This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

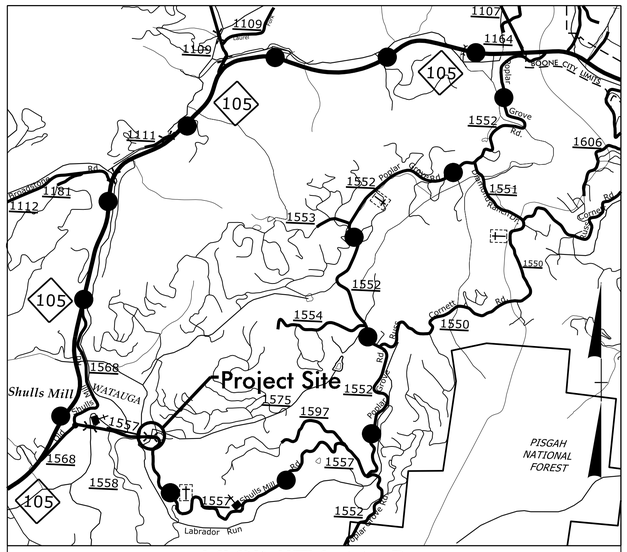
The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

09/08/99

TIP PROJECT: B-5118

CONTRACT: C203768

See Sheet 1-A For Index of Sheets



VICINITY MAP

OFFSITE DETOUR.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

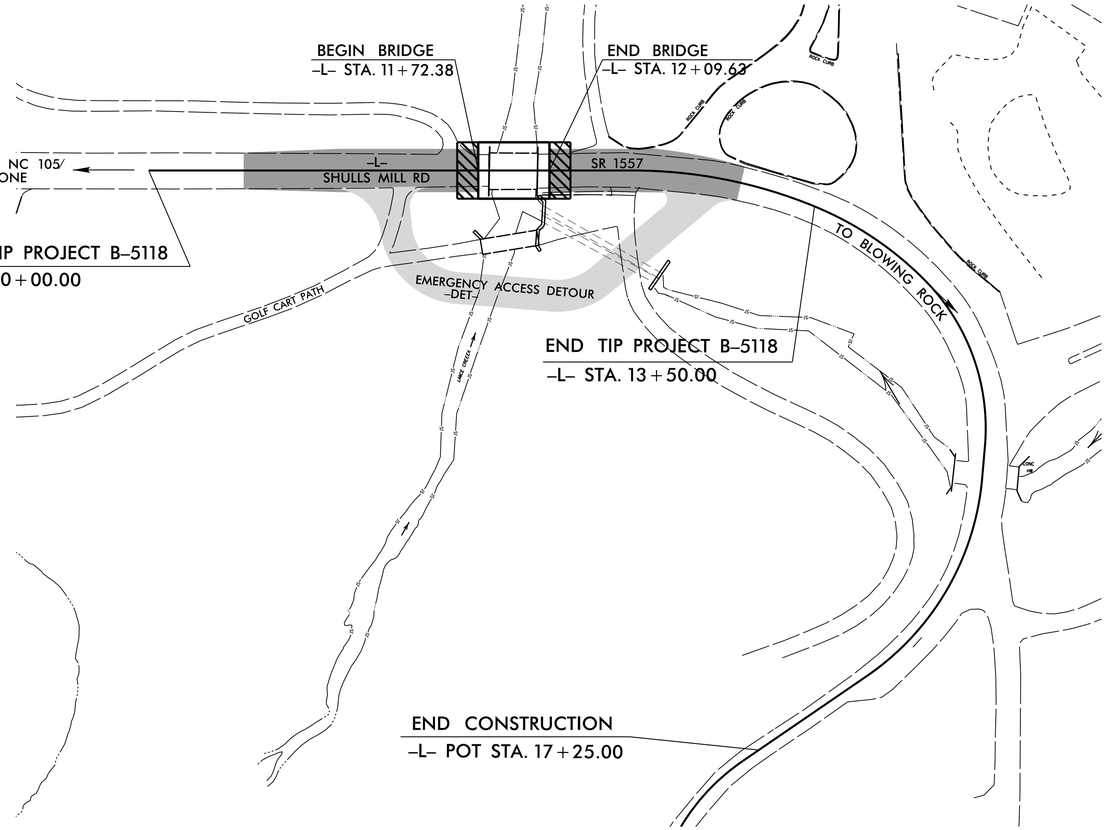
LOCATION: BRIDGE #55 OVER LANCE CREEK ON SR 1557 (SHULLS MILL RD.)

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

NC GRID
NAD 83/CORS96

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5118	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42256.1.1	BRZ-1557(2)	P.E.
42256.2.FD1	BRZ-1557(2)	R/W
42256.2.FDU1	BRZ-1557(2)	UTIL
42256.3.FD1	BRZ-1557(2)	CONST.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS 20 10 0 20 40

PROFILE (HORIZONTAL) 20 10 0 20 40

PROFILE (VERTICAL) 4 2 0 4 8

DESIGN DATA

ADT 2016 = 1769
ADT 2035 = 2500
K = 12 %
D = 55 %
T = 5 % *
V = 40 MPH
* TTST =1% DUAL 4%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT BRZ-1557(2) = 0.059 MI
LENGTH STRUCTURE F.A. PROJECT BRZ-1557(2) = 0.007 MI
TOTAL LENGTH F.A. PROJECT BRZ-1557(2) = 0.066 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 17, 2014

LETTING DATE: JUNE 21, 2016

GREG BREW, PE
PROJECT ENGINEER

BRYAN KEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

DocuSigned by: Brook Anderson CEC3F33C9B9E495...
4/27/2016
SEAL 032581 NORTH CAROLINA PROFESSIONAL ENGINEER BROOK E. ANDERSON P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

DocuSigned by: Bryan C Key 329D39A94F124FC...
4/27/2016
SEAL 026964 NORTH CAROLINA PROFESSIONAL ENGINEER Bryan C. Key P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PROJECT REFERENCE NO.	SHEET NO.
B-5118	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026964 ENGINEER

Bryan C. Key

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

EFF. 01-17-2012
REV. 10-30-2012

2012 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, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
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
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
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
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

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.

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.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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

Blue Ridge EMC, Skyline, Charter, and Carolina Water Services Inc of NC

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.

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5118	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- 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
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- 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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) — W
- U/G Water Line LOS C (S.U.E.*) — W
- U/G Water Line LOS D (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

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

GAS:

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

SANITARY SEWER:

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

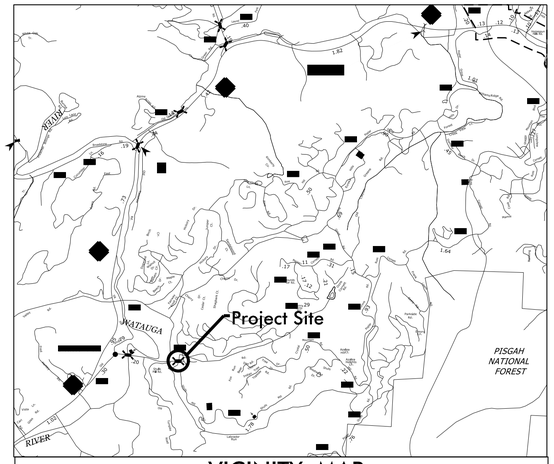
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5118	1C-1
Location and Surveys	

