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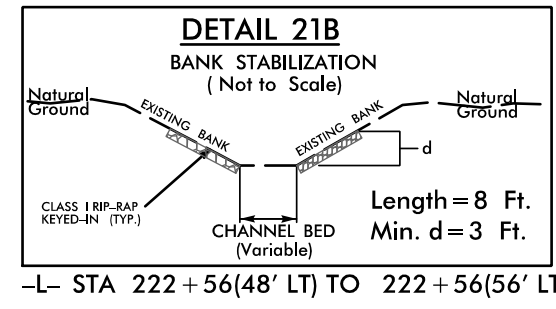
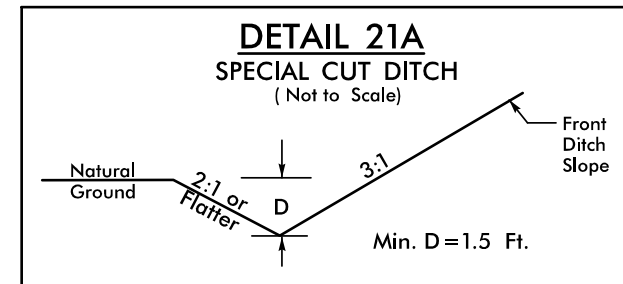
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and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

8/17/09

-L- CURVE DATA

PI Sta 219+95.61	PI Sta 234+84.86
$\Delta = 36^{\circ} 39' 28.8"$ (LT)	$\Delta = 12^{\circ} 40' 17.1"$ (RT)
$D = 2^{\circ} 17' 30.6"$	$D = 1^{\circ} 54' 35.5"$
$L = 1599.51'$	$L = 663.47'$
$T = 828.20'$	$T = 333.10'$
$R = 2500.00'$	$R = 3000.00'$
$SE = 0.06$	$SE = 0.05$
$DS = 60$ MPH	$DS = 60$ MPH



NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE, FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

-L- STA 227+16 TO 228+50 RT
SEE PFL FOR DITCH GRADES

-L- STA 222+56(48' LT) TO 222+56(56' LT)

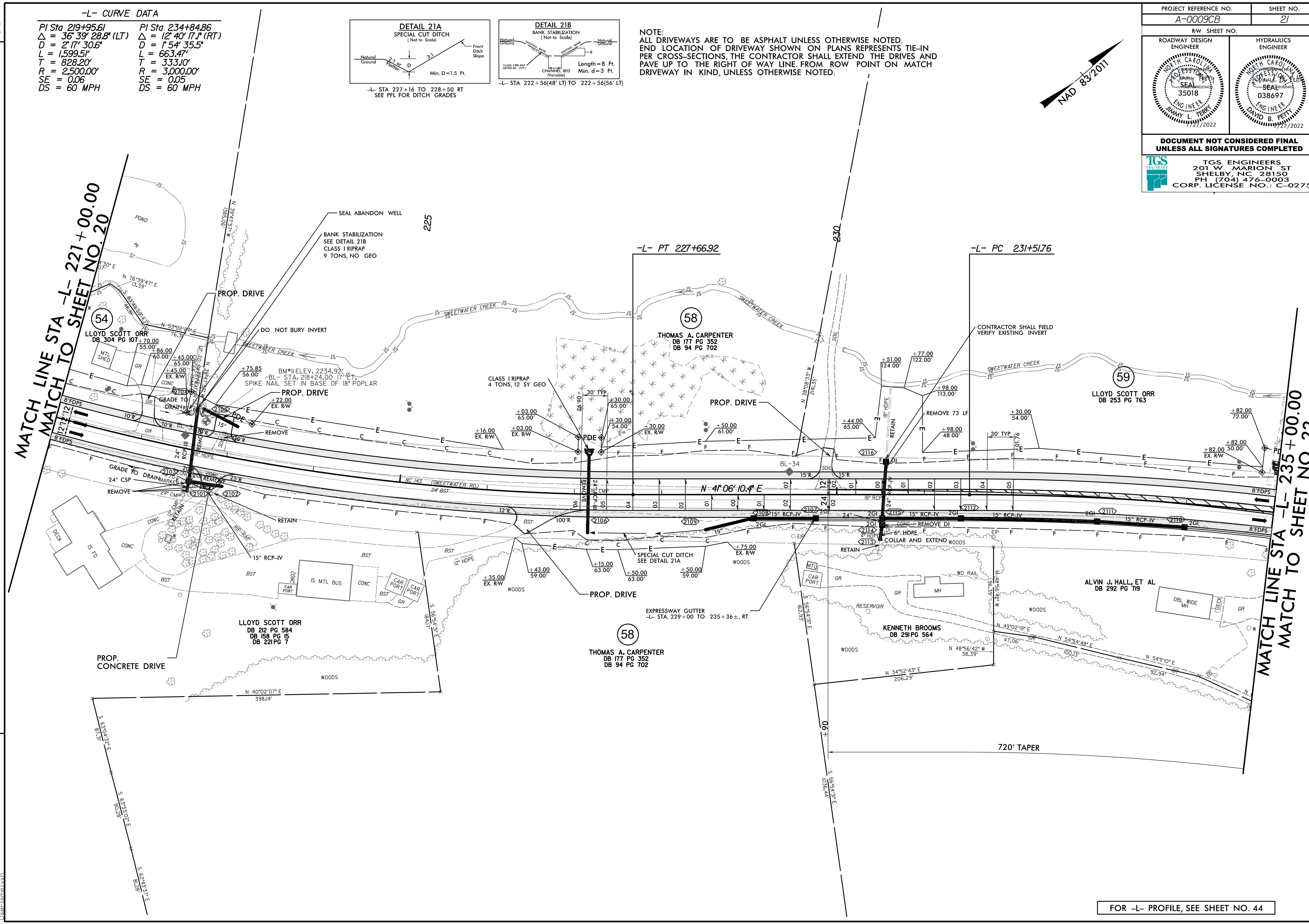


PROJECT REFERENCE NO. A-0009CB	SHEET NO. 21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

REVISIONS

MATCH LINE STA -L- 221+00.00
MATCH TO SHEET NO. 20

MATCH LINE STA -L- 235+00.00
MATCH TO SHEET NO. 22



FOR -L- PROFILE, SEE SHEET NO. 44

8/19/2009
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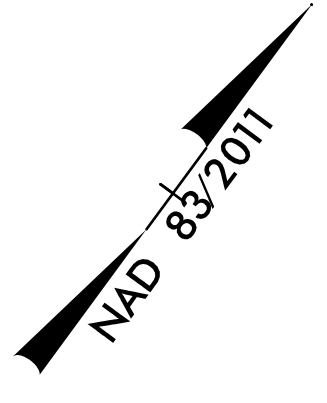
8/17/09

-L- CURVE DATA

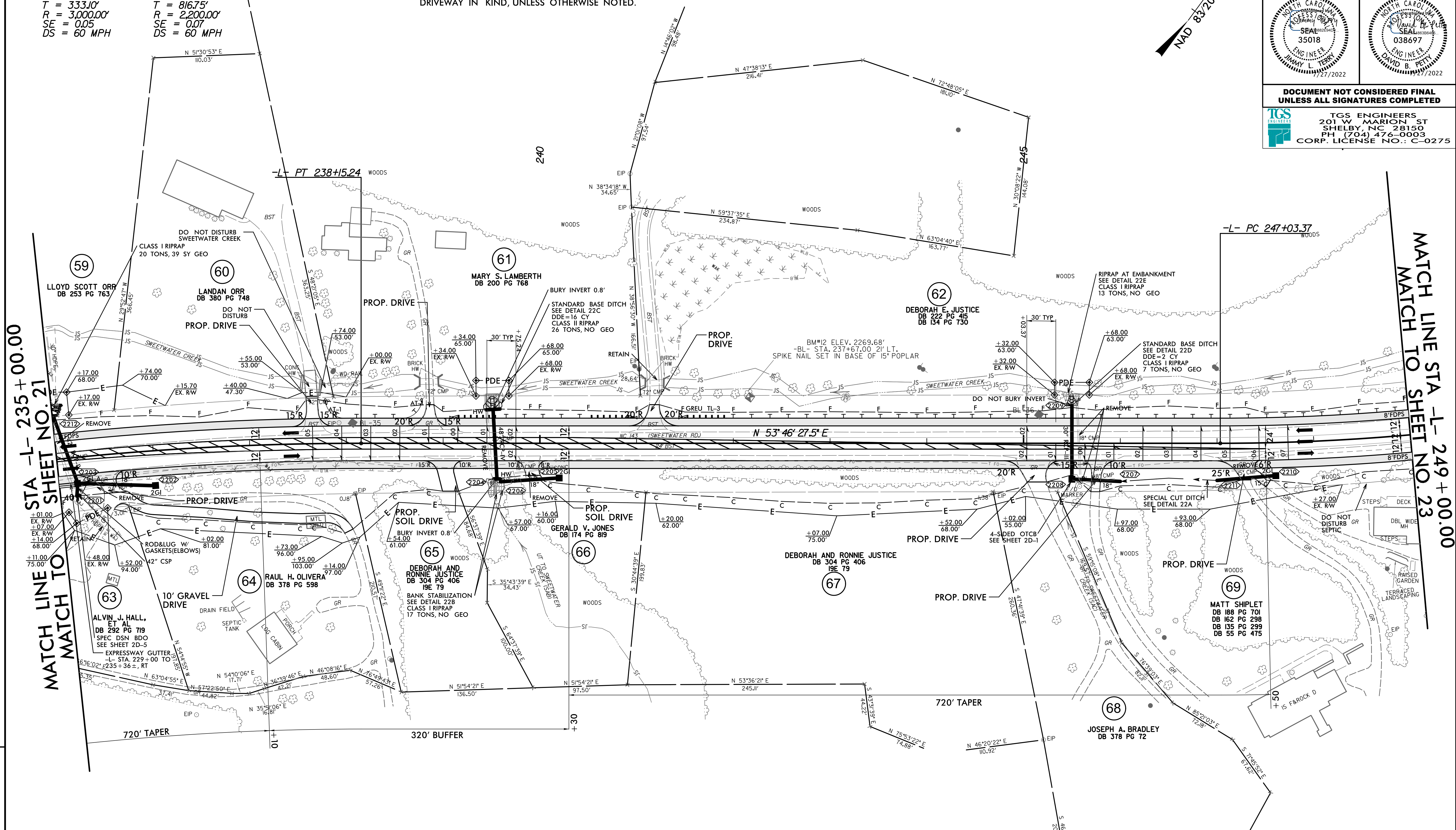
PI Sta 234+84.86	PI Sta 255+20.12
$\Delta = 12^\circ 40' 17.1''$ (RT)	$\Delta = 40^\circ 44' 05.0''$ (LT)
$D = 154' 35.5''$	$D = 2' 36' 15.7''$
$L = 663.47'$	$L = 1564.10'$
$T = 333.10'$	$T = 816.75'$
$R = 3,000.00'$	$R = 2,200.00'$
$SE = 0.05$	$SE = 0.07$
$DS = 60$ MPH	$DS = 60$ MPH

NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
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 PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND
 PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH
 DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 22
ROADWAY DESIGN ENGINEER TERRY J. TERRY 35018 7/27/2022	HYDRAULICS ENGINEER DAVID B. PETTIT 038697 7/27/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

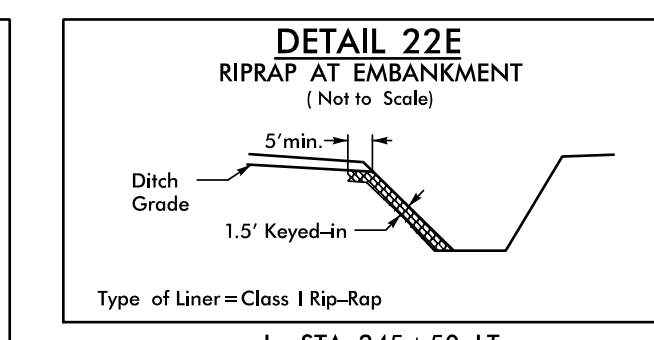
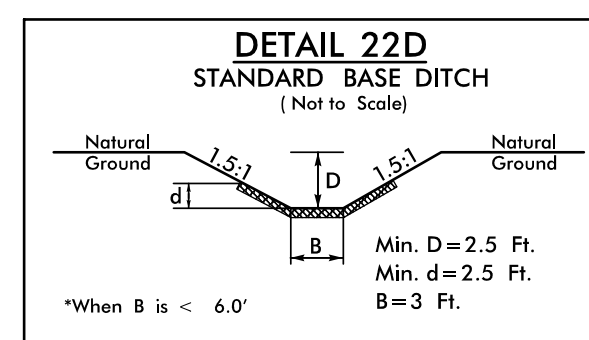
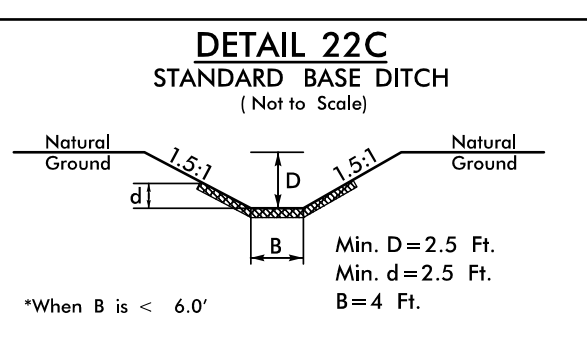
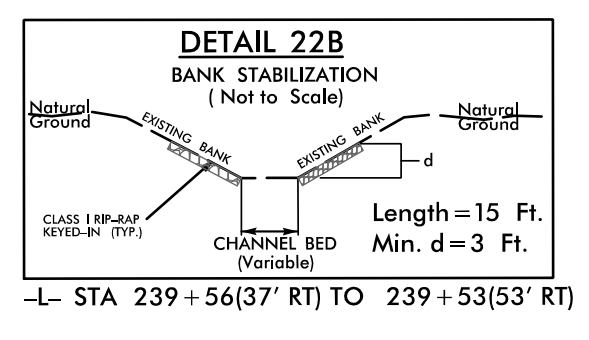
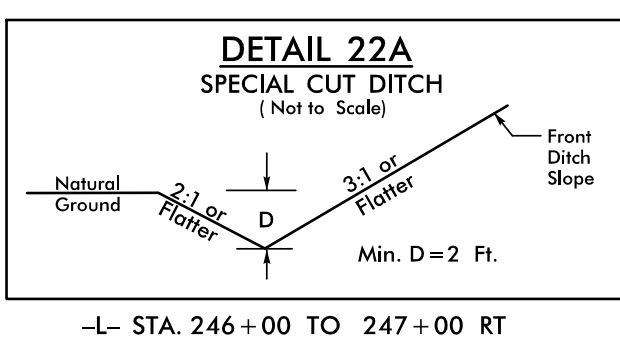


REVISIONS



MATCH LINE STA -L- 235 + 00.00
MATCH LINE TO SHEET NO. 21

MATCH LINE STA -L- 249 + 00.00
MATCH LINE TO SHEET NO. 23

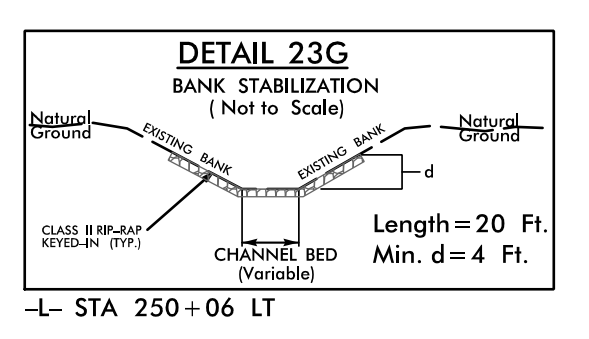
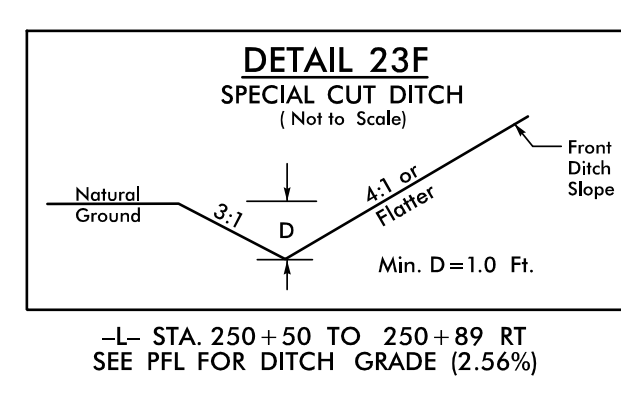
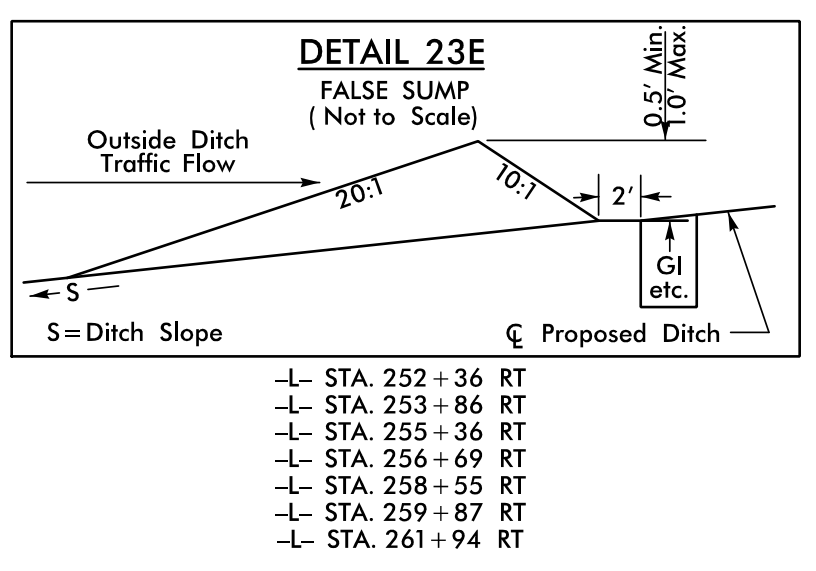
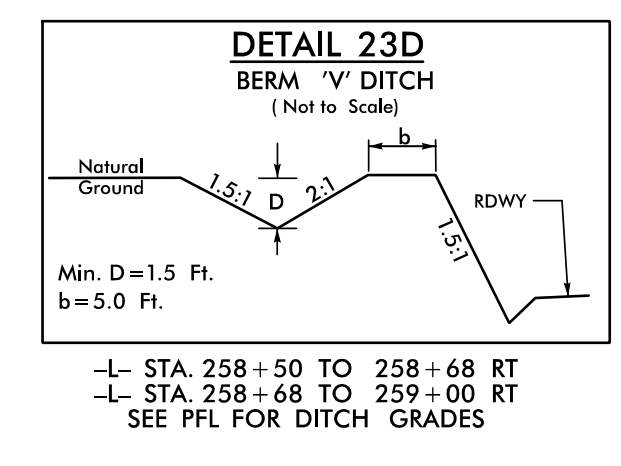
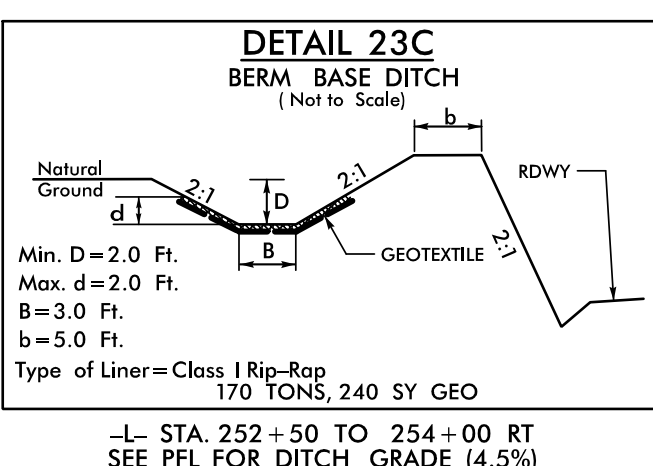
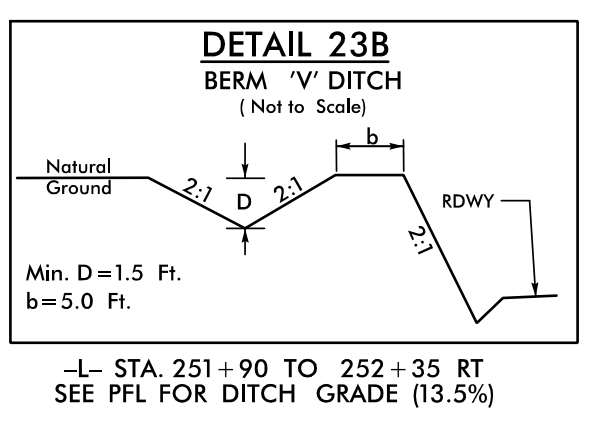
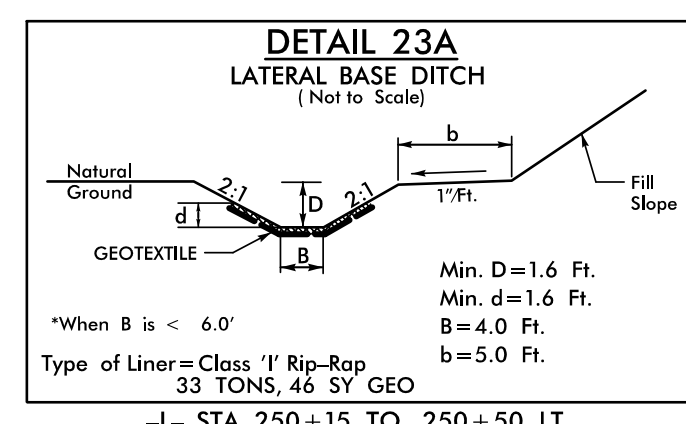


FOR -L- PROFILE, SEE SHEET NO. 45

6/9/2022
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mtd

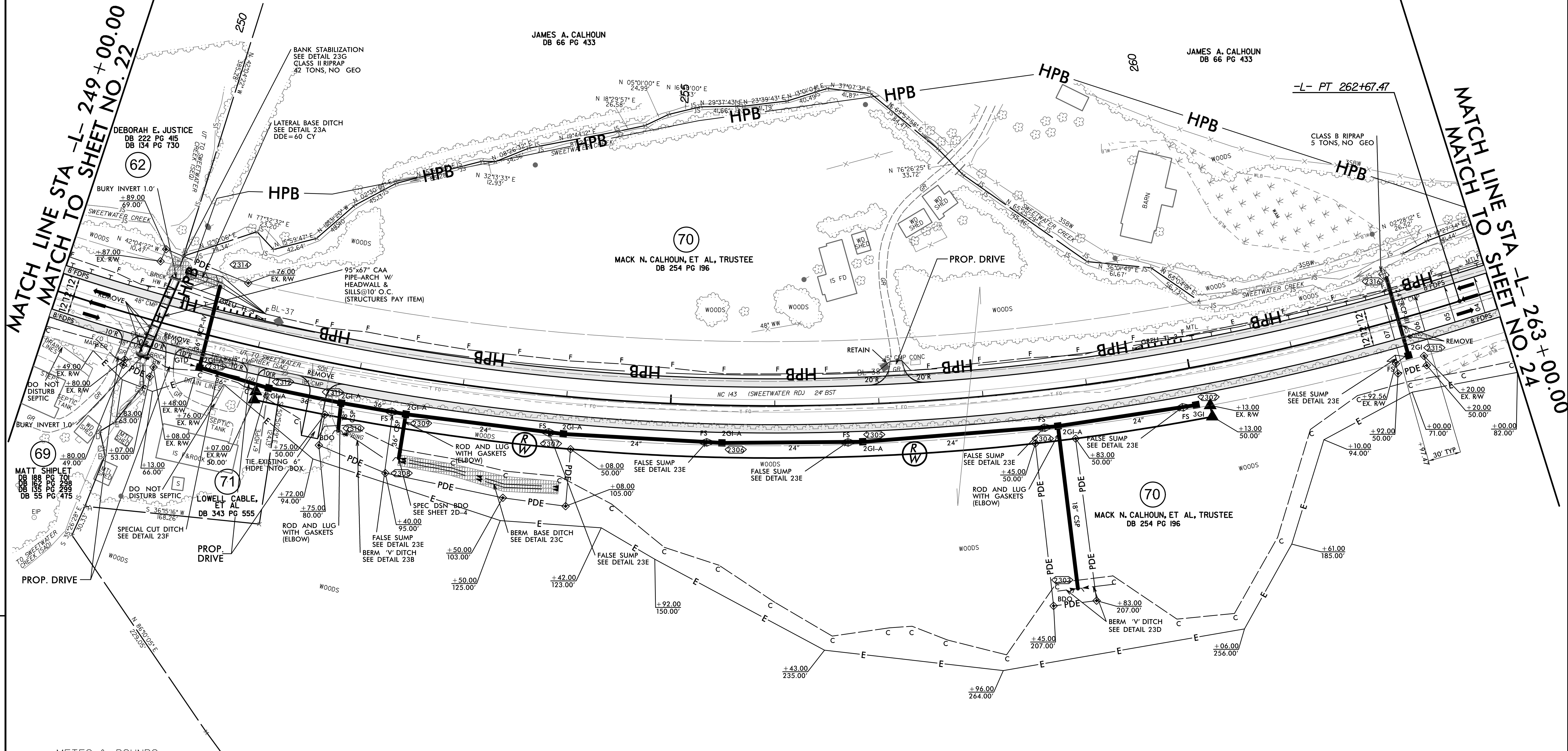
8/17/09

-L- CURVE DATA
 PI Sta 255+20.12
 $\Delta = 40^\circ 44' 05.0''$ (LT)
 $D = 2^\circ 36' 15.7''$
 $L = 1,564.10'$
 $T = 816.75'$
 $R = 2,200.00'$
 $SE = 0.07$
 $DS = 60$ MPH



