
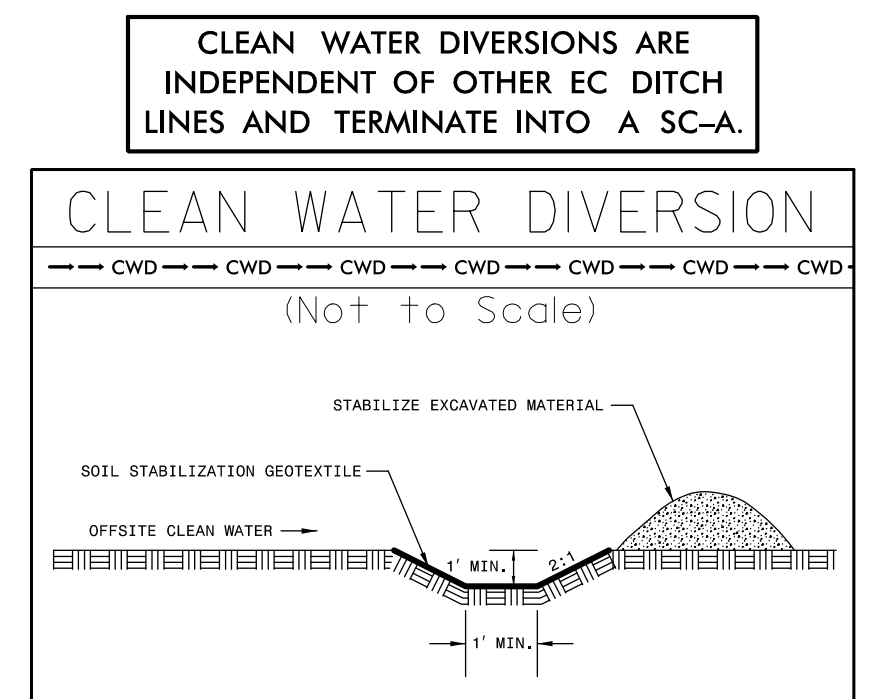
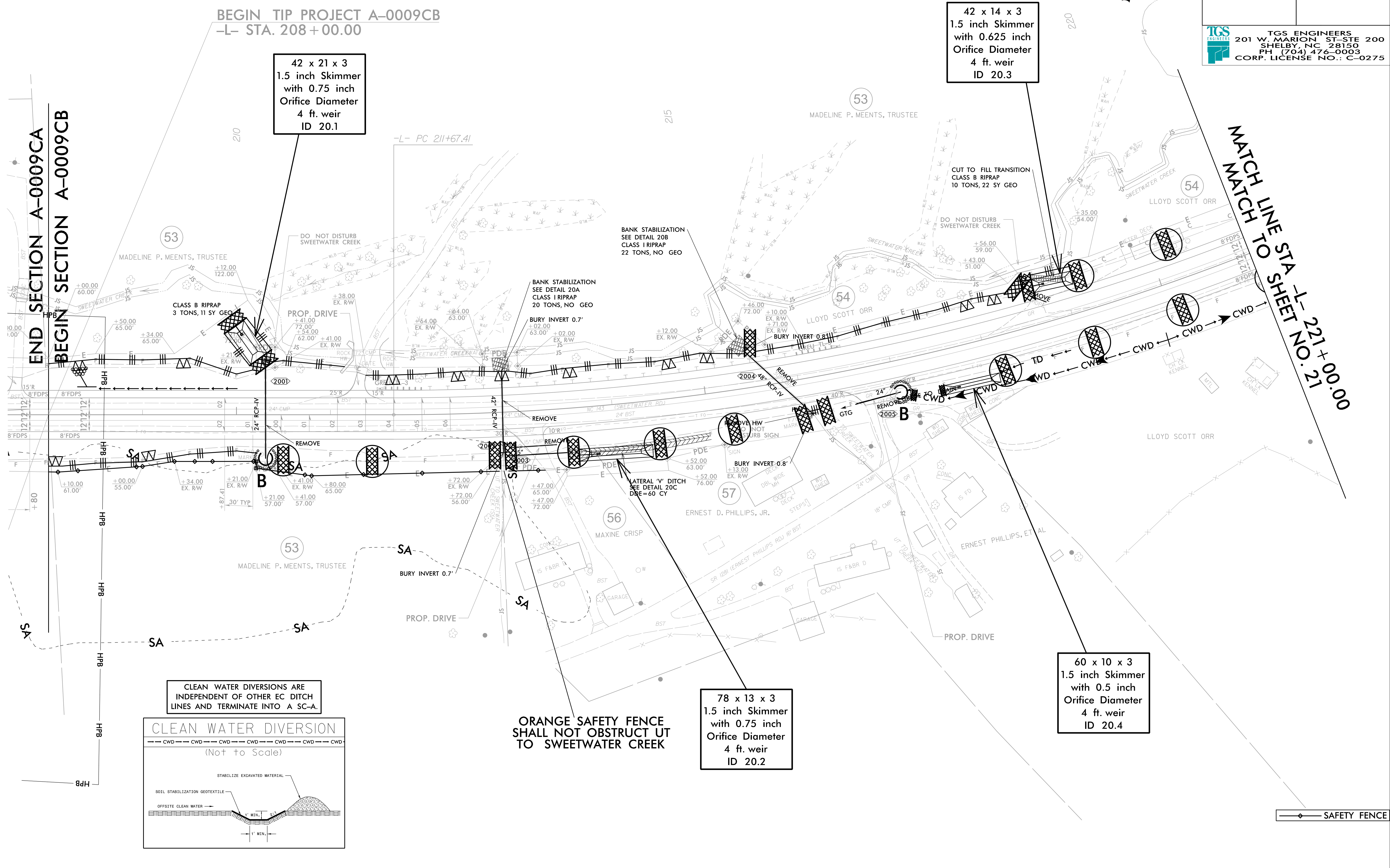
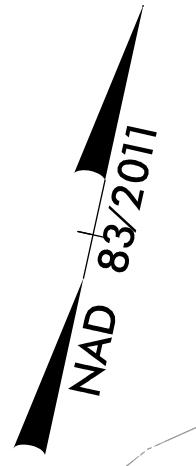
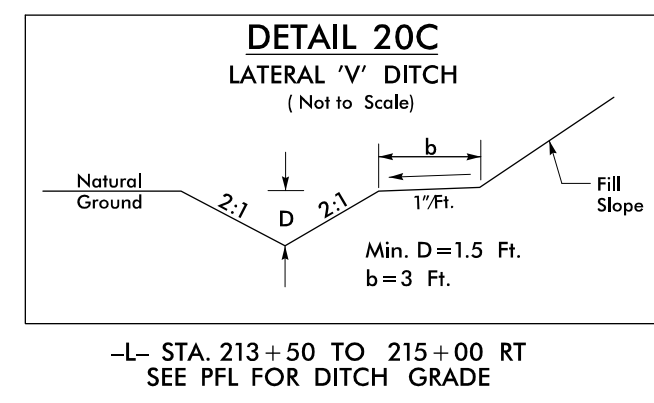
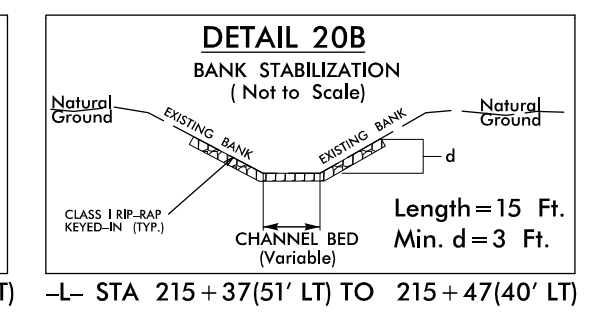
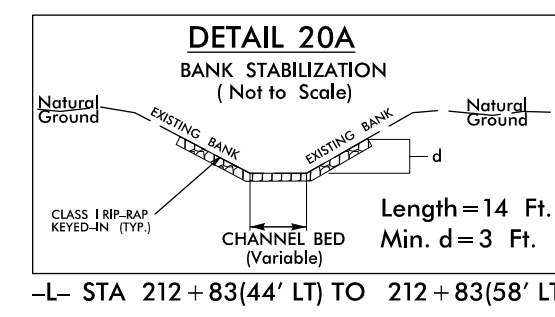



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for the convenience of the user
and is Not a Certified Document –**

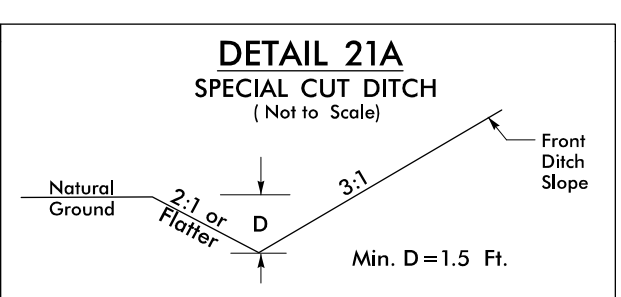
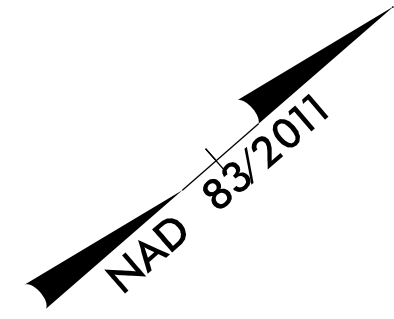
**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

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

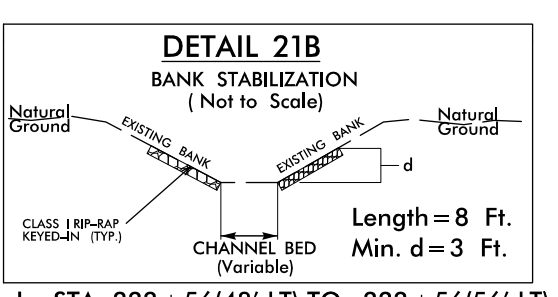
PROJECT REFERENCE NO. A-0009CB	SHEET NO. EC-19/CONST.20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



PROJECT REFERENCE NO. A-0009CB		SHEET NO. EC-20/CONST.21	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 TGS ENGINEERS 201 W. MARION ST-STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			



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



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

For Slopes Excavated Greater Than 10 feet
Install Matting for Erosion Control on
Entire Slope as Work Allows.

Place Matting for Erosion Control
on Slopes Adjacent to Permitted
Wetlands as Work Allows.

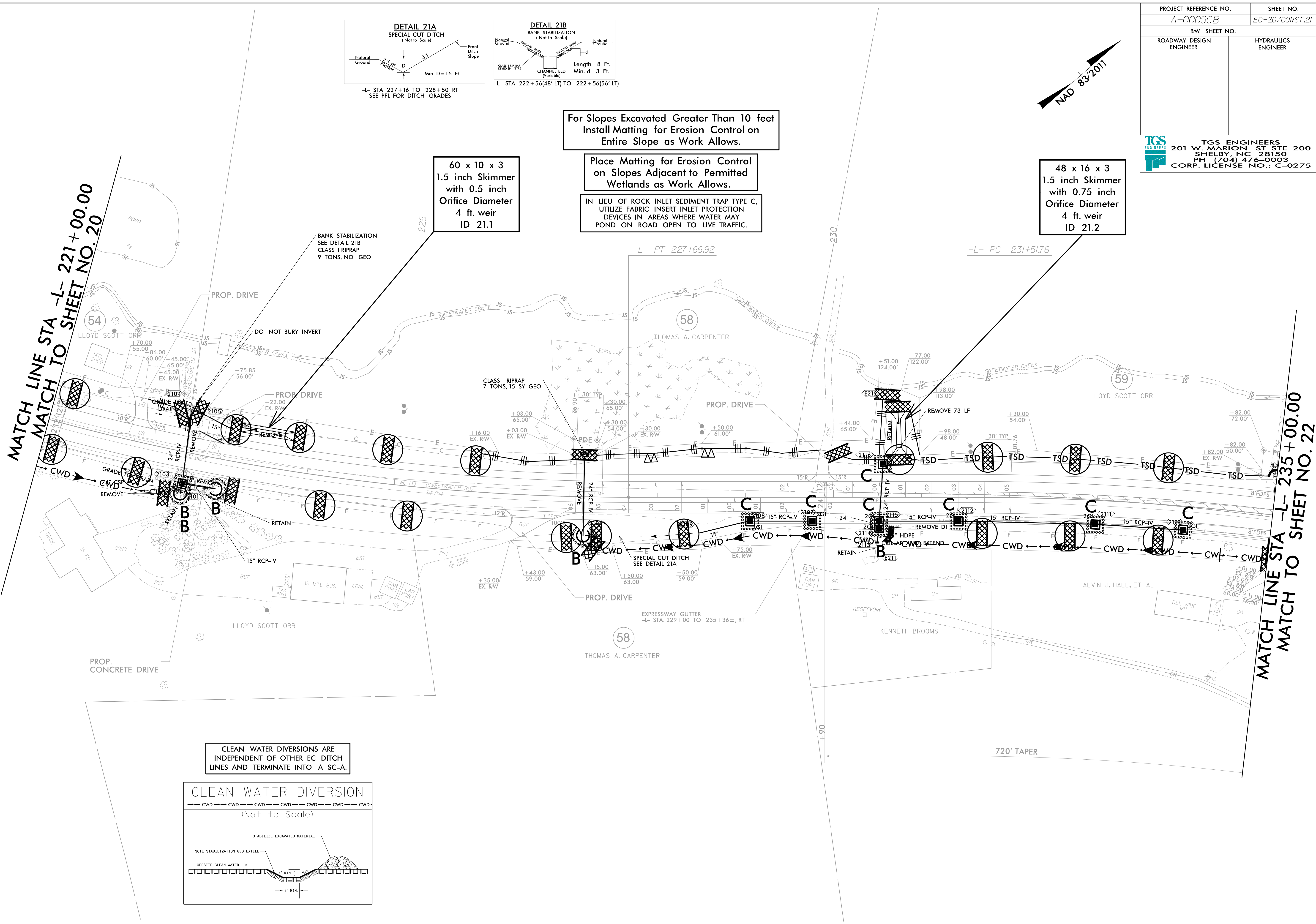
IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C,
UTILIZE FABRIC INSERT INLET PROTECTION
DEVICES IN AREAS WHERE WATER MAY
POND ON ROAD OPEN TO LIVE TRAFFIC.