SURVEY CONTROL SHEET B-5118



VICINITY MAP

BL

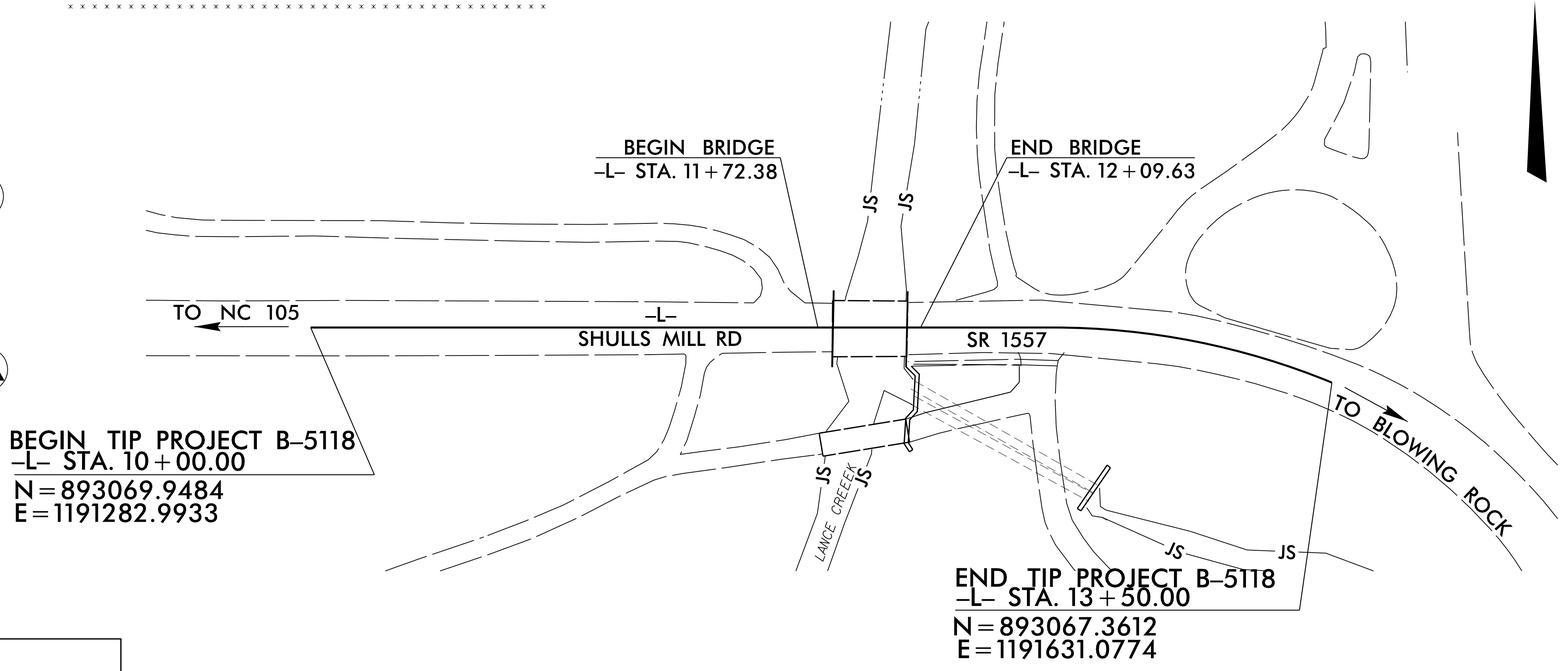
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
B51182	GPS B5118-2	893039.0702	1190921.7815	2906.34	OUTSIDE PROJECT LIMITS	
BL3	BL-3	893092.6960	1191508.3921	2904.04	12+26.20	12.42 LT
BL4	BL-4	892905.6247	1191739.2989	2907.39	OUTSIDE PROJECT LIMITS	

****
BM#1 ELEVATION = 2908.19
N 892924 E 1191745
OUTSIDE PROJECT LIMITS
CHISELED SQUARE IN SE HEADWALL OVER CREEK
****

NC GRID
NAD 83/CORS96

NC DOT GPS STATION B5118-1
LOCALIZED PROJECT COORDINATES
N = 893268.4839
E = 1189945.0029

NC DOT GPS STATION B5118-2
LOCALIZED PROJECT COORDINATES
N = 893039.0702
E = 1190921.7815



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5118-2" WITH NAD 83/CORS96 STATE PLANE GRID COORDINATES OF NORTHING: 893039.0702(ft) EASTING: 1190921.7815(ft) ELEVATION: 2906.34(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867817
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5118-2" TO -L- STATION 10+00.00 IS N 85°06'50" E 362.53
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: B5118_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

05-APR-2016 10:54
R:\Location&Surveys\b5118_ls_1C-1.dgn
$$USERNAME$$

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5118	1C-2
Location and Surveys	

SURVEY CONTROL SHEET B-5118

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+50.00	-20.00	893092.2126	1191332.0270
L	10+50.00	-11.97	893084.1875	1191332.3941
L	10+50.00	20.00	893052.2544	1191333.8551
L	10+50.00	11.82	893060.4243	1191333.4813
L	11+45.00	-20.00	893096.5544	1191426.9277
L	11+45.00	-25.00	893101.5492	1191426.6992
L	11+45.00	20.00	893056.5962	1191428.7558
L	11+45.00	25.00	893051.6014	1191428.9843
L	12+35.00	-25.00	893105.6624	1191516.6052
L	12+35.00	-20.00	893100.6676	1191516.8337
L	12+35.00	20.00	893060.7094	1191518.6618
L	12+35.00	25.00	893055.7146	1191518.8903
L	12+53.24	-20.00	893101.5012	1191535.0536
L	12+53.24	20.00	893061.5430	1191536.8817
L	12+70.00	-20.00	893101.7219	1191553.1508
L	12+70.00	-11.39	893093.1148	1191552.9672
L	13+10.00	13.01	893064.8896	1191590.1308
L	13+10.00	20.00	893058.0125	1191588.8700

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+45.00	35.00	893041.6118	1191429.4413
L	11+70.00	-25.00	893102.6917	1191451.6731
L	11+70.00	-40.00	893117.6760	1191450.9875
L	11+71.00	35.00	893042.8001	1191455.4142
L	11+71.00	25.00	893052.7897	1191454.9571
L	12+00.00	35.00	893044.1255	1191484.3839
L	12+00.00	25.00	893054.1150	1191483.9268
L	12+10.00	-25.00	893104.5198	1191491.6313
L	12+10.00	-40.00	893119.5041	1191490.9457
L	12+15.00	25.00	893054.8006	1191498.9112
L	12+15.00	35.00	893044.8110	1191499.3682
L	12+49.00	20.00	893061.3492	1191532.6471
L	12+49.00	28.00	893053.3576	1191533.0128
L	12+50.00	-25.00	893106.3479	1191531.5895
L	12+50.00	-33.00	893114.3395	1191531.2239
L	12+53.24	-33.00	893114.4876	1191534.4595
L	12+53.24	28.00	893053.5513	1191537.2473
L	12+70.00	-33.00	893114.7189	1191553.4280
L	12+71.00	28.00	893053.7121	1191553.0150
L	12+71.00	20.00	893061.7095	1191553.2175
L	13+36.00	20.00	893052.4844	1191612.1314
L	13+36.00	12.81	893059.3805	1191614.1542

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	893069.9484	1191282.9933
PC	12+53.24	893081.5221	1191535.9677
PCC	13+50.76	893067.1072	1191631.7891
PCC	14+20.45	893031.3076	1191691.0454
PT	15+16.10	892945.7203	1191726.5704
PC	15+32.90	892928.9347	1191725.8759
PT	16+56.58	892822.9335	1191670.2765
PC	17+35.24	892775.5797	1191607.4673
PT	18+30.09	892694.6171	1191563.9029

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5118-2" WITH NAD 83/CORS96 STATE PLANE GRID COORDINATES OF NORTHING: 893039.0702(ft) EASTING: 1190921.7815(ft) ELEVATION: 2906.34(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867817
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5118-2" TO -L- STATION 10+00.00 IS N 85°06'50" E 362.53
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5118_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

