>	Fox Sedge	Herb	3.0		
All Year	<i>Panicum clandestinum</i>	Deertongue	Herb	3.5		
All Year	<i>Elymus virginicus</i>	Virginia Wild Rye	Herb	2.0		
All Year	<i>Asclepias syrica</i>	Common Milkweed	Herb	0.2		
All Year	<i>Baptisia australis</i>	Blue False Indigo	Herb	0.2		
All Year	<i>Gaillardia pulchella</i>	Annual Gaillardia	Herb	1.0		
All Year	<i>Echinacea purpurea</i>	Pale Purple Coneflower	Herb	0.6		



NOTE: SUPPLEMENTAL PLANTING MODIFIED BASED ON FIELD CONDITIONS.

Shaded Areas Bare Roots - Buffer Planting	
Species	Common name
<i>Platanus occidentalis</i>	Sycamore
<i>Fraxinus pennsylvanicum</i>	Green Ash
<i>Betula nigra</i>	River Birch
<i>Liriodendron tulipifera</i>	Tulip Poplar
<i>Quercus michauxii</i>	Swamp Chestnut Oak
<i>Carpinus caroliniana</i>	Ironwood
<i>Diospyros virginiana</i>	Persimmon
<i>Quercus pagoda</i>	Cherrybark Oak
<i>Acer saccharinum</i>	Silver Maple
<i>Nyssa sylvatica</i>	Black Gum
<i>Quercus phellos</i>	Willow Oak
<i>Callicarpa americana</i>	Beautyberry
<i>Cornus alternifolia</i>	Pagoda Dogwood
<i>Euonymus americanus</i>	American Strawberry Bush
<i>Calycanthus floridus</i>	Sweetshrub
<i>Magnolia virginiana</i>	Sweetbay-Magnolia
<i>Hamamelis virginiana</i>	Witch-Hazel
<i>Clethra alnifolia</i>	Sweet Pepperbush



Streambank Planting Zone						
Live Stakes						
Species	Common Name	Max Spacing	Indiv. Spacing	Min. Size	Stratum	% of Stems
<i>Salix nigra</i>	Black Willow	8 ft.	2-8 ft.	0.5"-1.5" cal.	Shrub	10%
<i>Cornus amomum</i>	Silky Dogwood	8 ft.	2-8 ft.	0.5"-1.5" cal.	Shrub	35%
<i>Salix sericea</i>	Silky Willow	8 ft.	2-8 ft.	0.5"-1.5" cal.	Shrub	40%
<i>Physocarpus opulifolius</i>	Ninebark	8 ft.	2-8 ft.	0.5"-1.5" cal.	Shrub	15%
						100%
Herbaceous Plugs						
<i>Juncus effusus</i>	Common Rush	5 ft.	3-5 ft.	1.0"-2.0" plug	Herb	-45%-50%
<i>Carex alata</i>	Broadwing Sedge	5 ft.	3-5 ft.	1.0"-2.0" plug	Herb	-45%-50%
<i>Panicum virgatum</i>	Switchgrass	5 ft.	3-5 ft.	1.0"-2.0" plug	Herb	10%
						100%

NOTE: HERBACEOUS PLUGS TO BE PLANTED DURING APPROPRIATE PLANTING WINDOW

Wetland Bare Root Planting (60 stems / acre)		
Scientific Name	Common Name	% of stems
<i>Platanus occidentalis</i>	Sycamore	15%
<i>Quercus phellos</i>	Willow Oak	15%
<i>Betula nigra</i>	River Birch	15%
<i>Fraxinus pennsylvanica</i>	Green Ash	15%
<i>Quercus michauxii</i> <i>Quercus pagoda</i>	Swamp Chestnut Oak Cherrybark Oak	15%
<i>Acer rubrum</i>	Red Maple	5%
<i>Diospyros virginiana</i>	Persimmon	10%
<i>Populus deltoides</i>	Eastern Cottonwood	10%
Total		100%

Pasture areas outside easement.