60 x 10 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 21.1

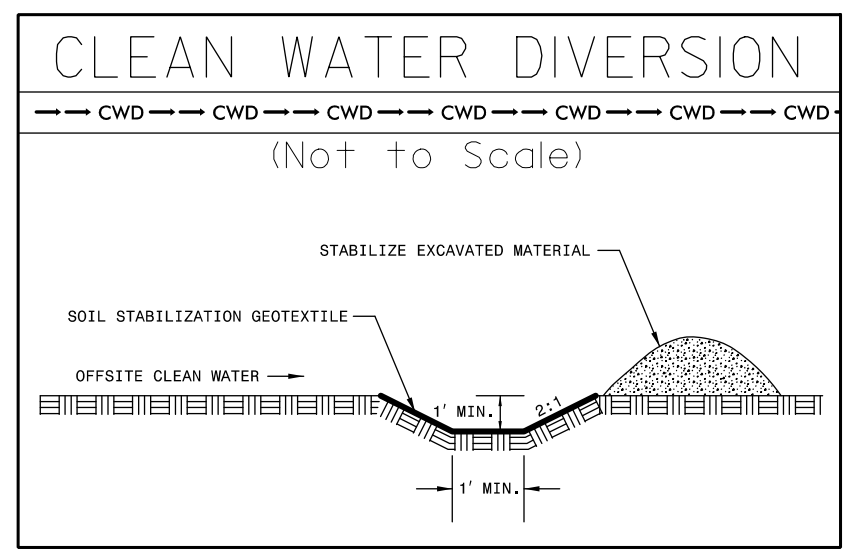
48 x 16 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 21.2

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

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

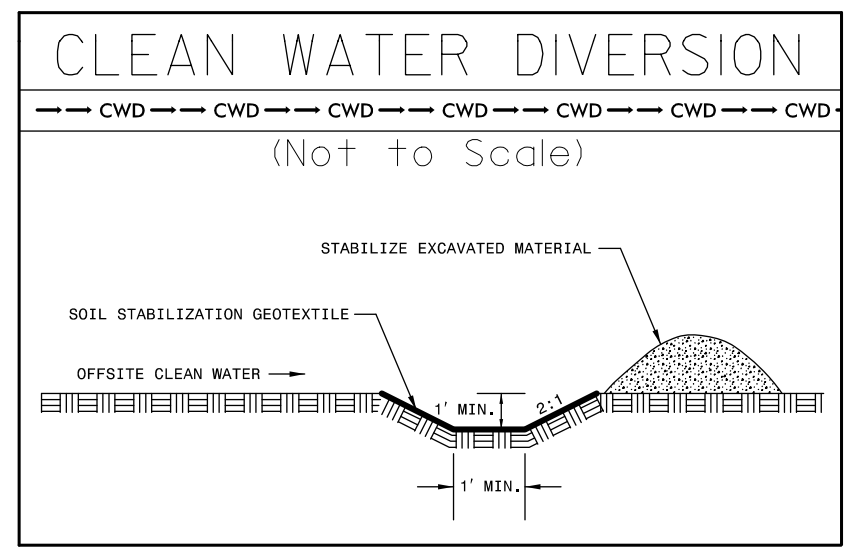


CLEAN WATER DIVERSIONS ARE
INDEPENDENT OF OTHER EC DITCH
LINES AND TERMINATE INTO A SC-A.



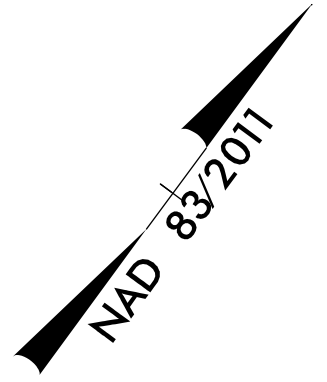
-L- CURVE DATA

PI Sta 234+84.86	PI Sta 255+20.12
$\Delta = 12^{\circ} 40' 17.1''$ (RT)	$\Delta = 40^{\circ} 44' 05.0''$ (LT)
$D = 1^{\circ} 54' 35.5''$	$D = 2^{\circ} 36' 15.7''$
$L = 663.47'$	$L = 1,564.10'$
$T = 333.10'$	$T = 816.75'$
$R = 3,000.00'$	$R = 2,200.00'$
$SE = 0.05$	$SE = 0.07$
$DS = 60$ MPH	$DS = 60$ MPH



For Slopes Excavated Greater Than 10 feet
Install Matting for Erosion Control on
Entire Slope as Work Allows.

Place Matting for Erosion Control
on Slopes Adjacent to Permitted
Wetlands as Work Allows.



PROJECT REFERENCE NO. A-0009CB	SHEET NO. EC-21/CONST.22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
TGS ENGINEERS 201 W. MARION ST-STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

40 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 22.1

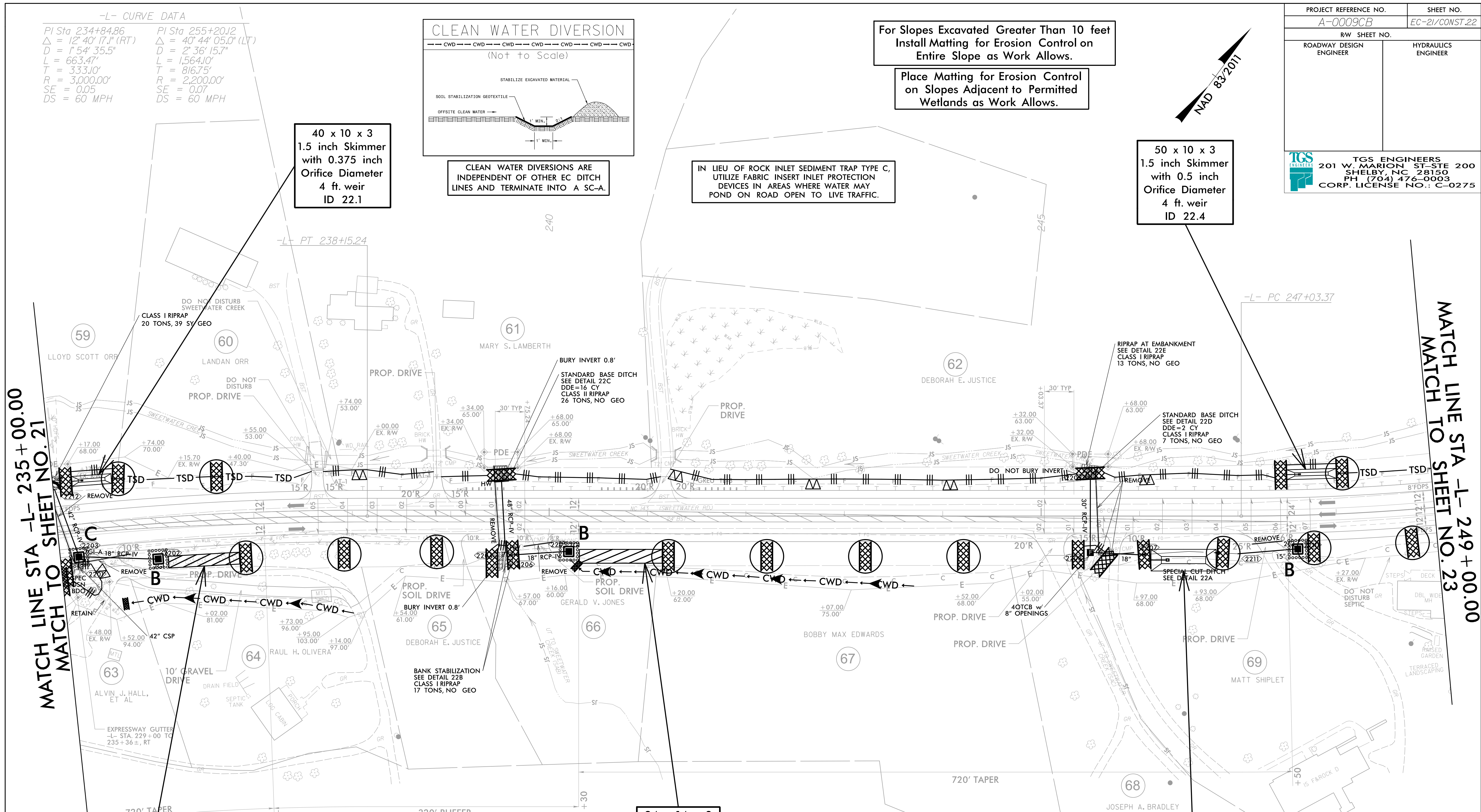
CLEAN WATER DIVERSIONS ARE
INDEPENDENT OF OTHER EC DITCH
LINES AND TERMINATE INTO A SC-A.

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C,
UTILIZE FABRIC INSERT INLET PROTECTION
DEVICES IN AREAS WHERE WATER MAY
POND ON ROAD OPEN TO LIVE TRAFFIC.

50 x 10 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 22.4

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

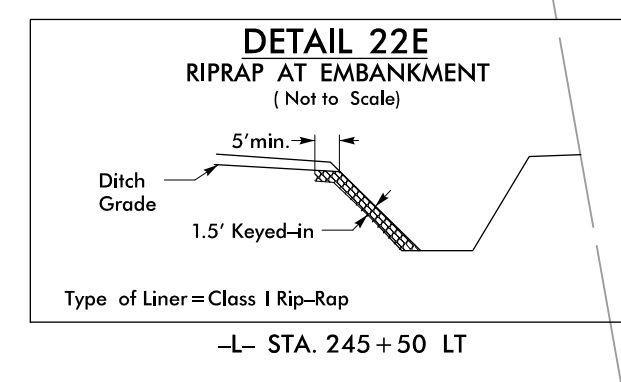
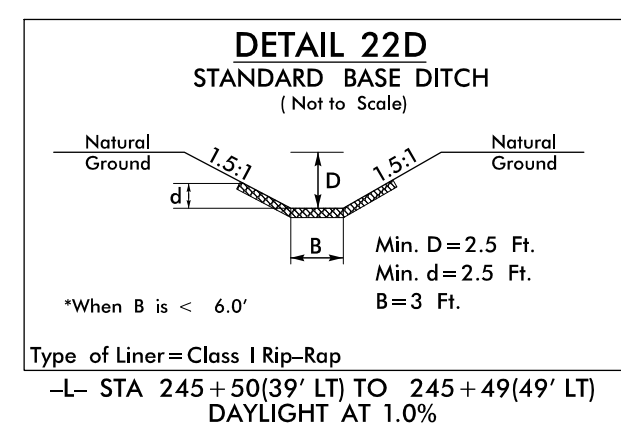
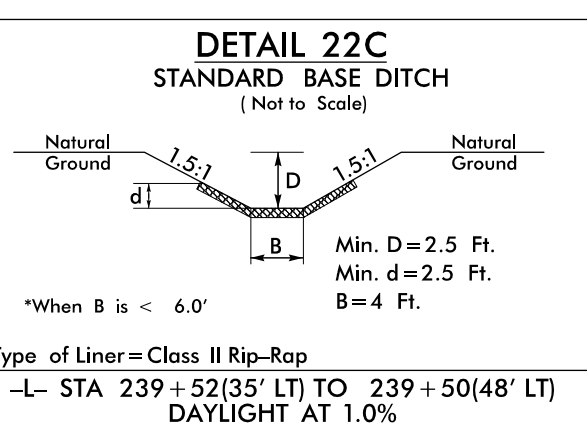
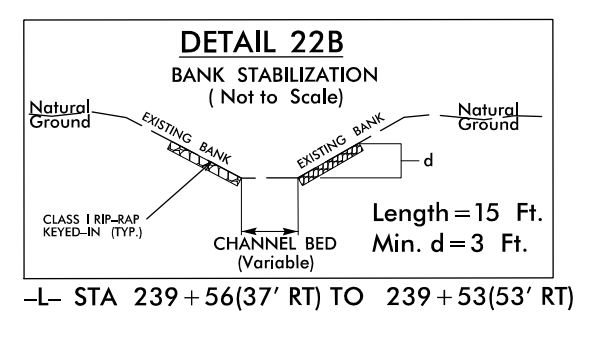
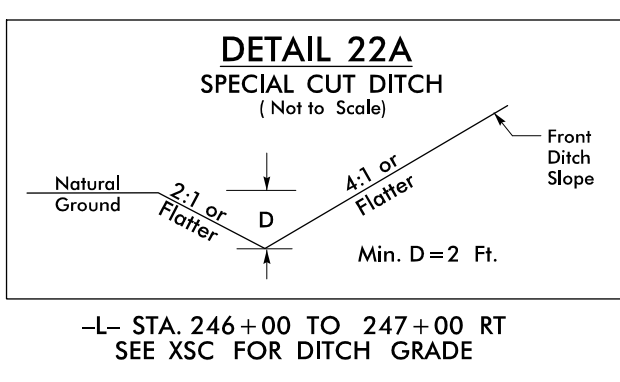
MATCH LINE STA -L- 249+00.00
MATCH TO SHEET NO. 23



