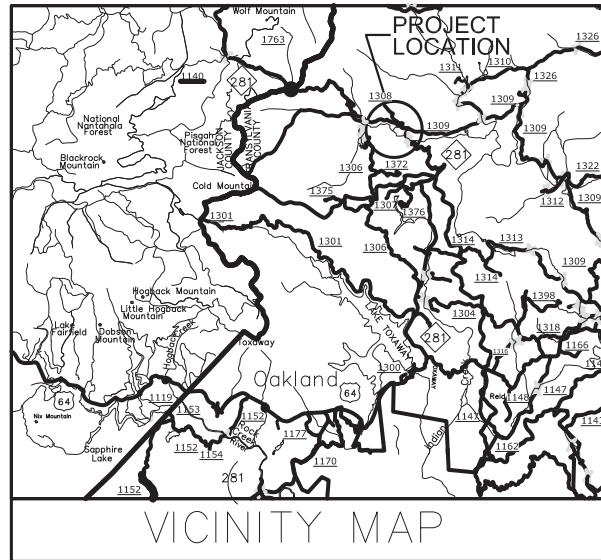


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CONTRACT: OWEN FARMS MITIGATION SITE

# RECORD DRAWING OWEN FARMS MITIGATION SITE

STATE N.C.	WEST FORK FRENCH BROAD RIVER	SHEET NO. 1
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INDEX OF SHEETS  
TITLE SHEET.....1  
RECORD DRAWINGS.....2 THRU 16

LOCATION: TRANSYLVANIA COUNTY, NORTH CAROLINA

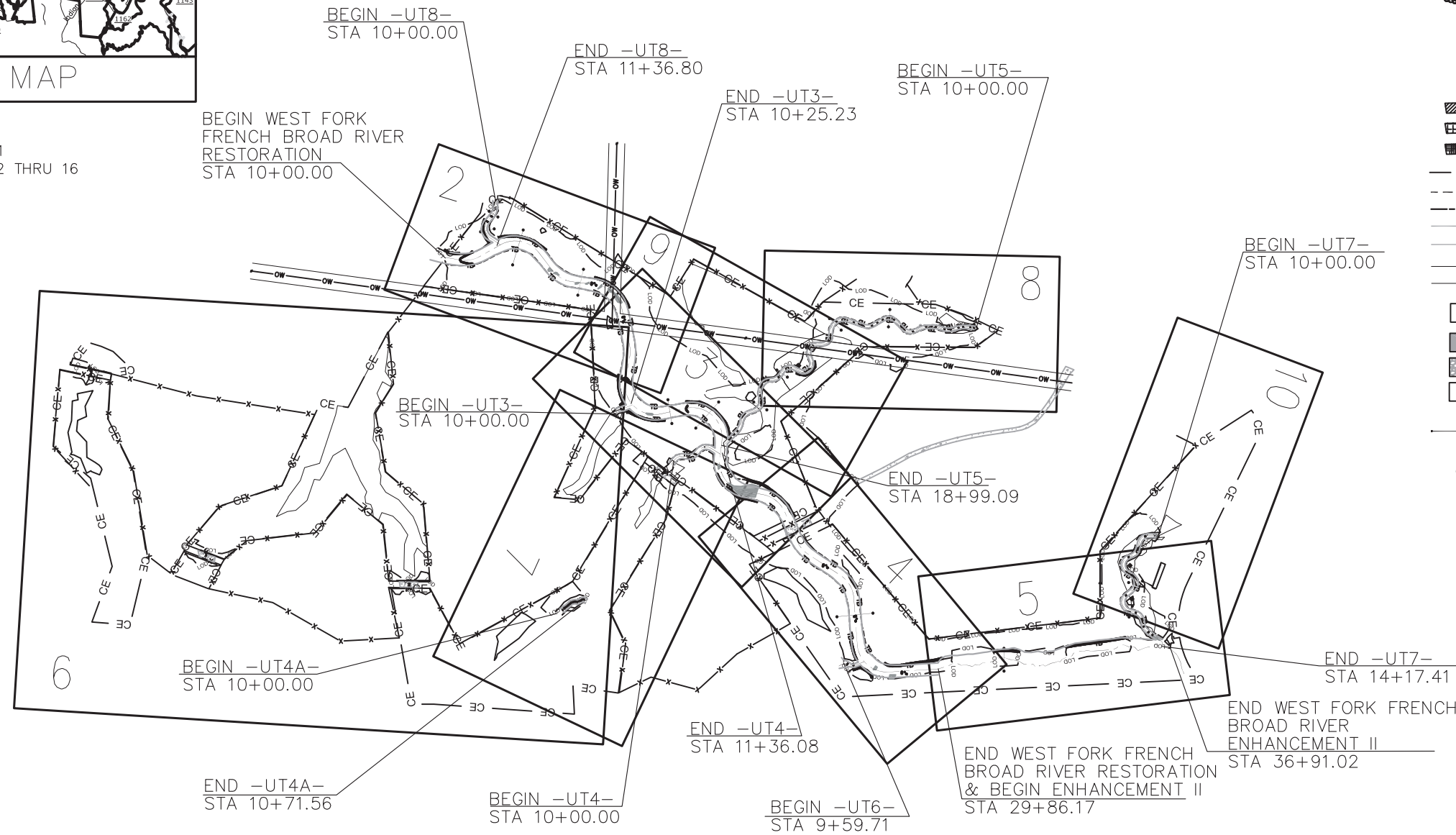
LAT: 35.183611 LONG: -82.9413889

35 11' 04.89" -82 56' 34.97"

TYPE OF WORK: RECORD DRAWINGS

## LEGEND

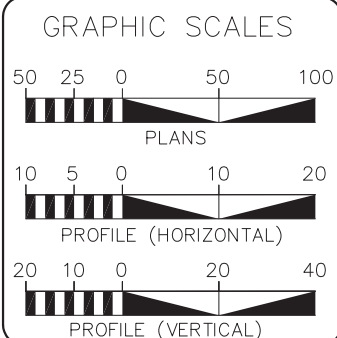
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SURVEY PREPARED BY:

KEE MAPPING & SURVEYING  
P.O. BOX 2566  
ASHEVILLE, NC 28802  
(828) 575-9021



WEST FORK FRENCH BROAD RIVER		DESIGN DATA		
		UT 5	UT 7	UT 8
DESIGN STREAM TYPE	= C4	DESIGN STREAM TYPE = C4	DESIGN STREAM TYPE = C4	DESIGN STREAM TYPE = C4
BANKFULL AREA (FT <sup>2</sup> )	= 64.29	BANKFULL AREA (FT <sup>2</sup> ) = 5.35	BANKFULL AREA (FT <sup>2</sup> ) = 6.0	BANKFULL AREA (FT <sup>2</sup> ) = 11.08
BANKFULL WIDTH (FT)	= 30.0	BANKFULL WIDTH (FT) = 8.5	BANKFULL WIDTH (FT) = 9.0	BANKFULL WIDTH (FT) = 12.0
MAX DEPTH (FT)	= 2.68	MAX DEPTH (FT) = 0.76	MAX DEPTH (FT) = 0.80	MAX DEPTH (FT) = 1.11
WIDTH / DEPTH RATIO	= 14.0	WIDTH / DEPTH RATIO = 13.5	WIDTH / DEPTH RATIO = 13.5	WIDTH / DEPTH RATIO = 13.0
DRAINAGE AREA (MI <sup>2</sup> )	= 5.50	DRAINAGE AREA (MI <sup>2</sup> ) = 0.07	DRAINAGE AREA (MI <sup>2</sup> ) = 0.06	DRAINAGE AREA (MI <sup>2</sup> ) = 0.31
BANKFULL SLOPE(FT/FT)	= 0.00353	BANKFULL SLOPE(FT/FT) = 0.00569	BANKFULL SLOPE(FT/FT) = 0.00539	BANKFULL SLOPE(FT/FT) = 0.01096

CHRISTOPHER L. SMITH  
PROJECT DESIGNER / ENGINEER

PROJECT LENGTH	EXISTING STREAM LENGTH		PROPOSED DESIGN STREAM LENGTH	
	WEST FORK FRENCH BROAD RIVER			
WEST FORK FRENCH BROAD RIVER	=	2,859.55 FT	2,691.02 FT	
-UT4-	=	1,133.30 FT	136.08 FT	
-UT4A-	=	471.56 FT	71.56 FT	
-UT5-	=	652.00 FT	899.09 FT	
-UT7-	=	811.00 FT	417.41 FT	
-UT8-	=	49.00 FT	136.80 FT	

DWR # 18-1033  
DMS ID # 100064  
DMS CONTRACT 7532  
USACE-SAW-2018-01165



Prepared in the Office of:



HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601  
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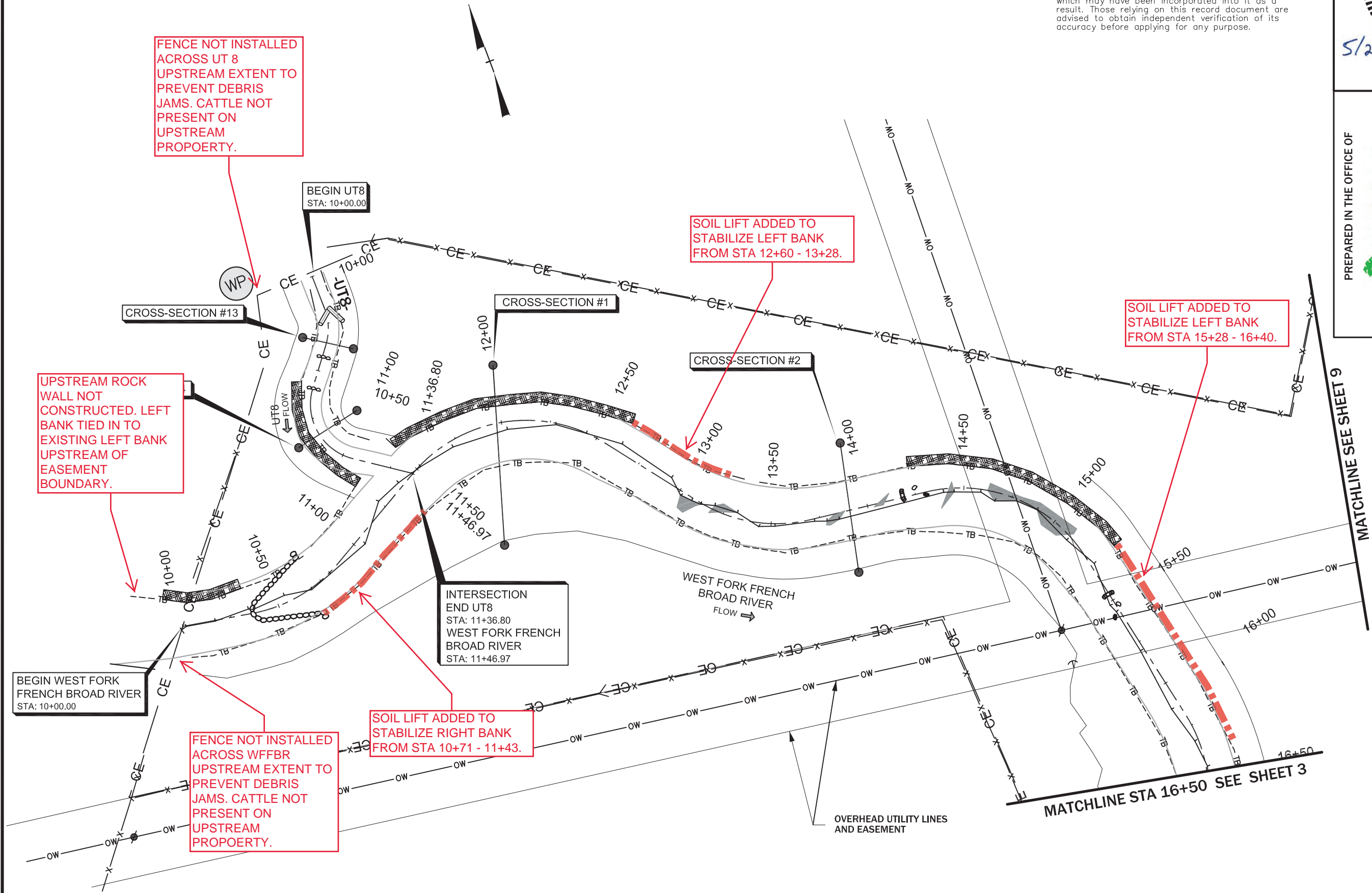


