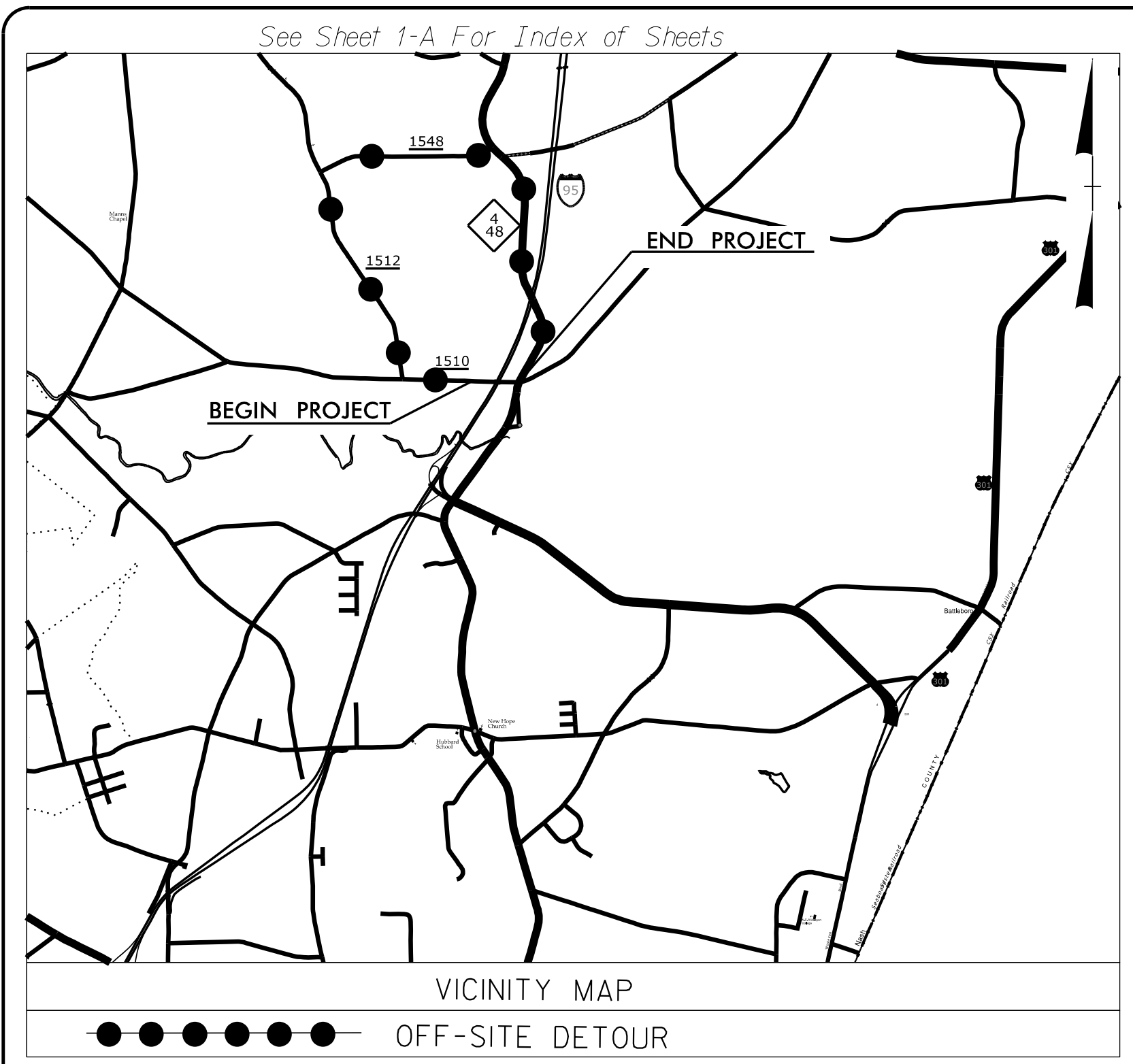


09/08/19

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User:tpgarrett

**TIP PROJECT: BR-0039**

**CONTRACT: C204350**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# NASH COUNTY

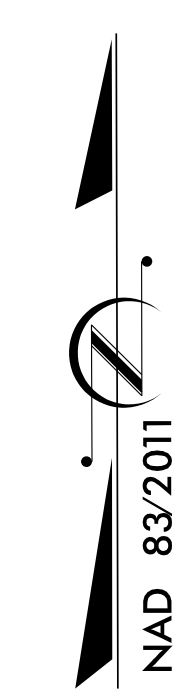
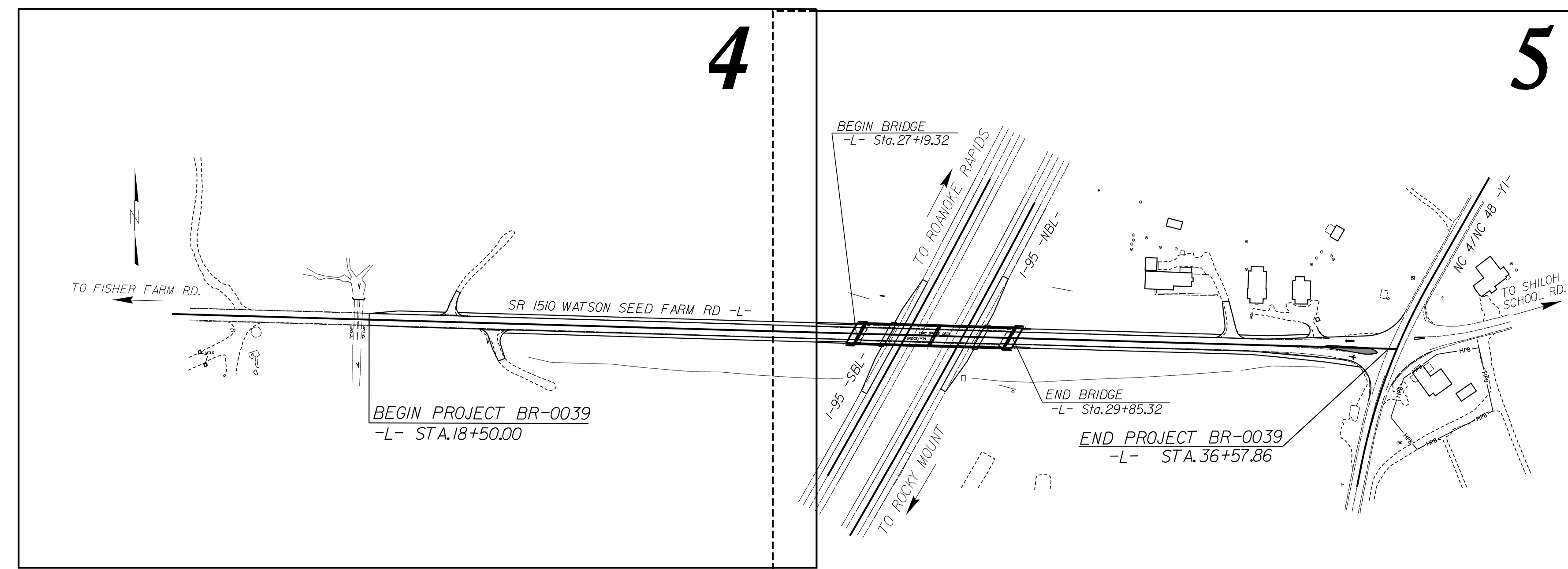
**LOCATION: BRIDGE NO. 630224 ON SR 1510 OVER I-95.**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE.**

## PART II

FINAL PLANS  
SUBMITTAL  
1/30/20

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0039	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49075.1J		P.E.	
49075.2J		R/W	
49075.3.2		CONST	



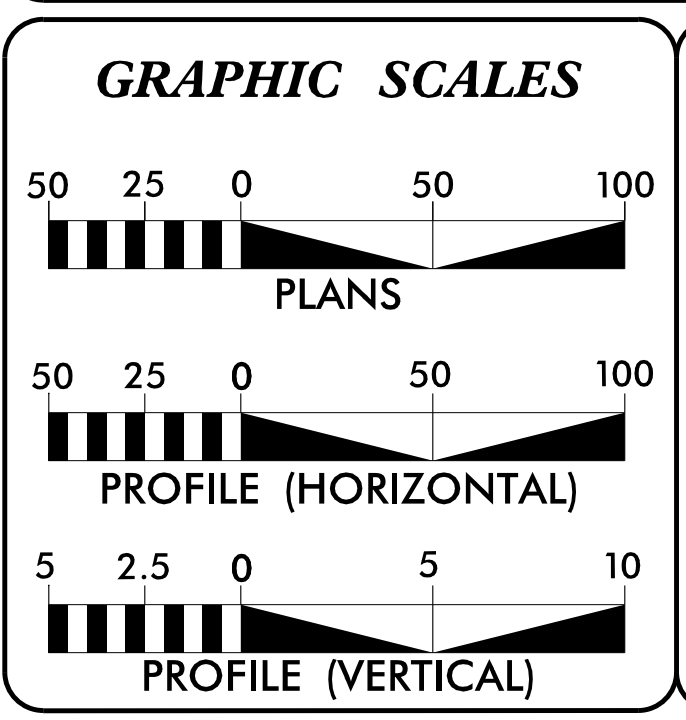
**V&M**  
**Vaughn & Melton**  
Consulting Engineers

Asheville,  
North Carolina  
828-253-2796

- Boone, NC 828-355-9933
- Tri-Cities, TN 423-467-8401
- Knoxville, TN 865-546-5800
- Spartanburg, SC 864-574-4775
- Charleston, SC 843-974-5650
- Middlesboro, KY 606-248-6600
- Raleigh, NC 919-977-9455
- Charlotte, NC 704-357-0488
- Atlanta, GA 770-627-3509

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



**DESIGN DATA**

ADT 2020 = 1,900  
ADT 2040 = 2,000

K = 8%  
D = 70%  
T = 3%  
V = 55 MPH

\* TTST=1% DUAL=2%

FUNC CLASS =  
MINOR COLLECTOR  
SUBREGIONAL  
TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT = 0.292 MI  
LENGTH STRUCTURE PROJECT = 0.050 MI  
TOTAL LENGTH OF PROJECT = 0.342 MI

---

NCDOT CONTACT: DAVID STUTTS, PE  
PROJECT ENGINEER, PEF/PROGRAM MGT.