72 x 12 x 3
ID 22.1F

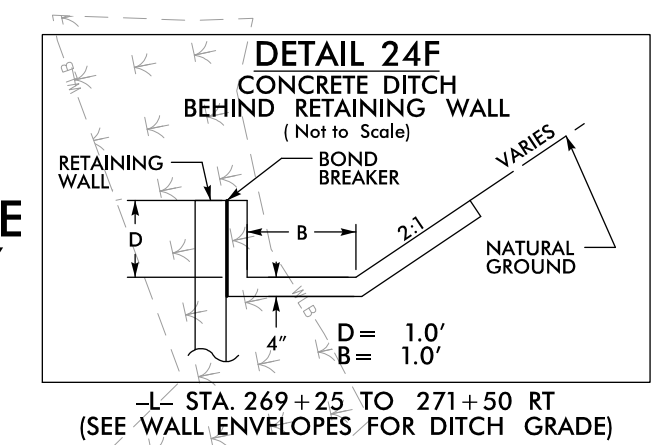
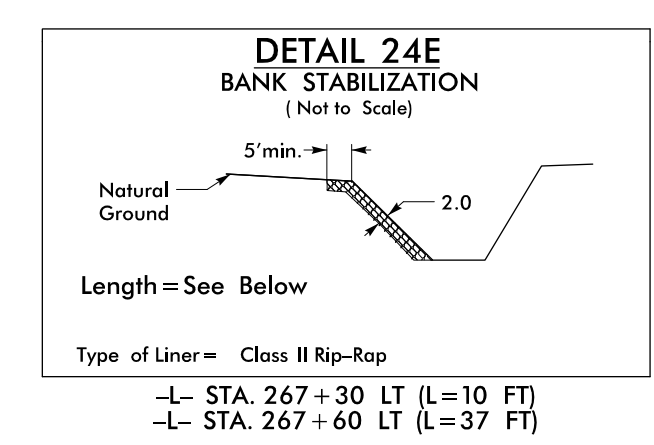
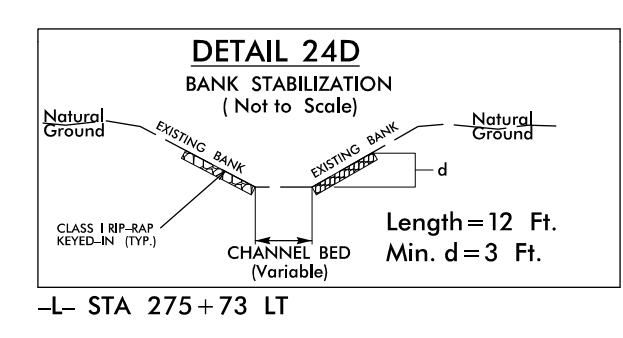
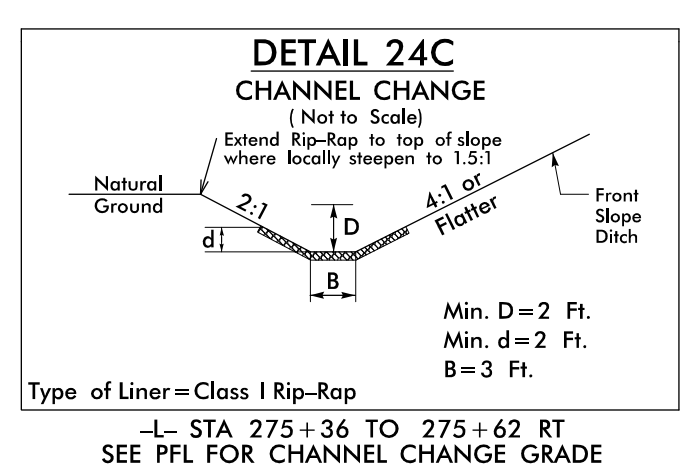
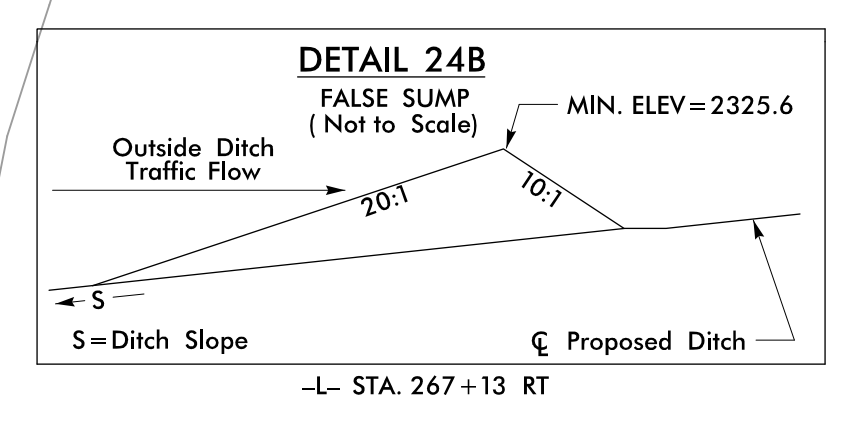
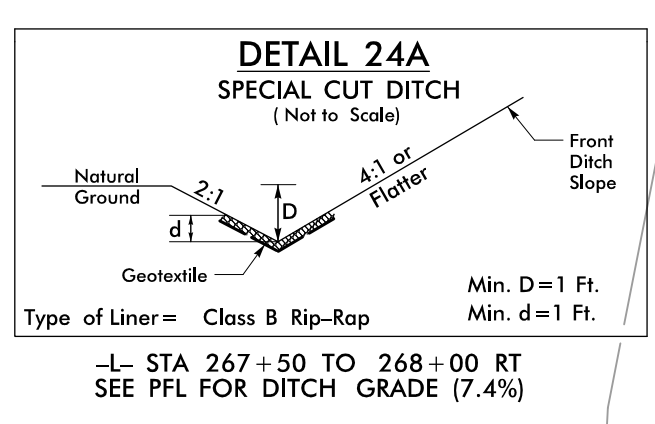
84 x 14 x 3
ID 22.2

66 x 22 x 2
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
5 ft. weir
ID 22.3



-L- CURVE DATA

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



PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	EC-23/CONST.24
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
TGS ENGINEERS 201 W. MARION ST-STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

REFER TO EC-34 FOR STREAMBANK REFORESTATION AREAS

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

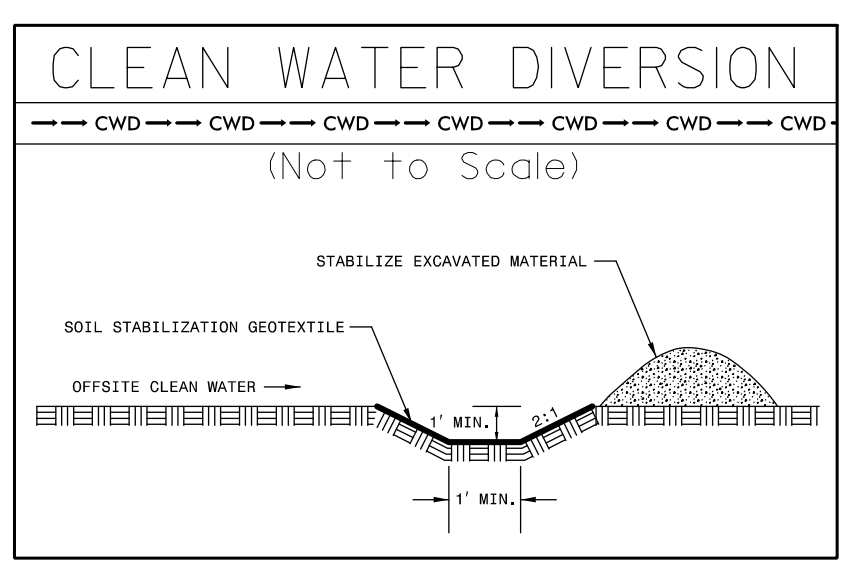
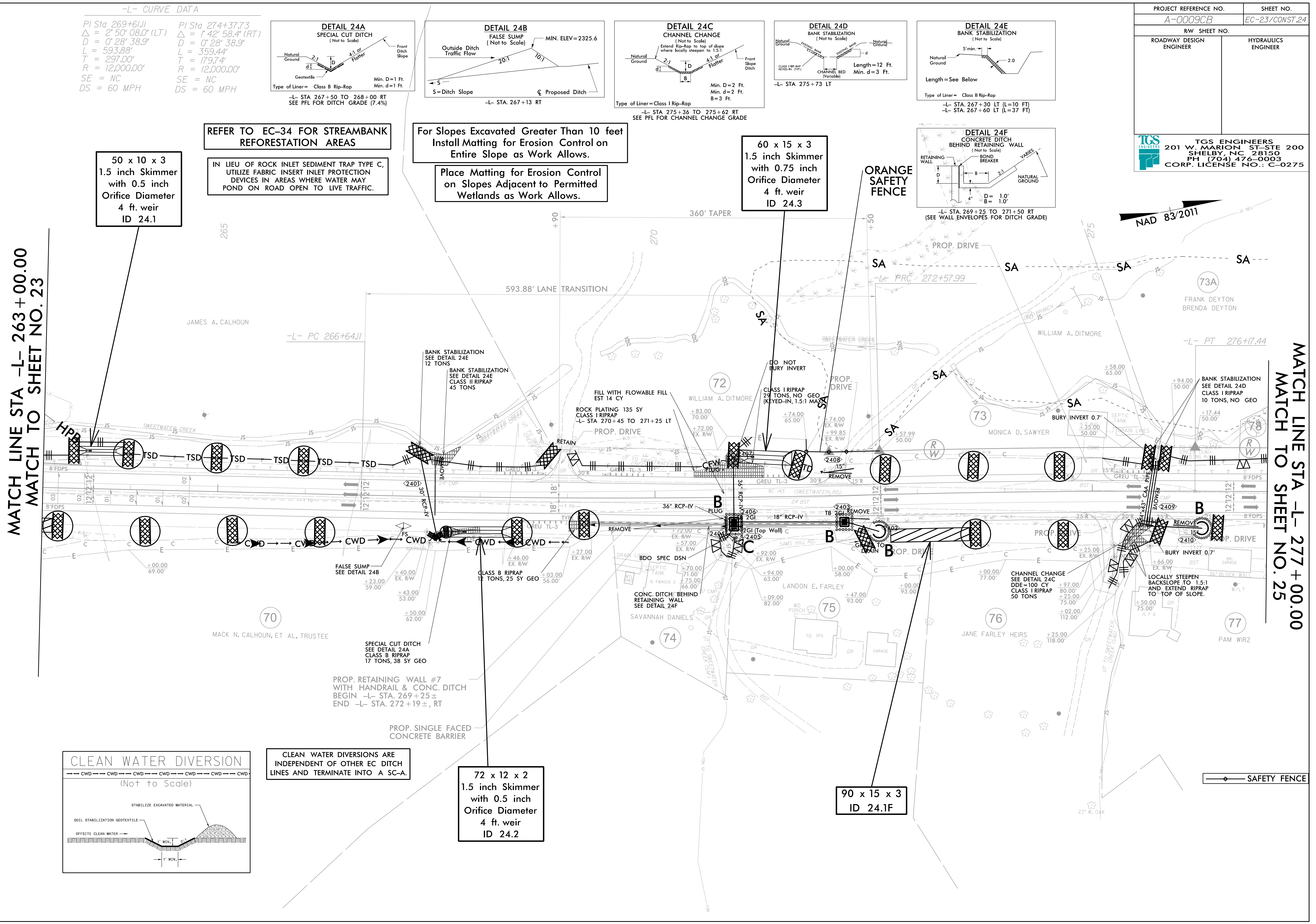
50 x 10 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 24.1

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

60 x 15 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 24.3

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

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

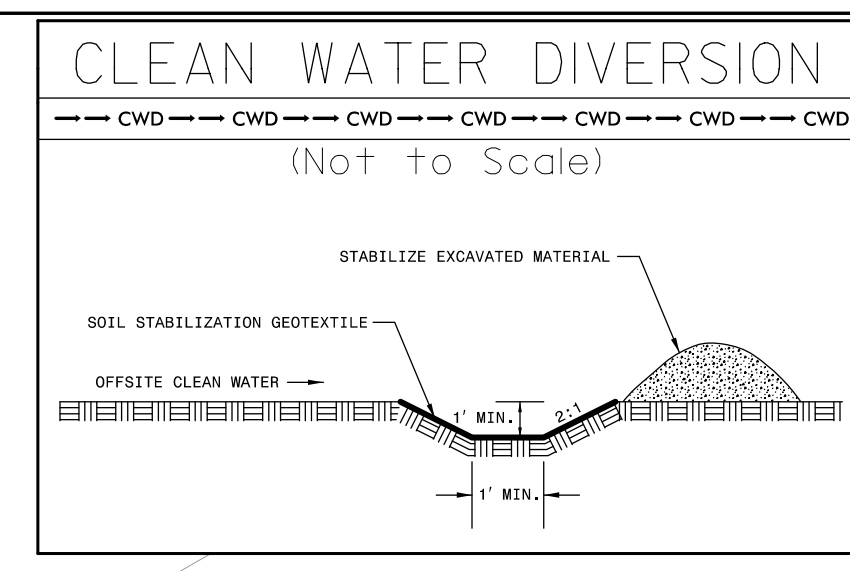


CLEAN WATER DIVERSIONS ARE INDEPENDENT OF OTHER EC DITCH LINES AND TERMINATE INTO A SC-A.

