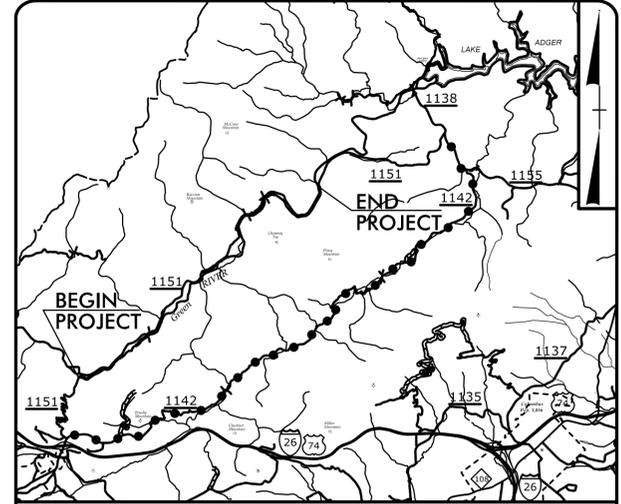


09_08/2011

PROJECT: W03291

CONTRACT: C205178

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP
Offsite Detour

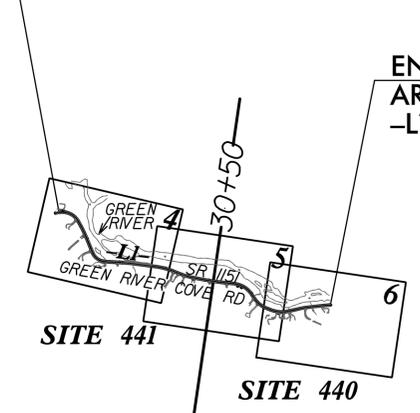
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
POLK COUNTY

LOCATION: SR 1151 (GREEN RIVER COVE ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

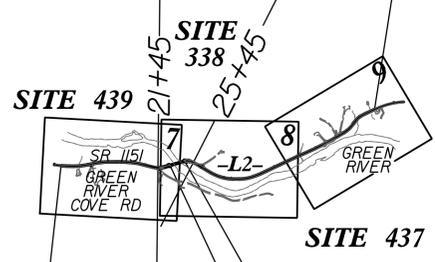
PART II

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W03291	1	
STATE PROJ. NO.	DESCRIPTION		
DF18314.2075080	441		
DF18314.2075079	440		
DF18314.2075077	439		
DF18314.2075095	338		
DF18314.2075076	437		
DF18314.2075074	435 (PART II)		
DF18314.2075073	434		
DF18314.2075072	433		
DF18314.2075033	415		
DF18314.2075032	416		
DF18314.2075031	414		

BEGIN PROJECT W03291
-L1- STA. 10 + 40.00



END CONSTRUCTION AREA 1 (SITES 441 & 440)
-L1- STA. 44 + 50.00



BEGIN CONSTRUCTION AREA 2 (SITES 439, 338, & 437)
-L2- STA. 10 + 75.00

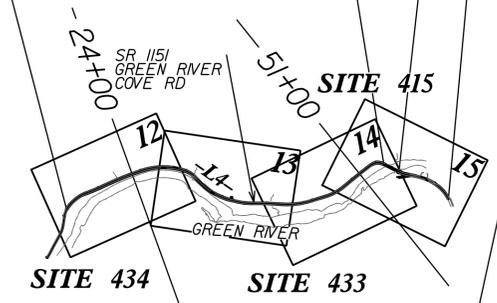
END CONSTRUCTION AREA 2 (SITES 439, 338, & 437)
-L2- STA. 47 + 75.00

BEGIN CONSTRUCTION AREA 3 (SITE 435 PART II)
-L3- STA. 10 + 80.00

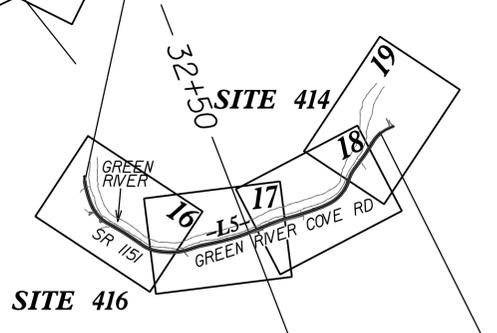


END CONSTRUCTION AREA 3 (SITE 435 PART II)
-L3- STA. 25 + 00.00

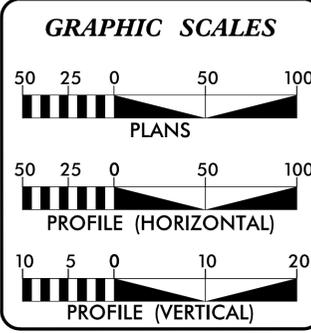
END CONSTRUCTION AREA 4 (SITES 434, 433, & 415)
-L4- STA. 62 + 30.00
-L4- STA. 55 + 91.40
END EXIST. BRIDGE
-L4- STA. 54 + 06.16
BEGIN EXIST. BRIDGE



BEGIN CONSTRUCTION AREA 5 (SITES 416 & 414)
-L5- STA. 10 + 50.00



END PROJECT W03291
-L5- STA. 51 + 50.00



DESIGN DATA
ADT 2025 = 310
ADT 2050 = 400
V = 40 MPH

FUNC CLASS = LOCAL RURAL SUBREGIONAL

PROJECT LENGTH

LENGTH ROADWAY SITE 441 = 0.381 MILES	LENGTH ROADWAY SITE 434 = 0.157 MILES
LENGTH ROADWAY SITE 440 = 0.265 MILES	LENGTH ROADWAY SITE 433 = 0.511 MILES
TOTAL LENGTH AREA 1 = 0.646 MILES	LENGTH ROADWAY SITE 415 = 0.179 MILES
LENGTH ROADWAY SITE 439 = 0.203 MILES	LENGTH STRUCTURE SITE 415 = 0.035 MILES
LENGTH ROADWAY SITE 338 = 0.044 MILES	TOTAL LENGTH AREA 4 = 0.882 MILES
LENGTH ROADWAY SITE 437 = 0.422 MILES	LENGTH ROADWAY SITE 416 = 0.417 MILES
LENGTH STRUCTURE SITE 338 = 0.032 MILES	LENGTH ROADWAY SITE 414 = 0.360 MILES
TOTAL LENGTH AREA 2 = 0.701 MILES	TOTAL LENGTH AREA 5 = 0.777 MILES
LENGTH ROADWAY SITE 435 = 0.269 MILES	TOTAL LENGTH PROJECT W03291 = 3.275 MILES
TOTAL LENGTH AREA 3 = 0.269 MILES	

NC DOT CONTACT: JEANETTE L. WHITE, PE

PLANS PREPARED BY: TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO. C-0275	PLANS PREPARED FOR: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 14 252 Webster Rd Sylva, NC 28779
RIGHT OF WAY DATE: JULY 31, 2025	JIMMY L. TERRY, PE PROJECT ENGINEER
LETTING DATE: APRIL 21, 2026	AUSTIN R. TURNER, PE PROJECT DESIGN ENGINEER
2024 STANDARD SPECIFICATIONS	

HYDRAULICS ENGINEER
2/11/2026
Signed by: *John W. Twisdale, Jr.* P.E.
ROADWAY DESIGN ENGINEER
2/11/2026
Signed by: *Jimmy Terry* P.E.



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6/2/2025

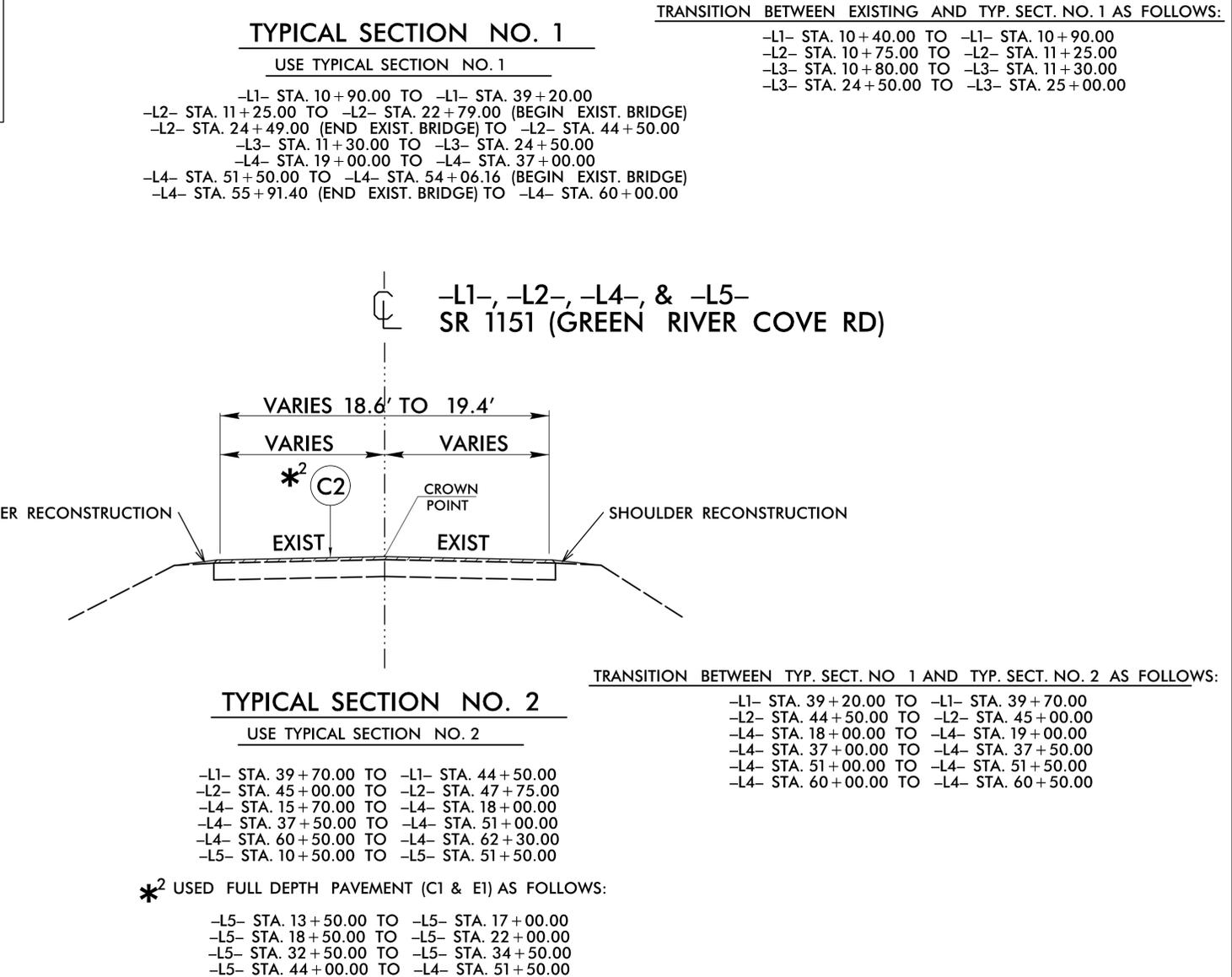
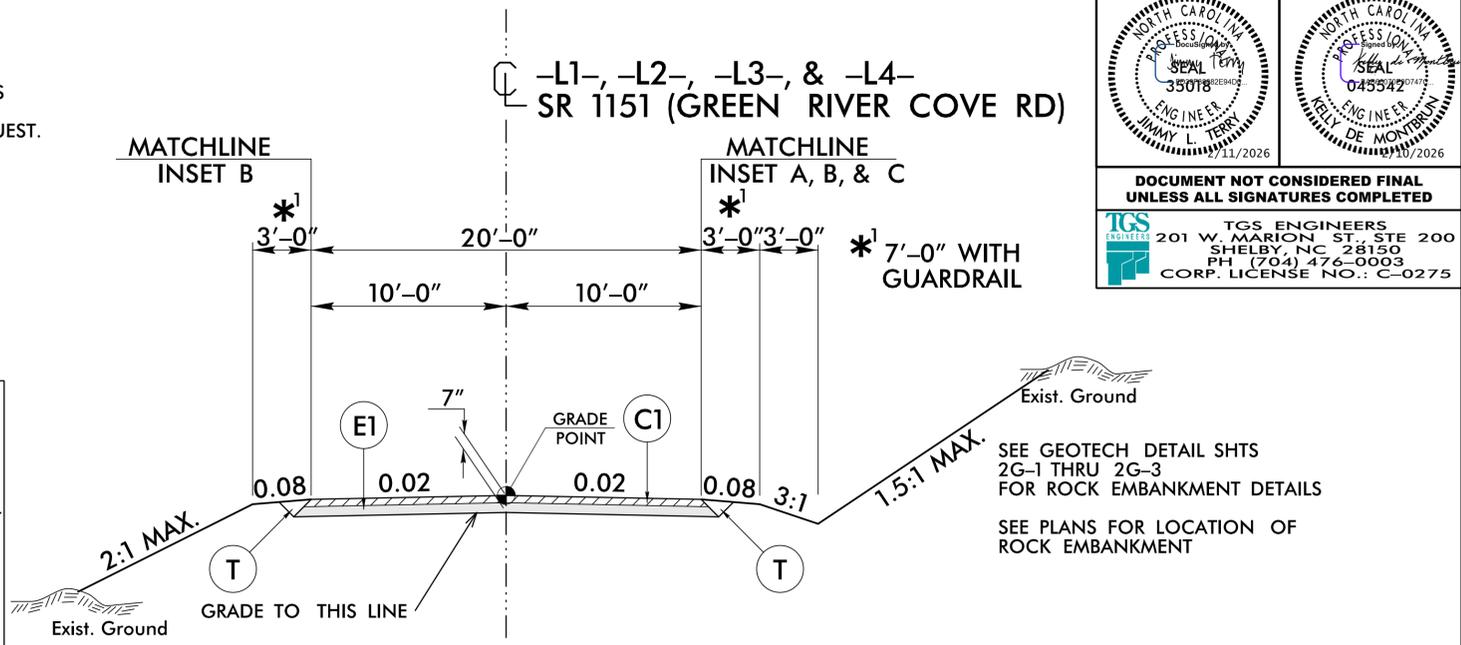
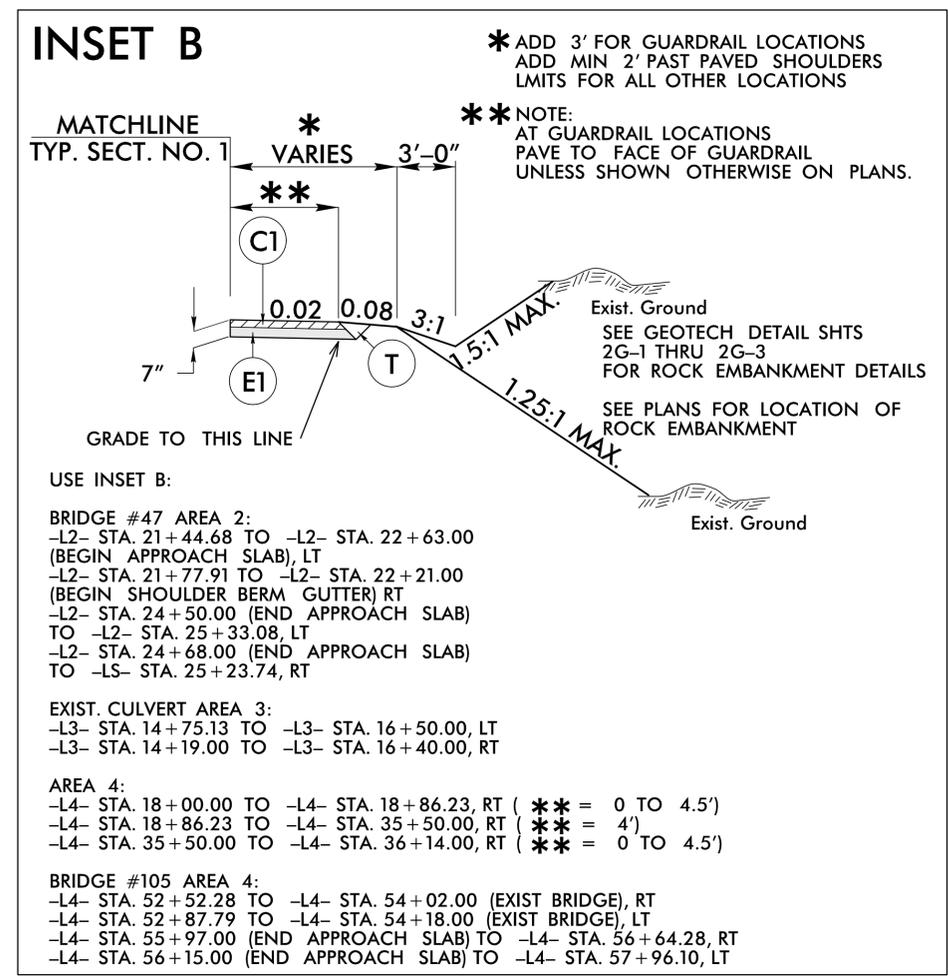
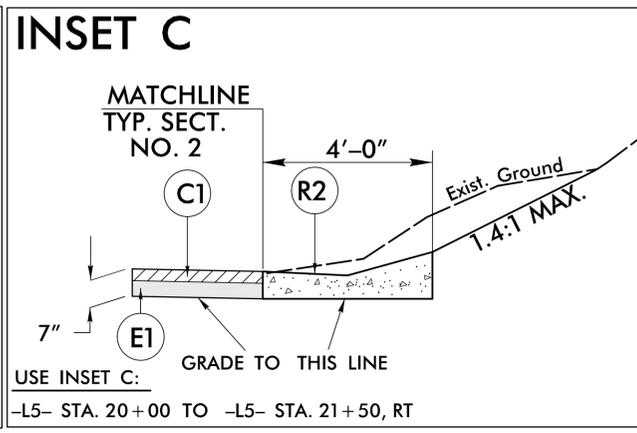
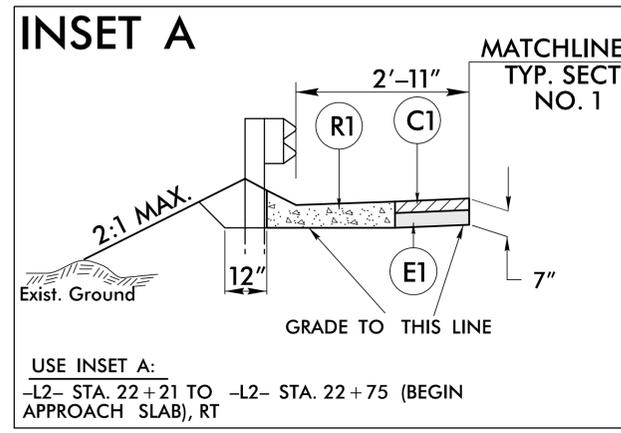
FINAL PAVEMENT SCHEDULE

(DEC. 9, 2025)

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
R1	SHOULDER BERM GUTTER
R2	CONCRETE EXPRESSWAY GUTTER
T	EARTH MATERIAL.

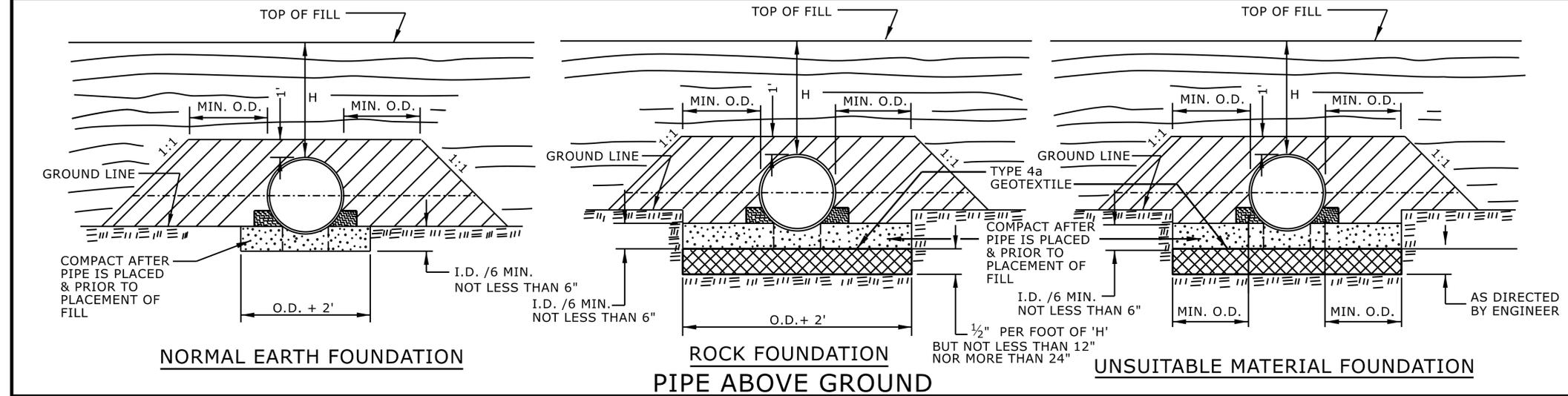
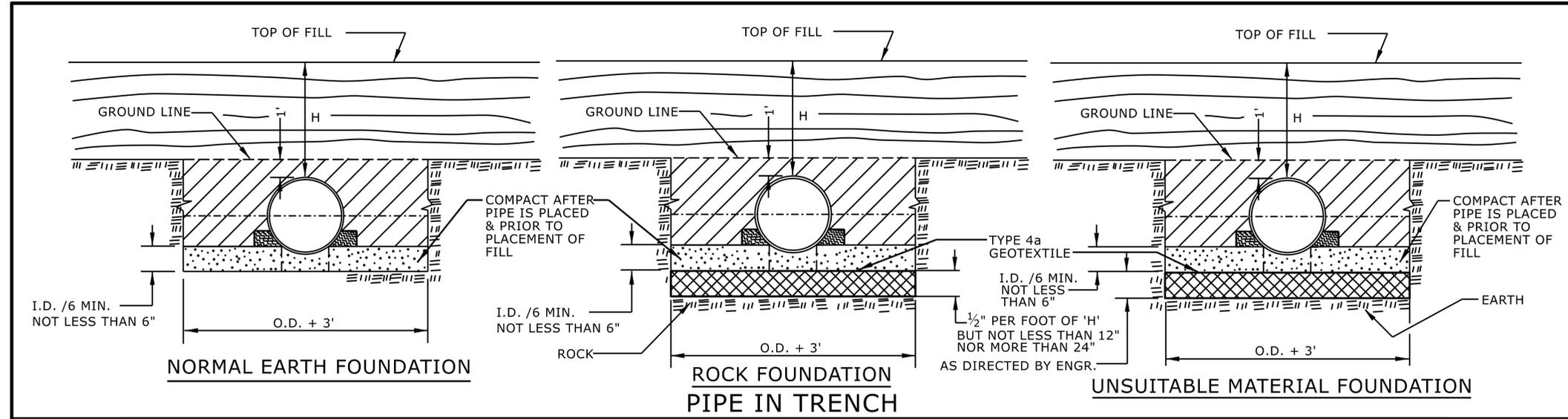
NOTE:
 DUE TO UNKNOWN DAMAGE TO THE EXISTING PAVEMENT STRUCTURE FROM HELENE, FULL DEPTH PAVEMENT IS SHOWN TO EXTEND FOR THE FULL LENGTH OF AREAS COVERED BY TYPICAL SECTION NO. 1.
 IF AGREED UPON BY THE RESIDENT ENGINEER AND CONTRACTOR DURING CONSTRUCTION TO OVERLAY EXISTING PAVEMENT ONLY, STANDARD NCDOT MILLING AND RESURFACING/WEDGING METHODS SHALL APPLY. THE ENGINEER OF RECORD SHALL BE NOTIFIED OF CHANGES, AND STANDARD DETAILS CAN BE PROVIDED UPON REQUEST.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

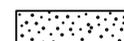


PROJECT REFERENCE NO. W03291	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER JIMMY L. TERRY 35018	PAVEMENT DESIGN ENGINEER JIMMY L. TERRY 04534
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

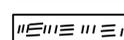
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 6/2/2025 10:00 AM
 User: jerry



GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

-  APPROVED SUITABLE LOCAL MATERIAL.
-  TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
-  LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
 REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

-  SPRINGLINE OF PIPE
-  SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
-  UNDISTURBED EARTH MATERIAL
-  SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE



2/11/2026

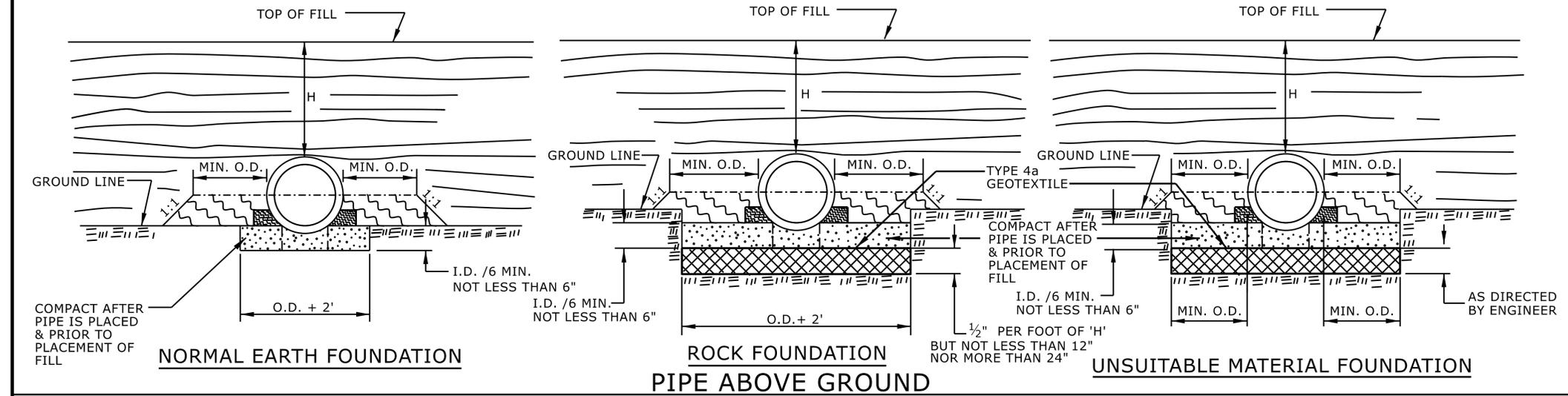
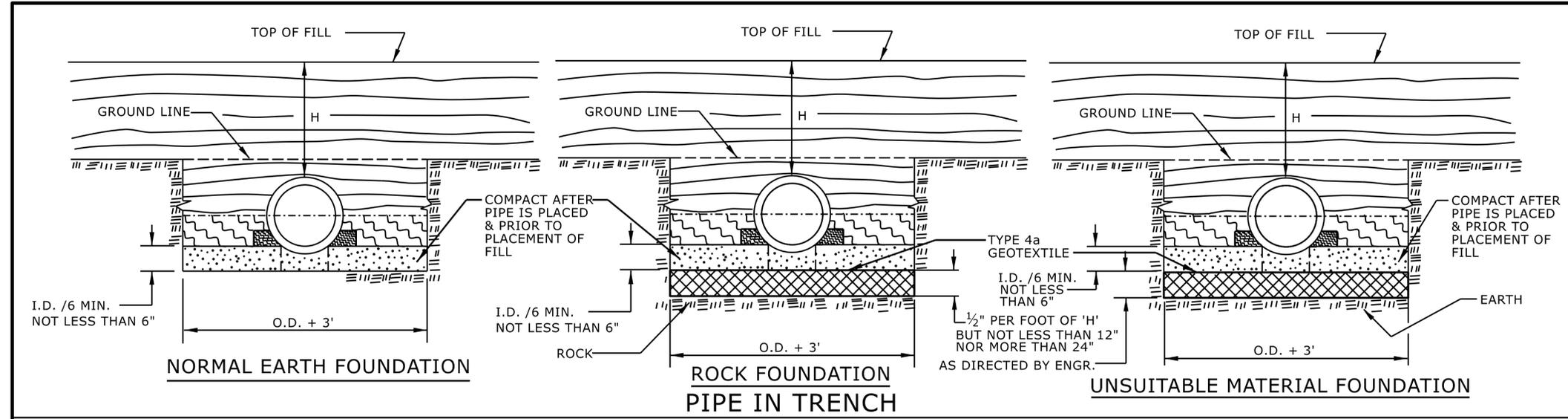
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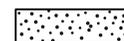
CONTRACTS STANDARDS
 AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.:



GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

 APPROVED SUITABLE LOCAL MATERIAL.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
 REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

-  SPRINGLINE OF PIPE
-  SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
-  UNDISTURBED EARTH MATERIAL
-  SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 RIGID PIPE

SHEET 2 OF 2
300.01



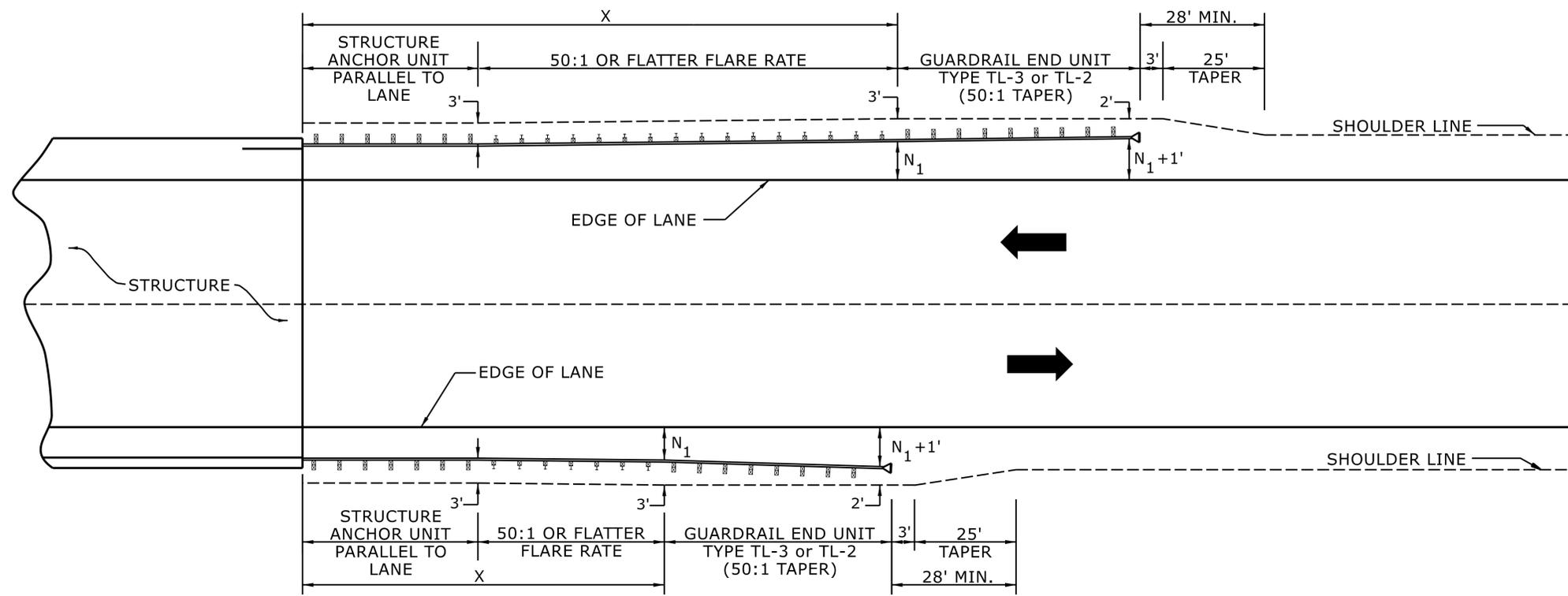
2/11/2026

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USE FLARE RATE AS THE CONTROL IF THE "N₁" DISTANCE IS NOT OBTAINED.
 ("N₁" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)
 SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS
 FOR POSTED SPEEDS ≥ 45MPH USE GREU TYPE TL-3
 FOR POSTED SPEEDS < 45MPH USE GREU TYPE TL-2
 GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



