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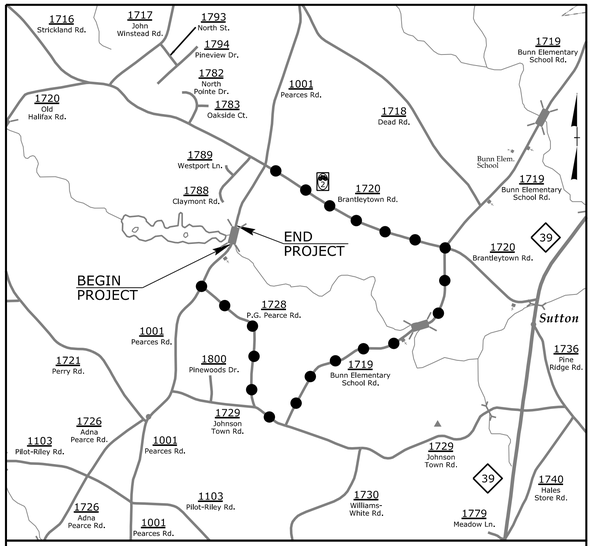
This file or an individual page shall not be considered a certified document.

09/08/99

TIP PROJECT: 17BP.5.R.68

CONTRACT: DE00235



VICINITY MAP

OFF-SITE DETOUR

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FRANKLIN COUNTY

LOCATION: BRIDGE NO. 89 OVER NORRIS CREEK ON SR 1001 (PEARCES RD.)

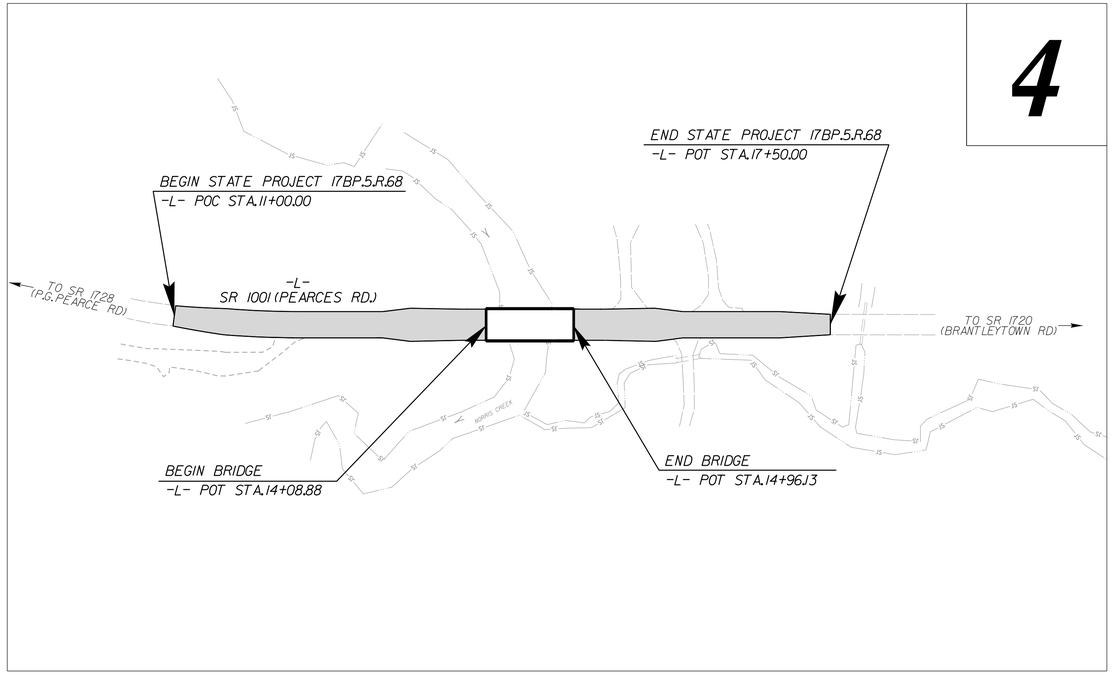
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.68	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.5.R.68	N/A	PE
17BP.5.R.68	N/A	ROW /UTILITIES
17BP.5.R.68	N/A	CONSTRUCTION

NAD 83/NA 2011

4



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT = 2,250
V = 50 MPH
CLASS = RURAL
LOCAL

SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 17BP.5.R.68	=	0.106 mi.
LENGTH STRUCTURE STATE PROJECT 17BP.5.R.68	=	0.017 mi.
TOTAL LENGTH STATE PROJECT 17BP.5.R.68	=	0.123 mi.

Prepared in the Offices of:

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750

NC FIRM LICENSE No: P-1148
1151 SE Cary Parkway, Suite 101
Cary, NC 27518
(919) 557-0929
Firm License #: C-1051
www.stewartllc.com
PROJECT #:H16007.00
ECOLOGICAL ENGINEERING

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 19, 2017

RIGHT OF WAY COMPLETE: DECEMBER 19, 2017

LETTING DATE: MARCH 28, 2018

ANDY YOUNG, PE
PROJECT ENGINEER

MICHAEL BURNS, PE
PROJECT DESIGN ENGINEER

LISA GILCHRIST, EI
NCDOT CONTACT

HYDRAULICS ENGINEER

2/28/2018

DocuSigned by: Reid B. Robel 7074FDA3F200470...

P.E.

SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 043870 ENGINEER REID B. ROBEL

ROADWAY DESIGN ENGINEER

2/27/2018

DocuSigned by: Michael S. Burns, Jr. D425C8CC006F437...

P.E.

SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 045230 ENGINEER MICHAEL S. BURNS

STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION *

2/27/2018
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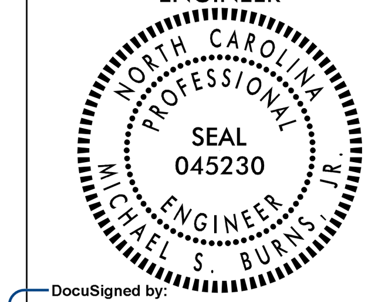
USER:mburns

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	1A

ROADWAY DESIGN ENGINEER



DocuSigned by:
Michael S. Burns, Jr.
D425C8CC006F437...
3/14/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
1C-2	SURVEY CONTROL SHEET
1C-4	SURVEY CONTROL SHEET
1D-1	PROPOSED ALIGNMENT CONTROL SHEET
1E-1	RIGHT OF WAY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	MODIFIED CONCRETE FLUME DETAIL
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-4	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS

EFF. 01-16-2018
REV.

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	
200.03	Method of Clearing - Method III
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	
422.02	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	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
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 III.

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.

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

AT&T, CenturyLink and Charter

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 CONTRACT.

3/14/2018
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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	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:

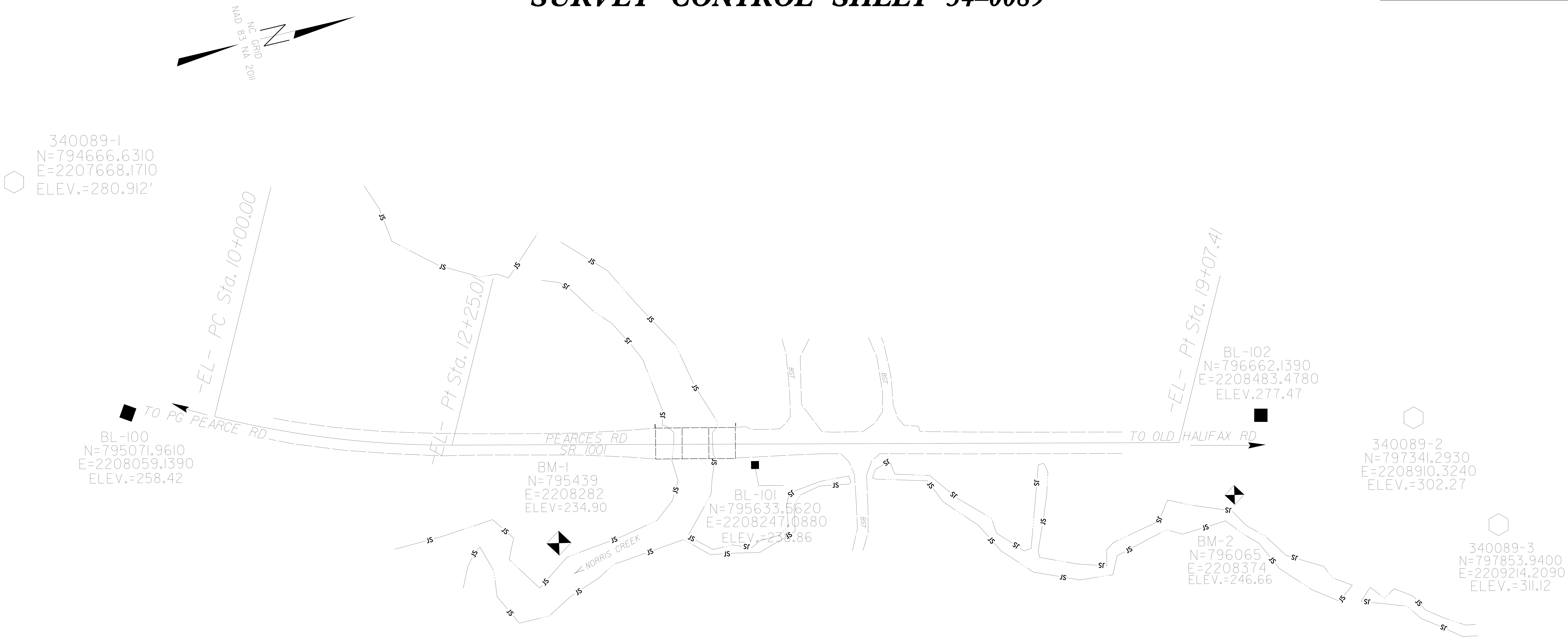
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

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.
17BP.5.R.68	1C-1
Location and Surveys	

SURVEY CONTROL SHEET 34-0089



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "340089-3"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 797853.940(ft) EASTING: 2209214.209(ft)
ELEVATION: 311.12(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999935037
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "340089-3" TO -L- STATION 11+00 IS
S22°37' 11.5"W 2,829.63'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

GEOID G12NC
NOTE: DRAWING NOT TO SCALE

NOTES:

⬡ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM).