NOTE:
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 END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 23
ROADWAY DESIGN ENGINEER JIMMY L. TERRY 35018 7/27/2022	HYDRAULICS ENGINEER DAVID B. PETT 038697 7/27/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



METES & BOUNDS

From	To	Direction	Dist.
A	B	N 38°03'22" W	51.76'
B	C	N 66°47'32" W	7.03'
C	D	N 71°42'34" W	17.26'
D	E	N 01°02'46" W	16.34'
E	F	N 21°29'41" W	44.95'
F	G	N 60°32'47" W	20.34'

FOR -L- PROFILE, SEE SHEET NO. 45

REVISIONS

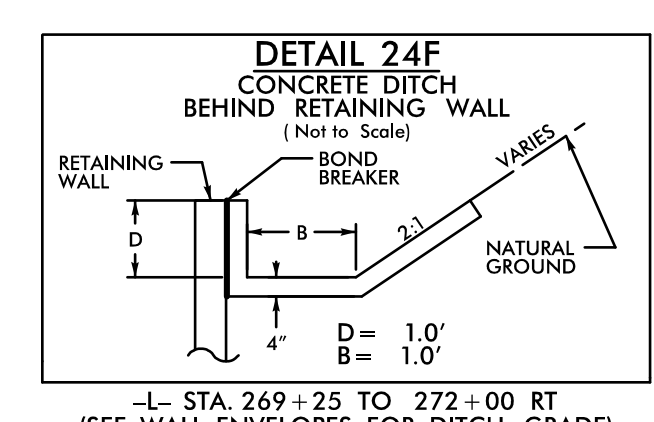
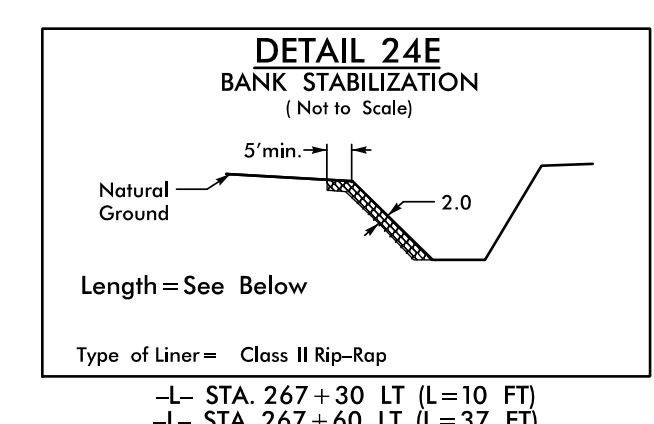
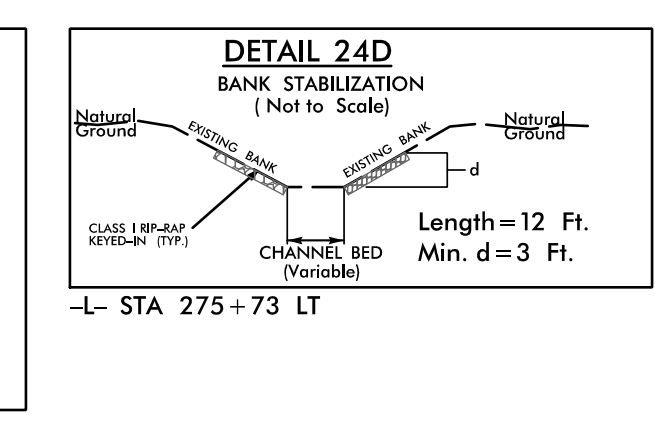
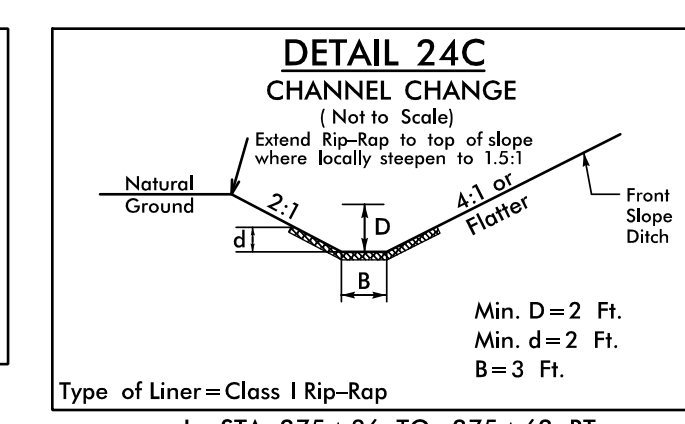
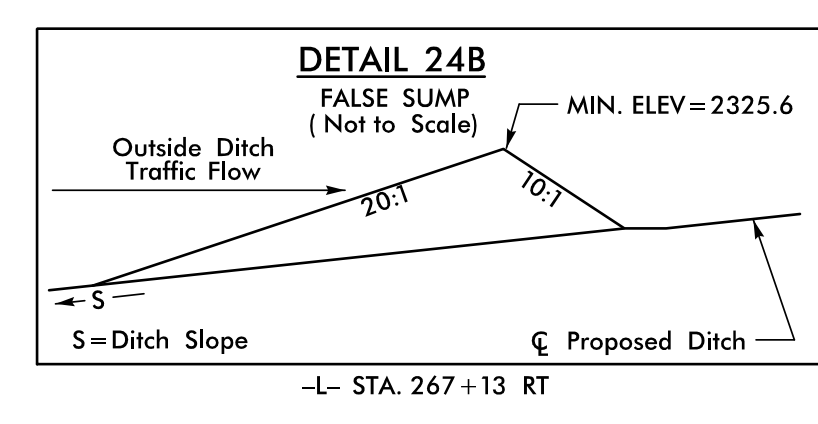
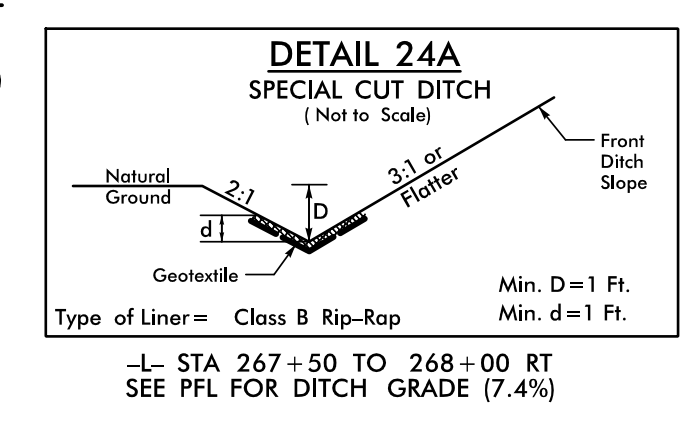
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 8/17/09

8/17/2022

-L- CURVE DATA

$PI\ Sta\ 269+61.11$	$PI\ Sta\ 274+37.73$
$\Delta = 2^\circ 50' 08.0" (LT)$	$\Delta = 1^\circ 42' 58.4" (RT)$
$D = 0^\circ 28' 38.9"$	$D = 0^\circ 28' 38.9"$
$L = 593.88'$	$L = 359.44'$
$T = 297.00'$	$T = 179.74'$
$R = 12,000.00'$	$R = 12,000.00'$
$SE = NC$	$SE = NC$
$DS = 60\ MPH$	$DS = 60\ MPH$

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PROJECT REFERENCE NO. A-0009CB	SHEET NO. 24
ROADWAY DESIGN	HYDRAULICS ENGINEER

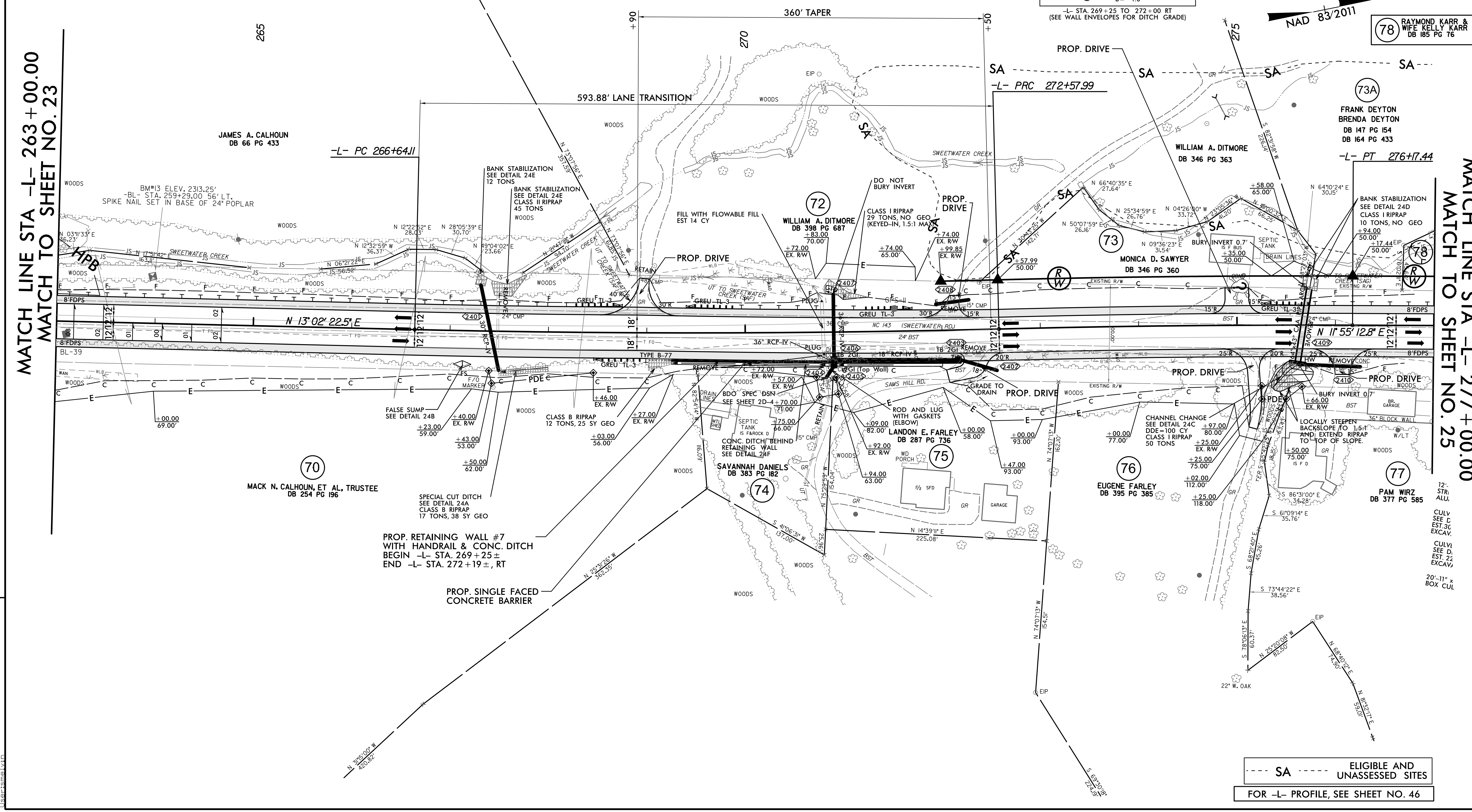
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST
 SHELBY, NC 28150
 PH: (704) 476-0003
 CORP. LICENSE NO.: C-0275

78 RAYMOND KARR & WIFE KELLY KARR
 DB 185 PG 76

MATCH LINE STA -L- 263+00.00
 MATCH TO SHEET NO. 23

MATCH LINE STA -L- 277+00.00
 MATCH TO SHEET NO. 25



--- SA --- ELIGIBLE AND UNASSESSED SITES
 FOR -L- PROFILE, SEE SHEET NO. 46

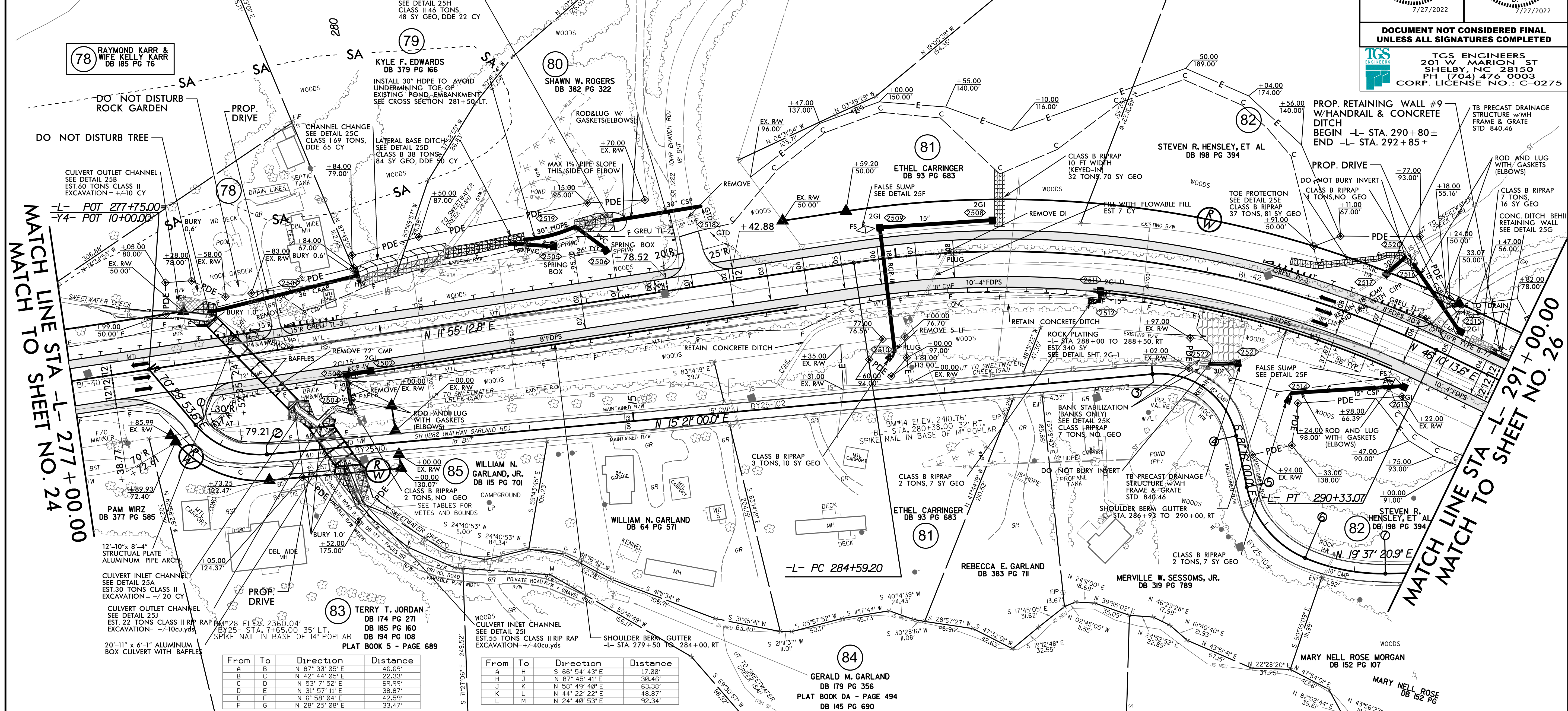
8/17/2022
 A-0009CB-Plan
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8/17/09

-L- CURVE DATA		-Y4- CURVE DATA			
PI Sta 287+55.00	PI Sta 11+11.35	PI Sta 20+66.90	PI Sta 22+09.11	PI Sta 22+91.14	
$\Delta = 34' 15'' 00.8''$ (RT)	$\Delta = 55' 08'' 53.6''$ (LT)	$\Delta = 83' 23'' 00.0''$ (RT)	$\Delta = 55' 15'' 43.9''$ (LT)	$\Delta = 23' 50'' 55.2''$ (LT)	
$D = 5' 58'' 05.9''$	$D = 71' 37'' 11.0''$	$D = 76' 23'' 39.7''$	$D = 60' 18'' 40.8''$	$D = 30' 09'' 20.4''$	
$L = 573.87'$	$L = 77.00'$	$L = 109.15'$	$L = 91.63'$	$L = 79.09'$	
$T = 295.80'$	$T = 41.78'$	$T = 66.80'$	$T = 49.73'$	$T = 40.12'$	
$R = 960.00'$	$R = 80.00'$	$R = 75.00'$	$R = 95.00'$	$R = 190.00'$	
$SE = 0.08$					
$DS = 55$ MPH					
	① -Y4- PC 10+69.57	③ -Y4- PC 20+00.10	⑤ -Y4- PC 21+59.38	⑦ -Y4- PT 23+30.10	
	② -Y4- PT 11+46.57	④ -Y4- PT 21+09.25	⑥ -Y4- PCC 22+51.01		

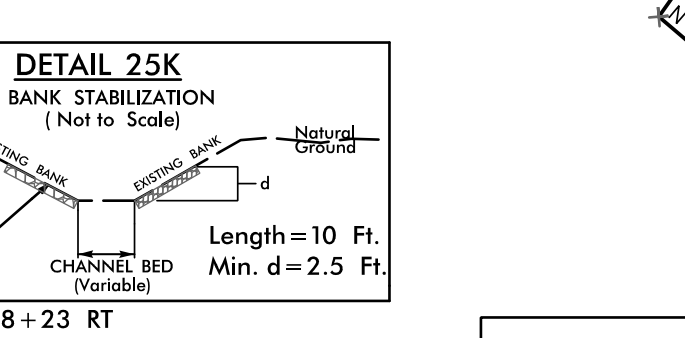
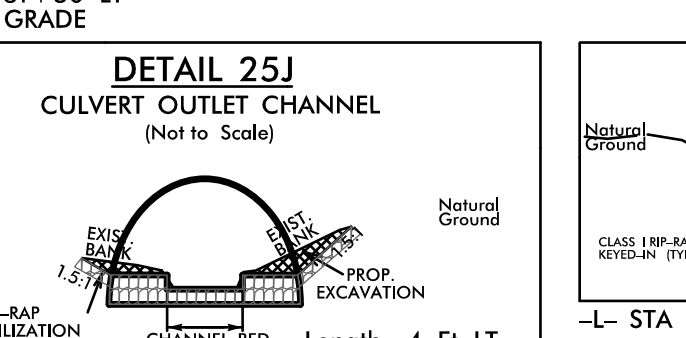
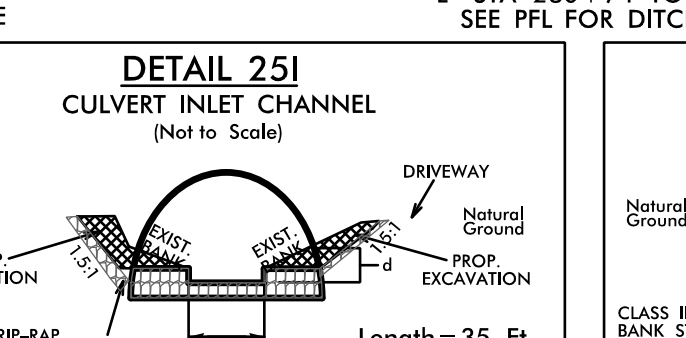
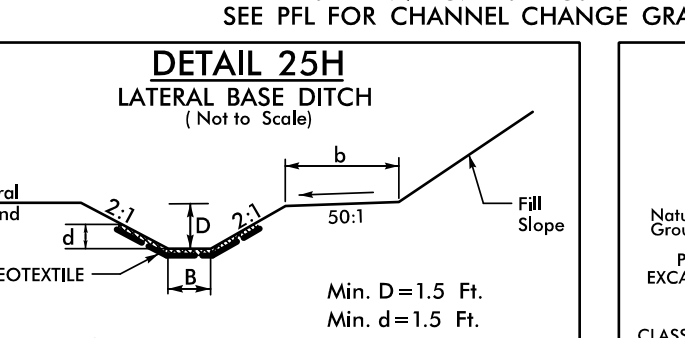
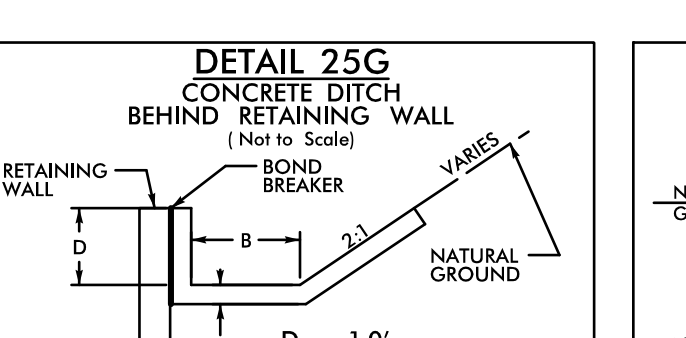
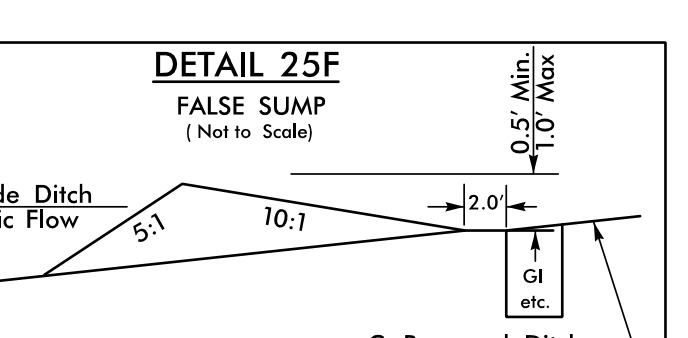
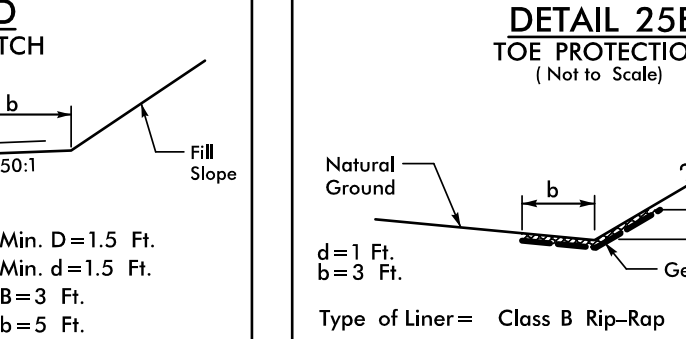
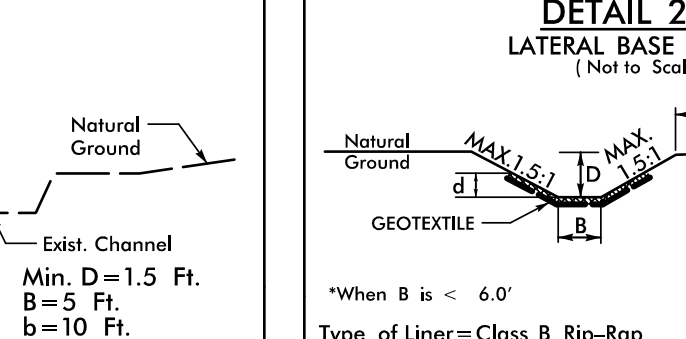
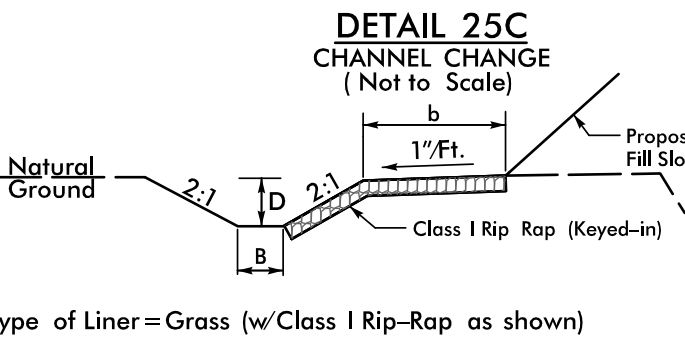
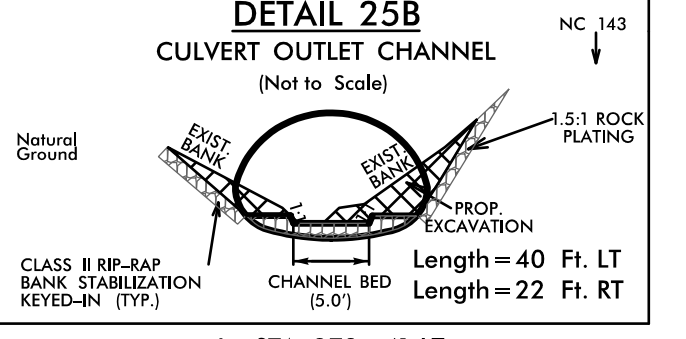
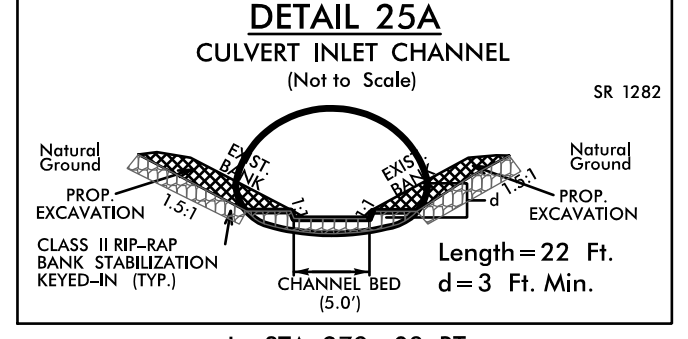
NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN
PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND
PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH
DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 25
ROADWAY DESIGN	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



