

09_08/19


See Sheet 1A For Index of Sheets
 See Sheet 1B For Conventional Symbols
 See Sheet RW01 TO RW05 For Survey Control Sheets

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

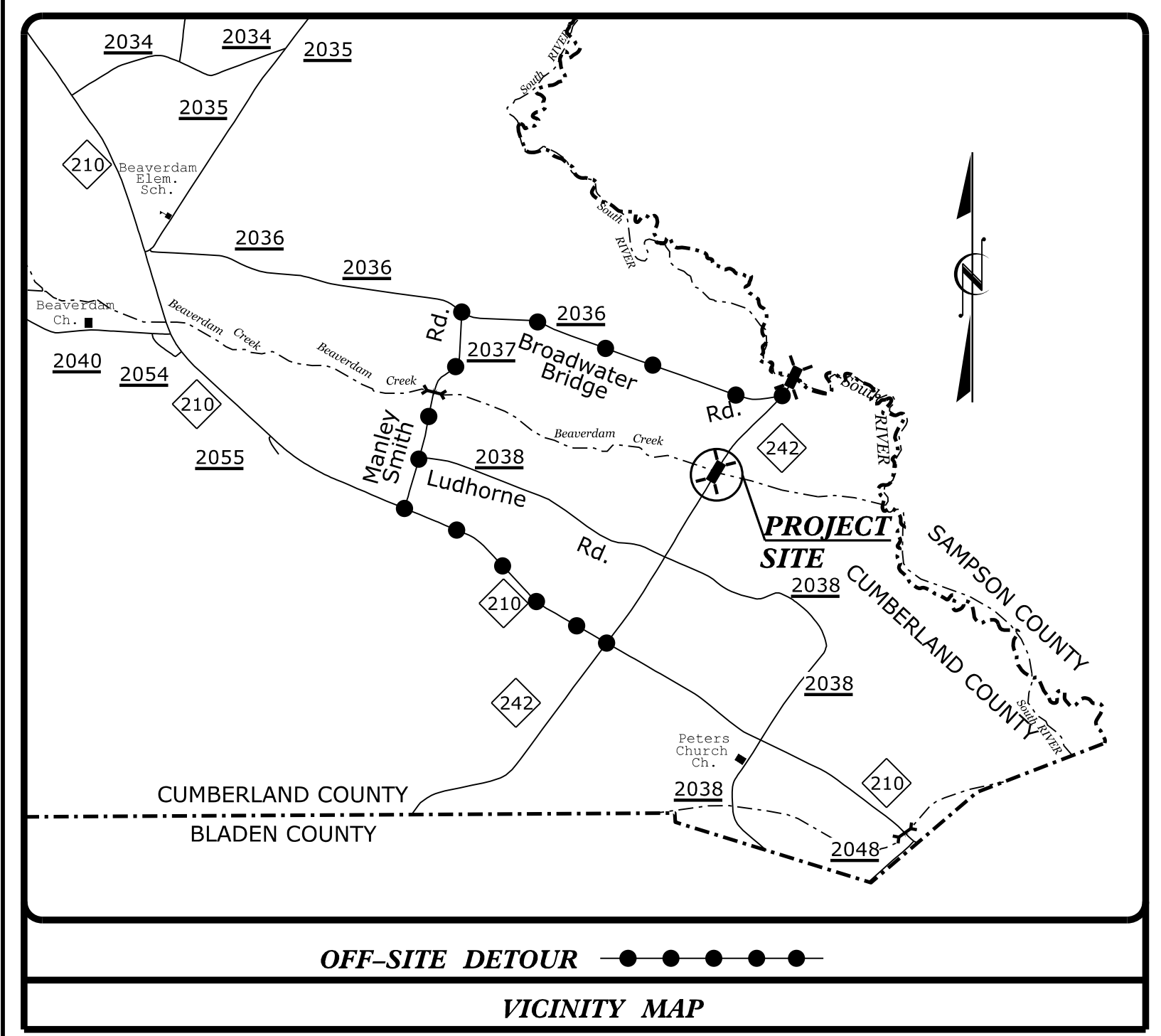
**LOCATION: BRIDGE NO. 250025 OVER BEAVER DAM CREEK
 ON NC 242**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

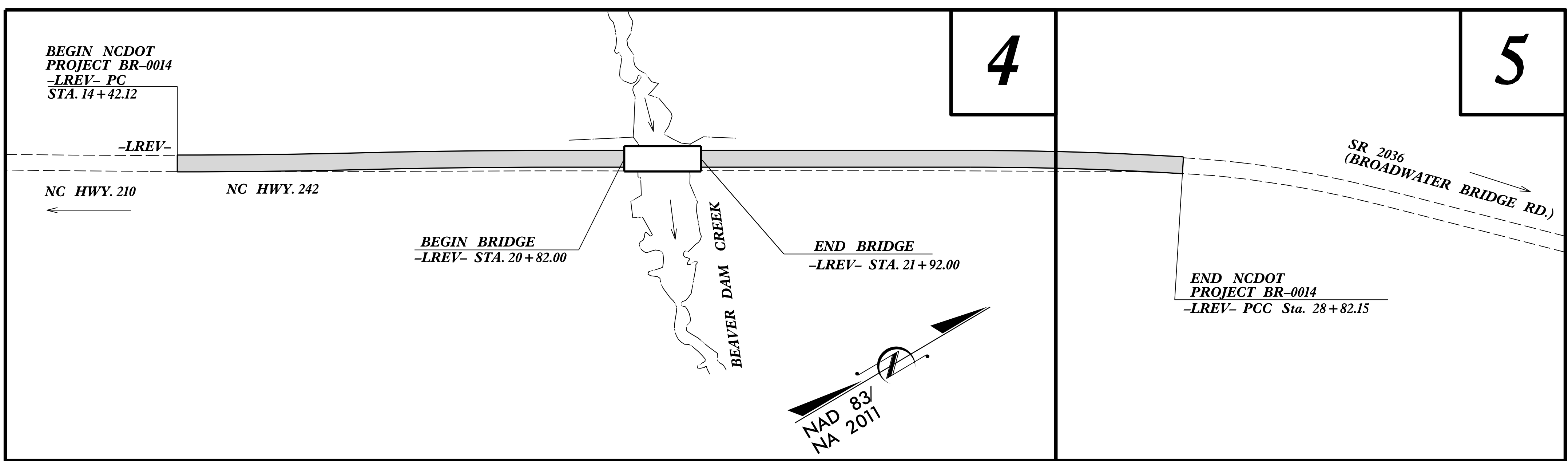
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0014	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49072.1.1		PE	
49072.2.1		RW, UTIL.	
49072.3.1		CONST.	
			
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107			
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION			

BRIDGE #250025

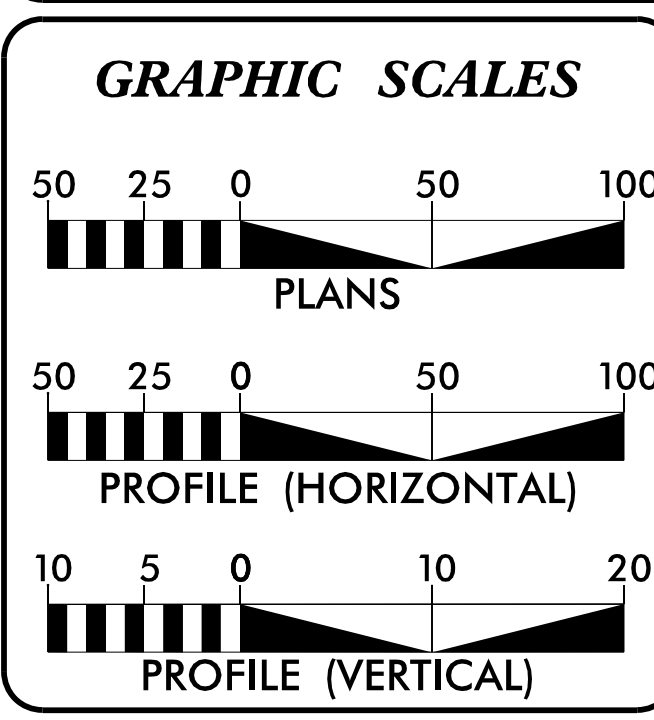
PROJECT: BR-0014



CONTRACT: C204483



DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2020 =	1,530
ADT 2040 =	2,200
K =	12 %
D =	55 %
T =	12 % *
V =	60 MPH

* (TTST = 8% +
 DUAL = 4%)
 FUNC CLASS =
 MAJOR COLLECTOR
 REGIONAL TIER

PROJECT LENGTH

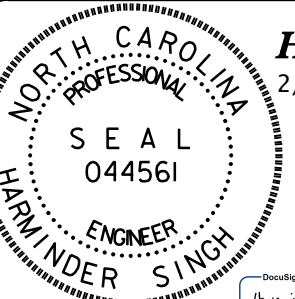
LENGTH ROADWAY PROJECT BR-0014 =	0.252 MILES
LENGTH STRUCTURE PROJECT BR-0014 =	0.021 MILES
TOTAL LENGTH PROJECT BR-0014 =	0.273 MILES

NCDOT CONTACT: **DAVID STUTTS, PE**
 PROJECT ENGINEER - PEP/PROGRAM MGT.

Prepared for:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
 1000 BIRCH RIDGE DRIVE RALEIGH NC, 27610

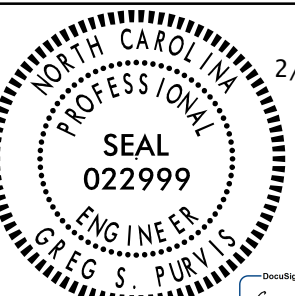
2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	EDWARD G. WETHERILL, PE PROJECT ENGINEER
APRIL 10, 2019	
LETTING DATE:	GREG S. PURVIS, PE PROJECT DESIGN ENGINEER
APRIL 20, 2021	

HYDRAULICS ENGINEER
 2/11/2021

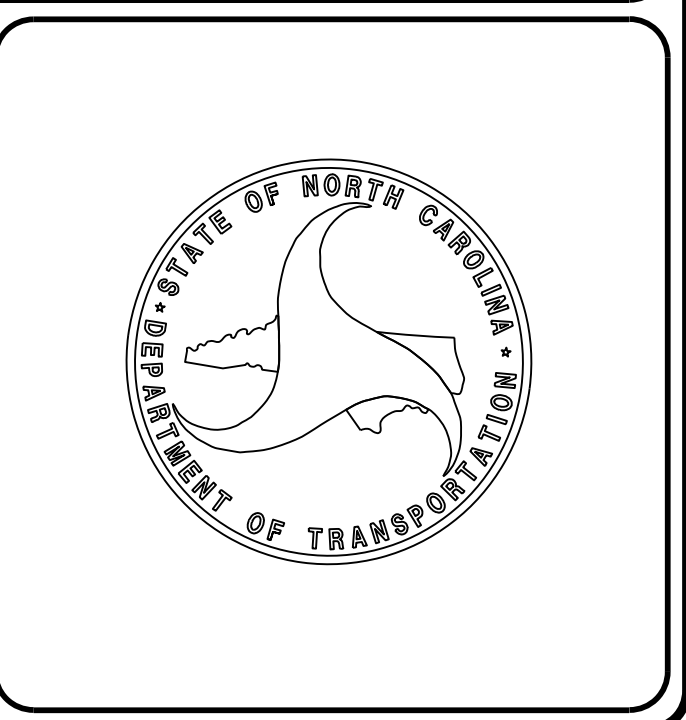


SIGNATURE: *Edward G. Wetherill* P.E.