THE FILES TO BE FOUND ARE AS FOLLOWS:
340089_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.

8/22/17

3/14/2018

8/22/17

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	1C-4
Location and Surveys	

SURVEY CONTROL SHEET 34-0089

EXISTING ALIGNMENT

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	795150.781	2208084.975							
CURVE			N 20°14'13.5" E	224.44	14°08'05.3"(LT)	06°16'54.8"	225.01	113.08	912.08
PT	795361.365	2208162.610							
LINE			N 13°10'10.8" E	682.41					
POT	796025.823	2208318.086							

BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION	BL STATION	OFFSET
100	BL-100	795071.9610	2208059.1390	258.42	5+00.00	0.00
101	BL-101	795633.5620	2208247.0880	238.86	10+92.22	0.00
102	BL-102	796662.1390	2208483.4780	277.47	21+47.61	0.00

* *

BM#1 ELEVATION = 234.90

N 795439 E 2208282

BL STATION 9+19.00 95 RIGHT

RAILROAD SPIKE SET IN 16" OAK TREE

* *

* *

BM#2 ELEVATION = 246.66

N 796065 E 2208374

BL STATION 15+41.00 26 RIGHT

RAILROAD SPIKE SET IN 42" POPLAR TREE

* *

GEOID G12NC

NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "340089-3"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 797853.940(ft) EASTING: 2209214.209(ft)
ELEVATION: 311.12(ft)
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ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

⬡ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM).

THE FILES TO BE FOUND ARE AS FOLLOWS:
340020_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.

3/14/2018
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PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	1D-1
Location and Surveys	

PROPOSED ALIGNMENT CONTROL SHEET 34–0089

L

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	795150.781	2208084.975							
CURVE			N 20°14'13.5" E	224.44	14°08'05.4"(LT)	06°16'54.8"	225.01	113.08	912.08
PT	795361.365	2208162.610							
LINE			N 13°10'10.8" E	682.41					
POT	796025.823	2208318.086							

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCGS FOR MONUMENT "340089-3"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 797853.940(ft) EASTING: 2209214.209(ft)
ELEVATION: 311.12(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999935037
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"340089-3" TO -L- STATION 11+00 IS
S22°37' 11.5"W 2,829.63'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

GEOID G12NC
NOTE: DRAWING NOT TO SCALE

NOTES:

⬡ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM).

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

8/22/17
3/14/2018
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USER:default

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
34-0089	1E-1
Location and Surveys	

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3994 LAND SURVEYOR JEFFREY S. COATS

RIGHT OF WAY CONTROL SHEET 34-0089

ROW MARKER REBAR AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+50.00	30.00	795865.7134	2208311.4324
L	12+25.01	-50.00	795372.7570	2208113.9251
L	17+50.00	45.00	795862.2959	2208326.0379
L	15+75.00	-50.00	795713.5428	2208193.6653
L	15+75.00	-30.00	795708.9861	2208213.1393
L	11+00.00	-50.00	795259.9100	2208079.2171
L	11+00.00	-30.00	795252.7353	2208097.8859
L	11+00.00	30.00	795231.2111	2208153.8923

PERMANENT EASEMENT MARKER REBAR AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+75.00	45.00	795691.8985	2208286.1667
L	15+75.00	60.00	795688.4809	2208300.7722
L	16+20.00	60.00	795732.2974	2208311.0248
L	17+10.00	77.31	795815.9874	2208348.3811
L	17+10.00	45.00	795823.3479	2208316.9245

I, JEFFREY S. COATS, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 29th day of August, 2017.

Jeffrey S. Coats L-3994

Professional Land Surveyor PLS # Seal

NORTH CAROLINA PROFESSIONAL SEAL L-3994 LAND SURVEYOR JEFFREY S. COATS

NOTE: DRAWING NOT TO SCALE

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
I7BP.5.R.68	2A-1

ROADWAY DESIGN ENGINEER — SEAL 045230 — Michael S. Burns, Jr. — 2/22/2018

PAVEMENT DESIGN ENGINEER — SEAL 22896 — Clark Morrison — 2/22/2018

STEWART

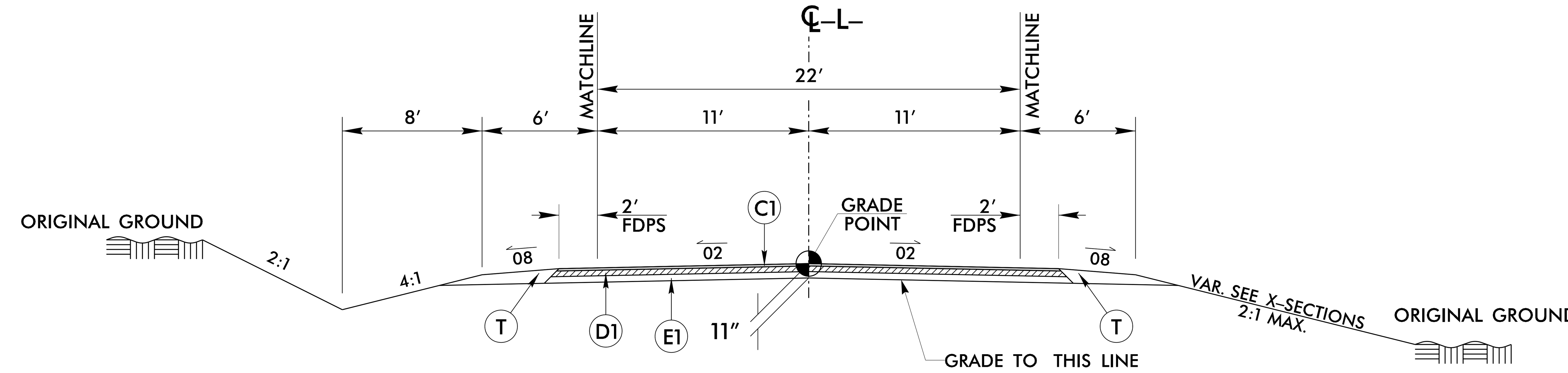
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

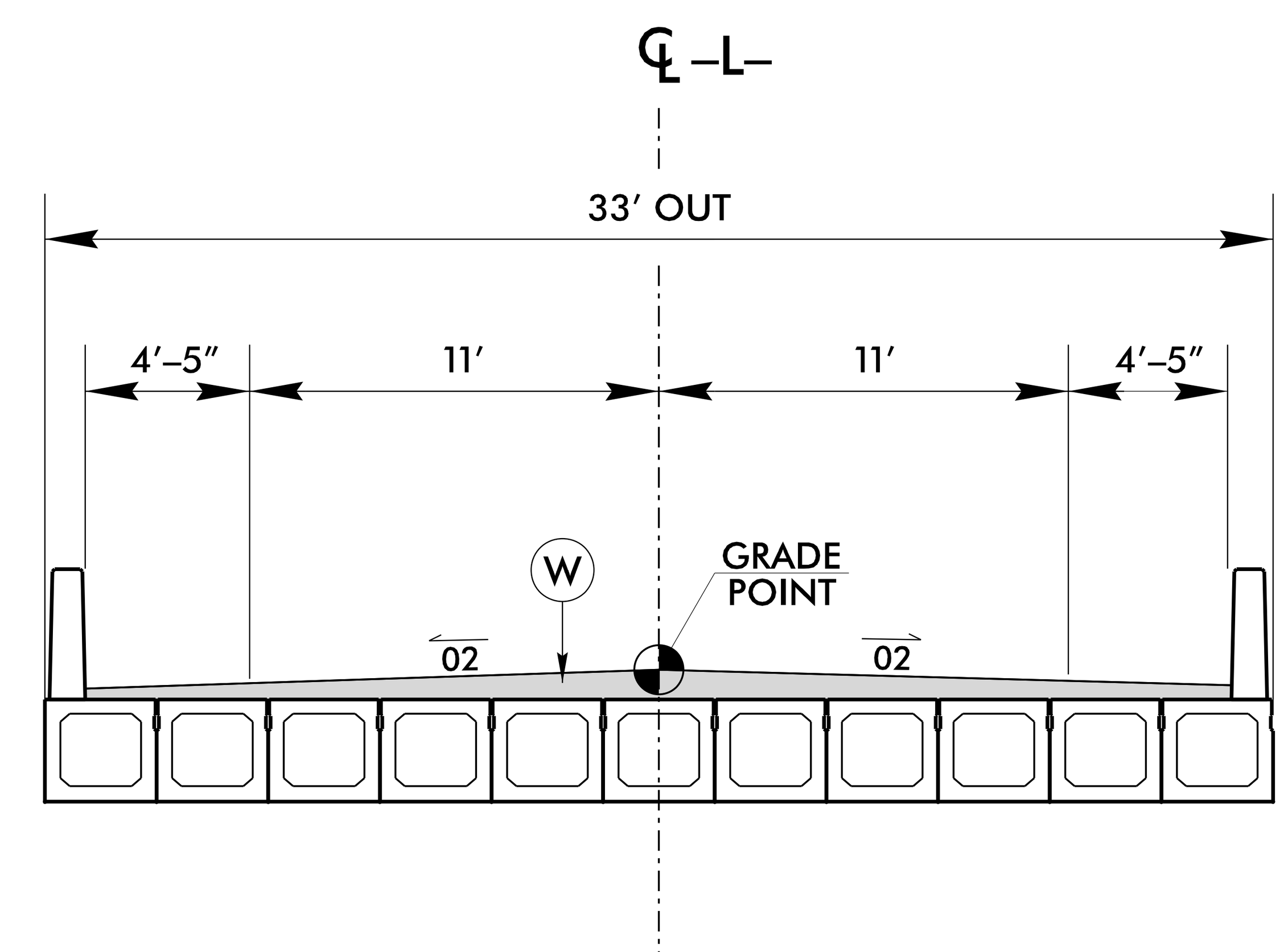
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 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 2½" 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.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL
W	WEDGING (SEE THIS SHEET FOR WEDGING DETAIL)