Pasture Seeding				
Approved Date	Species Name	Stratum	Common Name	Density (lbs/acre)
All Year	<i>Festuca arundinacea</i>	Herb	Tall Fescue	80
All Year	<i>Trifolium repens</i>	Herb	White Clover	8



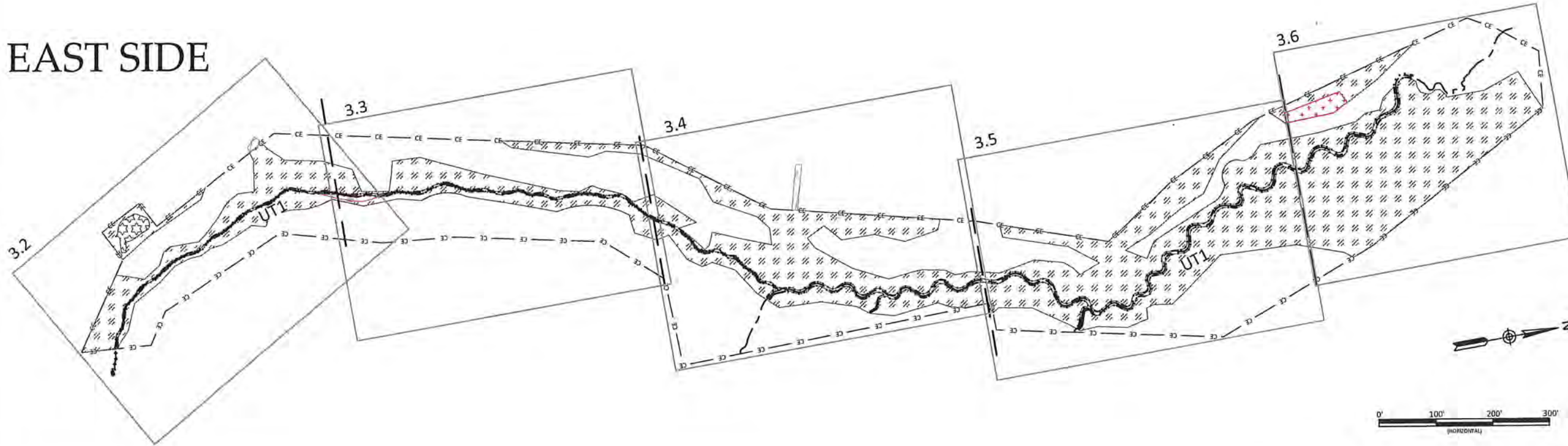
Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

Planting List
 Planting

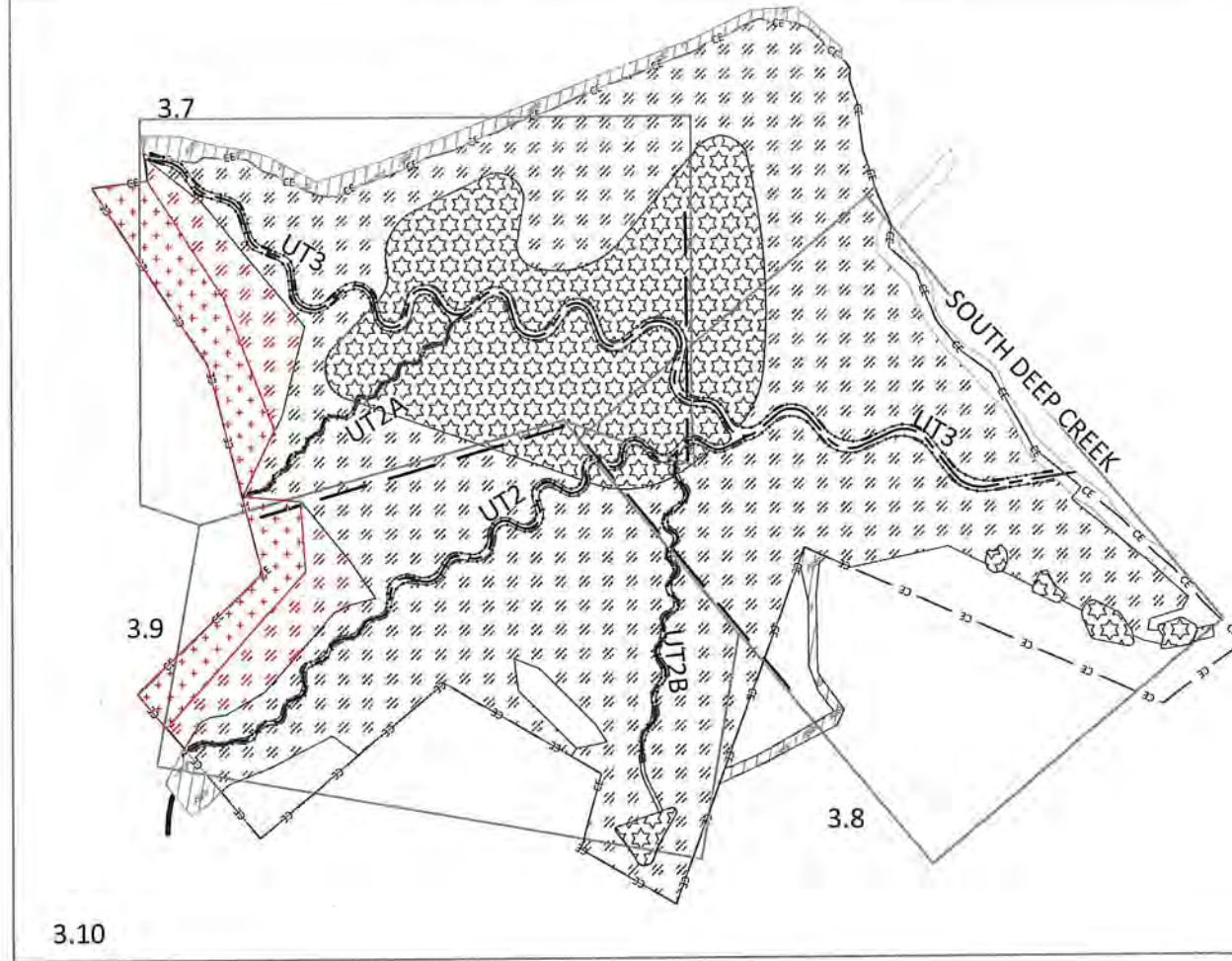
Revisions:

Date: July 10, 2019
 Job Number: 05-02163
 Project Engineer: EGR
 Drawn By: JCK
 Checked By: EGR/JCK

EAST SIDE



WEST SIDE



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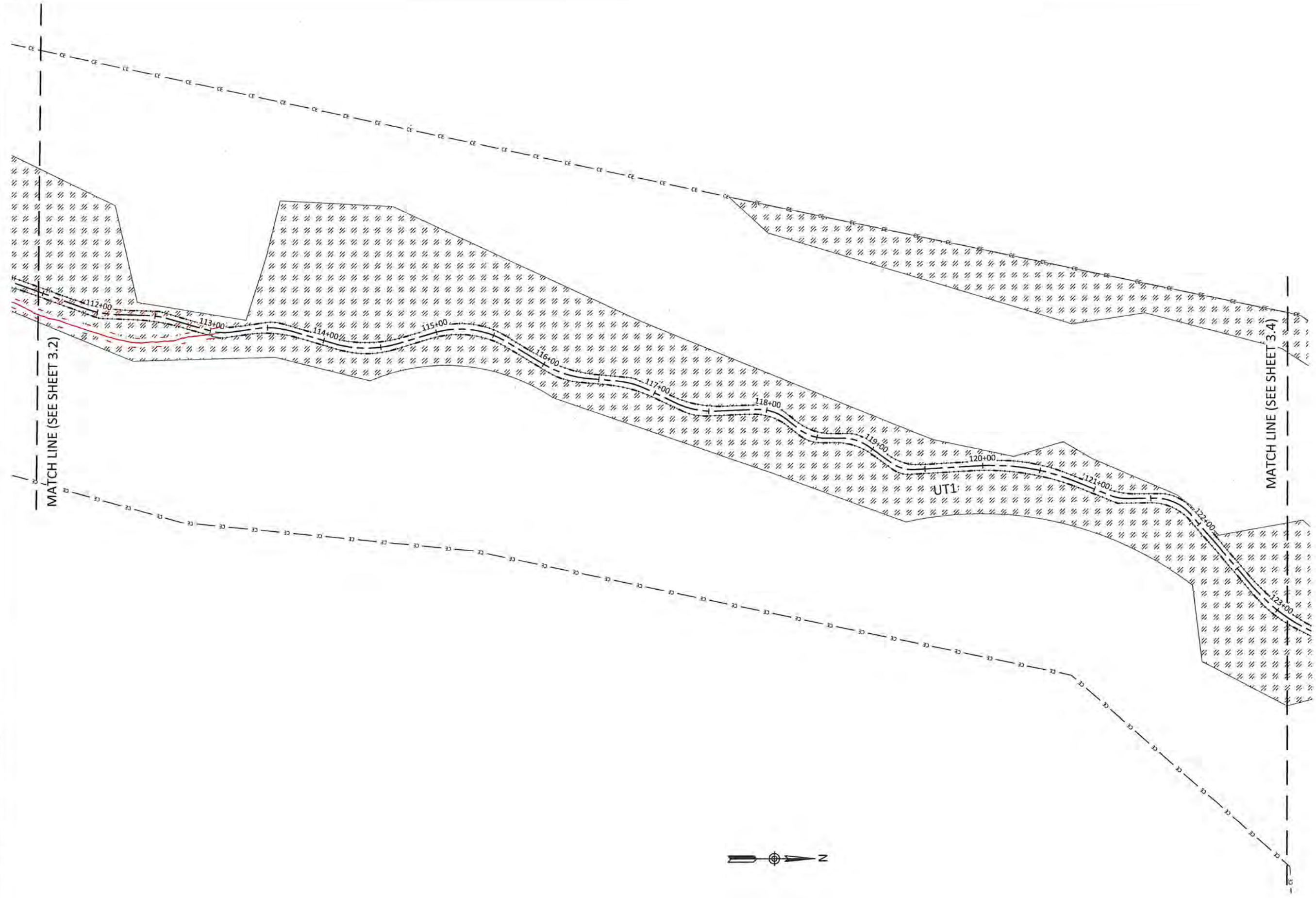
Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina
 Overall Planting Plan
 Planting