MATCHLINE SEE SHEET 9

OWEN FARMS MITIGATION SITE  
 STREAM & WETLAND RESTORATION PROJECT  
 TRANSYLVANIA COUNTY, NORTH CAROLINA  
 WEST FORK FRENCH BROAD RIVER STA. 10+00 - STA. 16+50  
 -UT8- STA. 10+00 - 11+47



DATE: 03-11-2021  
 RECORD DRAWING  
 SHEET 2  
 DMS ID # 100064



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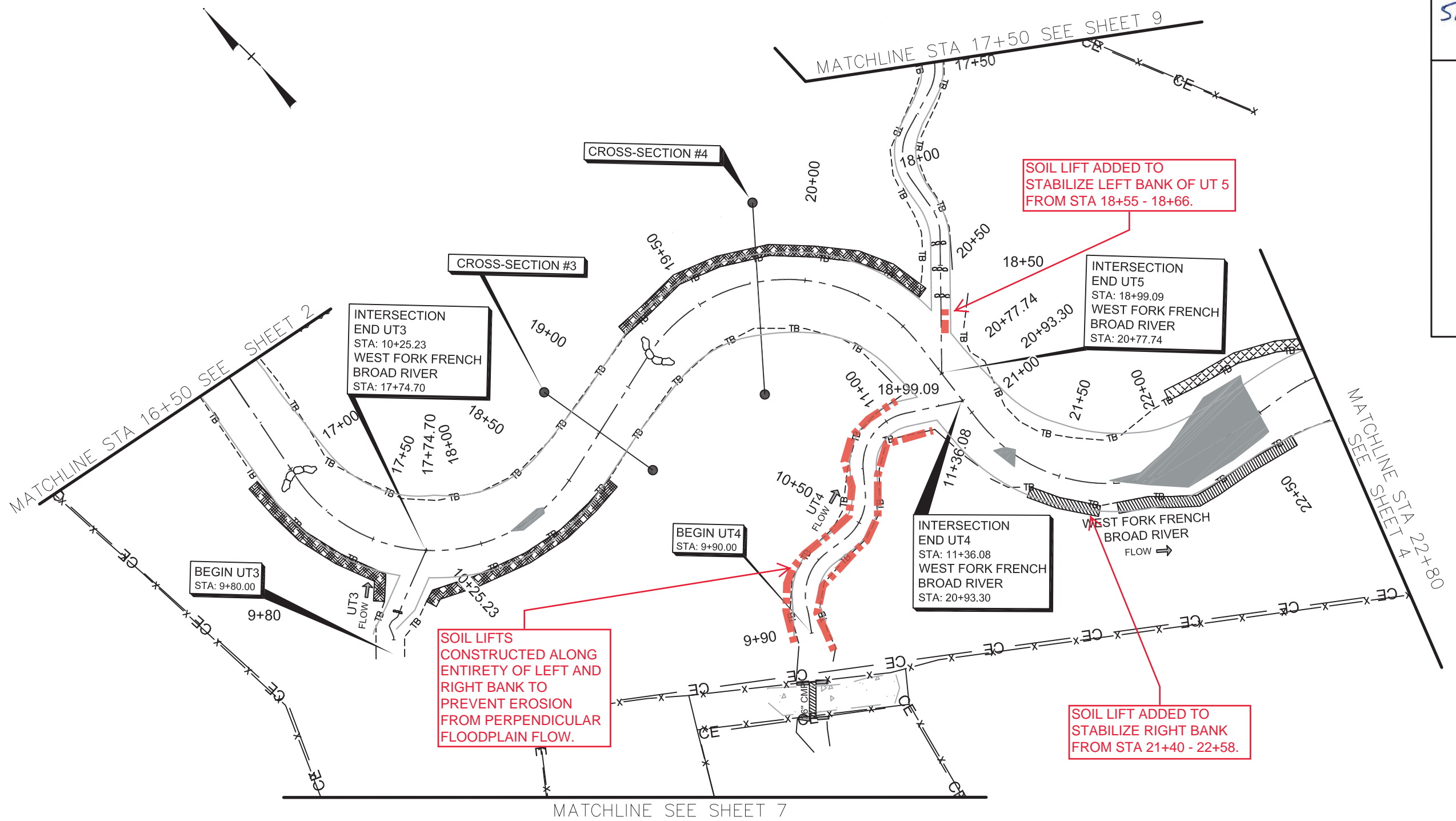


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OWEN FARMS MITIGATION SITE  
 STREAM & WETLAND RESTORATION PROJECT  
 TRANSYLVANIA COUNTY, NORTH CAROLINA  
 WEST FORK FRENCH BROAD STA 16+50 - STA 22+80  
 -UT3- STA 9+80 - 10+25.24  
 -UT4- STA 9+90 - 11+36.08  
 -UT5- 17+50 - 18+99.09



DATE:  
 03-11-2021

RECORD  
 DRAWING

SHEET  
 3

DMS ID #  
 100064

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# RECORD DRAWING

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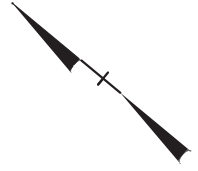
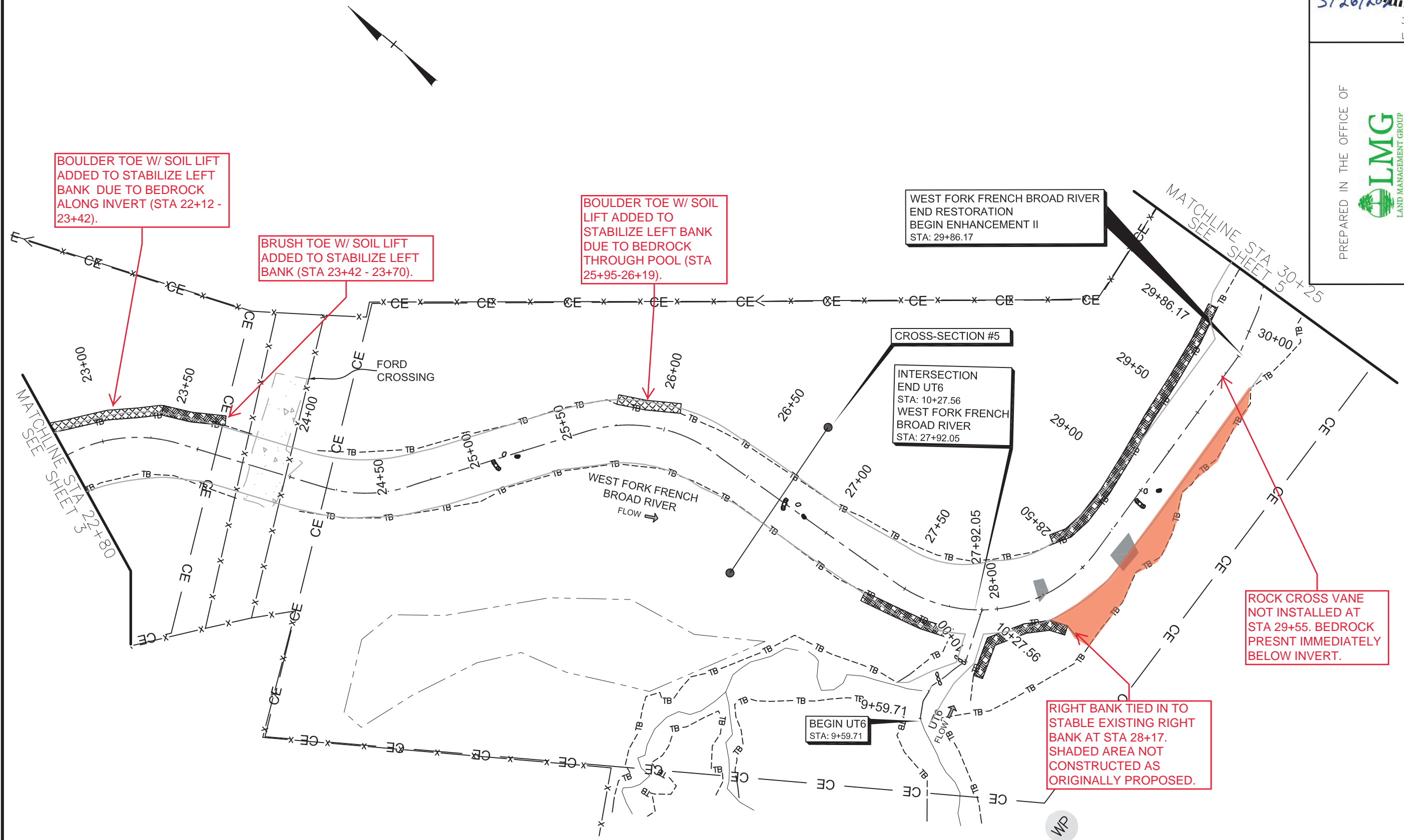


OWEN FARMS MITIGATION SITE  
STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA  
WEST FORK FRENCH BROAD RIVER STA 22+80 - STA 30+25  
-UT6- STA 9+60 - 27+92.05