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



TYPICAL SECTION NO. 1

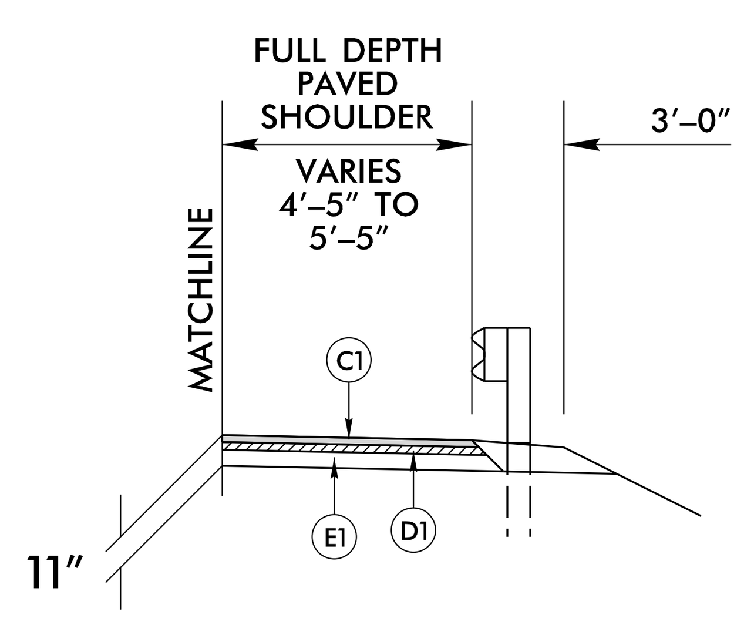
-L- STA. 11+00.00 TO -L- STA. 14+08.88 (BEGIN BRIDGE)
-L- STA. 14+96.13 (END BRIDGE) TO -L- STA. 17+50.00



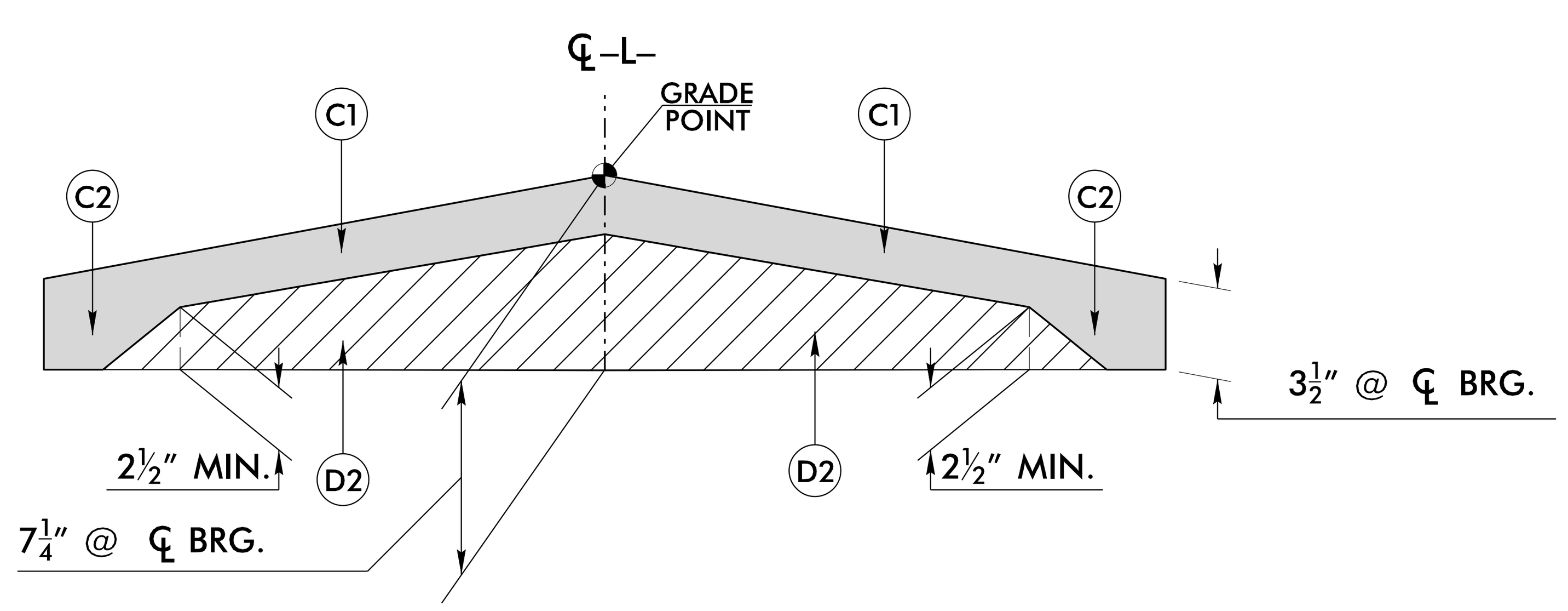
NOTE:
SEE STRUCTURE PLANS FOR PAVEMENT DEPTHS ON STRUCTURE

TYPICAL SECTION NO. 2

-L- STA. 14+08.88 (BEGIN BRIDGE) TO -L- STA. 14+96.13 (END BRIDGE)

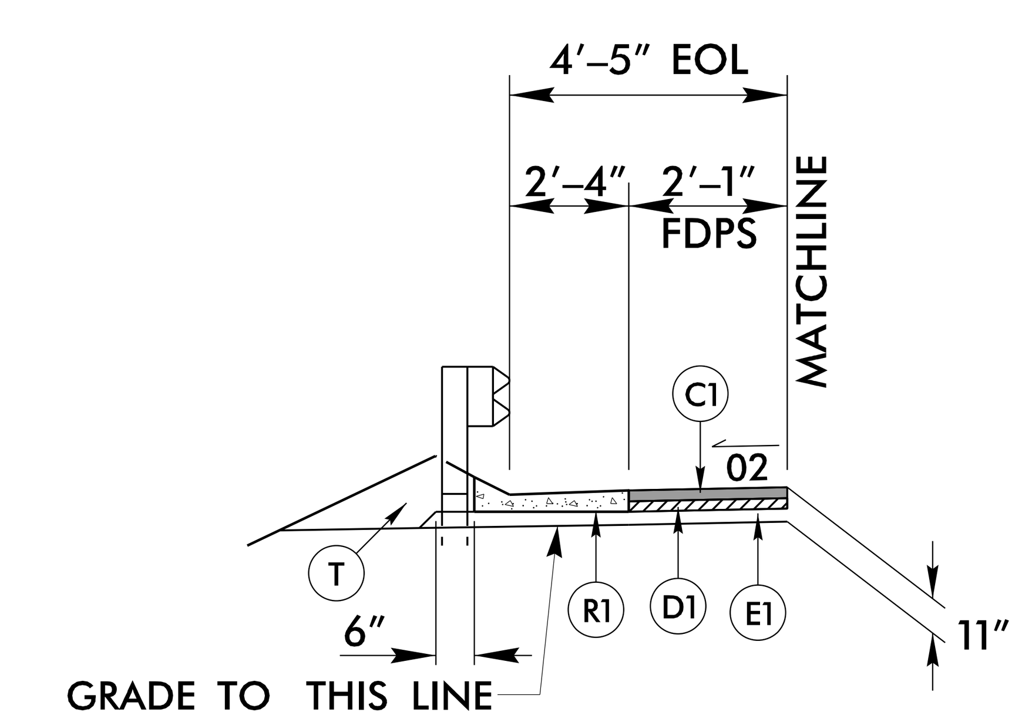


DETAIL SHOWING PAVING TO THE FACE OF GUARDRAIL



DETAIL SHOWING METHOD OF WEDGING ON BRIDGE

USE IN CONJUNCTION WITH BRIDGE TYPICAL SECTION



DETAIL SHOWING GUARDRAIL WITH SHOULDER BERM GUTTER

USE SHOULDER BERM GUTTER AT THE FOLLOWING LOCATIONS:
-L- STA. 15+07.01 (END APPROACH SLAB) TO -L- STA. 15+22.00 (LEFT)
-L- STA. 15+07.01 (END APPROACH SLAB) TO -L- STA. 15+22.00 (RIGHT)