From	To	Direction	Distance
A	B	N 87° 30' 05" E	46.59'
B	C	N 42° 44' 05" E	22.33'
C	D	N 53° 7' 52" E	69.99'
D	E	N 31° 57' 11" E	38.87'
E	F	N 6° 58' 04" E	42.59'
F	G	N 28° 25' 08" E	33.47'

From	To	Direction	Distance
A	H	S 66° 54' 43" E	17.00'
H	J	N 87° 45' 41" E	30.46'
J	K	N 58° 49' 40" E	63.38'
K	L	N 44° 22' 22" E	48.87'
L	M	N 24° 48' 53" E	92.34'



--- SA --- ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 46

8/17/09
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8/14/2009 8:14:20 AM

8/17/09

-L- CURVE DATA

PI Sta 300+23.36
$\Delta = 31' 41" 09.8" (LT)$
$D = 5' 43' 46.5"$
$L = 553.03'$
$T = 283.78'$
$R = 1,000.00'$
$SE = 0.08$
$DS = 55 MPH$

PI Sta 24+49.98
$\Delta = 62' 22' 39" (RT)$
$D = 60' 18' 40.8"$
$L = 103.43'$
$T = 57.51'$
$R = 95.00'$

PI Sta 26+47.22
$\Delta = 33' 27' 29.8" (LT)$
$D = 19' 05' 54.9"$
$L = 175.19'$
$T = 90.17'$
$R = 300.00'$

-Y4- CURVE DATA

PI Sta 27+92.98
$\Delta = 36' 32' 32.0" (LT)$
$D = 31' 08' 20.4"$
$L = 173.35'$
$T = 60.75'$
$R = 184.00'$

PI Sta 29+58.22
$\Delta = 28' 20' 20.0" (RT)$
$D = 21' 42' 10.6"$
$L = 135.11'$
$T = 67.66'$
$R = 1,000.00'$

PI Sta 30+89.80
$\Delta = 7' 44' 28.4" (RT)$
$D = 5' 43' 46.5"$
$L = 53.11'$
$T = 67.66'$
$R = 1,000.00'$

PI Sta 33+31.35
$\Delta = 59' 32' 46.6" (LT)$
$D = 57' 17' 44.8"$
$L = 103.93'$
$T = 57.21'$
$R = 100.00'$

PI Sta 34+83.66
$\Delta = 76' 08' 00.0" (RT)$
$D = 86' 48' 42.4"$
$L = 87.70'$
$T = 51.69'$
$R = 66.00'$

PI Sta 36+39.74
$\Delta = 84' 11' 34.2" (LT)$
$D = 76' 23' 39.7"$
$L = 110.21'$
$T = 67.76'$
$R = 75.00'$

PI Sta 37+06.50
$\Delta = 10' 12' 57.1" (LT)$
$D = 21' 03' 52.6"$
$L = 48.50'$
$T = 24.31'$
$R = 272.00'$

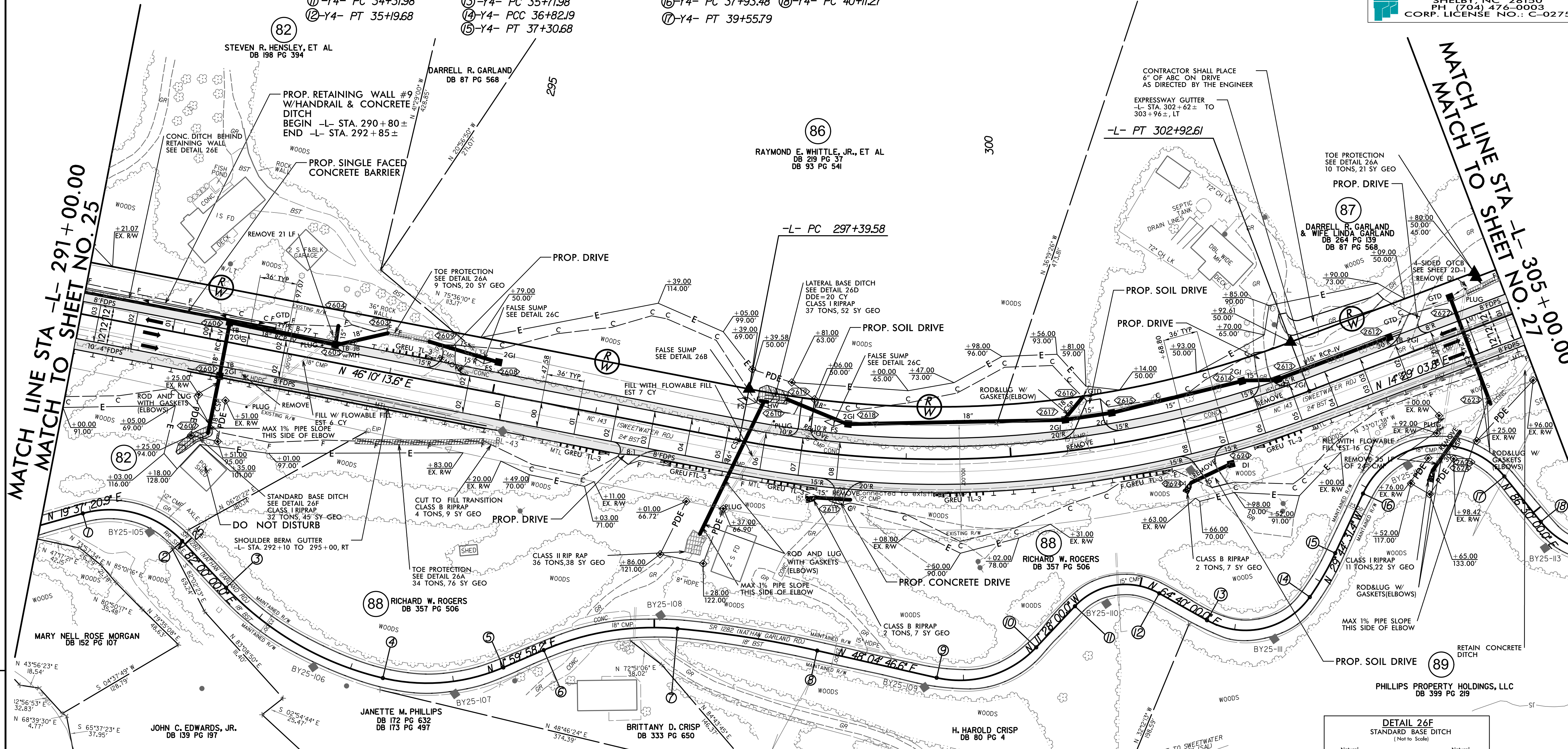
PI Sta 39+22.11
$\Delta = 116' 14' 31.4" (RT)$
$D = 71' 37' 11.0"$
$L = 162.30'$
$T = 128.63'$
$R = 80.00'$

PI Sta 40+76.38
$\Delta = 78' 16' 33.1" (LT)$
$D = 71' 37' 11.0"$
$L = 109.29'$
$T = 65.10'$
$R = 80.00'$

PI Sta 40+76.38
$\Delta = 78' 16' 33.1" (LT)$
$D = 71' 37' 11.0"$
$L = 109.29'$
$T = 65.10'$
$R = 80.00'$

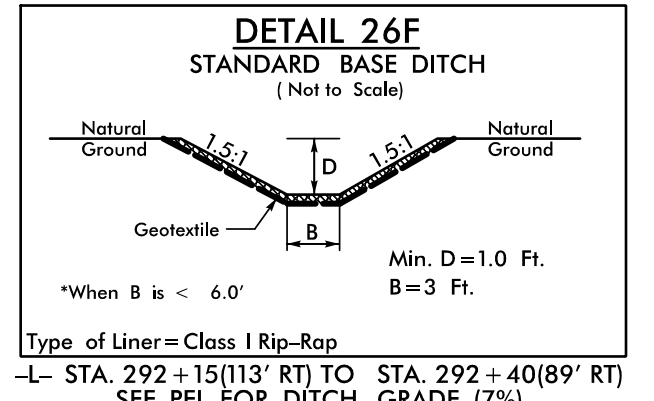
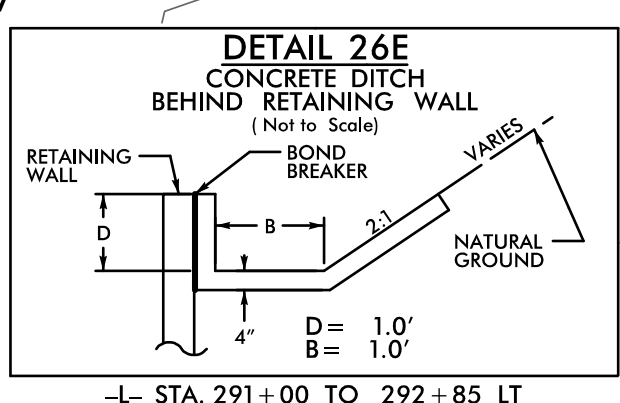
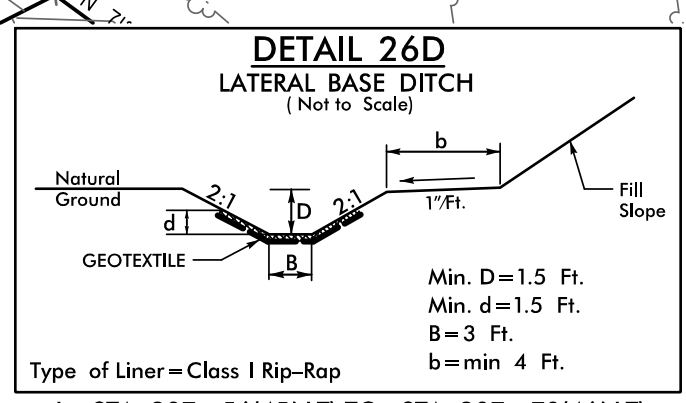
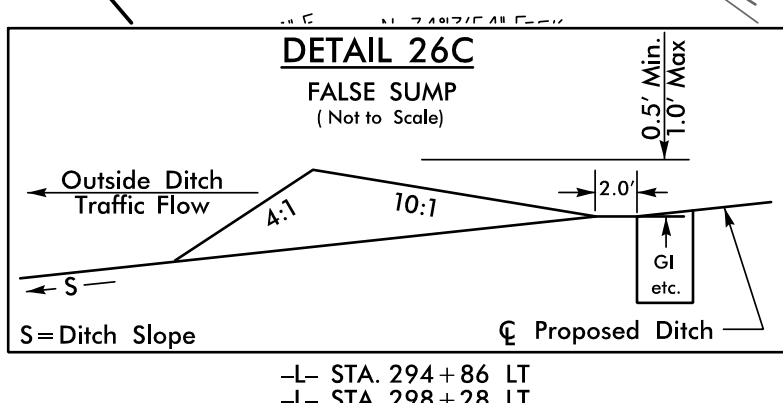
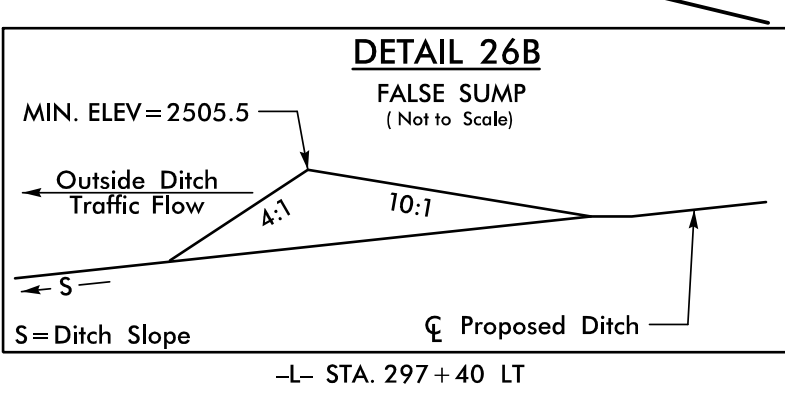
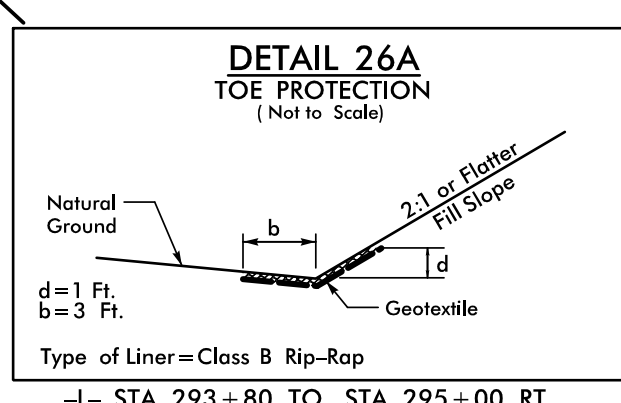
NOTE:
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END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN
PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND
PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH
DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 26
ROADWAY DESIGN	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



MATCH LINE STA -L- 291+00.00
MATCH TO SHEET NO. 25

MATCH LINE TO SHEET -L- 305+00.00
MATCH TO SHEET NO. 27



--- SA --- ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 47

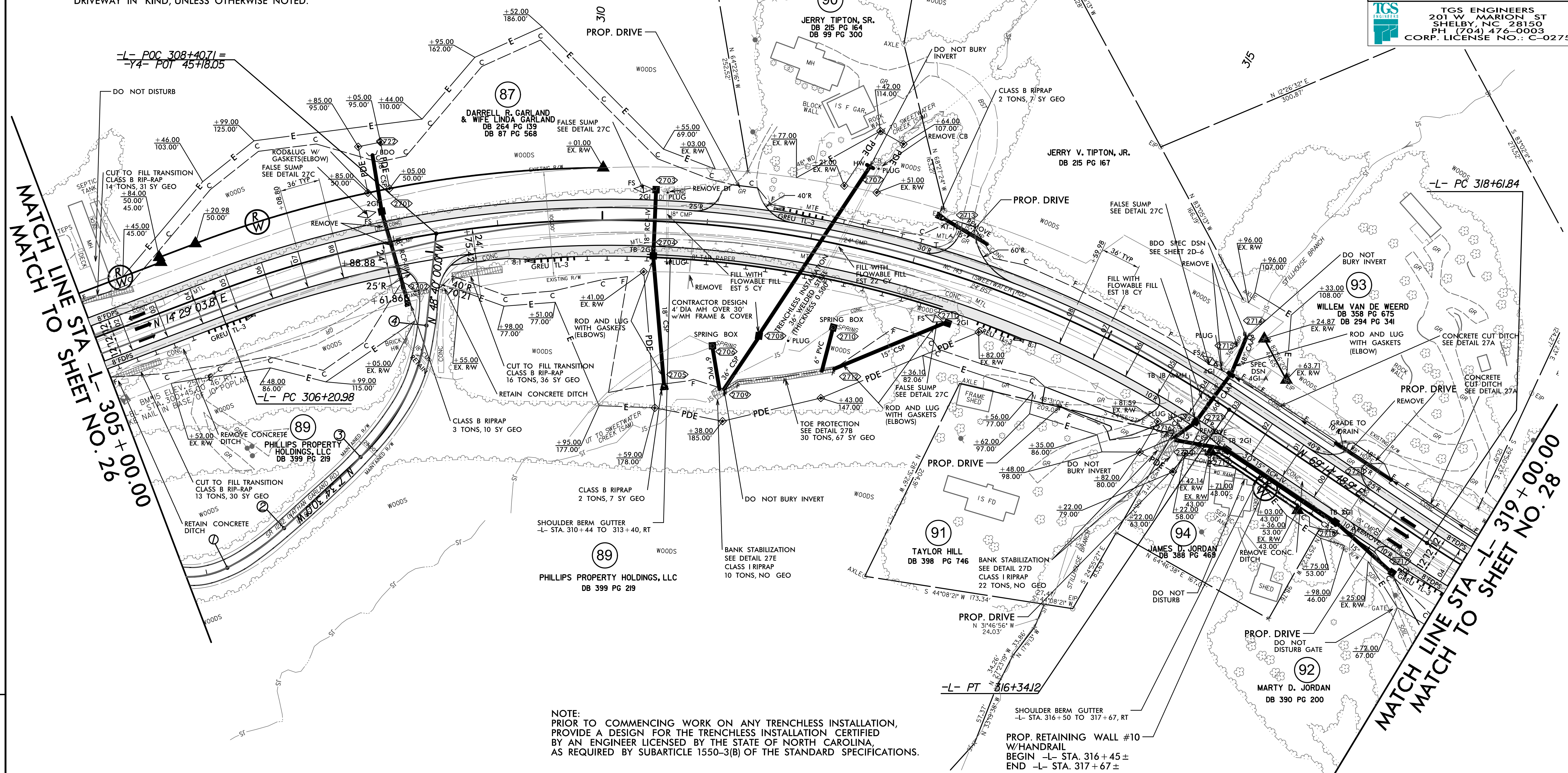
-L- CURVE DATA

PI Sta 311+70.00 PI Sta 320+83.09
 $\Delta = 54' 45" 45.1" (RT)$ $\Delta = 32' 27" 42.9" (LT)$
 $D = 5' 24" 18.9"$ $D = 7' 32" 20.1"$
 $L = 1013.13'$ $L = 430.59'$
 $T = 549.01'$ $T = 221.25'$
 $R = 1060.00'$ $R = 760.00'$
 $SE = 0.08$ $SE = 0.08$
 $DS = 55 MPH$ $DS = 50 MPH$

PI Sta 40+76.38 PI Sta 41+53.87 PI Sta 43+61.39
 $\Delta = 78' 16" 33.1" (LT)$ $\Delta = 15' 47" 56.9" (LT)$ $\Delta = 41' 05" 30.0" (LT)$
 $D = 71' 37" 11.0"$ $D = 23' 52" 23.7"$ $D = 28' 38" 52.4"$
 $L = 109.29'$ $L = 66.18'$ $L = 143.44'$
 $T = 65.01'$ $T = 33.30'$ $T = 74.96'$
 $R = 80.00'$ $R = 240.00'$ $R = 200.00'$
 ① -Y4- PCC 41+20.57 ③ -Y4- PC 42+86.43
 ② -Y4- PT 41+86.75 ④ -Y4- PT 44+29.86

NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
 END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN
 PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND
 PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH
 DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

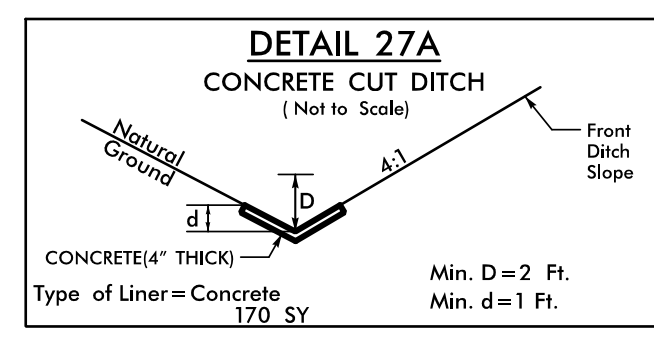
PROJECT REFERENCE NO. A-0009CB		SHEET NO. 27	
ROADWAY DESIGN		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			



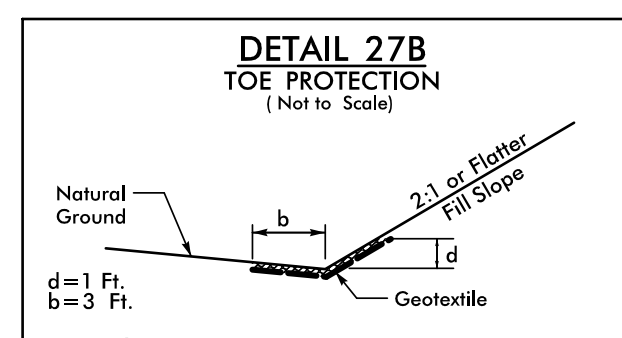
MATCH LINE TO SHEET NO. 26
 -L- STA 305+00.00

MATCH LINE TO SHEET NO. 28
 -L- STA 319+00.00

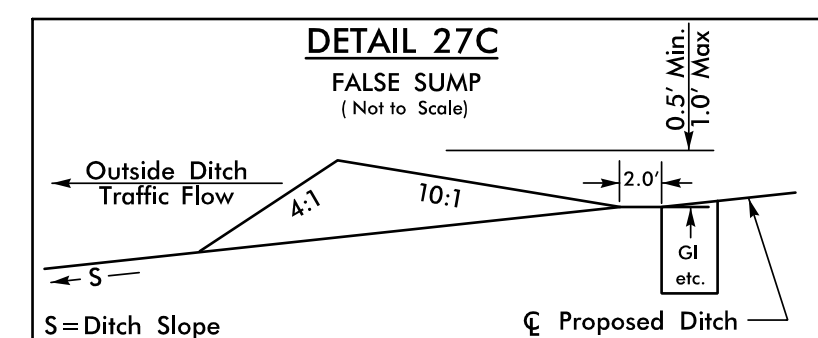
NOTE:
 PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION,
 PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED
 BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA,
 AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.