Revisions:

Date: July 10, 2019
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3.1

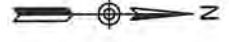
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MATCH LINE (SEE SHEET 3.2)

MATCH LINE (SEE SHEET 3.4)

UT1:




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 Yadkin County, North Carolina

UT1
 Planting

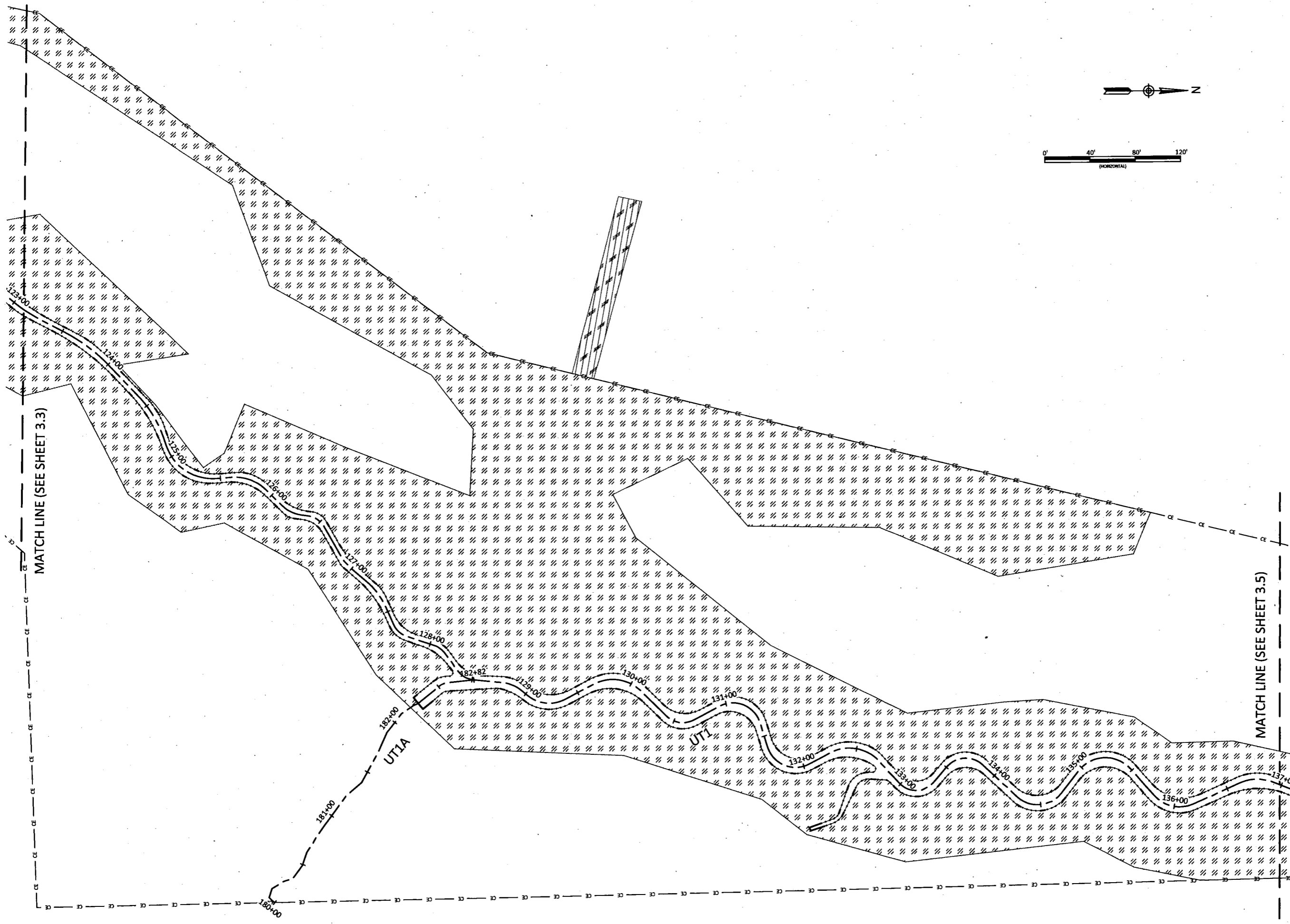
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 Job Number: 05-02163
 Project Engineer: EGR
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3.3

