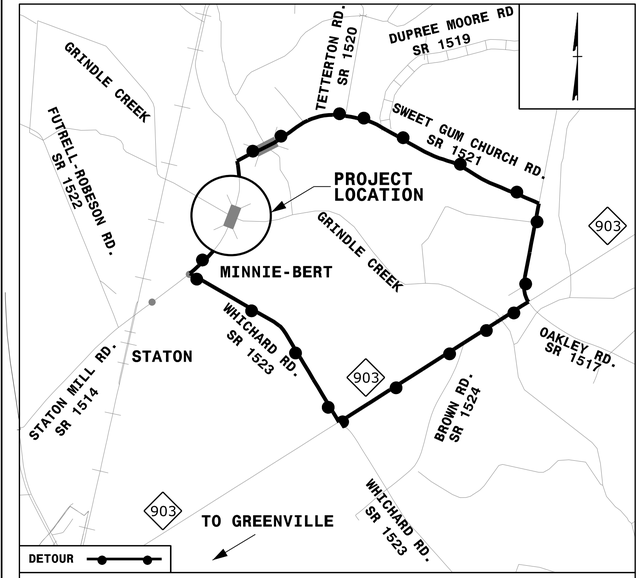
09/08/99

TIP PROJECT: BR-0119

CONTRACT: C204521

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

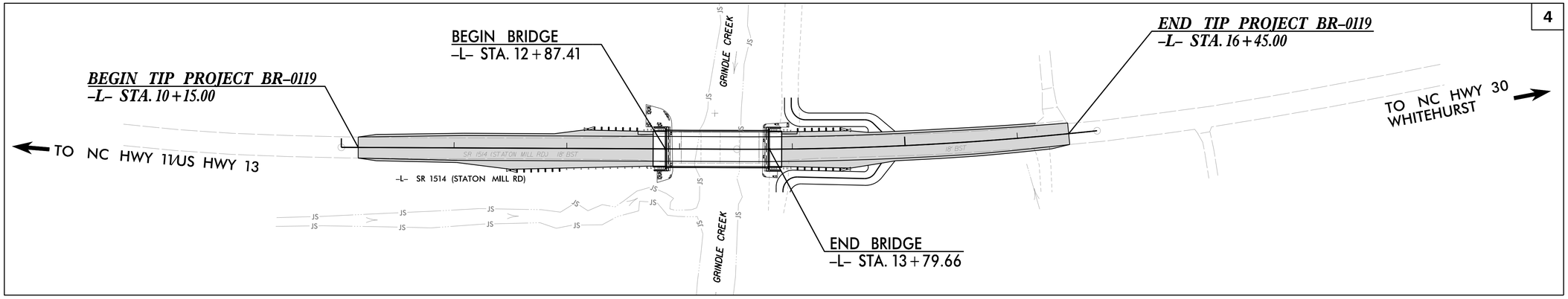
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0119	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48828.1.1	N/A	PE
48828.2.1	N/A	R/W, UTILITIES
48828.3.1	2020001	CONSTRUCTION

LOCATION: BRIDGE 730109 ON SR 1514 (STATON MILL RD) OVER GRINDLE CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NC GRID NAD 83 NA 2011



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2020 = 830
T = 6 % *
V = 55 MPH
* TTST = 3% DUAL 3%
FUNC CLASS =
MINOR COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0119	=	0.102 MILES
LENGTH STRUCTURES TIP PROJECT BR-0119	=	0.017 MILES
TOTAL LENGTH TIP PROJECT BR-0119	=	0.119 MILES

NCDOT CONTACT: DAVID STUTTS, PE
SMU PROJECT MANAGER

Prepared in the Office of:
KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 12, 2019

LETTING DATE: MARCH 16, 2021

JOHN P. MAZERES, PE
PROJECT ENGINEER

ALLEN J. MCSWAIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
2/4/2021
DocuSigned by: Samuel L Cullum
SIGNATURE:
SEAL 043571 ENGINEER SAMUEL L CULLUM P.E.

ROADWAY DESIGN ENGINEER
2/4/2021
DocuSigned by: John Mazeres
SIGNATURE:
SEAL 043935 ENGINEER JOHN P MAZERES P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

04-FEB-2021 10:36
BR-0119_Rdy_tsh.dgn
jdebore

8/17/99

PREPARED IN THE OFFICE OF:	KCA KISINGER CAMPO & ASSOCIATES	NC FIRM LICENSE No: C-1506 301 Fayetteville St., Suite 1500 Raleigh, NC 27601 (919)882-7839

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	1A

ROADWAY DESIGN ENGINEER

2/4/2021

NORTH CAROLINA PROFESSIONAL SEAL 043935 ENGINEER JOHN P MAYERS

DocuSigned by: John Mayers C86F7C5ED6794AE...

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND ROADWAY TYPICAL SECTIONS
2A-2	PAVEMENT SCHEDULE AND STRUCTURE TYPICAL SECTIONS
2C-1 THRU 2C-2	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN AND PROFILE SHEET
4A	RIGHT OF WAY MARKER DETAIL SHEET
RW01 THRU RW04	RIGHT OF WAY TITLE, SURVEY CONTROL, PROPOSED ALIGNMENT, AND RIGHT OF WAY CONTROL SHEETS
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
UC-1 THRU UC-4	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-5	CROSS-SECTIONS
S-1 THRU S-15	STRUCTURE PLANS

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

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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. DURING CLEARING AND GRUBBING CONTRACTOR SHALL NOT ALLOW MECHANIZED VEHICLES TO ENTER ANY JURISDICTIONAL STREAM OR OTHER FEATURE.

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 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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVEWAYS WILL BE AS SHOWNS IN THE PLANS OR AS 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.

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:
CENTURY LINK
GREENVILLE UTILITIES

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

CLEARING FOR THE POWER LINE RELOCATION WILL BE NEEDED PRIOR TO RELOCATION BEGINNING. DURING POWERLINE RELOCATION, THE CONTRACTOR MAY PERFORM UTILITY CONSTRUCTION WORK FOR THE WATERLINE RELOCATION. SEE UBO SPECIAL PROVISIONS FOR TIMING AND COORDINATION REQUIREMENTS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS AND PERMANENT EASEMENT MARKERS ARE TO BE PLACED BY L&S. THE CONTRACT SURVEYOR WILL BE RESPONSIBLE FOR RESETTING ANY POINTS DISTURBED BY CONSTRUCTION.

