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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

Signed by: JOSHUA DALTON 10/9/2026

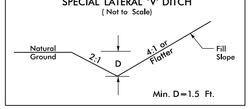
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DETAIL 1
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM STA. 96+00 TO STA. 98+00 –L– LT
FROM STA. 119+50 TO STA. 123+00 –L– RT

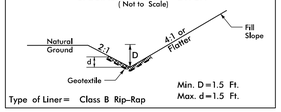
DETAIL 2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.

FROM STA. 96+50 TO STA. 99+50 –L– RT

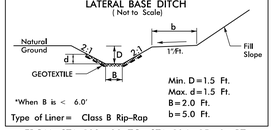
DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap
Min. D=1.5 Ft.
Max. d=1.5 Ft.

FROM STA. 99+50 TO STA. 102+00 –L– RT

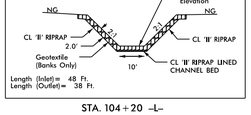
DETAIL 4
LATERAL BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.
Type of Liner= Class B Rip–Rap

FROM STA. 102+00 TO STA. 104+15 –L– RT

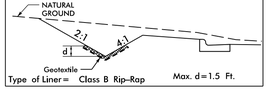
DETAIL 5
CULVERT INLET AND OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length (Inlet)= 48 Ft.
Length (Outlet)= 38 Ft.

STA. 104+20 –L–

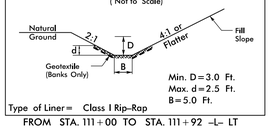
DETAIL 6
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



Type of Liner= Class B Rip–Rap
Max. d=1.5 Ft.

FROM STA. 108+50 TO STA. 110+00 –L– LT

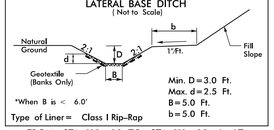
DETAIL 7
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=3.0 Ft.
Max. d=2.5 Ft.
B=5.0 Ft.
Type of Liner= Class I Rip–Rap

FROM STA. 111+00 TO STA. 111+92 –L– LT

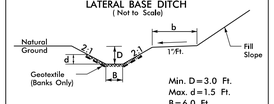
DETAIL 8
LATERAL BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D=3.0 Ft.
Max. d=2.5 Ft.
B=5.0 Ft.
b=5.0 Ft.
Type of Liner= Class I Rip–Rap

FROM STA. 110+00 TO STA. 111+00 –L– LT

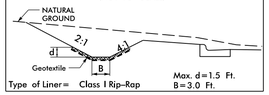
DETAIL 9
LATERAL BASE DITCH
(Not to Scale)



Min. D=3.0 Ft.
Max. d=1.5 Ft.
B=6.0 Ft.
b=5.0 Ft.
Type of Liner= Class I Rip–Rap

FROM STA. 108+85 TO STA. 110+50 –L– RT

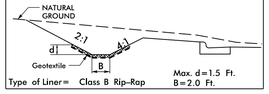
DETAIL 10
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



Type of Liner= Class I Rip–Rap
Max. d=1.5 Ft.
B=3.0 Ft.

FROM STA. 111+10 TO STA. 114+50 –L– RT

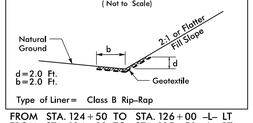
DETAIL 11
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



Type of Liner= Class B Rip–Rap
Max. d=1.5 Ft.
B=2.0 Ft.

FROM STA. 114+50 TO STA. 119+50 –L– RT

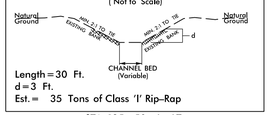
DETAIL 12
TOE PROTECTION
(Not to Scale)



d=2.0 Ft.
b=2.0 Ft.
Type of Liner= Class B Rip–Rap

FROM STA. 124+50 TO STA. 126+00 –L– LT
FROM STA. 124+00 TO STA. 125+50 –L– RT

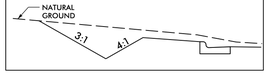
DETAIL 13
PIPE INLET CHANNEL
(Not to Scale)



Length=30 Ft.
d=3 Ft.
Est.= 35 Tons of Class 'I' Rip–Rap

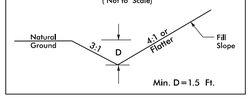
STA. 125+50 –L– LT

DETAIL 14
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM STA. 127+50 TO STA. 128+76 –L– LT
FROM STA. 164+07 TO STA. 166+00 –L– LT
FROM STA. 173+50 TO STA. 175+50 –L– RT
FROM STA. 177+00 TO STA. 177+34 –L– RT
FROM STA. 188+02 TO STA. 189+72 –L– RT
FROM STA. 13+50 TO STA. 15+66 –Y2– LT
FROM STA. 11+00 TO STA. 13+50 –Y3– RT
FROM STA. 10+63 TO STA. 10+76 –Y35– LT

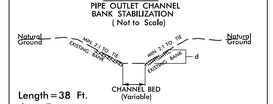
DETAIL 15
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.

FROM STA. 10+90 TO STA. 11+45 –Y24– LT
FROM STA. 20+50 TO STA. 23+50 –Y25– LT
FROM STA. 20+50 TO STA. 23+50 –Y25– RT
FROM STA. 11+00 TO STA. 13+50 –Y28– LT
FROM STA. 12+05 TO STA. 13+50 –Y3– LT

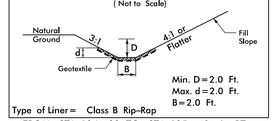
DETAIL 16
PIPE OUTLET CHANNEL BANK STABILIZATION
(Not to Scale)



Length=38 Ft.
d=4 Ft.
Est.= 50 Tons of Class 'I' Rip–Rap

STA. 124+92 –L– RT

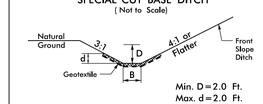
DETAIL 17
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=2.0 Ft.
Type of Liner= Class B Rip–Rap

FROM STA. 134+32 TO STA. 135+43 –L– RT
FROM STA. 137+50 TO STA. 140+00 –L– LT
FROM STA. 141+50 TO STA. 142+50 –L– LT

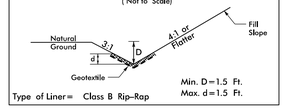
DETAIL 18
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=2.0 Ft.
Type of Liner= Class B Rip–Rap

FROM STA. 134+50 TO STA. 137+50 –L– LT
FROM STA. 140+00 TO STA. 141+50 –L– LT

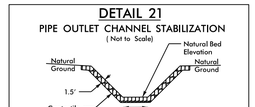
DETAIL 20
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap
Min. D=1.5 Ft.
Max. d=1.5 Ft.

FROM STA. 175+50 TO STA. 177+38 –L– RT
FROM STA. 10+66 TO STA. 11+45 –Y24– RT

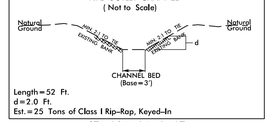
DETAIL 21
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length= 25 Ft.
Type of Liner= CL I Rip–Rap – Keyed–In

STA. 134+33 –L– RT

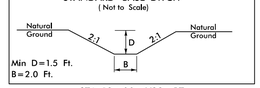
DETAIL 22
PIPE OUTLET CHANNEL
(Not to Scale)



Length=52 Ft.
d=2.0 Ft.
Est.=25 Tons of Class I Rip–Rap, Keyed–In

STA. 164+04 –L– LT

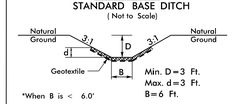
DETAIL 23
STANDARD BASE DITCH
(Not to Scale)



Min D=1.5 Ft.
B=2.0 Ft.

STA. 13+00 –Y33– RT

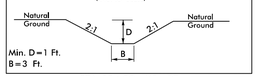
DETAIL 24
STANDARD BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D=3 Ft.
Max. d=3 Ft.
B=6 Ft.
Type of Liner= Class B Rip–Rap

STA. 184+44 –L– LT

DETAIL 27
STANDARD BASE DITCH
(Not to Scale)

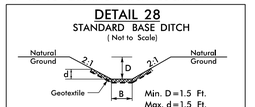


Min. D=1 Ft.
B=3 Ft.

STA. 15+89 –Y2– RT

NOTE: DUE TO SURROUNDING NATURAL GROUND ELEVATIONS, MINIMUM DEPTH OF DITCH MAY NOT MEET DEPTH REQUIREMENTS AT "TIE TO EXISTING DITCH" LOCATION.

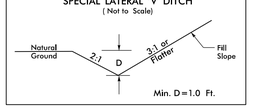
DETAIL 28
STANDARD BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2 Ft.
Type of Liner= CL B Rip–Rap

STA. 11+69 –EY27– LT

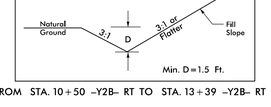
DETAIL 29
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.

FROM STA. 10+76 –Y35– TO STA. 11+00 –Y35– LT

DETAIL 30
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

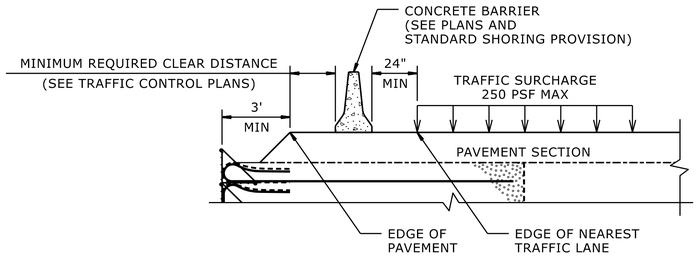


Min. D=1.5 Ft.

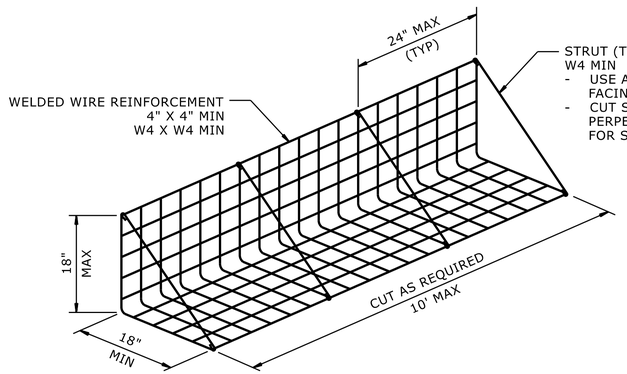
FROM STA. 10+50 –Y2B– RT TO STA. 13+39 –Y2B– RT

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By: SJohnson
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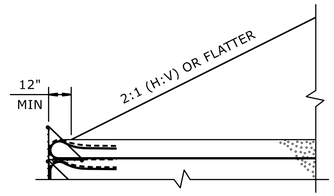
5/26/20



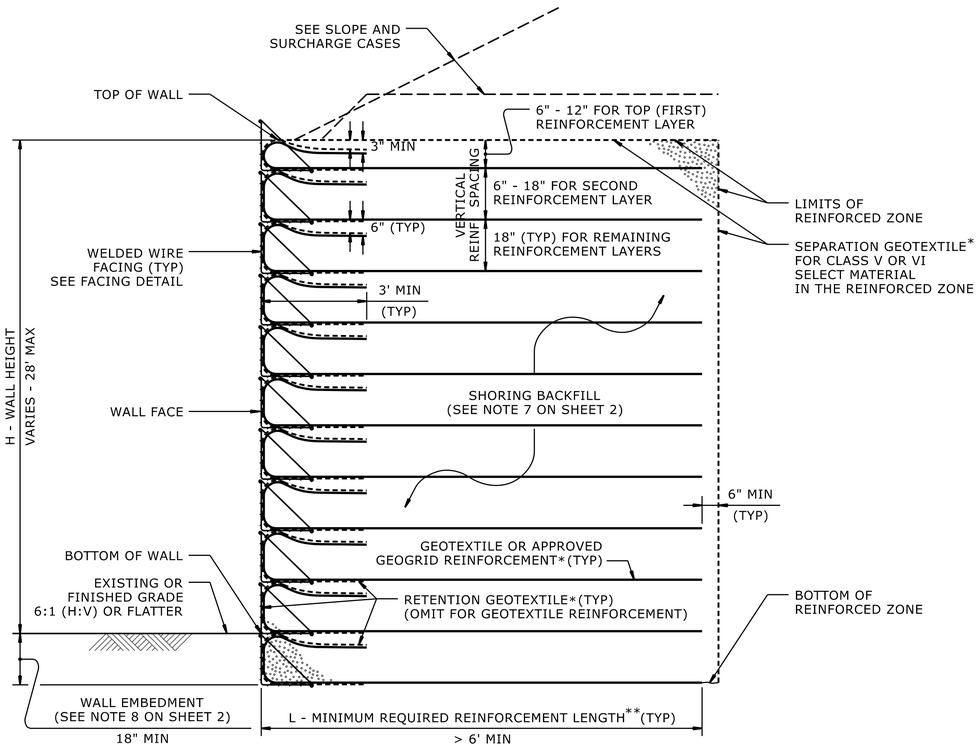
SURCHARGE CASE



FACING DETAIL

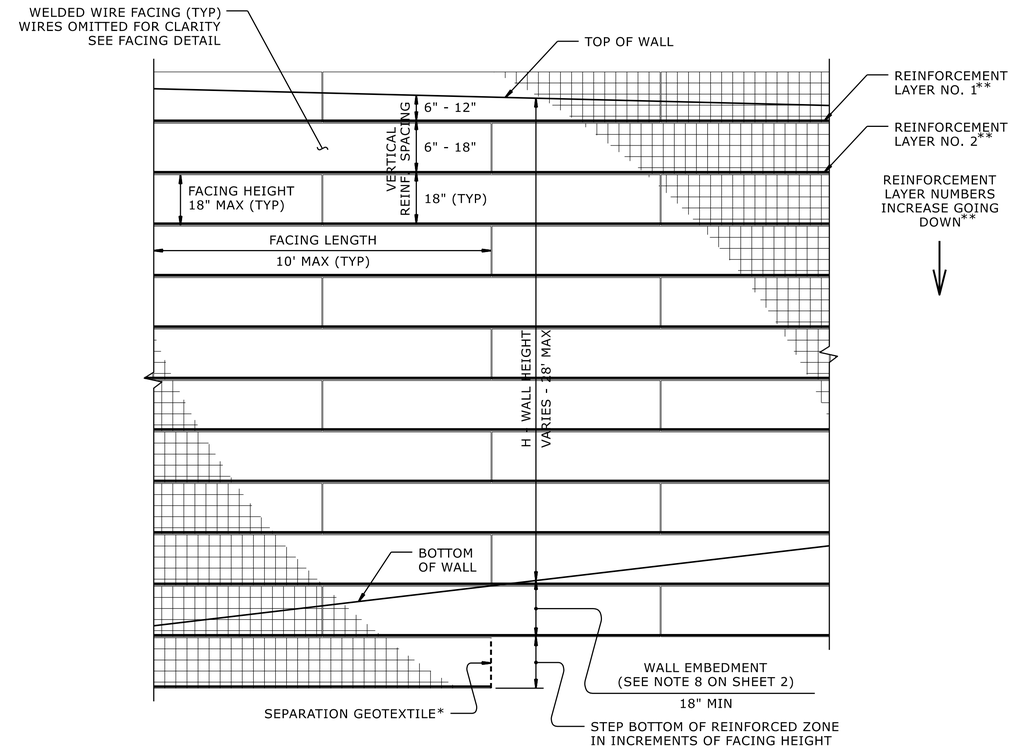


SLOPE CASE



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES,
SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL - PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

U-4714AC

2G-1 | -

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

GEOTECHNICAL
ENGINEERING UNIT

GEOTECHNICAL
ENGINEER

DocuSigned by:
Scott A. Hidden 10/20/2026
F760CAEB86E4...

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

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UNLESS ALL SIGNATURES COMPLETED

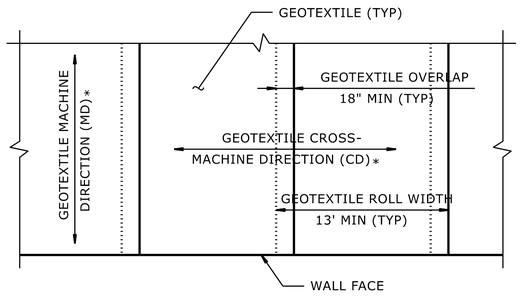
STANDARD
DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR

TEMPORARY WALL (SHEET 1 OF 3)

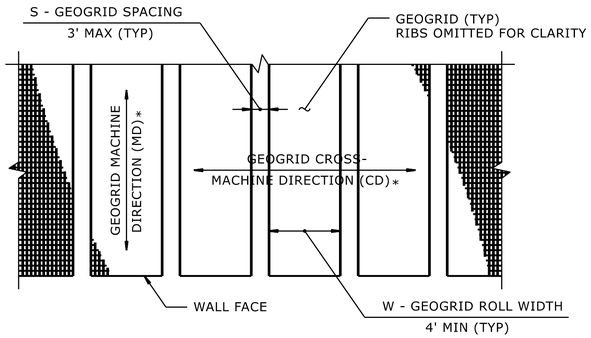
DATE: 02-18-2025

5/26/20



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

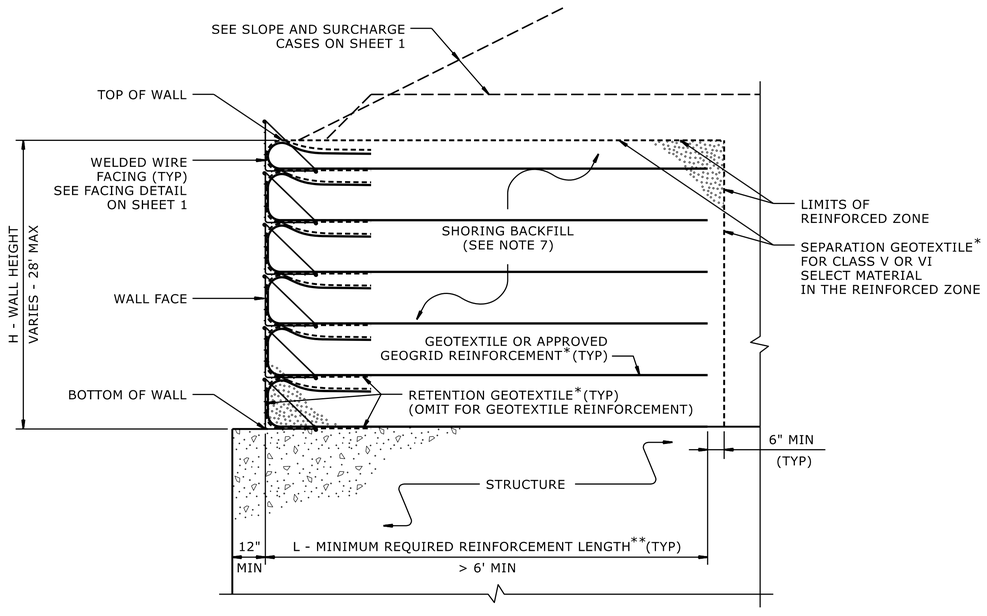


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) > (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD > MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

U-4714AC
2G-2 | -

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER
DocuSigned by: Scott A. Hidden 10/20/2026
F760CAE8...

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STANDARD DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR

TEMPORARY WALL (SHEET 2 OF 3)

DATE: 02-18-2025

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II, TYPE 1, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H > 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20' > 10 FOR H > 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

REINFORCEMENT LAYER NUMBER *	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT SHORT-TERM DESIGN STRENGTH (LB/FT)

(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

5/26/20

U-4714AC
2G-3 | -

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER
DocuSigned by: Scott A. Hidden 10/20/2026
F760CA...
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STANDARD DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR
TEMPORARY WALL (SHEET 3 OF 3)

DATE: 02-18-2025

12/06/07

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	3B-1

SUMMARY OF REMOVAL EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	106+00	107+00	RT	295.00
–L–	111+42	122+00	LT	1,666.56
–L–	124+06	128+00	LT	862.22
–L–	131+09	132+21	CL	217.44
–L–	132+53	136+03	RT	406.11
–L–	145+25	146+00	RT	1,104.11
–L–	145+98	149+97	RT	415.22
–L–	148+59	149+36	CL	74.00
–L–	150+59	153+16	RT	253.56
–L–	156+13	159+00	LT	1,079.11
–L–	160+73	166+45	CL	596.22
–L–	165+50	177+53	LT	4,594.11
–L–	167+66	169+23	RT	1,033.22
–L–	178+19	180+64	RT	462.11
–L–	181+13	187+49	RT	627.56
–Y2A–	10+70	13+25	CL	1,483.44
–Y33–	12+75	14+18	CL	554.89
TEMPORARY PAVEMENT REMOVAL				
–L–	103+62	105+35	LT	56.89
–L–	141+36	142+29	CL	160.56
–L–	144+94	146+21	CL	176.33
–L–	149+66	150+63	CL	139.04
–L–	151+85	156+30	CL	346.44
–L–	173+15	174+45	CL	70.11
–L–	132+82	134+45	CL	93.33
–Y2A–	10+66	13+82	RT	1,055.11
			TOTAL:	17,822.71
			SAY:	17,850

	YD²
U–4714AC	17,850
U–4714BA	8,670
TOTAL	26,520

SUMMARY OF EARTHWORK
U–4714AC
IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV. (CY)	UNDERCUT (CY)	EMBANK. +% (CY)	BORROW (CY)	WASTE (CY)
–L– (LT) 96+00.00	126+00.00	9,023	944	24,254	15,231	944
SUBTOTALS:		9,023	944	24,254	15,231	944
–L– (LT) 126+00.00	146+00.00	5,857	1,264	3,935		3,186
–Y25– 21+00.00	24+40.05	798		252		546
–DR1– 10+50.06	11+43.72			5	5	
SUBTOTALS:		6,655	1,264	4,192	5	3,732
–L– (RT) 96+00.00	126+00.00	8,979	654	15,620	6,641	654
–DR2– 10+35.50	11+15.00					
SUBTOTALS:		8,979	654	15,620	6,641	654
–L– (RT) 126+00.00	146+00.00	352	183	15,154	14,802	183
–DR3– 10+36.35	10+90.00			58	58	
–Y25– 25+11.11	26+40.00	91		265	174	
–Y24– 10+39.38	11+45.00	74		115	41	
–Y26– 10+41.53	11+62.96	14		407	393	
–Y27– 10+33.87	11+43.00	2		137	135	
SUBTOTALS:		533	183	16,135	15,602	183
–L– (LT) 146+00.00	173+00.00	1,824	1,050	9,078	7,254	1,050
–Y28– 12+04.00	12+96.40	44		60	16	
–Y1– 10+00.00	13+30.04	150		1,622	1,472	
–Y1A– 10+15.00	15+48.22	546		286		260
–Y2– 10+41.70	16+56.16	663		890	227	
SUBTOTALS:		3,227	1,050	11,936	8,970	1,310
–L– (LT) 173+00.00	193+50.00	826	424	17,614	16,788	424
–Y30– 12+22.00	13+55.32	54		47		7
–Y31– 14+15.00	15+52.77	90		59		31
–Y33– 12+30.00	13+79.02	3		1,766	1,763	
SUBTOTALS:		973	424	19,486	18,551	462
–L– (RT) 146+00.00	173+00.00	1,059	723	5,420	4,361	723
–Y29– 10+29.97	11+50.00	135		158	23	
–Y2A– 10+41.70	16+65.00	1,818		482		1,336
–Y2B– 10+23.28	14+07.20	639		955	316	
SUBTOTALS:		3,651	723	7,016	4,701	2,059
–L– (RT) 173+00.00	193+50.00	1,070	488	2,620	1,550	488
–Y3– 10+35.50	13+50.00	476		550	254	
–Y3A– 10+28.01	10+85.00	6		32	26	
–Y34– 12+27.00	13+36.32	35		55	20	
–Y35– 10+35.59	11+35.00	24		108	84	
SUBTOTALS:		1,611	488	3,365	1,754	488
TOTALS:		34,652	5,730	102,003	71,454	9,832
MATERIAL FOR SHOULDER CONSTRUCTION:				460	460	
LOSS DUE TO CLEARING AND GRUBBING:		–9,500			9,500	
ADDITIONAL UNDERCUT:			1,750			1,750
WASTE IN LIEU OF BORROW:					–4,102	–4,102
PROJECT TOTALS:		25,152	7,480	102,463	77,311	7,480
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					3,866	
GRAND TOTALS:		25,152	7,480	102,463	81,177	7,480
SAY:		25,200	7,500		81,200	

EST. DDE = 920 CY
EST. SHALLOW UNDERCUT = 500 CY

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, removal of existing pavement, and breaking of existing pavement will be paid for at the contract lump sum price for "Grading".