Prepared in the Office of:  
**VAUGHN & MELTON**  
1318-F PATTON AVE.  
ASHEVILLE, NC, 28806

FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
OCTOBER 14, 2019

**LETTING DATE:**  
JUNE 15, 2021

**JOHN LANSFORD, PE**  
PROJECT ENGINEER

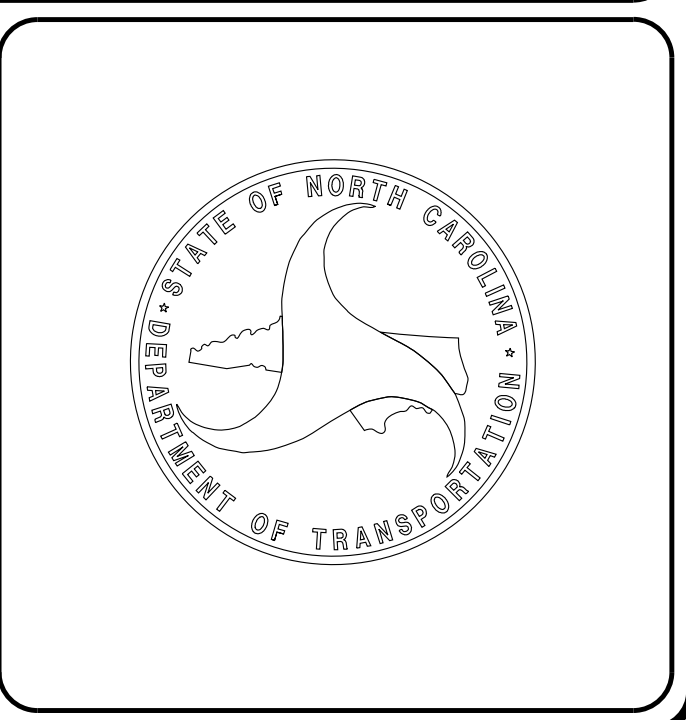
**KEITH BRIDGERS**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

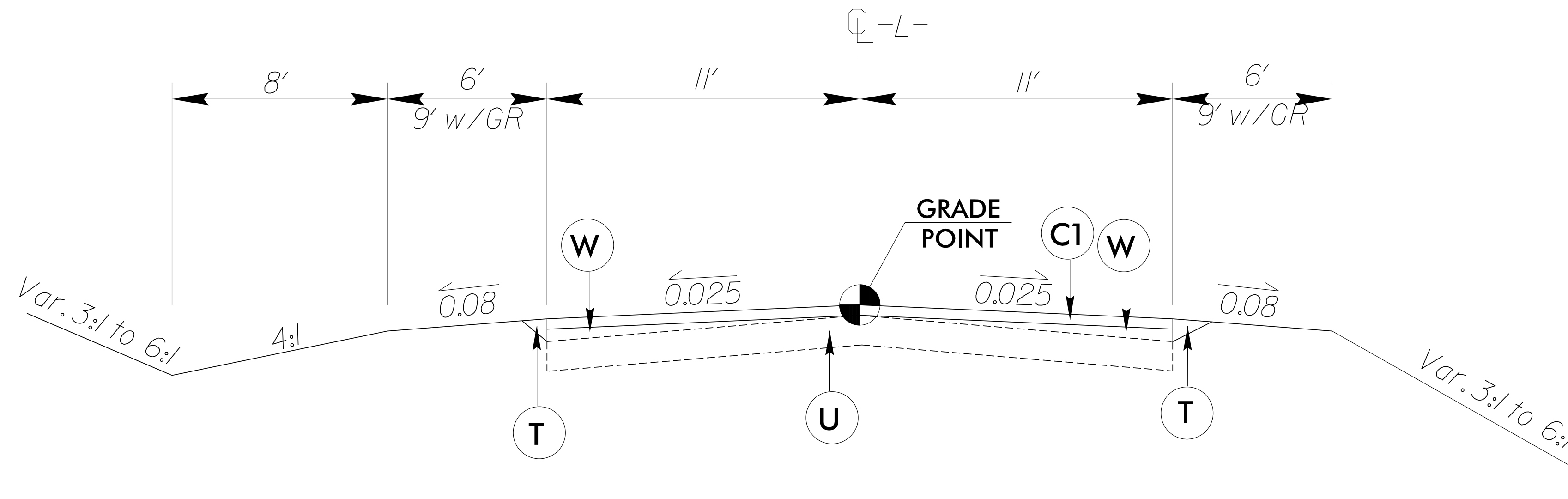
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[Signature]  
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P.E. 1020/15/2021

**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
John Lansford  
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P.E. 5/11/2021

