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GEOTECHNICAL ENGINEER

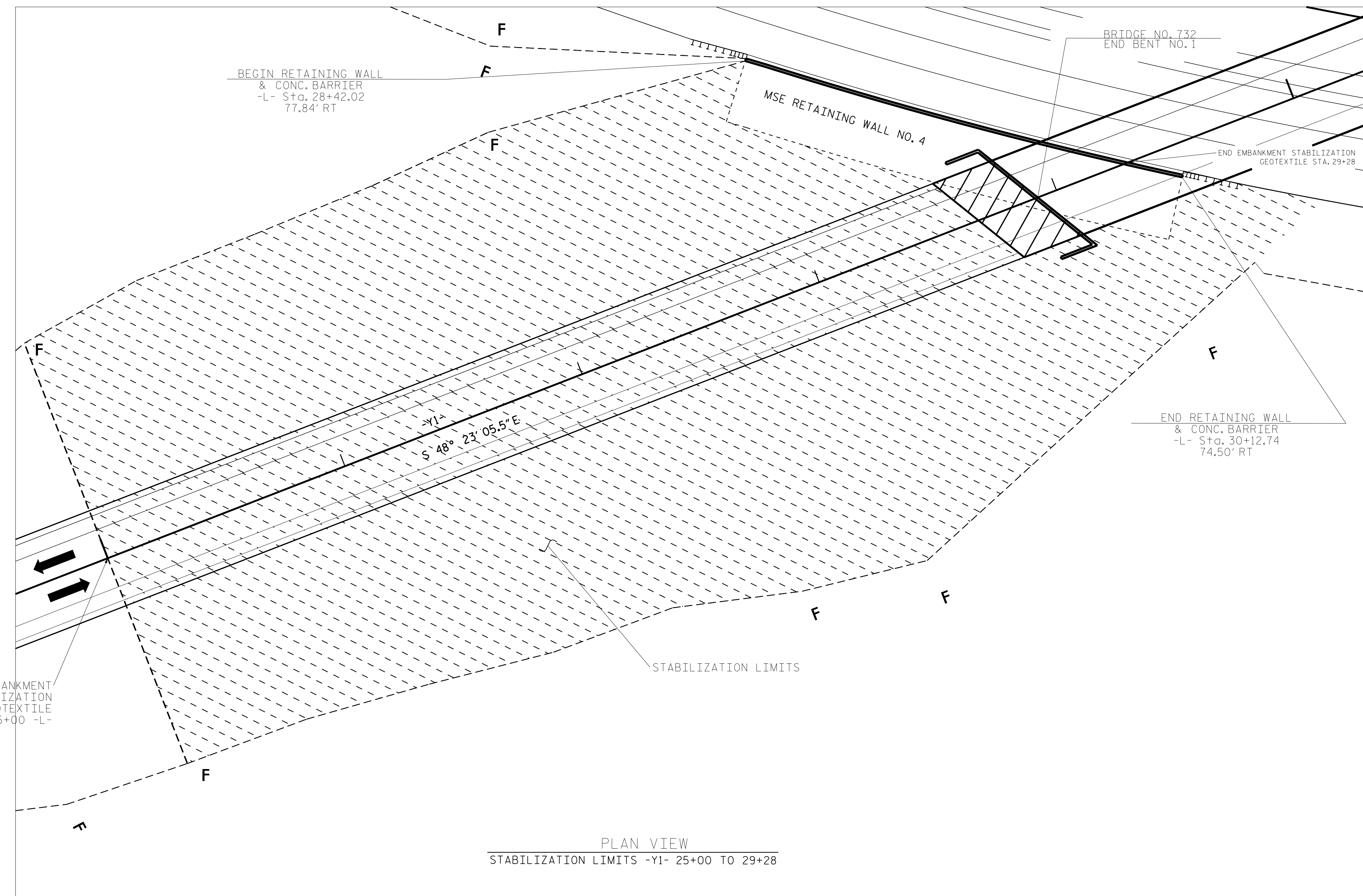


DocuSigned by: *M.H.S.* 06/01/2022  
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 SIGNATURE DATE

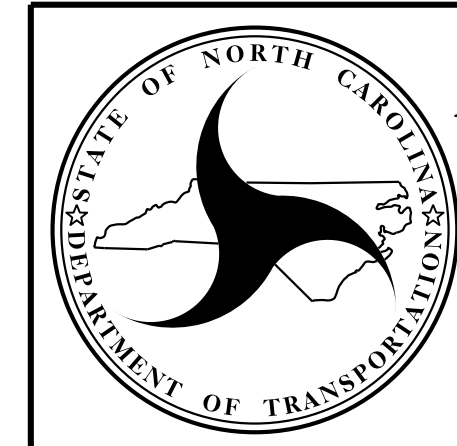
ENGINEER

SIGNATURE DATE

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PREPARED BY: MHS	DATE: 6/1/22
REVIEWED BY: SCC	DATE: 6/1/22


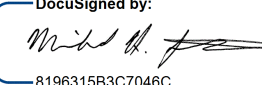


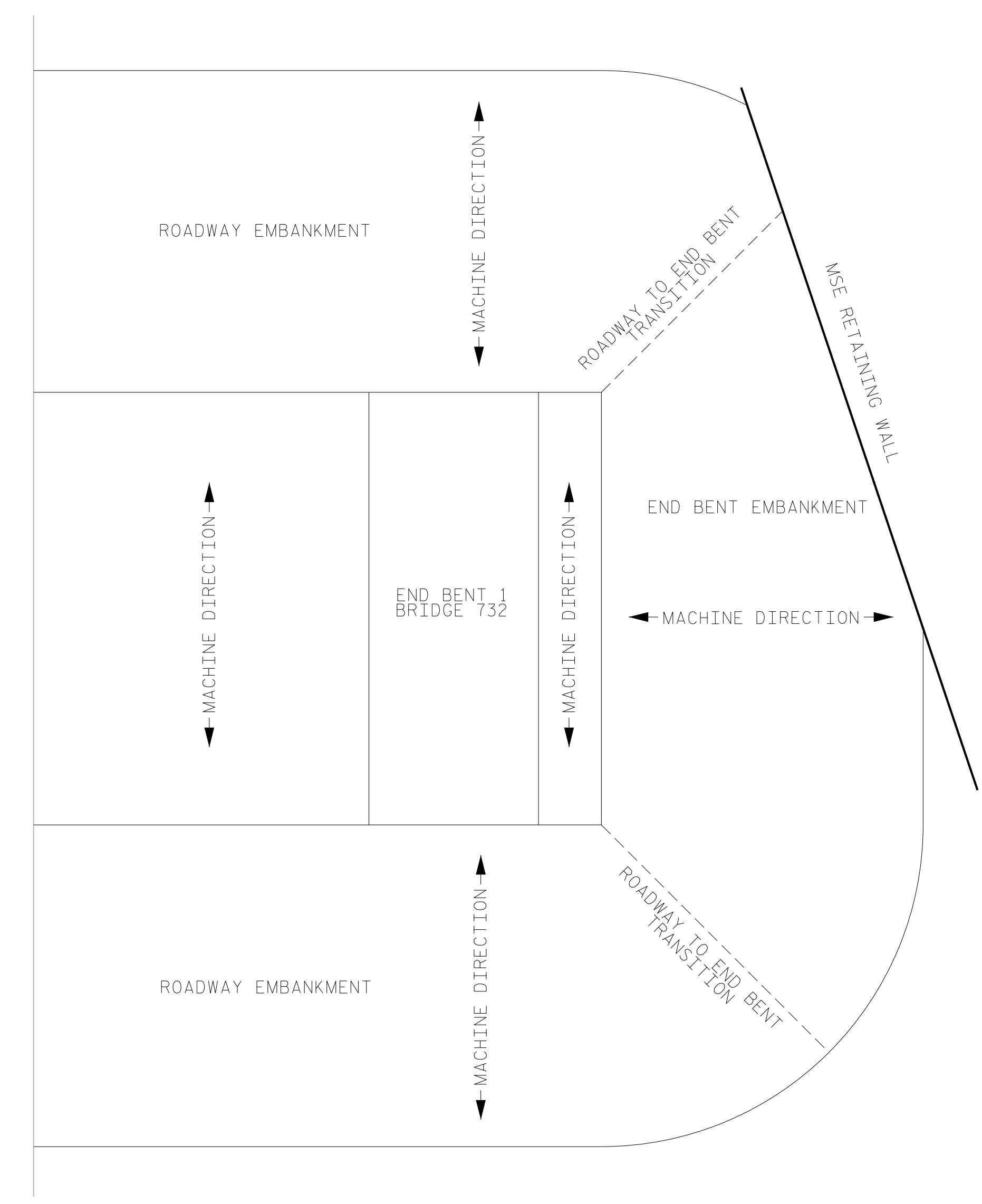
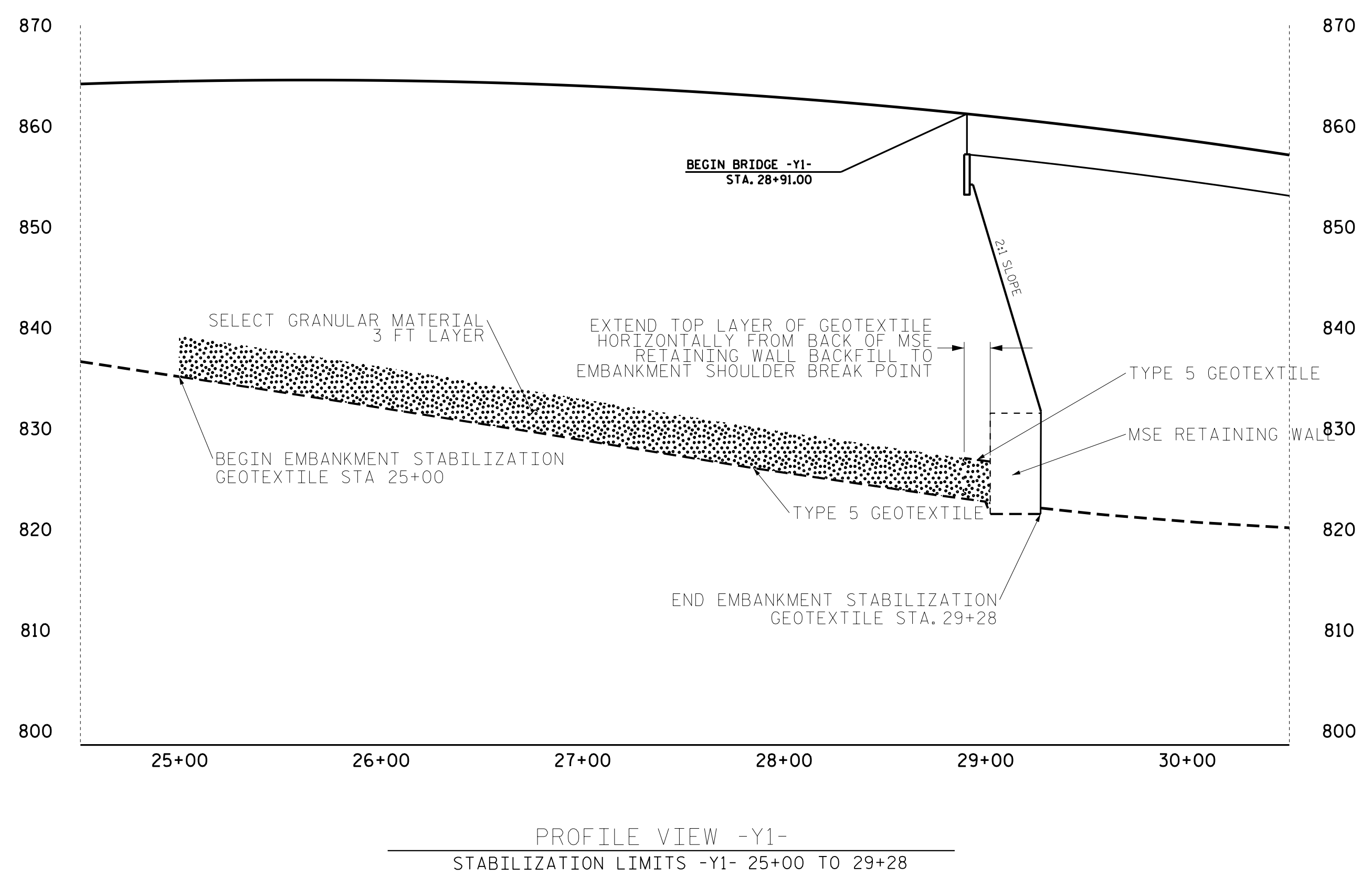
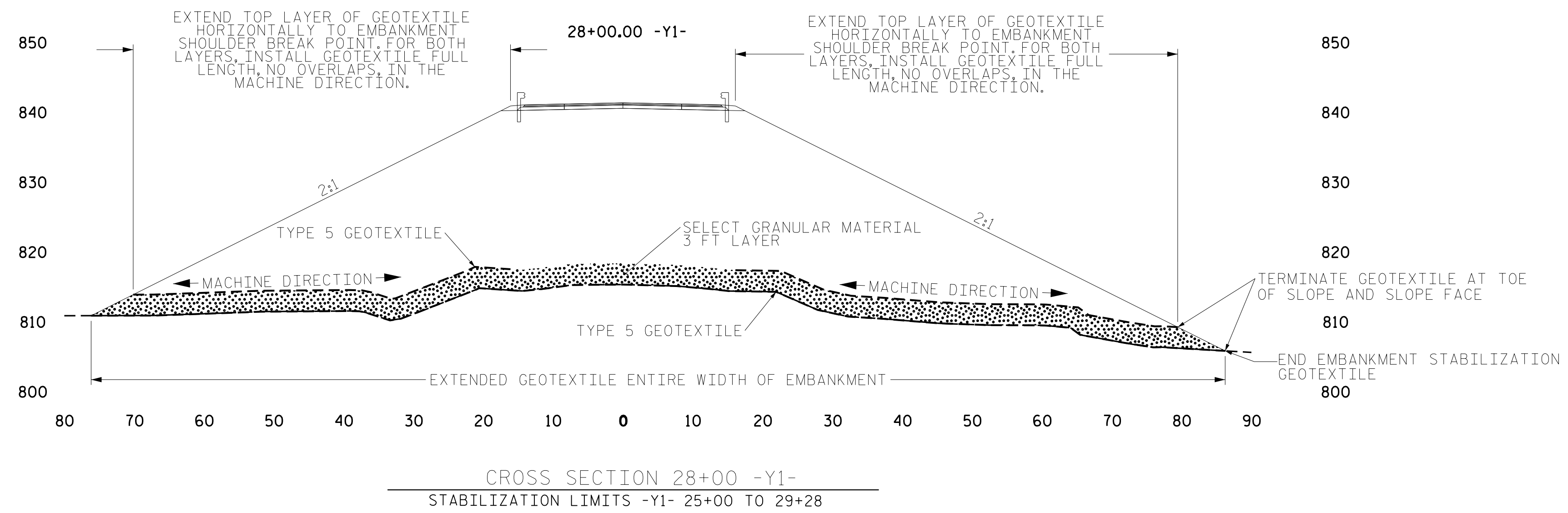
**NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS**

**GEOTECHNICAL  
 ENGINEERING UNIT**

**EMBANKMENT STABILIZATION  
 DETAILS**

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

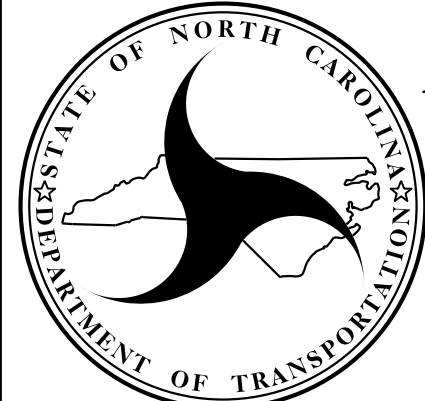
<b>PROJECT REFERENCE NO.</b> U-2579AA (34839.1.7)	<b>SHEET NO.</b> 2G-2
GEOTECHNICAL ENGINEER  DocuSigned by:  06/01/2022 <small>6190315837040C</small> SIGNATURE DATE	ENGINEER SIGNATURE DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



SUMMARY OF QUANTITIES -Y1- 25+00 TO 29+28	
GEOTEXTILE FOR EMBANKMENT STABILIZATION, TYPE 5.....	15,400 SY
SELECT GRANULAR MATERIAL.....	8,800 CY

- NOTES**
- FOR EMBANKMENT STABILIZATION, SEE GEOTEXTILE FOR EMBANKMENT STABILIZATION SPECIAL PROVISION.
  - PLACE ALL GEOTEXTILE WITH THE MACHINE DIRECTION PERPENDICULAR TO THE SLOPE FACE.
  - THE CONTRACTOR TO SUBMIT DETAIL OF FABRIC LAYOUT IN TRANSITION ZONES FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION. IT WILL BE NECESSARY TO PROVIDE SIGNIFICANT FABRIC OVERLAP IN TRANSITION ZONES.

PREPARED BY: MHS	DATE: 6/1/22
REVIEWED BY: SCC	DATE: 6/1/22

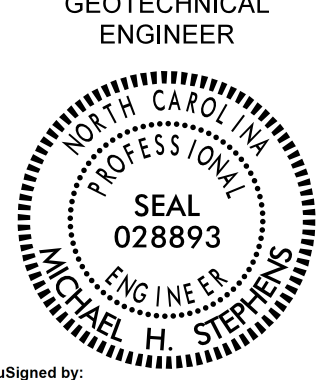
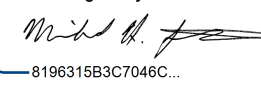