U4714AC & U–4714BA

STATION	STATION	UNCL. EXCAV. (CY)	UNDERCUT (CY)	EMBANK. +% (CY)	BORROW (CY)	WASTE (CY)
U–4714AC TOTAL:		25,200	7,500		81,200	
U–4714BA TOTAL:		13,650	8,700		14,700	
U–4714AC/BA GRAND TOTAL:		38,850	16,200		95,900	

SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	103+50	106+00	RT	930.78
			TOTAL:	930.78
			SAY:	950.00

	YD²
U–4714AC	950
U–4714BA	0
TOTAL	950

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12/06/07

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	3B-2

GUARDRAIL SUMMARY

"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.

U-4714AC

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (LF)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350					REMOVE EXISTING GUARDRAIL (LF)	REMARKS
				STRAIGHT	SHOP CURVED	TEMPORARY STRAIGHT	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	TES	CAT-1	WTR	TEMP GREU TL-3	TEMP B-77					NO.	PERMITTED G	PERMITTED NG				
-L-	102+00.00	104+56.25	RT	256.25'			102+75.00		19'	21'	50'		1'		1		1											203.60'	
-L-	103+78.75	105+35.00	LT	156.25'			104+20.00		14'	16'	50'		1'		1		1											278.14'	
TEMPORARY GUARDRAIL																													
-L-	107+75.00	110+35.00	RT			262.50'													2										
-L-	106+25.00	111+65.00	LT			547.875'													1	1									
			SUBTOTAL	412.50'		810.375'									2		2		3	1								481.74'	
		LESS ANCHOR DEDUCTIONS:																											
		GREU TL-3	2 @ 50.00' =	-100.00'																									
		CAT-1	2 @ 6.25' =	-12.50'																									
		TEMP GREU TL-3	3 @ 50.00' =			-150.00'																							
		TEMP B-77	1 @ 22.875' =			-22.875'																							
		ANCHOR DEDUCTION TOTAL:		-112.50'		-172.875'																							
			PROJECT TOTAL	300.00'		637.50'									2		2		3	1								481.74'	
			SAY	312.50'		650.00'									2		2		3	1								500.00'	
		ADDITIONAL GUARDRAIL POST =		5 EA		5 EA																							

U-4714AC & U-4714BA

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (LF)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350					REMOVE EXISTING GUARDRAIL (LF)	REMARKS
				STRAIGHT	SHOP CURVED	TEMPORARY STRAIGHT	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	TES	CAT-1	WTR	TEMP GREU TL-3	TEMP B-77					NO.	PERMITTED G	PERMITTED NG		
U-4714AC TOTAL:				312.50'		650.00'									2		2		3	1								500.00'	
U-4714BA TOTAL:				0.00'		0.00'																							
	U-4714AC/BA GRAND TOTAL =			312.50'		650.00'									2		2		3	1								500.00'	
		ADDITIONAL GUARDRAIL POST =		5 EA		5 EA																							

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SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Size / Thickness or Gauge; Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE)

Line & Station	Offset		Structure Number From	Structure Number To	Top Elevation FT.	Invert Elevation FT.	Invert Elevation FT.	Minimum Required Slope %	Drainage Pipe 12	15	18	24	30	36		Do Not Use RCP	Do Not Use CSP	Do Not Use CAAP	Do Not Use HDPE	Do Not Use PVC	Do Not Use PP Pipe
L 98+00	37	LT	1001		704.3																
			1001	1002		700.6	698.0														
L 99+75	31	LT	1002		701.0																
			1002	1003		698.0	694.9	0.4													
L 100+85	34	LT	1003		697.9																
			1003	1004		694.9	688.9	0.6													
L 102+49	77	LT	1004		692.2																
			1004	1005		688.9	685.9	0.9													
L 103+40	82	LT	1005		690.3																
			1005	1006		685.9	676.0				72					X		X			
L 98+00	35	RT	1007		704.4																
			1007	1008		701.4	701.2			32								X			
L 100+00	36	RT	1009		700.3																
			1009	1011		697.2	692.8														
L 101+84	72	RT	1010								32							X			
L 101+50	37	RT	1011		695.9																
			1011	1012		692.8	692.1			36								X			
L 104+00	37	RT	1013		690.4																
			1013	1014		685.1	676.0	0.5		56								X			
L 104+50	37	LT	1015		690.0																
			1015	1038		686.4	686.1														
L 106+00	37	LT	1016		690.5																
			1016	1017		687.2	686.6														
L 104+92	38	LT	1017		689.9																
			1017	1015		686.6	686.4	0.3													
L 105+70	89	RT	1019		689.2																
			1019	1025		685.9	685.7														
L 104+94	43	RT	1020		689.8																
			1020	1029		685.5	685.3	0.3													
L 103+28	7	RT	1022		692.2																
			1022	1023		688.9	688.0														
L 103+28	37	RT	1023		691.3																
			1023	1013		688.0	685.2														
L 105+32	37	RT	1025		690.0																
			1025	1020		685.7	685.5														
L 98+00	56	LT	1026		703.0																
			1026	1001		700.7	700.6			20								X			
L 106+22	7	RT	1027		691.6																
			1027	1016		688.3	687.2														
L 106+10	89	RT	1028		689.6																
			1028	1019		686.3	685.9														
L 104+41	37	RT	1029		690.1																
			1029	1013		685.3	685.0	0.3													
L 106+89	37	LT	1030		691.9																
			1030	1031		688.9	688.2														
L 106+53	37	LT	1031		691.3																
			1031	1016		688.2	687.2														
L 96+40	40	RT	1032		705.6																
			1032	1033		702.3	702.2														
L 96+46	39	RT	1033		705.6																
								SHEET TOTALS		144	104										

Line & Station	From	To	C. S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)		30 (.079)		R. C. PIPE CLASS III 12	15	18	24	30	36		R. C. PIPE CLASS IV 12	15	18	24	30	36	42		R. C. PIPE CLASS V 12	18	24		30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
L 98+00	1001																													
	1001	1002																172												
L 99+75	1002																													
	1002	1003																108												
L 100+85	1003																													
	1003	1004																172												
L 102+49	1004																													
	1004	1005																92												
L 103+40	1005																													
	1005	1006																												
L 98+00	1007																													
	1007	1008																												
L 100+00	1009																													
	1009	1011																148												
L 101+84	1010																													
L 101+50	1011																													
	1011	1012																												
L 104+00	1013																													
	1013	1014																												
L 104+50	1015																													
	1015	1038																84												
L 106+00	1016																													
	1016	1017																108												
L 104+92	1017																													
	1017	1015																40												
L 105+70	1019																													
	1019	1025																64												
L 104+94	1020																													
	1020	1029																52												
L 103+28	1022																													
	1022	1023																28												
L 103+28	1023																													
	1023	1013																72												
L 105+32	1025																													
	1025	1020																40												
L 98+00	1026																													
	1026	1001																												
L 106+22	1027																													
	1027	1016																52												
L 106+10	1028																													
	1028	1019																40												
L 104+41	1029																													
	1029	1013																64												
L 106+89	1030																													
	1030	1031																36												
L 106+53	1031																													
	1031	1016																52												
L 96+40	1032																													
	1032	1033																4												
L 96+46	1033																													
SHEET TOTALS																		1428												

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

Line & Station	From	To	0' THRU 5' EACH	5' THRU 10' (A) LIN. FT.	10' AND ABOVE (B) LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28
L 98+00	1001		1			1			1										
	1001	1002																	
L 99+75	1002		1			1			1										
	1002	1003																	
L 100+85	1003		1			1			1										
	1003	1004																	
L 102+49	1004		1			1			1										
	1004	1005																	
L 103+40	1005		1			1	1												
	1005	1006																	
L 98+00	1007		1			1		1											
	1007	1008																	
L 100+00	1009		1			1		1											
	1009	1011																	
L 101+84	1010																		
L 101+50	1011		1			1		1											
	1011	1012																	
L 104+00	1013		1	0.3		1		1											
	1013	1014																	
L 104+50	1015		1			1			1										
	1015	1038																	
L 106+00	1016		1			1		1											
	1016	1017																	
L 104+92	1017		1			1	1												
	1017	1015																	
L 105+70	1019		1			1	1												
	1019	1025																	
L 104+94	1020		1			1			1										
	1020	1029																	
L 103+28	1022		1								1				1	1			
	1022	1023																	
L 103+28	1023		1			1		1											
	1023	1013																	
L 105+32	1025		1			1			1										
	1025	1020																	
L 98+00	1026		1												1	1			
	1026	1001																	
L 106+22	1027		1								1				1	1			
	1027	1016																	
L 106+10	1028		1			1			1										
	1028	1019																	
L 104+41	1029		1			1		1											
	1029	1013																	
L 106+89	1030		1			1		1											
	1030	1031																	
L 106+53	1031		1			1		1											
	1031	1016																	
L 96+40	1032		1			1		1											
	1032	1033																	
L 96+46	1033		1			1		1											
SHEET TOTALS			25	0.3		22	3	11	8		2				3	3			

Line & Station	From	To	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 98+00	1001																									
	1001	1002																								
L 99+75	1002																									
	1002	1003																								
L 100+85	1003																									
	1003	1004																								
L 102+49	1004																									
	1004	1005																								
L 103+40	1005																									
	1005	1006																2								
L 98+00	1007																									
	1007	1008																								
L 100+00	1009																									
	1009	1011																								
L 101+84	1010																									
L 101+50	1011																									
	1011	1012																								
L 104+00	1013																									
	1013	1014															2									
L 104+50	1015																									
	1015	1038																								
L 106+00	1016																									
	1016	1017																								
L 104+92	1017																									
	1017	1015																								
L 105+70	1019																									
	1019	1025																								
L 104+94	1020																									
	1020	1029																								
L 103+28	1022																									
	1022	1023																								
L 103+28	1023																									
	1023	1013																								
L 105+32	1025																									
	1025	1020																								
L 98+00	1026																									
	1026	1001																								
L 106+22	1027																									
	1027	1016																								
L 106+10	1028																									
	1028	1019																								
L 104+41	1029																									
	1029	1013																								
L 106+89	1030																									
	1030	1031																								
L 106+53	1031																									
	1031	1016																								
L 96+40	1032																									
	1032	1033																								
L 96+46	1033																									
SHEET TOTALS																	2	2								

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-ABRAIMAN

COMPUTED BY: Arianna G. Braiman, EI DATE: 09/21/2026

CHECKED BY: Joshua G. Dalton, PE DATE: 09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 12 .064	15 .064	18 .064	24 .064	30 .079
		1033	1034		702.2	702.0			36							X								
L 95+99	24 LT	1035		705.9																				
		1035	1036		702.5	702.2																		
L 96+70	40 LT	1036		705.4																				
		1036	1037		702.2	702.1																		
L 96+75	39 LT	1037		705.4																				
		1037	1001		702.1	700.6																		
L 103+66	38 LT	1038		690.8																				
		1038	1005		686.1	685.9																		
L 108+00	37 LT	1101		694.8																				
		1101	1102		691.5	691.2																		
L 108+00	37 RT	1102		694.8																				
		1102	1103		691.2	689.5			40							X								
L 111+50	9 LT	1104		707.4																				
		1104	1134		704.1	704.0																		
L 114+21	72 RT	1105									32					X								
L 111+73	38 RT	1110		707.0																				
		1110	1138		703.7	702.9																		
L 111+00	37 RT	1111		704.6																				
		1111	1129		701.3	695.5			44					X		X								
L 114+52	9 LT	1113		717.3																				
		1113	1114		713.8	712.6																		
L 114+52	38 RT	1114		716.1																				
		1114	1115		712.6	712.4																		
L 116+38	9 LT	1116		723.4																				
		1116	1117		720.1	718.9																		
L 116+38	37 RT	1117		722.2																				
		1117	1118		718.9	716.5																		
L 117+64	37 LT	1119		725.8																				
		1119	1137		722.5	722.3																		
L 117+64	9 RT	1120		726.8																				
		1120	1139		723.5	722.1																		
L 121+20	37 LT	1122		729.5																				
		1122	1136		726.4	725.5																		
L 119+50	37 LT	1123		728.2																				
		1123	1125		725.1	724.9																		
L 121+05	3 LT	1124		730.3																				
		1124	1135		727.3	726.7																		
L 119+50	8 RT	1125		729.3																				
		1125	1139		724.9	722.1	0.3																	
L 110+87	78 RT	1129		700.5																				
		1129	1131		695.2	693.9	0.6					36				X								
L 111+10	73 RT	1130		700.7																				
		1130	1129		700.7	695.2	0.5					24		X		X								
L 111+73	9 LT	1134		708.2																				
		1134	1110		704.0	703.7																		
L 120+30	2 LT	1135		729.7																				
		1135	1125		726.7	725.0																		
L 120+00	37 LT	1136		728.5																				
		1136	1123		725.5	725.1																		
SHEET TOTALS									120		32	60												

STRUCTURE	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	R. C. PIPE CLASS V 12	18	24	30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
1035																			1			1		1	
1035–1036								72																	
1036																			1			1			1
1036–1037								4																	
1037																			1			1			1
1037–1001								124																	
1038																			1			1			1
1038–1005								52																	
1101																			1			1		1	
1101–1102								72																	
1102																			1			1			1
1104																			1						
1104–1134								20																	
1110																			1			1			1
1110–1138								40																	
1111																			1			1			1
1113																			1						
1113–1114								48																	
1114																			1			1			1
1114–1115								36																	
1116																			1						
1116–1117								48																	
1117																			1			1			1
1117–1118								44																	
1119																			1			1		1	
1119–1137								34																	
1120																			1						
1120–1139								32																	
1122																			1			1		1	
1122–1136								120																	
1123																			1			1		1	
1123–1125								44																	
1124																			1						
1124–1135								72																	
1125																			1						
1125–1139								148																	
1129																			1	0.3					
1134																			1						
1134–1110								48																	
1135																			1						
1135–1125								80																	
1136																			1			1		1	
1136–1123								48																	
SHEET TOTALS								1186											23	0.3		14		6	8

STRUCTURE	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1104	1												1			1																	SEE SHEET 2C-11
1111–1129																								2									
1113	1												1			1																	SEE SHEET 2C-11
1116	1												1			1																	SEE SHEET 2C-11
1120	1												1			1																	SEE SHEET 2C-11
1124	1												1			1																	SEE SHEET 2C-11
1125	1												1			1																	SEE SHEET 2C-11
1129							1					1																					
1130																																	30" OPEN ENDED PIPE INLET
1130–1129																											2						
1134	1												1			1																	SEE SHEET 2C-11
1135	1												1			1																	SEE SHEET 2C-11
SHEET TOTALS	8						1					1	8			8								2			2						

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

S3DG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) SIZE: 12	15	18	24	30	36
								DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
								C. S. PIPE .064	.064	.064	.064		.079
								R. C. PIPE CLASS III 12	15	18	24	30	36
								R. C. PIPE CLASS IV 12	15	18	24	30	36	42
								R. C. PIPE CLASS V 12	18	24
								30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A: 0' THRU 5' EACH	B: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.
								C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION DI STD. 852.06 OR STD. 852.07	C.B. STD. 852.05
								OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
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L 118+00	37 LT	1137		726.4																1			1																			
		1137	1139		722.3	722.1																																					
L 118+00	9 RT	1139		727.5																1																						
		1139	1121		722.1	720.2																																					
L 123+68	37 LT	1201		731.4																1			1																			
		1201	1226		728.1	727.8																																					
L 122+18	37 LT	1202		730.2																1			1																			
		1202	1242		726.9	726.8																																					
L 123+83	9 RT	1203		732.6																1																						SEE SHEET 2C-11
		1203	1204		729.3	726.7																																					
L 122+18	9 RT	1204		731.4																1																						SEE SHEET 2C-11
		1204	1234		726.7	725.5	0.4																																				
L 125+50	37 LT	1205		732.9																1			1																			
		1205	1206		729.0	728.8																																					
L 125+50	9 RT	1206		734.1																1	0.3																					SEE SHEET 2C-11
		1206	1208		728.8	728.7																																					
L 125+50	38 RT	1208		734.4																1	0.7		1																			
		1208	1207		728.7	716.9	0.7			68					X																											2			
L 127+50	74 LT	1209		730.3																																							18" OPEN ENDED PIPE INLET
		1209	1211		730.3	730.1				36					X																											
L 129+50	37 LT	1210		740.6																1			1																			
		1210	1212		737.3	736.9																																					
L 127+50	37 LT	1211		736.0																1	0.9		1																			
		1211	1205		730.1	729.0																																					
L 129+50	59 RT	1212		740.2																1			1																			
		1212	1236		736.9	733.0																																					
L 127+08	38 RT	1213		736.0																1			1																			
		1213	1208		731.5	728.7																																					
L 134+50	50 LT	1219		743.0																1	0.9		1																			
		1219	1222		737.1	736.8																																					
L 135+50	52 LT	1220		742.9																1			1																			
		1220	1221		739.6	739.4																																					
L 135+03	52 LT	1221		742.8																1			1																			
		1221	1219		739.4	738.0																																					
L 134+50	38 RT	1222		743.2																1	1.9		1																			
		1222	1224		736.3	735.5																																					
L 135+03	40 RT	1223		743.1																1			1																			
		1223	1222		738.3	737.3	0.4																																					
L 123+18	83 LT	1226		732.0																1			1																			
		1226	1228		727.8	727.6																																					
L 127+61	85 RT	1227		735.3																1			1																			
		1227	1213		731.8	731.5																																					
L 122+67	74 LT	1228		731.1																1			1																			
		1228	1202		727.6	726.9																																					
L 128+11	7 RT	1229		738.1																1																						SEE SHEET 2C-11
		1229	1230		734.9	731.9																																					
L 126+36	9 RT	1230		735.2																1																						SEE SHEET 2C-11
		1230	1206		731.9	729.0																																					
L 134+01	38 RT	1231		743.6																1			1																			
		1231	1222		740.6	738.5																																					
				SHEET TOTALS						104										1208	504		52	88	52																			
																				24	4.7		18	5	9	4		5			2	2						4		4			2			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4714AC	3D-4

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
L 134+50	71	LT	1235		741.3															
			1235	1219		738.3	737.1							24			X			
L 128+11	90	RT	1236		736.3															
			1236	1227		733.0	732.0	0.4												
Y25 22+91	16	LT	1238		741.9															
			1238	1240		738.8	738.5			28							X			
Y25 22+94	28	RT	1239		741.7															
			1239	1241		738.6	738.3			28							X			
L 122+18	7	LT	1242		730.8															
			1242	1204		726.8	726.7													
L 134+00	50	LT	1243		743.4															
			1243	1219		740.1	737.5													
L 140+39	76	LT	1301		756.0															
			1301	1303		752.9	752.1			28							X			
L 138+72	43	LT	1302		750.0															
			1302	1304		746.7	742.8													
L 137+50	44	LT	1304		746.1															
			1304	1331		742.8	740.7													
Y24 11+11	37	LT	1305		740.1															
			1305	1340		740.1	739.8				24						X			
L 137+87	44	RT	1306		747.1															
			1306	1332		742.6	741.0	0.4												
L 139+99	44	RT	1308		754.8															
			1308	1333		749.7	744.9													
Y26 11+05	22	LT	1309		758.1															
			1309	1352		756.8	756.7			28							X			
L 140+40	13	RT	1310		757.4															
			1310	1311		752.7	752.5													
L 140+40	43	RT	1311		756.7															
			1311	1308		752.1	749.7													
L 142+50	42	LT	1315		764.4															
			1315	1316		760.9	756.5	0.5												
L 142+50	42	RT	1316		764.4															
			1316	1317		756.5	755.0													
L 141+21	44	RT	1317		759.6															
			1317	1311		755.0	752.1													
L 146+50	34	LT	1318		778.8															
			1318	1345		775.5	771.9	0.4												
L 144+25	38	LT	1319		771.2															
			1319	1315		767.8	760.9	0.4												
L 144+25	38	RT	1320		771.2															
			1320	1316		764.7	756.5													
L 147+83	31	LT	1324		782.1															
			1324	1344		778.8	777.8													
L 148+34	31	RT	1325		783.1															
			1325	1326		779.8	774.8													
L 146+25	34	RT	1326		778.1															
			1326	1348		774.8	765.7													
L 149+50	31	RT	1327		785.5															
			1327	1325		780.8	779.8													
								SHEET TOTALS		112	24			24						

SIZE / THICKNESS OR GAUGE

FROM	TO	C. S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	R. C. PIPE CLASS V 12	18	24	30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
1235																								3.400
1235	1219																							
1236																								
1236	1227													48										
1238																								
1238	1240																							
1239																								
1239	1241																							
1242																								
1242	1204													16										
1243																								
1243	1219													48										
1301																								
1301	1303																							
1302																								
1302	1304													120										
1304																								
1304	1331													100										
1305																								
1305	1340																							
1306																								
1306	1332																	64						
1308																								
1308	1333																	144						
1309																								
1309	1352																							
1310																								
1310	1311													32										
1311																								
1311	1308																	40						
1315																								
1315	1316															80								
1316																								
1316	1317																	128						
1317																								
1317	1311																	80						
1318																								
1318	1345													116										
1319																								
1319	1315															176								
1320																								
1320	1316																172							
1324																								
1324	1344													40										
1325																								
1325	1326													208										
1326																								
1326	1348													128										
1327																								
1327	1325													116										
SHEET TOTALS														972	256	172	456							3.400

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

FROM	TO	0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	REMARKS
1235															
1235	1219														
1236		1			1			1							
1236	1227														
1238		1			1		1								
1238	1240														
1239		1			1			1							
1239	1241														
1242		1							1				1	1	
1242	1204														
1243		1			1			1							
1243	1219														
1301		1			1		1								
1301	1303														
1302		1			1		1								
1302	1304														
1304		1			1		1								
1304	1331														
1305															18" OPEN ENDED PIPE INLET
1305	1340														
1306		1			1			1							
1306	1332														
1308		1	0.1		1			1							
1308	1333														
1309															15" OPEN ENDED PIPE INLET
1309	1352														
1310		1							1				1	1	
1310	1311														
1311		1			1			1							
1311	1308														
1315		1			1		1								
1315	1316														
1316		1	2.9		1			1							
1316	1317														
1317		1			1			1							
1317	1311														
1318		1			1		1								
1318	1345														
1319		1			1		1								
1319	1315														
1320		1	1.5		1			1							
1320	1316														
1324		1			1		1								
1324	1344														
1325		1			1			1							
1325	1326														
1326		1			1			1							
1326	1348														
1327		1			1			1							
1327	1325														
SHEET TOTALS		22	4.5		20		8	12	2				2	2	