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Lone Hickory Mitigation Site Record Drawings
Yadkin County, North Carolina

UT1
Planting



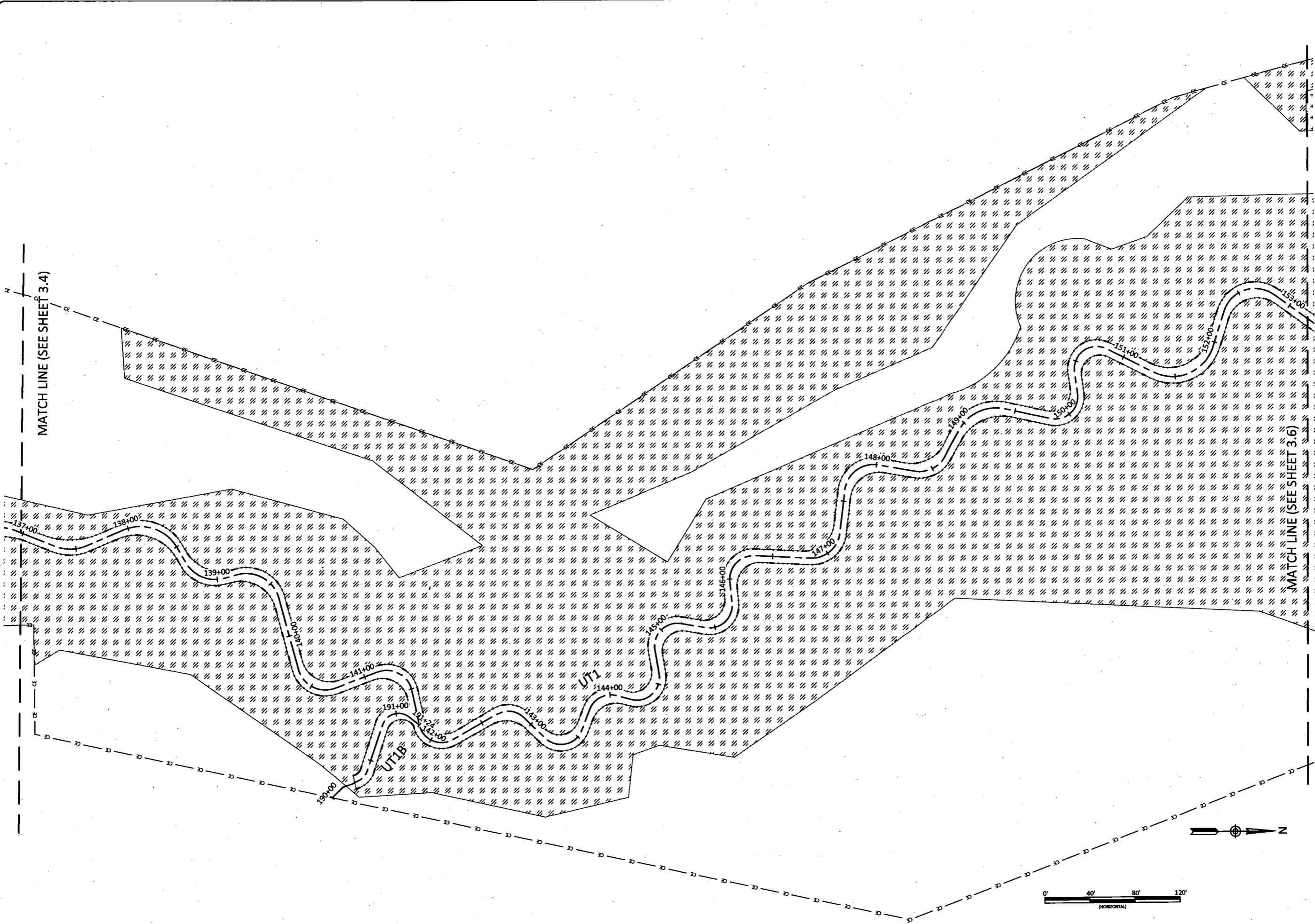
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3.4