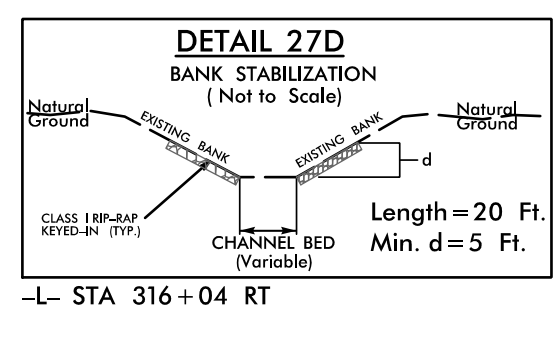
-L- STA. 316+17 TO 317+36 LT
 -L- STA. 318+00 TO 319+23 LT
 (SEE XSC FOR DITCH GRADE)



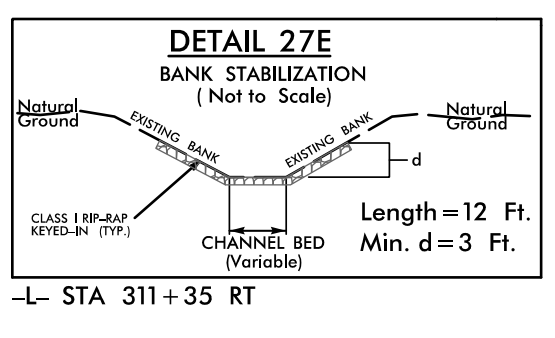
-L- STA. 311+37 TO STA. 312+50 RT



-L- STA. 307+80 LT
 -L- STA. 310+38 LT
 -L- STA. 315+94 LT
 -L- STA. 313+35 RT (USE 4:1 FOR FRONT & BACK SLOPES)



-L- STA 316+04 RT



-L- STA 311+35 RT

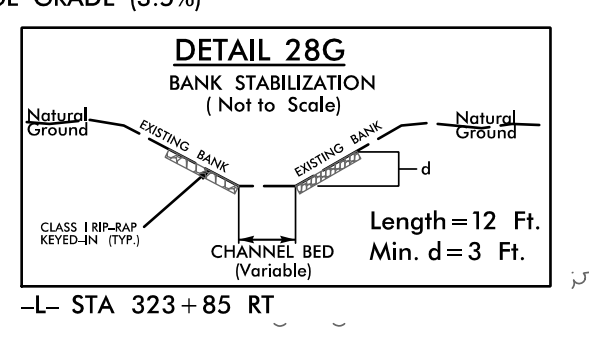
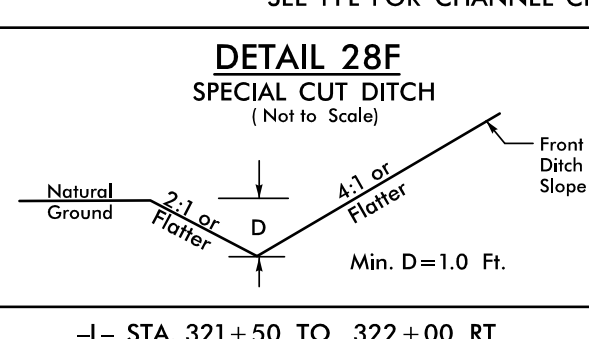
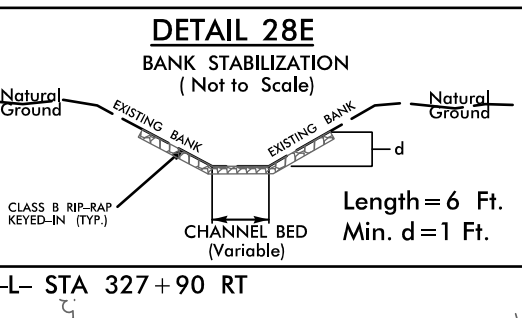
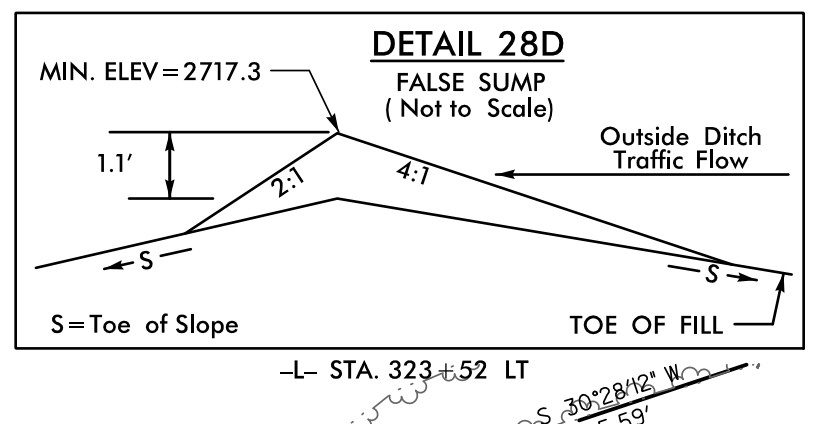
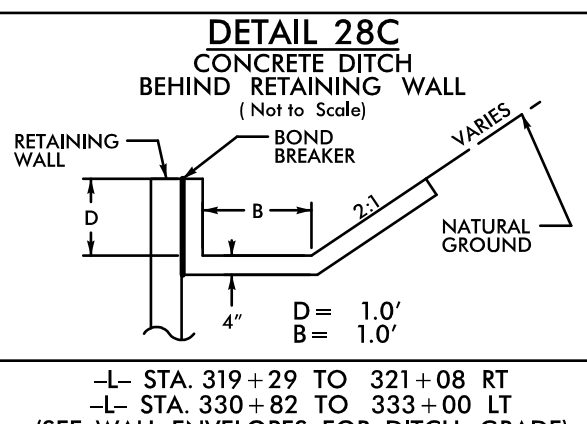
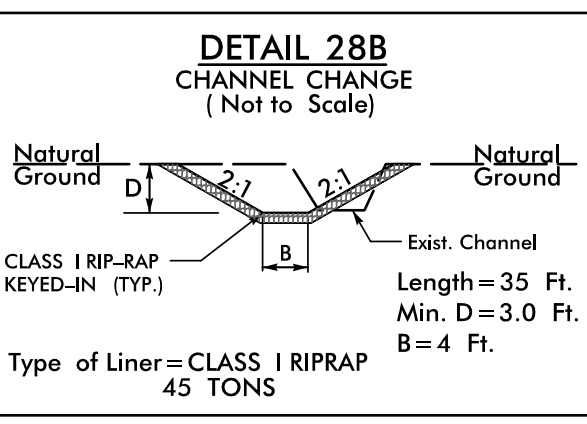
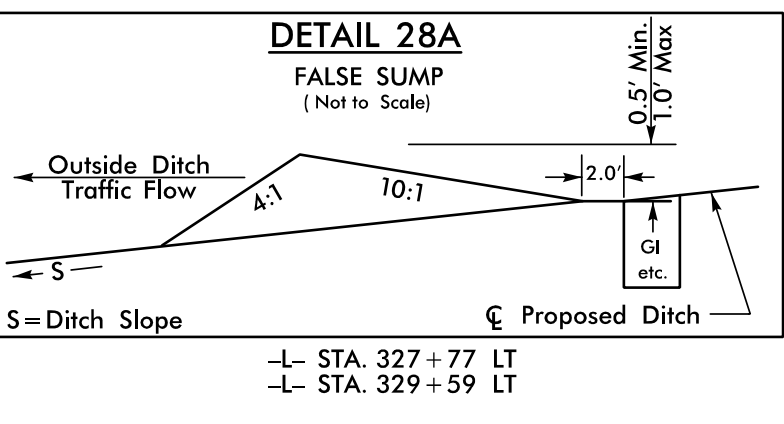
--- ESA --- ELIGIBLE AND UNASSESSED SITES
 FOR -L- PROFILE, SEE SHEET NO. 47

8/17/19

-L- CURVE DATA

PI Sta 320+83.09	PI Sta 328+01.63
$\Delta = 32^\circ 27' 42.9" (LT)$	$\Delta = 21^\circ 44' 00.0" (RT)$
$D = 7^\circ 32' 20.1"$	$D = 4^\circ 05' 33.2"$
$L = 430.59'$	$L = 531.05'$
$T = 221.25'$	$T = 268.75'$
$R = 760.00'$	$R = 1,400.00'$
$SE = 0.08$	$SE = 0.08$
$DS = 50 MPH$	$DS = 60 MPH$

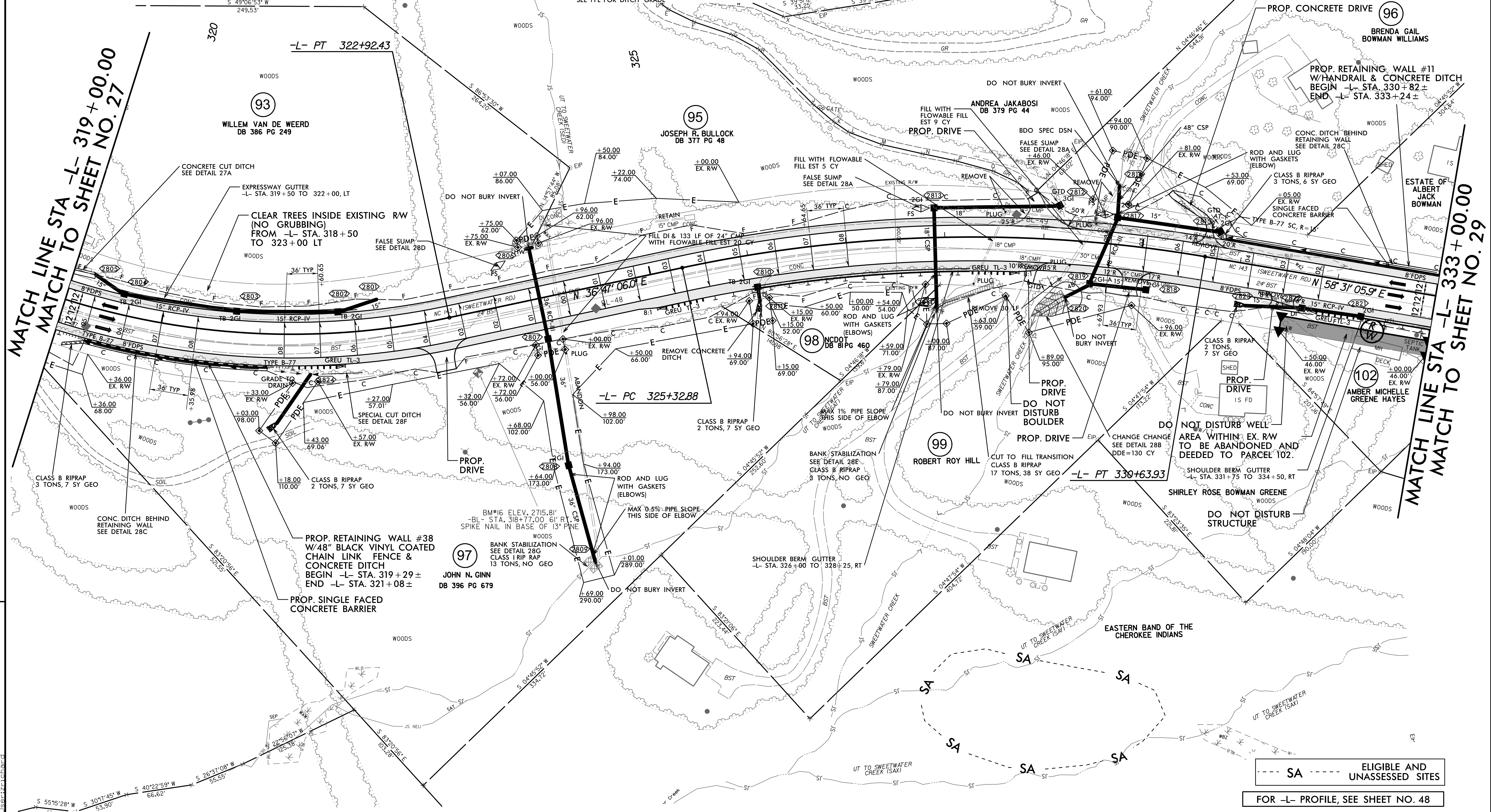
NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE, FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.



PROJECT REFERENCE NO. A-0009CB	SHEET NO. 28
ROADWAY DESIGN	HYDRAULICS ENGINEER
DATE: 8/9/2022	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

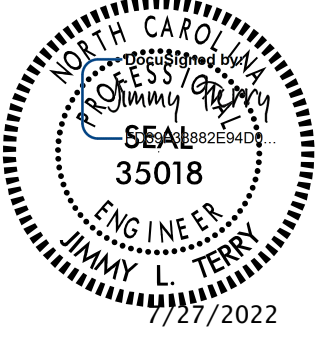
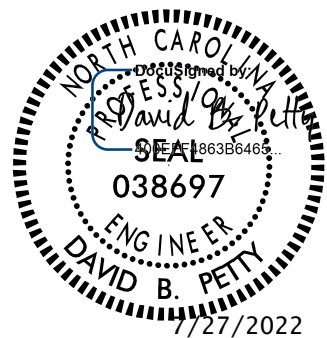

TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



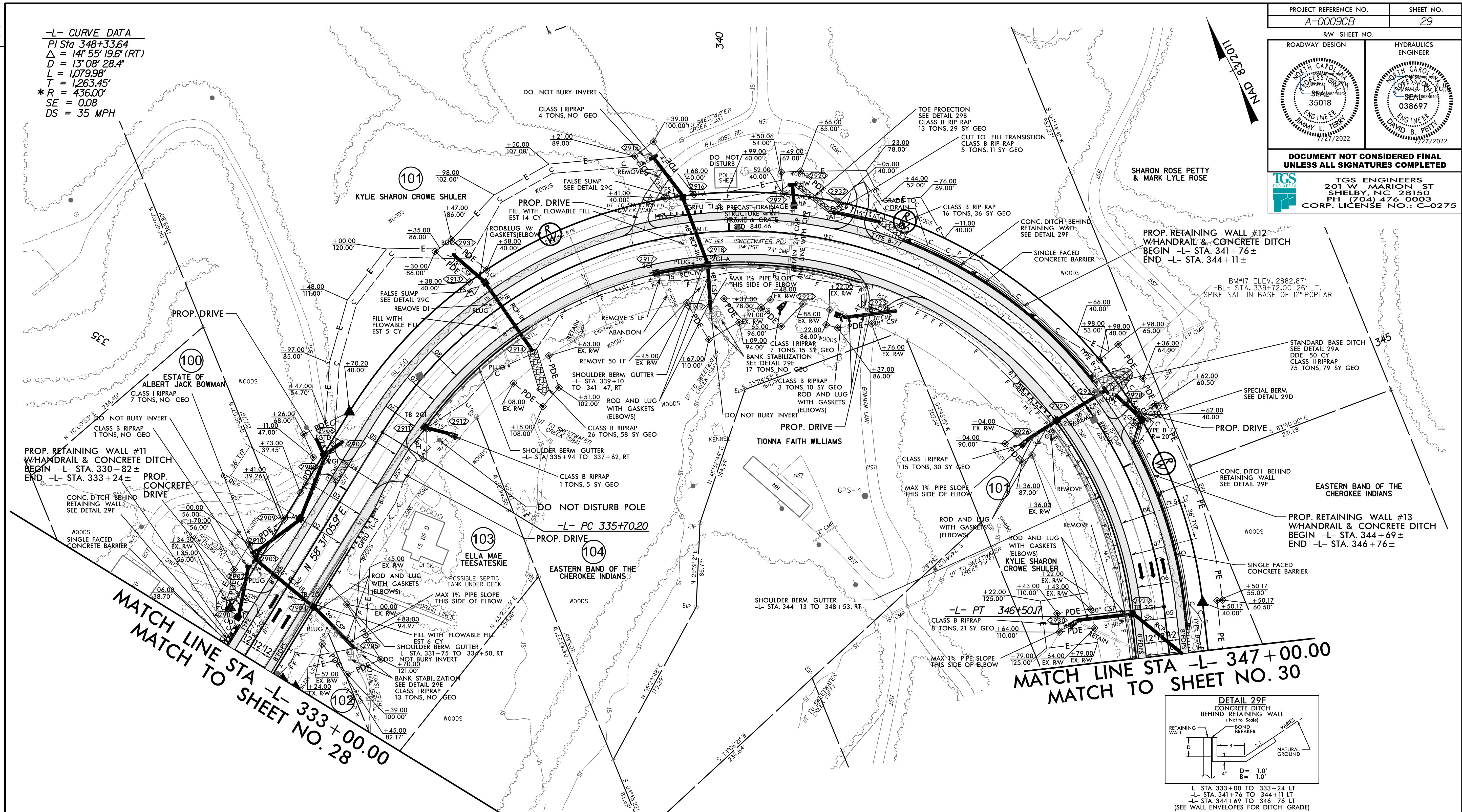
MATCH LINE STA -L- 319+00.00
MATCH TO SHEET NO. 27

MATCH LINE STA -L- 333+00.00
MATCH TO SHEET NO. 29

--- SA --- ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 48

PROJECT REFERENCE NO. A-0009CB		SHEET NO. 29	
ROADWAY DESIGN		HYDRAULICS ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275			

-L- CURVE DATA
 PI Sta 348+33.64
 $\Delta = 141^\circ 55' 19.6"$ (RT)
 $D = 13^\circ 08' 28.4"$
 $L = 1,079.98'$
 $* R = 436.00'$
 $SE = 0.08$
 $DS = 35 \text{ MPH}$



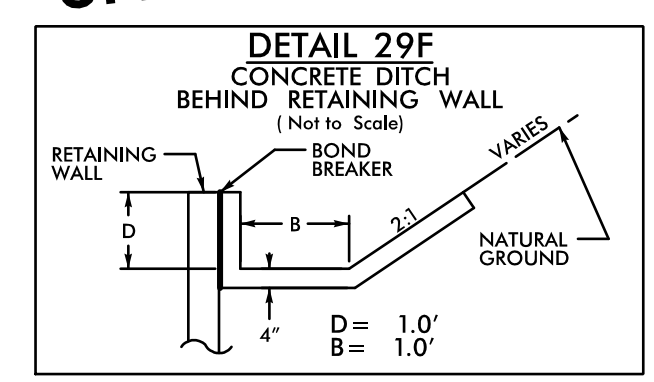
**MATCH LINE STA -L- 333+00.00
MATCH TO SHEET NO. 28**

**MATCH LINE STA -L- 347+00.00
MATCH TO SHEET NO. 30**

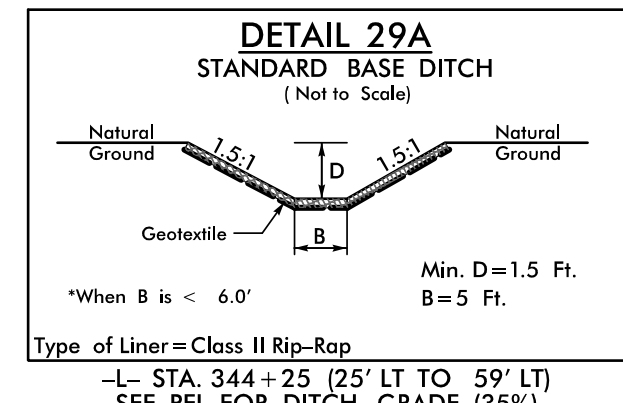
THE CONTRACTOR SHOULD BE ADVISED THAT ANY CLEARING WITHIN THE PERMANENT EASEMENT (PE) ALONG USFS PROPERTY SHALL ADHERE TO THE AGREEMENT BETWEEN NCDOT AND THE USFS. THE CONTRACTOR IS TO COORDINATE WITH THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER PRIOR TO STARTING CLEARING OPERATIONS TO ENSURE COMPLIANCE.

NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
 END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

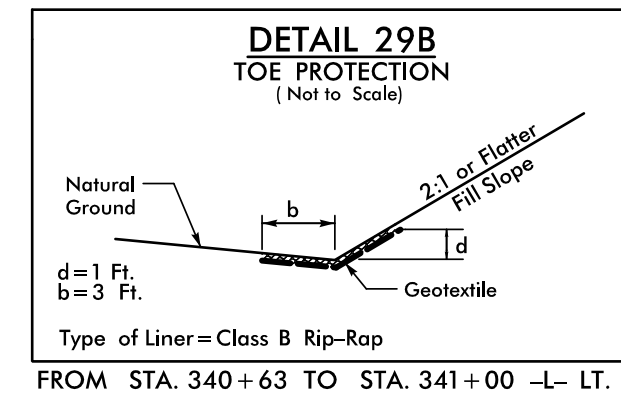
*** DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVATURE.**
FOR -L- PROFILE, SEE SHEET NO. 48



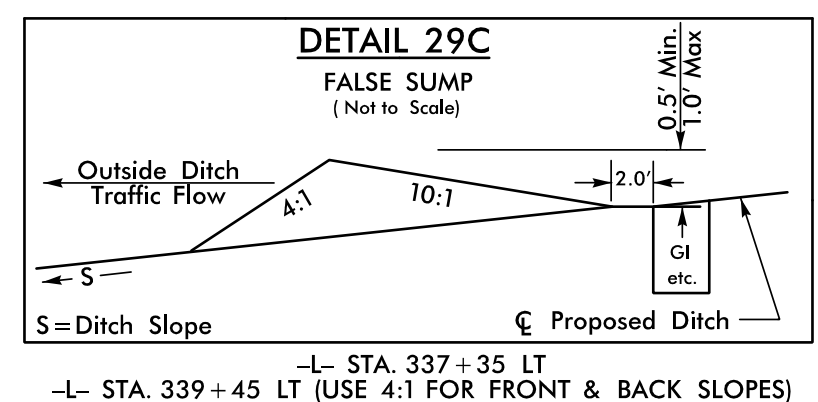
-L- STA. 333+00 TO 333+24 LT
 -L- STA. 341+76 TO 344+11 LT
 -L- STA. 344+69 TO 346+76 LT
 (SEE WALL ENVELOPES FOR DITCH GRADE)



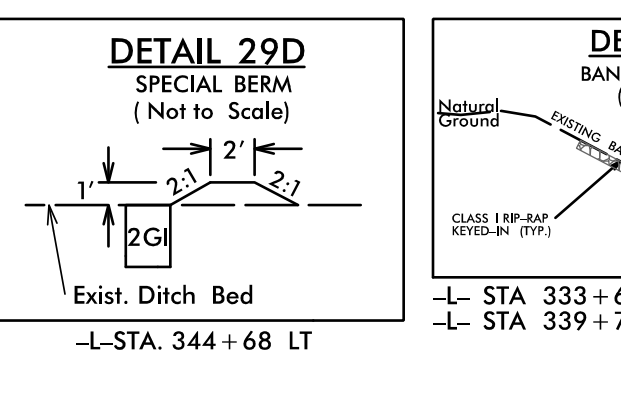
Type of Liner=Class II Rip-Rap
 -L- STA. 344+25 (25' LT TO 59' LT)
 SEE PFL FOR DITCH GRADE (35%)



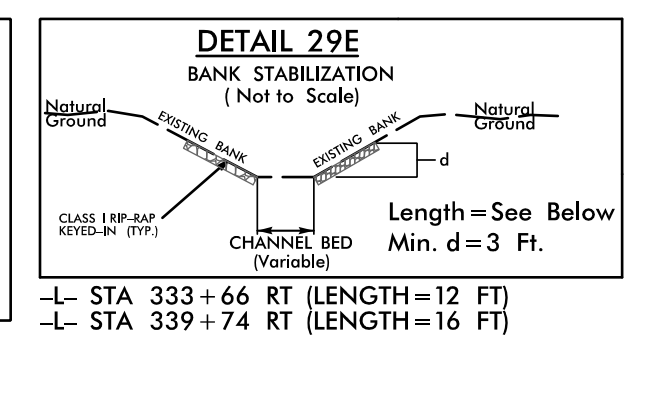
Type of Liner=Class B Rip-Rap
 FROM STA. 340+63 TO STA. 341+00 -L- LT.



