

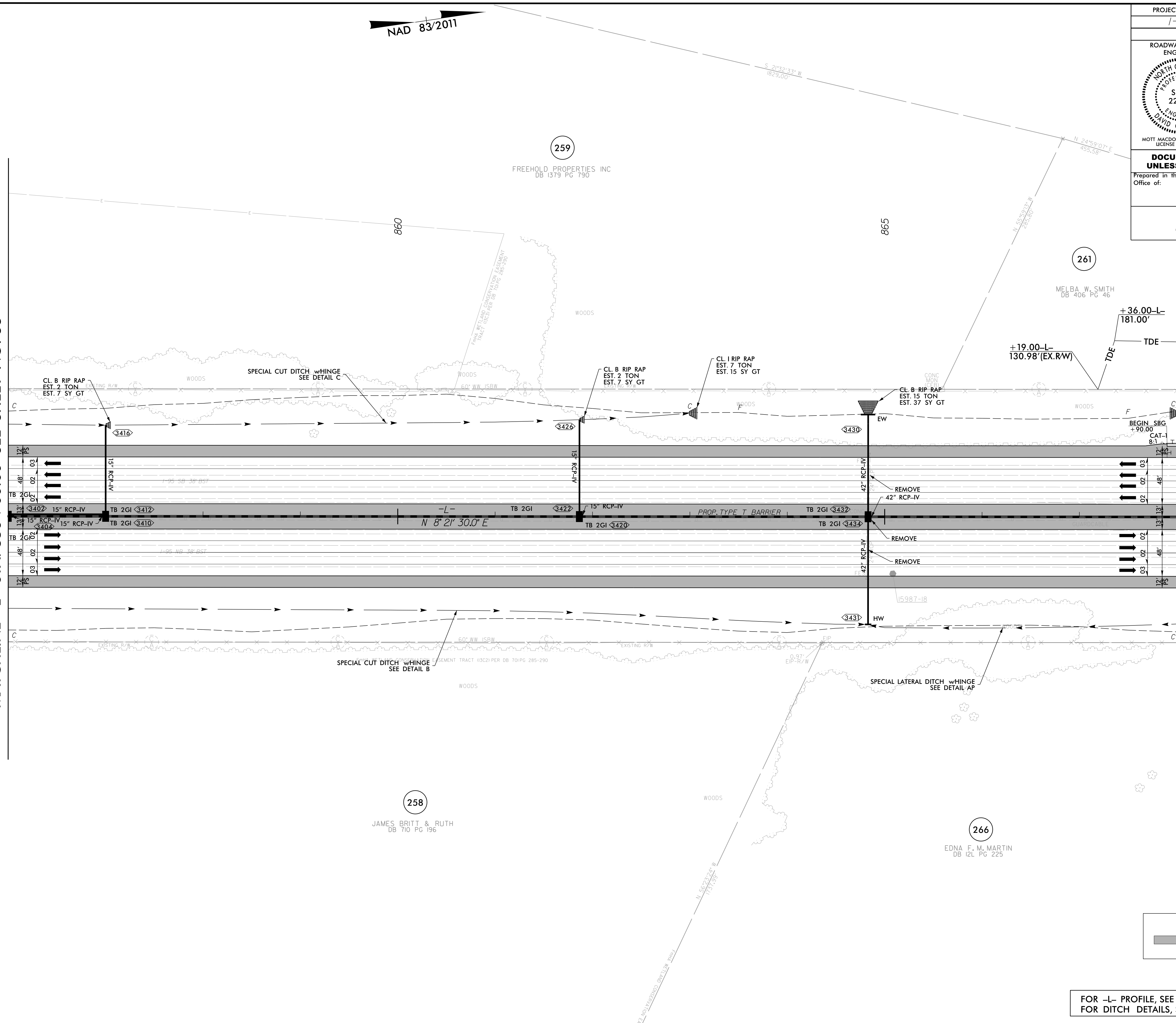
5/14/2022
RA:\P\2022\05\05\15987b_rdy_esh_34.dgn
WAL

NAD 83/2011

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 34
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC. LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	
MOTT MACDONALD	
PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

MATCHLINE -L- STA. 856 + 00.00 SEE SHEET NO. 33

MATCHLINE -L- STA. 868 + 00.00 SEE SHEET NO. 35



LEGEND

- PROPOSED PAVED SHOULDER

FOR -L- PROFILE, SEE SHEET 79
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

5/14/2022

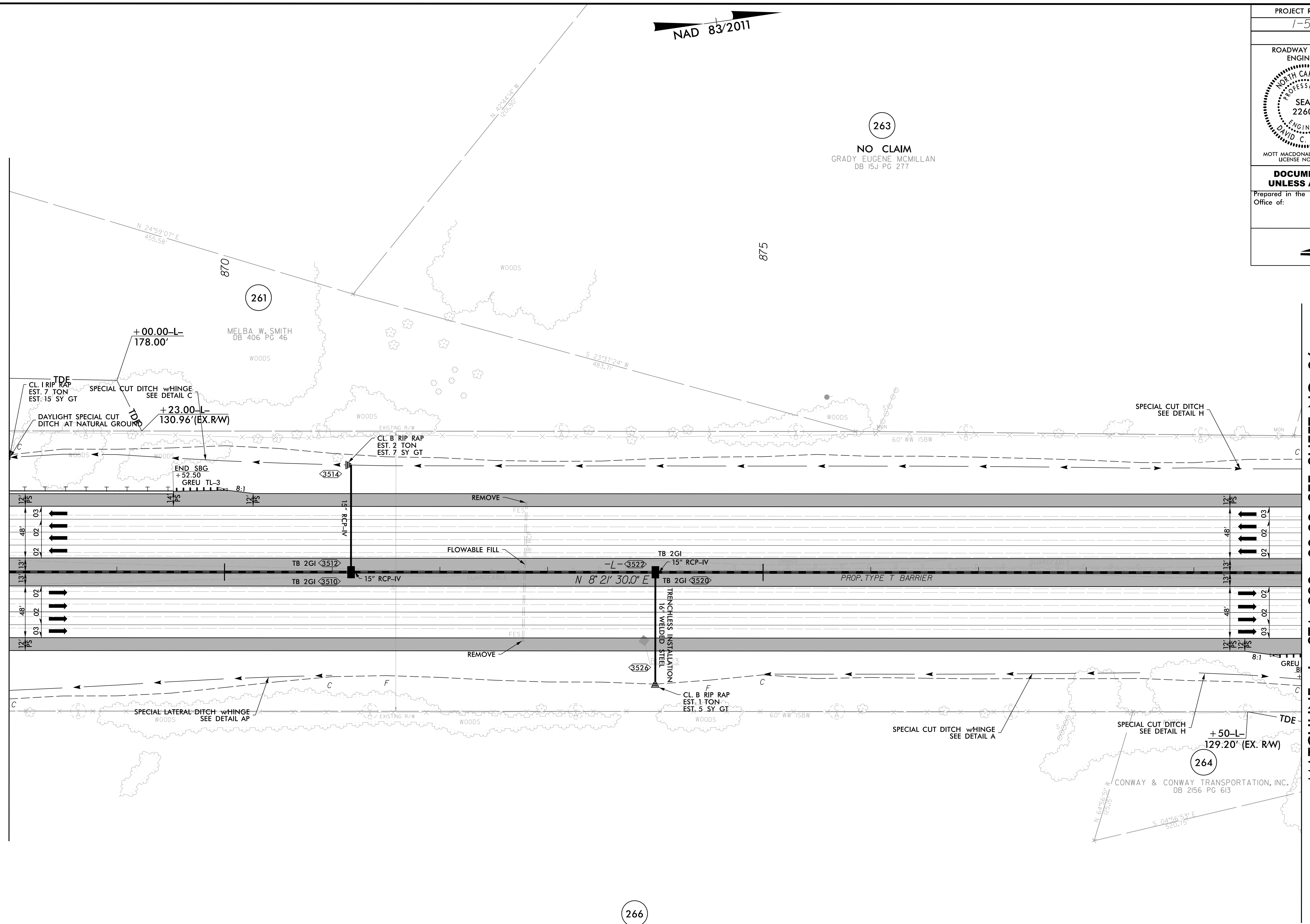
RA\Ford\Projects\15987b_rdy_esh_35.dgn

NAD 83/2011

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 35	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
M MOTT MACDONALD		M WETHERILL ENGINEERING	
PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas		1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

MATCHLINE -L- STA. 868 + 00.00 SEE SHEET NO. 34

MATCHLINE -L- STA. 880 + 00.00 SEE SHEET NO. 36



263
NO CLAIM
GRADY EUGENE MCMILLAN
DB 15J PG 277

261
MELBA W. SMITH
DB 406 PG 46

266
EDNA F. M. MARTIN
DB 12L PG 225

264
CONWAY & CONWAY TRANSPORTATION, INC.
DB 2156 PG 613

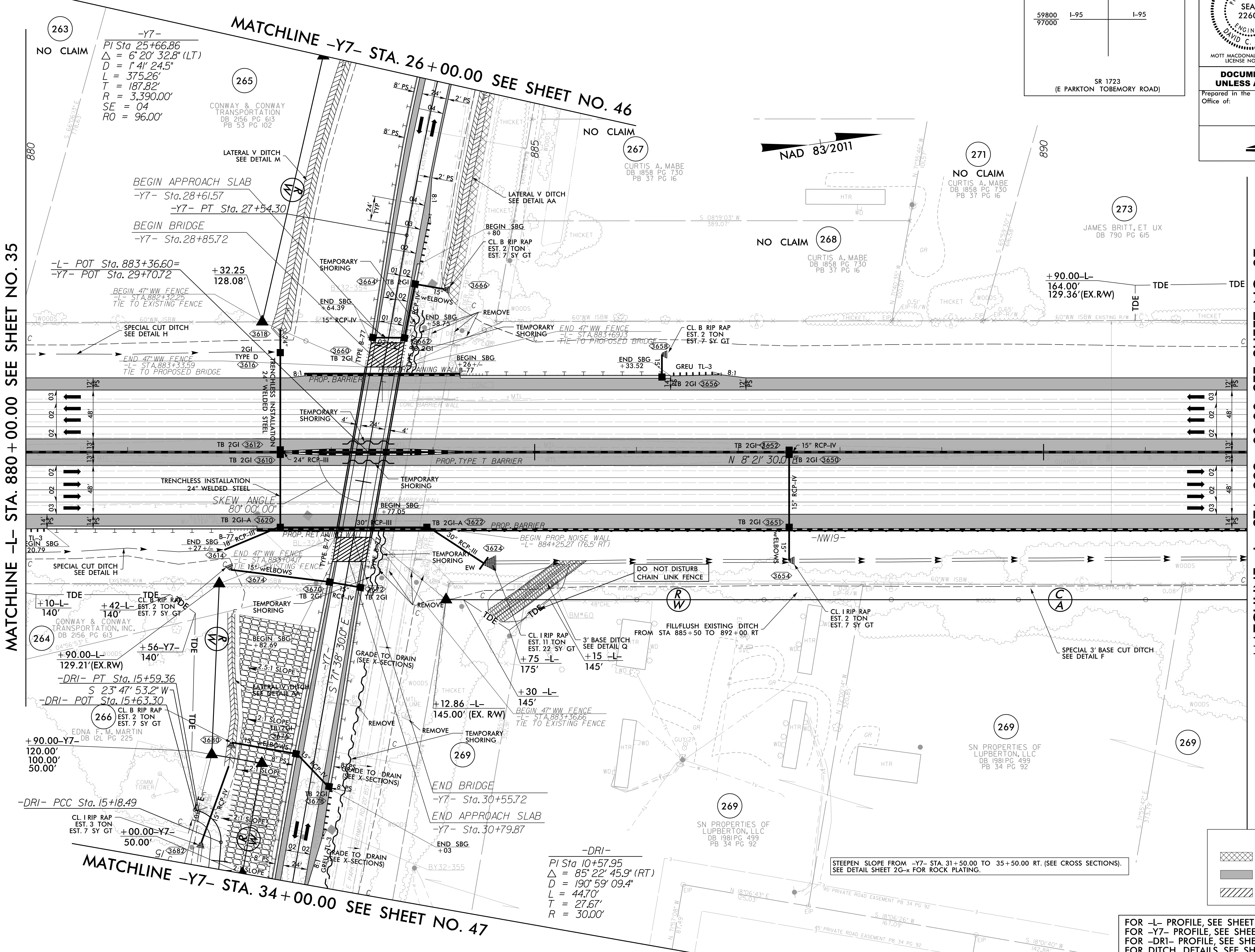
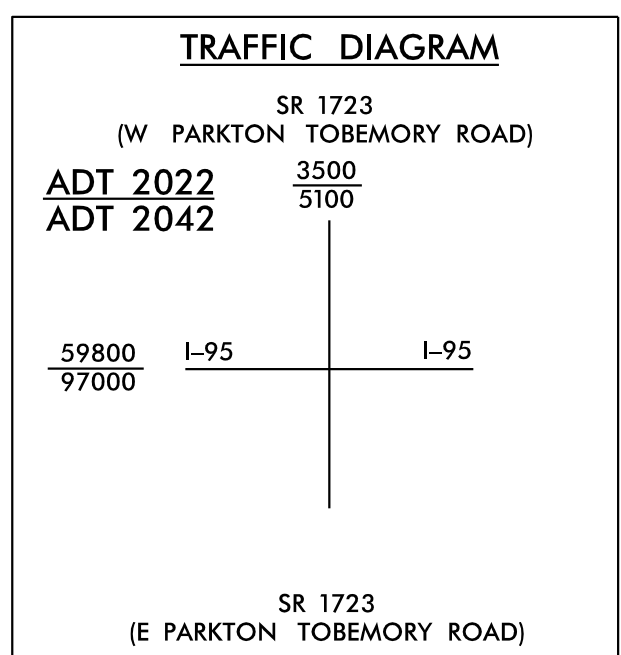
LEGEND

PROPOSED PAVED SHOULDER

FOR -L- PROFILE, SEE SHEET 80
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

5/14/99
4/21/2022
R:\P\04\15987b_rdy_psh_36.dgn

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 36
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
MOTT MACDONALD & E, LLC DB 1858 PG 730 PB 53 PG 102	
WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	
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PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas	



MATCHLINE -L- STA. 880 + 00.00 SEE SHEET NO. 35

MATCHLINE -L- STA. 892 + 00.00 SEE SHEET NO. 37

MATCHLINE -Y7- STA. 34 + 00.00 SEE SHEET NO. 47

MATCHLINE -Y7- STA. 26 + 00.00 SEE SHEET NO. 46

LEGEND

- PROPOSED PAVEMENT REMOVAL
- PROPOSED PAVED SHOULDER
- PROPOSED APPROACH SLAB

FOR -L- PROFILE, SEE SHEET 81
FOR -Y7- PROFILE, SEE SHEET 96 & 97
FOR -DRI- PROFILE, SEE SHEET 97
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3
FOR STRUCTURE PLANS, SEE SHEETS S10-1 THRU S10-33
FOR NOISE WALL PLANS, SEE SHEETS W19-1 THRU W19-4

STEEPEN SLOPE FROM -Y7- STA. 31+50.00 TO 35+50.00 RT. (SEE CROSS SECTIONS).
SEE DETAIL SHEET 2G-x FOR ROCK PLATING.

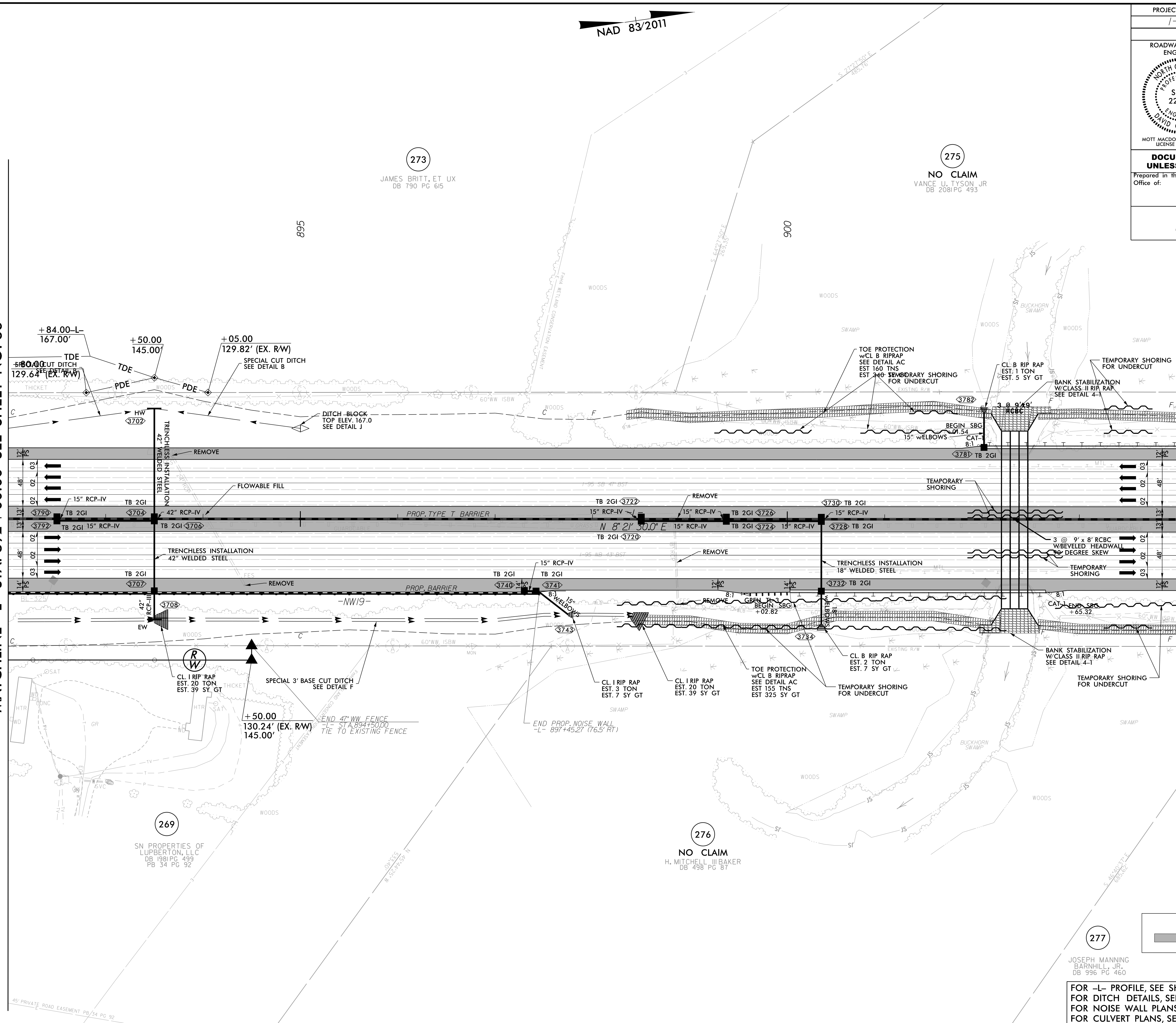
5/14/2022
R:\Projects\2022\15987b_rdy_esh_37.dgn
15987b_15

NAD 83/2011

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 37
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	
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PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/america	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

MATCHLINE -L- STA. 892 + 00.00 SEE SHEET NO. 36

MATCHLINE -L- STA. 904 + 00 SEE SHEET NO. 38



LEGEND

- PROPOSED PAVED SHOULDER

FOR -L- PROFILE, SEE SHEET 82
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3
FOR NOISE WALL PLANS, SEE SHEET W19-1 THRU W19-4
FOR CULVERT PLANS, SEE SHEETS C18-1 THRU C18-9

JOSEPH MANNING
BARNHILL, JR.
DB 956 PG 460

269
SN PROPERTIES OF
LUPBERTON, LLC
DB 198 PG 499
PB 34 PG 92

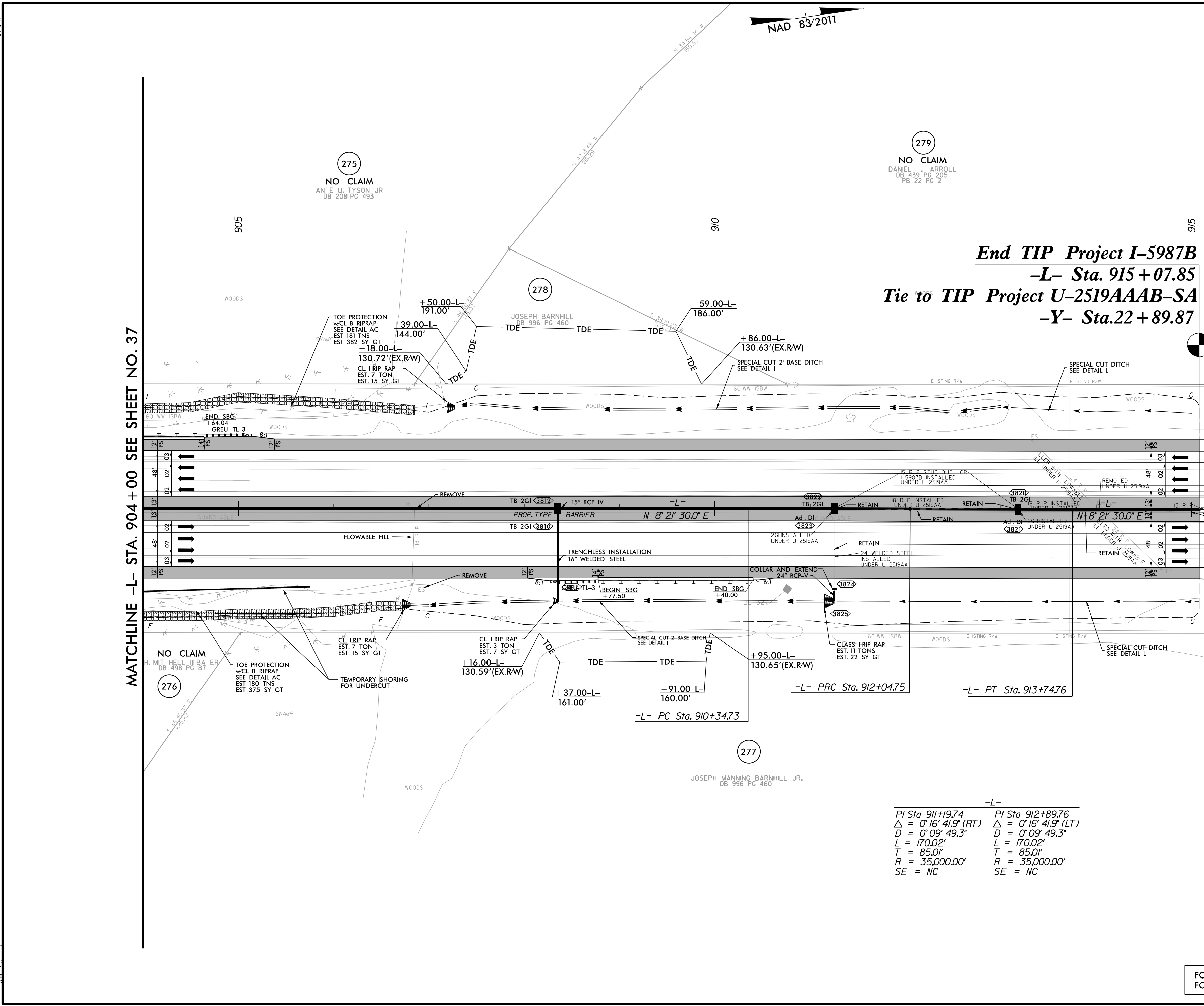
276
NO CLAIM
H. MITCHELL III BAKER
DB 498 PG 87

273
JAMES BRITT, ET UX
DB 790 PG 615

275
NO CLAIM
VANCE L. TYSON, JR.
DB 208 PG 493

277

5/14/98
5/5/2002
R:\1000\5987B\1-5987B-2D-1.dwg



PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>38</i>
ROADWAY DESIGN ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. P-69667	HYDRAULICS ENGINEER WETHERILL ENGINEERING, LLC LICENSE NO. P-63777
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
Prepared in the Office of: MOTT MACDONALD	<p>PO Box 700 Fayetteville, NC 27326 www.mottmac.com</p>

End TIP Project I-5987B
-L- Sta. 915 + 07.85
Tie to TIP Project U-2519AAAB-SA
-Y- Sta. 22 + 89.87

FINAL LAYER OF PAVEMENT FOR ENTIRE I-95 SBL AND A PORTION OF I-95 NBL ON U-2519AAAB PROJECT WILL BE INCLUDED IN THIS CONTRACT. SEE SHEET 28-17 THRU 28-20 FOR LIMITS OF PAVING.

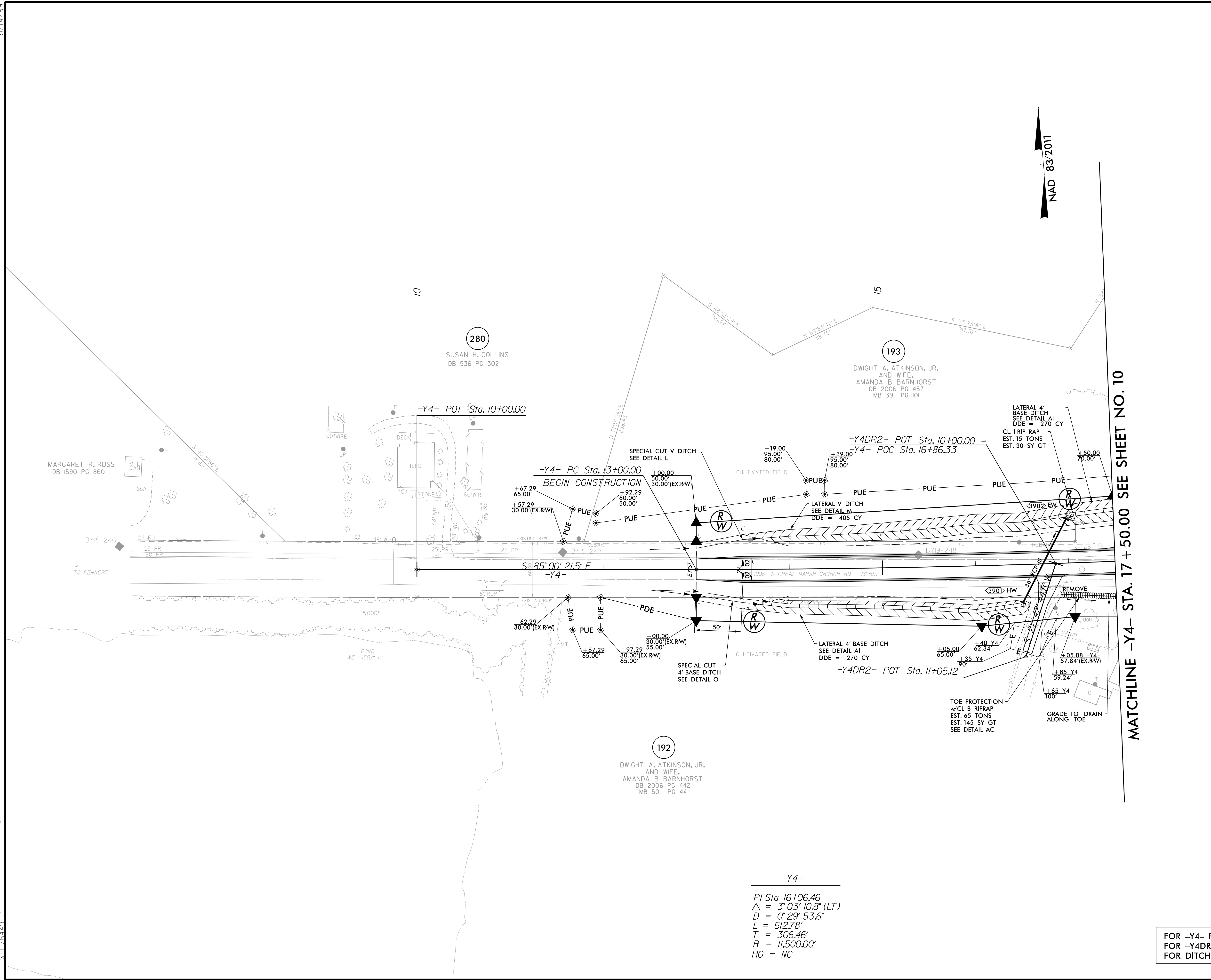
-L-	
PI Sta 911+9.74	PI Sta 912+89.76
$\Delta = 0' 16' 41.9" (RT)$	$\Delta = 0' 16' 41.9" (LT)$
$D = 0' 09' 49.3"$	$D = 0' 09' 49.3"$
$L = 170.02'$	$L = 170.02'$
$T = 85.01'$	$T = 85.01'$
$R = 35,000.00'$	$R = 35,000.00'$
SE = NC	SE = NC

LEGEND

■ PROPOSED PAVED SHOULDER

FOR -L- PROFILE, SEE SHEET 83
 FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

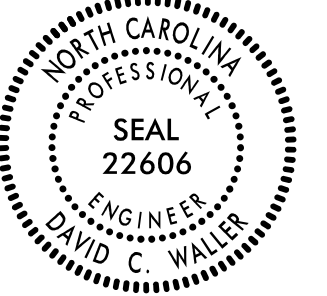


5/14/99
4/21/2022
R:\P\02\15987b\15987b_rdy_psh_39.dgn

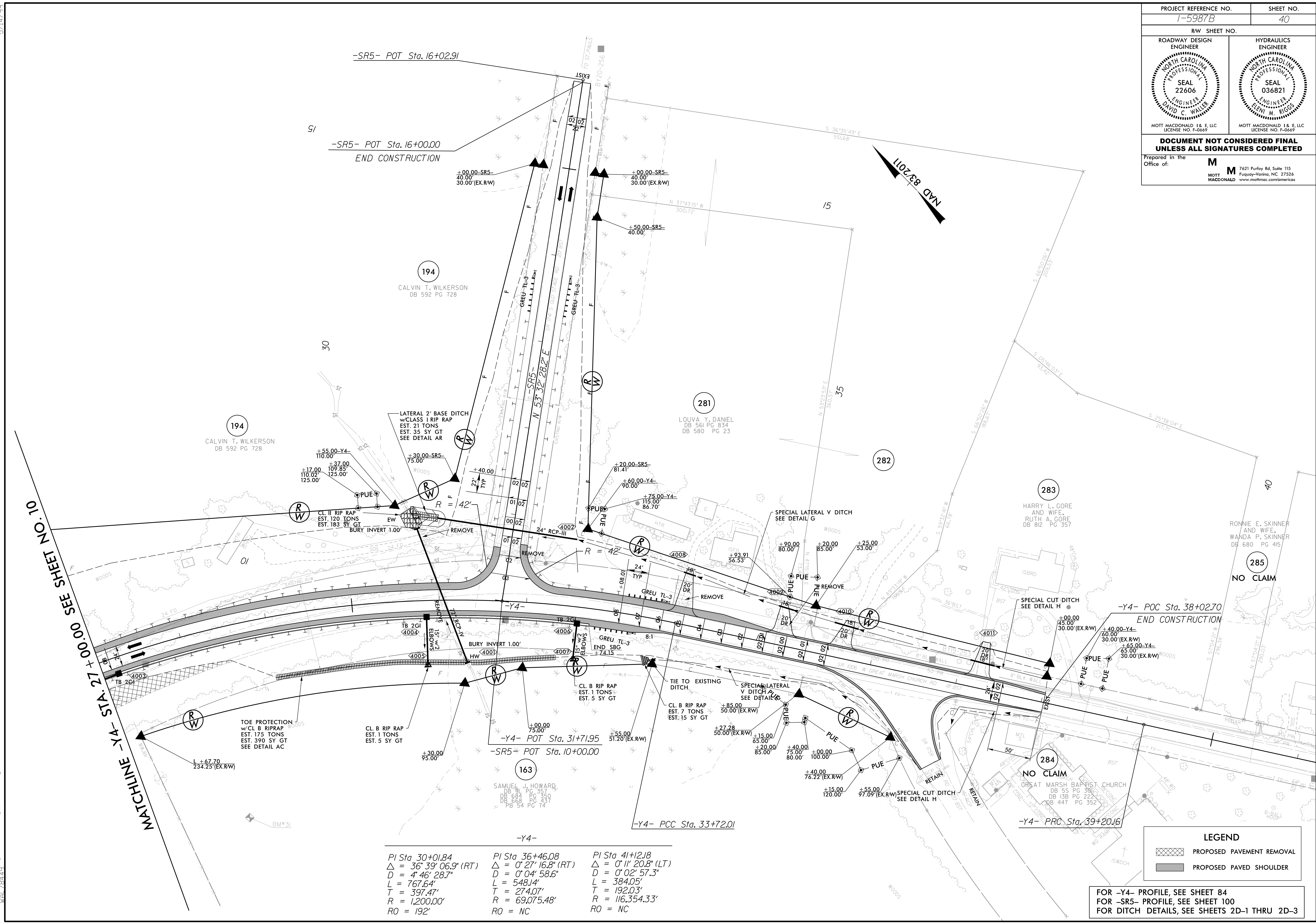


-Y4-
 PI Sta. 16+06.46
 $\Delta = 3^{\circ} 03' 10.8''$ (LT)
 $D = 0^{\circ} 29' 53.6''$
 $L = 612.78'$
 $T = 306.46'$
 $R = 11,500.00'$
 $RO = NC$

LEGEND
 PROPOSED PAVED SHOULDER

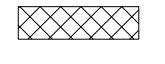
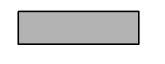
FOR -Y4- PROFILE, SEE SHEET 84
 FOR -Y4DR2- PROFILE, SEE SHEET 102
 FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 40	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
		7621 Purfoy Rd, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	



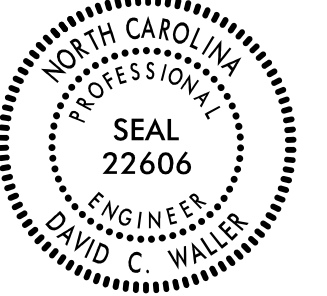


PI Sta 30+01.84	PI Sta 36+46.08	PI Sta 41+12.18
Δ = 36° 39' 06.9" (RT)	Δ = 0° 27' 16.8" (RT)	Δ = 0° 02' 20.8" (LT)
D = 4' 46' 28.7"	D = 0' 04' 58.6"	D = 0' 02' 57.3"
L = 767.64'	L = 548.14'	L = 384.05'
T = 397.47'	T = 274.07'	T = 192.03'
R = 1,200.00'	R = 69,075.48'	R = 116,354.33'
RO = 192'	RO = NC	RO = NC

LEGEND

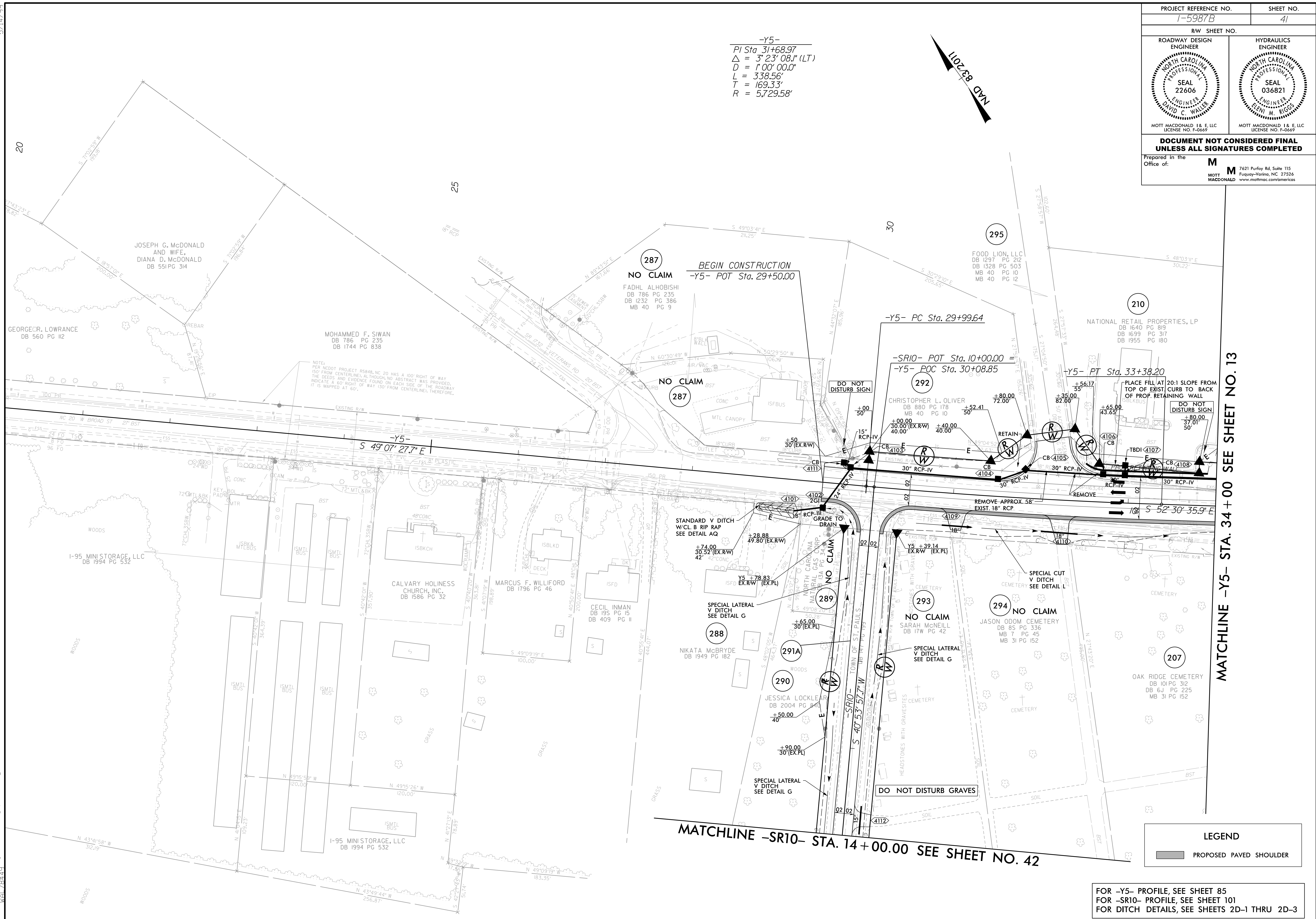
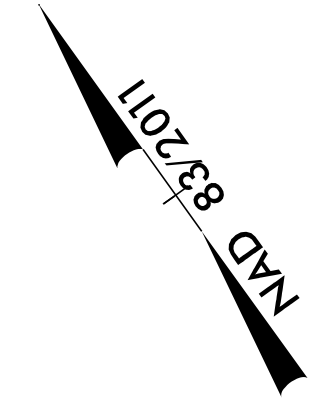
-  PROPOSED PAVEMENT REMOVAL
-  PROPOSED PAVED SHOULDER