01-16-2018

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	
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	
422.02	BRIDGE APPROACH FILLS - TYPE II MODIFIED APPROACH FILL
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I
DIVISION 8 - INCIDENTALS	
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.25	ANCHORAGE FOR FRAMES
840.29	FRAMES AND NARROW SLOT FLAT GRATES
840.35	TRAFFIC BEARING GRATED DROP INLET
840.46	TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE
840.66	DRAINAGE STRUCTURE STEPS
846.01	CONCRETE CURB, GUTTER AND CURB AND GUTTER
846.04	DROP INLET INSTALLATION IN SHOULDER BERM GUTTER
862.01	GUARDRAIL PLACMENT
862.02	GUARDRAIL INSTALLATION
862.03	STRUCTURE ANCHOR UNITS
866.02	WOVEN WIRE FENCE - WITH WOODEN POST
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS

04-FEB-2021 10:36
BR-0119_Rdy_psh_gen notes.dgn
jabone

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	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
- Computed 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 — 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 — FLOW
- False Sump

RAILROADS:

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

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.

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	2A-1
ROADWAY DESIGN ENGINEER 1/16/2020	PAVEMENT DESIGN ENGINEER 1/17/2020
SEAL 043935 NORTH CAROLINA PROFESSIONAL ENGINEER JOHN P. MAZERES — DocuSigned by: John P. Mazeres	SEAL 022896 NORTH CAROLINA PROFESSIONAL ENGINEER CLARK S. MORRISON — DocuSigned by: Clark S. Morrison

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

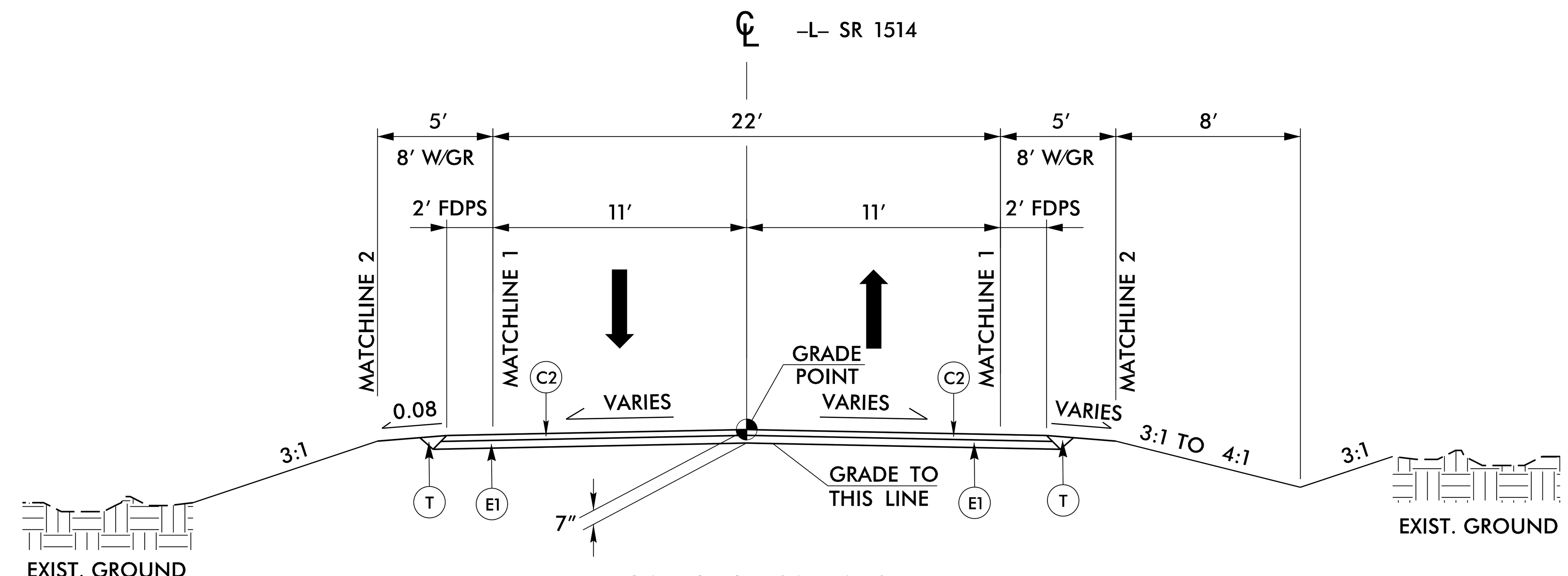
PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES — NC FIRM LICENSE No: C-1506, 301 Fayetteville St., Suite 1500, Raleigh, NC 27601, (919)882-7839

FINAL 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 THE TWO LAYERS.
C3	PROP. VARIABLE 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" OR TO EXCEED 1.5" IN DEPTH.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING.

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

NOTE: FINAL PAVEMENT DESIGN PER PAVEMENT DESIGN MEMO DATED 07/22/2019 FROM CLARK S. MORRISON, PhD, P.E.