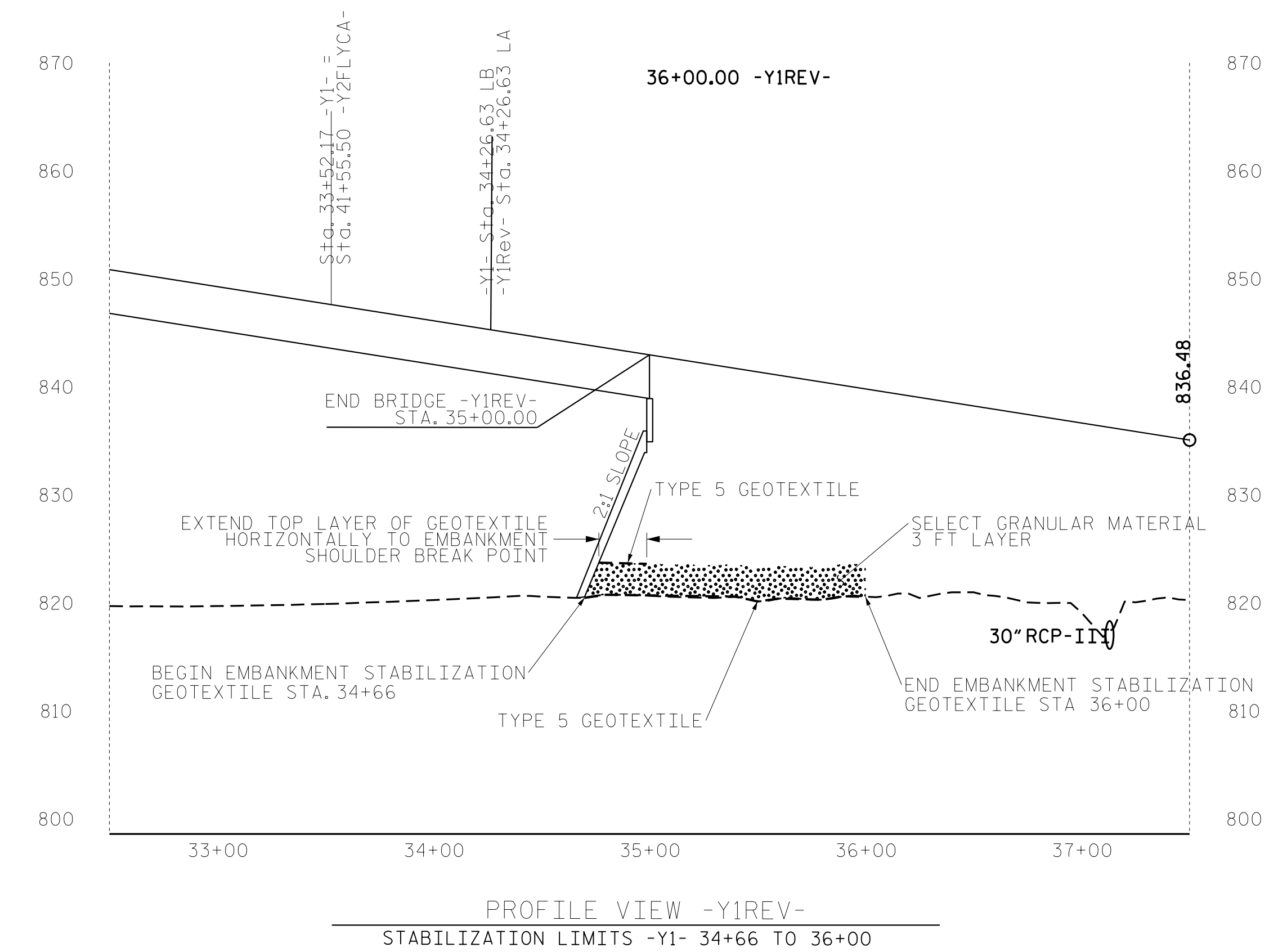
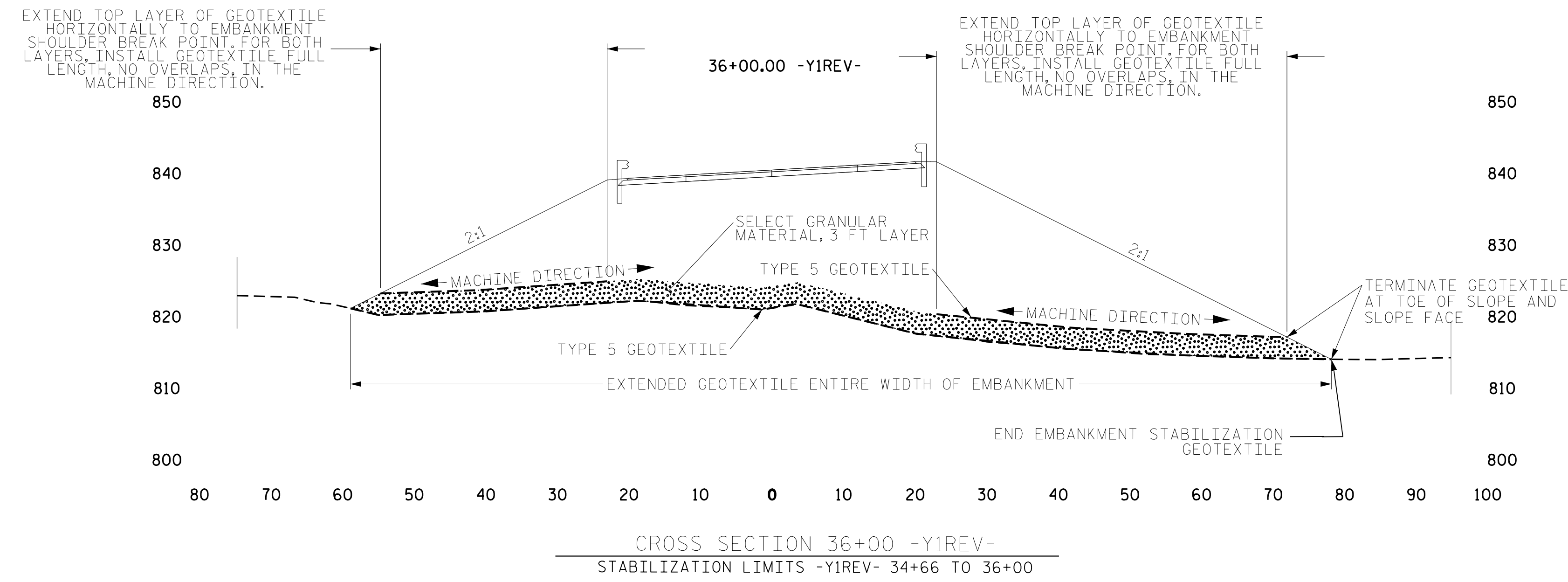
**NORTH CAROLINA  
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ENGINEERING UNIT**

EMBAKMENT STABILIZATION DETAILS					
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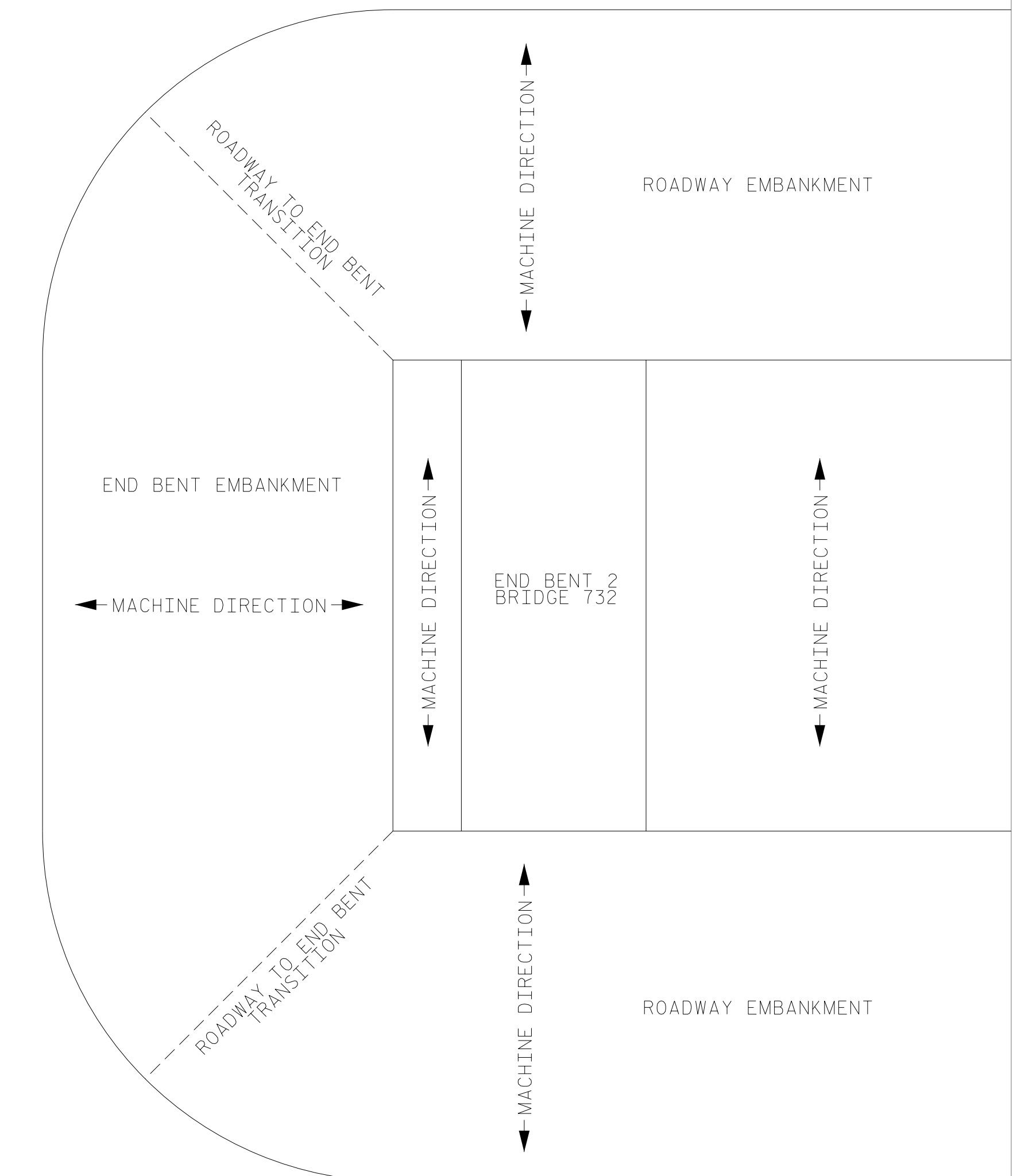
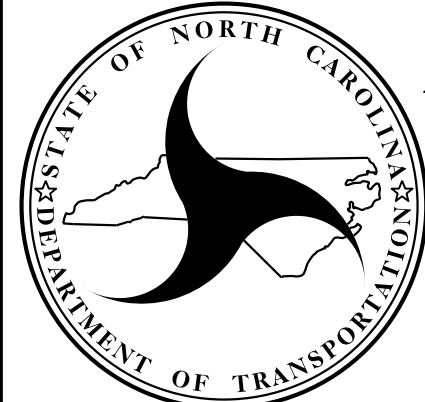
<b>PROJECT REFERENCE NO.</b> U-2579AA (34839.1.7)	<b>SHEET NO.</b> 2G-3
GEOTECHNICAL ENGINEER  DocuSigned by:  06/01/2022 SIGNATURE DATE	ENGINEER
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SUMMARY OF QUANTITIES -Y1REV- 34+66 TO 36+00	
GEOTEXTILE FOR EMBANKMENT STABILIZATION, TYPE 5.....	3,240 SY
SELECT GRANULAR MATERIAL.....	2,250 CY

- NOTES**
- FOR EMBANKMENT STABILIZATION, SEE GEOTEXTILE FOR EMBANKMENT STABILIZATION SPECIAL PROVISION.
  - PLACE ALL GEOTEXTILE WITH THE MACHINE DIRECTION PERPENDICULAR TO THE SLOPE FACE.
  - THE CONTRACTOR TO SUBMIT DETAIL OF FABRIC LAYOUT IN TRANSITION ZONES FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION. IT WILL BE NECESSARY TO PROVIDE SIGNIFICANT FABRIC OVERLAP IN TRANSITION ZONES.

PREPARED BY: MHS	DATE: 6/1/22
REVIEWED BY: SCC	DATE: 6/1/22


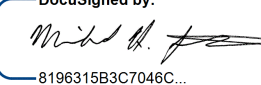



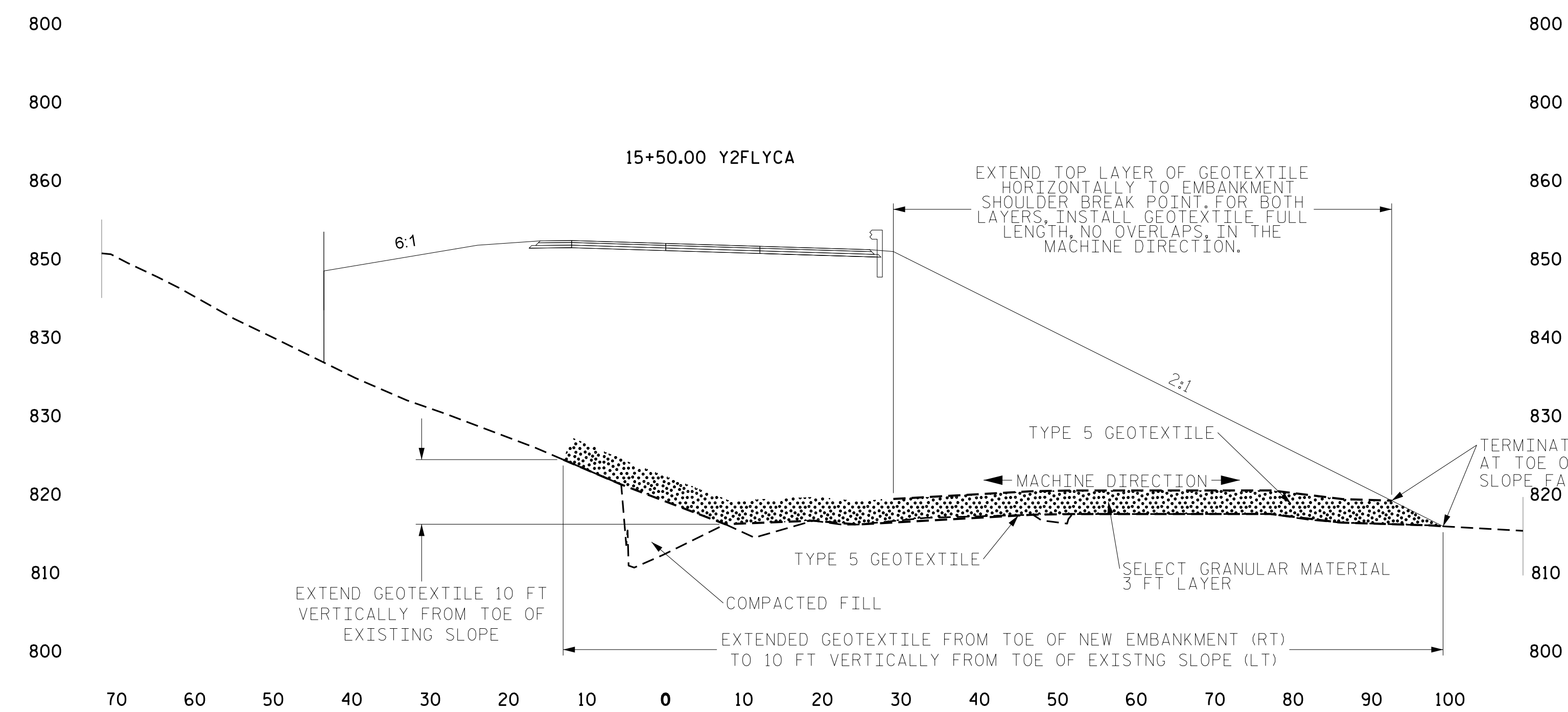
**NORTH CAROLINA  
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DIVISION OF HIGHWAYS**

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ENGINEERING UNIT**

EMBAKMENT STABILIZATION DETAILS					
REVISIONS					
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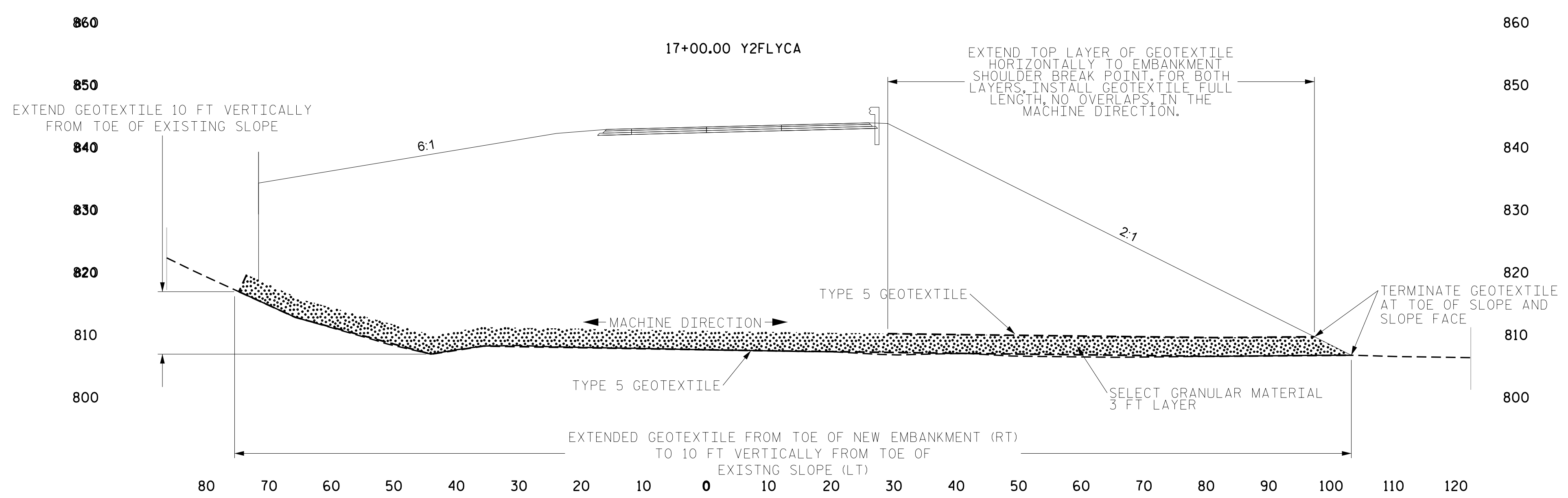
<b>PROJECT REFERENCE NO.</b> U-2579AA (34839.1.7)		<b>SHEET NO.</b> 2G-4	
GEOTECHNICAL ENGINEER  SEAL 028893 MICHAEL H. STEPHENS		ENGINEER	
DocuSigned by:  06/01/2022 SIGNATURE DATE		SIGNATURE DATE	
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CROSS SECTION 15+50 -Y2FLYCA-  
STABILIZATION LIMITS -Y2FLYCA- 14+00 TO 17+75

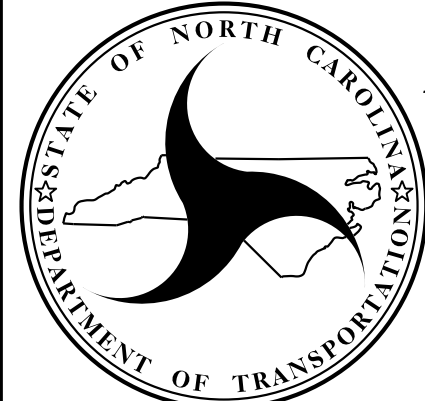
SUMMARY OF QUANTITIES -Y2FLYCA- 14+00 TO 17+75	
GEOTEXTILE FOR EMBANKMENT STABILIZATION, TYPE 5.....	8,500 SY
SELECT GRANULAR MATERIAL.....	5,850 CY

- NOTES
- FOR EMBANKMENT STABILIZATION, SEE GEOTEXTILE FOR EMBANKMENT STABILIZATION SPECIAL PROVISION.
  - PLACE ALL GEOTEXTILE WITH THE MACHINE DIRECTION PERPENDICULAR TO THE SLOPE FACE.
  - THE CONTRACTOR TO SUBMIT DETAIL OF FABRIC LAYOUT IN TRANSITION ZONES FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION. IT WILL BE NECESSARY TO PROVIDE SIGNIFICANT FABRIC OVERLAP IN TRANSITION ZONES.



CROSS SECTION 17+00 -Y2FLYCA-  
STABILIZATION LIMITS -Y2FLYCA- 14+00 TO 17+75


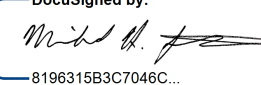
PREPARED BY: MHS	DATE: 6/1/22
REVIEWED BY: SCC	DATE: 6/1/22