72 x 12 x 2
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 24.2

90 x 15 x 3
ID 24.1F

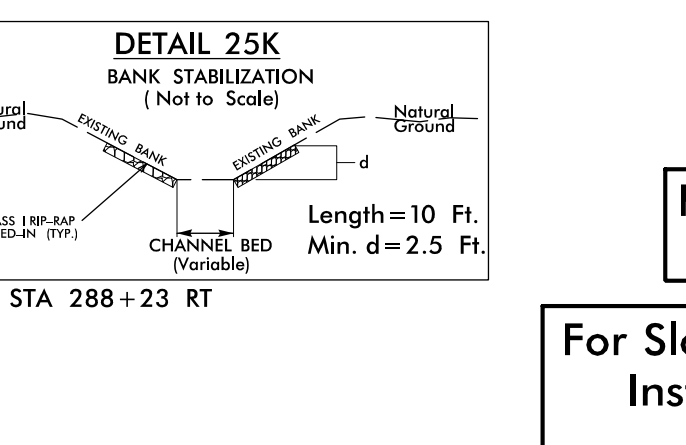
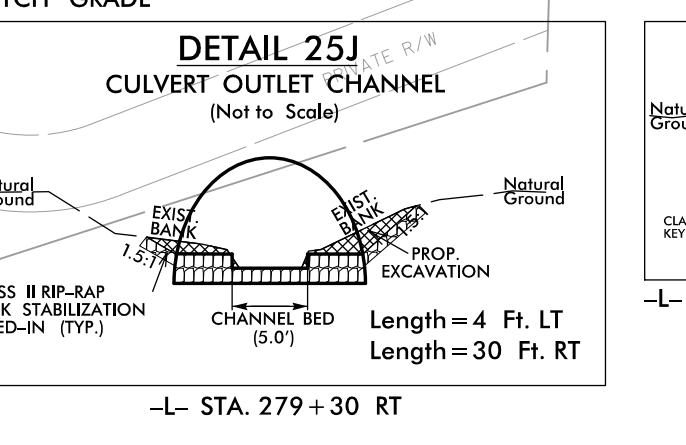
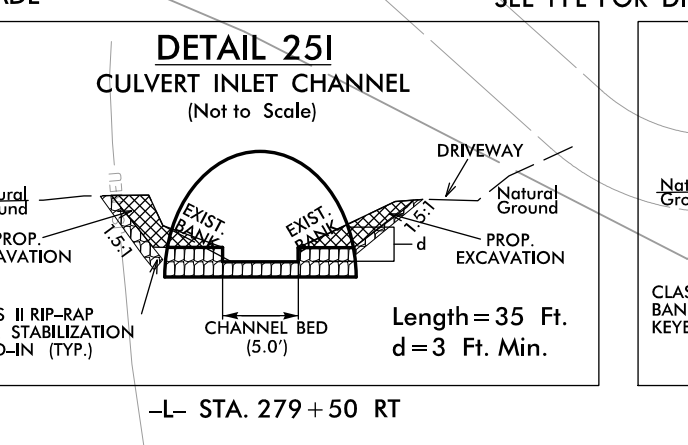
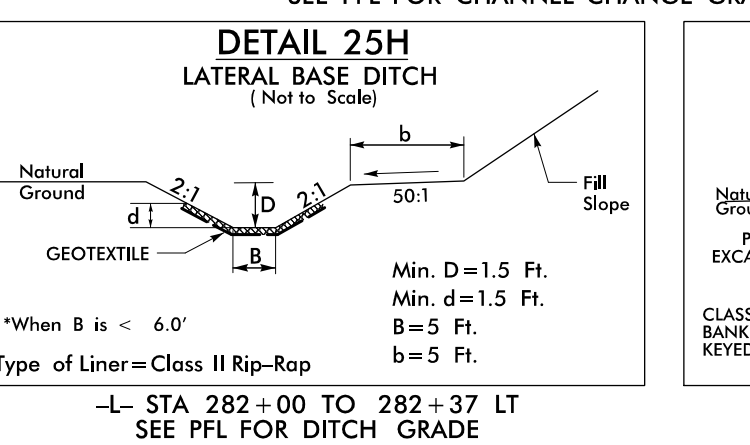
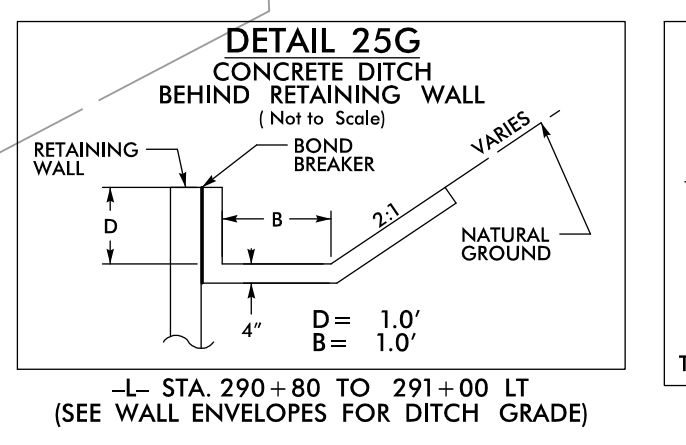
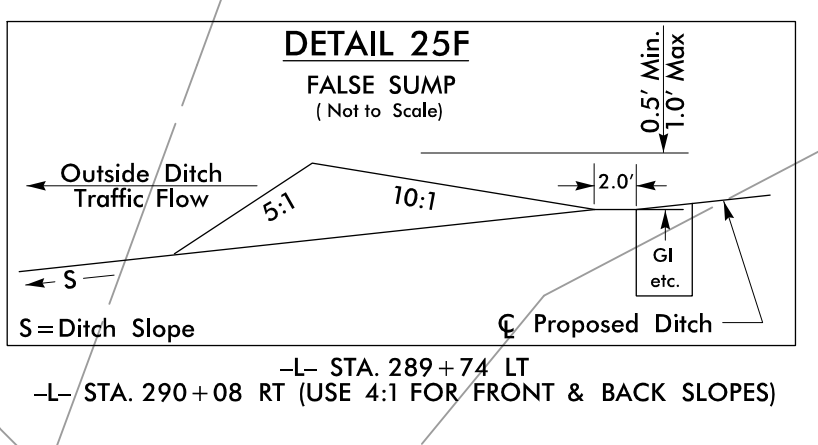
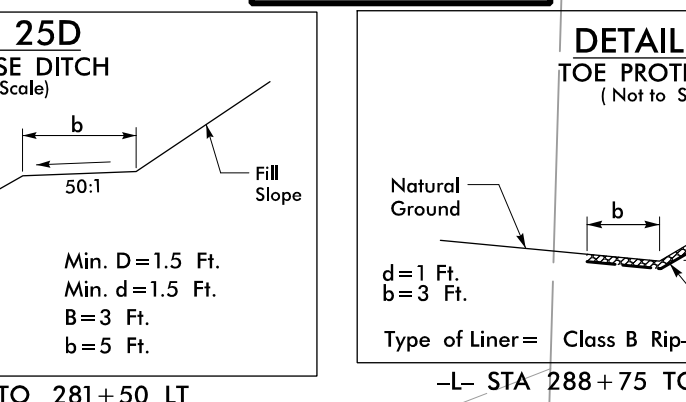
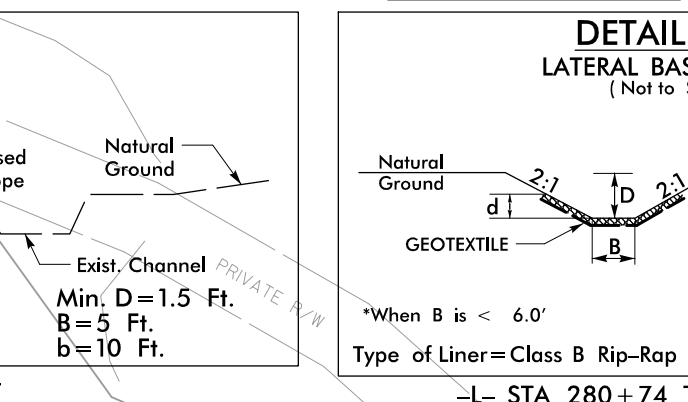
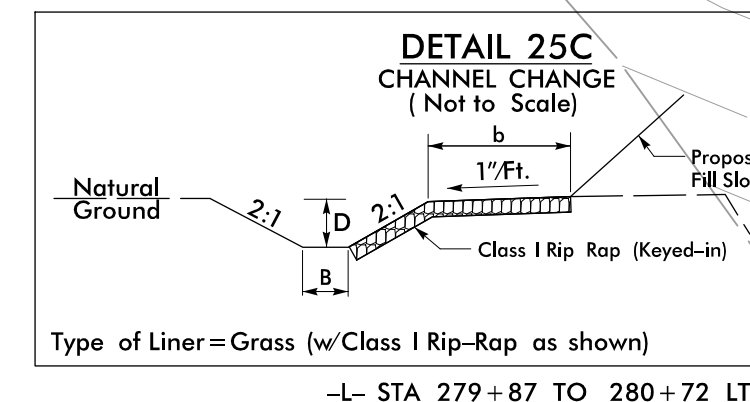
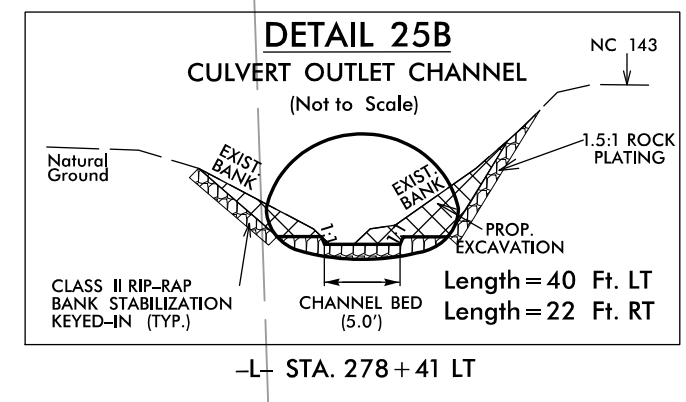
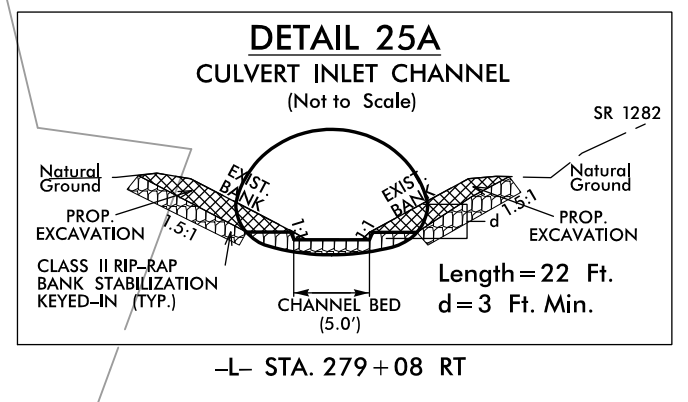
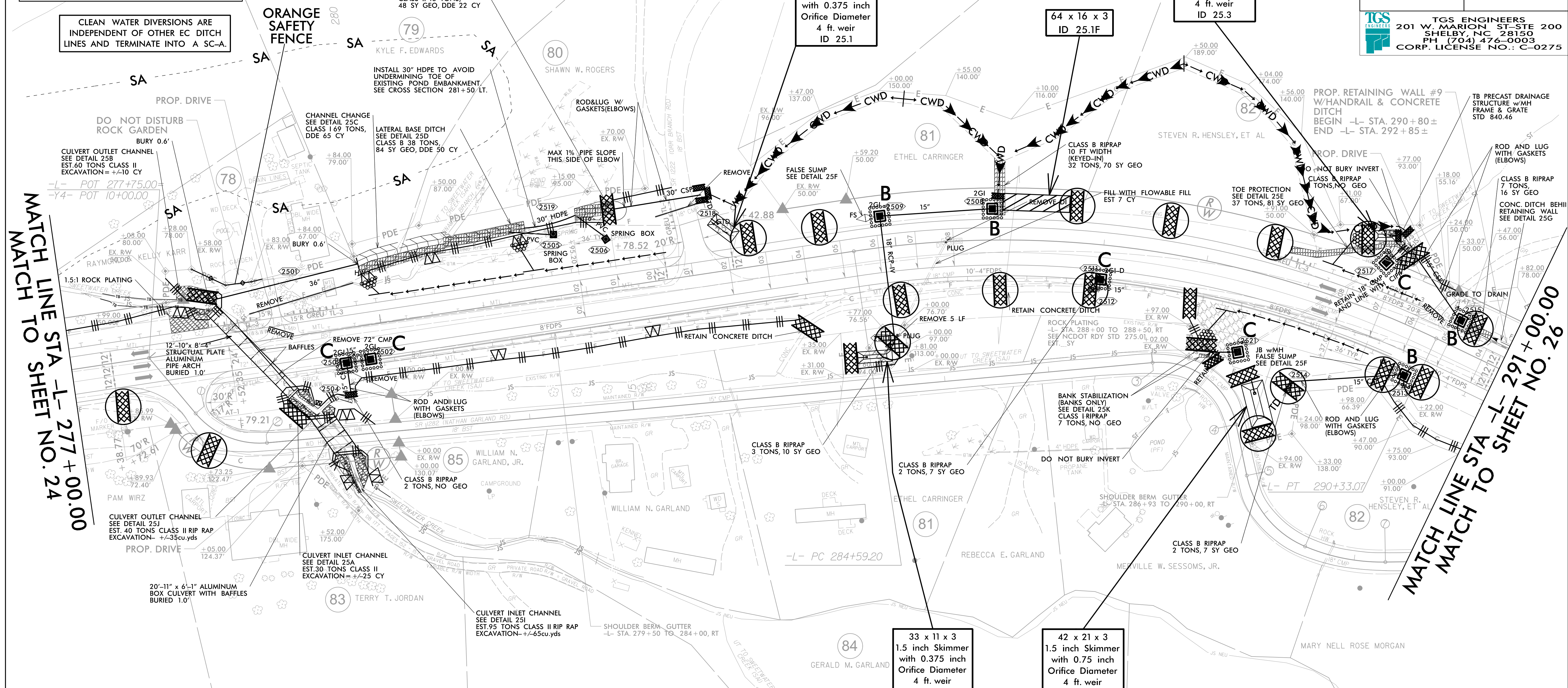
SAFETY FENCE



-Y4- CURVE DATA

PI Sta 20+66.90 Δ = 83° 23' 00.0" (RT) D = 76' 23" 39.7" L = 109.15' T = 66.80' R = 75.00'	PI Sta 22+09.11 Δ = 55° 15' 43.9" (LT) D = 80' 18" 40.8" L = 91.63' T = 49.73' R = 95.00'	PI Sta 22+91.14 Δ = 23° 50' 55.2" (LT) D = 30' 09" 20.4" L = 79.09' T = 40.12' R = 190.00'
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PROJECT REFERENCE NO. A-0009CB	SHEET NO. EC-24/CONST.25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.