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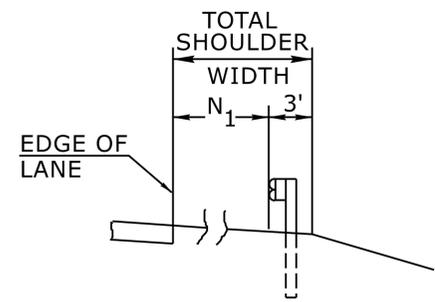
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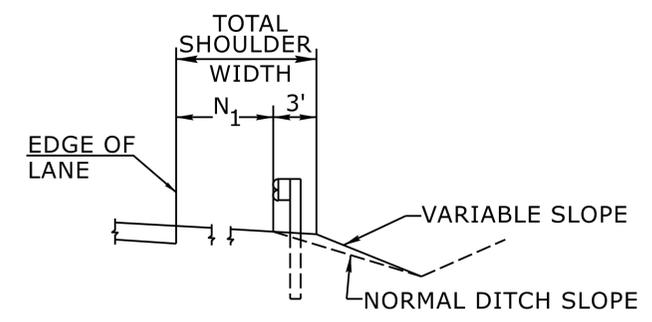
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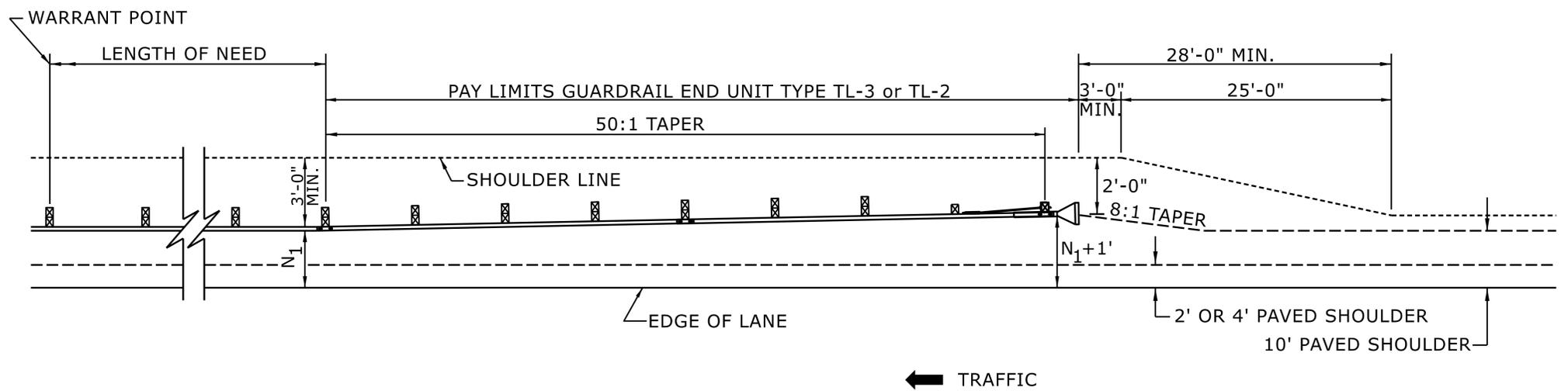


FILL SECTION



CUT SECTION

"N₁" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



2/11/2026

SHEET 6 OF 15
862D01

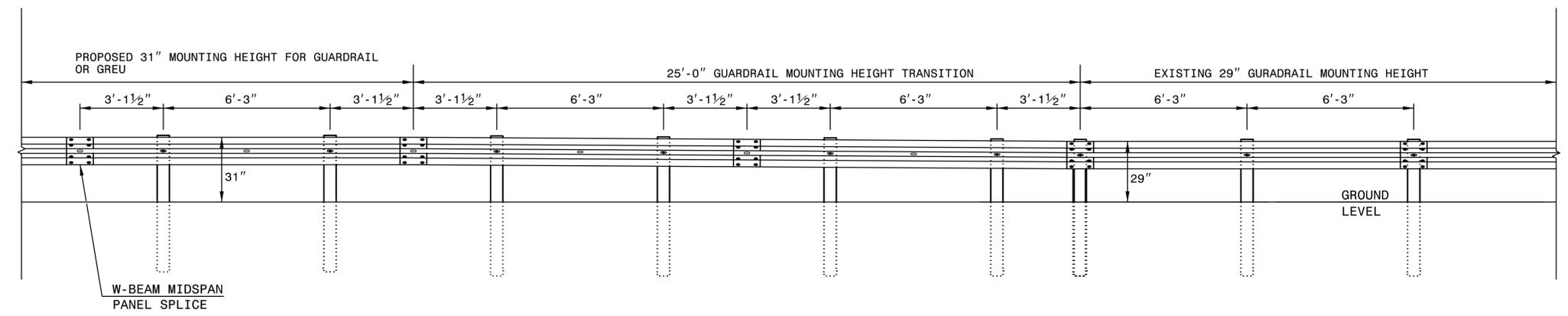
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MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

NOTE: IF EXISTING GUARDRAIL IS LOWER THAN 29", USE AN ADDITIONAL 12'-6" LONG SECTION OF GUARDRAIL, FOR EVERY 1" OF HEIGHT DIFFERENCE, TO TRANSITION FROM EXISTING GUARDRAIL TO PROPOSED 31" GUARDRAIL.



ELEVATION VIEW

TRANSITION FROM 29" TO 31" W-BEAM GUARDRAIL MOUNTING HEIGHT

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 5 OF 9
862D02



2/11/2026

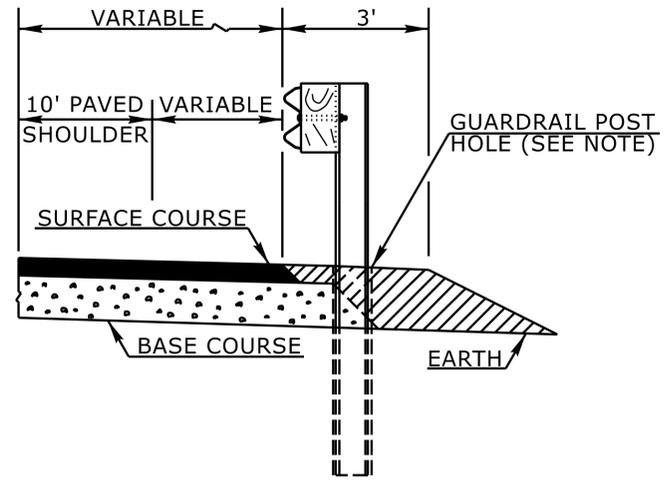
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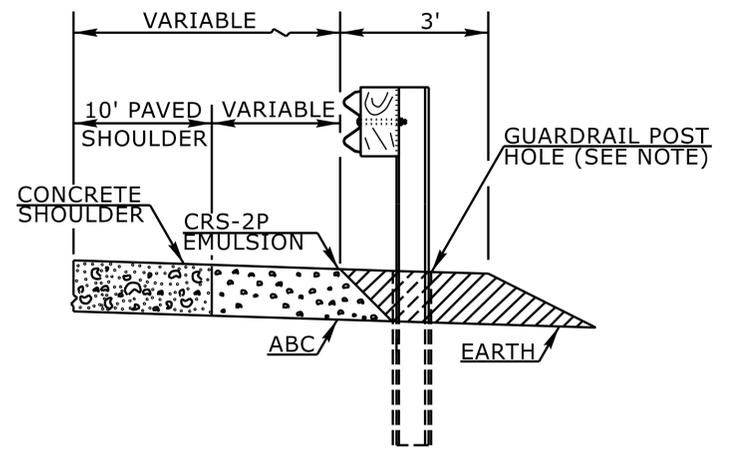
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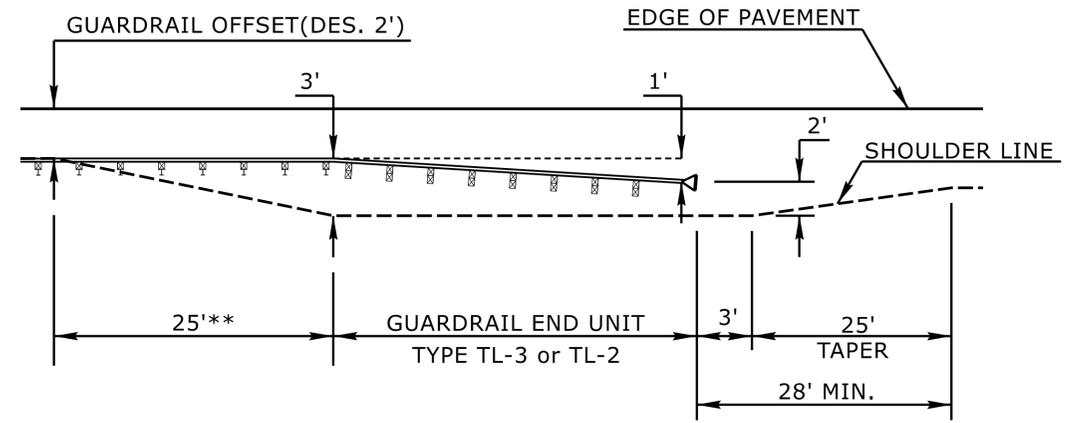
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FLEXIBLE PAVED SHOULDER

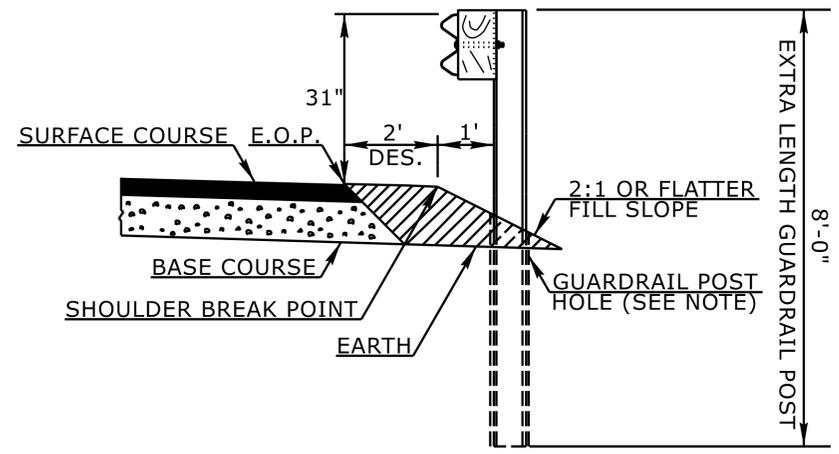


CONCRETE PAVED SHOULDER



**8' GUARDRAIL POST ON 2:1 SLOPE-END UNIT TRANSITION*
PLAN VIEW**

* THE 8' GUARDRAIL POST ON 2:1 SLOPE DETAIL IS INTENDED FOR USE ONLY IN SEVERELY CONSTRAINED AREAS WITH A POSTED SPEED ≤ 60 MPH. GUARDRAIL END UNITS MAY NOT BE PLACED ON THE 2:1 SLOPE AND MUST TRANSITION TO THE SHOULDER.
** 8' GUARDRAIL POST SHOULD BE USED IN THIS RANGE



8' GUARDRAIL POST ON 2:1 SLOPE*

NOTE:
WHEN WOODEN GUARDRAIL POSTS ARE USED, DRILL HOLES THROUGH EARTH MATERIAL AND BASE COURSE. THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. DRILL THE HOLE OF SUFFICIENT SIZE TO ACCOMMODATE THE PARTICULAR POST BEING USED. BACKFILL AND TAMP HOLES USING THE EXCAVATED MATERIAL.

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



2/11/2026

SHEET 11 OF 15
862D01

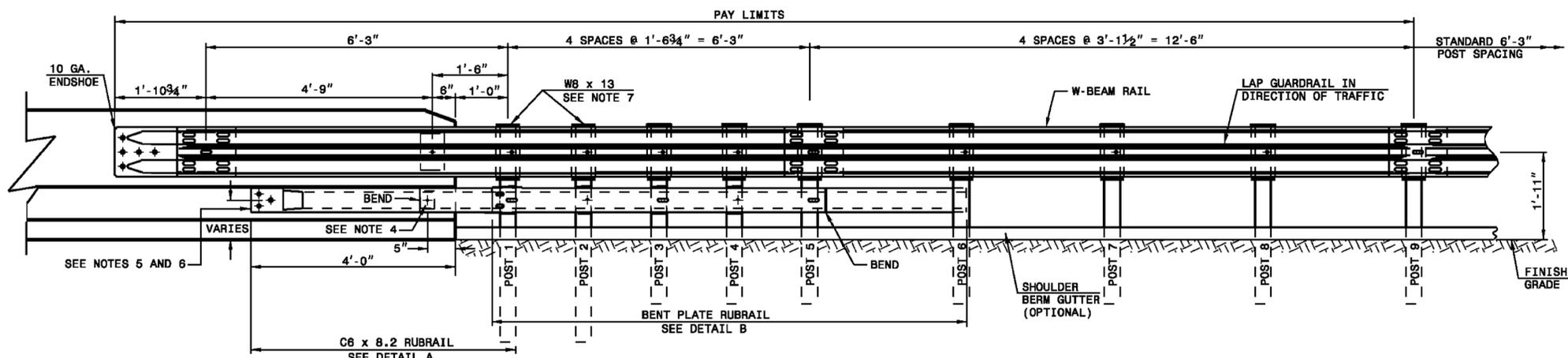
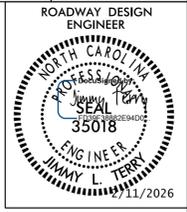
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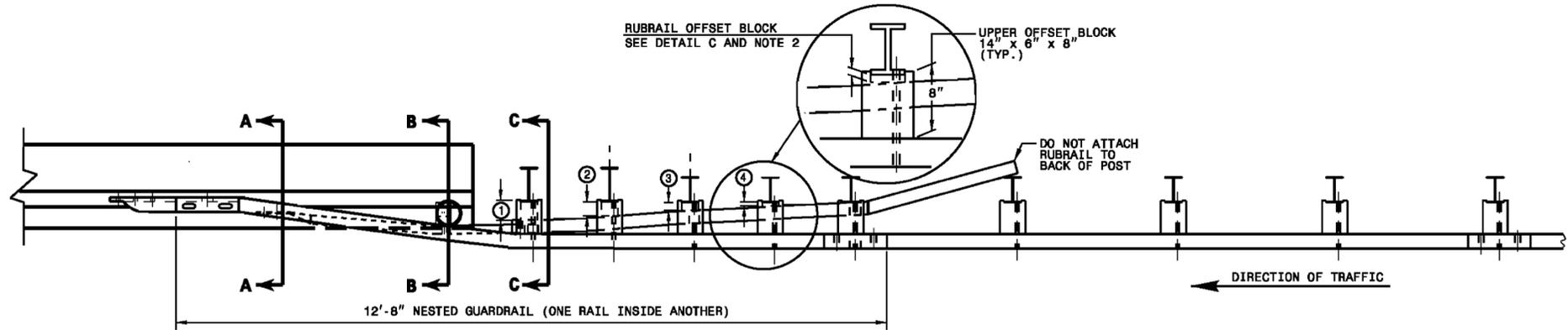
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ELEVATION

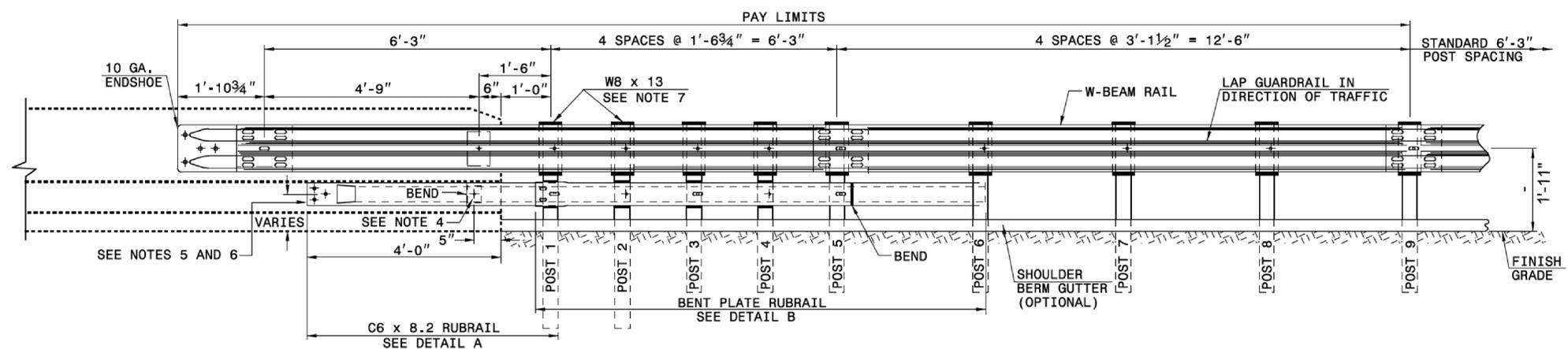
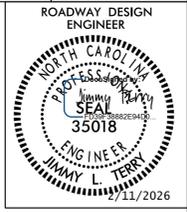
- GENERAL NOTES:**
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
 - RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
 - STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1 1/4" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
 - SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
 - SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
 - ANCHORAGE:
 - AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1/2".
 - AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04). A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01). INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
 - AT NEW BRIDGE RAIL, ANCHOR THE W-BEAM END SHOE AND RUBRAIL AS DETAILED ON THE STRUCTURE PLANS.
 - POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.



PLAN

GUARDRAIL ANCHOR UNIT TYPE B-77

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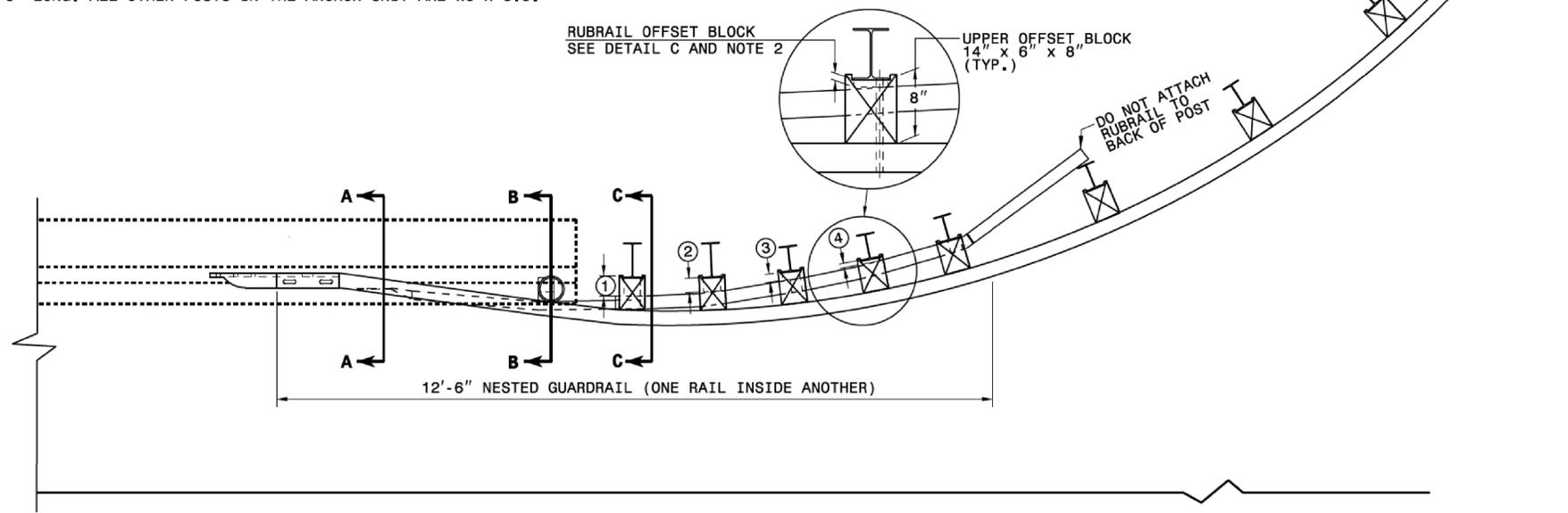


ELEVATION

GENERAL NOTES:

- 1) POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
- 2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
- 3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1 1/4" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
- 4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
- 5) SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
- 6) ANCHORAGE:
 - (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, RUBRAIL SHALL BE ANCHORED USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS SHALL BE 1/2".
 - (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, THE W-BEAM END SHOE SHALL BE ANCHORED USING A 4 BOLT HOLD DOWN PLATE. (SEE STD. DWG. 862.04) A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STANDARD 857.01). THE W-BEAM END SHOE SHALL BE INSTALLED BEHIND THE NESTED W-BEAM ELEMENTS.
 - (c) AT NEW BRIDGE RAIL, THE W-BEAM END SHOE AND RUBRAIL SHALL BE ANCHORED AS DETAILED ON THE STRUCTURE PLANS.
- 7) POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

SEE ROADWAY PLANS FOR END TREATMENT



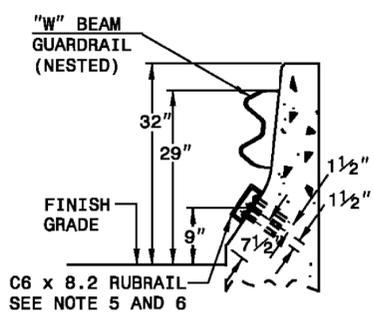
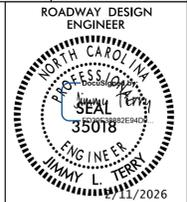
PLAN

GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

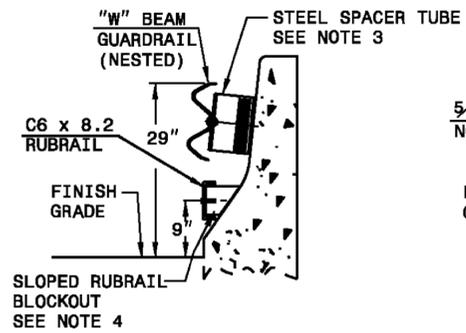
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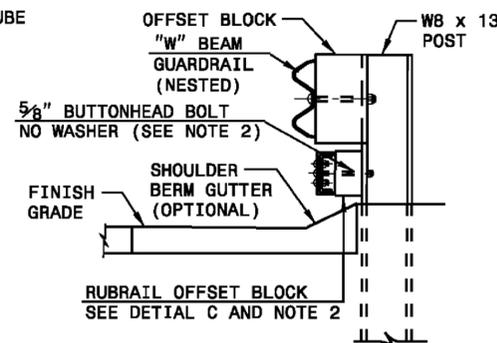
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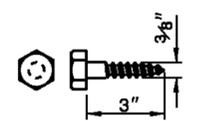
SECTION A-A



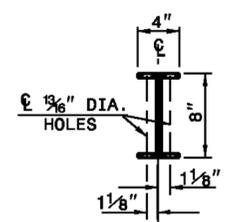
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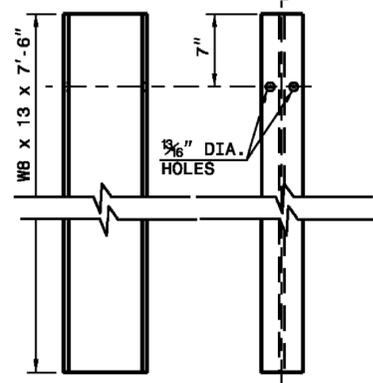
SECTION C-C



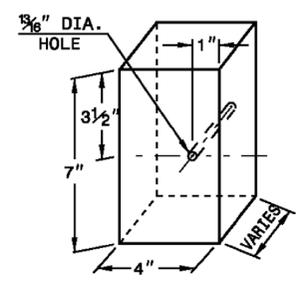
**DETAIL E
LAG BOLT**



PLAN



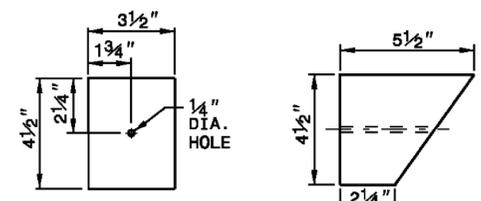
**DETAIL F STEEL POST
"W8 X 13 X 7'-6"**



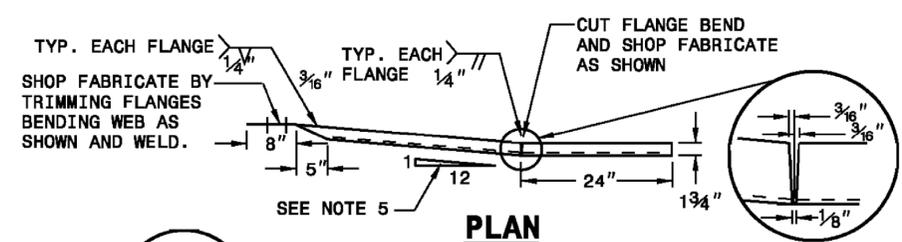
**DETAIL C
RUBRAIL BLOCKOUT**

RUBRAIL BLOCKS 7" HIGH X 4" WIDE		
POST	THICKNESS	BOLT LENGTH
①	4 1/4"	9"
②	3 1/4"	5" *
③	2"	6"
④	1"	3" *

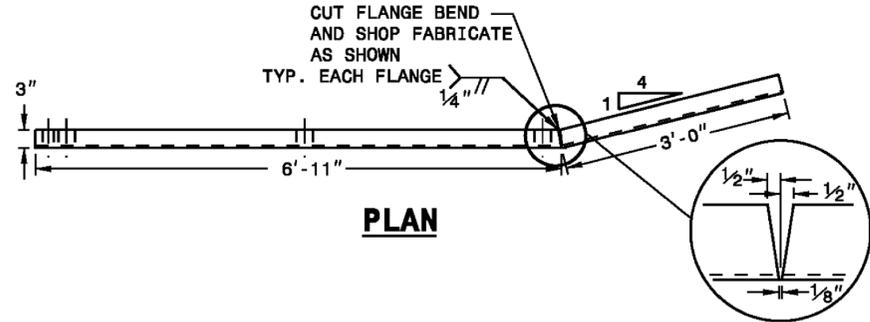
* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.