ROADWAY DESIGN ENGINEER
 2/11/2021



SIGNATURE: *Greg S. Purvis* P.E.



GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II MODIFIED (SEE SPECIAL DETAIL SHEET 2C-1)

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

COMMUNICATION - STAR TELEPHONE

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS


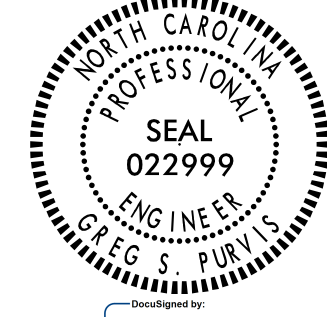
2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
422.03	Bridge Approach Fills - Type A - Alternate Approach Fill for Integral Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	TYPICAL SECTIONS, PAVEMENT SCHEDULE, & MISCELLANEOUS DETAILS
2C-1	DETAIL OF METHOD II MODIFIED CLEARING
2C-2	DETAIL FOR GUARDRAIL INSTALLATION
2G-1	DETAIL FOR ROCK EMBANKMENT
3B-1	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, EARTHWORK SUMMARY, PAVEMENT REMOVAL SUMMARY, AND SHOULDER BERM GUTTER SUMMARY
3G-1	SUMMARY OF SUBSURFACE DRAINAGE
3P-1	PARCEL INDEX SHEET
4 THRU 5	PLAN AND PROFILE SHEETS
RW01 THRU RW05	RIGHT OF WAY SHEETS, SURVEY CONTROL SHEETS, PROPOSED ALIGNMENT CONTROL SHEET AND PROPOSED EASEMENT CONTROL SHEET
TMP1 THRU TMP-2	TRANSPORTATION MANAGEMENT PLAN
PMP-1 THRU PMP-2	PAVEMENT MARKING PLAN
EC-1 THRU EC-7	EROSION CONTROL PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1A	CROSS SECTION SUMMARY SHEET
X-1 THRU X-7	CROSS SECTIONS
S-1 THRU S-28	STRUCTURE PLANS

PROJECT REFERENCE NO. BR-0014	SHEET NO. 1A
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	ROADWAY DESIGN ENGINEER
 <small>1225 Jones Road, Raleigh, NC 27605 Phone: 919 853 8977 Fax: 919 853 8977</small>	3/22/2021
TRANSPORTATION PLANNING DESIGN BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - SURVEY - CONSTRUCTION OBSERVATION	
BRIDGE #250025	

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Existing Historic Property Boundary	---HPB---
Known Contamination Area: Soil	☠ S ☠
Potential Contamination Area: Soil	☠ S ☠
Known Contamination Area: Water	☠ W ☠
Potential Contamination Area: Water	☠ W ☠
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	▽
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊠

VEGETATION:

Single Tree	○
Single Shrub	○

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	-----
U/G TV Cable LOS C (S.U.E.*)	-----
U/G TV Cable LOS D (S.U.E.*)	-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	-----
U/G Gas Line LOS C (S.U.E.*)	-----
U/G Gas Line LOS D (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊠
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	⊠
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	-----
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	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 LESS THAN 1" IN DEPTH OR GREATER THAN 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
J1	PROP. APPROX. 6" AGGREGATE BASE COURSE
J2	VAR. AGGREGATE BASE COURSE
R1	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

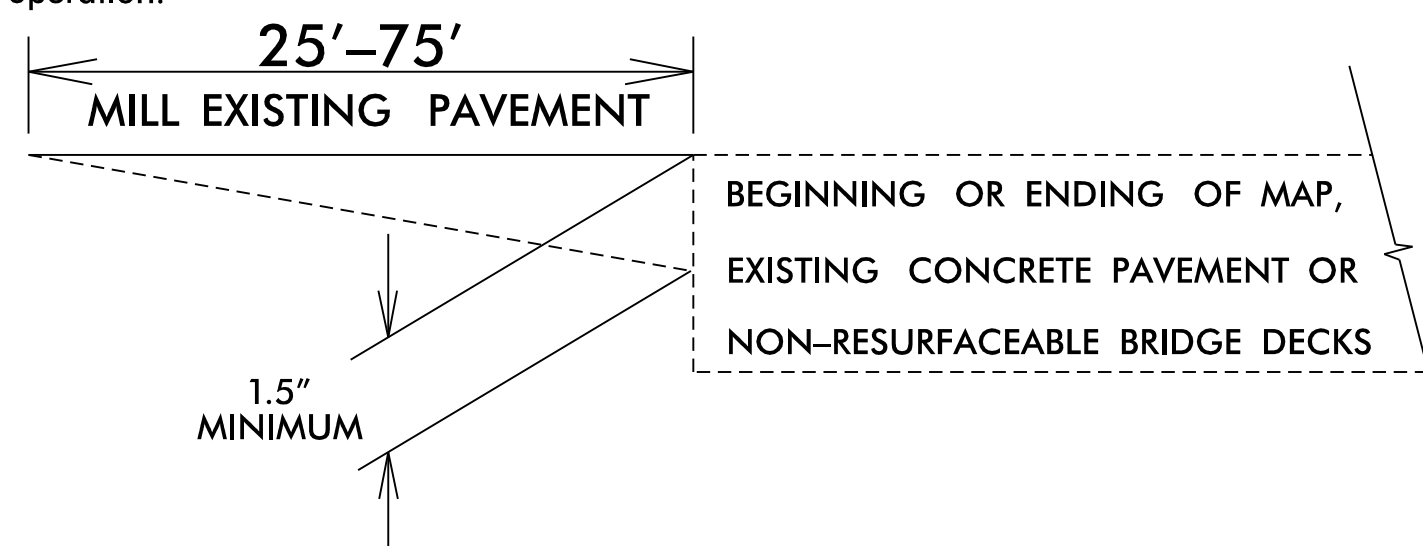
MILLING AT PAVEMENT TIE-INS

NOTES TO CONTRACTOR

For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

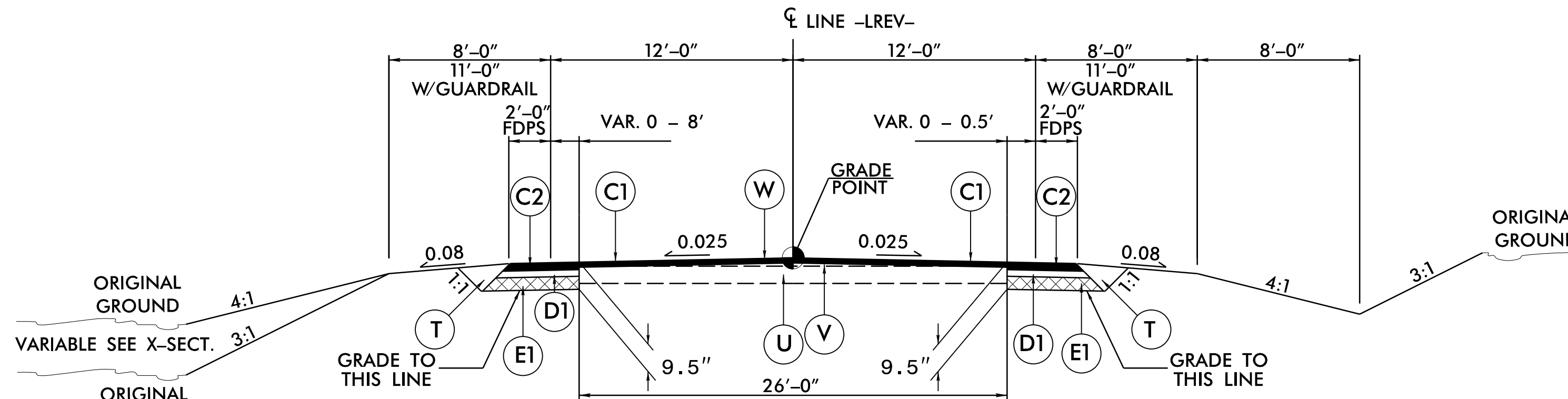
Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



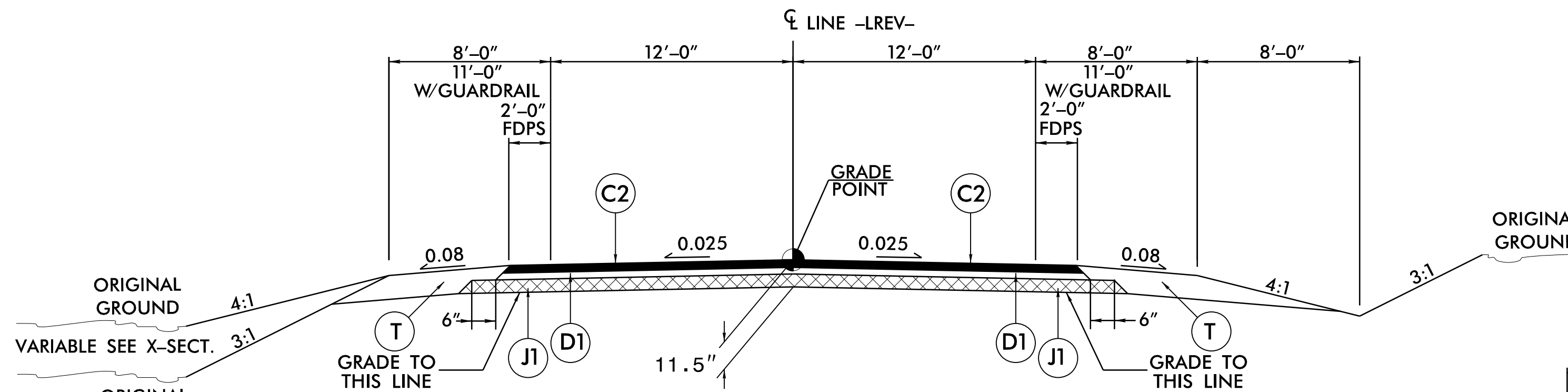
PERFORM VARIABLE DEPTH MILLING AT THE FOLLOWING LOCATIONS:
 -LREV- STA. 14+42.12 TO -LREV- STA. 15+75.00
 -LREV- STA. 27+84.65 TO -LREV- STA. 28+82.15
 FOR OFFSITE DETOUR USE 75' ON EACH END