-L- STA. 337+35 LT
 -L- STA. 339+45 LT (USE 4:1 FOR FRONT & BACK SLOPES)



-L- STA. 344+68 LT

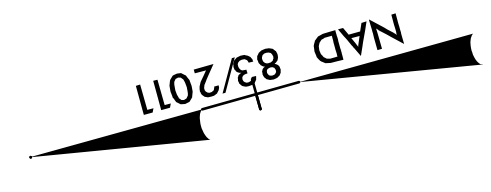
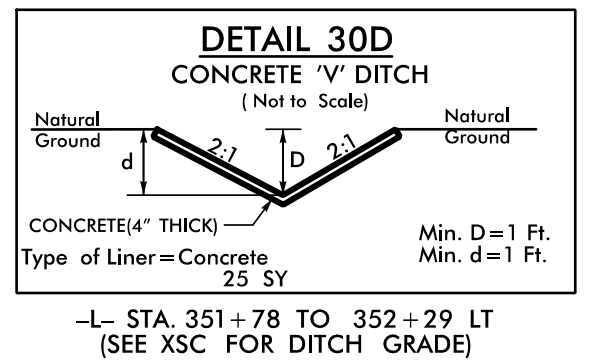
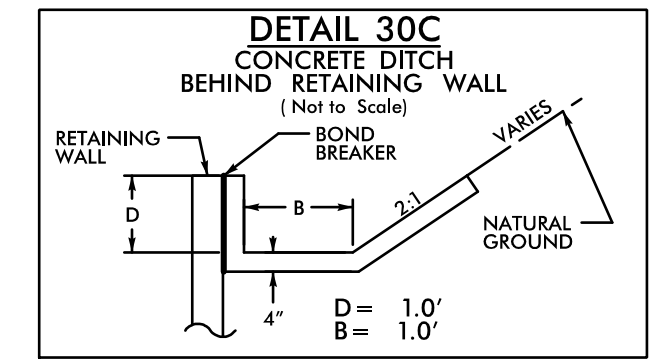
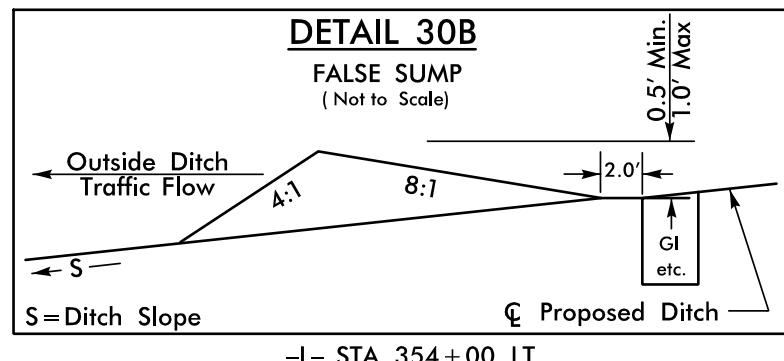
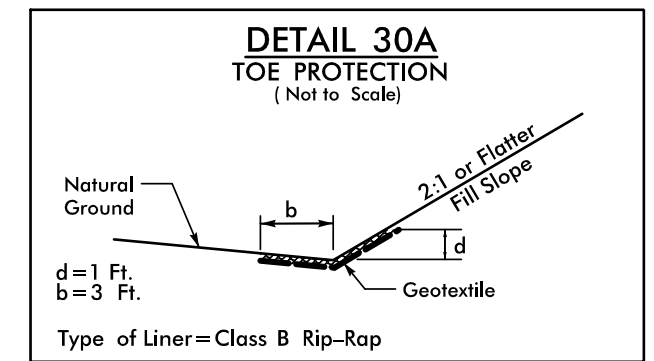


-L- STA. 333+66 RT (LENGTH=12 FT)
 -L- STA. 339+74 RT (LENGTH=16 FT)

MATCH LINE STA -L- 347+00.00
MATCH TO SHEET NO. 29

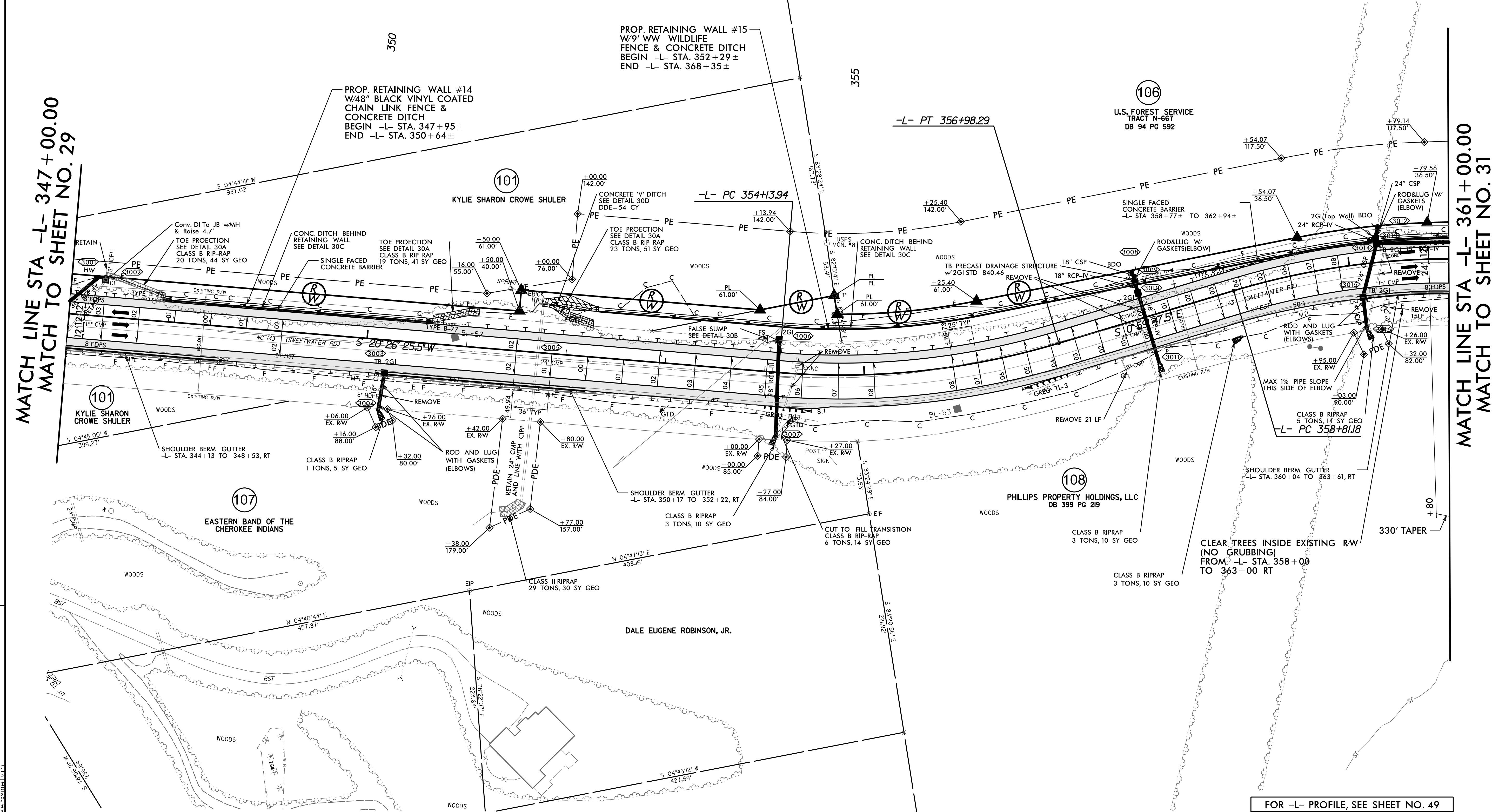
-L- CURVE DATA

PI Sta 355+57.79	PI Sta 360+98.29
$\Delta = 21^{\circ}26'13''$ (LT)	$\Delta = 31^{\circ}53'08''$ (RT)
$D = 7^{\circ}32'20''$	$D = 7^{\circ}32'20''$
$L = 284.35'$	$L = 422.95'$
$T = 143.86'$	$T = 217.1'$
$R = 760.00'$	$R = 760.00'$
$SE = 0.08$	$DS = 50$ MPH
	$SE = 0.08$



PROJECT REFERENCE NO. A-0009CB		SHEET NO. 30	
ROADWAY DESIGN		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

THE CONTRACTOR SHOULD BE ADVISED THAT ANY CLEARING WITHIN THE PERMANENT EASEMENT (PE) ALONG USFS PROPERTY SHALL ADHERE TO THE AGREEMENT BETWEEN NCDOT AND THE USFS. THE CONTRACTOR IS TO COORDINATE WITH THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER PRIOR TO STARTING CLEARING OPERATIONS TO ENSURE COMPLIANCE.



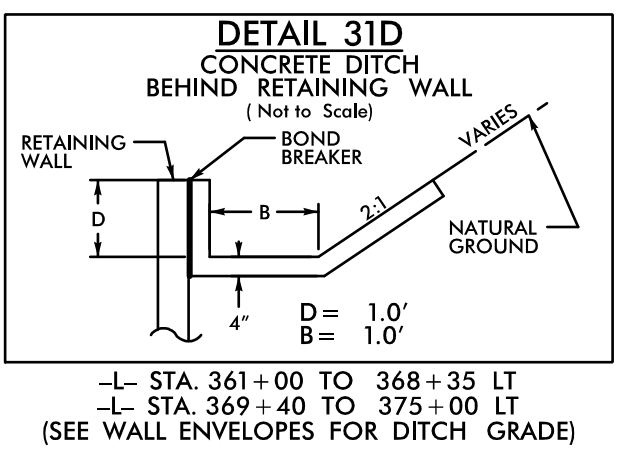
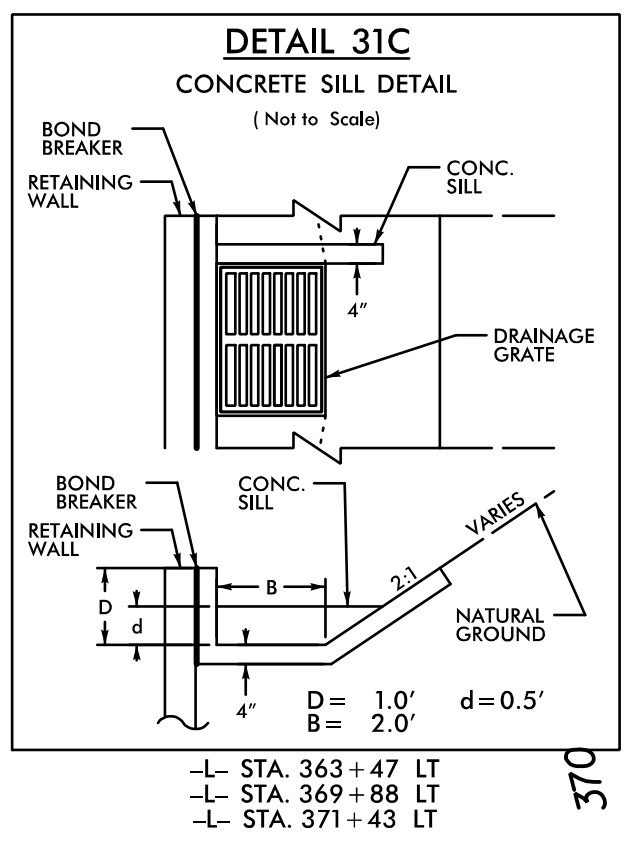
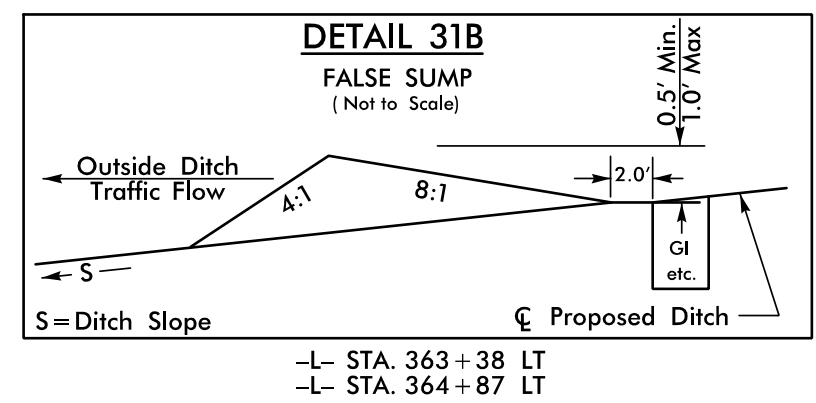
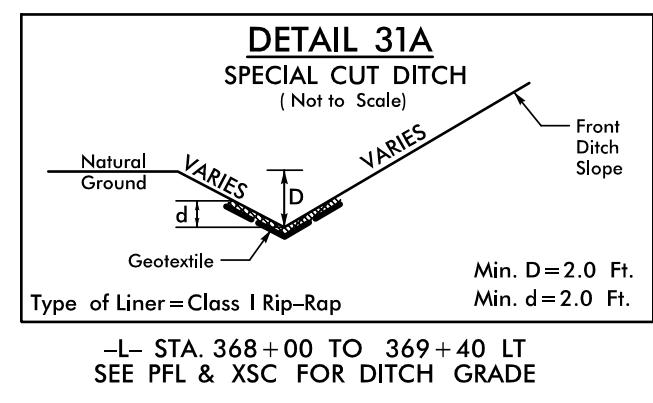
MATCH LINE STA -L- 361+00.00
MATCH TO SHEET NO. 31

FOR -L- PROFILE, SEE SHEET NO. 49

8/17/2022

-L- CURVE DATA

PI Sta 360+98.29	PI Sta 366+19.09
$\Delta = 31^\circ 53' 08.6''$ (RT)	$\Delta = 29^\circ 36' 56.5''$ (LT)
$D = 7^\circ 32' 20.1''$	$D = 7^\circ 32' 20.1''$
$L = 422.95'$	$L = 392.84'$
$T = 217.1'$	$T = 200.9'$
$R = 760.00'$	$R = 760.00'$
$DS = 50$ MPH	$DS = 50$ MPH
$SE = 0.08$	$SE = 0.08$



THE CONTRACTOR SHOULD BE ADVISED THAT ANY CLEARING WITHIN THE PERMANENT EASEMENT (PE) ALONG USFS PROPERTY SHALL ADHERE TO THE AGREEMENT BETWEEN NCDOT AND THE USFS. THE CONTRACTOR IS TO COORDINATE WITH THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER PRIOR TO STARTING CLEARING OPERATIONS TO ENSURE COMPLIANCE.

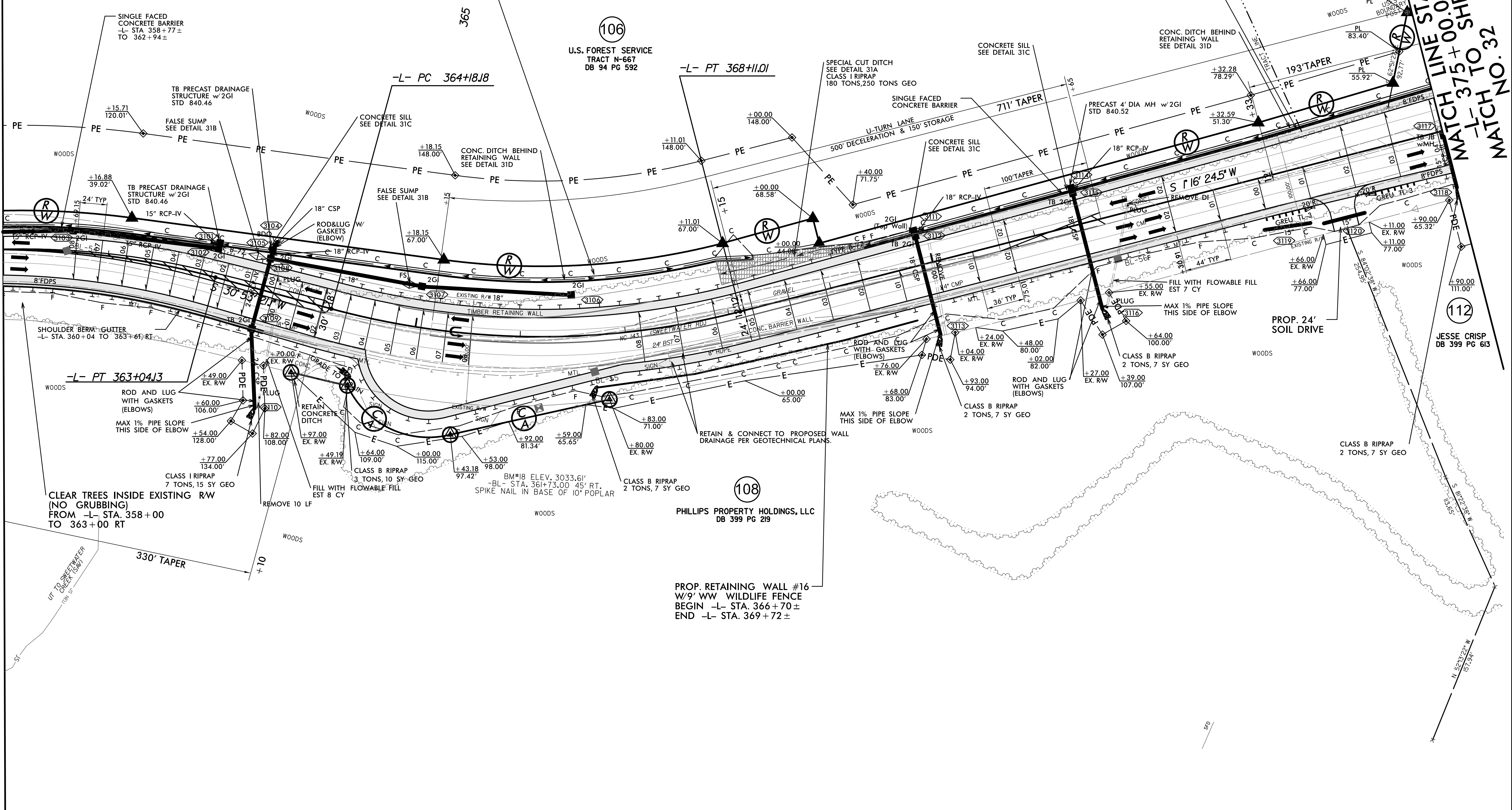
PROP. RETAINING WALL #15
W/9' WW WILDLIFE FENCE & CONCRETE DITCH
BEGIN -L- STA. 352+29±
END -L- STA. 368+35±

PROP. RETAINING WALL #17
W/9' WW WILDLIFE FENCE & CONCRETE DITCH
BEGIN -L- STA. 369+40±
END -L- STA. 375+26±

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 31
ROADWAY DESIGN	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

MATCH LINE STA -L- 361+00.00
MATCH TO SHEET NO. 30

MATCH LINE STA 375+00.00
MATCH TO SHEET -L- 375+00.00
MATCH NO. 32



8/19/2022
 C:\Users\jerry\OneDrive\Documents\Roadway\Proj\A-0009CB\Plan
 Sheets\A-0009CB_Rdy_psh_31.dgn
 User: jerry

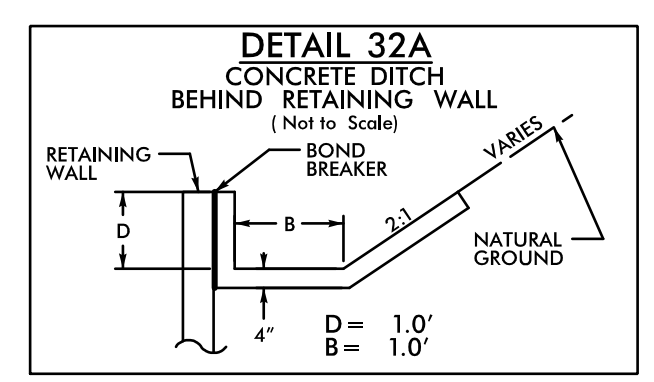
FOR -L- PROFILE, SEE SHEET NO. 49

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 32
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

***DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVATURE AND HORIZONTAL SSD.**

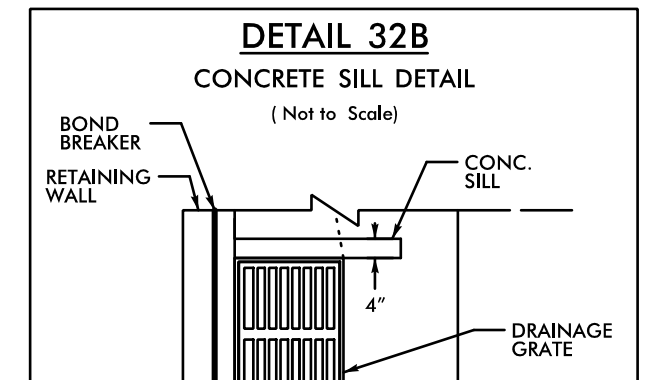
THE CONTRACTOR SHOULD BE ADVISED THAT ANY CLEARING WITHIN THE PERMANENT EASEMENT (PE) ALONG USFS PROPERTY SHALL ADHERE TO THE AGREEMENT BETWEEN NCDOT AND THE USFS. THE CONTRACTOR IS TO COORDINATE WITH THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER PRIOR TO STARTING CLEARING OPERATIONS TO ENSURE COMPLIANCE.

-L- CURVE DATA
 PI Sta 388+01.79
 $\Delta = 150' 28" 04.5" (LT)$
 $D = 17' 24" 54.5"$
 $L = 864.0'$
 $T = 1,248.2'$
 $*R = 329.00'$
 $DS = 35 MPH$
 $SE = 0.08$

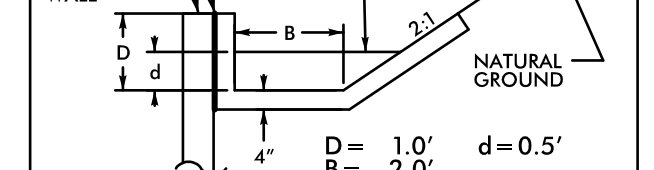


DETAIL 32A
 CONCRETE DITCH BEHIND RETAINING WALL (Not to Scale)
 -L- STA. 375+00 TO 375+26 LT
 -L- STA. 376+65 TO 380+50 LT
 -L- STA. 380+51@62' RT TO 380+51@120' RT
 -L- STA. 382+30 TO 389+00 LT
 -L- STA. 382+30 TO 383+50 RT
 (SEE WALL ENVELOPES FOR DITCH GRADE)

PROP. RETAINING WALL #18
 W/9' WW WILDLIFE FENCE
 BEGIN -L- STA. 375+25±
 END -L- STA. 378+15±



DETAIL 32B
 CONCRETE SILL DETAIL (Not to Scale)
 -L- STA. 383+50 RT



DETAIL 32C
 GRASSED LINED SWALE (Not to Scale)
 -L- STA. 380+65@51' LT TO 380+62@29' RT
 (SEE GRADING PLAN FOR DITCH GRADES)



DETAIL 32D
 CONCRETE DITCH (Not to Scale)
 -L- STA. 380+51@62' RT TO 380+62@29' RT
 -L- STA. 380+51@120' RT TO 380+87@86' RT
 (SEE GRADING PLAN FOR DITCH GRADES)

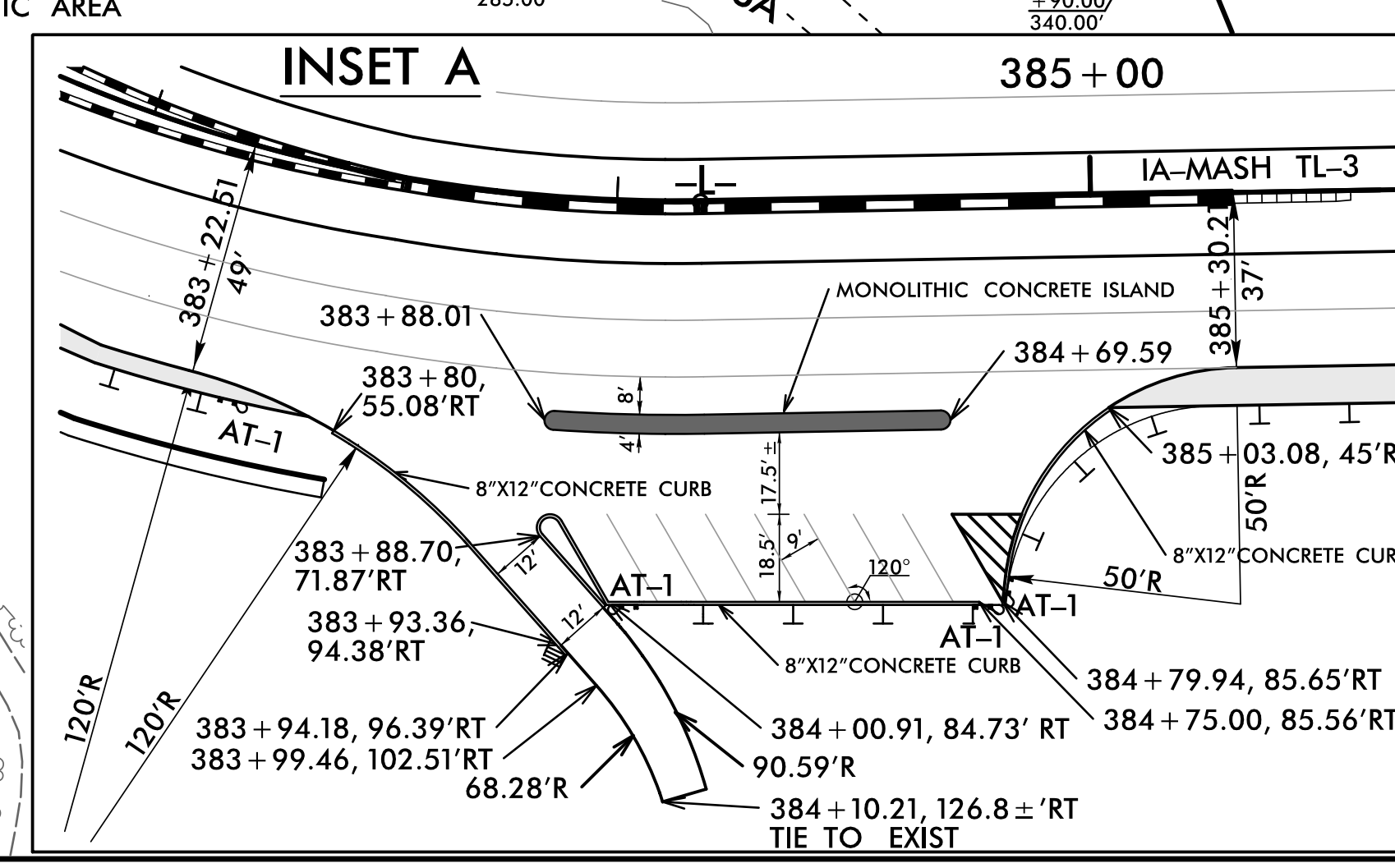
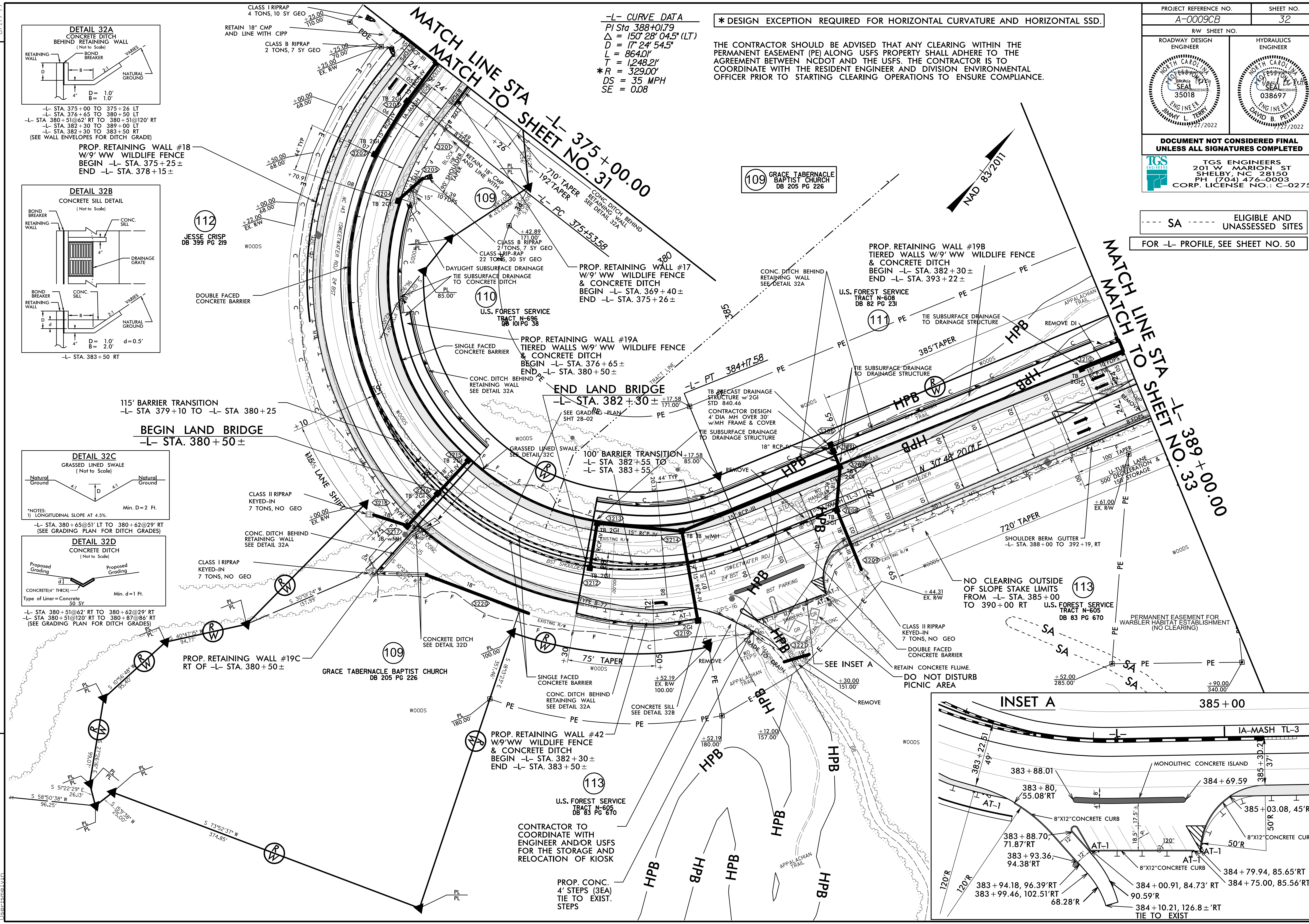
115' BARRIER TRANSITION
 -L- STA 379+10 TO -L- STA 380+25