FOR -Y4- PROFILE, SEE SHEET 84
FOR -SR5- PROFILE, SEE SHEET 100
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

4/21/2022
R:\Projects\15987b\rdy_psh_40.dgn
5/14/99

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 41	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
		7621 Purfoy Rd, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	

-Y5-
PI Sta 31+68.97
 $\Delta = 3^{\circ}23'08.1''$ (LT)
D = 1^{\circ}00'00.0"
L = 338.56'
T = 169.33'
R = 5,729.58'



MATCHLINE -Y5- STA. 34 + 00 SEE SHEET NO. 13

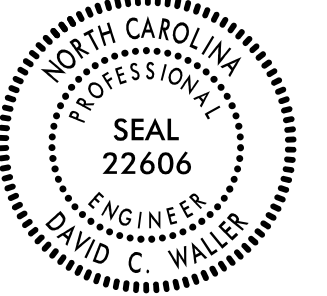


MATCHLINE -SR10- STA. 14 + 00.00 SEE SHEET NO. 42

LEGEND

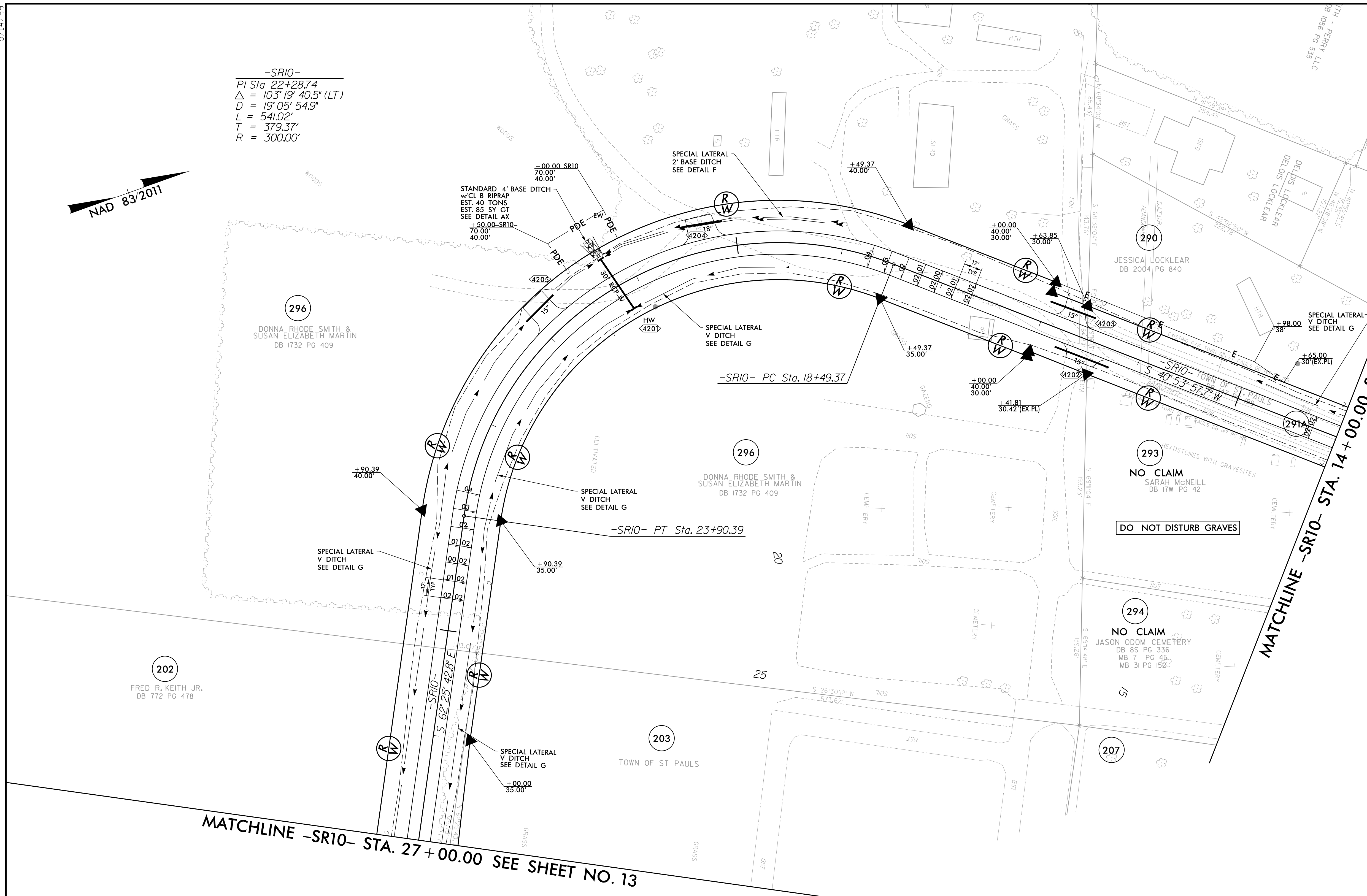
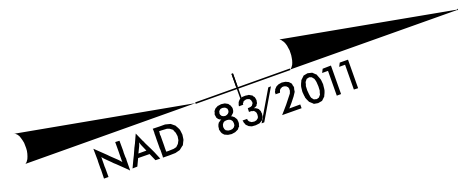
 PROPOSED PAVED SHOULDER

FOR -Y5- PROFILE, SEE SHEET 85
FOR -SR10- PROFILE, SEE SHEET 101
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

5/14/2022 10:21:20 AM C:\p01\15987b_rdy_psh_41.dgn

PROJECT REFERENCE NO. <i>1-5987B</i>		SHEET NO. <i>42</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			
Prepared in the Office of:			
		7621 Purfoy Rd, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	

-SR10-
 PI Sta. 22+28.74
 $\Delta = 103^\circ 19' 40.5''$ (LT)
 $D = 19^\circ 05' 54.9''$
 $L = 541.02'$
 $T = 379.37'$
 $R = 300.00'$




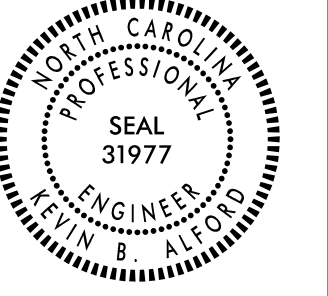

MATCHLINE -SR10- STA. 27+00.00 SEE SHEET NO. 13

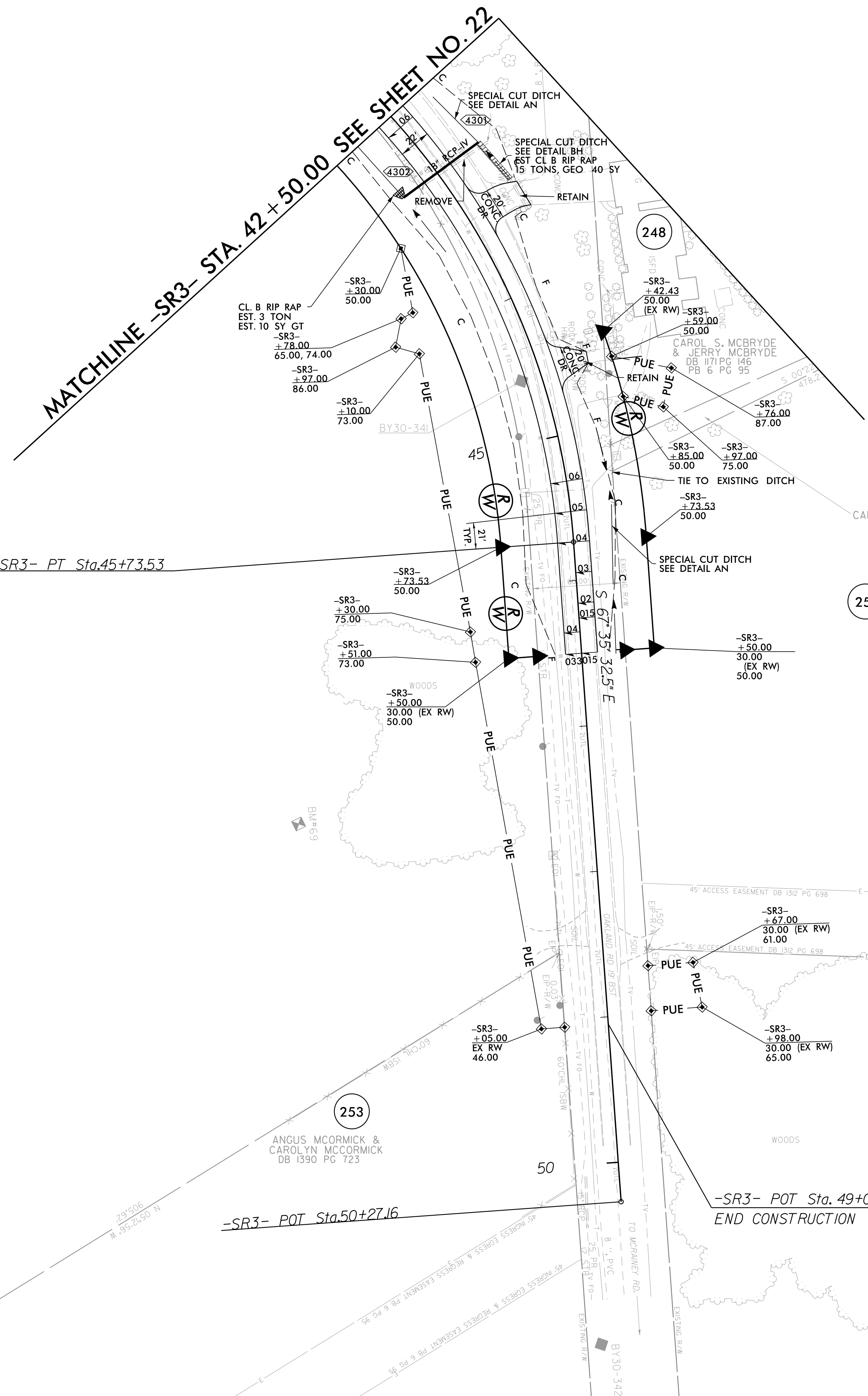
MATCHLINE -SR10- STA. 14+00.00 SEE SHEET NO. 41

FOR -SR10- PROFILE, SEE SHEET 101
 FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

4/21/2022
 R:\Projects\15987b_rdy_psh_42.dgn
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5/14/99



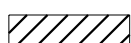
PROJECT REFERENCE NO. <i>1-5987B</i>		SHEET NO. <i>43</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
		1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION			



-SR3-
 PI STA. 43+01.14
 $\Delta = 81^{\circ} 52' 36.4''$ (RT)
 $D = 11' 48' 48.8''$
 $L = 693.07'$
 $T = 420.69'$
 $R = 485.00'$
 $SE = 0.06$
 RO = SEE PLANS



LEGEND

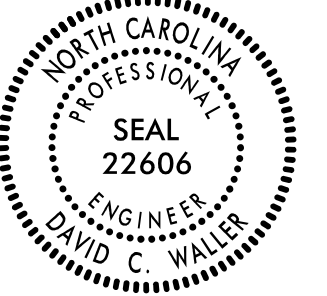
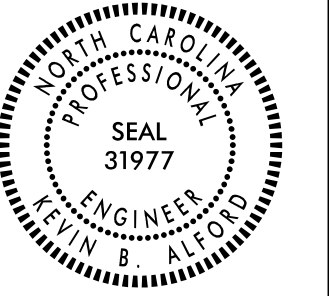


-  PROPOSED PAVEMENT REMOVAL
-  PROPOSED PAVED SHOULDER
-  PROPOSED APPROACH SLAB

FOR DITCH DETAILS SEE SHEETS D-1 THRU D-3

FOR -SR3- PROFILE SEE SHEETS 98 & 99

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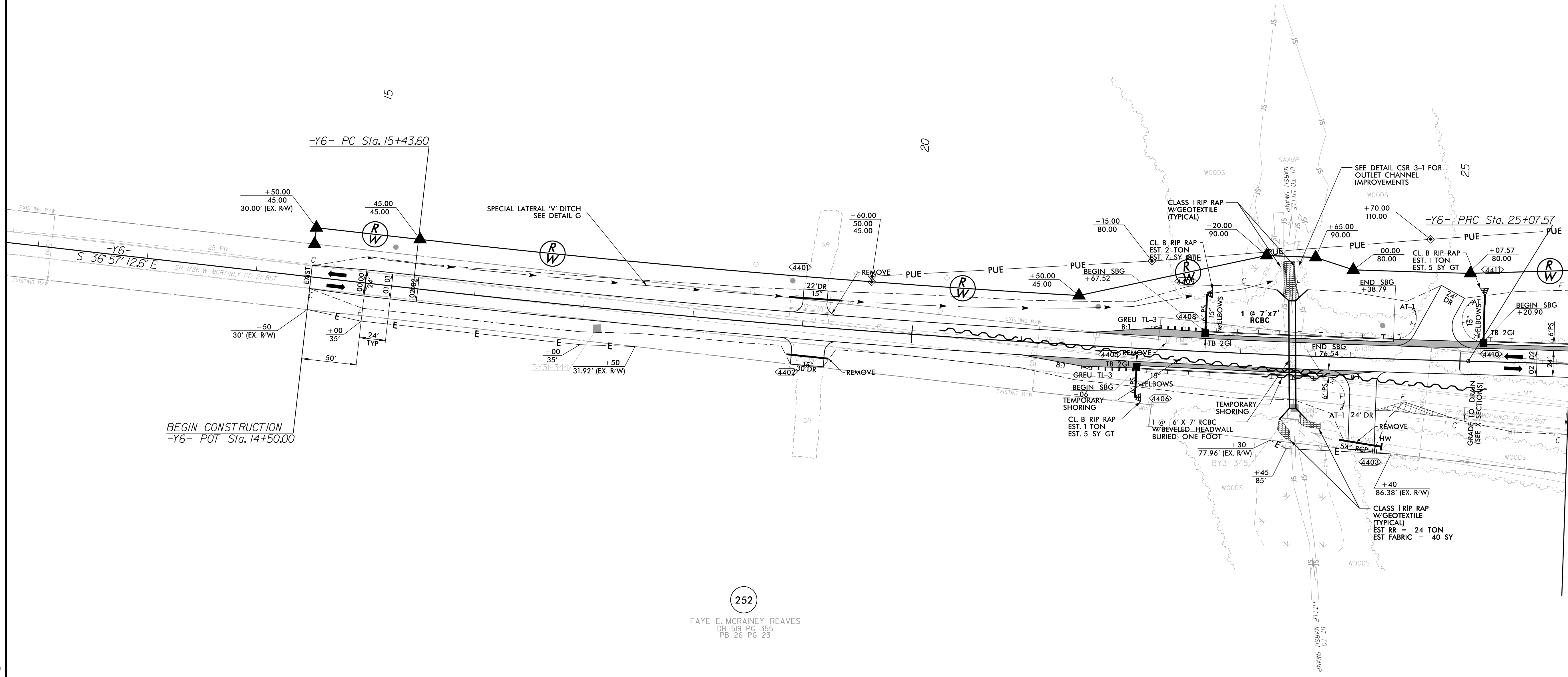
5/14/99
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4/21/2022
W:\15987b\15987b.dgn

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 44	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22606 DAVID C. WALKER LICENSE NO. F-0669		 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 31977 KEVIN A. FORD LICENSE NO. F-0377	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		 MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
		 1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0372 Bus: 919 851 8077 Fax: 919 851 8107	

NAD 83/2011

256
FAYE E. MCRAINEY REAVES
DB 519 PG 355
PB 26 PG 23

252
FAYE E. MCRAINEY REAVES
DB 519 PG 355
PB 26 PG 23

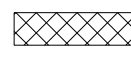



MATCHLINE -Y6- STA. 26 + 00.00 SEE SHEET NO. 25

-Y6-


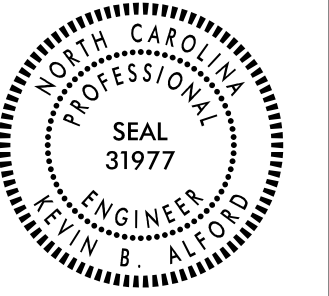
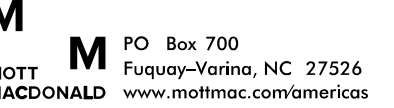

PI Sta 20+25.89	PI Sta 26+92.85
$\Delta = 4' 58' 32.9''$ (LT)	$\Delta = 1' 54' 45.5''$ (RT)
$D = 0' 30' 58.2''$	$D = 0' 30' 58.2''$
$L = 96.39'$	$L = 370.54'$
$T = 482.29'$	$T = 185.29'$
$R = 11,100.00'$	$R = 11,100.00'$
$SE = NC$	$SE = NC$

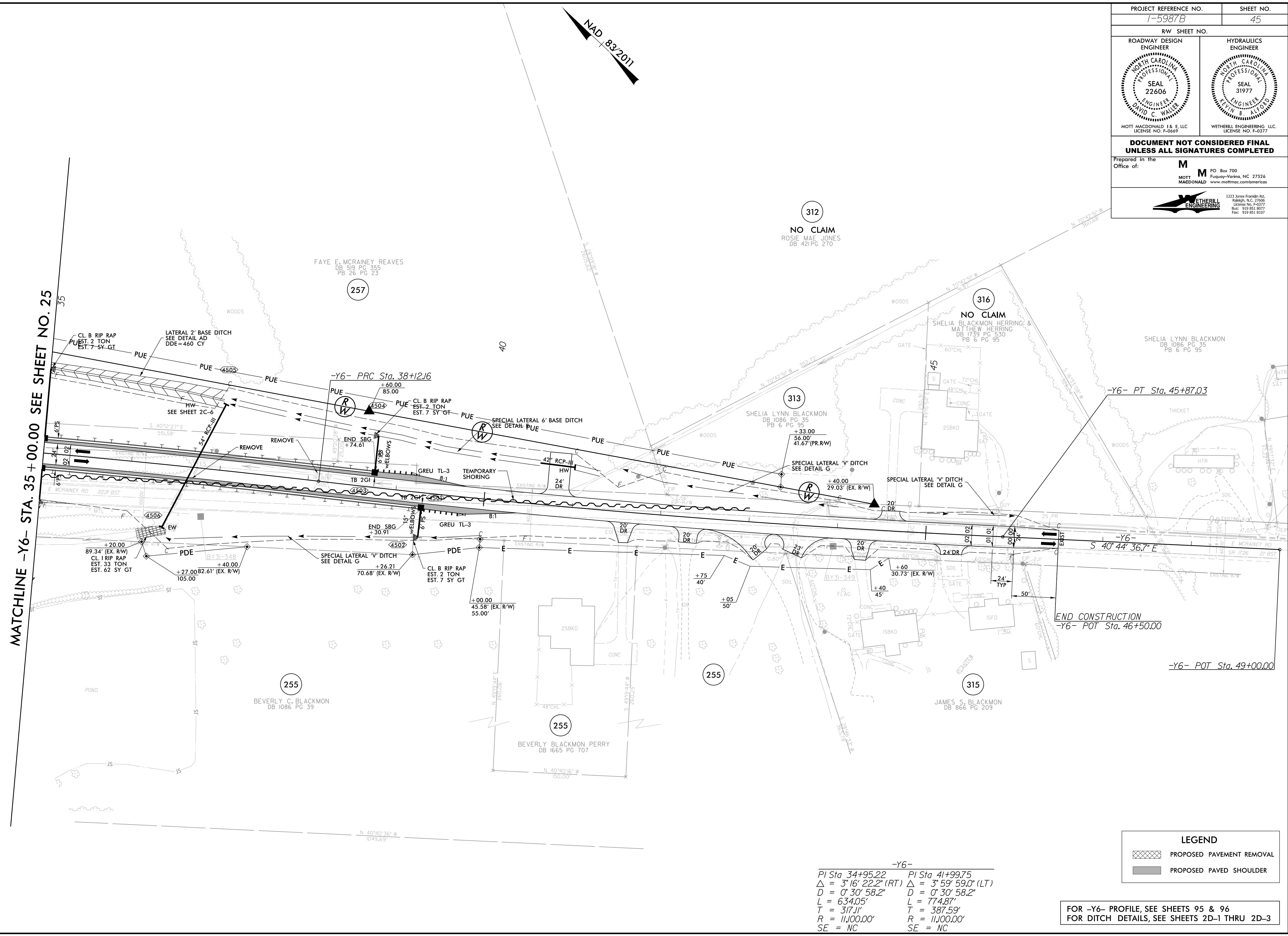
LEGEND

-  PROPOSED PAVEMENT REMOVAL
-  PROPOSED PAVED SHOULDER

FOR -Y6- PROFILE, SEE SHEET 95
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3
FOR CULVERT PLANS, SEE SHEETS C17-1 THRU C17-5

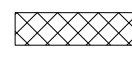

5/14/99
 R:\Projects\15987b\15987b_rdy_psh_45.dgn
 4/21/2022
 W:\Projects\15987b\15987b_rdy_psh_45.dgn

PROJECT REFERENCE NO. <i>1-5987B</i>		SHEET NO. 45	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
			






-Y6-	
PI Sta 34+95.22	PI Sta 41+99.75
$\Delta = 3' 16' 22.2''$ (RT)	$\Delta = 3' 59' 59.0''$ (LT)
$D = 0' 30' 58.2''$	$D = 0' 30' 58.2''$
$L = 634.05'$	$L = 774.87'$
$T = 317.11'$	$T = 387.59'$
$R = 11,100.00'$	$R = 11,100.00'$
$SE = NC$	$SE = NC$

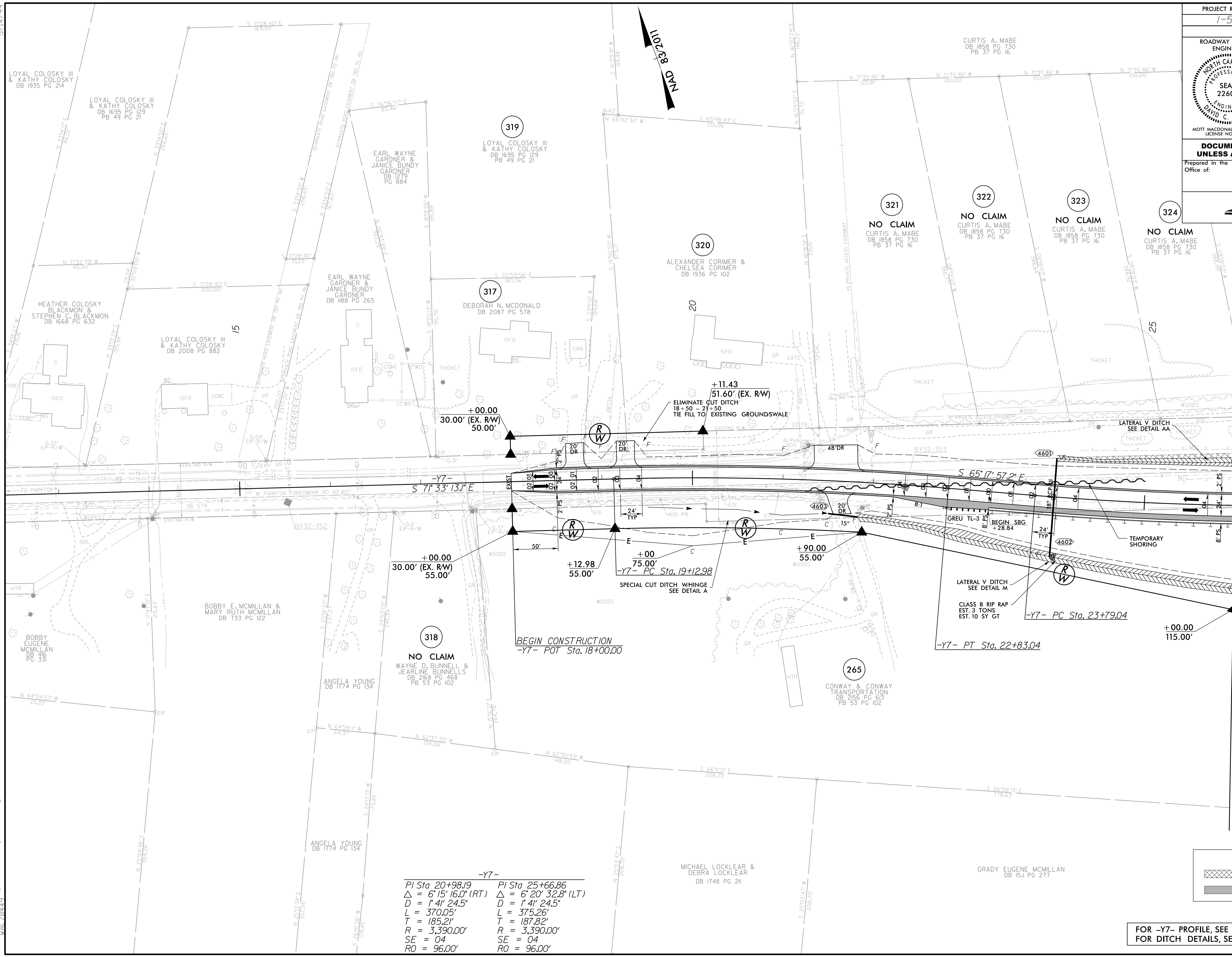
LEGEND

-  PROPOSED PAVEMENT REMOVAL
-  PROPOSED PAVED SHOULDER

FOR -Y6- PROFILE, SEE SHEETS 95 & 96
 FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 46	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
M		M PO Box 700 Fuquay-Varina, NC 27526 MOTT MACDONALD www.mottmac.com/americas	
		1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

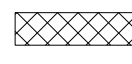

MATCHLINE -Y7- STA. 26 + 00.00 SEE SHEET NO. 36



-Y7-

PI Sta 20+98.19	PI Sta 25+66.86
$\Delta = 6' 15'' 16.0'' (RT)$	$\Delta = 6' 20'' 32.8'' (LT)$
$D = 1' 41'' 24.5''$	$D = 1' 41'' 24.5''$
$L = 370.05'$	$L = 375.26'$
$T = 185.21'$	$T = 187.82'$
$R = 3,390.00'$	$R = 3,390.00'$
$SE = 04$	$SE = 04$
$RO = 96.00'$	$RO = 96.00'$

LEGEND

-  PROPOSED PAVEMENT REMOVAL
-  PROPOSED PAVED SHOULDER

FOR -Y7- PROFILE, SEE SHEET 96
FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

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5/14/99

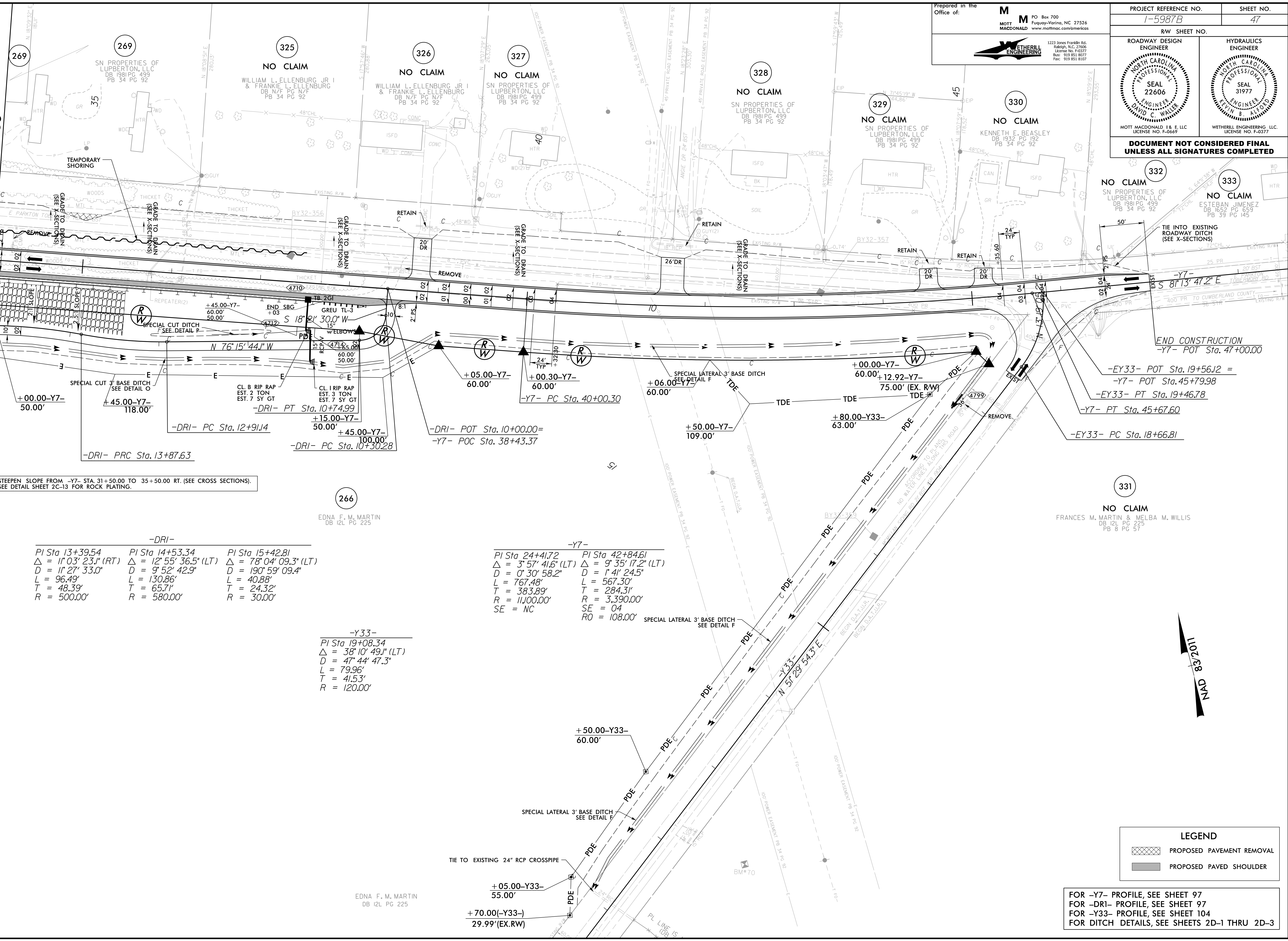
Prepared in the Office of:

M M PO Box 700
Fuquay-Varina, NC 27526
MOTT MACDONALD www.mottmac.com/americas

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Buc: 919 851 8077
Fax: 919 851 8107

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 47
RW SHEET NO.	
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER KEVIN M. FORD SEAL 31977 WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
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MATCHLINE -Y7- STA. 34 + 00.00 SEE SHEET NO. 36



STEEPEN SLOPE FROM -Y7- STA. 31+50.00 TO 35+50.00 RT. (SEE CROSS SECTIONS).
SEE DETAIL SHEET 2C-13 FOR ROCK PLATING.

-DRI-		
PI Sta 13+39.54	PI Sta 14+53.34	PI Sta 15+42.81
$\Delta = 11^{\circ} 03' 23.1''$ (RT)	$\Delta = 12^{\circ} 55' 36.5''$ (LT)	$\Delta = 78^{\circ} 04' 09.3''$ (LT)
D = 11' 27' 33.0"	D = 9' 52' 42.9"	D = 190' 59' 09.4"
L = 96.49'	L = 130.86'	L = 40.88'
T = 48.39'	T = 65.71'	T = 24.32'
R = 500.00'	R = 580.00'	R = 30.00'

-Y33-
PI Sta 19+08.34
$\Delta = 38^{\circ} 10' 49.1''$ (LT)
D = 47' 44' 47.3"
L = 79.96'
T = 41.53'
R = 120.00'

-Y7-	
PI Sta 24+41.72	PI Sta 42+84.61
$\Delta = 3^{\circ} 57' 41.6''$ (LT)	$\Delta = 9^{\circ} 35' 17.2''$ (LT)
D = 0' 30' 58.2"	D = 1' 41' 24.5"
L = 767.48'	L = 567.30'
T = 383.89'	T = 284.31'
R = 11,000.00'	R = 3,390.00'
SE = NC	SE = 04
	RO = 108.00'

LEGEND

- PROPOSED PAYEMENT REMOVAL
- PROPOSED PAVED SHOULDER

FOR -Y7- PROFILE, SEE SHEET 97
 FOR -DRI- PROFILE, SEE SHEET 97
 FOR -Y33- PROFILE, SEE SHEET 104
 FOR DITCH DETAILS, SEE SHEETS 2D-1 THRU 2D-3

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EDNA F. M. MARTIN
DB 12L PG 225

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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 48
ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL SEAL 22606 MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER DENI M. RIGGS NORTH CAROLINA PROFESSIONAL SEAL 036821 MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

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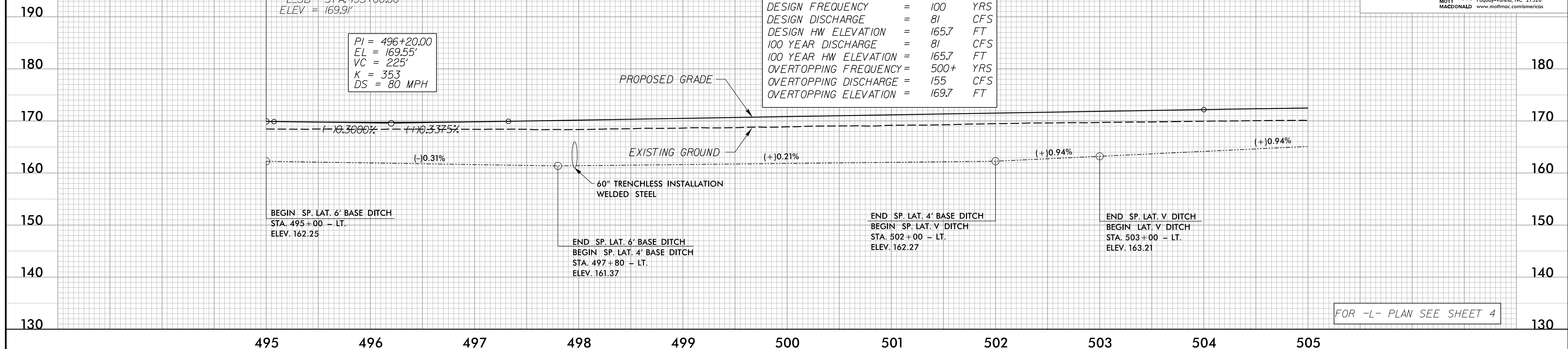
-L_SB-

BEGIN GRADE TIP PROJECT 1-5987B
-L_SB- STA. 495+00.00
TIE TO TIP PROJECT 1-5987A
-L_SB- STA. 495+00.00
ELEV = 169.91'

PI = 496+20.00
EL = 169.55'
VC = 225'
K = 353
DS = 80 MPH

PIPE HYDRAULIC DATA
60" Trenchless Installation Welded Steel
Sta. 497+96 -L-

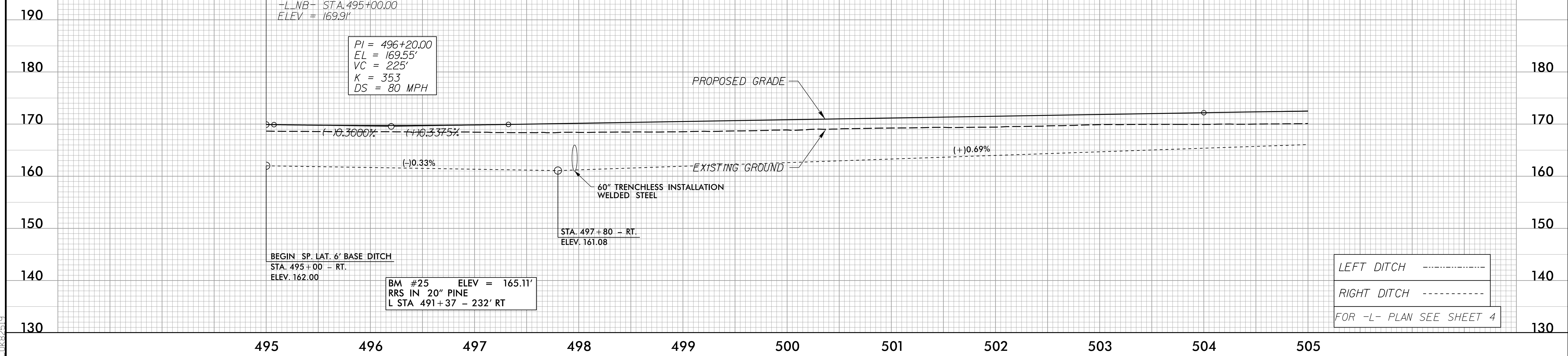
DESIGN FREQUENCY	=	31.2	AC
DESIGN DISCHARGE	=	100	YRS
DESIGN HW ELEVATION	=	81	CFS
100 YEAR DISCHARGE	=	165.7	FT
100 YEAR HW ELEVATION	=	81	CFS
OVERTOPPING FREQUENCY	=	165.7	FT
OVERTOPPING DISCHARGE	=	500+	YRS
OVERTOPPING ELEVATION	=	155	CFS
	=	169.7	FT



-L_NB-

BEGIN GRADE TIP PROJECT 1-5987B
-L_NB- STA. 495+00.00
TIE TO TIP PROJECT 1-5987A
-L_NB- STA. 495+00.00
ELEV = 169.91'

PI = 496+20.00
EL = 169.55'
VC = 225'
K = 353
DS = 80 MPH



4/16/2022
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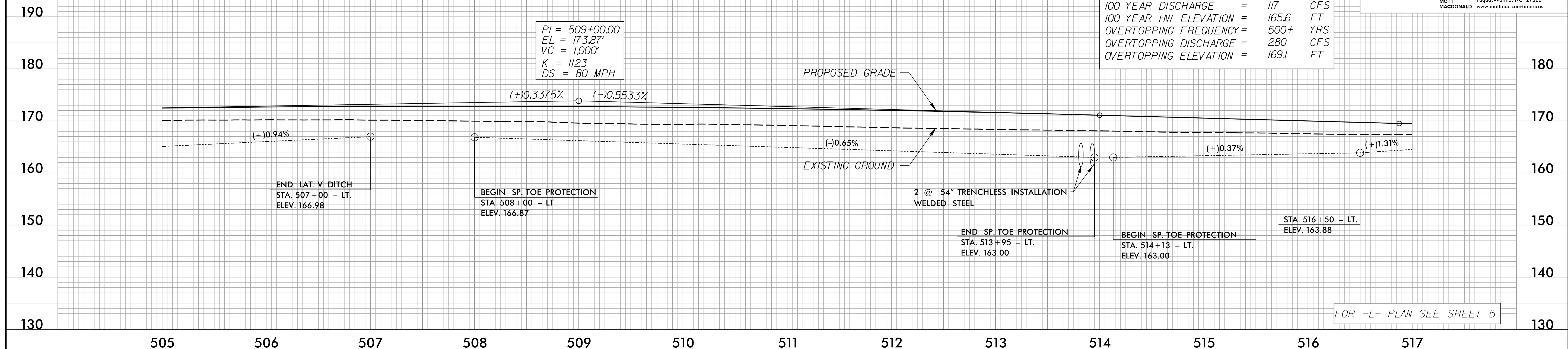
5/14/99