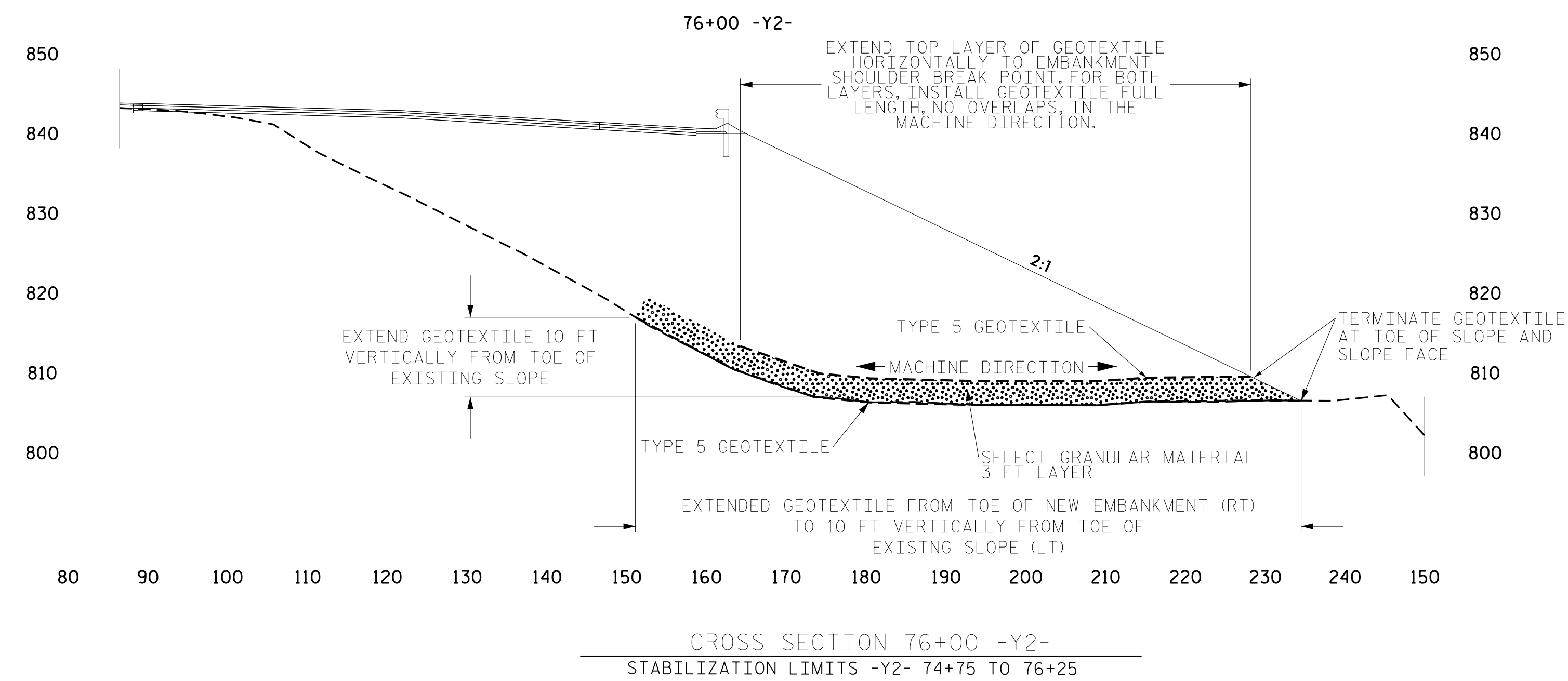


**NORTH CAROLINA  
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**GEOTECHNICAL  
ENGINEERING UNIT**

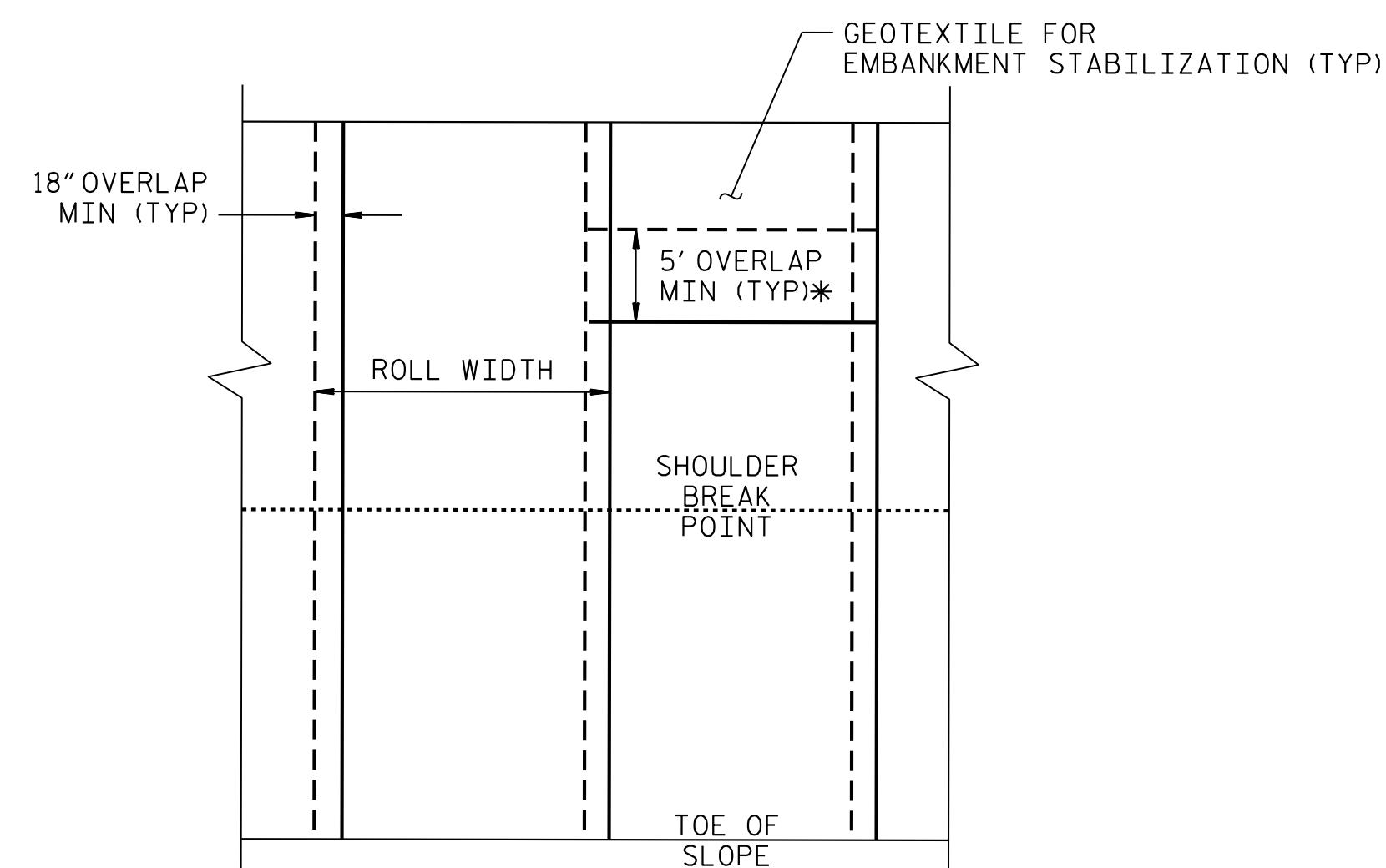
EMBAKMENT STABILIZATION DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
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<b>PROJECT REFERENCE NO.</b> U-2579AA (34839.1.7)	<b>SHEET NO.</b> 2G-5
GEOTECHNICAL ENGINEER  DocuSigned by:  06/01/2022 \$198315837046C SIGNATURE DATE	ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



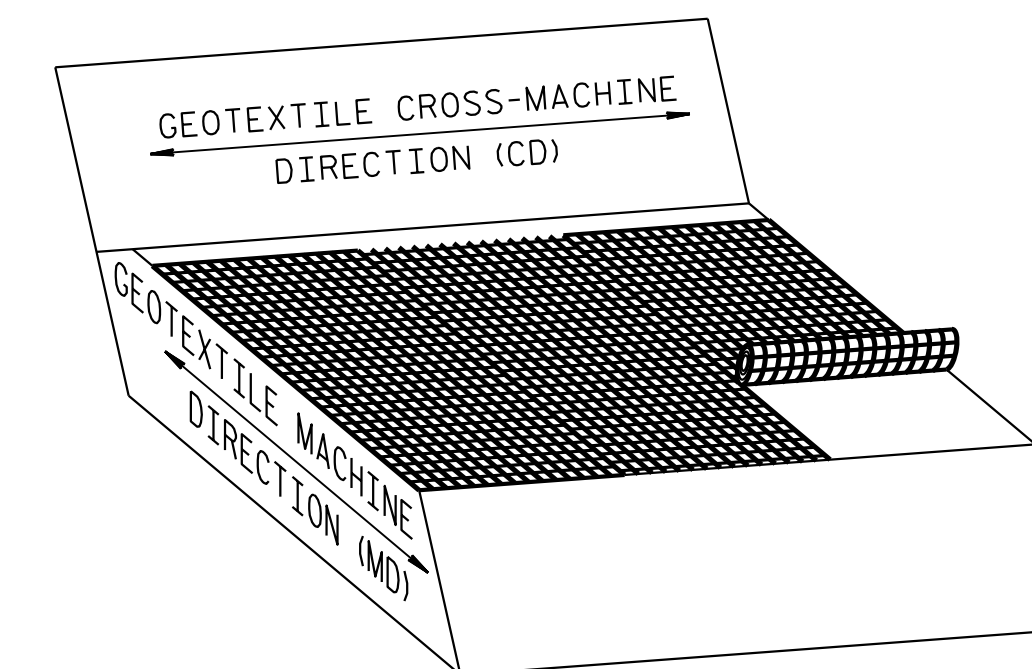
SUMMARY OF QUANTITIES -Y2- 74+75 TO 76+25	
GEOTEXTILE FOR EMBANKMENT STABILIZATION, TYPE 5.....	2,250 SY
SELECT GRANULAR MATERIAL.....	1,250 CY

- NOTES**
- FOR EMBANKMENT STABILIZATION, SEE GEOTEXTILE FOR EMBANKMENT STABILIZATION SPECIAL PROVISION.
  - PLACE ALL GEOTEXTILE WITH THE MACHINE DIRECTION PERPENDICULAR TO THE SLOPE FACE.
  - THE CONTRACTOR TO SUBMIT DETAIL OF FABRIC LAYOUT IN TRANSITION ZONES FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION. IT WILL BE NECESSARY TO PROVIDE SIGNIFICANT FABRIC OVERLAP IN TRANSITION ZONES.



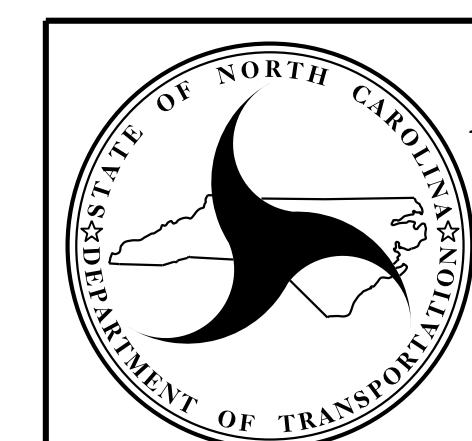
\*FROM THE TOE OF SLOPE TO THE SHOULDER BREAK POINT, INSTALL GEOTEXTILE FULL LENGTH, NO OVERLAPS, IN THE MACHINE DIRECTION. SEE SECTION DETAILS.

**GEOTEXTILE OVERLAP DETAIL  
(PLAN VIEW)**



**GEOTEXTILE PLACEMENT DETAIL  
(PLAN VIEW)**

PREPARED BY: MHS	DATE: 6/1/22
REVIEWED BY: SCC	DATE: 6/1/22



NORTH CAROLINA  
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**GEOTECHNICAL  
ENGINEERING UNIT**

**EMBANKMENT STABILIZATION  
DETAILS**

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2			4		



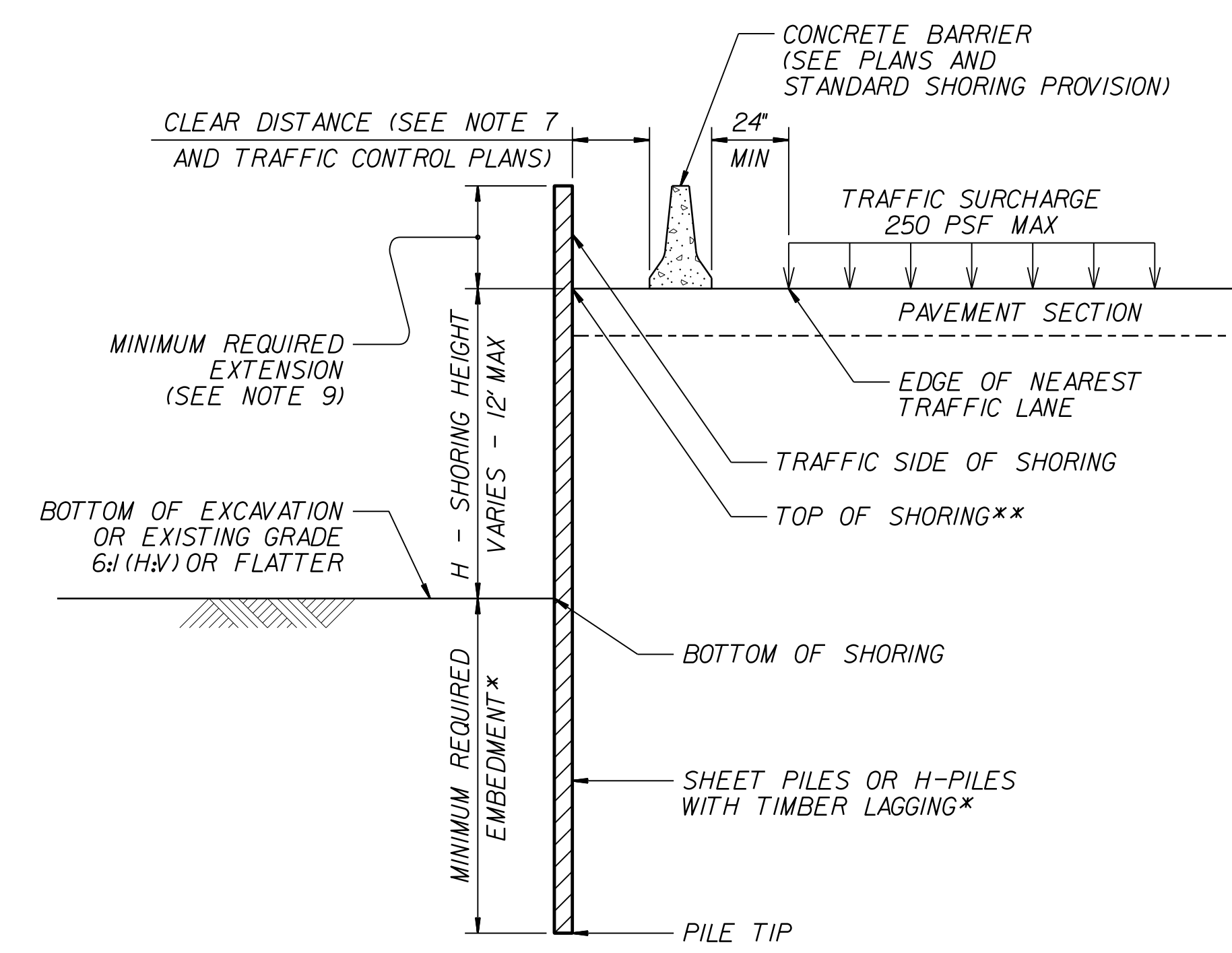
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT						SURCHARGE CASE WITH TRAFFIC IMPACT								
		SHEET PILES		H-PILES WITH TIMBER LAGGING				SHEET PILES		H-PILES WITH TIMBER LAGGING						
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)				
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73					
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0					
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5					
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5					
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0					
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5					
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0					
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5					
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5					
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5					
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5					
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5					
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5					
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5						

**MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS**

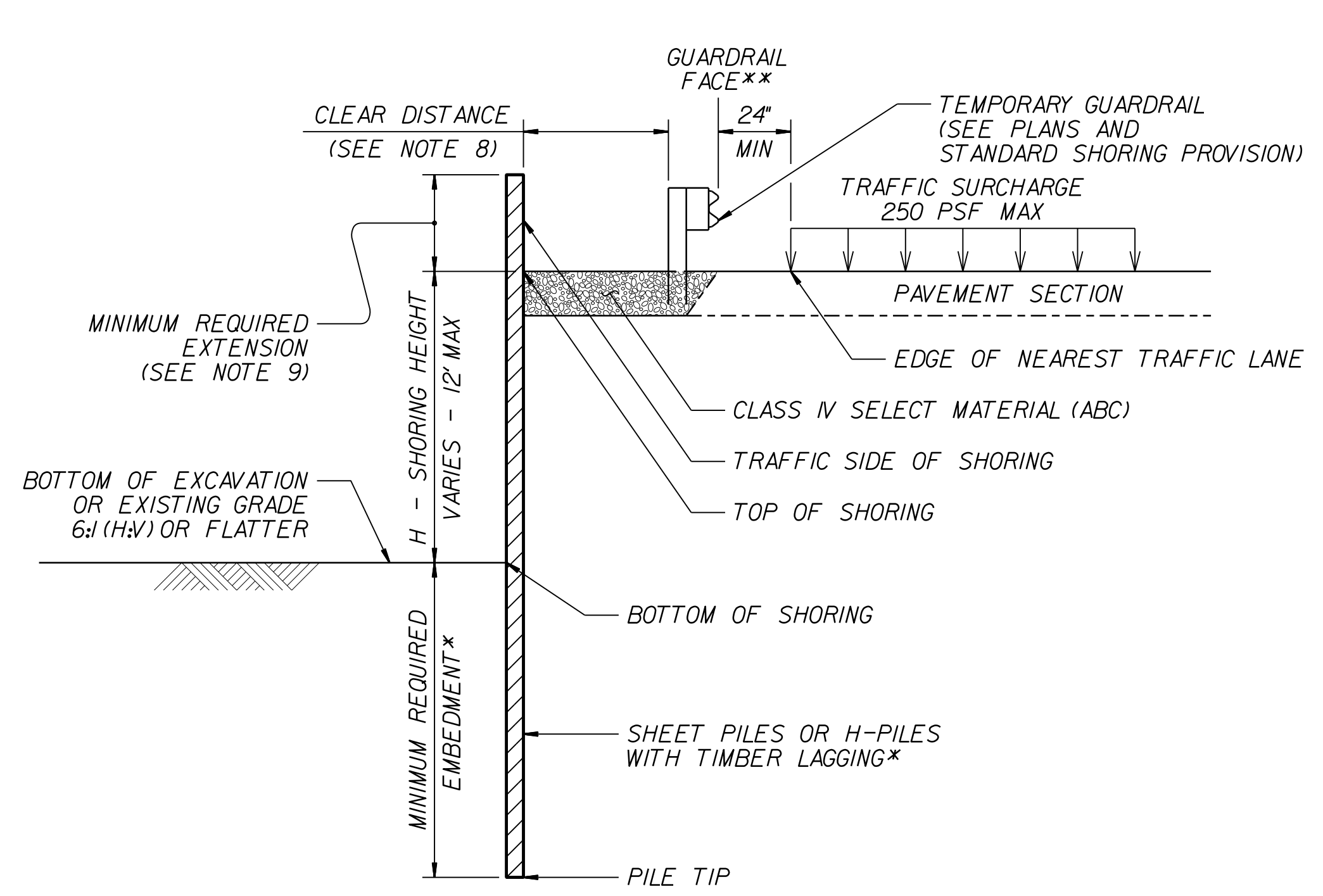
\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

**NOTES:**

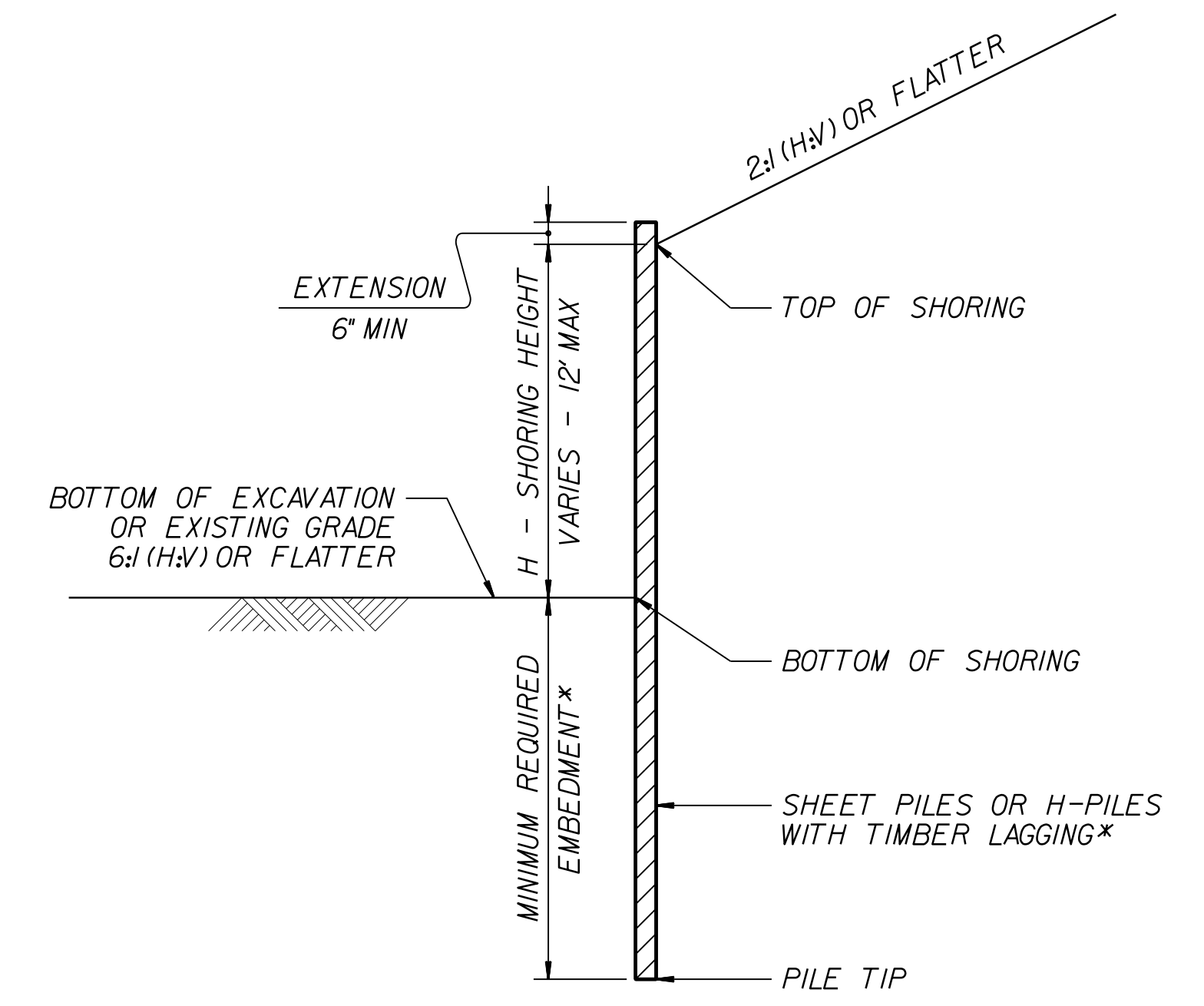
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  PCF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  PSF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:  
[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