REVISIONS

5/14/99

2/22/2018 ...\340089_RDY_TYP.dgn

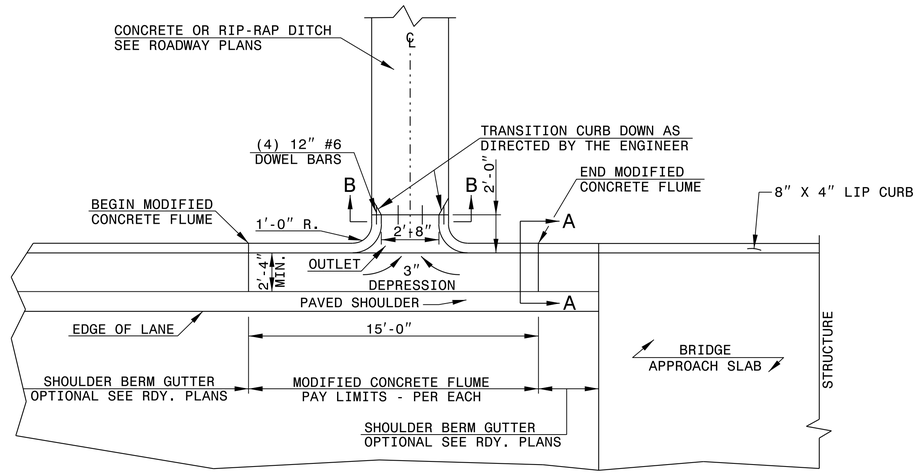
PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	2C-1

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

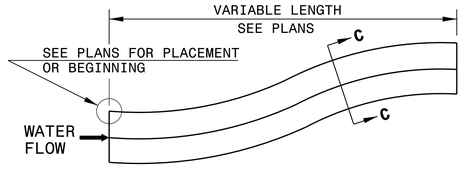
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

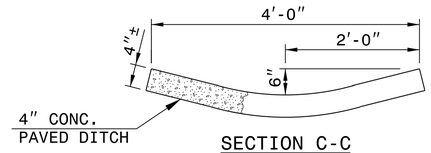
WITH CONCRETE OR RIP-RAP DITCH



PLAN VIEW

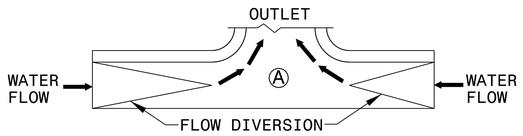


DOWNGRADE OR SAG

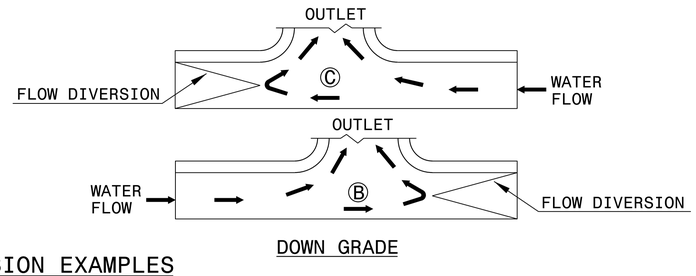


SECTION C-C

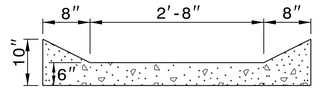
SECTION A-A



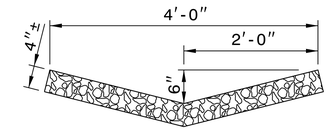
SAG



DOWN GRADE



SECTION B-B



RIP-RAP LINED DITCH

FLOW DIVERSION EXAMPLES

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1

MODFLMDTCH

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

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

1/25/2018

DocuSigned by:
873F3D17DCDC45F...

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: _____ DATE: _____
FILE SPEC.: w:details\stand\modifiedflume.dgn

18-OCT-2017 14:17
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\modifiedflume.dgn
jhowerton AT CSD-212595

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- Sta. 11+00.00	-L- Sta. 14+08.88 (BR)	279	647	368	
-L- Sta. 14+96.13 (BR)	-L- Sta. 17+50.00	60	390	330	
SUBTOTALS:		339	1037	698	
PROJECT TOTALS:		339	1037	698	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				35	
GRAND TOTALS:		339		733	
SAY:		**360**		**770**	

UNDERCUT EXCAVATION = 400 C.Y. (Contingency)
SELECT GRANULAR MATERIAL = 400 C.Y. (Contingency)
GEOTEXTILE FOR SOIL STABILIZATION = 400 S.Y. (Contingency)

(Total square yards of Geotextile for Soil Stabilization is only the contingent quantity and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.)

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.

Note: 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.

SHOULDER BERM GUTTER SUMMARY

IN LINEAR FEET

LINE	Station	Station	LENGTH
-L- LT	15+07.01	15+22.00	14.99
-L- RT	15+07.01	15+22.00	14.99
		TOTAL:	29.98
		SAY:	**30**

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	11+00.00	14+16.17	CL	746.24			
-L-	14+91.02	17+50.00	CL	631.55			
		TOTAL:		1377.79			
		SAY:		1380			

"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			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU, TL-3	M-350	XIII	CAT-1	TYPE III	BIC	AT-1	G	NG				
-L-	13+33.88	14+08.88	LT	75.00'				14+08.88	4'-5"	7'-5"		1'		50'			1				1								
-L-	13+33.88	14+08.88	RT	75.00'			14+08.88		4'-5"	7'-5"	1'		50'				1				1								
-L-	14+96.13	15+38.31	LT	25.00'	37.50'		14+96.13		4'-5"	7'-5"											1		1						
-L-	14+96.13	15+71.13	RT	75.00'				14+96.13	4'-5"	7'-5"		1'		50'			1				1								
			SUBTOTAL:	250.00'	37.50'												3				4		1						
	LESS ANCHOR DEDUCTIONS:																												
			TYPE III (4 @ 18.75')	-75.00'																									
			GREU, TL-3 (3 @ 50')	-150.00'																									
			AT-1 (1 @ 6.25')		-6.25																								
			TOTAL:	25.00'	31.25'																								
			SAY:	37.50'	37.50'																								
		ADDITIONAL GUARDRAIL POSTS = 5 EA																											

REVISIONS

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	3D-1

COMPUTED BY: RBR DATE: 9/8/2017

CHECKED BY: ECOLOGICAL ENGINEEERING, LLP DATE: 9/8/2017

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC)											
SIZE								12"	15"	18"	24"	30"	36"	42"	DO NOT USE PVC	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
THICKNESS OR GAUGE		FROM	TO																
12+06	RT	0401																	
15+16	LT	0402																	
15+16	RT	0403																	
16+10	RT	0404			232.20	231.80													
16+31	RT	0406	0405		235.33	233.90				24					X				X
16+36	RT	0406																	
16+09	RT																		
SHEET TOTALS										24									

STATION	C.S. PIPE								R.C. PIPE CLASS III								R.C. PIPE CLASS IV							
SIZE	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.079	.109	.109																
12+06																			28					
15+16																								
15+16																								
16+10																								36
16+31																								
16+36																								
16+09																								
SHEET TOTALS																			28					36

STATION	** " 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		QUANTITIES FOR DRAINAGE STRUCTURES	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT.		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE			CONCRETE TRANSITIONAL SECTION	
						R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE		E	F	G	DROP INLET	CATCH BASIN
12+06																
15+16																
15+16																
16+10																
16+31																
16+36																
16+09																
SHEET TOTALS																

STATION	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 GRATE STD. 840.20	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	MODIFIED CONCRETE FLUME				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
12+06																		27	REMOVE EX. 15" RCP
15+16											1								
15+16											1								
16+10																			BURY PIPE 0.8'
16+31																			
16+36																	0.4465		
16+09																		25	REMOVE EX. 48" CMP
SHEET TOTALS											2						0.4465	52	

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

1/25/2018
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USER:mburns

REVISIONS

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					
				TOTAL LF:	0

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

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE	Approx. Station	Approx. Offset
		TOTAL GAUGES (EACH):	

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
							TOTAL SY:	0

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

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF REINFORCED SOIL SLOPES (RSS)

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	SY
					TOTAL SY:	0

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	Station	Station	SY
CONTINGENCY			
		TOTAL SY:	0

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	200	300		
			TOTAL CY/TONS/SY:		100	200	300*	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.
17BP.5.R.68	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 045230 — Michael S. Burns, Jr. — 1/25/2018