	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.
SHEET TOTALS																										

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

S3DG-ABRAHAM

COMPUTED BY: Arianna G. Braiman, EI DATE: 09/21/2026

CHECKED BY: Joshua G. Dalton, PE DATE: 09/21/2026

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4714AC	3D-5

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) SIZE 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
								THICKNESS OR GAUGE											
Y27 10+91	29 LT	1329		774.0															
		1329	1342		771.7	770.0													
L 148+45	62 LT	1330		783.7															
		1330	1324		779.7	778.8													
L 136+50	50 LT	1331		744.0															
		1331	1220		740.7	739.6													
L 137+22	44 RT	1332		745.4															
		1332	1223		741.0	738.3	0.4												
L 138+56	44 RT	1333		749.4															
		1333	1306		744.3	742.6	0.3												
L 137+22	73 RT	1334		744.2															
		1334	1332		741.8	741.7													
L 137+87	73 RT	1335		745.6															
		1335	1306		743.3	743.2													
L 138+56	76 RT	1336		747.5															
		1336	1333		745.2	745.0													
L 140+00	82 RT	1337		752.2															
		1337	1308		749.9	749.7													
Y24 11+00	17 LT	1340		742.3															
		1340	1225		739.8	739.6	0.3												
Y27 10+75	19 RT	1342		773.4															
		1342	1348		765.2	765.0													
EY27 11+69	25 LT	1343		769.2															
		1343	1347		767.2	765.7													
L 147+41	32 LT	1344		781.1															
		1344	1318		777.8	775.5													
L 145+32	36 LT	1345		775.1															
		1345	1319		771.9	768.0	0.6												
EY27 11+69	23 RT	1347		769.0															
		1347	1342		765.7	765.2													
L 144+96	37 RT	1348		773.9															
		1348	1320		765.0	764.7													
Y28 12+33	16 RT	1349		783.4															
		1349	1330		780.1	779.7													
Y28 12+33	17 LT	1350		783.2															
		1350	1349		780.2	780.1													
Y28 12+84	56 LT	1351		784.8															
		1351	1350		781.8	780.2													
Y26 10+77	25 LT	1352		761.0															
		1352	1316		756.7	756.5			56							X			
Y1 12+33	42 RT	1401		782.0															
		1401	1415		779.7	779.4													
L 151+03	31 RT	1402		788.3															
		1402	1327		785.0	780.9													
L 154+47	43 RT	1403		787.7															
		1403	1408		784.3	779.9													
Y1 12+01	52 LT	1404		782.3															
		1404	1472		777.5	776.2	0.4												
L 155+52	63 LT	1405		785.4															
		1405	1407		782.1	780.3													
				SHEET TOTALS					56										

Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) SIZE	C. S. PIPE 12	15	18	24		30	R. C. PIPE CLASS III 12	15	18	24	30	36		R. C. PIPE CLASS IV 12	15	18	24	30	36	42		R. C. PIPE CLASS V 12	18	24	
THICKNESS OR GAUGE	.064	.064	.064	.064		.079																			
Y27 10+91																									
														48											
L 148+45																									
														68											
L 136+50																									
														100											
L 137+22																									
																		216							
L 138+56																									
																		68							
L 137+22																									
														32											
L 137+87																									
														32											
L 138+56																									
														36											
L 140+00																									
														40											
Y24 11+00																									
																						48			
Y27 10+75																									
																		64							
EY27 11+69																									
																		48							
L 147+41																									
														92											
L 145+32																									
														108											
EY27 11+69																									
																		120							
L 144+96																									
																		72							
Y28 12+33																									
														44											
Y28 12+33																									
														32											
Y28 12+84																									
														64											
Y26 10+77																									
Y1 12+33																									
													20												
L 151+03																									
														152											
L 154+47																									
														176											
Y1 12+01																									
														80											
L 155+52																									
														120											
													20	1224				304	284			48			

LINE & STATION	30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A: 0' THRU 5' EACH	B: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y27 10+91			1			1		1																															
L 148+45			1											1	1																							
L 136+50			1			1		1																														
L 137+22			1			1			1																													
L 138+56			1	0.1		1			1																													
L 137+22			1											1	1																							
L 137+87			1											1	1																							
L 138+56			1											1	1																							
L 140+00			1											1	1																							
Y24 11+00			1			1			1																													
Y27 10+75			1	3.2		1		1																													
EY27 11+69																																						24" OPEN ENDED PIPE INLET
L 147+41			1			1		1																													
L 145+32			1			1		1																													
EY27 11+69			1																									1				1					SEE SHEET 2C-6
L 144+96			1	3.9		1			1																													
Y28 12+33			1			1		1																													
Y28 12+33			1			1		1																													
Y28 12+84			1			1		1																													
Y26 10+77			1																										1				1				
Y1 12+33			1											1	1																							
L 151+03			1			1			1																													
L 154+47			1			1		1																													
Y1 12+01						1																															TMP TB JB CONVERSION TO CB
L 155+52			1			1			1																													
			23	7.2		14	2	7	6				7	7				1	1			1	1		1	1											

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4714AC	3D-6

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
L 156+70	43 LT	1407		783.6			
		1407	1409		780.3	775.5	
L 156+23	43 RT	1408		784.5			
		1408	1411		779.9	777.7	
L 159+00	55 LT	1409		779.1			
		1409	1427		775.5	773.2	
L 157+53	65 RT	1410		780.8			
		1410	1411		777.8	777.7	
L 157+59	43 RT	1411		782.0			
		1411	1430		777.7	776.3	0.9
L 158+90	60 RT	1412		779.2			
		1412	1441		775.3	774.2	0.5
Y2 10+72	95 RT	1413		775.1			
		1413	1490		770.4	770.0	
Y2A 10+50	37 LT	1414		777.4			
		1414	1431		772.4	771.6	0.4
Y1 12+38	21 RT	1415		782.7			
		1415	1416		779.4	778.8	
Y1 11+87	16 RT	1416		782.1			
		1416	1404		778.8	777.5	0.3
Y2B 13+50	60 LT	1417		768.2			
		1417	1419		765.4	765.2	
L 161+70	43 RT	1418		774.2			
		1418	1436		769.0	767.3	0.5
Y2B 13+69	56 LT	1419		769.0			
		1419	1547		764.5	764.8	
L 163+48	31 LT	1420		770.4			
		1420	1501		766.9	764.5	
Y1 12+68	139 LT	1421		777.5			
		1421	1422		774.5	774.1	
L 156+92	63 LT	1422		778.0			
		1422	1423		774.1	773.8	
L 157+55	61 LT	1423		777.8			
		1423	1424		773.8	773.4	
L 157+82	61 LT	1424		777.9			
L 159+20	80 LT	1425		776.6			
		1425	1427		773.3	773.2	
Y2 10+71	57 LT	1427		777.5			
		1427	1465		773.2	769.4	
L 163+00	44 RT	1429		771.2			
		1429	1419		767.2	765.0	0.9
L 158+25	48 RT	1430		780.6			
		1430	1412		776.3	775.6	1.0
L 161+02	43 RT	1431		775.6			
		1431	1418		771.6	769.0	0.4
L 162+95	43 RT	1436		771.3			
		1436	1429		767.3	767.2	0.9
Y2A 15+00	9 RT	1437		782.6			
		1437	1453		779.3	778.5	
Y2A 15+82	24 RT	1438		781.3			

FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE)												C. S. PIPE					R. C. PIPE CLASS III						R. C. PIPE CLASS IV							R. C. PIPE CLASS V			30" POLYPROPYLENE PIPE
SIZE		12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	12	15	18	24	30	12	15	18	24	30	36	12	15	18	24	30	36	42	12	18	24	
THICKNESS OR GAUGE														.064	.064	.064	.064	.079																	
1407	1409																									232									
1408	1411																									136									
1409	1427																									44									
1410	1411																									24									
1411	1430																									64									
1412	1441																										72								
1413	1490																									116									
1414	1431																											92							
1415	1416																									48									
1416	1404																									68									
1417	1419																									20									
1418	1436																											124							
1419	1547																												44						
1420	1501																										56								
1421	1422																									80									
1422	1423																									60									
1423	1424																									28									
1425	1427																									20									
1427	1465																									100									
1429	1419																											80							
1430	1412																									64									
1431	1418																											68							
1436	1429																											4							
1437	1453																									48									
SHEET TOTALS																										1152	128	368	44						

STRUCTURE NUMBER	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1407		1			1			1																																	
1408		1			1		1																																		
1409		1			1			1																																	
1410		1			1	1																																			
1411		1			1		1																																		
1412		1			1		1																																		
1413		1			1		1																																		
1414		1			1	1																																			
1415		1			1			1																																	
1416		1			1	1																																			
1417		1														1				1																					
1418		1	0.2		1		1																																		
1419		1			1	1																																			
1420		1	0.7		1			1																																	
1421		1			1	1																																			
1422		1			1	1																																			
1423		1			1	1																																			
1424		1			1	1																																			
1425		1			1	1																																			
1427		1			1			1																																	
1429		1			1		1																																		
1430		1			1		1																																		
1431		1			1		1																																		
1436		1			1		1																																		
1437		1							1												1			1		1															
1438		1					1																						1												
SHEET TOTALS		26	0.9		23	9	10	5	1							1				1	1			1		1			1												

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-7

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	R. C. PIPE CLASS V 12	18	24	30" POLYPROPYLENE PIPE
		1438	602-U		778.8	778.6																										40									
Y2A 10+56	12 RT	1441		778.8																																					
		1441	1414		774.2	772.9	0.6																										48								
Y2A 11+89	12 RT	1442		782.3																																					
		1442	1458		779.0	776.9																										48									
L 161+02	64 RT	1443		776.0																																					
		1443	1431		773.0	772.3																										24									
L 161+87	64 RT	1444		775.1																																					
		1444	1418		772.0	770.9																										28									
L 162+96	76 RT	1445		774.9																																					
		1445	1436		771.5	767.3																										32									
Y2A 11+38	12 RT	1446		781.1																																					
		1446	1459		777.8	775.6																										48									
Y2A 10+74	12 RT	1447		779.4																																					
		1447	1441		775.2	774.2																										20									
Y2 11+68	52 LT	1448		776.5																																					
		1448	1465		770.8	769.6																										16									
Y1A 13+09	30 RT	1450		777.6																																					
		1450	1469		774.5	773.2																										12									
L 156+23	80 RT	1451		782.4																																					
		1451	1408		780.1	779.9																										36									
Y2A 13+95	29 LT	1452		782.9																																					
		1452	1453		779.6	778.5																										104									
Y2A 15+00	38 LT	1453		781.9																																					
		1453	1455		778.5	773.6																										100									
Y2 12+92	38 LT	1454		771.2																																					
		1454	1480		767.9	767.2																										12									
Y2B 11+29	20 LT	1455		776.9																																					
		1455	1544		773.6	768.9																										128									
Y2A 13+50	27 RT	1456		782.9																																					
		1456	1457		779.5	779.2																										68									
Y2A 13+12	32 LT	1457		782.7																																					
		1457	1458		779.2	776.9																										112									
Y2A 11+89	37 LT	1458		780.2																																					
		1458	1459		776.9	775.6																										40									
Y2A 11+38	37 LT	1459		779.0																																					
		1459	1414		775.6	773.1	0.5																									72									
Y29 10+94	18 LT	1460		785.3																																					
		1460	1462		782.0	781.5																										36									
Y29 10+94	18 RT	1462		784.8																																					
		1462	1327		781.5	780.8																										88									
L 150+12	31 LT	1464		786.8																																					
		1464	1351		783.7	781.8																										60									
Y2 11+68	38 LT	1465		773.6																																					
		1465	1466		769.4	768.2																											40								
Y2 12+06	53 LT	1466		772.3																																					
		1466	1468		767.7	767.5																													48						
Y1A 14+67	17 RT	1467		773.2																																					
		1467	1477		769.2	769.1	0.6																											16							
Y1A 15+11	17 LT	1468		771.9																																					
SHEET TOTALS																																1124	88	16	48						

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1438	602-U																																									
1441			1							1					1										1		1															
1441	1414																																									
1442			1							1				1	1																											
1442	1458																																									
1443			1			1	1																																			
1443	1431																																									
1444			1			1	1																																			
1444	1418																																									
1445			1			1	1																																			
1445	1436																																									
1446			1							1				1	1																											
1446	1459																																									
1447			1							1					1										1		1															
1447	1441																																									
1448			1	0.7		1	1																																			
1448	1465																																									
1450			1			1			1																																	
1450	1469																																									
1451			1											1	1																											
1451	1408																																									
1452			1			1			1																																	
1452	1453																																									
1453			1			1			1																																	
1453	1455																																									
1454			1			1		1																																		
1454	1480																																									
1455			1			1			1																																	
1455	1544																																									
1456			1			1	1																																			
1456	1457																																									
1457			1			1		1																																		
1457	1458																																									
1458			1			1		1																																		
1458	1459																																									
1459			1			1		1																																		
1459	1414																																									
1460			1			1	1																																			
1460	1462																																									
1462			1			1	1																																			
1462	1327																																									
1464			1			1		1																																		
1464	1351																																									
1465			1			1			1																																	
1465	1466																																									
1466			1			1	1																																			
1466	1468																																									
1467			1			1		1																																		
1467	1477																																									
1468			1			1			1																																	
SHEET TOTALS			25	0.7		20	8	6	6	4				3	5										2		2															

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-8

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

ABBREVIATIONS
- C.A.A. CORRUGATED ALUMINIUM ALLOY
- C.B. CATCH BASIN
- C.S. CORRUGATED STEEL
- D.I. DROP INLET
- G.D.I. GRATED DROP INLET
- H.D.P.E. HIGH DENSITY POLYETHYLENE
- J.B. JUNCTION BOX
- M.H. MANHOLE
- N.S. NARROW SLOT
- P.V.C. POLYVINYL CHLORIDE
- R.C. REINFORCED CONCRETE
- T.B.D.I. TRAFFIC BEARING DROP INLET
- T.B.J.B. TRAFFIC BEARING JUNCTION BOX
- W.S. WIDE SLOT

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
			1468	1480		767.3	765.9	
Y1A 13+09	17	RT	1469		776.5			
			1469	1476		772.5	771.1	0.4
Y1A 11+92	1	LT	1471		779.1			
			1471	1487		775.8	775.2	
Y1A 11+37	18	RT	1472		779.5			
			1472	1487		776.2	775.2	0.6
Y1A 12+52	17	LT	1473		777.5			
			1473	1474		773.1	772.9	0.4
Y1A 12+60	17	RT	1474		777.3			
			1474	1469		772.9	772.5	0.3
Y1A 13+61	33	RT	1475		775.9			
			1475	1476		771.2	771.1	
Y1A 13+79	17	RT	1476		775.3			
			1476	1467		771.1	769.2	0.6
Y1A 14+67	30	RT	1477		774.6			
			1477	1466		769.1	768.2	0.7
Y2 12+89	27	RT	1478		770.6			
			1478	1484		765.6	761.7	0.3
Y2 12+89	10	RT	1479		771.2			
			1479	1478		765.7	765.6	0.3
Y2 12+89	28	LT	1480		770.6			
			1480	1479		765.9	765.7	
Y2 11+50	40	RT	1481		774.1			
			1481	1413		770.7	770.4	
Y2 15+70	17	LT	1482		765.8			
			1482	1484		762.4	762.0	
Y2 15+66	37	LT	1483		766.6			
			1483	1482		764.6	761.8	
Y2 15+70	17	RT	1484		765.8			
			1484	1485		762.0	761.9	
Y2 15+89	16	RT	1485		765.6			
			1485	1486		761.9	761.2	
Y1A 11+92	17	RT	1487		778.5			
			1487	1474		775.2	773.6	0.8
L 163+48	51	LT	1488		770.4			
			1488	1420		768.1	767.1	
L 161+98	50	LT	1489		774.3			
			1489	1490		772.0	770.0	
L 161+98	32	LT	1490		773.8			
			1490	1420		770.0	764.9	
L 164+04	31	LT	1501		769.5			
			1501	1502		763.0	762.8	
L 165+50	5	RT	1503		769.0			
			1503	1504		764.5	764.0	0.3
L 165+50	33	LT	1504		768.1			
			1504	1548		764.0	763.7	
L 166+50	35	RT	1505		769.5			
			1505	1506		766.4	765.6	
L 166+50	7	RT	1506		768.8			
								SHEET TOTALS

Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) and C. S. PIPE

FROM	TO	Drainage 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C.S. 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)
1468	1480																	
1469																		
1469	1476																	
1471																		
1471	1487																	
1472																		
1472	1487																	
1473																		
1473	1474																	
1474																		
1474	1469																	
1475																		
1475	1476																	
1476																		
1476	1467																	
1477																		
1477	1466																	
1478																		
1478	1484																	
1479																		
1479	1478																	
1480																		
1480	1479																	
1481																		
1481	1413																	
1482																		
1482	1484																	
1483																		
1483	1482				24			X		X								
1484																		
1484	1485																	
1485																		
1485	1486																	
1487																		
1487	1474																	
1488																		
1488	1420																	
1489																		
1489	1490																	
1490																		
1490	1420																	
1501																		
1501	1502						40			X								
1503																		
1503	1504																	
1504																		
1504	1548																	
1505																		
1505	1506																	
1506																		
SHEET TOTALS					24		40											

R. C. PIPE, 30" POLYPROPYLENE PIPE, ENDWALLS

FROM	TO	R.C. CLASS III 12	15	18	24	30	36	R.C. CLASS IV 12	15	18	24	30	36	42	R.C. CLASS V 12	18	24	30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
1468	1480											52							
1469																			
1469	1476										68								
1471																			
1471	1487								16										
1472																			
1472	1487								52										
1473																			
1473	1474									32									
1474																			
1474	1469										48								
1475																			
1475	1476									24									
1476																			
1476	1467										88								
1477																			
1477	1466										48								
1478																			
1478	1484											280							
1479																			
1479	1478											16							
1480																			
1480	1479											36							
1481																			
1481	1413								96										
1482																			
1482	1484																32		
1483																			
1483	1482																		
1484																			
1484	1485											20							
1485																			
1485	1486																	32	
1487																			
1487	1474								68										
1488																			
1488	1420		20																
1489																			
1489	1490		20																
1490																			
1490	1420								148										
1501																			
1501	1502																		
1503																			
1503	1504									36									
1504																			
1504	1548										72								
1505																			
1505	1506								28										
1506																			
SHEET TOTALS			40						408	92	324	404					32	32	

QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)); FRAME, GRATES, AND HOOD STD. 840.03; CONCRETE TRANSITIONAL SECTION

FROM	TO	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G	D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16
1468	1480													
1469		1			1		1							
1469	1476													
1471		1							1				1	1
1471	1487													
1472		1			1		1							
1472	1487													
1473		1			1			1						
1473	1474													
1474		1			1		1							
1474	1469													
1475		1												
1475	1476													
1476		1			1		1							
1476	1467													
1477		1	0.5		1	1								
1477	1466													
1478		1			1		1							
1478	1484													
1479		1	0.5						1					1
1479	1478													
1480		1			1			1						
1480	1479													
1481		1			1		1							
1481	1413													
1482		1						1						
1482	1484													
1483														
1483	1482													
1484		1					1							
1484	1485													
1485		1					1							
1485	1486													
1487		1			1		1							
1487	1474													
1488		1											1	1
1488	1420													
1489		1											1	1
1489	1490													
1490		1			1			1						
1490	1420													
1501		1	1.5		1			1						
1501	1502													
1503		1							1					
1503	1504													
1504		1			1			1						
1504	1548													
1505		1			1		1							
1505	1506													
1506		1							1					
SHEET TOTALS		24	2.5		14	1	10	6	4				3	4

FROM	TO	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1468	1480																											
1469																												
1469	1476																											
1471																												
1471	1487																											
1472																												
1472	1487																											
1473																												
1473	1474																											
1474																												
1474	1469																											
1475										1							1											
1475	1476																											
1476																												
1476	1467																											
1477																												
1477	1466																											
1478																												
1478	1484																											
1479											1		1															
1479	1478																											
1480																												
1480	1479																											
1481																												
1481	1413																											
1482																1												SEE SHEET 2C-3
1482	1484																											
1483																												24" OPEN ENDED PIPE INLET
1483	1482																				2							
1484																1												SEE SHEET 2C-3
1484	1485																											
1485																1												SEE SHEET 2C-3
1485	1486																											MUST USE POLYPROPYLENE
1487																												
1487	1474																											
1488																												
1488	1420																											
1489																												
1489	1490																											
1490																												
1490	1420																											
1501																												
1501	1502																											
1503								1			1																	SEE SHEET 2C-11
1503	1504																											
1504																												
1504	1548																											
1505																												
1505	1506																											
1506								1			1																	SEE SHEET 2C-11
SHEET TOTALS								2		1	3		1			3	1				2							

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4714AC	3D-9

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

ABBREVIATIONS
- **C.A.A.** CORRUGATED ALUMINIUM ALLOY
- **C.B.** CATCH BASIN
- **C.S.** CORRUGATED STEEL
- **D.I.** DROP INLET
- **G.D.I.** GRATED DROP INLET
- **H.D.P.E.** HIGH DENSITY POLYETHYLENE
- **J.B.** JUNCTION BOX
- **M.H.** MANHOLE
- **N.S.** NARROW SLOT
- **P.V.C.** POLYVINYL CHLORIDE
- **R.C.** REINFORCED CONCRETE
- **T.B.D.I.** TRAFFIC BEARING DROP INLET
- **T.B.J.B.** TRAFFIC BEARING JUNCTION BOX
- **W.S.** WIDE SLOT

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
		1506	1503		764.8	764.5													
L 167+50	9 RT	1507		768.5															
		1507	1528		765.2	765.0													
L 166+90	36 LT	1508		767.2															
		1508	1510		764.2	763.8													
L 168+65	7 LT	1509		767.7															
		1509	1511		764.4	764.3													
L 168+08	38 LT	1510		766.8															
		1510	1512		763.7	763.1													
L 168+98	7 LT	1511		767.6															
		1511	1512		764.3	763.1													
L 169+13	38 LT	1512		766.4															
		1512	1514		763.1	762.3													
L 170+62	9 RT	1513		767.5															
		1513	1514		761.3	761.1													
L 170+62	37 LT	1514		765.9															
		1514	1516		761.1	760.4													
L 172+94	6 RT	1515		766.5															
		1515	1516		762.9	761.6													
L 172+94	37 LT	1516		765.0															
		1516	1517		760.4	759.0													
L 174+35	37 LT	1517		763.6															
		1517	1520		759.0	757.6													
L 174+35	4 LT	1518		764.9															
		1518	1517		761.6	760.2													
L 175+63	7 LT	1519		763.3															
		1519	1520		760.0	758.8													
L 175+63	37 LT	1520		762.1															
		1520	1521		757.6	756.7													
L 177+00	37 LT	1521		761.2															
		1521	1527		756.7	756.5													
L 176+66	9 RT	1522		762.4															
		1522	1542		759.1	758.7													
Y3 11+32	1 LT	1523		761.3															
		1523	1524		757.5	757.1													
Y3 11+32	17 RT	1524		760.4															
		1524	1525		757.1	757.0			32							X			
L 177+38	9 LT	1526		761.5															
		1526	1527		758.2	757.7													
L 177+38	36 LT	1527		761.1															
		1527	1650		756.5	756.1													
L 167+00	8 RT	1528		768.7															
		1528	1506		765.0	764.8													
Y3 13+20	20 LT	1529							24							X			
L 170+10	9 RT	1530		767.7															
		1530	1513		764.4	762.0													
Y3 13+56	22 RT	1535		763.4															
		1535	1536		761.1	761.0			24							X			
L 165+50	64 RT	1538		768.2															
		1538	1503		764.7	764.5													
SHEET TOTALS									80										