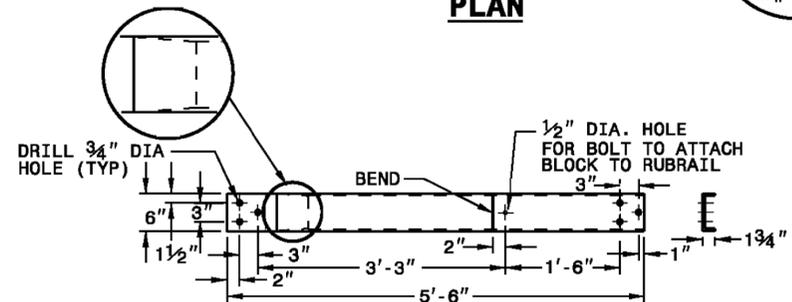
**DETAIL D
SLOPED RUBRAIL BLOCKOUT**



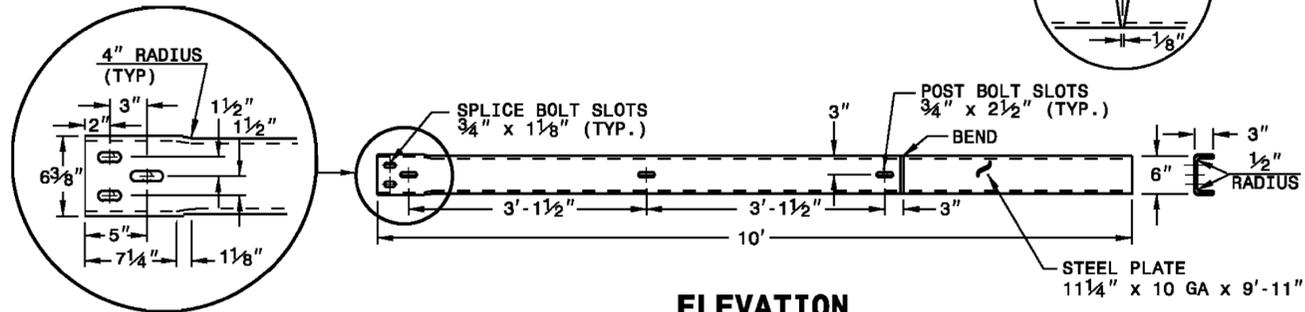
PLAN



PLAN

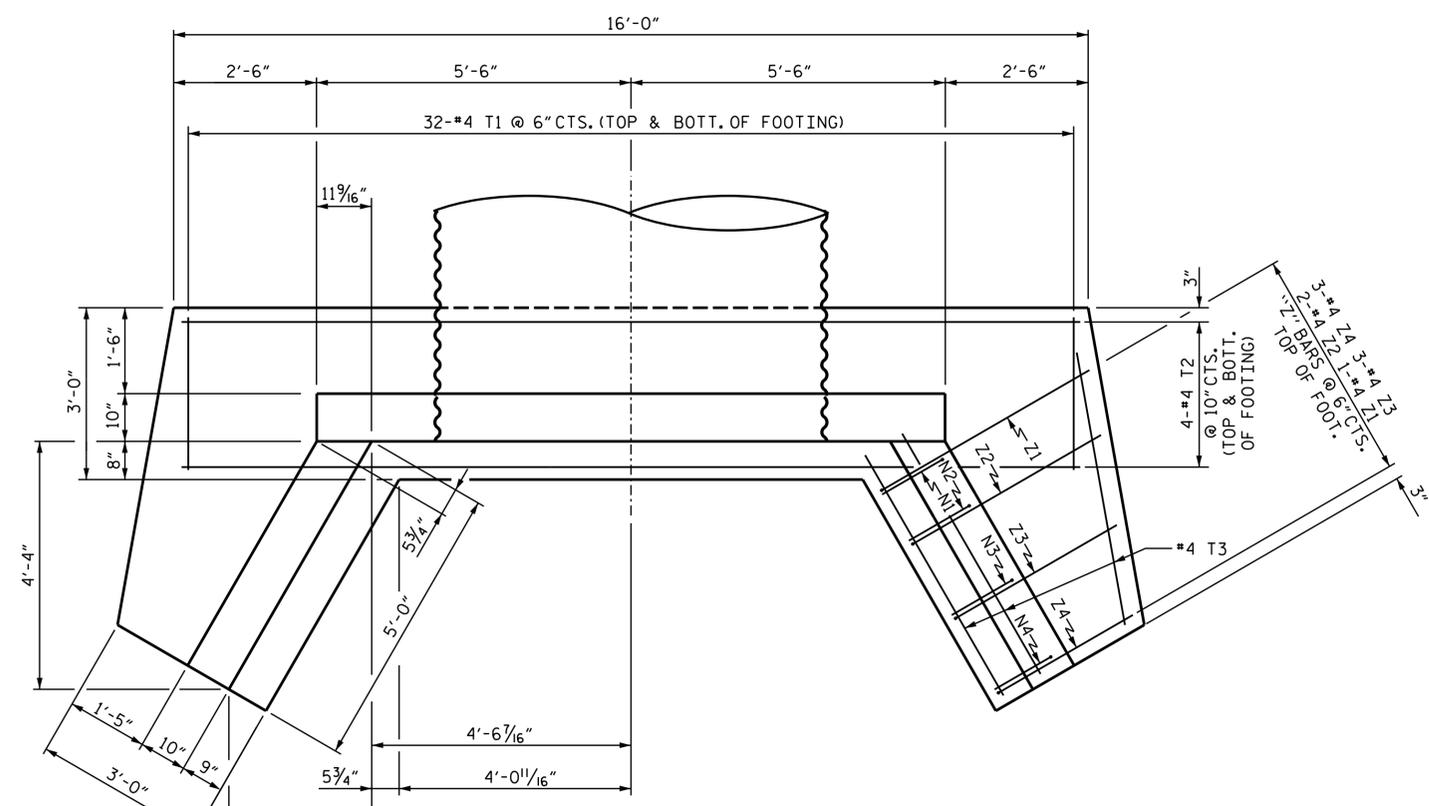


**ELEVATION
DETAIL A
C6 x 8.2 RUBRAIL**



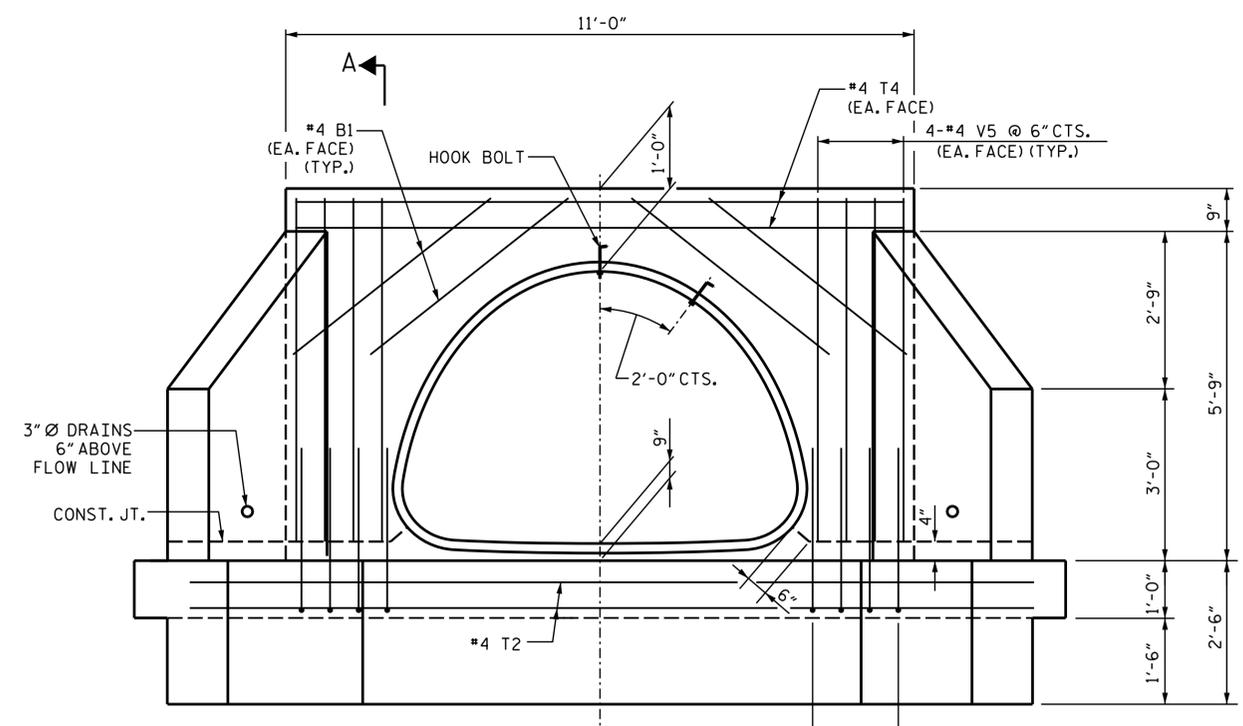
**ELEVATION
DETAIL B
BENT PLATE RUBRAIL**

GUARDRAIL ANCHOR UNIT TYPE B-77 & B-77 SHOP CURVED DETAILS



PLAN

ALL DIMENSIONS SYMMETRICAL ABOUT C PIPE



ELEVATION

SEE SHEET 2D-2 FOR SECTION A-A

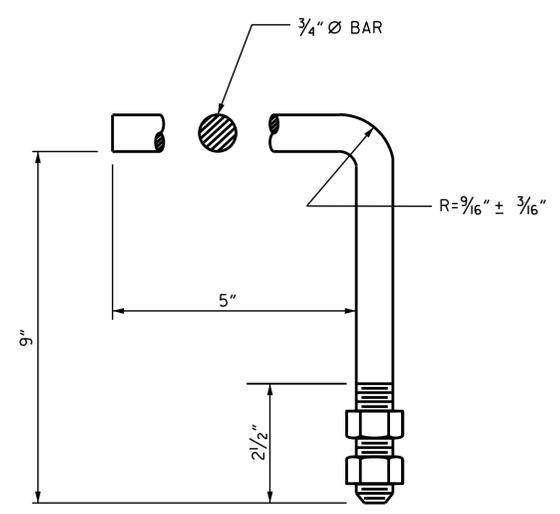
NOTES

NO SEPARATE PAYMENT WILL BE MADE FOR REINFORCING STEEL OR CLASS A CONCRETE. THE ENTIRE COST OF THESE ITEMS SHALL BE PAID FOR UNDER THE PRICE BID FOR REINFORCED CONCRETE ENDWALL.

CHAMFER ALL CORNERS 1".

COVER WEEP HOLES WITH HARDWARE CLOTH IN ACCORDANCE WITH ARTICLE 420-11 OF THE STANDARD SPECIFICATIONS. PLACE A STONE DRAIN CONSISTING OF ONE (1) CUBIC FOOT OF NUMBER 78M STONE CONTAINED IN A BAG OF TYPE 1 GEOTEXTILE AT EACH WEEP HOLE. PLACE SUBDRAIN FINE AGGREGATE BENEATH, AROUND AND OVER THE STONE DRAIN SO THE STONE DRAIN IS COMPLETELY COVERED BY A LAYER OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT THICK. WHERE THERE IS MORE THAN ONE WEEP HOLE IN A WING WALL, PLACE A HORIZONTAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION TO CONNECT ALL STONE DRAINS. PLACE A VERTICAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION AT EACH WEEP HOLE TO AN ELEVATION OF TWO (2) FEET BELOW THE SURFACE OF THE EMBANKMENT.

CONSTRUCT HOOK BOLTS (ANCHORS) AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 83" X 57" CSP. EMBED THE HOOK BOLTS 6" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.

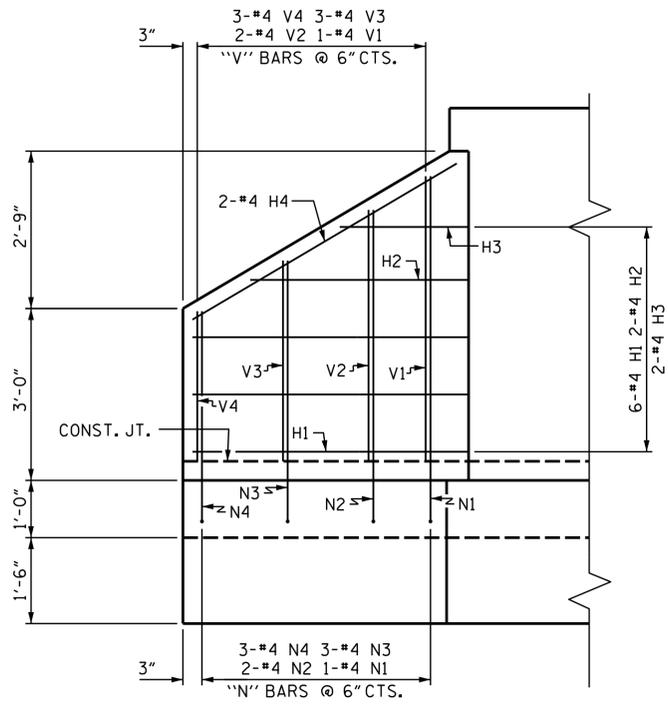


HOOK BOLT

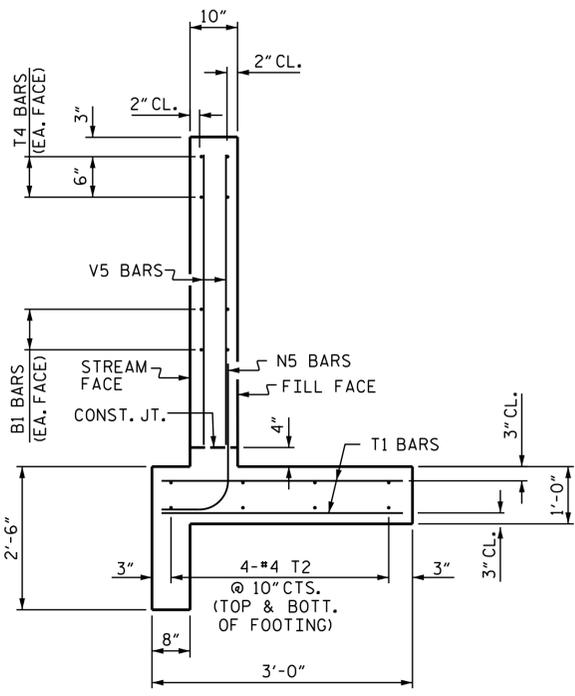
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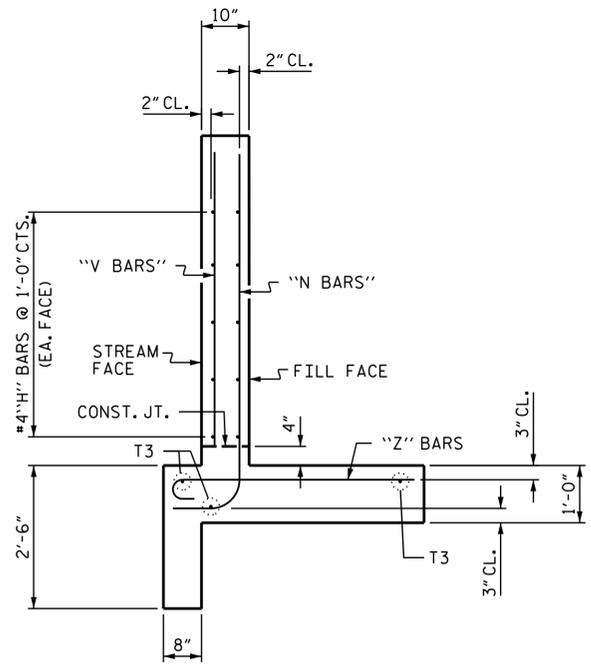
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**REINFORCED
 CONCRETE
 ENDWALL**
 83" X 57"
 CORRUGATED STEEL PIPE ARCH



WING ELEVATION



SECTION A-A



TYPICAL WING SECTION

BAR TYPES

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	1	5'-7"	45
H2	4	#4	1	4'-8"	12
H3	4	#4	1	2'-10"	8
H4	4	#4	STR	5'-5"	14
N1	2	#4	2	6'-10"	9
N2	4	#4	2	6'-3"	17
N3	6	#4	2	5'-5"	22
N4	6	#4	2	4'-7"	18
N5	8	#4	2	3'-9"	20
T1	64	#4	STR	2'-8"	114
T2	8	#4	STR	15'-8"	84
T3	6	#4	STR	5'-5"	22
T4	4	#4	STR	10'-8"	29
V1	2	#4	STR	4'-8"	6
V2	4	#4	STR	4'-2"	11
V3	6	#4	STR	3'-4"	13
V4	6	#4	STR	2'-6"	10
V5	16	#4	STR	5'-11"	63
Z1	2	#4	3	4'-6"	6
Z2	4	#4	3	4'-3"	11
Z3	6	#4	3	3'-9"	15
Z4	6	#4	3	3'-2"	13

ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT REFERENCE NO.		SHEET NO.			
W03291		2D-2			
BILL OF MATERIAL FOR 1 ENDWALL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#4	STR	4'-8"	25
H1	12	#4	1	5'-7"	45
H2	4	#4	1	4'-8"	12
H3	4	#4	1	2'-10"	8
H4	4	#4	STR	5'-5"	14
N1	2	#4	2	6'-10"	9
N2	4	#4	2	6'-3"	17
N3	6	#4	2	5'-5"	22
N4	6	#4	2	4'-7"	18
N5	8	#4	2	3'-9"	20
T1	64	#4	STR	2'-8"	114
T2	8	#4	STR	15'-8"	84
T3	6	#4	STR	5'-5"	22
T4	4	#4	STR	10'-8"	29
V1	2	#4	STR	4'-8"	6
V2	4	#4	STR	4'-2"	11
V3	6	#4	STR	3'-4"	13
V4	6	#4	STR	2'-6"	10
V5	16	#4	STR	5'-11"	63
Z1	2	#4	3	4'-6"	6
Z2	4	#4	3	4'-3"	11
Z3	6	#4	3	3'-9"	15
Z4	6	#4	3	3'-2"	13
REINFORCING STEEL					587 LBS
CLASS A CONCRETE					
2 WINGS					1.4 CY
1 HEADWALL					1.4 CY
END CURTAIN WALL					0.6 CY
FOOTING					2.8 CY
TOTAL					6.2 CY

DRAWN BY : ZCS DATE : 10/25
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2/11/2026

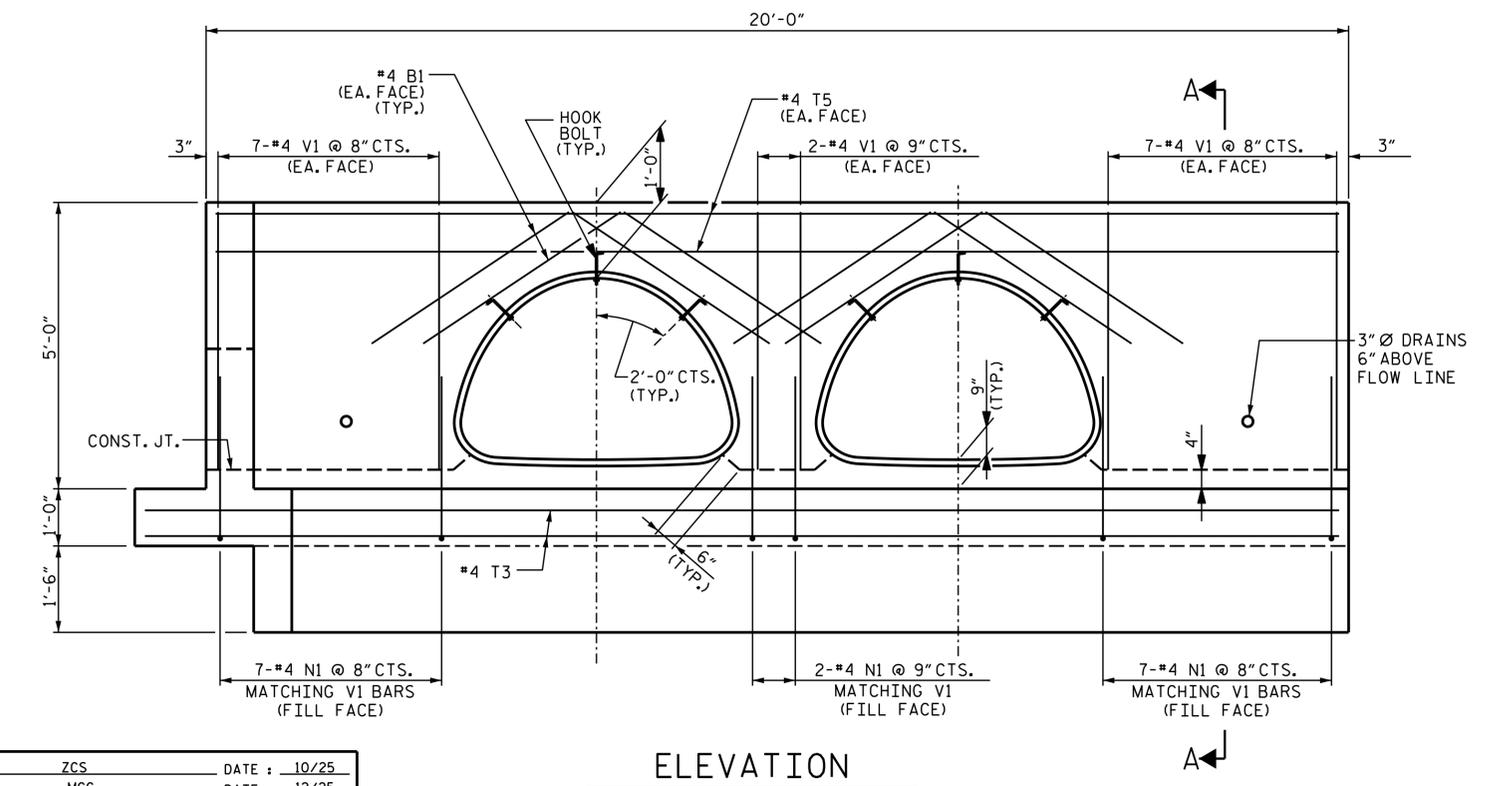
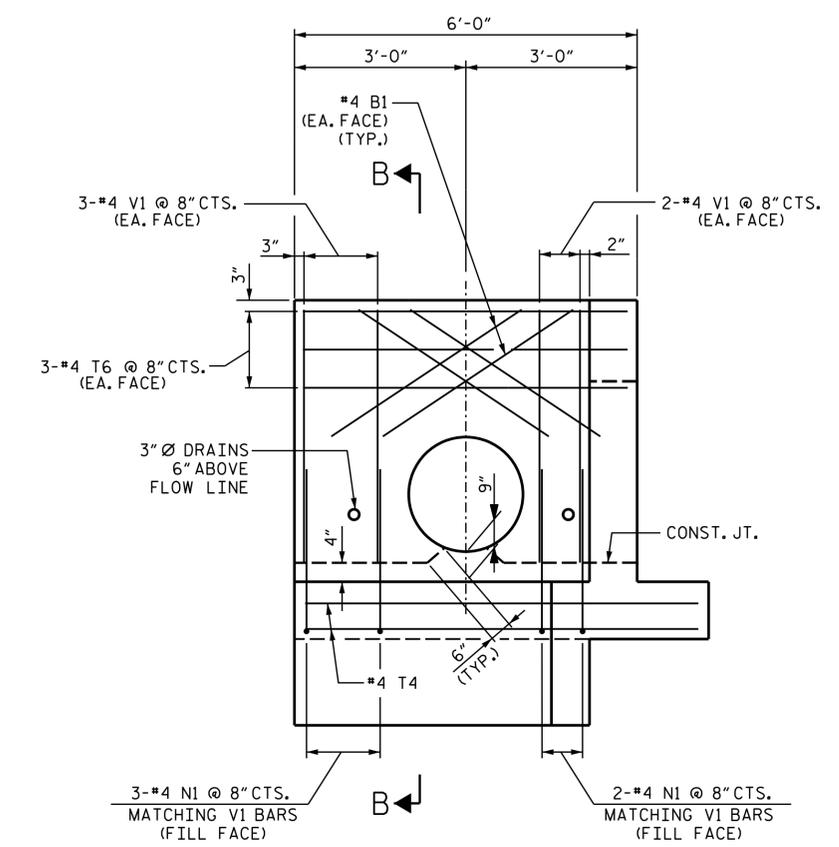
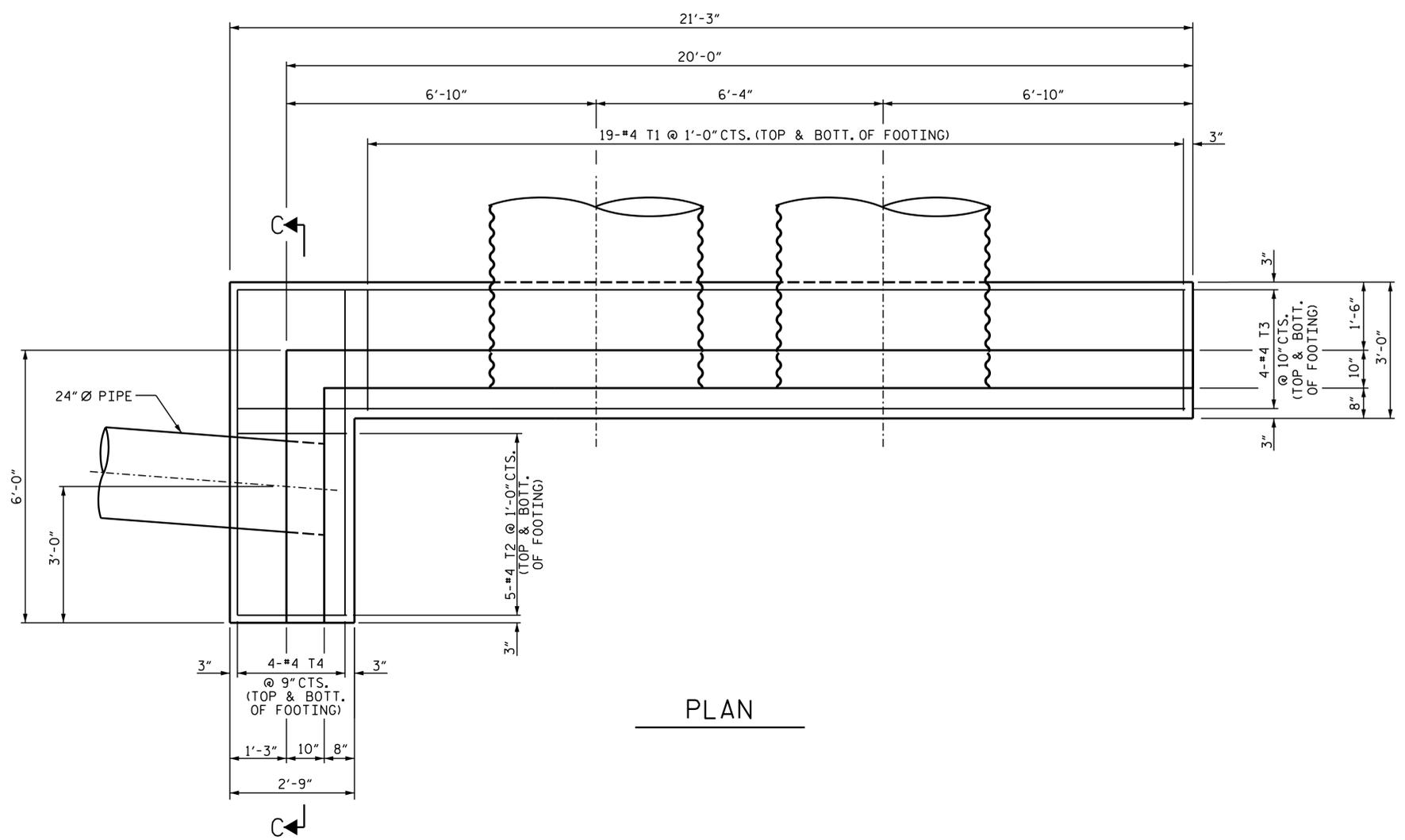
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**REINFORCED
 CONCRETE
 ENDWALL**

83" X 57"
 CORRUGATED STEEL PIPE ARCH



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1/19/2026
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Professional Engineer Seal:
 NORTH CAROLINA PROFESSIONAL ENGINEER
 Marshall G. Check, Jr.
 SEP 2012
 20125
 ENGINEER
 MICHAEL G. CHECK, SR.
 2/11/2026

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

REINFORCED CONCRETE ENDWALL

DOUBLE 57" x 38" CORRUGATED STEEL PIPE ARCH

NOTES

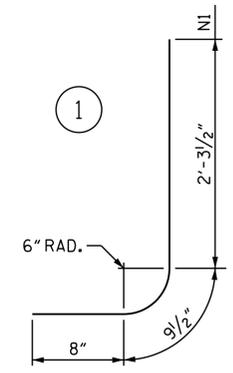
NO SEPARATE PAYMENT WILL BE MADE FOR REINFORCING STEEL OR CLASS A CONCRETE. THE ENTIRE COST OF THESE ITEMS SHALL BE PAID FOR UNDER THE PRICE BID FOR REINFORCED CONCRETE ENDWALL.

CHAMFER ALL CORNERS 1".

CONSTRUCT HOOK BOLTS (ANCHORS) AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF BOTH 57" X 38" CSPA. EMBED THE HOOK BOLTS 6" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.

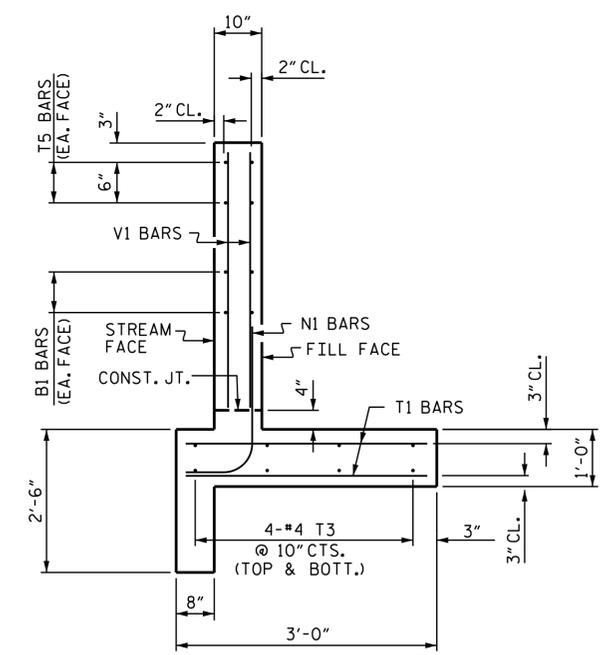
COVER WEEP HOLES WITH HARDWARE CLOTH IN ACCORDANCE WITH ARTICLE 420-11 OF THE STANDARD SPECIFICATIONS. PLACE A STONE DRAIN CONSISTING OF ONE (1) CUBIC FOOT OF NUMBER 78M STONE CONTAINED IN A BAG OF TYPE 1 GEOTEXTILE AT EACH WEEP HOLE. PLACE SUBDRAIN FINE AGGREGATE BENEATH, AROUND AND OVER THE STONE DRAIN SO THE STONE DRAIN IS COMPLETELY COVERED BY A LAYER OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT THICK. WHERE THERE IS MORE THAN ONE WEEP HOLE IN A WING WALL, PLACE A HORIZONTAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION TO CONNECT ALL STONE DRAINS. PLACE A VERTICAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION AT EACH WEEP HOLE TO AN ELEVATION OF TWO (2) FEET BELOW THE SURFACE OF THE EMBANKMENT.

BAR TYPES

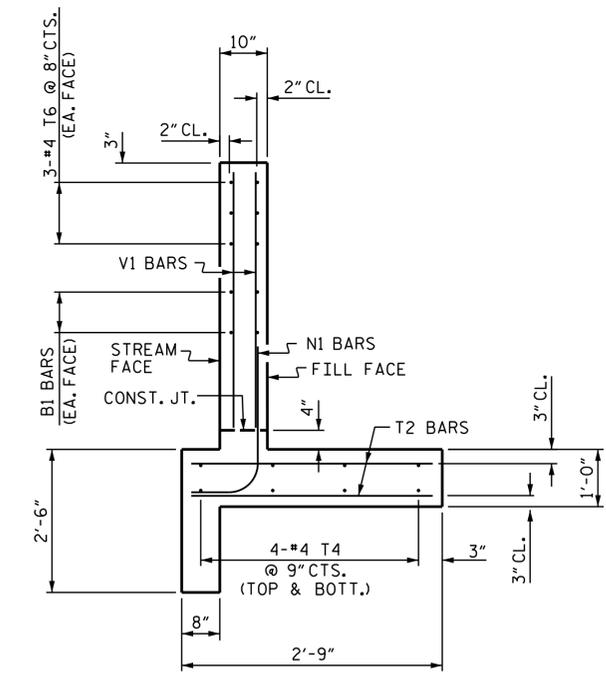


ALL BAR DIMENSIONS ARE OUT TO OUT.