HYDRAULICS ENGINEER — SEAL 043870 — Reid Robol — 1/25/2018

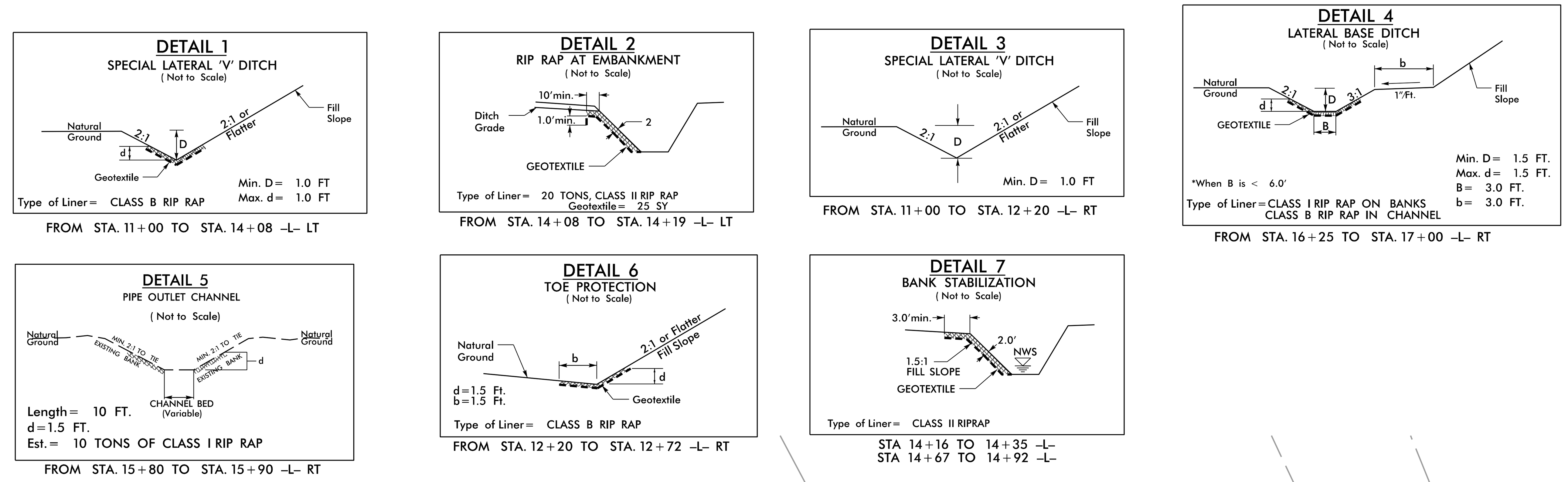
STEWART

ECOLOGICAL ENGINEERING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

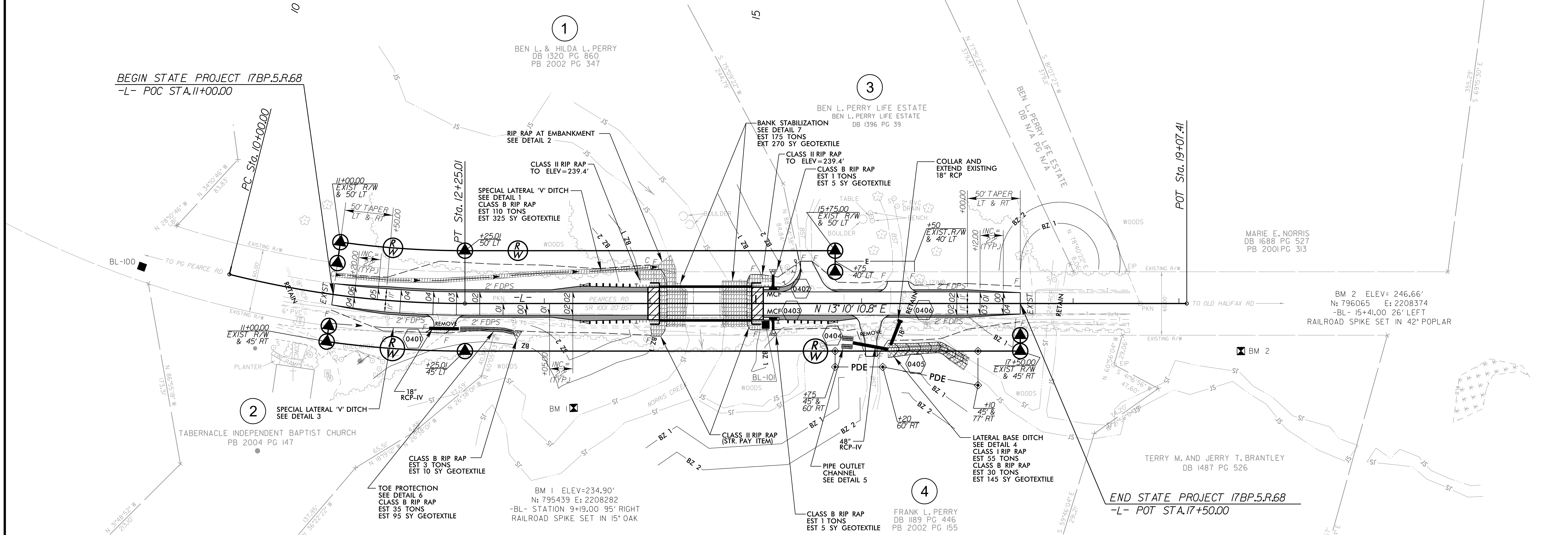
-L-
PI Sta 11+13.08
Δ = 14° 08' 05.4" (LT)
D = 6° 16' 54.8"
L = 225.01'
T = 113.08'
R = 912.08'
Se = 0.04
Runoff = 88'
V_D = 45 MPH



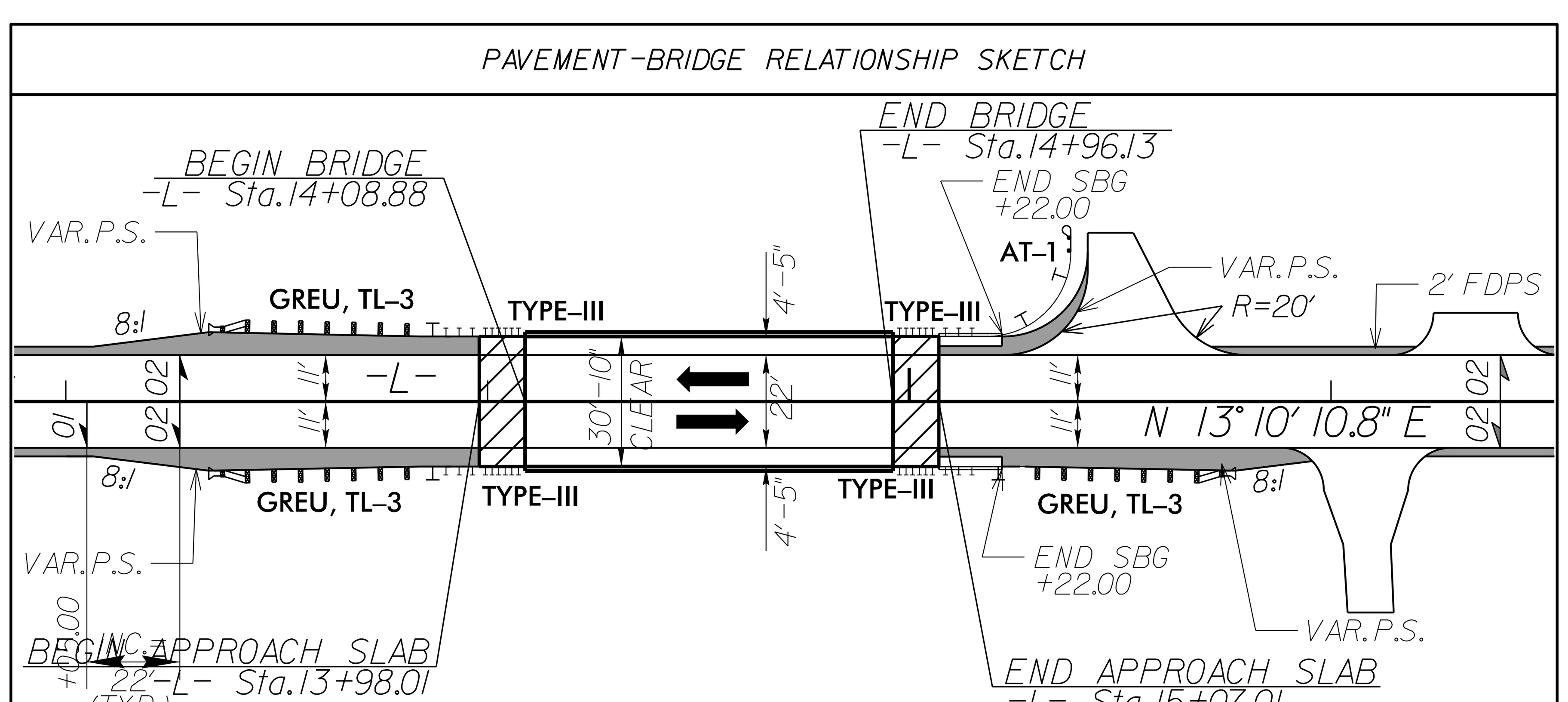
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Type of Liner= CLASS B RIP RAP
Min. D= 1.0 FT
Max. d= 1.0 FT
FROM STA. 11+00 TO STA. 14+08 -L- LT
DETAIL 2
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner= 20 TONS, CLASS II RIP RAP
Geotextile= 25 SY
FROM STA. 14+08 TO STA. 14+19 -L- LT
DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1.0 FT
FROM STA. 11+00 TO STA. 12+20 -L- RT
DETAIL 4
LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.5 FT.
Max. d= 1.5 FT.
B= 3.0 FT.
b= 3.0 FT.
Type of Liner= CLASS I RIP RAP ON BANKS
CLASS B RIP RAP IN CHANNEL
FROM STA. 16+25 TO STA. 17+00 -L- RT
DETAIL 5
PIPE OUTLET CHANNEL
(Not to Scale)
Length= 10 FT.
d=1.5 FT.
Est.= 10 TONS OF CLASS I RIP RAP
FROM STA. 15+80 TO STA. 15+90 -L- RT
DETAIL 6
TOE PROTECTION
(Not to Scale)
d=1.5 Ft.
b=1.5 Ft.
Type of Liner= CLASS B RIP RAP
FROM STA. 12+20 TO STA. 12+72 -L- RT
DETAIL 7
BANK STABILIZATION
(Not to Scale)
Type of Liner= CLASS II RIPRAP
STA 14+16 TO 14+35 -L-
STA 14+67 TO 14+92 -L-