FINAL TABLES
NOTE: DRAWING NOT TO SCALE

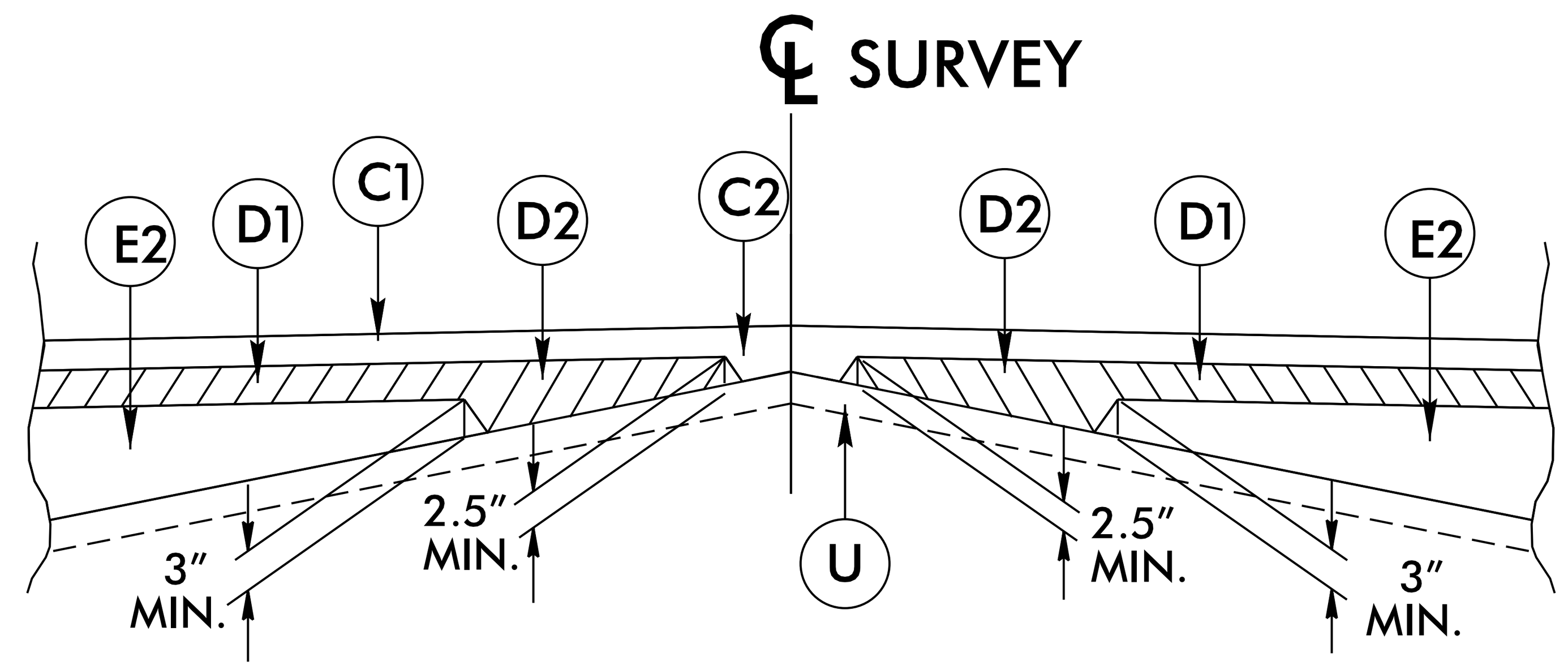
13-APR-2016 10:36
R:\Locs&Hor\Surveys\b5118_ls_1C-2.dgn
$$USERNAME$$

PROJECT REFERENCE NO.	SHEET NO.
B-5118	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
SEAL 026964 Bryan C. Key 4/14/2016	SEAL 022896 Clark Morrison 4/11/2016

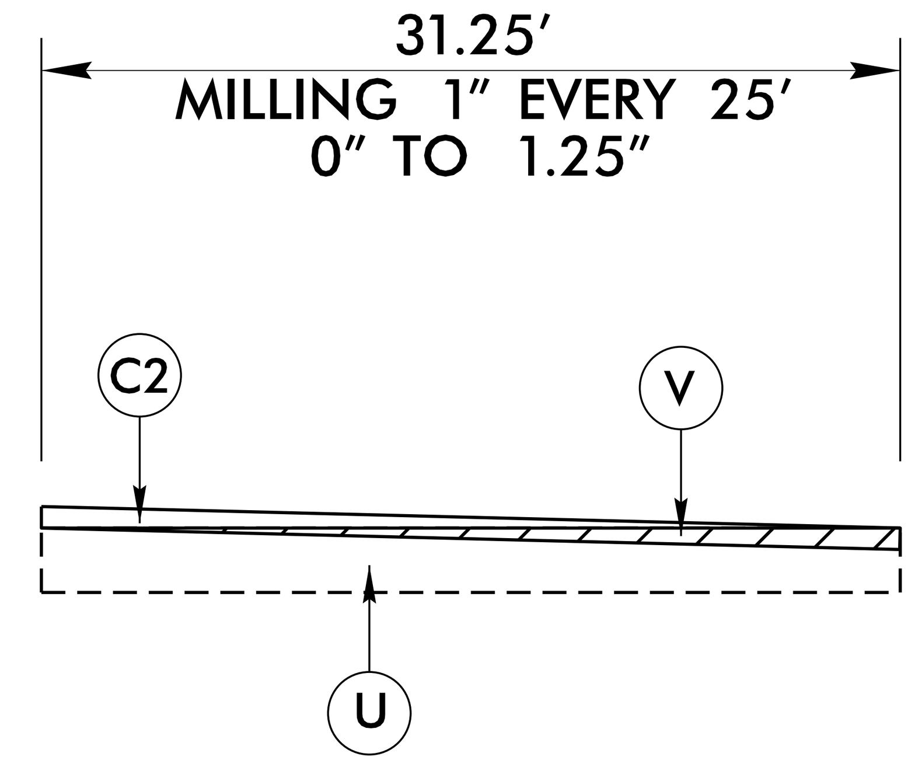
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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 5½" IN DEPTH.
J	PROP. MIN. 6" AGGREGATE BASE COURSE.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT VARIABLE DEPTH (SEE INCIDENTAL MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).
Y	GEOTEXTILE FOR SOIL STABILIZATION, TYPE 4