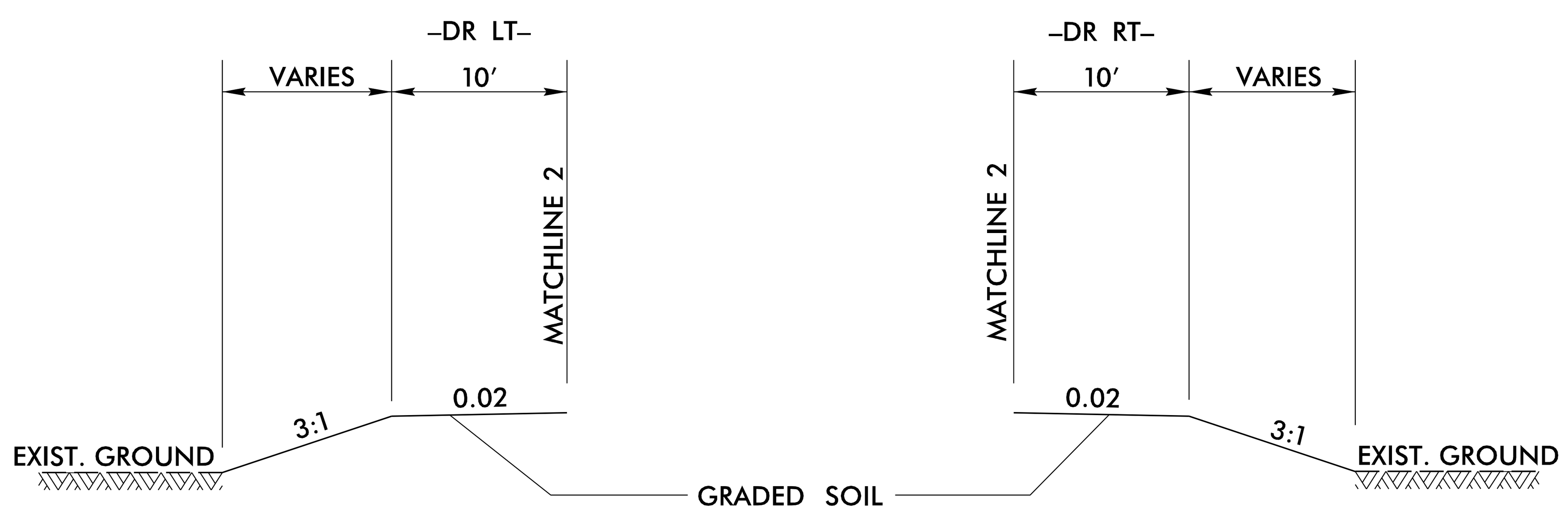


TYPICAL SECTION NO. 1

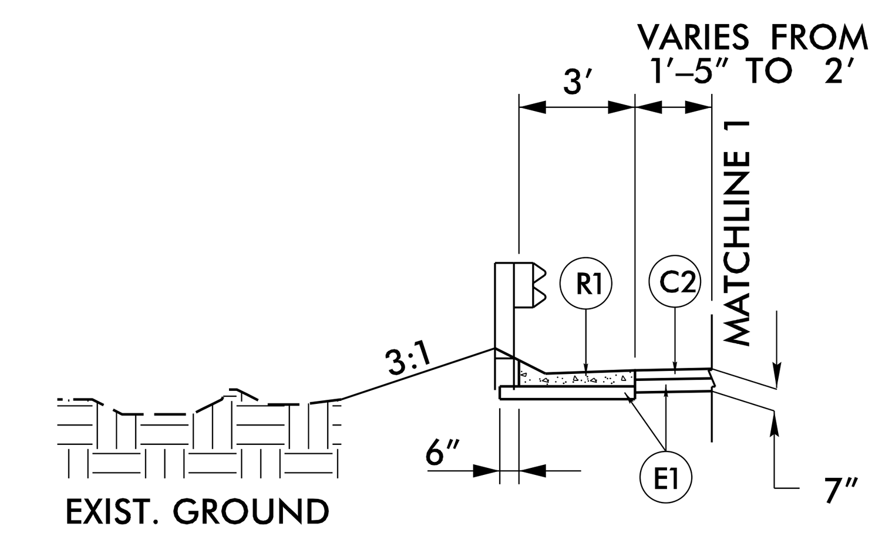
-L- (SR 1514)