**CONCRETE BARRIER**  
\*\*TOP OF SHORING =  
EDGE OF PAVEMENT

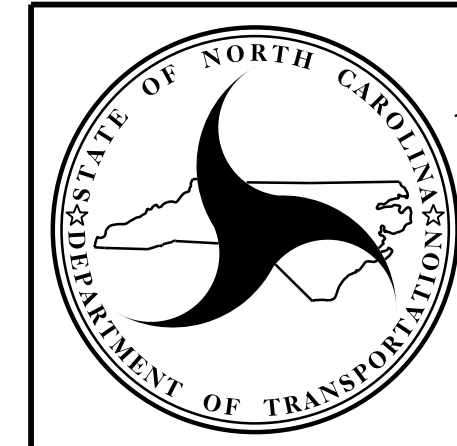


**TEMPORARY GUARDRAIL**  
\*\*GUARDRAIL FACE =  
EDGE OF PAVEMENT



**STANDARD TEMPORARY SHORING**  
(SLOPE CASE)  
\*SEE TABLE ABOVE.

**STANDARD TEMPORARY SHORING**  
(SURCHARGE CASE)  
\*SEE TABLE ABOVE.



NORTH CAROLINA  
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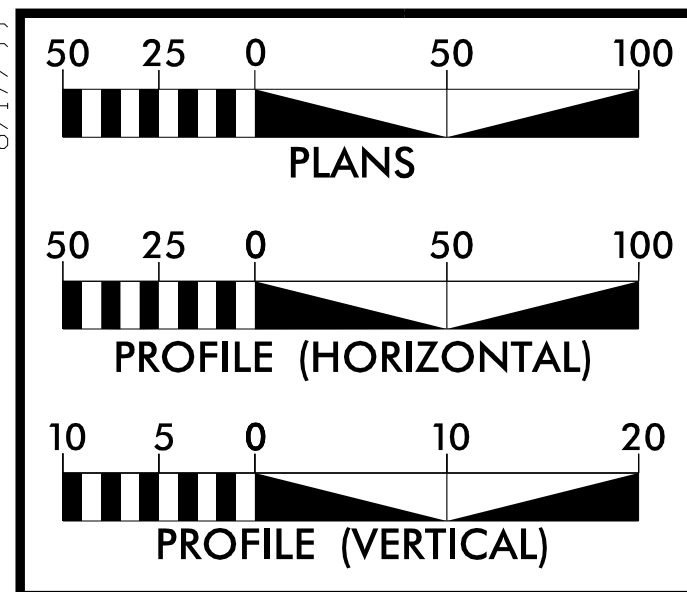
STANDARD DETAIL NO. 1801.01

STANDARD  
TEMPORARY SHORING





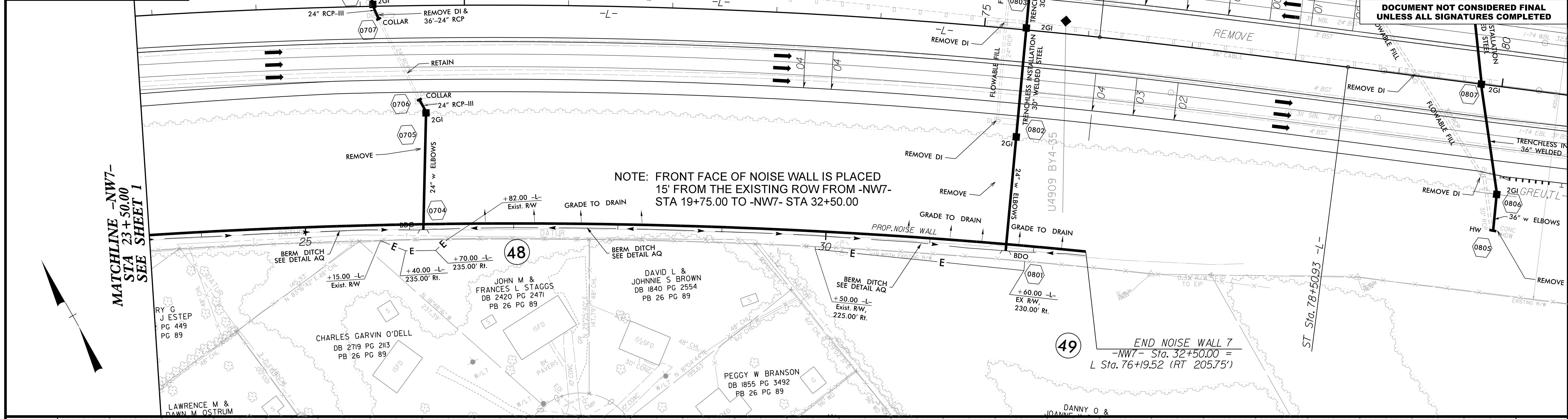




# PLAN AND PROFILE OF NOISE WALL 7

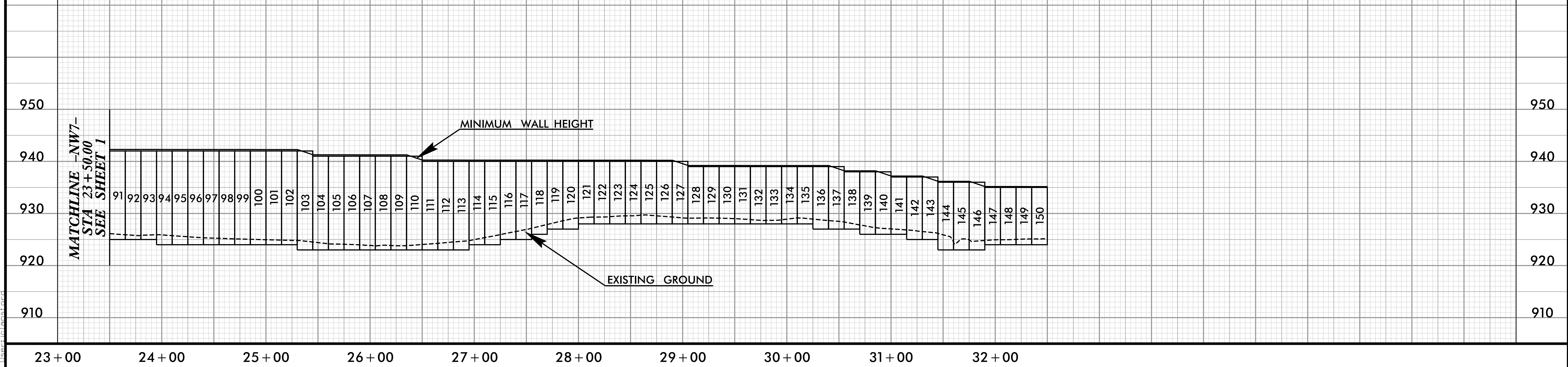
PROJECT REFERENCE NO. U-2579AA	SHEET NO. 2N-2
ROADWAY DESIGN ENGINEER	NOISE QUALITY ENGINEER
<i>John C. L. Mansfield</i> Professional Engineer No. 020188 7/13/2022	<i>Paul C. Seal</i> Professional Engineer No. 020188 6/7/2022

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**



## -NW7-

PANEL NUMBER	91-103	104-110	111-127	128-137	138-140	141-143	144-146	147-150
TOP ELEVATION	942'	941'	940'	939'	938'	937'	936'	935'
PANEL(S) LENGTH	195'	105'	255'	150'	45'	45'	45'	60'



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DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA  
**SUMMARY OF EARTHWORK**  
IN CUBIC YARDS

STATION	STATION	TOTAL UNCLASS.	UNDERCUT	EMBANK. +%	BORROW	TOTAL WASTE
<b>PHASE 1 AREA 1</b>						
-I- 10+00.00	38+00.00	91,642		174,583	82,941	0
-Y2FLYCA - 14+37.03	28+73.60 (Begin Bridge)	581		141,498	140,917	0
-Y2FLYCA - 33+46.60 (End Bridge)	38+40.00 (Begin Bridge)	0		83,387	83,387	0
-Y2FLYCA - 48+96.00	58+38.51	2,683		38,365	35,682	0
-Y2RPB- 15+88.07	45+67.69	161,158		35,852	0	125,306
	<b>SUBTOTAL</b>	256,064	0	473,685	342,927	125,306
<b>PHASE 1 AREA 2</b>						
-Y1- 18+00.00	22+24.00(Begin Bridge)	79		12,162	12,083	0
-Y1- 23+40.76 (End Bridge)	28+91.00 (Begin Bridge)	4		86,572	86,568	0
-Y1Rev- 35+00 (End Bridge)	42+29.04 LB	122		29,146	29,024	0
Y1 42+24.01 LA RT	46+00.00	83		32	0	51
-Y1DRV1- 10+00.00	13+50.00	10		2,970	2,960	0
	<b>SUBTOTAL</b>	298	0	130,881	130,634	51
<b>PHASE 1 AREA 3</b>						
-Y2- NBL 10+44.79 RT	17+00.00	193		2,548	2,355	0
-Y2- NBL 21+92.06 RT (End Bridge)	53+50.00	844		5,288	4,444	0
-Y2- NBL 53+50.00 RT	83+16.06	14		16,360	16,346	0
-Y2- NBL 83+16.00 RT	91+65.82	90		4,346	4,256	0
-Y2- SBL 2+46.11 LT	20+92 (Begin Bridge)	592		6,481	5,889	0
-Y2- SBL 23+12.76 LT (End Bridge)	25+00.00	62		861	799	0
-Y2- SBL 26+50.00 LT	39+50.00	268		3,834	3,566	0
-Y2- SBL 39+50 LT	46+50.00	728		246	0	482
-Y2-SBL 46+50 LT	91+19.35	498		16,776	16,278	
-Y2RPC- 10+00.00 LT	16+89.00	133		273	140	0
-L- 38+00.00 LT	44+00.00	259		46,466	46,207	0
-L- 38+00.00 RT	42+00.00	630		20,574	19,944	0
-L- 52+50.00 Med	91+10.00	1,525		13,552	12,027	0
-Y2FLYAB- 20+50.00	20+74.03 (Begin Bridge)	0		733	733	0
-Y2FLYAB- 29+76.03(End Bridge)	32+00.00	1,082		5,265	4,183	
-SBL DFT1- 10+00.00	43+08.00	11,139		22,742	11,603	
-NBL DFT1- 10+00.00	23+81.00	462		13,299	12,837	
-Y3RPB- 15+00.00	31+66.82	57,184	522	6,297	0	51,410
-Y3LPB- 16+00.00	22+03.48	6,099	305	677	0	5,727
-Y3RPC- 15+00.00	25+85.85	133		59,239	59,106	0
-Y3LPC- 15+00.00	17+75.63	286		6,850	6,564	0
-Y4- 10+11.88	22+00.00	1,393		13,362	11,969	0
	<b>SUBTOTAL</b>	83,614	827	266,069	239,246	57,618
<b>PHASE 2 AREA 2</b>						
-Y1- 13+00.00	-Y1- 13+00.00	676		737	61	0
Y1 41+25.00 LT	Y1 41+25.00 LT	489		79	0	410
	<b>SUBTOTAL</b>	1,165	0	816	61	410

NOTE: Earthwork quantities calculated by Vaughn & Melton Consulting Firm. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

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## SUMMARY OF EARTHWORK (CONT.)

IN CUBIC YARDS

STATION	STATION	TOTAL UNCLASS.	UNDERCUT	EMBANK. +%	BORROW	TOTAL WASTE
<b>PHASE 2 AREA 3</b>						
-Y2- SBL 2+46.11 RT	21+39.75 (Begin Bridge)	1,379		15,325	13,946	0
-Y2SBL- 23+38.12 RT (End Bridge)	28+00.00	1,688		2,621	933	0
-Y2SBL- 32+50.00 RT	54+00.00	16,075		749	0	15,326
-Y2SBL- 72+00.00 RT	91+19.35	1,920		32,149	30,229	0
-Y2SBL- 25+00.00 LT	26+50.00	31		432	401	0
-Y2RPC- 16+89.00	25+16.00	2,877		1,244	0	1,633
-Y2RPC- 10+00.00 RT	16+89.00	847		97	0	750
-L- 52+00.00 RT	87+25.00	13,259		16,196	2,937	0
-Y2NBL- 10+44.73 LT	19+79.00 (Begin Bridge)	2,067		2,346	279	0
-Y2NBL- 21+84 (END BRIDGE) LT	54+50.00	18,787		6,677	0	12,110
-Y2NBL- 63+50.00 LT	90+99.00	2,267		6,396	4,129	0
-Y2NBL-16+50.00 RT	20+27.88 (Begin Bridge)	199		1,544	1,345	0
-Y2FLYAB- 16+26.44	20+50.00	1,530		6,258	4,728	0
-L- 52+00.00 LT	91+10.00	9,050		27,826	18,776	0
-Y3LPB- 12+57.08	14+00.00	3,811		0	0	3,811
-Y3RPC- 13+97.98	15+00.00	4		2,278	2,274	0
-Y3RPB- 13+91.14	15+00.00	21		2,282	2,261	0
-Y2A- 10+00	17+32.16	94		3,906	3,812	0
	<b>SUBTOTAL</b>	75,906	0	128,327	86,051	33,630
<b>PHASE 3 AREA 3</b>						
-Y2SBL- 28+00.00 RT	32+50.00	927		742	0	185
-Y3LPB- 14+00.00	16+00.00	3,495	195	312	0	3,378
-Y3LPC- 12+43.96	15+00.00	4,552		22	0	4,530
-NBLDET2- 10+00.00	32+10.00	1,672		9,102	7,430	0
-Y2NBL- 54+50.00 LT	63+50.00	991		505	0	486
-Y2SBL- 54+00.00 RT	72+00.00	2,824		4,680	1,856	0
-Y2FLYAB- 32+00.00	37+31.77	3,715		1,636	0	2,079
-L- 44+00.00 LT	52+00.00	8,304		7,007	0	1,297
-L- 42+00.00 RT	52+00.00	15,442		4,454	0	10,988
	<b>SUBTOTAL</b>	41,922	195	28,460	9,286	22,943
<b>TOTAL</b>						
		458,969	1,022	1,028,237	808,204	239,958
<b>MATERIAL FOR SHOULDER CONSTRUCTION</b>						
LOSS DUE TO CLEARING & GRUBBING		-25,000		0	25,000	0
ADDITIONAL UNDERCUT	(FILLED WITH SEL. GRAN. MAT.)		200	240	240	200
ADDITIONAL UNDERCUT	GRADE POINT		500	600	600	500
SELECT GRANULAR MATERIAL				-1,464	-1,464	0
ROCK WASTE TO REPLACE BORROW					-1,365	-1,365
ADJUST FOR ROCK WASTE				-410	-410	
WASTE IN LIEU OF BORROW		0			-224,356	-224,356
<b>PROJECT TOTAL</b>		433,969	1,722	1,029,243	608,489	14,937
<b>EST. 5% TO REPLACE TOP SOIL ON BORROW PIT</b>						
					30,424	
<b>GRAND TOTAL</b>		433,969	1,722	1,029,243	638,913	14,937
<b>SAY</b>		435,000	1,750		640,000	

**NOTE:** Earthwork quantities calculated by Vaughn & Melton Consulting Firm. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

SELECT GRANULAR MATERIAL = 22,450 CY  
 GEOTEXTILE FOR PAVEMENT STABILIZATION = 47,367 SY  
 GEOTEXTILE FOR SOIL STABILIZATION = 127,000 SY  
 CLASS IV SUBGRADE STABILIZATION = 100,200 TONS  
 EST. DDE = 7,500 CUBIC YARDS  
 PAVEMENT STRUCTURE VOLUME FOR  
 -L-, -Y2FLYAB-, -Y3RPB- AND -Y3RPB- = 7,795 CUBIC YARDS  
 TOTAL SHALLOW UNDERCUT = 2,500 CUBIC YARDS

**NOTE :** UNCLASSIFIED EXCAVATION NOT TO BE USED IN THE TOP 3" OF EMBANKMENT OR BACK FILL:  
 -L- 17+25 TO 19+75 11,679 CY  
 -Y2FLYAB- 31+25 TO 34+75 1,219 CY  
 -Y2RPB- 17+25 TO 20+25 15,037 CY  
 -Y2RPB- 28+25 TO 31+75 24,180 CY  
 QUANTITY OF UNSUITABLE UNCLASSIFIED EXCAVATION TO BE USED AT THE DISCRETION OF THE ENGINEER.

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COMPUTED BY: K. Bridgers DATE: 9-30-19  
 CHECKED BY: JCL DATE: 11221

PROJECT REFERENCE NO. U-2579AA SHEET NO. 3B-3

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**SHOULDER BERM GUTTER SUMMARY**

SURVEY LINE	STATION	STATION	LENGTH
L LT	10+00.00	11+23.96	124
L LT	31+07.64	45+17.74	1410J
L RT	55+39.08	56+12.00	72.9
Y2NBL LT	13+75.32	19+03.38	528J
Y2NBL LT	21+53.53	25+32.04	378.5
Y2NBL LT	76+04.38	87+08.11	1103.7
Y2SBL LT	28+12.46	29+02.67	90.2
Y2SBL RT	31+41.94	31+97.61	55.7
Y2SBL RT	74+28.44	79+59.75	531.3
Y2RPC RT	29+30.00	30+49.27	119.3
Y2FLYAB RT	15+99.98	20+50.00	450.0
Y2FLYAB LT	18+74.00	20+50.00	176.0
Y2FLYCA RT	10+00.00	16+32.39	632.4
Y2FLYCA LT	24+70.00	28+46.07	376J
Y2FLYCA LT	34+84.00	38+15.73	331.7
Y2FLYCA LT	49+20.05	62+26.81	1306.8
Y2FLYCA LT	49+20.05	50+18.58	98.5
Y3RPB LT	10+00.00	16+08.14	608J
Y3RPC RT	10+00.00	24+69.87	1469.9
Y2FLYAB LT	30+00.03	31+00.78	100.8
Y1 RT	19+73.00	22+09.92	236.9
Y1 LT	20+65.00	22+09.92	144.9
Y1 LT	23+54.92	28+66	511.0
Y1 RT	23+54.92	28+89	534J
Y1Rev LT	35+02.00	35+59.00	57.0
Y1Rev RT	35+25.10	35+58.58	33.5
Y2SBL RT	95+86.07	96+44.98	58.9
Y2NBL RT	68+40.00	71+84.00	344'
<b>TOTAL:</b>			<b>11,884.4</b>
<b>SAY:</b>			<b>12,000</b>

**PAVEMENT REMOVAL & BREAKING SUMMARY**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	ASPHALT REMOVAL YD	ASPHALT BREAKUP YD
Y2	31+57	36+24	RT	880	
Y2	37+19	40+90	RT	1248	
Y2	40+69	52+22	RT	2740	
Y2	32+31	38+86	LT	1260	
Y2	38+91	45+66	LT	1224	
Y2	46+22	55+81	LT	2082	
Y4	19+20		LT	415	
Y2FLYAB	18+18	21+78	LT	788	
Y2SBL	47+80	53+80	RT	2216	
Y2NBL	16+51	19+47	LT	1385	
Y2SBL	32+67	34+18	RT	612	
Y2SBL	35+37	48+67	RT	3469	
Y2SBL	48+92	65+82	RT	3774	
Y4	19+50	22+00	CL	552	
Y2NBL	49+34	58+34	LT	3475	
Y2NBL	45+78	57+36	LT	2568	
Y2FLYAB	33+67	37+32	CL	1040	
Y2FLYAB	27+93	33+74	LT	1539	
L	62+00	72+50	LT	2651	
Y1	16+54	17+49	CL	253	
Y3RPC	16+90	18+15	RT	318	
Y1	17+48	21+99	CL		1078
Y1	23+66	28+73	CL		1201
Y1	33+11	40+51	CL		1624
NBLDETI-	10+67	23+80.98	CL	3604	
NBLDETI-	10+00	32+09.96	CL	6350	
SBLDETI-	10+00	43+07.78	CL	10325	
TEMPORARY PAVEMENT FROM TMP PLANS				17826	
<b>TOTAL:</b>				<b>72,595</b>	<b>3903</b>
<b>SAY:</b>				<b>72,600</b>	<b>3910</b>

**WOVEN WIRE FENCE SUMMARY**

STATION to STATION	LT or RT	FABRIC (LF)	4" POSTS	5" POSTS
L Sta.10+00 to Sta.11+24	LT	124	7	3
L Sta.10+00 to Sta.12+56	RT	256	17	3
Y2RPB Sta.10+00 to Sta.25+06	RT	1,589	98	28
Y2RPB Sta.25+46 to Sta.44+90	RT	1,890	121	25
Y2FLYCA Sta.14+50 to Sta.14+59	RT	14		2
Y2FLYCA Sta.15+11 to Sta.28+14	RT	1,389	86	25
Y2FLYCA Sta.41+10 to Sta.62+26	RT	2,077	135	25
Y3RPB Sta.16+02 to Sta.30+93	LT	1,581	103	19
Y3RPC Sta.14+43 to Sta.25+33	LT	1,106	64	28
Y3 Sta.22+07 to Sta.23+28	RT	124	6	5
<b>TOTAL</b>		<b>10,149</b>	<b>636</b>	<b>163</b>
<b>SAY</b>		<b>10,175</b>	<b>637</b>	<b>165</b>

**SHOULDER DRAIN SUMMARY**

STATION to STATION	LOCATION	SHOULDER DRAIN PIPE (LF)	SHOULDER DRAINS (LF)	OUTLET PIPES (LF)	CONCRETE PADS (EA)
L Sta.23+50 to 39+00	Lt Outer Shld	1550'	1550'	75'	2
L Sta.24+00 to 39+00	Rt Med. Shld	1500'	1500'	45'	
<b>TOTAL</b>		<b>3050'</b>	<b>3050'</b>	<b>120'</b>	<b>2</b>
<b>SAY</b>		<b>3100'</b>	<b>3100'</b>	<b>125'</b>	<b>5</b>

**EXISTING GUARDRAIL REMOVAL SUMMARY**

STATION to STATION	LT or RT	LENGTH (LF)
Y2FLYAB Sta.10+88 TO 28+54	LT/RT	1,692
L Sta.52+10 TO 55+05	RT	291
Y2NBL Sta.75+92 TO 87+10	LT	1,118
Y2SBL Sta.75+65 to 91+56	RT	1,590
Y2SBL Sta.20+58 to 29+32	RT	874
Y2SBL 27+35 to 29+00	LT	167
Y2NBL Sta.21+28 to 31+34	LT	1,006
Y2NBL Sta.14+38 to 19+39	LT	500
Y2NBL Sta.21+68 to 23+31	RT	165
Y2NBL Sta.31+04 to 32+54	RT	148
<b>TOTAL</b>		<b>7,551</b>
<b>SAY</b>		<b>7,575</b>

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COMPUTED BY: DJM DATE: 9-2-19  
CHECKED BY: KTB DATE: 9-17-19

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

ABBREVIATIONS

C.B. CATCH BASIN  
N.D.I. NARROW DROP INLET  
D.I. DROP INLET  
G.D.I. GRATED DROP INLET  
G.D.I. (N.S.) GRATED DROP INLET (NARROW SLOT)  
J.B. JUNCTION BOX  
M.H. MANHOLE  
T.B.D.I. TRAFFIC BEARING DROP INLET  
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

PROJECT REFERENCE NO. U-2579AA  
SHEET NO. 3D-4

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

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

Main data table with columns for Station, Structure No., Location, Invert Elevation, Pipe Type (SIDE DRAIN PIPE, C.S. PIPE, R.C. PIPE), Thickness, and various material specifications.