DATE: 03-11-2021  
RECORD DRAWING  
SHEET 4  
DMS ID # 100064

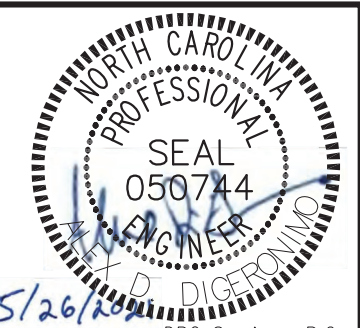
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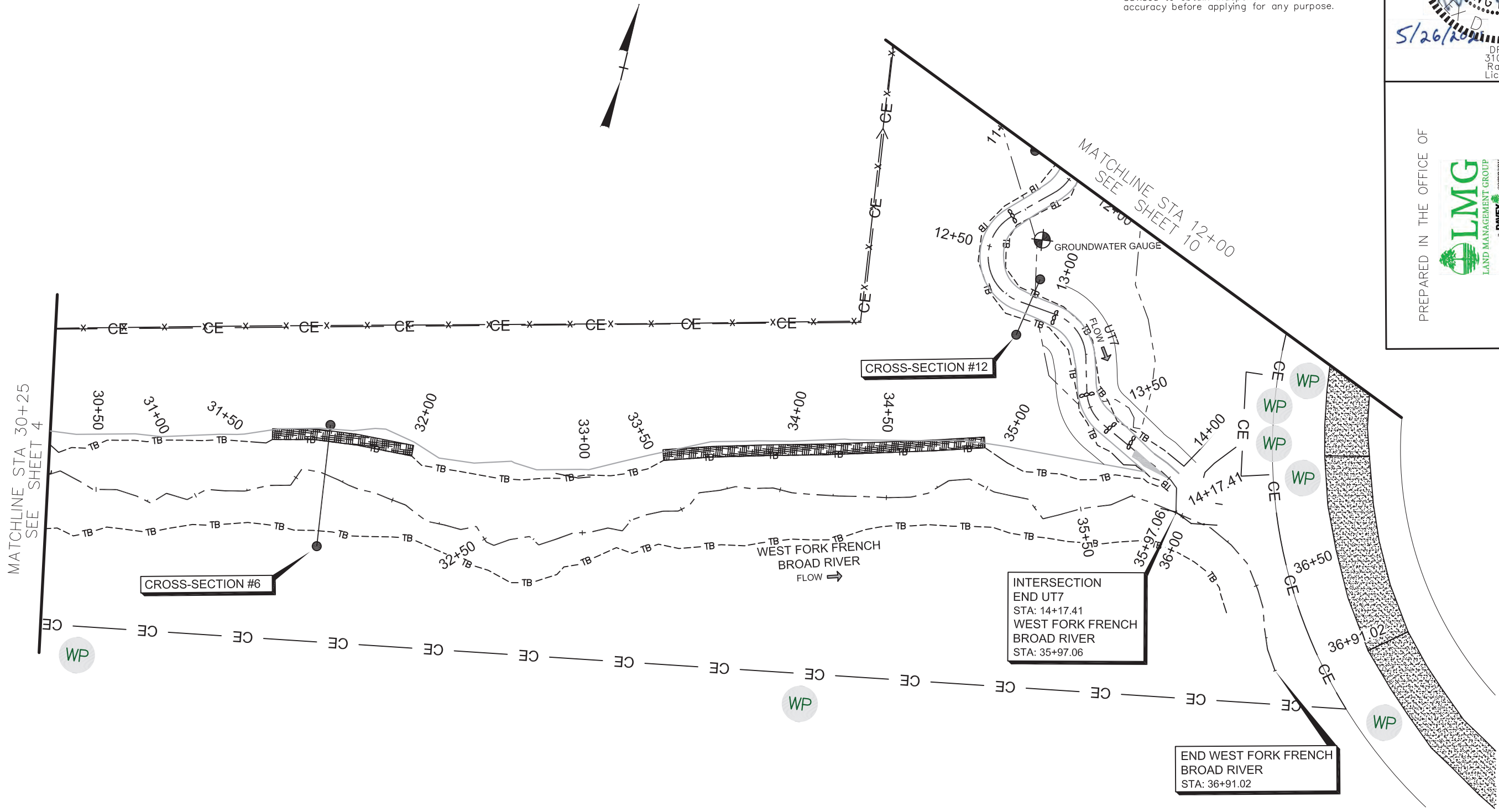


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STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA  
WEST FORK FRENCH BROAD STA 30+25 - 35+97.06  
-UT7- STA 12+00 - 14+17.41



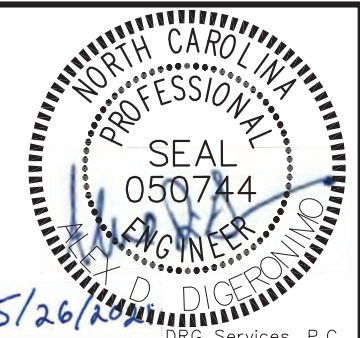
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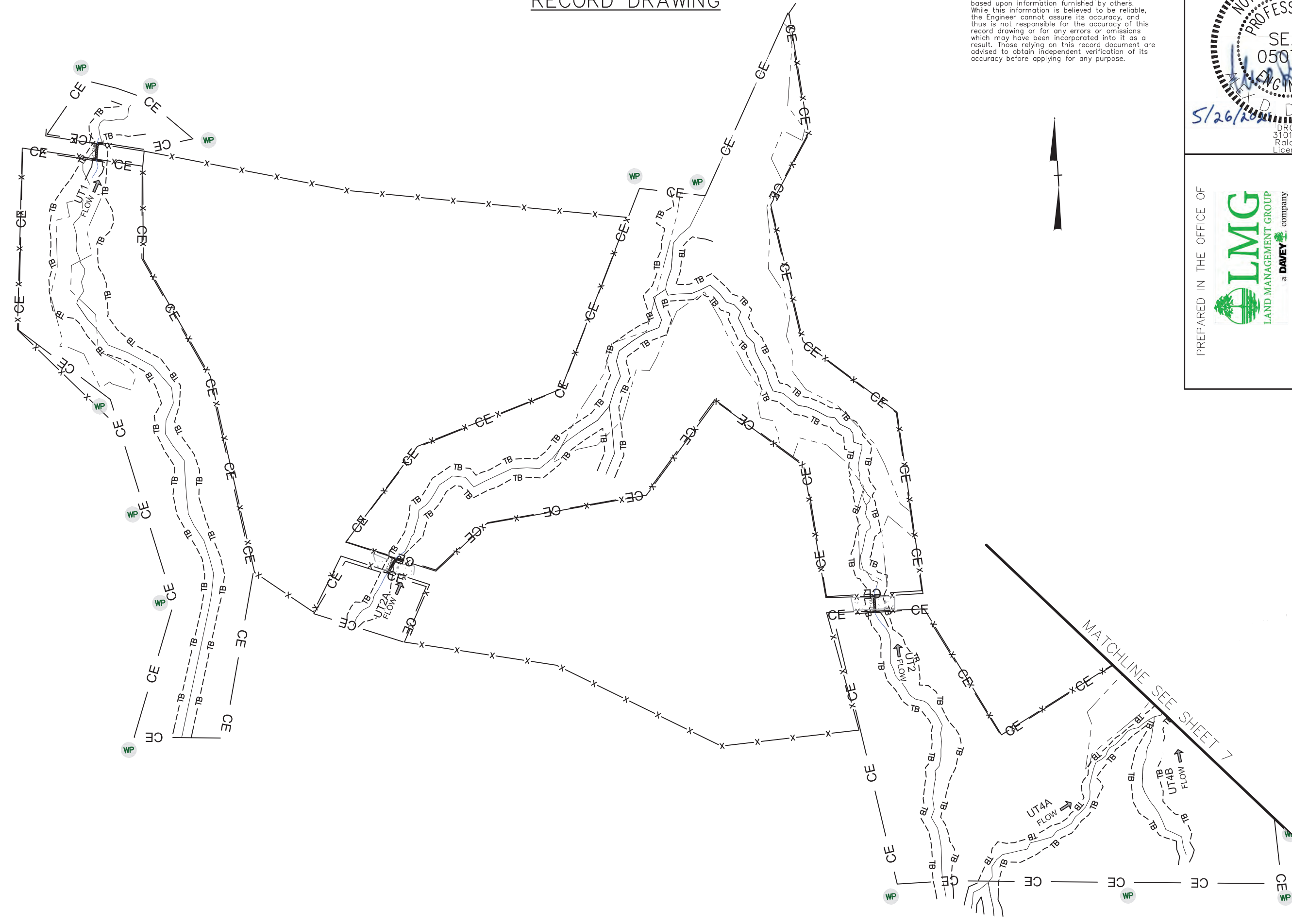
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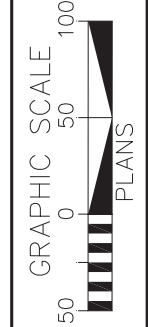
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STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA  
-UT1-, -UT2-, -UT2A-, -UT2B-, -UT4A-, -UT4B-



DATE:  
03-11-2021  
RECORD  
DRAWING  
SHEET  
6  
DMS ID #  
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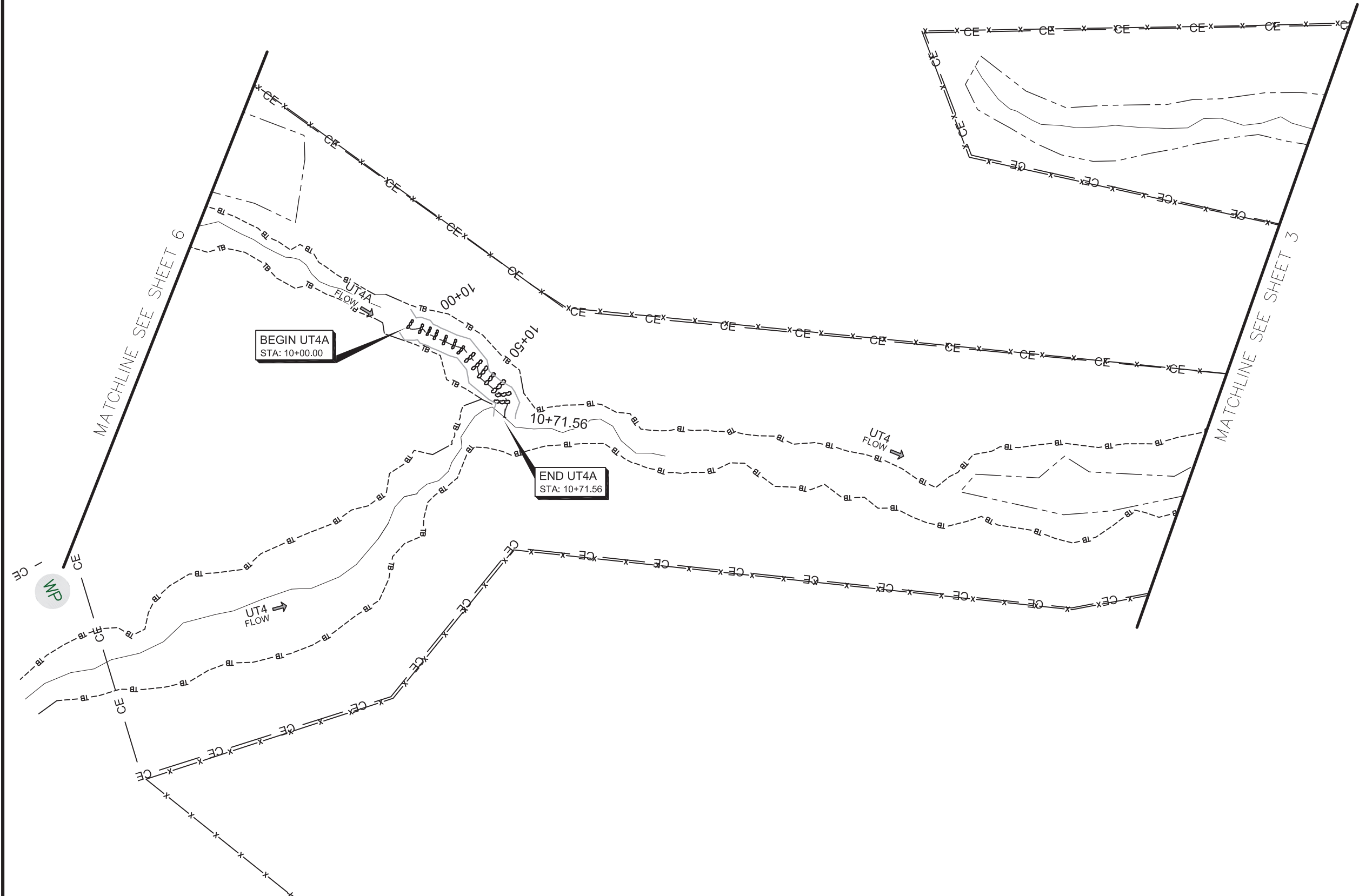
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STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA

-UT4- &  
-UT4A- STA 10+00 - 10+71.56



DATE:	03-11-2021
RECORD DRAWING	
SHEET	7
DMS ID #	100064

# RECORD DRAWING

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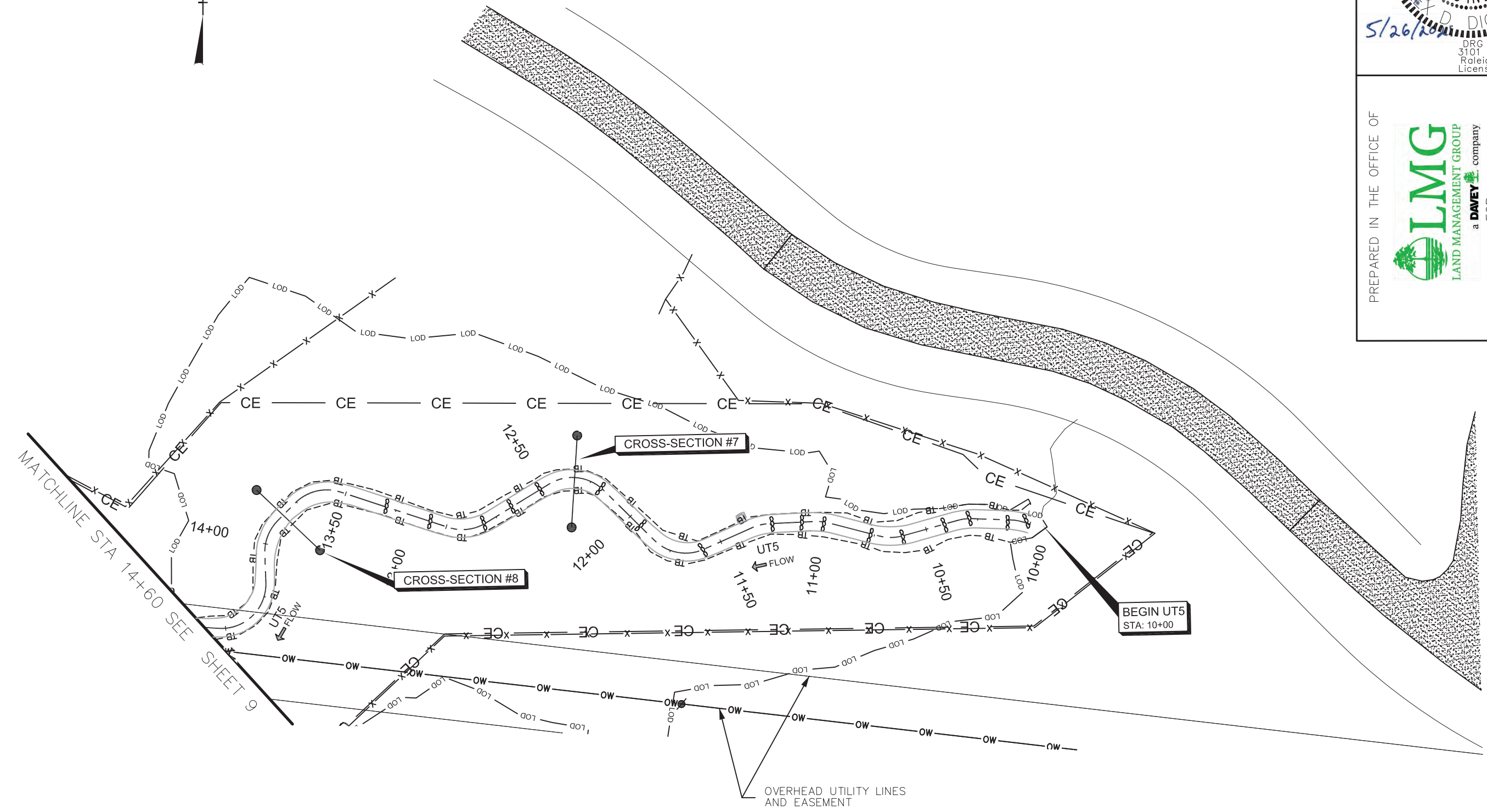


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 TRANSYLVANIA COUNTY, NORTH CAROLINA



DATE:  
 03-15-2021

RECORD  
 DRAWING

SHEET  
 8

DMS ID #  
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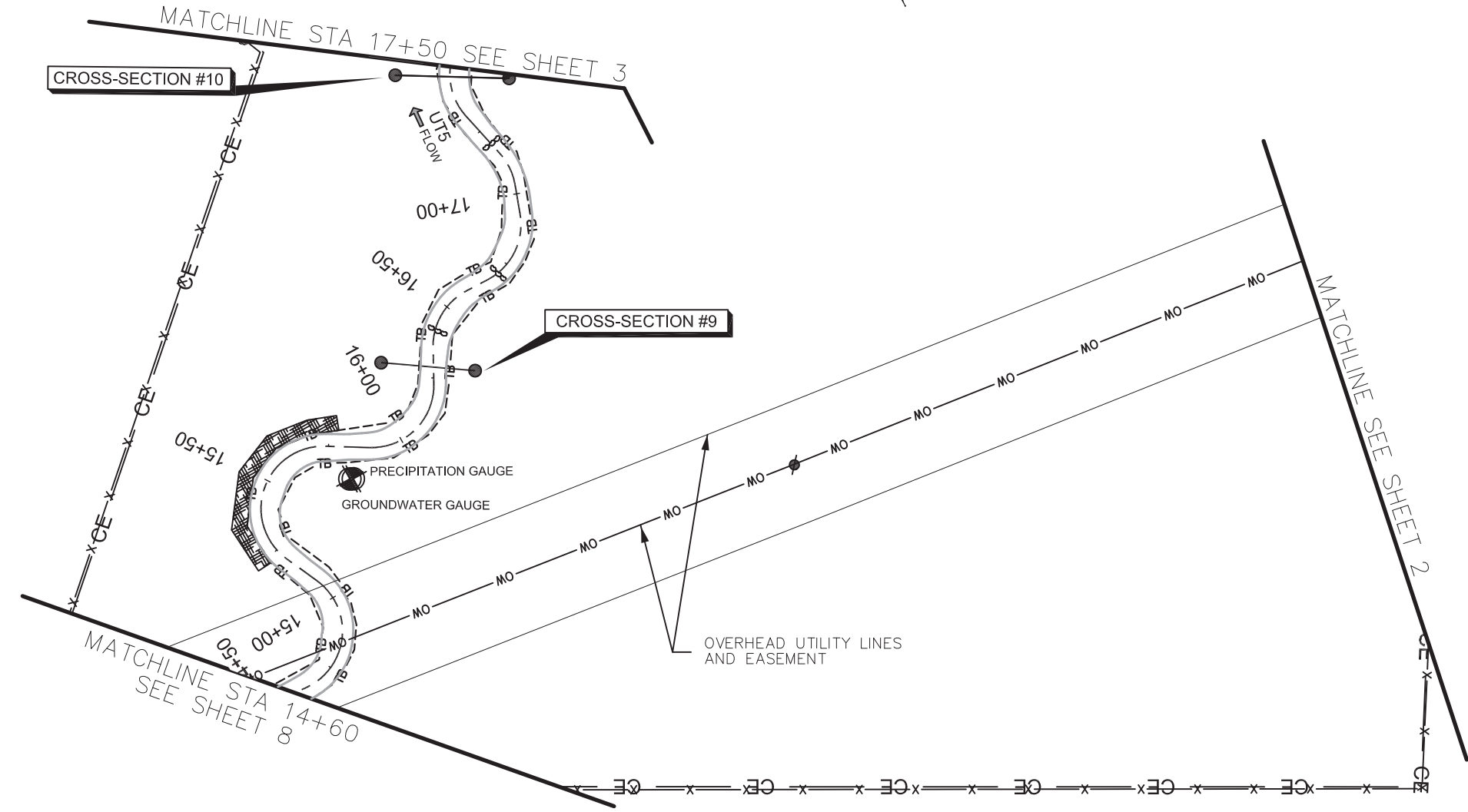
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5/26/2021

**SEAL**  
050744  
ALEX D. DIGERONIMO  
ENGINEER



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STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA

-UT5- 14+60 - 17+50



DATE:	03-15-2021
RECORD DRAWING	
SHEET	9
DMS ID #	100064

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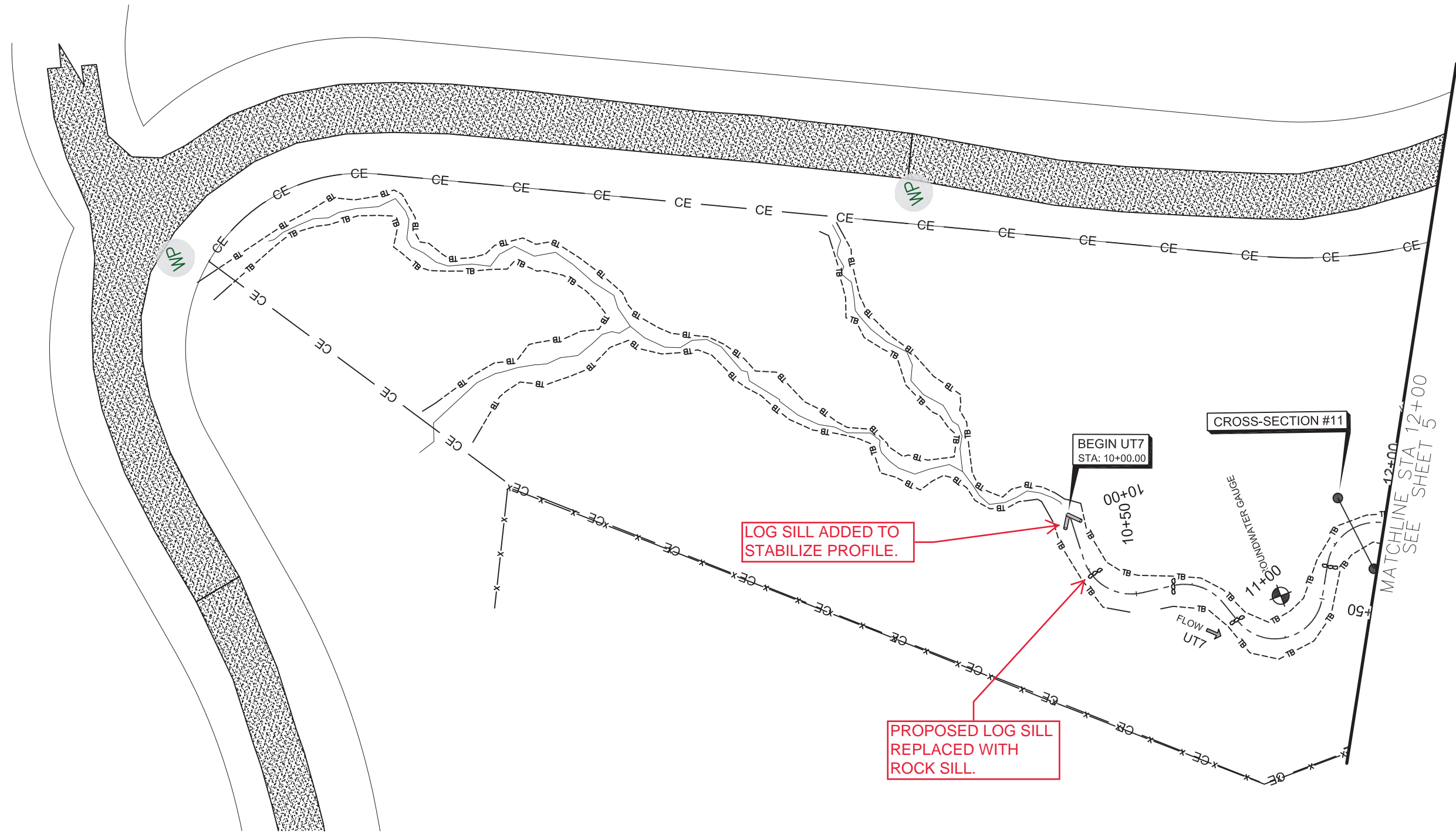