Sheet

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Yadkin County, North Carolina

UT1
Planting

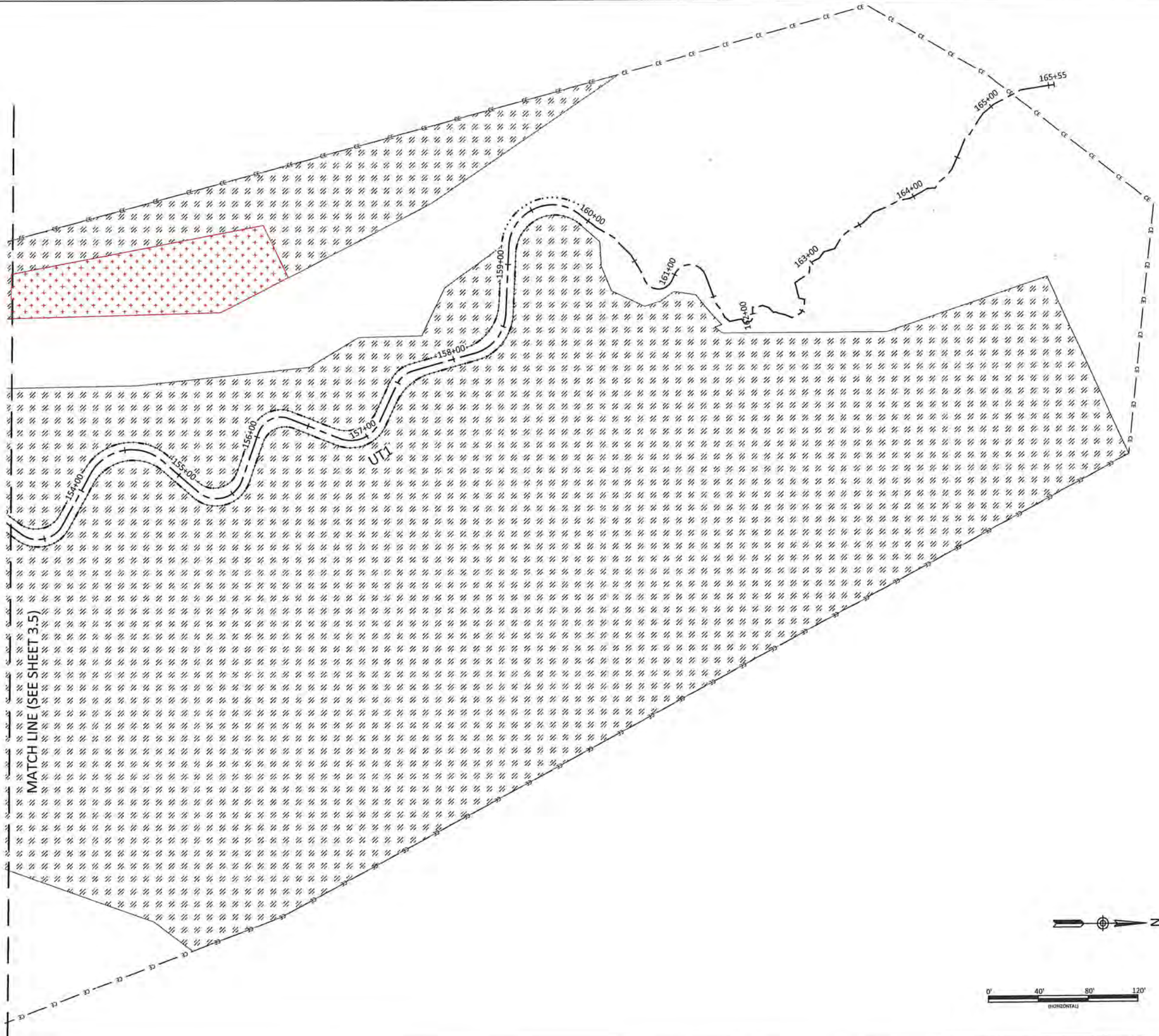
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Job Number: 105-02163
Project Engineer: EGR
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3.5