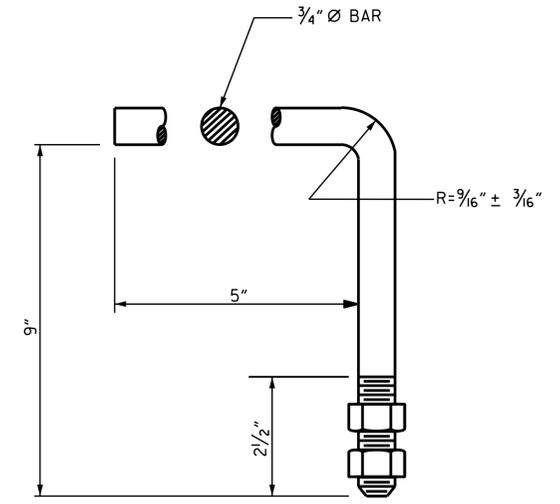
PROJECT REFERENCE NO.		SHEET NO.			
W03291		2D-4			
BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	24	#4	STR	4'-0"	64
N1	21	#4	1	3'-9"	53
T1	38	#4	STR	2'-8"	68
T2	10	#4	STR	2'-5"	16
T3	8	#4	STR	20'-11"	112
T4	8	#4	STR	7'-2"	38
T5	4	#4	STR	19'-8"	53
T6	6	#4	STR	5'-8"	23
V1	42	#4	STR	4'-5"	124
REINFORCING STEEL					551 LBS
CLASS A CONCRETE					
1 HEADWALL					3.1 CY
END CURTAIN WALL					0.9 CY
FOOTING					2.8 CY
TOTAL					6.8 CY



SECTION A-A



SECTION B-B



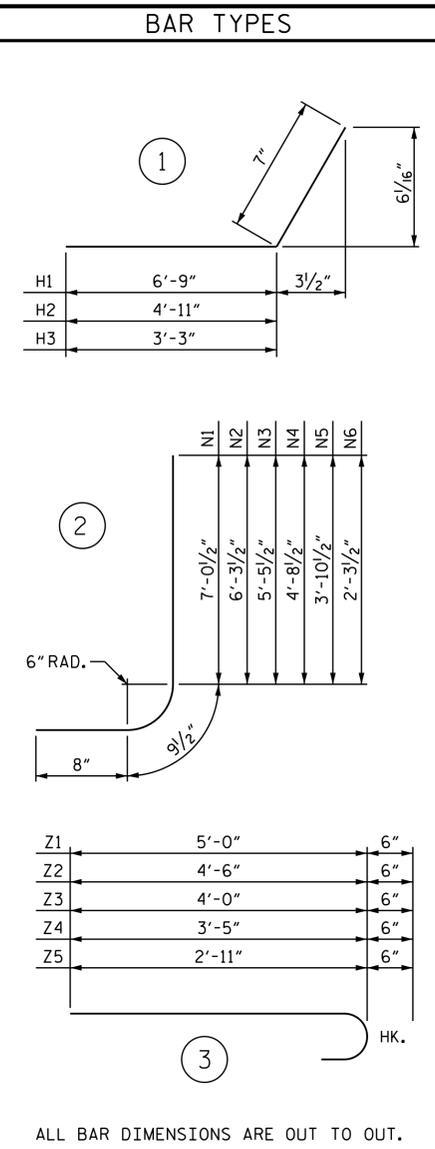
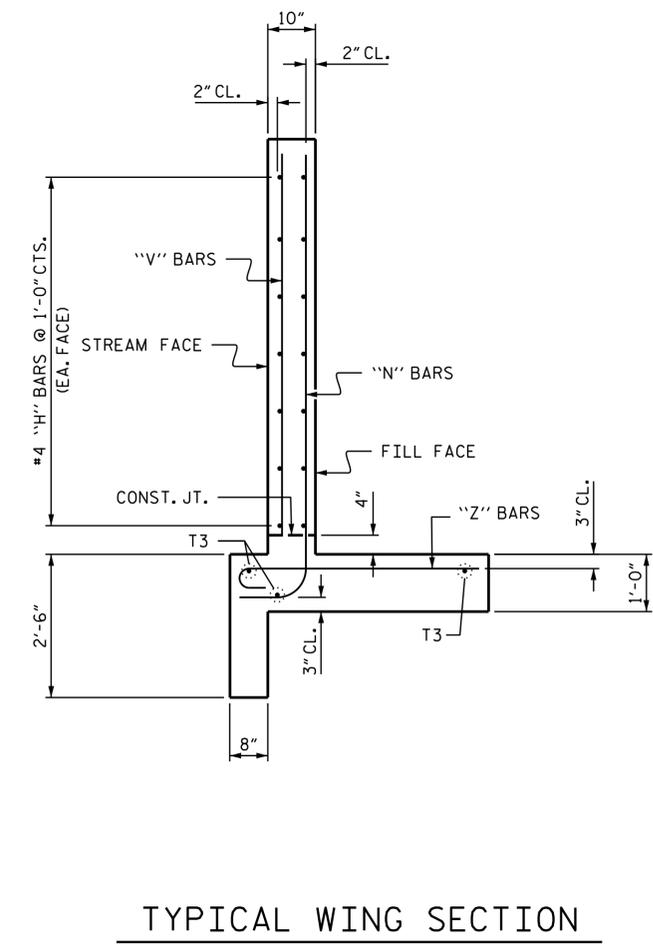
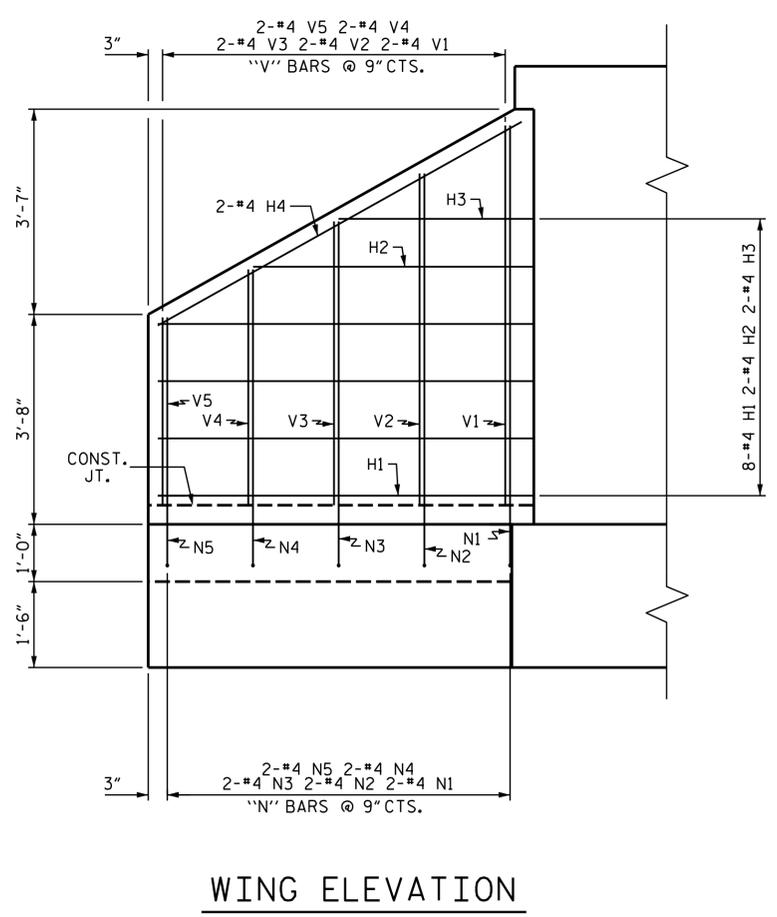
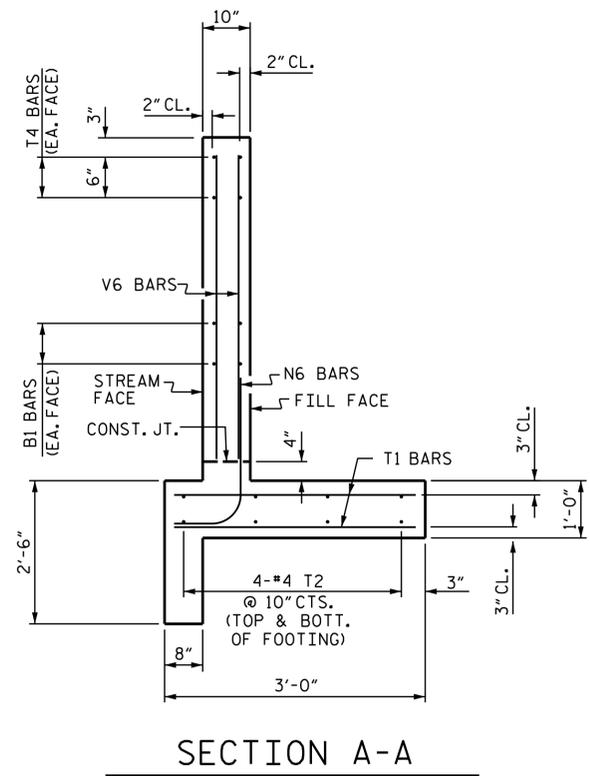
HOOK BOLT

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CHECKED BY :	MGC	DATE :	12/25
DESIGN ENGINEER OF RECORD:	ZCS	DATE :	12/25

1/19/2026
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH
REINFORCED CONCRETE ENDWALL
 DOUBLE 57" x 38"
 CORRUGATED STEEL PIPE ARCH



PROJECT REFERENCE NO.		SHEET NO.			
W03291		2D-6			
BILL OF MATERIAL FOR 1 ENDWALL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#4	STR	7'-3"	39
H1	16	#4	1	7'-4"	78
H2	4	#4	1	5'-6"	15
H3	4	#4	1	3'-10"	10
H4	4	#4	STR	7'-2"	19
N1	4	#4	2	8'-6"	23
N2	4	#4	2	7'-9"	21
N3	4	#4	2	6'-11"	18
N4	4	#4	2	6'-2"	16
N5	4	#4	2	5'-4"	14
N6	8	#4	2	3'-9"	20
T1	88	#4	STR	2'-8"	157
T2	8	#4	STR	21'-10"	117
T3	6	#4	STR	7'-0"	28
T4	4	#4	STR	15'-2"	41
V1	4	#4	STR	6'-5"	17
V2	4	#4	STR	5'-8"	15
V3	4	#4	STR	4'-10"	13
V4	4	#4	STR	4'-1"	11
V5	4	#4	STR	3'-3"	9
V6	16	#4	STR	7'-5"	79
Z1	2	#4	3	5'-6"	7
Z2	4	#4	3	5'-0"	13
Z3	4	#4	3	4'-6"	12
Z4	4	#4	3	3'-11"	10
Z5	4	#4	3	3'-5"	9
REINFORCING STEEL					811 LBS
CLASS A CONCRETE					
2 WINGS					2.3 CY
1 HEADWALL					2.4 CY
END CURTAIN WALL					1.0 CY
FOOTING					4.1 CY
TOTAL					9.8 CY

MARSHALL G. CHECK, JR.
 ENGINEER
 2/11/2026

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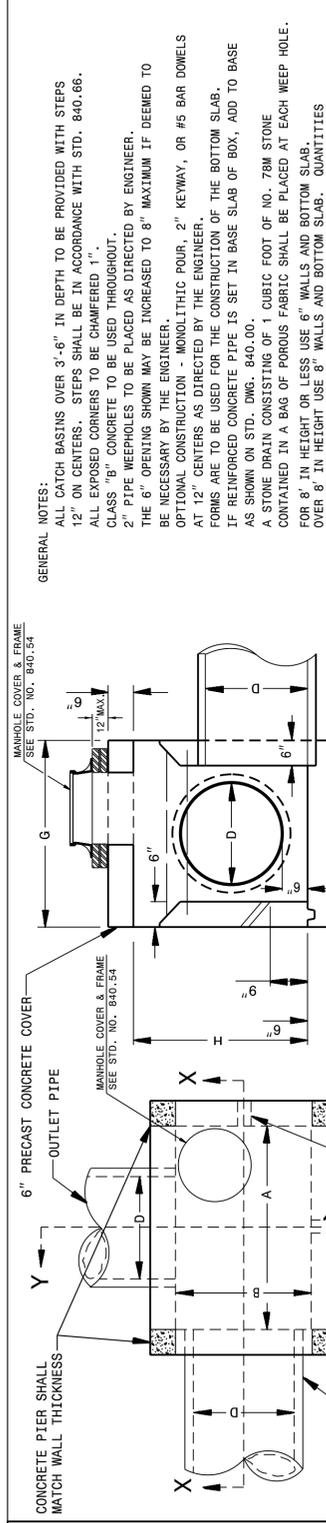
STATE OF NORTH CAROLINA
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 RALEIGH
**REINFORCED
 CONCRETE
 ENDWALL**
 112" X 75"
 CORRUGATED STEEL PIPE ARCH

DRAWN BY : ZCS DATE : 10/25
 CHECKED BY : MGC DATE : 1/26
 DESIGN ENGINEER OF RECORD: ZCS DATE : 1/26

24-APR-2019 07:24
 S:\Contracts\Special\Details\howerton\840d04 3 or 4 side OTCB.dgn
 howerton

5/14/19

STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

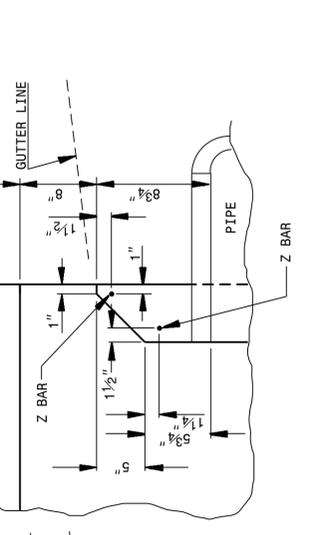


STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

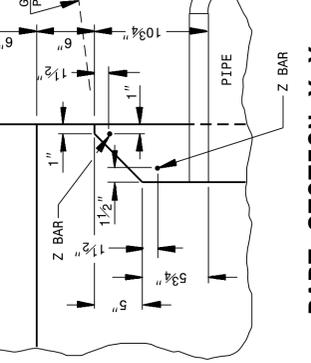
GENERAL NOTES:
 ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 12" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 840.66. ALL EXPOSED CORNERS TO BE CHAMFERED 1".
 CLASS "B" CONCRETE TO BE USED THROUGHOUT.
 2" PIPE WEEPHOLES TO BE PLACED AS DIRECTED BY ENGINEER.
 THE 6" OPENING SHOWN MAY BE INCREASED TO 8" MAXIMUM IF DEEMED TO BE NECESSARY BY THE ENGINEER.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #5 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB. IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. DWG. 840.00.
 A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 75M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE. FOR 8" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8" IN HEIGHT USE 6" WALLS AND BOTTOM SLAB. QUANTITIES TO BE ADJUSTED ACCORDINGLY.
 DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

ENGLISH DETAIL DRAWING FOR
**CONCRETE CATCH BASIN
 (3 OR 4 SIDE OPEN THROAT)
 (MANHOLE OPTIONAL)**

SHEET 1 OF 2
840D04



PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION IF INCREASED OPENING IS USED



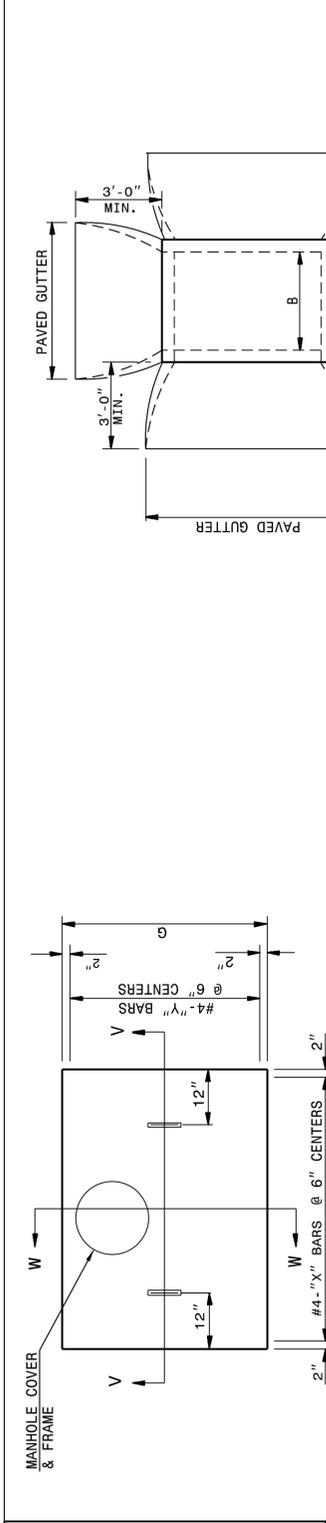
PART SECTION X-X
 SHOWING METHOD OF CONSTRUCTION FOR 6" OPENING

ENGLISH DETAIL DRAWING FOR
**CONCRETE CATCH BASIN
 (3 OR 4 SIDE OPEN THROAT)
 (MANHOLE OPTIONAL)**

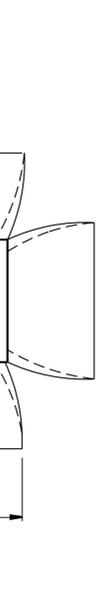
SHEET 2 OF 2
840D04

PIPE DIMS	DIM'S OF BOX & PIPE		REINFORCING		MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)		TOTAL QUANTITIES		DEDUCTION ONE PIPE	R. C.	YD'S					
	SPAN	WIDTH	NO.	LENGTH	NO.	LENGTH	BOX & SLABS	IN BOX								
D	A	B	H	NO. <td>LENGTH <td>NO. <td>LENGTH <td>F</td> <td>G</td> <td>TOP SLAB (WT. SQA) <td>WALLS, FT. <td>REIN. (WT. H) <td>C. S. <td>R. C. <td>YD'S </td></td></td></td></td></td></td></td></td>	LENGTH <td>NO. <td>LENGTH <td>F</td> <td>G</td> <td>TOP SLAB (WT. SQA) <td>WALLS, FT. <td>REIN. (WT. H) <td>C. S. <td>R. C. <td>YD'S </td></td></td></td></td></td></td></td>	NO. <td>LENGTH <td>F</td> <td>G</td> <td>TOP SLAB (WT. SQA) <td>WALLS, FT. <td>REIN. (WT. H) <td>C. S. <td>R. C. <td>YD'S </td></td></td></td></td></td></td>	LENGTH <td>F</td> <td>G</td> <td>TOP SLAB (WT. SQA) <td>WALLS, FT. <td>REIN. (WT. H) <td>C. S. <td>R. C. <td>YD'S </td></td></td></td></td></td>	F	G	TOP SLAB (WT. SQA) <td>WALLS, FT. <td>REIN. (WT. H) <td>C. S. <td>R. C. <td>YD'S </td></td></td></td></td>	WALLS, FT. <td>REIN. (WT. H) <td>C. S. <td>R. C. <td>YD'S </td></td></td></td>	REIN. (WT. H) <td>C. S. <td>R. C. <td>YD'S </td></td></td>	C. S. <td>R. C. <td>YD'S </td></td>	R. C. <td>YD'S </td>	YD'S	
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	2	4'-3"	0.181	0.271	0.250	27	1.046	0.032	0.046
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	2	4'-3"	0.181	0.271	0.250	27	1.108	0.023	0.046
18"	4'-0"	2'-8"	2'-4"	5	3'-5"	7	4'-9"	2	4'-9"	0.226	0.340	0.284	35	1.379	0.033	0.049
24"	4'-0"	2'-8"	2'-10"	5	3'-5"	7	4'-9"	2	4'-9"	0.226	0.340	0.284	35	1.521	0.059	0.085
30"	4'-0"	3'-6"	3'-4"	5	4'-3"	9	4'-9"	2	4'-9"	0.278	0.417	0.315	43	1.916	0.092	0.127
36"	4'-6"	4'-0"	3'-10"	5	4'-9"	10	5'-3"	2	5'-3"	0.340	0.510	0.352	51	2.390	0.132	0.178
42"	5'-0"	4'-6"	4'-4"	5	5'-3"	12	5'-9"	2	5'-9"	0.407	0.611	0.389	64	2.914	0.180	0.243
48"	5'-0"	5'-0"	4'-10"	5	5'-9"	13	5'-9"	2	5'-9"	0.444	0.666	0.407	68	3.298	0.235	0.317

STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
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 RALEIGH, N.C.



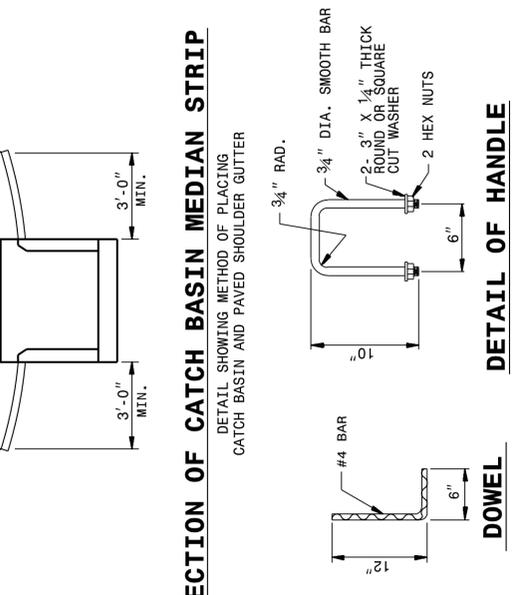
STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.



SECTION V-V



SECTION W-W



DETAIL OF HANDLE

ENGLISH DETAIL DRAWING FOR
**CONCRETE CATCH BASIN
 (3 OR 4 SIDE OPEN THROAT)
 (MANHOLE OPTIONAL)**

SHEET 2 OF 2
840D04

CONTRACT STANDARDS
 AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

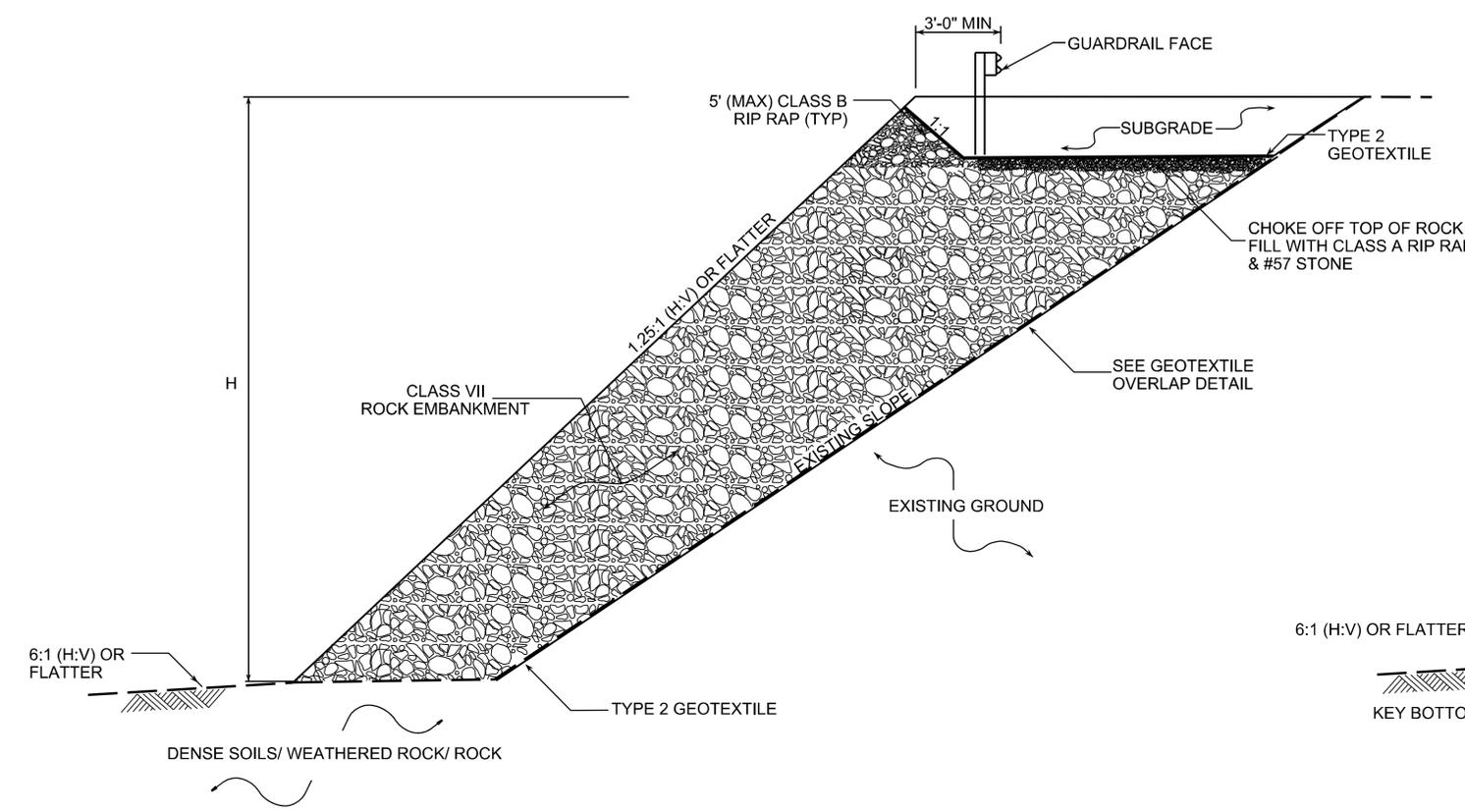
ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: rnbritt DATE: 07-03-2014
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: details/rnbritt/english/hydro/840d04.dgn



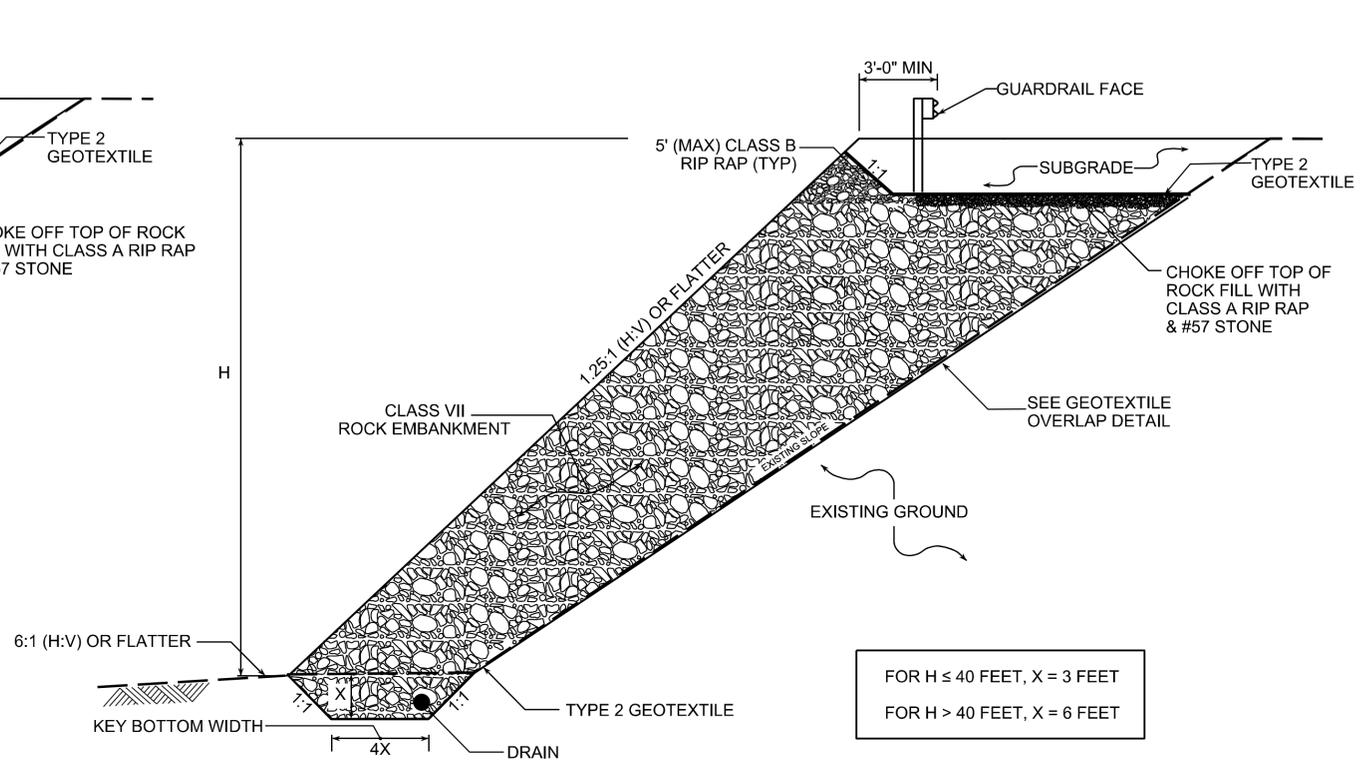
2/11/2026

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

GEOTECHNICAL ENGINEER  Signed by: <i>Kelly de Montellana</i> 1/5/2026 DATE	ENGINEER SIGNATURE DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



ROCK EMBANKMENT DETAIL



FOR H ≤ 40 FEET, X = 3 FEET
 FOR H > 40 FEET, X = 6 FEET

ROCK EMBANKMENT WITH TOE KEY DETAIL

- NOTES:**
1. THE MAXIMUM ALLOWABLE HEIGHT FOR THE ROCK EMBANKMENT DETAIL IS 80'.
 2. FOR ROCK EMBANKMENT, BENCH EXISTING SLOPE IN ACCORDANCE WITH SECTION 235 OF THE STANDARD SPECIFICATIONS, WHERE POSSIBLE.
 3. FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENTS SPECIAL PROVISION.