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

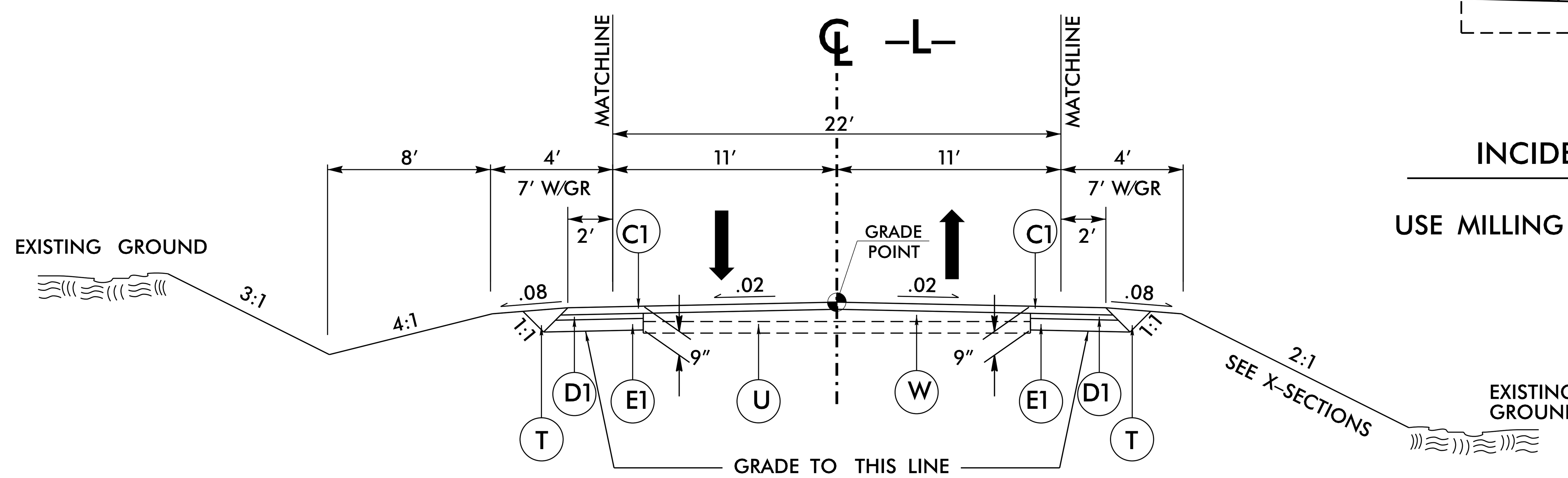


Detail Showing Method of Wedging



INCIDENTAL MILLING DETAIL

USE MILLING DETAIL AT RESURFACING TIES

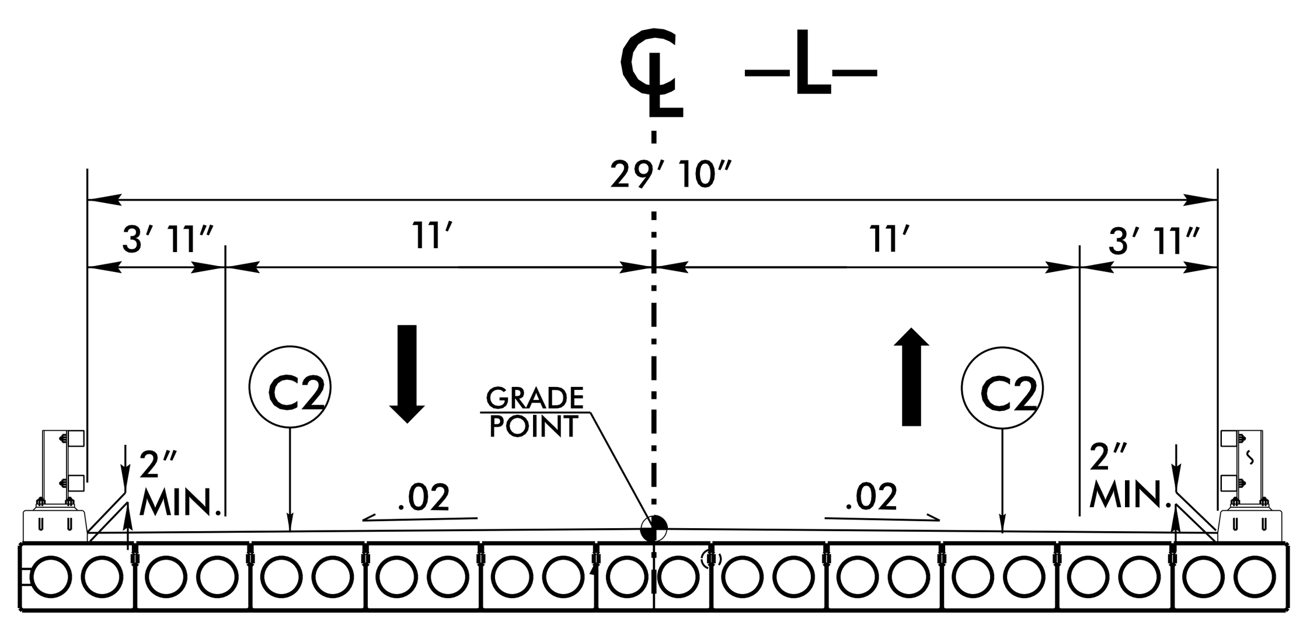


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

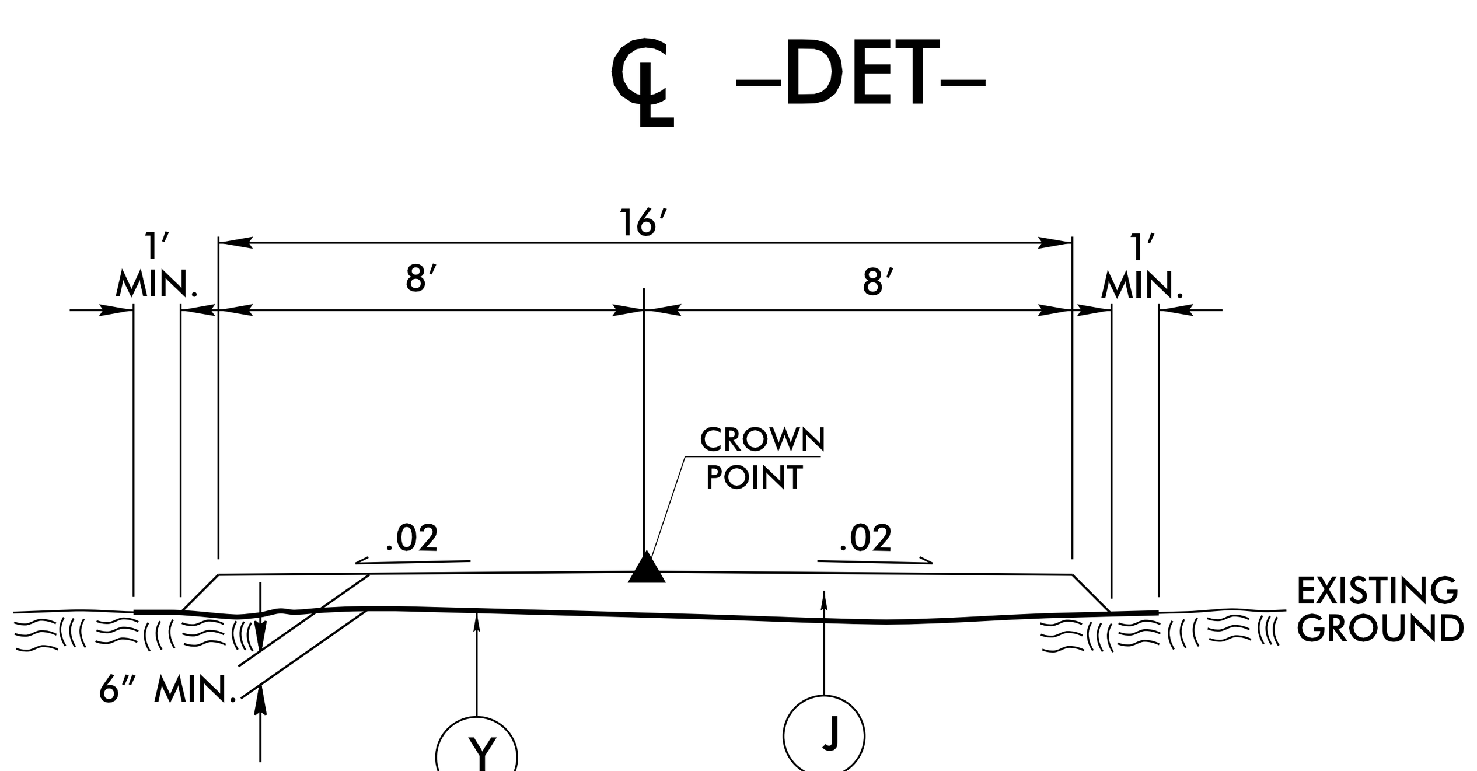
-L- STA. 10+50.00 TO 11+72.38 (BEGIN BRIDGE)
-L- STA. 12+09.63 (END BRIDGE) TO 12+55.13

USE DETAIL 1 FOR ALL SBG LOCATIONS (MIRROR FOR LEFT SIDE)