FROM	TO	C. S. PIPE 12 .064	15 .064	18 .064	24 .064	30 .079	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	R. C. PIPE CLASS V 12	18	24	30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
1506	1503														100									
1507																								
1507	1528													48										
1508																								
1508	1510													116										
1509																								
1509	1511													32										
1510																								
1510	1512													104										
1511																								
1511	1512													32										
1512																								
1512	1514													148										
1513																								
1513	1514															48								
1514																								
1514	1516																228							
1515																								
1515	1516													44										
1516																								
1516	1517																140							
1517																								
1517	1520																128							
1518																								
1518	1517													32										
1519																								
1519	1520													28										
1520																								
1520	1521																136							
1521																								
1521	1527																36							
1522																								
1522	1542													32										
1523																								
1523	1524													16										
1524																								
1524	1525																							
1526																								
1526	1527													28										
1527																								
1527	1650																112							
1528																								
1528	1506													48										
1529																								
1530																								
1530	1513													52										
1535																								
1535	1536																							
1538																								
1538	1503													56										
SHEET TOTALS														816	100	48	780							

FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE
1506	1503																									
1507		1							1												1			1		
1507	1528																									
1508		1			1			1																		
1508	1510																									
1509		1							1				1	1												
1509	1511																									
1510		1			1			1																		
1510	1512																									
1511		1							1				1	1												
1511	1512																									
1512		1			1			1																		
1512	1514																									
1513		1	1.2						1												1			1		1
1513	1514																									
1514		1			1			1																		
1514	1516																									
1515		1							1												1			1		1
1515	1516																									
1516		1			1			1																		
1516	1517																									
1517		1			1			1																		
1517	1520																									
1518		1							1												1			1		1
1518	1517																									
1519		1							1												1			1		1
1519	1520																									
1520		1			1			1																		
1520	1521																									
1521		1			1			1																		
1521	1527																									
1522		1							1												1			1		1
1522	1542																									
1523		1							1				1	1												
1523	1524																									
1524		1			1	1																				
1524	1525																									
1526		1																			1			1		1
1526	1527																									
1527		1			1			1																		
1527	1650																									
1528		1							1												1			1		
1528	1506																									
1529																										
1530		1							1												1			1		1
1530	1513																									
1535		1											1	1												
1535	1536																									
1538		1											1	1												
1538	1503																									
SHEET TOTALS		24	1.2		10	1		9	11				5	5							9			9		7

FROM	TO	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1506	1503															
1507																SEE SHEET 2C-11
1507	1528															
1508																
1508	1510															
1509																
1509	1511															
1510																
1510	1512															
1511																
1511	1512															
1512																
1512	1514															
1513																
1513	1514															
1514																
1514	1516															
1515																
1515	1516															
1516																
1516	1517															
1517																
1517	1520															
1518																
1518	1517															
1519																
1519	1520															
1520																
1520	1521															
1521																
1521	1527															
1522																SEE SHEET 2C-11
1522	1542															
1523																
1523	1524															
1524																
1524	1525															
1526																
1526	1527															
1527																
1527	1650															
1528																SEE SHEET 2C-11
1528	1506															
1529																
1530																
1530	1513															
1535																
1535	1536															
1538																
1538	1503															
SHEET TOTALS																

COMPUTED BY: Arianna G. Braiman, EI DATE: 09/21/2026

CHECKED BY: Joshua G. Dalton, PE DATE: 09/21/2026

SDG-BELAM

PROJECT NO.	SHEET NO.
U-4714AC	3D-10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
L 166+39	68	RT	1539		770.0															
			1539	1505		767.7	766.4													
Y3 10+93	1	LT	1541		761.0															
			1541	1523		757.7	757.5													
L 177+00	9	RT	1542		762.0															
			1542	1526		758.7	758.2			40							X			
L 172+94	56	RT	1543		765.8															
			1543	1515		763.1	762.9													
Y2B 12+63	17	LT	1544		772.3															
			1544	1545		768.9	767.1													
Y2B 13+25	29	LT	1545		770.5															
			1545	1419		767.1	765.2													
Y2B 13+96	37	RT	1546		770.3															
			1546	1547		767.0	765.5													
L 164+07	37	RT	1547		769.8															
			1547	1501		764.3	763.0													
L 164+77	32	LT	1548		768.6															
			1548	1501		763.7	763.0													
L 170+62	63	RT	1549		765.4															
			1549	1513		761.5	761.3													
L 171+67	60	RT	1550		765.8															
			1550	1543		763.5	763.1													
Y3 11+00	49	RT	1551		756.1															
			1551	1630		756.1	755.0													
Y2B 13+39	52	RT	1571		767.0															
			1571	1538		765.0	764.7													
L 178+50	9	LT	1601		760.4															
			1601	1650		757.0	756.8													
L 178+67	37	RT	1602		759.1															
			1602	1630		755.8	755.2													
L 179+97	4	RT	1603		758.5															
			1603	1653		752.2	752.0													
L 180+24	37	RT	1604		756.8															
			1604	1631		753.5	753.4													
L 181+22	4	RT	1605		757.1															
			1605	1643		753.8	751.7													
L 181+51	37	RT	1606		756.2															
			1606	1643		751.9	751.7													
L 182+97	37	LT	1607		754.0															
			1607	1622		749.5	748.9	0.5												
L 182+97	7	RT	1608		755.1															
			1608	1607		751.8	750.7													
L 186+92	89	LT	1609		753.8															
			1609	1621		750.5	750.2													
L 186+50	7	RT	1610		755.3															
			1610	1612		751.3	750.8													
L 186+50	37	RT	1611		754.7															
			1611	1610		751.4	751.3													
L 185+00	4	LT	1612		754.3															
			1612	1649		750.8	750.7													
SHEET TOTALS										40										

FROM	TO	C.S. PIPE 12 .064	C.S. PIPE 15 .064	C.S. PIPE 18 .064	C.S. PIPE 24 .064	R.C. PIPE CLASS III 12	15	18	24	30	36	R.C. PIPE CLASS IV 12	15	18	24	30	36	42	R.C. PIPE CLASS V 12	15	18	24	36	30" POLYPROPYLENE PIPE
1539																								
1539	1505												36											
1541																								
1541	1523												36											
1542																								
1542	1526																							
1543																								
1543	1515												48											
1544																								
1544	1545												60											
1545																								
1545	1419												52											
1546																								
1546	1547												64											
1547																								
1547	1501															68								
1548																								
1548	1501														72									
1549																								
1549	1513														52									
1550																								
1550	1543						128																	
1551																								
1551	1630													128										
1571																								
1571	1538						68																	
1601																								
1601	1650												48											
1602																								
1602	1630												20											
1603																								
1603	1653														40									
1604																								
1604	1631												20											
1605																								
1605	1643												36											
1606																								
1606	1643												36											
1607																								
1607	1622															88								
1608																								
1608	1607												44											
1609																								
1609	1621												76											
1610																								
1610	1612												148											
1611																								
1611	1610												28											
1612																								
1612	1649												4											
SHEET TOTALS							196						756	128	164	156								

FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16
1539			1											1	1
1539	1505														
1541			1							1				1	1
1541	1523														
1542			1							1					
1542	1526														
1543			1											1	1
1543	1515														
1544			1			1			1						
1544	1545														
1545			1			1			1						
1545	1419														
1546			1			1			1						
1546	1547														
1547			1	0.5		1		1							
1547	1501														
1548			1			1			1						
1548	1501														
1549			1												
1549	1513														
1550			1											1	1
1550	1543														
1551															
1551	1630														
1571			1												
1571	1538														
1601			1							1					
1601	1650														
1602			1			1		1							
1602	1630														
1603			1	1.3						1				1	1
1603	1653														
1604			1			1		1							
1604	1631														
1605			1							1					
1605	1643														
1606			1			1		1							
1606	1643														
1607			1			1			1						
1607	1622														
1608			1							1				1	1
1608	1607														
1609			1			1		1							
1609	1621														
1610			1							1				1	1
1610	1612														
1611			1			1			1						
1611	1610														
1612			1							1				1	1
1612	1649														
SHEET TOTALS			24	1.8		11		5	6	8				8	8

FROM	TO	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	M.H. FRAME AND COVER FOR OTCB STD. 840.55	ADJUST C.B.	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	18" C.S. ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1539																														
1539	1505																													
1541																														
1541	1523																													
1542								1			1	1																		SEE SHEET 2C-11
1542	1526																													
1543																														
1543	1515																													
1544																														
1544	1545																													
1545																														
1545	1419																													
1546																														
1546	1547																													
1547																														
1547	1501																													
1548																														
1548	1501																													
1549														1		1														3-SIDED OTCB, SEE SHEET 2C-4
1549	1513																													
1550																														
1550	1543																													
1551																														OPEN-ENDED PIPE
1551	1630																													
1571				1			1																							
1571	1538																													
1601								1			1	1																		
1601	1650																													
1602																														
1602	1630																													
1603																														
1603	1653																													
1604																														
1604	1631																													
1605								1			1	1																		
1605	1643																													
1606																														
1606	1643																													
1607																														
1607	1622																													
1608																														
1608	1607																													
1609																														
1609	1621																													
1610																														
1610	1612																													
1611																														
1611	1610																													
1612																														
1612	1649																													
SHEET TOTALS				1			1	3			3	3		1		1														

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-11

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

Line & station, structure numbers, elevations, and Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) — size / thickness or gauge

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	12	15	18	24	30	36		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE
L 185+13	37	LT	1613		753.4																
			1613	1615		749.8	749.0														
L 184+55	4	LT	1614		754.2																
			1614	1615		749.5	748.6														
L 184+55	38	LT	1615		753.3																
			1615	1616		748.0	744.5	0.8					48					X			
L 190+00	38	LT	1617		753.6																
			1617	1618		750.5	746.3														
L 191+50	38	LT	1618		749.6																
			1618	0401-B		746.3	738.1														
L 189+72	38	RT	1619		754.1																
			1619	1620		748.7	747.4														
L 190+76	38	RT	1620		751.8																
			1620	1632		747.4	745.0														
L 186+19	66	LT	1621		753.5																
			1621	1647		750.2	750.0														
L 183+85	37	LT	1622		753.5																
			1622	1615		748.9	748.0	0.5													
L 178+67	58	RT	1630		757.5																
			1630	1651		755.0	753.5														
L 180+24	56	RT	1631		756.0																
			1631	1652		753.4	753.3														
L 191+84	38	RT	1632		748.3																
			1632	1702		745.0	741.1														
L 183+90	62	RT	1633		752.2																
			1633	1635		750.2	749.9														
L 184+49	61	RT	1635		751.9																
			1635	1614		749.9	749.5														
L 189+72	63	RT	1636		751.1																
			1636	1619		748.8	748.7														
L 190+76	58	RT	1637		751.1																
			1637	1620		748.8	747.4														
L 191+84	57	RT	1638		747.7																
			1638	1632		745.4	745.0														
Y33 12+77	0	CL	1639	1640		747.6	746.8														
Y34 12+82	17	RT	1641		755.4																
			1641	1606		752.1	751.9														
L 181+61	38	LT	1642		756.6																
			1642	1607		751.5	749.5	0.4													
L 181+61	4	RT	1643		756.6																
			1643	1642		751.7	751.5														
L 183+85	4	LT	1644		754.4																
			1644	1622		750.9	750.1														
L 186+75	37	RT	1645		754.8																
			1645	1611		751.5	751.4														
L 184+47	4	LT	1646		754.2																
			1646	1614		750.9	749.7														
L 185+47	43	LT	1647		753.4																
			1647	1613		750.0	749.8														
L 178+41	9	LT	1648		760.5																
							SHEET TOTALS						48								

C. S. PIPE and R. C. PIPE (CLASS III, CLASS IV, CLASS V)

FROM	TO	C.S. 12 (.064)	C.S. 15 (.064)	C.S. 18 (.064)	C.S. 24 (.064)	C.S.	C.S. 30 (.079)	C.S.	R.C. III 12	R.C. III 15	R.C. III 18	R.C. III 24	R.C. III 30	R.C. III 36	R.C. III	R.C. IV 12	R.C. IV 15	R.C. IV 18	R.C. IV 24	R.C. IV 30	R.C. IV 36	R.C. IV 42	R.C. IV	R.C. V 12	R.C. V 18	R.C. V 24	R.C. V
1613																											
1613	1615																56										
1614																											
1614	1615																	32									
1615																											
1615	1616																										
1617																											
1617	1618																148										
1618																											
1618	0401-B																200										
1619																											
1619	1620																104										
1620																											
1620	1632																108										
1621																											
1621	1647																76										
1622																											
1622	1615																			68							
1630																											
1630	1651																	80									
1631																											
1631	1652																24										
1632																											
1632	1702																104										
1633																											
1633	1635																60										
1635																											
1635	1614																64										
1636																											
1636	1619																28										
1637																											
1637	1620																20										
1638																											
1638	1632																20										
1639	1640																				84						
1641																											
1641	1606																68										
1642																											
1642	1607																			136							
1643																											
1643	1642																40										
1644																											
1644	1622																32										
1645																											
1645	1611																24										
1646																											
1646	1614																4										
1647																											
1647	1613																32										
1648																											
SHEET TOTALS																	1212	112		204	84						

Polypropylene pipe, endwalls, quantities for drainage structures (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)), frame, grates, and hood (STD. 840.03), concrete transitional section

FROM	TO	30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G		D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16
1613				1			1		1								
1613	1615																
1614				1	0.2							1				1	1
1614	1615																
1615				1	0.3		1	1									
1615	1616																
1617				1			1			1							
1617	1618																
1618				1			1			1							
1618	0401-B																
1619				1			1		1								
1619	1620																
1620				1			1		1								
1620	1632																
1621				1			1		1								
1621	1647																
1622				1			1			1							
1622	1615																
1630				1												1	1
1630	1651																
1631				1													
1631	1652																
1632																	
1632	1702																
1633				1													1
1633	1635																
1635				1													1
1635	1614																
1636				1													
1636	1619																
1637				1												1	1
1637	1620																
1638				1												1	1
1638	1632																
1639	1640		3.400														
1641				1			1			1							
1641	1606																
1642				1	0.1		1			1							
1642	1607																
1643				1	0.2							1					
1643	1642																
1644				1								1				1	1
1644	1622																
1645				1			1			1							
1645	1611																
1646				1								1				1	1
1646	1614																
1647				1			1		1								
1647	1613																
1648				1								1					
SHEET TOTALS			3.400	24	0.8		12	1	5	6		5				6	8

G.D.I. through pipe removal, and remarks

FROM	TO	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1613																												
1613	1615																											
1614																												
1614	1615																											
1615																												
1615	1616																											
1617																												
1617	1618																											
1618																												
1618	0401-B																											
1619																												
1619	1620																											
1620																												
1620	1632																											
1621																												
1621	1647																											
1622																												
1622	1615																											
1630																												
1630	1651																											
1631								1			1																	
1631	1652																											
1632																												
1632	1702																											
1633																							1					SEE SHEET 2C-5
1633	1635																											
1635																							1					SEE SHEET 2C-5
1635	1614																											
1636				1			1																					
1636	1619																											
1637																												
1637	1620																											
1638																												
1638	1632																											
1639	1640																											
1641																												
1641	1606																											
1642																												
1642	1607																											
1643								1			1		1															
1643	1642																											
1644																												
1644	1622																											
1645																												
1645	1611																											
1646																												
1646	1614																											
1647																												
1647	1613																											
1648								1			1		1															
SHEET TOTALS				1			1	3			3		2										2					

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4714AC	3D-12

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
			1648	1601		757.2	757.0	
L 184+93	4	LT	1649		754.3			
			1649	1614		750.7	749.5	
L 178+50	38	LT	1650		761.3			
			1650	1653		756.1		
L 179+52	53	RT	1651		757.0			
			1651	1652		753.5	752.9	
L 179+97	55	RT	1652		756.4			
			1652	1603		752.4	752.2	
L 179+97	38	LT	1653		759.9			
			1653	1642		752.0	751.5	
L 180+97	4	RT	1654		757.4			
			1654	1605		754.1	753.8	
L 192+88	59	RT	1701		744.6			
			1701	1702		742.3	741.1	
L 192+88	38	RT	1702		744.4			
			1702	0408-B		740.8	736.8	
L 104+40	2	LT						
L 104+38	40	LT						
L 119+42	4	RT						
L 119+40	45	RT						
L 124+02	1	LT						
L 126+79	3	RT						
L 134+50	46	RT						
L 136+03	5	LT						
L 138+68	3	LT						
L 141+85	1	LT						
L 142+47	57	LT						
L 143+27	1	LT						
L 145+61	2	RT						
L 149+53	4	RT						
L 149+38	33	RT						
L 150+17	2	RT						
L 151+64	3	RT						
L 169+89	27	RT						
L 163+76	34	RT						
L 163+94	58	LT						
L 165+50	46	LT						
L 171+50	8	LT						
L 171+50	31	RT						
Y1 12+01	52	LT			782.3	777.5		
Y2 14+18	44	LT						
Y27 11+72	30	RT						
Y2 13+32	105	LT						
L 125+43	45	LT						
Y1A 12+56	14	LT						
Y1A 12+60	3	RT						
Y1A 12+60	17	RT						
								SHEET TOTALS

LINE & STATION	FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 12 .064	15 .064	18 .064	24 .064		30 .079	
	1648	1601																				
L 184+93	1649																					
	1649	1614																				
L 178+50	1650																					
	1650	1653																				
L 179+52	1651																					
	1651	1652																				
L 179+97	1652																					
	1652	1603																				
L 179+97	1653																					
	1653	1642																				
L 180+97	1654																					
	1654	1605																				
L 192+88	1701																					
	1701	1702																				
L 192+88	1702																					
	1702	0408-B																				
L 104+40																						
L 104+38																						
L 119+42																						
L 119+40																						
L 124+02																						
L 126+79																						
L 134+50																						
L 136+03																						
L 138+68																						
L 141+85																						
L 142+47																						
L 143+27																						
L 145+61																						
L 149+53																						
L 149+38																						
L 150+17																						
L 151+64																						
L 169+89																						
L 163+76																						
L 163+94																						
L 165+50																						
L 171+50																						
L 171+50																						
Y1 12+01																						
Y2 14+18																						
Y27 11+72																						
Y2 13+32																						
L 125+43																						
Y1A 12+56																						
Y1A 12+60																						
Y1A 12+60																						
SHEET TOTALS																						

LINE & STATION	FROM	TO	R. C. PIPE CLASS III 12	15	18	24	30	36		R. C. PIPE CLASS IV 12	15	18	24	30	36	42		R. C. PIPE CLASS V 12	18	24		30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
	1648	1601									8												
L 184+93	1649																						
	1649	1614									36												
L 178+50	1650																						
	1650	1653												148									
L 179+52	1651																						
	1651	1652										40											
L 179+97	1652																						
	1652	1603											52										
L 179+97	1653																						
	1653	1642												164									
L 180+97	1654																						
	1654	1605									24												
L 192+88	1701																						
	1701	1702									24												
L 192+88	1702																						
	1702	0408-B										96											
L 104+40																							
L 104+38					80																		
L 119+42																							
L 119+40					80																		
L 124+02				52																			
L 126+79				52																			
L 134+50															24								
L 136+03					52																		
L 138+68					44																		
L 141+85					72																		
L 142+47					36																		
L 143+27				48																			
L 145+61				88																			
L 149+53																							
L 149+38					60																		
L 150+17				80																			
L 151+64				40																			
L 169+89																							
L 163+76						32																	
L 163+94						36																	
L 165+50					32																		
L 171+50																							
L 171+50					80																		
Y1 12+01																							
Y2 14+18																							
Y27 11+72																							
Y2 13+32																							
L 125+43																							
Y1A 12+56																							
Y1A 12+60																							
Y1A 12+60																							
SHEET TOTALS				360	536	68					92	136	52	312	24								

LINE & STATION	FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16
	1648	1601														
L 184+93	1649		1								1				1	1
	1649	1614														
L 178+50	1650		1	0.2		1			1							
	1650	1653														
L 179+52	1651		1													
	1651	1652														
L 179+97	1652		1													
	1652	1603														
L 179+97	1653		1	2.9		1			1							
	1653	1642														
L 180+97	1654		1								1					
	1654	1605														
L 192+88	1701		1												1	1
	1701	1702														
L 192+88	1702		1			1		1								
	1702	0408-B														
L 104+40			1												1	1
L 104+38																
L 119+42			1												1	1
L 119+40																
L 124+02																
L 126+79																
L 134+50																
L 136+03																
L 138+68																
L 141+85																
L 142+47																
L 143+27																
L 145+61																
L 149+53			1												1	1
L 149+38																
L 150+17																
L 151+64																
L 169+89			1													
L 163+76																
L 163+94																
L 165+50																
L 171+50			1												1	1
L 171+50																
Y1 12+01			1													
Y2 14+18																
Y27 11+72																
Y2 13+32																
L 125+43																
Y1A 12+56																
Y1A 12+60																
Y1A 12+60																
SHEET TOTALS			14	3.1		3		1	2		2				6	6

LINE & STATION	FROM	TO	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14
	1648	1601																						
L 184+93	1649																							
	1649	1614																						
L 178+50	1650																							
	1650	1653																						
L 179+52	1651								1			1												
	1651	1652																						
L 179+97	1652								1			1												
	1652	1603																						
L 179+97	1653																							
	1653	1642																						
L 180+97	1654								1			1		1										
	1654	1605																						
L 192+88	1701																							
	1701	1702																						
L 192+88	1702																							
	1702	0408-B																						
L 104+40																								
L 104+38																								
L 119+42																								
L 119+40																								
L 124+02																								
L 126+79																								
L 134+50																								
L 136+03																								
L 138+68																								
L 141+85																								
L 142+47																								
L 143+27																								
L 145+61																								
L 149+53																								
L 149+38																								
L 150+17																								
L 151+64																								
L 169+89										1								1						
L 163+76																								
L 163+94																								
L 165+50																								
L 171+50																								
L 171+50																								
Y1 12+01											1			1										
Y2 14+18																								
Y27 11+72																								
Y2 13+32																								
L 125+43																								
Y1A 12+56																								
Y1A 12+60																								
Y1A 12+60																								
SHEET TOTALS									3	1	1	3		2				1						

LINE & STATION	FROM	TO	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
	1648	1601					
L 184+93	1649						
	1649	1614					
L 178+50	1650						
	1650	1653					
L 179+52	1651						
	1651	1652					
L 179+97	1652						
	1652	1603					
L 179+97	1653						
	1653	1642					
L 180+97	1654						
	1654	1605					
L 192+88	1701						
	1701	1702					
L 192+88	1702						
	1702	0408-B					
L 104+40							TEMPORARY DI (SEE PSH TMP-4)
L 104+38						80	TEMPORARY 18" RCP (SEE PSH TMP-4)
L 119+42							TEMPORARY DI (SEE PSH TMP-5)
L 119+40						80	TEMPORARY 18" RCP (SEE PSH TMP-5)
L 124+02						52	TEMPORARY 15" RCP (SEE PSH TMP-6)
L 126+79						52	TEMPORARY 15" RCP (SEE PSH TMP-6)
L 134+50						24	TEMPORARY 36" RCP (SEE PSH TMP-6)
L 136+03						52	TEMPORARY 18" RCP (SEE PSH TMP-6)
L 138+68						44	TEMPORARY 18" RCP (SEE PSH TMP-7)
L 141+85						72	TEMPORARY 18" RCP (SEE PSH TMP-7)
L 142+47						36	TEMPORARY 18" RCP (SEE PSH TMP-7)
L 143+27						48	TEMPORARY 15" RCP (SEE PSH TMP-7)
L 145+61						88	TEMPORARY 15" RCP (SEE PSH TMP-7)
L 149+53							TEMPORARY DI (SEE PSH TMP-7)
L 149+38						60	TEMPORARY 18" RCP (SEE PSH TMP-7)
L 150+17						80	TEMPORARY 15" RCP (SEE PSH TMP-7)
L 151+64						40	TEMPORARY 15" RCP (SEE PSH TMP-7)
L 169+89							TEMPORARY JB (SEE PSH TMP-8)
L 163+76						32	TEMPORARY 24" RCP (SEE PSH TMP-8)
L 163+94						36	TEMPORARY 24" RCP (SEE PSH TMP-8)
L 165+50						32	TEMPORARY 18" RCP (SEE PSH TMP-8)
L 171+50							TEMPORARY DI (SEE PSH TMP-9)
L 171+50						80	TEMPORARY 18" RCP (SEE PSH TMP-9)
Y1 12+01							FUTURE STR. 1404 IN TMP PHASE (SEE PSH TMP-8)
Y2 14+18						43	EXISTING 18" RCP
Y27 11+72					0.116		EXISTING 24" CMP
Y2 13+32			12				EXISTING 18" RCP
L 125+43						15	EXISTING 3'x3' BOX CULVERT
Y1A 12+56						11	EXISTING 15" RCP
Y1A 12+60						23	EXISTING 15" RCP
Y1A 12+60						2	EXISTING 8" PVC
SHEET TOTALS			12		0.116	1082	