STATION RANGES ARE APPROXIMATE ONLY.
 GRADE MAY BE ADJUSTED BY ENGINEER
 TO ENSURE A PROPER TIE-IN



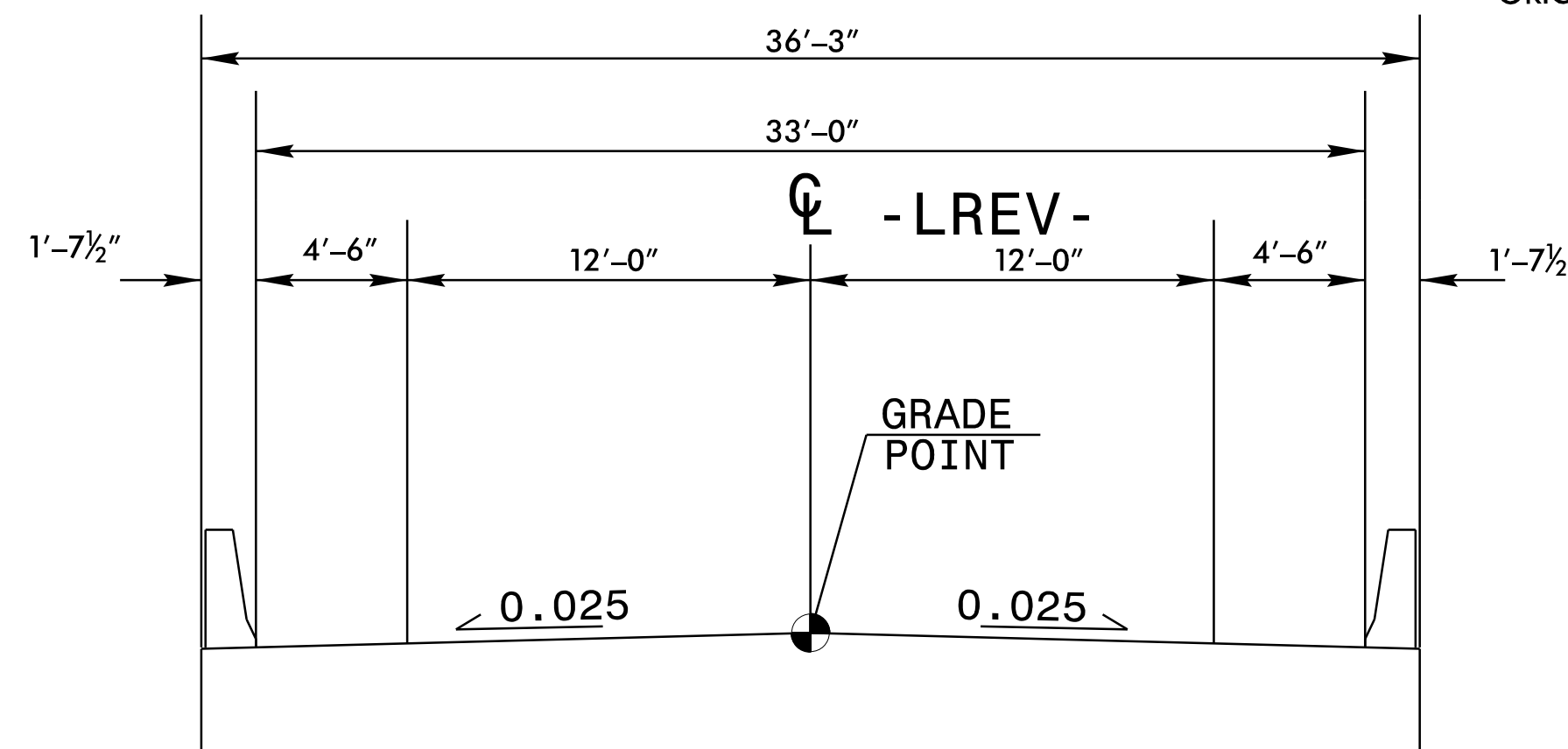
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -LREV- STA. 14+42.12 TO -LREV- STA. 18+25.00
 -LREV- STA. 25+00.00 TO -LREV- STA. 28+82.15



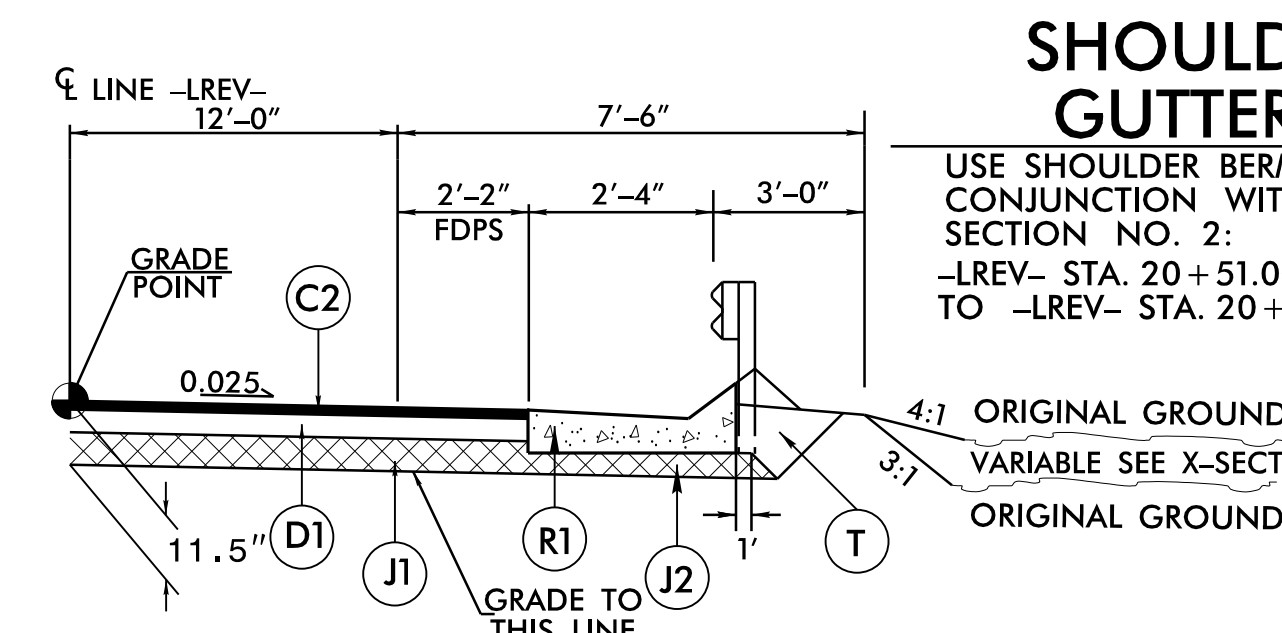
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -LREV- STA. 18+25.00 TO -LREV- STA. 20+82.00 (BEGIN BRIDGE)
 -LREV- STA. 21+92.00 (END BRIDGE) TO -LREV- STA. 25+00.00



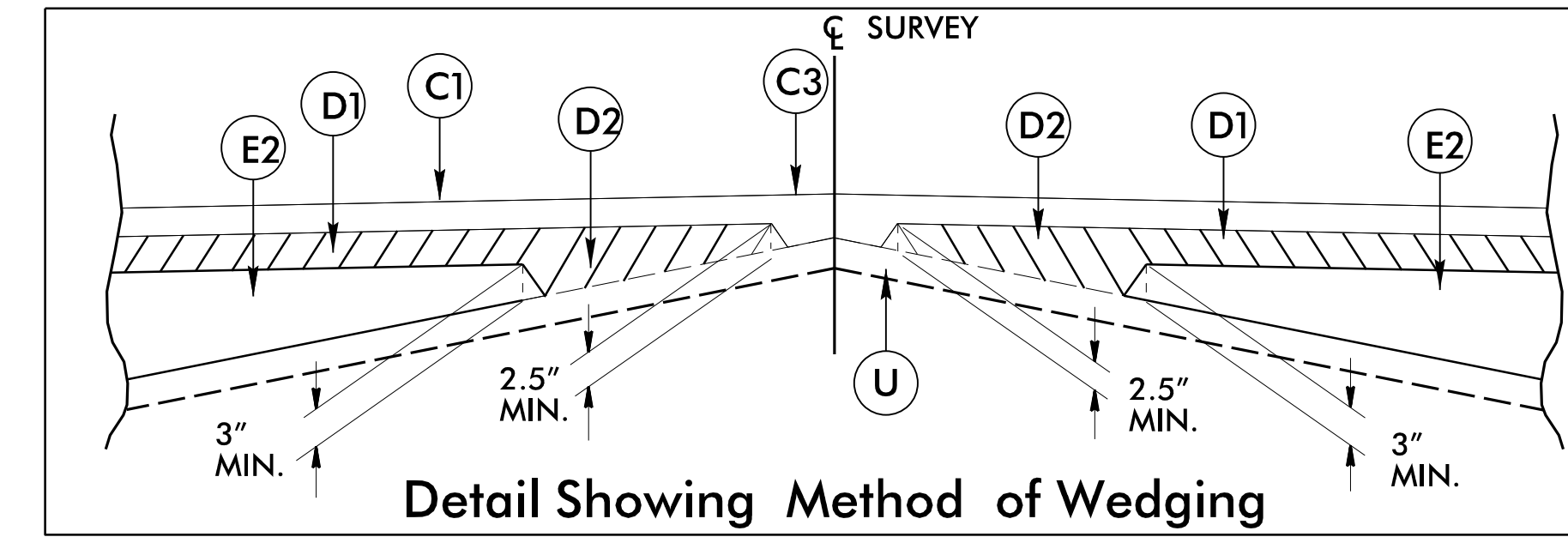
TYPICAL SECTION NO. 3 (BRIDGE)

USE TYPICAL SECTION NO. 3 AS FOLLOWS:
 -LREV- STA. 20+82.00 (BEGIN BRIDGE) TO -LREV- STA. 21+92.00 (END BRIDGE)



SHOULDER BERM GUTTER DETAIL

USE SHOULDER BERM GUTTER DETAIL IN CONJUNCTION WITH TYPICAL SECTION NO. 2:
 -LREV- STA. 20+51.00 TO -LREV- STA. 20+67.83 LT. & RT.