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 49
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER DENI M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
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PIPE HYDRAULIC DATA
 2 @ 54" Trenchless Installation Welded Steel
 Sta. 513+90 -L-

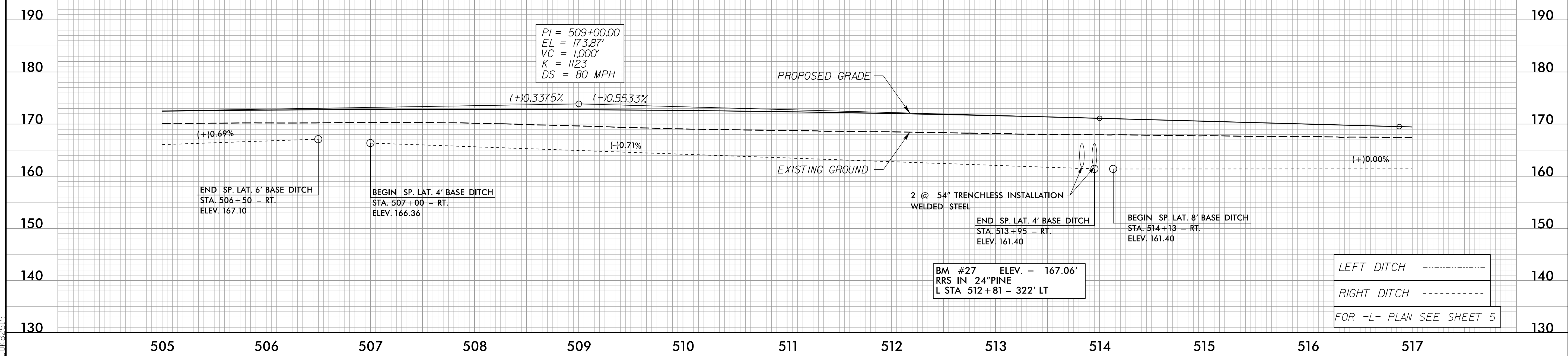
DRAINAGE AREA	=	84.4	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	117	CFS
DESIGN HW ELEVATION	=	165.6	FT
100 YEAR DISCHARGE	=	117	CFS
100 YEAR HW ELEVATION	=	165.6	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	280	CFS
OVERTOPPING ELEVATION	=	169.1	FT

-L_SB-



FOR -L- PLAN SEE SHEET 5

-L_NB-



LEFT DITCH -----
 RIGHT DITCH -----
 FOR -L- PLAN SEE SHEET 5

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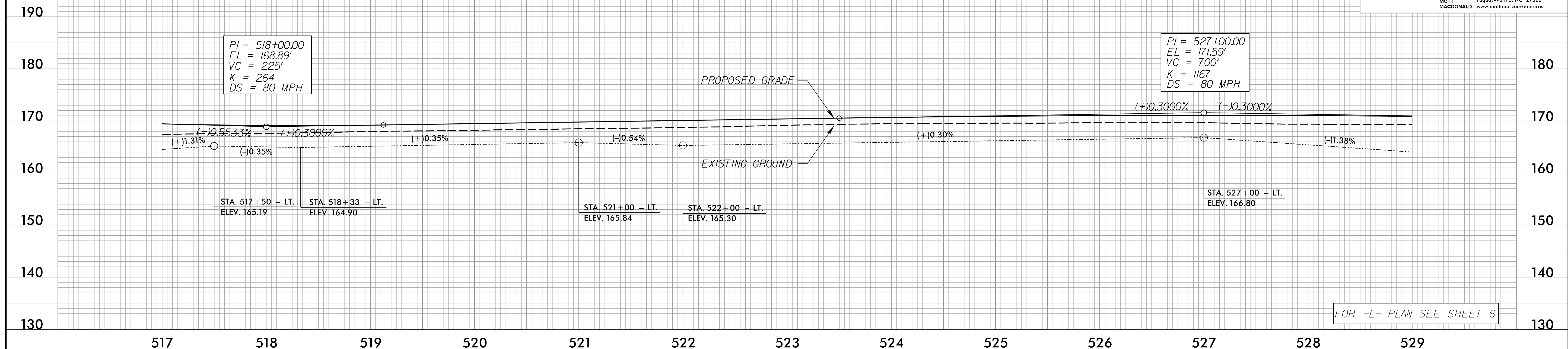
5/14/99

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 50
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER EVENI M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

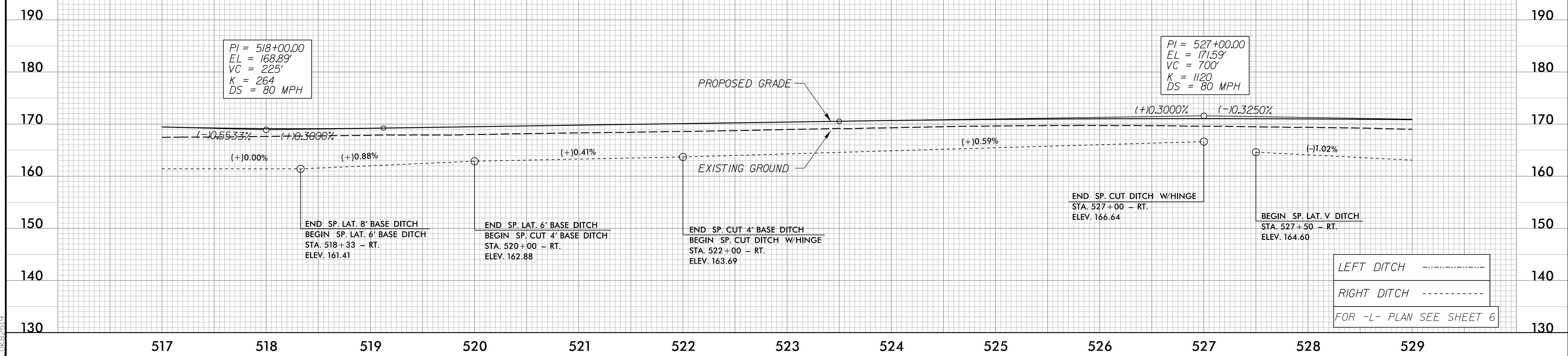
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-L_SB-



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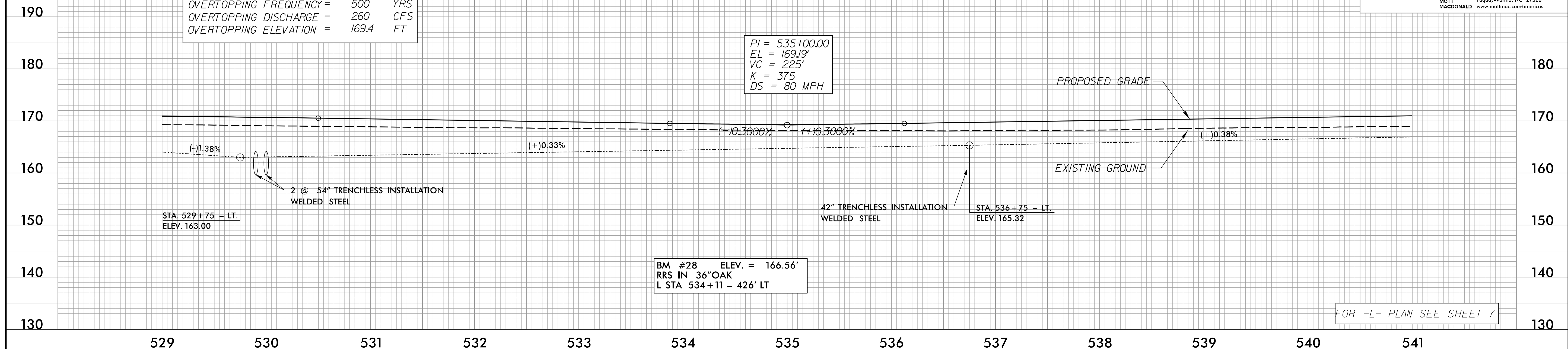
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 51
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER DENI M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
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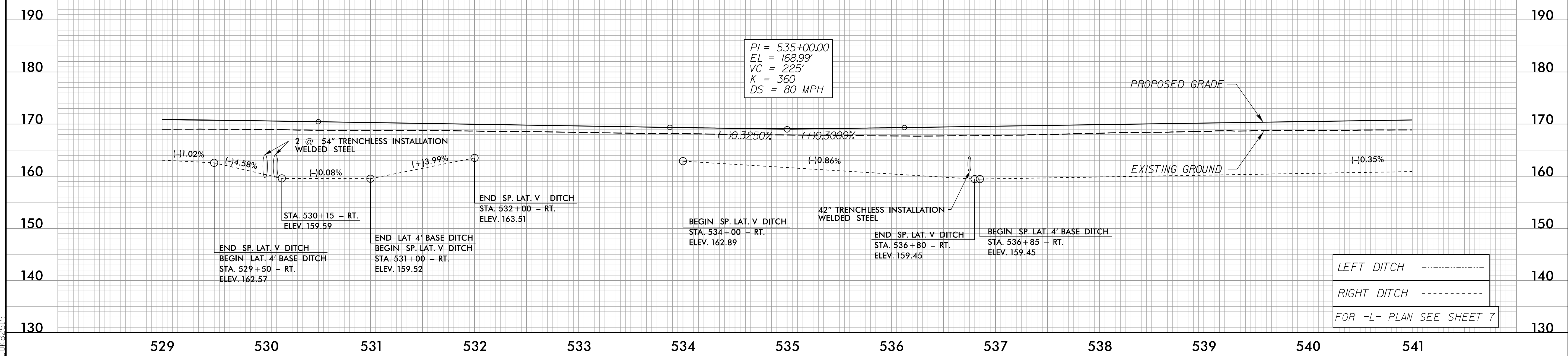
PIPE HYDRAULIC DATA
2 @ 54" Trenchless Installation Welded Steel
Sta. 530+00 -L-

DRAINAGE AREA	=	199.8	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	189	CFS
DESIGN HW ELEVATION	=	165.2	FT
100 YEAR DISCHARGE	=	189	CFS
100 YEAR HW ELEVATION	=	165.2	FT
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING DISCHARGE	=	260	CFS
OVERTOPPING ELEVATION	=	169.4	FT

-L_SB-



-L_NB-



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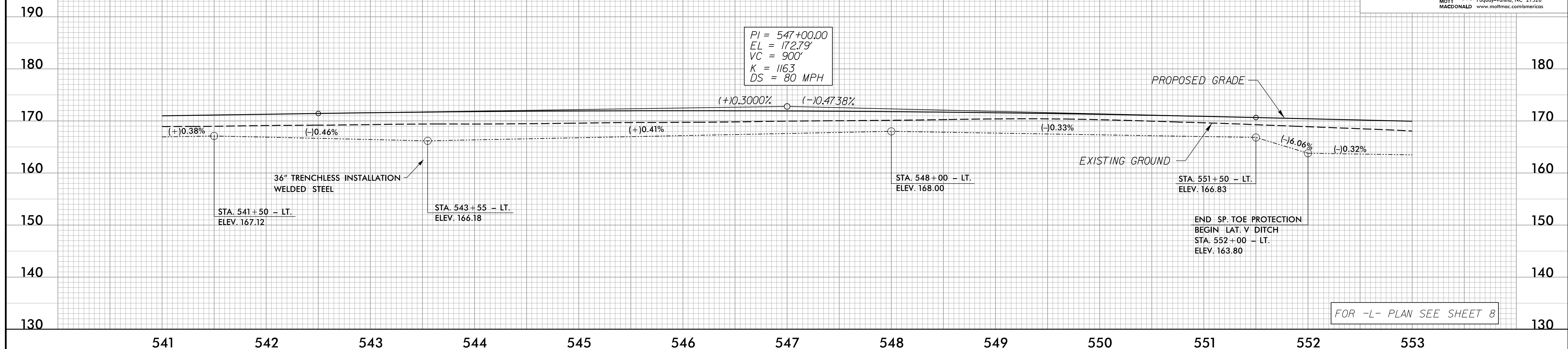
5/14/99

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 52
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER DENI M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

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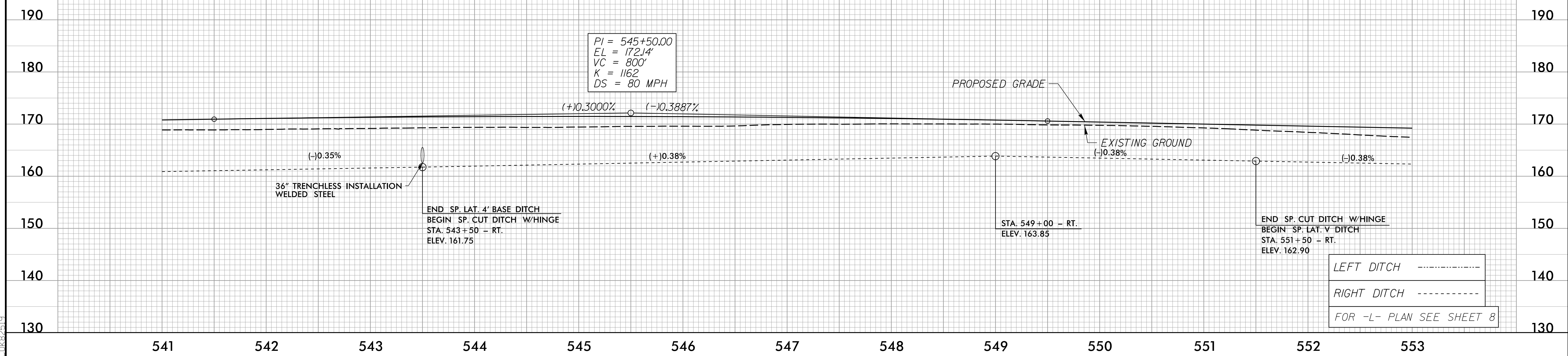
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-L_SB-



FOR -L- PLAN SEE SHEET 8

-L_NB-



LEFT DITCH -----
 RIGHT DITCH -----
 FOR -L- PLAN SEE SHEET 8

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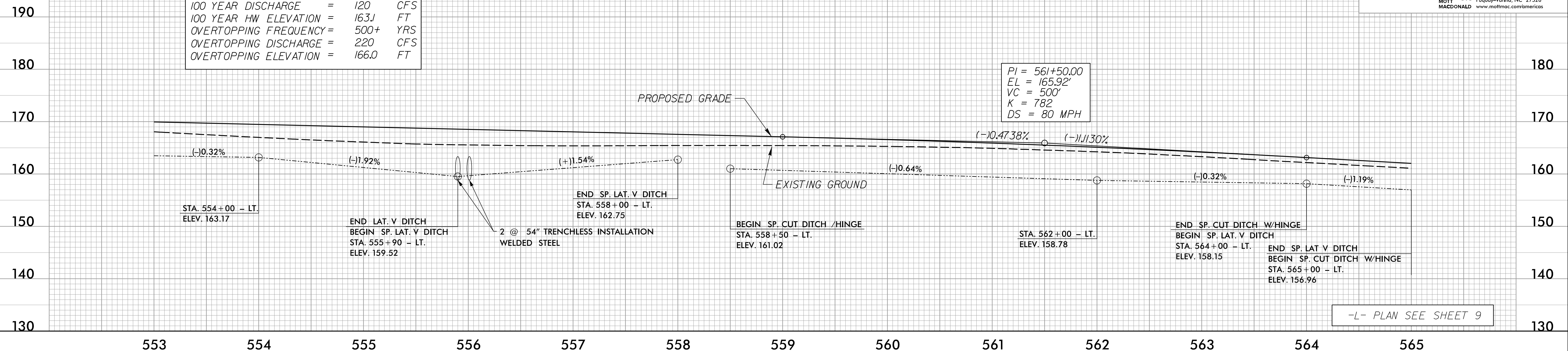
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PROJECT REFERENCE NO. 1-5897B	SHEET NO. 53
ROADWAY DESIGN ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
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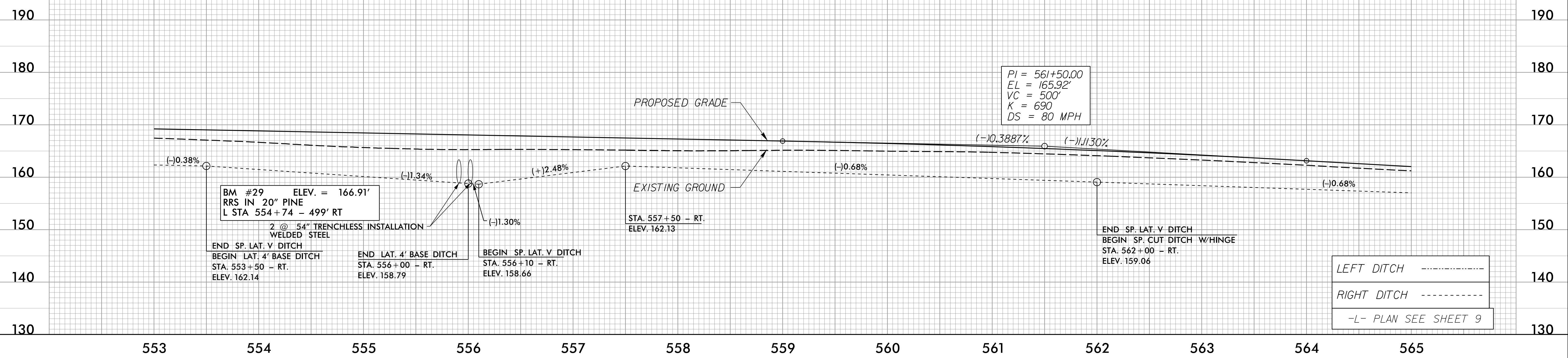
PIPE HYDRAULIC DATA
2 @ 54" Trenchless Installation Welded Steel
Sta. 555+97 -L-

DRAINAGE AREA	=	82.9	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	120	CFS
DESIGN HW ELEVATION	=	163.1	FT
100 YEAR DISCHARGE	=	120	CFS
100 YEAR HW ELEVATION	=	163.1	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	220	CFS
OVERTOPPING ELEVATION	=	166.0	FT



-L_NB-

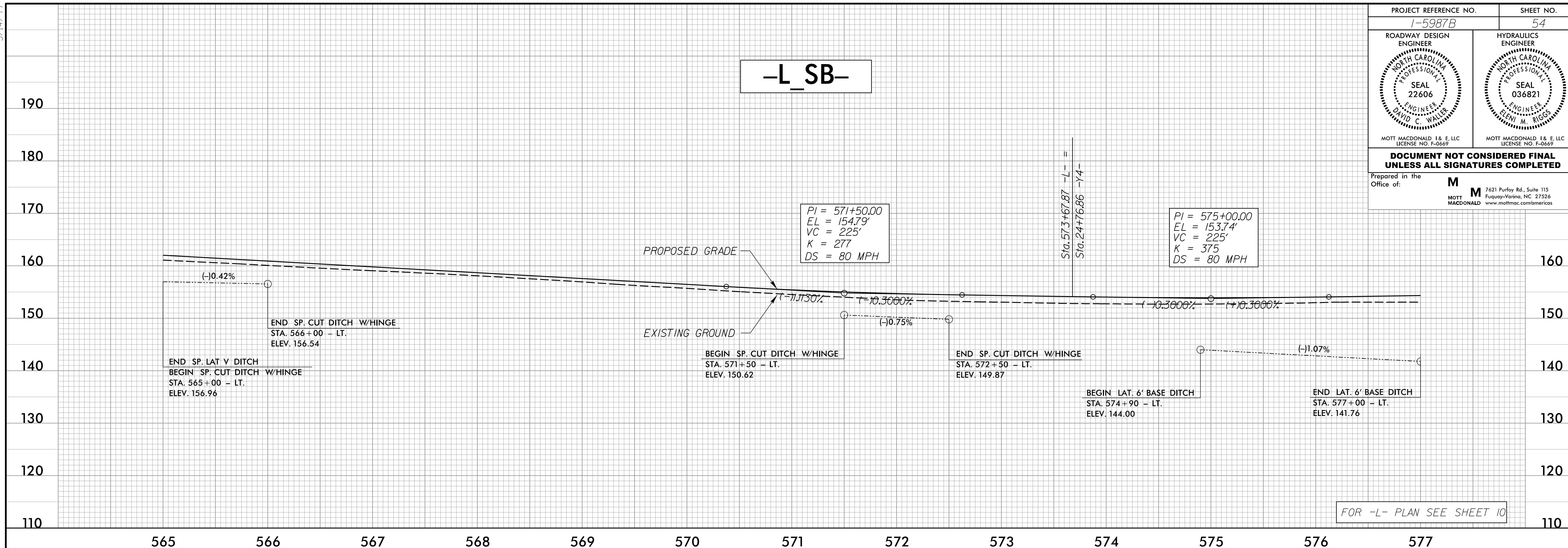
BM #29 ELEV. = 166.91'
 RRS IN 20" PINE
 L STA 554+74 - 499' RT



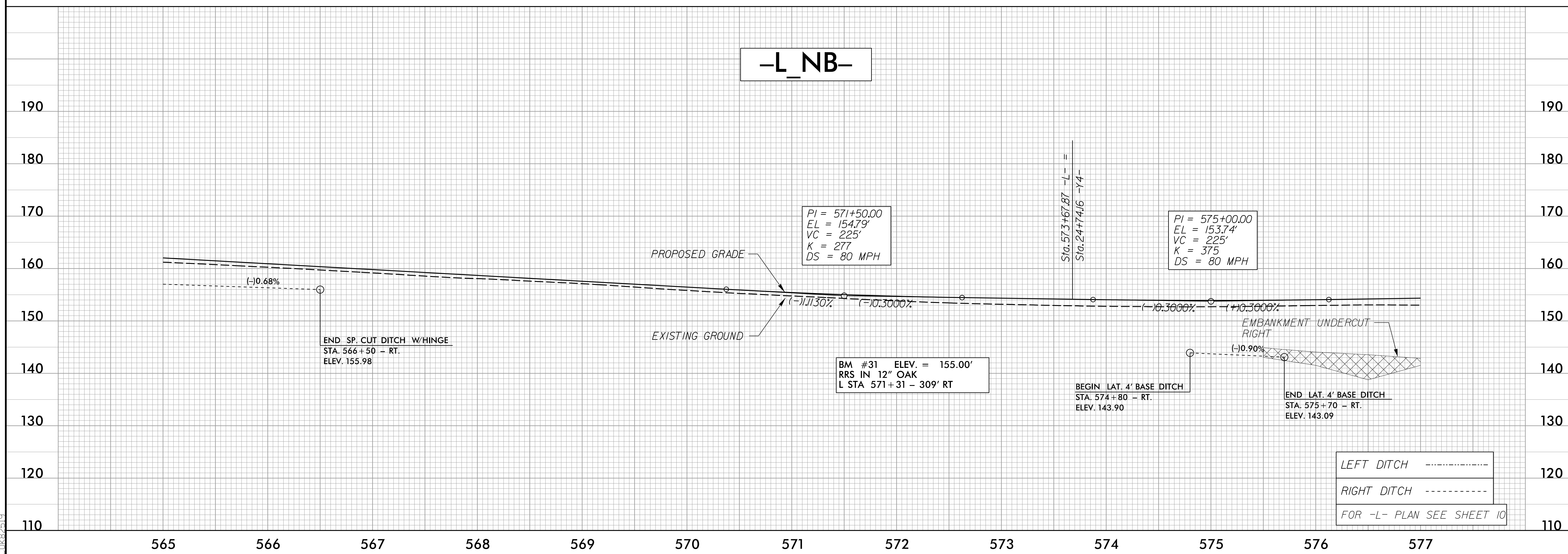
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 54
ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL SEAL 22606	HYDRAULICS ENGINEER DENI M. RIGGS NORTH CAROLINA PROFESSIONAL SEAL 036821
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
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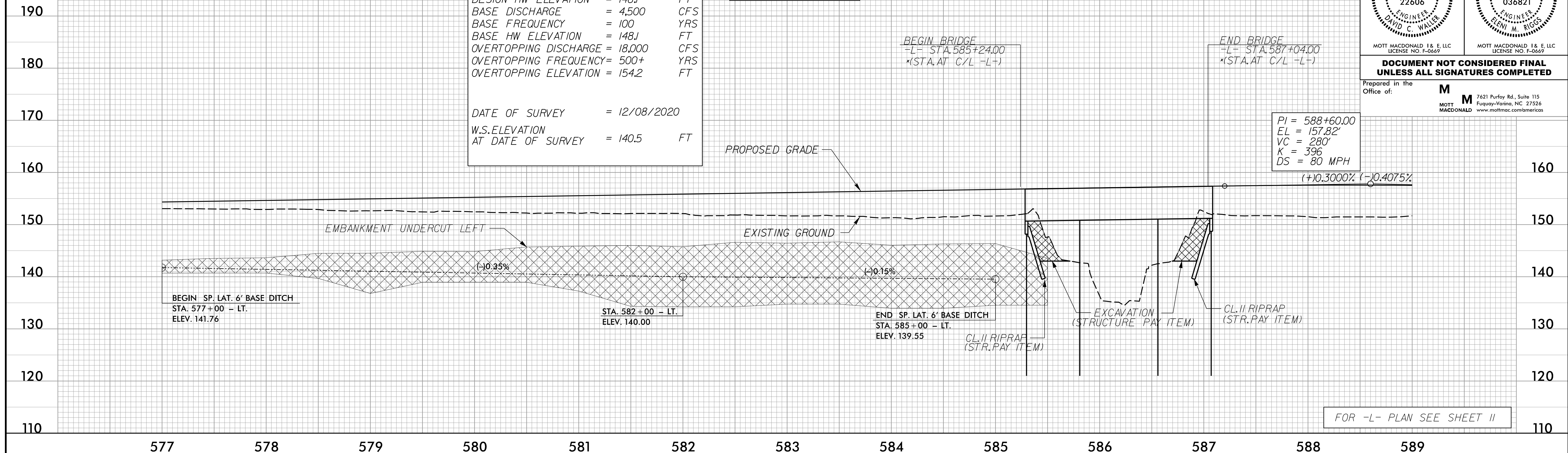
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ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL SEAL 22606	HYDRAULICS ENGINEER DENI M. RIGGS NORTH CAROLINA PROFESSIONAL SEAL 036821
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

BRIDGE HYDRAULIC DATA

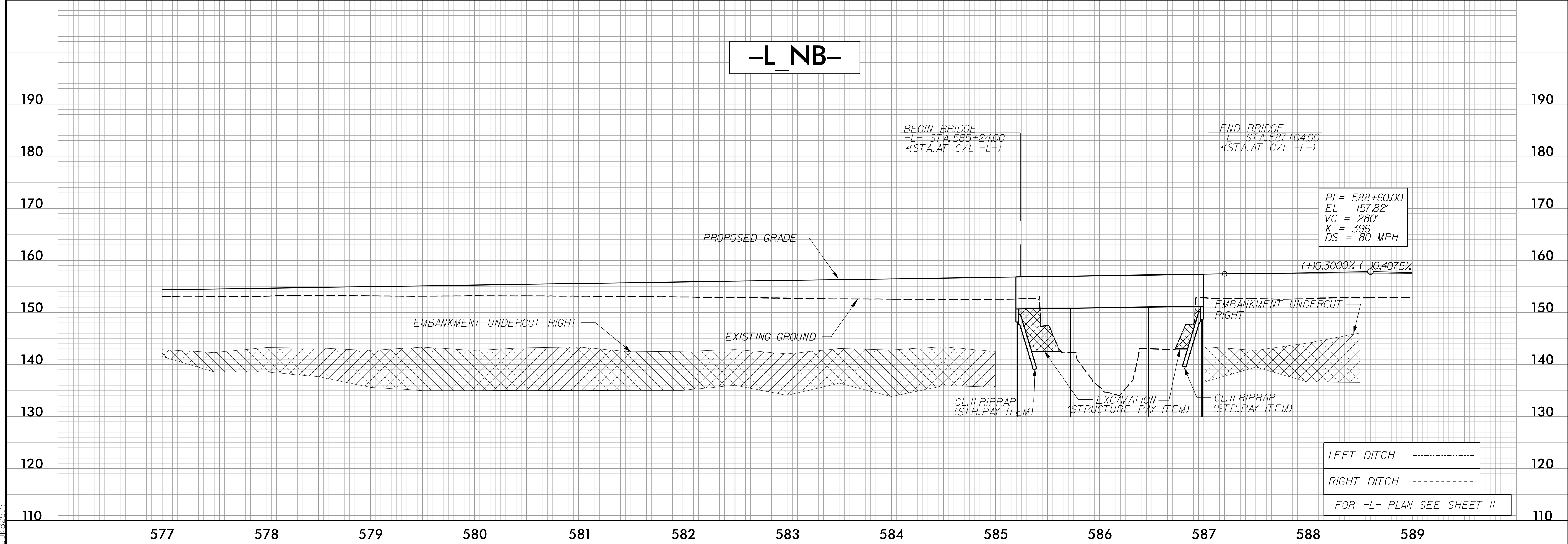
DESIGN DISCHARGE = 4,500 CFS
 DESIGN FREQUENCY = 100 YRS
 DESIGN HW ELEVATION = 148.1 FT
 BASE DISCHARGE = 4,500 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 148.1 FT
 OVERTOPPING DISCHARGE = 18,000 CFS
 OVERTOPPING FREQUENCY = 500+ YRS
 OVERTOPPING ELEVATION = 154.2 FT

DATE OF SURVEY = 12/08/2020
 W.S. ELEVATION AT DATE OF SURVEY = 140.5 FT

-L_SB-



-L_NB-



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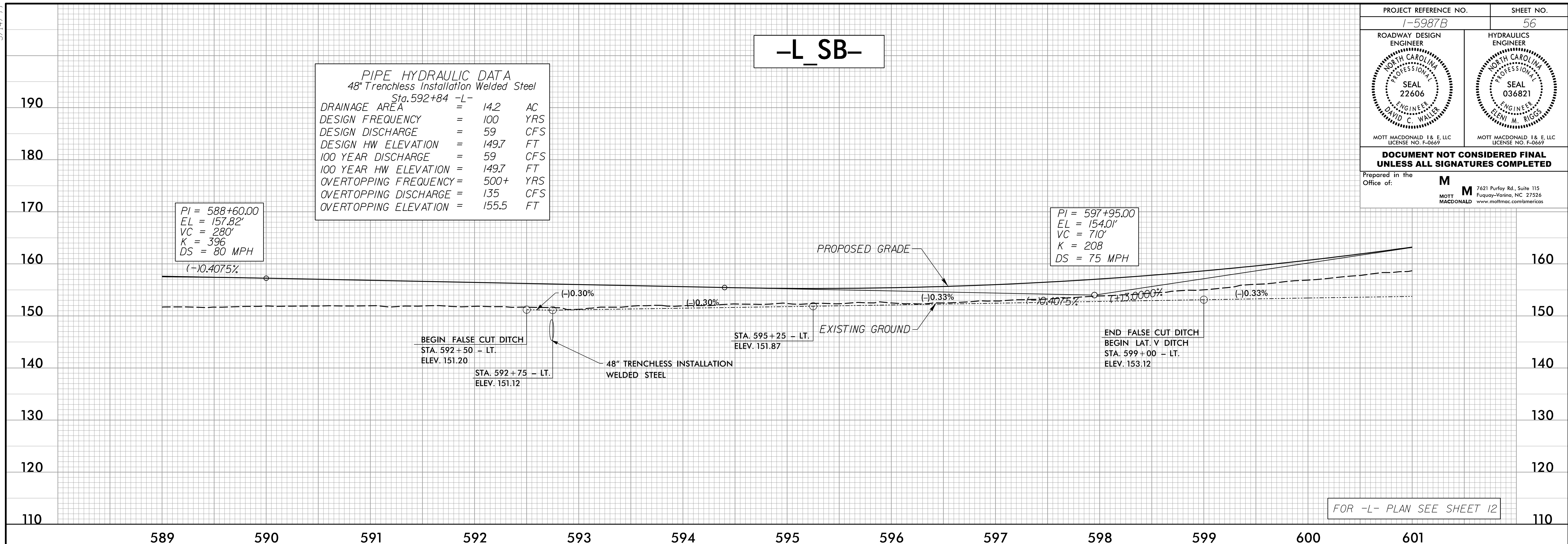
PROJECT REFERENCE NO. 1-5987B	SHEET NO. 56
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER DENI M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
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PIPE HYDRAULIC DATA
48" Trenchless Installation Welded Steel
Sta. 592+84 -L-

DRAINAGE AREA	=	14.2	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	59	CFS
DESIGN HW ELEVATION	=	149.7	FT
100 YEAR DISCHARGE	=	59	CFS
100 YEAR HW ELEVATION	=	149.7	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	135	CFS
OVERTOPPING ELEVATION	=	155.5	FT

PI = 588+60.00
EL = 157.82'
VC = 280'
K = 396
DS = 80 MPH
(-)0.4075%

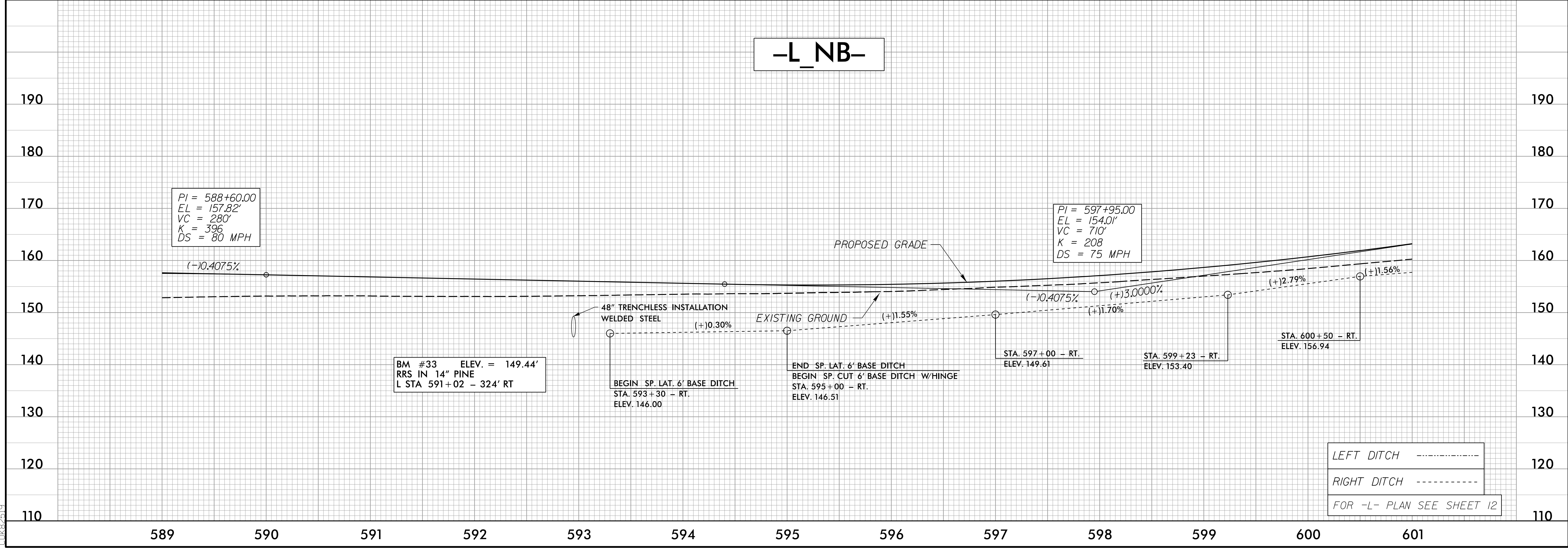
PI = 597+95.00
EL = 154.01'
VC = 710'
K = 208
DS = 75 MPH



-L_NB-

PI = 588+60.00
EL = 157.82'
VC = 280'
K = 396
DS = 80 MPH
(-)0.4075%

PI = 597+95.00
EL = 154.01'
VC = 710'
K = 208
DS = 75 MPH



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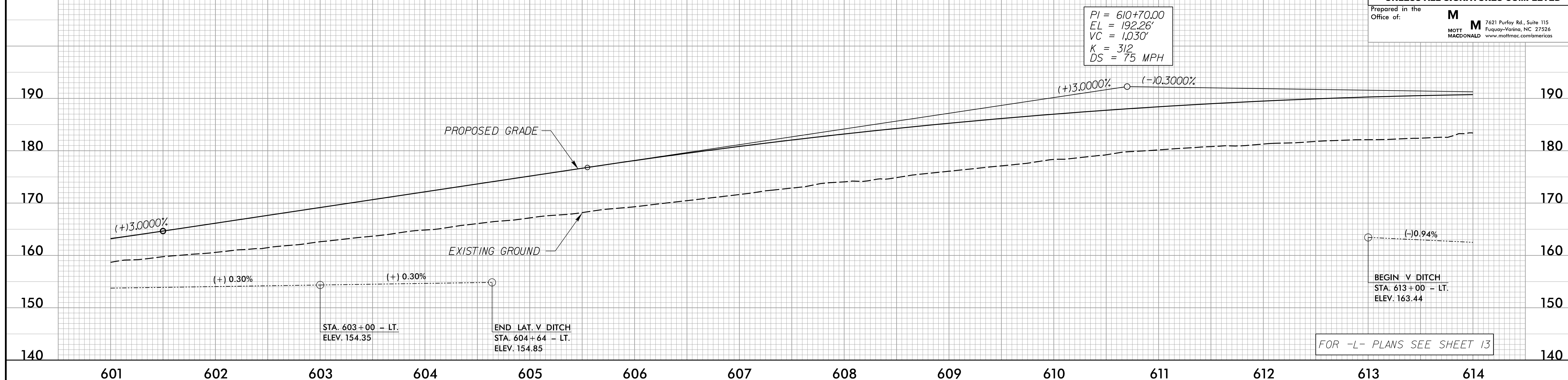
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 57
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22606 ENGINEER DAVID C. WALKER	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 036821 ENGINEER DENI M. RIGGS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