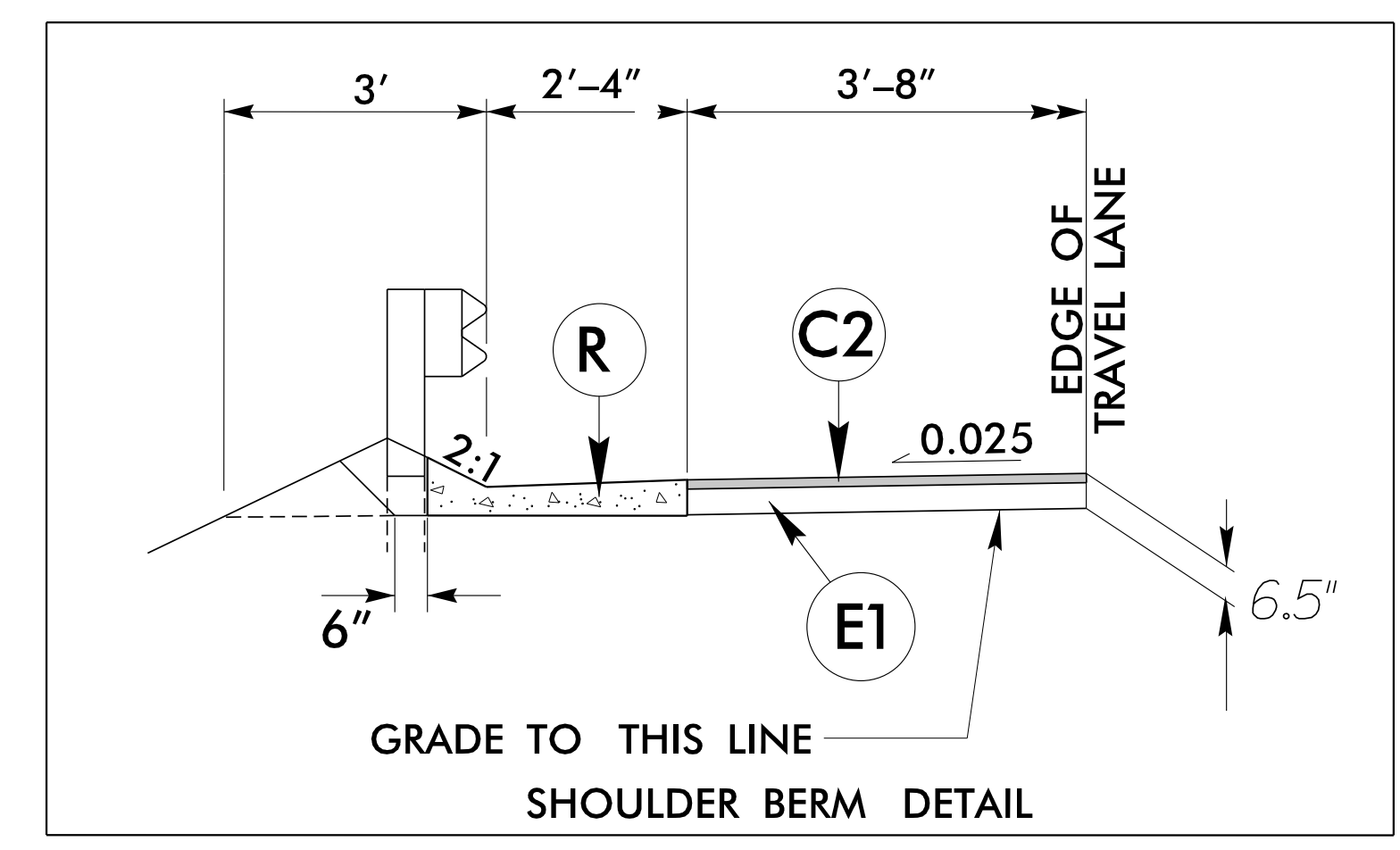


5/14/20



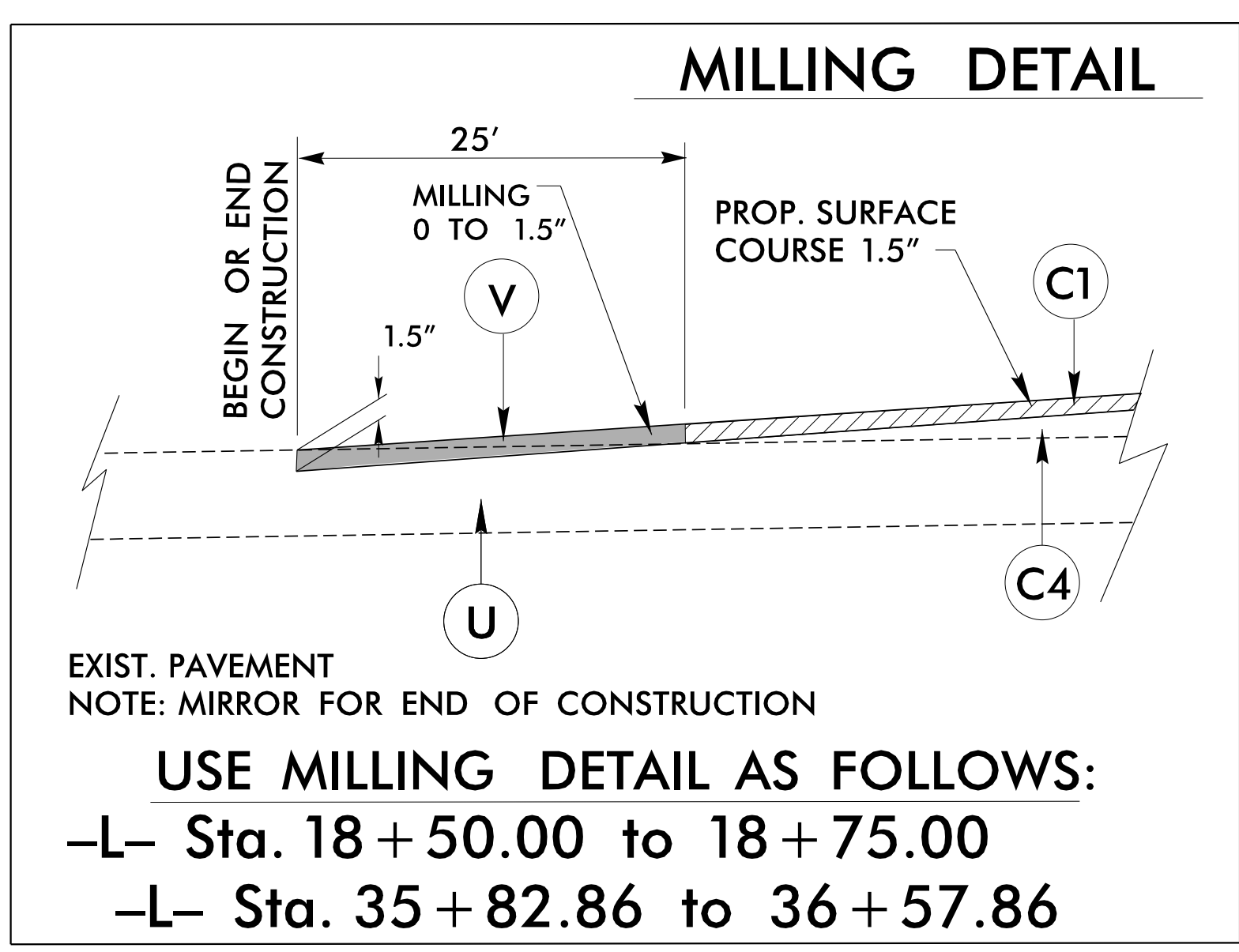
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USE TYPICAL SECTION NO. 1  
 -L- Sta. 18+50.00 to 20+00.00

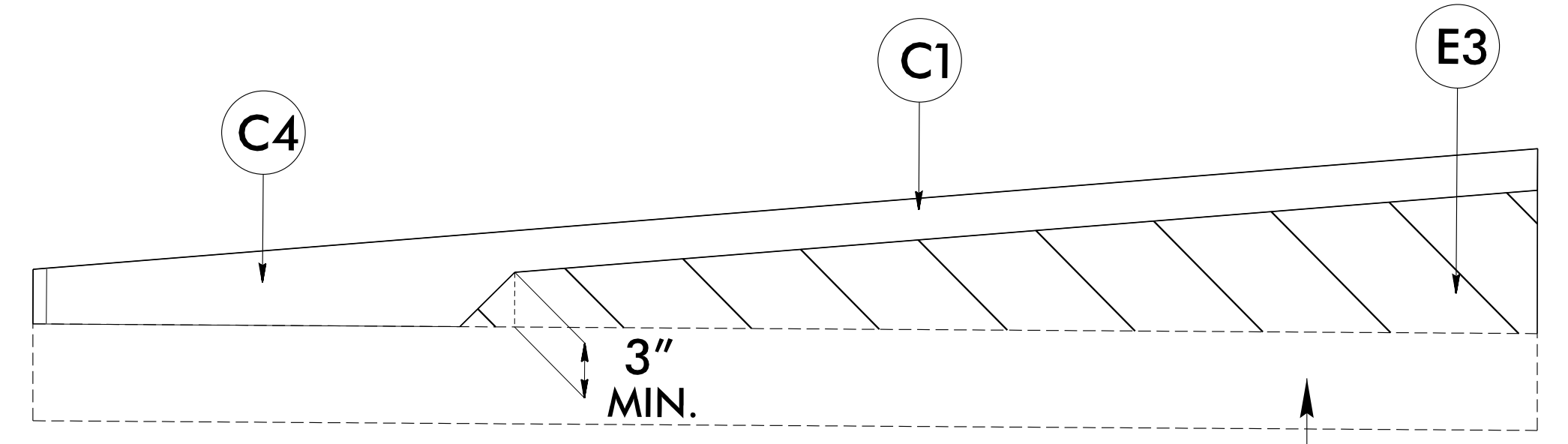


SHOULDER BERM DETAIL  
 -L- STA. 26+43.00 TO BEG. OF BRIDGE 27+14.46 LT  
 -L- STA. 26+43.00 TO BEG. OF BRIDGE 26+96.42 Rt.  
 END OF BRIDGE 30+08.16 TO -L- STA. 30+22.00 Lt  
 END OF BRIDGE 29+90.35 TO -L- STA. 30+22.00 Rt.

PROJECT REFERENCE NO. BR-0039	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER JOHN C. LANSFORD 4/13/2020	PAVEMENT ENGINEER JOHN C. LANSFORD 4/2/2020
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



EXIST. PAVEMENT  
 NOTE: MIRROR FOR END OF CONSTRUCTION  
 USE MILLING DETAIL AS FOLLOWS:  
 -L- Sta. 18+50.00 to 18+75.00  
 -L- Sta. 35+82.86 to 36+57.86

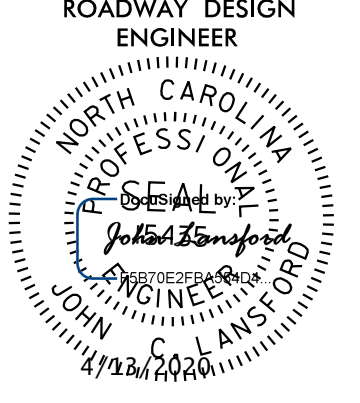
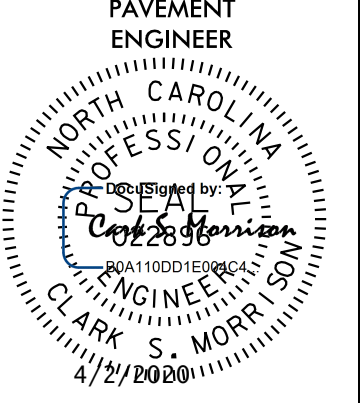