Detail Showing Method of Wedging

PROJECT REFERENCE NO. BR-0014	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 1/6/2020 SEAL 022999 GREG S. PURVIS	PAVEMENT DESIGN ENGINEER 6/2020 SEAL 22896 CLARK S. HANCOCK
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

BRIDGE #250025

NOTE: SEE TYPICAL SECTIONS 1 & 2 FOR PAVEMENT DESIGN

SHOULDER DETAIL

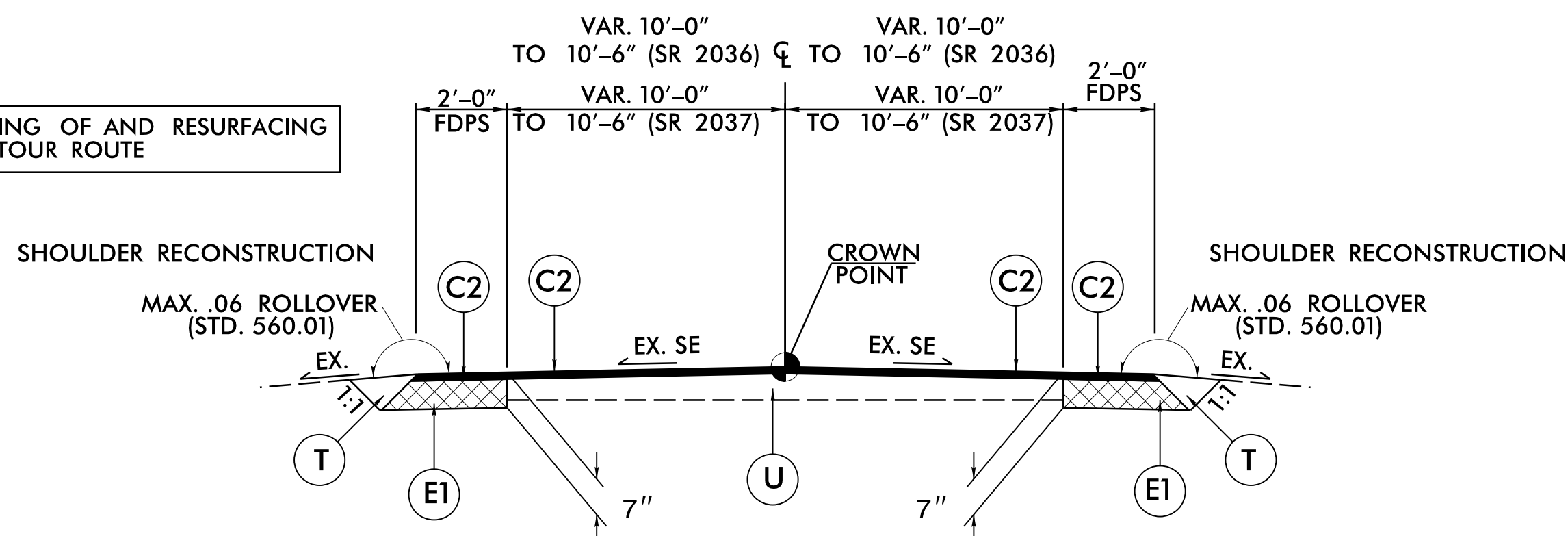
USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:
 -LREV- STA. 17+82.00 TO -LREV- STA. 20+82.00 RT.
 -LREV- STA. 19+44.50 TO -LREV- STA. 20+82.00 LT.
 -LREV- STA. 21+92.00 TO -LREV- STA. 23+29.50 RT.
 -LREV- STA. 21+92.00 TO -LREV- STA. 24+92.00 LT.

6/2/2019

PAVEMENT SCHEDULE	
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T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

NOTE: FOR WIDENING OF AND RESURFACING OF PROPOSED DETOUR ROUTE



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:

SR 2036 (BROADWATER BRIDGE RD.) FROM NC 242 TO SR 2037 (MANLEY SMITH RD.)
 SR 2037 (MANLEY SMITH RD.) FROM SR 2036 (BROADWATER BRIDGE RD.) TO NC 210

PROJECT REFERENCE NO. <i>BR-0014</i>	SHEET NO. <i>2A-2</i>
ROADWAY DESIGN ENGINEER 7/19/2020 SEAL 022999 GREG S. PURVIS	PAVEMENT DESIGN ENGINEER 8/19/2020 SEAL 22896 CLAY S. HORTON
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

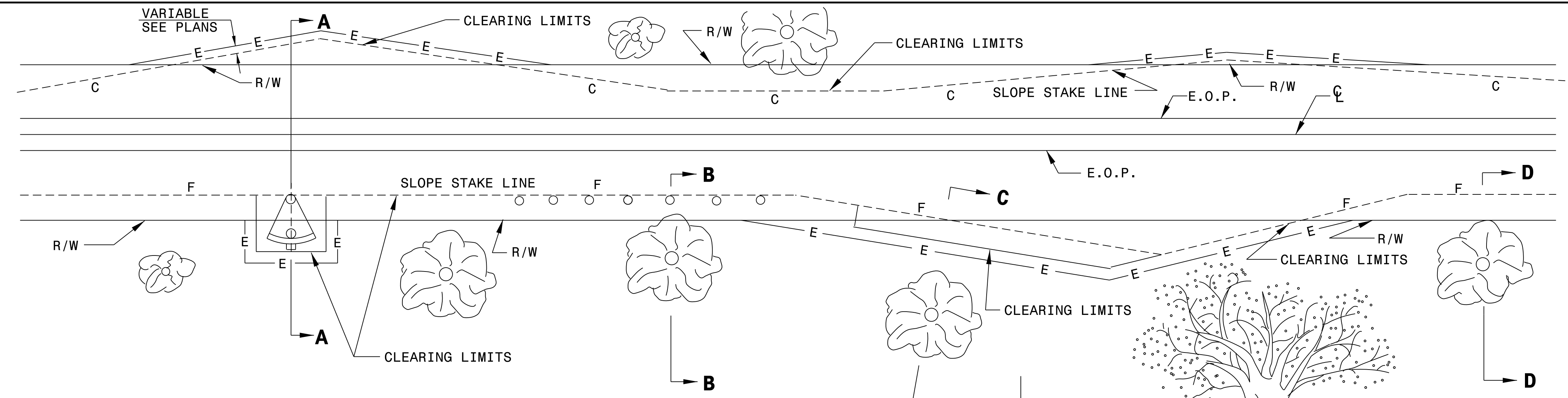
BRIDGE #250025

2/19/2020 BR-0014_Rdy_ttyp.dgn

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

ENGLISH DETAIL DRAWING FOR
METHOD OF CLEARING
 MODIFIED METHOD - II

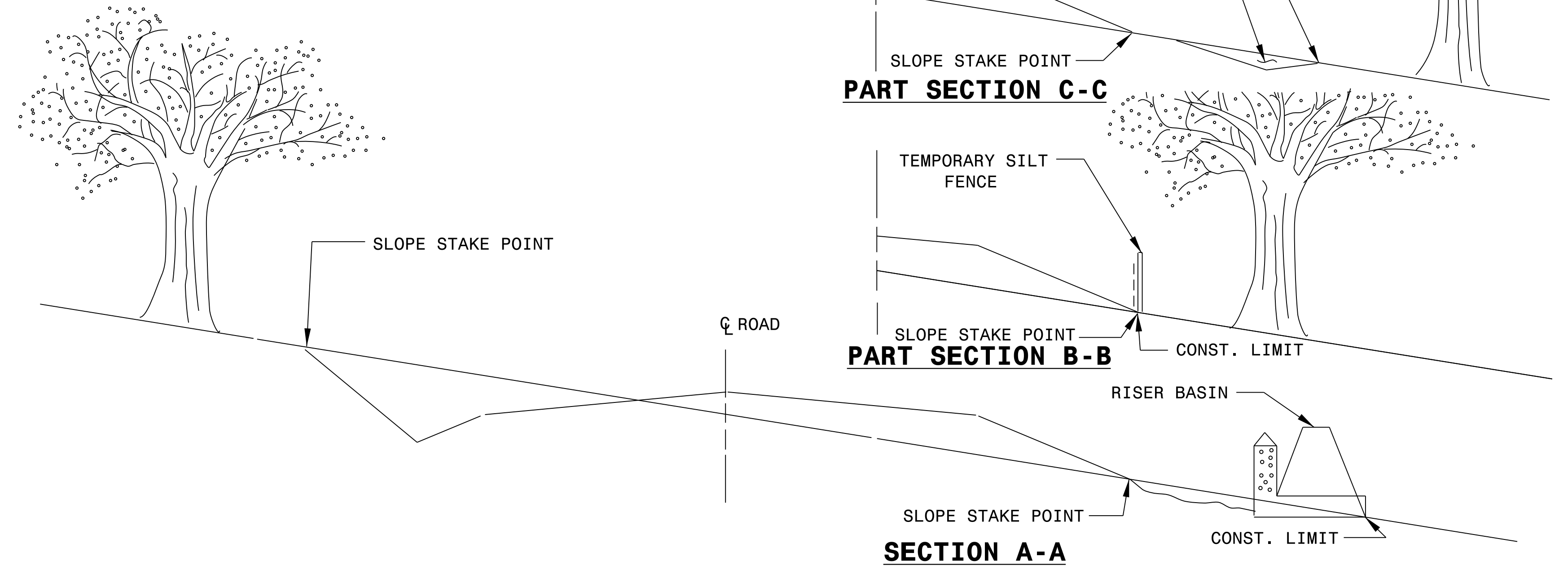
SHEET 1 OF 1
200d02



GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.
3. FOR SECTIONS WITH WIDE MEDIANS WHERE TREES ARE TO REMAIN, CLEAR THE MEDIUM SIDE IN THE SAME MANNER AS ON THE OUTSIDE.
4. HAND CLEAR AS NEEDED OUTSIDE THE SLOPE STAKE LINES FOR INSTALLATION OF EROSION CONTROL DEVICES.

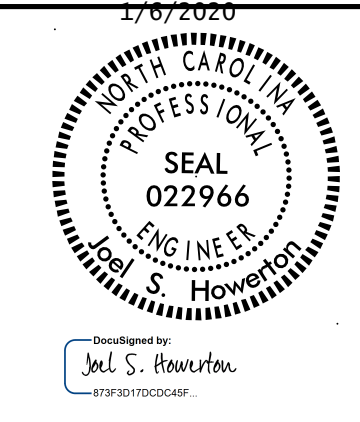
CLEAR TO SLOPE STAKE LINE OR CONSTRUCTION LIMITS



STATE OF NORTH CAROLINA
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ENGLISH DETAIL DRAWING FOR
METHOD OF CLEARING
 MODIFIED METHOD - II

SHEET 1 OF 1
200d02



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

SEE TITLE BLOCK

ORIGINAL BY: _____ DATE: 05-02-11
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: details/nbritt/english/urban/u3615aconcretefume.dgn

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

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

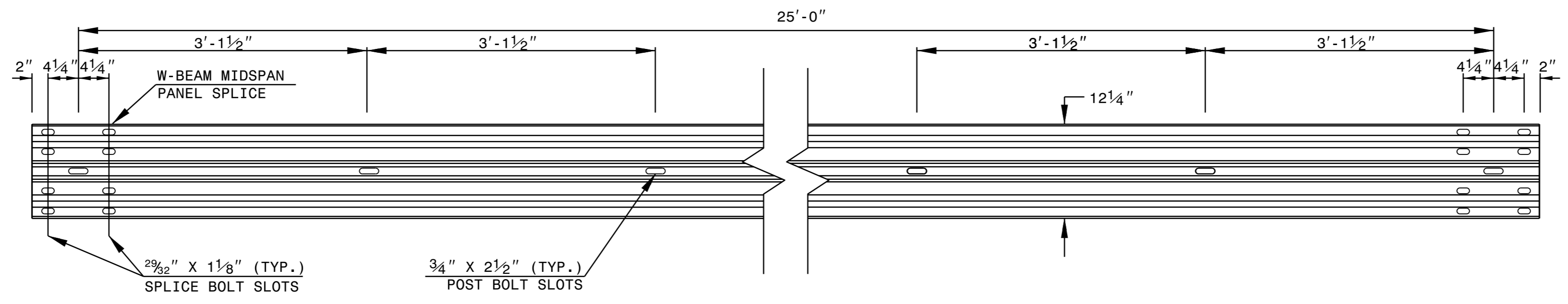
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