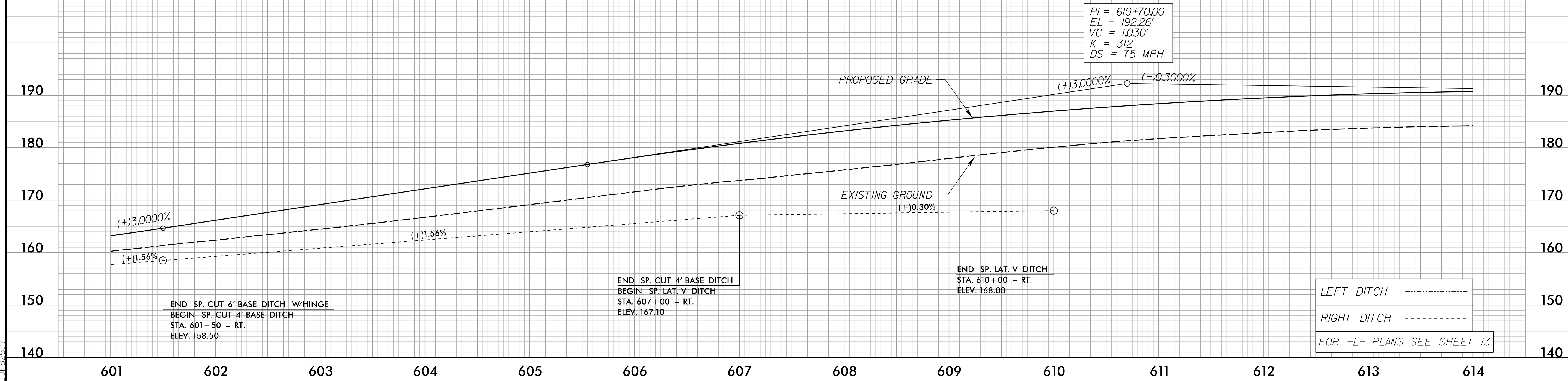
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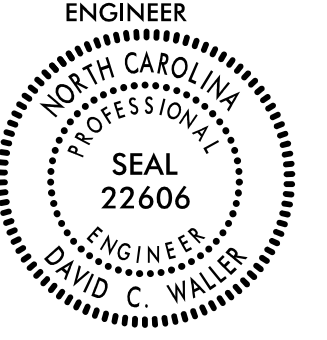
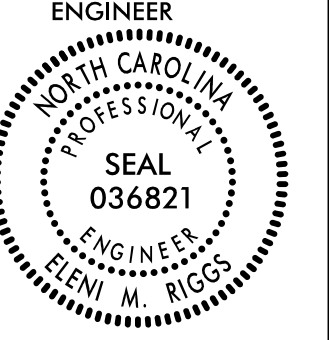


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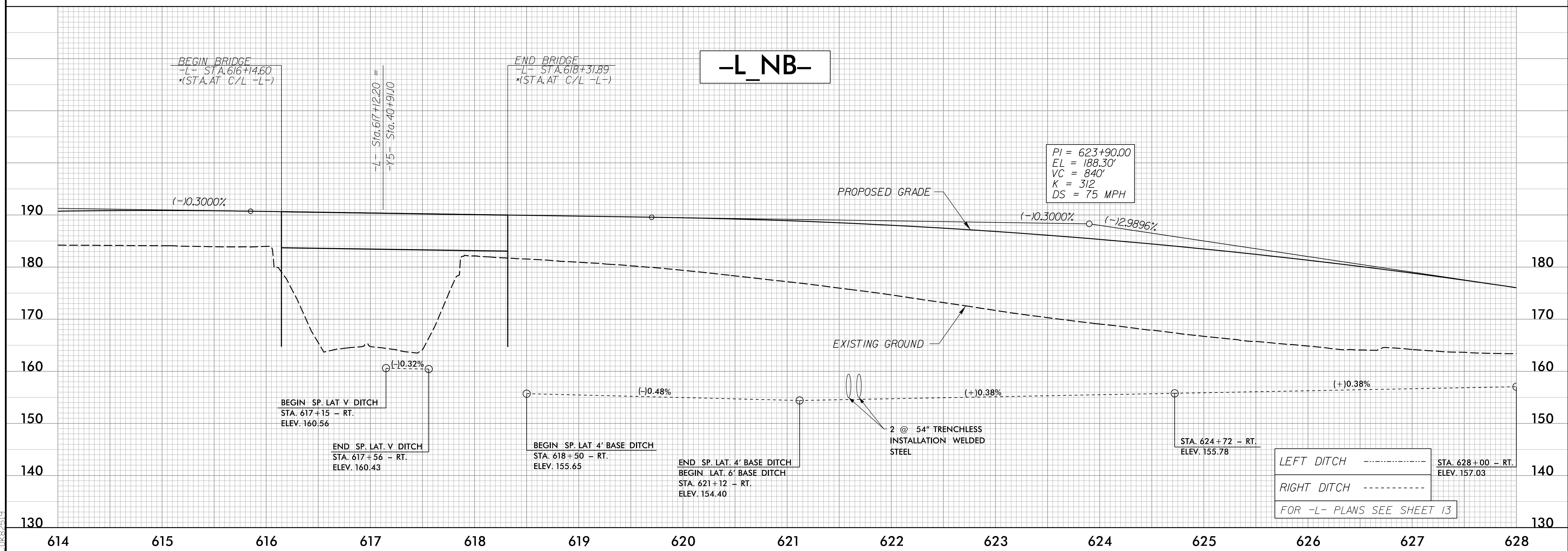
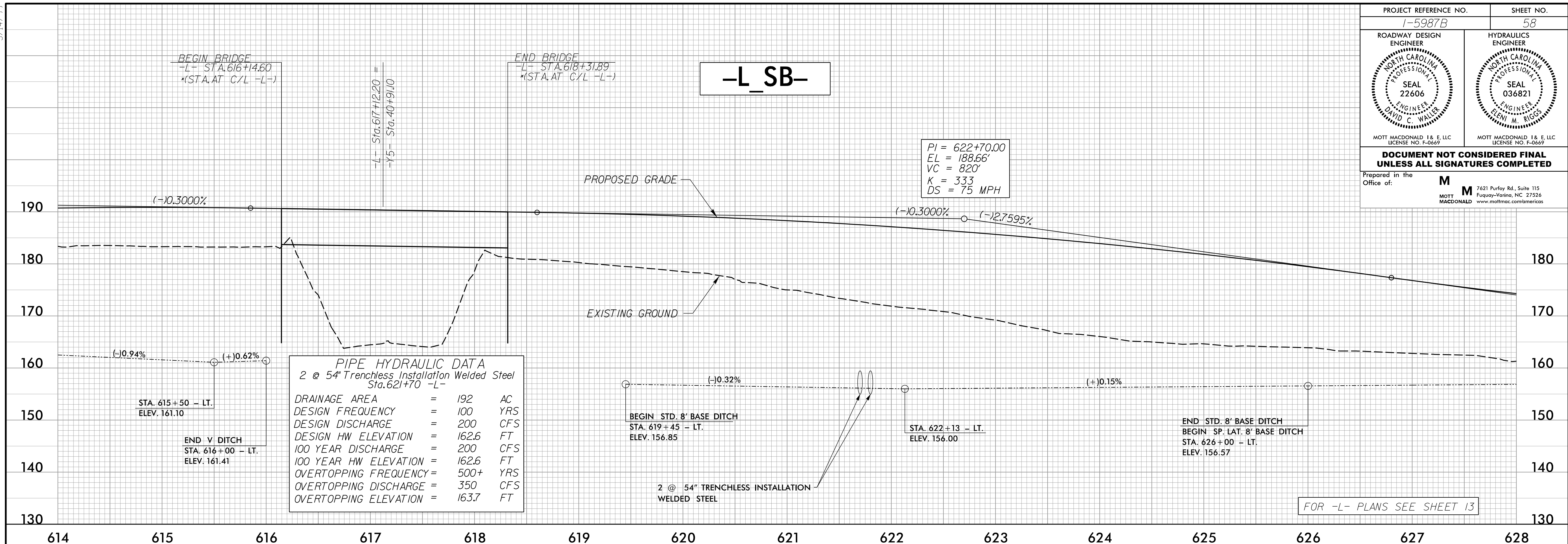
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5/14/99

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 58
ROADWAY DESIGN ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
 SEAL 22606 ENGINEER DAVID C. WALLER	 SEAL 036821 ENGINEER BENJI M. RIGGS

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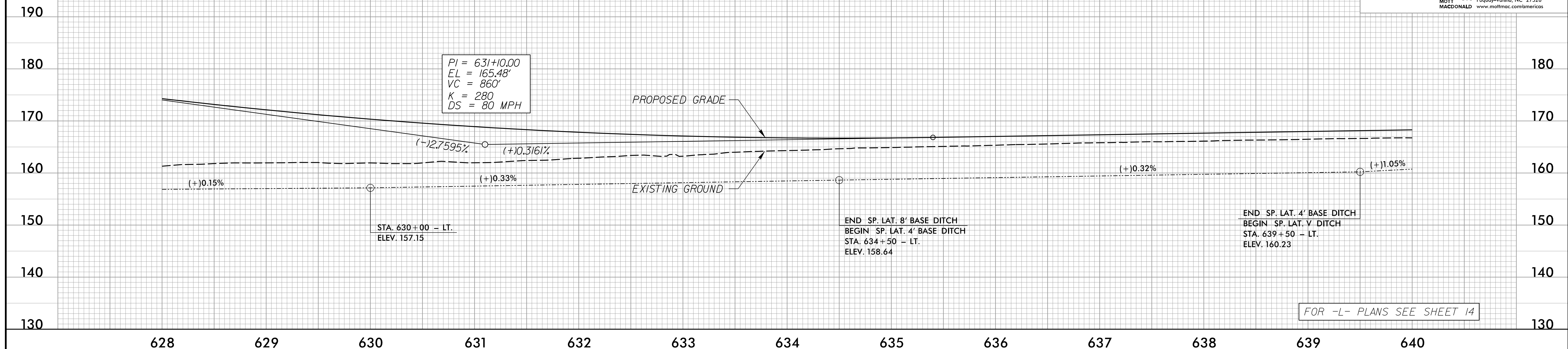
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 59
ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL SEAL 22606	HYDRAULICS ENGINEER DENI M. RIGGS NORTH CAROLINA PROFESSIONAL SEAL 036821
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

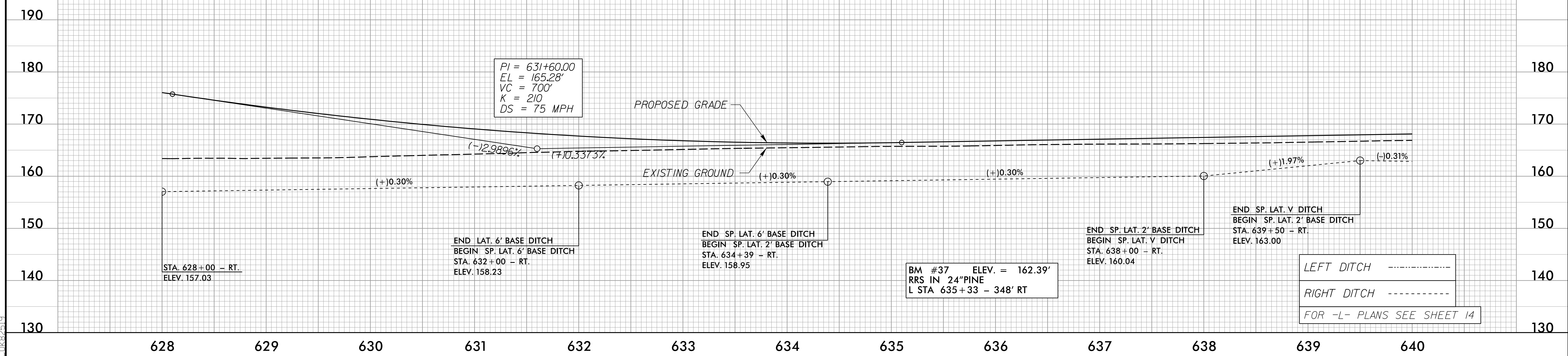
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7621 Purfoy Rd., Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com/america

-L_SB-



FOR -L- PLANS SEE SHEET 14

-L_NB-



LEFT DITCH -----

RIGHT DITCH -----

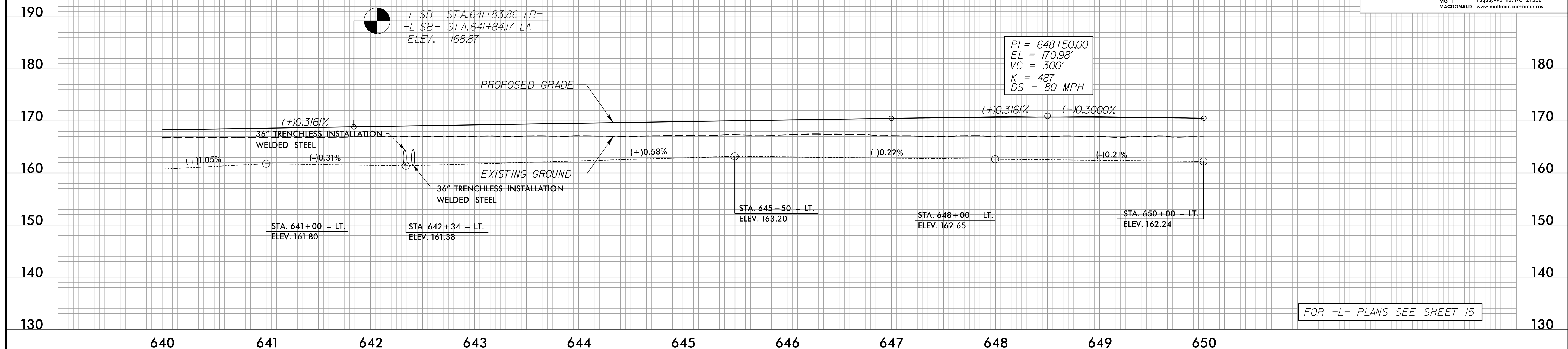
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5/14/99

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 60
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER DENI M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
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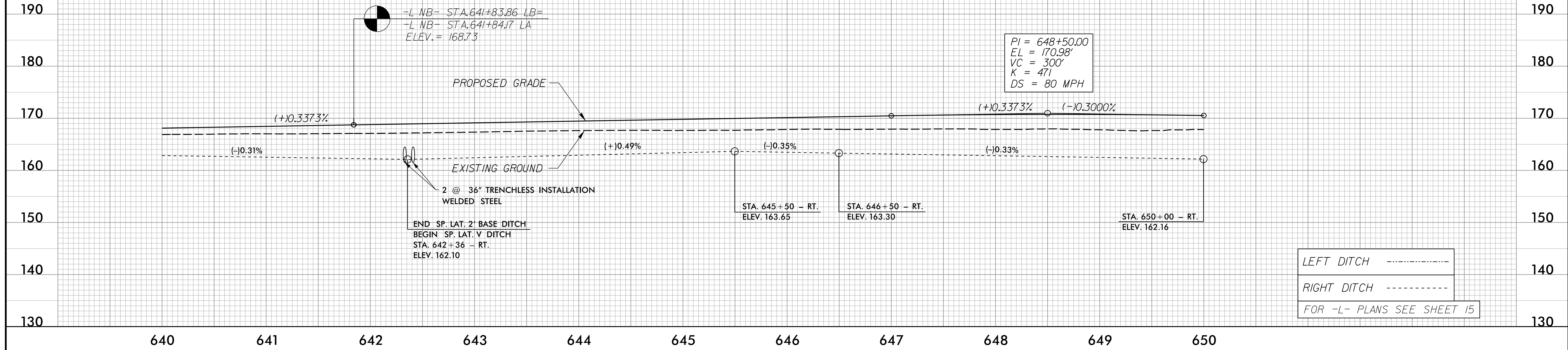
-L_SB-



FOR -L- PLANS SEE SHEET 15

PIPE HYDRAULIC DATA	
2 @ 36" Trenchless Installation Welded Steel	
Sta. 642+37 -L-	
DRAINAGE AREA	= 6.7 AC
DESIGN FREQUENCY	= 100 YRS
DESIGN DISCHARGE	= 28 CFS
DESIGN HW ELEVATION	= 164.0 FT
100 YEAR DISCHARGE	= 28 CFS
100 YEAR HW ELEVATION	= 164.0 FT
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 84 CFS
OVERTOPPING ELEVATION	= 168.0 FT

-L_NB-



LEFT DITCH -----

RIGHT DITCH -----

FOR -L- PLANS SEE SHEET 15

R:\Roadway\Proj\5987b_rdy_psh_50_rfl.dgn

5/28/99

BM#53 ELEV = 165.11'
TIE SPIKE SET IN 20' OAK
L STA 650+56 - 126' RT

-L- SB

PIPE HYDRAULIC DATA
-L- Sta.654+94

DRAINAGE AREA	= 65	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 110	CFS
DESIGN HW ELEVATION	= 164.5	FT
100 YEAR DISCHARGE	= 110	CFS
100 YEAR HW ELEVATION	= 164.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 185	CFS
OVERTOPPING ELEVATION	= 168.0	FT

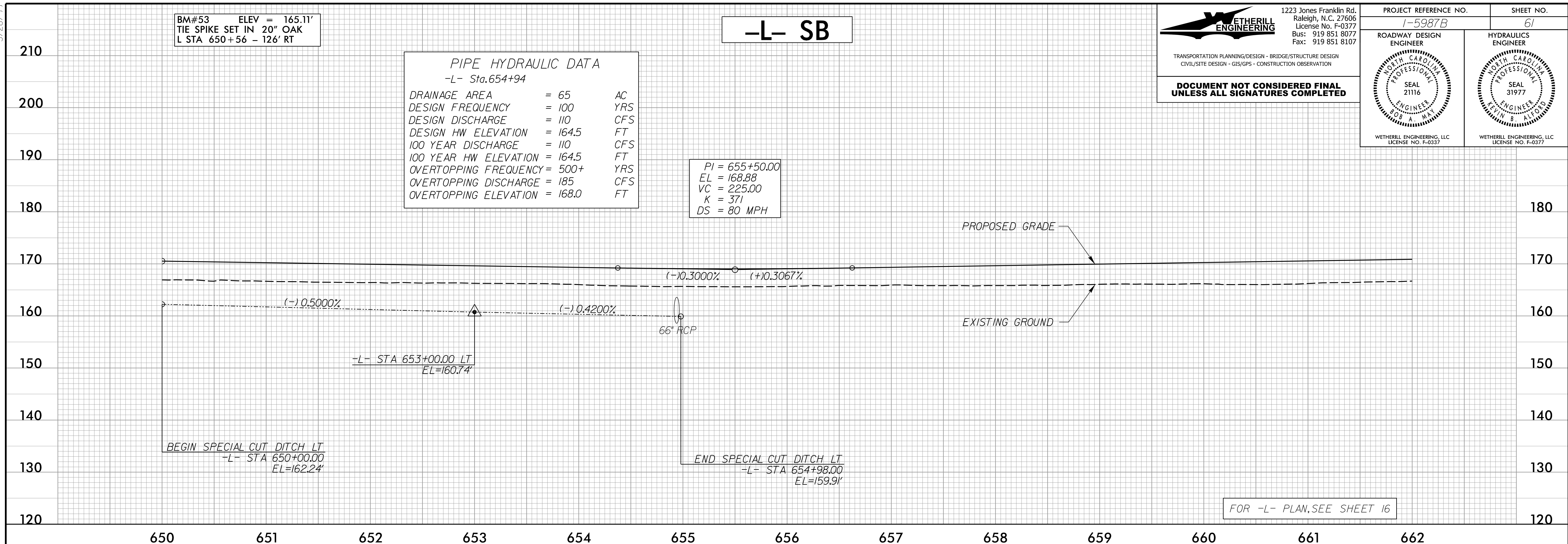
PI = 655+50.00
EL = 168.88
VC = 225.00
K = 371
DS = 80 MPH

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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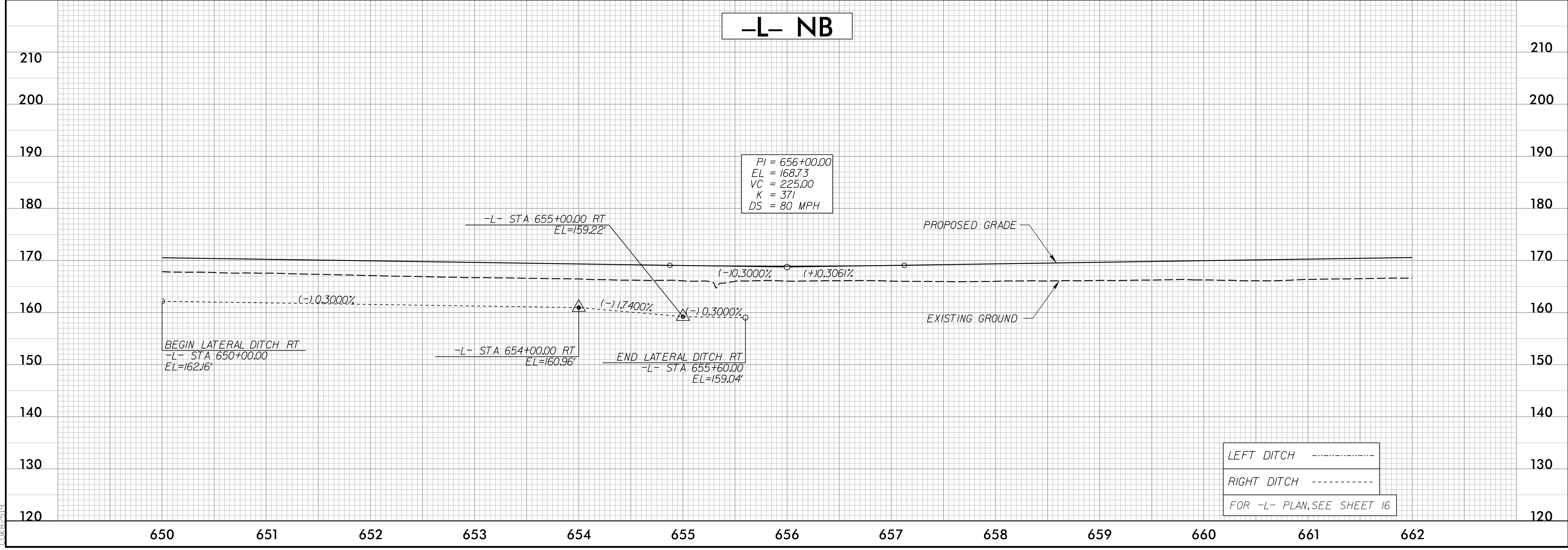
PROJECT REFERENCE NO. 1-5987B	SHEET NO. 61
ROADWAY DESIGN ENGINEER BOB A. MAY SEAL 21116	HYDRAULICS ENGINEER KEVIN B. ALDRED SEAL 31977
WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377



FOR -L- PLAN, SEE SHEET 16

-L- NB

PI = 656+00.00
EL = 168.73
VC = 225.00
K = 371
DS = 80 MPH



LEFT DITCH -----
RIGHT DITCH -----
FOR -L- PLAN, SEE SHEET 16

4/18/2002
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CCK2019

5/28/99

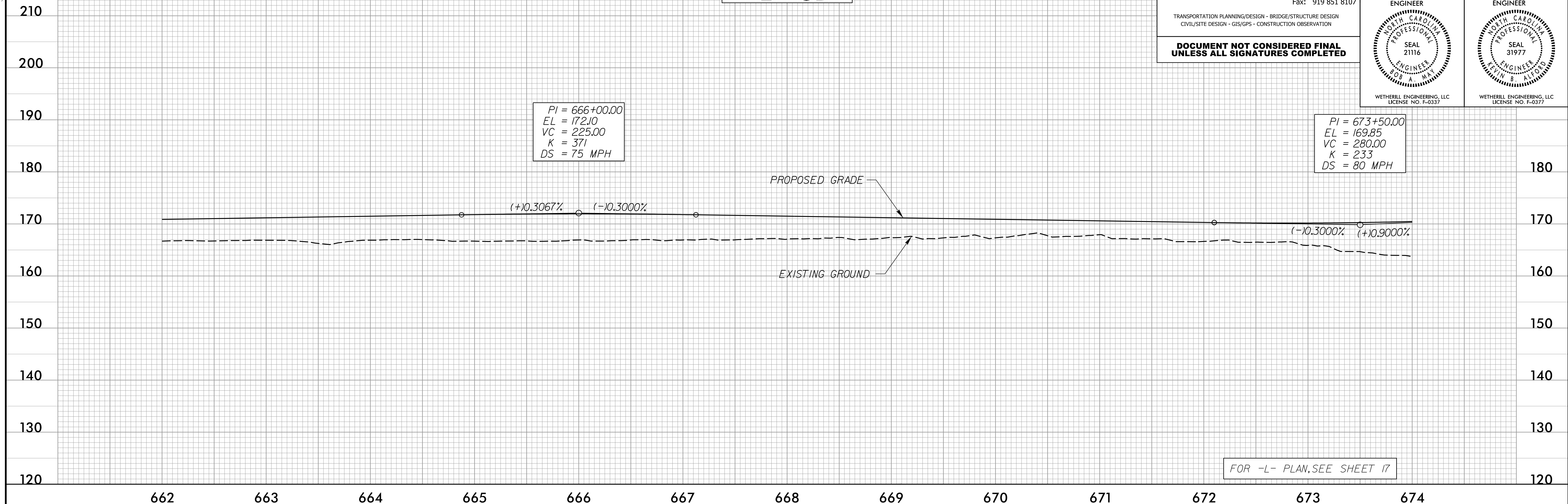
-L- SB

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 Fax: 919 851 8107

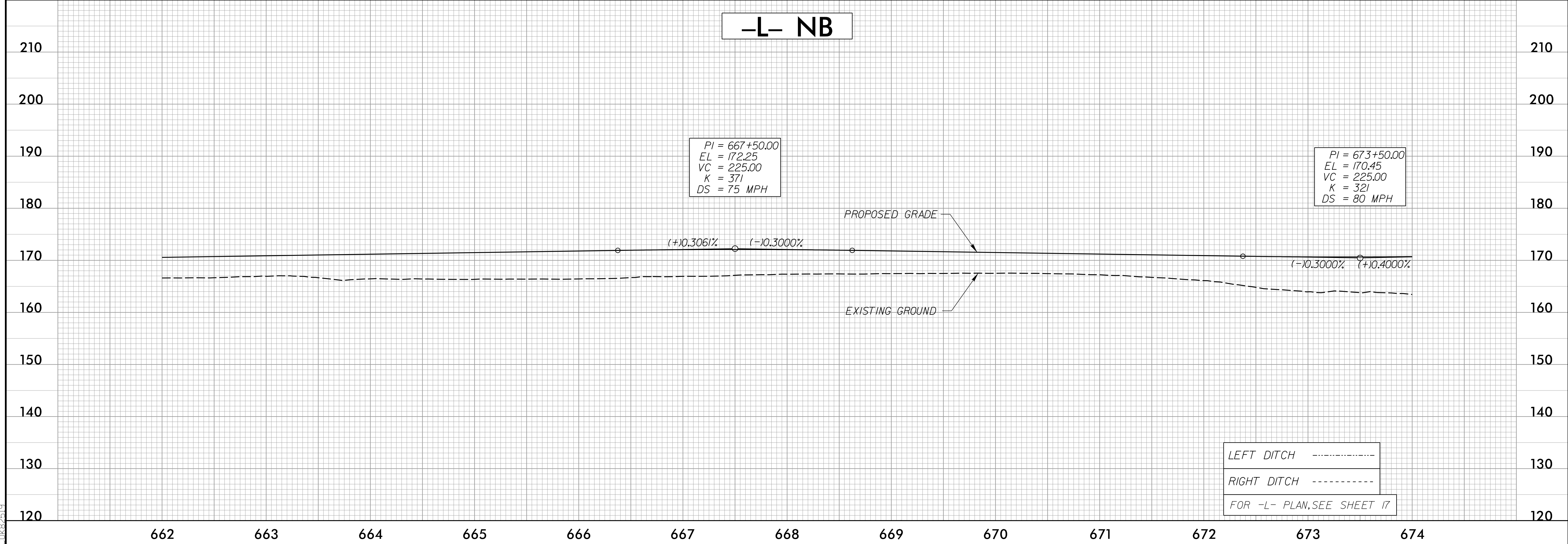
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN • GIS/GPS • CONSTRUCTION OBSERVATION

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PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>62</i>
ROADWAY DESIGN ENGINEER <i>BOB A. MAY</i>	HYDRAULICS ENGINEER <i>KEVIN B. ALDOD</i>
SEAL 21116	SEAL 31977
WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377



-L- NB



4/18/2002
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5/28/99

-L- SB

BM#54 ELEV = 170.46'
TIE SPIKE SET IN 19" OAK
L STA 681+81 - 122' RT

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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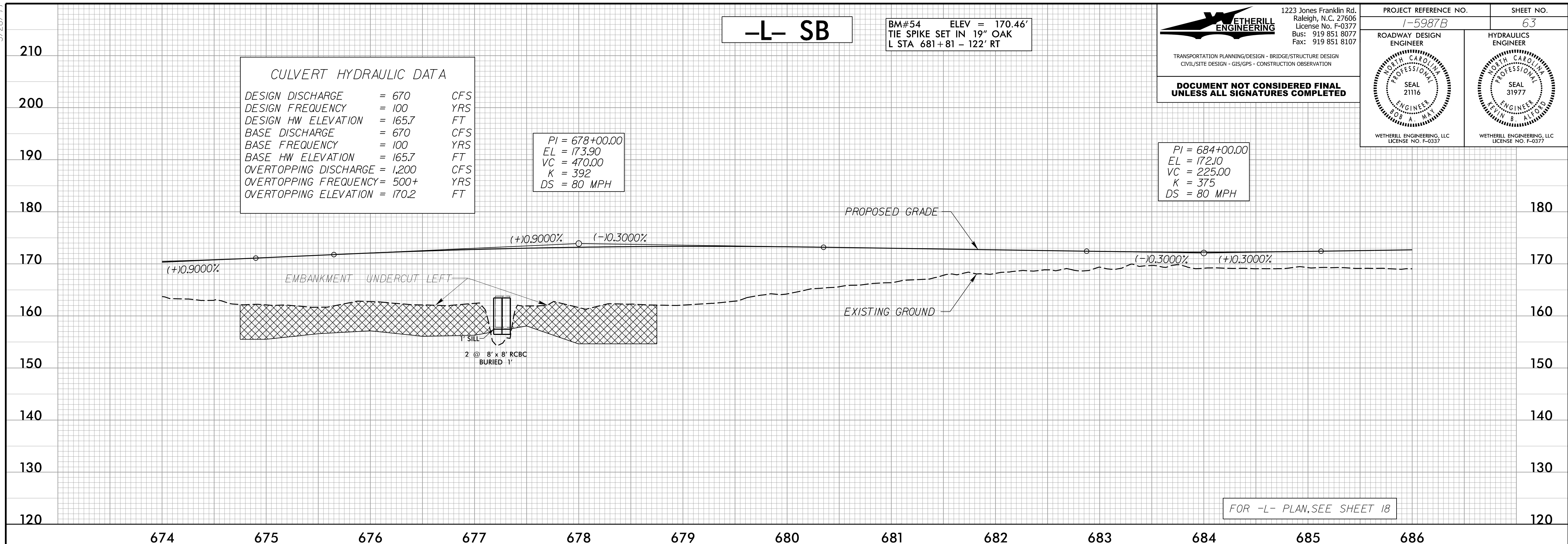
PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>63</i>
ROADWAY DESIGN ENGINEER <i>BOB A. MAY</i>	HYDRAULICS ENGINEER <i>KEVIN B. ALDOD</i>
SEAL 21116	SEAL 31977
WETHERILL ENGINEERING, LLC LICENSE NO. F-0337	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 670	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 165.7	FT
BASE DISCHARGE	= 670	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 165.7	FT
OVERTOPPING DISCHARGE	= 1,200	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 170.2	FT

PI = 678+00.00
EL = 173.90
VC = 470.00
K = 392
DS = 80 MPH

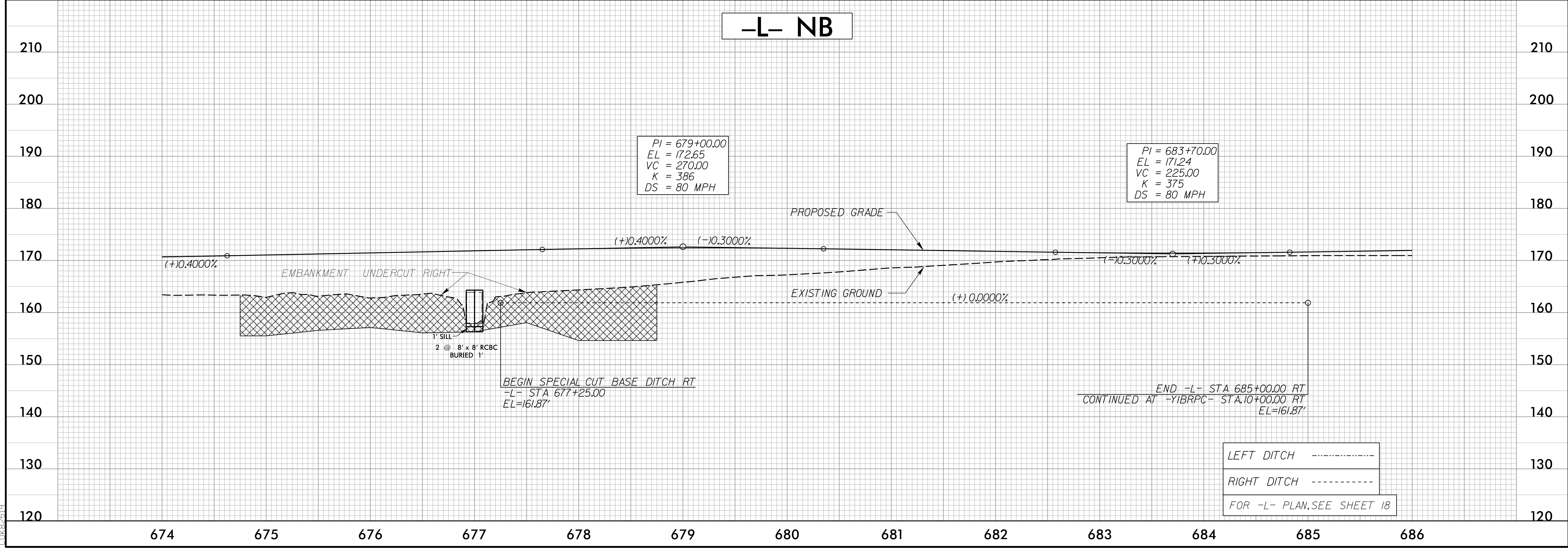
PI = 684+00.00
EL = 172.10
VC = 225.00
K = 375
DS = 80 MPH



-L- NB

PI = 679+00.00
EL = 172.65
VC = 270.00
K = 386
DS = 80 MPH

PI = 683+70.00
EL = 171.24
VC = 225.00
K = 375
DS = 80 MPH



4/16/2002
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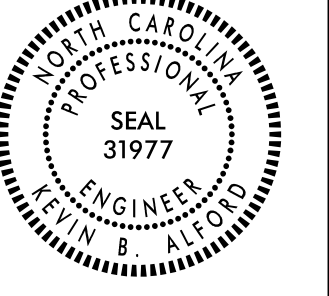
5/28/99

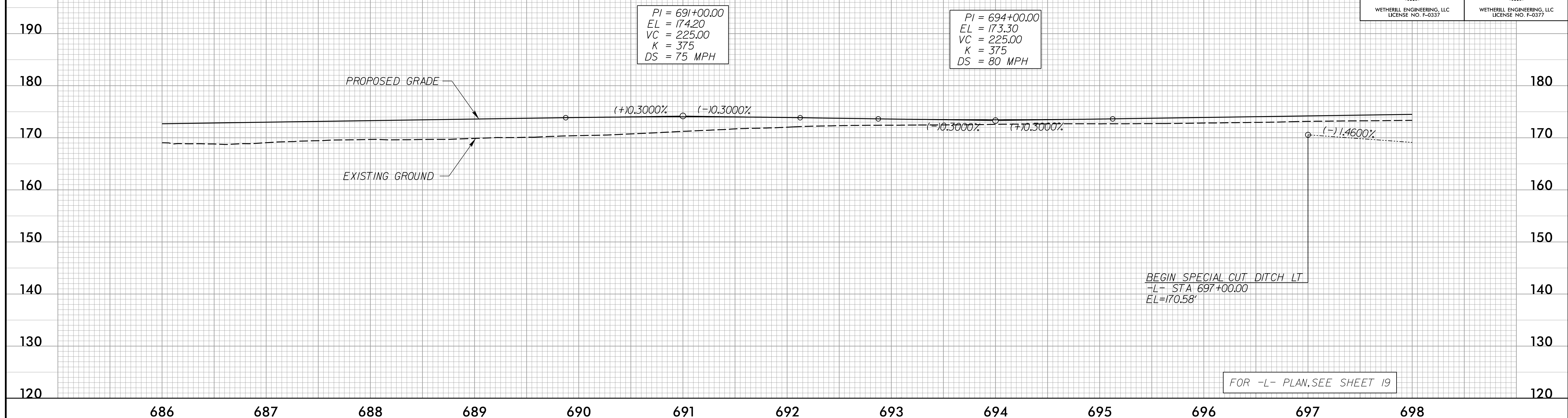
-L- SB

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 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
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 Bus: 919 851 8077
 Fax: 919 851 8107