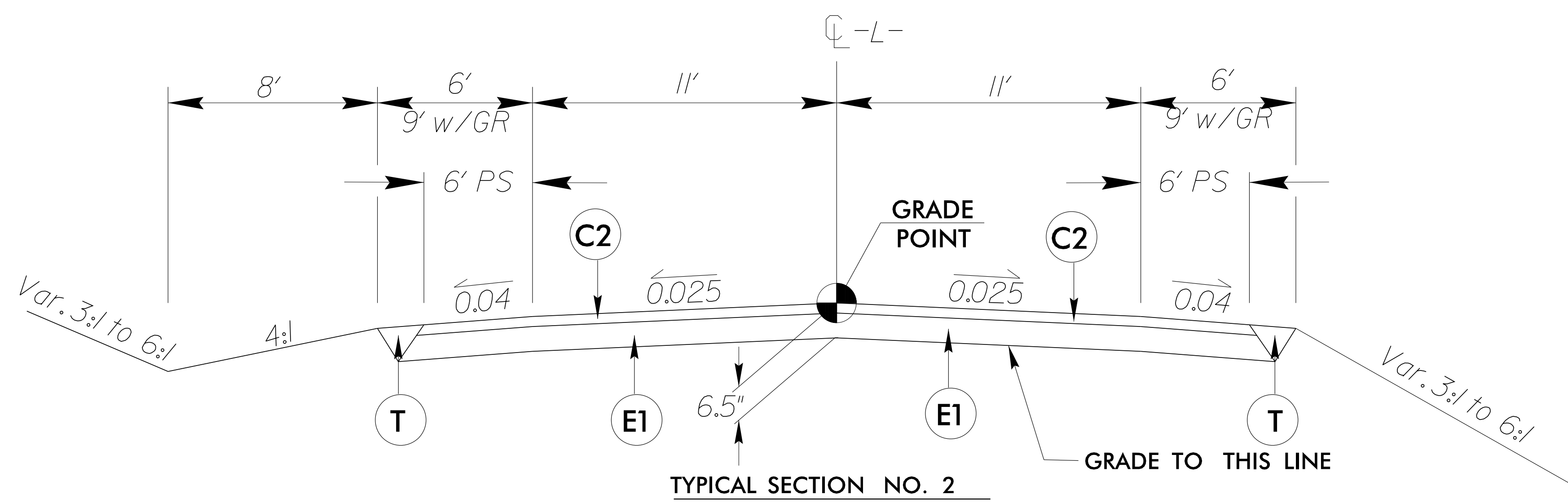
Wedging Detail For Resurfacing  
 NOTE: All Slopes Are 1:1 Unless Otherwise Noted

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 10.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH
J1	PROPOSED 4" AGGREGATE BASE COURSE
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT 0" TO 1.5" DEPTH
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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 24\_rdy\_tjlp.dgn

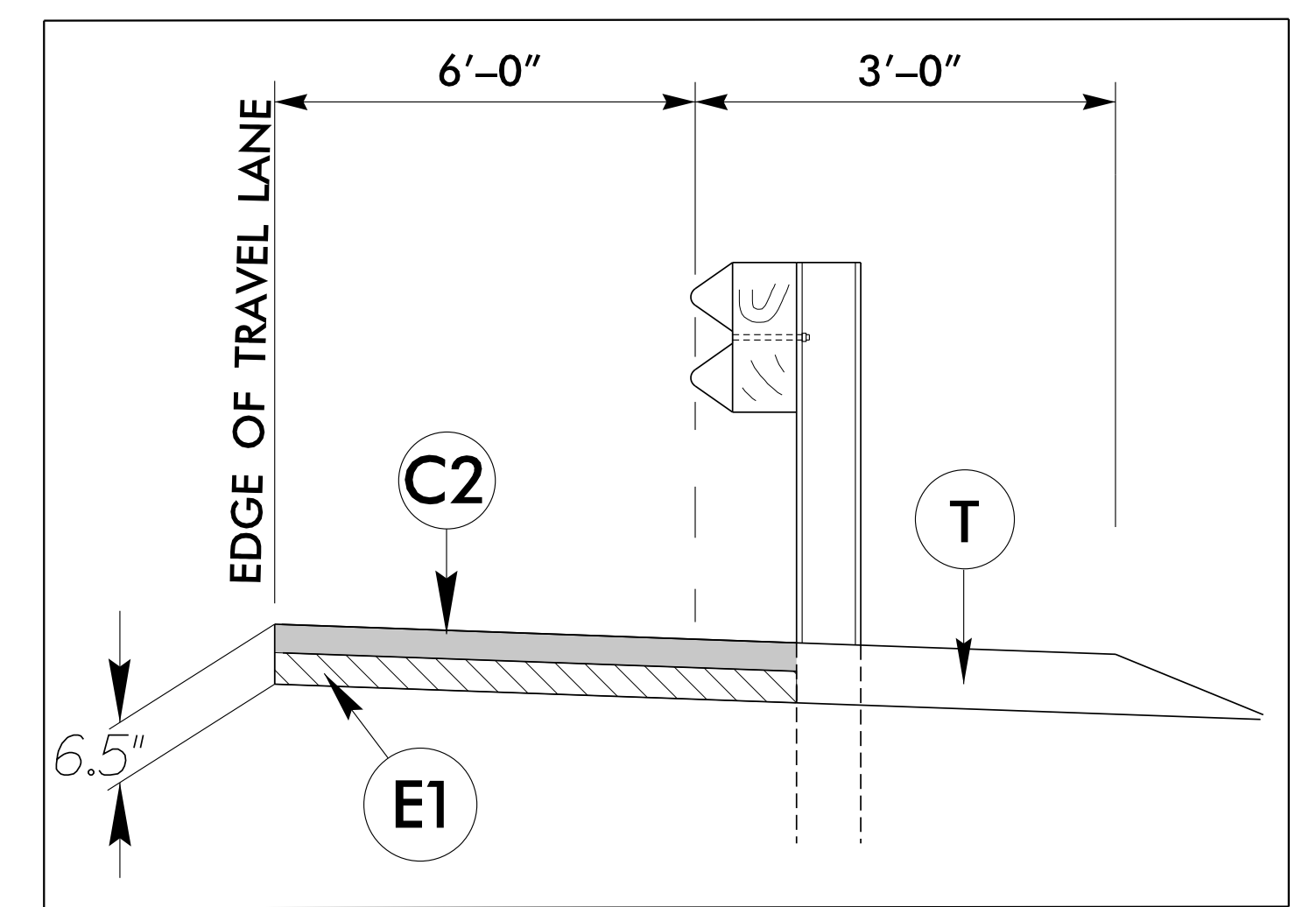
5/14/99

PROJECT REFERENCE NO. BR-0039	SHEET NO. 2A-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	PAVEMENT ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

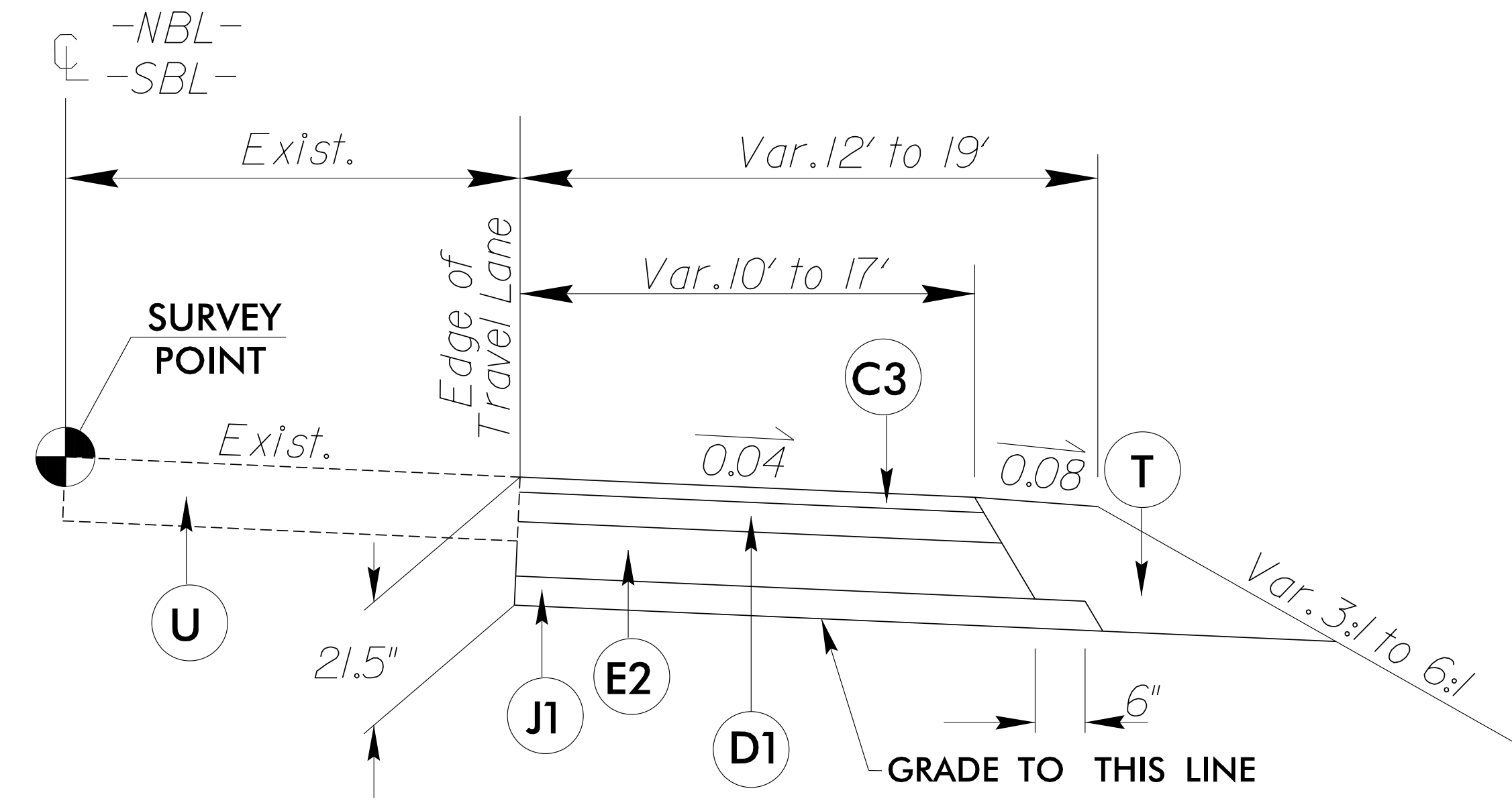


USE TYPICAL SECTION NO. 2

-L- Sta. 20+00.00 to 27+19.32 (Begin Bridge)  
 -L- Sta. 29+85.32 (End Bridge) to 36+57.86



DETAIL OF PAVING TO FACE OF GUARDRAIL



TYPICAL SECTION NO. 3

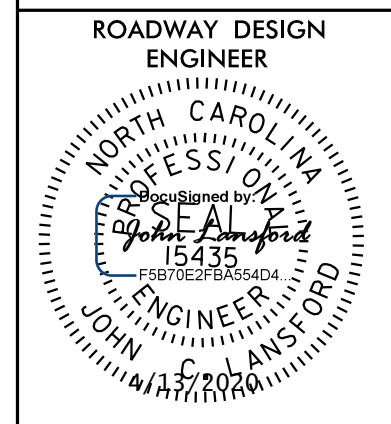
USE TYPICAL SECTION NO. 3  
 -SBL- Sta. 12+14.00 to 14+39.00 RT.  
 -NBL- Sta. 11+42.00 to 13+70.00 LT.