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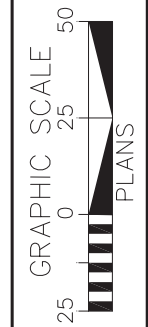
FOR

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MATCHLINE STA 12+00  
 SEE SHEET 5

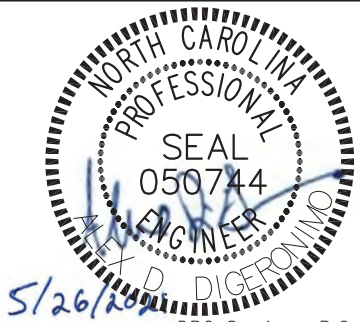
OWEN FARMS MITIGATION SITE  
 STREAM & WETLAND RESTORATION PROJECT  
 TRANSYLVANIA COUNTY, NORTH CAROLINA



DATE:	03-15-2021
ASBUILT PLAN	
SHEET	10
DMS ID #	100064

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 a DAVEY company

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OWEN FARMS MITIGATION SITE  
 STREAM & WETLAND RESTORATION PROJECT  
 TRANSYLVANIA COUNTY, NORTH CAROLINA

WEST FORK FRENCH BROAD RIVER PROFILES



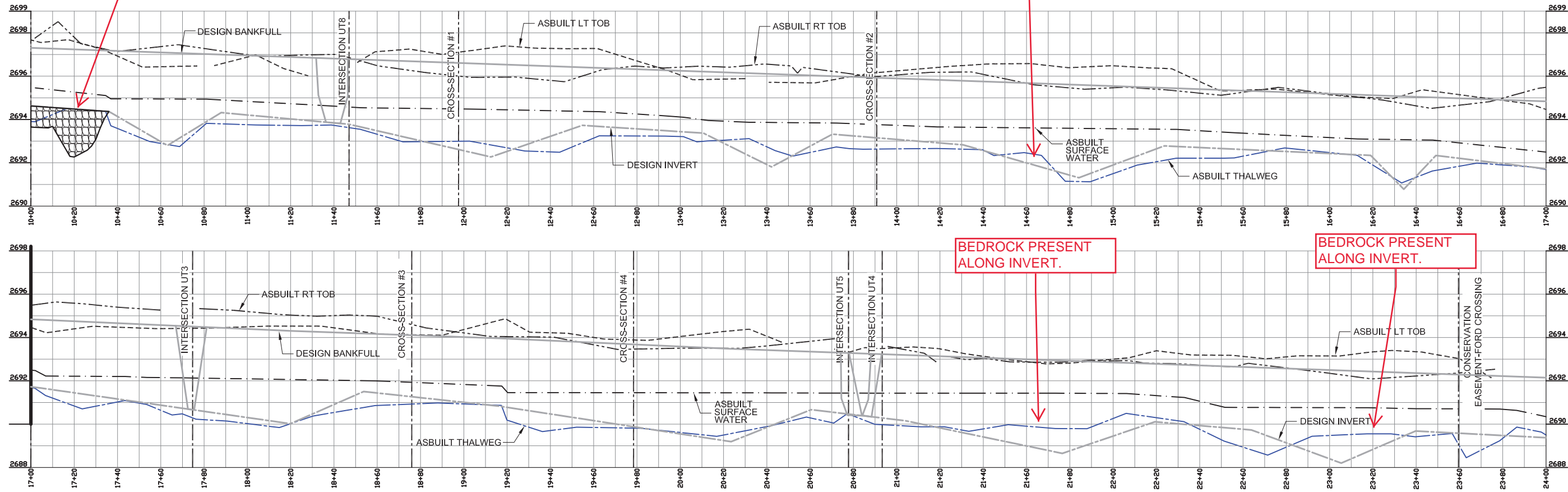
DATE: 03-15-2021  
 RECORD DRAWING  
 SHEET 11  
 DMS ID # 100064

ROCK WALL NOT INSTALLED AT UPSTREAM EXTENT. CHANNEL PROFILE TIED IN WITH EXISTING PROFILE UPSTREAM OF PROJECT BOUNDARY.

BEDROCK PRESENT ALONG INVERT.

BEDROCK PRESENT ALONG INVERT.

BEDROCK PRESENT ALONG INVERT.



LONGITUDINAL PROFILE- WEST FORK FRENCH BROAD  
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

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## RECORD DRAWINGS

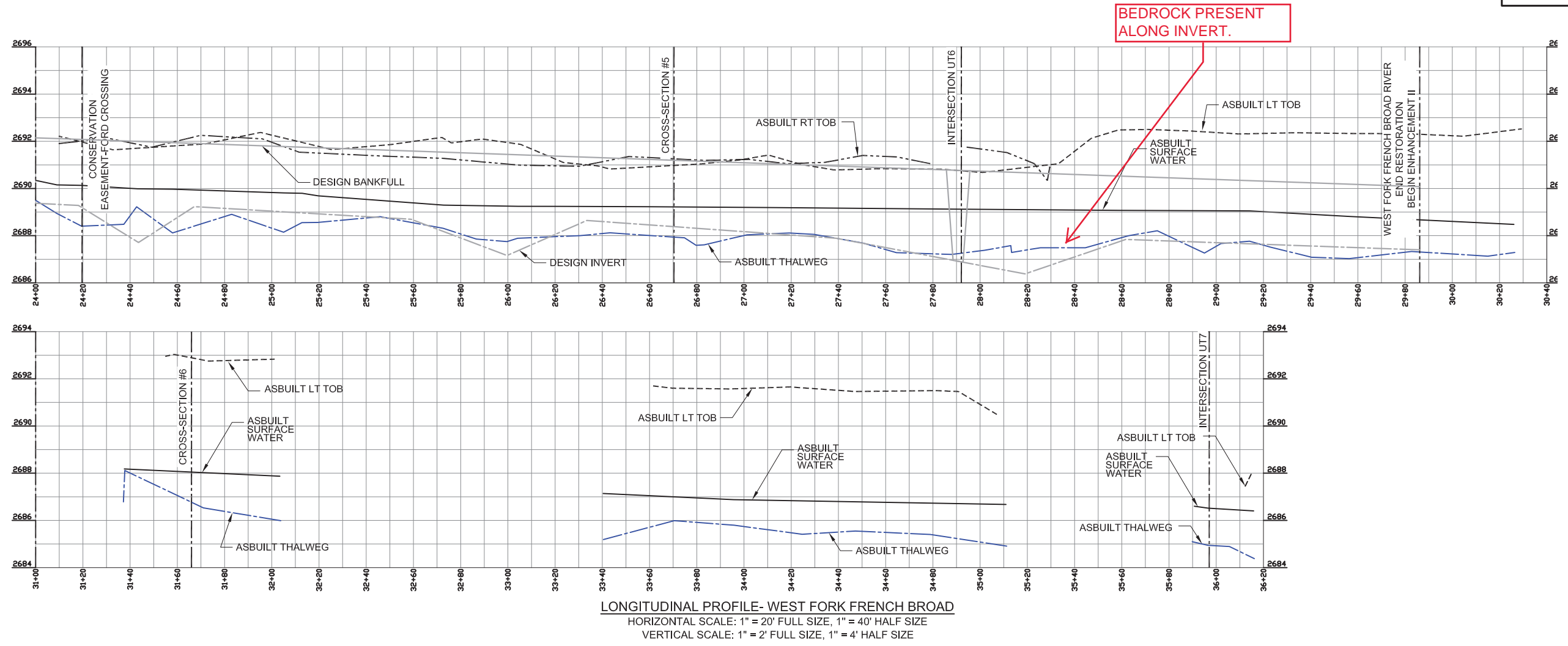
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OWEN FARMS MITIGATION SITE  
STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA  
WEST FORK FRENCH BROAD RIVER PROFILES



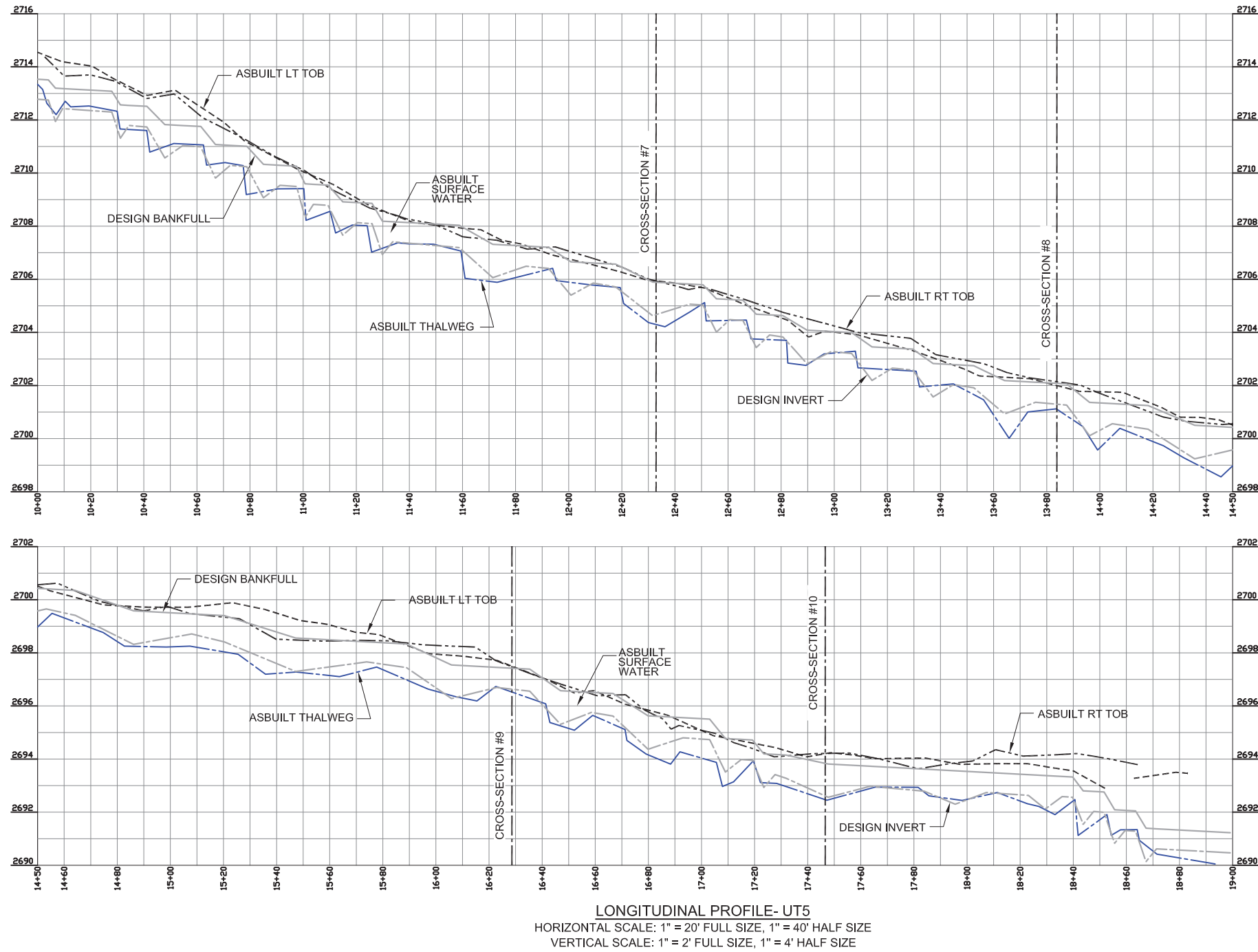
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RECORD DRAWING  
SHEET 12  
DMS ID # 100064