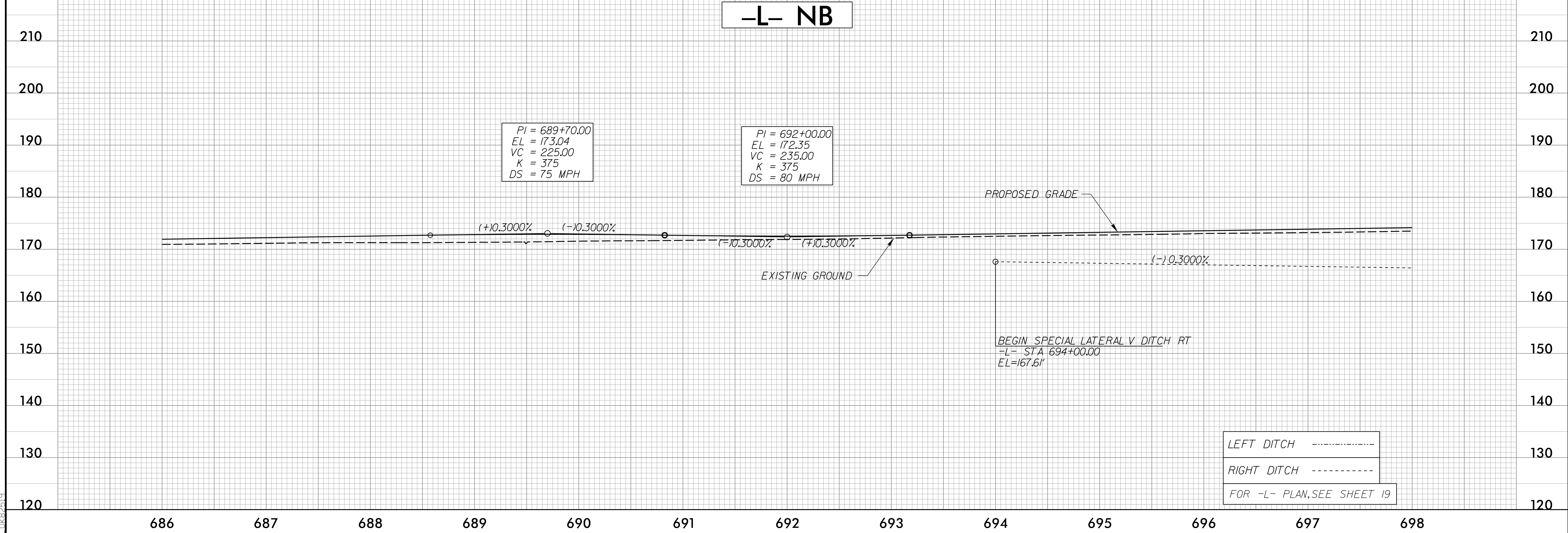
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN • GIS/GPS • CONSTRUCTION OBSERVATION

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PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>64</i>
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
WETHERILL ENGINEERING, LLC <small>LICENSE NO. F-0337</small>	WETHERILL ENGINEERING, LLC <small>LICENSE NO. F-0377</small>



-L- NB



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-L- SB

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 Bus: 919 851 8077
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 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

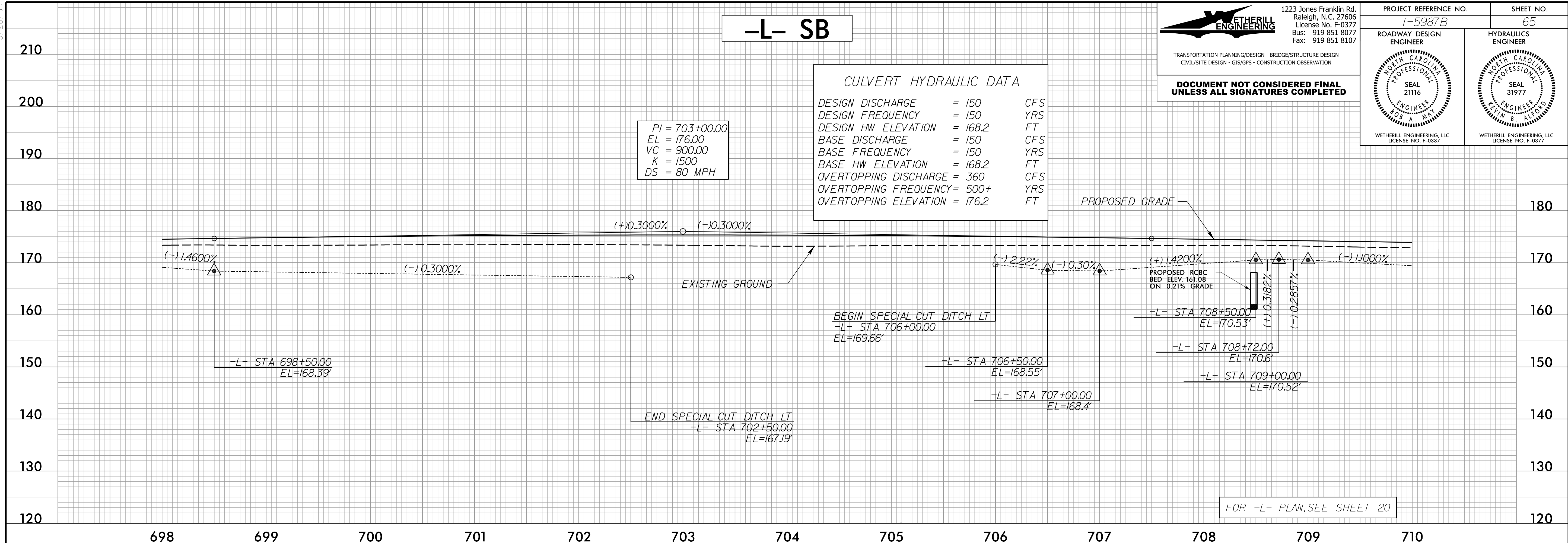
**DOCUMENT NOT CONSIDERED FINAL
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PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>65</i>
ROADWAY DESIGN ENGINEER <i>BOB A. MAY</i>	HYDRAULICS ENGINEER <i>KEVIN B. ALDRED</i>
SEAL 21116	SEAL 31977
WETHERILL ENGINEERING, LLC LICENSE NO. F-0337	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377

CULVERT HYDRAULIC DATA

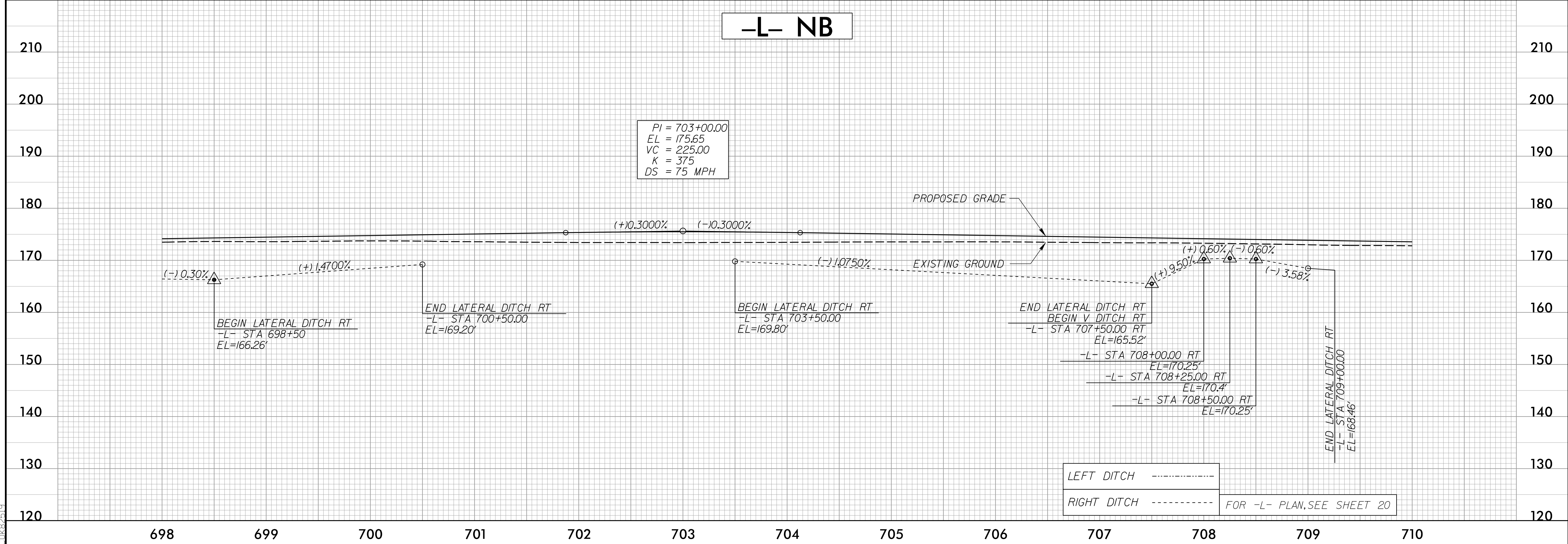
DESIGN DISCHARGE	= 150	CFS
DESIGN FREQUENCY	= 150	YRS
DESIGN HW ELEVATION	= 168.2	FT
BASE DISCHARGE	= 150	CFS
BASE FREQUENCY	= 150	YRS
BASE HW ELEVATION	= 168.2	FT
OVERTOPPING DISCHARGE	= 360	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 176.2	FT

PI = 703+00.00
 EL = 176.00
 VC = 900.00
 K = 1500
 DS = 80 MPH



-L- NB

PI = 703+00.00
 EL = 175.65
 VC = 225.00
 K = 375
 DS = 75 MPH



4/16/2002
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5/28/99

BM#55 ELEV = 173.31'
TIE SPIKE SET IN 20" OAK
L STA 714+35 - 193' RT

-L- SB

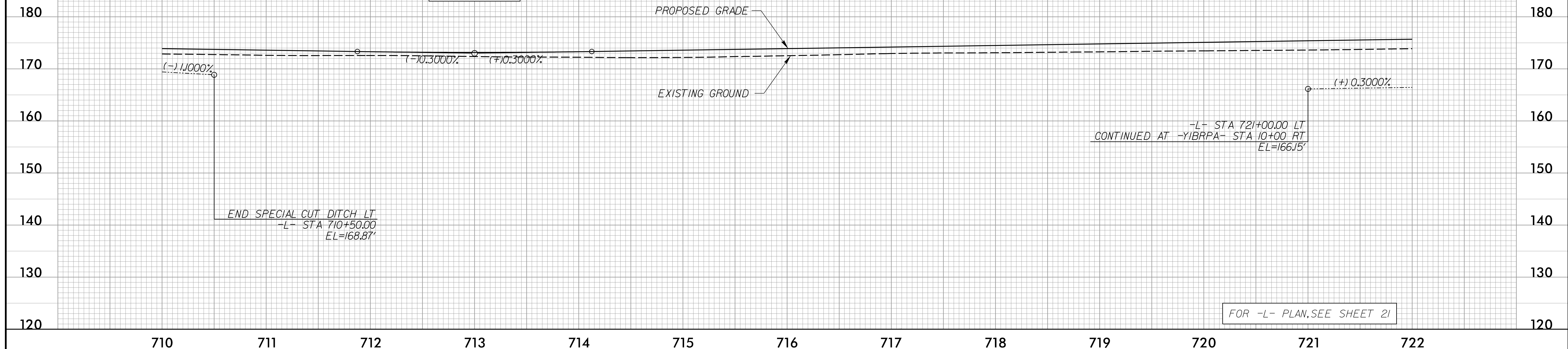
WETHERILL ENGINEERING
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 License No. F-0377
 Bus: 919 851 8077
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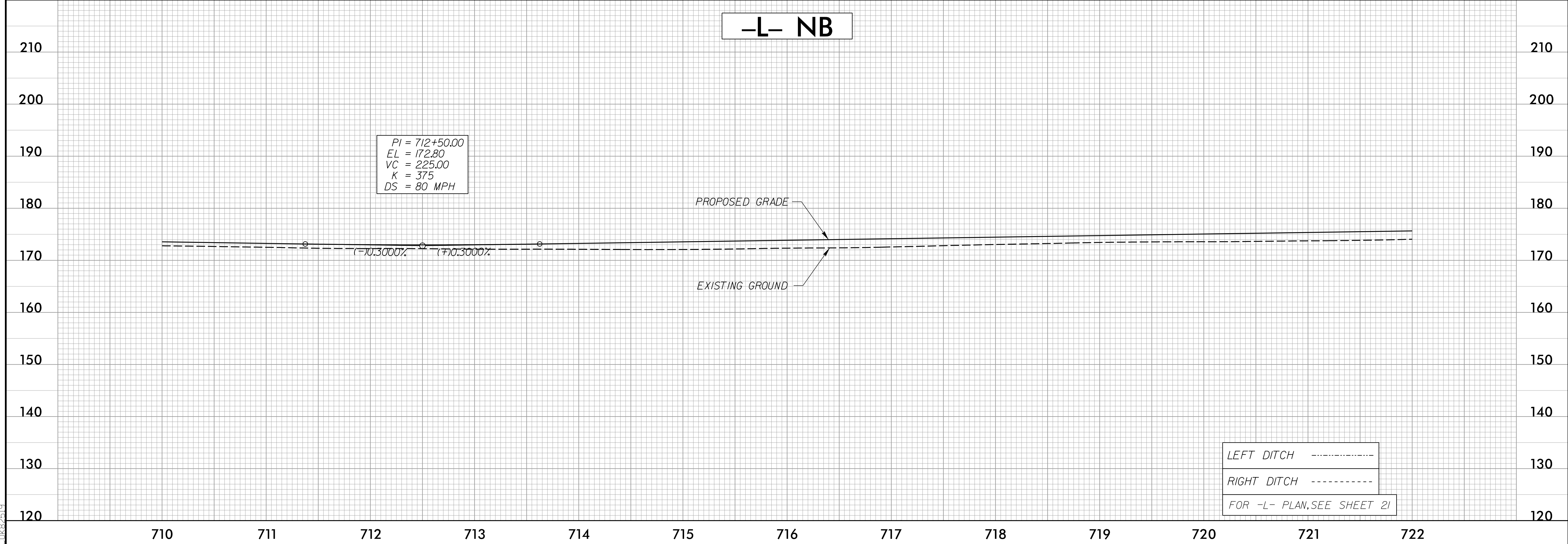
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ROADWAY DESIGN ENGINEER <i>BOB A. MAY</i>	HYDRAULICS ENGINEER <i>KEVIN B. ALDRED</i>
SEAL 21116 NORTH CAROLINA PROFESSIONAL ENGINEER	SEAL 31977 NORTH CAROLINA PROFESSIONAL ENGINEER
WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377

PI = 713+00.00
EL = 173.00
VC = 225.00
K = 375
DS = 80 MPH



-L- NB

PI = 712+50.00
EL = 172.80
VC = 225.00
K = 375
DS = 80 MPH



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5/28/99

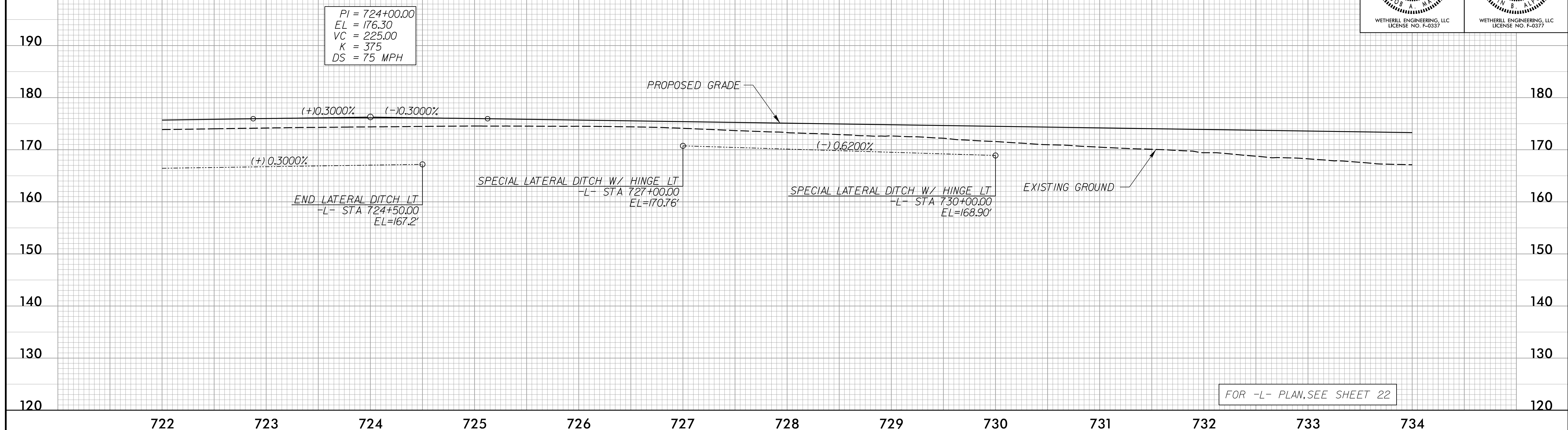
-L- SB

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 License No. F-0377
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 Fax: 919 851 8107

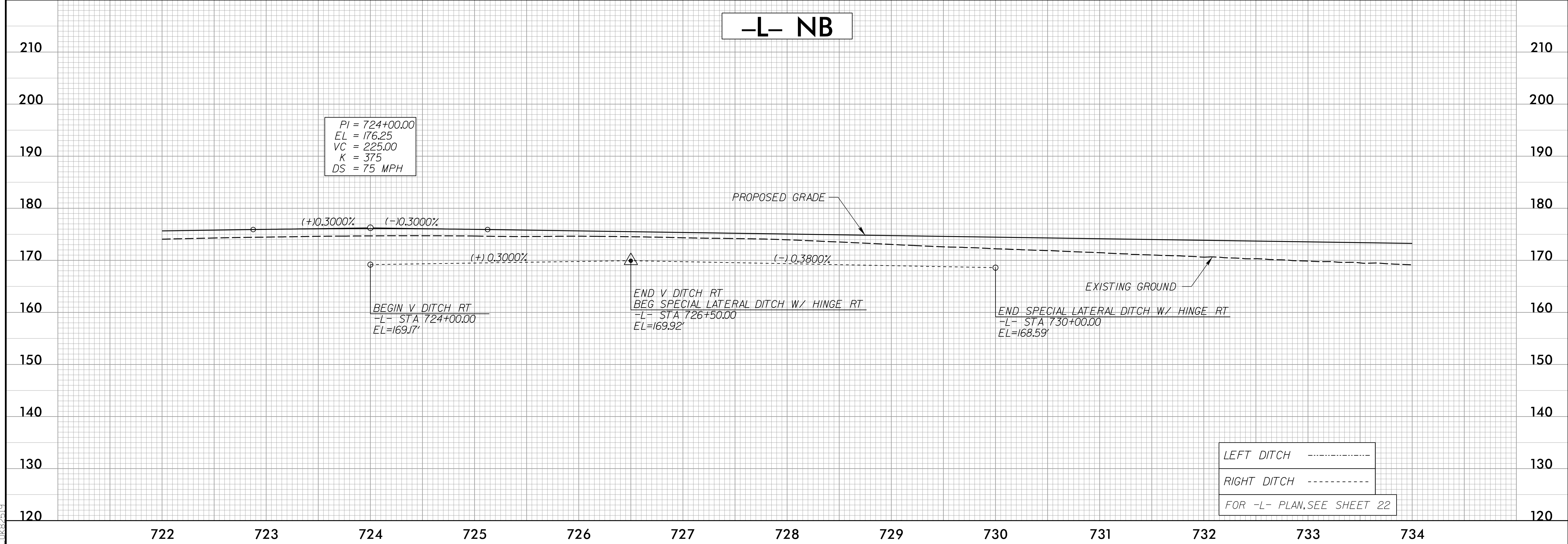
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PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>67</i>
ROADWAY DESIGN ENGINEER <i>BOB A. MAY</i>	HYDRAULICS ENGINEER <i>KEVIN B. ALDRED</i>
SEAL 21116	SEAL 31977
WETHERILL ENGINEERING, LLC LICENSE NO. F-0337	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377



-L- NB



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5/28/99

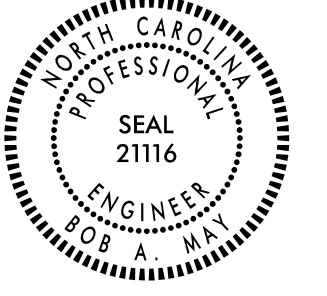
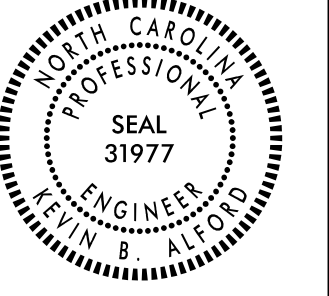
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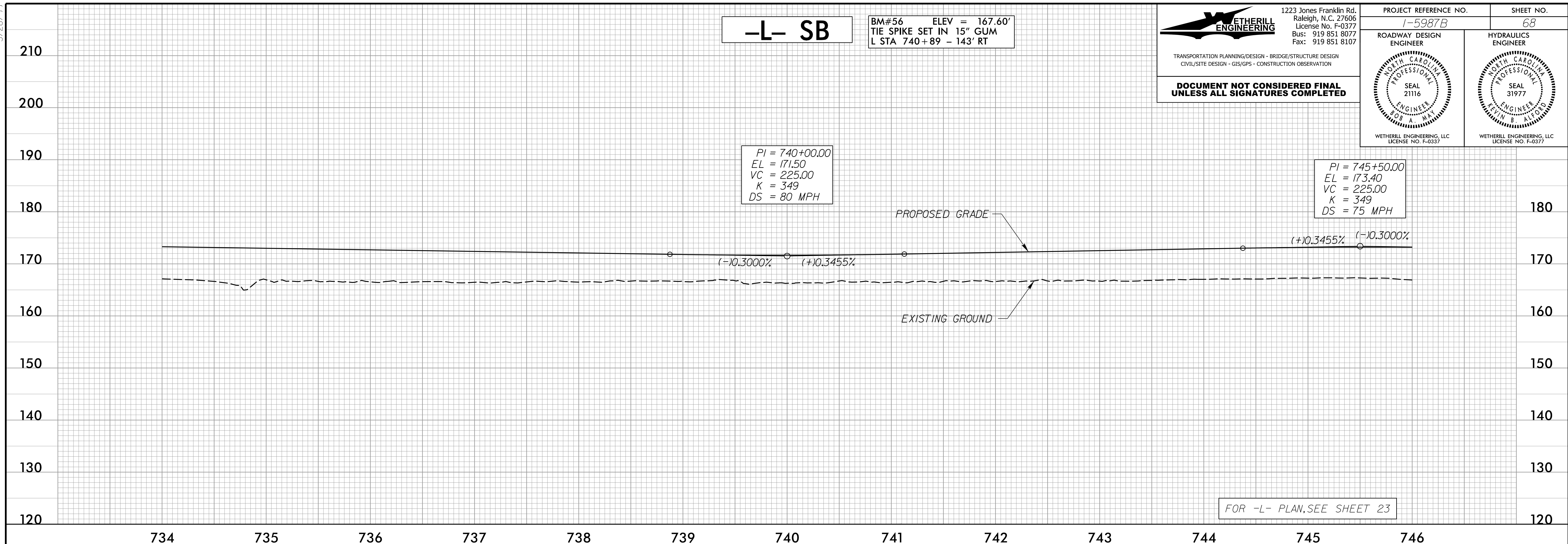
BM#56 ELEV = 167.60'
TIE SPIKE SET IN 15" GUM
L STA 740+89 - 143' RT

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Raleigh, N.C. 27606
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TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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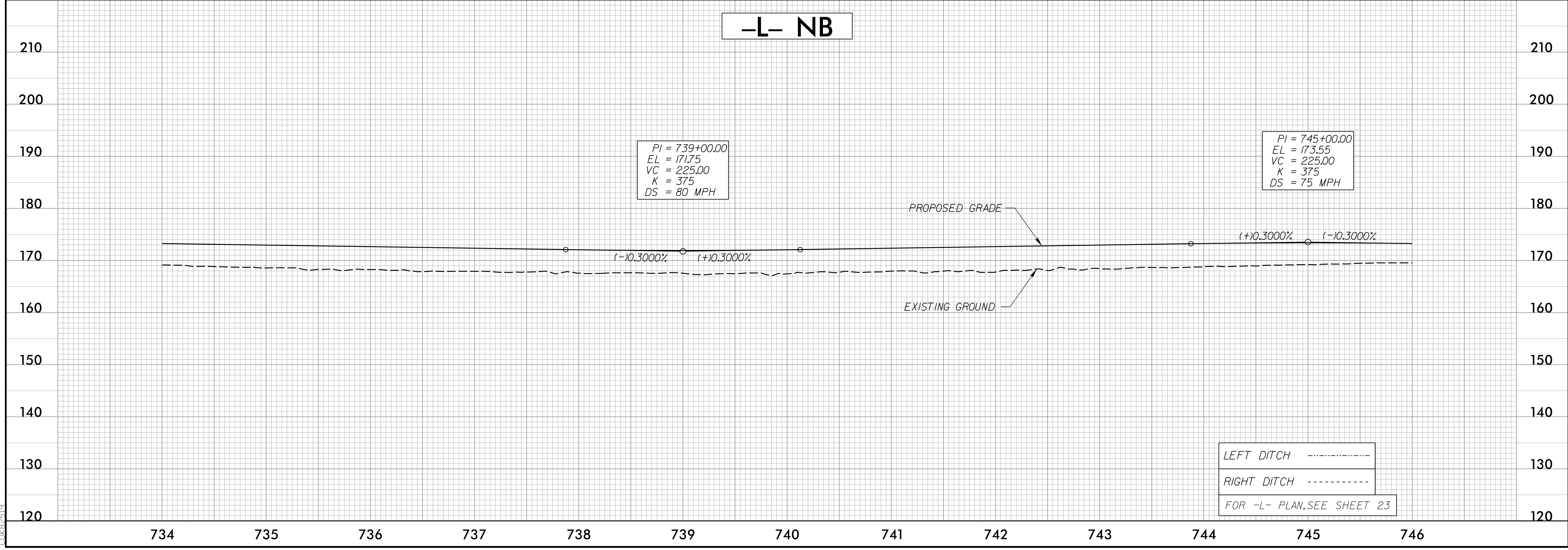
PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>68</i>
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
WETHERILL ENGINEERING, LLC LICENSE NO. F-0337	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377



-L- NB

PI = 739+00.00
EL = 171.75
VC = 225.00
K = 375
DS = 80 MPH

PI = 745+00.00
EL = 173.55
VC = 225.00
K = 375
DS = 75 MPH



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5/28/99

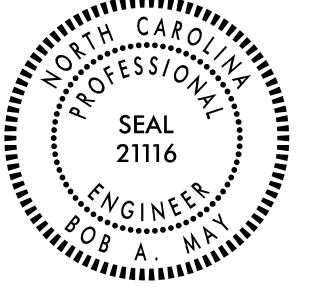
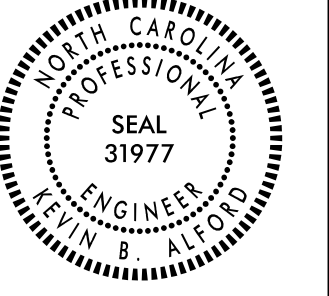
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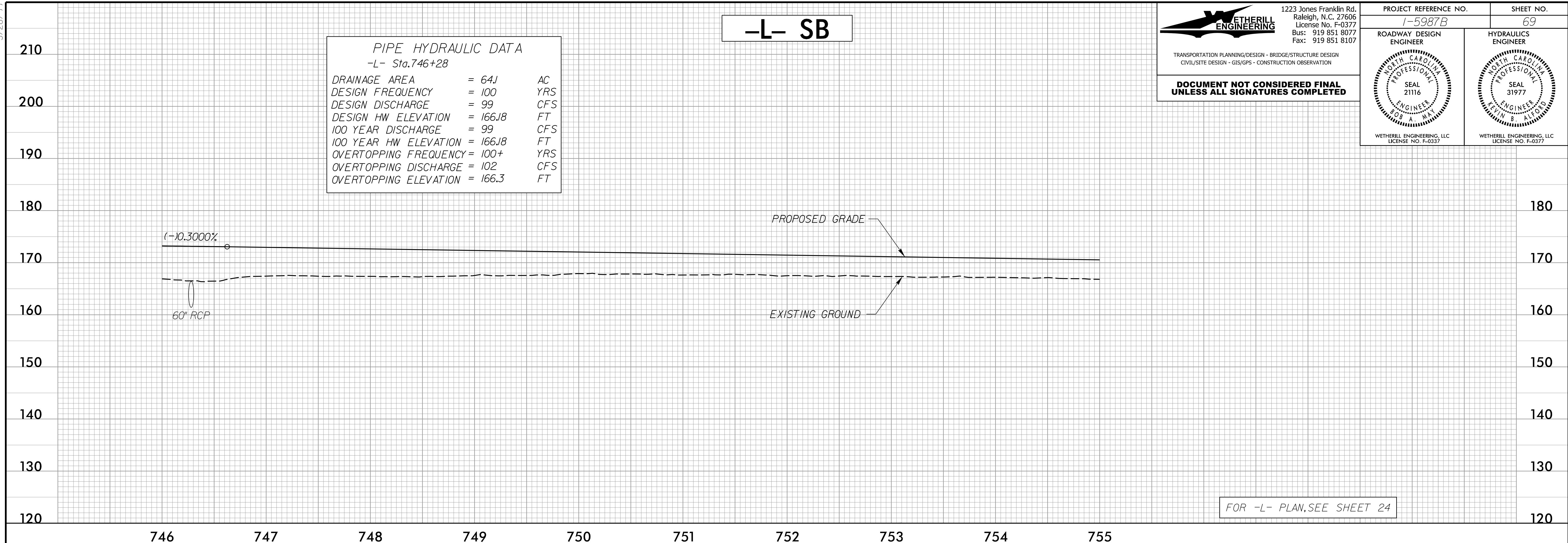
PIPE HYDRAULIC DATA		
-L- Sta. 746+28		
DRAINAGE AREA	= 64.1	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 99	CFS
DESIGN HW ELEVATION	= 166.18	FT
100 YEAR DISCHARGE	= 99	CFS
100 YEAR HW ELEVATION	= 166.18	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 102	CFS
OVERTOPPING ELEVATION	= 166.3	FT

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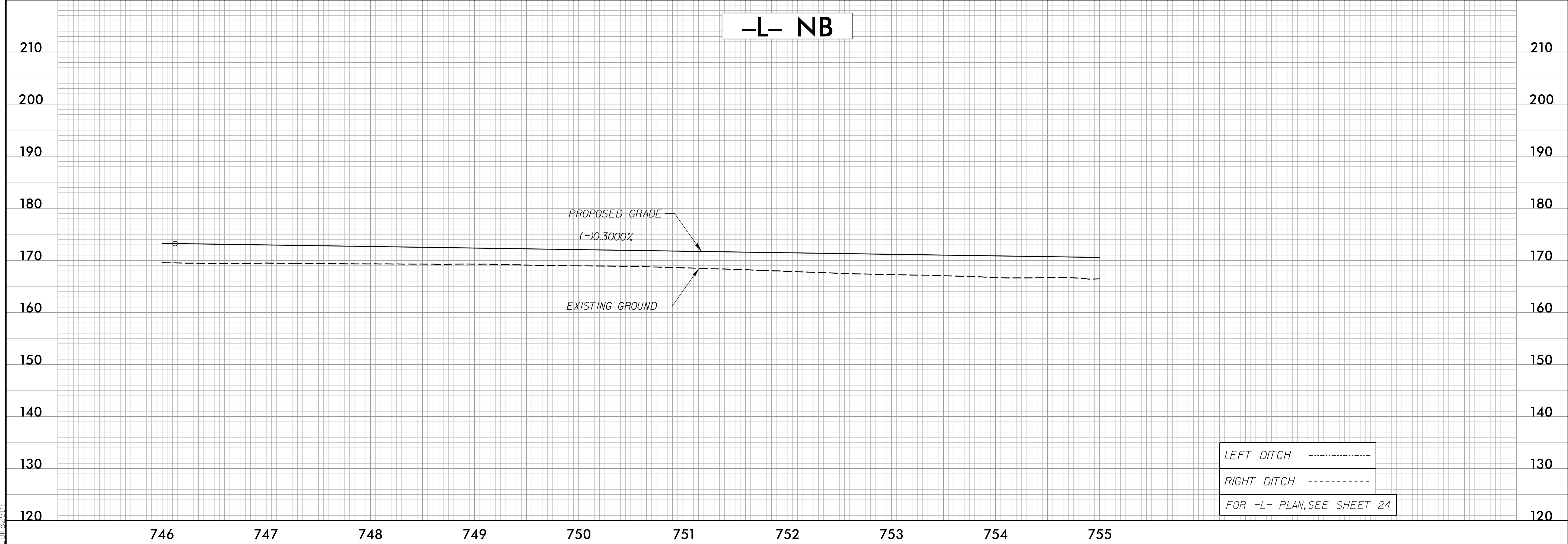
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN • GIS/GPS • CONSTRUCTION OBSERVATION

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PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>69</i>
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377



-L- NB



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COK

5/14/99

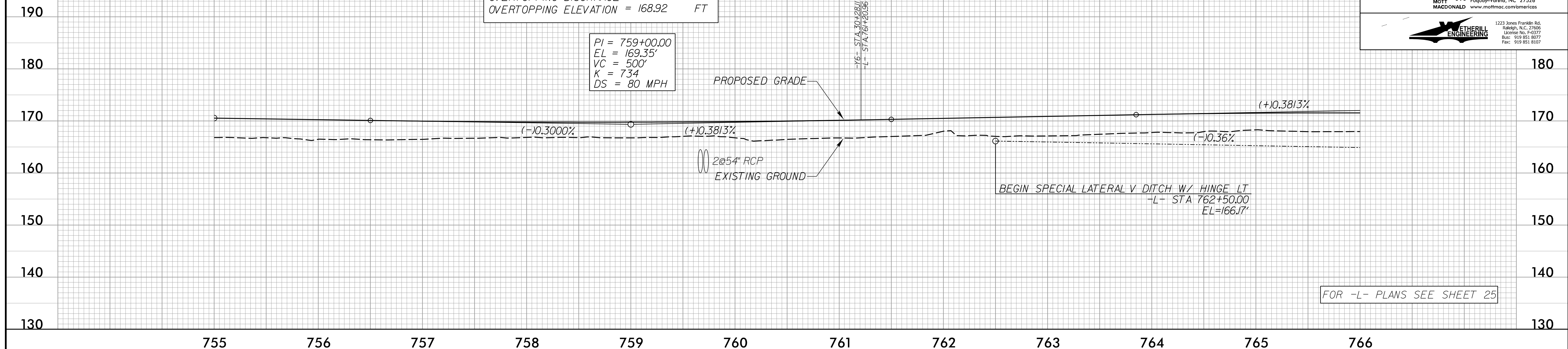
PROJECT REFERENCE NO. 1-5987B	SHEET NO. 70
ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22606	HYDRAULICS ENGINEER DAVID B. ALDRED NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 31977
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
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Prepared in the Office of: M M MOTT MACDONALD 7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27516 www.mottmac.com/americas	
WETHERILL ENGINEERING 1223 Jones Franklin Rd. Salem, N.C. 27066 License No. F-0377 Phone: 919 851 8077 Fax: 919 851 8107	

PIPE HYDRAULIC DATA
-L- Sta.759+70

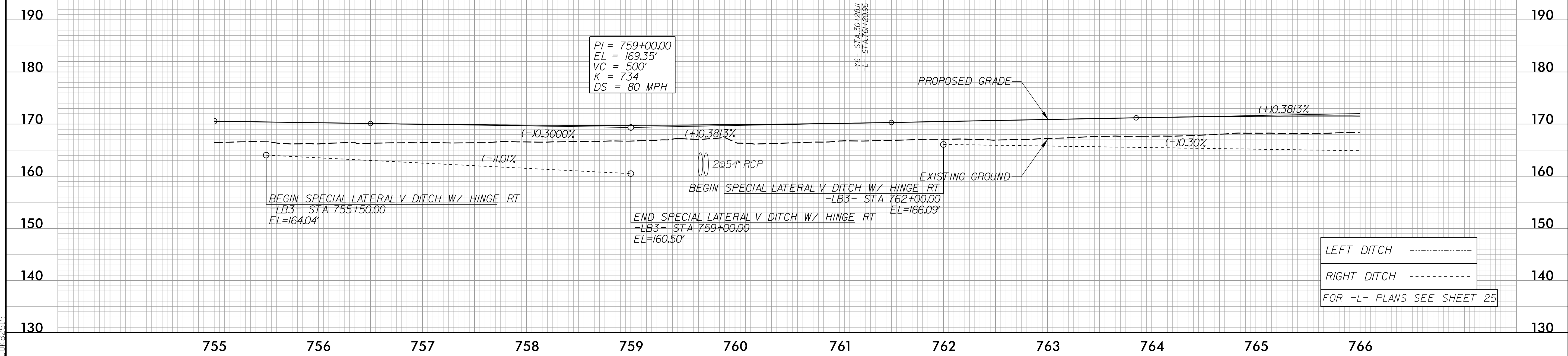
DRAINAGE AREA	= 126.8	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 150	CFS
DESIGN HW ELEVATION	= 165.0	FT
100 YEAR DISCHARGE	= 150	CFS
100 YEAR HW ELEVATION	= 165.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 284	CFS
OVERTOPPING ELEVATION	= 168.92	FT

PI = 759+00.00
EL = 169.35'
VC = 500'
K = 734
DS = 80 MPH

-L_SB-





-L_NB-



LEFT DITCH - - - - -
RIGHT DITCH - - - - -
FOR -L- PLANS SEE SHEET 25

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5/14/99

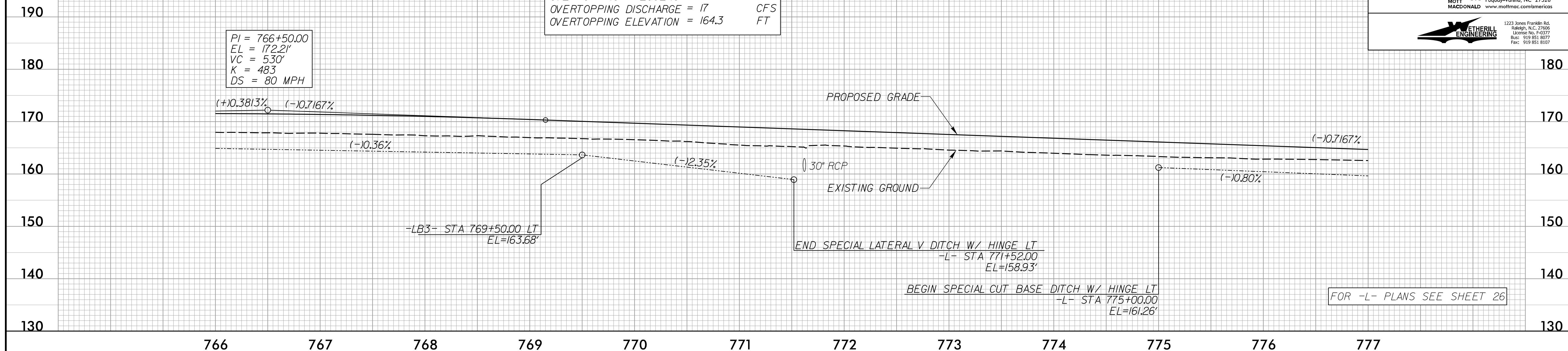
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ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL SEAL 22606 MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER DAVID B. ALDRED NORTH CAROLINA PROFESSIONAL SEAL 31977 WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	
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 1223 Jones Franklin Rd. Raleigh, NC 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