BEGIN LAND BRIDGE
 -L- STA. 380+50±

PROP. RETAINING WALL #19C
 RT OF -L- STA. 380+50±

CONTRACTOR TO COORDINATE WITH ENGINEER AND/OR USFS FOR THE STORAGE AND RELOCATION OF KIOSK

PROP. CONC. 4' STEPS (3EA) TIE TO EXIST. STEPS



REVISIONS

7/28/2022
 X:\Roadway\0009\Roadway\Proj\A-0009CB\Plan Sheets\A-0009CB_Rdy_psh_32.dgn
 8/17/2022

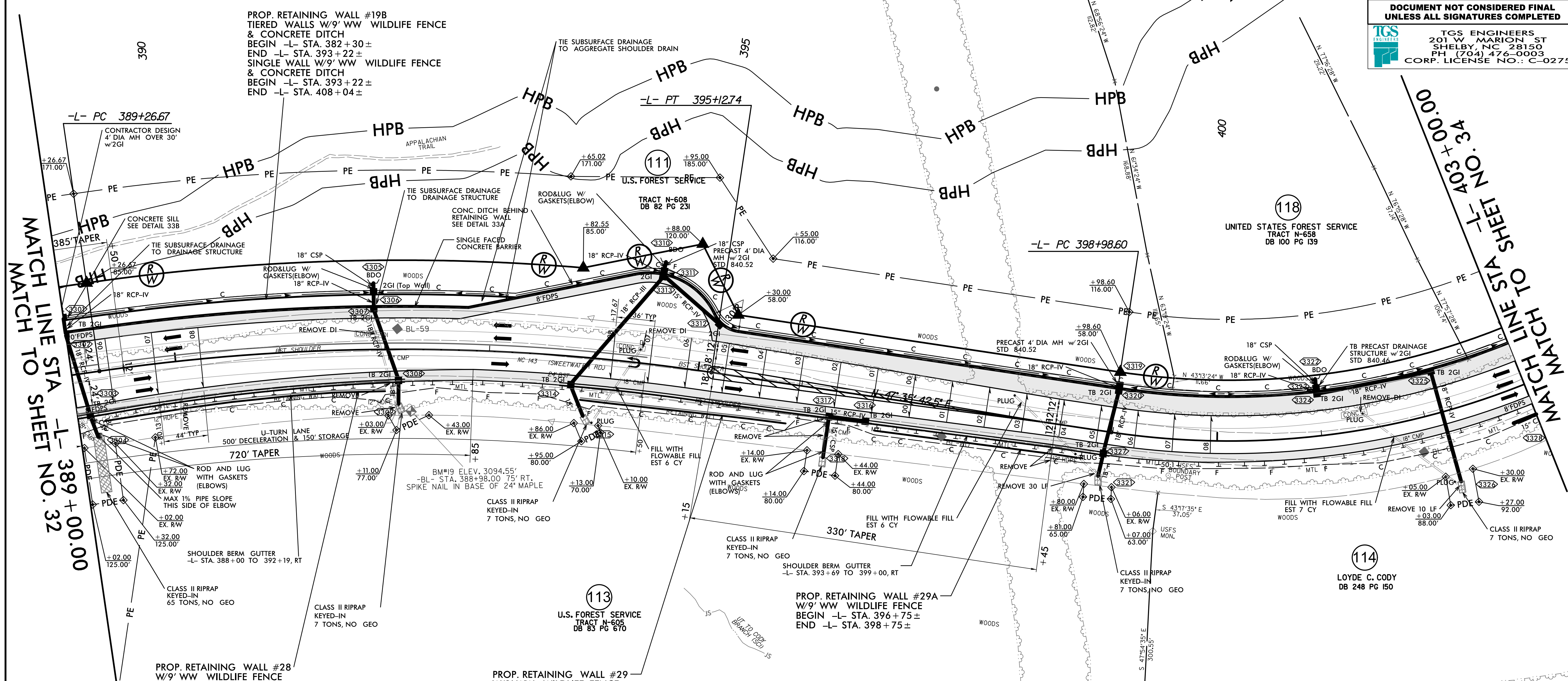
8/17/99

-L- CURVE DATA

PI Sta 392+21.82	PI Sta 401+77.67
$\Delta = 16' 47" 22.5"$ (RT)	$\Delta = 40' 19" 35.7"$ (LT)
D = 2' 51" 53.2"	D = 7' 32" 20.1"
L = 586.07'	L = 534.91'
T = 295.15'	T = 279.07'
R = 2,000.00'	R = 760.00'
DS = 70 MPH	SE = 50 MPH
SE = 0.08	SE = 0.08

THE CONTRACTOR SHOULD BE ADVISED THAT ANY CLEARING WITHIN THE PERMANENT EASEMENT (PE) ALONG USFS PROPERTY SHALL ADHERE TO THE AGREEMENT BETWEEN NCDOT AND THE USFS. THE CONTRACTOR IS TO COORDINATE WITH THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER PRIOR TO STARTING CLEARING OPERATIONS TO ENSURE COMPLIANCE.

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 33
ROADWAY DESIGN NORTH CAROLINA SEAL 35018 ENGINEER JIMMY L. TERRY 7/27/2022	HYDRAULICS ENGINEER NORTH CAROLINA SEAL 038697 ENGINEER DAVID B. PETTY 7/27/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



MATCH LINE STA 389+00.00 TO SHEET NO. 32

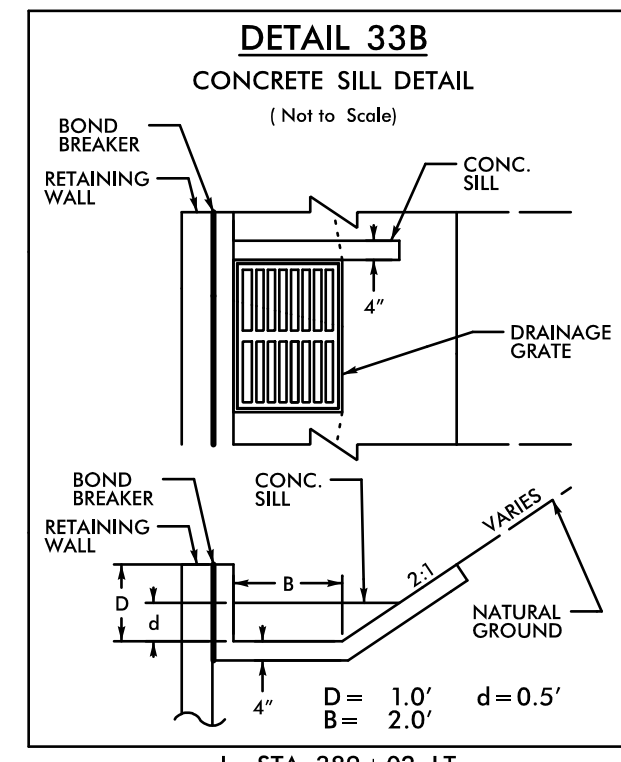
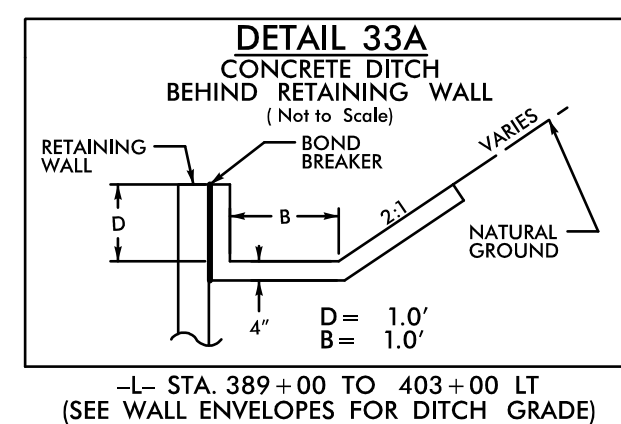
MATCH LINE STA 400+00.00 TO SHEET NO. 34

PROP. RETAINING WALL #19B
TIERED WALLS W/9' WW WILDLIFE FENCE
& CONCRETE DITCH
BEGIN -L- STA. 382+30±
END -L- STA. 393+22±
SINGLE WALL W/9' WW WILDLIFE FENCE
& CONCRETE DITCH
BEGIN -L- STA. 393+22±
END -L- STA. 408+04±

PROP. RETAINING WALL #28
W/9' WW WILDLIFE FENCE
BEGIN -L- STA. 389+25±
END -L- STA. 392+00±

PROP. RETAINING WALL #29
W/9' WW WILDLIFE FENCE
BEGIN -L- STA. 393+90±
END -L- STA. 395+90±

PROP. RETAINING WALL #29A
W/9' WW WILDLIFE FENCE
BEGIN -L- STA. 396+75±
END -L- STA. 398+75±



FOR -L- PROFILE, SEE SHEET NO. 50

8/14/2022
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Sheets\A-0009\CB_Plan
11/21/2022

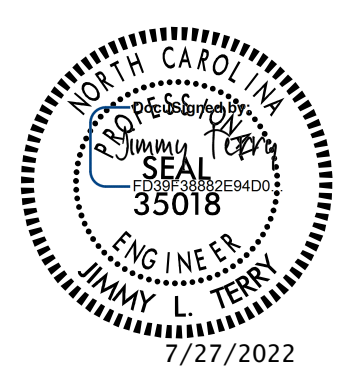
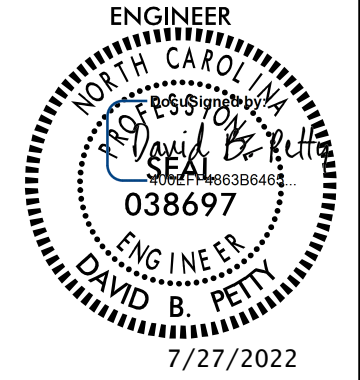

8/17/99

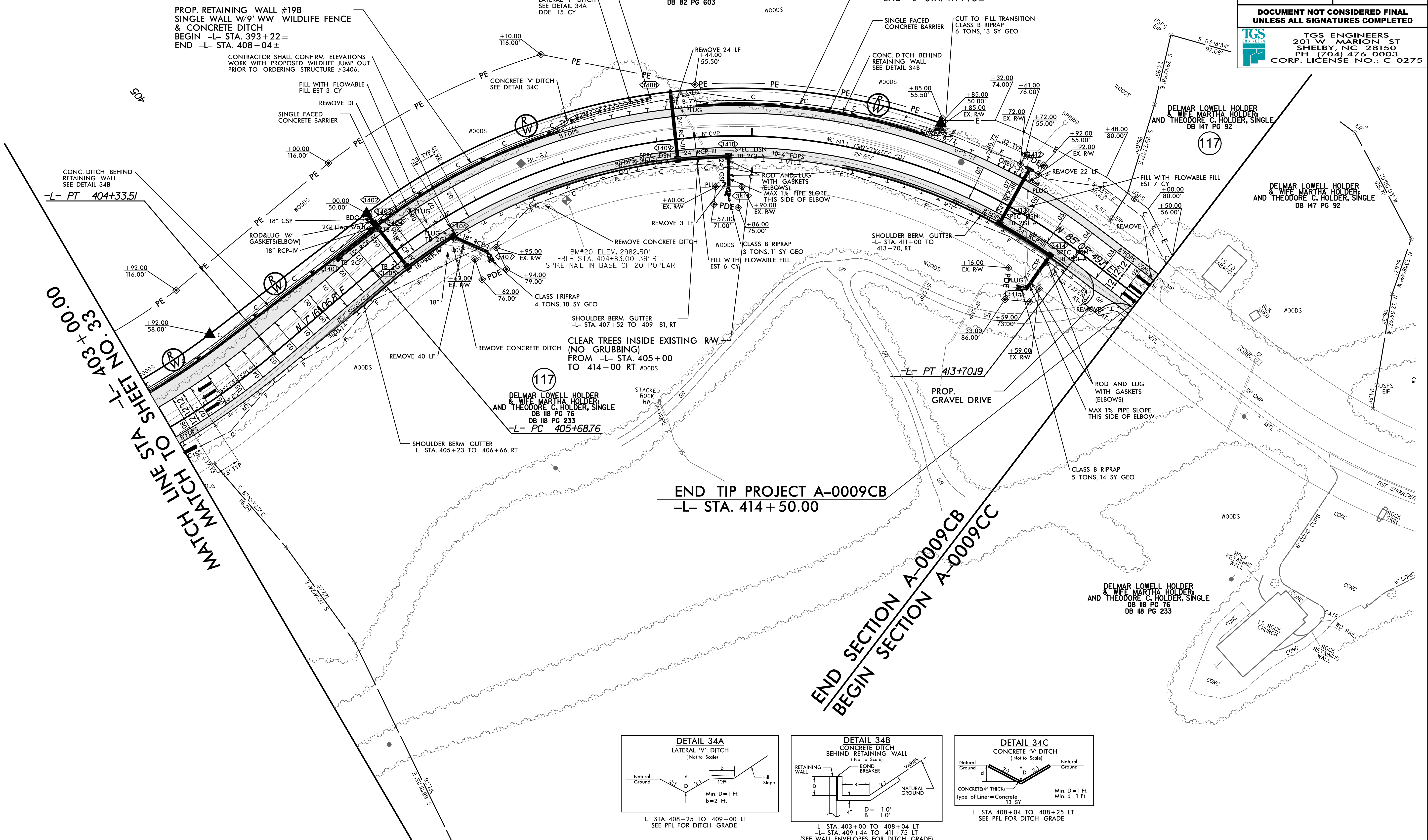
HPB
8dH

-L- CURVE DATA

PI Sta 401+77.67	PI Sta 410+45.07
$\Delta = 40' 19' 35.7''$ (LT)	$\Delta = 77' 49' 42.3''$ (RT)
$D = 7' 32' 20.1''$	$D = 9' 42' 40.1''$
$L = 534.91'$	$L = 801.43'$
$T = 279.07'$	$T = 476.31'$
$R = 760.00'$	$R = 590.00'$
$DS = 50$ MPH	$DS = 45$ MPH
$SE = 0.08$	$SE = 0.08$

THE CONTRACTOR SHOULD BE ADVISED THAT ANY CLEARING WITHIN THE PERMANENT EASEMENT (PE) ALONG USFS PROPERTY SHALL ADHERE TO THE AGREEMENT BETWEEN NCDOT AND THE USFS. THE CONTRACTOR IS TO COORDINATE WITH THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER PRIOR TO STARTING CLEARING OPERATIONS TO ENSURE COMPLIANCE.

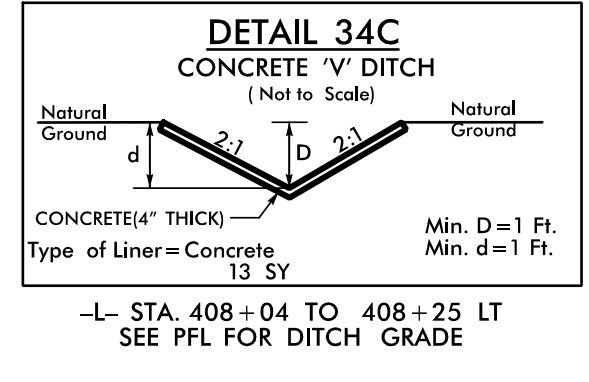
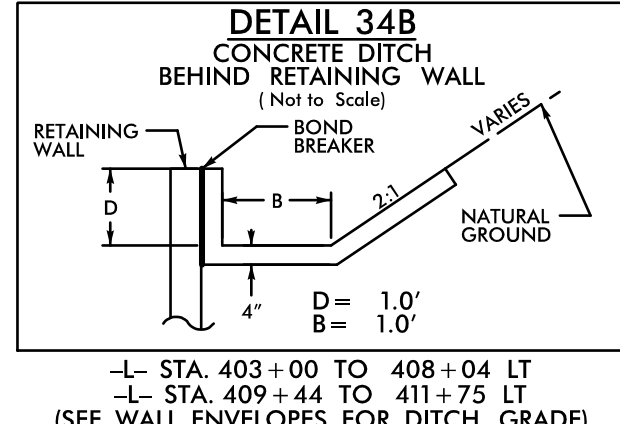
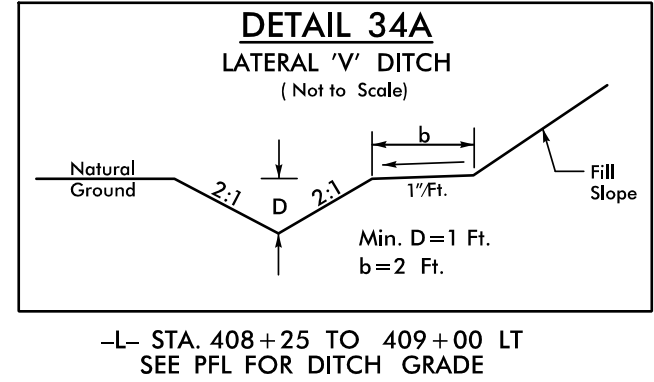
PROJECT REFERENCE NO. A-0009CB	SHEET NO. 34
RW SHEET NO.	
ROADWAY DESIGN 	HYDRAULICS ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



MATCH LINE STA 403+00.00
 MATCH LINE STA 403+00.00

END TIP PROJECT A-0009CB
-L- STA. 414+50.00

END SECTION A-0009CB
 BEGIN SECTION A-0009CC

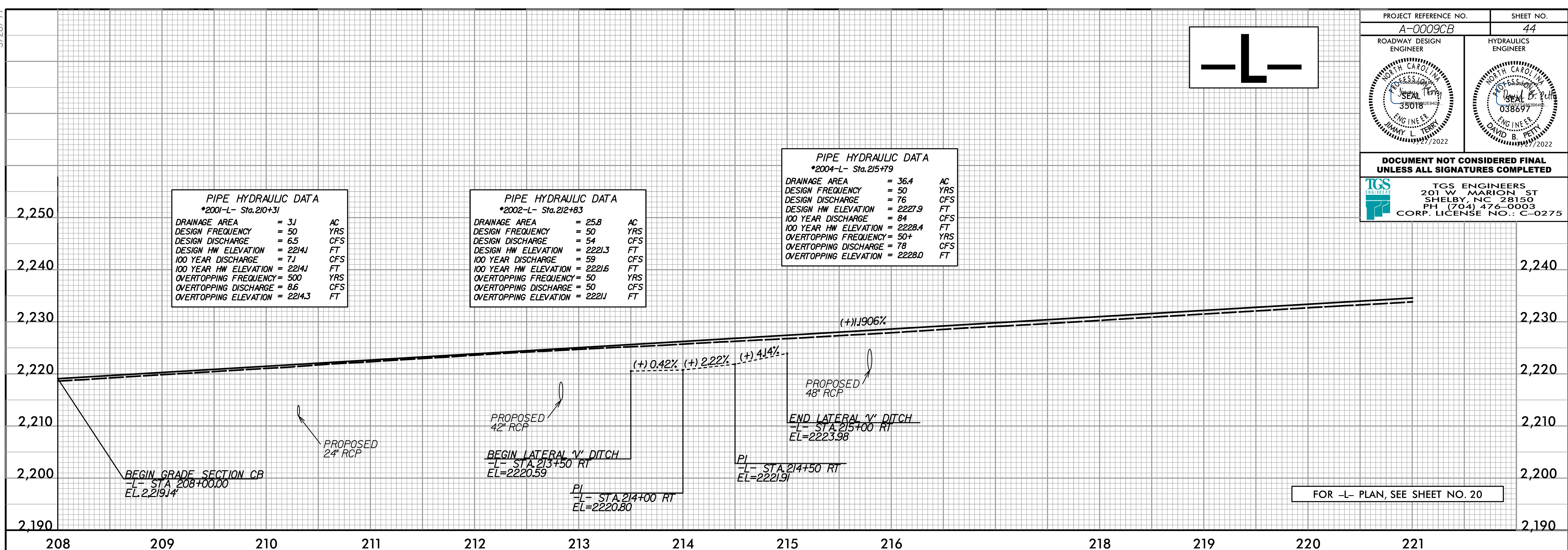
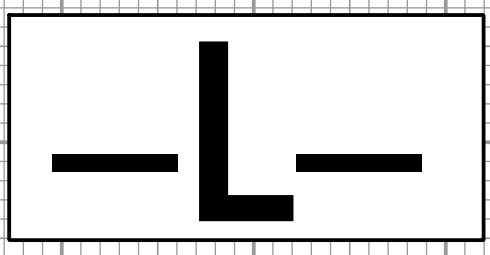


FOR -L- PROFILE, SEE SHEET NO. 51

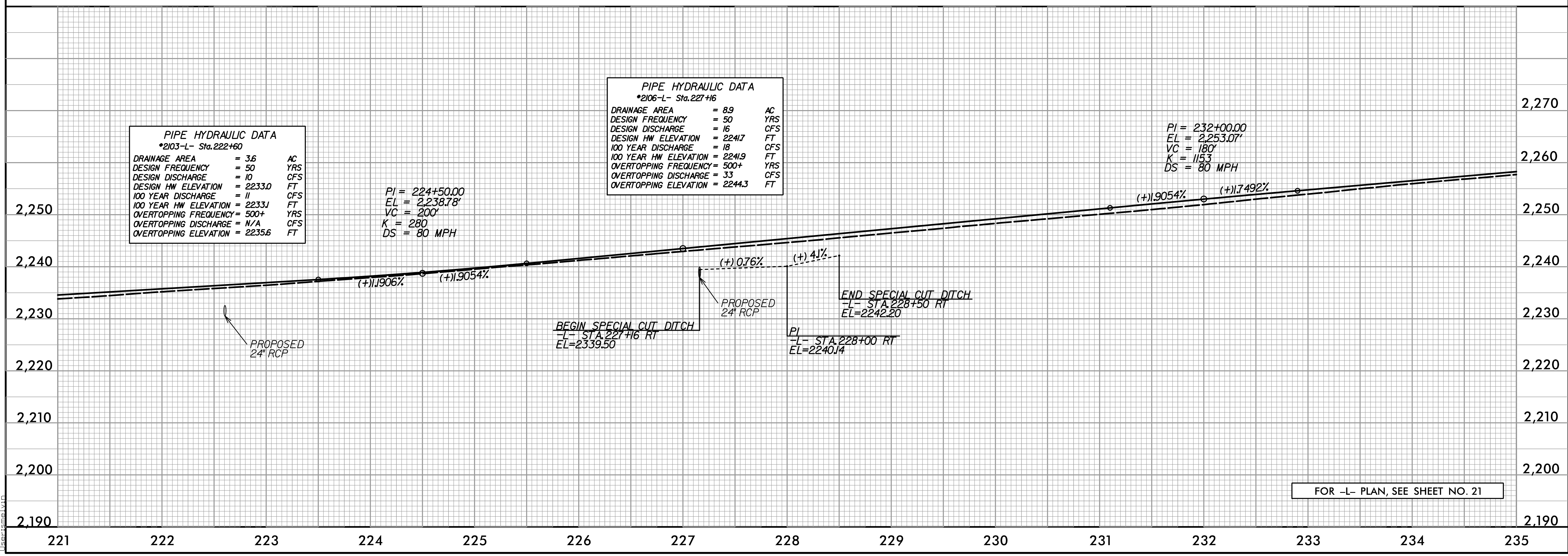
8/19/2022
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5/28/2022