REFER TO EC-34 FOR STREAMBANK REFORESTATION AREAS

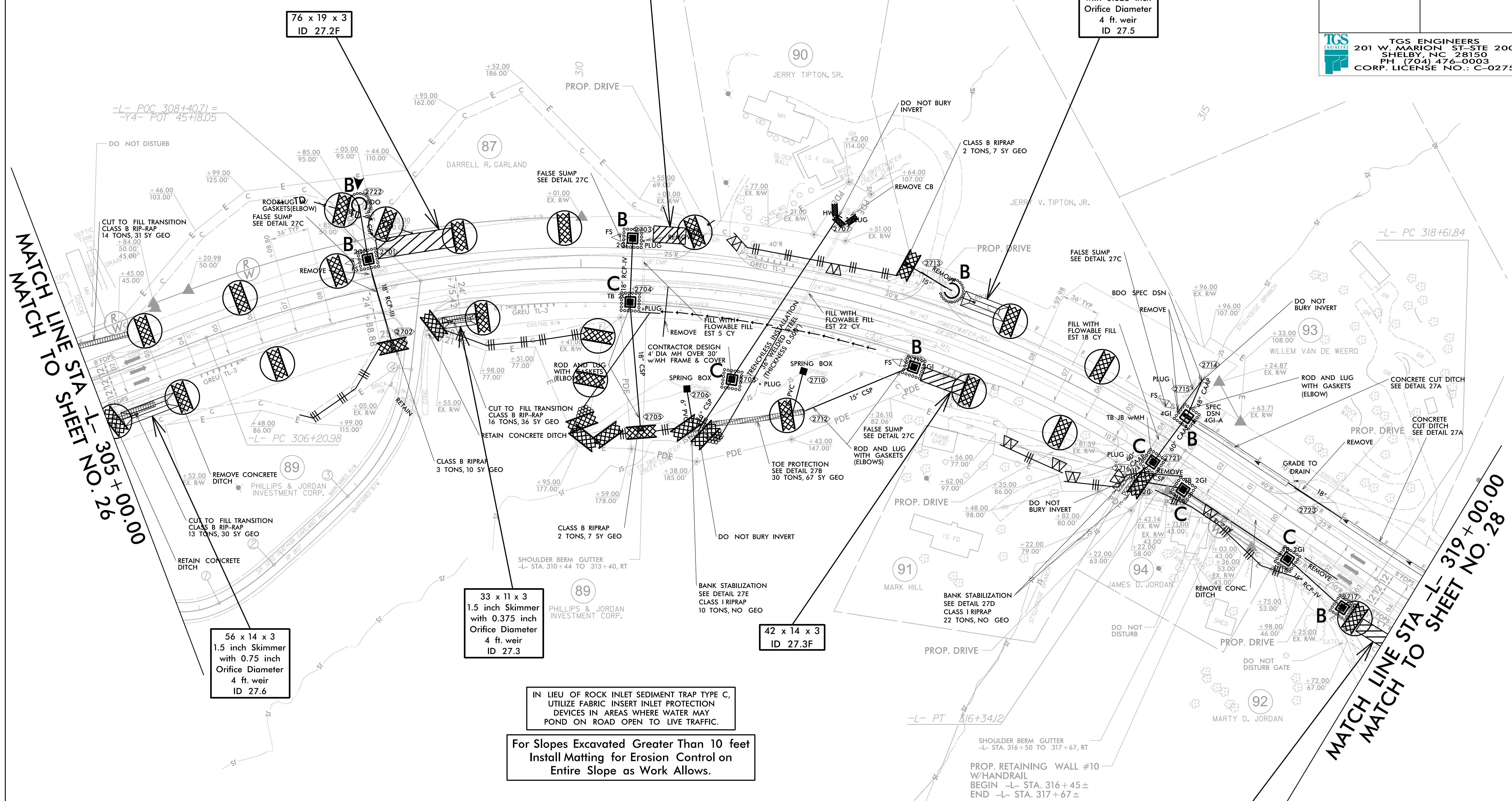
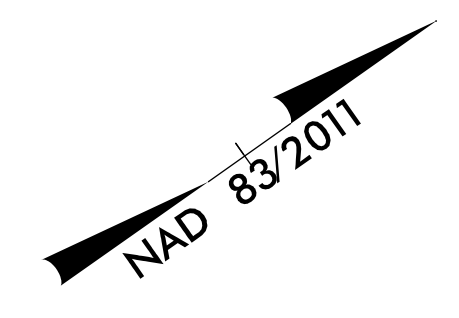
For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



-L- CURVE DATA

PI Sta 311+70.00 Δ = 54° 45' 45.1" (RT) D = 5' 24' 18.9" L = 1,013.13' T = 549.01' R = 1,060.00' SE = 0.08 DS = 55 MPH	PI Sta 320+83.09 Δ = 32° 27' 42.9" (LT) D = 7' 32' 20.1" L = 430.59' T = 221.25' R = 760.00' SE = 0.08 DS = 50 MPH	PI Sta 40+76.38 Δ = 78° 16' 33.1" (LT) D = 7' 37' 11.0" L = 109.29' T = 65.01' R = 80.00' ① -Y4- PCC 41+20.57 ② -Y4- PT 41+86.75	PI Sta 41+53.87 Δ = 15° 47' 56.9" (LT) D = 23° 52' 23.7" L = 66.18' T = 33.30' R = 240.00'	PI Sta 43+61.39 Δ = 41° 05' 30.0" (LT) D = 28° 38' 52.4" L = 143.44' T = 74.96' R = 200.00' ③ -Y4- PC 42+86.43 ④ -Y4- PT 44+29.86
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PROJECT REFERENCE NO. A-0009CB	SHEET NO. EC-26/CONST.27
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

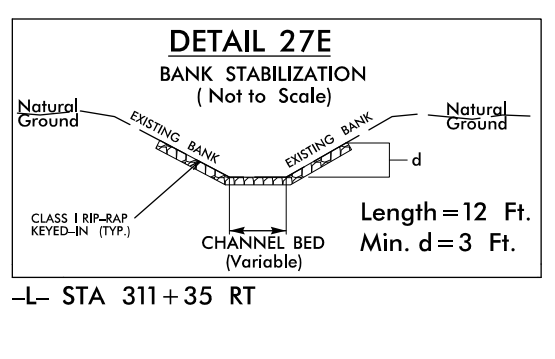
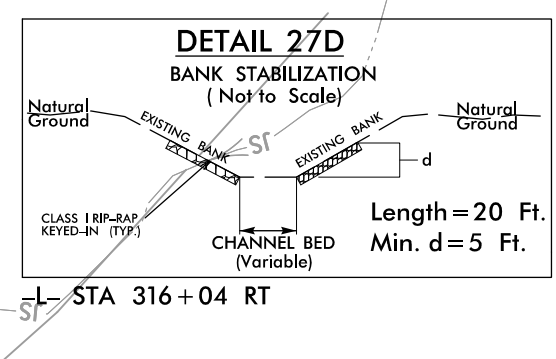
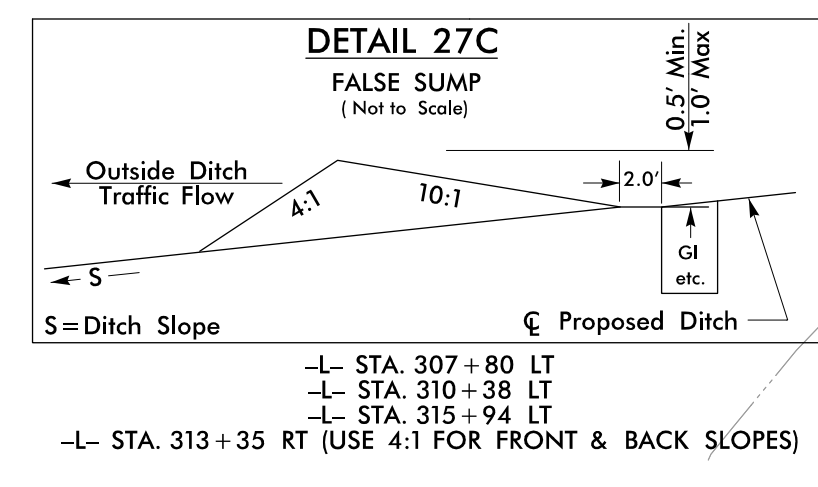
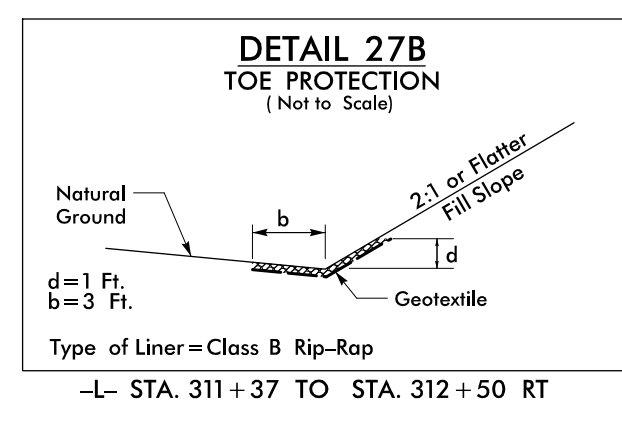
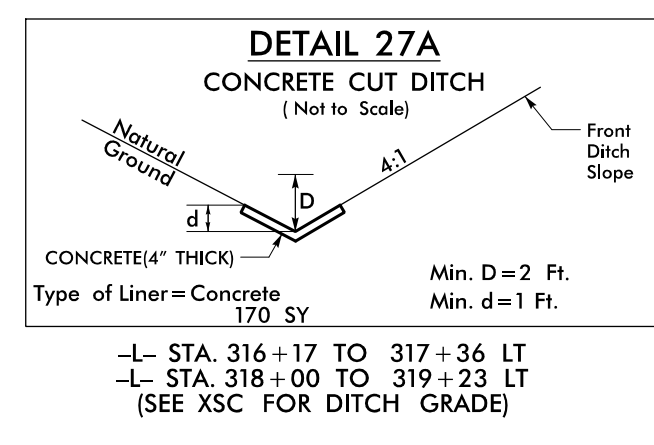


MATCH LINE TO SHEET STA -L- 305+00.00
NO. 26

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

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C,
UTILIZE FABRIC INSERT INLET PROTECTION
DEVICES IN AREAS WHERE WATER MAY
POND ON ROAD OPEN TO LIVE TRAFFIC.