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

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

ABBREVIATIONS

C.B. CATCH BASIN  
N.D.I. NARROW DROP INLET  
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G.D.I. (N.S.) GRATED DROP INLET (NARROW SLOT)  
J.B. JUNCTION BOX  
M.H. MANHOLE  
T.B.D.I. TRAFFIC BEARING DROP INLET  
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

PROJECT REFERENCE NO. U-2579AA  
SHEET NO. 3D-8

Main data table with columns for Station, Structure No., Top Elevation, Invert Elevation, Pipe Details (R.C. Pipe Class, Size, Material), and Remarks. Includes summary row at the bottom.





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COMPUTED BY: DJM DATE: 9-2-19  
CHECKED BY: KTB DATE: 9-17-19

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

ABBREVIATIONS

C.B. CATCH BASIN J.B. JUNCTION BOX  
N.D.I. NARROW DROP INLET M.H. MANHOLE  
D.I. DROP INLET T.B.D.I. TRAFFIC BEARING DROP INLET  
G.D.I. GRATED DROP INLET T.B.J.B. TRAFFIC BEARING JUNCTION BOX  
G.D.I. (N.S.) GRATED DROP INLET (NARROW SLOT)

PROJECT REFERENCE NO. SHEET NO.  
U-2579AA 3D-10

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

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

Main data table with columns for Station, Location, Structure No., Top Elevation, Invert Elevation, Pipe Type (R.C. Pipe Class V, R.C. Pipe Class Y, R.C. Pipe Class X, R.C. Pipe Class W, R.C. Pipe Class U, R.C. Pipe Class T, R.C. Pipe Class S, R.C. Pipe Class R, R.C. Pipe Class Q, R.C. Pipe Class P, R.C. Pipe Class O, R.C. Pipe Class N, R.C. Pipe Class M, R.C. Pipe Class L, R.C. Pipe Class K, R.C. Pipe Class J, R.C. Pipe Class I, R.C. Pipe Class H, R.C. Pipe Class G, R.C. Pipe Class F, R.C. Pipe Class E, R.C. Pipe Class D, R.C. Pipe Class C, R.C. Pipe Class B, R.C. Pipe Class A), Endwalls, Quantities, Type of Grate, and Remarks.

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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

NOTE: Invert Elevations 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" & OVER)

STATION	SIZE	THICKNESS OR GAUGE	LOCATION (L/RT OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC)				CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)				C.S. PIPE				STRUCTURAL PLATE PIPE				REINFORCED ENDWALLS		QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. B)	PER EACH (0" THRU 5.0')	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	J.B. STD. 840.31 OR 840.32	M.H. FRAME & COVER STD. 840.54	SIDE DRAIN PIPE ELBOWS	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. FRAME WITH TWO GRATES STD. 840.22	FLOWABLE FILL C.Y.	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIFT.	REMARKS											
				54"	60"					66"	72"	54"	60"	66"	72"	78"	54"	60"	66"	72"	78"	12	10	12	10	12	10															WITH R.C. - C.Y.	WITH C.S. - C.Y.	A	B							
				FROM	TO					DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	60" WELDED STEEL PIPE IN SOIL	60" WELDED STEEL PIPE OUT OF SOIL	72" WELDED STEEL PIPE IN SOIL	72" WELDED STEEL PIPE OUT OF SOIL	.109	.138	.168	.138	.168	.138	.168	12	10	12	10	12	10																						
-L- STA. 28+90	CL		0505			821.9'	813.7'																																													
-Y2FLYAB- 17+88			0611	0610		826.5'	827.3'																																													
-Y2FLYAB- 17+97			0610	0608		827.3'	832.0'																																													
-Y2FLYAB- 16+32			0608		843.0'	832.0'																																														
-L- STA. 53+92	LT		0608	0607		832.0'	833.8'																																													
-L- STA. 54+38	RT		0607	0606		833.8'	835.3'																																													
-Y2FLYAB- 17+62	RT		0610		838.0'	827.3'																																														
-Y2- STA. 70+06	LT		1406	1407		821.0'	820.0'																																													
-Y2- STA. 70+04	LT		1407		832.9'	820.0'																																														
-Y2- STA. 70+41	RT		1407	1408		820.0'	813.0'																																													
-Y2- STA. 70+79	RT		1408		826.0'	813.0'																																														
-Y2- STA. 71+15	RT		1408	1409		813.0'	812.2'																																													
-L- STA. 54+45	RT		0607		858.0'	833.8'																																														
-Y2RPB- 40+67	LT		1444			810.1'	804.3'																																													
-Y2RPB- 26+82	RT		1610	1611		838.0'	823.4'																																													
-Y2RPB- 26+84	RT		1611		830.7'	823.4'																																														
-Y2RPB- 26+84	RT		1611	1612		823.4'	823.0'																																													
-Y2A- STA. 15+10	CL		1464			817.5'	817.3'																																													
SHEET TOTAL						48'	108'	212'						148'	148'	192'	192'	748'																																		
SAY																																																				

ABBREVIATIONS	
C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRADED DROP INLET
G.D.I. (N.S.)	GRADED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX







COMPUTED BY: J.R. Swartley DATE: 2/12/18  
 CHECKED BY: S.S. Laney DATE: 2/12/18

(2-12-18)

PROJECT NO.  
U-2579AA

SHEET NO.  
3G-2

**STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS**

**SUMMARY OF ROCK PLATING**

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-Y2-	2:1	17+65	2:1	19+00	LT	275.01	1	1060
-Y2-	2:1	17+50	2:1	19+35	RT	275.01	1	1452
							<b>TOTAL SY:</b>	2512

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

**SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION**

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
L	10+00	88+48	ASU	10		40910	58399		
Y2FLYAB	16+38	74+29 (Y2NBL)	ASU	10		4378	5949		
Y2FLYCA	10+00	58+32	ASU	10		8768	4004		
Y2SBL	11+50	25+49 (Y2RPC)	ASU	10		16984	16680		
Y2NBL	10+50	39+80	ASU	10		15215	23678		
Y2RPB	15+88	45+62	ASU	10		7915	12208		
	CONTINGENCY		ASU	10	2500				
	CONTINGENCY		AST	3				500	
			<b>TOTAL CY/TONS/SY:</b>		2500	94170**	120918**	500	0

\*ASU = Aggregate Subgrade

\*AST = Aggregate Stabilization

\*\*Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

NOTE: Y2NBL and SBL calculations include Y3LPB, Y3LPC, Y3RPB, Y3RPC and Y2RPC

NOTE: Replace Geotextile for Soil Stabilization with Geotextile for Pavement Stabilization at locations specified in the Geotextile for Pavement Stabilization table. See Geotextile for Pavement Stabilization table for specific locations.



STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
**PARCEL INDEX SHEET**

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4, 5 & 16	BRENDA SUE THORE,SARAH THORE HAMMOND,JANE THORE HARDY & JAMES S.THORE,JR.
2	5	BRENDA N PENLAND
3	5	BARRY GARFIELD ADAMS
4	5	WESTVIEW DEVELOPMENT
5	5	BRANT H & BEVERLY H GODFREY
6	5	SAMUEL & ANDREA STIMPSON
7	5	MICHAEL J & VIRGINIA P MENZEL
8	5	TIMOTHY D & SARA C VONCANNON
9	5	ELIZABETH ANN DAVIS
10	5	ELWANDA L OXENDINE
11	5	COLLEEN D SPRIGGS
12	5	WESTVIEW DEVELOPMENT
13	5 & 6	MICHAEL L & MARCIA L MILLER
14	5	C W MYERS TRADING POST INC
15	5, 14 & 16	EVERETTE E & MARTHA L KIRBY
16	14	BRENDA B DIXON
17	14	SAMUEL R & EMMA J HURSH
18	14	JAMES L EVANS
19	14	TIMOTHY W & JUDY A TUTTLE
20	14	TIBOR SITAS
21	14	SUE WOOSLEY
22	14	SUE WOOSLEY
23	14	DIANE W GERREY
24	13	PAUL E & JANET L COATES
25	13	EDWIN T JR & BARBARA G COCHRANE
26	13	JACK & JUDY CARICO
27	12 & 17	JO ANN HESTER & TERRY W MARTIN
28	17	TERRY W & JO ANN H MARTIN
29	17	RUBY H NEWSOM
30	12	NCDOT
31	12	CHRIST TEMPLE CHURCH
32	12	CHRIST TEMPLE CHURCH

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
33	12	CHRIST TEMPLE CHURCH
34	12	JOEL ESPINOZA
35	12	CHRIST TEMPLE CHURCH
36	12	NORMA P SALCEDO
37	12	CHRIST TEMPLE CHURCH
38	12	DONALD LEE SHIPTON
39	12	CORNERSTONE TOWER LLC
40	12	JESSIE G & DORIS D TAYLOR
41	15	CLAUDE S JR & ANNE J ALLRED
42	15 & 16	HAZEL HESTER SMITH
43	15 & 16	A & W MOBILE PARK HOME,LLC
44	16	BRIEN S WOOSLEY
45	14	THE SHERWOOD COMPANY
46	10 & 11	SIECOR OPERATIONS LLC
47	13	JEA ENTERPRISES LLC
48	7	JOHN M AND FRANCES L STAGGS
49	8	DANNY O & JOANNE K BOULWARE
50	5	H & V CONSTRUCTION CO
51	5	H & V CONSTRUCTION CO
52	5	BRENDA N PENLAND
53	7	LARRY G AND GENEVIE ESTEP
54	4	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



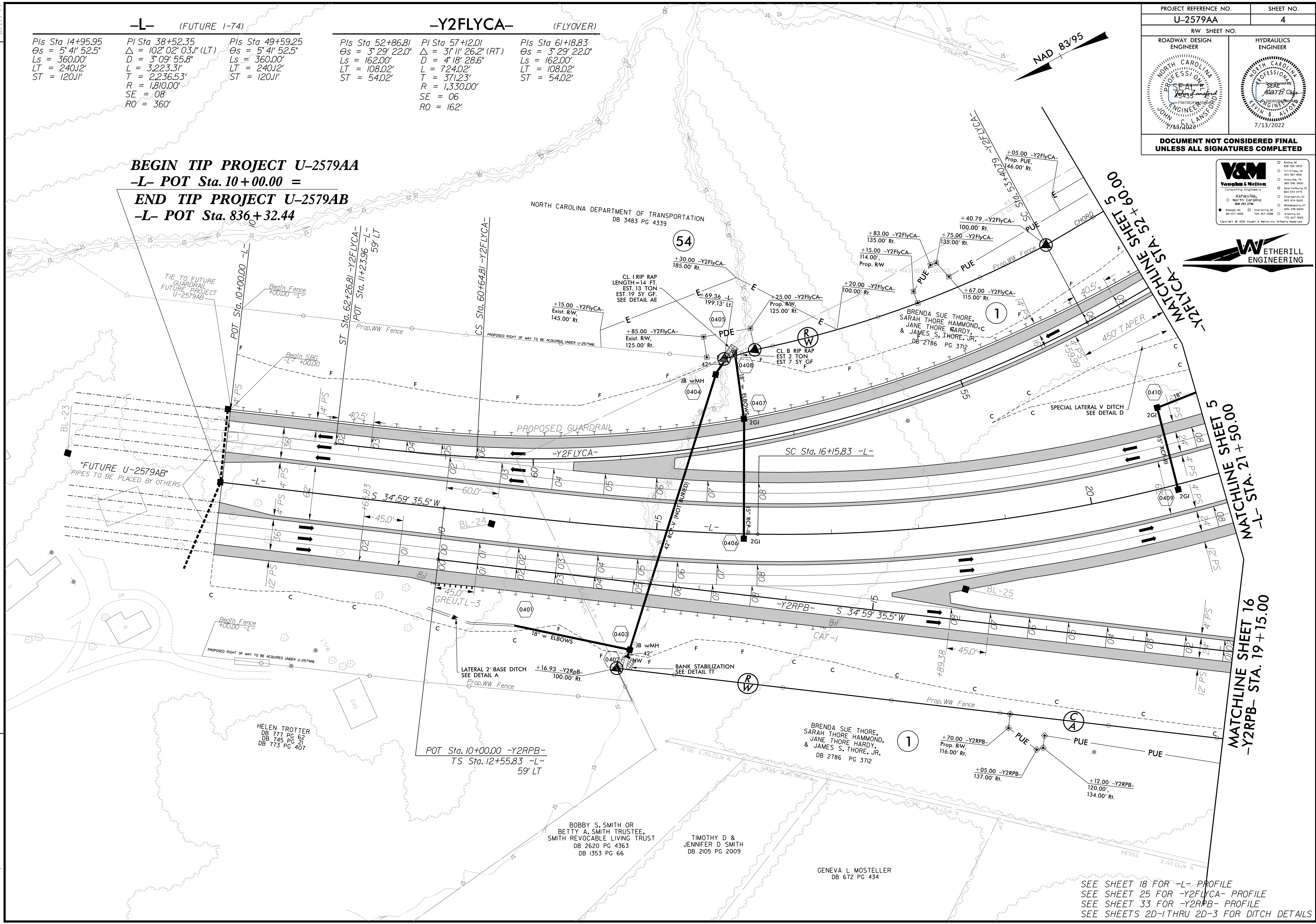
PROJECT REFERENCE NO. <b>U-2579AA</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**V&M**  
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Consulting Engineers  
Asheville, NC  
Norte St., Corning  
95-917-9465

**ETHERILL ENGINEERING**

-L- (FUTURE I-74)			-Y2FLYCA- (FLYOVER)		
PIs Sta 14+95.95	PI Sta 38+52.35	PIs Sta 49+59.25	PIs Sta 52+86.81	PI Sta 57+12.01	PIs Sta 61+18.83
θs = 5° 41' 52.5"	Δ = 102° 02' 03.1" (LT)	θs = 5° 41' 52.5"	θs = 3° 29' 22.0"	Δ = 31° 11' 26.2" (RT)	θs = 3° 29' 22.0"
Ls = 360.00'	D = 3° 09' 55.8"	Ls = 360.00'	Ls = 162.00'	D = 4° 18' 28.6"	Ls = 162.00'
LT = 240.12'	L = 3,223.31'	LT = 240.12'	LT = 108.02'	L = 724.02'	LT = 108.02'
ST = 120.11'	T = 2,236.53'	ST = 120.11'	T = 371.23'	T = 371.23'	ST = 54.02'
	R = 1,810.00'		R = 1,330.00'	R = 1,330.00'	
	SE = 08		SE = 06	SE = 06	
	RO = 360'		RO = 162'	RO = 162'	

**BEGIN TIP PROJECT U-2579AA**  
**-L- POT Sta. 10+00.00 =**  
**END TIP PROJECT U-2579AB**  
**-L- POT Sta. 836+32.44**

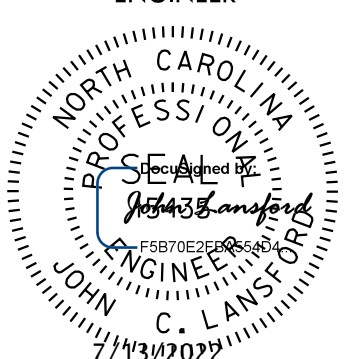
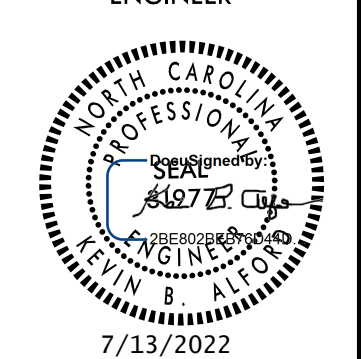


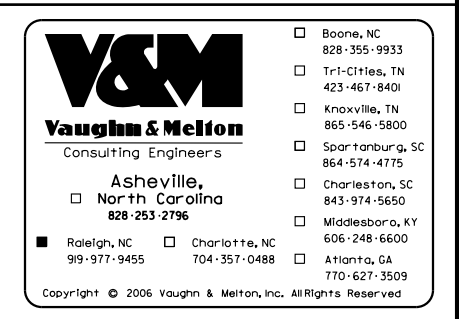
SEE SHEET 18 FOR -L- PROFILE  
 SEE SHEET 25 FOR -Y2FLYCA- PROFILE  
 SEE SHEET 33 FOR -Y2RPB- PROFILE  
 SEE SHEETS 2D-1 THRU 2D-3 FOR DITCH DETAILS