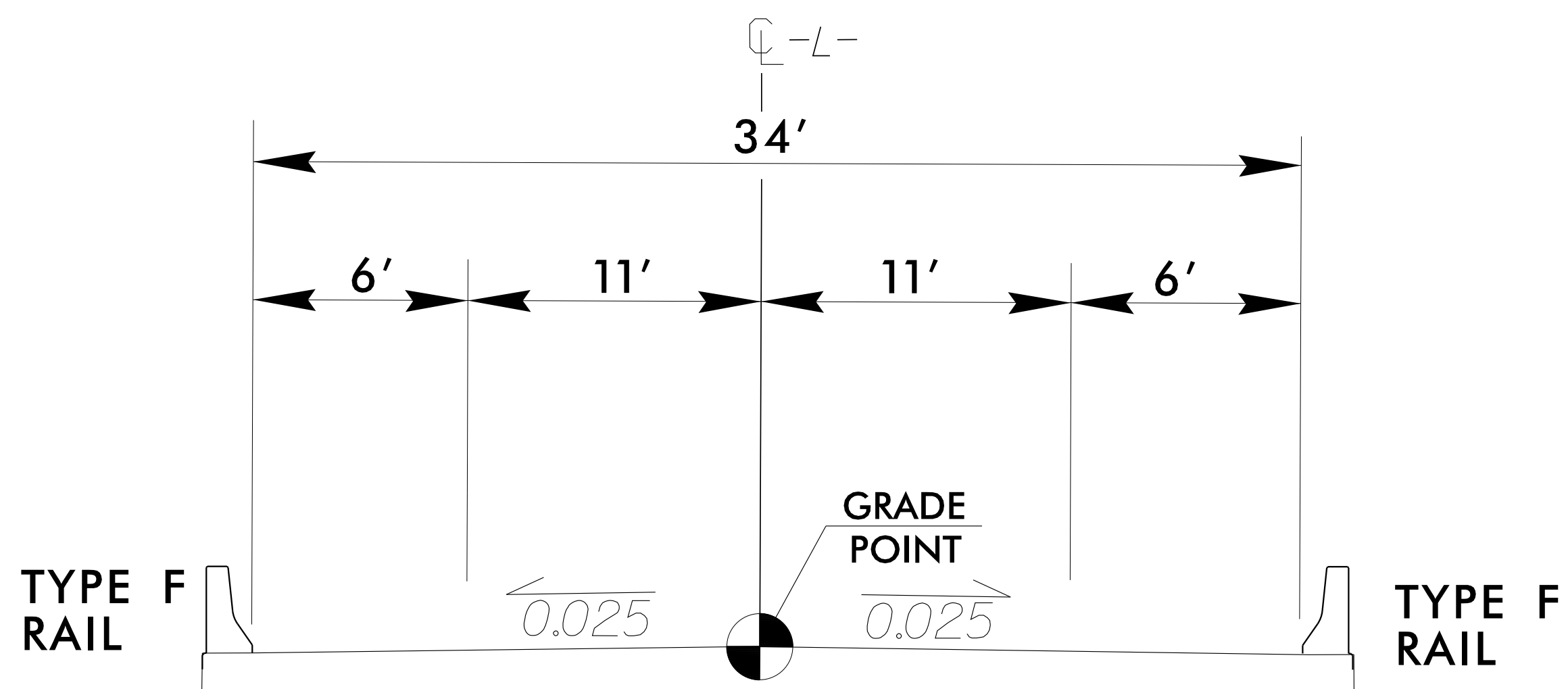
PAVEMENT SCHEDULE	
C1	1.25" S9.5B
C2	2.5" S9.5B
C3	3.0" S9.5D
C4	VARIABLE DEPTH S9.5B
D1	4.0" I19.0C
E1	4" B25.0C
E2	10.5" B25.0C
E3	VARIABLE DEPTH B25.0C
J1	4" AGGREGATE BASE COURSE
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	ASPHALT MILLING 0" to 1.5"
W	VARIABLE DEPTH ASPHALT PAVEMENT

NOTE: All Slopes Are 1:1 Unless Otherwise Noted

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5/14/99

PROJECT REFERENCE NO. <i>BR-0039</i>	SHEET NO. <i>2A-3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3  
-L- Sta. 27+19.32 to 29+85.32

PAVEMENT SCHEDULE	
C1	1.25" S9.5B
C2	2.5" S9.5B
C3	3.0" S9.5D
C4	VARIABLE DEPTH S9.5B
D1	4.0" I19.0C
E1	4" B25.0C
E2	10.5" B25.0C
E3	VARIABLE DEPTH B25.0C
J1	4" AGGREGATE BASE COURSE
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	ASPHALT MILLING 0" to 1.5"
W	VARIABLE DEPTH ASPHALT PAVEMENT

NOTE: All Slopes Are 1:1 Unless Otherwise Noted

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

### GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS					
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	B-77	GREU TL-3	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G					NG				
-L-	-L- 18+50	-L- 19+75	LT	125'			-L- 18+50	-L- 19+75	6'	9'	50'	50'	1'	1'																				
-L-	-L- 20+23.38	-L- 27+35.88	LT	712.5'			-L- 20+23.38	-L- 27+35.88	6'	9'	50'		1'																				300'	
-L-	-L- 20+93.00	-L- 27+18.00	RT	625'			-L- 20+93.00	-L- 27+18.00	6'	9'	50'		1'																				350'	
-L-	-L- 29+86.64	-L- 33+49.14	LT	362.5'			-L- 29+86.64	-L- 33+49.14	6'	9'		50'		1'																			226'	
-L-	-L- 33+97.36	-L- 35+09.86	LT	112.5'			-L- 33+97.36	-L- 35+09.86	6'	9'	50'	50'	1'	1'																			226'	
-L-	-L- 29+68.76	-L- 35+18.76	RT	550'			-L- 29+68.76	-L- 35+18.76	6'	9'		50'		1'																			226'	
TOTAL				2,487.5'																													1102'	
4 B-77 @ 18.75'				-75'																														
8 GREU TL-3 @ 50'				-400'																														
PROJECT TOTAL				2,012.5'																														1102'
SAY				2,025'																													1110'	

### SUMMARY OF EARTHWORK IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. + %	BORROW	WASTE
-L- Sta. 18+50.00	-L- Sta. 27+25.82	16	35,254	35,238	
SUBTOTAL		16	35,254	35,238	
-L- Sta. 29+78.82	-L- Sta. 36+57.86	138	18,018	17,880	
SUBTOTAL		138	18,018	17,880	
-NBL- Sta. 11+50.00	-NBL- Sta. 13+70.00	94			94
-SBL- Sta. 12+13.00	-SBL- Sta. 14+40.00	69			69
SUBTOTAL		163			163
PROJECT TOTAL		317	53,272	53,118	163
SHOULDER MATERIAL			40	40	
WASTE IN LIEU OF BORROW				-163	-163
EST. 5% TO REPLACE SOIL IN BORROW PIT					2,650
GRAND TOTALS:		317		55,645	
SAY:		320		56,000	

ESTIMATED UNDERCUT = 400 CY  
 SELECT GRANULAR MATERIAL CL III = 400 CY  
 GEOTEXTILE FOR SOIL STABILIZATION = 700 SY  
 SHALLOW UNDERCUT = 100 CY  
 CLASS IV SUBGRADE STABILIZATION = 200 TONS  
 DDE = 3,500 CY

### PARCEL INDEX

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4 & 5	JOEL BOSEMAN
2	4 & 5	H & C LAND DEVELOPMENT LLC
3	5	JOEL BOSEMAN
4	5	GEORGE RICHARDSON
5	5	BRAVE QUEST CORP
6	5	SELMA HARRISON
7	5	GLENDARINE LYNCH
8	5	MCTYEIRE CEMETERY
9	5	GOLD ROCK CLUB INC

### PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	ASPHALT REMOVAL (SY)	ASPHALT BREAKUP (SY)	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	Sta. 20+00.00	Sta. 20+50.00	CL	122			
-L-	Sta. 20+50.00	Sta. 27+25.82	CL		1,665		
-L-	Sta. 29+85.00	Sta. 35+00.00	CL		1,323		
-L-	Sta. 35+00.00	Sta. 36+57.86	CL	916			
TOTAL:				1,038	2,988		
SAY:				1,040	2,990		

### SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	Sta. 26+43.00 Lt.	Sta. 27+20.94 Lt.	77.94'
-L-	Sta. 26+43.00 Rt.	Sta. 27+02.94 Rt.	59.94'
-L-	Sta. 30+01.70 Lt.	Sta. 30+22.00 Lt.	20.30'
-L-	Sta. 29+83.70 Rt.	Sta. 30+22.00 Rt.	38.30'
TOTAL:			196.48'
SAY:			197'

5/14/09  
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COMPUTED BY: Nick Moores DATE: 10/9/19  
 CHECKED BY: Jinyoung Park DATE: 10/9/19

(5-15-18)

PROJECT NO.  
BR-0039

SHEET NO.  
3G-1

**STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS**

**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 Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
			CONTINGENCY	ASU (1)	12	100	200	300	
			<b>TOTAL CY/TONS/SY:</b>		100	200**	300**	0	0

\*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)

\*AST = Aggregate Stabilization

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

**SUMMARY OF BRIDGE WAITING PERIODS**

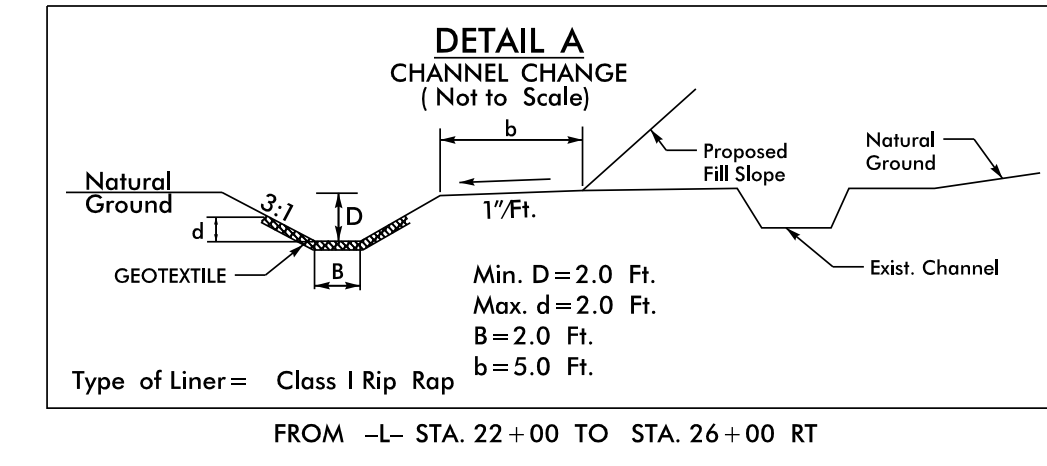
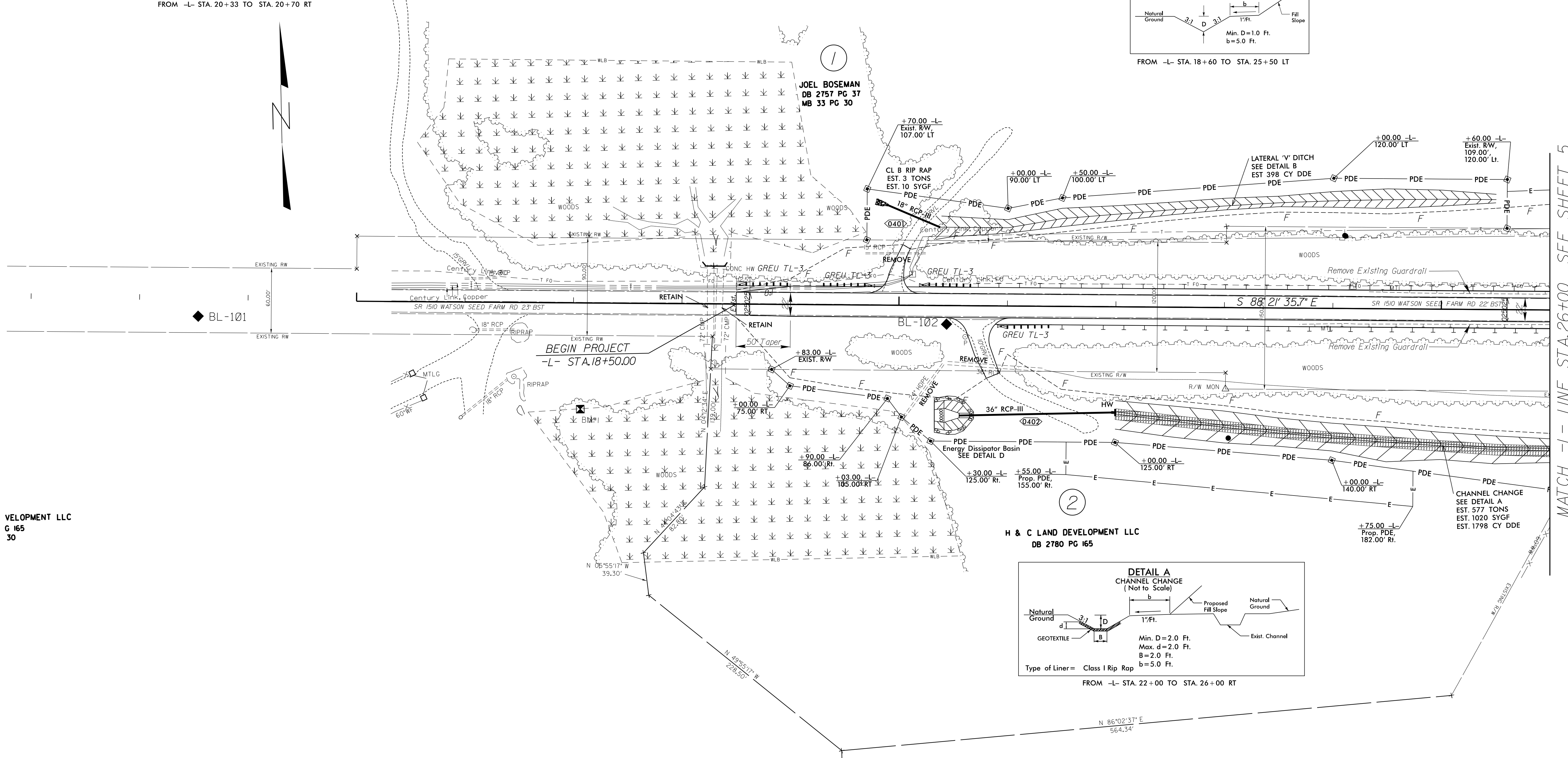
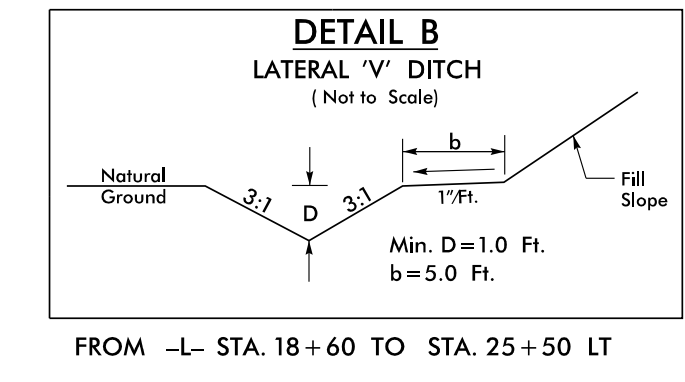
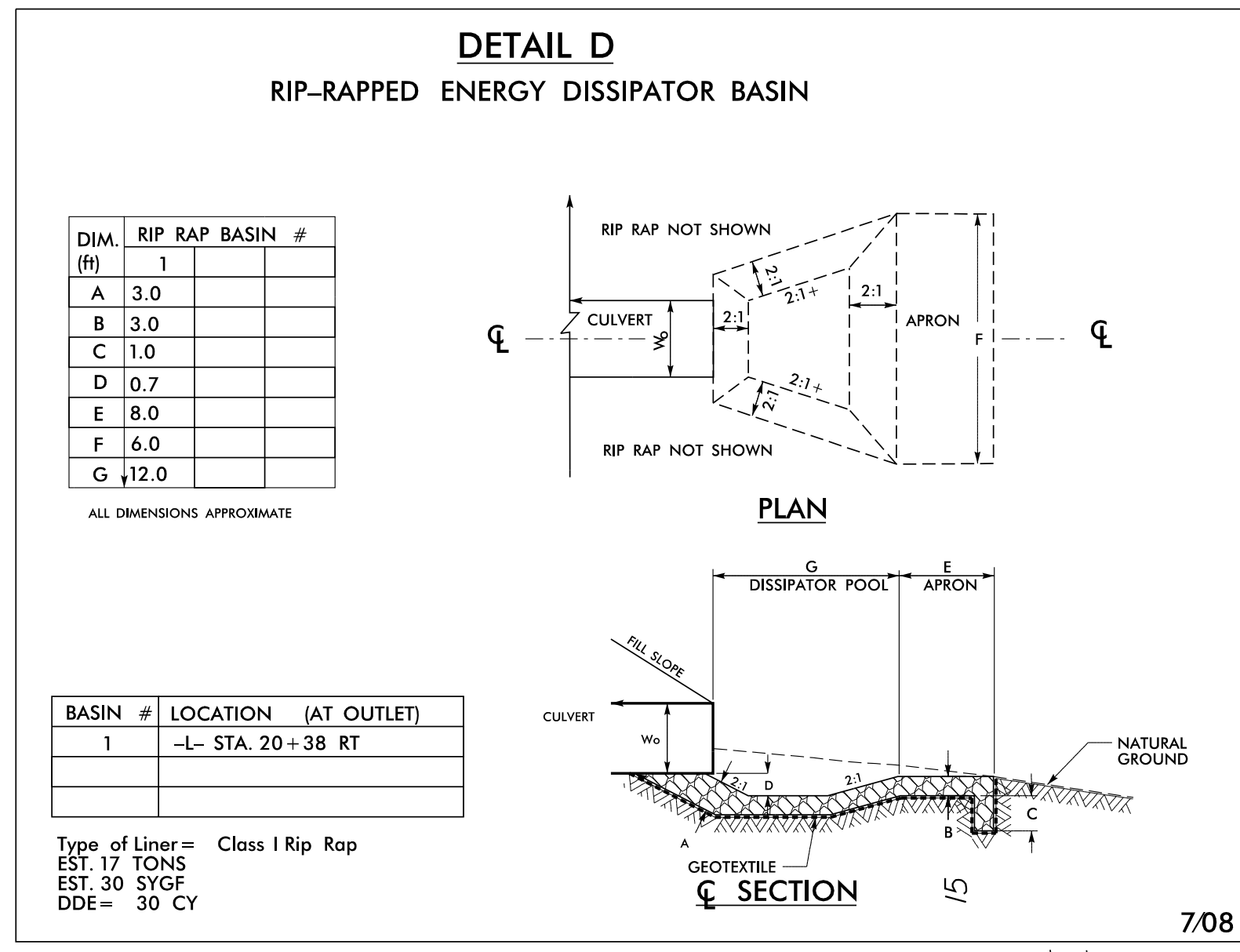
Bridge Description	End Bent/ Bent No.	MONTHS
BRIDGE NO. 224 ON WATSON SEED FARM ROAD OVER I-95	EB1, EB2	1