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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina

UT1
 Planting

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3.6

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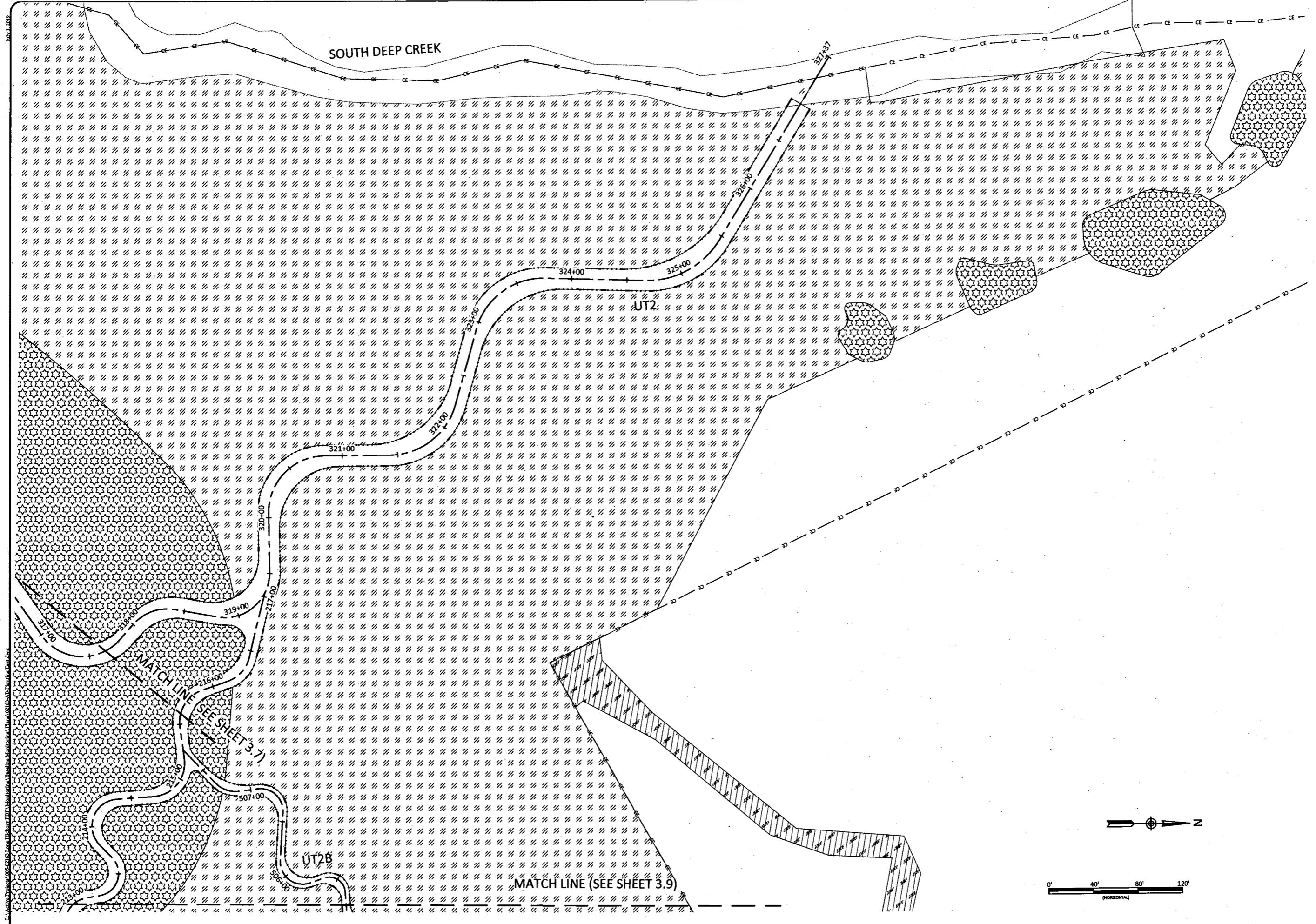


Lone Hickory Mitigation Site Record Drawings
Yadkin County, North Carolina
UT3 and UT2A
Planting

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Drawn By:	JCK
Checked By:	EGR/JCK
Revisions:	