USE TYPICAL SECTION NO. 1

-L- STA. 10+15.00 TO STA. 12+87.41
-L- STA. 13+79.66 TO STA. 16+45.00



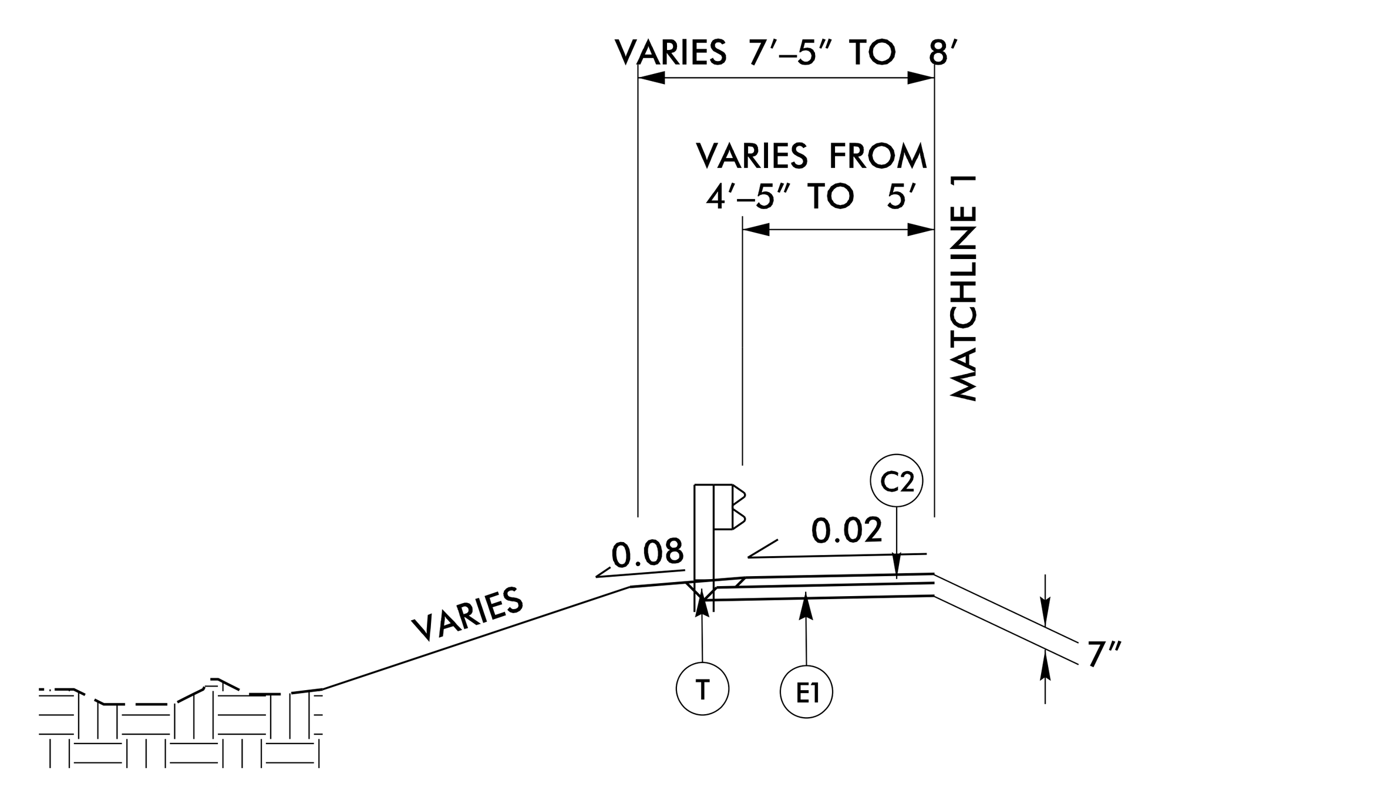
ACCESS ROAD TYPICAL



SHOULDER BERM GUTTER (SBG) DETAIL

TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 1

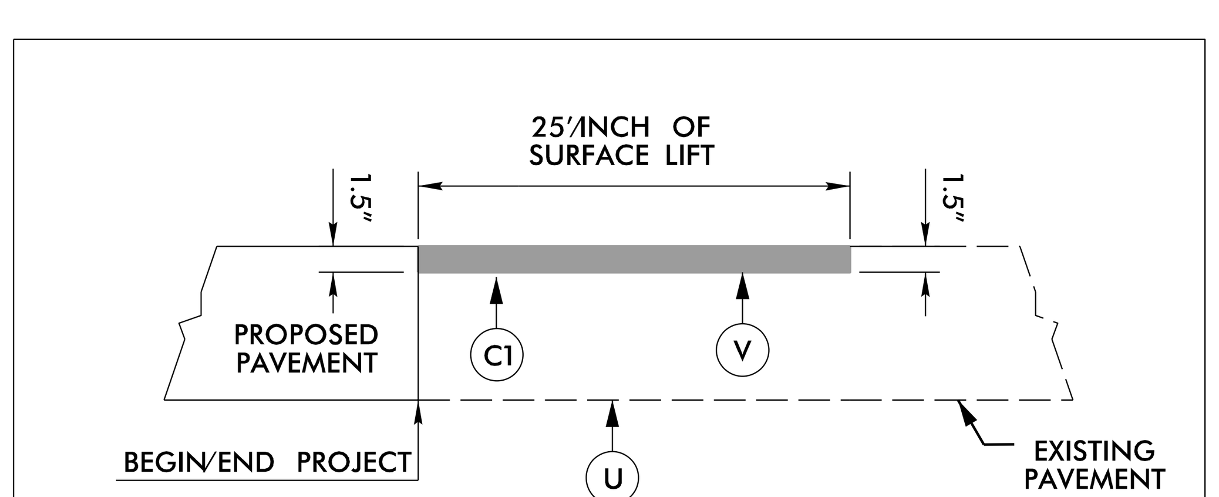
-L- STA. 12+63.06 TO -L- STA. 12+76.52 (LT)
-L- STA. 13+90.70 TO -L- STA. 14+04.51 (LT)



GUARDRAIL DETAIL

TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 1

-L- STA. 11+43.66 TO STA. 12+87.41 (RT)
-L- STA. 12+12.41 TO STA. 12+87.41 (LT)
-L- STA. 13+79.66 TO STA. 14+54.66 (LT/RT)



INCIDENTAL MILLING PAVEMENT KEY-IN DETAIL (TIE-IN)

-L- STA. 9+77.50 TO STA. 10+15.00
-L- STA. 16+45.00 TO STA. 16+82.50

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

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	2A-2

ROADWAY DESIGN ENGINEER
1/16/2020
NORTH CAROLINA PROFESSIONAL SEAL 043935 ENGINEER JOHN P MAZURES
John P. Mazures

PAVEMENT DESIGN ENGINEER
1/17/2020
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
Clark S. Morrison

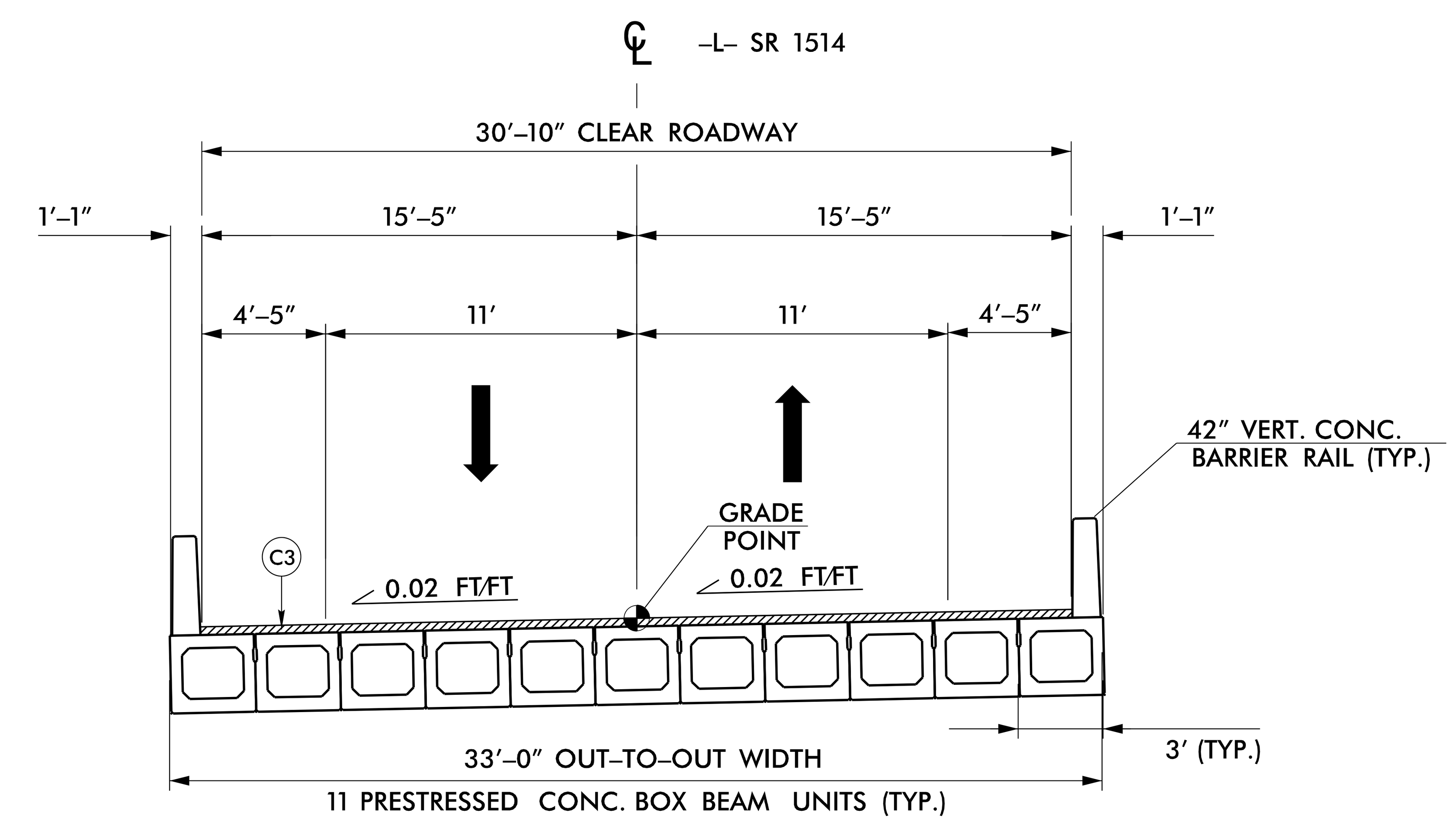
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

FINAL 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 THE TWO LAYERS.
C3	PROP. VARIABLE 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" OR TO EXCEED 1.5" IN DEPTH.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING.

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
NOTE: FINAL PAVEMENT DESIGN PER PAVEMENT DESIGN MEMO DATED 07/22/2019 FROM CLARK S. MORRISON, PhD, P.E.