PROJECT NO.: W03291
POLK COUNTY
 STATION: -L1- STA. 20+50 TO 23+50, LT
 STATION: -L2- STA. 40+75 TO 42+25, RT
 STATION: -L4- STA. 19+75 TO 24+00, RT
 STATION: -L4- STA. 24+00 TO 34+75, RT

SHEET 1 OF 3

PREPARED BY: KND	DATE: 11/25
REVIEWED BY: DMB	DATE: 11/25

Prepared in the Office of:



**CAROLINAS
 GEOTECHNICAL
 GROUP**
 1805 SARDIS ROAD NORTH
 SUITE 100
 CHARLOTTE, NC 28270
 (980) 339-8684

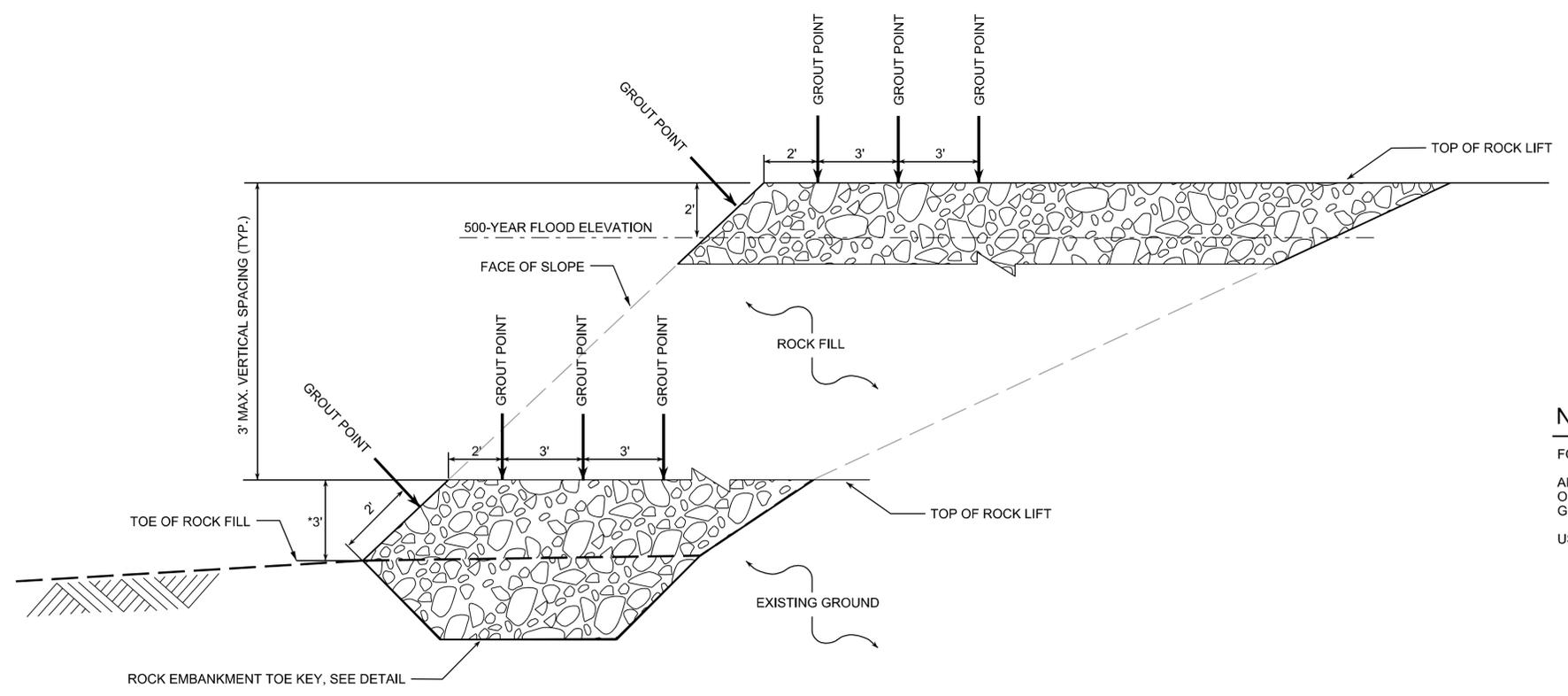


NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
**GEOTECHNICAL
 ENGINEERING UNIT**

ROCK EMBANKMENTS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 2G-1

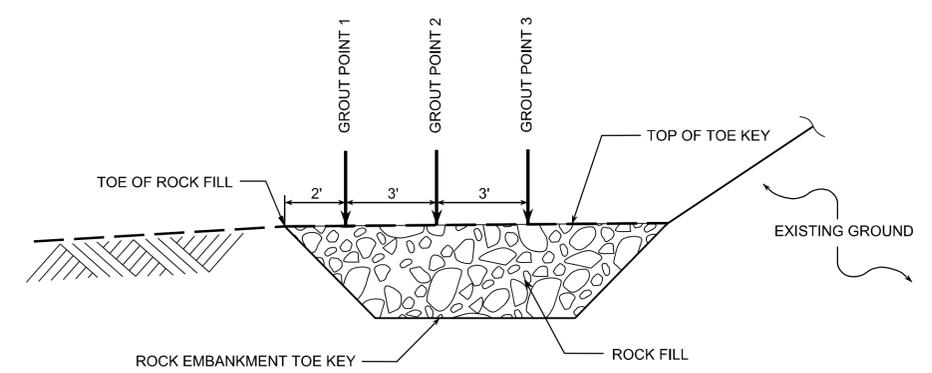
GEOTECHNICAL ENGINEER  Signed by: <i>Kelly De Mottman</i> 1/5/2026 SIGNATURE DATE	ENGINEER SIGNATURE DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



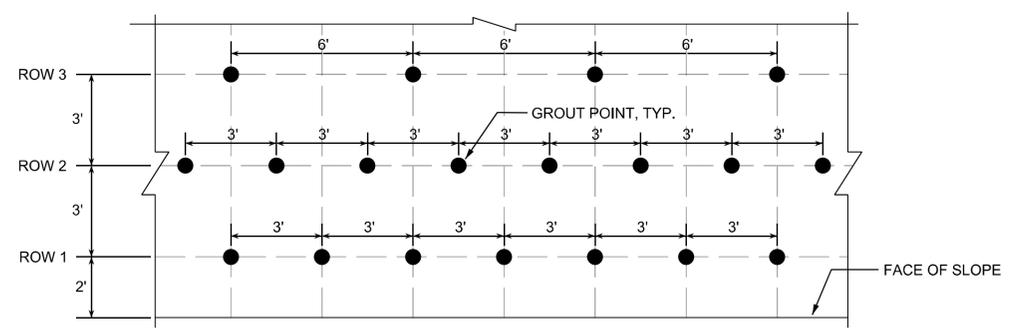
PARTIALLY GROUTED ROCK FILL - ROCK FILL SECTION
 * IF NO TOE KEY, START GROUTING AT THE TOP OF THE FIRST 3-FT LIFT

NOTES:

- FOR PARTIALLY GROUTED ROCK FILL, SEE THE PARTIALLY GROUTED ROCK FILL SPECIAL PROVISION.
- APPLY GROUT ON THE SLOPE FACE AND AT THE TOP OF EACH 3 FT LIFT OF ROCK FILL. APPLY 3 CUBIC FEET OF GROUT AT EACH GROUT POINT IN THE PATTERNS SHOWN ON SHEET 2 AND SHEET 3. THE HIGHEST GROUT POINT WILL BE THE TOP OF THE ROCK EMBANKMENT.
- USE PARTIALLY GROUTED ROCK FILL FROM TOE TO AT LEAST 2FT ABOVE THE 500-YR FLOOD ELEVATION.



PARTIALLY GROUTED ROCK FILL - TOE KEY DETAIL



PARTIALLY GROUTED ROCK FILL - PLAN VIEW GROUT POINTS
 VIEW FROM FRONT TOP

PARTIALLY GROUTED ROCK FILL DETAILS

PROJECT NO.: W03291
POLK COUNTY
 STATION: -L1- STA. 20+50 TO 23+50, LT
 STATION: -L2- STA. 40+75 TO 42+25, RT
 STATION: -L4- STA. 19+75 TO 24+00, RT
 STATION: -L4- STA. 24+00 TO 34+75, RT

SHEET 2 OF 3

PREPARED BY: KND	DATE: 11/25
REVIEWED BY: DMB	DATE: 11/25

Prepared in the Office of:



CARLINAS GEOTECHNICAL GROUP
 1805 SARDIS ROAD NORTH
 SUITE 100
 CHARLOTTE, NC 28270
 (980) 339-8684

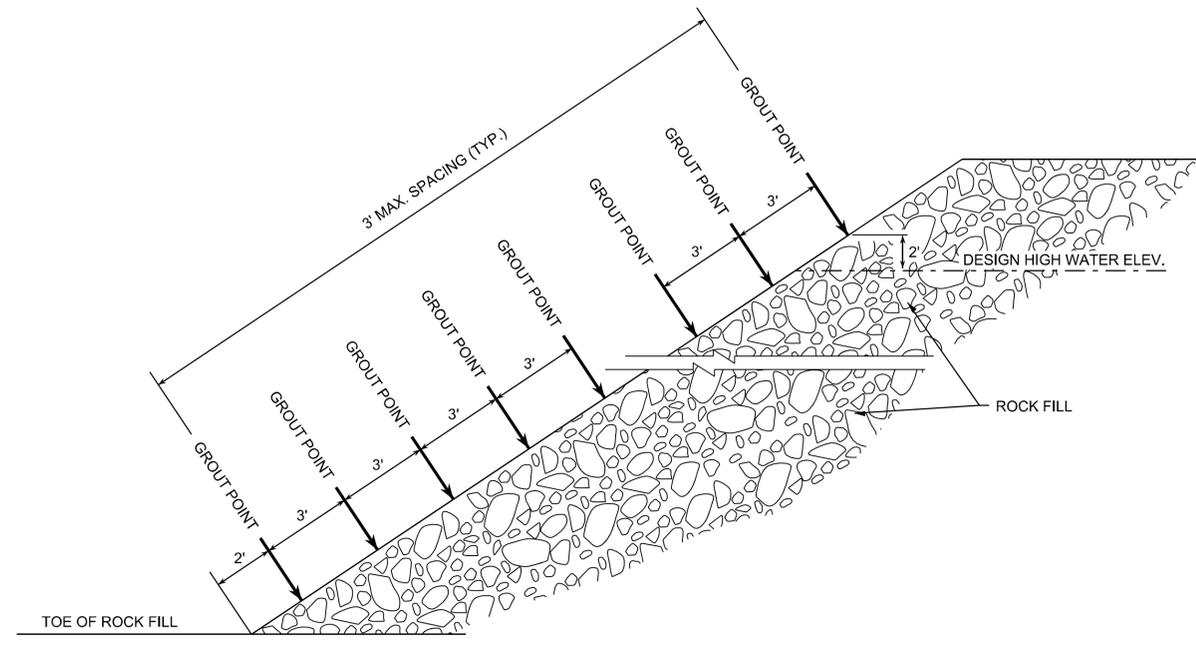


NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

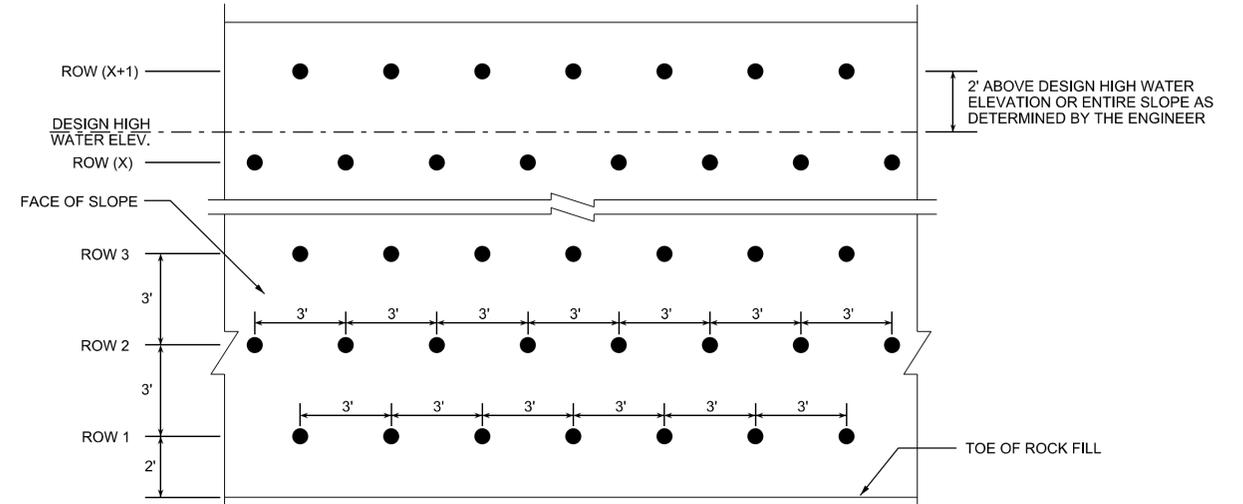
GEOTECHNICAL ENGINEERING UNIT

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			2G-2
2			4			

GEOTECHNICAL ENGINEER  Signed by: <i>Kelly de Montlun</i> 1/5/2026 SIGNATURE DATE	ENGINEER SIGNATURE DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PARTIALLY GROUTED ROCK FILL - SLOPE FACE DETAIL



PARTIALLY GROUTED ROCK FILL - SLOPE FACE GROUT POINTS
VIEW FROM FRONT SLOPE FACE

PARTIALLY GROUTED ROCK FILL DETAILS

ESTIMATED QUANTITIES - SITE 433	
ROCK EMBANKMENTS	13,175 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	5,350 SY
GROUT FOR ROCK FILL	725 CY

ESTIMATED QUANTITIES - SITE 437	
ROCK EMBANKMENTS	450 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	525 SY
GROUT FOR ROCK FILL	50 CY

ESTIMATED QUANTITIES - SITE 434	
ROCK EMBANKMENTS	6,125 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	3,075 SY
GROUT FOR ROCK FILL	300 CY

ESTIMATED QUANTITIES - SITE 441	
ROCK EMBANKMENTS	1,925 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	1,175 SY
GROUT FOR ROCK FILL	100 CY

PROJECT NO.: W03291
POLK COUNTY
 STATION: -L1- STA. 20+50 TO 23+50, LT
 STATION: -L2- STA. 40+75 TO 42+25, RT
 STATION: -L4- STA. 19+75 TO 24+00, RT
 STATION: -L4- STA. 24+00 TO 34+75, RT

SHEET 3 OF 3

PREPARED BY: KND	DATE: 11/25
REVIEWED BY: DMB	DATE: 11/25

Prepared in the Office of:
 **CARLINUS GEOTECHNICAL GROUP**
 1805 SARDIS ROAD NORTH
 SUITE 100
 CHARLOTTE, NC 28270
 (980) 339-8684


 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROCK EMBANKMENTS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 2G-3

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

	PROJECT TOTALS	EXCAVATION TOTAL UNCLASS.	BORROW	WASTE
	SITE			
AREA 1	SITE 441	1,769		1,394
	SITE 440	465		355
	AREA 1 TOTAL	2,234		1,749
AREA 2	SITE 439	455		312
	SITE 338		1,663	
	SITE 437	1,375		1,040
	AREA 2 SUBTOTAL	1,830	1,663	1,352
	Waste to replace Borrow		-1,352	-1,352
	AREA 2 TOTAL	1,830	311	0
AREA 3	SITE 435	801	1,728	
	AREA 3 TOTAL	801	1,728	
AREA 4	SITE 434	59		
	SITE 433	810		570
	SITE 415	221	983	
	AREA 4 SUBTOTAL	1,090	983	570
	Waste to replace Borrow		-570	-570
	AREA 4 TOTAL	1,090	413	0
AREA 5	SITE 416	983		928
	SITE 414	1,043		406
	AREA 5 TOTAL	2,026		1,334
GRAND TOTALS		7,981	2,452	3,083
SAY W03291 (Part II)		8,000	2,500	

SEE SHEET 3B-2 FOR EARTHWORK SUMMARY
 SEE SHEET 3B-2 FOR EARTHWORK SUMMARY

SEE SHEET 3B-2 FOR EARTHWORK SUMMARY
 SEE SHEET 3B-2 FOR EARTHWORK SUMMARY
 SEE SHEET 3B-2 FOR EARTHWORK SUMMARY

SEE SHEET 3B-2 FOR EARTHWORK SUMMARY

SEE SHEET 3B-3 FOR EARTHWORK SUMMARY
 SEE SHEET 3B-3 FOR EARTHWORK SUMMARY
 SEE SHEET 3B-3 FOR EARTHWORK SUMMARY

SEE SHEET 3B-3 FOR EARTHWORK SUMMARY
 SEE SHEET 3B-3 FOR EARTHWORK SUMMARY

DDE (CY)	2,422
SELECT GRANULAR MATERIAL (CY)	2,200
EST. SHALLOW UNDERCUT (CY)	550
ESTIMATED UNDERCUT TO BE USED AT THE DISCRETION OF THE RESIDENT ENGINEER PER GEOTECH RECOMMENDATION. (CY)	2,200

COMPUTED BY: SGM DATE: 10/22/25
 CHECKED BY: JLT DATE: 12/8/25

PROJECT NO. SHEET NO.
 W03291 3B-2

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY TGS ENGINEERS. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 441

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L1-10+40.00	-L1- 30+50.00	1819	375		1444
SUBTOTALS:		1819	375		1444
TOTALS:		1819	375		1444
LOSS DUE TO CLEARING & GRUBBING		-50			-50
PROJECT TOTALS:		1769	375		1394
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		1,769	375		1,394

EST. DDE = 345 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 338

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L2- 21+45.00	-L2-22+79.00	10	1509	1499	
SUBTOTAL 1:		10	1509	1499	
BRIDGE					
-L2- 24+49.00	-L2- 25+45.00	18	75	57	
SUBTOTAL 2:		18	75	57	
TOTALS:		28	1584	1556	
LOSS DUE TO CLEARING & GRUBBING		-28		28	
PROJECT TOTALS:		0	1584	1584	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:			1,584	1,663	

EST. DDE = 50 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 440

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L1- 30+50.00	-L1- 44+50.00	515	110		405
SUBTOTALS:		515	110		405
TOTALS:		515	110		405
LOSS DUE TO CLEARING & GRUBBING		-50			-50
PROJECT TOTALS:		465	110		355
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		465	110		355

EST. DDE = 135 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 437

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L2- 25+45.00	-L2-47+75.00	1425	335		1090
SUBTOTALS:		1425	335		1090
TOTALS:		1425	335		1090
LOSS DUE TO CLEARING & GRUBBING		-50			-50
PROJECT TOTALS:		1375	335		1040
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		1,375	335		1,040

EST. DDE = 165 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 439

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L2- 10+75.00	-L2- 21+45.00	505	143		362
SUBTOTALS:		505	143		362
TOTALS:		505	143		362
LOSS DUE TO CLEARING & GRUBBING		-50			-50
PROJECT TOTALS:		455	143		312
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		455	143		312

SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 435

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L3- 10+80.00	-L3- 25+00.00	851	2447	1596	
SUBTOTALS:		851	2447	1596	
TOTALS:		851	2447	1596	
LOSS DUE TO CLEARING & GRUBBING		-50		50	
PROJECT TOTALS:		801	2447	1646	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		801	2,447	1,728	

EST. DDE = 206 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

COMPUTED BY: SGM DATE: 10/22/25
 CHECKED BY: JLT DATE: 12/8/25

PROJECT NO. W03291 SHEET NO. 3B-3

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY TGS ENGINEERS. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 434

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L4-18+00.00	-L4- 24+00.00	109	106		3
SUBTOTALS:		109	106		3
TOTALS:		109	106		3
LOSS DUE TO CLEARING & GRUBBING		-50			-3
PROJECT TOTALS:		59	106		0
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		59	106		

EST. DDE = 45 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 416

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L5-10+50.00	-L5- 32+50.00	1033	55		978
SUBTOTALS:		1033	55		978
SUBTOTALS:					
TOTALS:		1033	55		978
LOSS DUE TO CLEARING & GRUBBING		-50			-50
PROJECT TOTALS:		983	55		928
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		983	55	0	928

EST. DDE = 931 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 433

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L4-24+00.00	-L4- 37+00.00	860	240		620
SUBTOTALS:		860	240		620
SUBTOTALS:					
TOTALS:		860	240		620
LOSS DUE TO CLEARING & GRUBBING		-50			-50
PROJECT TOTALS:		810	240		570
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		810	240		570

EST. DDE = 110 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 414

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L5-32+50.00	-L5- 51+50.00	1093	637		456
SUBTOTALS:		1093	637		456
SUBTOTALS:					
TOTALS:		1093	637		456
LOSS DUE TO CLEARING & GRUBBING		-50			-50
PROJECT TOTALS:		1043	637		406
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		1,043	637		406

EST. DDE = 395 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Site 415

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L4-51+00.00	-L4- 54+06.16	113	32		81
SUBTOTALS:		113	32		81
SUBTOTALS:					
TOTALS:		158	1125	967	
LOSS DUE TO CLEARING & GRUBBING		-50			50
WASTE IN LIEU OF BORROW				-81	-81
PROJECT TOTALS:		221	1157	936	0
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				47	
GRAND TOTALS:		221	1,157	983	

EST. DDE = 40 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 200 CUBIC YARDS
 EST. SHALLOW UNDERCUT = 50 CUBIC YARDS

PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

COMPUTED BY: SGM DATE: 10/22/25
 CHECKED BY: JLT DATE: 12/8/25

PROJECT NO.	SHEET NO.
W03291	3B-4

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PAVEMENT REMOVAL SUMMARY IN SQUARE YARDS

Site	SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL
441	-L1-	10+40	30+50	CL	4,245.02
440	-L1-	30+50	39+70	CL	1,954.19
439	-L2-	10+75	21+45	CL	2,384.72
338	-L2-	21+45	21+67	CL	63.02
437	-L2-	25+45	45+00	CL	4,439.81
435	-L3-	10+80	17+25	CL	1,630.59
	-L3-	17+25	25+00	CL	1,751.69
434	-L4-	18+00	24+00	CL	1,326.57
433	-L4-	24+00	37+50	CL	2,986.88
415	-L4-	51+00	54+10	CL	756.65
	-L4-	55+92	60+50	CL	384.22
416	-L5-	13+50	17+00	CL	760.88
	-L5-	18+50	22+00	CL	754.62
414	-L5-	32+50	34+50	CL	450.42
	-L5-	44+00	51+50	CL	1,641.65
TOTAL:					25,530.93
SAY:					25,570

SHOULDER BERM GUTTER SUMMARY IN FEET

Site	LINE	Station	Station	LENGTH
338	-L2-	22+21	22+75	54
TOTAL:				54
SAY:				60

CONCRETE EXPRESSWAY GUTTER IN FEET

Site	LINE	Station	Station	LENGTH
416	-L5-	20+00	21+50	150
TOTAL:				150
SAY:				155

COMPUTED BY: SGM DATE: 10/16/25
 CHECKED BY: JLT DATE: 12/8/25

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. W03291 SHEET NO. 3B-5

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR		EXTRA DEPTH POSTS	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS							
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	B-77	B-77 SC	GREU, TL-2	G	NG														
SITE 338																																	
-L2-	21+75.99	22+73.86	LT	97.875					2.95'	5.95'																							
-L2-	21+88.02	22+85.89	RT	97.875			22+85.89	22+73.86	2.86'	3.86'	25'	25'	0.5'	0.5'																			
-L2-	24+52.42	24+90	LT	25.00	29.125		24+52.42		3.84'	6.84'	25'		0.5'																				
-L2-	24+55.48	25+09	RT	25.00	29.125		22+55.48		2.20'	5.20'		25'		0.5'																			
SUB-TOTALS				245.750	58.250																												
LESS ANCHOR DEDUCTIONS																																	
	TYPE B-77	2 @ 22.875 ft		45.750																													
	TYPE B-77 SHOP CURVED	2 @ 22.875 ft		45.750																													
	GREU, TL-2	4 @ 25.00 ft		100.00																													
ANCHOR TOTALS				145.75	45.75																												
SITE 338 TOTALS				100.00	12.50																												
SAY				112.50	18.75		Additional Guardrail Posts = 2 EA																										
SITE 435																																	
-L3-	14+80.00	16+05.00	LT	125.000			15+60		5.52'	8.52'	25'	25'	0.5'	0.5'																			
-L3-	14+63.00	15+94.25	RT	131.250			15+11		5'	8'	25'	25'	0.5'	0.5'																			
SUB-TOTALS				256.250																													
LESS ANCHOR DEDUCTIONS																																	
	GREU, TL-2	4 @ 25.00 ft		100.00																													
ANCHOR TOTALS				100.00																													
SITE 435 TOTALS				156.25																													
SAY				168.75			Additional Guardrail Posts = 2 EA																										
SITE 434																																	
-L4-	18+56.25	24+00.00	RT	543.750					4'	7'	25'		0.5'														1st Section of Guardrail Sites 434/433 543.75/6.25=87, SAY 95 EA						
SUB-TOTALS				543.750																													
LESS ANCHOR DEDUCTIONS																																	
	GREU, TL-2	1 @ 25.00 ft		25.00																													
ANCHOR TOTALS				25.00																													
SITE 434 TOTALS				518.75																													
SAY				525.00			Additional Guardrail Posts = 3 EA																										
SITE 433																																	
-L4-	24+00.00	35+75.00	RT	1175.000					4'	7'	25'		0.5'														2nd Section of Guardrail Sites 434/433 1175/6.25=188, SAY 206 EA						
SUB-TOTALS				1175.000																													
LESS ANCHOR DEDUCTIONS																																	
	GREU, TL-2	1 @ 25.00 ft		25.00																													
ANCHOR TOTALS				25.00																													
SITE 433 TOTALS				1150.00																													
SAY				1162.50			Additional Guardrail Posts = 3 EA																										
SITE 415																																	
-L4-	52+83.38	54+00.00	RT	116.625			54+00.00		2.42'	5.42'	25'		0.5'																				
-L4-	53+20.13	54+18.00	LT	97.875			54+18.00		2.00'	5.00'		25'	0.5'	0.5'																			
-L4-	55+83.50	56+56.38	RT	72.875			55+83.50		1.80'	4.80'		25'	0.5'	0.5'																			
-L4-	56+00.00	57+72.88	LT	172.875			57+72.88		1.80'	4.80'	25'		0.5'																				
SUB-TOTALS				460.250																													
LESS ANCHOR DEDUCTIONS																																	
	TYPE B-77	4 @ 22.875 ft		91.500																													
	GREU, TL-2	4 @ 25.00 ft		100.00																													
ANCHOR TOTALS				191.50																													
SITE 415 TOTALS				268.75																													
SAY				281.25			Additional Guardrail Posts = 2 EA																										
W03291 (PART II) TOTALS				2250.00	18.75		Additional Guardrail Posts = 12 EA																										
																				6	2	14							301	485			

COMPUTED BY: KND DATE: 11/11/2025
 CHECKED BY: MJW DATE: 11/11/2025

(9-17-24)

PROJECT NO. W03291	SHEET NO. 3G-1
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STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	1100
TOTAL LF:					1100

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU1	12	550	1100	1650		
TOTAL CY/TONS/SY:					550	1100**	1650**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L2-	1.5:1	22+50	1.5:1	23+50	RT	2		200
TOTAL SY:								200

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Compost Blanket for Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
-L5-	1.5:1	29+25	1.5:1	30+75	RT				475	
-L5-	1.5:1	31+75	1.5:1	32+50	RT				425	
-L4-	1.5:1	25+25	1.5:1	26+25	LT				400	
TOTAL SY:						0	0	0	1300*	0**

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.
 **Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

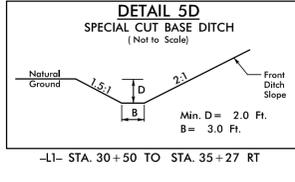
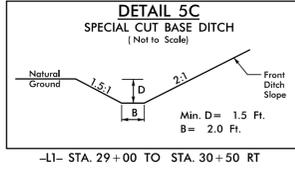
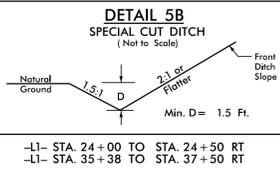
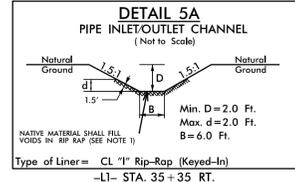
8/17/99

UNLESS OTHERWISE NOTED ALL DRIVEWAY RADII ARE 10 FEET.



PROJECT REFERENCE NO. W03291		SHEET NO. 05	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

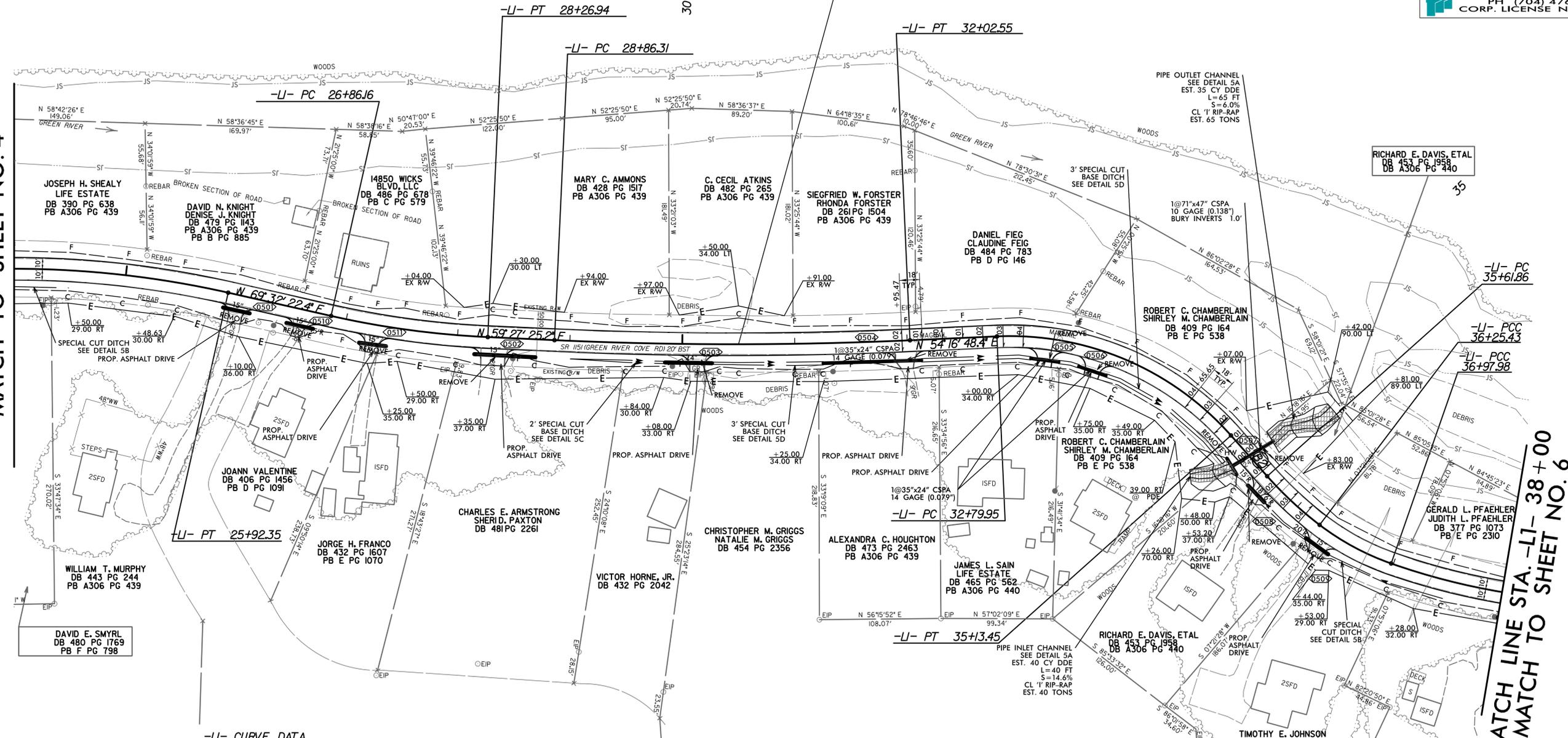
GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.

-LI- STA. 30+50.00
END CONSTRUCTION SITE 441
BEGIN CONSTRUCTION SITE 440

MATCH LINE STA. -LI- 24+00
MATCH TO SHEET NO. 4



-LI- CURVE DATA

PI Sta 24+90.63 Δ = 13° 31' 19" (RT) D = 6° 36' 58" (LT) L = 204.38' T = 102.67' R = 866.00' SE = NC DS = 40 MPH	PI Sta 27+56.73 Δ = 10° 04' 57.2" (LT) D = 7° 09' 43" (LT) L = 140.78' T = 70.57' R = 800.00' SE = NC DS = 40 MPH	PI Sta 30+44.54 Δ = 5° 10' 36.8" (LT) D = 1° 38' 13.3" (LT) L = 316.24' T = 158.23' R = 3,500.00' SE = NC DS = 45 MPH	PI Sta 34+05.03 Δ = 50° 52' 08.5" (RT) D = 21° 47' 07.7" (RT) L = 233.50' T = 125.08' R = 263.00' SE = 0.04 DS = 30 MPH
PI Sta 35+93.74 Δ = 11° 02' 12.6" (LT) D = 17° 21' 44.5" (LT) L = 63.57' T = 31.88' R = 330.00' SE = 0.04 DS = 30 MPH	PI Sta 36+62.00 Δ = 17° 59' 42.4" (LT) D = 24° 48' 12" (LT) L = 72.55' T = 36.58' R = 231.00' SE = 0.04 DS = 25 MPH	PI Sta 37+67.31 Δ = 13° 11' 02.9" (LT) D = 9° 32' 57.5" (LT) L = 138.06' T = 69.34' R = 600.00' SE = 0.04 DS = 40 MPH	⊙ = S 74° 51' 03.1" E

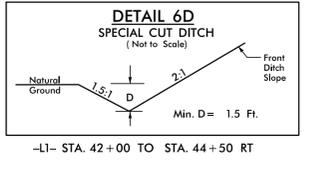
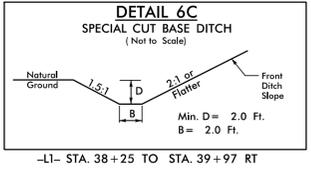
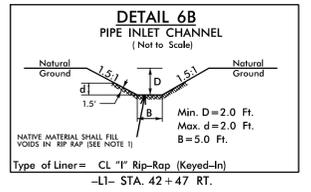
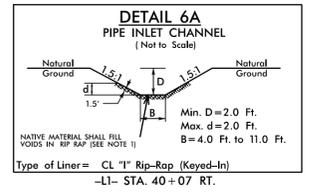
MATCH LINE STA. -LI- 38+00
MATCH TO SHEET NO. 6

FOR -LI- PROFILE, SEE SHEET NO. 20

REVISIONS

3/16/2026 Green River Cove Rd Rehab (Roadway)_Design\Plansheets\GreenRiverCove_Rd_li_psh05.dgn
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8/17/2026



UNLESS OTHERWISE NOTED ALL DRIVEWAY RADII ARE 10 FEET.