REVISIONS

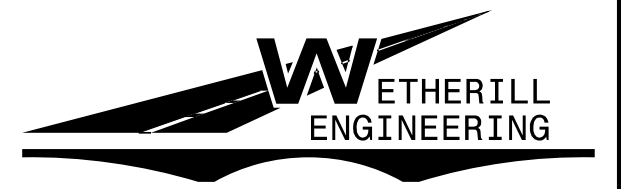
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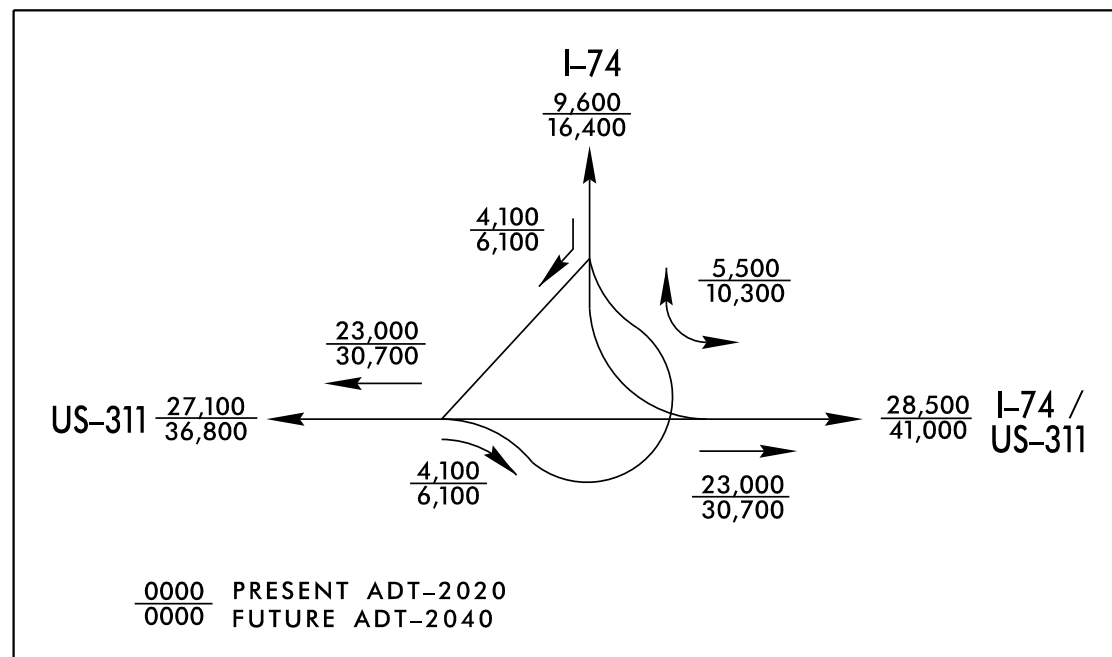
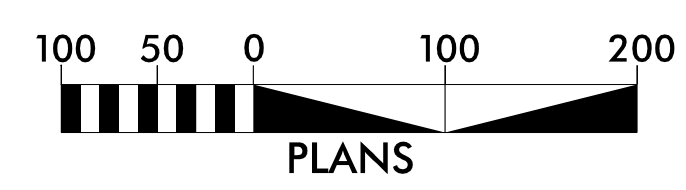
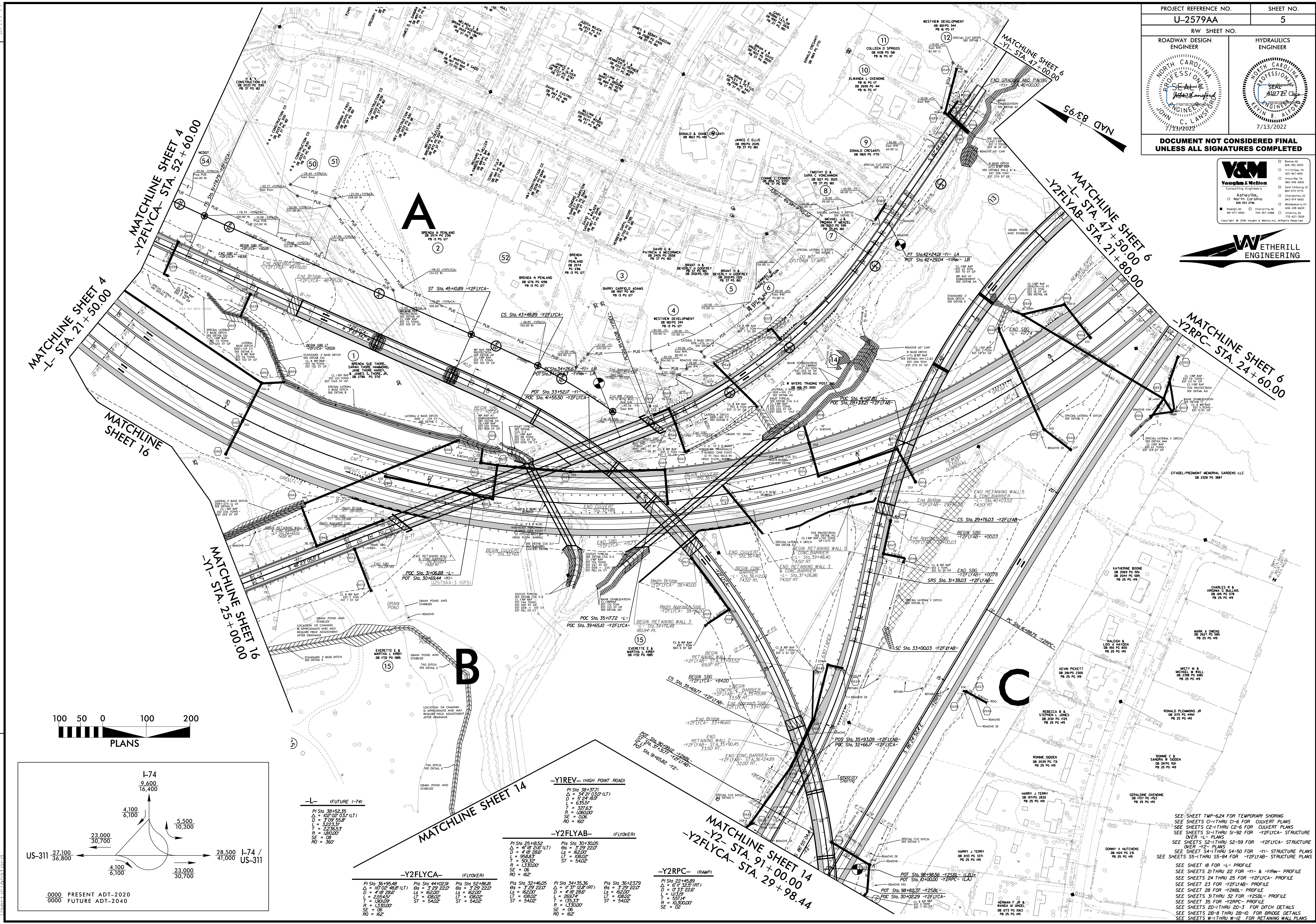
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



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W  
WETHERILL  
ENGINEERING



<b>-Y2FLYCA- (FLYOVER)</b>			<b>-Y2FLYAB- (FLYOVER)</b>			<b>-Y2RPC- (RAMP)</b>		
PI Sta 38+52.35 Δ = 102.02 (0.37 LT) D = 21.09 (54.7) L = 3,223.37 T = 2,238.53 R = 1,800.00 SE = 0.06 RO = 580	PI Sta 44+02.91 Δ = 102.02 (0.37 LT) D = 21.09 (54.7) L = 3,223.37 T = 2,238.53 R = 1,800.00 SE = 0.06 RO = 580	PI Sta 52+48.81 Δ = 102.02 (0.37 LT) D = 21.09 (54.7) L = 3,223.37 T = 2,238.53 R = 1,800.00 SE = 0.06 RO = 580	PI Sta 25+48.52 Δ = 47.18 (21.6 LT) D = 4.18 (28.6) L = 958.83 T = 50.32 R = 1,330.00 SE = 0.06 RO = 162	PI Sta 30+30.05 Δ = 34.21 (0.37 LT) D = 5.24 (13.5) L = 635.51 T = 327.63 R = 1,020.00 SE = 0.06 RO = 162	PI Sta 34+35.36 Δ = 17.27 (2.8 RT) D = 4.18 (28.6) L = 265.74 T = 135.33 R = 1,330.00 SE = 0.06 RO = 162	PI Sta 32+45.89 Δ = 6.11 (3.25 RT) D = 0.73 (2.2) L = 113.9 T = 57.33 R = 10,000.00 SE = 0.02	PI Sta 36+23.79 Δ = 6.11 (3.25 RT) D = 0.73 (2.2) L = 113.9 T = 57.33 R = 10,000.00 SE = 0.02	PI Sta 32+45.89 Δ = 6.11 (3.25 RT) D = 0.73 (2.2) L = 113.9 T = 57.33 R = 10,000.00 SE = 0.02

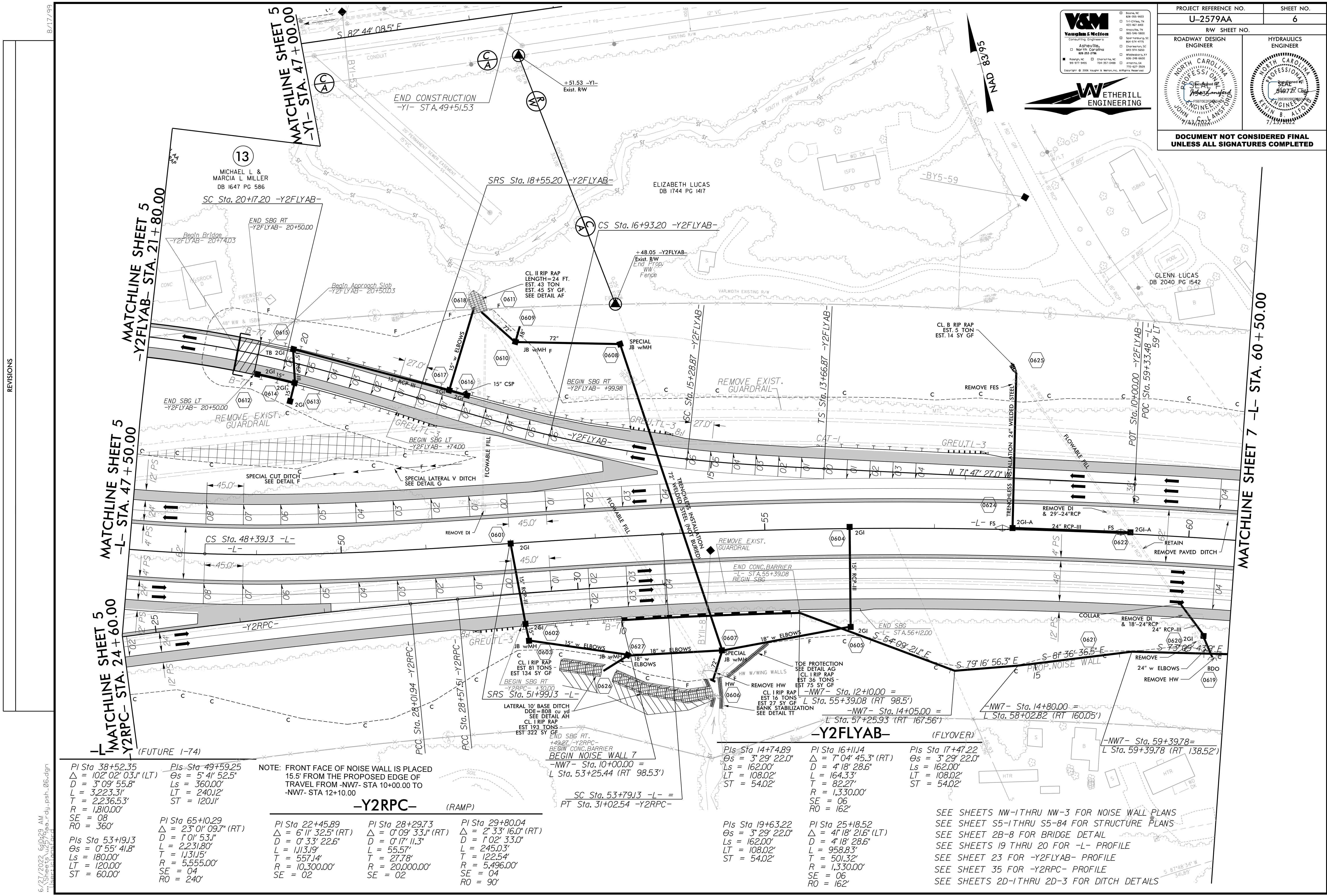
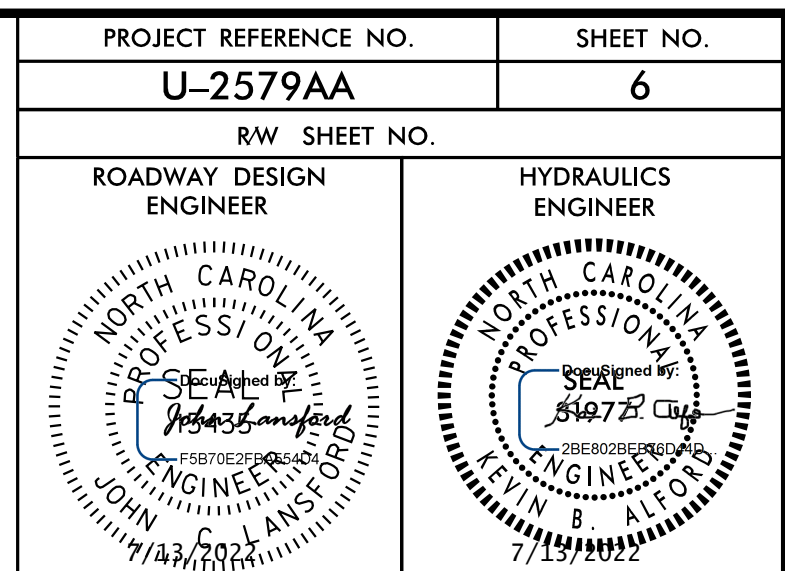
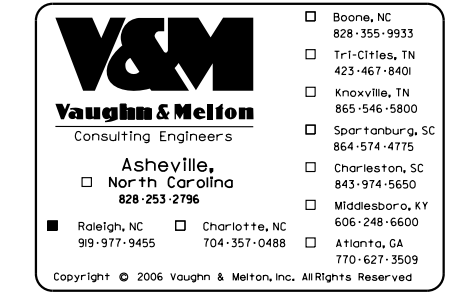
SEE SHEET TMP-624 FOR TEMPORARY SHORING  
SEE SHEETS C1-THRU C1-6 FOR CULVERT PLANS  
SEE SHEETS C2-THRU C2-6 FOR CULVERT PLANS  
SEE SHEETS S1-THRU S1-92 FOR -Y2FLYCA- STRUCTURE OVER -L- PLANS  
SEE SHEETS S2-THRU S2-59 FOR -Y2FLYCA- STRUCTURE OVER -Y2- PLANS  
SEE SHEET S4-1 THRU S4-50 FOR -Y1- STRUCTURE PLANS  
SEE SHEETS S5-1 THRU S5-84 FOR -Y2FLYAB- STRUCTURE PLANS  
SEE SHEET 18 FOR -L- PROFILE  
SEE SHEETS 21 THRU 22 FOR -Y1- & -Y1REV- PROFILE  
SEE SHEETS 24 THRU 25 FOR -Y2FLYCA- PROFILE  
SEE SHEET 23 FOR -Y2FLYAB- PROFILE  
SEE SHEET 24 THRU 25 FOR -Y2FLYAB- PROFILE  
SEE SHEETS 31 THRU 32 FOR -Y2SBL- PROFILE  
SEE SHEET 35 FOR -Y2RPC- PROFILE  
SEE SHEETS 28-8 THRU 28-10 FOR BRIDGE DETAILS  
SEE SHEETS W-1 THRU W-12 FOR RETAINING WALL PLANS

REVISIONS

8/17/2022

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REVISIONS

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PI Sta 38+52.35  
 $\Delta = 102' 02" 03.1"$  (LT)  
 $D = 3' 09" 55.8"$   
 $L = 3,223.31'$   
 $T = 2,236.53'$   
 $R = 1,810.00'$   
 $SE = 08'$   
 $RO = 360'$

PI Sta 49+59.25  
 $\Delta = 5' 41" 52.5"$   
 $Ls = 360.00'$   
 $LT = 240.12'$   
 $ST = 120.11'$

PI Sta 53+19.13  
 $\Delta = 0' 55" 41.8"$   
 $Ls = 180.00'$   
 $LT = 120.00'$   
 $ST = 60.00'$

PI Sta 65+10.29  
 $\Delta = 2' 31" 09.7"$  (RT)  
 $D = 1' 01" 53.1"$   
 $L = 2,231.80'$   
 $T = 1,131.15'$   
 $R = 5,555.00'$   
 $SE = 04'$   
 $RO = 240'$

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE PROPOSED EDGE OF TRAVEL FROM -NW7- STA 10+00.00 TO -NW7- STA 12+10.00

**-Y2RPC- (RAMP)**

PI Sta 22+45.89 $\Delta = 6' 11" 32.5"$ (RT) $D = 0' 33" 22.6"$ $L = 1,113.19'$ $T = 555.71'$ $R = 10,300.00'$ $SE = 02'$	PI Sta 28+29.73 $\Delta = 0' 09" 33.1"$ (RT) $D = 0' 17" 11.3"$ $L = 55.57'$ $T = 27.78'$ $R = 20,000.00'$ $SE = 02'$	PI Sta 29+80.04 $\Delta = 2' 33" 16.0"$ (RT) $D = 1' 02" 33.0"$ $L = 245.03'$ $T = 122.54'$ $R = 5,496.00'$ $SE = 04'$ $RO = 90'$
---	---	--

SC Sta 53+79.13 -L- =  
 PT Sta 31+02.54 -Y2RPC-

PI Sta 14+74.89  
 $\Delta = 3' 29" 22.0"$   
 $Ls = 162.00'$   
 $LT = 108.02'$   
 $ST = 54.02'$

PI Sta 16+11.4  
 $\Delta = 7' 04" 45.3"$  (RT)  
 $D = 4' 18" 28.6"$   
 $L = 164.33'$   
 $T = 82.27'$   
 $R = 1,330.00'$   
 $SE = 06'$   
 $RO = 162'$

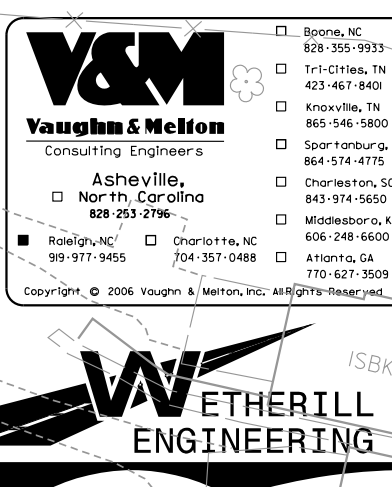
PI Sta 17+47.22  
 $\Delta = 3' 29" 22.0"$   
 $Ls = 162.00'$   
 $LT = 108.02'$   
 $ST = 54.02'$

PI Sta 25+18.52  
 $\Delta = 4' 18" 21.6"$  (LT)  
 $D = 4' 18" 28.6"$   
 $L = 958.83'$   
 $T = 501.32'$   
 $R = 1,330.00'$   
 $SE = 06'$   
 $RO = 162'$

SEE SHEETS NW-1 THRU NW-3 FOR NOISE WALL PLANS  
 SEE SHEET S5-1 THRU S5-84 FOR STRUCTURE PLANS  
 SEE SHEET 2B-8 FOR BRIDGE DETAIL  
 SEE SHEETS 19 THRU 20 FOR -L- PROFILE  
 SEE SHEET 23 FOR -Y2FLYAB- PROFILE  
 SEE SHEET 35 FOR -Y2RPC- PROFILE  
 SEE SHEETS 2D-1 THRU 2D-3 FOR DITCH DETAILS



8.17/99



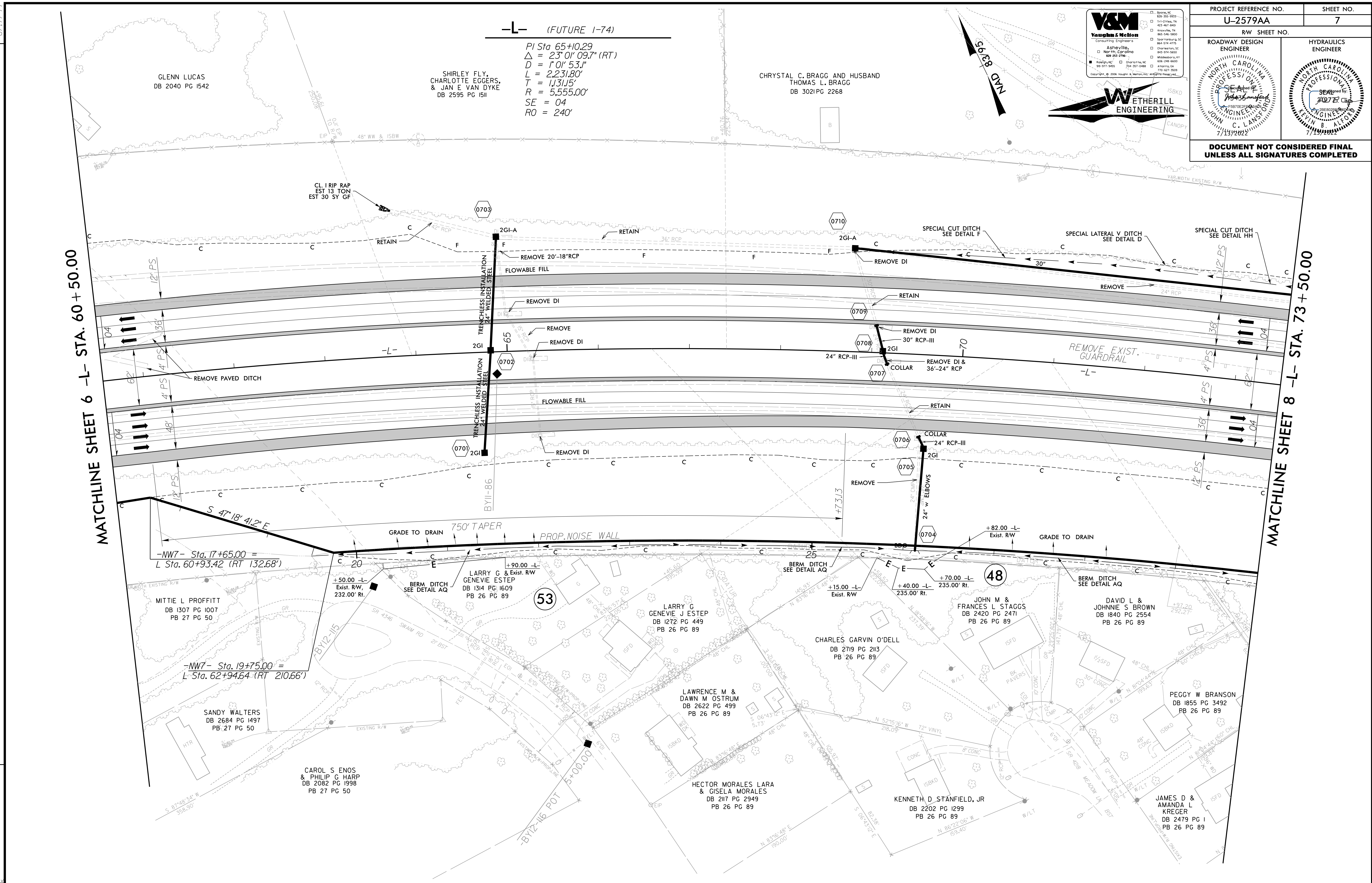
PROJECT REFERENCE NO. <b>U-2579AA</b>		SHEET NO. <b>7</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