# RECORD DRAWING

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5/26/2021  
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OWEN FARMS MITIGATION SITE  
 STREAM & WETLAND RESTORATION PROJECT  
 TRANSYLVANIA COUNTY, NORTH CAROLINA

UTT 5 PROFILE



DATE: 03-15-2021  
 RECORD DRAWING  
 SHEET 13  
 DMS ID # 100064

# RECORD DRAWING

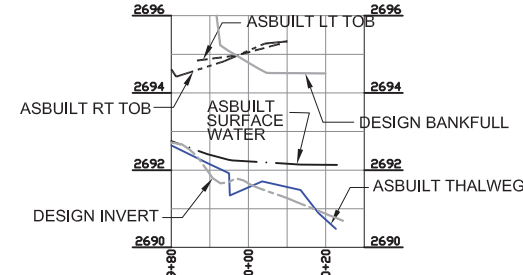
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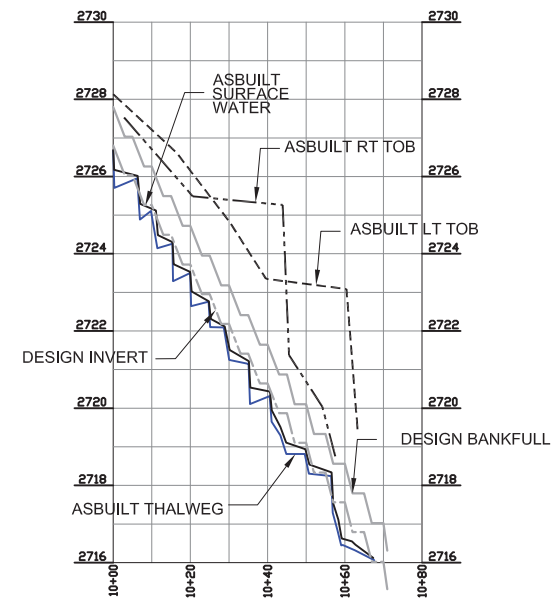
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 Raleigh, N.C. 27604  
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 FOR

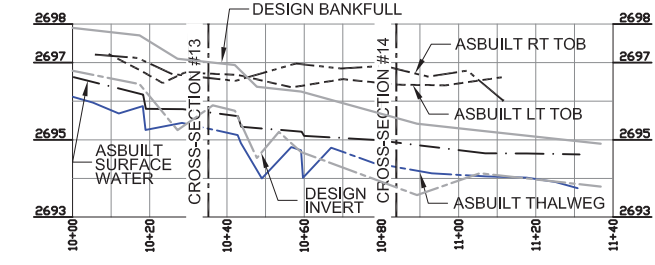
HDR Engineering, Inc. of the Carolinas  
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601  
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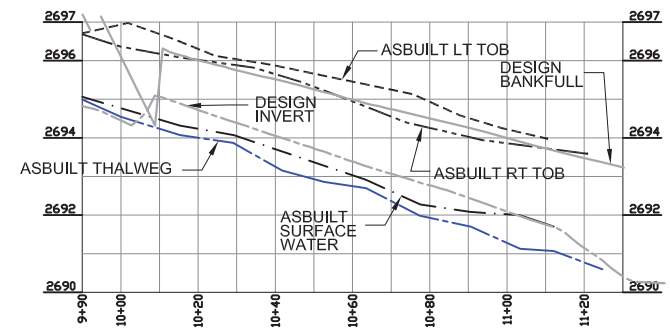
**LONGITUDINAL PROFILE- UT3**  
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



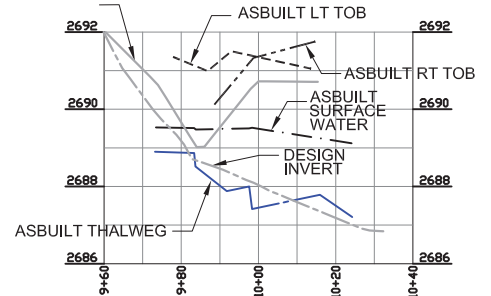
**LONGITUDINAL PROFILE- UT4A**  
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE  
 DESIGN BANKFULL



**LONGITUDINAL PROFILE- UT8**  
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

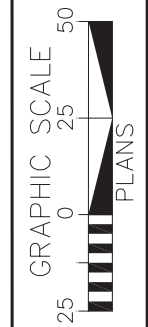


**LONGITUDINAL PROFILE- UT4**  
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



**LONGITUDINAL PROFILE- UT6**  
 HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
 VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

OWEN FARMS MITIGATION SITE  
 STREAM & WETLAND RESTORATION PROJECT  
 TRANSYLVANIA COUNTY, NORTH CAROLINA



DATE: 03-15-2021  
 RECORD DRAWING  
 SHEET 14  
 DMS ID # 100064



# RECORD DRAWING

## RECORD DRAWINGS

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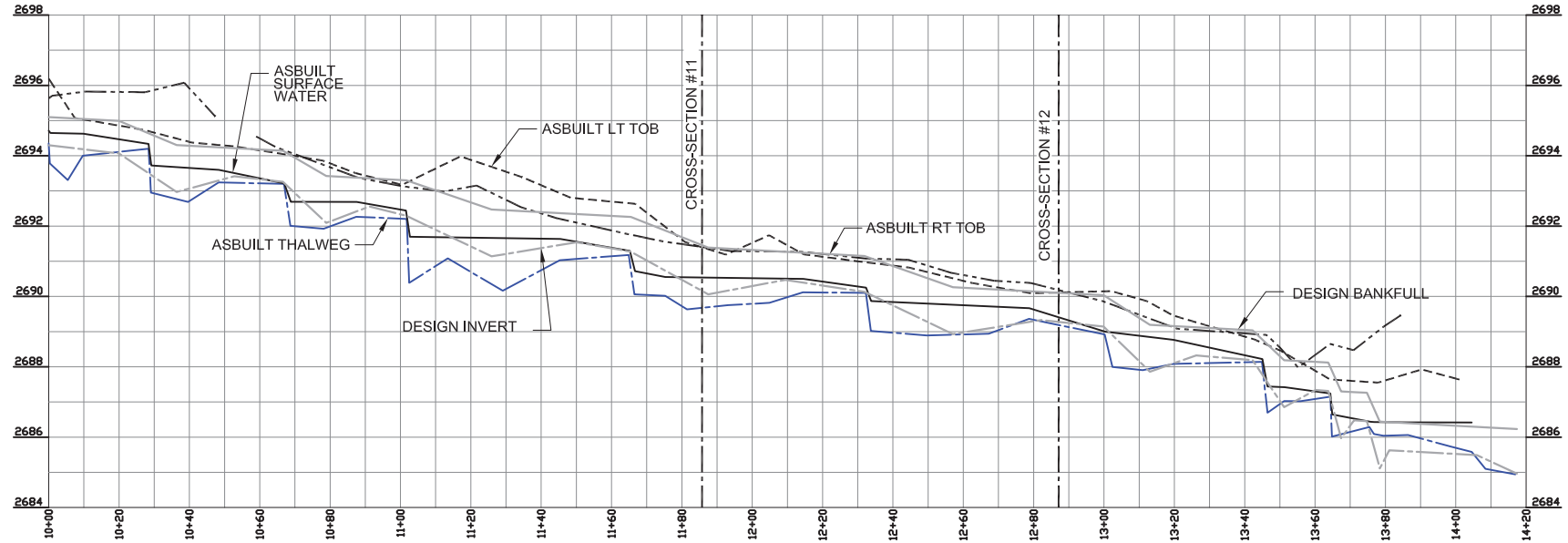
DRG Services, P.C.  
3101 Poplarwood Ct.  
Raleigh, N.C. 27604  
License No. C-4174

PREPARED IN THE OFFICE OF



FOR

HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116



**LONGITUDINAL PROFILE- UT7**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

OWEN FARMS MITIGATION SITE  
STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA

UT 7 PROFILE



DATE:	03-15-2021
RECORD DRAWING	
SHEET	15
DMS ID #	100064

# RECORD DRAWING

## RECORD DRAWINGS

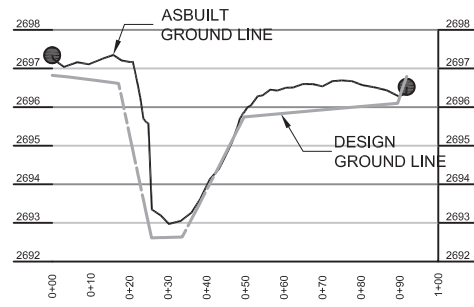
This record drawing has been prepared in part, based upon information furnished by others. While this information is believed to be reliable, the Engineer cannot assure its accuracy, and thus is not responsible for the accuracy of this record drawing or for any errors or omissions which may have been incorporated into it as a result. Those relying on this record document are advised to obtain independent verification of its accuracy before applying for any purpose.



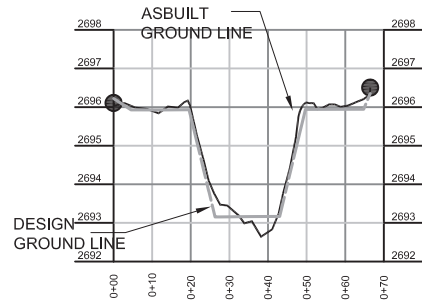
DRG Services, P.C.  
3101 Poplarwood Ct.  
Raleigh, N.C. 27604  
License No. C-4174

## LEGEND

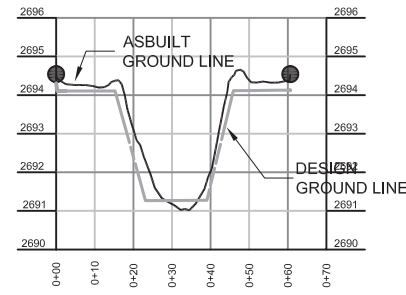
● CROSS-SECTION REBAR



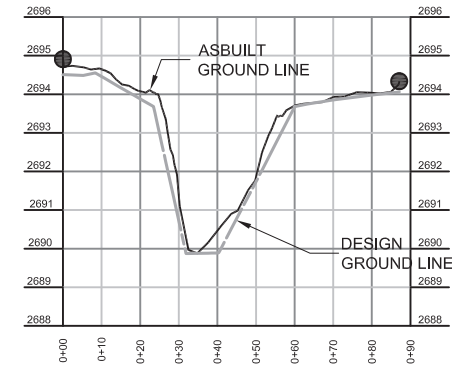
**CROSS-SECTION #1- WEST FORK FRENCH BROAD**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



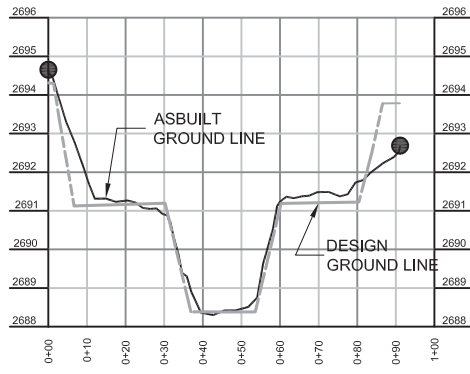
**CROSS-SECTION #2- WEST FORK FRENCH BROAD**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



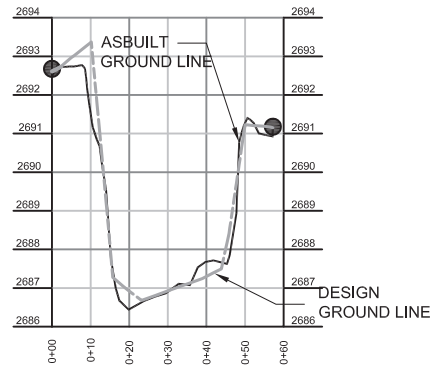
**CROSS-SECTION #3- WEST FORK FRENCH BROAD**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