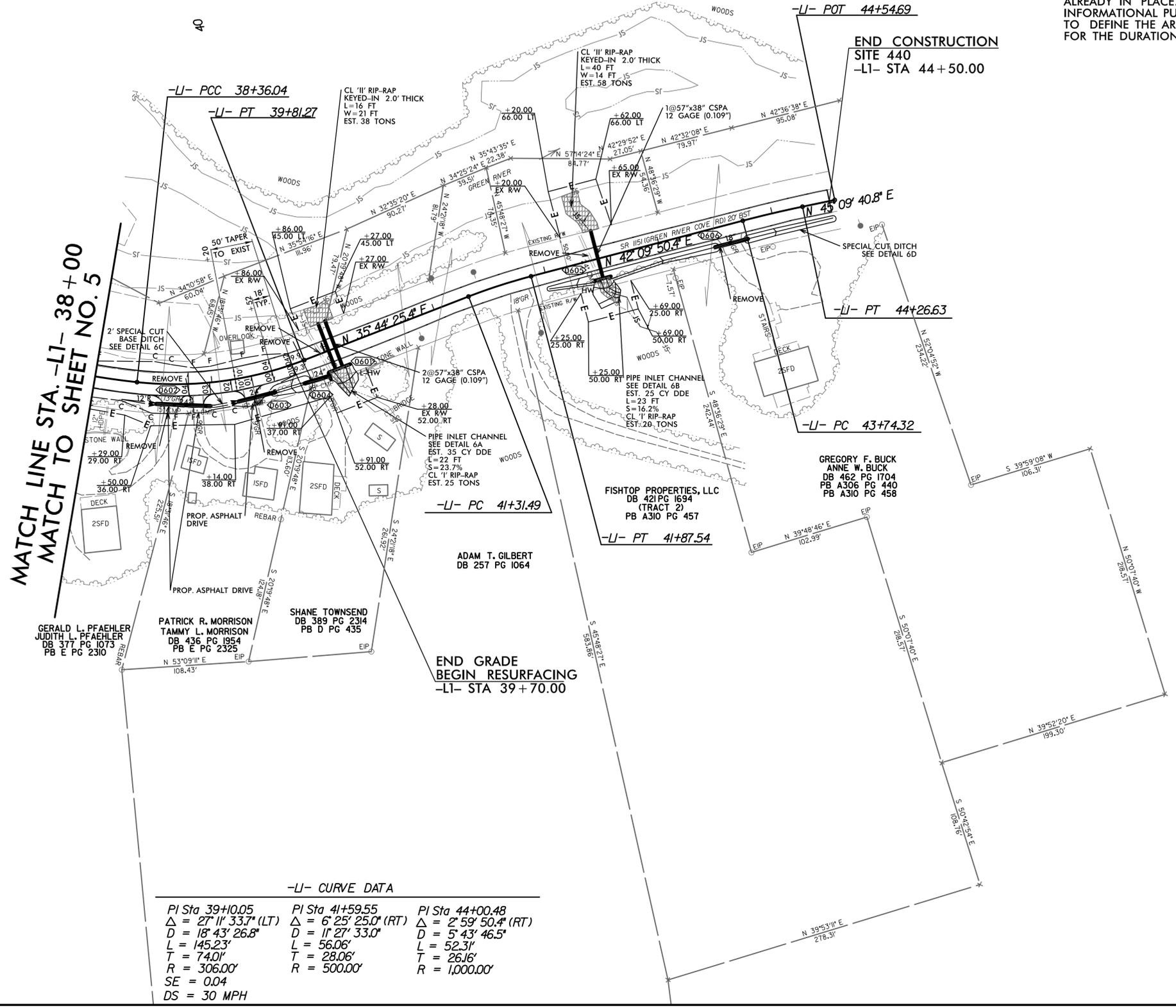


NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.

PROJECT REFERENCE NO. W03291	SHEET NO. 06
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.

MATCH LINE STA. -LI- 38+00
MATCH TO SHEET NO. 5



-LI- CURVE DATA

PI Sta 39+10.05 Δ = 27° 11' 33.7" (LT) D = 18' 43' 26.8" L = 145.23' T = 74.01' R = 306.00' SE = 0.04 DS = 30 MPH	PI Sta 41+59.55 Δ = 6° 25' 25.0" (RT) D = 11' 27' 33.0" L = 56.06' T = 28.06' R = 500.00'	PI Sta 44+00.48 Δ = 2° 59' 50.4" (RT) D = 5' 43' 46.5" L = 52.31' T = 26.16' R = 1,000.00'
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FOR -LI- PROFILE, SEE SHEET NO. 21

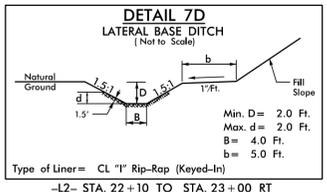
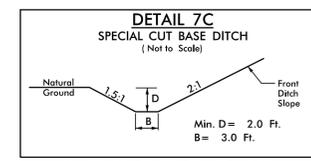
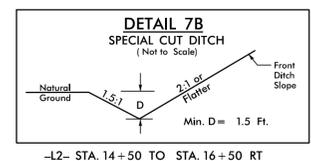
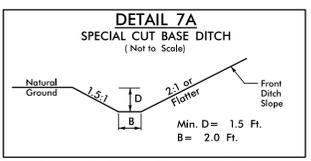
REVISIONS

3/16/2026 Green River Cove Rd Rehab (Roadway) Design\Plansheets\GreenRiverCove_Rd_rds\psd\06.dgn
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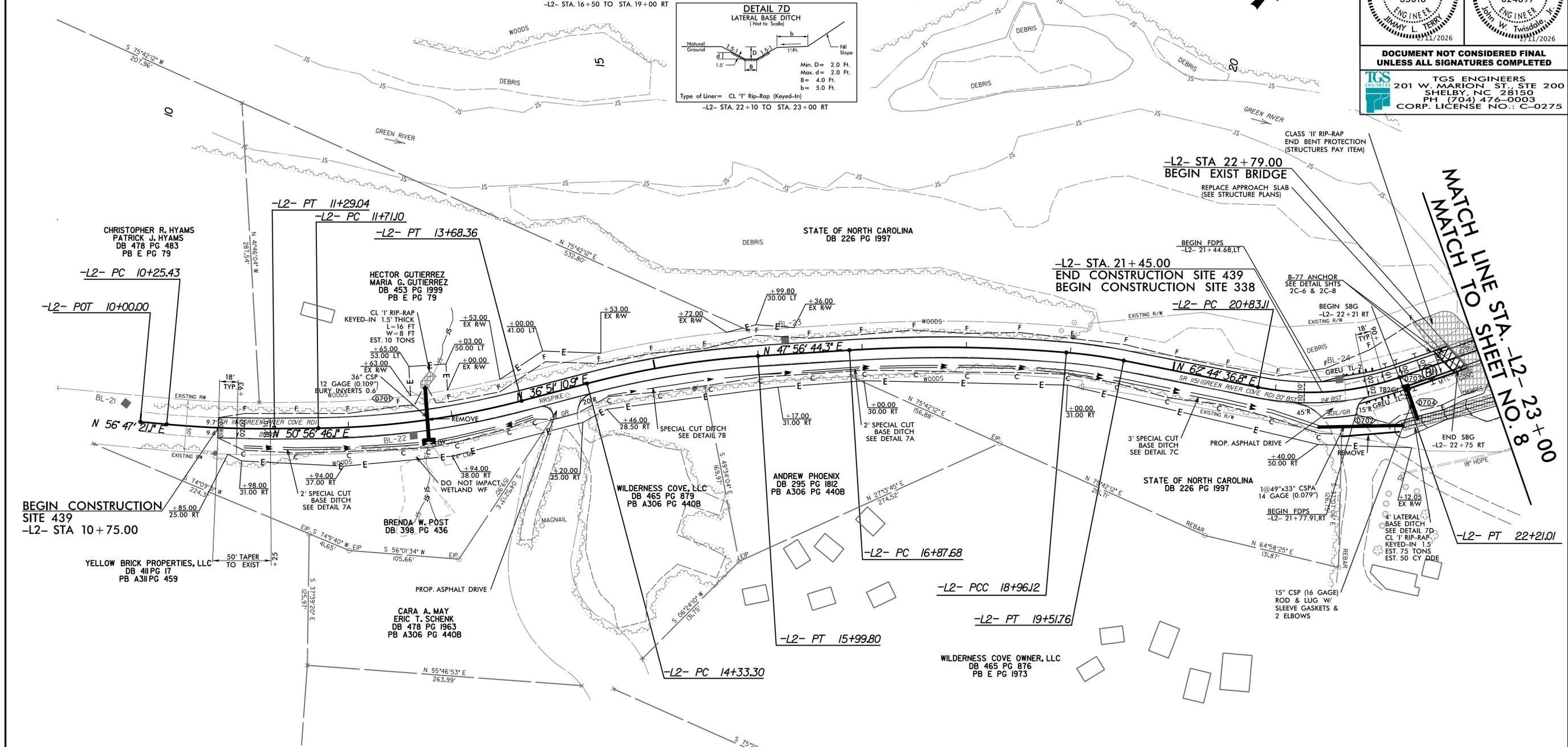
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PROJECT REFERENCE NO. W03291		SHEET NO. 07	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER JIMMY L. TERRY Professional Seal 35018 11/2026		HYDRAULICS ENGINEER W. TWISDALE Professional Seal 02489 11/2026	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

UNLESS OTHERWISE NOTED ALL DRIVEWAY RADII ARE 10 FEET.



GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



-L2- CURVE DATA

PI Sta 10+77.28 Δ = 5° 50' 35.0" (LT) D = 5° 38' 21.7" L = 103.61' T = 51.85' R = 1,016.00' SE = EXIST DS = 40 MPH	PI Sta 12+70.23 Δ = 14° 05' 35.1" (LT) D = 7° 08' 38.8" L = 197.27' T = 99.13' R = 802.00' SE = NC DS = 40 MPH	PI Sta 15+16.81 Δ = 11° 05' 33.4" (RT) D = 6° 39' 44.3" L = 166.50' T = 83.51' R = 860.00' SE = NC DS = 40 MPH
PI Sta 17+92.09 Δ = 8° 25' 20.3" (RT) D = 4° 02' 26.2" L = 208.44' T = 104.41' R = 1,418.00' SE = NC DS = 45 MPH	PI Sta 19+23.97 Δ = 6° 22' 32.2" (RT) D = 11° 27' 33.0" L = 55.64' T = 27.85' R = 500.00' SE = NC DS = 30 MPH	PI Sta 21+53.72 Δ = 30° 23' 23.4" (LT) D = 22° 02' 12.6" L = 137.90' T = 70.62' R = 260.00' SE = NC DS = 25 MPH

ⓑ N 32° 21' 13.4" E

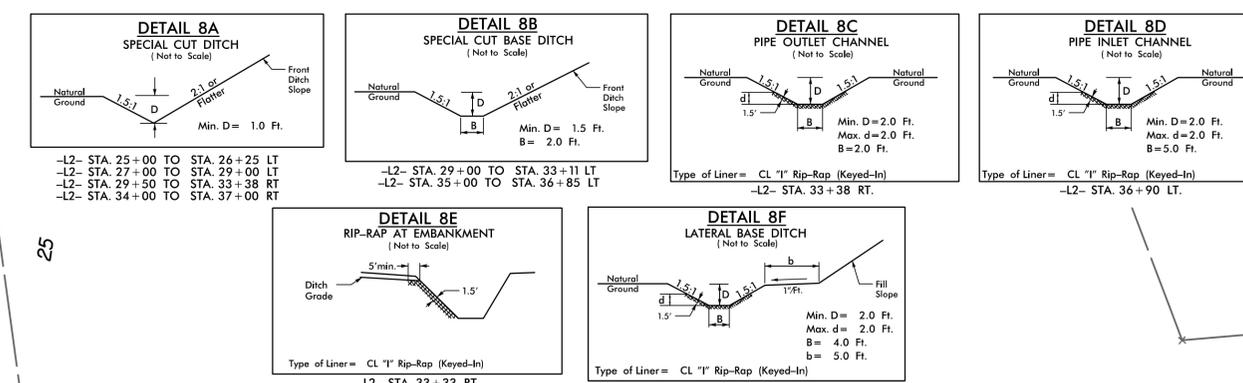
FOR STRUCTURE PLANS, SEE SHEET S1-1 THRU S1-10
FOR -L2- PROFILE, SEE SHEET NO. 22

REVISIONS

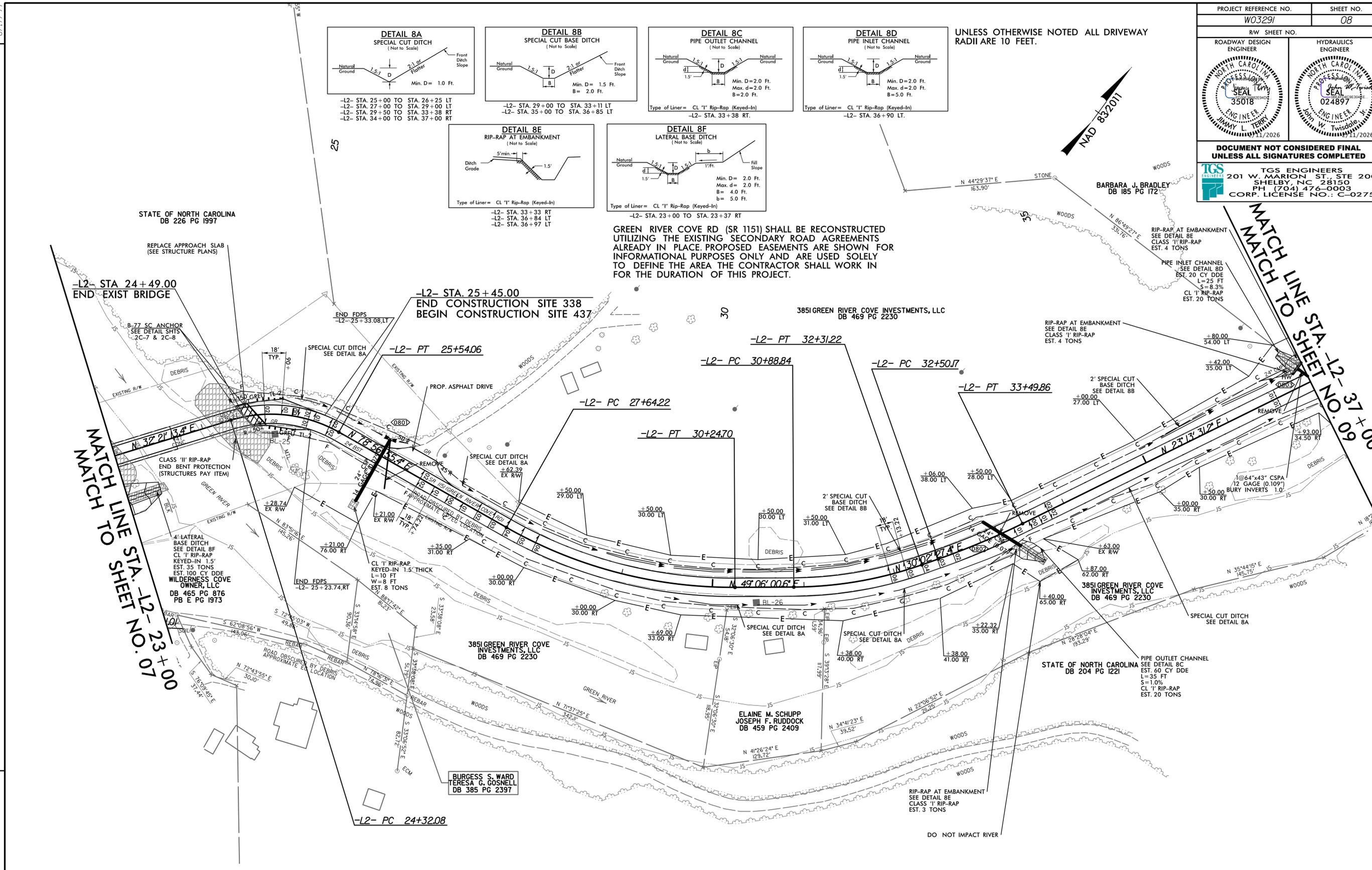
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12/15/2005
12/15/2005

PROJECT REFERENCE NO. W03291	SHEET NO. 08
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

UNLESS OTHERWISE NOTED ALL DRIVEWAY RADII ARE 10 FEET.



GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



MATCH LINE STA. 12-23+00
MATCH LINE STA. 12-37+00

MATCH LINE STA. 12-37+00
MATCH LINE TO SHEET NO. 07

-L2- CURVE DATA

PI Sta	Δ	D	L	T	R	SE	DS
24+96.67	46° 35' 42" (RT)	38' 11" 49.9"	121.99'	64.59'	150.00'	0.02	20 MPH
28+97.49	29° 50' 54.8" (LT)	11' 27' 33.0"	260.48'	133.27'	500.00'	0.06	40 MPH
31+60.69	19° 03' 33.2" (LT)	13' 23' 12.7"	142.37'	71.85'	428.00'	0.06	35 MPH
33+00.07	6° 48' 56.2" (LT)	6' 50' 13.9"	99.68'	49.90'	838.00'	0.02	45 MPH

FOR STRUCTURE PLANS, SEE SHEET S1-1 THRU S1-10
FOR -L2- PROFILE, SEE SHEET NO. 22

REVISIONS

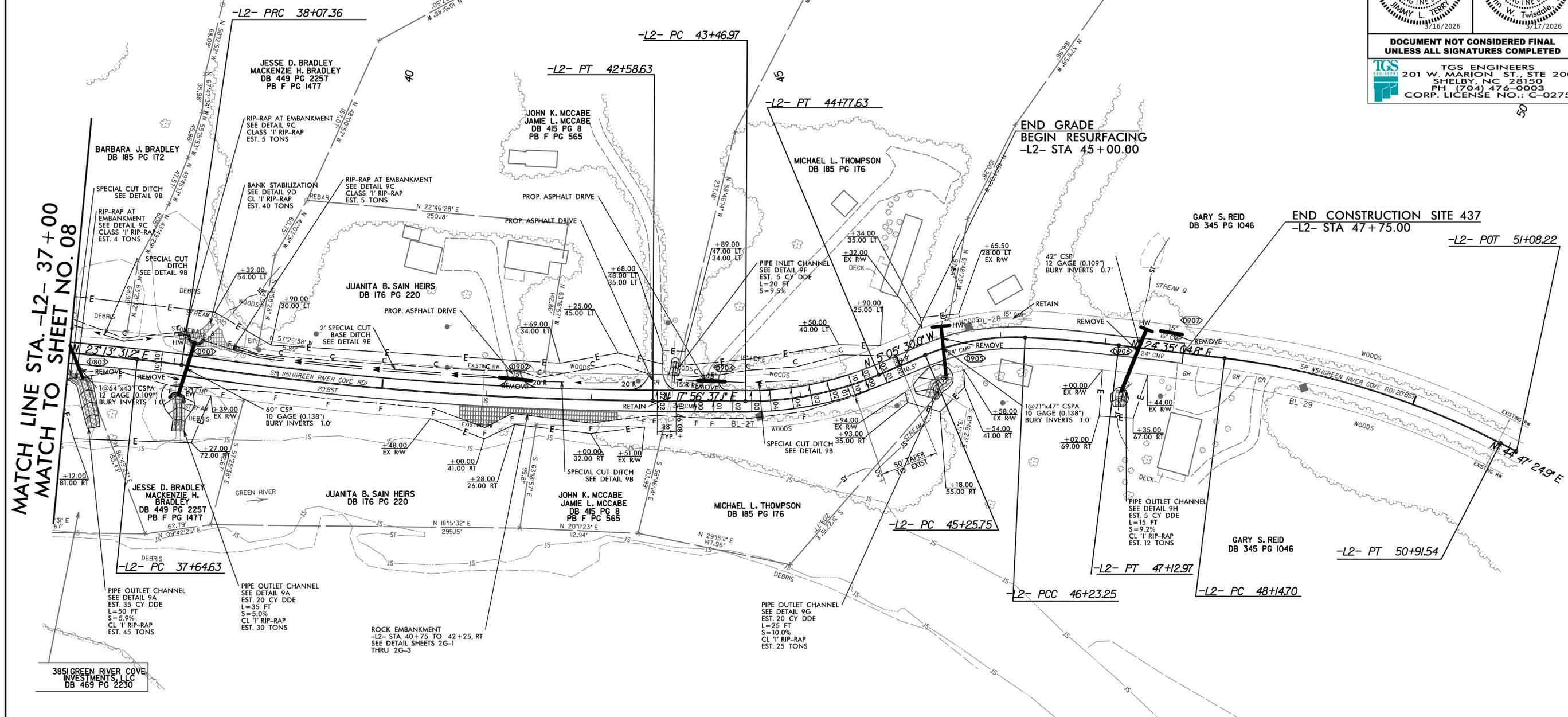
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12/15/2005
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UNLESS OTHERWISE NOTED ALL DRIVEWAY RADII ARE 10 FEET.

GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



PROJECT REFERENCE NO. W03291	SHEET NO. 09
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY 3/16/2026	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 024897 ENGINEER JOHN W. TWISDALE 3/17/2026
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

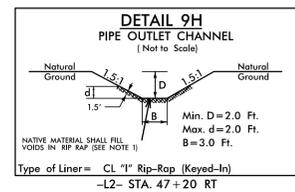
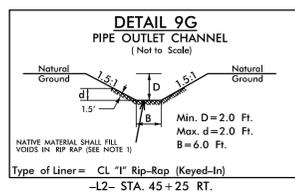
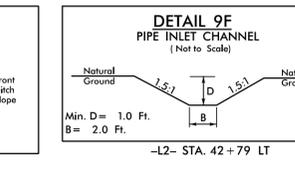
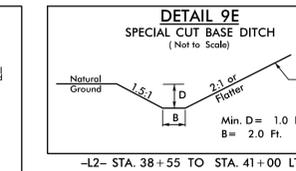
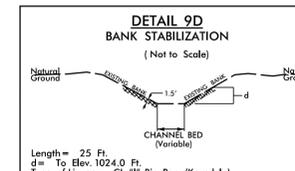
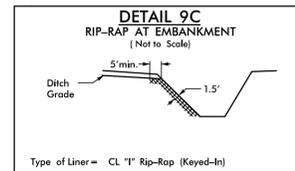
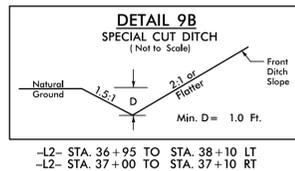
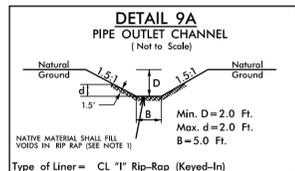


MATCH LINE STA. -L2- 37+00
MATCH TO SHEET NO. 08

REVISIONS
3/16/2026 Green River Cove Rd Rehab (Roadway) Design\Plansheets\GreenRiverCove_Rd_rsh09.dgn
L:\Users\ltd

-L2- CURVE DATA

PI Sta 37+86.00 Δ = 2° 47' 53.5" (RT) D = 6' 32' 53.1" L = 42.73' T = 21.37' R = 875.00' SE = NC DS = 40 MPH	PI Sta 40+33.37 Δ = 8° 04' 47.7" (LT) D = 1' 47' 25.8" L = 45.27' T = 226.01' R = 325.00' SE = NC DS = 45 MPH	PI Sta 44+13.19 Δ = 23° 02' 07.1" (LT) D = 17' 37' 46.1" L = 130.66' T = 66.23' R = 325.00' SE = 0.04 DS = 30 MPH
PI Sta 45+75.32 Δ = 25° 23' 33.4" (RT) D = 26' 02' 36.7" L = 97.50' T = 49.56' R = 220.00'	PI Sta 49+54.13 Δ = 4° 17' 01.3" (RT) D = 4' 46' 28.7" L = 89.72' T = 44.88' R = 1,200.00'	PI Sta 49+54.57 Δ = 20° 12' 20.1" (RT) D = 7' 17' 55.8" L = 276.83' T = 139.87' R = 785.00'



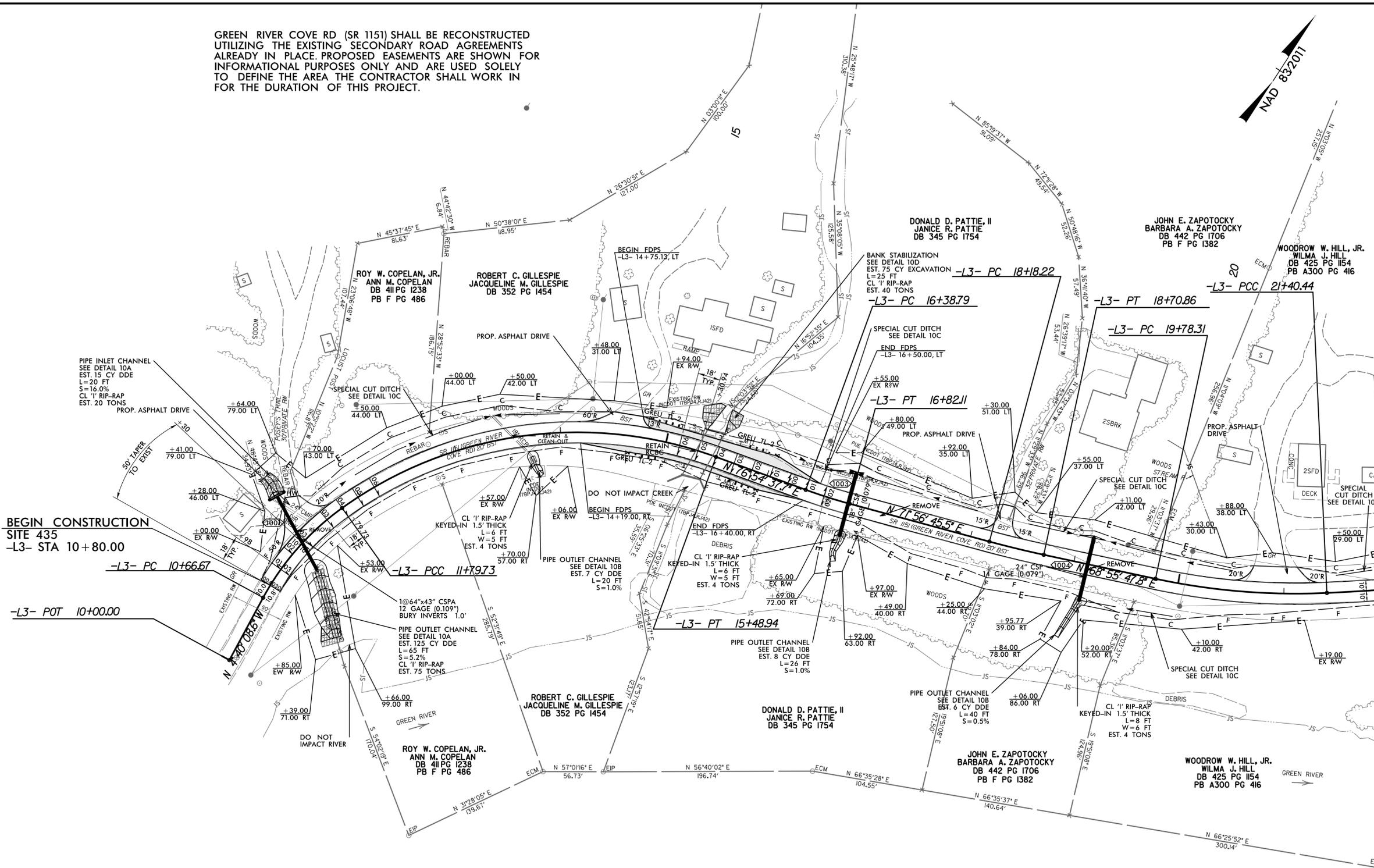
NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.

FOR -L2- PROFILE, SEE SHEETS NO. 22 & 23

8/17/99

GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.

PROJECT REFERENCE NO. W03291		SHEET NO. 10	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275			



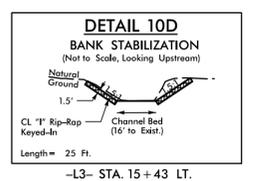
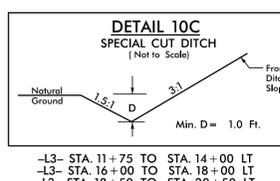
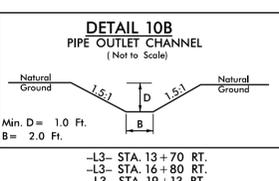
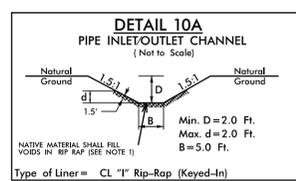
MATCH LINE STA. -L3- 22+00
MATCH TO SHEET NO. 11

BEGIN CONSTRUCTION
SITE 435
-L3- STA 10+80.00

-L3- POT 10+00.00

-L3- CURVE DATA

PI Sta 11+24.18 Δ = 25° 54' 37.4" (RT) D = 22' 55' 05.9" L = 113.06' T = 57.51' R = 250.00' SE = 0.03 DS = 25 MPH	PI Sta 13+80.37 Δ = 55° 04' 09.0" (RT) D = 15' 04' 40.2" L = 369.21' T = 200.64' R = 380.00' SE = 0.06 DS = 35 MPH	PI Sta 16+60.46 Δ = 4° 57' 52.2" (LT) D = 11' 27' 33.0" L = 43.32' T = 21.68' R = 500.00' SE = NC DS = 30 MPH
PI Sta 18+44.54 Δ = 3° 00' 57.7" (LT) D = 5' 43' 46.5" L = 52.64' T = 26.33' R = 1,000.00' SE = NC DS = 40 MPH	PI Sta 20+59.82 Δ = 14° 44' 41.4" (LT) D = 9' 05' 40.4" L = 162.13' T = 81.51' R = 630.00' SE = NC DS = 35 MPH	



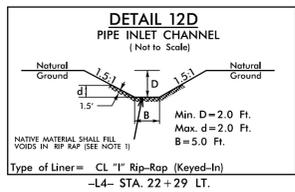
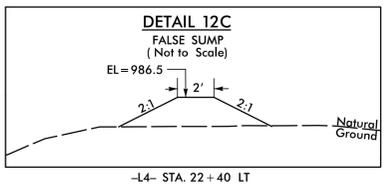
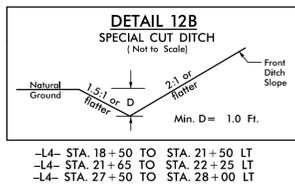
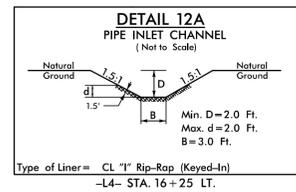
NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.