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



FOR -L- PLAN, SEE SHEET NO. 20

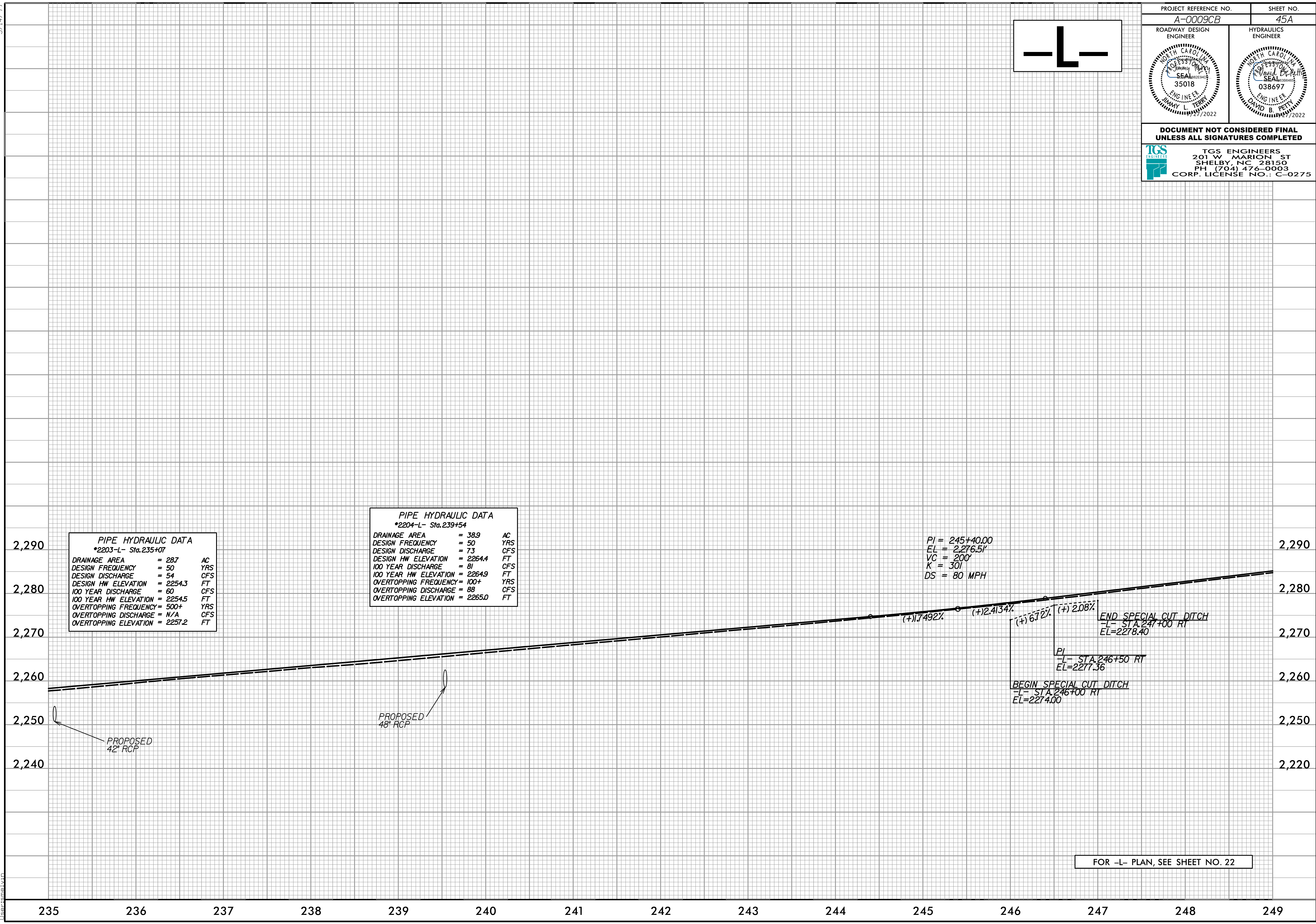
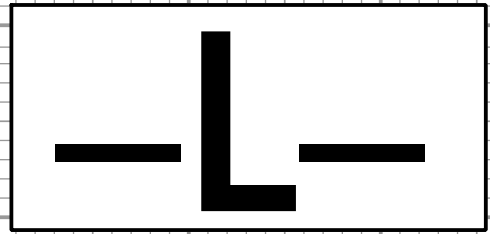


FOR -L- PLAN, SEE SHEET NO. 21

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5/14/19
5/19/2022
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PROJECT REFERENCE NO. A-0009CB	SHEET NO. 45A
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



PIPE HYDRAULIC DATA
*2203-L- Sta.235+07

DRAINAGE AREA	= 287	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 54	CFS
DESIGN HW ELEVATION	= 2254.3	FT
100 YEAR DISCHARGE	= 60	CFS
100 YEAR HW ELEVATION	= 2254.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2257.2	FT

PIPE HYDRAULIC DATA
*2204-L- Sta.239+54

DRAINAGE AREA	= 38.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 73	CFS
DESIGN HW ELEVATION	= 2264.4	FT
100 YEAR DISCHARGE	= 81	CFS
100 YEAR HW ELEVATION	= 2264.9	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 88	CFS
OVERTOPPING ELEVATION	= 2265.0	FT

PI = 245+40.00
 EL = 2,276.51'
 VC = 200'
 K = 301
 DS = 80 MPH

END SPECIAL CUT DITCH
 -L- STA 247+00 RT
 EL=2278.40

PI
 -L- STA 246+50 RT
 EL=2277.36

BEGIN SPECIAL CUT DITCH
 -L- STA 246+00 RT
 EL=2274.00

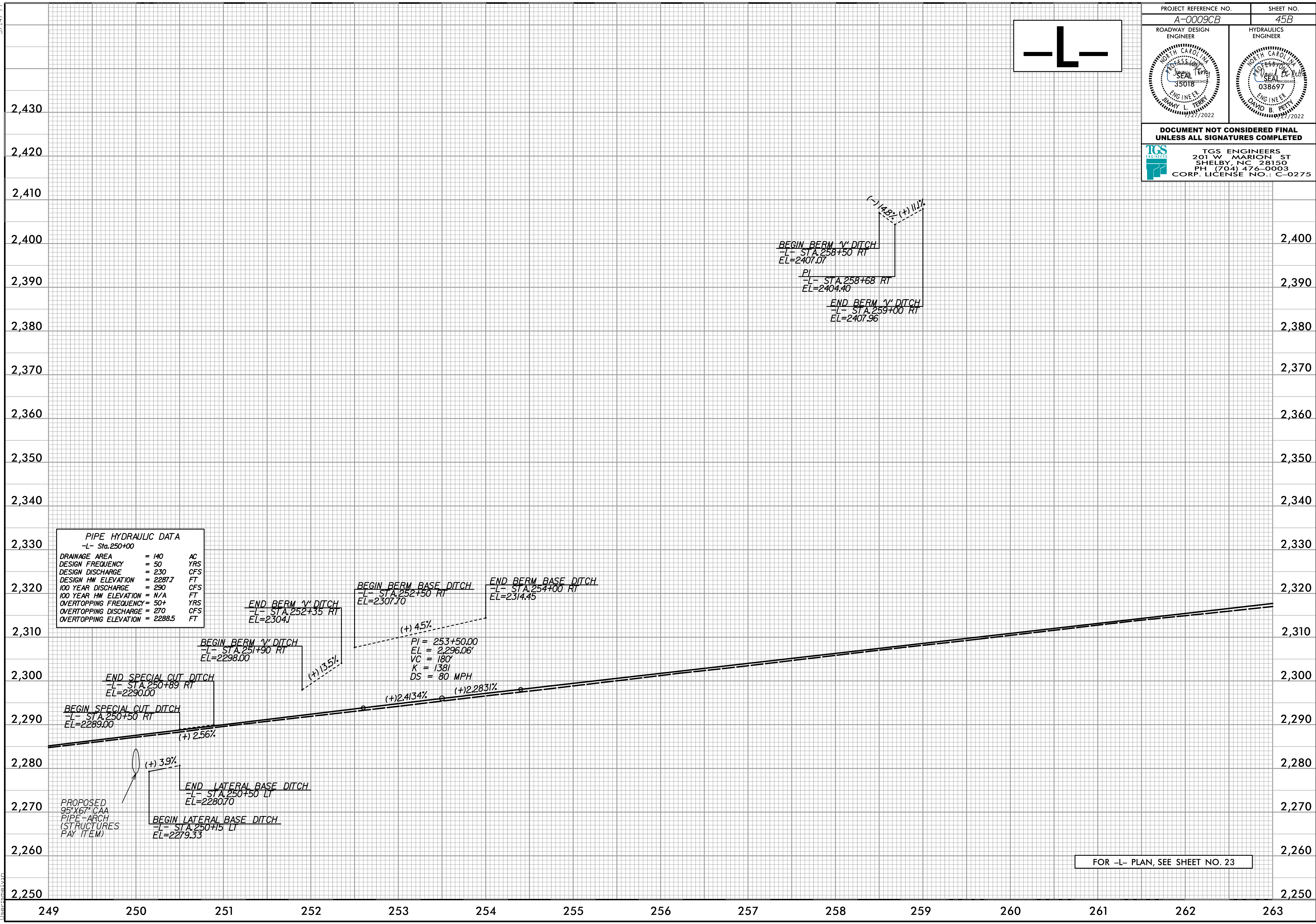
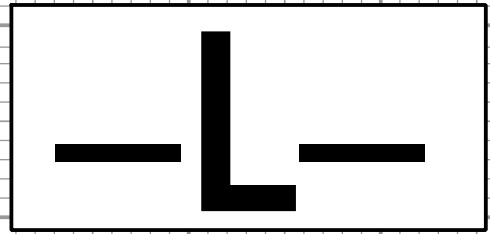
PROPOSED 42" RCP

PROPOSED 48" RCP

FOR -L- PLAN, SEE SHEET NO. 22

5/14/19
5/19/2022
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PROJECT REFERENCE NO. A-0009CB	SHEET NO. 45B
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



PIPE HYDRAULIC DATA
-L- Sta. 250+00

DRAINAGE AREA	= 140	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 230	CFS
DESIGN HW ELEVATION	= 2287.7	FT
100 YEAR DISCHARGE	= 290	CFS
100 YEAR HW ELEVATION	= N/A	FT
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING DISCHARGE	= 270	CFS
OVERTOPPING ELEVATION	= 2288.5	FT

BEGIN BERM BASE DITCH
-L- STA. 252+50 RT
EL=2307.70

END BERM BASE DITCH
-L- STA. 254+00 RT
EL=2314.45

END BERM 'V' DITCH
-L- STA. 252+35 RT
EL=2304.1

BEGIN BERM 'V' DITCH
-L- STA. 251+90 RT
EL=2298.00

END SPECIAL CUT DITCH
-L- STA. 250+89 RT
EL=2290.00

BEGIN SPECIAL CUT DITCH
-L- STA. 250+50 RT
EL=2289.00

PROPOSED
95'X67' CAA
PIPE-ARCH
(STRUCTURES
PAY ITEM)

END LATERAL BASE DITCH
-L- STA. 250+50 LI
EL=2280.70

BEGIN LATERAL BASE DITCH
-L- STA. 250+15 LI
EL=2279.33

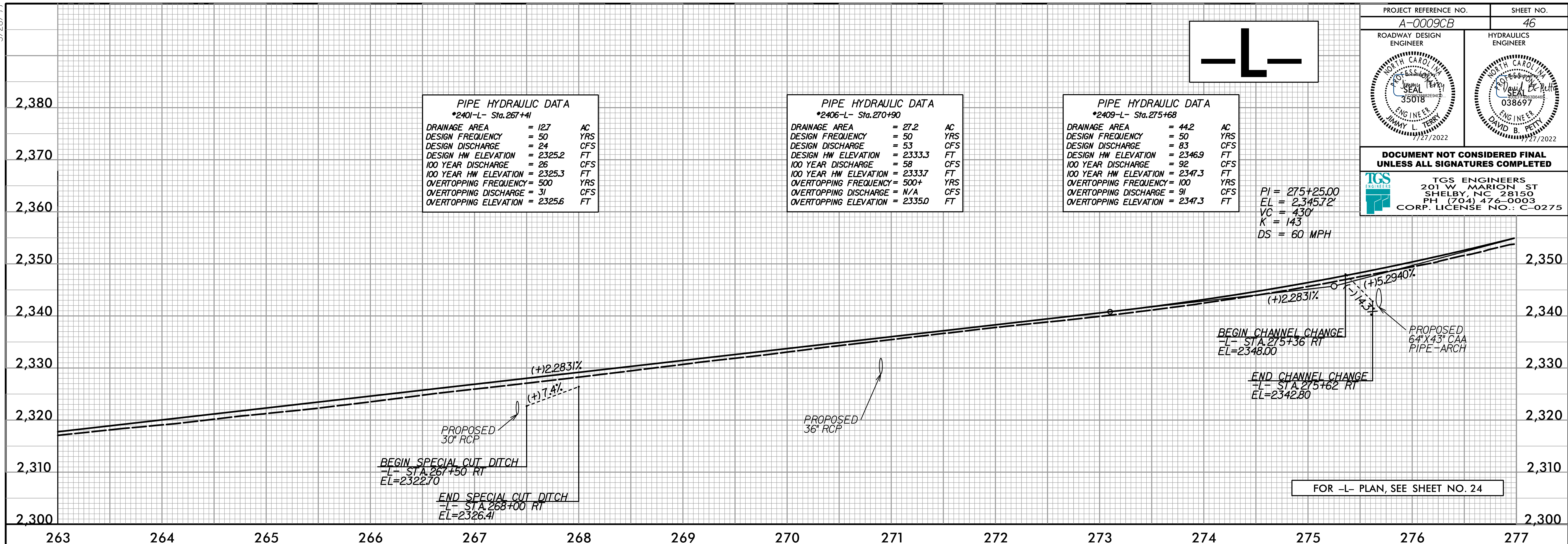
FOR -L- PLAN, SEE SHEET NO. 23

5/28/2022

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
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TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



PIPE HYDRAULIC DATA
*2401-L- Sta.267+41

DRAINAGE AREA	= 127	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 24	CFS
DESIGN HW ELEVATION	= 2325.2	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 2325.3	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 31	CFS
OVERTOPPING ELEVATION	= 2325.6	FT

PIPE HYDRAULIC DATA
*2406-L- Sta.270+90

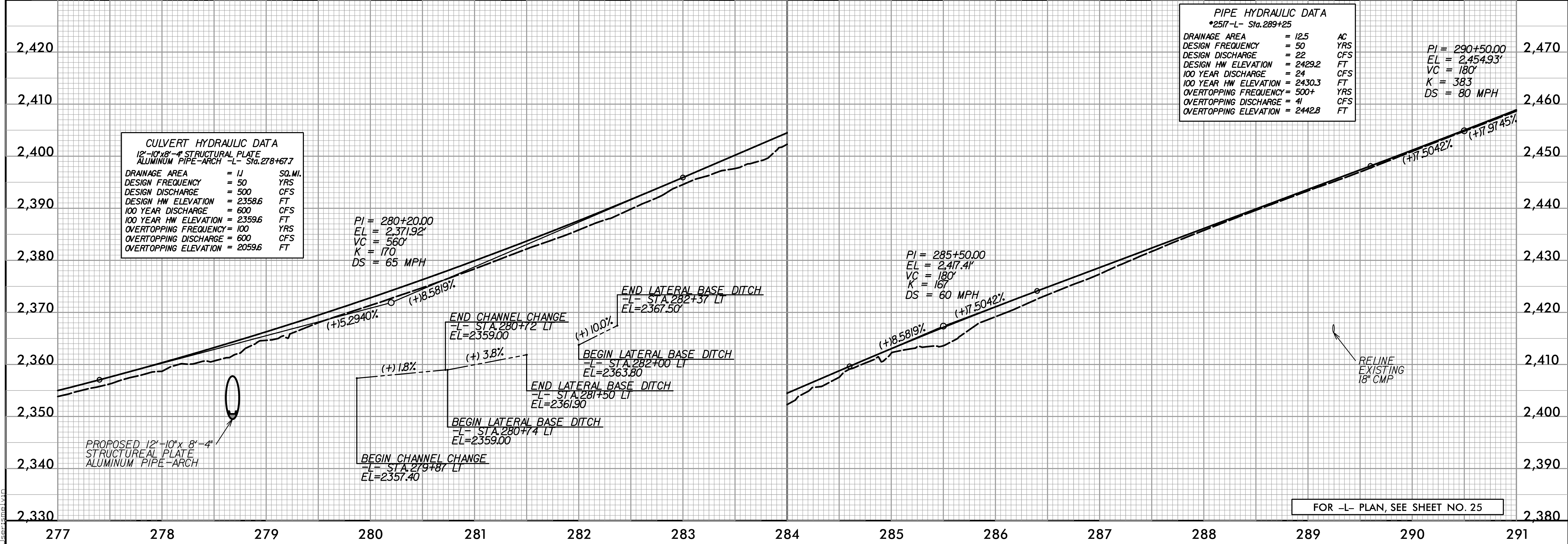
DRAINAGE AREA	= 27.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 53	CFS
DESIGN HW ELEVATION	= 2333.3	FT
100 YEAR DISCHARGE	= 58	CFS
100 YEAR HW ELEVATION	= 2333.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2335.0	FT

PIPE HYDRAULIC DATA
*2409-L- Sta.275+68

DRAINAGE AREA	= 44.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 83	CFS
DESIGN HW ELEVATION	= 2346.9	FT
100 YEAR DISCHARGE	= 92	CFS
100 YEAR HW ELEVATION	= 2347.3	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 91	CFS
OVERTOPPING ELEVATION	= 2347.3	FT

PI = 275+25.00
EL = 2,345.72'
VC = 430'
K = 143
DS = 60 MPH

FOR -L- PLAN, SEE SHEET NO. 24



CULVERT HYDRAULIC DATA
12'-10"x8'-4" STRUCTURAL PLATE
ALUMINUM PIPE-ARCH -L- Sta.278+67.7

DRAINAGE AREA	= 11	SQ.MI.
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 500	CFS
DESIGN HW ELEVATION	= 2358.6	FT
100 YEAR DISCHARGE	= 600	CFS
100 YEAR HW ELEVATION	= 2359.6	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 600	CFS
OVERTOPPING ELEVATION	= 2059.6	FT

PIPE HYDRAULIC DATA
*2517-L- Sta.289+25

DRAINAGE AREA	= 125	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 22	CFS
DESIGN HW ELEVATION	= 2429.2	FT
100 YEAR DISCHARGE	= 24	CFS
100 YEAR HW ELEVATION	= 2430.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 41	CFS
OVERTOPPING ELEVATION	= 2442.8	FT

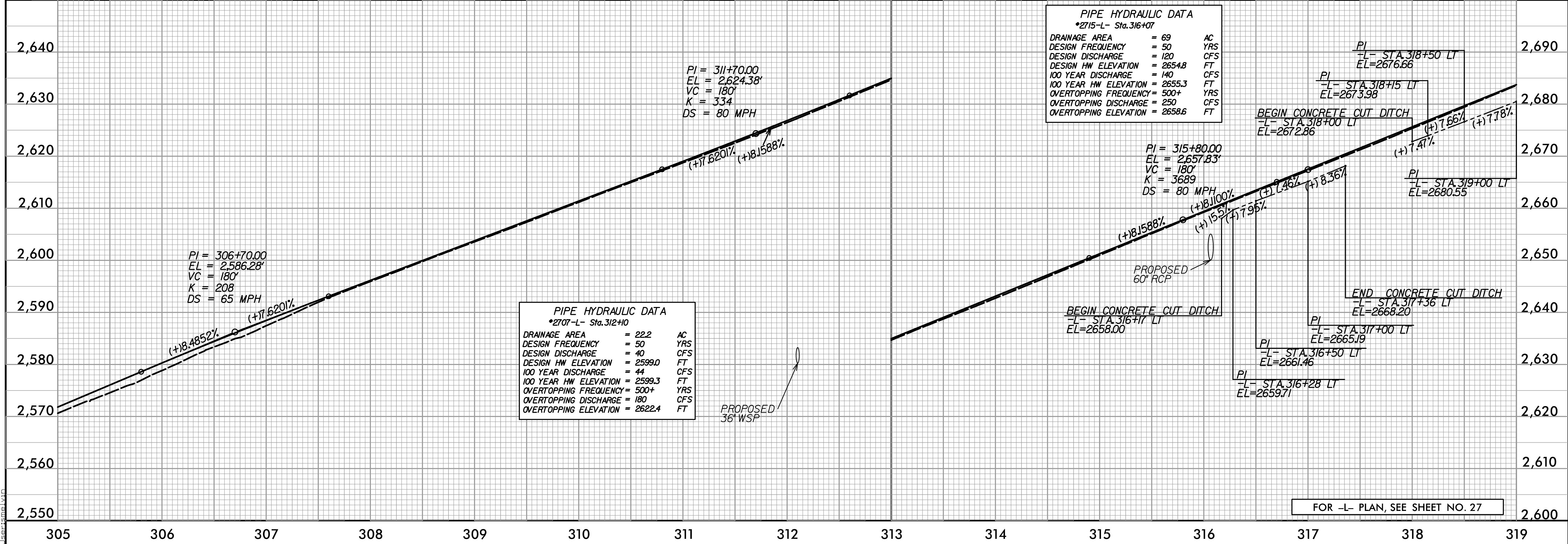
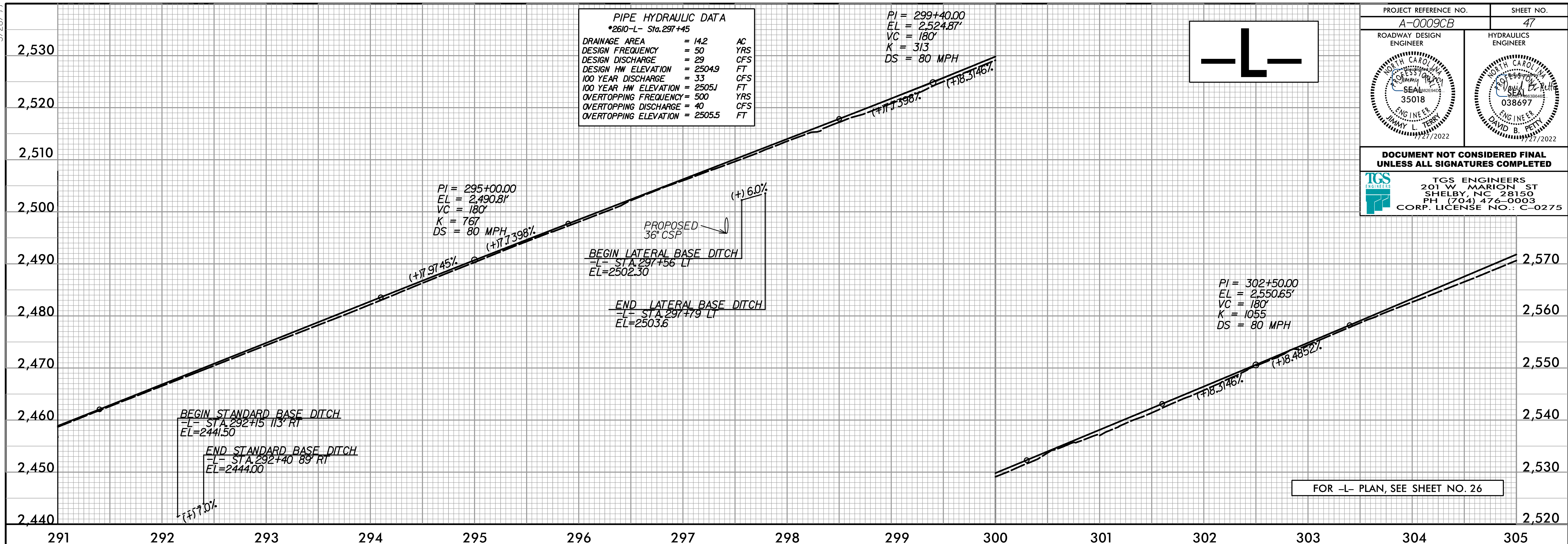
PI = 290+50.00
EL = 2,454.93'
VC = 180'
K = 383
DS = 80 MPH