NAD 83/NA 2011

GRADING NOTE:
LIMIT TREE CLEARING ON PARCELS 1 & 3
AS DIRECTED BY THE ENGINEER



BEGIN STATE PROJECT 17BP.5.R.68
-L- POC STA.11+00.00
END STATE PROJECT 17BP.5.R.68
-L- POT STA.17+50.00
PC Sta.10+00.00
PT Sta.12+25.01
POT Sta.19+07.41
N 13° 10' 10.8" E
BEN L. & HILDA L. PERRY
DB 1320 PG 860
PB 2002 PG 347
BEN L. PERRY LIFE ESTATE
DB 1396 PG 39
TABERNACLE INDEPENDENT BAPTIST CHURCH
PB 2004 PG 147
FRANK L. PERRY
DB 1189 PG 446
PB 2002 PG 155
MARIE E. NORRIS
DB 1688 PG 527
PB 2001 PG 313
TERRY M. AND JERRY T. BRANTLEY
DB 1487 PG 526
BM 1 ELEV=234.90'
N: 795439 E: 2208282
-BL- STATION 9+19.00 95' RIGHT
RAILROAD SPIKE SET IN 15" OAK
BM 2 ELEV= 246.66'
N: 796065 E: 2208374
-BL- 15+41.00 26' LEFT
RAILROAD SPIKE SET IN 42" POPLAR
RIP RAP AT EMBANKMENT
SEE DETAIL 2
CLASS II RIP RAP
TO ELEV=239.4'
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 1
CLASS B RIP RAP
EST 110 TONS
EST 325 SY GEOTEXTILE
BANK STABILIZATION
SEE DETAIL 7
EST 175 TONS
EST 270 SY GEOTEXTILE
CLASS B RIP RAP
EST 1 TONS
EST 5 SY GEOTEXTILE
COLLAR AND
EXTEND EXISTING
18" RCP
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE
TOE PROTECTION
SEE DETAIL 6
CLASS B RIP RAP
EST 35 TONS
EST 95 SY GEOTEXTILE
CLASS II RIP RAP
(STR. PAY ITEM)
PIPE OUTLET
CHANNEL
SEE DETAIL 5
LATERAL BASE DITCH
SEE DETAIL 4
CLASS I RIP RAP
EST 55 TONS
CLASS B RIP RAP
EST 30 TONS
EST 145 SY GEOTEXTILE
48" RCP-IV
18" RCP-IV
TO PG PEARCE RD
TO OLD HALIFAX RD
PEARCES RD
SR 1001 20' BST
NORRIS CREEK
BL-100
BL-101
WOODS
PDE



FOR -L- PROFILE, SEE SHEET 5

FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-16

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045230 MICHAEL S. BURNS, JR. — DocuSigned by: Michael S. Burns, Jr. 1/25/2018 — D425C8CC006E437

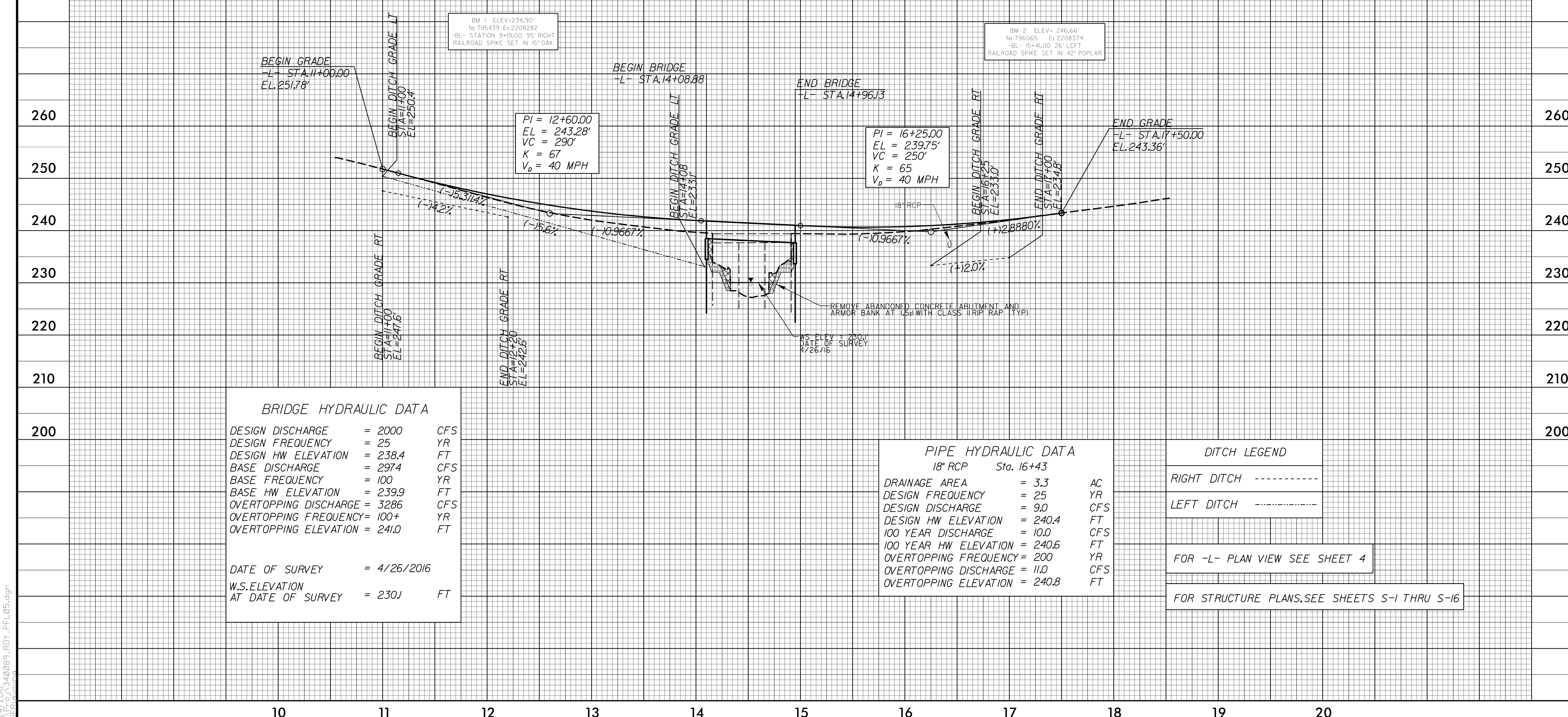
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043870 REID B. ROBOL — DocuSigned by: Reid Robol 1/25/2018 — 7074FDA3F200470...

STEWART — Firm License No. C-1051, 421 Fayetteville St, Suite 400, Raleigh, NC 27601, T 919.380.8750, www.stewartinc.com

ECOLOGICAL ENGINEERING — NC FIRM LICENSE No: F-1148, 1151 SE Cary Parkway, Suite 101, Cary, NC 27518, (919) 557-0929

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2000	CFS
DESIGN FREQUENCY	= 25	YR
DESIGN HW ELEVATION	= 238.4	FT
BASE DISCHARGE	= 2974	CFS
BASE FREQUENCY	= 100	YR
BASE HW ELEVATION	= 239.9	FT
OVERTOPPING DISCHARGE	= 3286	CFS
OVERTOPPING FREQUENCY	= 100+	YR
OVERTOPPING ELEVATION	= 241.0	FT
DATE OF SURVEY	= 4/26/2016	
W.S.ELEVATION AT DATE OF SURVEY	= 230.1	FT

PIPE HYDRAULIC DATA

18" RCP Sta. 16+43

DRAINAGE AREA	= 3.3	AC
DESIGN FREQUENCY	= 25	YR
DESIGN DISCHARGE	= 9.0	CFS
DESIGN HW ELEVATION	= 240.4	FT
100 YEAR DISCHARGE	= 10.0	CFS
100 YEAR HW ELEVATION	= 240.6	FT
OVERTOPPING FREQUENCY	= 200	YR
OVERTOPPING DISCHARGE	= 11.0	CFS
OVERTOPPING ELEVATION	= 240.8	FT