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-13

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 12 .064	15 .064	18 .064	24 .064		30 .079		R. C. PIPE CLASS III 12	15	18	24	30	36		R. C. PIPE CLASS IV 12	15	18	24	30	36	42		R. C. PIPE CLASS V 12	18	24		30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	MINIMUM DEPTH DI STD. 840D14

LINE & STATION	OFFSET		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y1A 12+59	17	RT				2	EXISTING 8" PVC
Y1A 13+11	20	RT				102	EXISTING 18" RCP
Y1A 13+62	28	RT				6	EXISTING 18" RCP
Y1A 13+92	9	LT				80	EXISTING 18" RCP
Y2 10+99	65	LT				150	EXISTING 48" CMP
Y2 11+91	58	LT				29	EXISTING 15" CMP
Y2 11+09	52	LT				8	EXISTING 12" CMP
Y2A 16+18	27	RT				108	EXISTING 15" RCP
Y2A 14+03	27	RT				56	EXISTING 15" RCP
Y2A 15+51	22	LT				19	EXISTING 15" CMP
Y27 11+72	1	LT				45	EXISTING 24" CMP
Y27 11+72	26	RT				8	EXISTING 18" HDPE
L 127+99	5	LT	6				EXISTING 18" RCP
L 125+42	12	LT	17				EXISTING 3'x3' BOX CULVERT
L 109+67	24	RT	27				EXISTING 3'x3' BOX CULVERT
L 157+80	47	LT				27	EXISTING 18" RCP
Y3 13+23	12	LT				20	EXISTING 12" RCP
L 182+26	60	RT				28	EXISTING 15" CMP
Y3 13+21	11	LT				24	EXISTING 12" RCP
Y33 12+83	0	CL				61	EXISTING 24" CMP
Y1A 15+12	3	RT				23	EXISTING 15" RCP
Y2 12+09	42	LT	3				EXISTING 18" RCP
Y2 11+85	38	LT	1				EXISTING 15" RCP
Y2 11+86	27	LT	1				EXISTING 18" RCP
Y1A 15+44	6	RT				86	EXISTING 18" RCP
Y2 13+18	27	LT				69	EXISTING 18" RCP
Y2 15+12	19	RT				21	EXISTING 12" CMP
Y2 15+88	19	LT	1				EXISTING 18" RCP
Y2 15+96	1	RT	3				EXISTING 18" RCP & EXISTING DI
Y2 15+97	26	RT	1				EXISTING 18" RCP & EXISTING DI
L 145+69	6	RT				60	EXISTING 18" CMP
L 143+27	5	RT				40	EXISTING 15" HDPE
L 144+06	7	RT				31	EXISTING 15" HDPE
L 147+87	1	LT				20	EXISTING 15" CMP
L 150+77	1	RT				29	EXISTING 15" CMP
L 151+63	0	CL				29	EXISTING 15" CMP
L 153+49	55	RT				33	EXISTING 15" CMP
L 156+40	45	LT				46	EXISTING 18" RCP
L 156+59	66	LT				7	EXISTING 18" RCP
L 157+19	50	LT				119	EXISTING 18" RCP
L 156+47	92	LT				53	EXISTING 15" RCP
Y2 10+99	59	LT				150	EXISTING 48" CMP
Y2A 10+50	14	RT	4				EXISTING 15" RCP
Y2A 10+46	36	LT				24	EXISTING 15" RCP
L 161+86	35	RT				337	EXISTING 15" RCP
L 163+26	35	RT				55	EXISTING 15" RCP
L 162+88	44	RT				21	EXISTING 15" RCP
L 189+84	3	LT				29	EXISTING 15" CMP
L 165+96	5	RT				64	EXISTING 15" CMP
L 165+61	24	LT	4				EXISTING 18" RCP
SHEET TOTALS			68			2119	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-ABRAIMAN

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

PROJECT NO.	SHEET NO.
U-4714AC	3D-14

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		FLOWABLE FILL (CY)	PIPE REMOVAL (LIN. FT.)	REMARKS
L 167+05	55	LT		28	EXISTING 15" CMP
L 166+40	7	RT		12	EXISTING 15" RCP
L 166+47	25	RT		22	EXISTING 10" HDPE
L 166+37	36	RT		67	EXISTING 10" HDPE
L 163+91	6	LT		67	EXISTING 24" RCP
L 157+10	62	RT		59	EXISTING 18" RCP
L 157+73	59	RT		61	EXISTING 15" RCP
L 110+65	57	RT		25	EXISTING 18" RCP
L 111+30	54	RT		104	EXISTING 18" CMP
L 135+25	53	RT		16	EXISTING 30" RCP
L 135+50	50	RT		30	EXISTING 30" RCP
Y24 10+52	0	CL		40	EXISTING 24" CMP
L 136+25	50	RT		30	EXISTING 24" RCP
Y24 10+70	19	LT		20	EXISTING 15" CMP
L 135+98	2	LT		41	EXISTING 24" RCP
L 135+68	22	RT		53	EXISTING 30" RCP
L 137+13	52	RT		21	EXISTING 18" HDPE
L 137+99	51	RT		33	EXISTING 18" HDPE
L 138+43	51	RT		19	EXISTING 18" RCP
L 138+68	6	RT		14	EXISTING 15" RCP
L 139+70	7	RT		31	EXISTING 15" CMP
L 137+74	4	RT		15	EXISTING 15" RCP
Y24 10+80	19	RT		18	EXISTING 18" RCP
Y24 11+14	17	RT		16	EXISTING 15" RCP
L 141+34	5	RT		14	EXISTING 12" RCP
L 140+96	6	RT		20	EXISTING 15" CMP
L 142+68	50	RT		38	EXISTING 18" HDPE
L 143+83	47	RT		35	EXISTING 15" CMP
L 144+63	46	RT		61	EXISTING 15" RCP
Y27 10+46	2	LT		61	EXISTING 15" RCP
L 149+25	21	RT	5		EXISTING 18" RCP
Y29 10+59	3	RT		76	EXISTING 15" RCP
L 154+85	60	RT		81	EXISTING 15" CMP
L 155+66	62	RT		77	EXISTING 15" CMP
L 156+23	83	RT		24	EXISTING 15" RCP
Y2A 11+29	34	RT		48	EXISTING 15" RCP
Y3 10+47	0	CL	3		EXISTING 15" RCP
Y3 10+57	8	RT		10	EXISTING 12" RCP
L 180+90	20	RT	5		EXISTING 18" RCP
L 184+40	29	RT	3		EXISTING 18" RCP
L 184+39	8	LT		20	EXISTING 18" RCP
L 189+86	49	RT		29	EXISTING 15" CMP
L 190+94	49	RT		28	EXISTING 15" CMP
L 191+98	48	RT		29	EXISTING 15" CMP
L 193+04	49	RT		29	EXISTING 15" CMP
L 184+13	57	RT		29	EXISTING 15" CMP
L 184+66	56	RT		29	EXISTING 15" CMP
L 139+89	51	RT		21	EXISTING 15" CMP
L 133+89	6	LT		42	EXISTING 15" RCP
Y26 10+50	1	LT		50	EXISTING 15" CMP
SHEET TOTALS			17	1693	

Other columns on the sheet have no entries in any row:
- STRUCTURE NUMBER (FROM, TO); TOP ELEVATION (FT.); INVERT ELEVATION (FT.); INVERT ELEVATION (FT.); MINIMUM REQUIRED SLOPE (%)
- Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE): 12, 15, 18, 24, 30, 36; DO NOT USE RCP; DO NOT USE CSP; DO NOT USE CAAP; DO NOT USE HDPE; DO NOT USE PVC; DO NOT USE PP PIPE
- C. S. PIPE: 12 (.064), 15 (.064), 18 (.064), 24 (.064), 30 (.079)
- R. C. PIPE CLASS III: 12, 15, 18, 24, 30, 36
- R. C. PIPE CLASS IV: 12, 15, 18, 24, 30, 36, 42
- R. C. PIPE CLASS V: 12, 18, 24
- 30" POLYPROPYLENE PIPE
- ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) (CY)
- QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)): A: 0' THRU 5' (EACH), 5' THRU 10' (LIN. FT.); B: 10' AND ABOVE (LIN. FT.)
- C.B. STD. 840.01 OR STD. 840.02
- FRAME, GRATES, AND HOOD STD. 840.03, GRATE TYPE: E, F, G
- CONCRETE TRANSITIONAL SECTION: D.I. STD. 852.04 OR STD. 852.06 OR STD. 852.07; C.B. STD. 852.05
- OPEN THROAT C.B. STD. 840.04 OR STD. 840.05; CONCRETE BRIDGE APPROACH D.I. STD. 840.13; D.I. STD. 840.14 OR STD. 840.15; D.I. FRAME AND GRATES STD. 840.16; G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26; G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27; G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28; G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20; G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22; G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24; G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29; J.B. STD. 840.31 OR STD. 840.32; T.B.J.B. STD. 840.34; T.B.D.I. STD. 840.35; T.B.D.I. FOR STEEL GRATES STD. 840.36; TEMP STEEL PLATE COVER MASONRY DRAINAGE; G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17; OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04; MINIMUM DEPTH C.B. STD. 840D02; M.H. FRAME AND COVER STD. 840.54; CONVERT EXISTING J.B. TO C.B.; 15" DRAINAGE PIPE ELBOW; 18" DRAINAGE PIPE ELBOW; 24" DRAINAGE PIPE ELBOW; 30" DRAINAGE PIPE ELBOW; MINIMUM DEPTH DI STD. 840D14
- CONCRETE COLLARS CL. "B" STD. 840.72 (CY); CONCRETE AND BRICK PIPE PLUG STD. 840.71 (CY)

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

S0C-BELAM

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4714AC	3D-15

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) SIZE						Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) THICKNESS OR GAUGE						C. S. PIPE SIZE				R. C. PIPE CLASS III SIZE						R. C. PIPE CLASS IV SIZE							R. C. PIPE CLASS V SIZE					
									12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	12	15	18	24	12	15	18	24	30	36	12	15	18	24	30	36	42	12	15	18	24	30	36
															.064	.064	.064	.064																								
L 98+00	36	LT																																							
L 97+01	35	LT																																							
L 96+88	36	RT																																							
L 97+31	0	CL																																							
L 101+84	53	RT																																							
SHEET TOTALS																																								
U-4714 AC PROJECT TOTALS										552	232	56	108	64													616	536	68				11578	1544	1448	2740	196	52				48	32		32
U-4714 BA PROJECT TOTALS																											1140	436	268	28	88		7076	2580	1824	1340	868					32		130	
U-4714 COMBINED PROJECT TOTALS										552	232	56	108	64													1756	972	336	28	88		18654	4124	3272	4080	1064	52				32	48	32	32

LINE & STATION	30" POLYPROPYLENE PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.05 OR STD. 852.07	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	TEMP STEEL PLATE COVER MASONRY DRAINAGE	G.D.I. MINIMUM DEPTH TYPE "A" STD. 840D17	OPEN THROAT C.B. (3 OR 4 SIDED) STD. 840D04	MINIMUM DEPTH C.B. STD. 840D02	M.H. FRAME AND COVER STD. 840.54	M.H. FRAME AND COVER FOR OTCB STD. 840.55	ADJUST C.B.	CONVERT EXISTING J.B. TO C.B.	15" DRAINAGE PIPE ELBOW	18" DRAINAGE PIPE ELBOW	24" DRAINAGE PIPE ELBOW	30" DRAINAGE PIPE ELBOW	18" C.S. ELBOW	MINIMUM DEPTH DI STD. 840D14	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 98+00																																							132	EXISTING 18" RCP
L 97+01																																							60	EXISTING 15" RCP
L 96+88																																							81	EXISTING 15" RCP
L 97+31																																								EXISTING 15" RCP
L 101+84																																							28	EXISTING 15" RCP
SHEET TOTALS																																					3			301	
U-4714 AC PROJECT TOTALS			6.800	278	28.0	181	30	78		52			45	50	1	1	2		5	33	2	2	36	19	1	1	4	4		1	4	4	2	2	2	100		0.116	5195	
U-4714 BA PROJECT TOTALS				213	40.5	151	28	55	68	19			34	34		4		19	2	3	1	1	19	3		2		4		1					2		40	2.7385	0.834	4855	
U-4714 COMBINED PROJECT TOTALS			6.800	491	68.5	332	58	133	146	71			79	84	1	5	2	19	7	36	3	3	55	22	1	3	4	8		1	1	4	4	2	2	2	140	2.7385	0.950	10050	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

SDG-BELAM

COMPUTED BY:	Arianna G. Braiman, EI	DATE:	09/21/2026
CHECKED BY:	Joshua G. Dalton, PE	DATE:	09/21/2026

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4714AC	3D-16

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
L 109+97	76 LT	1132		688.7			
		1132	1133		688.7	685.6	
L 124+99	78 LT	1207		724.3			
		1207	1233		712.8	712.5	
L 125+48	78 LT	1232		720.7			
		1232	1207		715.2	712.8	

STRUCTURE FROM–TO	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84		R. C. PIPE CLASS IV 12	54	60	66	72	78	84		R. C. PIPE CLASS V 12	54	60	66	72	78	84			60" WELDED STEEL PIPE, 0.875" THICK, GRADE B IN SOIL	60" WELDED STEEL PIPE, 0.875" THICK, GRADE B NOT IN SOIL	66" WELDED STEEL PIPE, 0.875" THICK, GRADE B IN SOIL	66" WELDED STEEL PIPE, 0.875" THICK, GRADE B NOT IN SOIL		REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY
1132																																						5.600	
1132–1133																																	92	92					
1207																																							7.291
1207–1233											24																												
1232																																						6.300	
1232–1207																																			82	82			
SHEET TOTALS											24																						92	92	82	82		11.900	7.291
											24																						92	92	82	82		11.900	7.291

STRUCTURE FROM–TO	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	SPRING BOX STD. 840.41	M.H. FRAME AND COVER STD. 840.54	MODIFIED CONC. FLUME		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1132																																								
1132–1133																																								74' TRENCHLESS INSTALLATION; 110' TRENCHED INSTALLATION
1207																										1								1							
1207–1233																																								
1232																																								
1232–1207																																								
SHEET TOTALS																										1								1							
																										1								1							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

GEOTECH COMPUTED BY: W. Partrick Alton DATE: 6/19/25; PDI COMPUTED BY TLC DATE: 9/9/25
CHECKED BY: _____ DATE: _____

(12-23-25)

PROJECT NO.	SHEET NO.
U-4714AC	3G-1

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				UD	500
				TOTAL LF:	500

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

U-4714AC & U-4714BA

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
U-4714AC Total:				UD	500
U-4714BA Total:				SD	300
U-4714AC/BA Grand Total:					800

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
-L-	96+00	193+50	ASU(2)	8		27100	60100		
CONTINGENCY					500	1000	1000	150	
			TOTAL CY/TONS/SY:		500	28100**	61100**	150	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.

U-4714AC & U-4714BA

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
U-4714AC Total:			ASU(2)	8	500	28100	61100	150	0
U-4714BA Total:			ASU(2)	8	0	17100	39500	150	0
U-4714AC/BA Grand Total:			ASU(2)	8	500	45200	100600	300	0

PROJ. REFERENCE NO.	SHEET NO.
U-4714AC	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
84	5,6	PAUL H TROTTER 6058 - 295
85	6	FOUR MORE INVESTMENTS LLC
86	6	J & M INVESTMENTS LLC
87	6, 7	DUKE POWER CO 4147 - 915
88	5, 6	ASPEN ASSET GROUP LLC
89	6	ASPEN ASSETT GROUP LLC
90	6, 7	COMBINED WITH PARCEL 87
91	7	INDIAN TRAIL PLAZA
92	7	TROTTER PROPERTIES LLC
93	7	HAWTHORNE'S HOLDING GROUP LLC
94	7	PARCEL WAS COMBINED WITH 92
95	7	MARCELLA MCINTYRE WITHROW
96	7	MARCELLA MCINTYRE WITHROW
97	7	CYNTHIA SEWELL GARDNER
97A	7	MARCELLA MCINTYRE WITHROW
98	7	2217 EAST JOHN ST LLC
99	7, 8	2217 EAST JOHN ST LLC
100	8	JOSEPH C MARTIN
101	8	SHIRLEY HAUNG
102	8	RM MATTHEWS LLC
103	8	RM MATTHEWS LLC
104	8	RM MATTHEWS LLC
105	8	EAST JOHN SYSTEMS, L.L.C.
106	8	EAST JOHN SYSTEMS, L.L.C.
107	8	EAST JOHN SYSTEMS, L.L.C.
108	8	CRYSTAL BC PROPERTIES, LLC
109	8, 9	EASTWOOD FOREST BAPTIST CHURCH
110	8	2309 EAST JOHN ST LLC
111	8	PARCEL COMBINED WITH 110
112	8	PARCEL COMBINED WITH 110
113	8	BERBICE ENTERPRISE
114	8	COMBINED WITH PARCEL 113
115	8	2425 EAST JOHN ST LLC
116	8	2425 EAST JOHN ST LLC
117	8	ROKTAL PROPERTY DEVELOPMENT LLC
118	8	COUCHELL FAMILY PROPERTIES LLC
119	8	BELTWAY INDUSTRIAL PARK LLC
120	8	F & B LLC
121	8,9	JEFFREY R. CARROLL AND WIFE TERESA A. CARROLL
122	9	STEGALL AND COMPANY INC.
123	9	THE POINTE AT COMPUS RIDGE, LLC
124	9	WASH ONE, LLC C/O THE MOSER GROUP
125	9	RAINBOW TROUT PROPERTIES, LLC C/O THOMAS B MCELWEE
126	9	JANET GUION GRAHAM
127	9, 9A	RANDALL B. DUCKWORTH AND WIFE, BONNIE H. DUCKWORTH
128	9	EDWARD R. SQUIRES
129	9, 9A	STALLINGS TOWNCENTER, LLC
130	8, 9	KIMBERLY B. CROWE
131	9	JOHNSON WALTON CURTIS & HESTA T
132	9	MARIA COPSIS TASSOPOULOS AND HUSBAND
133	9	LR & FR, LLC
133A	9	CAROLINA CONCRETE, INC.
134	9	TIMOTHY & RANDALL DUCKWORTH
135	9, 10	STALLINGS TOAD 209, LLC
136	10	ALPHA OMEGA LAND DEVELOPMENT INC.
137	10	CAROLYN M. FUNDERBURK
138	10	VIVIAN F SHECKLER
139	10, 11	PARCEL COMBINED WITH 161A
140	10	JUSTIN M. COLE AND WIFE, KELLY A. COLE
141	10	PARCEL COMBINED WITH 140

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
142	10	GLORIA WILLIAMS SHERIN AND HUSBAND DAVID MICHAEL
143	9, 10	FUNDERBURK FOUR, LLC
144	9, 10	CAROLYN M. FUNDERBURK
145	10	JUSTIN TAYLOR WHISNANT AND ALYSSA WHISNANT
145A	10	NO PROPERTY OWNER NAME SHOWN
146	10	AIDA CAPELLA
147	10	APRIL L. RUST
148	10	DMITRIJS SELPACKIS AND WIFE MARIYA SELPACKIS
149	10, 11	CLAUDIA SUE KOZLOWSKI
150	11	IME INVESTMENTS GROUP, INC
151	11	COUCHELL PETER JR
152	11	COUCHELL PETER JR
153	11	COUCHELL PETER JR
154	11	COUCHELL PETER JR
155	11	TIMOTHY L. SHERIN
155Z	11	TIMOTHY L. SHERIN
156	11	TIMOTHY L. SHERIN
156Z	11	TIMOTHY L. SHERIN
157	11	TIMOTHY L. SHERIN
157Z	11	TIMOTHY L. SHERIN
158	11	RZR LOVE LLC
159	11	TIMOTHY L. SHERIN AND WIFE, DAWN M. SHERIN
160	11, 12	DAWN M. SHERIN
161	10, 11	ANDREY LASHTUR
161A	10,11	HOMESALES INC.
162	11	CASSANDRA J MAKOWSKI & DENNIS JAMES MAKOWSKI JR.
163	11	WILLIAM A. LAUSTSEN AND WIFE, ALICIA M. LAUSTSEN
163Z	11	WILLIAM A. LAUSTSEN AND WIFE, ALICIA M. LAUSTSEN
164	11	STALLINGS POINTE, LLC
165	11, 12	GUYNELLE B BROOME HEIRS
166	12	317 PROPERTIES, LLC
167	11	IME INVESTMENTS GROUP, INC
167A	11	TAE KYU PARK AND WIFE, OH SEON PARK
167Z	11	IME INVESTMENTS GROUP, INC
168	11	IME INVESTMENTS GROUP, INC
169	11	IME INVESTMENTS GROUP, INC
170	5	EDWIN LAWRENCE TENHENGEL
171	7	MARCELLA MCINTYRE WITHROW
172	9A	TOWN OF STALLINGS
172A	9A	TOWN OF STALLINGS
173	9,9A	STARNES CAROLE, ET AL
174	9,9A	PARCEL REMOVED
175	9,9A	4390 POTTER RD, LLC
176	9,9A	T & Y MATTHEWS, LLC
177	9A	H & J PROPERTIES OF UNION COUNTY LLC
178	9A	HOWARD ODELL TEETER
179	9	METROLINA MEDICAL PROPERTIES LLC
180	9,9A	TOWN OF STALLINGS
181	8	JEFFREY CLEFF PRESSLEY & EDWARD EARL SUGGS
182		

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8/17/99

NCDOT DESIGN-BUILD PROJECT I-5507

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C SMITH

Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON

Signed by: JOSHUA DALTON 10/9/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

KCI ASSOCIATES OF N.C., P.A.
4800 Falls of Neuse Road, Suite 200
Raleigh, NC 27609
Phone (919) 783-9214
NC Firm License No: C-0764

SUNGATE DESIGN GROUP
5400 Etta Burke Ct., STE. 100 • Raleigh, North Carolina 27606
Phone: (919) 859-2243 • Eng Firm License No. C-890

-L-
PI Sta 81+85.14
△ = 3° 02' 37.6" (LT)
D = 0° 34' 22.6"
L = 531.24'
T = 265.68'
R = 10,000.00'
DS = 40 MPH
e = NC

85

90

I–485

-L- PT Sta. 84+50.70

80+00

-L-

S 32° 56' 17.9" E

-L-

MATCHLINE -L- 94+00.00
SEE SHEET 5

I–485

PROP. I-5507 PROJECT

FOR -L- PROFILE VIEW, SEE SHEET 13

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

DocuSigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

Signed by: JOSHUA DALTON 10/9/2026

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NAD 83/NA 2011

MATCHLINE –L– 94+00.00 SEE SHEET 4

MATCHLINE –L– 108+00.00 SEE SHEET 6

-L- PI Sta 97+80.80
Δ = 2° 44' 36.3" (LT)
D = 0° 34' 22.6"
L = 478.82'
T = 239.45'
R = 10,000.00'
DS = 50 MPH
e = NC

-L- PI Sta 102+65.68
Δ = 2° 48' 46.2" (RT)
D = 0° 34' 22.6"
L = 490.93'
T = 245.52'
R = 10,000.00'
DS = 50 MPH
e = NC

-L- 94+30.22 225.01' MON

BEGIN CONSTRUCTION -L- Sta. 95+66.96

-L- 95+10.47 150.66' MON

-L- PC Sta. 95+41.34

-L- PRC Sta. 100+20.16

-L- PT Sta. 105+11.09
BEARING AH = S 32° 52' 08.0" E

S 32° 56' 17.9" E

N 06°44'05" W 1005.79'