R/W REVISION JCL 11/19/19 ADDED TCE TO PARCEL 2

5/14/19

Users\31726\2021\5455524 BR-0039\Roadway\Pro\Nash224\_rdy\_psh04.dgn

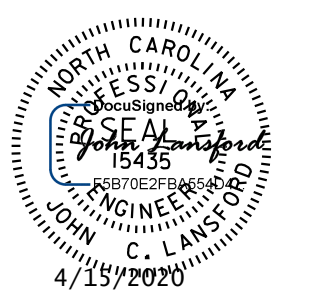
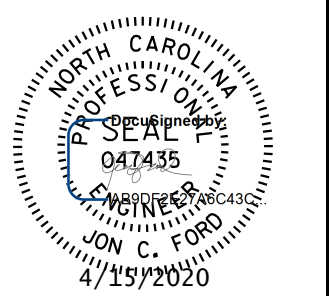
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

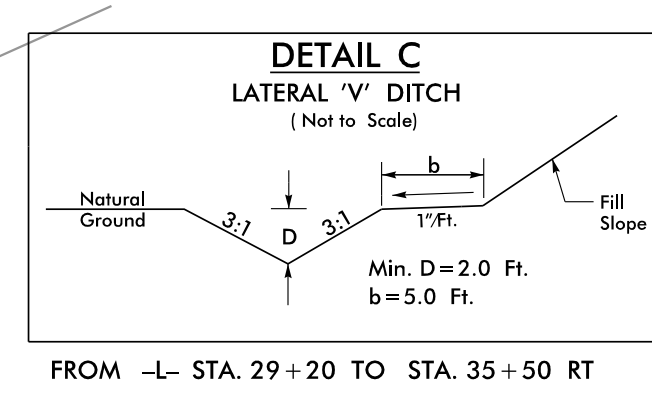
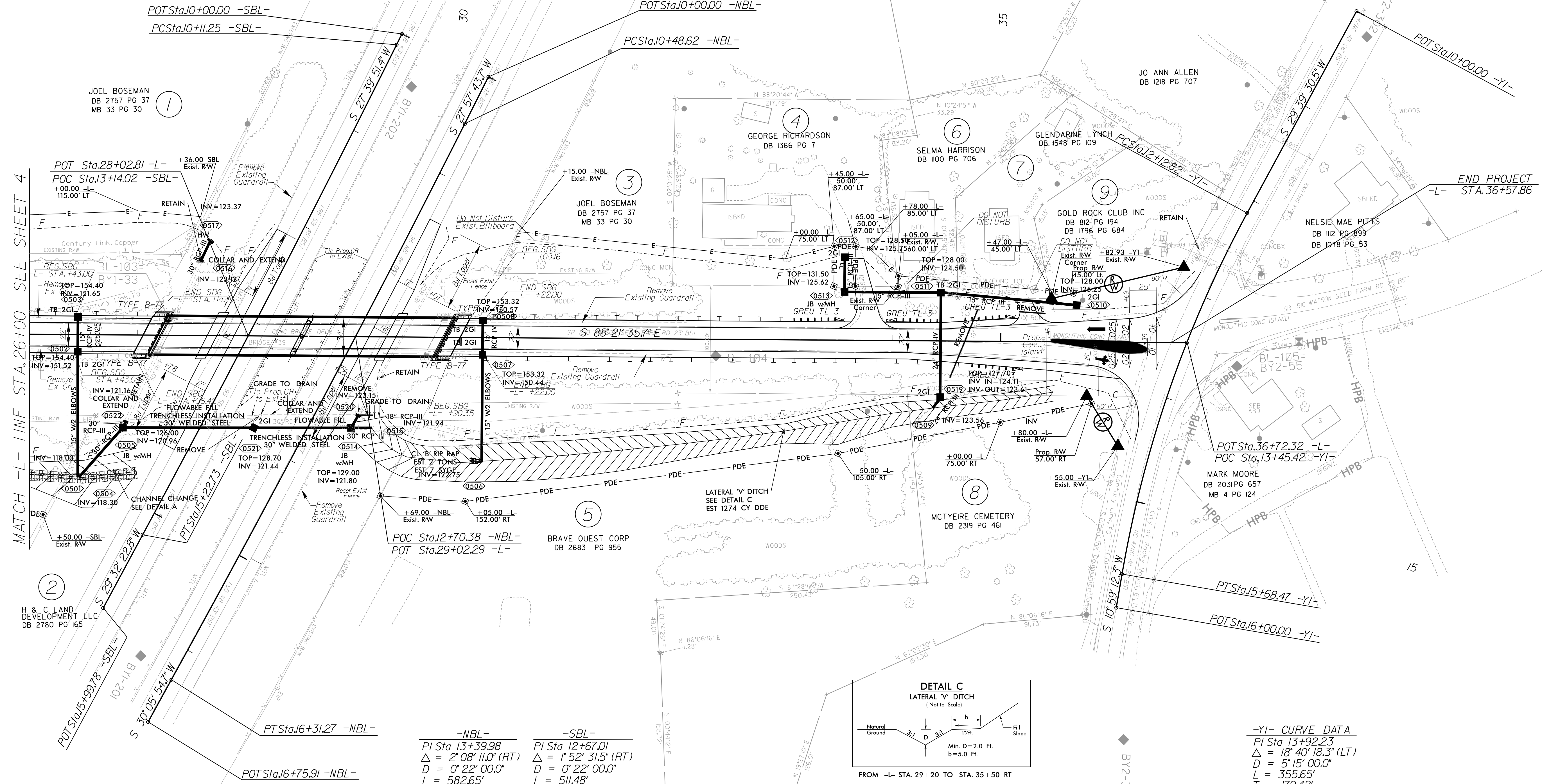
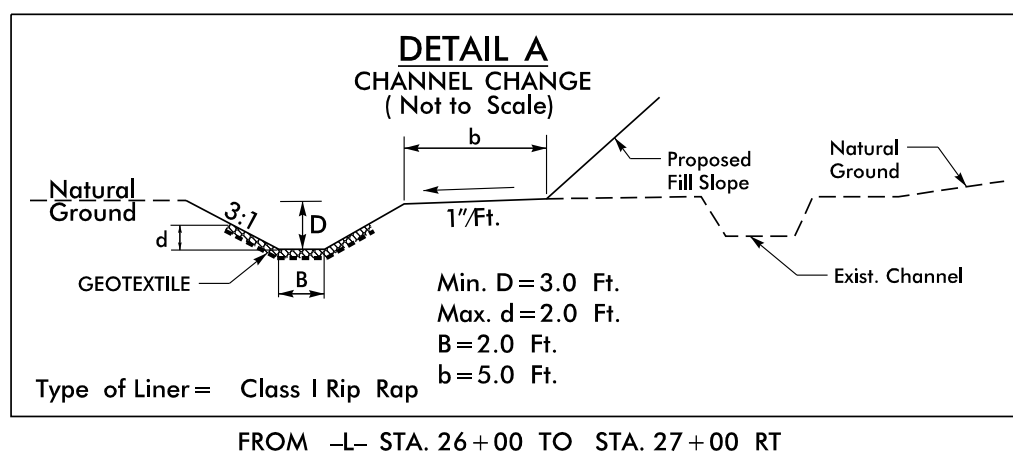
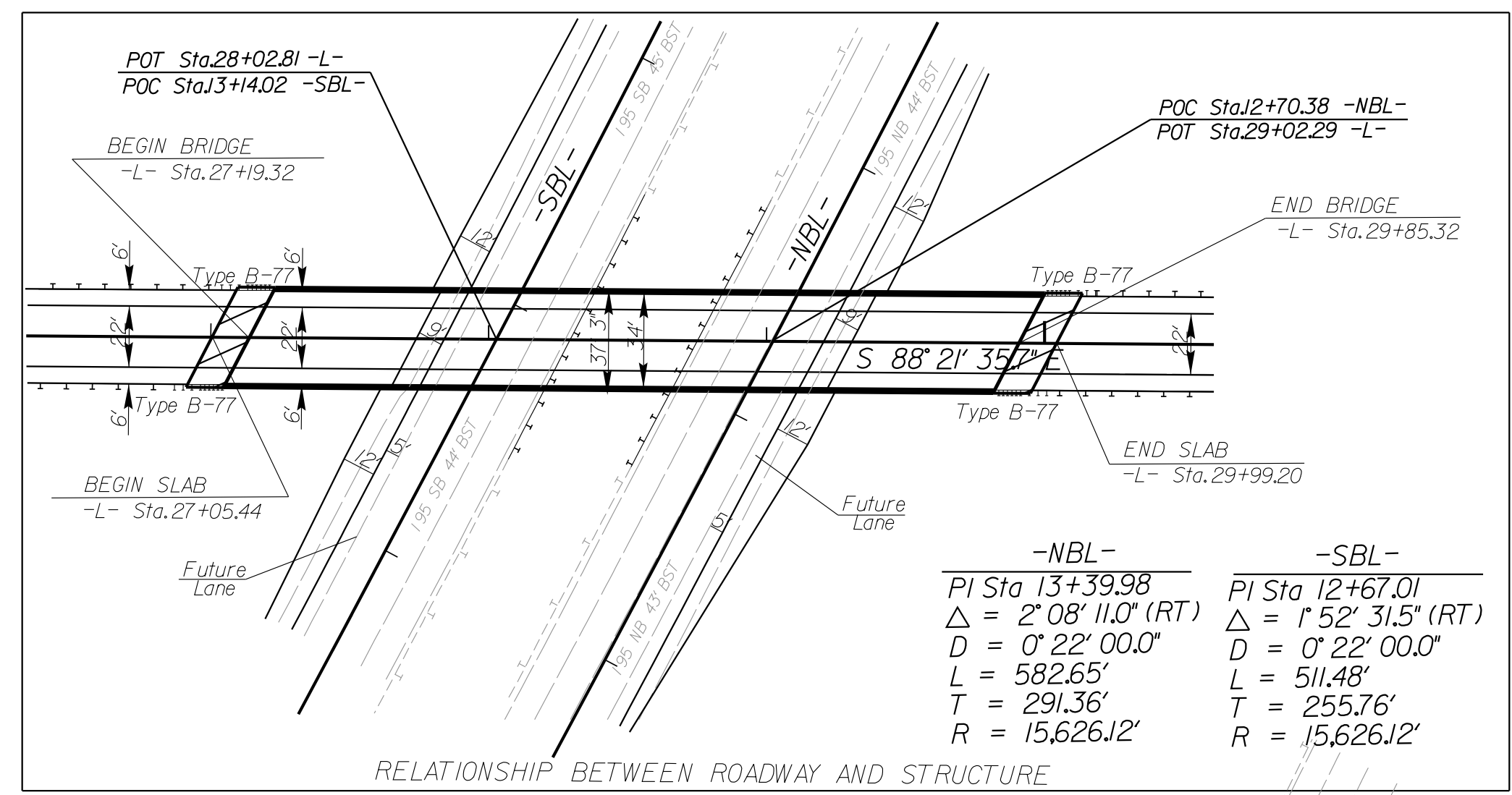