TYPICAL SECTION ON STRUCTURE

-L- STA. 11+72.38 TO 12+09.63

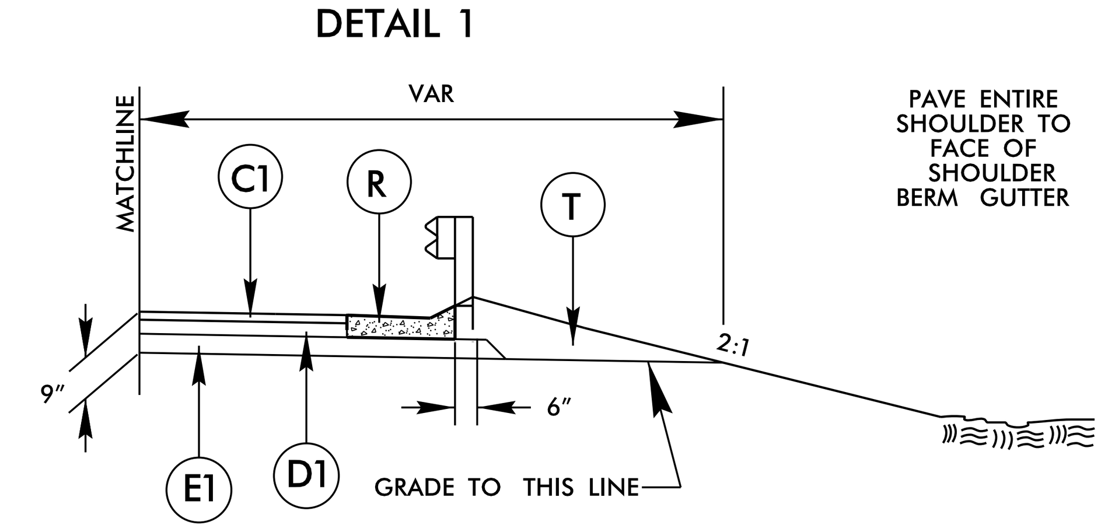


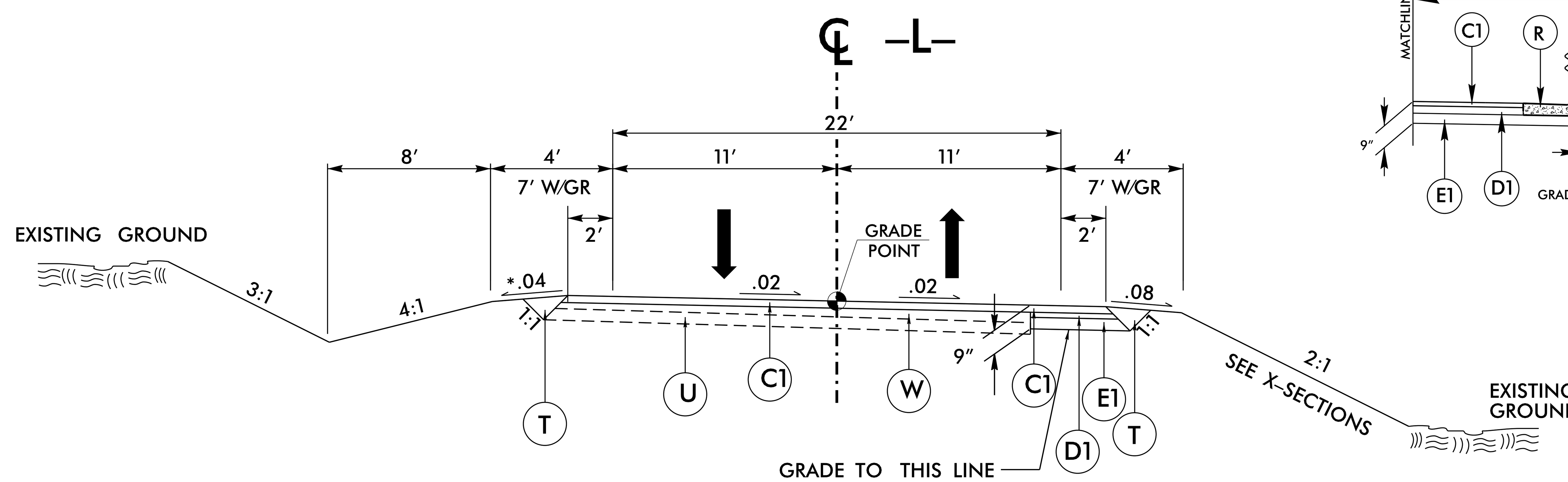
TYPICAL SECTION ON DETOUR

-DET- STA. 10+09.09 TO 12+25.88

(ACCESS FOR EMERGENCY VEHICLES ONLY)

DETAIL 1





TYPICAL SECTION NO. 2

* VAR TO STD. 560.01

USE TYPICAL SECTION NO. 2

-L- STA. 12+55.13 TO 13+10.00

07-APR-2016 11:18
R:\Roadway\Proj\b5118_rdy_typ.dgn
$$$$USERNAME$$$$

6/2/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5118	2C-1

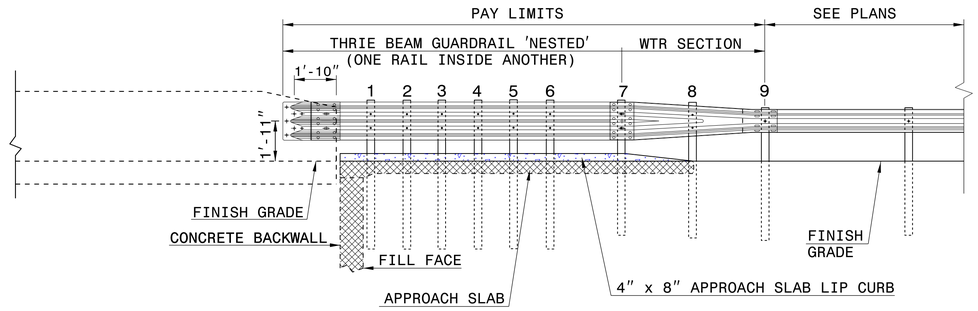
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

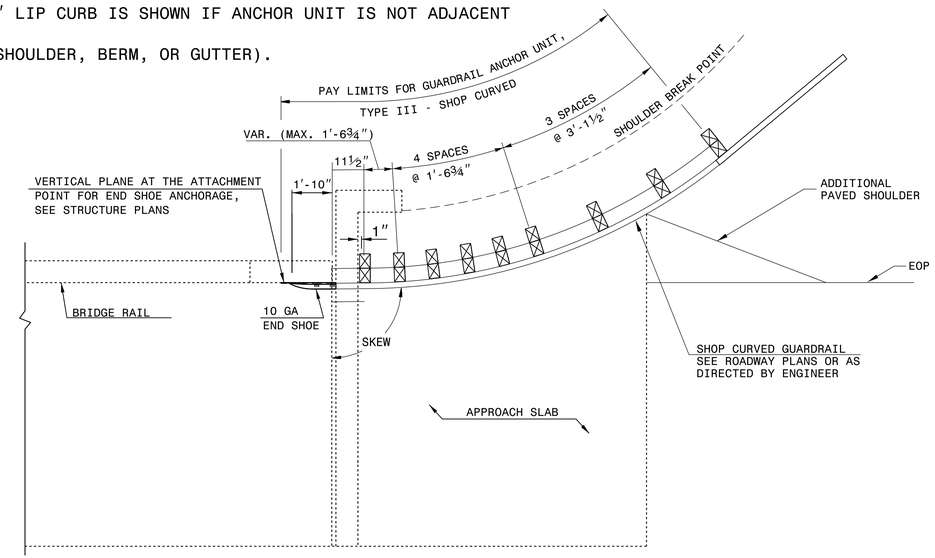
TYPE III SC



ELEVATION

SEE ROADWAY PLANS FOR END TREATMENT

NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- -USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
- -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- -SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED FOR ATTACHMENT TO RAIL ON BRIDGE

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

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC

$$$$SYSTIME$$$$
$$$$SYSNAME$$$$
$$$$USERNAME$$$$

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F... 4/12/2016

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward DATE: 4-4-02
MODIFIED BY: T.S.Spell DATE: 5-29-09
CHECKED BY: DATE:
FILE SPEC.: ward:\usr\details\stand\862stds\typeiiisc.dgn

12/06/07

COMPUTED BY: JRH DATE: 2-24-16
CHECKED BY: DK DATE: 2-24-16

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5118	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
–L– 10+50	11+72.38	10	67	57	
	BEGIN BRIDGE				
–L– 12+09.63	13+10	18	37	19	
END BRIDGE					
TOTAL		28	104	76	
PROJECT TOTALS:		28	104	76	
EST 5% TO REPL TOPSOIL ON BORR. PIT				4	
GRAND TOTALS:		28	104	80	
SAY:		30		90	

UNDERCUT = 100 CUBIC YARDS

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

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–L–	11+62	11+78	CL	30.72
–L–	12+03	12+21	CL	33.70
			TOTAL:	64.42
			SAY:	70

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

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF
–L–	11+47	11+61.51	RT	14.5
–L–	11+47	11+61.51	LT	14.5
			TOTAL:	29.00
			SAY:	30'

"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

IN FEET (UNLESS OTHERWISE NOTED)

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS (EACH)								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	AT–1	SHOP CRV TYPE III	GRAU 350	M–350	XI	CAT–1	VI MOD	BIC	XI MOD	EA	G	NG				
–L–	11+51.14	11+72.38	LT		25			BRIDGE	3' 11"	4		25		6	1	1												ANCHOR CURVED R=40' (POWDERCOAT BROWN TO MATCH BRIDGE RAIL)
–L–	11+51.14	11+72.38	RT		25		BRIDGE		3' 11"	4	25		6		1	1												ANCHOR CURVED R=40' (POWDERCOAT BROWN TO MATCH BRIDGE RAIL)
–L–	12+09.63	12+30.87	LT		25		BRIDGE		3' 11"	4	25		6		1	1												ANCHOR CURVED R=40' (POWDERCOAT BROWN TO MATCH BRIDGE RAIL)
–L–	12+09.63	12+30.87	RT		25			BRIDGE	3' 11"	4		25		6	1	1												ANCHOR CURVED R=40' (POWDERCOAT BROWN TO MATCH BRIDGE RAIL)
SUBTOTALS					100										4	4												
LESS ANCHOR DEDUCTIONS																												
AT–1 4@6.25'					–25																							
SAU TYPE III 4@18.75'					–75																							
GRAND TOTALS					0																							
															4	4												
SAY					0																							
															4	4												