FOR -L3- PROFILE, SEE SHEET NO. 24

REVISIONS

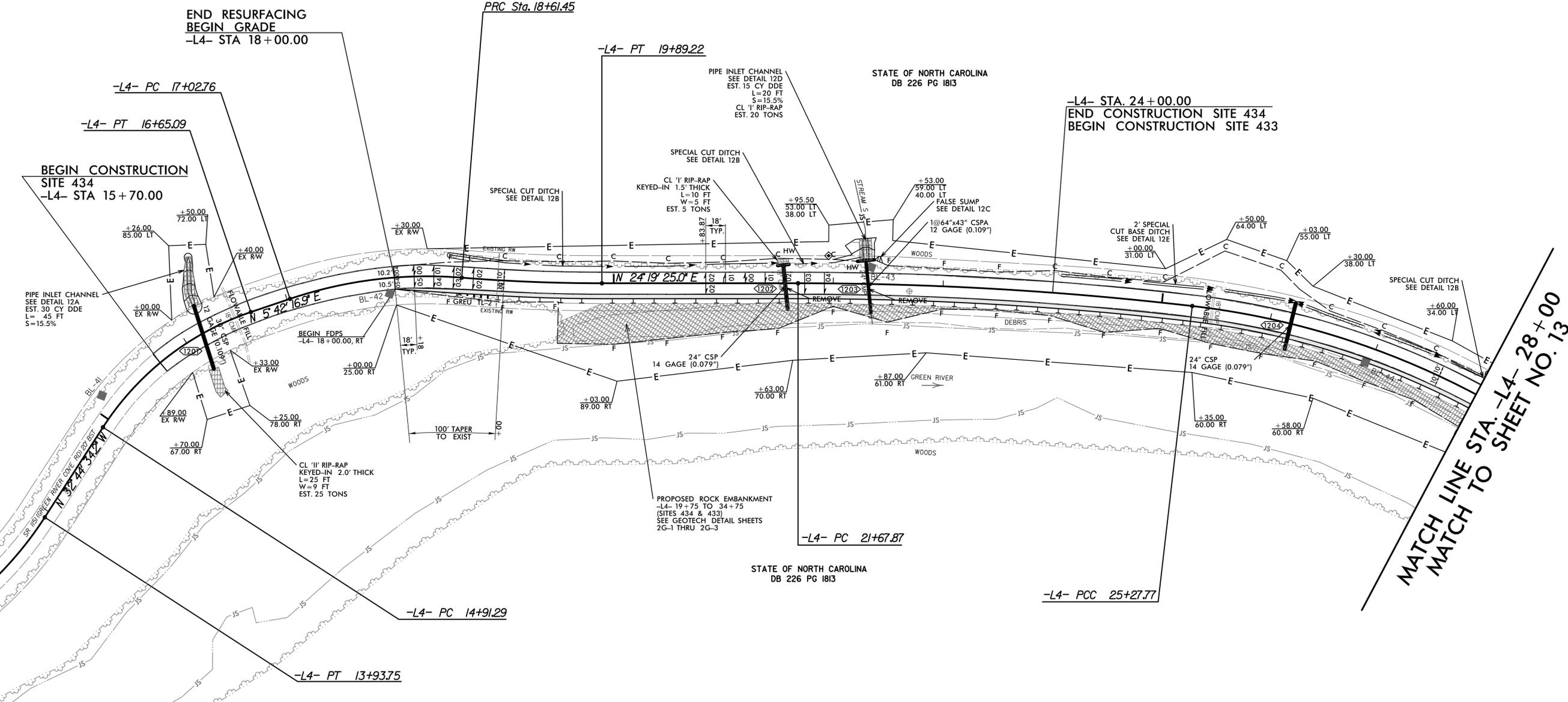
3/16/2026 Green River Cove Rd Rehab (Roadway) Design\Plansheets\GreenRiverCove_Rd_psh10.dgn
11/21/2025
11/21/2025

PROJECT REFERENCE NO. W03291	SHEET NO. 12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER JIMMY L. TERRY Professional Seal 35018 2/16/2026	HYDRAULICS ENGINEER JOHN W. TWISDALE, JR. Professional Seal 024897 2/16/2026
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.

GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



-L4- CURVE DATA

PI Sta 13+35.49 Δ = 20° 46' 27.5" (LT) D = 17' 37' 46.1" L = 117.84' T = 59.57' R = 325.00'	PI Sta 15+81.60 Δ = 38° 26' 51.1" (RT) D = 22' 07' 18.9" L = 173.80' T = 90.31' R = 259.00'	PI Sta 17+83.21 Δ = 23° 11' 39.7" (RT) D = 14' 36' 58.6" L = 158.69' T = 80.45' R = 392.00' SE = EXIST.
PI Sta 19+25.37 Δ = 4° 34' 31.5" (LT) D = 3' 34' 51.8" L = 127.77' T = 63.92' R = 1,600.00' SE = NC SE = 50 MPH	PI Sta 23+48.02 Δ = 6° 35' 16.7" (RT) D = 1' 49' 49.9" L = 359.89' T = 180.14' R = 3,130.00' SE = 0.04 SE = 60 MPH	PI Sta 27+78.12 Δ = 37° 51' 30.7" (RT) D = 7' 50' 55.5" L = 482.35' T = 250.35' R = 730.00' SE = 0.04 SE = 45 MPH

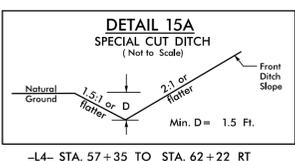
MATCH LINE STA. -L4- 28+00
MATCH TO SHEET NO. 13

FOR -L4- PROFILE, SEE SHEET NO. 25

REVISIONS

3/16/2026 Green River Cove Rd Rehab (Roadway) Design\Plansheets\GreenRiverCove_Rdu_psh12.dgn
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1/16/2026

8/17/99

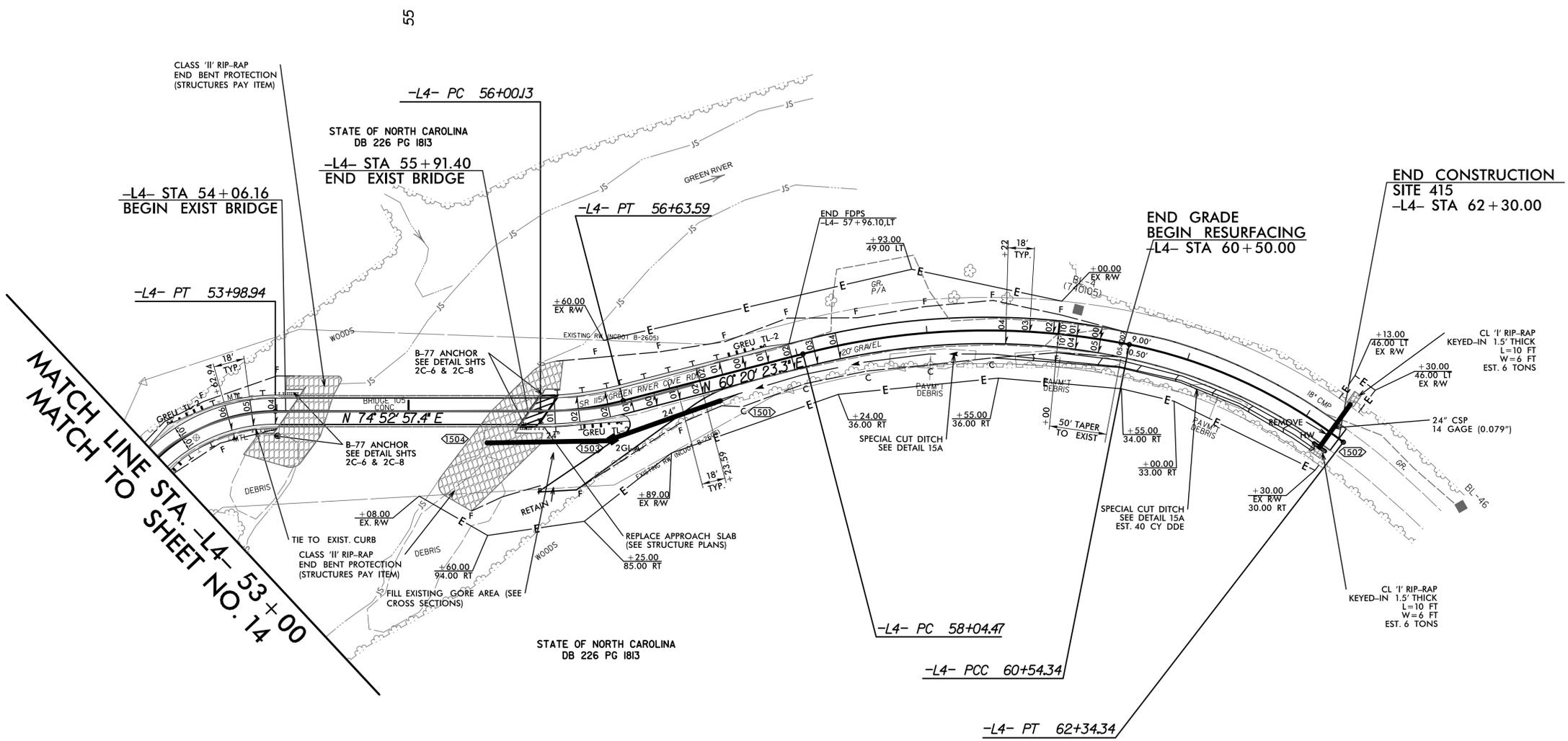


GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.

PROJECT REFERENCE NO. W03291		SHEET NO. 15	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275			



60



MATCH LINE STA. -L4- 53+00
MATCH TO SHEET NO. 14

-L4- CURVE DATA

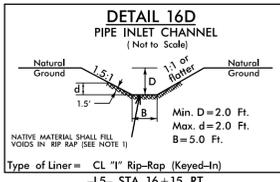
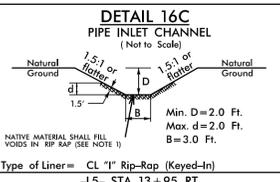
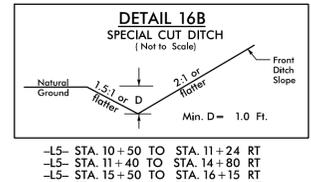
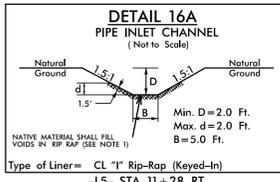
PI Sta 53+34.93	PI Sta 56+32.03	PI Sta 59+31.56	PI Sta 61+45.97
$\Delta = 64^{\circ} 02' 57.4''$ (RT)	$\Delta = 14^{\circ} 32' 34.0''$ (LT)	$\Delta = 25^{\circ} 47' 43.2''$ (RT)	$\Delta = 26^{\circ} 26' 39.1''$ (RT)
$D = 44^{\circ} 04' 25.2''$	$D = 22^{\circ} 55' 05.9''$	$D = 10^{\circ} 19' 24.8''$	$D = 14^{\circ} 41' 28.4''$
$L = 145.32'$	$L = 63.45'$	$L = 249.87'$	$L = 180.00'$
$T = 81.31'$	$T = 31.90'$	$T = 127.09'$	$T = 91.63'$
$R = 130.00'$	$R = 250.00'$	$R = 555.00'$	$R = 390.00'$
$SE = 0.06$	$SE = 0.02$	$SE = NC$	
$DS = 20$ MPH	$DS = 25$ MPH	$DS = 35$ MPH	

FOR STRUCTURE PLANS, SEE SHEET S2-1 THRU S2-7
FOR -L4- PROFILE, SEE SHEET NO. 26

REVISIONS

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8/17/99

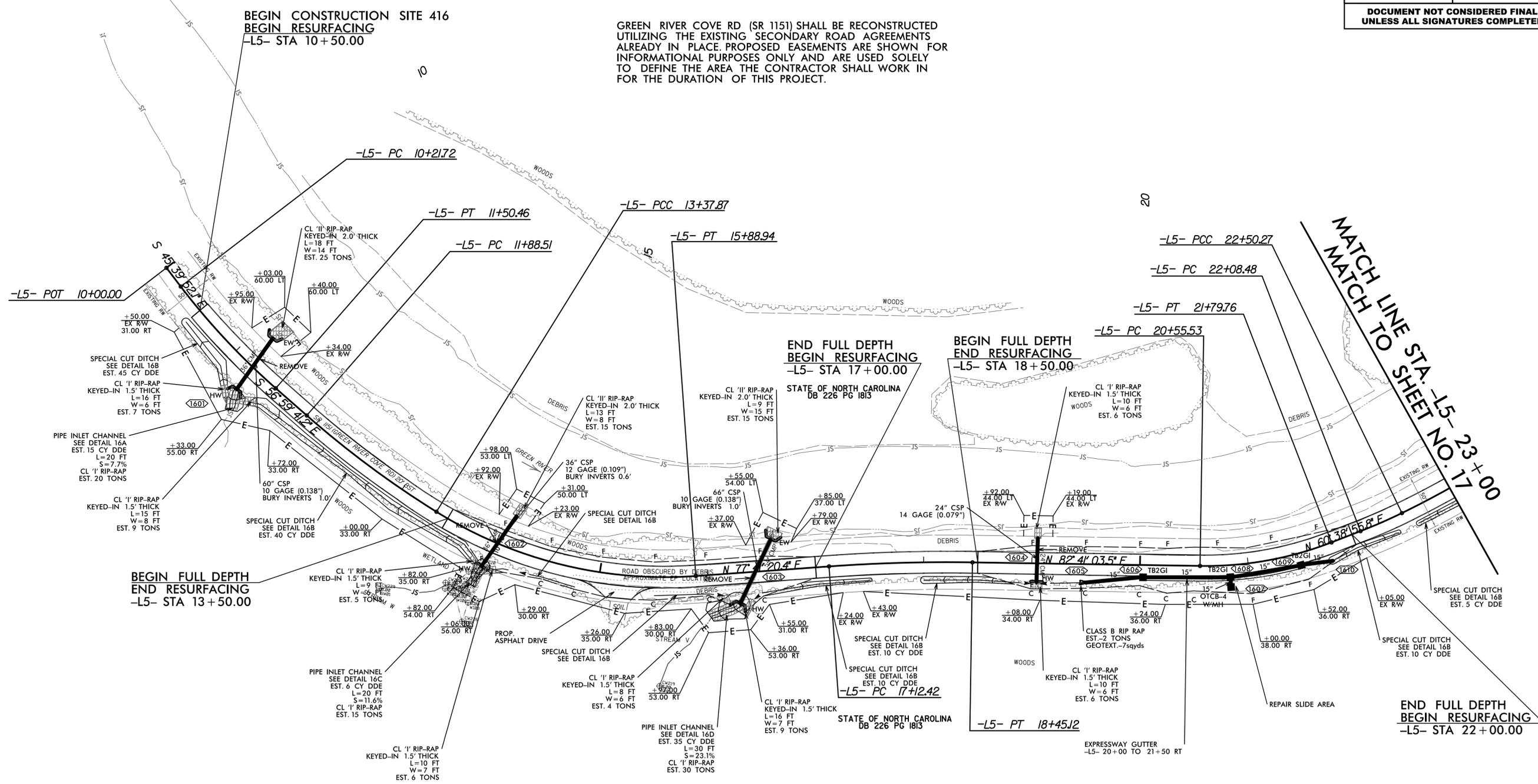


NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.



PROJECT REFERENCE NO. W03291	SHEET NO. 16
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



-L5- CURVE DATA

PI Sta 10+86.30 Δ = 11° 19' 49.0" (LT) D = 8' 48" 04.3" L = 128.74' T = 64.58' R = 651.00'	PI Sta 12+63.36 Δ = 9° 21' 10.0" (LT) D = 6' 15" 42.6" L = 149.36' T = 74.85' R = 915.00'	PI Sta 14+67.70 Δ = 35° 57' 48.4" (LT) D = 14' 19" 26.2" L = 251.07' T = 129.83' R = 400.00'	PI Sta 17+78.81 Δ = 4° 59' 43.0" (RT) D = 3' 45" 52.2" L = 132.69' T = 66.39' R = 1,522.00'
PI Sta 21+18.42 Δ = 22° 02' 07.7" (LT) D = 17' 44" 19.1" L = 124.22' T = 62.89' R = 323.00'	PI Sta 22+29.39 Δ = 4° 47' 21.2" (LT) D = 11' 27" 33.0" L = 41.79' T = 20.91' R = 500.00'	PI Sta 23+44.40 Δ = 12° 25' 17.8" (LT) D = 6' 37" 25.6" L = 187.53' T = 94.13' R = 865.00'	

FOR -L5- PROFILE, SEE SHEET NO. 27

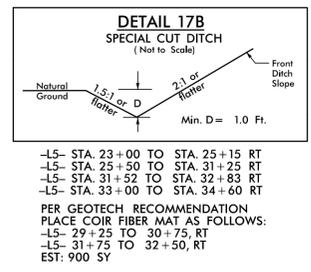
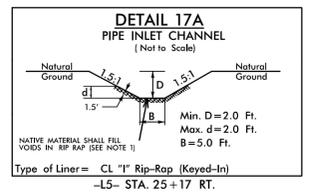
REVISIONS

3/16/2026 Green River Cove Rd Rehab Roadway Design Plansheets \GreenRiverCove.Rdy.psh16.dgn
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 8/17/99

8/17/99

REVISIONS

3/16/2026
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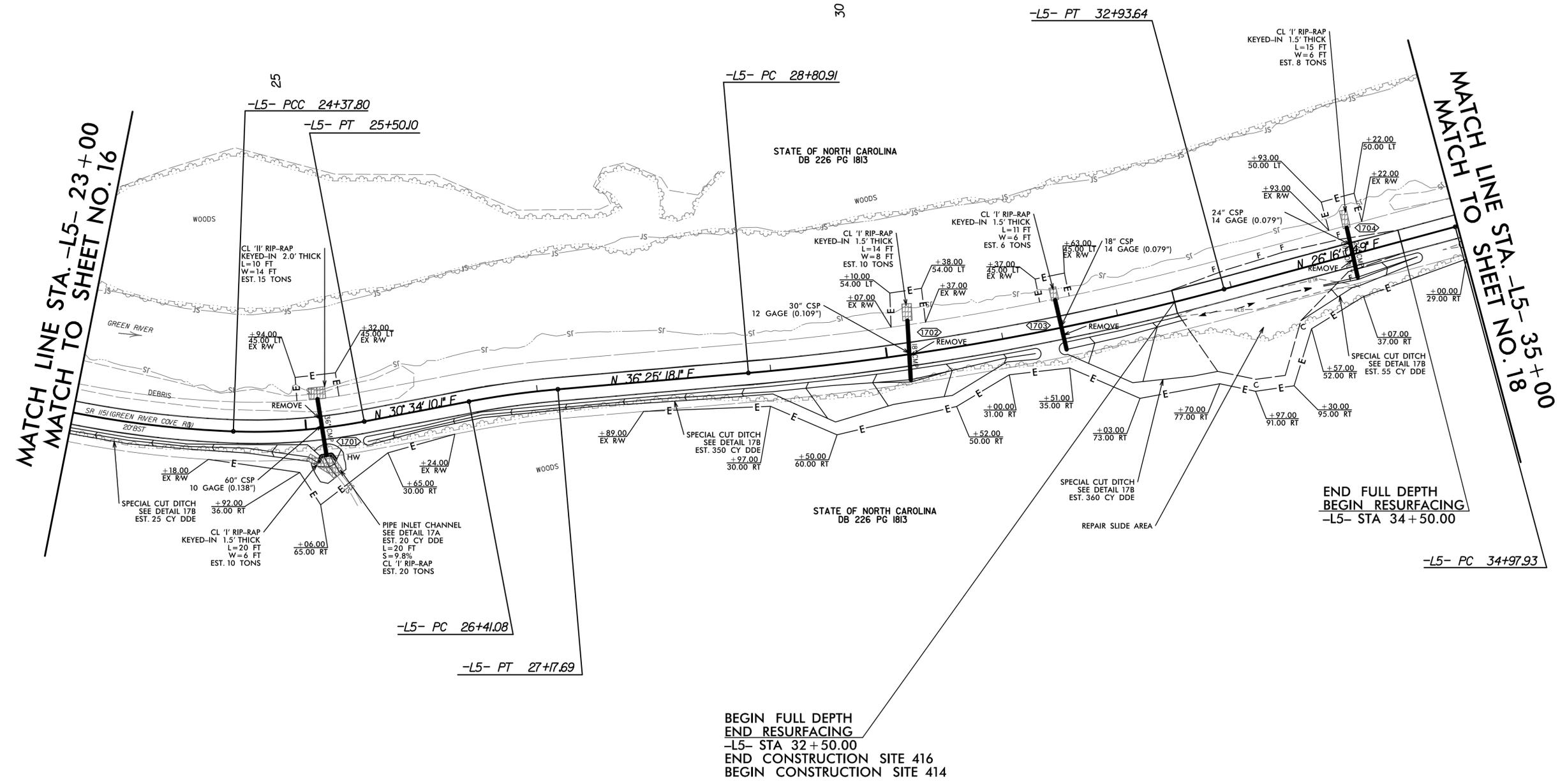


GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.

NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.



PROJECT REFERENCE NO. W03291	SHEET NO. 17
ROADWAY DESIGN ENGINEER JAMES L. TERRY 35018 16/2026	HYDRAULICS ENGINEER JOHN W. TWISDLE 024897 17/2026
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L5- CURVE DATA

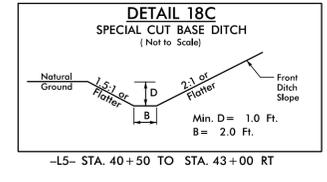
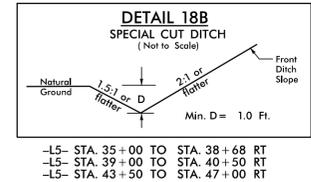
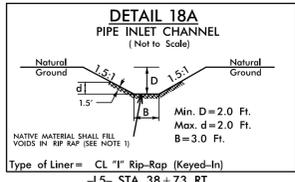
PI Sta 23+44.40 Δ = 12° 25' 17.8" (LT) D = 6' 37' 25.6" L = 187.53' T = 94.13' R = 865.00'	PI Sta 24+94.19 Δ = 12° 52' 06.7" (LT) D = 11' 27' 33.0" L = 112.30' T = 56.39' R = 500.00'	PI Sta 26+79.42 Δ = 5° 51' 08.0" (RT) D = 7' 38' 22.0" L = 76.61' T = 38.34' R = 750.00'	PI Sta 30+87.82 Δ = 10° 09' 13.2" (LT) D = 2' 27' 36.4" L = 412.73' T = 206.91' R = 2,329.00'
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FOR -L5- PROFILE, SEE SHEET NO. 27

8/17/99

PROJECT REFERENCE NO. W03291	SHEET NO. 18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER JIMMY L. TERRY 35018 ENGINEER 11/16/2026	HYDRAULICS ENGINEER JOHN W. TWISDALE 024897 ENGINEER 11/16/2026
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

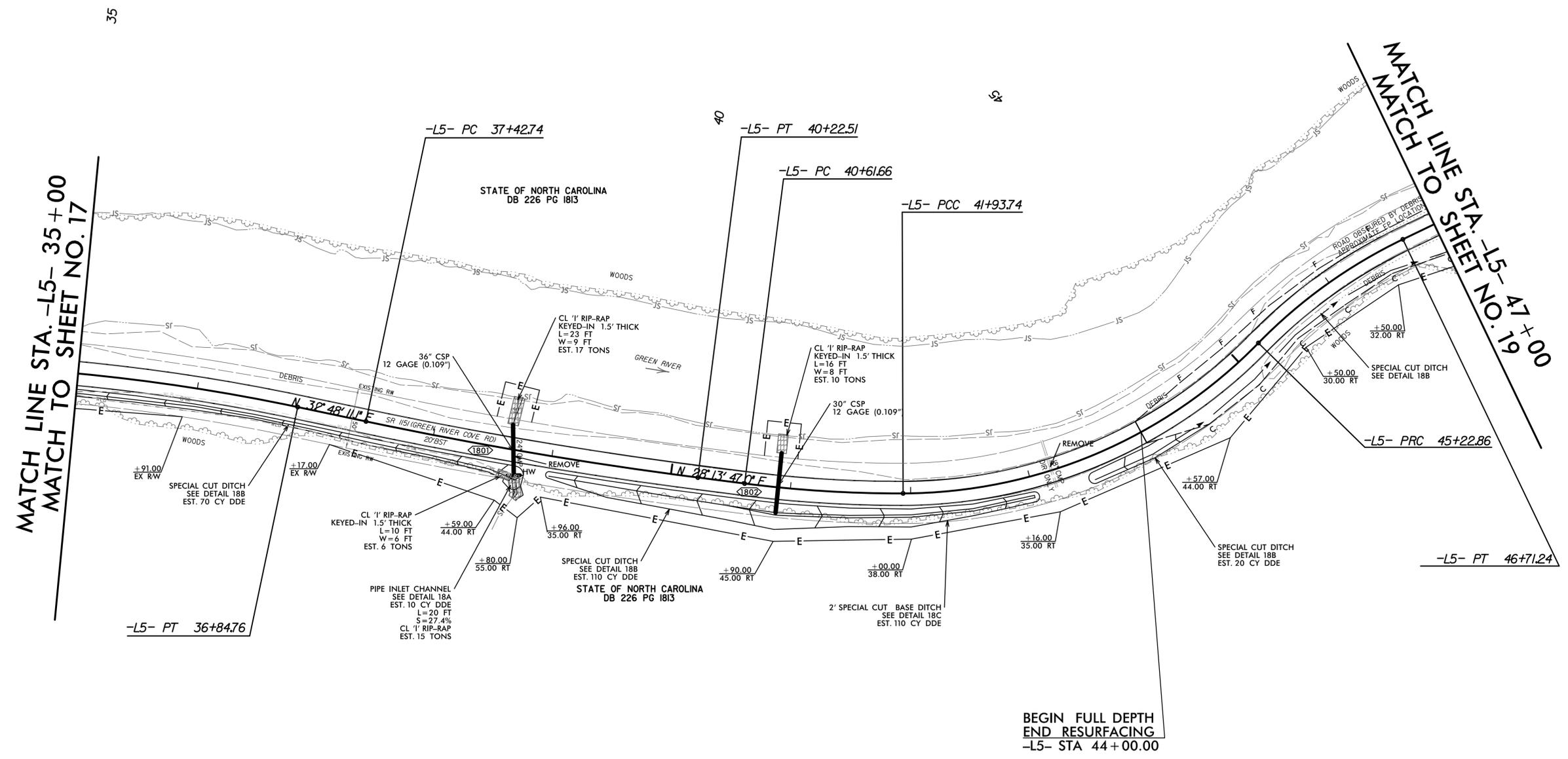
GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.