SPEC BACK OF CURB V-DITCH SEE DETAIL 1

END CONST. MATCH I-5507 R=430'

+20.00 OS=45.10

+25.07 OS=35.68

+61.90 OS=1.68

+20.00 OS=42.53

+03.30 OS=32.48

OS=1.53

5' CONC. SIDEWALK

100' OUTSIDE LT EOT TAPER

630' LANE AND MEDIAN TAPER

443' TAPER

MONO. ISLAND

FLOWABLE FILL

10' MULTI-USE PATH

2'-6" C&G

2'-9" C&G

15" RCP-IV

18" w/ELBOWS

CAT-1

GREU TL-3

RETAIN AND EXTEND 2 @ 5'x6' RCBC

48 LF OF INLET CHANNEL IMPROVEMENT
EST. 125 TONS CL II RIP RAP
EST. 130 SY GEOTEXTILE
EST. 50 CY DDE
SEE DETAIL 5

38 LF OF INLET CHANNEL IMPROVEMENT
EST. 80 TONS CL II RIP RAP
EST. 80 SY GEOTEXTILE
EST. 20 CY DDE
SEE DETAIL 5

LAT 2' BASE DITCH w/CL B RIPRAP
EST. 75 TONS CL B RIPRAP
EST. 327 SY GEOTEXTILE
EST. 131 CY DDE
SEE DETAIL 4

RETAIN AND EXTEND 2 @ 5'x6' RCBC

CL 'B' RIP RAP EST. 2 TONS EST. 7 SY GF

SPEC. LAT. V-DITCH SEE DETAIL 2

CL 'B' RIPRAP EST. 2 TONS EST. 7 SY GF

SPEC LAT V-DITCH w/CL B RIPRAP
EST. 105 TONS CL B RIPRAP
EST 235 SY GEOTEXTILE
SEE DETAIL 3

END CONST. MATCH I-5507

GRADE TO TIE (FUTURE) -L- OS 115' +/-

-L- 97+07.46 141.30' MON

94+79.79 139.83'

-L- 94+30.86 397.27' MON

I-5507 PROP. ROW

S 64°58'17" W 757.48'

N 62°25'28" E 250.13'

N 33°34'13" W 167.36'

N 08°53'17" E 199.06'

ISBKD

CONC

DK

48" WW

89 88 84 170

BEGIN PROJECT U-4714AC
-L- STA. 96+20.00 =
END PROJECT I-5507
-Y6- STA. 108+79.49, OS=5.27' RT

-DR2-		
PI Sta 12+34.65	PI Sta 13+39.12	PI Sta 13+96.98
Δ = 21° 44' 36.2" (LT)	Δ = 13° 03' 29.4" (RT)	Δ = 90° 00' 00.0" (LT)
D = 38° 11' 49.9"	D = 38° 11' 49.9"	D = 220° 22' 06.2"
L = 56.92'	L = 34.19'	L = 40.84'
T = 28.81'	T = 17.17'	T = 26.00'
R = 150.00'	R = 150.00'	R = 26.00'

PROP. I-5507 PROJECT

FOR -L- PROFILE VIEW, SEE SHEET 13
FOR INTERSECTION DETAIL, SEE SHEET 2B-1
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-5
FOR DRAINAGE DETAILS, SEE SHEET 2D-1
FOR CULVERT EXTENSION PLANS, SEE SHEET C-1 THRU SN

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C SMITH

Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON

Signed by: JOSHUA DALTON 10/9/2026

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NC Firm License No: C-0764

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Phone: (919) 859-2243 • Eng Firm License No. C-890

NAD 83/NA 2011

-L-
PI Sta 114+22.48
△ = 4° 42' 42.0" (RT)
D = 0° 49' 06.6"
L = 575.64'
T = 287.98'
R = 7,000.00'
DS = 50 MPH
e = SEE PLANS
RO = SEE PLANS

-L-
PI Sta 121+82.72
△ = 7° 43' 28.0" (LT)
D = 0° 49' 06.6"
L = 943.72'
T = 472.58'
R = 7,000.00'
DS = 50 MPH
e = SEE PLANS
RO = SEE PLANS

MATCHLINE -L- 108+00.00
SEE SHEET 5

MATCHLINE -L- 122+00.00
SEE SHEET 7

-L- PC Sta. 111+34.50

-L- PRC Sta. 117+10.14

SPEC BACK OF CURB V-DITCH w/CL B RIPRAP
EST. 59 TONS CL B RIPRAP
EST. 271 SY GEOTEXTILE
SEE DETAIL 6

LAT 5' BASE DITCH w/CL I RIPRAP
EST. 115 TONS CL I RIPRAP
EST. 150 SY GEOTEXTILE
EST. 197 CY DDE
SEE DETAIL 8

SPEC LAT 5' BASE DITCH
EST. 135 TONS CL I RIPRAP
EST. 200 SY GEOTEXTILE
SEE DETAIL 7

BURY INVERT 1.0'

100' LT TURN TAPER

36' INC.

BEGIN SIDEWALK TRANS.
STA. 115+50.00 (42.00' LT)

END SIDEWALK TRANS.
STA. 116+50.00 (38.00' LT)

BEGIN SIDEWALK TRANS.
STA. 117+50.00 (38.00' LT)

END SIDEWALK TRANS.
STA. 118+50.00 (42.00' LT)

5' CONC. SIDEWALK

10' MULTI-USE PATH

TRENCHED INSTALLATION
60" WELDED STEEL
(74 LF)

TRENCHLESS INSTALLATION
60" WELDED STEEL
(110 LF)

REMOVE

MONO. ISLAND

2'-6" C&G

2'-9" C&G

15" RCP-IV

TB 2GI

25' DR

15" w/ 2 ELBOWS

30" w/ 2 ELBOWS

2GI-A

GTD

CL 'B' RIPRAP
EST. 2 TONS
EST. 7 SY GF

LAT 6' BASE DITCH w/CL I RIPRAP
EST. 214 TONS CL I RIPRAP
EST. 260 SY GEOTEXTILE
SEE DETAIL 9

SPEC BACK OF CURB 3' BASE DITCH w/CL I RIPRAP
EST. 471 TONS CL I RIPRAP
EST. 855 SY GEOTEXTILE
SEE DETAIL 10

SPEC BACK OF CURB V-DITCH
SEE DETAIL 1

SPEC BACK OF CURB 2' BASE DITCH w/CL B RIPRAP
EST. 230 TONS OF CL B RIPRAP
EST. 1015 SY OF GEOTEXTILE
SEE DETAIL 11

DUKE ENERGY EMPTY CONDUIT

FLOWABLE FILL

SR 1009 E JOHN ST

FOR -L- PROFILE VIEW, SEE SHEETS 13 & 14
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-6
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

Signed by: JOSHUA DALTON 10/9/2026

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5400 Ella Burke Ct., STE. 100 • Raleigh, North Carolina 27606
Phone: (919) 859-2243 • Eng Firm License No. C-890

NAD 83/NA 2011

MATCHLINE -L- 122+00.00 SEE SHEET 6

MATCHLINE -L- 136+00.00 SEE SHEET 8

-L-
PI Sta 134+01.52
△ = 2° 51' 59.9" (RT)
D = 0° 28' 38.9"
L = 600.39'
T = 300.26'
R = 12,000.00'
DS = 50 MPH
e = NC

-L- PT Sta. 126+53.86
BEARING AH = S 35° 52' 54.0" E

-L- PC Sta. 131+01.26

BEGIN CONSTRUCTION
-Y25- POT Sta. 21+00.00

END CONSTRUCTION
-DR3- POT Sta. 10+90.00

END GRADE
-Y25- POT Sta. 26+40.00

END CONSTRUCTION
-Y25- POT Sta. 26+66.90
(TIE TO PROJECT U-4713A)

-DR3- POT Sta. 10+00.00 =
-L- POT Sta. 126+65.55
BEARING AH = S 66° 32' 45.1" W

-DR3- PC Sta. 10+43.42

-DR3- PT Sta. 10+74.49
BEARING AH = S 84° 20' 52.2" W

-DR3- POT Sta. 10+36.35 =
-L- POT Sta. 126+57.73.0S=35.5' RT
(SEE -DR3- PROFILE)

-DR3- PC Sta. 10+98.21

-DR3- PT Sta. 11+47.08

-DR3- POT Sta. 11+98.47
BEARING BK = S 72° 40' 52.3" W

-Y24- POT Sta. 10+00.00 =
-L- POC Sta. 135+74.53

-Y25- POT Sta. 24+40.05 =
-L- POC Sta. 132+38.24.0S=35.5' LT
(SEE -Y25- PROFILE)

-Y25- POT Sta. 24+75.58 = -L- POC Sta. 132+36.80

-Y25- POT Sta. 25+11.11 =
-L- POC Sta. 132+35.34.0S=35.5' RT
(SEE -Y25- PROFILE)

-Y25- PI Sta. 25+39.54

-Y24- POT Sta. 10+39.38 =
-L- POC Sta. 135+84.16.0S=38.19' RT
(SEE -Y24- PROFILE)

-Y24- PC Sta. 10+95.01
BEARING BK = S 42° 16' 02.0" W

-Y25- PC Sta. 28+42.27
BEARING BK = S 57° 06' 27.0" W

-Y25-
PI Sta 30+68.62
△ = 21° 43' 01.6" (RT)
D = 4° 51' 20.1"
L = 447.26'
T = 226.35'
R = 1,180.00'

-DR3-	
PI Sta 10+59.08	PI Sta 11+22.73
△ = 17° 48' 07.1" (RT)	△ = 11° 39' 59.9" (LT)
D = 57° 17' 44.8"	D = 23° 52' 23.7"
L = 31.07'	L = 48.87'
T = 15.66'	T = 24.52'
R = 100.00'	R = 240.00'
e = SEE PLANS	
RO = SEE PLANS	

E. JOHN STREET (SR 1009) & MCKEE ROAD

	6,300 / 7,500	
3000 / 3600	MCKEE	400 / 400
50,300 / 51,100	E. JOHN ST. — E. JOHN ST.	38,500 / 43,600
11,500 / 7,300	MCKEE	2,300 / 3,000
	16,700 / 13,800	

2017 AADT
2040 AADT

★ PROPOSED SIGNAL

PROP. U-4713A PROJECT

FOR -L- PROFILE VIEW, SEE SHEET 14
FOR -Y24- PROFILE VIEW, SEE SHEET 17
FOR -Y25- PROFILE VIEW, SEE SHEET 18
FOR -DR3- PROFILE VIEW, SEE SHEET 22
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-7
FOR INTERSECTION DETAIL, SEE SHEETS 2B-1 & 2B-2
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

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NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	8
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

Signed by: JOSHUA DALTON 10/9/2026

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Phone: (919) 859-2243 • Eng Firm License No. C-690

MATCHLINE -L- 136+00.00
SEE SHEET 7

MATCHLINE -L- 150+00.00
SEE SHEET 9

-DRI-	
PI Sta 10+67.33	PI Sta 11+21.70
△ = 81° 37' 27.9" (RT)	△ = 56° 41' 54.6" (LT)
D = 286° 28' 44.0"	D = 327° 24' 16.0"
L = 28.49'	L = 17.32'
T = 17.27'	T = 9.44'
R = 20.00'	R = 17.50'

-Y28-
PI Sta 11+74.58
△ = 2° 24' 41.2" (RT)
D = 9° 27' 00.9"
L = 25.52'
T = 12.76'
R = 606.29'
e = SEE PLANS
RO = SEE PLANS

-DRI- POT Sta. 10+00.00
BA = S 43° 00' 35.0" W

BEGIN CONSTRUCTION
-DRI- POT Sta. 10+50.00
-DRI- PC Sta. 10+50.06
-DRI- PT Sta. 10+78.56
BA = N 55° 21' 57.2" W
-DRI- PC Sta. 11+12.25
BA = S 67° 56' 08.3" W
-DRI- POT Sta. 11+29.51
-L- POT Sta. 138+93.45, OS=41.5' LT
(SEE -DRI- PROFILE)

DO NOT DISTURB FENCE OUTSIDE ROW.
REMOVE FENCE WITHIN ROW.

SPEC END 2' BASE DITCH w/CL B RIPRAP
EST. 230 TONS CL B RIPRAP
EST. 370 SY GEOTEXTILE
SEE DETAIL 18

SPEC LAT 2' BASE DITCH w/CL B RIPRAP
EST. 140 TONS CL B RIPRAP
EST. 310 SY GEOTEXTILE
SEE DETAIL 17

SPEC CUT 2' BASE DITCH w/CL B RIPRAP
EST. 130 TONS CL B RIPRAP
EST. 290 SY GEOTEXTILE
SEE DETAIL 18

SPEC LAT 2' BASE DITCH w/CL B RIPRAP
EST. 90 TONS CL B RIPRAP
EST. 195 SY GEOTEXTILE
SEE DETAIL 17

-Y26- POT Sta. 10+00.00 =
-L- POT Sta. 141+84.71

-Y28- PC Sta. 11+61.82
-Y28- PT Sta. 11+87.34
BEARING AH = S 55° 47' 19.4" W

BEGIN CONSTRUCTION
-Y28- POT Sta. 12+04.00
-Y28- POT Sta. 12+96.40 =
-L- POT Sta. 148+96.71, OS=29.25' LT
(SEE -Y28- PROFILE)
-Y28- POT Sta. 13+25.65 =
-L- POT Sta. 148+97.32

Q10 = 41.4 CFS
HW/D = 1.06

Q10 = 20.1
HW/D = 0.89

300' MEDIAN TRANSITION LT & RT

-L- PT Sta. 137+01.65
BEARING AH = S 33° 00' 54.1" E

SPEC LAT V-DITCH
SEE DETAIL 15

-Y24- PT Sta. 11+16.83
-Y24- PC Sta. 11+26.36

END CONSTRUCTION
-Y24- POC Sta. 11+45.00

-Y24- PT Sta. 12+21.46

-Y24- POT Sta. 13+80.57

-Y26- PT Sta. 13+40.53

-Y26- POT Sta. 10+41.53 =
-L- POT Sta. 141+83.27, OS=41.5' RT
(SEE -Y26- PROFILE)

-Y26- PC Sta. 11+11.82
BEARING BK = S 58° 58' 25.4" W

END CONSTRUCTION
-Y26- POC Sta. 11+62.96

-Y26- PT Sta. 12+33.63

-Y26- PC Sta. 12+41.94

-Y26- POT Sta. 13+42.69

-Y27- POT Sta. 10+00.00 =
-L- POT Sta. 145+54.47

-Y27- POC Sta. 10+33.87 =
-L- POT Sta. 145+57.35, OS=33.75' RT
(SEE -Y27- PROFILE)

-Y27- PC Sta. 10+29.54
BEARING BK = S 52° 07' 41.5" W

-Y27- PT Sta. 12+32.69

END CONSTRUCTION
-Y27- POC Sta. 12+10.00

-Y27- PT Sta. 11+43.00

Q10 = 12.6 CFS
HW/D = 0.95

HEAD DITCH
w/CL B RIPRAP
EST. 20 TONS CL B RIPRAP
EST. 85 SY GEOTEXTILE
EST. 9 CY DDE
SEE DETAIL 28

BACKFILL EXISTING HOLE TO ELEV. = 769.0'

REMOVE 8 LF 18" HDPE

MIN DEPTH 2GI-A w/NSSG
SPECIAL DETAIL STD. 840d17

-Y24-	
PI Sta 11+05.92	PI Sta 11+73.95
△ = 3° 59' 55.6" (LT)	△ = 5° 21' 36.9" (LT)
D = 18° 19' 42.5"	D = 5° 38' 12.0"
L = 21.82'	L = 95.10'
T = 10.91'	T = 47.58'
R = 312.61'	R = 1,016.48'

-Y26-	
PI Sta 11+73.09	PI Sta 12+91.24
△ = 15° 17' 46.0" (LT)	△ = 2° 39' 20.6" (LT)
D = 12° 33' 27.3"	D = 2° 41' 38.0"
L = 121.81'	L = 98.58'
T = 61.27'	T = 49.30'
R = 456.26'	R = 2,126.88'
e = SEE PLANS	
RO = SEE PLANS	

-Y27-
PI Sta 11+31.33
△ = 9° 01' 19.7" (LT)
D = 4° 26' 28.1"
L = 203.15'
T = 101.79'
R = 1,290.12'
e = SEE PLANS
RO = SEE PLANS

FOR -L- PROFILE VIEWS, SEE SHEETS 14 & 15
FOR -Y24- PROFILE VIEW, SEE SHEET 17
FOR -Y26-, -Y27-, -Y28- PROFILE VIEWS, SEE SHEET 18
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-8
FOR INTERSECTION DETAIL, SEE SHEET 2B-2
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

23-SEP-2026 10:04
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	9

R/W SHEET NO.

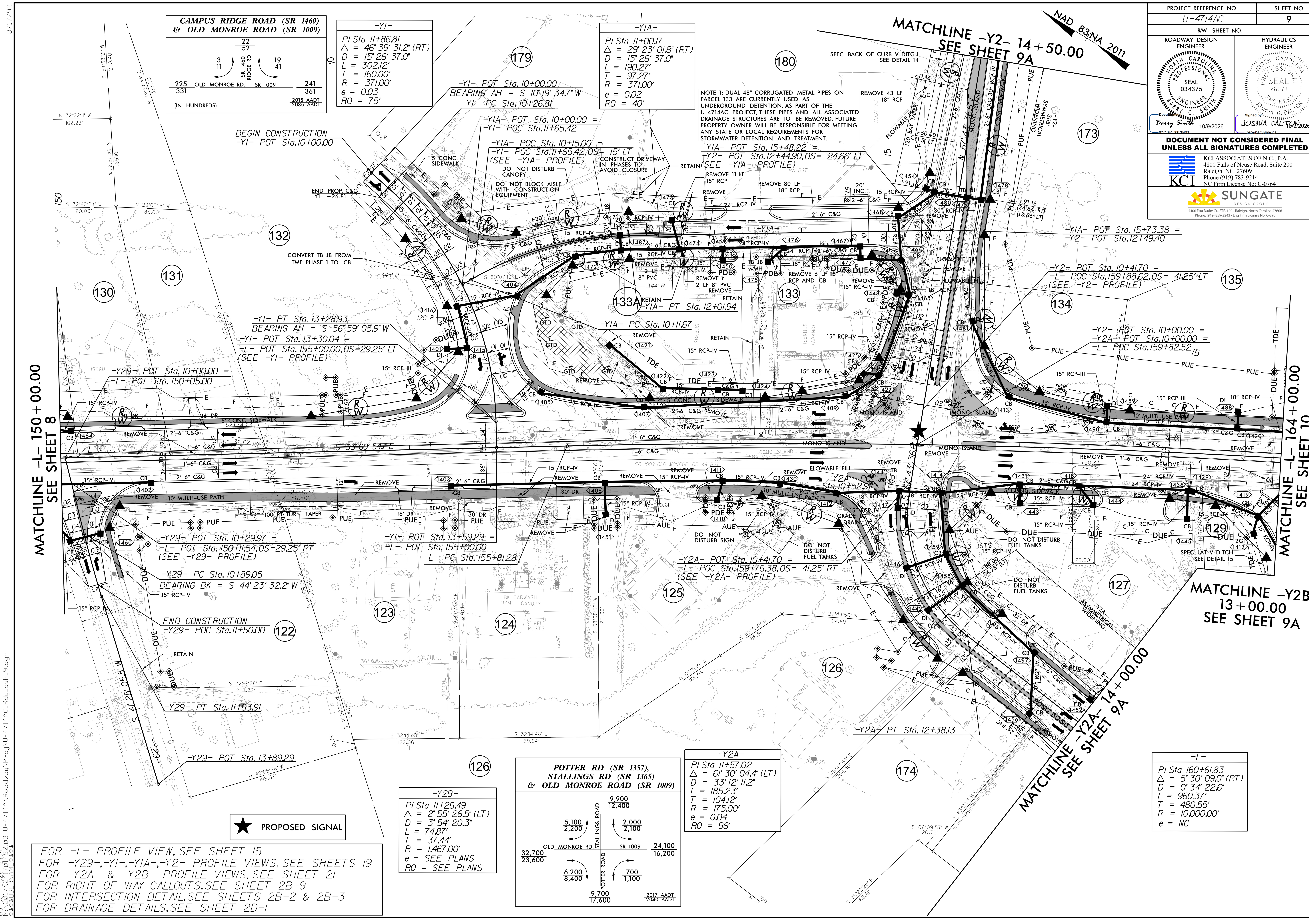
ROADWAY DESIGN ENGINEER — SEAL 034375, NORTH CAROLINA PROFESSIONAL ENGINEER, BARRY C. SMITH — DocuSigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER — SEAL 26971, NORTH CAROLINA PROFESSIONAL ENGINEER, JOSHUA G. DALTON — Signed by: JOSHUA DALTON 10/9/2026

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Raleigh, NC 27609
Phone (919) 783-9214
NC Firm License No: C-0764

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Phone: (919) 859-2243 • Eng Firm License No. C-890



CAMPUS RIDGE ROAD (SR 1460) & OLD MONROE ROAD (SR 1009)

(IN HUNDREDS) — 2015 AADT / 2035 AADT

Movement	2015 AADT	2035 AADT
SR 1460 Ridge Rd.	22	52
Left turn to Old Monroe Rd.	3	11
Right turn to SR 1009	19	41
Old Monroe Rd.	225	331
SR 1009	241	361

-Y1-
PI Sta 11+86.81
△ = 46° 39' 31.2" (RT)
D = 15° 26' 37.0"
L = 302.12'
T = 160.00'
R = 371.00'
e = 0.03
RO = 75'

-Y1A-
PI Sta 11+00.17
△ = 29° 23' 01.8" (RT)
D = 15° 26' 37.0"
L = 190.27'
T = 97.27'
R = 371.00'
e = 0.02
RO = 40'

NOTE 1: DUAL 48" CORRUGATED METAL PIPES ON PARCEL 133 ARE CURRENTLY USED AS UNDERGROUND DETENTION. AS PART OF THE U-4714AC PROJECT, THESE PIPES AND ALL ASSOCIATED DRAINAGE STRUCTURES ARE TO BE REMOVED. FUTURE PROPERTY OWNER WILL BE RESPONSIBLE FOR MEETING ANY STATE OR LOCAL REQUIREMENTS FOR STORMWATER DETENTION AND TREATMENT.