-L_SB-

PIPE HYDRAULIC DATA
 -L- Sta. 771+62

DRAINAGE AREA	= 4.7	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 17	CFS
DESIGN HW ELEVATION	= 164.3	FT
100 YEAR DISCHARGE	= 17	CFS
100 YEAR HW ELEVATION	= 164.3	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 17	CFS
OVERTOPPING ELEVATION	= 164.3	FT

PI = 766+50.00
 EL = 172.21'
 VC = 530'
 K = 483
 DS = 80 MPH

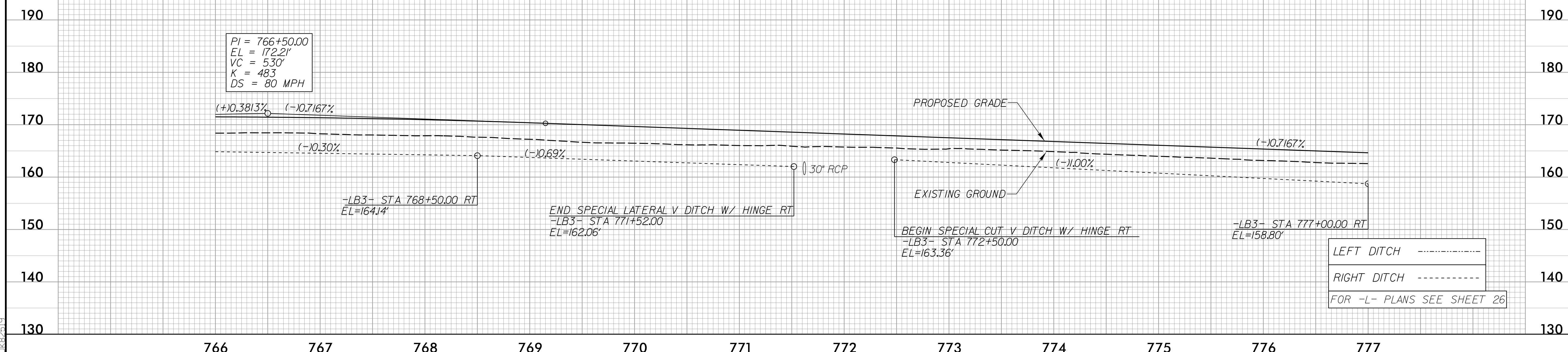


FOR -L- PLANS SEE SHEET 26

-L_NB-

BM#57 ELEV = 171.31'
 TIE SPIKE SET IN 22" PINE
 L STA 771+18 - 147' RT

PI = 766+50.00
 EL = 172.21'
 VC = 530'
 K = 483
 DS = 80 MPH

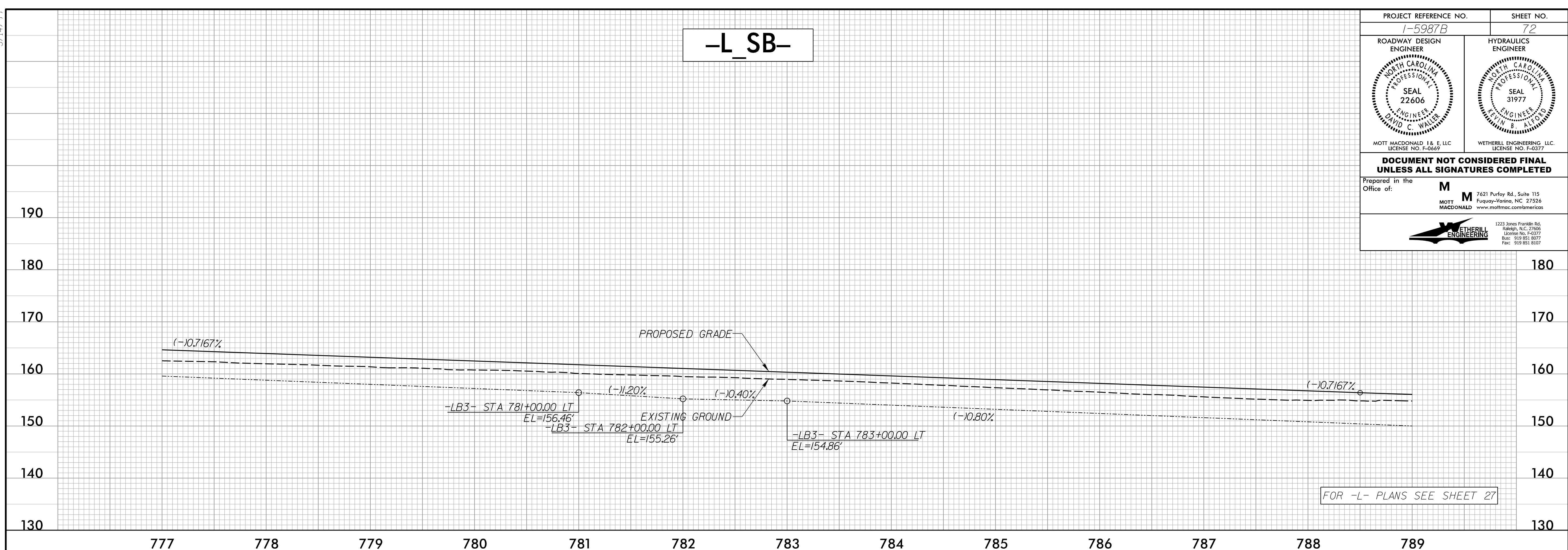


LEFT DITCH -----
 RIGHT DITCH -----
 FOR -L- PLANS SEE SHEET 26

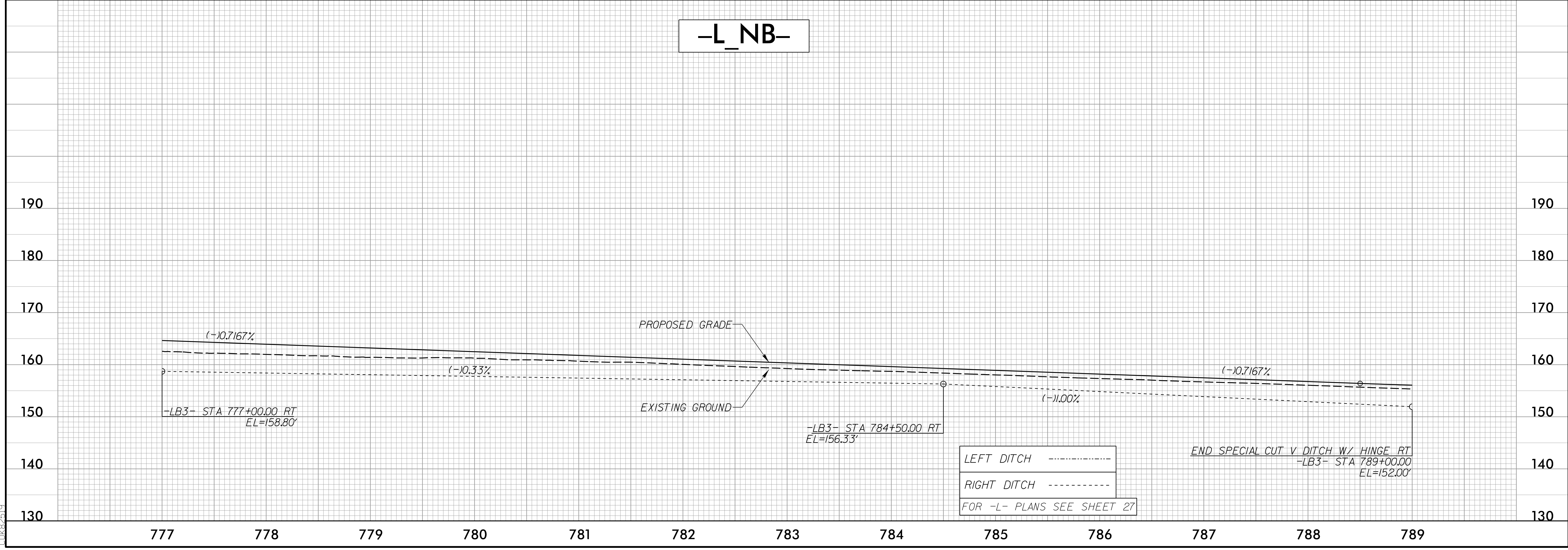
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5/14/99

-L_SB-



-L_NB-



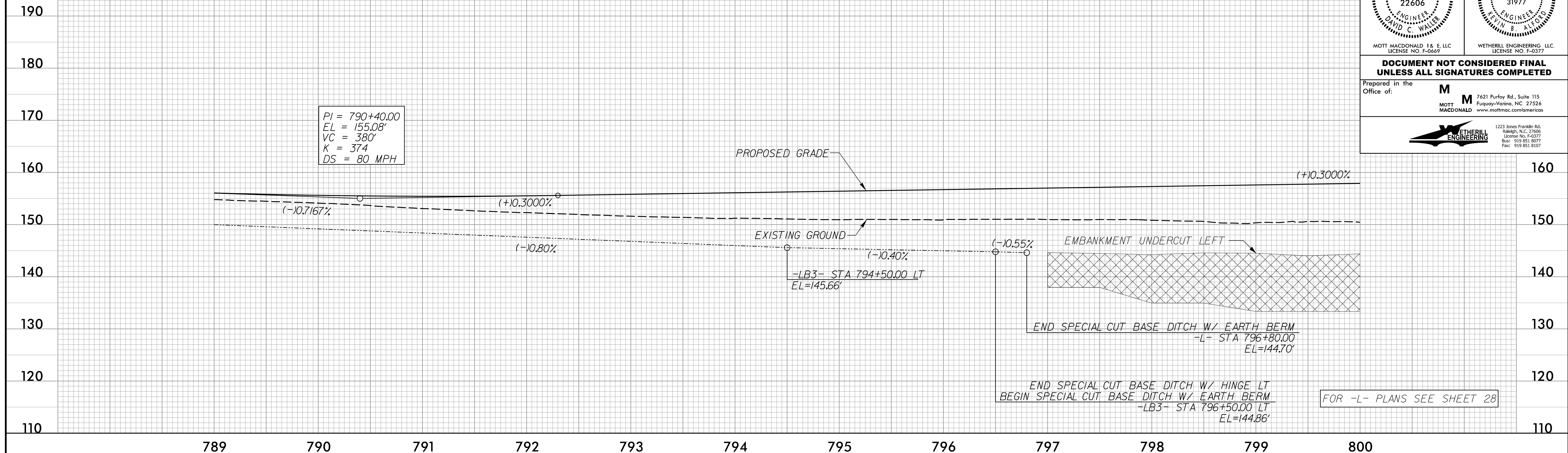
PROJECT REFERENCE NO. 1-5987B	SHEET NO. 72
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER DAVID B. ALDRED SEAL 31977 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
<small>1223 Jones Franklin Rd. Salem, NC 27066 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107</small>	

4/18/2002
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DWG: 5987B

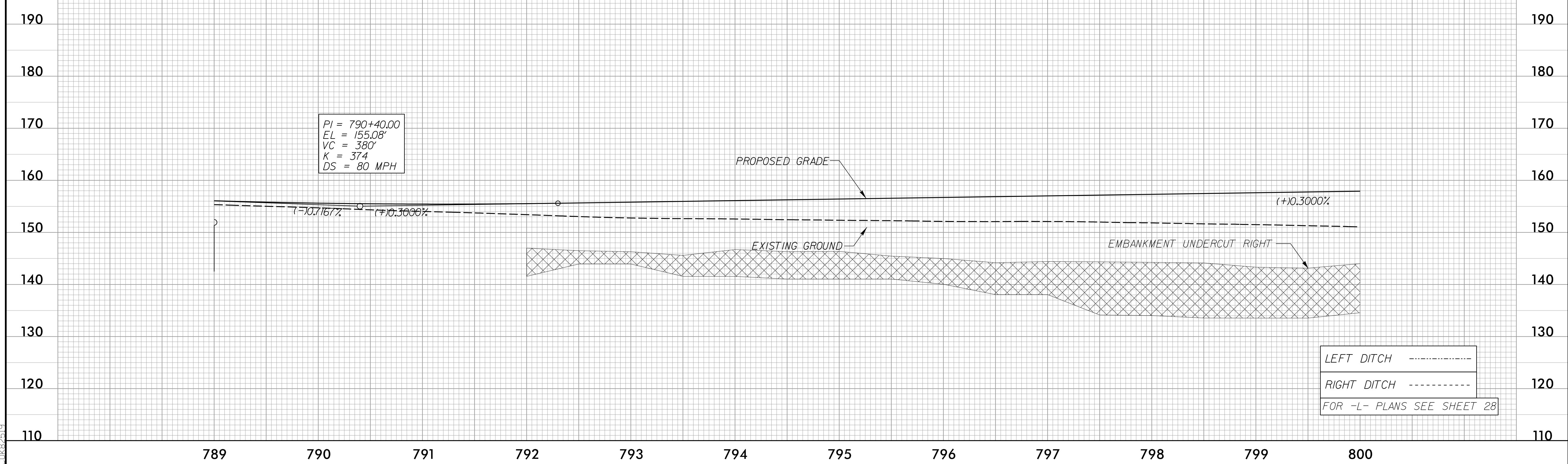
5/14/99

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 73
ROADWAY DESIGN ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: M MOTT MACDONALD I & E, LLC 7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
 1223 Jones Franklin Rd. Salem, N.C. 27066 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

-L_SB-


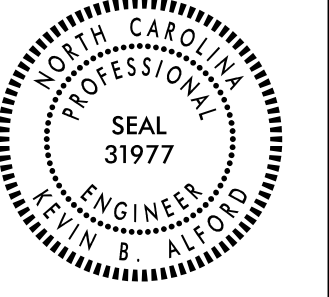



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4/16/2002
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5/14/99

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 74	
ROADWAY DESIGN ENGINEER 		HYDRAULICS ENGINEER 	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669			
WETHERILL ENGINEERING, LLC LICENSE NO. F-0377			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		M MOTT MACDONALD	
		7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
			
		1223 Jones Franklin Rd. Salem, NC 27066 License No. F-0377 Elev: 919 851 8077 Fax: 919 851 8107	

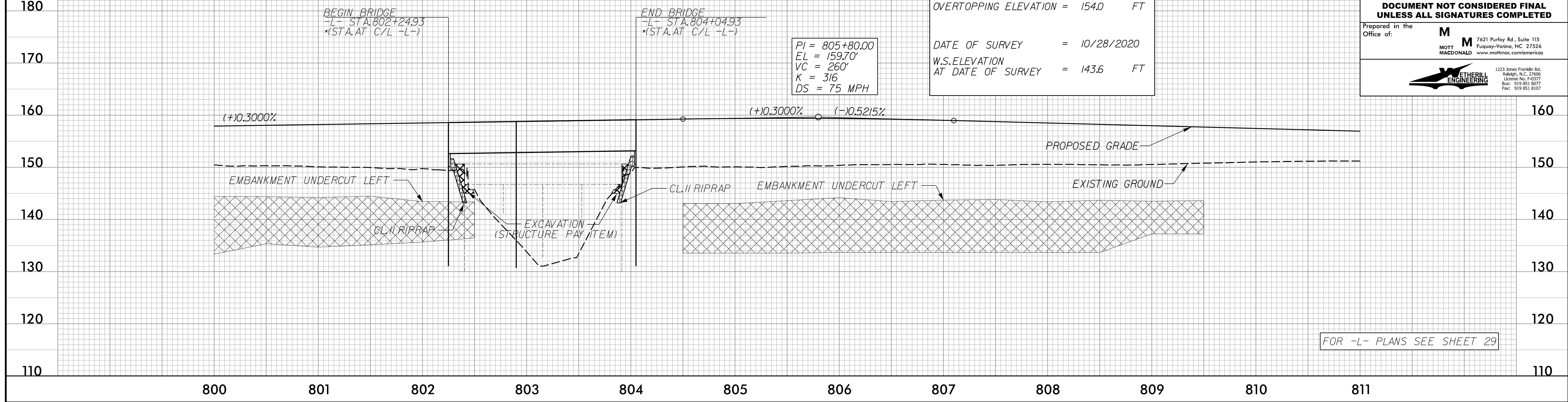
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BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 3600 CFS
 DESIGN FREQUENCY = 100 YRS
 DESIGN HW ELEVATION = 147.8 FT
 BASE DISCHARGE = 3600 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 147.8 FT
 OVERTOPPING DISCHARGE = 4900+ CFS
 OVERTOPPING FREQUENCY = 500+ YRS
 OVERTOPPING ELEVATION = 154.0 FT

DATE OF SURVEY = 10/28/2020
 W.S.ELEVATION AT DATE OF SURVEY = 143.6 FT

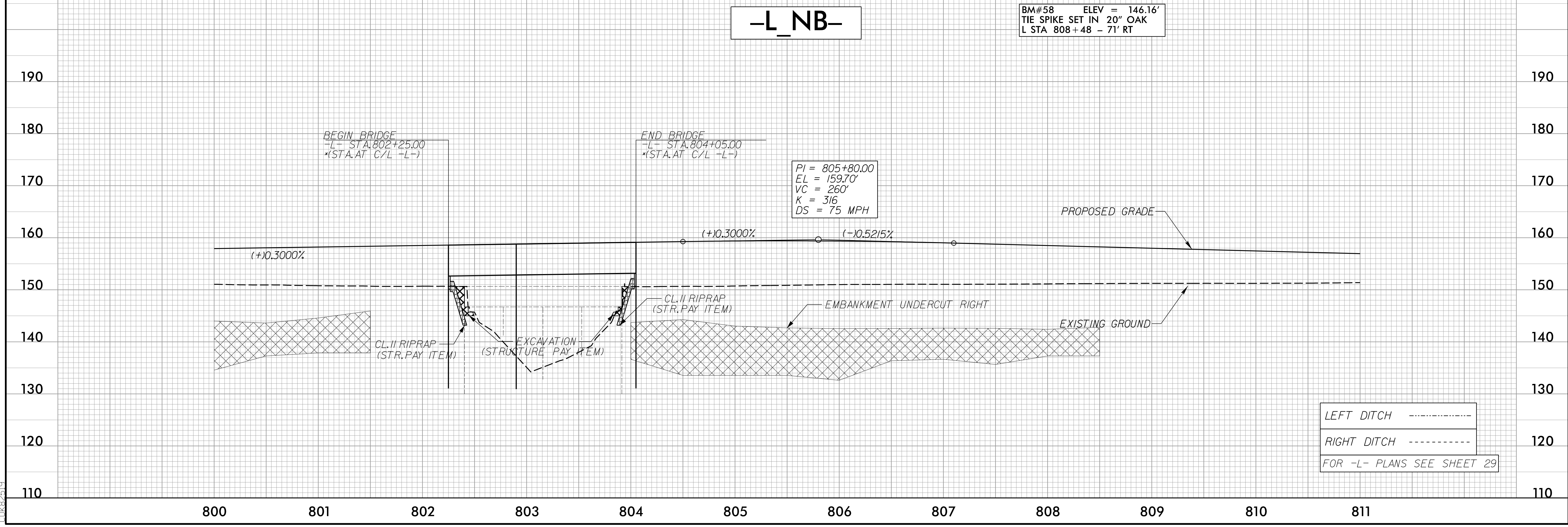
PI = 805+80.00
 EL = 159.70'
 VC = 260'
 K = 316
 DS = 75 MPH



FOR -L- PLANS SEE SHEET 29

-L_NB-

BM#58 ELEV = 146.16'
 TIE SPIKE SET IN 20" OAK
 L STA 808+48 - 71' RT

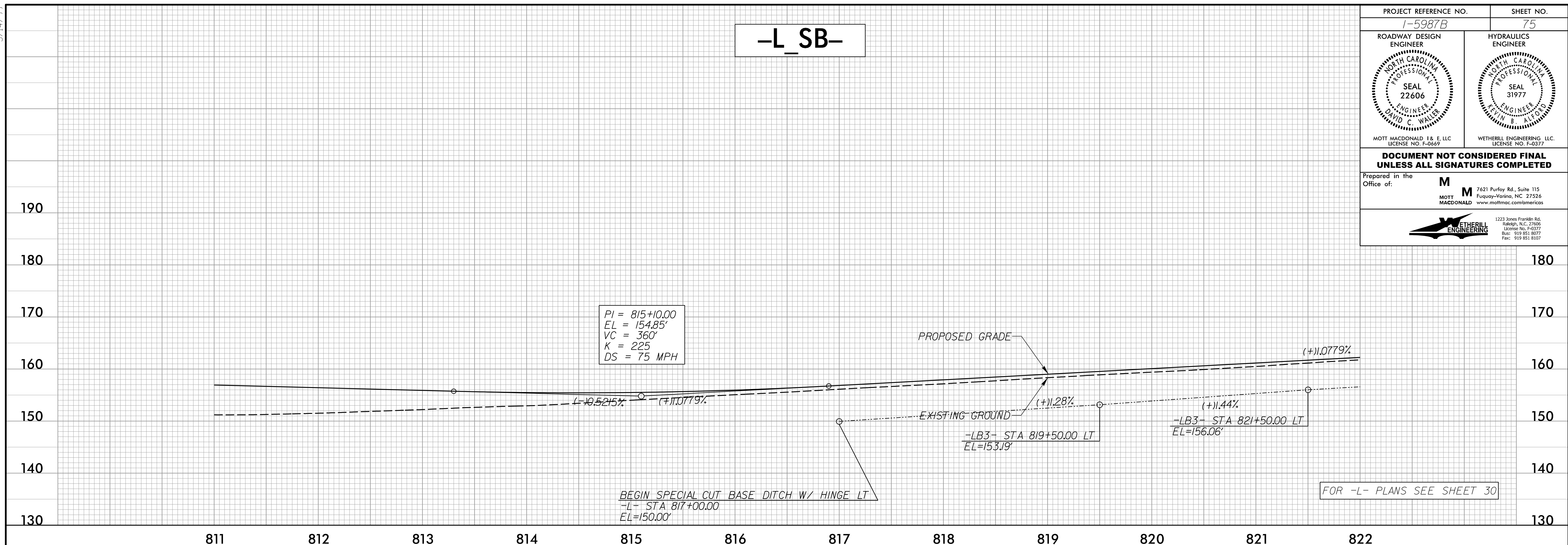


LEFT DITCH -----
 RIGHT DITCH -----
 FOR -L- PLANS SEE SHEET 29

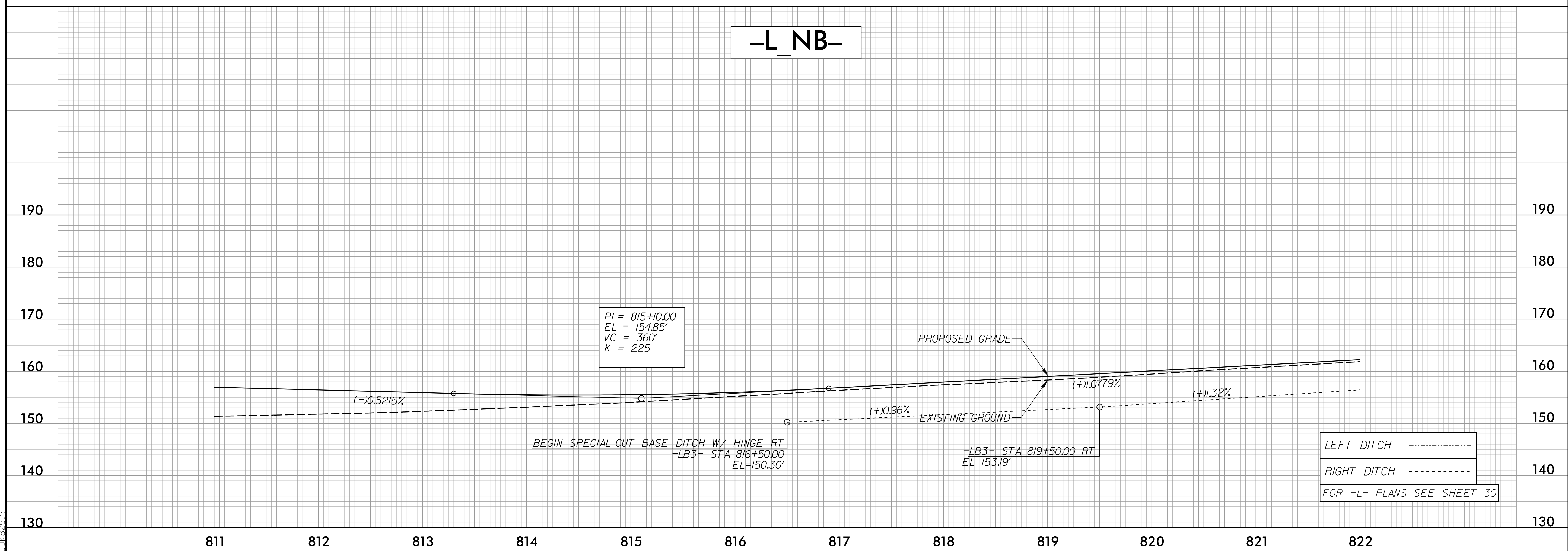
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5/14/99

-L_SB-



-L_NB-

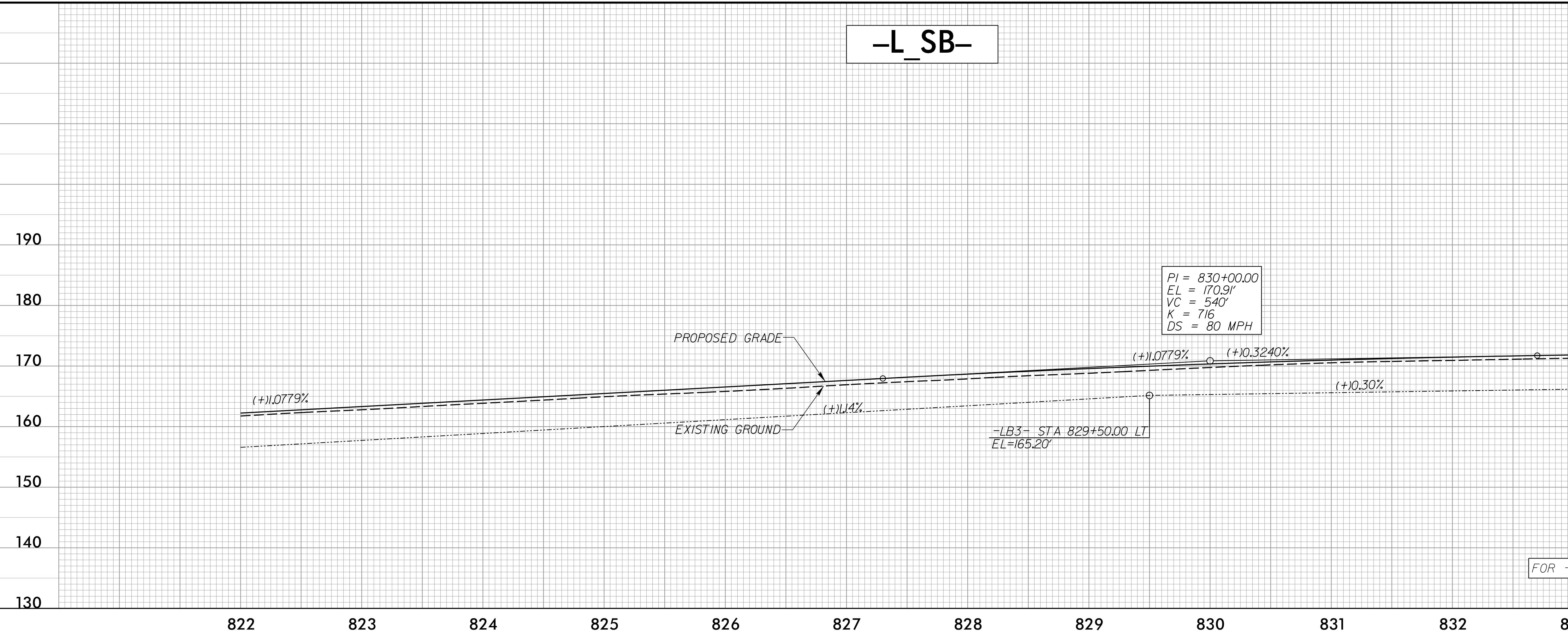


PROJECT REFERENCE NO. 1-5987B	SHEET NO. 75
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER DAVID B. ALDRED SEAL 31977 NORTH CAROLINA PROFESSIONAL ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	
7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/america	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

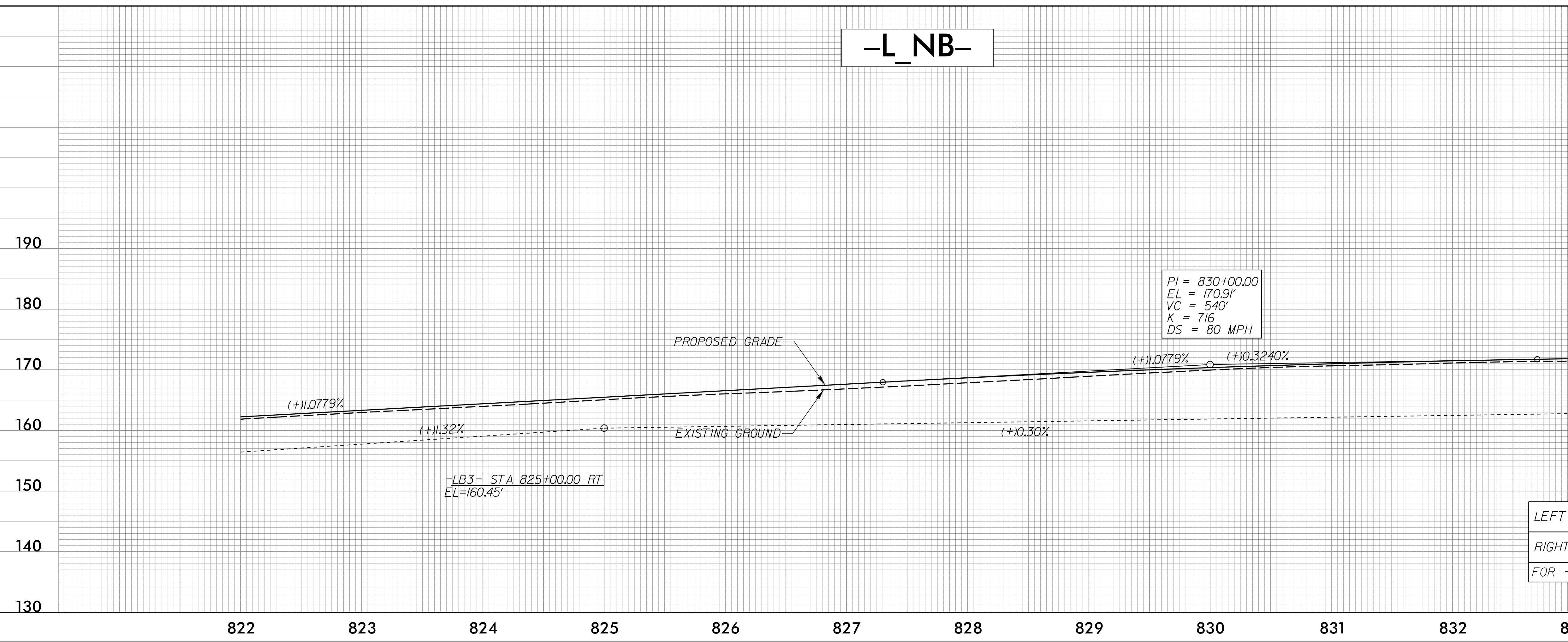
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DWG: 22619

5/14/99

-L_SB-



-L_NB-



PROJECT REFERENCE NO. 1-5987B	SHEET NO. 76
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER ALFRED B. ALDRED SEAL 31977 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/america
WETHERILL ENGINEERING 1223 Jones Franklin Rd. Salisbury, NC 27305 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

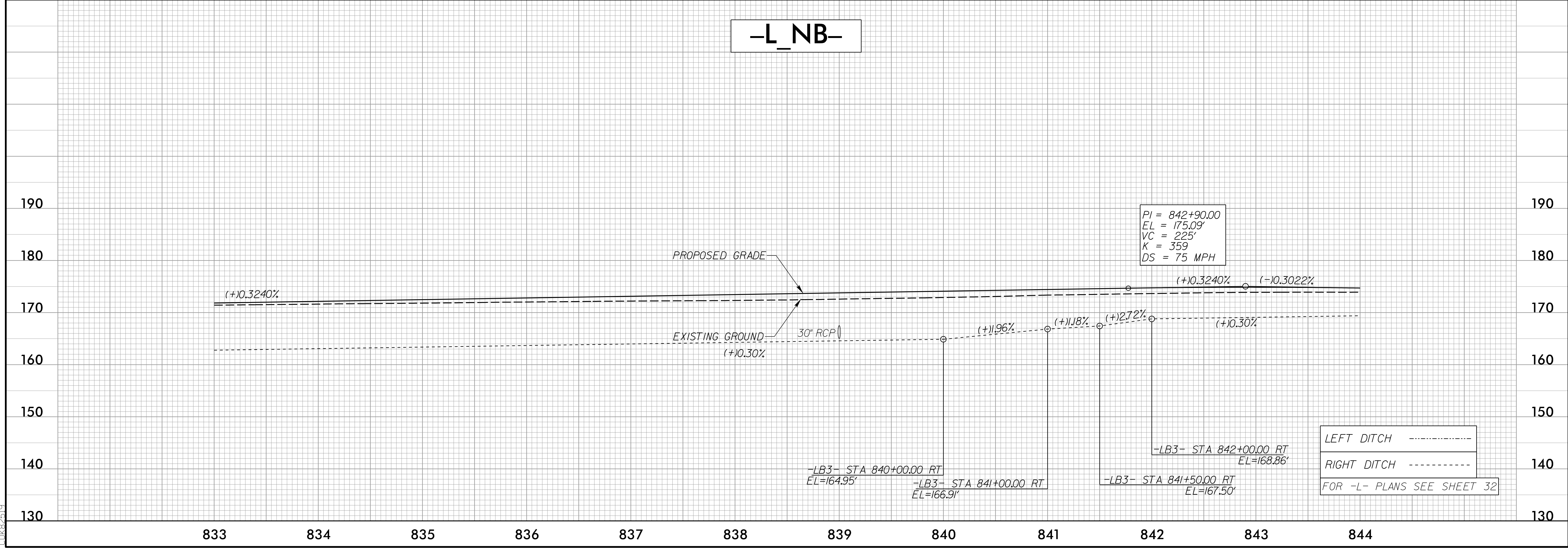
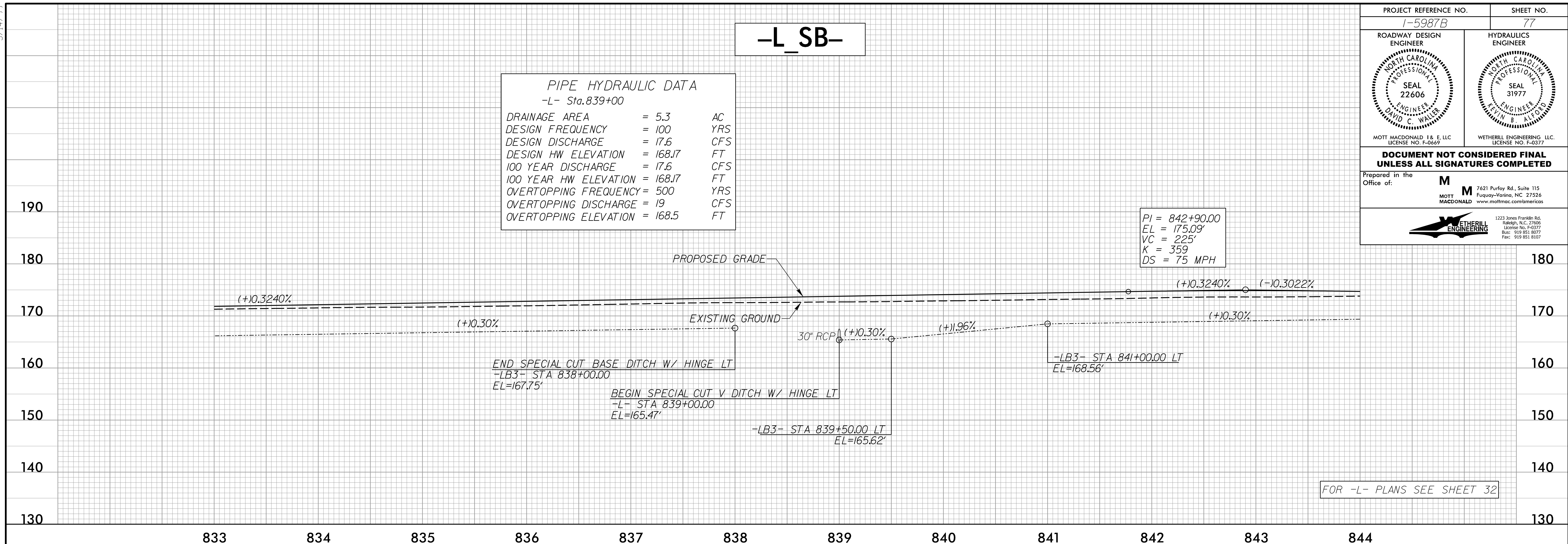
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5/14/99

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 77	
ROADWAY DESIGN ENGINEER DAVID C. WALKER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS		HYDRAULICS ENGINEER DAVID B. ALDRED SEAL 31977 NORTH CAROLINA PROFESSIONAL ENGINEERS	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		M MOTT MACDONALD 7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/america	
		WETHERILL ENGINEERING 1223 Jones Franklin Rd. Raleigh, NC 27606 License No. F-0377 Dist. 919 851 8877 Fax: 919 851 8107	

PIPE HYDRAULIC DATA
-L- Sta. 839+00

DRAINAGE AREA	= 5.3	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 17.6	CFS
DESIGN HW ELEVATION	= 168.17	FT
100 YEAR DISCHARGE	= 17.6	CFS
100 YEAR HW ELEVATION	= 168.17	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 19	CFS
OVERTOPPING ELEVATION	= 168.5	FT