DITCH LEGEND

RIGHT DITCH	- - - - - - - - - -
LEFT DITCH	-··-··-··-··-

FOR -L- PLAN VIEW SEE SHEET 4

FOR STRUCTURE PLANS,SEE SHEETS S-1 THRU S-16

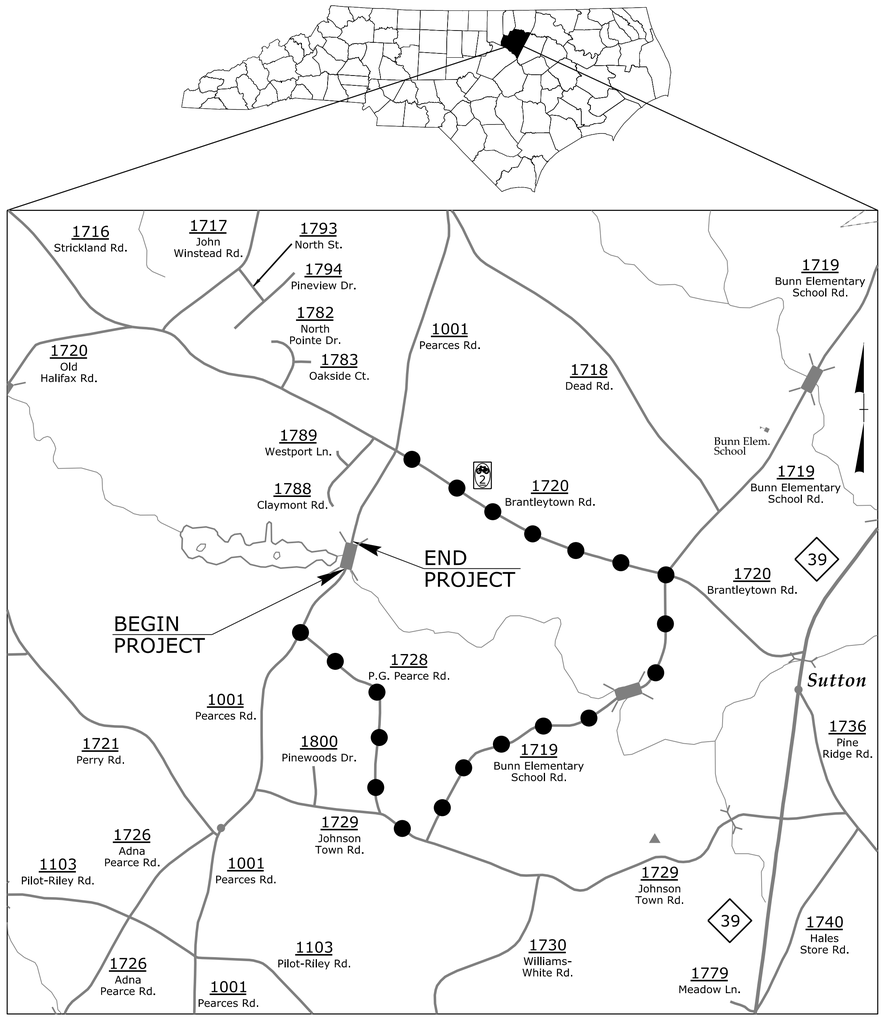
5/28/99

1/24/2018 ...\Proj\340089_RDY_PFL05.dgn

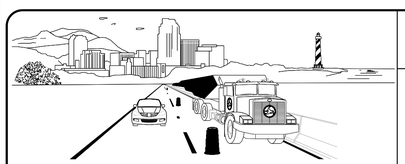
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

FRANKLIN COUNTY



OFF-SITE DETOUR



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

ANDY YOUNG, PE — *TRAFFIC CONTROL PROJECT ENGINEER*

MICHAEL BURNS, PE — *TRAFFIC CONTROL DESIGN ENGINEER*

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

INDEX OF SHEETS

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PLANS PREPARED BY:

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:816001.02

APPROVED: DocuSigned by: *Michael S. Burns, Jr.* D425C8CC006F437...

DATE: 1/25/2018

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045230 MICHAEL S. BURNS

SHEET NO.
TMP-1

17BP.5.R.68

TIP PROJECT:

1/24/2018
::\TCP\340089_TC_TCP-01.dgn
USER:ayoung

PROJ. REFERENCE NO.	SHEET NO.
17BP.5.R.68	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUM
1145.01	BARRICADES

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

EXISTING LINES
TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

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Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

APPROVED: DocuSigned by: Michael S. Burns, Jr. D425C8CC009F437...

DATE: 1/25/2018

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045230 MICHAEL S. BURNS JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

1/25/2018
...\TCP\340089_TC_TCP-01A.dgn
USER:mburns

PROJ. REFERENCE NO.	SHEET NO.
17BP.5.R.68	TMP-1B

MANAGEMENT STRATEGIES

DURING CONSTRUCTION OF PROPOSED STRUCTURE BRIDGE No. 89 OVER NORRIS CREEK, SR 1001 (PEARCES RD.) WILL BE CLOSED TO THROUGH TRAFFIC. THROUGH TRAFFIC ON SR 1001 (PEARCES RD.) WILL BE MAINTAINED USING AN OFFSITE DETOUR.

THE OFFSITE DETOUR WILL INCLUDE SR 1728, SR 1729, SR 1719, AND SR 1720 (SEE SHEET TMP-3).

ACCESS TO ALL RESIDENCES AND BUSINESSES WITHIN THE PROJECT LIMITS MUST BE MAINTAINED AT ALL TIMES WITH THE EXCEPTION OF A DRIVE AT -L- STA. 15+47.71 LEFT MAY BE CLOSED.

PROJECT B-4750 (BRIDGE NO. 90) IS COMBINED WITH PROJECT 17BP.5.R.68 (BRIDGE NO. 89) FOR CONSTRUCTION. BRIDGE NO. 90 SHALL BE CONSTRUCTED FIRST AND WORK SHALL NOT BEGIN FOR BRIDGE NO. 89 UNTIL BRIDGE NO. 90 IS COMPLETE AND TRAFFIC MAY BE PLACED ON BRIDGE NO. 90 AND ALL TRAFFIC MANAGEMENT DEVICES HAVE BEEN REMOVED.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

SIGNING

A) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

   PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

B) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

   COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

C) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

LOCAL NOTES

1. NOTIFY THE ENGINEER AT LEAST 30 DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.
2. NOTIFY THE FRANKLIN COUNTY SCHOOLS TRANSPORTATION DIRECTOR OF THE BRIDGE REMOVAL 30 DAYS PRIOR TO ROAD CLOSURE.
3. NOTIFY THE FRANKLIN COUNTY EMERGENCY MANAGEMENT SERVICES DIRECTOR OF BRIDGE REMOVAL 30 DAYS PRIOR TO ROAD CLOSURE.

PHASING

STEP 1:

PROVIDE AND MAINTAIN CHANGEABLE MESSAGE SIGNS AT EACH END OF SR 1001 (PEARCES RD.) FOR FOURTEEN (14) CALENDAR DAYS PRIOR TO ROAD CLOSURE, AS SHOWN ON TMP-3

STEP 2:

USING RSD 1101.03, SHEET 1 OF 9, SHEETS TMP-2 AND TMP-3, INSTALL ROAD CLOSURE AND DETOUR SIGNS, PLACE TYPE III BARRICADES TO CLOSE SR 1001 (PEARCES RD.) TO THROUGH TRAFFIC, AND DETOUR TRAFFIC OFFSITE. REMOVE CHANGEABLE MESSAGE SIGNS ONCE DETOUR IS IN PLACE.

STEP 3:

REMOVE THE EXISTING STRUCTURE.

STEP 4:

CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY.

STEP 5:

PLACE FINAL PAVEMENT MARKINGS ACCORDING TO THE PAVEMENT MARKING PLANS.

STEP 6:

OPEN SR 1001 (PEARCES RD.) TO TRAFFIC AND REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

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Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

APPROVED: DocuSigned by: Michael S. Burns, Jr. D425C8CC006F437...

DATE: 2/22/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 045230 ENGINEER MICHAEL S. BURNS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

2/22/2018
...\TCP\340089_TC_TCP-01B.dgn
USER:mburns

PROJ. REFERENCE NO.	SHEET NO.
17BP.5.R.68	TMP-2

SIGN NUMBER: PEARCES RD
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 4′-0″
HEIGHT: 2′-6″
TOTAL AREA: 10.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38″
WIDTH: 0.5″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

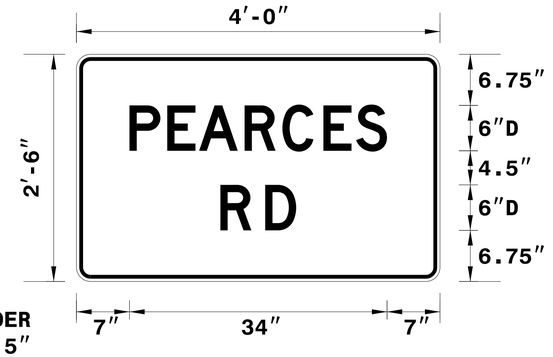
SYMBOL	X	Y	WID	HT

MAT′L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

DESIGN BY: Michael Burns, PE
CHECKED BY: Andy Young, PE
Jul 21, 2017
PROJECT ID: 17BP.5.R.68
LOCATION: Franklin County
DIV: 5



BORDER
R=1.5″
TH=0.5″
IN=0.38″

Panel Style: Traffic Control.ssi
M.U.T.C.D.: 2009 Edition

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

																									Series/Size Text Length
	P	E	A	R	C	E	S																		D 2000
	7	12	16.2	22.2	27.2	32.6	36.9																		34
	R	D																							D 2000
	19	24.9																							10

FILENAME: 340089_TC_TCP-02

NORTH CAROLINA D.O.T. SIGN DETAIL

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Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

APPROVED: DocuSigned by: Michael S. Burns, Jr. D425C8CC006F437...
DATE: 1/25/2018
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 045230 ENGINEER MICHAEL S. BURNS II