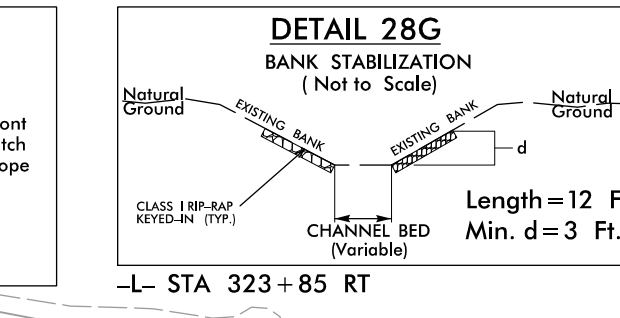
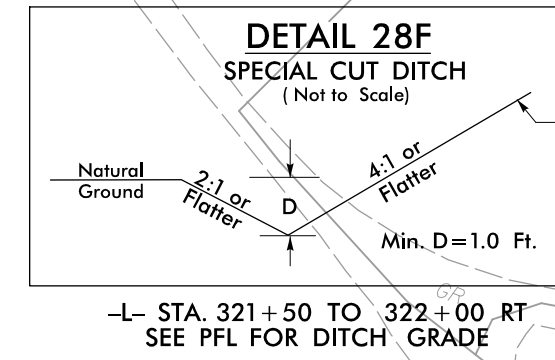
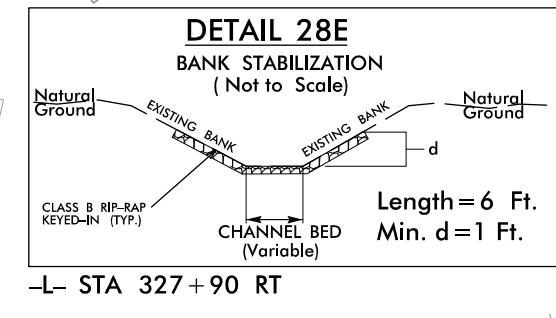
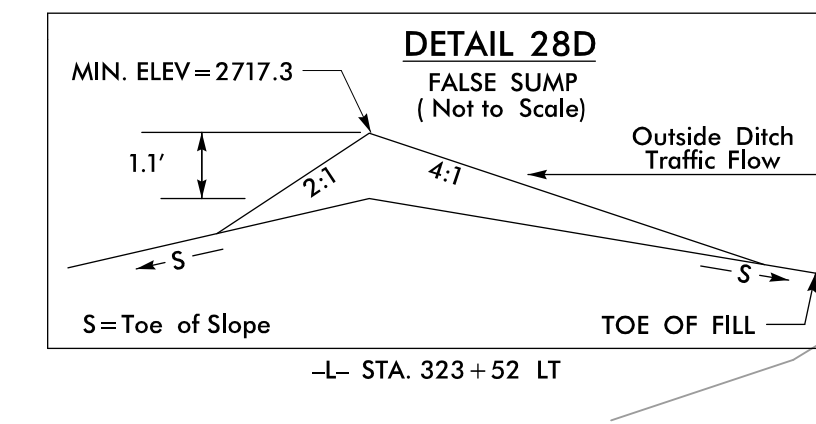
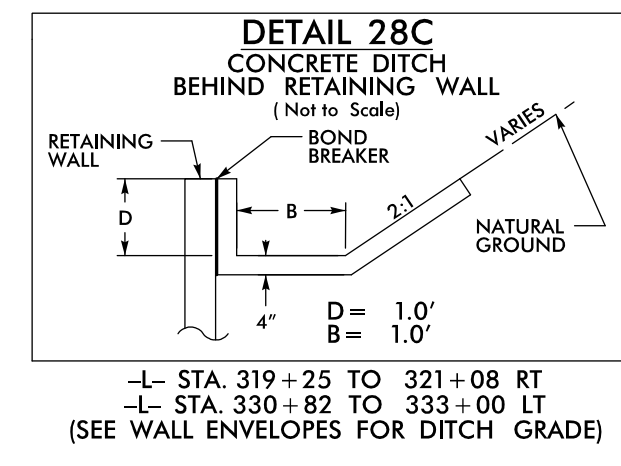
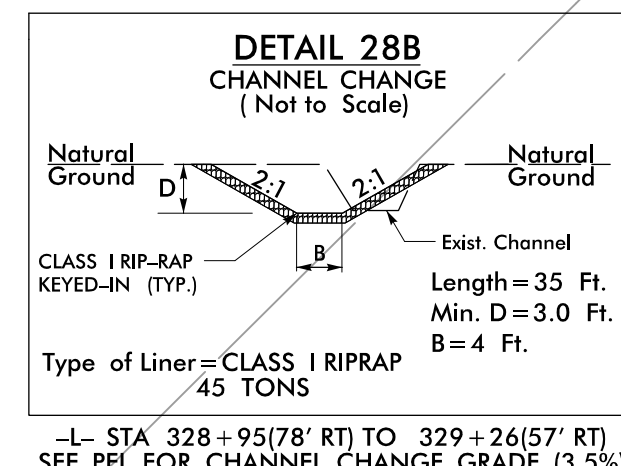
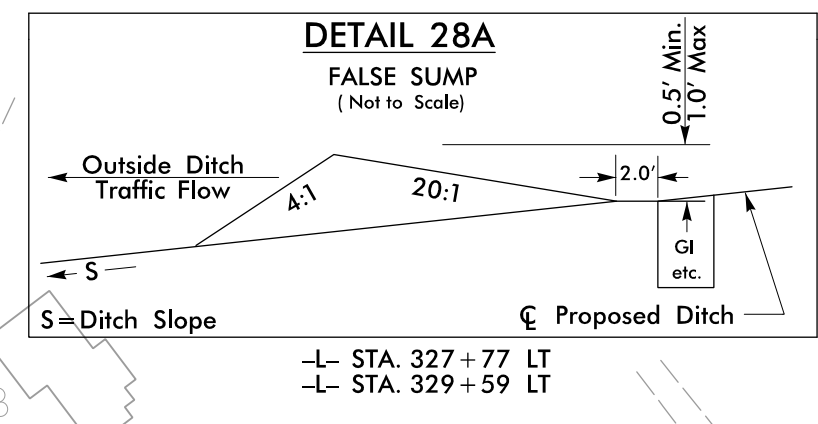
For Slopes Excavated Greater Than 10 feet
Install Matting for Erosion Control on
Entire Slope as Work Allows.



-L- CURVE DATA

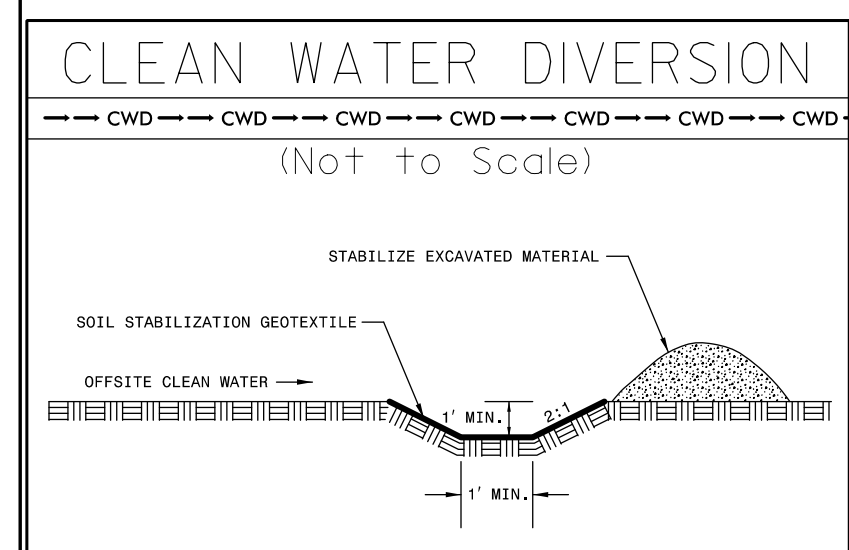
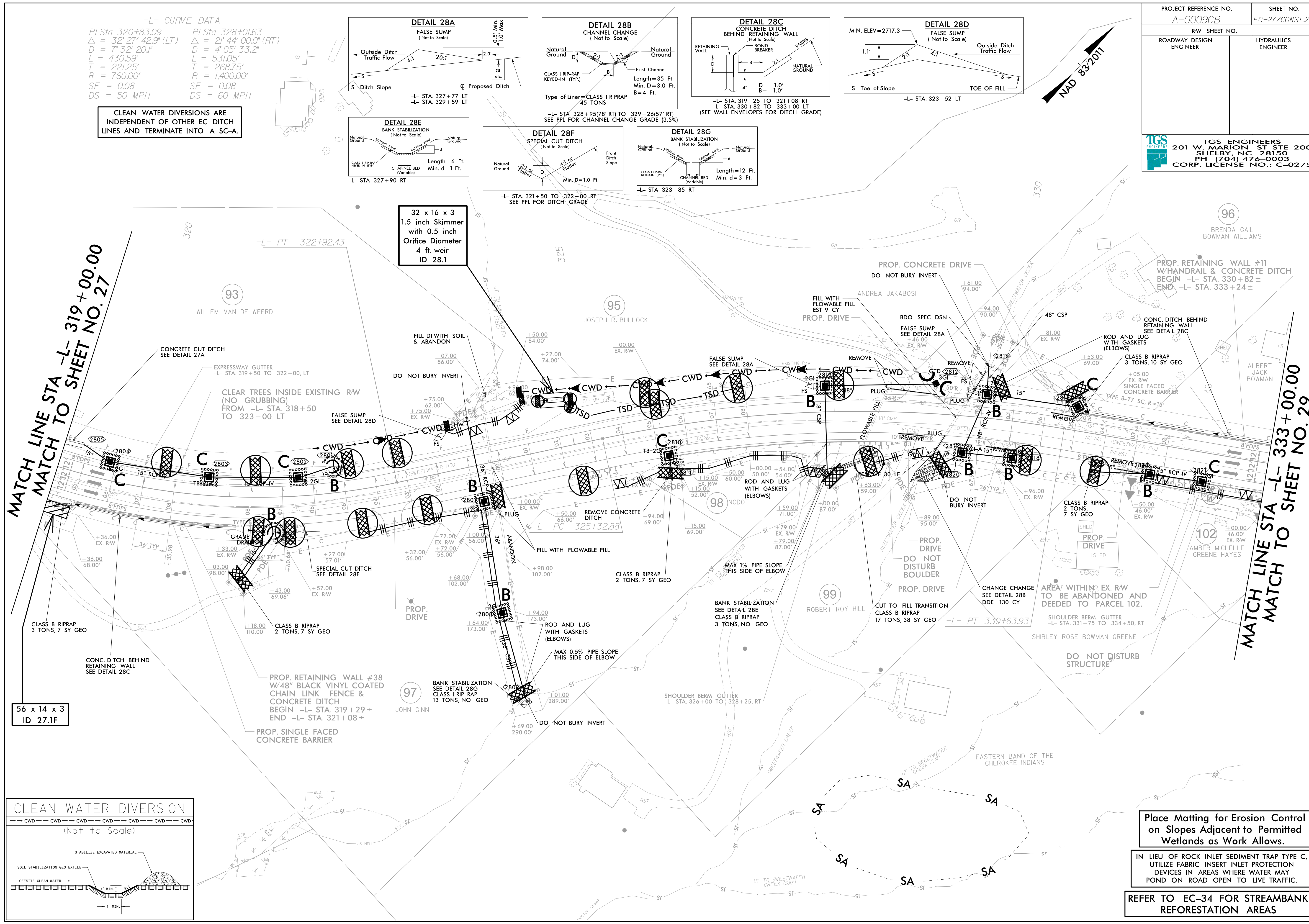
PI Sta 320+83.09	PI Sta 328+01.63
$\Delta = 32^{\circ} 27' 42.9"$ (LT)	$\Delta = 21^{\circ} 44' 00.0"$ (RT)
D = 7' 32" 20.1"	D = 4' 05" 33.2"
L = 430.59'	L = 531.05'
T = 221.25'	T = 268.75'
R = 760.00'	R = 1,400.00'
SE = 0.08	SE = 0.08
DS = 50 MPH	DS = 60 MPH

CLEAN WATER DIVERSIONS ARE INDEPENDENT OF OTHER EC DITCH LINES AND TERMINATE INTO A SC-A.



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

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



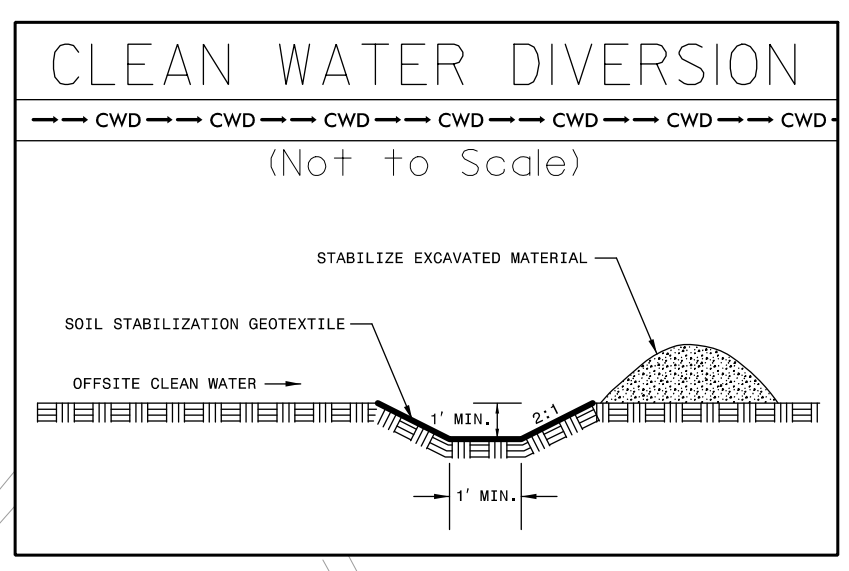
Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

REFER TO EC-34 FOR STREAMBANK REFORESTATION AREAS

PROJECT REFERENCE NO. A-0009CB	SHEET NO. EC-27/CONST.28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p>TGS ENGINEERS 201 W. MARION ST-STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275</p>	

-L- CURVE DATA
 PI Sta 348+33.64
 $\Delta = 141^{\circ} 55' 19.6"$ (RT)
 $D = 13^{\circ} 08' 28.4"$
 $L = 1,079.98'$
 $T = 1,263.45'$
 $* R = 436.00'$
 $SE = 0.08$
 $DS = 35$ MPH