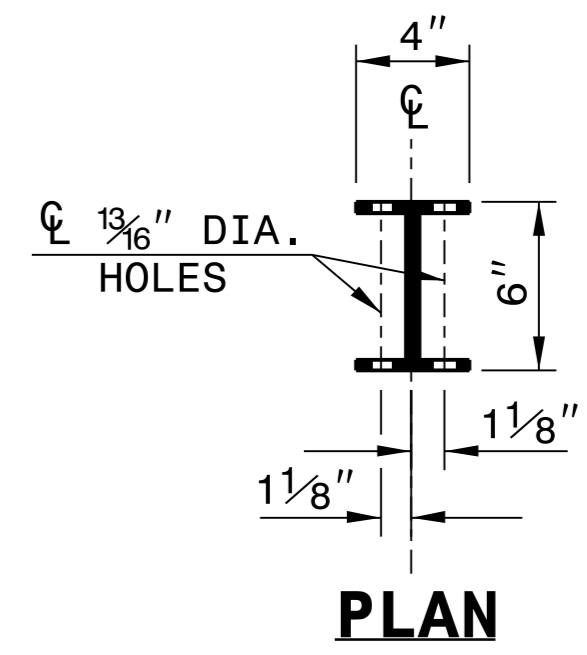
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

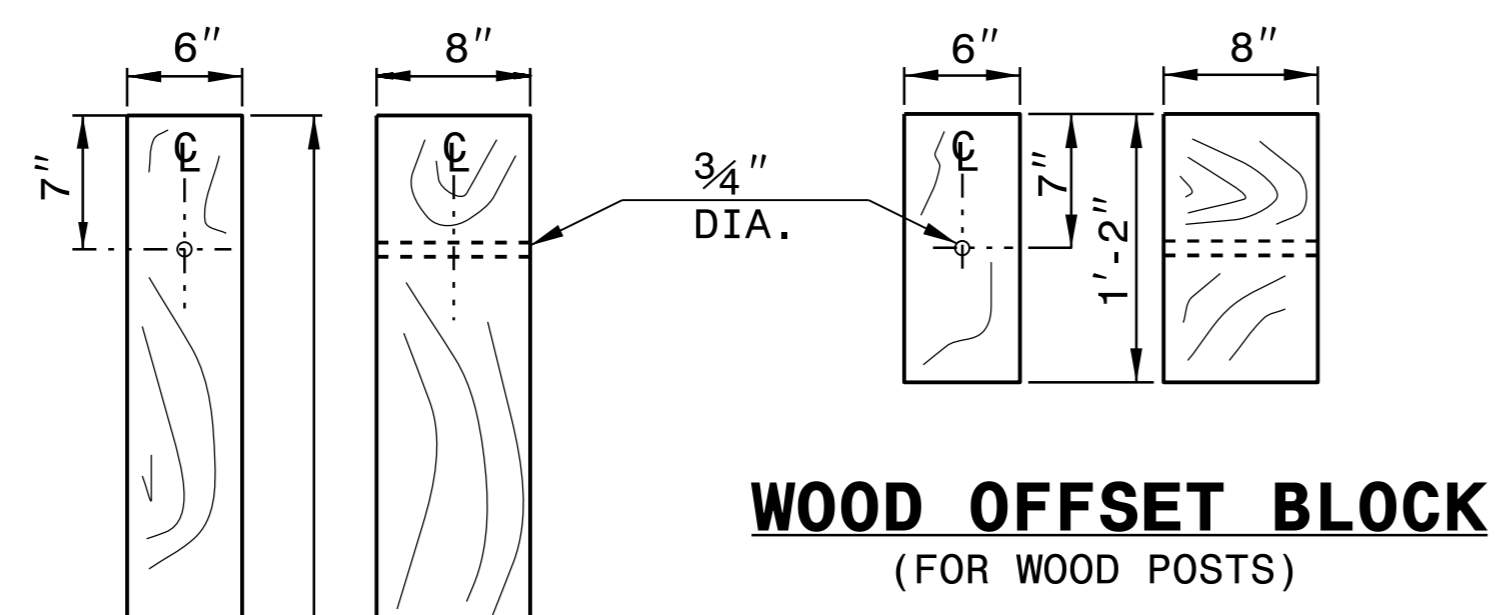
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



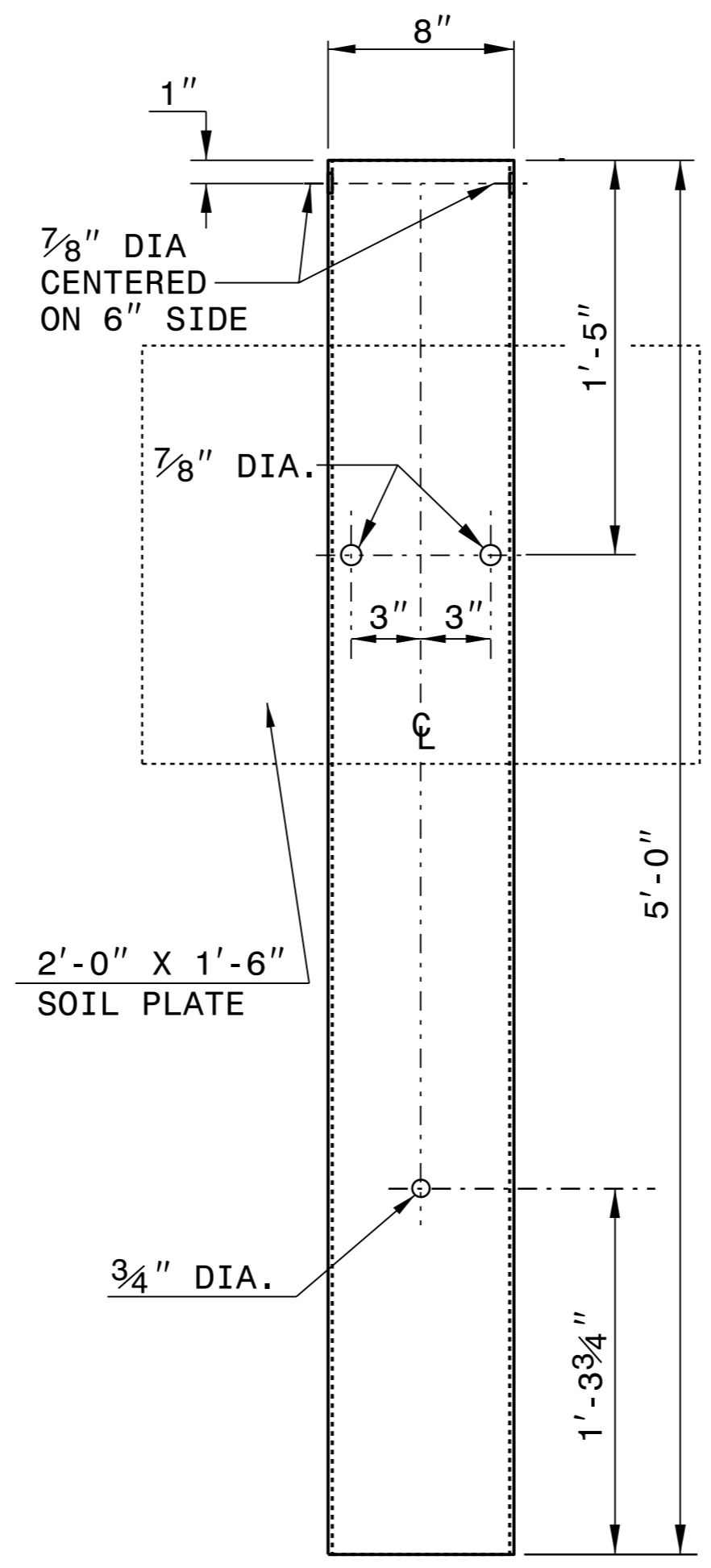
PLAN



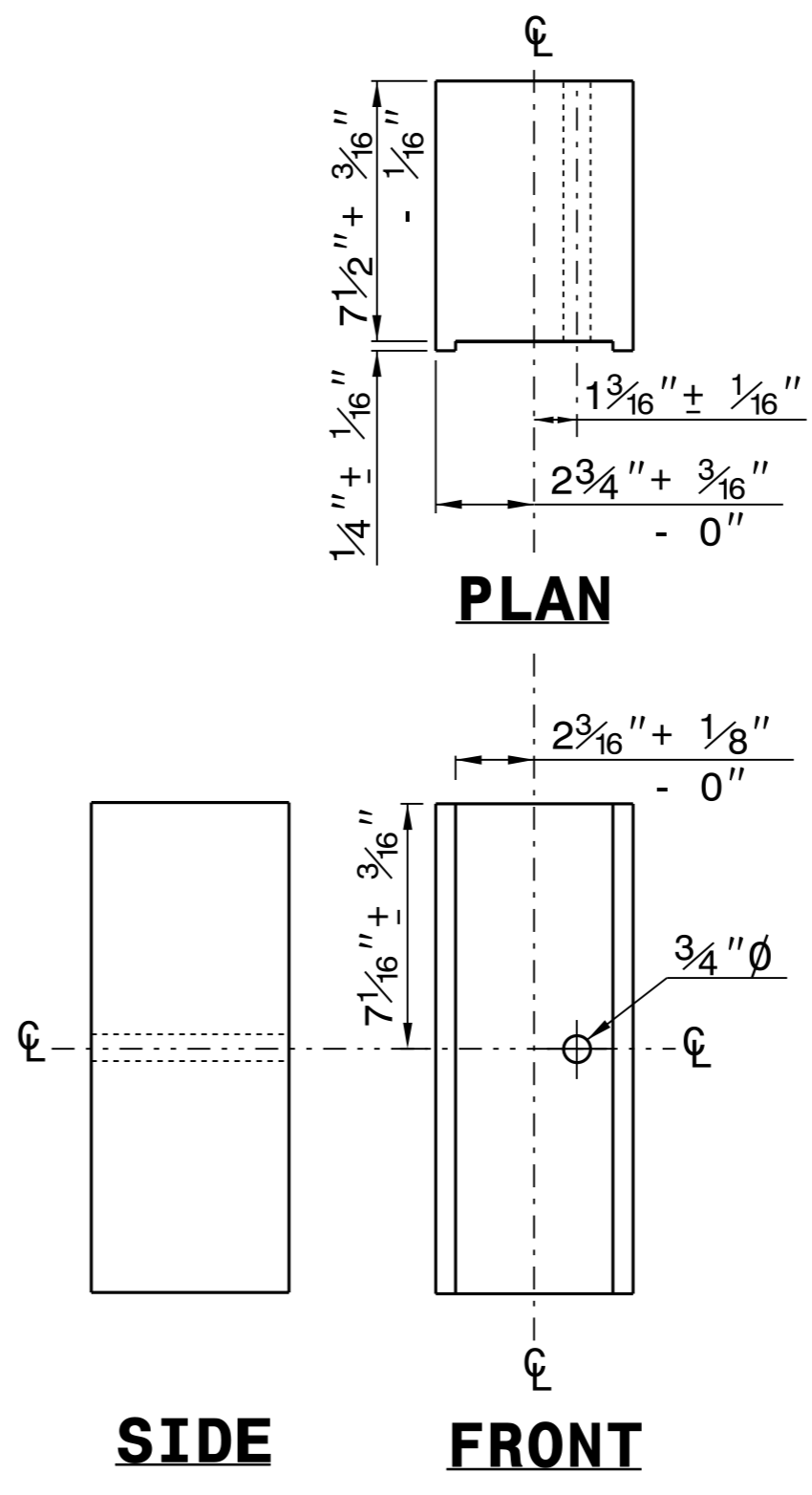
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