SEE SHEET 6 FOR -L- PROFILE

MATCH -L- LINE STA. 26+00 SEE SHEET 5



PROJECT REFERENCE NO. BR-0039		SHEET NO. 5	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



**-YI- CURVE DATA**

PI Sta 13+92.23	$\Delta = 18^{\circ}40'18.3"$ (LT)
D = 5'15'00.0"	L = 355.65'
T = 179.42'	R = 1,091.35'

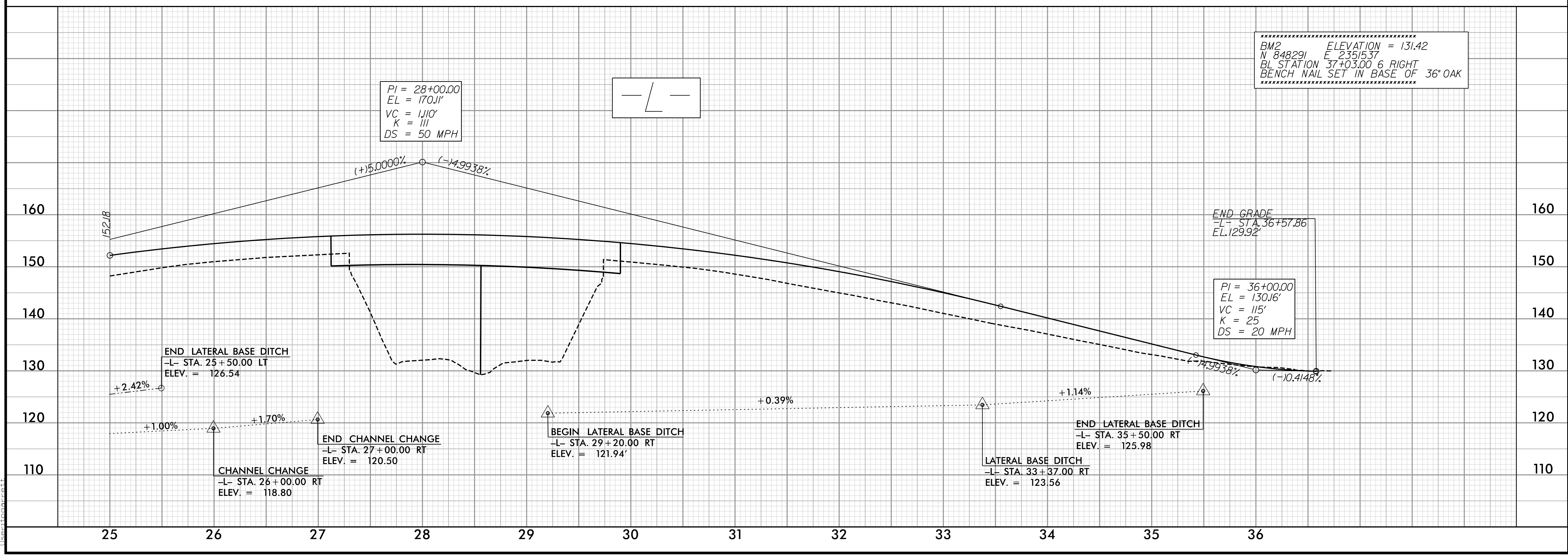
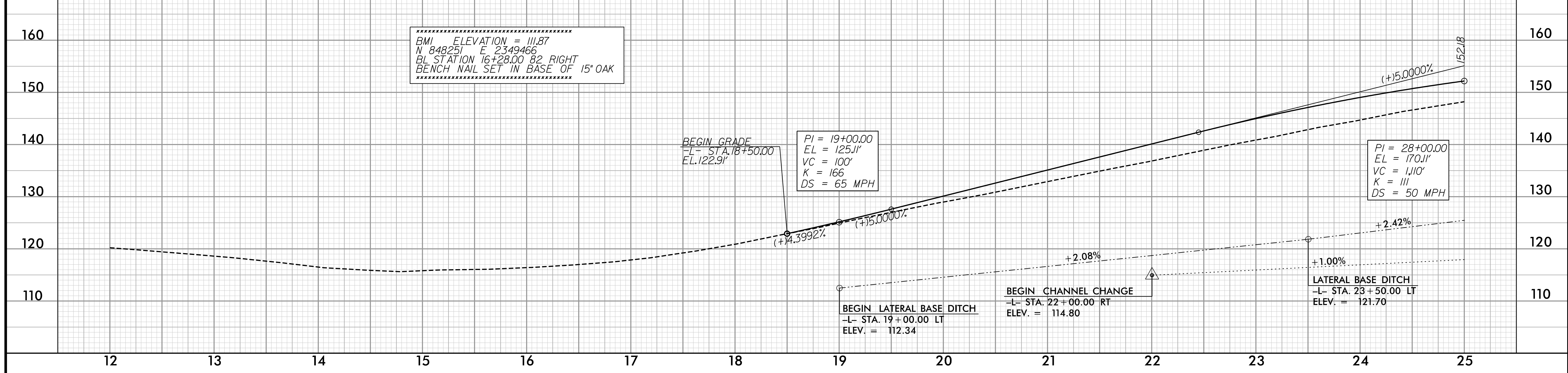
SEE SHEET 6 FOR -L- PROFILE  
SEE SHEETS S-1 THRU S-33 FOR STRUCTURE PLANS

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5/28/19

PROJECT REFERENCE NO. <i>BR-0039</i>	SHEET NO. <i>6</i>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
<i>[Professional Seal]</i>	<i>[Professional Seal]</i>

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



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