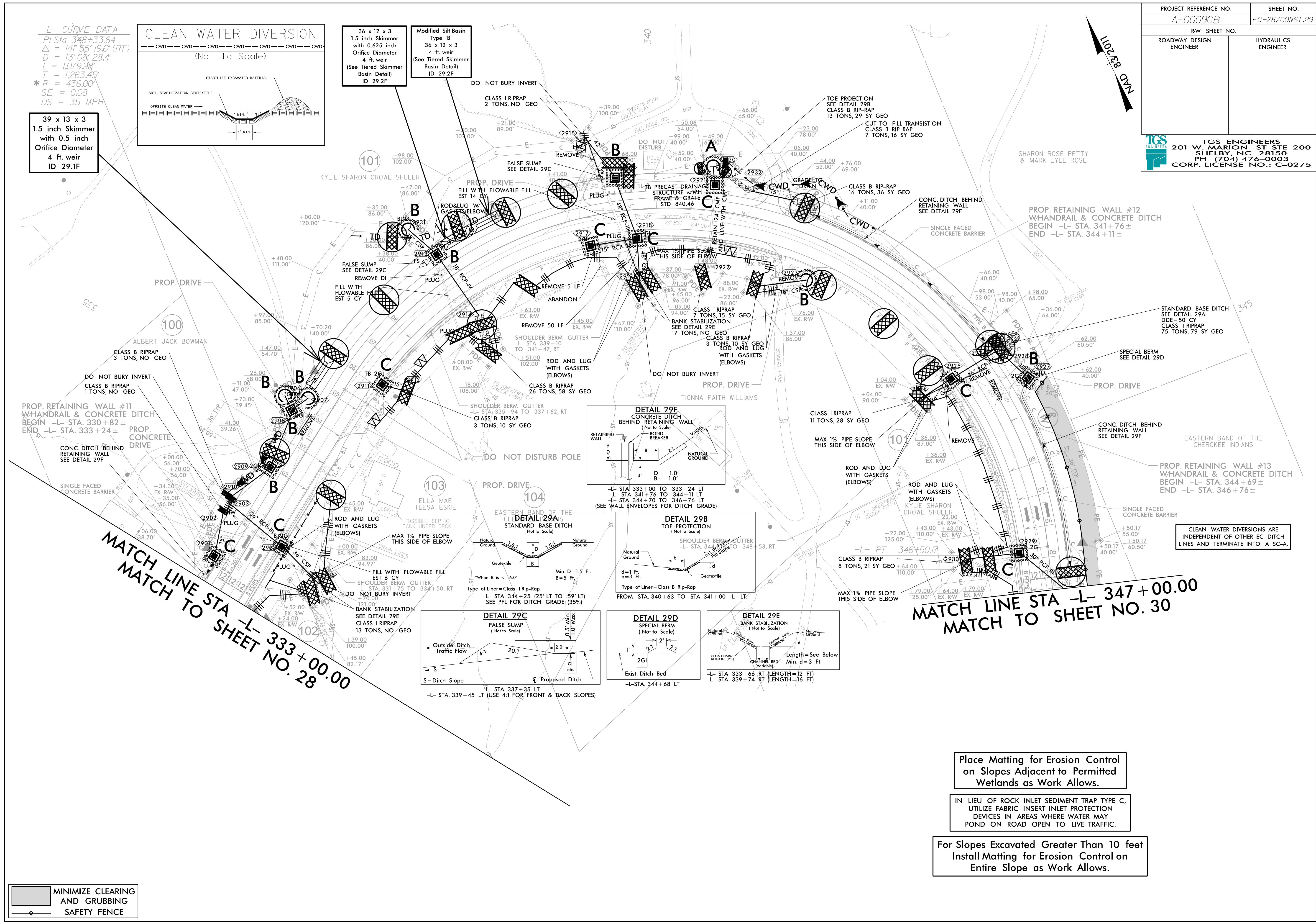


39 x 13 x 3
 1.5 inch Skimmer
 with 0.5 inch
 Orifice Diameter
 4 ft. weir
 ID 29.1F

36 x 12 x 3
 1.5 inch Skimmer
 with 0.625 inch
 Orifice Diameter
 4 ft. weir
 (See Tiered Skimmer
 Basin Detail)
 ID 29.2F

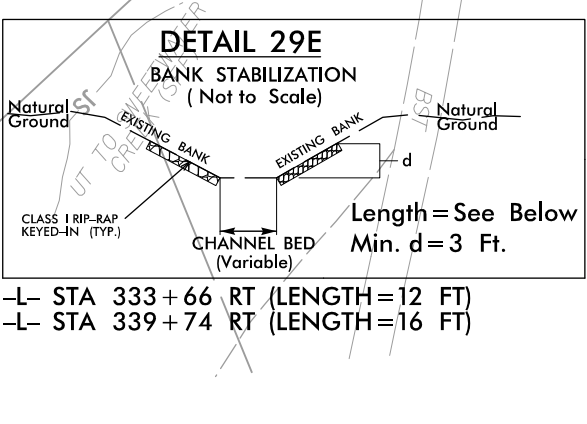
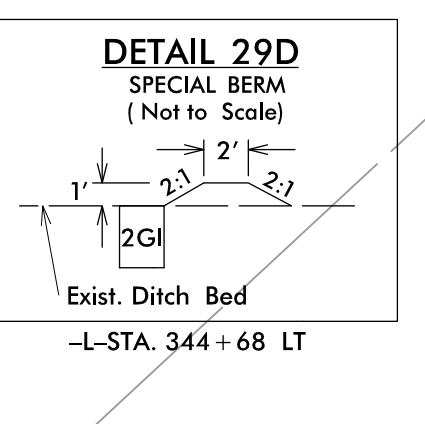
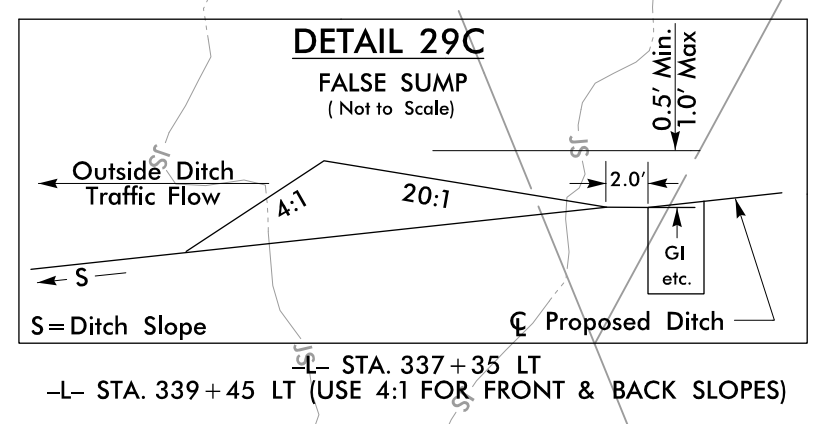
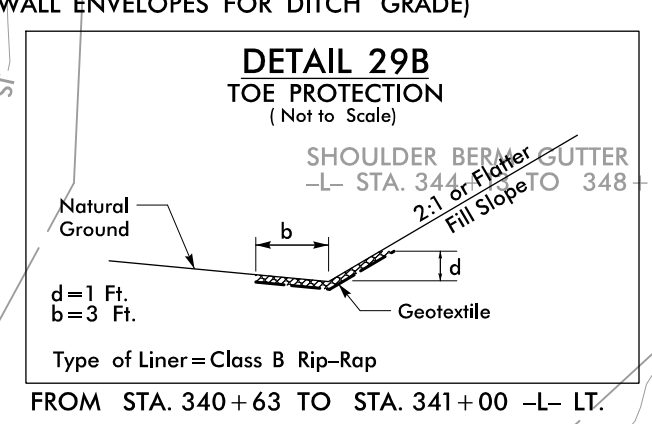
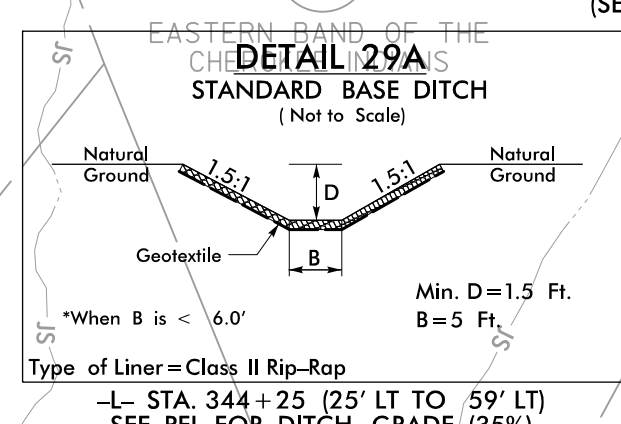
Modified Silt Basin
 Type 'B'
 36 x 12 x 3
 4 ft. weir
 (See Tiered Skimmer
 Basin Detail)
 ID 29.2F

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	EC-28/CONST.29
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



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

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



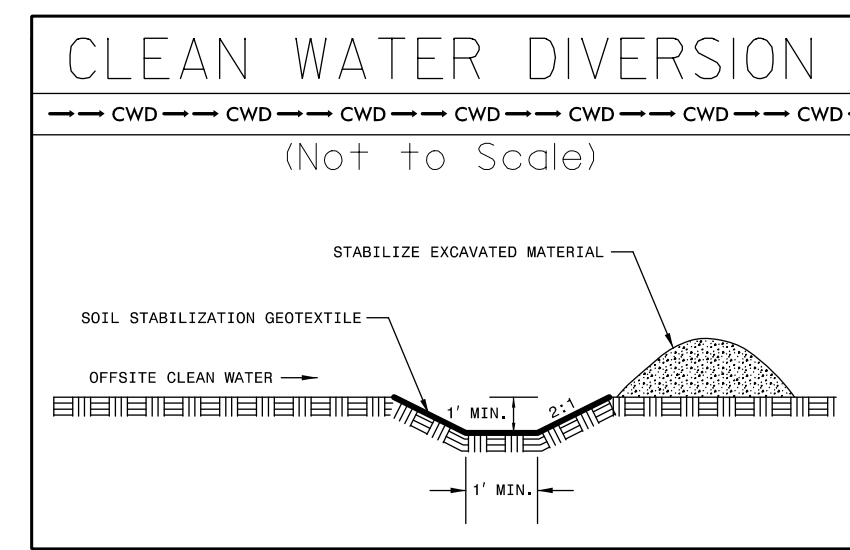
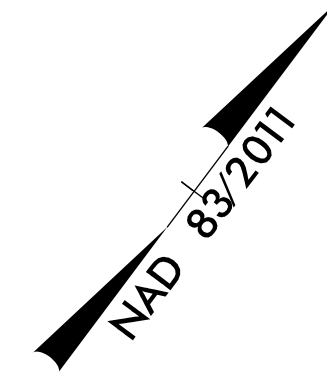
Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

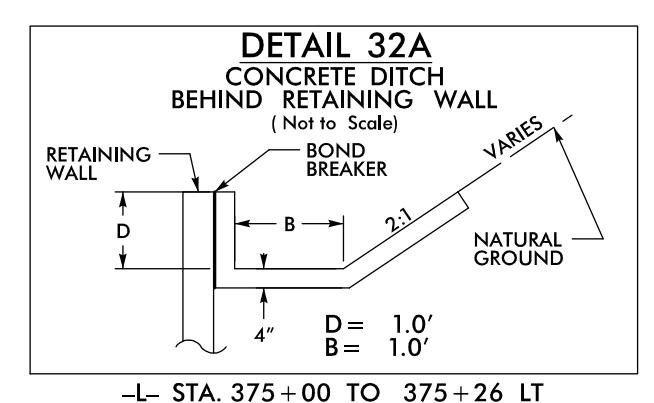
For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