STRUCTURE TYPICAL SECTION

FOR BRIDGE OVER GRINDLE CREEK
-L- STA. 12+87.41 TO STA. 13+79.66
** SEE STRUCTURES PLANS FOR AWS THICKNESS

6/2/99
16-JAN-2020 09:36
BR-0119_rdy_typ.dgn

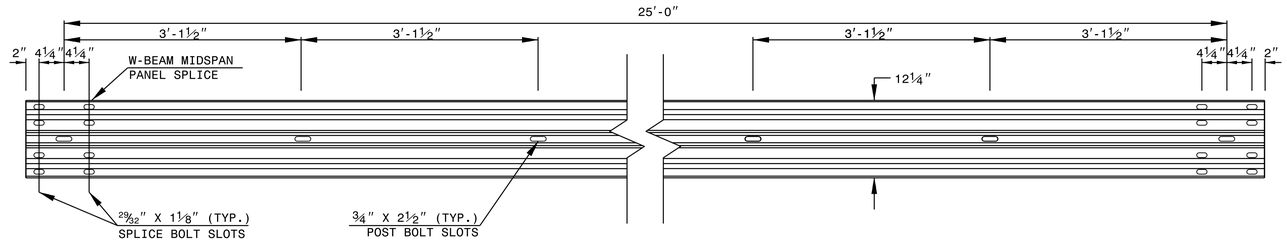
PROJECT REFERENCE NO.	SHEET NO.
BR-0119	2C-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

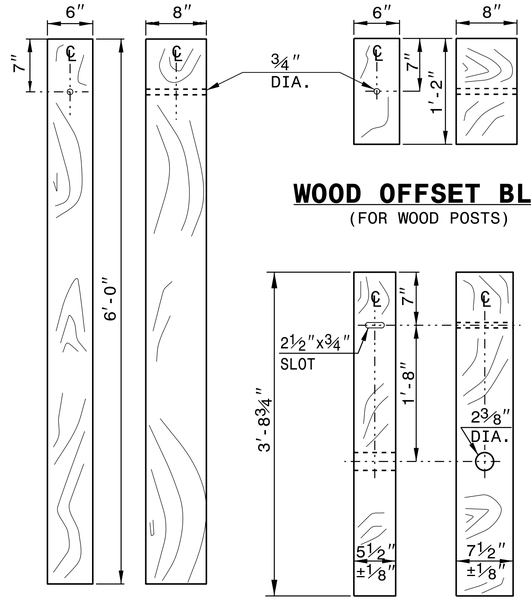
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



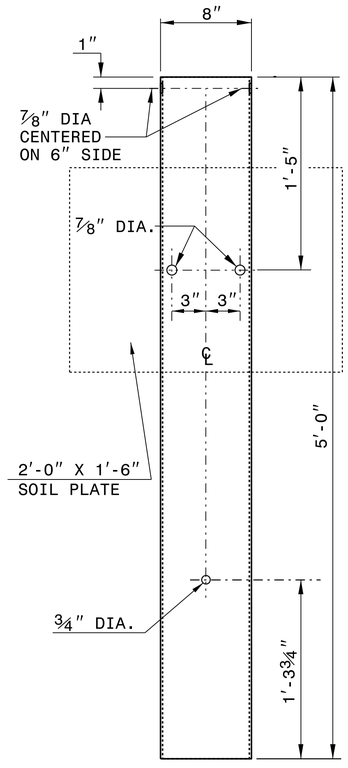
STANDARD W-BEAM GUARDRAIL



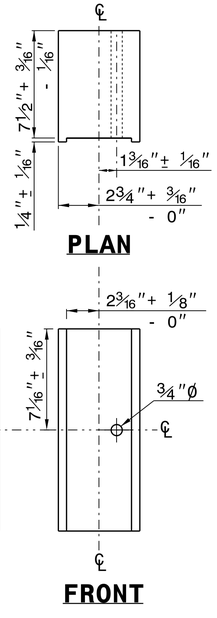
STANDARD LINE POST

WOOD OFFSET BLOCK
(FOR WOOD POSTS)

SHORT WOOD BREAKAWAY POST



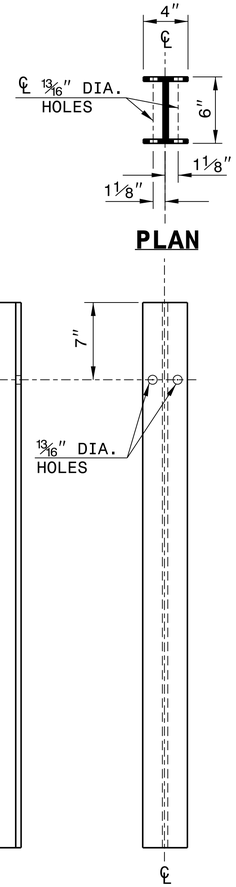
STEEL TUBE
TS 6"x8"x0.1875"



PLAN

SIDE **FRONT**

ROUTED OFFSET BLOCK



PLAN

SIDE **FRONT**

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

12/17/2019

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

DocuSigned by:
Joel S. Howerton
873F3D17DCDC45F...

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

SEE TITLE BLOCK

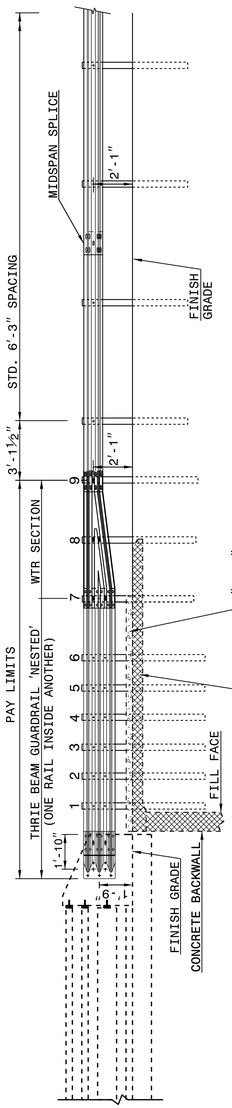
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	2C-2

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

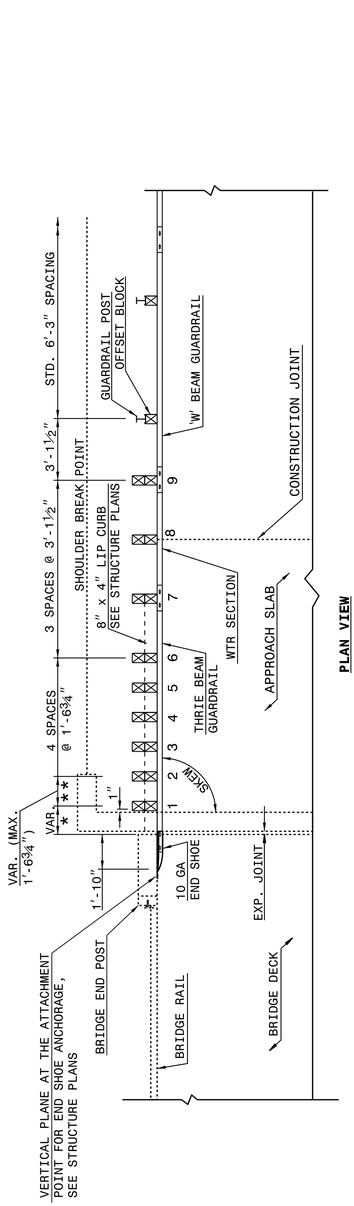
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03