FOR -L- PLAN, SEE SHEET NO. 25

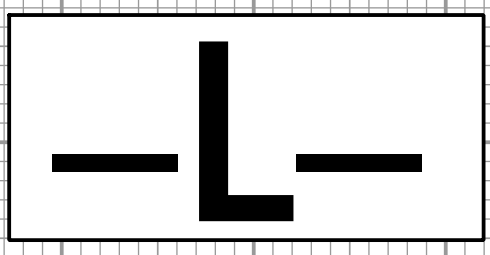
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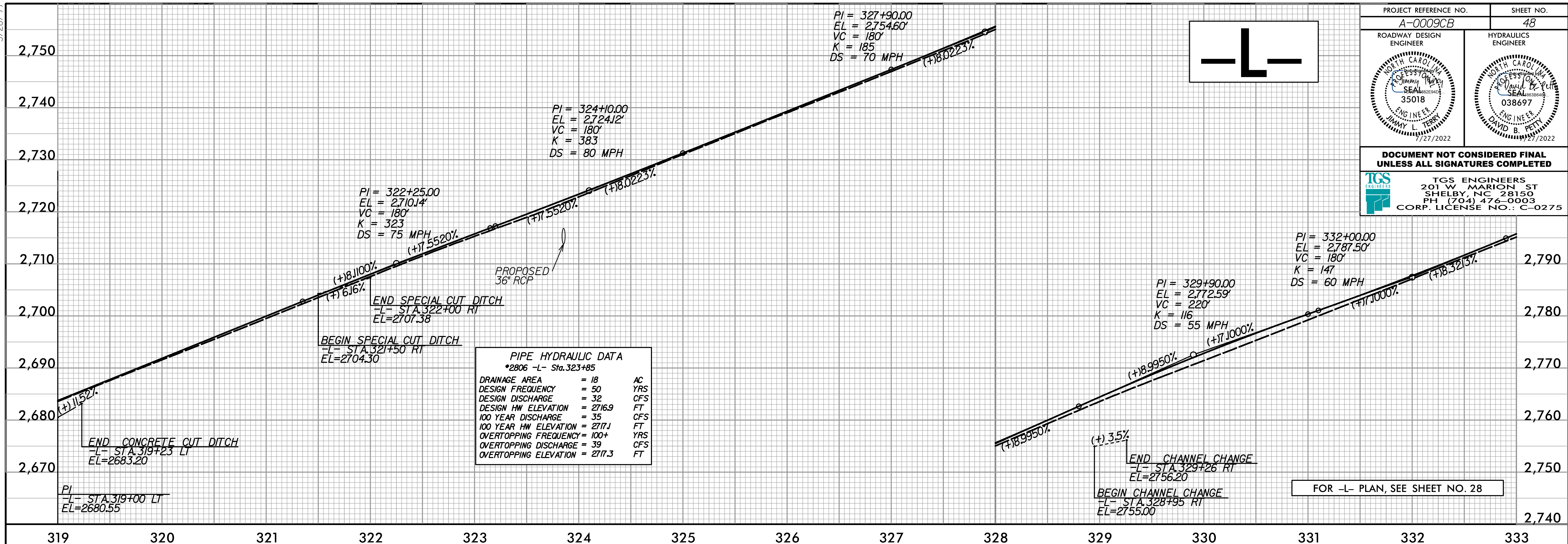


PROJECT REFERENCE NO. A-0009CB	SHEET NO. 47
ROADWAY DESIGN ENGINEER JIMMY L. TERRY 35018 ENGINEER JIMMY L. TERRY 7/27/2022	HYDRAULICS ENGINEER DAVID B. PETTY 038697 ENGINEER DAVID B. PETTY 7/27/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



5/28/22

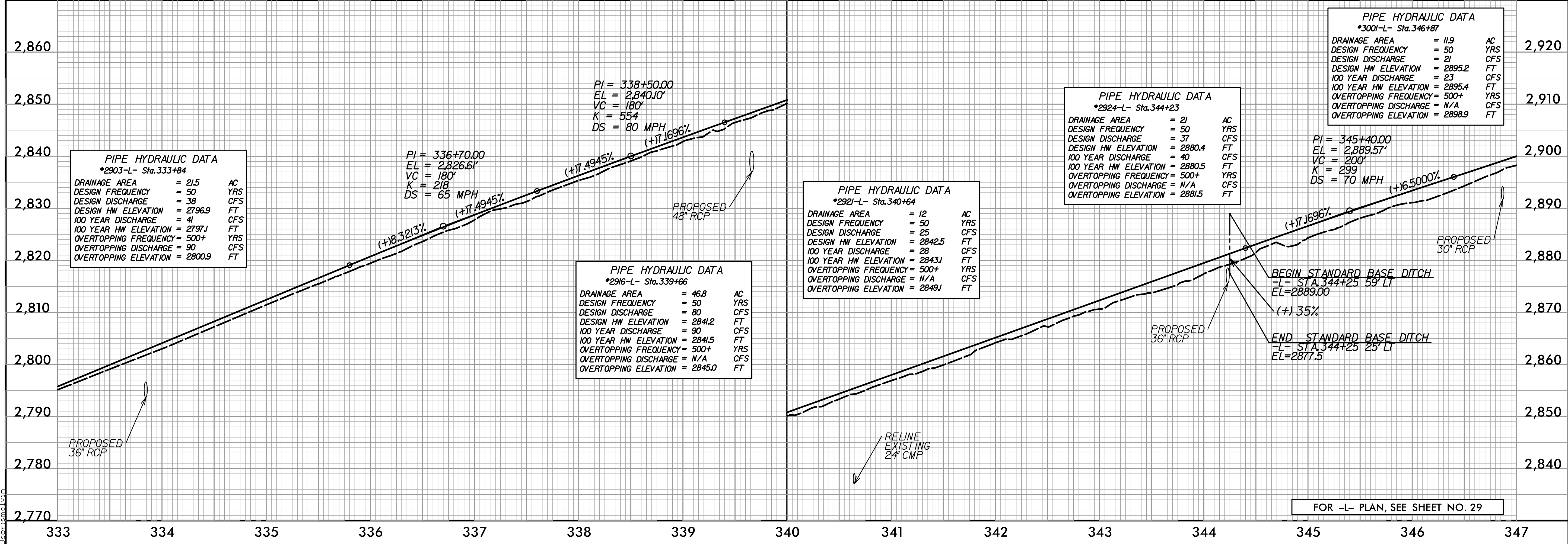
PROJECT REFERENCE NO. A-0009CB		SHEET NO. 48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275		



PIPE HYDRAULIC DATA
*2806 -L- Sta.323+85

DRAINAGE AREA	= 18	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 32	CFS
DESIGN HW ELEVATION	= 2716.9	FT
100 YEAR DISCHARGE	= 35	CFS
100 YEAR HW ELEVATION	= 2717.1	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 39	CFS
OVERTOPPING ELEVATION	= 2717.3	FT

FOR -L- PLAN, SEE SHEET NO. 28



PIPE HYDRAULIC DATA
*2903-L- Sta.333+84

DRAINAGE AREA	= 21.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 38	CFS
DESIGN HW ELEVATION	= 2796.9	FT
100 YEAR DISCHARGE	= 41	CFS
100 YEAR HW ELEVATION	= 2797.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 90	CFS
OVERTOPPING ELEVATION	= 2800.9	FT

PIPE HYDRAULIC DATA
*2916-L- Sta.339+66

DRAINAGE AREA	= 46.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 80	CFS
DESIGN HW ELEVATION	= 2841.2	FT
100 YEAR DISCHARGE	= 90	CFS
100 YEAR HW ELEVATION	= 2841.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2845.0	FT

PIPE HYDRAULIC DATA
*2921-L- Sta.340+64

DRAINAGE AREA	= 12	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 25	CFS
DESIGN HW ELEVATION	= 2842.5	FT
100 YEAR DISCHARGE	= 28	CFS
100 YEAR HW ELEVATION	= 2843.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2849.1	FT

PIPE HYDRAULIC DATA
*2924-L- Sta.344+23

DRAINAGE AREA	= 21	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 37	CFS
DESIGN HW ELEVATION	= 2880.4	FT
100 YEAR DISCHARGE	= 40	CFS
100 YEAR HW ELEVATION	= 2880.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2881.5	FT

PIPE HYDRAULIC DATA
*3001-L- Sta.346+87

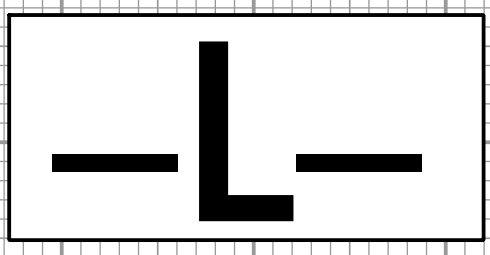
DRAINAGE AREA	= 11.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21	CFS
DESIGN HW ELEVATION	= 2895.2	FT
100 YEAR DISCHARGE	= 23	CFS
100 YEAR HW ELEVATION	= 2895.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2898.9	FT

FOR -L- PLAN, SEE SHEET NO. 29

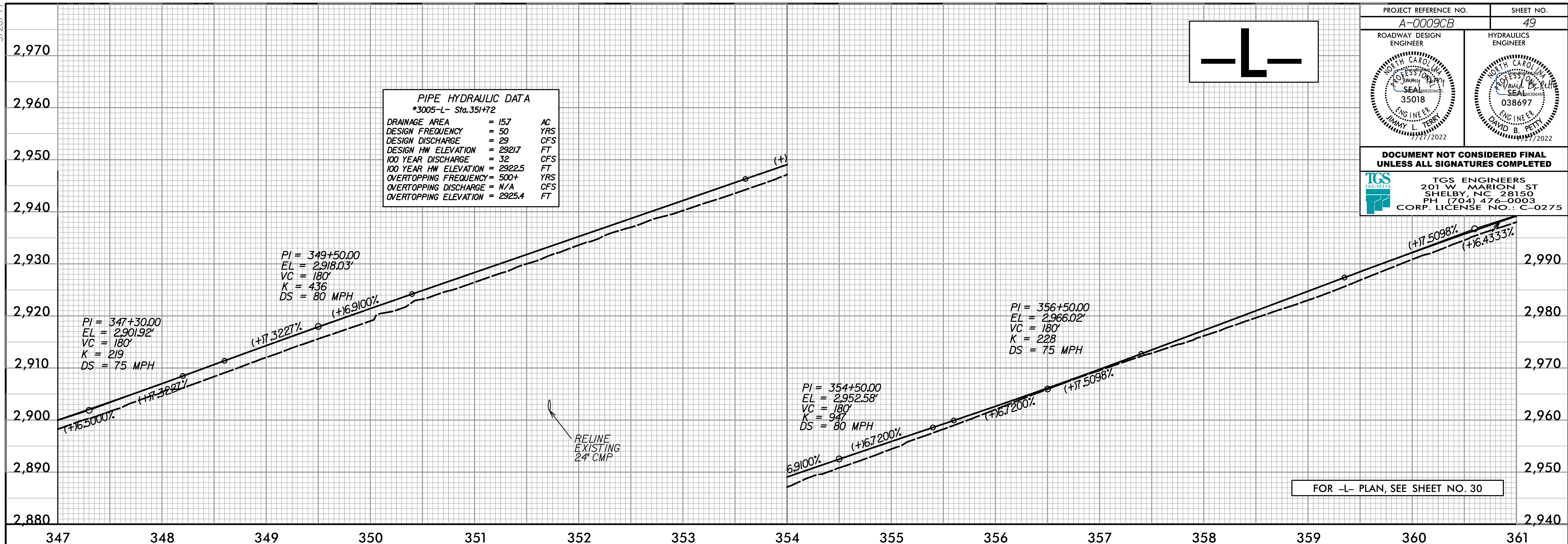
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5/28/2022

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 49
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

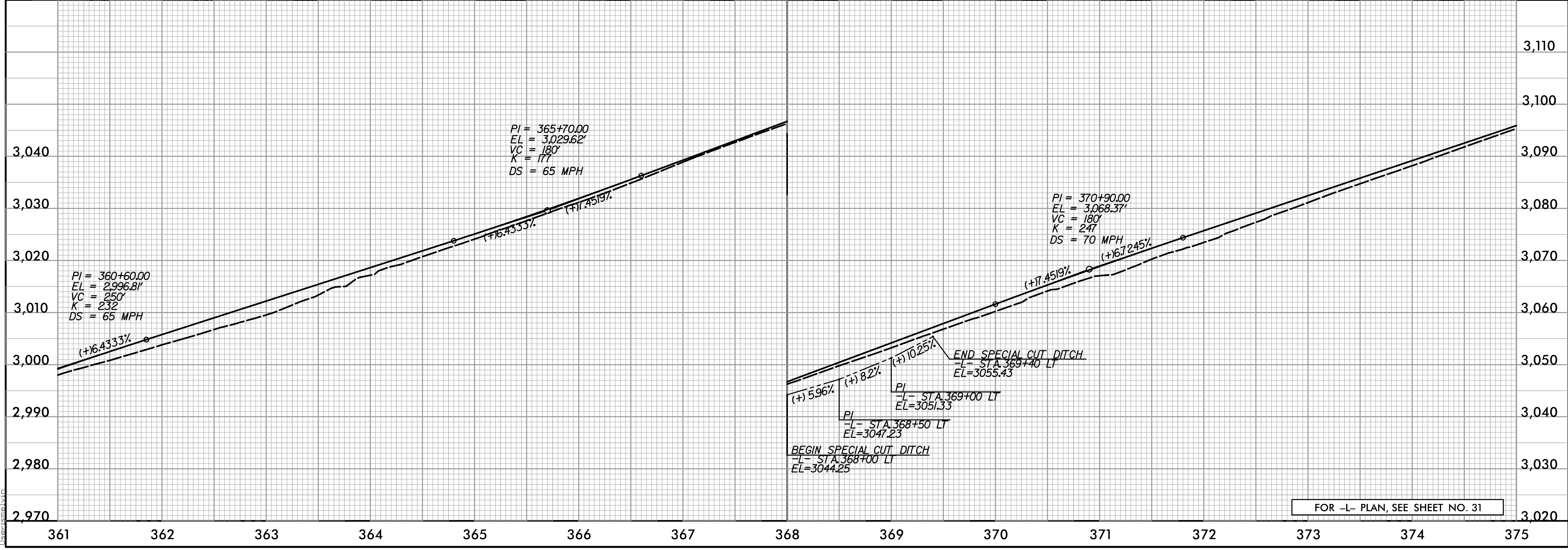


PIPE HYDRAULIC DATA	
*3005-L- Sta.351+72	
DRAINAGE AREA	= 157 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 29 CFS
DESIGN HW ELEVATION	= 29217 FT
100 YEAR DISCHARGE	= 32 CFS
100 YEAR HW ELEVATION	= 29225 FT
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= N/A CFS
OVERTOPPING ELEVATION	= 2925.4 FT



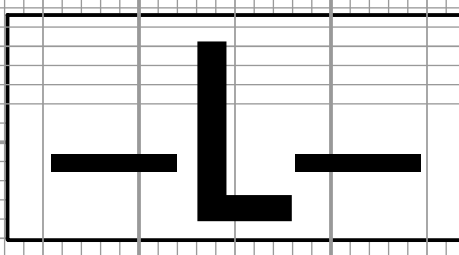
FOR -L- PLAN, SEE SHEET NO. 30

5/16/2022
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FOR -L- PLAN, SEE SHEET NO. 31

5/28/2022



TGS ENGINEERS
 201 W. MARION ST
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO. A-0009CB	SHEET NO. 50
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER

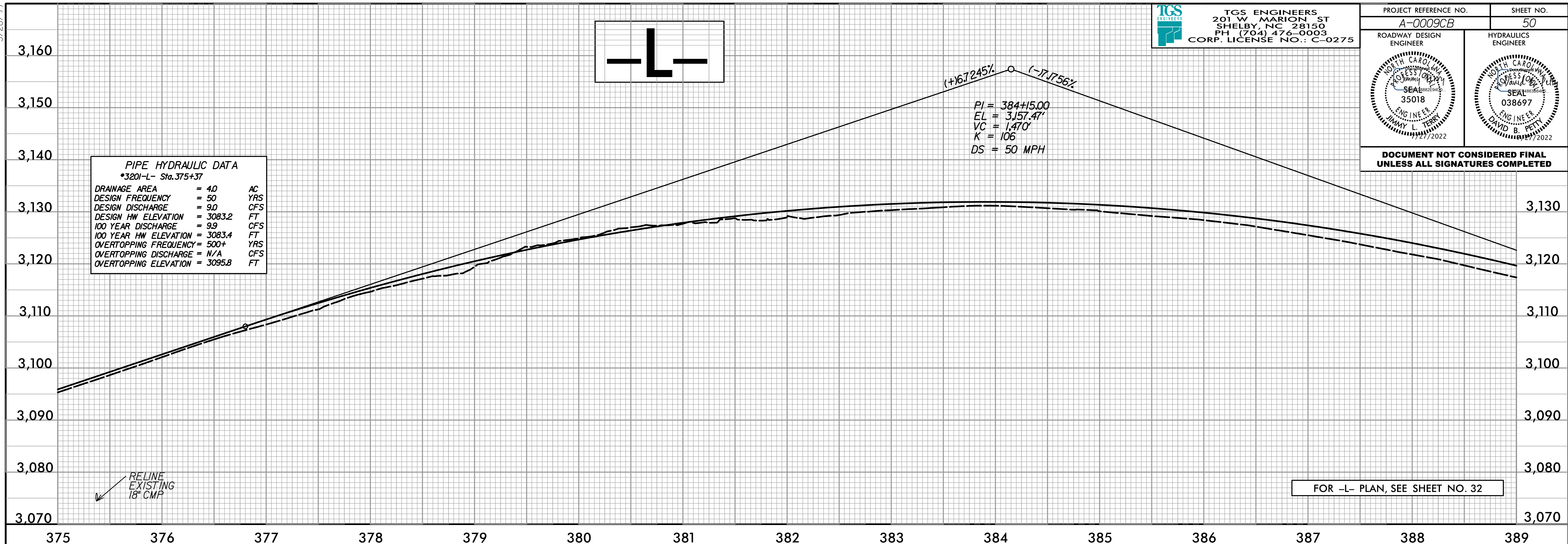
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA
 *3201-L- Sta. 375+37

DRAINAGE AREA	= 4.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9.0	CFS
DESIGN HW ELEVATION	= 3083.2	FT
100 YEAR DISCHARGE	= 9.9	CFS
100 YEAR HW ELEVATION	= 3083.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 3095.8	FT

(+16.7245% (-)17.1756%

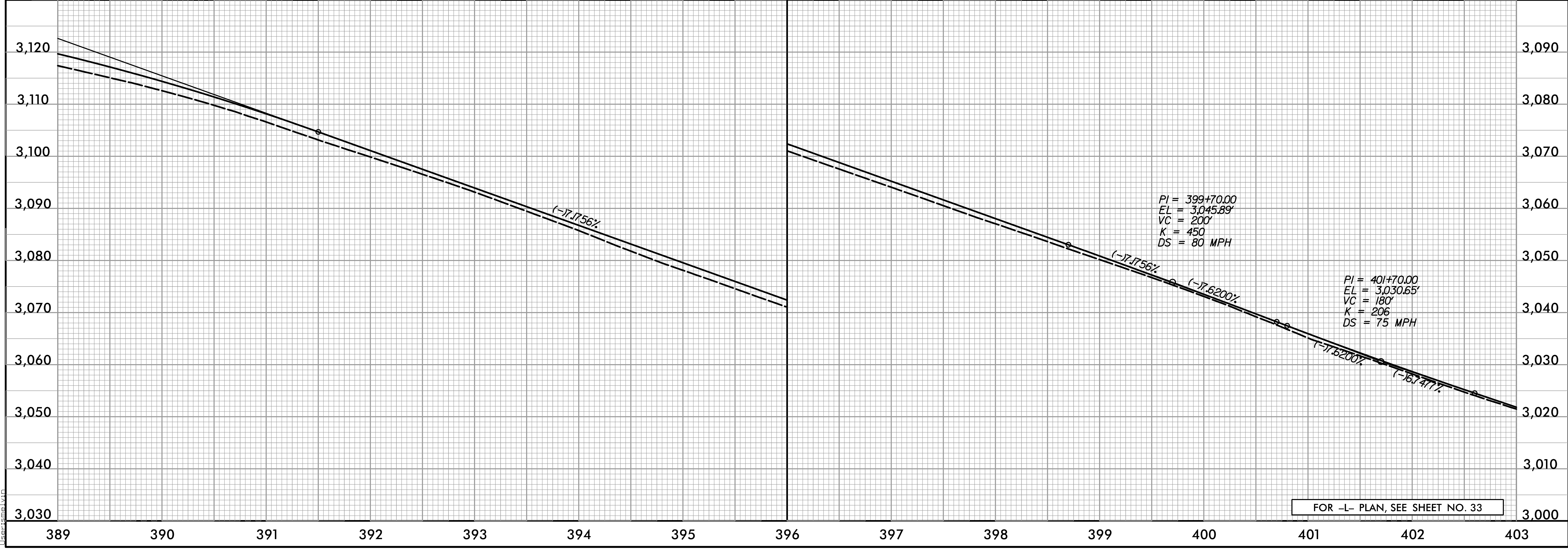
PI = 384+15.00
 EL = 3,157.47'
 VC = 1,470'
 K = 106
 DS = 50 MPH



RELINE
 EXISTING
 18" CMP

FOR -L- PLAN, SEE SHEET NO. 32

5/19/2022 1:00:00 PM C:\Users\jterry\OneDrive\Documents\Roadway\Proj\A-0009CB\Plan_Sheets\A-0009CB_Rdy_pfl_Sheets.dgn

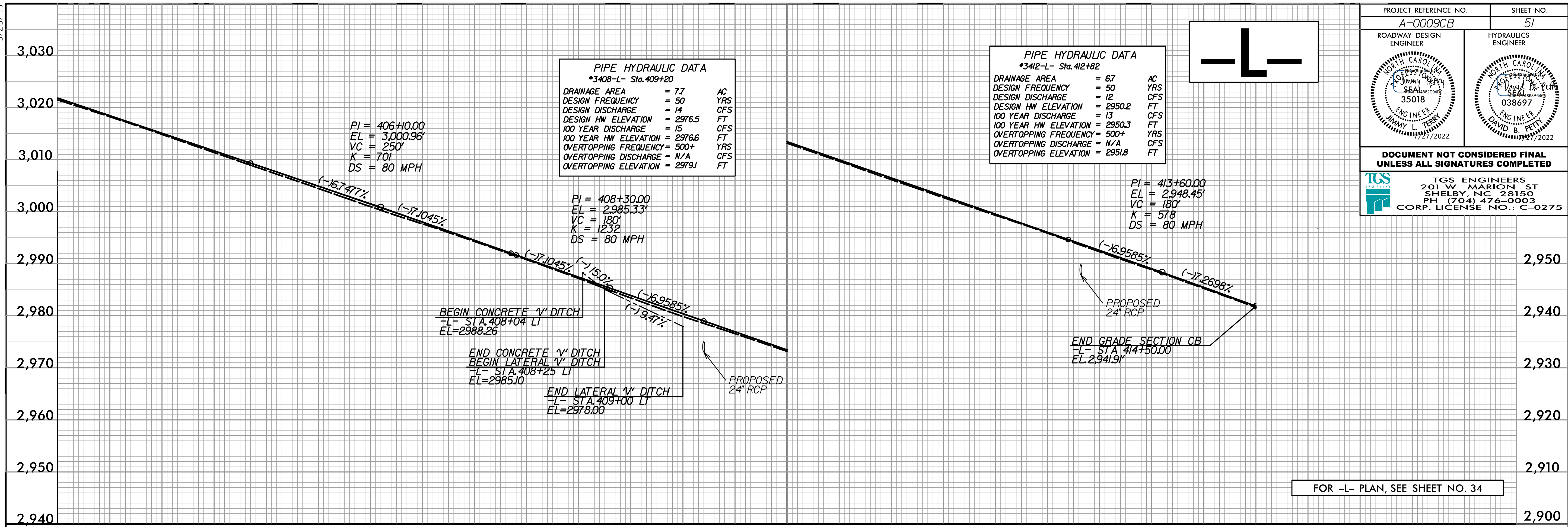


PI = 399+70.00
 EL = 3,045.89'
 VC = 200'
 K = 450
 DS = 80 MPH

PI = 401+70.00
 EL = 3,030.65'
 VC = 180'
 K = 206
 DS = 75 MPH

FOR -L- PLAN, SEE SHEET NO. 33

5/28/22



PROJECT REFERENCE NO.	A-0009CB	SHEET NO.	51
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

FOR -L- PLAN, SEE SHEET NO. 34

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