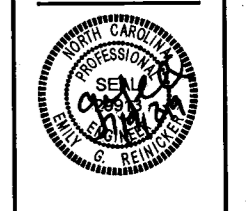
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July 10, 2019
 Lone Hickory Mitigation Site
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 Project Engineer: EGR/JCK
 Drawn By: EGR/JCK
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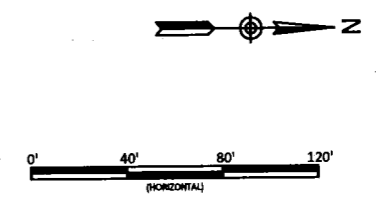


Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina
 UT3 and UT2B
 Planting

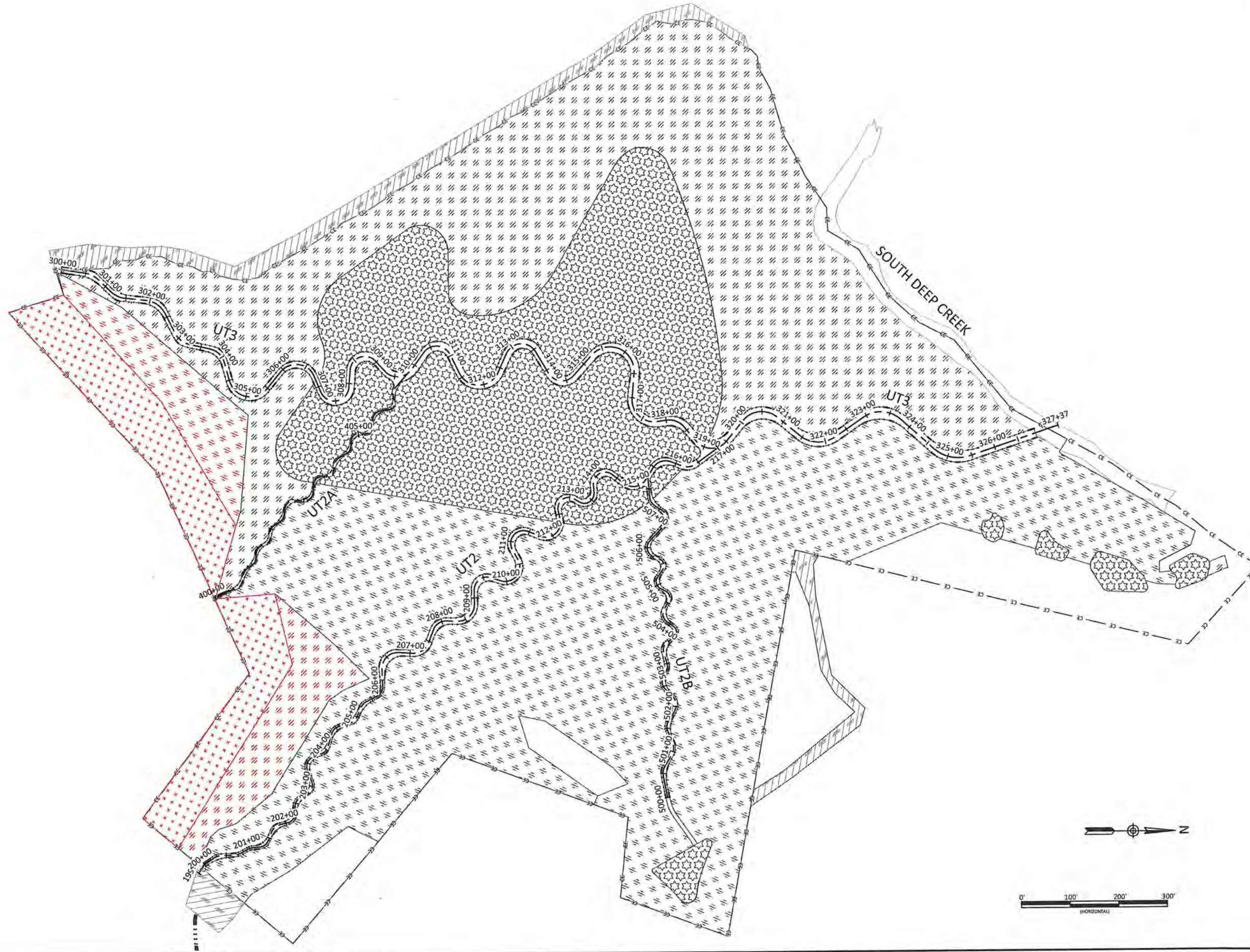
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3.10

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Lone Hickory Mitigation Site Record Drawings
 Yadkin County, North Carolina
 West Side Overall Planting Plan
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