ELEVATION

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).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



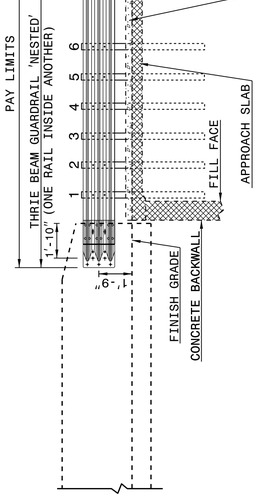
PLAN VIEW

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

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

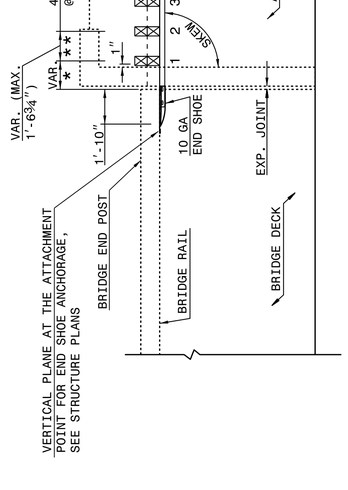
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03



ELEVATION

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).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

12/17/2019

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by:
Joel S. Howerton
B73F3D17DCDC45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

14-DEC-2017 10:36
S:\Contracts\Contracts\Special Details\jhowerton\Standard Drawings\2018 Standard Drawings\Details in Lieu of Standards\Division 8\0862d0301.dgn
jhowerton AT CSD-2925955

12/06/07

COMPUTED BY:	AJM	DATE:	12/04/19
CHECKED BY:	JPM	DATE:	12/05/19

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	3B-1

PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav. (CY)	Embank. +% (CY)	Borrow (CY)	Waste
-L- STA 10+15.00	-L- STA 12+87.41 (Begin Bridge)	96	1300	1204	
-L- STA 13+79.66 (End Bridge)	-L- STA 16+45.00	432	935	503	
PROJECT TOTALS:		**528**	**2235**	**1707**	
REPLACE TOP SOIL ON BORROW PIT (5%):				85	
GRAND TOTALS:		528	2235	1792	
SAY:		**581**		**1980**	

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

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement, will be paid for at the contract lump sum price for "Grading."

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	10+15	13+01	LT/RT	624			
-L-	13+71	16+45	LT/RT	599			
		TOTAL:		1223			
		SAY:		**1230**			

SHOULDER BERM GUTTER SUMMARY

LINE	Station	Station	LENGTH (LF)
-L-	12+63.06	12+76.52	13.5
-L-	13+90.70	14+04.51	13.8
		TOTAL:	27.3
		SAY:	28

COMPUTED BY:	AJM	DATE:	12/4/19
CHECKED BY:	JPM	DATE:	12/5/19

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.

"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

GUARDRAIL SUMMARY

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	ANCHORS XI	ANCHORS GREU TL-3	ANCHORS M-350	ANCHORS TYPE III	ANCHORS CAT-1	ANCHORS VI MOD	ANCHORS BIC	Additional Guardrail Posts	IMPACT ATTENUATOR TYPE 350 G	IMPACT ATTENUATOR TYPE 350 NG	SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	11+37.41	12+87.41	RT	150.00'			11+37.41	Bridge	4.44	7.44	50		1				1		1										
-L-	12+12.41	12+87.41	LT	75.00'			Bridge	12+37.98	4.44	7.44		50		1			1		1										
-L-	13+79.66	14+54.66	RT	75.00'			Bridge	14+88.06	4.44	7.44		50		1			1		1										
-L-	13+79.66	14+54.66	LT	75.00'			14+88.06	Bridge	4.44	7.44	50		1				1		1										
			SUBTOTAL:	375.00'													4		4				5						
		Less 4 GREU TL-3 @ 50' Each		200.00'																									
		Less 4 Type III @ 18.75' Each		75.00'																									
			PROJECT TOTALS:	100.00'													4		4				5						

04-FEB-2021 10:36
BR-0119_rdy_Sum.dgn
idebone

COMPUTED BY: JRM DATE: 12/04/19
CHECKED BY: EPA DATE: 12/05/19

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	3D-1

PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

COMPUTED BY: JRM DATE: 12/20/2019
CHECKED BY: EPA DATE: 2/1/2021

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
BR-0119	3D-1

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

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

STATION	OFFSET	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
		401	402		33.7	27.3			28							X			
L 12+67	14 LT	401		36.5															
		403	404		33.9	27.5			52							X			
L 14+00	14 LT	403		36.4															
L 13+91	52 RT	405	-		29.7	29.6				56									
L 13+91	58 LT	406	-		27.4	27.3				60									
L 16+17	26 RT	407	-		30.5	30.3				40									
SHEET TOTALS									80	156									

STATION / STRUCTURE	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 IV 12"	15"	18"	24"	30"	36"	42"	48"
401–402																								
L 12+67 (401)																								
403–404																								
L 14+00 (403)																								
L 13+91 (405)																								
L 13+91 (406)																								
L 16+17 (407)																								
SHEET TOTALS																								

STATION / STRUCTURE	** " 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
401–402																
L 12+67 (401)								1								
403–404																
L 14+00 (403)								1								
L 13+91 (405)																
L 13+91 (406)																
L 16+17 (407)																
SHEET TOTALS								2								

STATION / STRUCTURE	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35				15" DRAINAGE PIPE ELBOW	SIDE DRAIN 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
401–402						2					
L 12+67 (401)	1	1									
403–404						2					
L 14+00 (403)	1	1									
L 13+91 (405)											Station Range: -L- 13+57 / 14+03
L 13+91 (406)											Station Range: -L- 13+64 / 14+24
L 16+17 (407)											Station Range: -L- 16+00 / 16+37
SHEET TOTALS	2	2				4					

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

12/06/07
04-FEB-2021 10:36
BR-0119_drn_Sum.dgn
idebone

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	3G-1

PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
-L-	2.5:1 (H:V)	11+25 ±	2.5:1 (H:V)	12+50 ±	RT	1	*	250
							TOTAL SY:	250