-L5- STA. 35+00 TO STA. 38+68 RT
-L5- STA. 39+00 TO STA. 40+50 RT
-L5- STA. 43+50 TO STA. 47+00 RT

-L5- STA. 40+50 TO STA. 43+00 RT



MATCH LINE STA. -L5- 35+00
MATCH TO SHEET NO. 17

MATCH LINE STA. -L5- 47+00
MATCH TO SHEET NO. 19

REVISIONS

3/16/2026
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jst

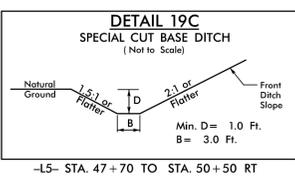
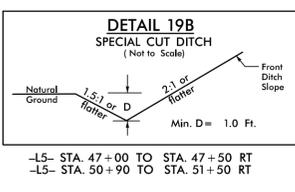
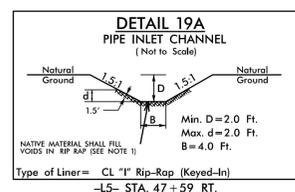
-L5- CURVE DATA

PI Sta 35+91.45	PI Sta 38+82.70	PI Sta 41+27.80	PI Sta 43+67.50	PI Sta 45+97.81
$\Delta = 6^{\circ} 32' 06.3''$ (RT)	$\Delta = 4^{\circ} 34' 24.1''$ (LT)	$\Delta = 7^{\circ} 28' 41.0''$ (LT)	$\Delta = 45^{\circ} 26' 17.6''$ (LT)	$\Delta = 20^{\circ} 00' 13.0''$ (RT)
D = 3' 29' 52.5"	D = 1' 38' 04.9"	D = 5' 39' 41.9"	D = 13' 48' 22.4"	D = 13' 28' 52.9"
L = 186.83'	L = 279.77'	L = 132.08'	L = 329.11'	L = 148.38'
T = 93.52'	T = 139.96'	T = 66.14'	T = 173.76'	T = 74.95'
R = 1,638.00'	R = 3,505.00'	R = 1,012.00'	R = 415.00'	R = 425.00'

FOR -L5- PROFILE, SEE SHEET NO. 28

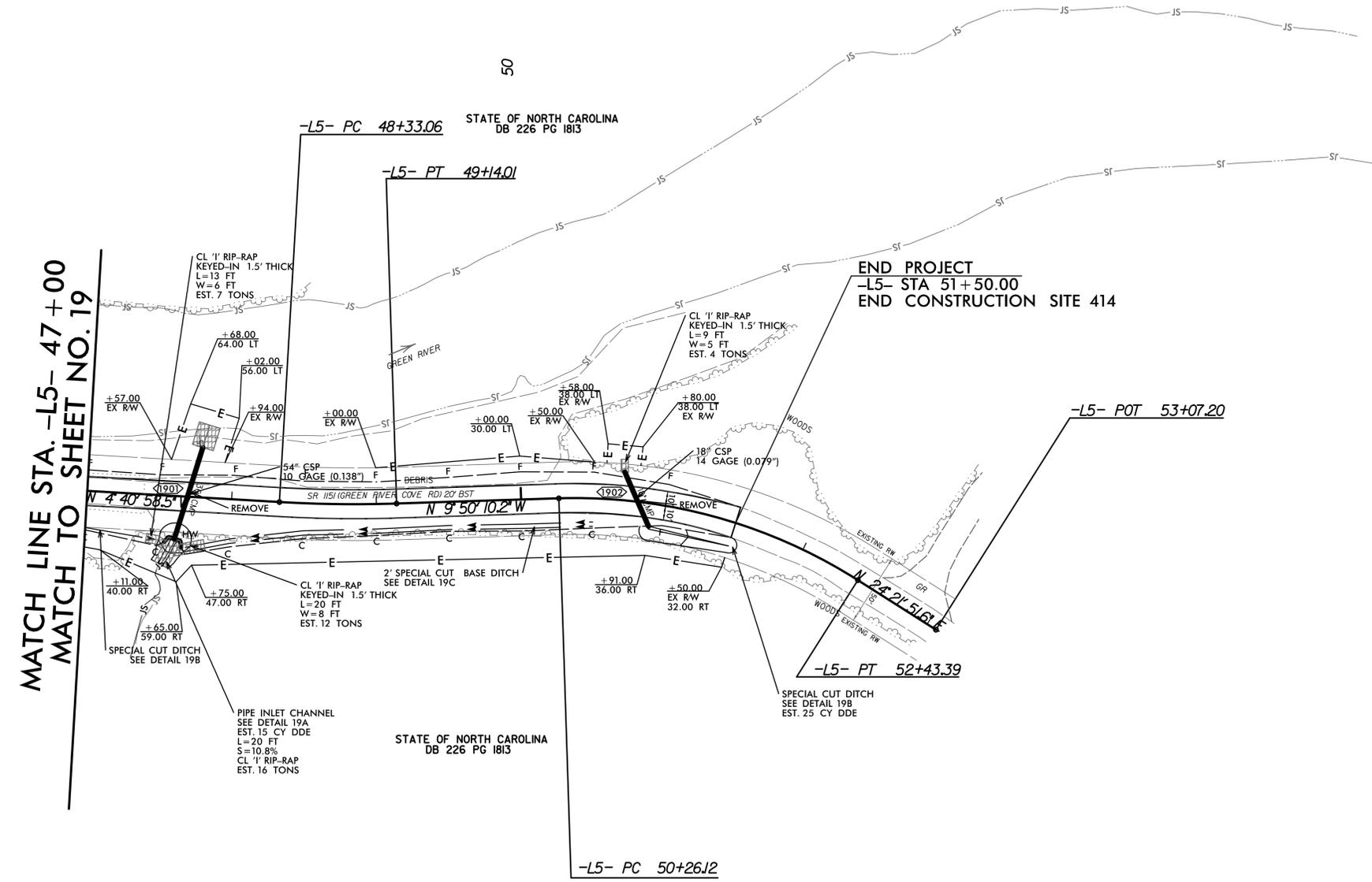
8/17/99

PROJECT REFERENCE NO. W03291	SHEET NO. 19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER JIMMY L. TERRY NORTH CAROLINA PROFESSIONAL SEAL 35018 12/2026	HYDRAULICS ENGINEER JOHN W. TWISDALE, JR. NORTH CAROLINA PROFESSIONAL SEAL 024897 11/2026
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



NOTE 1: WHERE NOTED ON THE PLANS, NATIVE MATERIAL SHALL BE PLACED ON TOP OF RIP RAP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL CONSISTS OF ALLUVIAL MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT PROJECT SITE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER. PAYMENT FOR NATIVE MATERIAL IS INCIDENTAL TO THE CONTRACT UNIT PRICE OF RIP RAP.

GREEN RIVER COVE RD (SR 1151) SHALL BE RECONSTRUCTED UTILIZING THE EXISTING SECONDARY ROAD AGREEMENTS ALREADY IN PLACE. PROPOSED EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE USED SOLELY TO DEFINE THE AREA THE CONTRACTOR SHALL WORK IN FOR THE DURATION OF THIS PROJECT.



MATCH LINE STA. -L5- 47+00
MATCH TO SHEET NO. 19

-L5- CURVE DATA

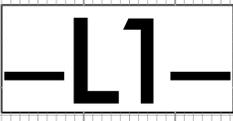
PI Sta 48+73.56	PI Sta 51+38.10
$\Delta = 5^{\circ} 09' 11.7''$ (LT)	$\Delta = 3^{\circ} 12' 01.8''$ (RT)
$D = 6^{\circ} 21' 58.3''$	$D = 15^{\circ} 44' 26.2''$
$L = 80.95'$	$L = 217.28'$
$T = 40.50'$	$T = 111.98'$
$R = 900.00'$	$R = 364.00'$

FOR -L5- PROFILE, SEE SHEET NO. 28

REVISIONS

3/16/2026 X:\NCDOT\Green River Cove Rd Rehab\Roadway Design\Plansheets\GreenRiverCove_Rd\psh19.dgn jst:sm/vn

5/28/2019



TGS ENGINEERS
 201 W. MARION ST., STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-2875

PROJECT REFERENCE NO. W03291	SHEET NO. 20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PIPE HYDRAULIC DATA
*0406-LI- Sta.18+47

DRAINAGE AREA	= 43	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 75	CFS
DESIGN HW ELEVATION	= 1052J	FT
100 YEAR DISCHARGE	= 90	CFS
100 YEAR HW ELEVATION	= 1052.8	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 95	CFS
OVERTOPPING ELEVATION	= 1053.0	FT

PIPE HYDRAULIC DATA
*0408-LI- Sta.20+26

DRAINAGE AREA	= 1.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 3.2	CFS
DESIGN HW ELEVATION	= 1049.0	FT
100 YEAR DISCHARGE	= 3.8	CFS
100 YEAR HW ELEVATION	= 1049J	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1050J	FT

PIPE HYDRAULIC DATA
*0409-LI- Sta.21+56

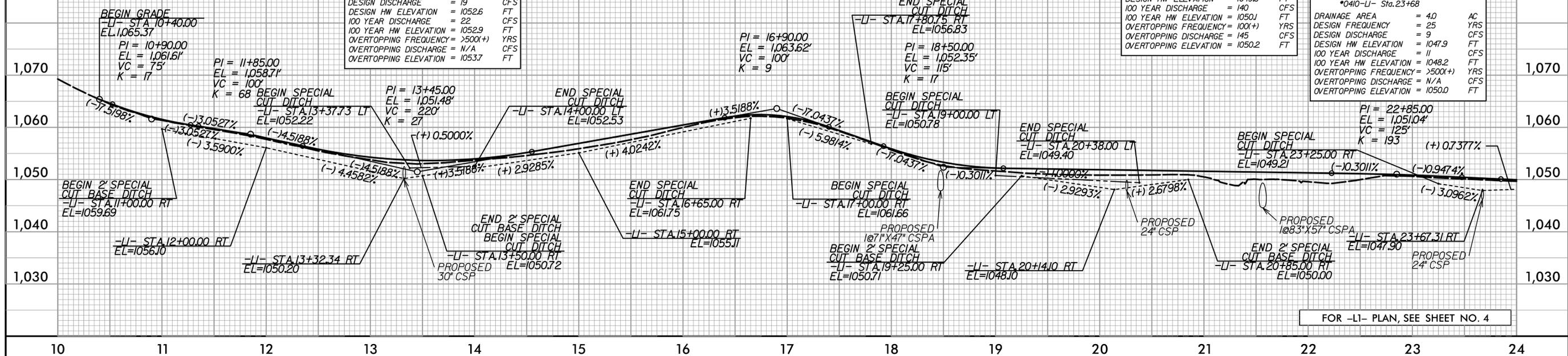
DRAINAGE AREA	= 59	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 1049.6	FT
100 YEAR DISCHARGE	= 140	CFS
100 YEAR HW ELEVATION	= 1050J	FT
OVERTOPPING FREQUENCY	= 100(+)	YRS
OVERTOPPING DISCHARGE	= 145	CFS
OVERTOPPING ELEVATION	= 1050.2	FT

PIPE HYDRAULIC DATA
*0410-LI- Sta.23+68

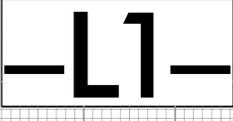
DRAINAGE AREA	= 40	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 9	CFS
DESIGN HW ELEVATION	= 1047.9	FT
100 YEAR DISCHARGE	= 11	CFS
100 YEAR HW ELEVATION	= 1048.2	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1050.0	FT

PIPE HYDRAULIC DATA
*0401-LI- Sta.13+32

DRAINAGE AREA	= 9.5	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 19	CFS
DESIGN HW ELEVATION	= 1052.6	FT
100 YEAR DISCHARGE	= 22	CFS
100 YEAR HW ELEVATION	= 1052.9	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1053.7	FT

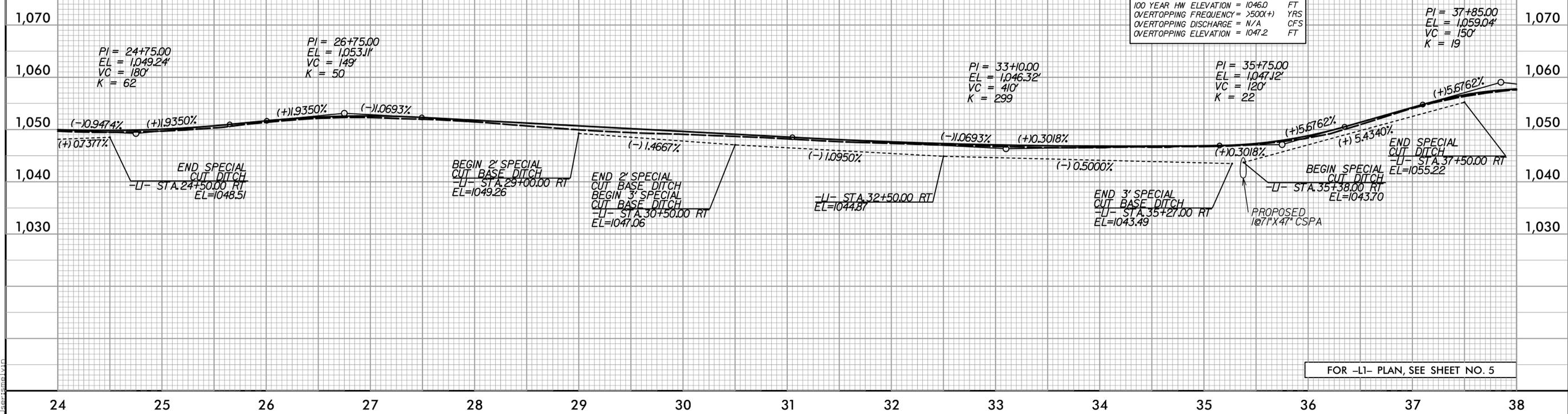


FOR -LI- PLAN, SEE SHEET NO. 4



PIPE HYDRAULIC DATA
*0507-LI- Sta.35+37

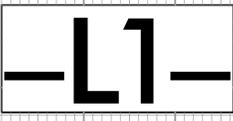
DRAINAGE AREA	= 29	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 70	CFS
DESIGN HW ELEVATION	= 1045.4	FT
100 YEAR DISCHARGE	= 85	CFS
100 YEAR HW ELEVATION	= 1046.0	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1047.2	FT



FOR -LI- PLAN, SEE SHEET NO. 5

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5/28/24

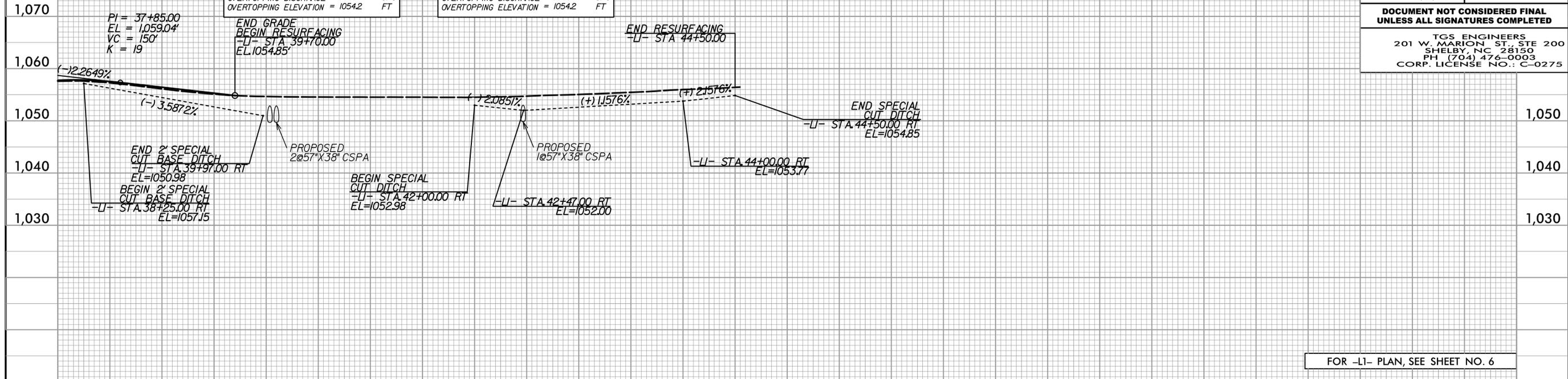


PIPE HYDRAULIC DATA
*0601-LI- Sta.40+07

DRAINAGE AREA	= 62	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 130	CFS
DESIGN HW ELEVATION	= 1053.2	FT
100 YEAR DISCHARGE	= 140	CFS
100 YEAR HW ELEVATION	= 1053.5	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1054.2	FT

PIPE HYDRAULIC DATA
*0605-LI- Sta.42+47

DRAINAGE AREA	= 25	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 50	CFS
DESIGN HW ELEVATION	= 1052.7	FT
100 YEAR DISCHARGE	= 60	CFS
100 YEAR HW ELEVATION	= 1053.1	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1054.2	FT



PROJECT REFERENCE NO.	W03291	SHEET NO.	21
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

FOR -LI- PLAN, SEE SHEET NO. 6

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5/28/2025

-L2-

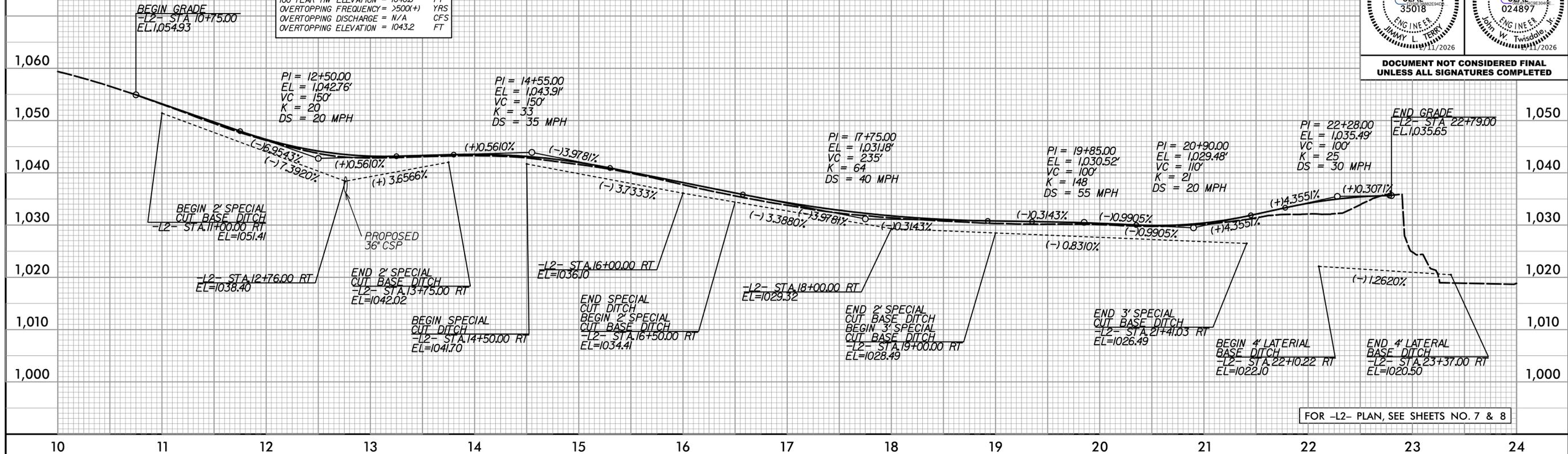
PIPE HYDRAULIC DATA
*0701-L2- Sta.12+76

DRAINAGE AREA	= 9.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 18	CFS
DESIGN HW ELEVATION	= 1040.5	FT
100 YEAR DISCHARGE	= 22	CFS
100 YEAR HW ELEVATION	= 1040.8	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1043.2	FT

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	W03291	SHEET NO.	22
ROADWAY DESIGN ENGINEER			
HYDRAULICS ENGINEER			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR -L2- PLAN, SEE SHEETS NO. 7 & 8

-L2-

PIPE HYDRAULIC DATA
*0801-L2- Sta.26+07

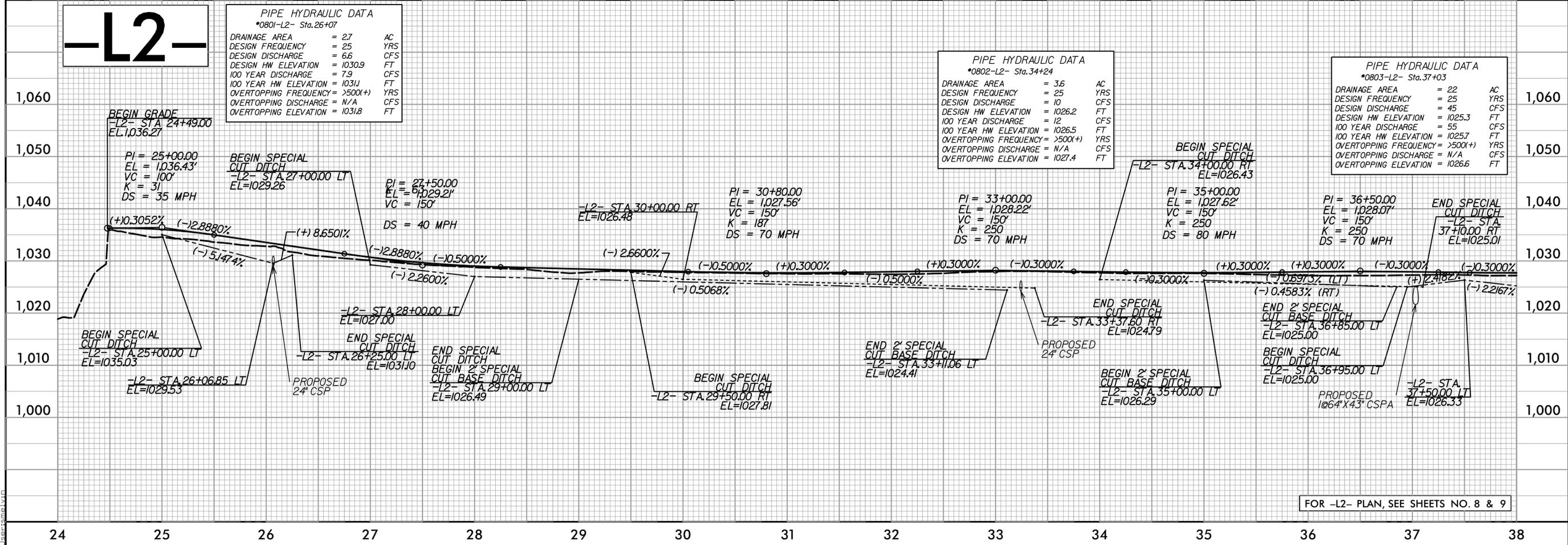
DRAINAGE AREA	= 2.7	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 6.6	CFS
DESIGN HW ELEVATION	= 1030.9	FT
100 YEAR DISCHARGE	= 7.9	CFS
100 YEAR HW ELEVATION	= 1031.1	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1031.8	FT

PIPE HYDRAULIC DATA
*0802-L2- Sta.34+24

DRAINAGE AREA	= 3.6	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 10	CFS
DESIGN HW ELEVATION	= 1026.2	FT
100 YEAR DISCHARGE	= 12	CFS
100 YEAR HW ELEVATION	= 1026.5	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1027.4	FT

PIPE HYDRAULIC DATA
*0803-L2- Sta.37+03

DRAINAGE AREA	= 2.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 4.5	CFS
DESIGN HW ELEVATION	= 1025.3	FT
100 YEAR DISCHARGE	= 5.5	CFS
100 YEAR HW ELEVATION	= 1025.7	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1026.6	FT



FOR -L2- PLAN, SEE SHEETS NO. 8 & 9

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5/28/2019

-L2-

PROJECT REFERENCE NO. W03291	SHEET NO. 23
ROADWAY DESIGN ENGINEER JIMMY L. TERRY PROFESSIONAL SEAL 35018 ENGINEER 7/11/2026	HYDRAULICS ENGINEER JOHN W. TWISDALE, JR. PROFESSIONAL SEAL 024897 ENGINEER 7/11/2026
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

PIPE HYDRAULIC DATA
*0901-L2- Sta.38+13

DRAINAGE AREA	= 182	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 100	CFS
DESIGN HW ELEVATION	= 1023.5	FT
100 YEAR DISCHARGE	= 170	CFS
100 YEAR HW ELEVATION	= 1026.4	FT
OVERTOPPING FREQUENCY	= 100(+)	YRS
OVERTOPPING DISCHARGE	= 175	CFS
OVERTOPPING ELEVATION	= 1026.6	FT

PIPE HYDRAULIC DATA
*0903-L2- Sta.42+75

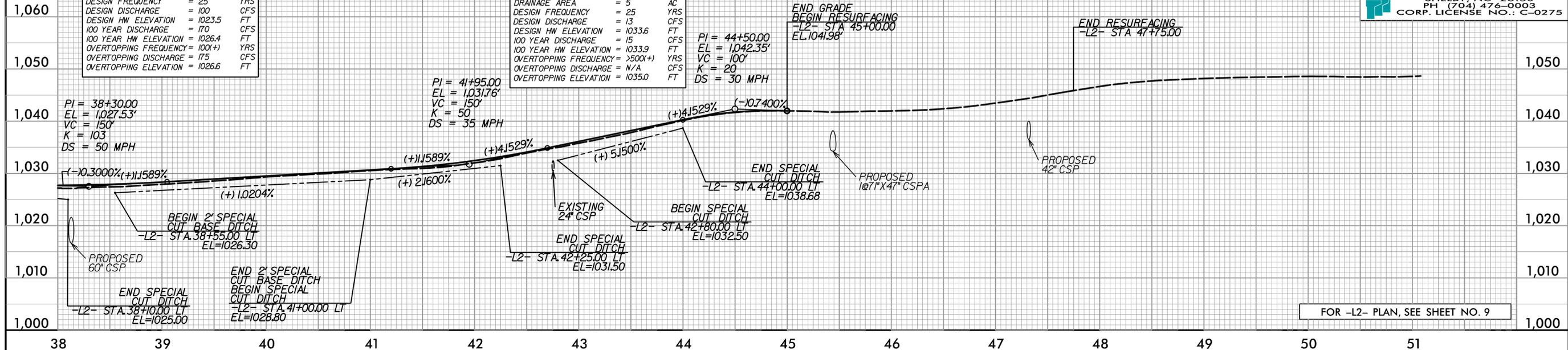
DRAINAGE AREA	= 5	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 13	CFS
DESIGN HW ELEVATION	= 1033.6	FT
100 YEAR DISCHARGE	= 15	CFS
100 YEAR HW ELEVATION	= 1033.9	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1035.0	FT

PIPE HYDRAULIC DATA
*0904-L2- Sta.45+44

DRAINAGE AREA	= 33	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 65	CFS
DESIGN HW ELEVATION	= 1040.2	FT
100 YEAR DISCHARGE	= 80	CFS
100 YEAR HW ELEVATION	= 1040.6	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1041.8	FT

PIPE HYDRAULIC DATA
*0906-L2- Sta.47+32

DRAINAGE AREA	= 17	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 35	CFS
DESIGN HW ELEVATION	= 1041.5	FT
100 YEAR DISCHARGE	= 42	CFS
100 YEAR HW ELEVATION	= 1041.9	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1043.1	FT



FOR -L2- PLAN, SEE SHEET NO. 9

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5/28/19

-L3-

PIPE HYDRAULIC DATA
*1001-L3- Sta.11+30

DRAINAGE AREA	= 29	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 50	CFS
DESIGN HW ELEVATION	= 1011.0	FT
100 YEAR DISCHARGE	= 60	CFS
100 YEAR HW ELEVATION	= 1011.3	FT
OVERTOPPING FREQUENCY	= 500(+)	YRS
OVERTOPPING DISCHARGE	= 68	CFS
OVERTOPPING ELEVATION	= 1011.8	FT

PIPE HYDRAULIC DATA
*1002-L3- Sta.13+55

DRAINAGE AREA	= 28	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 61	CFS
DESIGN HW ELEVATION	= 1009.9	FT
100 YEAR DISCHARGE	= 7.2	CFS
100 YEAR HW ELEVATION	= 1010.1	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1011.9	FT

PIPE HYDRAULIC DATA
*1003-L3- Sta.16+81

DRAINAGE AREA	= 21	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 4.9	CFS
DESIGN HW ELEVATION	= 1008.4	FT
100 YEAR DISCHARGE	= 5.8	CFS
100 YEAR HW ELEVATION	= 1008.5	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1011.7	FT

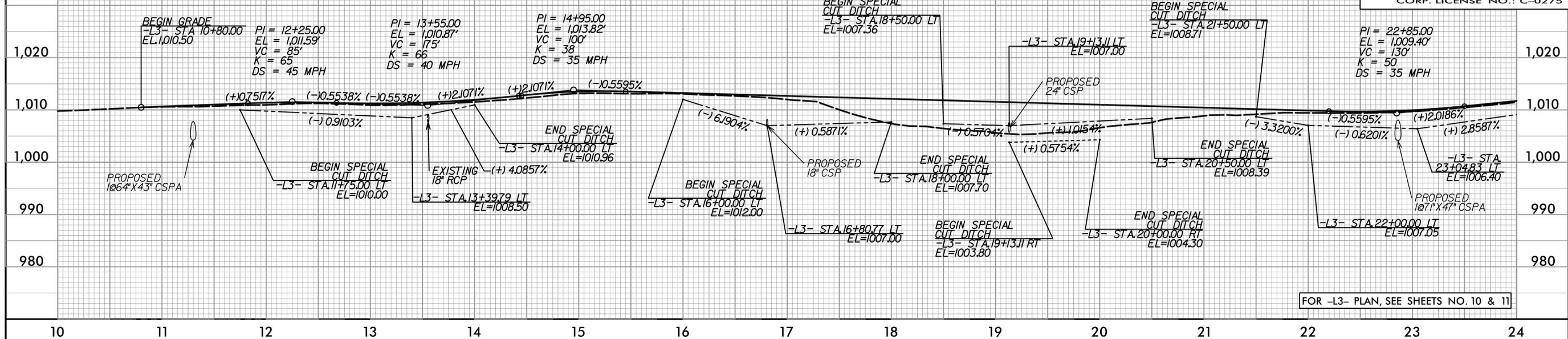
PIPE HYDRAULIC DATA
*1004-L3- Sta.19+13

DRAINAGE AREA	= 3.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 7.1	CFS
DESIGN HW ELEVATION	= 1008.4	FT
100 YEAR DISCHARGE	= 8.4	CFS
100 YEAR HW ELEVATION	= 1008.6	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 1010.2	FT

PIPE HYDRAULIC DATA
*1101-L3- Sta.22+87

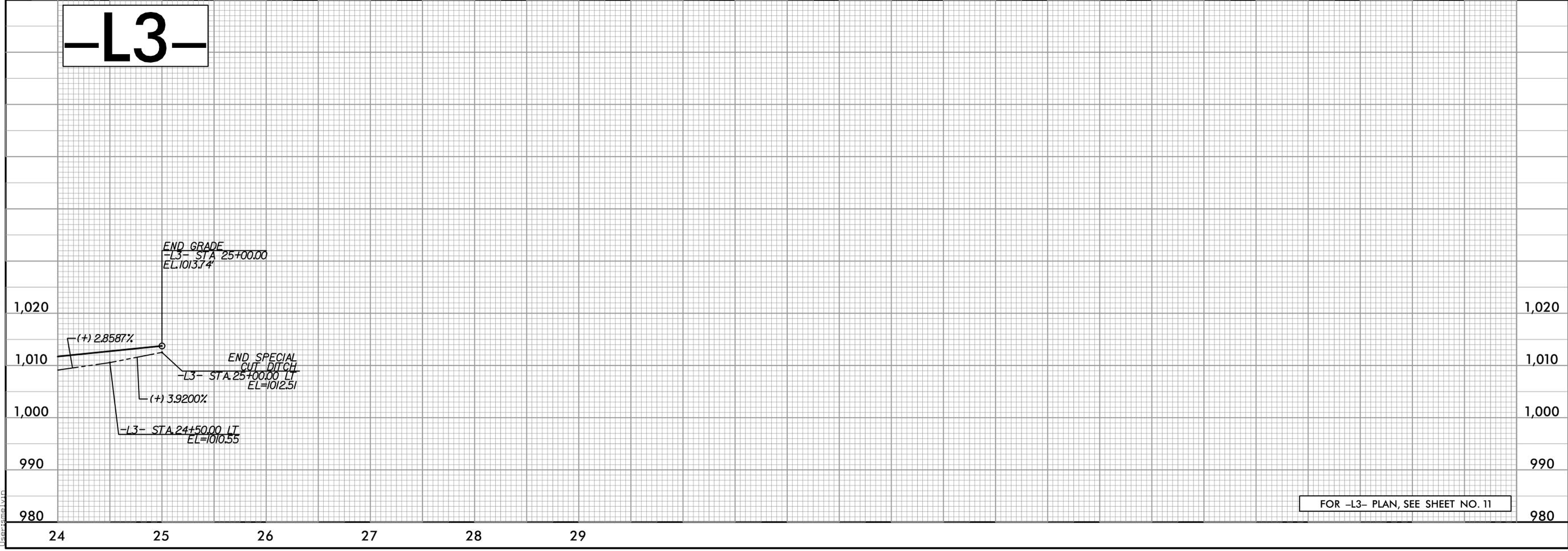
DRAINAGE AREA	= 29	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 70	CFS
DESIGN HW ELEVATION	= 1008.3	FT
100 YEAR DISCHARGE	= 85	CFS
100 YEAR HW ELEVATION	= 1009.0	FT
OVERTOPPING FREQUENCY	= 200(+)	YRS
OVERTOPPING DISCHARGE	= 95	CFS
OVERTOPPING ELEVATION	= 1009.7	FT

PROJECT REFERENCE NO.	W03291	SHEET NO.	24
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			



FOR -L3- PLAN, SEE SHEETS NO. 10 & 11

-L3-



FOR -L3- PLAN, SEE SHEET NO. 11

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