5 ADDITIONAL POSTS

COMPUTED BY: ____SEC____ DATE: __2/4/14____
CHECKED BY: _____TMW________ DATE: __2/7/14__

PROJECT NO.	SHEET NO.
B-5118	3D-1

RD261649

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
11+55	LT	0401		2903.91															
11+55	CL	0401	0402	2901.99	2901.91														
11+55	RT	0402		2903.91															
11+55	RT	0402	0403	2901.91	2901.75														
12+60	RT	0404		2902.82															
12+60	CL	0404	0405	2900.9	2899.47														
12+60	LT	0405		2904.1															
12+60	LT	0405	0406	2899.47	2899.1														
-DET- 10+51	RT	0510	0511	2902.1	2901				44										
SHEET TOTALS									44										

STATION	FROM	TO	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS V 12"	15"	18"	24"	30"	36"	42"	48"
11+55	0401																									
11+55	0401	0402																		28						
11+55	0402																									
11+55	0402	0403										12														
12+60	0404																									
12+60	0404	0405																		44						
12+60	0405																									
12+60	0405	0406																		56						
-DET- 10+51	0510	0511																								
SHEET TOTALS												12								128						

STATION	FROM	TO	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
11+55	0401									1								
11+55	0401	0402																
11+55	0402									1								
11+55	0402	0403																
12+60	0404									1								
12+60	0404	0405																
12+60	0405									1								
12+60	0405	0406																
-DET- 10+51	0510	0511																
SHEET TOTALS										4								

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH TWO NARROW SLOT FLAT GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE FRAME AND COVER 840.54	T.B.D.I. STD. 840.35	(blank)	(blank)	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
11+55	0401							1						1							
11+55	0401	0402																			
11+55	0402							1						1							
11+55	0402	0403																			
12+60	0404						1		1												
12+60	0404	0405																			
12+60	0405											1	1								
12+60	0405	0406																			
-DET- 10+51	0510	0511																		44	Remove 15" drainage pipe after detour is removed
SHEET TOTALS							1	2	1			1	1	2						44	

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.)	(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: DMM_____ DATE:10.10.2013__
CHECKED BY: SCC_____ DATE: 10.10.2013_____

PROJECT NO.	SHEET NO.
B-5118	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

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
CONTINGENCY			ASU		100	100	500		
			TOTAL CY/TONS/SY:		100	100	500	0	0

*ASU = Aggregate Subgrade
*AST = Aggregate Stabilization
**Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

PROJECT REFERENCE NO.	SHEET NO.
B-5118	4

R/W SHEET NO.

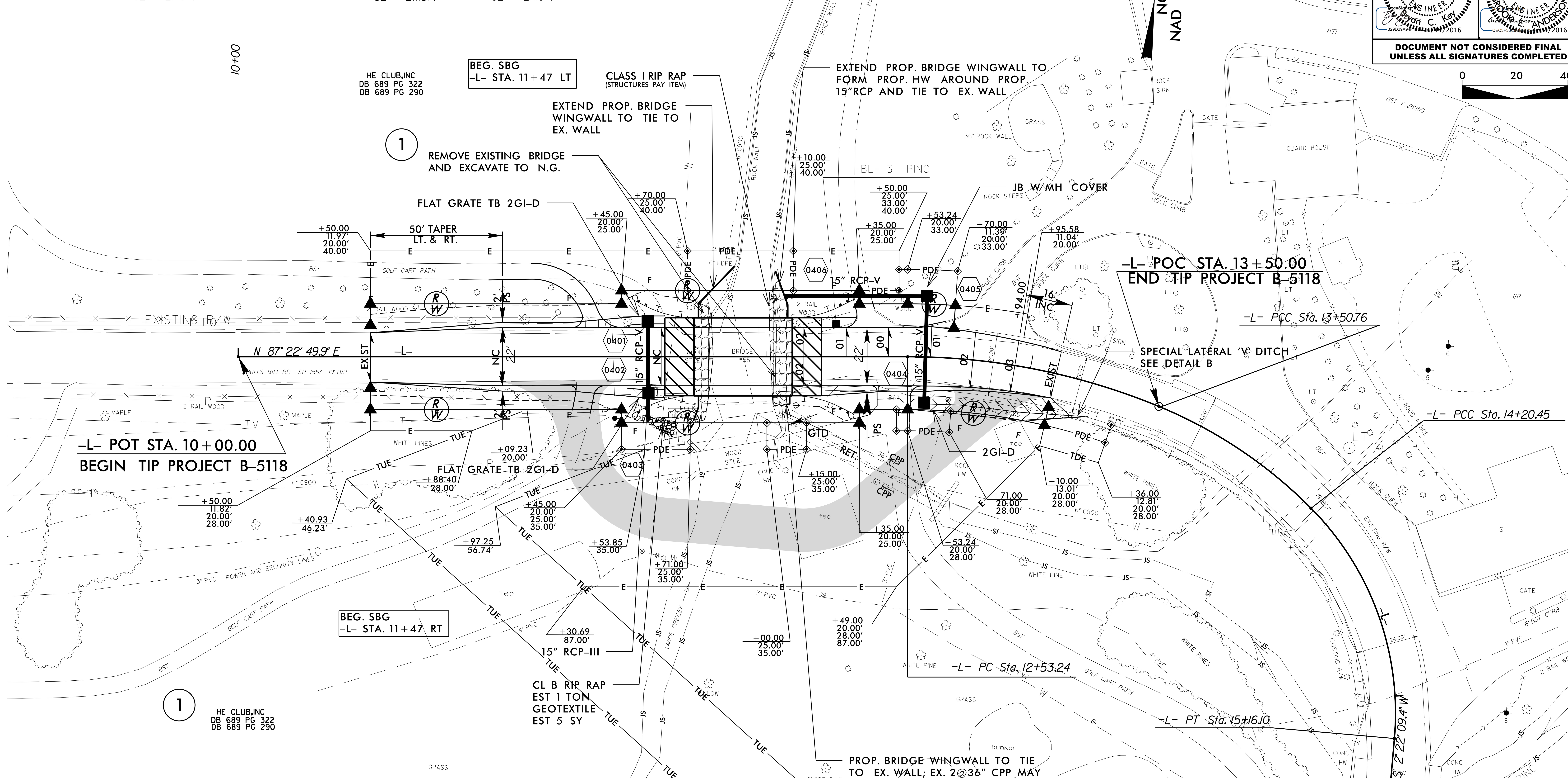
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026964 — Bryan C. Key — 2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032581 — Brooke E. Anderson — 2016