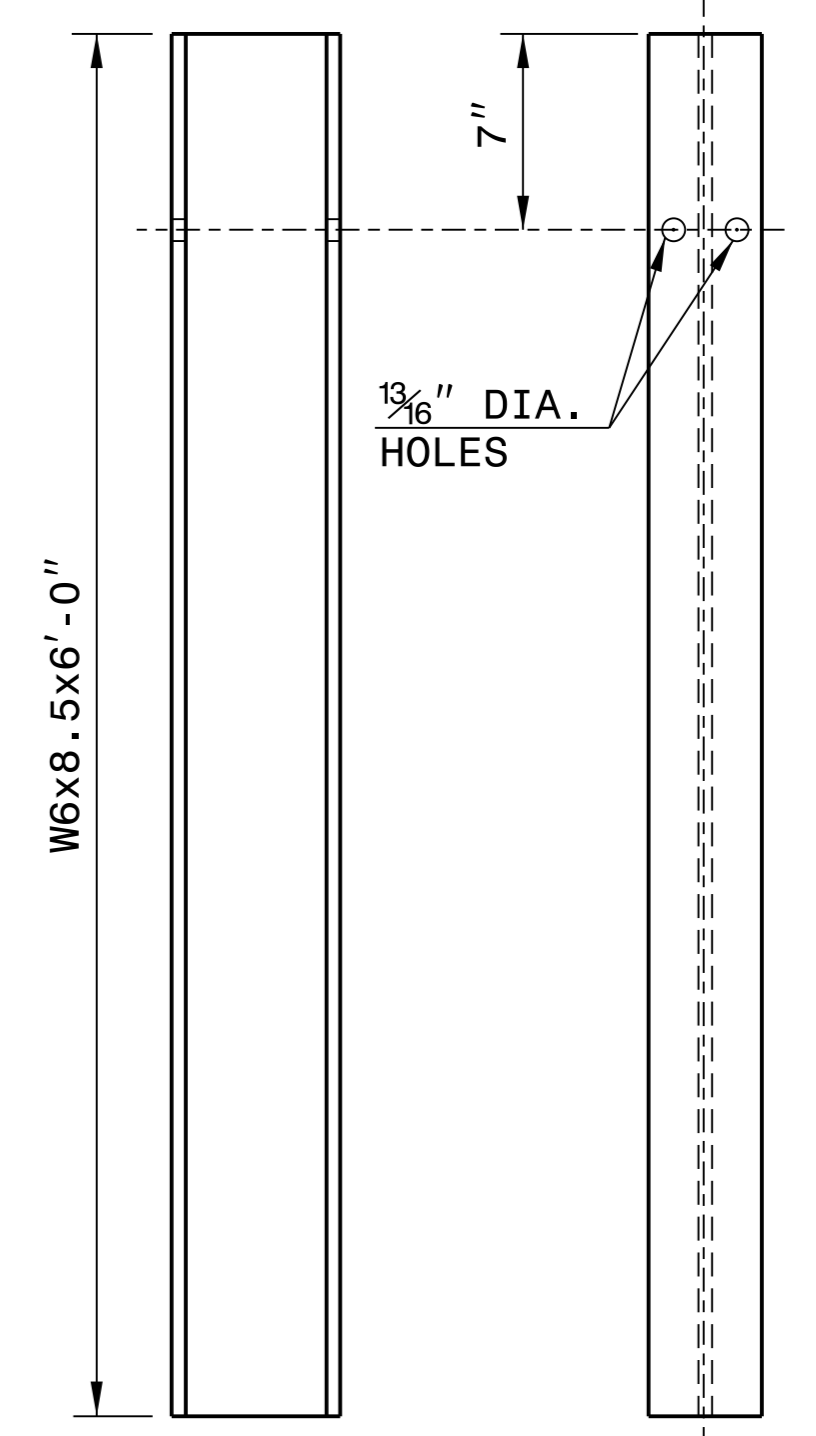
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**



**ROUTED
OFFSET BLOCK**



"W6" STEEL POST

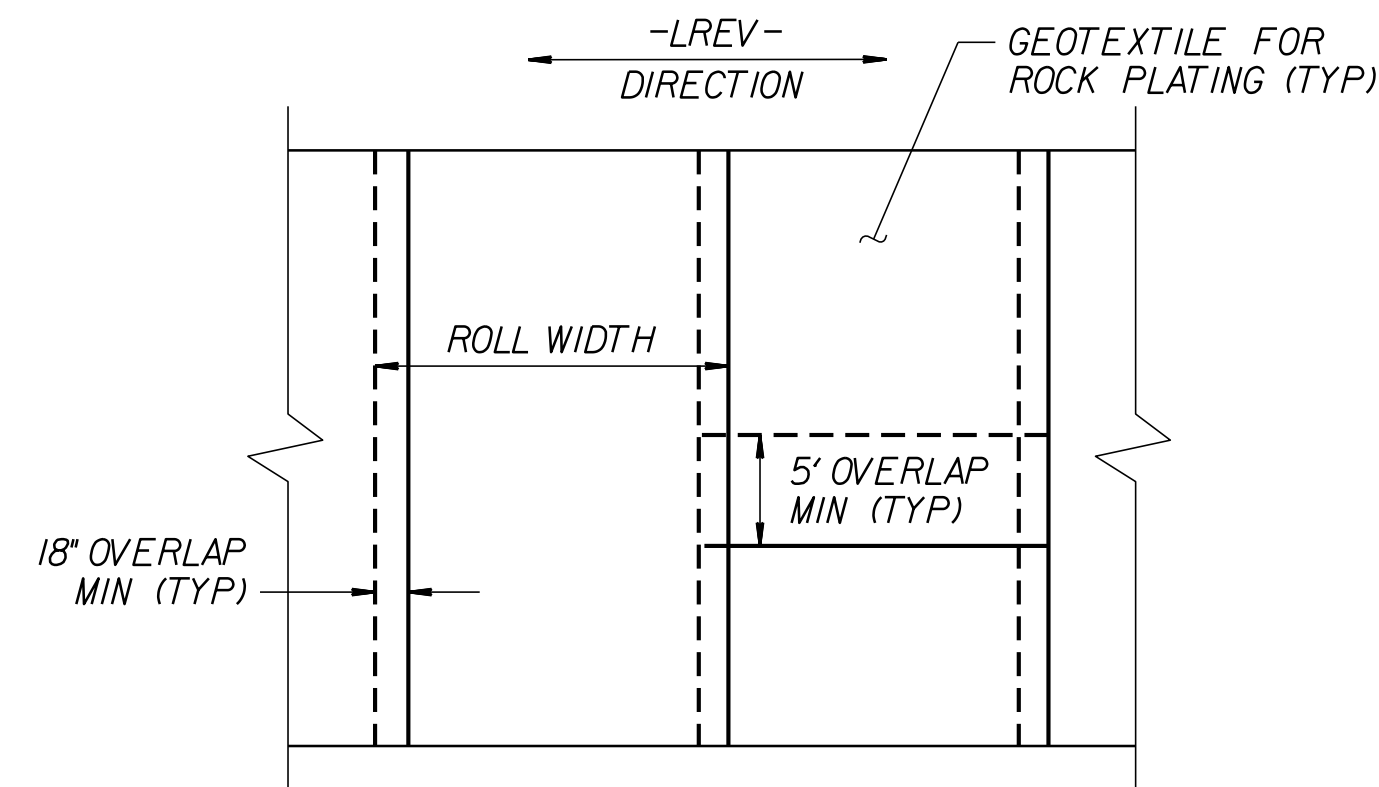
SYSTEM PARTS



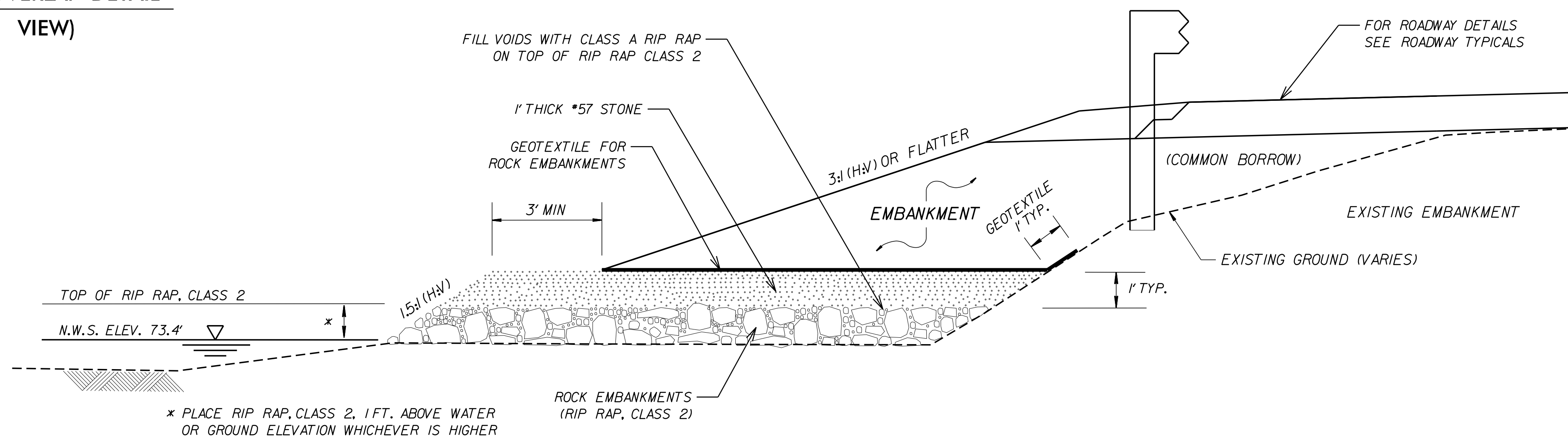
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC.: _____



**GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)**



**ROCK EMBANKMENTS – TYPICAL SECTION
(NOT TO SCALE)**

ROCK EMBANKMENTS

FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENTS SPECIAL PROVISION.