**-L- (FUTURE I-74)**

PI Sta 65+10.29  
 $\Delta = 23^{\circ} 01' 09.7''$  (RT)  
 $D = 1^{\circ} 01' 53.1''$   
 $L = 2,231.80'$   
 $T = 1,131.15'$   
 $R = 5,555.00'$   
 $SE = 04$   
 $RO = 240'$

MATCHLINE SHEET 6 -L- STA. 60+50.00

MATCHLINE SHEET 8 -L- STA. 73+50.00



REVISIONS

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15' FROM THE EXISTING ROW FROM -NW7- STA 19+75.00 TO -NW7- STA 32+50.00

SEE SHEETS 19 THRU 20 FOR -L- PROFILE  
 SEE SHEETS 2D-1 THRU 2D-3 FOR DITCH DETAILS

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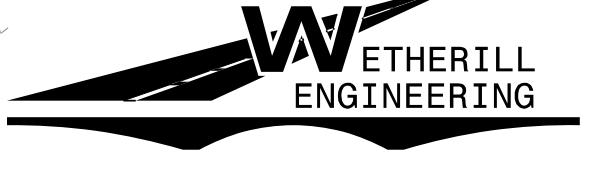


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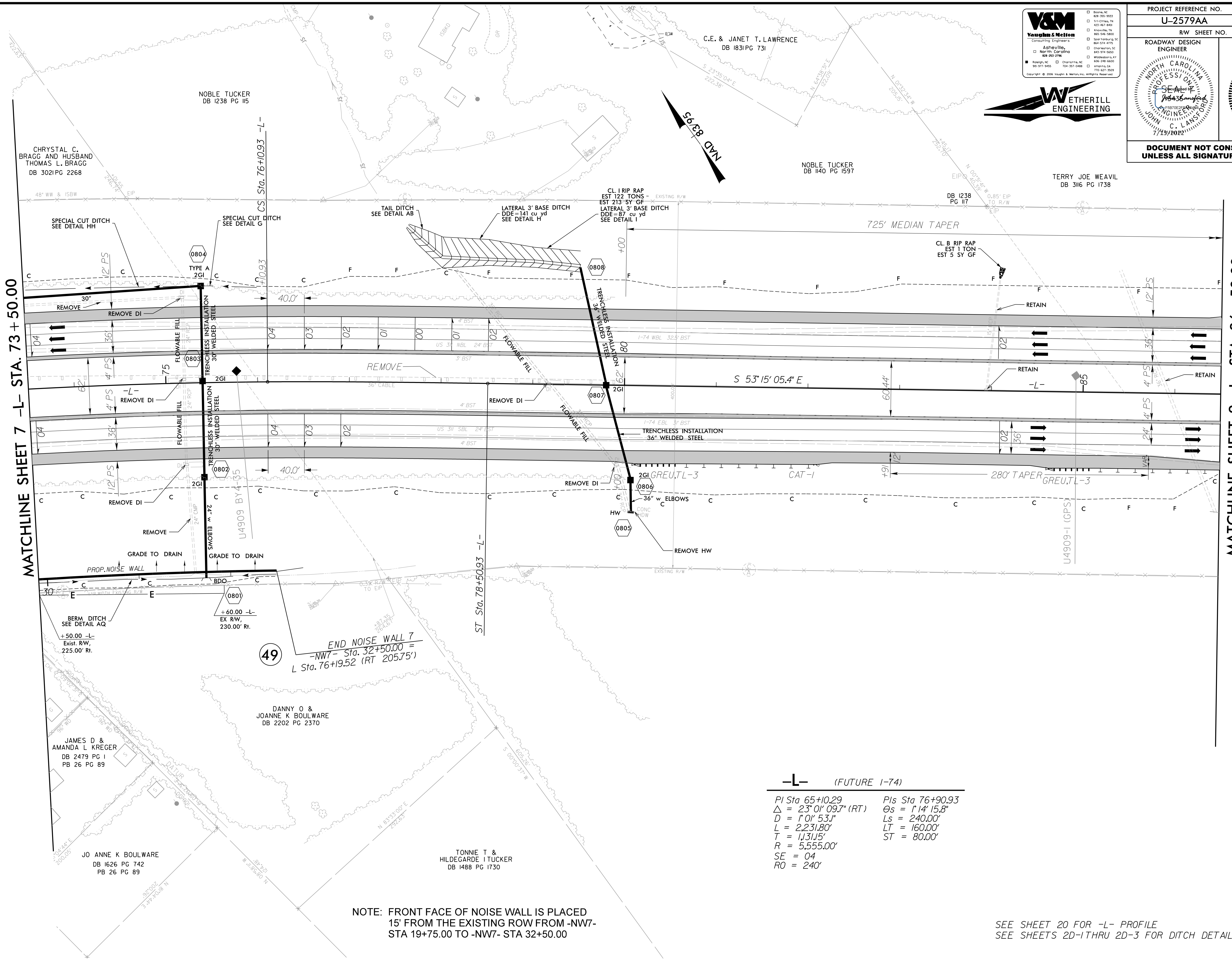
**V&M**  
Vaughan & Melton  
Consulting Engineers  
Asheville, NC  
North Carolina  
828.253.2796

Boone, NC 828.255.9833  
Fayetteville, NC 815.871.8400  
Knoxville, TN 865.546.9800  
Spartanburg, SC 864.534.4175  
Chapel Hill, NC 844.511.6600  
Winston-Salem, NC 800.248.6600  
Asheville, NC 828.253.2796  
Charlotte, NC 704.381.5888  
Raleigh, NC 919.877.9855  
Durham, NC 919.427.3509

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PROJECT REFERENCE NO. <b>U-2579AA</b>	SHEET NO. <b>8</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<i>John C. Lansford</i> NORTH CAROLINA PROFESSIONAL ENGINEER 7/19/2022	<i>Kevin B. Alford</i> NORTH CAROLINA PROFESSIONAL ENGINEER 7/19/2022
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



REVISIONS

MATCHLINE SHEET 7 -L- STA. 73 + 50.00

MATCHLINE SHEET 9 -L- STA. 86 + 50.00

49  
END NOISE WALL 7  
-NW7- Sta. 32+50.00 =  
L Sta. 76+19.52 (RT 205.75')

**-L-** (FUTURE I-74)

PI Sta 65+10.29	PIs Sta 76+90.93
$\Delta = 23^{\circ}01'09.7''$ (RT)	$\Theta_s = 1^{\circ}14'15.8''$
$D = 1^{\circ}01'53.1''$	$L_s = 240.00'$
$L = 2,231.80'$	$LT = 160.00'$
$T = 1,131.15'$	$ST = 80.00'$
$R = 5,555.00'$	
$SE = 04$	
$RO = 240$	

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15' FROM THE EXISTING ROW FROM -NW7- STA 19+75.00 TO -NW7- STA 32+50.00

SEE SHEET 20 FOR -L- PROFILE  
SEE SHEETS 2D-1 THRU 2D-3 FOR DITCH DETAILS

6/21/2022 11:24:48 PM  
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JO ANNE K BOULWARE  
DB 1626 PG 742  
PB 26 PG 89

TONNIE T & HILDEGARDE I TUCKER  
DB 1488 PG 1730

JAMES D & AMANDA L KREGER  
DB 2479 PG 1  
PB 26 PG 89

DANNY O & JOANNE K BOULWARE  
DB 2202 PG 2370

CHRYSAL C. BRAGG AND HUSBAND THOMAS L. BRAGG  
DB 3021 PG 2268

NOBLE TUCKER  
DB 1238 PG 115

C.E. & JANET T. LAWRENCE  
DB 1831 PG 731

NOBLE TUCKER  
DB 1140 PG 1597

TERRY JOE WEAVIL  
DB 3116 PG 1738

BERM DITCH  
SEE DETAIL AQ  
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Exist. RW,  
225.00' Rt.

+60.00 -L-  
EX RW,  
230.00' Rt.

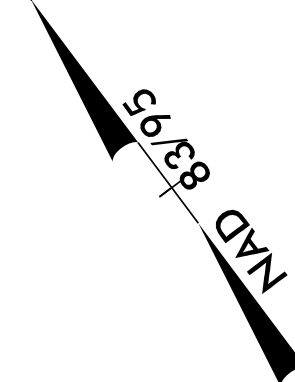
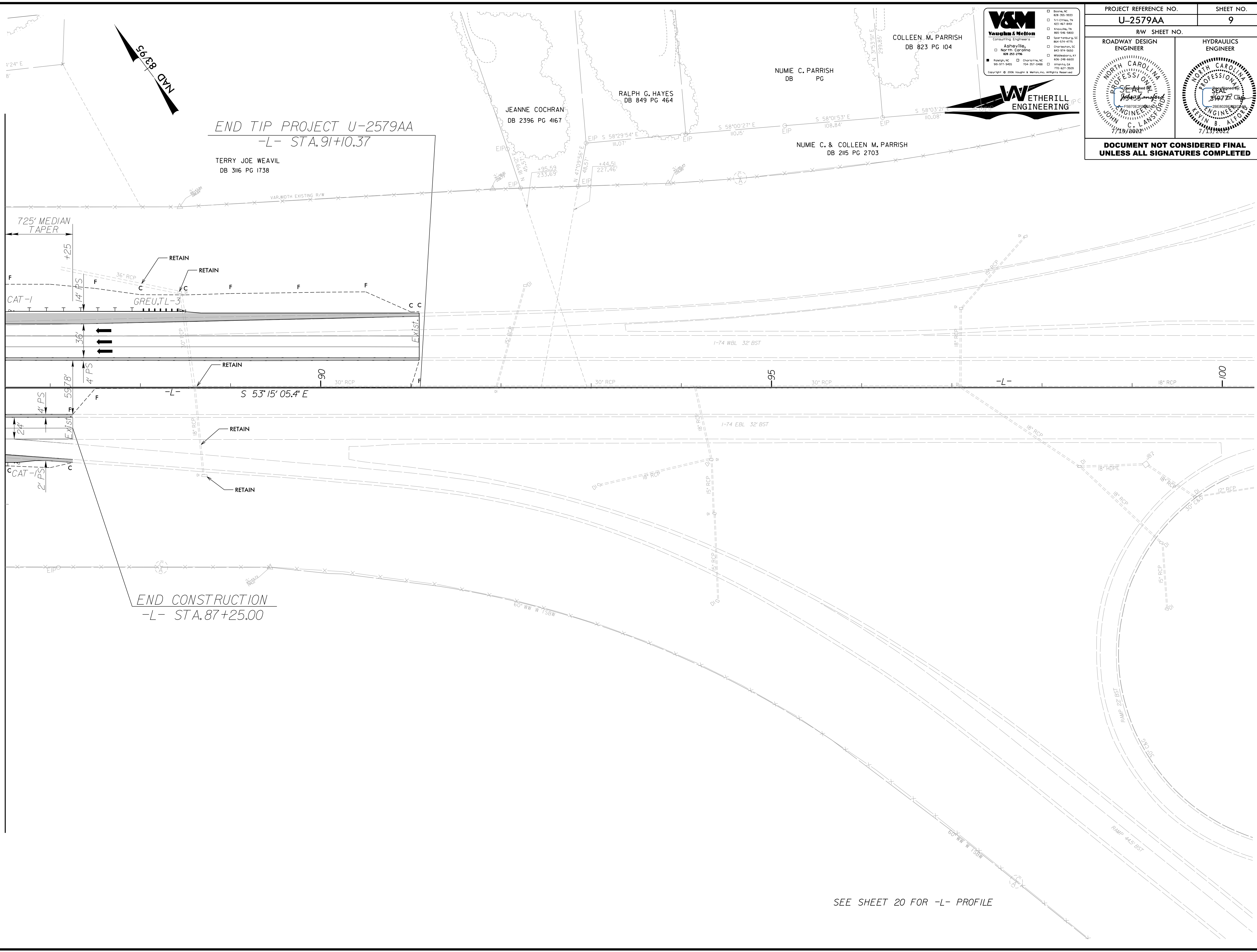


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REVISIONS

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MATCHLINE SHEET 8 -L- STA. 86 + 50.00



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Vaughn & Melton  
Consulting Engineers  
Asheville, NC  
919-371-9850  
608-253-2796

**WETHERILL**  
ENGINEERING

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PROJECT REFERENCE NO. <b>U-2579AA</b>		SHEET NO. <b>9</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			

SEE SHEET 20 FOR -L- PROFILE

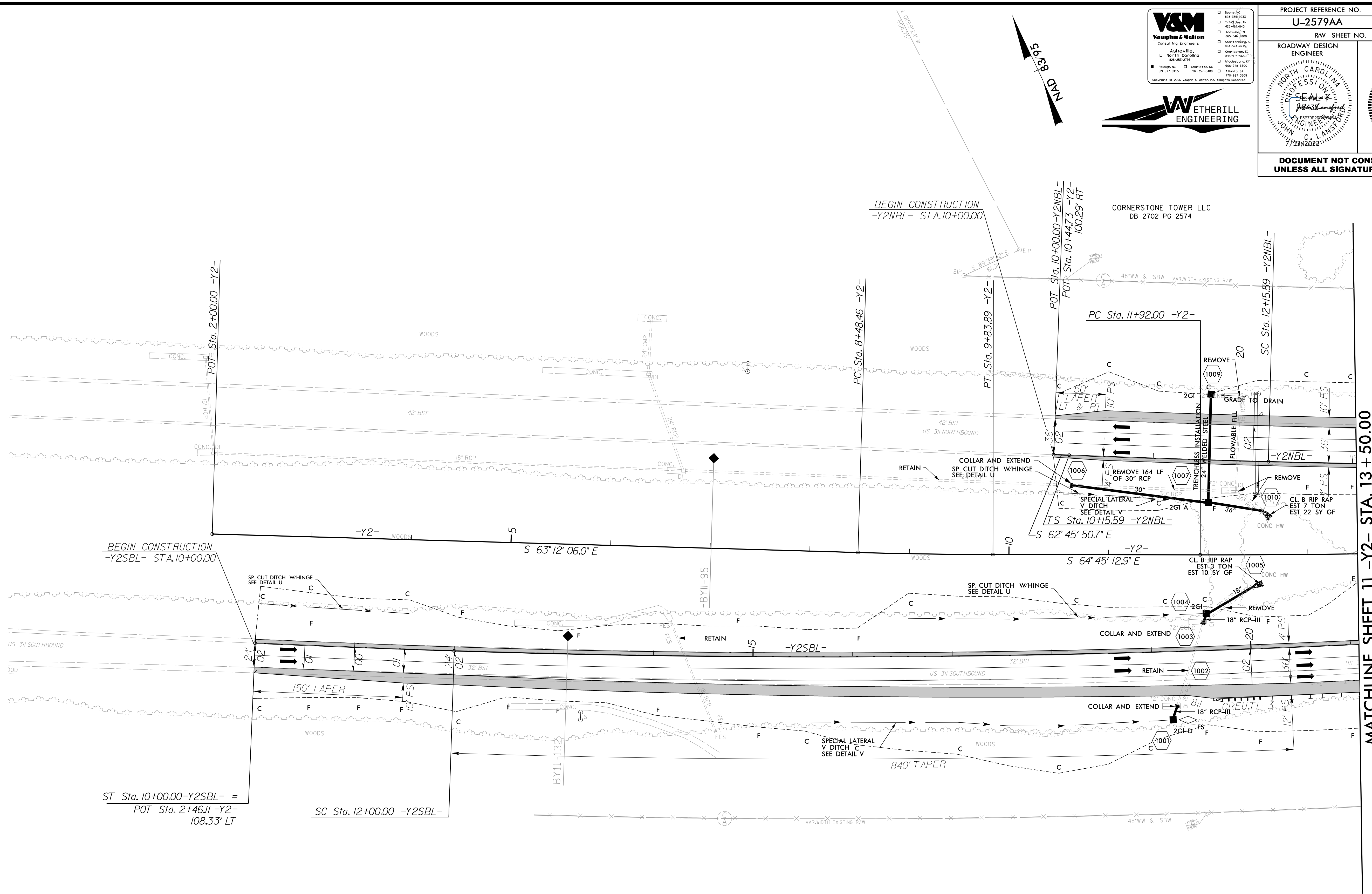
8.17/09

**Y&M**  
 Vaughan & Melton  
 Consulting Engineers  
 Asheville, NC  
 828-253-2796

**WETHERILL ENGINEERING**

PROJECT REFERENCE NO. <b>U-2579AA</b>	SHEET NO. <b>10</b>
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS



MATCHLINE SHEET 11 -Y2- STA. 13 + 50.00

**-Y2-** (US 311)

PI Sta 9+16.18 Δ = 1° 33' 06.9" (LT) D = 1° 08' 45.3" L = 135.43' T = 67.72' R = 5,000.00'	PI Sta 31+76.15 Δ = 22° 09' 51.5" (LT) D = 0° 33' 56.2" L = 3,918.69' T = 1,984.15' R = 10,130.00'
---	---

**-Y2NBL-** (US 311 NBL)

PIs Sta 11+48.92 θs = 0° 37' 14.7" Ls = 200.00' LT = 133.33' ST = 66.67'	PI Sta 31+28.12 Δ = 23° 24' 46.5" (LT) D = 0° 37' 14.7" L = 3,771.68' T = 1,912.53' R = 9,230.00' SE = 02 RO = 200'
--	--

**-Y2SBL-** (US 311 SBL)

PIs Sta 11+33.33 θs = 0° 30' 01.5" Ls = 200.00' LT = 133.33' ST = 66.67'	PI Sta 35+22.19 Δ = 22° 55' 49.4" (LT) D = 0° 30' 01.5" L = 4,582.22' T = 2,322.19' R = 11,449.51' SE = 02 RO = 200'
--	---