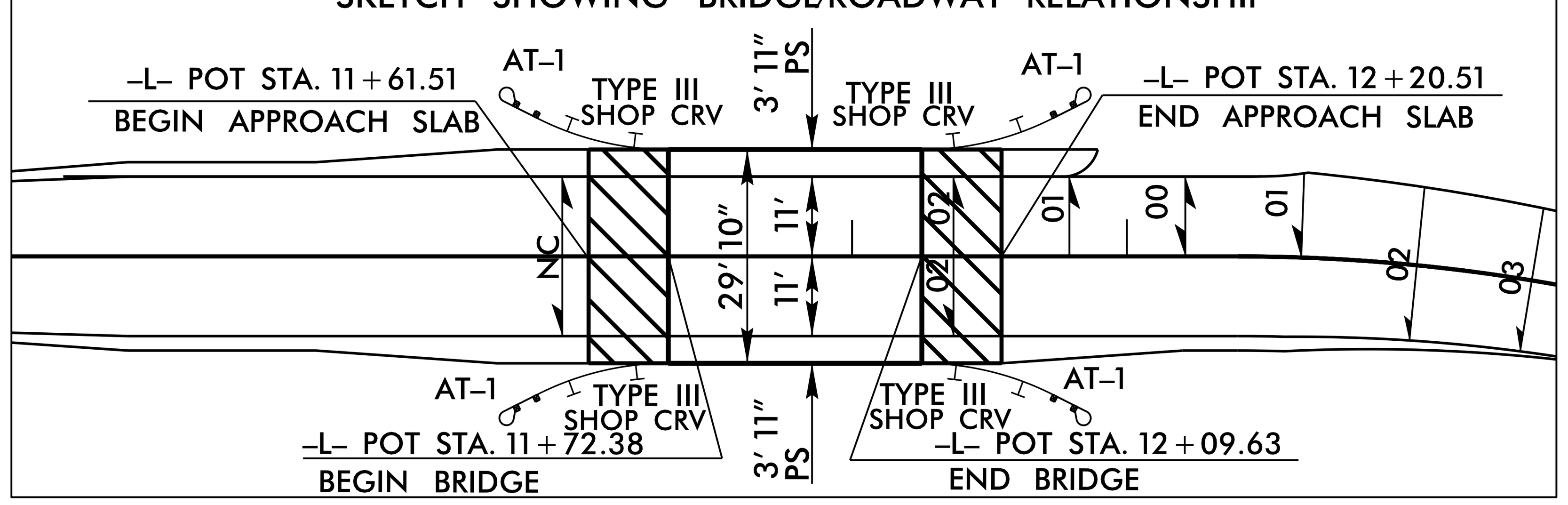
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

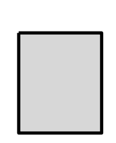
-L-

PI Sta 13+02.63	PI Sta 13+86.07	PI Sta 14+71.53	PI Sta 15+99.10	PI Sta 17+85.84
Δ = 22° 20' 57.0" (RT)	Δ = 22° 49' 01.2" (RT)	Δ = 49° 49' 21.3" (RT)	Δ = 50° 37' 01.0" (RT)	Δ = 49° 24' 17.1" (LT)
D = 22° 55' 05.9"	D = 32° 44' 25.6"	D = 52° 05' 13.5"	D = 40° 55' 32.0"	D = 52° 05' 13.5"
L = 97.52'	L = 69.69'	L = 95.65'	L = 123.68'	L = 94.85'
T = 49.39'	T = 35.31'	T = 51.09'	T = 66.20'	T = 50.60'
R = 250.00'	R = 175.00'	R = 110.00'	R = 140.00'	R = 110.00'
SE = SEE PLANS	SE = EXIST.	SE = EXIST.	SE = EXIST.	SE = EXIST.



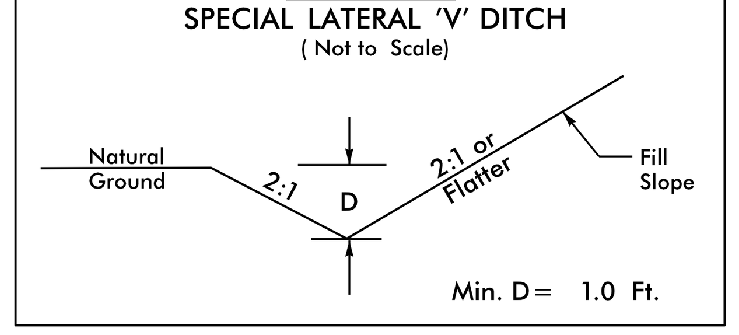
SKETCH SHOWING BRIDGE/ROADWAY RELATIONSHIP





PROPOSED DETOUR (-DET-) ACCESS FOR EMERGENCY VEHICLES ONLY.

DETAIL B



-L- STA. 12+60 TO STA. 13+25 RT

NOTE: SEE SHEET 4A FOR COMPLETE VIEW OF PROPOSED TEMPORARY UTILITY EASEMENT LIMITS.

SEE SHEET 2C-1 FOR TYPE III SHOP CURVE ANCHOR UNITS
SEE SHEET 5 FOR -DET- PLAN VIEW
SEE SHEET 6 FOR -L PROFILE
SEE SHEET S-1 THRU S-20 FOR STRUCTURE PLANS

REVISIONS

NOTE: ALL LINES DEPICTED AS LEVEL 'B' TELEPHONE CONDUIT ARE 3" PVC PRIVATE CONDUIT OWNED BY HOUNDS EAR. CONDUIT CONTAINS POWER, FIBER OPTIC AND/OR CAT-5 CABLE FOR SECURITY ACCESS AND CAMERAS.

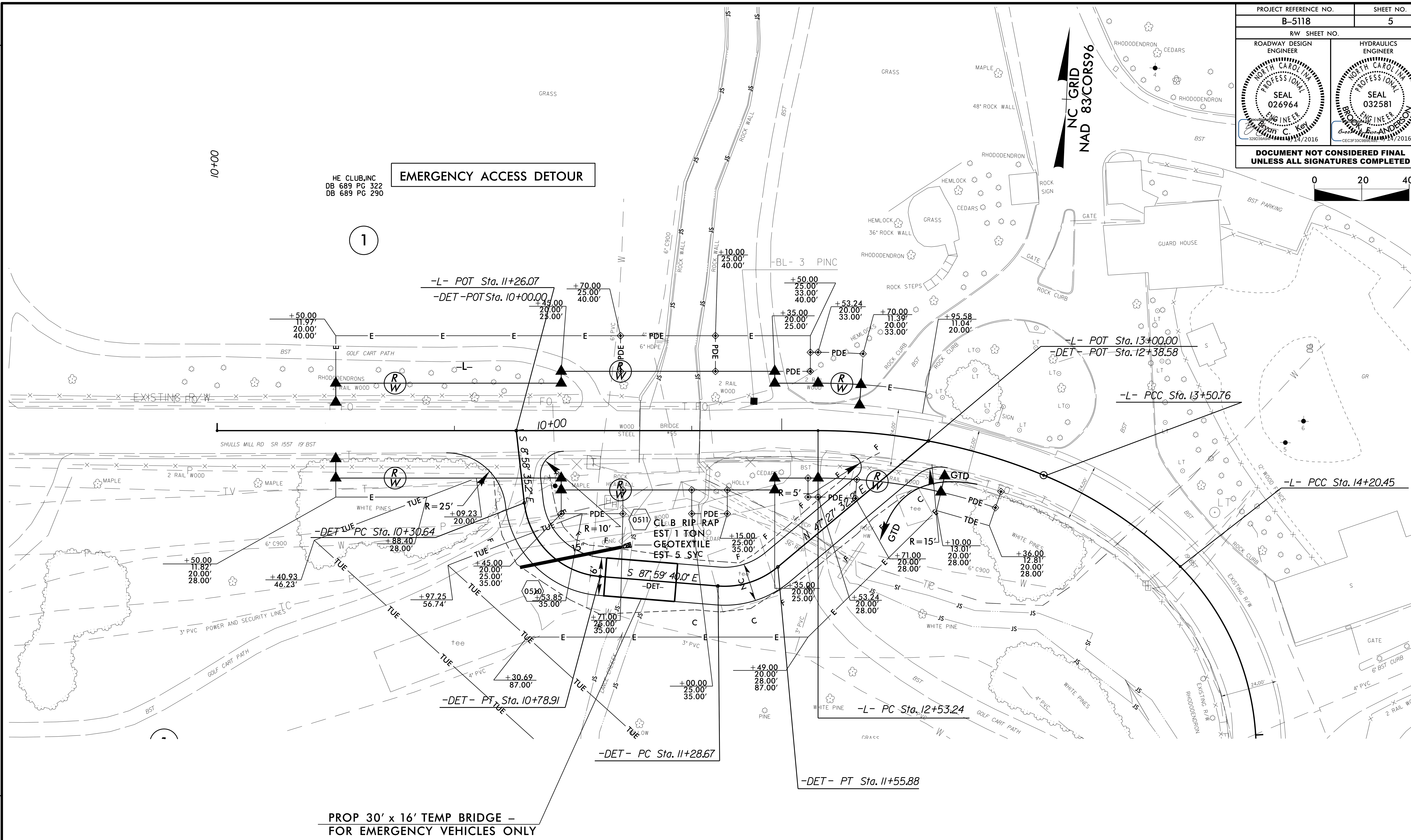
-L-

PI Sta 13+02.63	PI Sta 13+86.07	PI Sta 14+71.53	PI Sta 15+99.10	PI Sta 17+85.84
Δ = 22° 20' 57.0" (RT)	Δ = 22° 49' 01.2" (RT)	Δ = 49° 49' 21.3" (RT)	Δ = 50° 37' 01.0" (RT)	Δ = 49° 24' 17.1" (LT)
D = 22° 55' 05.9"	D = 32° 44' 25.6"	D = 52° 05' 13.5"	D = 40° 55' 32.0"	D = 52° 05' 13.5"
L = 97.52'	L = 69.69'	L = 95.65'	L = 123.68'	L = 94.85'
T = 49.39'	T = 35.31'	T = 51.09'	T = 66.20'	T = 50.60'
R = 250.00'	R = 175.00'	R = 110.00'	R = 140.00'	R = 110.00'
SE = SEE PLANS	SE = EXIST.	SE = EXIST.	SE = EXIST.	SE = EXIST.