USE ROCK EMBANKMENTS AT FOLLOWING LOCATIONS:

-LINE-	APPROX. BEGINNING STATION	APPROX. ENDING STATION	LOCATION LT/RT
-LREV-	16+75 +/-	20+82 +/-	LEFT

CONSTRUCT RIP RAP, CLASS 2 TO THE ELEVATION SHOWN IN THE ROCK EMBANKMENTS DETAIL, OR 1 FT. ABOVE THE NORMAL WATER SURFACE OR ABOVE THE EXISTING GROUND ELEVATION WHICHEVER IS HIGHER AND ACCORDING TO THE ROCK EMBANKMENTS SPECIAL PROVISION.

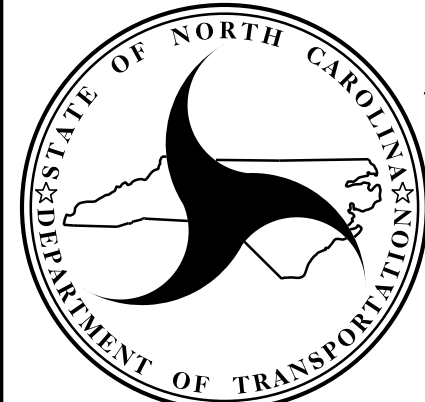
FILL VOIDS IN THE TOP OF ROCK EMBANKMENTS (RIP RAP, CLASS 2) WITH CLASS A RIP RAP.

PLACE #57 STONE (SELECT MATERIAL, CLASS VI) UP TO 1 FT. ABOVE ROCK EMBANKMENTS AS SHOWN IN THE PLAN.

INSTALL GEOTEXTILE ON TOP OF NO. 57 STONE AS SHOWN IN THE ROCK EMBANKMENTS DETAIL AND IN ACCORDANCE WITH THE ARTICLE 270-3 OF THE STANDARD SPECIFICATIONS.

ESTIMATED MATERIAL QUANTITIES FOR ROCK EMBANKMENTS
 ROCK EMBANKMENTS (RIP RAP, CLASS 2) = 925 TONS
 RIP RAP CLASS A = 260 TONS
 #57 STONE (SELECT MATERIAL, CLASS VI) = 325 TONS
 GEOTEXTILE FOR ROCK EMBANKMENTS = 430 SY

PREPARED BY: THEIN T. ZAN	DATE: 01-2020
REVIEWED BY: JAMES R. BATTS	DATE: 01-2020



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

**GEOTECHNICAL
ENGINEERING UNIT**

ROCK EMBANKMENT DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

12/06/07

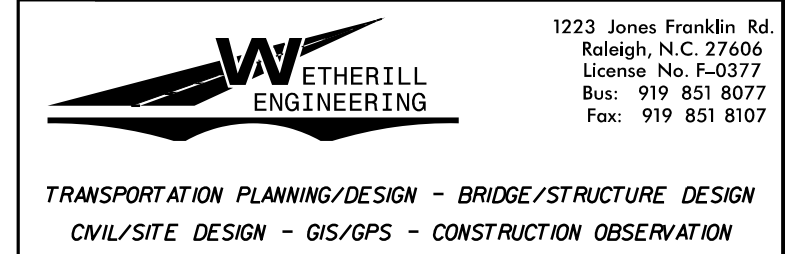
COMPUTED BY: SLK DATE: 01/08/19
CHECKED BY: GSP DATE: 01/08/19

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRIDGE #250025

PROJECT REFERENCE NO. BR-0014 SHEET NO. 3B-1

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SUMMARY OF EARTHWORK

Table with columns: STATION, STATION, UNCL. EXCAV. (CY), EMBANK. +/- (CY), BORROW (CY), WASTE (CY). Rows include station ranges and subtotals for excavation, embankment, borrow, and waste.

ASPHALT PAVEMENT REMOVAL SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LOCATION LT/RT/CL, YD. Rows show removal quantities for different survey lines and stations.

SHOULDER BERM GUTTER SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LENGTH. Rows show lengths for right and left shoulder berms and a total length.

NOTE: These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

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

SUB-REGIONAL & REGIONAL 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".

Large table listing pipes and endwalls with columns for station, structure no., pipe type, size, invert elevation, and remarks. Includes abbreviations for C.B., N.D.I., D.I., G.D.I., G.D.I. (N.S.), J.B., M.H., T.B.D.I., T.B.J.B.

"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.

GUARDRAIL SUMMARY

Table summarizing guardrail with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT, TOTAL SHOUL. WIDTH, FLARE LENGTH, W, ANCHORS, IMPACT ATTENUATOR TYPE 350, SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

2/1/2020 BR-0014_Redysum.dgn

COMPUTED BY: Thein T. Zan DATE: 1/29/2019
CHECKED BY: James Batts DATE: 1/29/2019

(5-15-18)

PROJECT NO.
BR-0014

SHEET NO.
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			SD	500
				TOTAL LF:	500

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

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. BR-0014	SHEET NO. 4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER 2/10/2020	2/10/2020

PROFESSIONAL SEAL

022999

ENGINEER

GREG S. PURVIS

PROFESSIONAL SEAL

044561

ENGINEER

HARINDER SINGH

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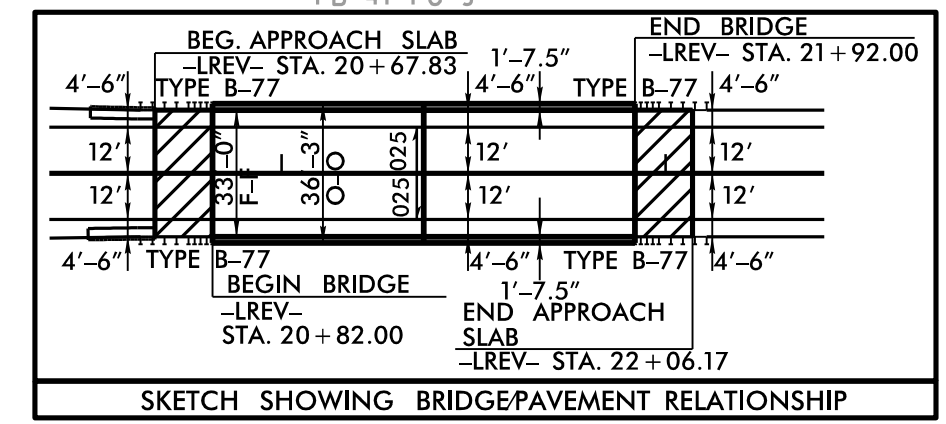
BEGIN NCDOT PROJECT BR-0014
-LREV- PC STA. 14+42.12

-LREV- PT Sta. 13+45.13
-LREV- PC Sta. 12+58.03

-LREV-
PI Sta 13+01.58
 $\Delta = 0' 39' 55.5" (LT)$
 $D = 0' 45' 50.2"$
 $L = 87.10'$
 $T = 43.55'$
 $R = 7,500.00'$

-LREV-
PI Sta 15+77.17
 $\Delta = 1' 23' 38.9" (LT)$
 $D = 0' 30' 58.2"$
 $L = 270.09'$
 $T = 135.05'$
 $R = 11,000.00'$
SE = NC
DS = 60 MPH

-LREV-
PI Sta 18+47.26
 $\Delta = 1' 23' 38.9" (RT)$
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 $L = 270.09'$
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SE = NC
DS = 60 MPH

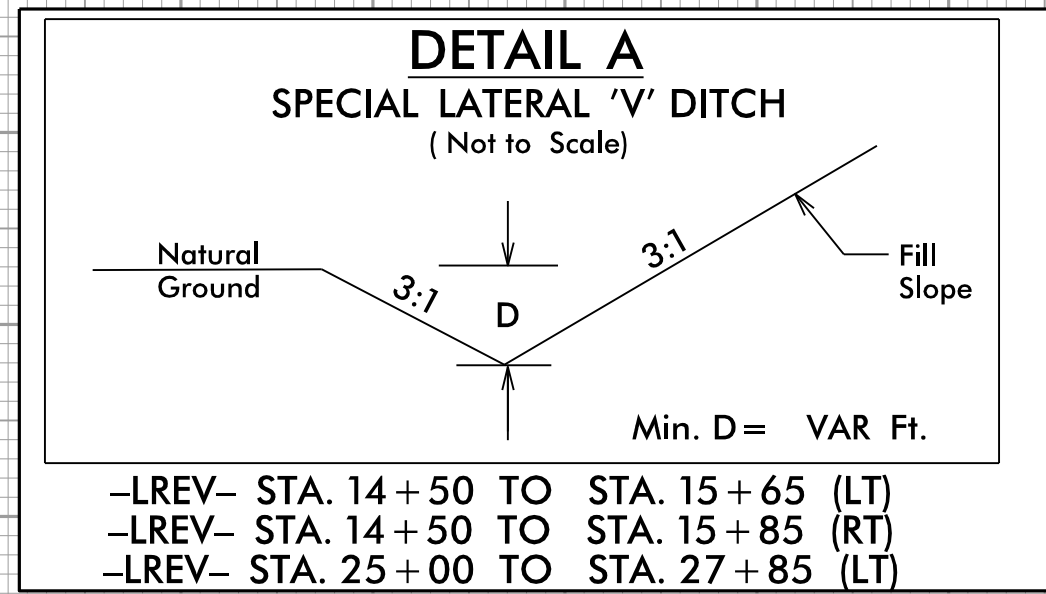
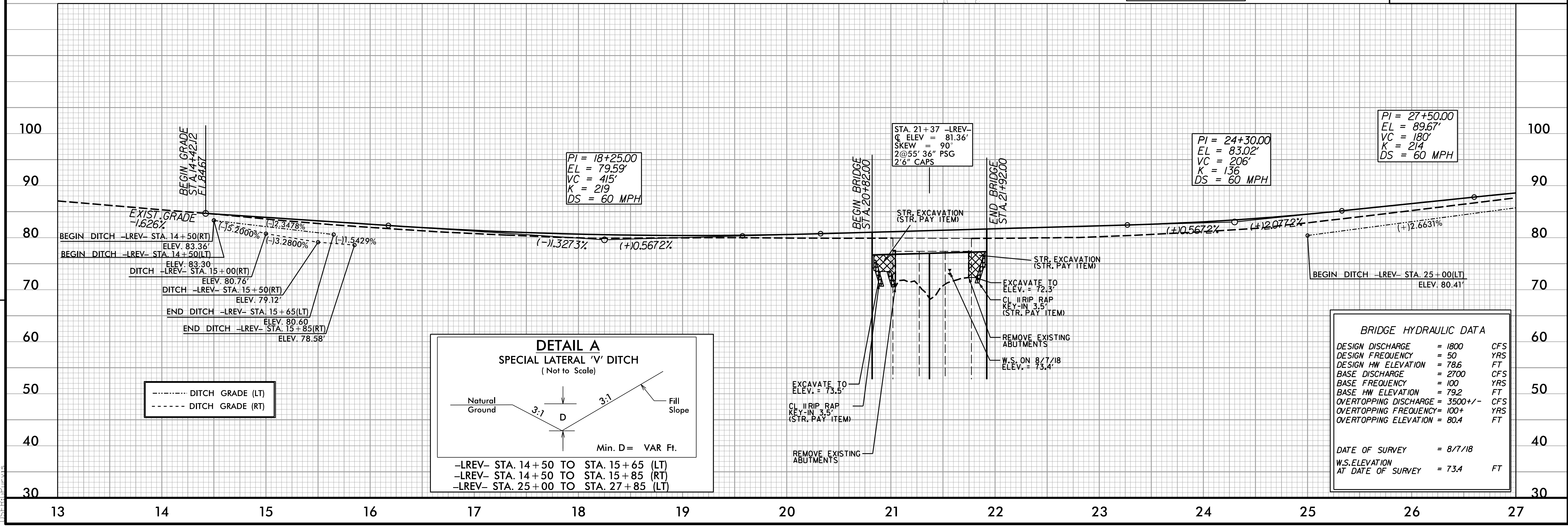