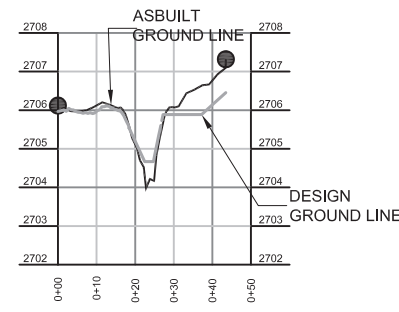
**CROSS-SECTION #4- WEST FORK FRENCH BROAD**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



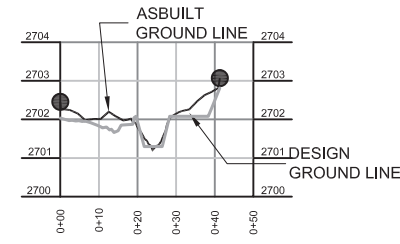
**CROSS-SECTION #5- WEST FORK FRENCH BROAD**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



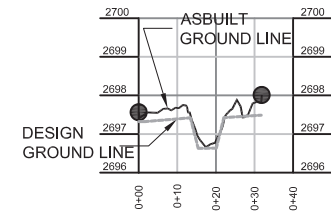
**CROSS-SECTION #6- WEST FORK FRENCH BROAD**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



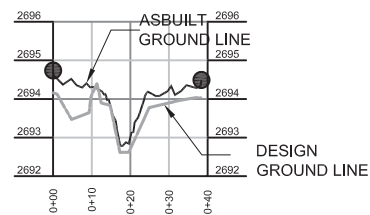
**CROSS-SECTION #7- UT5**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



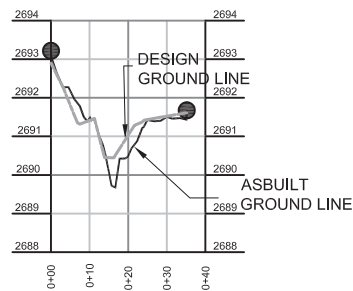
**CROSS-SECTION #8- UT5**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



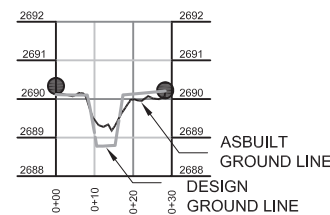
**CROSS-SECTION #9- UT5**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



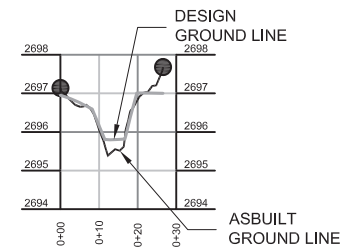
**CROSS-SECTION #10- UT5**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



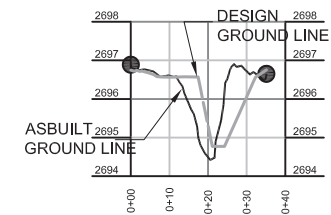
**CROSS-SECTION #11- UT7**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



**CROSS-SECTION #12- UT7**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



**CROSS-SECTION #13- UT8**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE



**CROSS-SECTION #14- UT8**  
HORIZONTAL SCALE: 1" = 20' FULL SIZE, 1" = 40' HALF SIZE  
VERTICAL SCALE: 1" = 2' FULL SIZE, 1" = 4' HALF SIZE

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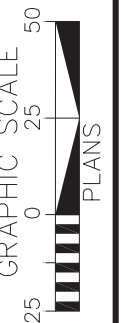


FOR  
HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116



OWEN FARMS MITIGATION SITE  
STREAM & WETLAND RESTORATION PROJECT  
TRANSYLVANIA COUNTY, NORTH CAROLINA

RECORD DRAWING CROSS SECTIONS



DATE: 03-15-2021

RECORD DRAWING

SHEET 16

DMS ID #

100064

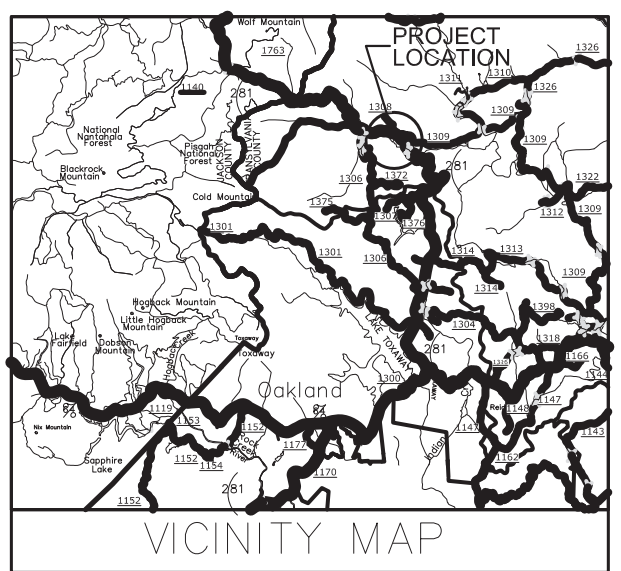
Z:\HDR Projects\Owen\_Farms\6.0\_CAD\6.5\_Proj\6.5.6\_Asbuilt Plans (AutoCad)\OwenFarms\_psh\_PL01.dwg, 5/27/2021 11:21:29 AM

CONTRACT: OWEN FARMS MITIGATION SITE

STATE	WEST FORK FRENCH BROAD RIVER	SHEET NO.
N.C.		PL-1

# PLANTING RECORD DRAWINGS OWEN FARMS MITIGATION SITE

LOCATION: TRANSYLVANIA COUNTY, NORTH CAROLINA  
 LAT: 35.183611      LONG: -82.9413889  
 35 11' 04.89"      -82 56' 34.97"  
 TYPE OF WORK: RECORD DRAWINGS



INDEX OF SHEETS

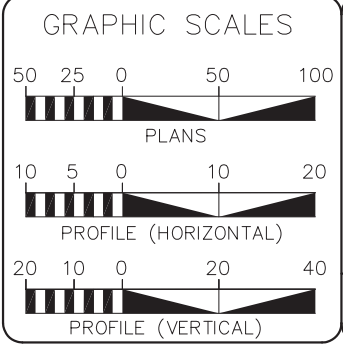
TITLE SHEET.....	PL-1
RECORD DRAWINGS.....	PL-2

### LEGEND

	STREAMSIDE ASSEMBLAGE 7.813 LF
	PIEDMONT/MOUNTAIN BOTTOMLAND HARDWOOD 7.21 AC
	SWAMP FOREST/BOG COMPLEX 1.99 AC
	MONTANE ALLUVIAL FOREST 5.06 AC
	EXISTING WETLANDS

**RECORD DRAWINGS**  
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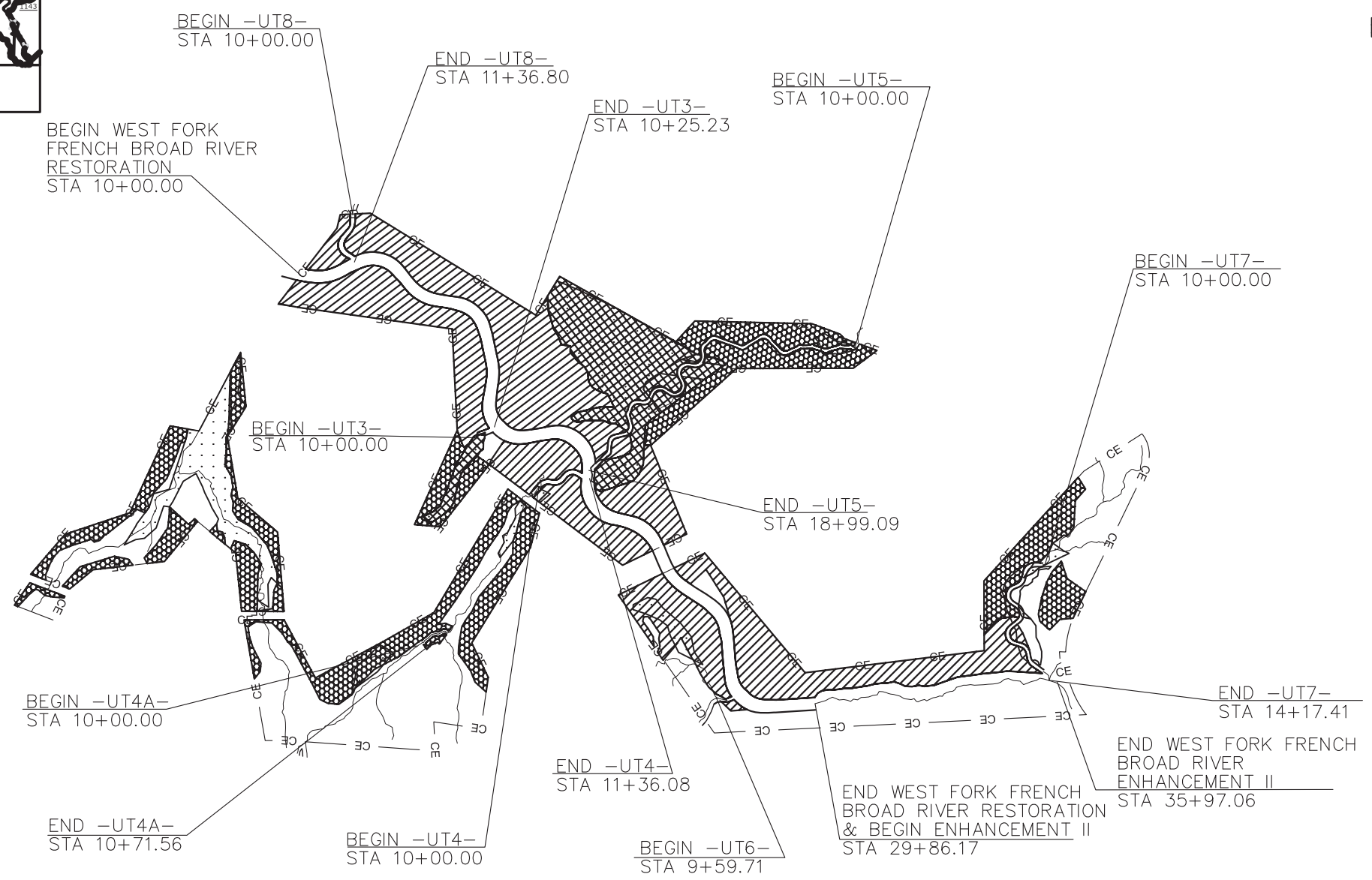
**PLANTING COMPLETED BY:**  
 KEE MAPPING & SURVEYING  
 P.O. BOX 2566  
 ASHEVILLE, NC 28802  
 (828) 575-9021