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

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

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

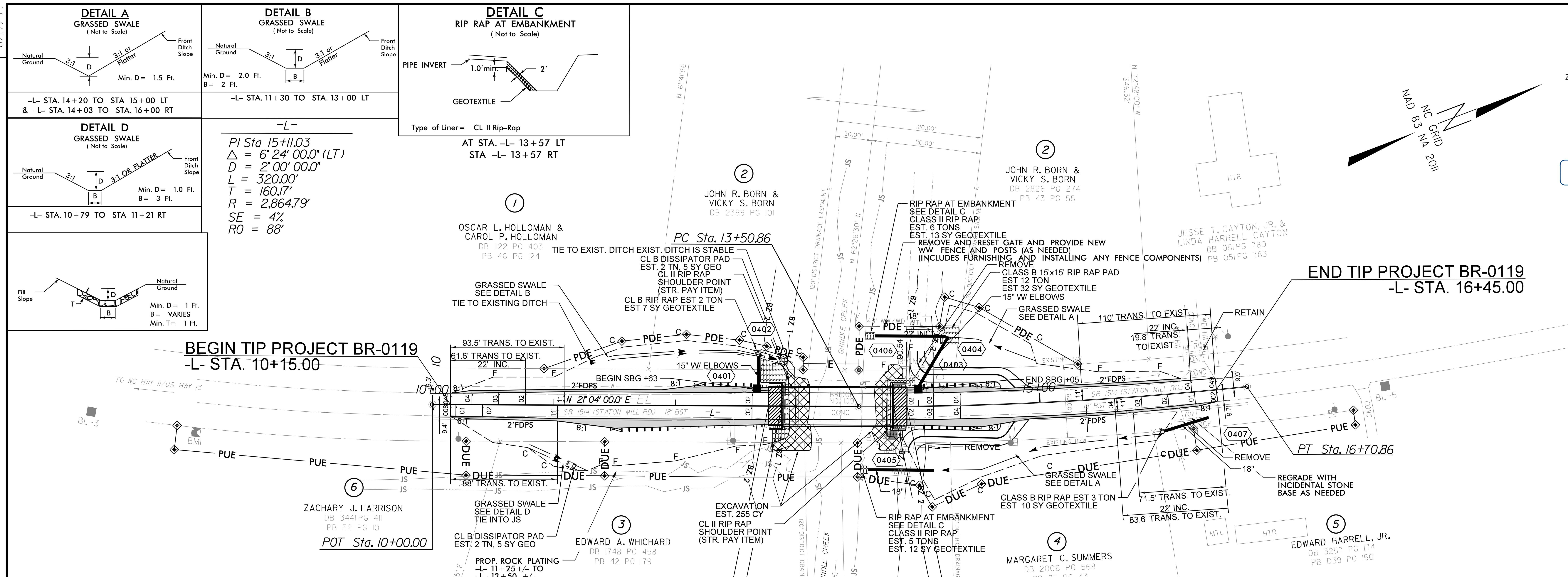
PROJECT REFERENCE NO.	SHEET NO.
BR-0119	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — 2/16/2021 — SEAL 043935 — JOHN P. MAZERES

HYDRAULICS ENGINEER — 2/16/2021 — SEAL 043571 — SAMUEL L. CULLUM

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

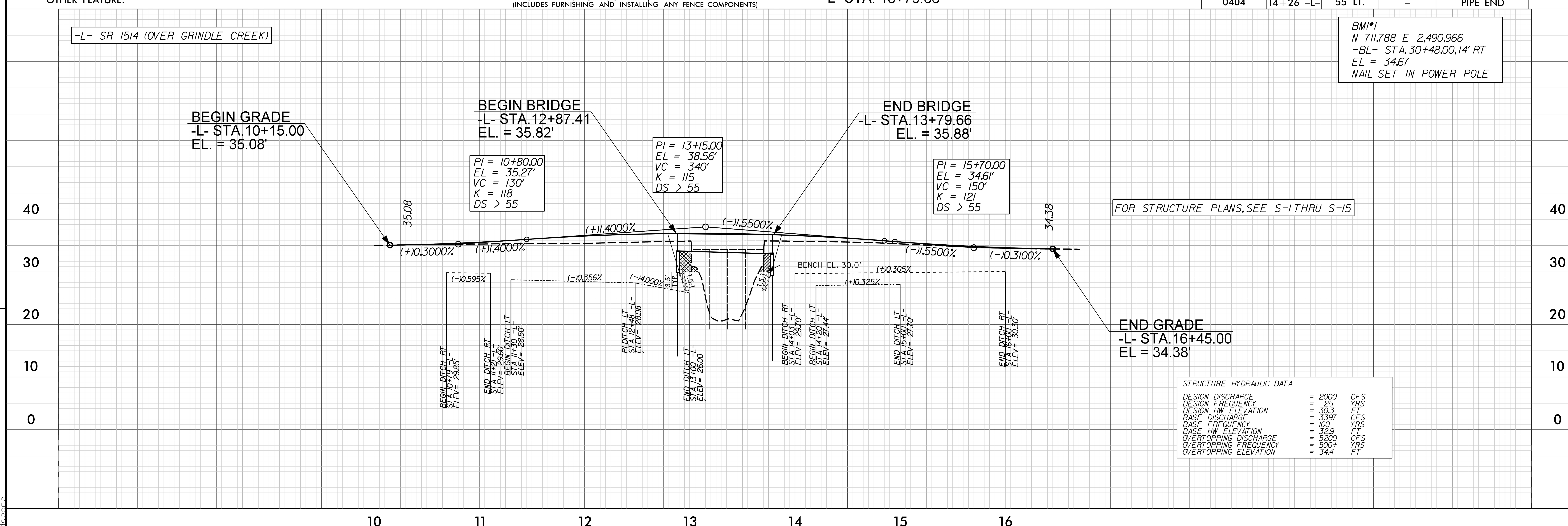
PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES — NC FIRM LICENSE No: C-1506, 301 Fayetteville St., Suite 1500, Raleigh, NC 27601, (919)882-7839



NOTES:

1. ALL BRIDGE ANCHOR UNITS ARE TYPE III.
2. ALL GUARDRAIL END UNITS ARE GREU TL-3.
3. DURING CLEARING AND GRUBBING CONTRACTOR SHALL NOT ALLOW MECHANIZED VEHICLES TO ENTER ANY JURISDICTIONAL STREAM OR OTHER FEATURE.

STRUCTURE	STATION	OFFSET	TOP EL.	DESCRIPTION	AREA (AC.)
0401	12+67 -L-	14 LT.	36.5	TB 2GI	0.03
0402	12+67 -L-	31 LT.	–	PIPE END	
0403	14+00 -L-	14 LT.	36.4	TB 2GI	0.07
0404	14+26 -L-	55 LT.	–	PIPE END	



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	2000	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	30.3	FT
BASE DISCHARGE	=	3397	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	32.9	FT
OVERTOPPING DISCHARGE	=	5200	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	34.4	FT