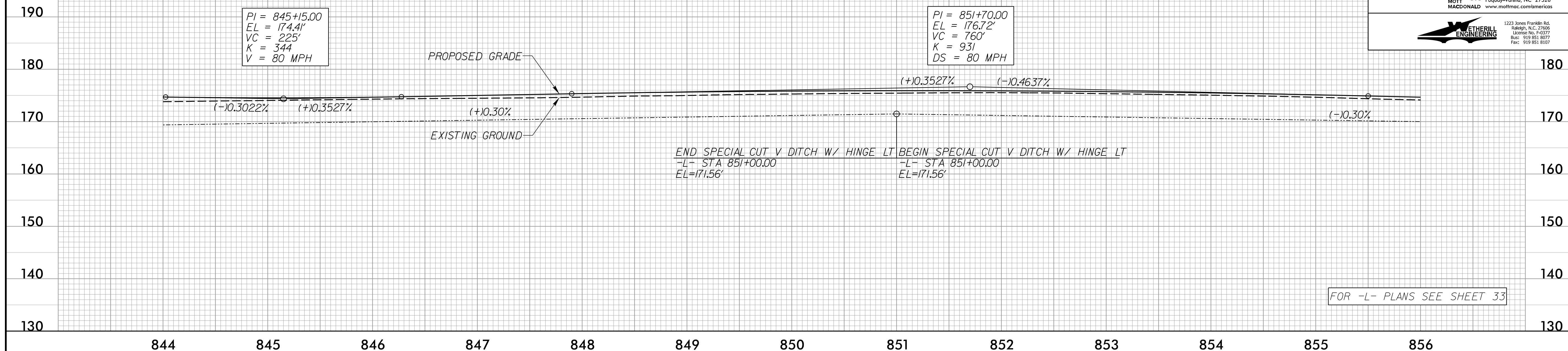


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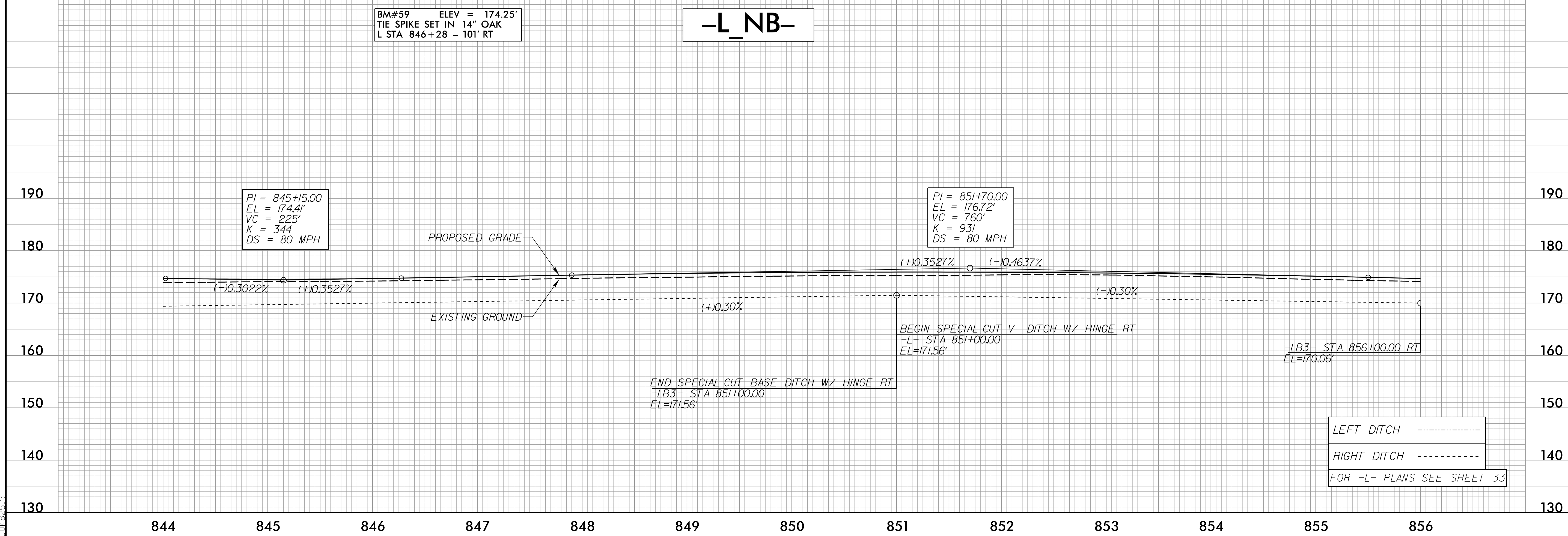
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 78
ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22606 LICENSE NO. F-0669	HYDRAULICS ENGINEER ALAN B. ALDRED NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 31977 LICENSE NO. F-0377
MOTT MACDONALD I & E, LLC	
WETHERILL ENGINEERING, LLC	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD
7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
WETHERILL ENGINEERING 1223 Jones Franklin Rd. Salem, N.C. 27066 License No. F-0377 Bus: 919 851 8877 Fax: 919 851 8107	

-L_SB-



-L_NB-



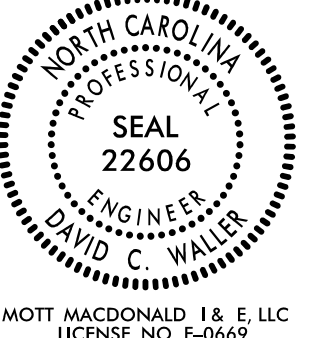



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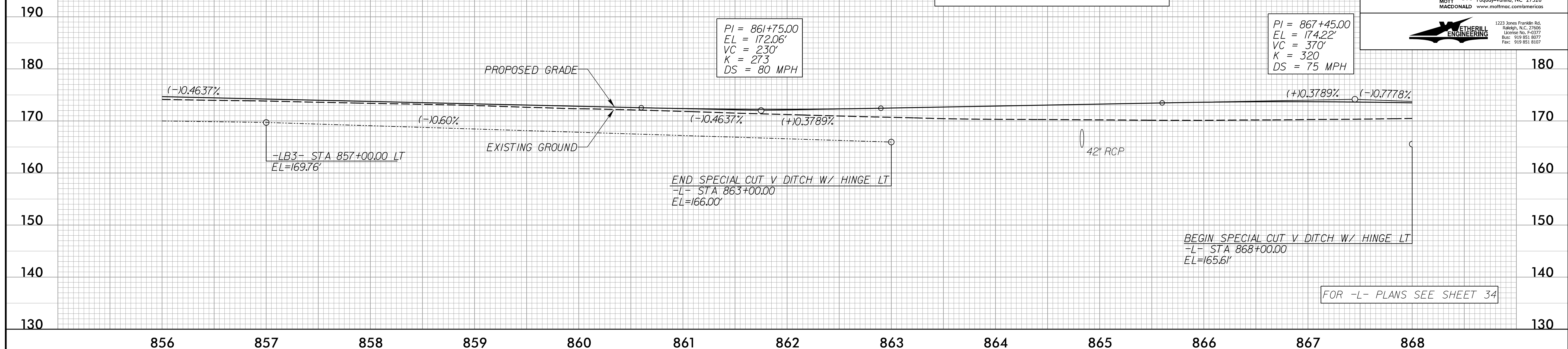
5/14/99

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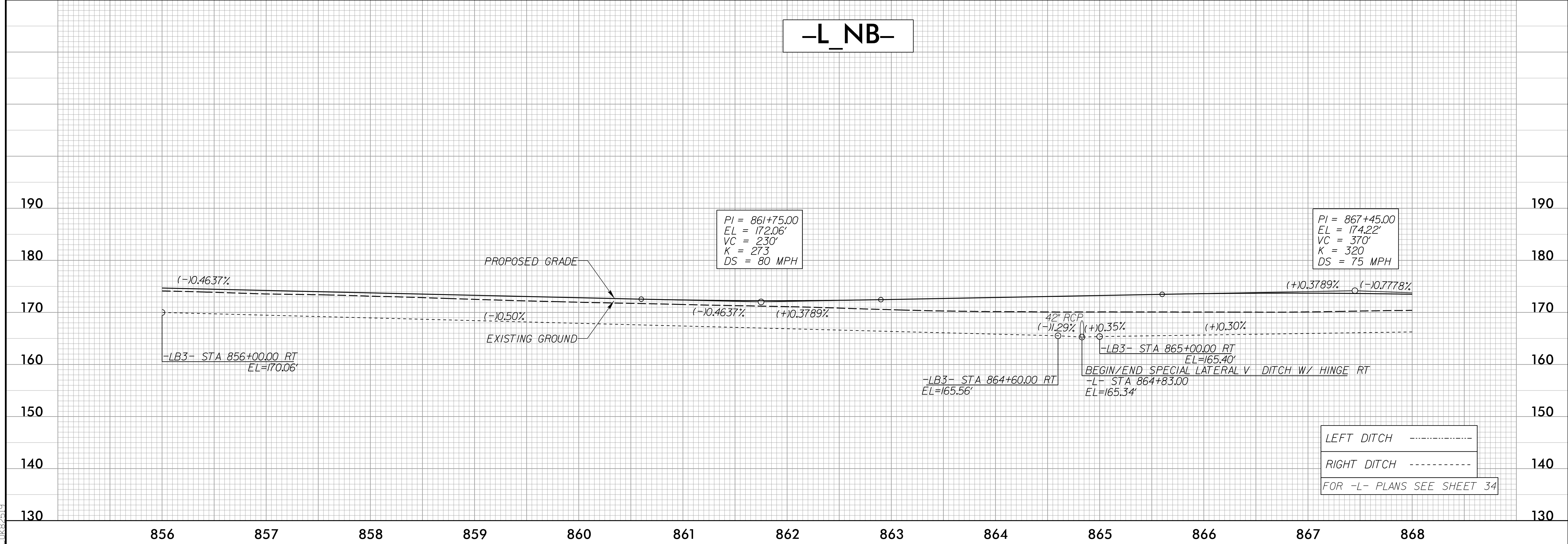
PIPE HYDRAULIC DATA
-L- Sta. 864+83

DRAINAGE AREA	= 11	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 47.5	CFS
DESIGN HW ELEVATION	= 169.09	FT
100 YEAR DISCHARGE	= 47.5	CFS
100 YEAR HW ELEVATION	= 169.09	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 76	CFS
OVERTOPPING ELEVATION	= 172.05	FT

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 79
ROADWAY DESIGN ENGINEER MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:  MOTT MACDONALD 7621 Purfoy Rd., Suite 115, Fuquay-Varina, NC 27526, www.mottmac.com/americas	
 1223 Jones Franklin Rd., Raleigh, NC 27606, License No. F-0377, Dist: 919 851 8077, Fax: 919 851 8107	



-L_NB-

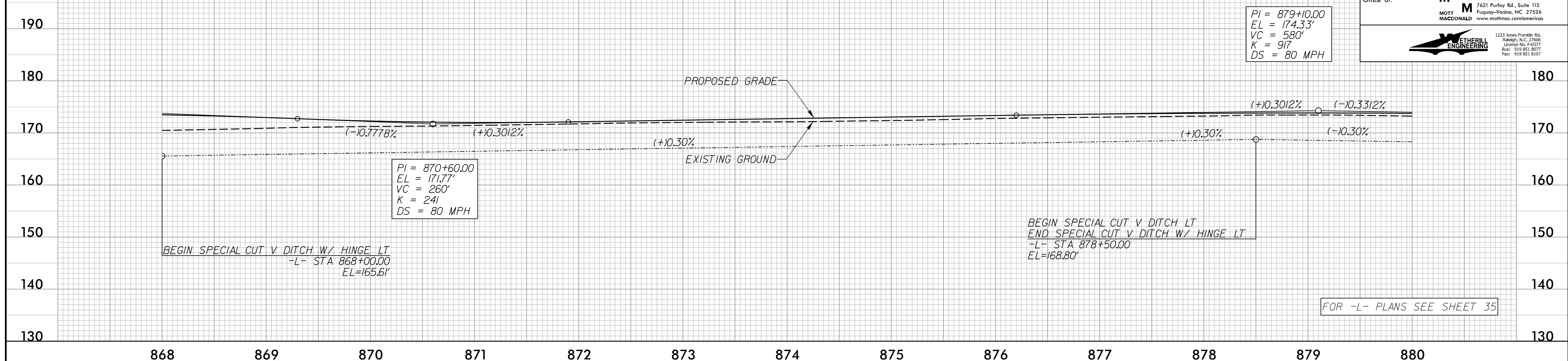


4/18/2002
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5/14/99

-L_SB-

PROJECT REFERENCE NO. 1-5987B	SHEET NO. 80
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD
	7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
	1223 Jones Franklin Rd. Salisbury, NC 27066 License No. F-0377 Elic: 919 851 8077 Fax: 919 851 8107



PI = 879+10.00
EL = 174.33'
VC = 580'
K = 917
DS = 80 MPH

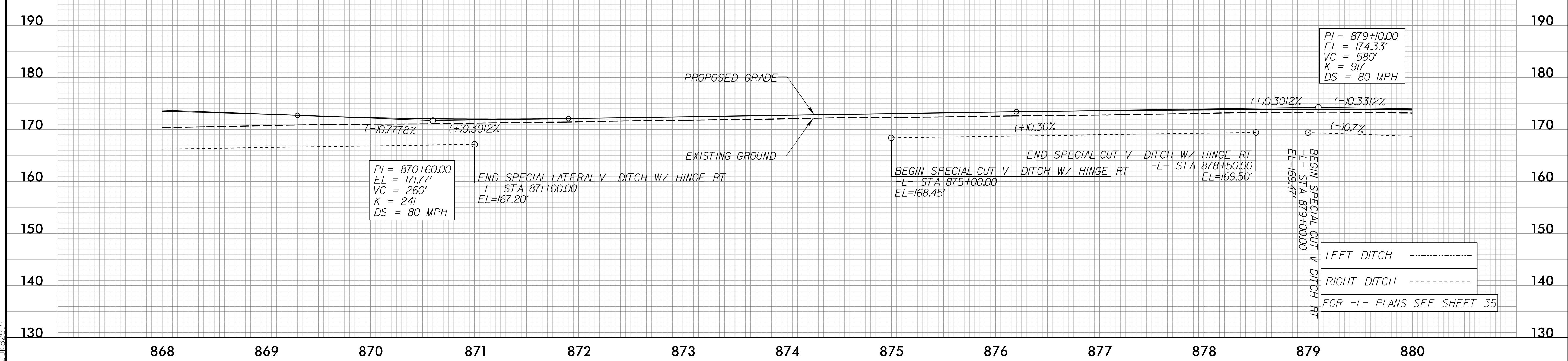
PI = 870+60.00
EL = 171.77'
VC = 260'
K = 241
DS = 80 MPH

BEGIN SPECIAL CUT V DITCH W/ HINGE LT
-L- STA 868+00.00
EL=165.6'

BEGIN SPECIAL CUT V DITCH LT
END SPECIAL CUT V DITCH W/ HINGE LT
-L- STA 878+50.00
EL=168.80'

FOR -L- PLANS SEE SHEET 35

-L_NB-



PI = 879+10.00
EL = 174.33'
VC = 580'
K = 917
DS = 80 MPH

PI = 870+60.00
EL = 171.77'
VC = 260'
K = 241
DS = 80 MPH

END SPECIAL LATERAL V DITCH W/ HINGE RT
-L- STA 871+00.00
EL=167.20'

END SPECIAL CUT V DITCH W/ HINGE RT
BEGIN SPECIAL CUT V DITCH W/ HINGE RT
-L- STA 875+00.00
EL=168.45'
-L- STA 878+50.00
EL=169.50'


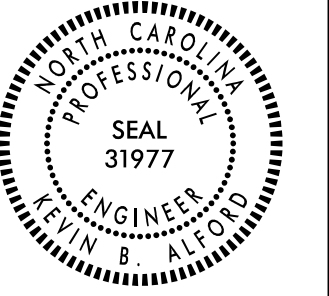

BEGIN SPECIAL CUT V DITCH RT
-L- STA 879+00.00
EL=169.47'

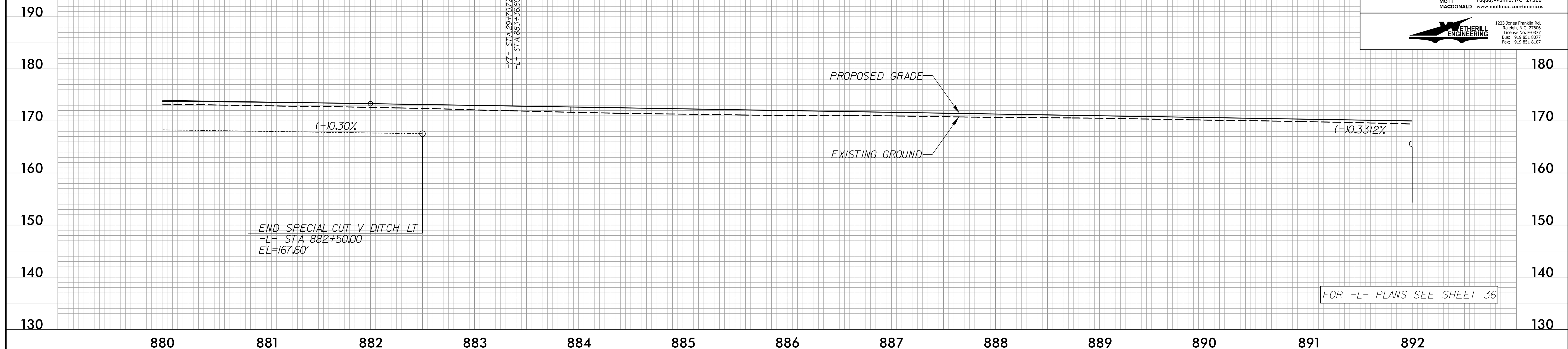
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FOR -L- PLANS SEE SHEET 35

4/18/2002
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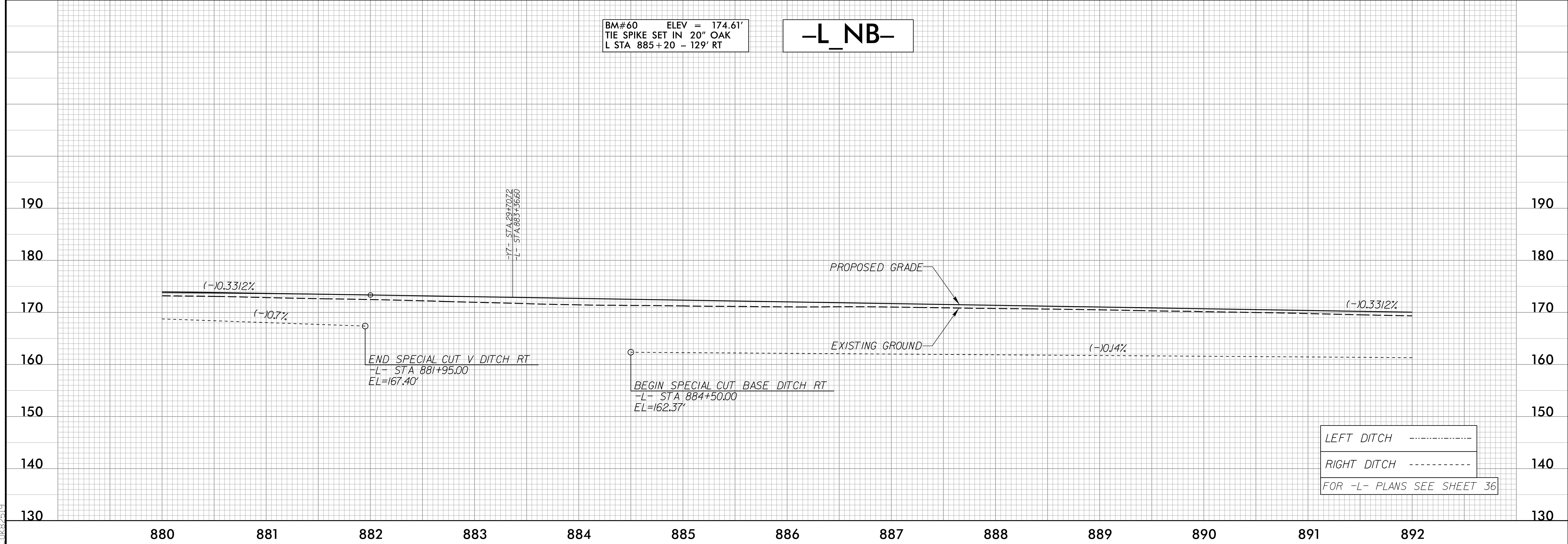
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 81
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
	
1223 Jones Franklin Rd. Salem, N.C. 27066 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	




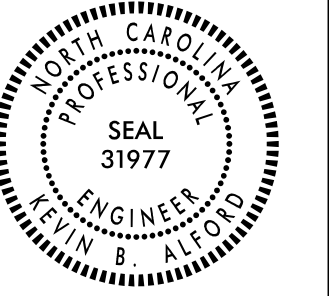


BM#60 ELEV = 174.61'
TIE SPIKE SET IN 20" OAK
L STA 885+20 - 129' RT

-L_NB-



4/16/2002
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5/14/99

PROJECT REFERENCE NO. 1-5987B		SHEET NO. 82	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		 MOTT MACDONALD 7621 Purfoy Rd., Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
		 1223 Jones Franklin Rd. Raleigh, NC 27606 License No. F-0377 Dist: 919 851 8077 Fax: 919 851 8107	

-L_SB-

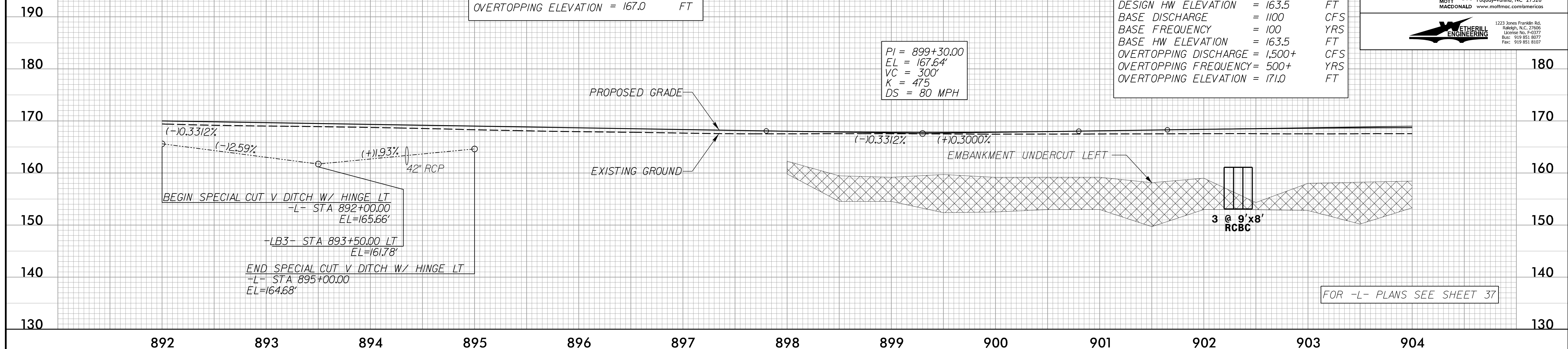
PIPE HYDRAULIC DATA
-L- Sta. 894+34

DRAINAGE AREA	= 7.0	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 32.0	CFS
DESIGN HW ELEVATION	= 164.4	FT
100 YEAR DISCHARGE	= 32.0	CFS
100 YEAR HW ELEVATION	= 164.4	FT
OVERTOPPING FREQUENCY	= 500+/-	YRS
OVERTOPPING DISCHARGE	= 60	CFS
OVERTOPPING ELEVATION	= 167.0	FT

CULVERT HYDRAULIC DATA

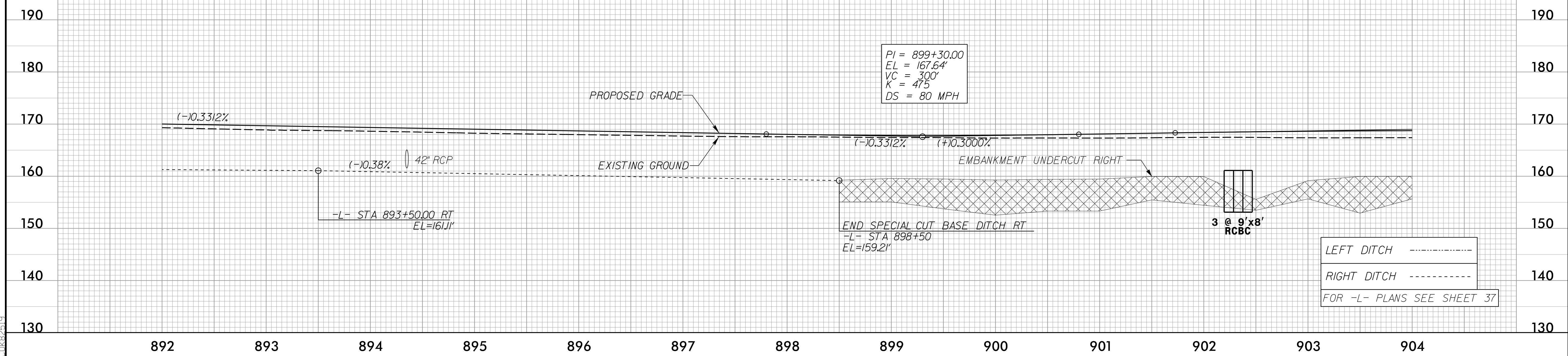
DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 163.5	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 163.5	FT
OVERTOPPING DISCHARGE	= 1500+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 171.0	FT

PI = 899+30.00
 EL = 167.64'
 VC = 300'
 K = 475
 DS = 80 MPH



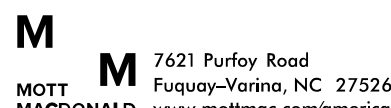

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PI = 899+30.00
 EL = 167.64'
 VC = 300'
 K = 475
 DS = 80 MPH



4/16/2002
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C:\Users\jwaller

5/14/99

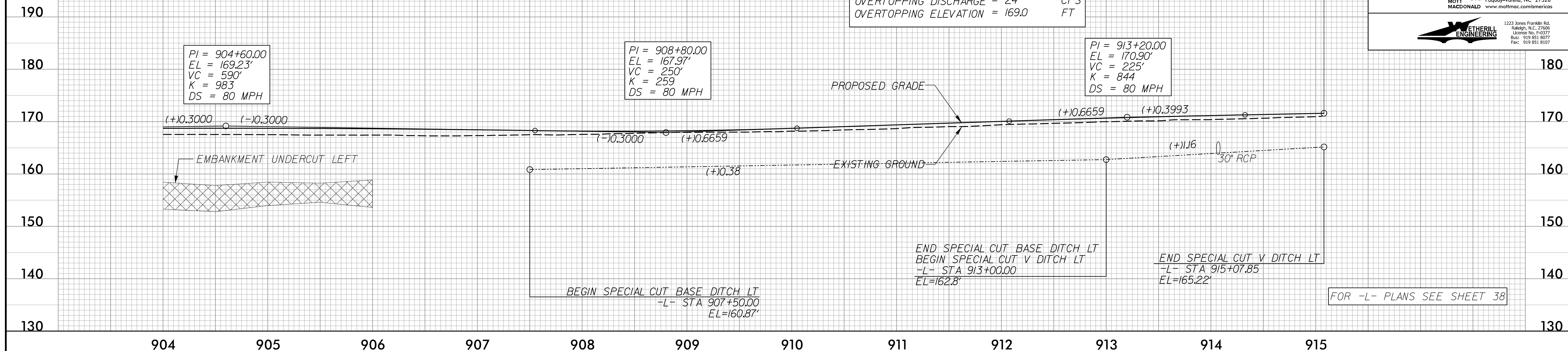
PROJECT REFERENCE NO. 1-5987B		SHEET NO. 83	
ROADWAY DESIGN ENGINEER DAVID C. WALKER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22606		HYDRAULICS ENGINEER DAVID B. ALDRED NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 31977	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		WETHERILL ENGINEERING, LLC. LICENSE NO. F-0377	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		 MOTT MACDONALD 7621 Purfoy Road Fayetteville, NC 27526 www.mottmac.com/americas	
		 1223 Jones Franklin Rd. Salisbury, NC 27305 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	

-L SB-

PIPE HYDRAULIC DATA
-L- Sta. 914+06

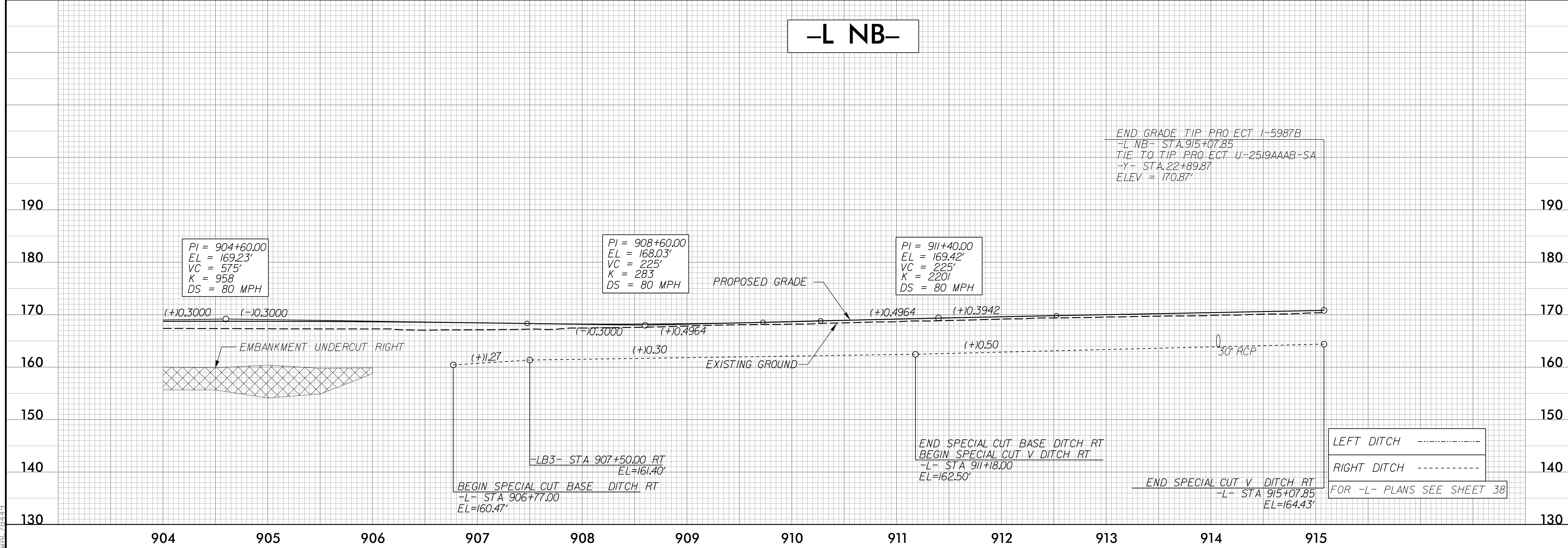
DRAINAGE AREA	= 5.0	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 17.0	CFS
DESIGN HW ELEVATION	= 166.7	FT
100 YEAR DISCHARGE	= 17.0	CFS
100 YEAR HW ELEVATION	= 166.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 24	CFS
OVERTOPPING ELEVATION	= 169.0	FT

END GRADE TIP PROJECT 1-5987B
-L SB- STA. 915+07.85
TIE TO TIP PROJECT U-2519AAAB-SA
-Y- STA. 22+89.87
ELEV = 171.65'



-L NB-

END GRADE TIP PROJECT 1-5987B
-L NB- STA. 915+07.85
TIE TO TIP PROJECT U-2519AAAB-SA
-Y- STA. 22+89.87
ELEV = 170.87'



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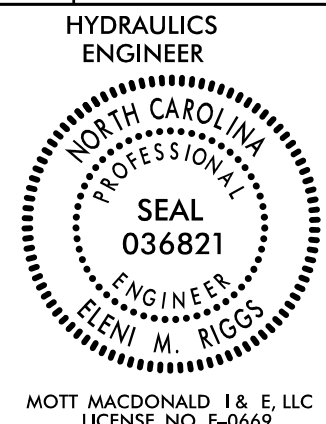
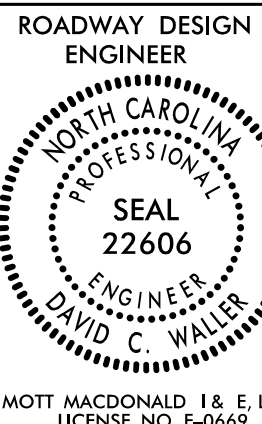
5/14/99

Prepared in the Office of:

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PROJECT REFERENCE NO. 1-5987B

SHEET NO. 84



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA
36" RCP-III Sta.16+73 -Y4-

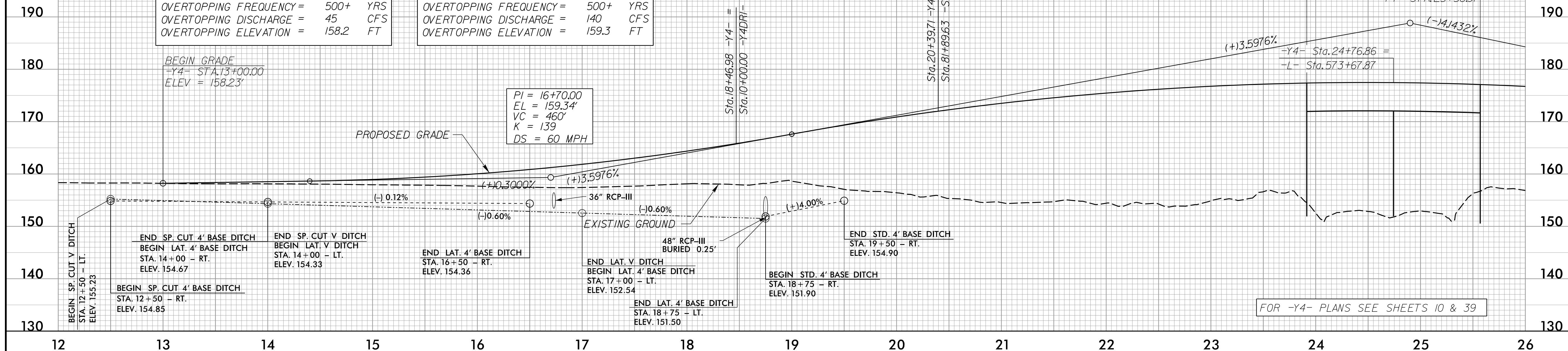
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DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	33	CFS
DESIGN HW ELEVATION	=	157.2	FT
100 YEAR DISCHARGE	=	35	CFS
100 YEAR HW ELEVATION	=	157.3	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	45	CFS
OVERTOPPING ELEVATION	=	158.2	FT

PIPE HYDRAULIC DATA
48" RCP-III Sta.18+75 -Y4-

DRAINAGE AREA	=	16.3	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	61	CFS
DESIGN HW ELEVATION	=	155.8	FT
100 YEAR DISCHARGE	=	65	CFS
100 YEAR HW ELEVATION	=	156.0	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	140	CFS
OVERTOPPING ELEVATION	=	159.3	FT

-Y4-

PI = 24+90.00
EL = 188.84'
VC = 1,180'
K = 152
DS = 60 MPH



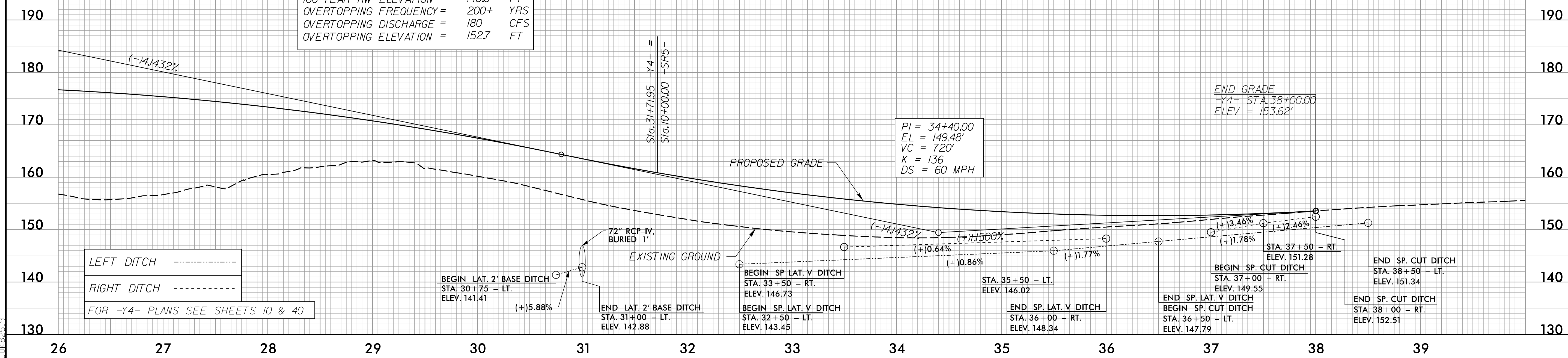
FOR -Y4- PLANS SEE SHEETS 10 & 39

PIPE HYDRAULIC DATA
72" RCP-IV Sta.31+00 -Y4-

DRAINAGE AREA	=	137.9	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	140	CFS
DESIGN HW ELEVATION	=	148.1	FT
100 YEAR DISCHARGE	=	160	CFS
100 YEAR HW ELEVATION	=	148.6	FT
OVERTOPPING FREQUENCY	=	200+	YRS
OVERTOPPING DISCHARGE	=	180	CFS
OVERTOPPING ELEVATION	=	152.7	FT

-Y4-

PI = 34+40.00
EL = 149.48'
VC = 720'
K = 136
DS = 60 MPH



LEFT DITCH
RIGHT DITCH
FOR -Y4- PLANS SEE SHEETS 10 & 40

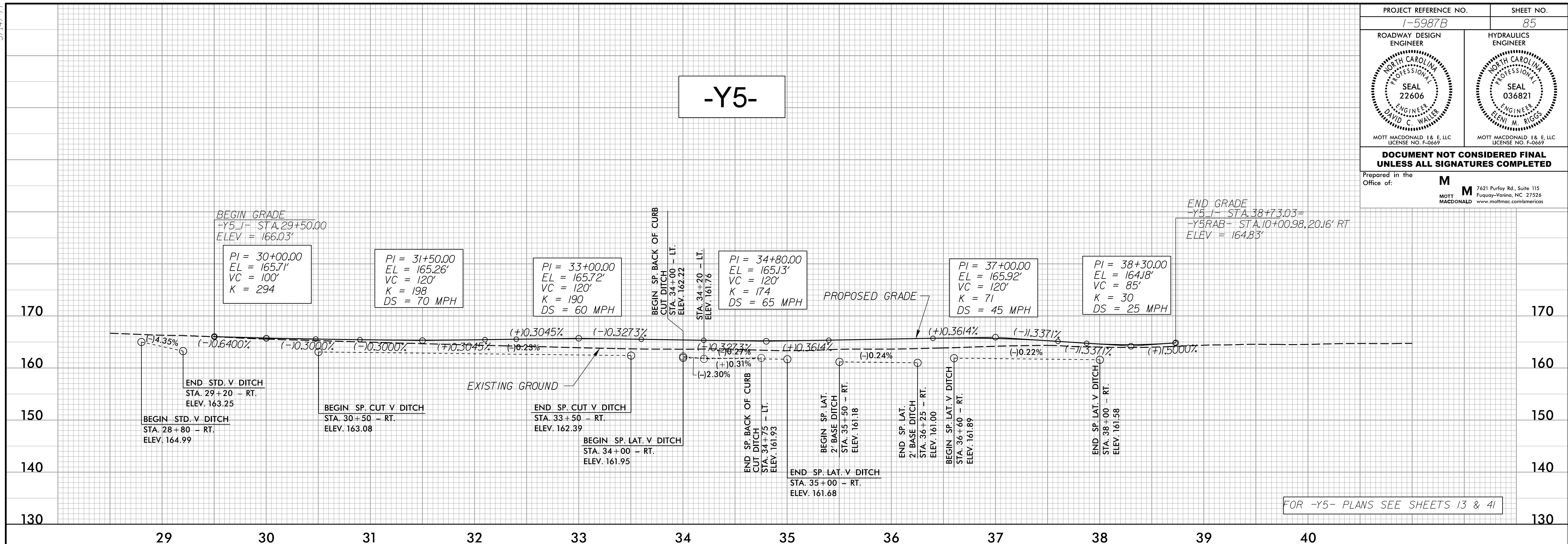
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5/14/99