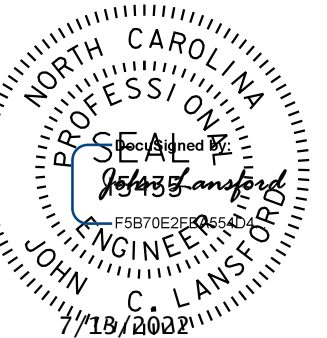

46

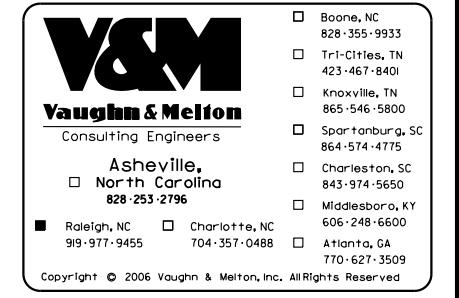
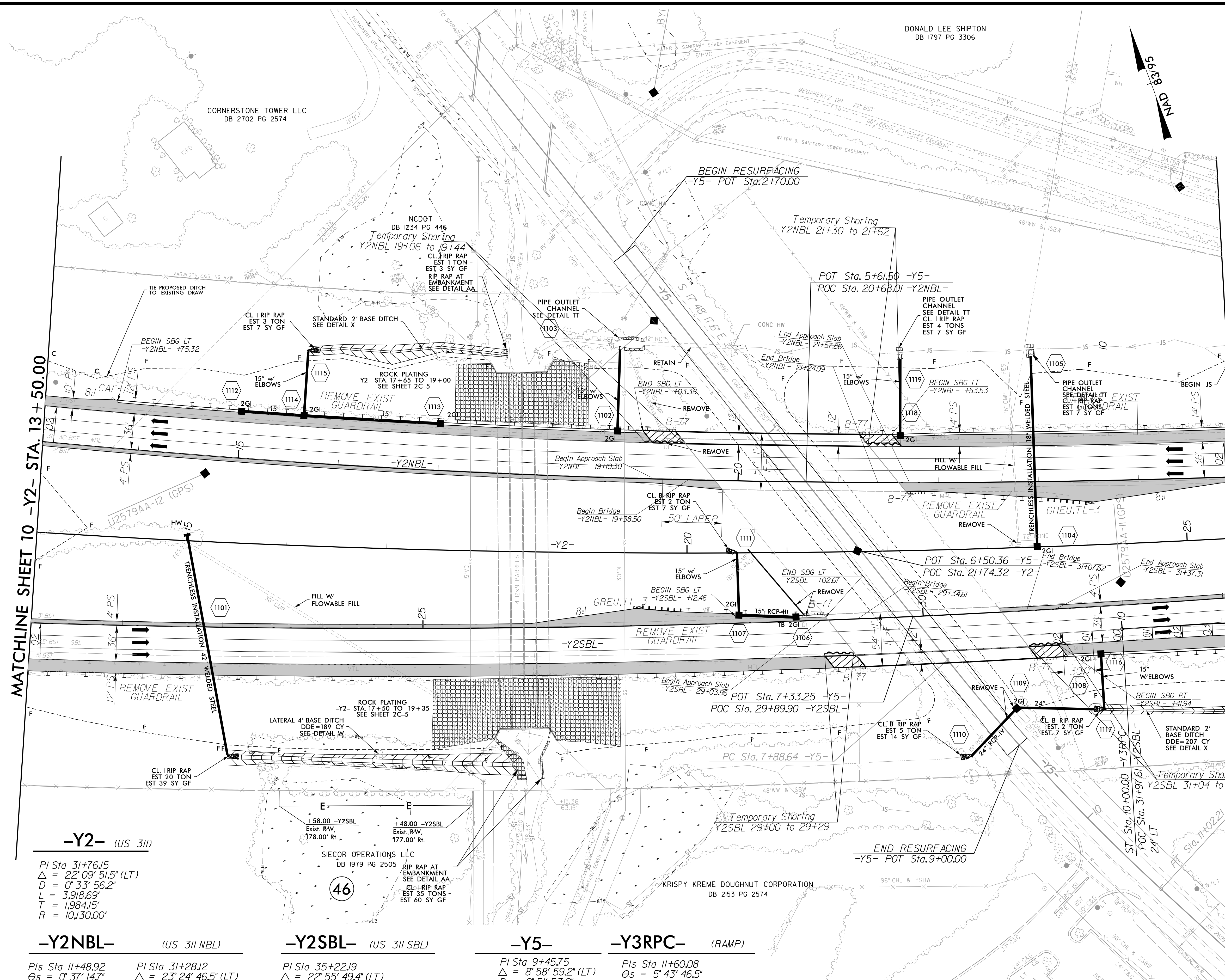
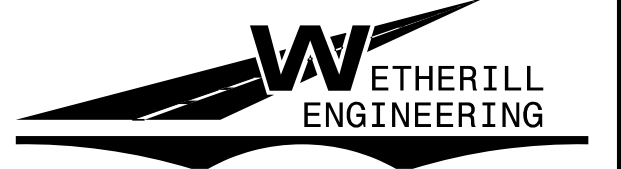
SIECOR OPERATIONS LLC  
DB 1979 PG 2505

SEE SHEET 26 FOR -Y2NBL- PROFILE  
SEE SHEET 29 FOR -Y2SBL- PROFILE

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PROJECT REFERENCE NO. <b>U-2579AA</b>		SHEET NO. <b>11</b>	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			

**-Y2- (US 311)**  
 PI Sta 31+76.15  
 $\Delta = 22^{\circ} 09' 51.5''$  (LT)  
 $D = 0^{\circ} 37' 14.7''$   
 $L = 3,918.69'$   
 $T = 1,984.15'$   
 $R = 10,130.00'$

**-Y2NBL- (US 311 NBL)**  
 PIs Sta 11+48.92  
 $\Delta = 0^{\circ} 37' 14.7''$   
 $D = 200.00'$   
 $LT = 133.33'$   
 $ST = 66.67'$

**-Y2SBL- (US 311 SBL)**  
 PI Sta 31+28.12  
 $\Delta = 23^{\circ} 24' 46.5''$  (LT)  
 $D = 0^{\circ} 37' 14.7''$   
 $L = 3,771.68'$   
 $T = 1,912.53'$   
 $R = 9,230.00'$   
 $SE = 02'$   
 $RO = 200'$

**-Y5- (US 311 SBL)**  
 PI Sta 35+22.19  
 $\Delta = 22^{\circ} 55' 49.4''$  (LT)  
 $D = 0^{\circ} 30' 01.5''$   
 $L = 4,582.22'$   
 $T = 2,322.19'$   
 $R = 11,449.51'$   
 $SE = 02'$   
 $RO = 200'$

**-Y3RPC- (RAMP)**  
 PIs Sta 11+60.08  
 $\Delta = 8^{\circ} 58' 59.2''$  (LT)  
 $D = 2^{\circ} 51' 53.2''$   
 $L = 313.57'$   
 $T = 157.11'$   
 $R = 2,000.00'$

SEE SHEET TMP-6.07 FOR TEMPORARY SHORING  
 SEE SHEET S6-1 THRU S6-30 FOR -Y2NBL- STRUCTURE PLANS  
 SEE SHEET S7-1 THRU S7-31 FOR -Y2SBL- STRUCTURE PLANS

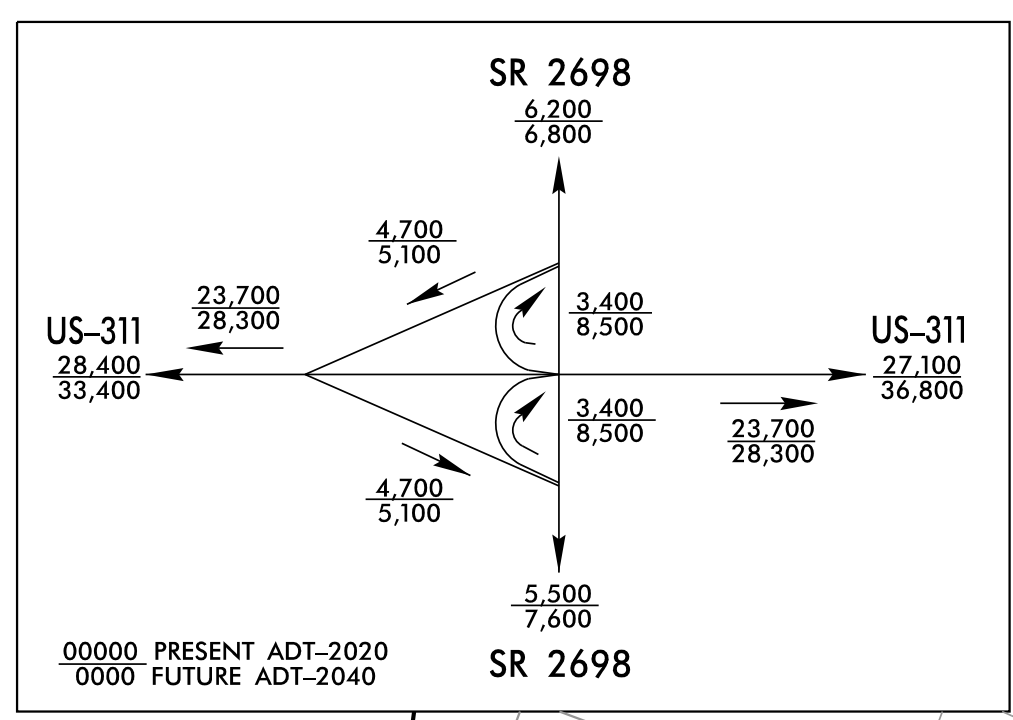
SEE SHEET 26 FOR -Y2NBL- PROFILE  
 SEE SHEET 29 FOR -Y2SBL- PROFILE  
 SEE SHEET 38 FOR -Y3RPC- PROFILE  
 SEE SHEET 2B-8 FOR BRIDGE DETAILS  
 SEE SHEETS 2D-1 THRU 2D-3 FOR DITCH DETAILS

REVISIONS

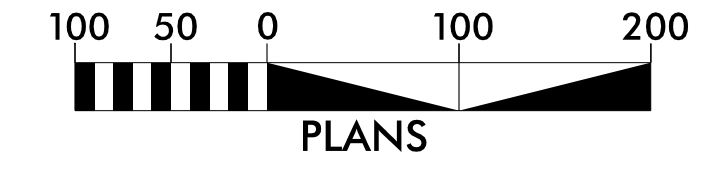
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11/25/2022, 10:00:00 AM



8/17/99



-Y3RPB-	(RAMP)	-Y3RPC-	(RAMP)	-Y3LPB-	(LOOP)	-Y3LPC-	(LOOP)	-Y3-	(SR 2698)
PI Sta 11+2571 OS = 0' 37" 18.3" LS = 4' 46" 31.0" LT = 125.71 T = 74.42 R = 1200.00 SE = 08 RO = 26'	PI Sta 15+8370 Δ = 35' 27" 49.0" (LT) OS = 5' 09" 23.8" LS = 26.00 LT = 144.00 T = 383.70 R = 1200.00 SE = 08 RO = 26'	PI Sta 11+6000 OS = 2' 43" 46.5" LS = 240.00 LT = 160.00 T = 120.00 R = 1200.00 SE = 08 RO = 24'	PI Sta 13+6036 Δ = 11' 28" 26.8" (RT) OS = 7' 13" 46.5" LS = 240.00 LT = 160.00 T = 120.00 R = 1200.00 SE = 08 RO = 24'	PI Sta 15+6039 OS = 7' 13" 46.5" LS = 240.00 LT = 160.00 T = 120.00 R = 1200.00 SE = 08 RO = 20'	PI Sta 19+9416 OS = 3' 25" 08.3" LS = 280.00 LT = 134.71 T = 139.57 R = 2500.00 SE = 08 RO = 20'	PI Sta 19+2846 OS = 2' 25" 05.9" LS = 39.86 LT = 246.46 R = 2500.00 SE = 04 RO = 28'	PI Sta 17+3806 OS = 22' 55" 05.9" LS = 200.00 LT = 134.71 T = 67.70 R = 1500.00	PI Sta 36+3000 Δ = 2' 37" 55.3" (RT) OS = 0' 29" 53.8" LS = 598.99 LT = 264.19 R = 1500.00	



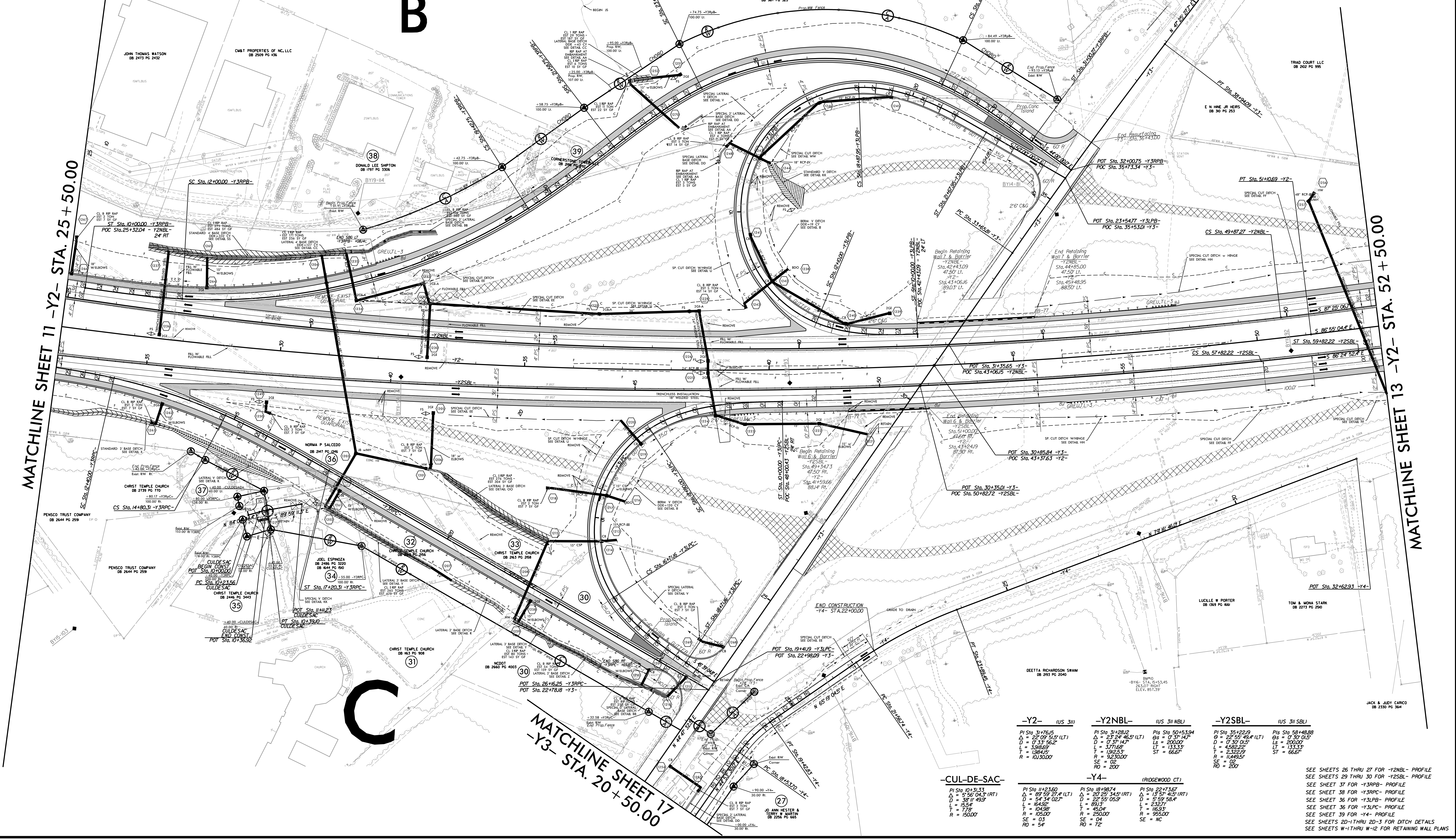
**V&M**  
Vaughan & Melton  
Consulting Engineers

**WETHERILL**  
ENGINEERING

PROJECT REFERENCE NO. U-2579AA  
SHEET NO. 12

ROADWAY DESIGN ENGINEER  
HYDRAULICS ENGINEER

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-Y2-	(US 311)	-Y2NBL-	(US 311 NBL)	-Y2SBL-	(US 311 SBL)
PI Sta 31+7615 Δ = 22' 09" 51.5" (LT) OS = 0' 33" 56.2" LS = 3.9169 LT = 1284.19 R = 1033.00 SE = 02 RO = 200	PI Sta 31+2812 Δ = 23' 24" 46.5" (LT) OS = 0' 33" 56.2" LS = 3.7168 LT = 1284.19 R = 1033.00 SE = 02 RO = 200	PI Sta 50+5394 OS = 0' 37" 14.7" LS = 200.00 LT = 133.33 T = 232.29 R = 1148.87 SE = 02 RO = 200	PI Sta 58+4888 OS = 0' 30" 01.5" LS = 200.00 LT = 133.33 T = 232.29 R = 1148.87 SE = 02 RO = 200	PI Sta 22+7367 Δ = 15' 57" 41.5" (RT) OS = 0' 37" 14.7" LS = 200.00 LT = 133.33 T = 232.29 R = 1148.87 SE = 02 RO = 200	PI Sta 22+7367 Δ = 15' 57" 41.5" (RT) OS = 0' 37" 14.7" LS = 200.00 LT = 133.33 T = 232.29 R = 1148.87 SE = 02 RO = 200

**-CUL-DE-SAC-**

PI Sta 10+31.33 Δ = 5' 56" 04.3" (RT) OS = 36' 11" 48.2" LS = 164.98 LT = 7.78 R = 150.00	PI Sta 18+9874 Δ = 59' 59" 57.4" (RT) OS = 22' 55" 05.9" LS = 69.13 LT = 104.98 R = 250.00 SE = 04 RO = 72	PI Sta 22+7367 Δ = 15' 57" 41.5" (RT) OS = 0' 37" 14.7" LS = 200.00 LT = 133.33 T = 232.29 R = 1148.87 SE = 02 RO = 200
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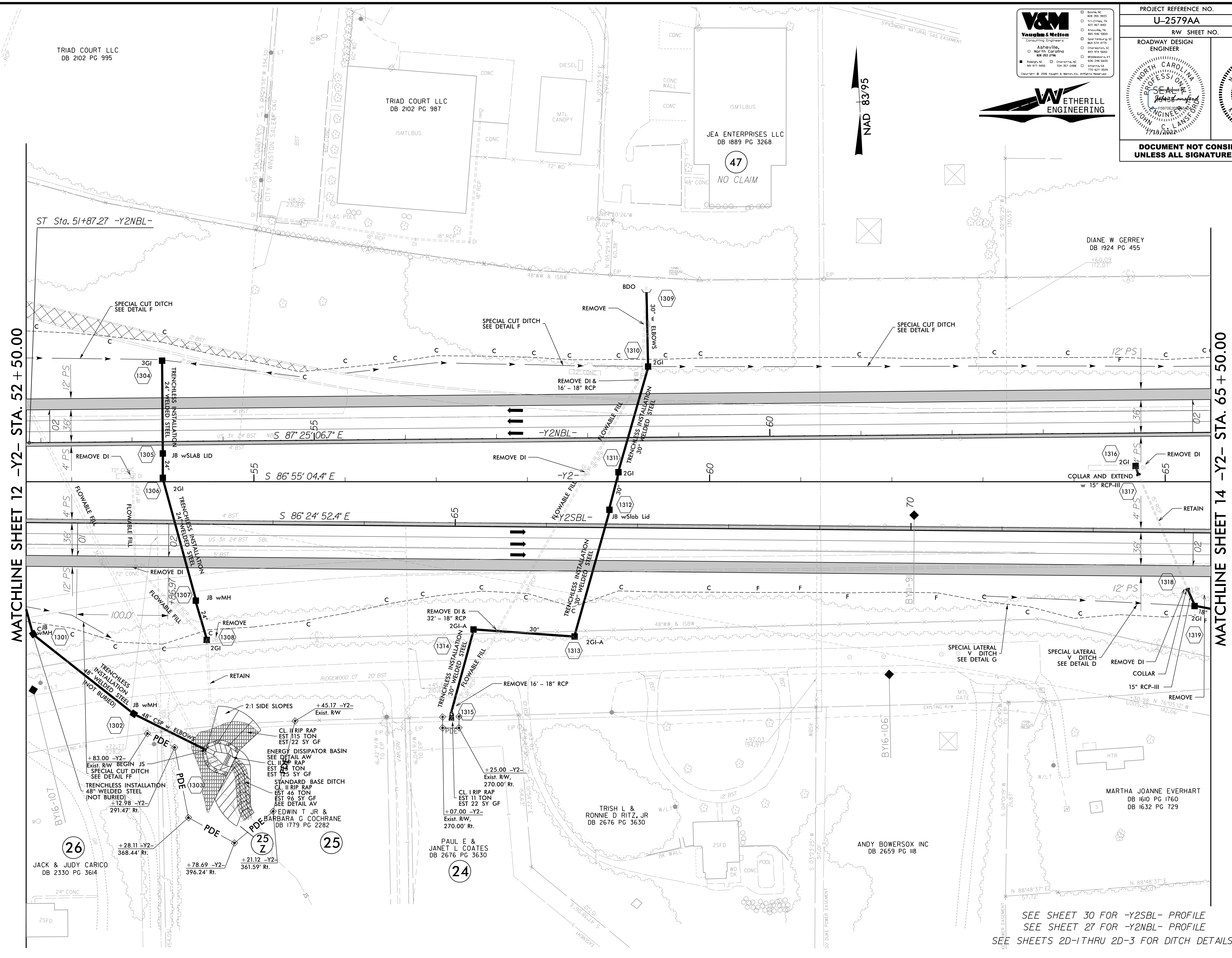


8/17/99

**V&M**  
Vaughan & Melton  
Consulting Engineers  
Asheville, NC  
North Carolina  
828 253 2786

**W**ETHERILL  
ENGINEERING

PROJECT REFERENCE NO. <b>U-2579AA</b>	SHEET NO. <b>13</b>
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
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SEE SHEET 30 FOR -Y2SBL- PROFILE  
SEE SHEET 27 FOR -Y2NBL- PROFILE  
SEE SHEETS 2D-1THRU 2D-3 FOR DITCH DETAILS