-Y29-
PI Sta 11+26.49
△ = 2° 55' 26.5" (LT)
D = 3° 54' 20.3"
L = 74.87'
T = 37.44'
R = 1,467.00'
e = SEE PLANS
RO = SEE PLANS

POTTER RD (SR 1357), STALLINGS RD (SR 1365) & OLD MONROE ROAD (SR 1009)

2017 AADT / 2040 AADT

Movement	2017 AADT	2040 AADT
Stallings Road	9,900	12,400
Stallings Rd. left turn	5,100	2,200
Stallings Rd. right turn	2,000	2,100
Old Monroe Rd.	32,700	23,600
SR 1009	24,100	16,200
Potter Rd. left turn	6,200	8,400
Potter Rd. right turn	700	1,100
Potter Road	9,700	17,600

-Y2A-
PI Sta 11+57.02
△ = 61° 30' 04.4" (LT)
D = 33° 12' 11.2"
L = 185.23'
T = 104.12'
R = 175.00'
e = 0.04
RO = 96'

-L-
PI Sta 160+61.83
△ = 5° 30' 09.0" (RT)
D = 0° 34' 22.6"
L = 960.37'
T = 480.55'
R = 10,000.00'
e = NC

★ PROPOSED SIGNAL

FOR -L- PROFILE VIEW, SEE SHEET 15
FOR -Y29-,-Y1-,-Y1A-,-Y2- PROFILE VIEWS, SEE SHEETS 19
FOR -Y2A- & -Y2B- PROFILE VIEWS, SEE SHEET 21
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-9
FOR INTERSECTION DETAIL, SEE SHEETS 2B-2 & 2B-3
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	9A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C SMITH

Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON

Signed by: JOSHUA DALTON 10/9/2026

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NAD 83/NA 2011

END CONSTRUCTION
END MILL & OVERLAY
-Y2- POT Sta.18+80.00

END GRADE
BEGIN MILL & OVERLAY
-Y2- POT Sta.16+56.16

FLOWABLE FILL
-Y2- POT Sta.16+56.16
(12.00' LT/RT)

MIN. DEPTH CB
SPECIAL DETAIL
STD. 840D02

30" PP

CL 'B' RIPRAP
EST. 8 TONS
EST. 21 SY GF

TIE TO EXISTING DITCH
SEE NOTE ON DETAIL SHEET
UNDER DETAIL 27

MIN. DEPTH CB
SPECIAL DETAIL
STD. 840D02

Q25=12.6 CFS
HW/D=0.95

24" w/ELBOWS

SPEC BACK OF CURB V-DITCH
SEE DETAIL 14

30" RCP-I

3' TAIL DITCH
EST. DDE=8 CY
SEE DETAIL 27
SLOPE=0.4%

MIN. DEPTH CB
SPECIAL DETAIL STD. 840D02

5' CONC.
SIDEWALK

MATCHLINE -Y2- 14+50.00
SEE SHEET 9

FOR -Y2- PROFILE VIEW, SEE SHEET 19
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-9A
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

FOR -Y2A-,-Y2B- PROFILE VIEWS, SEE SHEET 21
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-9A
FOR INTERSECTION DETAIL, SEE SHEETS 2B-3
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

--- PROP. U-5112 PROJECT

MATCHLINE -Y2B- 13+00.00
SEE SHEETS 9 & 10

MATCHLINE -Y2A- 14+00.00
SEE SHEET 9

SPEC. LAT V-DITCH
SEE DETAIL 13

SPEC. LAT V-DITCH
SEE DETAIL 30

-Y2B-
PI Sta 12+05.02
Δ = 36° 06' 30.3" (LT)
D = 14° 21' 41.4"
L = 251.42'
T = 130.39'
R = 400.00'
DS = 30 MPH
e = 0.04
RO = 144'

-Y2B- PC Sta. 10+74.63
BEARING BK = S 83° 46' 27.8" E

-Y2B- POT Sta. 10+23.28 =
-Y2A- POT Sta.15+65.58, OS= 23.28' LT
(SEE -Y2B- PROFILE)

-Y2B- POT Sta. 10+00.00 =
-Y2A- POT Sta.15+65.58

MINIMUM DEPTH CB
SPECIAL DETAIL STD. 840D02

REMOVE
18" RCP
FROM U-5112

END CONSTRUCTION
-Y2A- POT Sta.16+65.00
(TIE TO PROJECT U-5112)

-Y2A- POT Sta. 19+23.67

RETAIN

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH
Docusigned by: Barry Smith 827104120676493 10/9/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10B6A08C1499AC3 10/9/2026

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NAD 83/NA 2011

-L-
PI Sta 171+30.88
△ = 13° 26' 32.1" (LT)
D = 1° 08' 45.3"
L = 1,173.06'
T = 589.23'
R = 5,000.00'
DS = 50 MPH
e = 0.03
RO = 150'

-Y30-

PI Sta 12+46.18	PI Sta 12+97.69
△ = 0° 12' 42.0" (RT)	△ = 15° 38' 05.7" (RT)
D = 0° 24' 17.3"	D = 31° 01' 05.3"
L = 52.29'	L = 50.41'
T = 26.15'	T = 25.36'
R = 14,154.20'	R = 184.72'
e = SEE PLANS	e = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS

-Y31-
PI Sta 14+15.27
△ = 64° 00' 28.8" (LT)
D = 19° 51' 25.3"
L = 322.34'
T = 180.33'
R = 288.54'
e = SEE PLANS
RO = SEE PLANS

MATCHLINE -L- 164+00.00 SEE SHEET 9

MATCHLINE -Y2B- 13+00.00 SEE SHEET 9A

MATCHLINE -L- 178+00.00 SEE SHEET 11

-Y30- T Sta. 10+00.00

BEGIN CONSTRUCTION -Y31- POC Sta.14+15.00

-Y30- PC Sta. 12+20.04

BEGIN CONSTRUCTION -Y30- POC Sta.12+22.00

-Y30- PCC Sta. 12+72.33

-Y30- PT Sta. 13+22.73

BEARING AH = S 58° 02' 25.9" W

-Y30- POT Sta. 13+55.32 =
-L- POC Sta.173+53.12, OS= 35.5' LT
(SEE -Y30- PROFILE)

-Y31- POC Sta. 15+52.77 =
-L- POC Sta.176+14.29, OS= 35.5' LT
(SEE -Y31- PROFILE)

-Y31- PT Sta. 15+57.29

BEARING AH = S 64° 24' 59.1" W

-Y31- POT Sta. 15+89.39 =
-L- POC Sta.176+40.26

-L- PRC Sta. 177+14.71

-Y30- POT Sta. 13+90.95 =
-L- POC Sta.173+50.11

-Y3- POT Sta. 10+00.00

-Y3- PT Sta. 10+35.50

-L- POC Sta.176+90.55, OS= 35.5' RT
(SEE -Y3- PROFILE)

-Y3- PC Sta. 10+77.07

BEARING BK = S 50° 36' 17.9" W

END GRADE
-Y3- POT Sta.13+50.00
-Y3- PC Sta. 13+89.32

END CONSTRUCTION
-Y3- POC Sta.14+55.00

-Y3- PT Sta. 16+79.97

-Y3- PT Sta. 10+36.08

BEARING AH = W 49° 31' 11.6" W

-Y3- PCC Sta. 12+08.64

-Y3A- POT Sta. 10+00.00 =
-Y3- POC Sta.11+92.00

-Y3A- POT Sta. 10+28.01 =
-Y3- POC Sta.11+92.63, OS= 28' LT
(SEE -Y3A- PROFILE)

-Y3A- PC Sta. 10+28.47

BEARING BK= S 28° 06' 21.9" W

-Y3A- PT Sta. 10+74.70

END CONSTRUCTION
-Y3A- POT Sta.10+85.00

-Y3A- PT Sta. 11+92.67

BEARING BK = S 41° 21' 01.7" W

-Y2B- POT Sta. 14+07.20
-L- POC Sta.164+32.16, OS= 29.25' RT
(SEE -Y2B- PROFILE)
-Y2B- PT Sta. 13+26.06

3' BASE DITCH W/CL I RIPRAP
EST. 25 TONS
EST. 45 SY GF
EST. DDE=10 CY
SEE DETAIL 22
LENGTH=52 LF
SLOPE=1.53%

CL 'I' RIPRAP
EST. 15 TONS
EST. 30 SY GF

-Y2B- POT Sta. 14+36.46 =
-L- POC Sta.164+31.27

SPEC BACK OF CURB V-DITCH
SEE DETAIL 14
-L- PRC Sta. 165+41.65

312.50' MEDIAN TRANSITION LT & RT

62.5' C&G TRANSITION

C 50' INC.

10' MULTI-USE PATH

FLOWABLE FILL

REMOVE 66' OF 10" HDPE

SPEC. LAT. V-DITCH
SEE DETAIL 30

SPEC BACK OF CURB V-DITCH
SEE DETAIL 14

CL 'B' RIPRAP
EST. 2 TONS
EST. 7 SY GF

SPEC LAT. V-DITCH
W/CL B RIPRAP
EST. 105 TONS
EST. 235 SY GF
SEE DETAIL 20

5' CONC. SIDEWALK

Q10 = 0.20 CFS
HWD = 0.18

TIE TO EXISTING DITCH

PLEASANT PLAINS ROAD (SR 1364) & OLD MONROE ROAD (SR 1009)

24,100 / 16,200	OLD MONROE RD. SR 1009	28,400 / 20,200
100 / 800	PLEASANT PLAINS RD	4,400 / 4,800
4,500 / 5,600		2017 AADT / 2040 AADT

FOR -L- PROFILE VIEW, SEE SHEETS 15 & 16
FOR -Y3-,-Y30-,-Y31- PROFILE VIEWS, SEE SHEET 20
FOR -Y2B- PROFILE VIEW, SEE SHEET 21
FOR INTERSECTION DETAIL, SEE SHEET 2B-4
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-10
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

-Y3-

PI Sta 11+54.33	PI Sta 12+22.36	PI Sta 15+36.44
△ = 75° 22' 59.7" (RT)	△ = 4° 29' 30.8" (RT)	△ = 21° 54' 44.0" (LT)
D = 57° 17' 44.8"	D = 16° 22' 12.8"	D = 7° 32' 20.1"
L = 131.57'	L = 27.44'	L = 290.65'
T = 77.27'	T = 13.73'	T = 147.12'
R = 100.00'	R = 350.00'	R = 760.00'
DS = 20 MPH	e = SEE PLANS	
e = 0.04	RO = SEE PLANS	
RO = 60'		

-Y3A-
PI Sta 10+51.69
△ = 13° 14' 39.8" (RT)
D = 28° 38' 52.4"
L = 46.23'
T = 23.22'
R = 200.00'

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

Docusigned by: Barry Smith 8271D61D967A483... 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

Signed by: JOSHUA DALTON 10B9ADBC1A9843... 10/9/2026

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NAD 83/NA 2011

-Y31-
PI Sta 10+97.13
△ = 29° 52' 27.4" (RT)
D = 18° 54' 52.1"
L = 157.94'
T = 80.81'
R = 302.92'

-L-
PI Sta 179+06.01
△ = 7° 17' 50.8" (RT)
D = 1° 54' 35.5"
L = 382.09'
T = 191.31'
R = 3,000.00'
DS = 50 MPH
e = .04
RO = SEE PLANS

-Y31-
PI Sta 10+64.37
△ = 3° 55' 59.1" (RT)
D = 4° 23' 54.9"
L = 89.42'
T = 44.73'
R = 1,302.60'

-L-
PI Sta 184+94.48
△ = 4° 33' 17.0" (LT)
D = 0° 34' 22.6"
L = 794.95'
T = 397.68'
R = 10,000.00'
DS = 50 MPH
e = NC

-Y33-
PI Sta 13+31.94
△ = 12° 51' 21.3" (LT)
D = 12° 31' 44.5"
L = 102.61'
T = 51.52'
R = 457.30'
e = SEE PLANS
RO = SEE PLANS

-Y31- PC Sta. 10+16.32
-Y31- POT Sta. 10+00.00
-Y31- PC Sta. 12+34.95
-Y31- PT Sta. 11+74.26
-Y31- N 81° 26' 59.5" W 180.00'
N 5° 34' 32.1" W
S 09°25'07" E
S 34°02'19" E 39.96'
S 05°09'48" E 160.32'
S 05°09'48" W 160.32'
N 76°35'25" E 9.95'
S 52°37'31" E 75.02'
S 30°43'42" E 175.50'
S 89° 35' 36.6" W
-Y33- POT Sta. 10+00.00
-Y33- PC Sta. 10+19.65
-Y33- PT Sta. 11+09.06
N 34°11'34" W 165.26'
10' DRAINAGE EASEMENT
N 34°11'34" W 100.00'
185
190
BEGIN CONSTRUCTION
-Y33- POT Sta.12+30.00
-Y33- PC Sta. 12+80.42
N 86° 28' 24.3" W -Y33-
-Y33- PT Sta. 13+83.03
BEARING AH = S 80° 40' 14.4" W
-Y33- POT Sta. 14+18.24 =
-L- POC Sta.180+46.41
-Y33- POC Sta. 13+79.02 =
-L- POC Sta.180+62.99, OS= 35.5' LT
(SEE -Y33- PROFILE)
-L- PT Sta. 188+91.75
BEARING AH = S 38° 12' 43.5" E
-Y35- POT Sta. 10+00.00 =
-L- POC Sta.187+68.73
HEAD DITCH
EST. 8 CY DDE
SEE DETAIL 23
CL 'B' RIPRAP
EST. 11 TONS
EST. 28 SY GF
6' TAIL DITCH
EST. 43 TONS CL I RIPRAP
EST. 77 SY GEOTEXTILE
EST. DDE=23 CY
SEE DETAIL 24
-L- PRC Sta. 180+96.80
-Y34- POT Sta.13+72.61 =
-L- POC Sta.180+70.85
-Y34- PT Sta.12+91.79
BEARING = AP0%= N 44° 00' 37.7" E
HWD = 0.2
-Y35- POT Sta. 10+35.59 =
-L- POC Sta.187+66.27, OS= 35.5' RT
(SEE -Y35- PROFILE)
BEGIN CONSTRUCTION
-Y34- POC Sta.12+27.00
-Y34- PC Sta. 11+68.26
END CONSTRUCTION
-Y35- POT Sta. 11+35.00
-Y34- POT Sta. 10+00.00
-Y35- PC Sta. 11+98.74
BEARING BK = S 56° 27' 55.4" W
-Y35- PT Sta. 12+99.79
-Y35- POT Sta. 13+35.14
N 6° 28' 32.7" W -Y35-
N 41° 13' 02.8" E -Y34-

-Y34-
PI Sta 12+30.04
△ = 2° 47' 34.9" (RT)
D = 2° 15' 39.9"
L = 123.53'
T = 61.78'
R = 2,533.99'

-Y35-
PI Sta 12+51.00
△ = 36° 03' 31.9" (RT)
D = 35° 41' 03.0"
L = 101.05'
T = 52.26'
R = 160.56'

MATCHLINE -L- 178+00.00
SEE SHEET 10

MATCHLINE -L- 192+00.00
SEE SHEET 12

FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-11
FOR INTERSECTION DETAIL, SEE SHEETS 2B-4
FOR -L- PROFILE VIEW, SEE SHEETS 16 & 17
FOR -Y31-&-Y33- PROFILE VIEWS, SEE SHEET 20
FOR -Y34-&-Y35- PROFILE VIEWS, SEE SHEET 21
FOR DRAINAGE DETAILS, SEE SHEET 2D-1

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH

Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

Signed by: JOSHUA DALTON 10/9/2026

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NAD 83/NA 2011

END TIP PROJECT U-4714AC
-L- POT STA. 193+50.61 =
BEGIN TIP PROJECT U-4714BA
-L- POT STA. 10+00.00

MATCHLINE -L- 192+00.00
SEE SHEET 11

TIE TO STR #0401
TIP PROJ: U-4714BA
DESIGNED BY OTHER

TIE TO STR #0408
TIP PROJ: U-4714BA
DESIGNED BY OTHER

10' MULTI-USE PATH
15" RCP-IV
2'-6" C&G
100' LT TURN TAPER
2'-9" C&G
18" RCP-IV
5' CONC. SIDEWALK
REMOVE
EXISTING R/W

FOR -L- PROFILE VIEW, SEE SHEET 17
FOR RIGHT OF WAY CALLOUTS, SEE SHEET 2B-12

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5/28/99

NOTE: SEE CROSS-SECTIONS FOR UNDERCUT EXCAVATION LOCATIONS THROUGH OUT PROJECT LIMITS.

SUNGATE DESIGN GROUP
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	13

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH
Docusigned by: Barry Smith 10/9/2026
0074B4B8B07A4A9...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026
1089AD8C149B4C3...

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-L-

DITCH LEGEND
LEFT DITCH ----·----·----
RIGHT DITCH ----------

BEGIN TIP PROJECT U-4714AC

EXISTING GROUND

PROPOSED GRADE

BEG DITCH -L- LT PI=96+00 ELEV=703.60

BEGIN GRADE -L- STA. 96+20.00 = I-5507 -Y6- 108+79.49, 5.27' RT ELEV. = 706.71'

PI = 98+30.00
EL = 705.65'
VC = 290'
K = 140
DS = 55 MPH

(-)0.5050%
(-)0.3000%
(-)0.5333%
(-)0.6667%
(-)2.5743%
(-)4.0400%

END DITCH PI=98+00 -L- LT ELEV=703.00

PI=98+00 -L- RT ELEV=701.20

BEG DITCH PI=96+50 -L- RT ELEV=702.00

PI=99+50 -L- RT ELEV=700.20

MATCHLINE -L- STA 100+00.00

FOR PLAN VIEW, SEE SHEETS 4 & 5

735 725 715 705 695 685 675

87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00

NOTE: SEE CROSS-SECTIONS FOR UNDERCUT EXCAVATION LOCATIONS THROUGH OUT PROJECT LIMITS.

CULVERT HYDRAULIC DATA
2@5'x6' RCBC Sta. 104+19

DESIGN DISCHARGE	= 480	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 682.7	FT
BASE DISCHARGE	= 500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 682.9	FT
OVERTOPPING DISCHARGE	= 1,130	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 690.1	FT

DITCH LEGEND
LEFT DITCH ----·----·----
RIGHT DITCH ----------

PIPE HYDRAULIC DATA
60" RCP-III Sta. 109+87

DRAINAGE AREA	= 43	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 694.5	FT
100 YEAR DISCHARGE	= 130	CFS
100 YEAR HW ELEVATION	= 695.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 169	CFS
OVERTOPPING ELEVATION	= 696.3	FT

-L-

MATCHLINE -L- STA 100+00.00

PI = 100+50.00
EL = 699.99'
VC = 150'
K = 281
DS = 70 MPH

(-)12.5743%
(-)13.1089%
(-)4.0400%
(-)7.8000%
(-)6.3478%
(-)4.6000%

PI=103+00 -L- RT ELEV=682.30

PI=102+00 -L- RT ELEV=690.10

BEG DITCH PI=103+50 -L- LT ELEV=678.00

PROPOSED GRADE

END DITCH PI=104+15 -L- RT ELEV=675.00

END DITCH PI=104+00 -L- LT ELEV=675.70

EXTEND EXISTING BOX CULVERT

2@5'x6' RCBC

PI = 105+00.00
EL = 686.00'
VC = 620'
K = 97
DS = 50 MPH

EXISTING GROUND

(-)5.7089%
(+)3.2693%

BEG DITCH PI=108+50 -L- LT ELEV=693.50

(-)2.5330%

BEG DITCH PI=108+85 -L- RT ELEV=686.30

(+)2.2200%

60" RCP-III

(+)7.4670%
(+)11.6150%

PI=109+75 -L- RT ELEV=688.30

PI=110+00 -L- LT ELEV=689.70

END DITCH PI=110+50 -L- RT ELEV=693.90

BEG DITCH PI=111+10 -L- RT ELEV=700.7

(+)3.4412%

END DITCH PI=111+92 -L- LT ELEV=692.80

MATCHLINE -L- STA 113+00.00

FOR PLAN VIEW, SEE SHEETS 5 & 6

725 715 705 695 685 675 665

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00

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NOTE: SEE CROSS-SECTIONS FOR UNDERCUT EXCAVATION LOCATIONS THROUGH OUT PROJECT LIMITS.

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4800 Falls of Neuse Road, Suite 200
Raleigh, NC 27609
Phone (919) 783-9214
NC Firm License No: C-0764

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	14

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C. SMITH
Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026

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DITCH LEGEND

LEFT DITCH	----·---·---·---·
RIGHT DITCH	----------

PIPE HYDRAULIC DATA
66" RCP-III Sta. 125+26

DRAINAGE AREA	= 54	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 170	CFS
DESIGN HW ELEVATION	= 722.5	FT
100 YEAR DISCHARGE	= 180	CFS
100 YEAR HW ELEVATION	= 722.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= >210	CFS
OVERTOPPING ELEVATION	= 732.4	FT

-L-

MATCHLINE -L- STA 113+00.00

PI = 117+80.00
EL = 727.85'
VC = 280'
K = 112
DS = 50 MPH

PROPOSED GRADE

(+)3.2693%
(+)0.7673%
(+) 2.2200%
(+) 0.8000%
(+) 4.5000%
(+)0.7673%

EXISTING GROUND

PI=114+50 -L- RT
ELEV=712.40

PI=119+50 -L- RT
ELEV=723.50

PI=122+00 -L- RT
ELEV=725.50

END DITCH
PI=123+00 -L- RT
ELEV=730.00

66" RCP-III

MATCHLINE -L- STA 126+00.00

FOR PLAN VIEW, SEE SHEETS 6 & 7

113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00

725 715 705

NOTE: SEE CROSS-SECTIONS FOR UNDERCUT EXCAVATION LOCATIONS THROUGH OUT PROJECT LIMITS.

DITCH LEGEND

LEFT DITCH	----·---·---·---·
RIGHT DITCH	----------

-L-

MATCHLINE -L- STA 126+00.00

PI = 126+53.00
EL = 734.54'
VC = 380'
K = 237
DS = 80 MPH

PI = 131+67.00
EL = 746.73'
VC = 280'
K = 86
DS = 50 MPH

PI = 136+45.00
EL = 742.42'
VC = 460'
K = 97
DS = 50 MPH

PROPOSED GRADE

(+)0.7673%
(+)2.3114%
(+) 2.9603%
(+)2.3714%
(-)0.9025%
(-)0.9025%
(+)2.3333%
(+) 0.9000%
(+)3.8179%
(+)1.0000%
(+) 3.6000%

EXISTING GROUND

BEG DITCH
PI=127+50 -L- LT
ELEV=730.27

END DITCH
PI=128+76 -L- LT
ELEV=734.00

-L- STA 132+36.80 =
-Y26- STA 24+75.58

BEG DITCH
PI=134+32 -L- RT
ELEV=737.00

BEG DITCH
PI=134+50 -L- LT
ELEV=738.3

END DITCH
PI=135+43 -L- RT
ELEV=738.00

-L- STA 135+74.53 =
-Y24- STA 10+00.00

PI=136+00 -L- LT
ELEV=741.80

PI=138+00 -L- LT
ELEV=743.80

MATCHLINE -L- STA 139+00.00

FOR PLAN VIEW, SEE SHEETS 7 & 8

126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00

775 765 755 745 735 725 715

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-L-

PI = 145+52.00
EL = 777.05'
VC = 210'
K = 189
DS = 60 MPH

PI = 147+35.00
EL = 782.00'
VC = 156'
K = 234
DS = 65 MPH

MATCHLINE -L- STA 139+00.00

MATCHLINE -L- STA 152+00.00

PROPOSED GRADE

EXISTING GROUND

(+)3.6000%

(+)3.8179%

(+)2.7059%

(+)2.7059%

(+)2.0388%

-L- STA.141+84.71 =
-Y26- STA.10+00.00

END DITCH
PI=142+50 -L- LT
ELEV=760.00

-L- STA.145+54.47 =
-Y27- STA.10+00.00

-L- STA.148+97.32 =
-Y28- STA.13+25.65

-L- STA.150+05.00 =
-Y29- STA.10+00.00

795
785
775
765
755
745
735

139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00

FOR PLAN VIEW, SEE SHEETS 8 & 9

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PROJECT REFERENCE NO.	SHEET NO.
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DITCH LEGEND

LEFT DITCH	-·-·-·-·-·-
RIGHT DITCH	----------

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C SMITH
Docusigned by: Barry Smith 10/9/2026
827104108676483...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
Signed by: JOSHUA DALTON 10/9/2026
1080ADBC1400403...

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NOTE: SEE CROSS-SECTIONS FOR UNDERCUT EXCAVATION LOCATIONS THROUGH OUT PROJECT LIMITS.