-LREV- PT Sta. 19+82.29

-LREV-
PI Sta 27+30.06
 $\Delta = 3' 29' 12.4" (RT)$
 $D = 1' 08' 45.3"$
 $L = 304.28'$
 $T = 152.19'$
 $R = 5,000.00'$
SE = 03
RO = SEE PLANS
DS = 60 MPH

-LREV- PC Sta. 25+77.88

SEE SHEETS S-1 THRU S-28 FOR STRUCTURE PLANS



--- DITCH GRADE (LT)
- - - DITCH GRADE (RT)

REVISIONS

2/10/2020
11:58:10 AM
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MATCHLINE SHEET 5 -LREV- STA. 27+00.00

8/17/99

ETHERILL ENGINEERING
 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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 Raleigh, N.C. 27606
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 Fax: 919 851 8107

PROJECT REFERENCE NO. BR-0014	SHEET NO. 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER 1/9/2020 SEAL 022999 GREG S. PUNTSIS	HYDRAULICS ENGINEER 1/9/2020 SEAL 044561 HARINDER SINGH

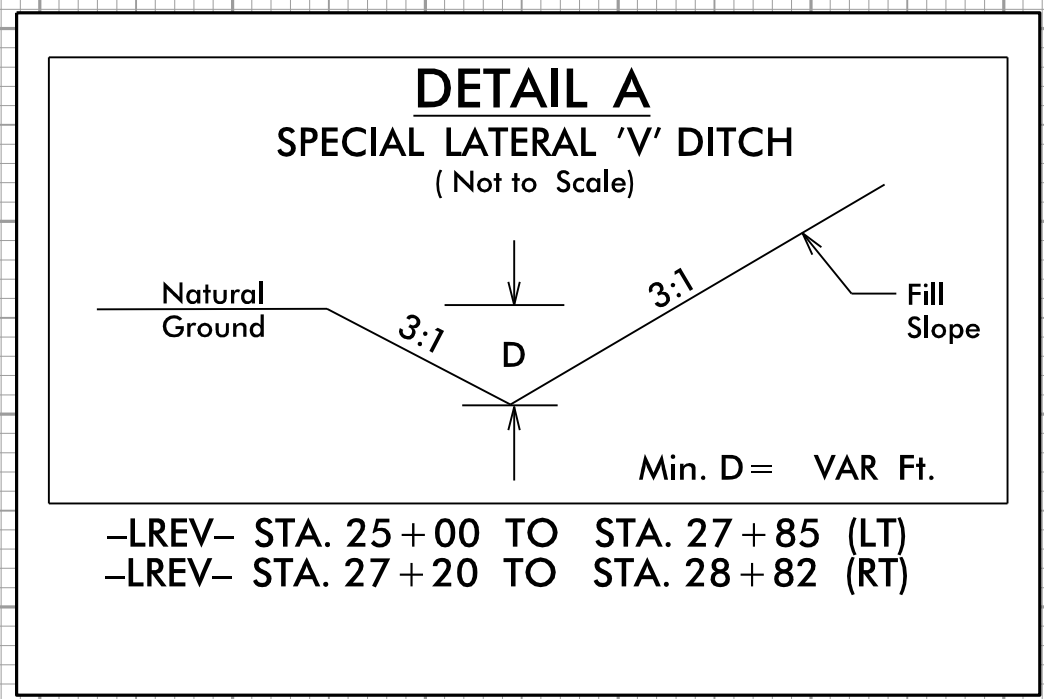
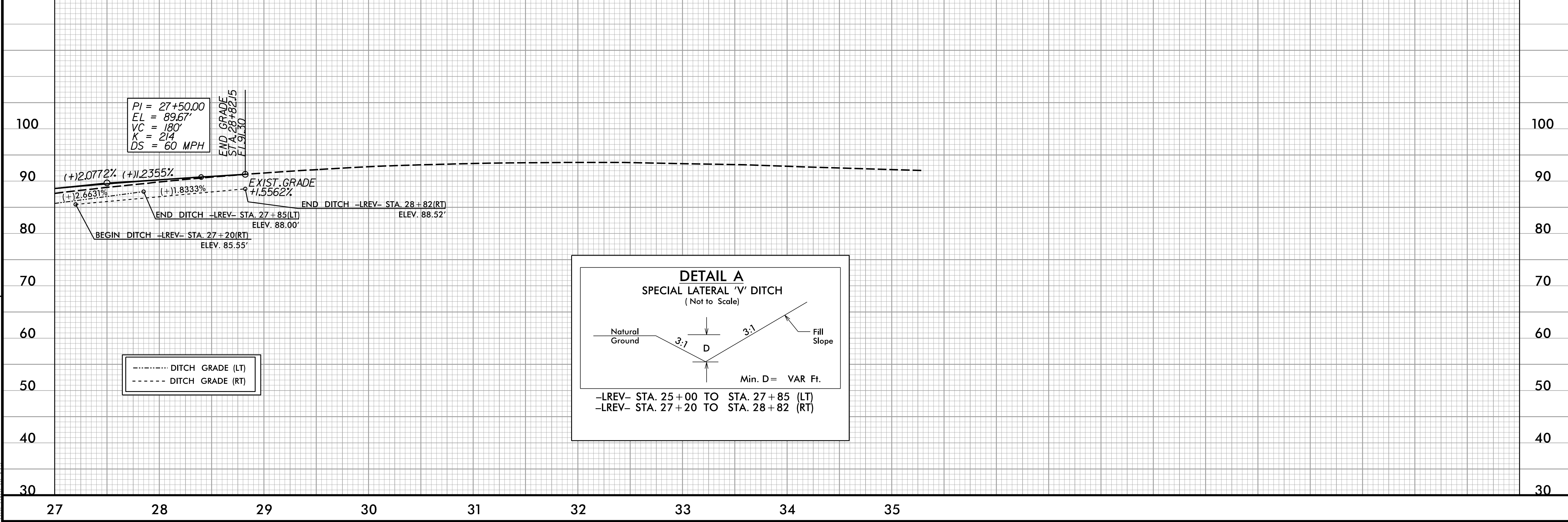
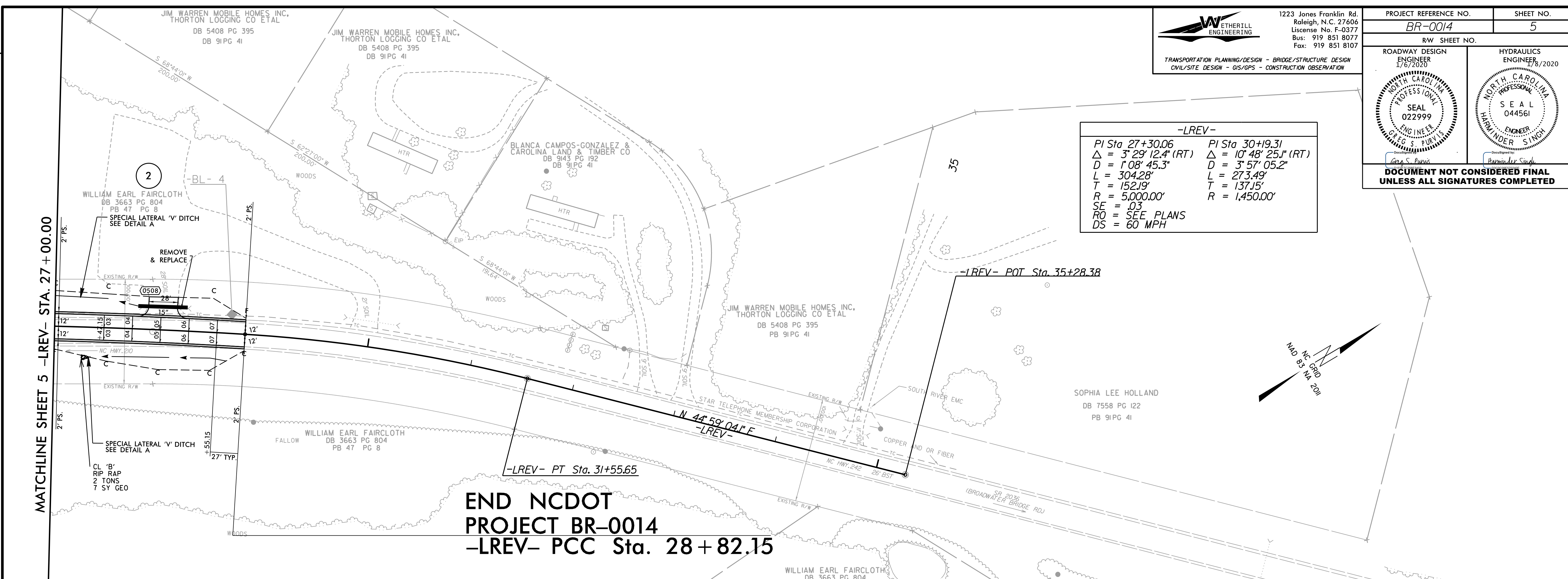
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-LREV-

PI Sta 27+30.06 Δ = 3° 29' 12.4" (RT) D = 1' 08' 45.3" L = 304.28' T = 152.19' R = 5,000.00' SE = 03 RO = SEE PLANS DS = 60 MPH	PI Sta 30+19.31 Δ = 10° 48' 25.1" (RT) D = 3' 57' 05.2" L = 273.49' T = 137.15' R = 1,450.00'
---	--

REVISIONS

MATCHLINE SHEET 5 -LREV- STA. 27 + 00.00



12/19/2019
12:51:00
12:51:00