REVISIONS

11-FEB-2021 09:33 BR-0119_Rdy_psh.dgn

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BR-0119	4A

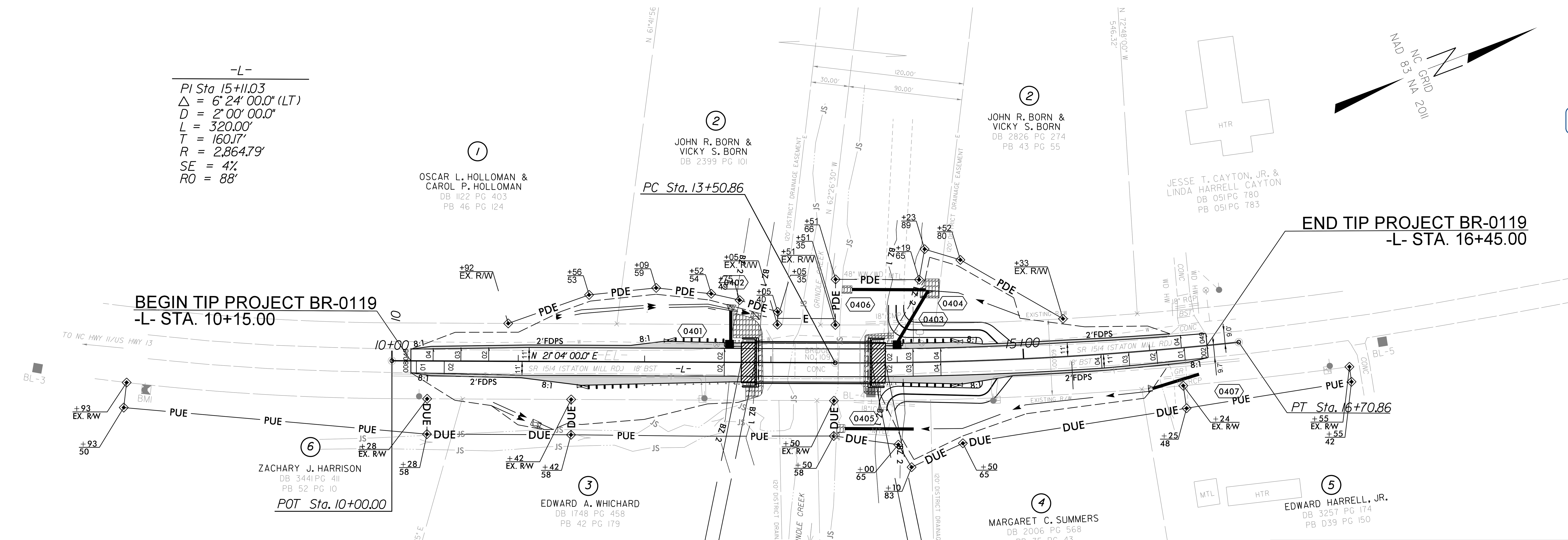
R/W SHEET NO. ____

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
2/16/2021 SEAL 043935 NORTH CAROLINA PROFESSIONAL ENGINEER JOHN P MAZERES — DocuSigned by: John Mazeres C86F1C5ED67940E...	2/16/2021 SEAL 043571 NORTH CAROLINA PROFESSIONAL ENGINEER SAMUEL L CULLUM — DocuSigned by: Samuel L. Cullum 10C97005C75A467...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PREPARED IN THE OFFICE OF: KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

** DETAIL FOR RIGHT OF WAY MONUMENT DESIGN FOR INFORMATION PURPOSES ONLY

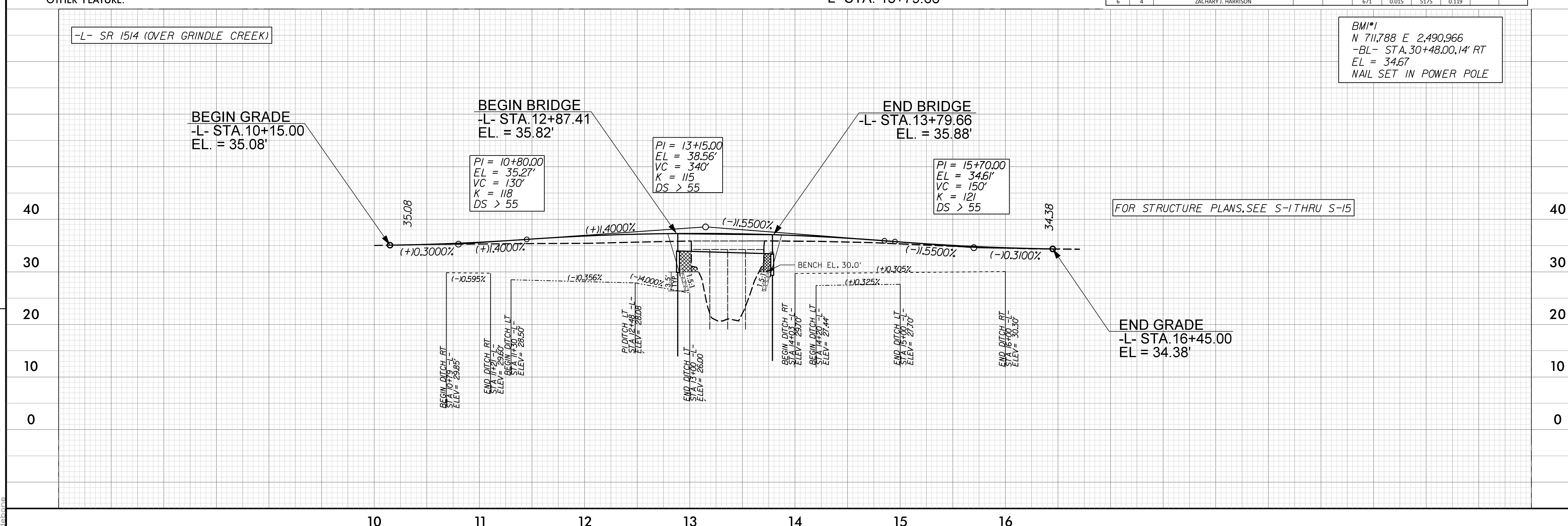


NOTES:

1. ALL BRIDGE ANCHOR UNITS ARE TYPE III.
2. ALL GUARDRAIL END UNITS ARE GREU TL-3.
3. DURING CLEARING AND GRUBBING CONTRACTOR SHALL NOT ALLOW MECHANIZED VEHICLES TO ENTER ANY JURISDICTIONAL STREAM OR OTHER FEATURE.

PARCEL ROW INDEX TABLE

PARCEL No.	SHEET No.	PROPERTY OWNER NAME	PDE AREA (SF)	PDE AREA (AC)	DUE AREA (SF)	DUE AREA (AC)	PUE AREA (SF)	PUE AREA (AC)	TCE AREA (SF)	TCE AREA (AC)
1	4	OSCAR L. HOLLOMAN & CAROL P. HOLLOMAN	1307	0.030						
2	4	JOHN R. BORN & VICKY S. BORN	9074	0.208					229	0.005
3	4	EDWARD A. WHICHARD			2523	0.058	5521	0.127		
4	4	MARGARET C. SUMMERS			7743	0.178	369	0.008		
5	4	EDWARD HARRELL, JR.			625	0.014	1918	0.044		
6	4	ZACHARY J. HARRISON			671	0.015	5175	0.119		



11-FEB-2021 09:33
BR-0119_Rdy_psh_row.dgn