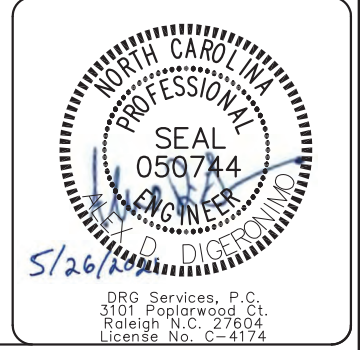
WEST FORK FRENCH BROAD RIVER	DESIGN DATA		
	UT 5	UT 7	UT 8
DESIGN STREAM TYPE = C4	DESIGN STREAM TYPE = C4	DESIGN STREAM TYPE = C4	DESIGN STREAM TYPE = C4
BANKFULL AREA (FT <sup>2</sup> ) CROSS-SECTIONED = 64.29	BANKFULL AREA (FT <sup>2</sup> ) CROSS-SECTIONED = 5.35	BANKFULL AREA (FT <sup>2</sup> ) CROSS-SECTIONED = 6.0	BANKFULL AREA (FT <sup>2</sup> ) CROSS-SECTIONED = 11.08
BANKFULL WIDTH (FT) = 30.0	BANKFULL WIDTH (FT) = 8.5	BANKFULL WIDTH (FT) = 9.0	BANKFULL WIDTH (FT) = 12.0
MAX DEPTH (FT) = 2.68	MAX DEPTH (FT) = 0.76	MAX DEPTH (FT) = 0.80	MAX DEPTH (FT) = 1.11
WIDTH / DEPTH RATIO = 14.0	WIDTH / DEPTH RATIO = 13.5	WIDTH / DEPTH RATIO = 13.5	WIDTH / DEPTH RATIO = 13.0
DRAINAGE AREA (MI <sup>2</sup> ) = 5.50	DRAINAGE AREA (MI <sup>2</sup> ) = 0.07	DRAINAGE AREA (MI <sup>2</sup> ) = 0.06	DRAINAGE AREA (MI <sup>2</sup> ) = 0.31
BANKFULL SLOPE(FT/FT) = 0.00353	BANKFULL SLOPE(FT/FT) = 0.00569	BANKFULL SLOPE(FT/FT) = 0.00539	BANKFULL SLOPE(FT/FT) = 0.01096

**CHRISTOPHER L. SMITH**  
PROJECT DESIGNER / ENGINEER

PROJECT LENGTH	DESIGN STREAM LENGTH	
	EXISTING	PROPOSED
WEST FORK FRENCH BROAD RIVER	2,859.55 FT	2,691.02 FT
-UT4-	1,133.30 FT	136.08 FT
-UT4A-	471.56 FT	71.56 FT
-UT5-	652.00 FT	899.09 FT
-UT7-	811.00 FT	417.41 FT
-UT8-	49.00 FT	136.80 FT



DWR # 18-1033  
 DMS ID # 100064  
 DMS CONTRACT 7532  
 USACE-SAW-2018-01165



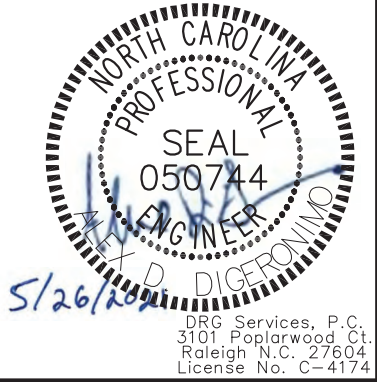
Prepared in the Office of:

for

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# RECORD DRAWING



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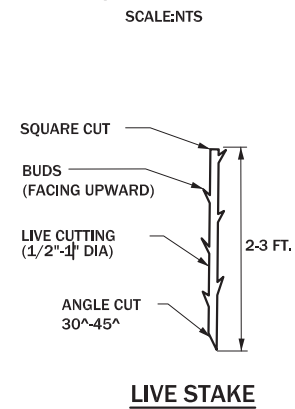
Zone 1: Streamside Assemblage		Feet of Stream Bank	Unit Type*	Plant Spacing	
		7,813 ft		4 ft	
Common Name	Scientific Name		% Composition	# Planted	
Black willow	<i>Salix nigra</i>		25	489	
Tag alder	<i>Alnus serrulata</i>		<del>25</del> 15	<del>489</del>	293
Silky dogwood	<i>Cornus amomum</i>		25	489	
Elderberry	<i>Sambucus canadensis</i>		10	196	
Sycamore	<i>Platanus occidentalis</i>		25	489	
				TOTAL	1,956
Zone 2: Piedmont/Mountain Bottomland Forest		Area		Plant Spacing	
		7.21 ac		8 ft	
Common Name	Scientific Name		% Composition	# Planted	
Tulip tree	<i>Liriodendron tulipifera</i>		15	737	
River birch	<i>Betula nigra</i>		15	737	
Sycamore	<i>Platanus occidentalis</i>		20	982	
Shagbark hickory	<i>Carya ovata</i>		15	737	
American elm	<i>Ulmus Americana</i>		10	491	
Flowering dogwood	<i>Cornus florida</i>		<del>5</del> 10	<del>246</del>	491
Bitternut hickory	<i>Carya cordiformis</i>		15	737	
<del>Mountain silverbell</del>	<del><i>Halesia tetrapetala</i></del>		<del>5</del>	<del>246</del>	
				TOTAL	4,913
Zone 3: Swamp Forest-Bog Complex		Area		Plant Spacing	
		1.99 ac		8 ft	
Common Name	Scientific Name		% Composition	# Planted	
Silky willow	<i>Salix sericea</i>		15	204	
Tag alder	<i>Alnus serrulata</i>		<del>20</del> 10	<del>271</del>	136
<del>Possumhaw viburnum</del>	<del><i>Viburnum nudum</i></del>		<del>20</del>	<del>271</del>	
Red chokeberry	<i>Aronia arbutifolia</i>		15	204	
Silky dogwood	<i>Cornus amomum</i>		15	204	
<del>Mountain holly</del>	<del><i>Ilex montana</i></del>		<del>10</del>	<del>136</del>	
<del>Swamp rose</del>	<del><i>Rosa palustris</i></del>		<del>5</del>	<del>68</del>	
Buttonbush	<i>Cephalanthus occidentalis</i>		20	271	
Spicebush	<i>Lindera benzoin</i>		15	204	
Elderberry	<i>Sambucus canadensis</i>		10	136	
				TOTAL	1,358
Zone 4: Montane Alluvial Forest		Area		Plant Spacing	
		5.06 ac		8 ft	
Common Name	Scientific Name		% Composition	# Planted	
Sycamore	<i>Platanus occidentalis</i>		<del>15</del> 16.6	<del>517</del>	575
Yellow birch	<i>Betula alleghaniensis</i>		<del>15</del> 16.6	<del>517</del>	575
White oak	<i>Quercus alba</i>		<del>20</del> 21.6	<del>689</del>	744
Tulip tree	<i>Liriodendron tulipifera</i>		<del>15</del> 16.6	<del>517</del>	575
<del>Sweet birch</del>	<del><i>Betula lenta</i></del>		<del>10</del>	<del>345</del>	
River birch	<i>Betula nigra</i>		<del>15</del> 16.6	<del>517</del>	575
Witch hazel	<i>Hamamelis virginiana</i>		<del>10</del> 12	<del>345</del>	403
				TOTAL	3,447

\* Live Stake (L), Bare Root (R)

NOTES:

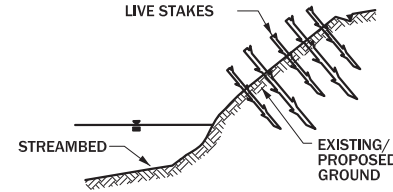
- PLACE ONE LIVE STAKE AT TOP OF BANKFULL CHANNEL AND THEN THE NEXT LIVE STAKE AT THE TOE OF BANKFULL CHANNEL IN AN ALTERNATING PATTERN.
- LIVE STAKES SHALL BE EVENLY SPACED 4 FT. APART.
- LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY 7/8 OF LIVE STAKE IS WITHIN GROUND.
- IF STARTER HOLE IS NEEDED, MINIMIZE AIR POCKET.
- UTILIZE ALL ON SITE TRANSPLANT MATERIALS MADE AVAILABLE BY THE OWNER. ONCE SOURCE OF TRANSPLANT MATERIAL HAS BEEN HARVESTED, THEN UTILIZE LIVE STAKING.

LIVE STAKE DETAIL



NOTE:

STAKING MAY BE REQUIRED THROUGH MATTING, ROCK OR COMPACTED SOILS. A STARTER HOLE MAY BE REQUIRED.

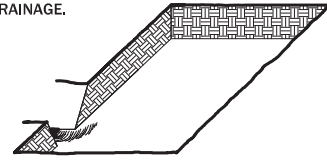


BANK STABILIZATION W/ LIVE STAKES

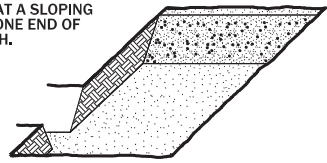
PLANTING DETAILS  
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

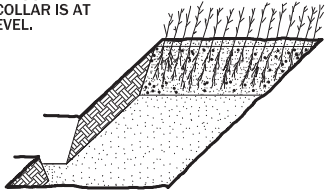
- LOCATE A HEALING-IN SITE IN A SHADY, WELL PROTECTED AREA.
- EXCAVATE A FLAT BOTTOM TRENCH 12IN. DEEP AND PROVIDE DRAINAGE.



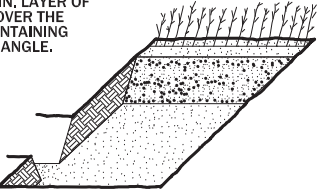
- BACKFILL THE TRENCH WITH 2IN. OF COMPOST. PLACE A 2IN. LAYER OF COMPOST AT A SLOPING ANGLE AT ONE END OF THE TRENCH.



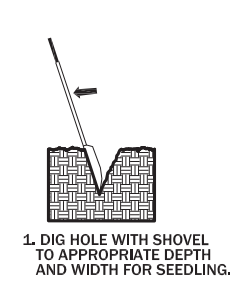
- PLACE A SINGLE LAYER OF PLANTS AGAINST THE SLOPING END SO THAT THE ROOT COLLAR IS AT GROUND LEVEL.



- REPEAT LAYERS OF PLANTS AND COMPOST AS NECESSARY AND WATER THOROUGHLY.



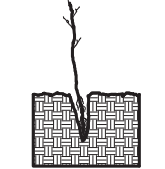
PLANTING METHOD USING A SHOVEL



- DIG HOLE WITH SHOVEL TO APPROPRIATE DEPTH AND WIDTH FOR SEEDLING.



- REMOVE SOIL FROM HOLE WITH SHOVEL. HOLE SHALL NOT BE MADE BY COMPACTING SOIL AWAY FROM THE HOLE.



- REMOVE SHOVEL AND PLACE SEEDLING AT CORRECT DEPTH.



- FILL HOLE WITH SOIL. TAMP SOIL TO REMOVE AIR POCKETS. WATER THOROUGHLY.

PLANTING NOTES:

PLANTING BAG DURING PLANTING, SEEDLINGS SHALL BE KEPT IN A MOIST CANVAS BAG OR SIMILAR CONTAINER TO PREVENT THE ROOT SYSTEMS FROM DRYING.



ROOT PRUNING ALL SEEDLINGS SHALL BE ROOT PRUNED, IF NECESSARY, SO THAT NO ROOTS EXTEND MORE THAN 24INCHES (24IN.) BELOW THE ROOT COLLAR.

TREE REFORESTATION SHALL BE PLANTED 8' ON CENTER, RANDOM SPACING. APPROXIMATELY 260 PLANTS PER ACRE.

PREPARED IN THE OFFICE OF



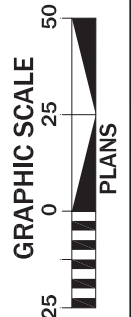
FOR

HDR Engineering, Inc. of the Carolinas  
556 Fayetteville St., Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116



OWEN FARMS MITIGATION SITE  
STREAM & WETLAND RESTORATION PROJECT  
PENNSYLVANIA COUNTY, NORTH CAROLINA

PLANTING DETAILS



DATE: 03-11-2021

RECORD DRAWING

SHEET PL-2

DMS ID # 100064