DITCH LEGEND

LEFT DITCH	-·-·-·-·-·-
RIGHT DITCH	----------

-L-

PI = 152+50.00
EL = 792.50'
VC = 460'
K = 118
DS = 55 MPH

PI = 161+81.00
EL = 775.25'
VC = 150'
K = 214
DS = 65 MPH

PI = 164+06.00
EL = 769.50'
VC = 300'
K = 135
DS = 60 MPH

MATCHLINE -L- STA 152+00.00

MATCHLINE -L- STA 165+00.00

PROPOSED GRADE

EXISTING GROUND

(+)2.0388%

(-)1.8533%

(-)1.8533%

(-)2.5546%

(-)2.5546%

(+)5.1163%

(-)0.3395%

-L- STA.155+00.00 =
-Y1- STA.13+59.29

-L- STA.159+82.52 =
-Y2- STA.10+00.00
Y2A STA.10+00.00

-L- STA.164+31.27 =
-Y2B- STA.14+36.46

BEG DITCH
PI=164+07 -L- LT
ELEV=763.20

PI=164+50 -L- LT
ELEV=765.40

805
795
785
775
765
755

152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00 164+00 165+00

FOR PLAN VIEW, SEE SHEET 9 & 10

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	16

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C SMITH
Docusigned by: Barry Smith 10/9/2026
827104ID8676493...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026
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DITCH LEGEND
LEFT DITCH
RIGHT DITCH

-L-

MATCHLINE -L- STA 165+00.00

MATCHLINE -L- STA 178+00.00

PROPOSED GRADE

EXISTING GROUND

PI = 172+98.00
EL = 766.47'
VC = 160'
K = 205
DS = 65 MPH

(+) 0.7333%

(-) 0.3395%

(-) 1.1189%

(-) 1.9500%

(-) 2.6596%

END DITCH
PI=166+00 -L- LT
ELEV=766.50

BEG DITCH
PI=173+50 -L- RT
ELEV=765.00

PI=175+50 -L- RT
ELEV=761.10

END DITCH
PI=177+38 -L- RT
ELEV=756.10

-L- STA:173+50.11 =
-Y30- STA:173+90.95

-L- STA:176+05.26 =
-Y31- STA:175+89.39

-L- STA:177+90.62 =
-Y32- STA:178+00.00

FOR PLAN VIEW, SEE SHEET 10

165+00 166+00 167+00 168+00 169+00 170+00 171+00 172+00 173+00 174+00 175+00 176+00 177+00 178+00

775 765 755

NOTE: SEE CROSS-SECTIONS FOR UNDERCUT EXCAVATION LOCATIONS THROUGH OUT PROJECT LIMITS.

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

-L-

MATCHLINE -L- STA 178+00.00

MATCHLINE -L- STA 191+00.00

PROPOSED GRADE

EXISTING GROUND

PI = 180+70.00
EL = 757.83'
VC = 100'
K = 464
DS = 80 MPH

PI = 184+36.00
EL = 752.95'
VC = 450'
K = 183
DS = 70 MPH

PI = 189+40.00
EL = 758.65'
VC = 500'
K = 101
DS = 50 MPH

(-) 1.1189%

(-) 1.3346%

(+) 1.3346%

(+) 1.1308%

(+) 1.1308%

(-) 3.8103%

(-) 1.7647%

-L- STA:180+46.41 =
-Y33- STA:179+18.24

-L- STA:180+70.85 =
-Y34- STA:181+72.61

-L- STA:187+68.73 =
-Y35- STA:190+00.00

BEG DITCH
PI=188+02 -L- RT
ELEV=754.10

END DITCH
PI=189+72 -L- RT
ELEV=751.10

FOR PLAN VIEW, SEE SHEET 11

178+00 179+00 180+00 181+00 182+00 183+00 184+00 185+00 186+00 187+00 188+00 189+00 190+00 191+00

775 765 755 745 735 725

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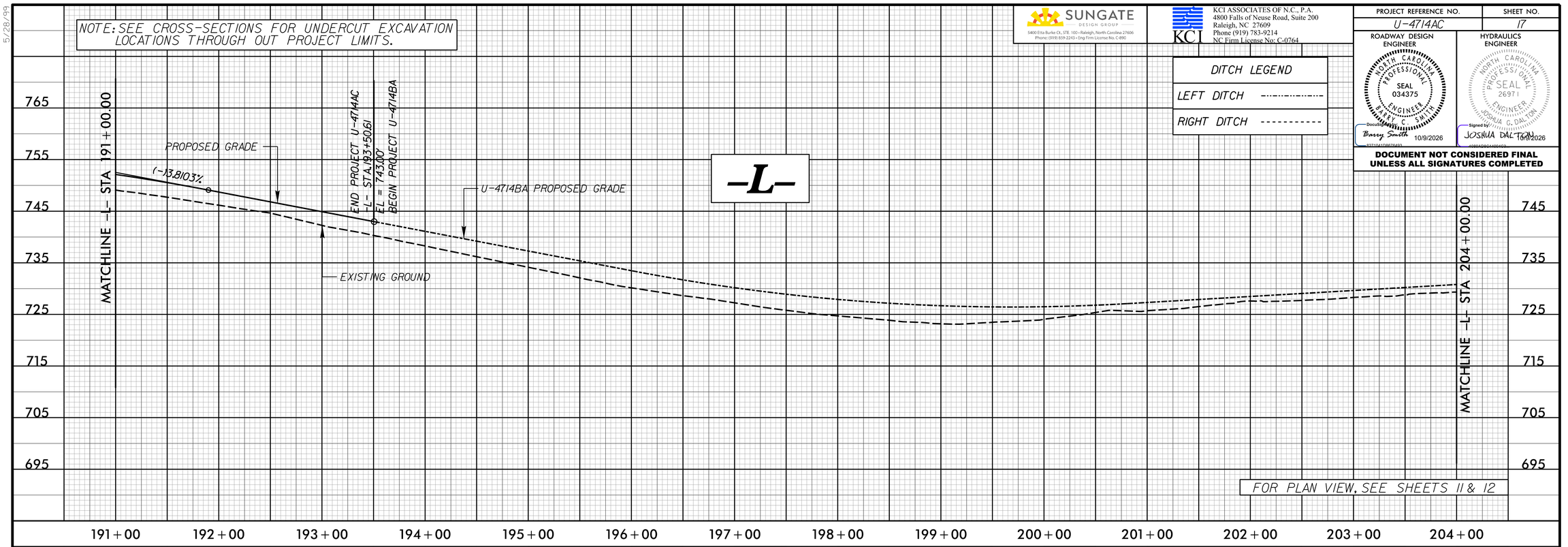
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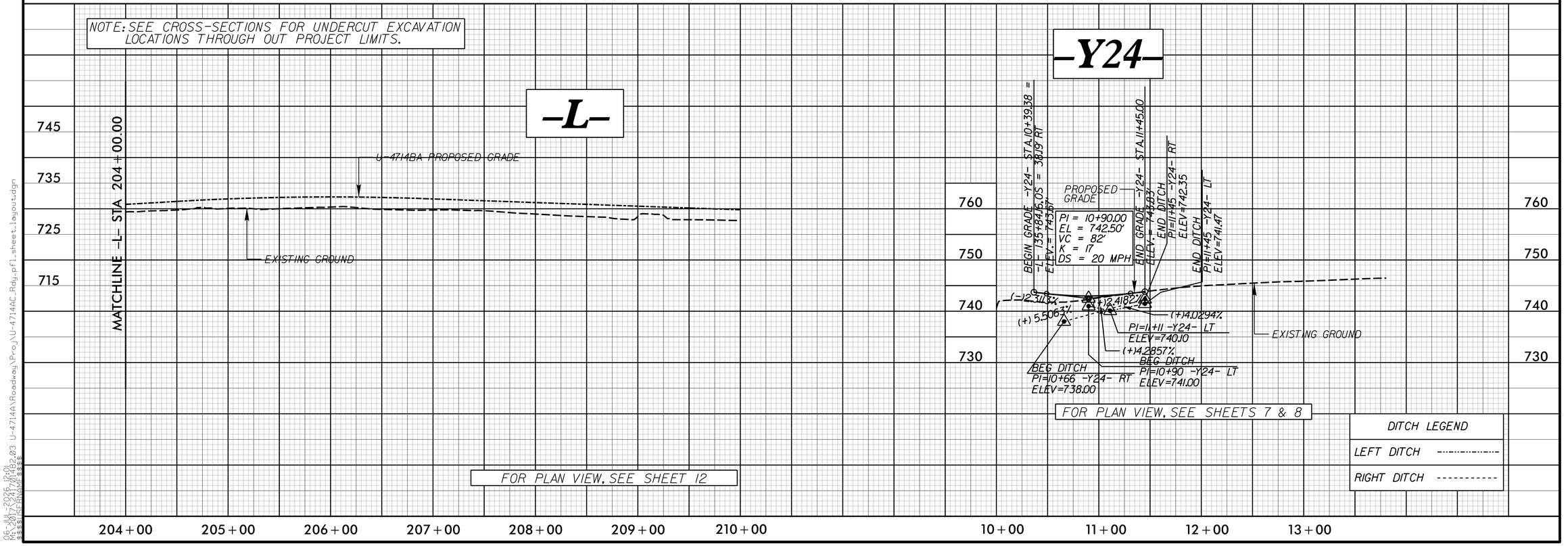
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NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY G. SMITH
Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026

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DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------





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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	18

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY D. SMITH
Docusigned by: Barry Smith 10/9/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026

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–Y25–

PI = 22+15.00
EL = 741.00'
VC = 230'
K = 141
DS = 40' MPH

BEGIN GRADE –Y25– STA.21+00
ELEV. = 740.77'

PROPOSED GRADE

END GRADE –Y25– STA.24+40.05 = –L– 132+38.24.05 =35.50' LT
ELEV. = 746.10'

BEGIN GRADE –Y25– STA.25+11.11 = –L– 132+35.34.05 =35.50' RT
ELEV. = 745.11'

END GRADE –Y25– STA.26+40.00 TIE TO U-4713A –L– 60+24.54
ELEV. = 742.56'

(+) 0.4149%
(+)10.1940%
(+)11.8237%
(+) 5.2542%
(+) 6.4912%
(–)11.9819%

EXISTING GROUND

U-4713A PROPOSED GRADE

BEG DITCH –Y25– RT PI=20+50 ELEV=736.90
BEG DITCH –Y25– LT PI=20+50 ELEV=737.5
–Y25– RT PI=22+93 ELEV=738.30
–Y25– LT PI=22+91 ELEV=738.5
END DITCH –Y25– LT PI=23+50 ELEV=741.6
END DITCH –Y25– RT PI=23+50 ELEV=742.00

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

= PROPOSED U-4713A PROFILE

FOR PLAN VIEW, SEE SHEET 7

–Y26–

PROPOSED GRADE
PI = 10+86.19
EL = 759.48'
VC = 50'
K = 9
DS = 15 MPH

BEGIN GRADE –Y26– STA.10+41.53 = –L– 141+83.27.05 = 41.50' RT
ELEV. = 762.14'

END GRADE –Y26– STA.11+62.96
ELEV. = 759.09'

(–)5.9868%
(–)10.5000%

EXISTING GROUND

FOR PLAN VIEW, SEE SHEET 8

–Y27–

PI = 11+20.00
EL = 772.46'
VC = 40'
K = 14
DS = 20

BEGIN GRADE –Y27– STA.10+33.87 = –L– 145+75.35.05 = 33.75' RT
ELEV. = 776.26'

END GRADE –Y27– STA.11+43.00
ELEV. = 772.09'

(–)14.4119
(–)11.6097%

PROPOSED GRADE

EXISTING GROUND

FOR PLAN VIEW, SEE SHEET 8

–Y28–

PI = 12+43.50
EL = 783.72'
VC = 40'
K = 16
DS = 15 MPH

PROPOSED GRADE

(–)11.8770%
(–)10.6210%

EXISTING GROUND

BEGIN GRADE –Y28– STA.12+04.00
ELEV. = 783.96'

END GRADE –Y28– STA.12+96.40 = –L– 148+95.71.05 = 29.25' LT
ELEV. = 784.71'

FOR PLAN VIEW, SEE SHEET 8

–DR1–

PI = 10+70.00
EL = 754.02'
VC = 40'
K = 8
DS = 20 MPH

BEGIN GRADE –DR1– STA.10+50.00
ELEV. = 754.08'

END GRADE –DR1– STA.11+43.72 = –L– 138+93.45.05 = 41.50' LT
ELEV. = 751.08'

PROPOSED GRADE

(–)10.3000%
(–)5.1558%
(+)12.1588%

EXISTING GROUND

PI = 11+15.00
EL = 751.70'
VC = 50'
K = 17
DS = 20 MPH

FOR PLAN VIEW, SEE SHEET 8

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–Y29–

BEGIN GRADE –Y29– STA.10+29.97 =
–L– STA.150+11.54.05 = 29.25' RT
ELEV. = 787.05'

END GRADE –Y29– STA.11+50.00
ELEV. = 784.87'

PROPOSED GRADE

(–)11.8162%

EXISTING GROUND

FOR PLAN VIEW, SEE SHEET 9

–Y1–

BEGIN GRADE –Y1– STA.10+00.00
MATCH EXIST.
ELEV. = 781.30'

PI = 10+85.00
EL = 783.37'
VC = 160'
K = 53
DS = 35 MPH

–Y1A– STA.10+00.00 =
–Y1– STA.11+65.42

PROPOSED GRADE

PI = 12+34.00
EL = 782.48'
VC = 120'
K = 21
DS = 20 MPH

END GRADE –Y1– STA.13+30.04 =
–L– 155+00.00.05 = 29.25' LT
ELEV. = 787.28'

(+)12.4332%
(–)10.6000%
(–)10.6000%
(+)4.9987%

EXISTING GROUND

FOR PLAN VIEW, SEE SHEET 9

–Y1A–

BEGIN GRADE –Y1A– STA.10+15.00 =
–Y1– 11+65.42.05 = 15' LT
ELEV. = 783.34

PI = 10+95.00
EL = 780.69'
VC = 100'
K = 55
DS = 35 MPH

(–)13.5002%
(–)12.5000%
(–)11.682%

PI = 10+30.00
EL = 782.97'
VC = 30'
K = 30
DS = 35 MPH

END GRADE –Y1A– STA.15+48.22 =
–Y2– 12+44.90.05 = 24.66' LT
ELEV. = 772.09'

PROPOSED GRADE

PI = 14+08.00
EL = 775.42'
VC = 100'
K = 144
DS = 55 MPH

(–)11.682%
(–)12.3784%

EXISTING GROUND

FOR PLAN VIEW, SEE SHEET 9

–Y2–

BEGIN GRADE –Y2– STA.10+49.70 =
–L– STA.159+88.62.05 = 41.25' LT
ELEV. = 777.99'

PROPOSED GRADE

–Y2– STA.12+49.39 =
–Y1A– STA.15+73.38

PI = 13+78.00
EL = 769.04'
VC = 90'
K = 69
DS = 40 MPH

(–)2.6681%
(–)11.3643%
(–)1.6700%
(–)1.5100%

BEG DITCH
PI=13+50 –Y2– LT
ELEV=768.10

PI=15+00 –Y2– LT
ELEV=765.60

END DITCH
PI=15+66 –Y2– LT
ELEV=764.60

END GRADE –Y2– STA.16+56.16
BEGIN MILL & OVERLAY
ELEV. = 765.24'
MATCH EXIST.

END MILL & OVERLAY
–Y2– STA. 18+80.00

EXISTING GROUND

DITCH LEGEND

LEFT DITCH

FOR PLAN VIEW, SEE SHEETS 9 & 9A

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	19

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C SMITH
Docusigned by: Barry Smith 10/9/2026
827104D8676493...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	20

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY G. SMITH
Docusigned by: Barry Smith 10/9/2026
827104170676453...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026
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–Y3–

DITCH LEGEND
LEFT DITCH ----·----·----
RIGHT DITCH ----------

BEGIN GRADE –Y3– STA.10+35.50
–L– 77+90.55,OS = 35.5' RT
ELEV. = 760.78'

PI = 11+20.00
EL = 761.05'
VC = 120'
K = 123
DS = 55 MPH

PROPOSED GRADE

BEG DITCH
PI=12+05 –Y3– LT
ELEV=759.0

END GRADE –Y3– STA.13+50.00
ELEV. = 764.03'

END DITCH
PI=13+50 –Y3– LT
ELEV=762.20

EXISTING GROUND

(+)0.3195% (+)1.2957% (+)2.2069% (+)1.9600%

BEG DITCH
PI=11+00 –Y3– RT
ELEV=756.10

END DITCH
PI=13+50 –Y3– RT
ELEV=761.00

FOR PLAN VIEW, SEE SHEET 10 & 11

–Y30–

BEGIN GRADE –Y30– STA.12+22.00
ELEV. = 763.15'

PROPOSED GRADE

PI = 13+10.00
EL = 763.99'
VC = 60'
K = 78
DS = 40 MPH

END GRADE –Y30– STA.13+55.32
–L– 13+53.12,OS = 35.5' LT
ELEV. = 764.17'

(+)0.9545% (+)1.7211%

EXISTING GROUND

FOR PLAN VIEW, SEE SHEET 10

–Y31–

PI = 14+50.00
EL = 757.20'
VC = 51'
K = 26
DS = 25

PROPOSED GRADE

(+)2.6000% (+)4.5344%

EXISTING GROUND

BEGIN GRADE –Y31– STA.14+15.00
ELEV. = 756.29'

END GRADE –Y31– STA.15+52.77
–L– 16+14.29,OS = 35.5' LT
ELEV. = 761.86'

FOR PLAN VIEW, SEE SHEETS 10

–Y33–

PI = 12+50.00
EL = 751.78'
VC = 37'
K = 11
DS = 15 MPH

PI = 13+51.00
EL = 758.25'
VC = 47'
K = 11
DS = 20

PROPOSED GRADE

(+)3.1623% (+)6.4021% (+)6.4021% (+)2.0000%

EXISTING GROUND

BEGIN GRADE –Y33– STA.12+30.00
ELEV. = 751.15'

END GRADE –Y33– STA.13+79.02
–L– 80+62.99,OS = 35.5' LT
ELEV. = 758.81'

FOR PLAN VIEW, SEE SHEET 11

10+00 11+00 12+00 13+00 14+00 15+00 16+00
770 760 750 740 730 720 710 700

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	21

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY E. SMITH
Docusigned by: Barry Smith 10/9/2026
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HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 29971 ENGINEER JOSHUA G. DALTON
Signed by: JOSHUA DALTON 10/9/2026
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-Y34-

BEGIN GRADE -Y34- STA.12+21.00 = ELEV. = 755.18'

END GRADE -Y34- STA.13+36.32 = -L- 180+78.38.05 = 35.5' RT ELEV. = 756.85'

PROPOSED GRADE

(+)11.5276%

EXISTING GROUND

760 / 750 / 740

FOR PLAN VIEW, SEE SHEET 11

-Y35-

BEGIN GRADE -Y35- STA.10+35.59 = -L- 187+66.27.05 = 35.5' RT ELEV. = 755.68'

PROPOSED GRADE

(+)10.8765%

(+) 1.0811%

END DITCH
PI=11+00 -Y35- LT
ELEV=754.50

BEG DITCH
PI=10+63 -Y35- LT
ELEV=754.10

END GRADE -Y35- STA.11+35.00 = ELEV. = 756.55'

EXISTING GROUND

760 / 750 / 740

FOR PLAN VIEW, SEE SHEET 11

DITCH LEGEND
LEFT DITCH ----·----·----
RIGHT DITCH ----------

10+00 11+00 12+00 13+00 14+00 10+00 11+00 12+00 13+00 14+00

-Y2A-

BEGIN GRADE -Y2A- STA.10+41.70 = -L- STA.159+76.38.05 = 41.25' RT ELEV. = 778.21'

PI = 12+94.00
EL = 784.71'
VC = 300'
K = 85
DS = 50 MPH

PROPOSED GRADE

(+)12.5769%

(-)10.9317%

PI = 16+15.00
EL = 781.72'
VC = 100'
K = 267
DS = 80 MPH

(-)10.9317%

(-)10.5566%

END GRADE -Y2A- STA.16+65.00 TIE TO U-5112 ELEV. = 781.44'

EXISTING GROUND

U-5112 PROPOSED GRADE

790 / 780 / 770 / 760 / 750

---------- = PROPOSED U-5112 PROFILE

FOR PLAN VIEW, SEE SHEETS 9 & 9A

-Y2B-

DITCH LEGEND
LEFT DITCH ----·----·----
RIGHT DITCH ----------

BEGIN GRADE -Y2B- STA.10+23.28 = -Y2A- STA.15+65.58.05 = 23.68' LT ELEV. = 781.71'

PI = 10+40.00
EL = 781.05'
VC = 30'
K = 118
DS = 55 MPH

BEG DITCH
PI=11+00 -Y2B- LT
ELEV=776.40

(-)13.7073%

(-)13.9619%

PI = 12+70.00
EL = 772.52'
VC = 200'
K = 108
DS = 50 MPH

PROPOSED GRADE

END DITCH
PI=13+50 -Y2B- LT
ELEV=768.20

(-)3.2800 (-)3.4703% (-)3.5986%

(-)3.8612%

(-)3.1634%

PI = 13+90.00
EL = 770.29'
VC = 30'
K = 100
DS = 50 MPH

BEG DITCH
PI=10+50 -Y2B- RT
ELEV=777.40

EXISTING GROUND

END GRADE -Y2B- STA.14+07.20 = -L- 164+32.16.05 = 29.25' RT ELEV. = 769.92'

PI=13+39 -Y2B- RT
ELEV=767.00

790 / 780 / 770 / 760 / 750

FOR PLAN VIEW, SEE SHEETS 9,9A & 10

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 10+00 11+00 12+00 13+00 14+00 15+00

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	22

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034375 ENGINEER BARRY C SMITH

Docusigned by: Barry Smith 10/9/2026

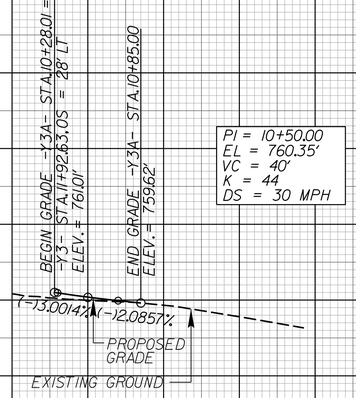
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON

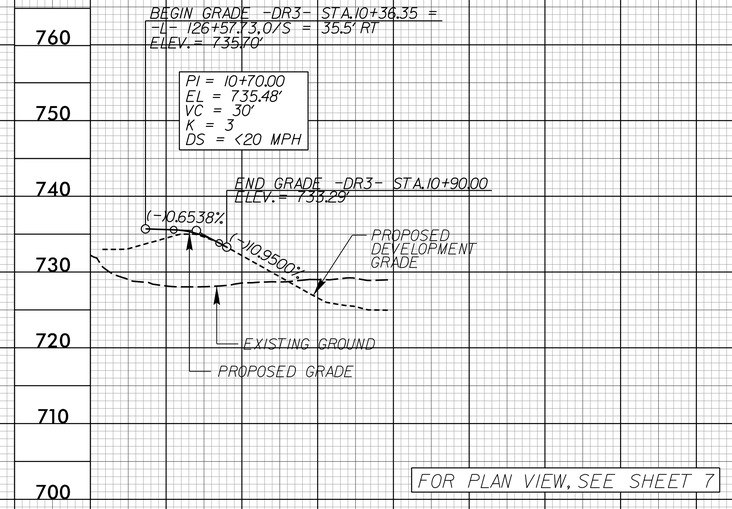
Signed by: JOSHUA DALTON 10/9/2026

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–Y3A–



–DR3–



FOR PLAN VIEW, SEE SHEET 7

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