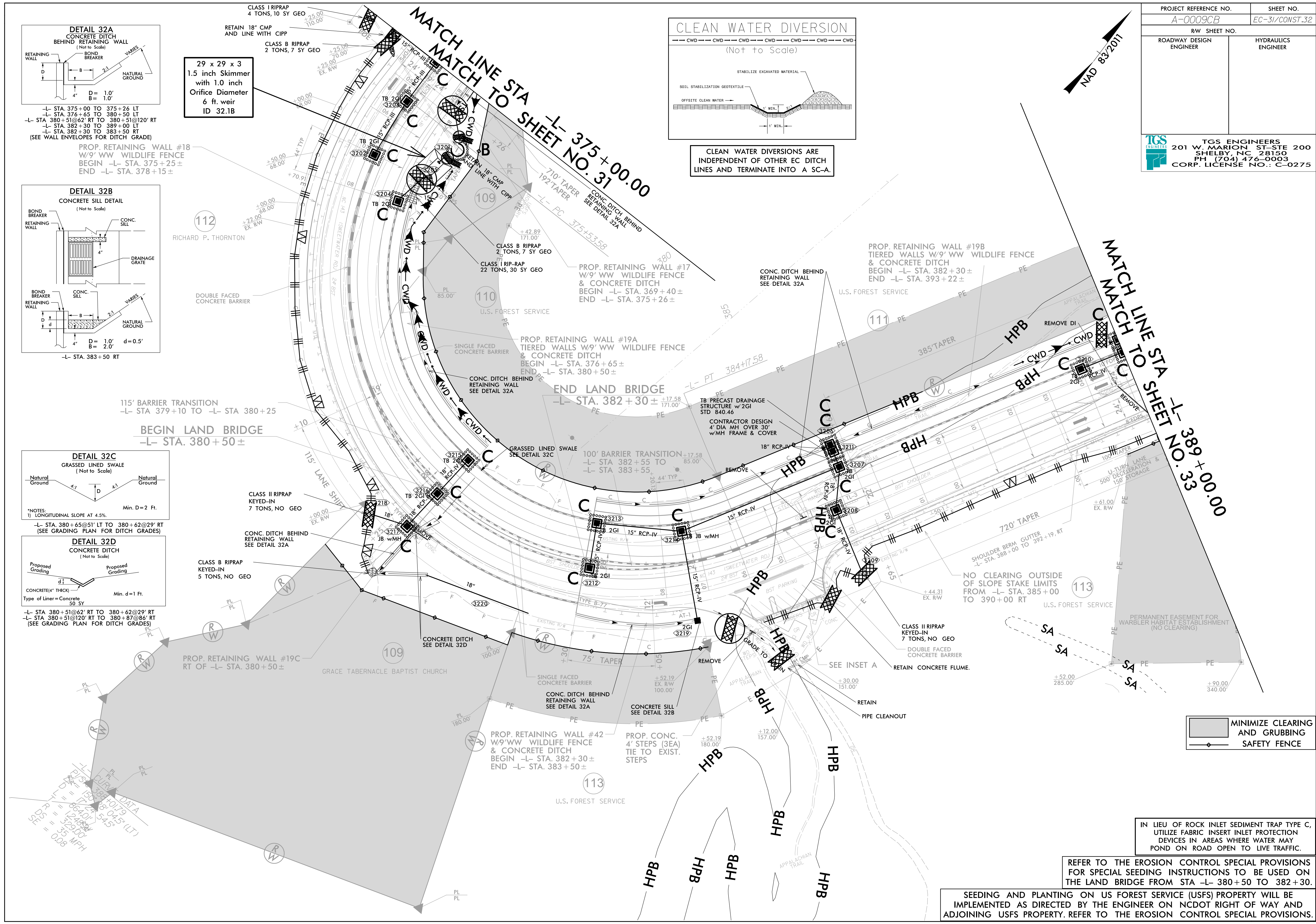
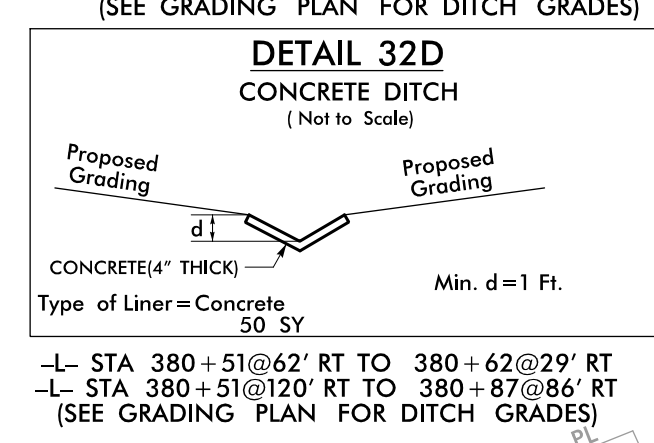
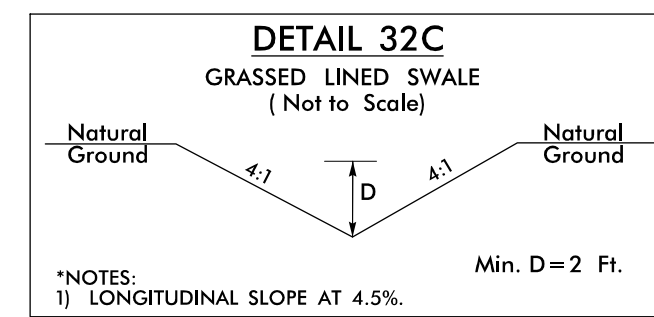
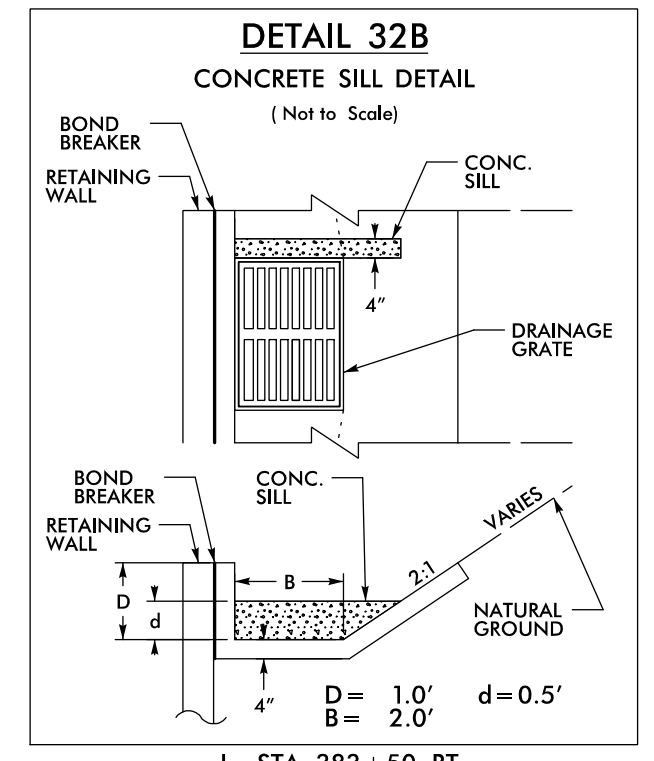
PROJECT REFERENCE NO.		SHEET NO.	
A-0009CB		EC-31/CONST.32	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
TGS ENGINEERS		TGS ENGINEERS	
201 W. MARION ST-STE 200		SHELBY, NC 28150	
PH (704) 476-0003		CORP. LICENSE NO.: C-0275	



CLEAN WATER DIVERSIONS ARE INDEPENDENT OF OTHER EC DITCH LINES AND TERMINATE INTO A SC-A.




29 x 29 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
6 ft. weir
ID 32.1B

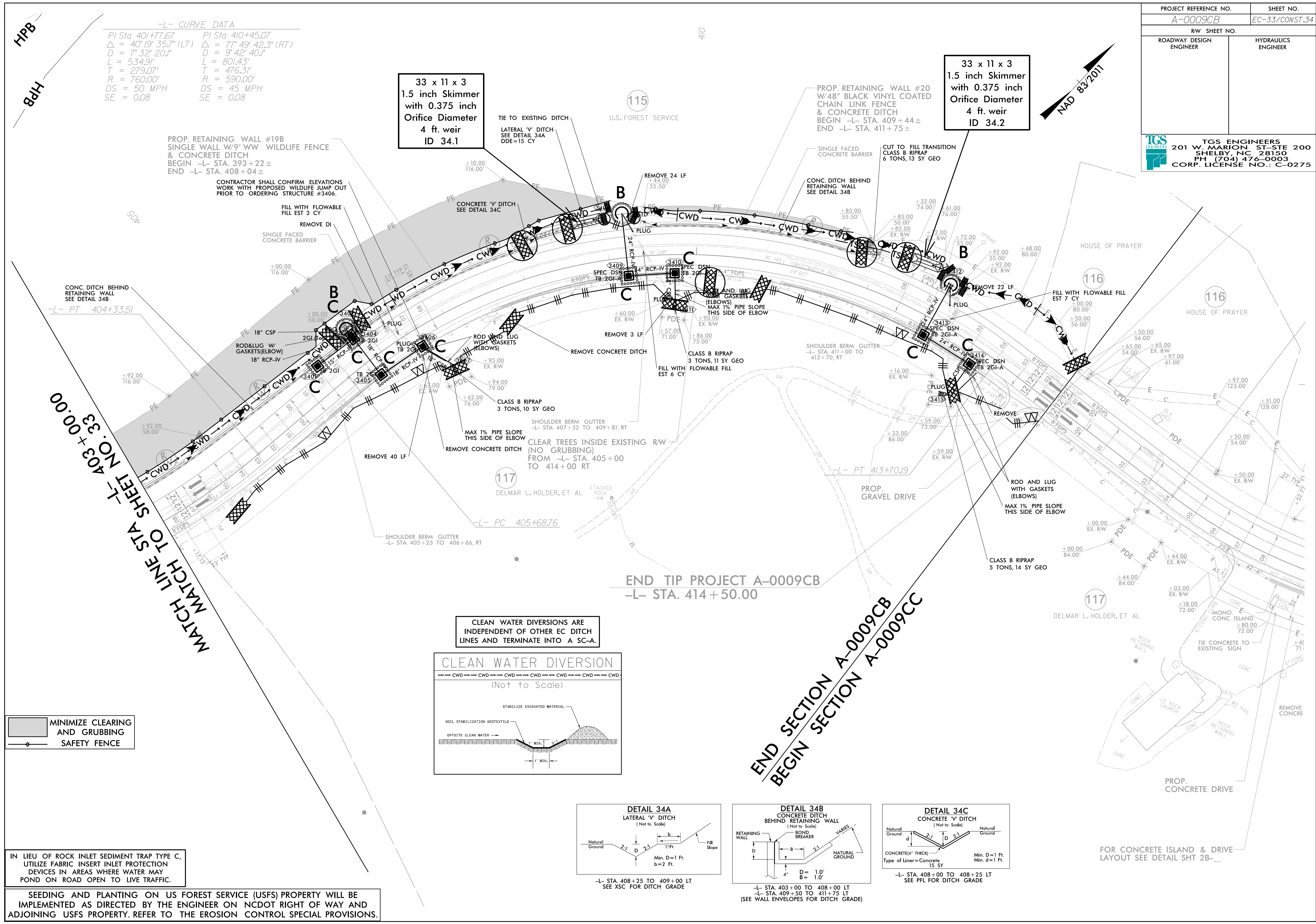


IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

REFER TO THE EROSION CONTROL SPECIAL PROVISIONS FOR SPECIAL SEEDING INSTRUCTIONS TO BE USED ON THE LAND BRIDGE FROM STA -L- 380+50 TO 382+30.

SEEDING AND PLANTING ON US FOREST SERVICE (USFS) PROPERTY WILL BE IMPLEMENTED AS DIRECTED BY THE ENGINEER ON NCDOT RIGHT OF WAY AND ADJOINING USFS PROPERTY. REFER TO THE EROSION CONTROL SPECIAL PROVISIONS.

PROJECT REFERENCE NO.		SHEET NO.	
A-0009CB		EC-33/CONST.34	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			



-L- CURVE DATA

PI Sta 401+77.67	PI Sta 410+45.07
$\Delta = 40^\circ 19' 35.7''$ (LT)	$\Delta = 77^\circ 49' 42.3''$ (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

33 x 11 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 34.1

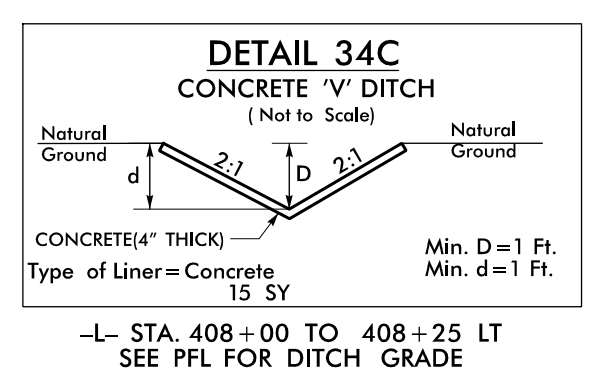
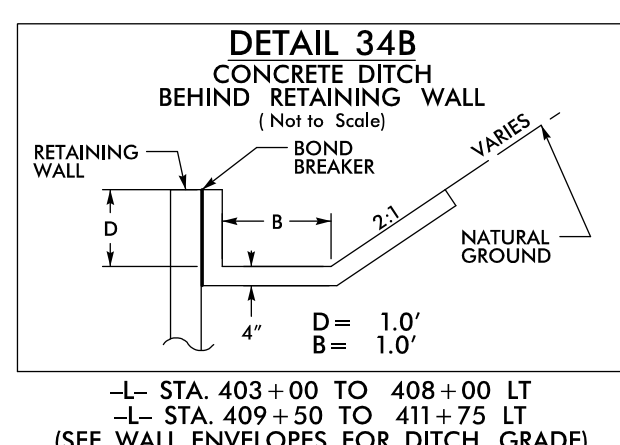
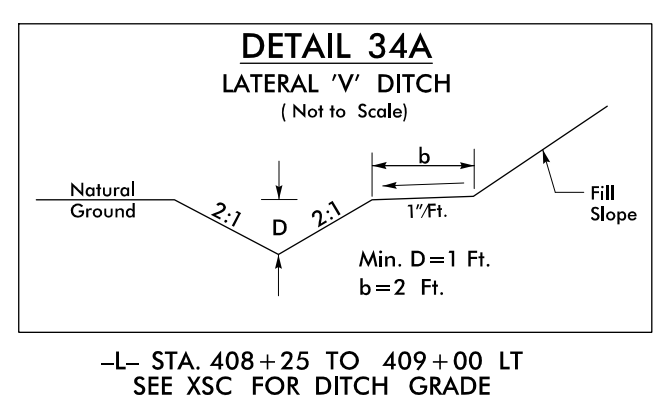
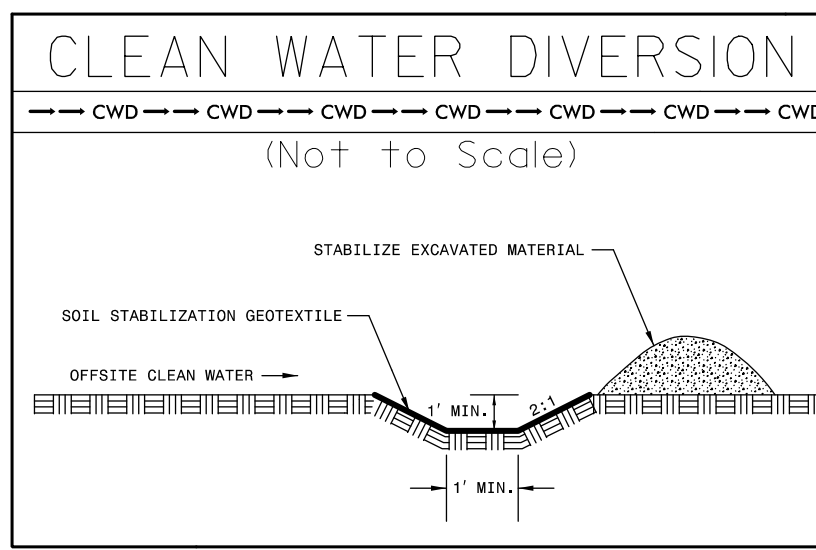
33 x 11 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 34.2

 MINIMIZE CLEARING AND GRUBBING
 SAFETY FENCE

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

SEEDING AND PLANTING ON US FOREST SERVICE (USFS) PROPERTY WILL BE IMPLEMENTED AS DIRECTED BY THE ENGINEER ON NCDOT RIGHT OF WAY AND ADJOINING USFS PROPERTY. REFER TO THE EROSION CONTROL SPECIAL PROVISIONS.

CLEAN WATER DIVERSIONS ARE INDEPENDENT OF OTHER EC DITCH LINES AND TERMINATE INTO A SC-A.



FOR CONCRETE ISLAND & DRIVE LAYOUT SEE DETAIL SHT 2B--