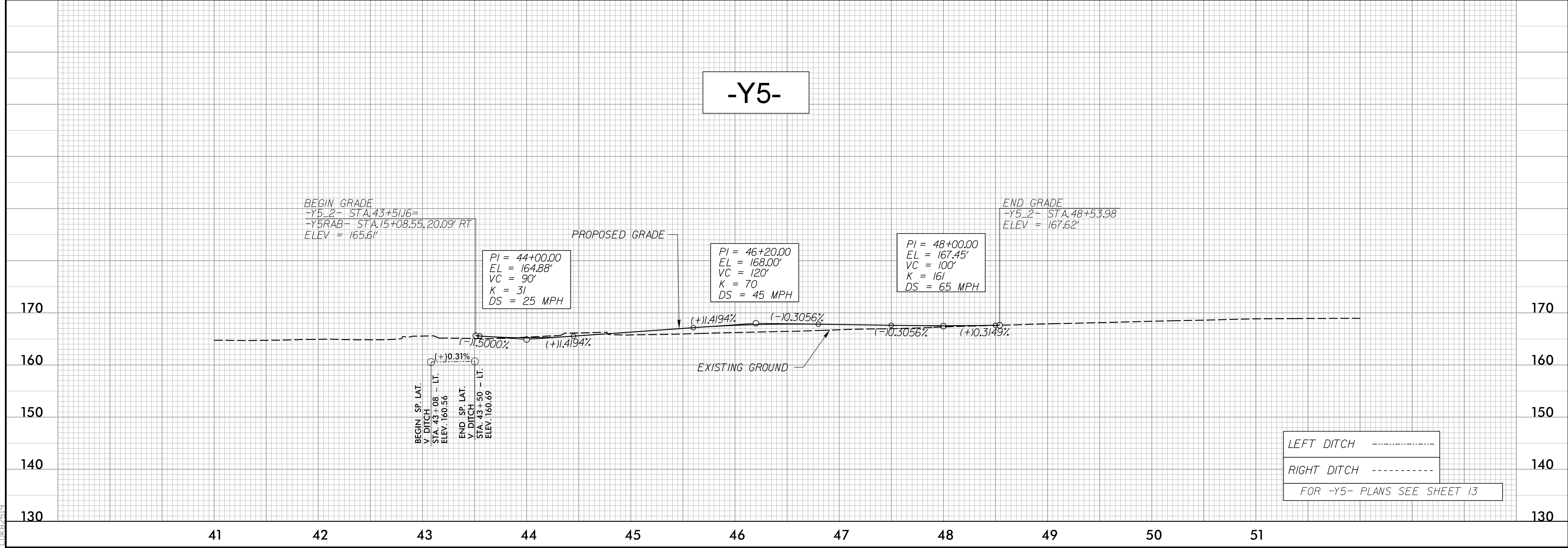
PROJECT REFERENCE NO. 1-5987B	SHEET NO. 85
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

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UNLESS ALL SIGNATURES COMPLETED

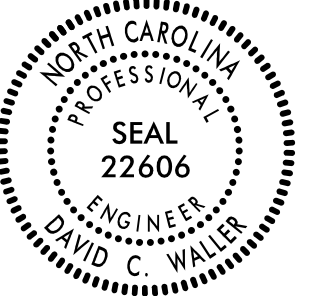
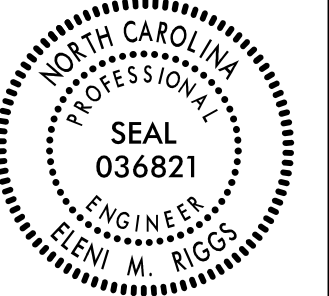
Prepared in the Office of: **M**
MOTT MACDONALD I & E, LLC
7621 Purfoy Rd., Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com/americas



4/18/2022
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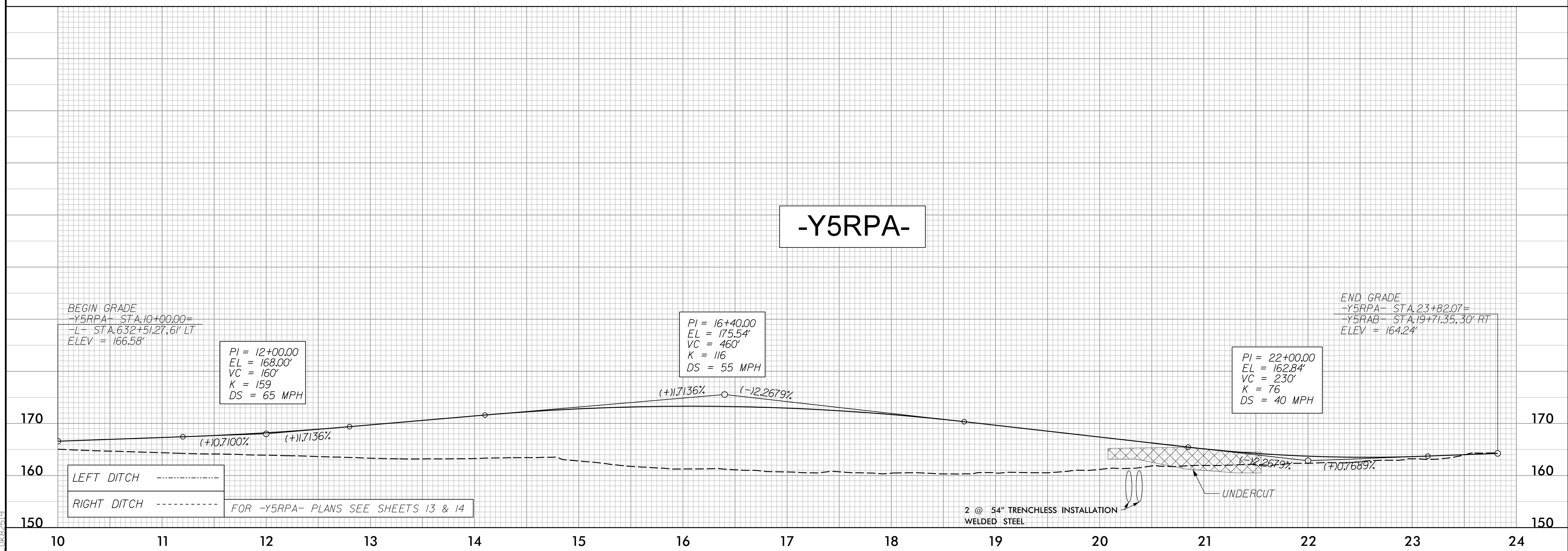
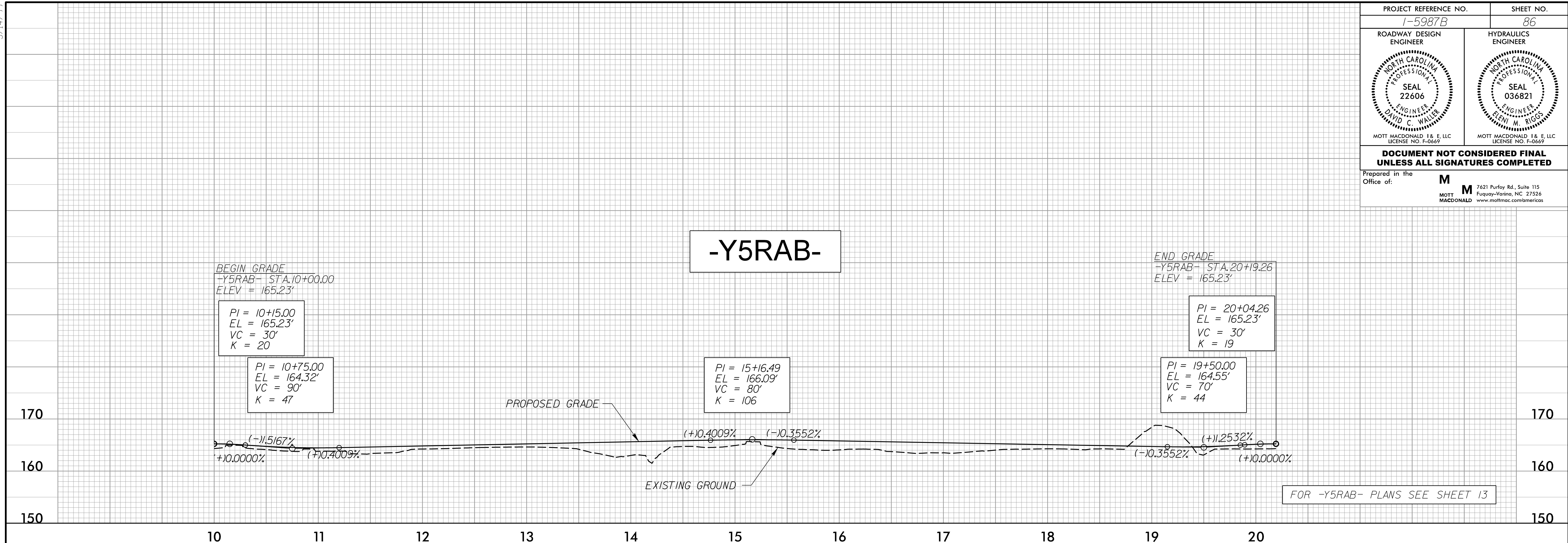


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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 86
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	

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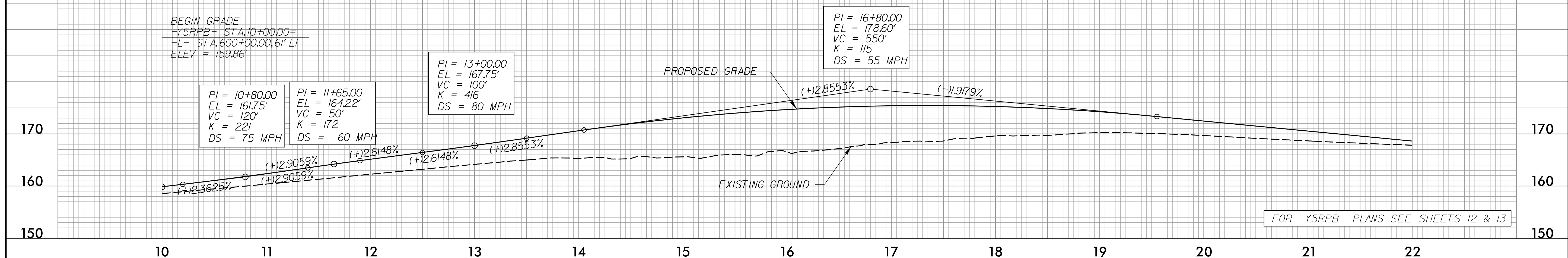
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 87
ROADWAY DESIGN ENGINEER DAVID C. WALLER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER ALEX M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

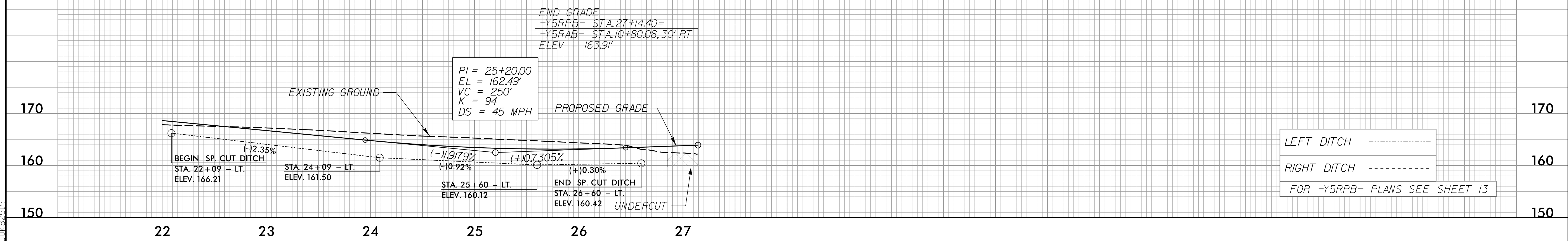
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-Y5RPB-



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DWG 8/25/99

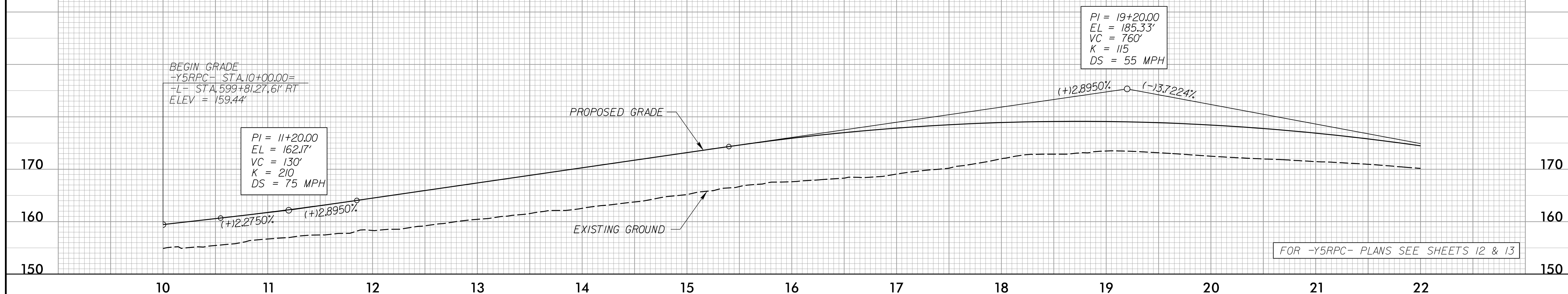
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 88
ROADWAY DESIGN ENGINEER DAVID C. WALLER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER ALEX W. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

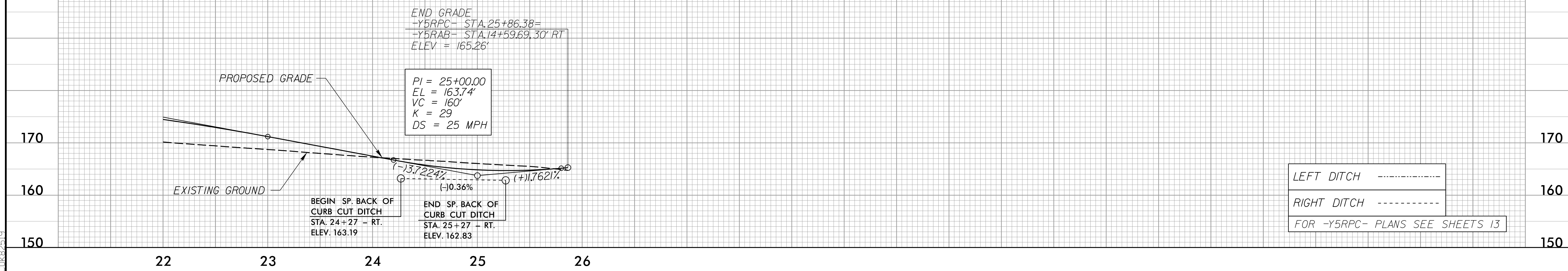
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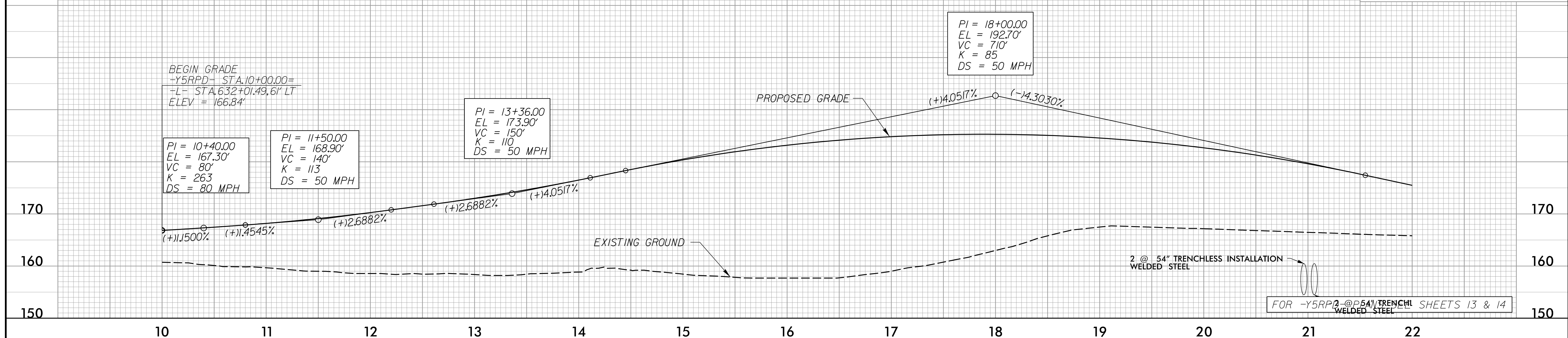
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PROJECT REFERENCE NO. 1-5987B	SHEET NO. 89
ROADWAY DESIGN ENGINEER DAVID C. WALLER SEAL 22606 NORTH CAROLINA PROFESSIONAL ENGINEERS	HYDRAULICS ENGINEER ELEN M. RIGGS SEAL 036821 NORTH CAROLINA PROFESSIONAL ENGINEERS
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

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-Y5RPD-



-Y5RPD-



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5/28/99

BM#63 ELEV = 174.93'
N 396384 E 2006026
TIE SPIKE SET IN 35" OAK
YIB STA N/A

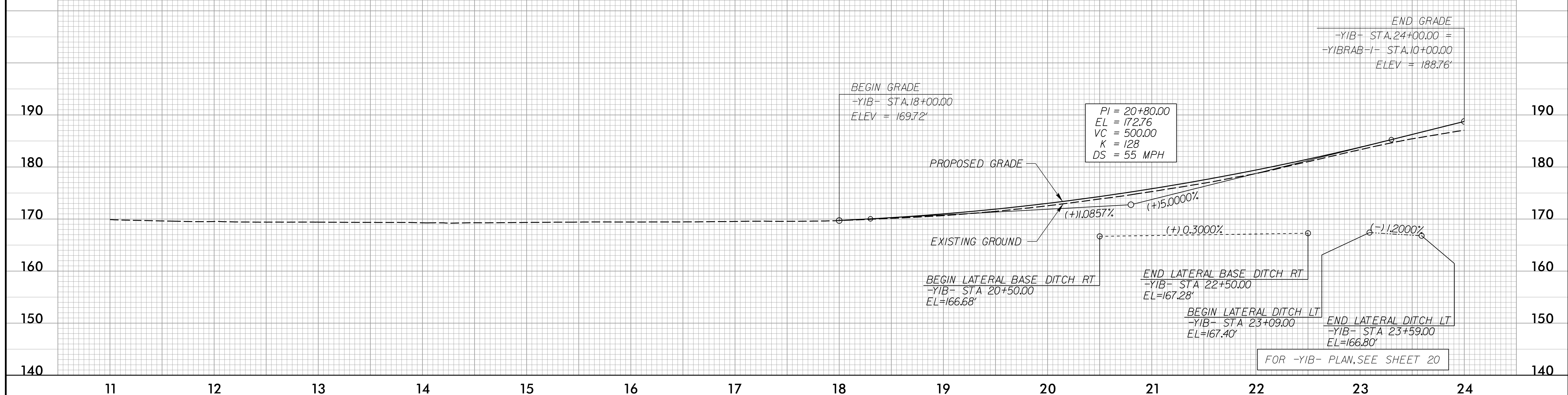
-Y1B-

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

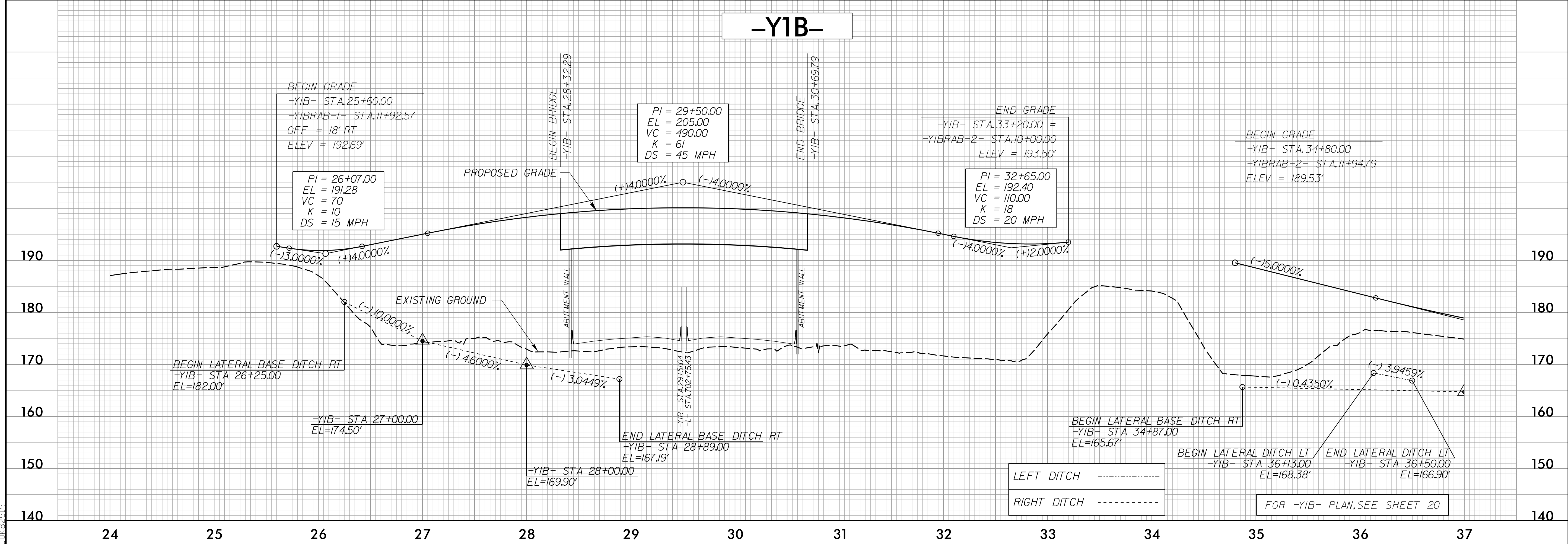
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO. <i>1-5987B</i>	SHEET NO. <i>90</i>
ROADWAY DESIGN ENGINEER <i>BOB A. MAY</i>	HYDRAULICS ENGINEER <i>KEVIN B. ALDRED</i>
SEAL 21116 NORTH CAROLINA PROFESSIONAL ENGINEERS	SEAL 31977 NORTH CAROLINA PROFESSIONAL ENGINEERS
WETHERILL ENGINEERING, LLC LICENSE NO. F-0377	WETHERILL ENGINEERING, LLC LICENSE NO. F-0377

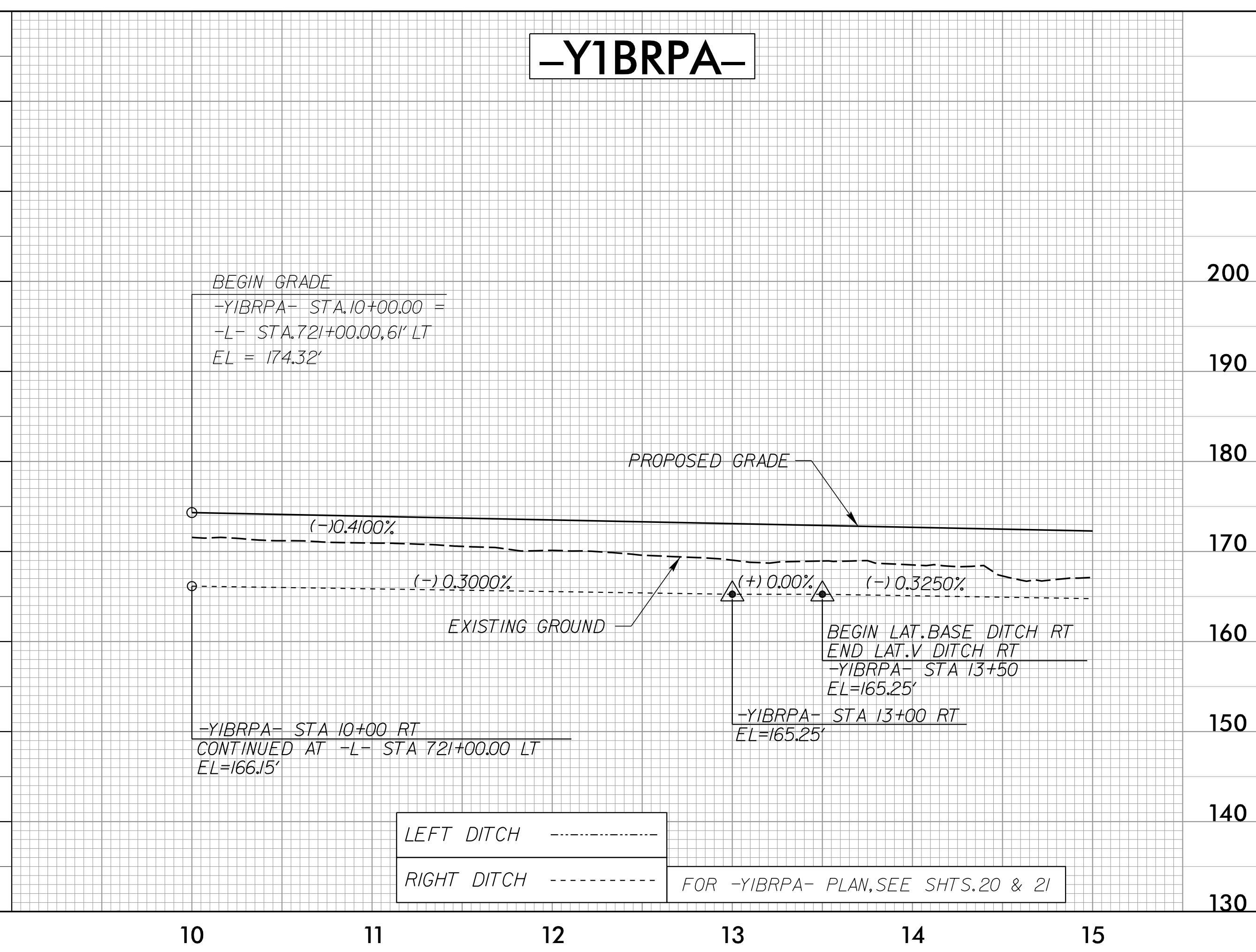
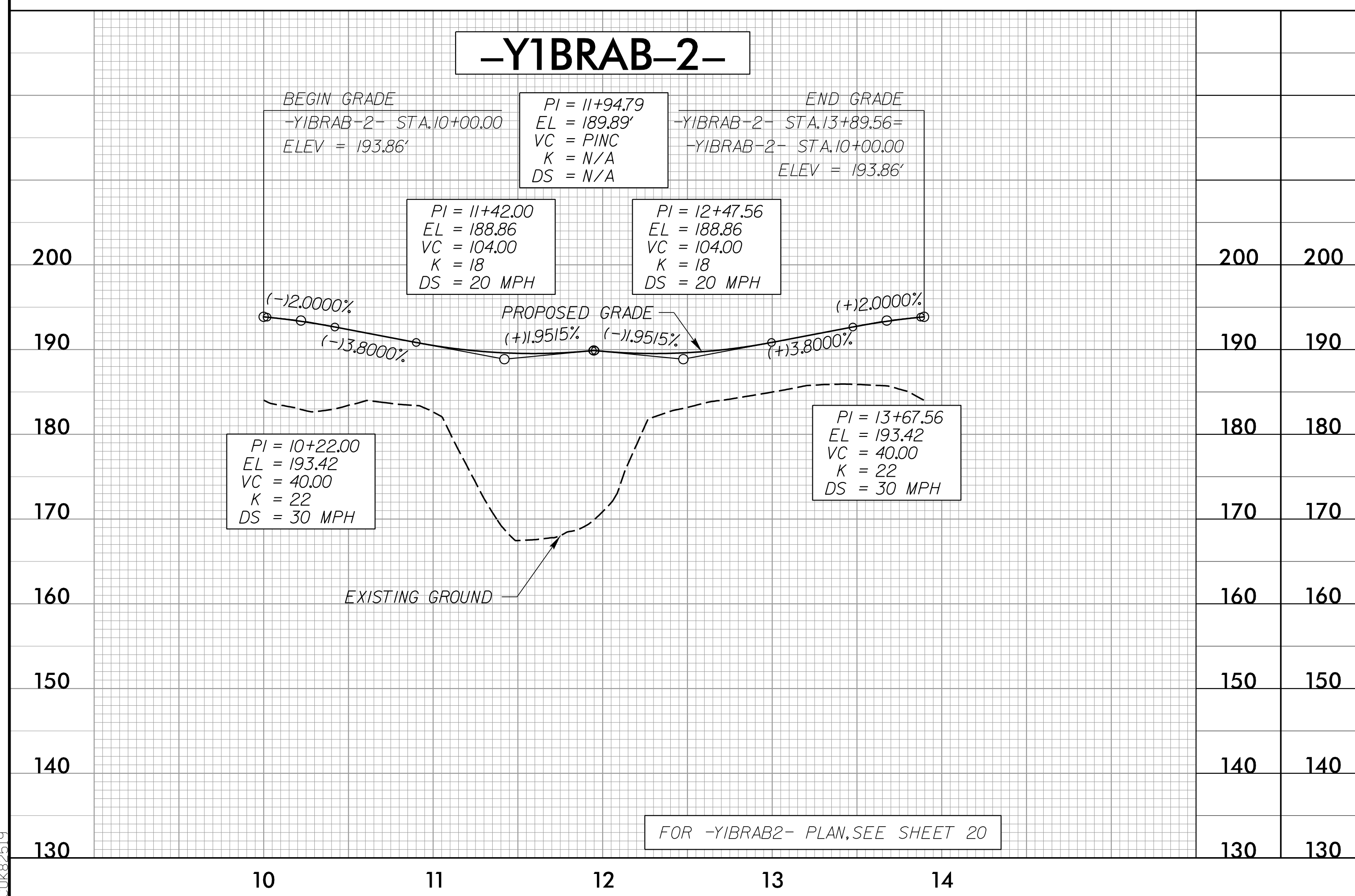
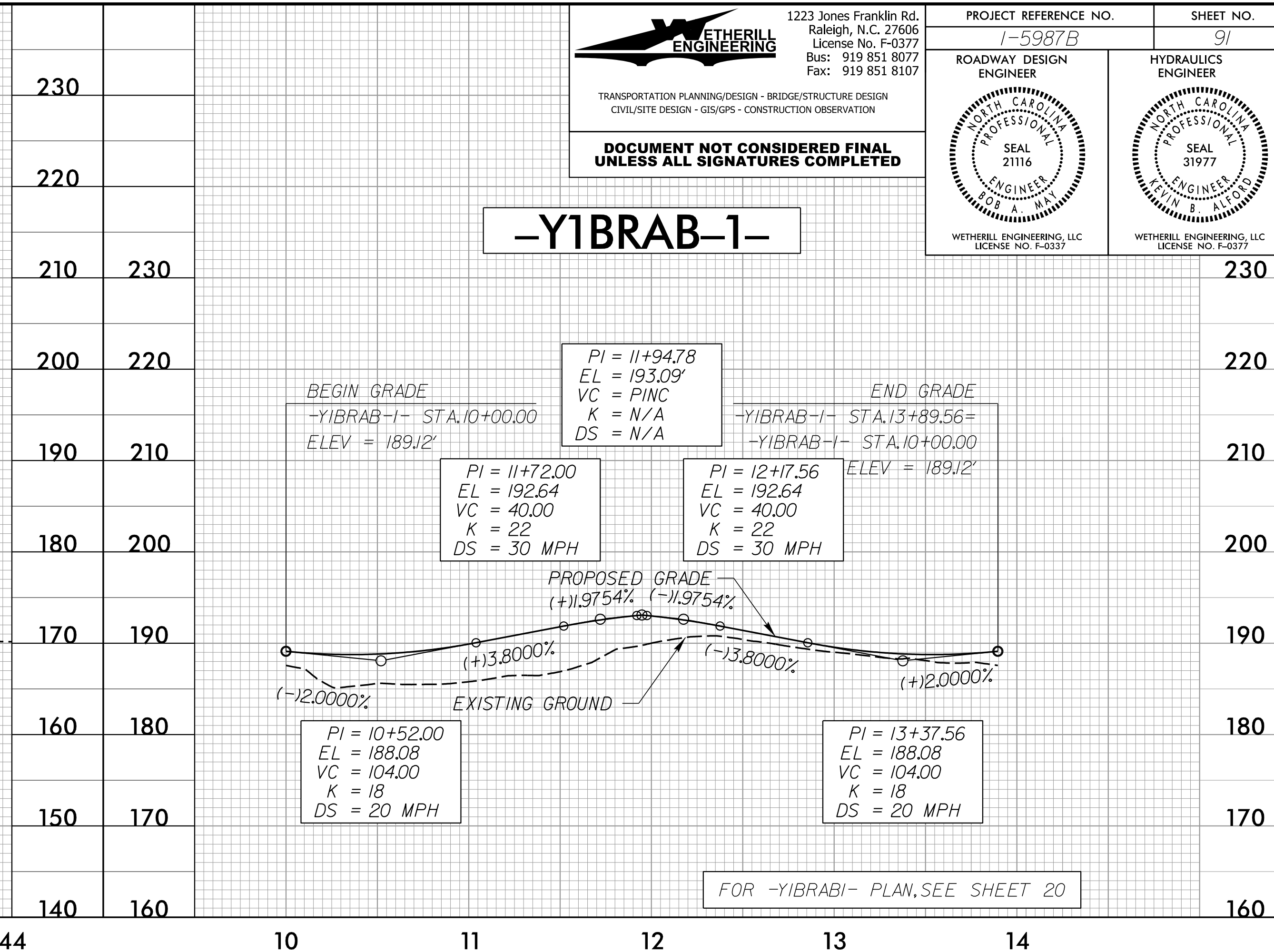
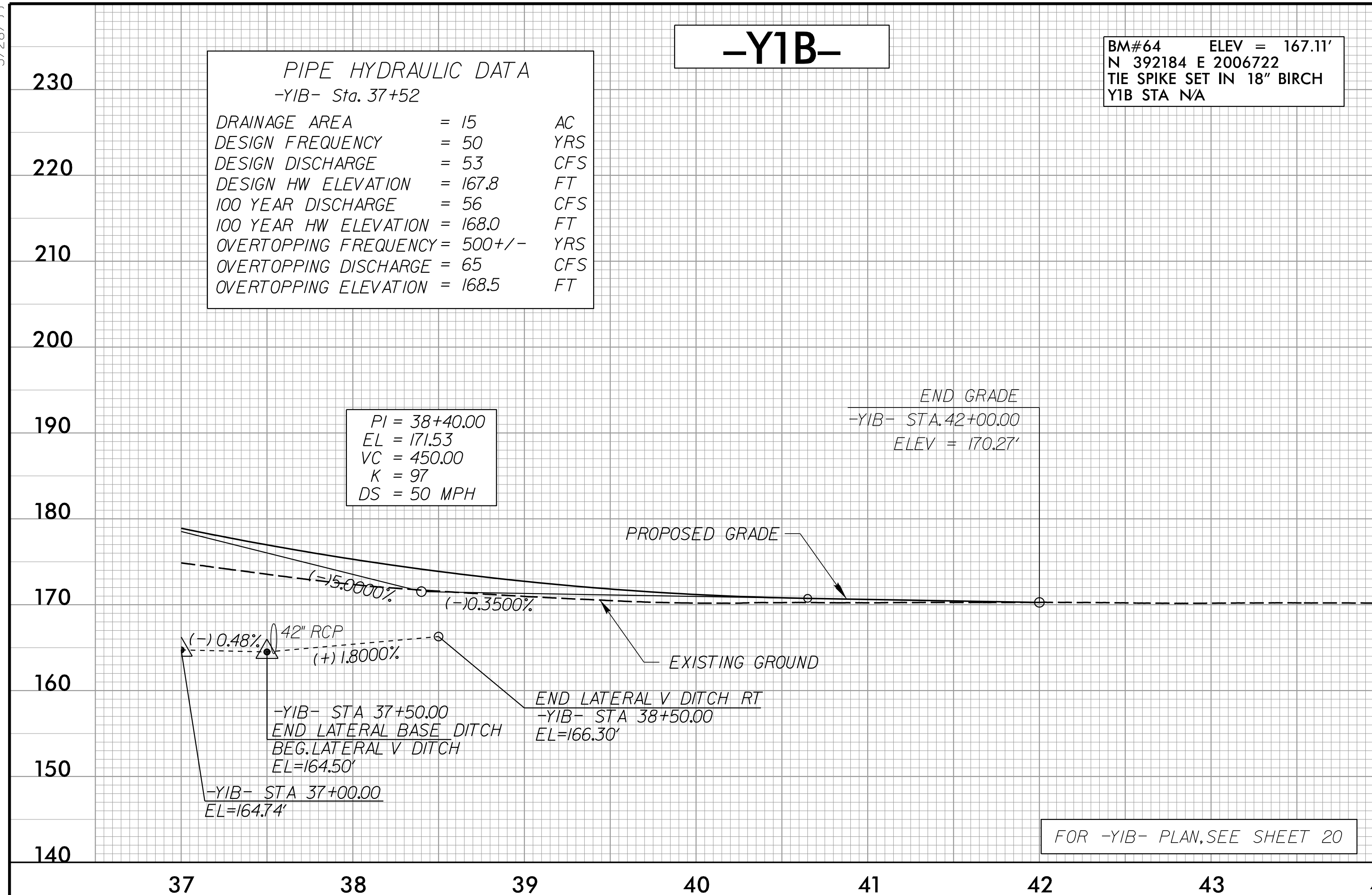


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4/18/2002
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5/28/99



4/18/2002
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