PROJECT REFERENCE NO.	SHEET NO.
B-5118	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 026964 ENGINEER Bryan C. Key 4/14/2016	NORTH CAROLINA PROFESSIONAL SEAL 032581 ENGINEER Brooke E. Anderson 4/14/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-DET-

PI Sta 10+59.50	PI Sta 11+43.01
Δ = 79° 01' 04.8" (LT)	Δ = 44° 32' 47.8" (LT)
D = 163° 42' 08.0"	D = 163° 42' 08.0"
L = 48.27'	L = 27.21'
T = 28.86'	T = 14.34'
R = 35.00'	R = 35.00'
SE = NC	SE = NC

SEE SHEET 4 FOR -L- PLAIN VIEW
SEE SHEET 6 FOR -DET- PROFILE

REVISIONS

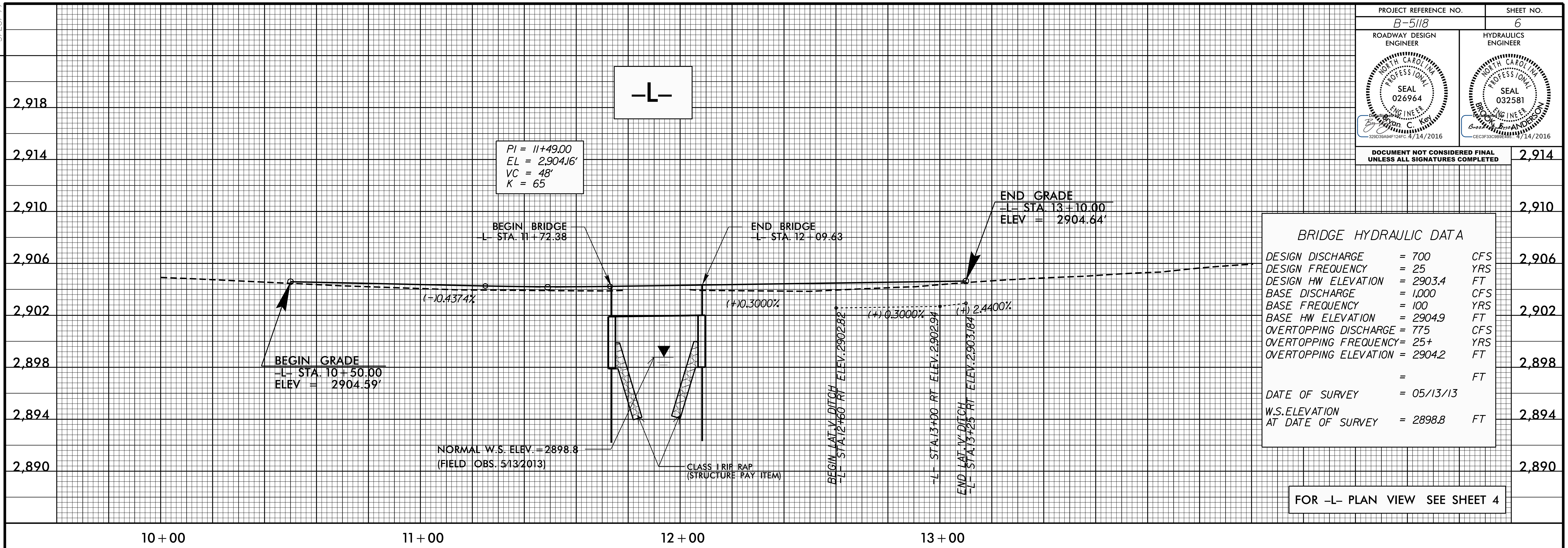
5/14/99

05-APR-2016 10:54 ...b5118_rdy_psh5.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5118	6

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026964 Bryan C. Key — DocuSigned by: 329D39A94F124FC... 4/14/2016	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032581 BROOK E. ANDERSON — DocuSigned by: CEC3F33C9B9E495... 4/14/2016

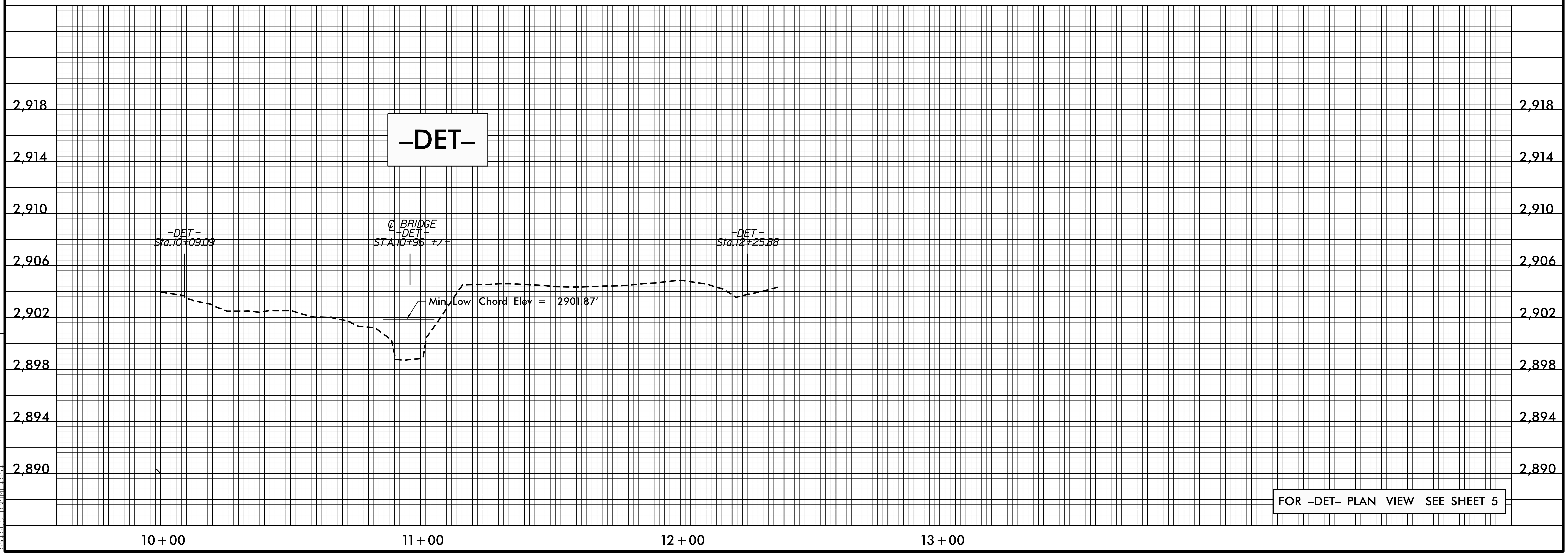
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	700	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	2903.4	FT
BASE DISCHARGE	=	1,000	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2904.9	FT
OVERTOPPING DISCHARGE	=	775	CFS
OVERTOPPING FREQUENCY	=	25+	YRS
OVERTOPPING ELEVATION	=	2904.2	FT
	=		FT
DATE OF SURVEY	=	05/13/13	
W.S.ELEVATION AT DATE OF SURVEY	=	2898.8	FT

FOR -L- PLAN VIEW SEE SHEET 4



FOR -DET- PLAN VIEW SEE SHEET 5

REVISIONS