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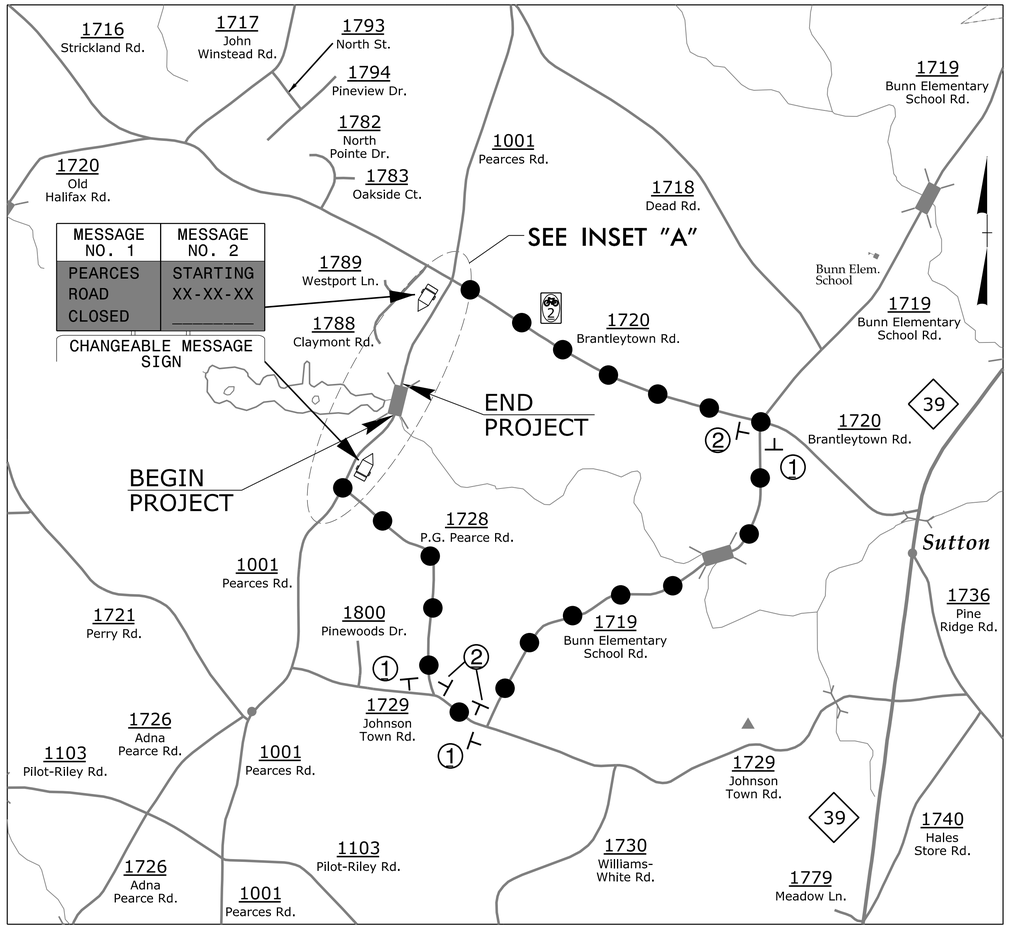
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

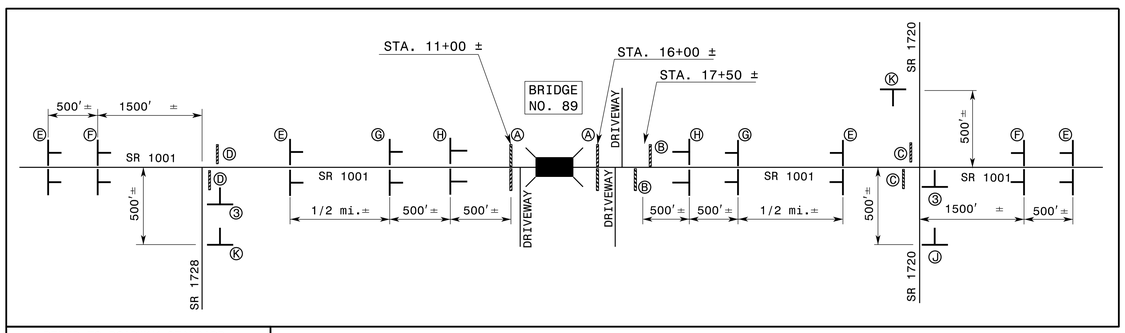
SPECIAL SIGN DESIGN

1/24/2018
...\TCP\340089_TC_TCP-02.dgn
USER:ayoung

PROJ. REFERENCE NO.	SHEET NO.
17BP.5.R.68	TMP-3

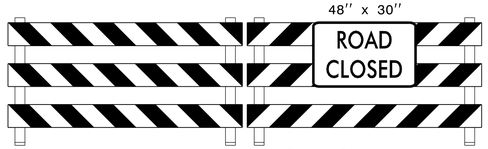


INSET A



REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9 FOR APPLICABLE NOTES.

Ⓐ

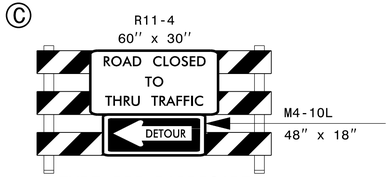


TYPE III BARRICADE(S)

Ⓑ

TYPE III BARRICADE

Ⓒ



TYPE III BARRICADE

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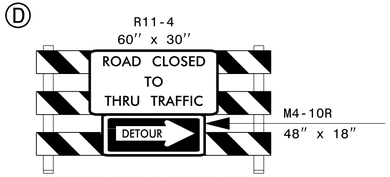
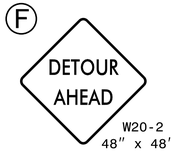


TYPE III BARRICADE

Ⓔ

Ⓕ



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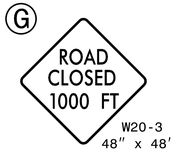

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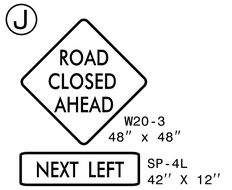

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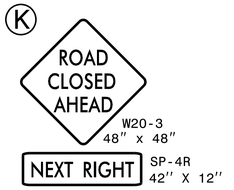

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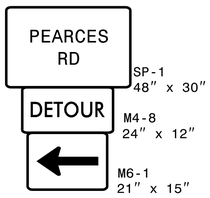

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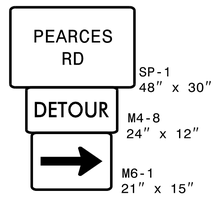

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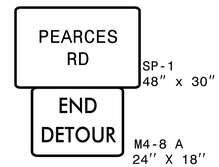

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APPROVED: DocuSigned by: Michael S. Burns, Jr. D425CBCC006F437...

DATE: 1/25/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 045230 ENGINEER MICHAEL S. BURNS

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

OFF-SITE DETOUR

1/25/2018
...\TCP\340089_TC_TCP-03.dgn
...USER\mburns

TIP.: 17BP.5.R.68

CONTRACT: DE00235

TIP NO.	SHEET NO.
17BP.5.R.68	PMP-1

APPROVED DocuSigned by: Michael S. Burns, Jr. D425C8CC006F437...

DATE: 1/25/2018

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 045230 ENGINEER MICHAEL S. BURNS

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

FRANKLIN COUNTY

LOCATION: BRIDGE NO. 89 OVER NORRIS CREEK ON SR 1001 (PEARCES RD.)

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PA	PAINT WHITE EDGELINE (4")
PI	PAINT YELLOW DOUBLE CENTER (4")
MA	YELLOW & YELLOW, PERMANENT RAISED PAVEMENT MARKERS

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

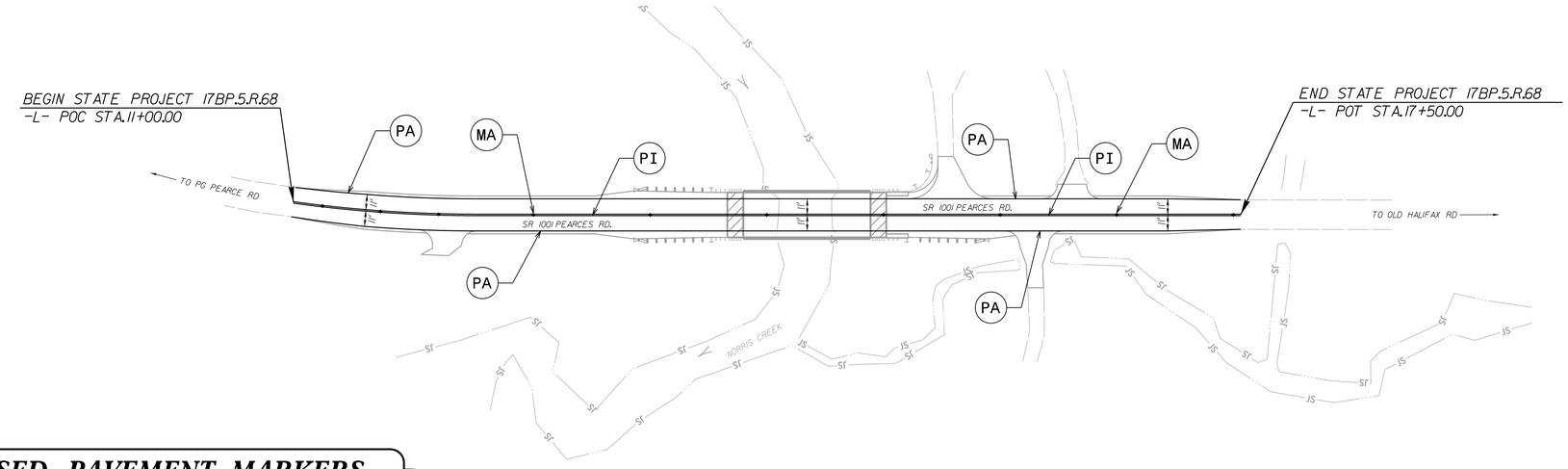
ROAD NAME	MARKING	MARKER
PEARCES RD	PAINT	RAISED

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.

NAD 83 /NA 2011



RAISED PAVEMENT MARKERS

TYP. SPACING	BEGIN STA.	END STA.
40'	11+00 +/-	12+25 +/-
80'	12+25 +/-	17+50 +/-

PLAN PREPARED BY: STEWART

ANDY YOUNG, PE	PROJECT ENGINEER
MICHAEL BURNS, PE	PROJECT DESIGN ENGINEER

Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com
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1/25/2018
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USER:mburns

TIP PROJECT: 17BP.5.R.68

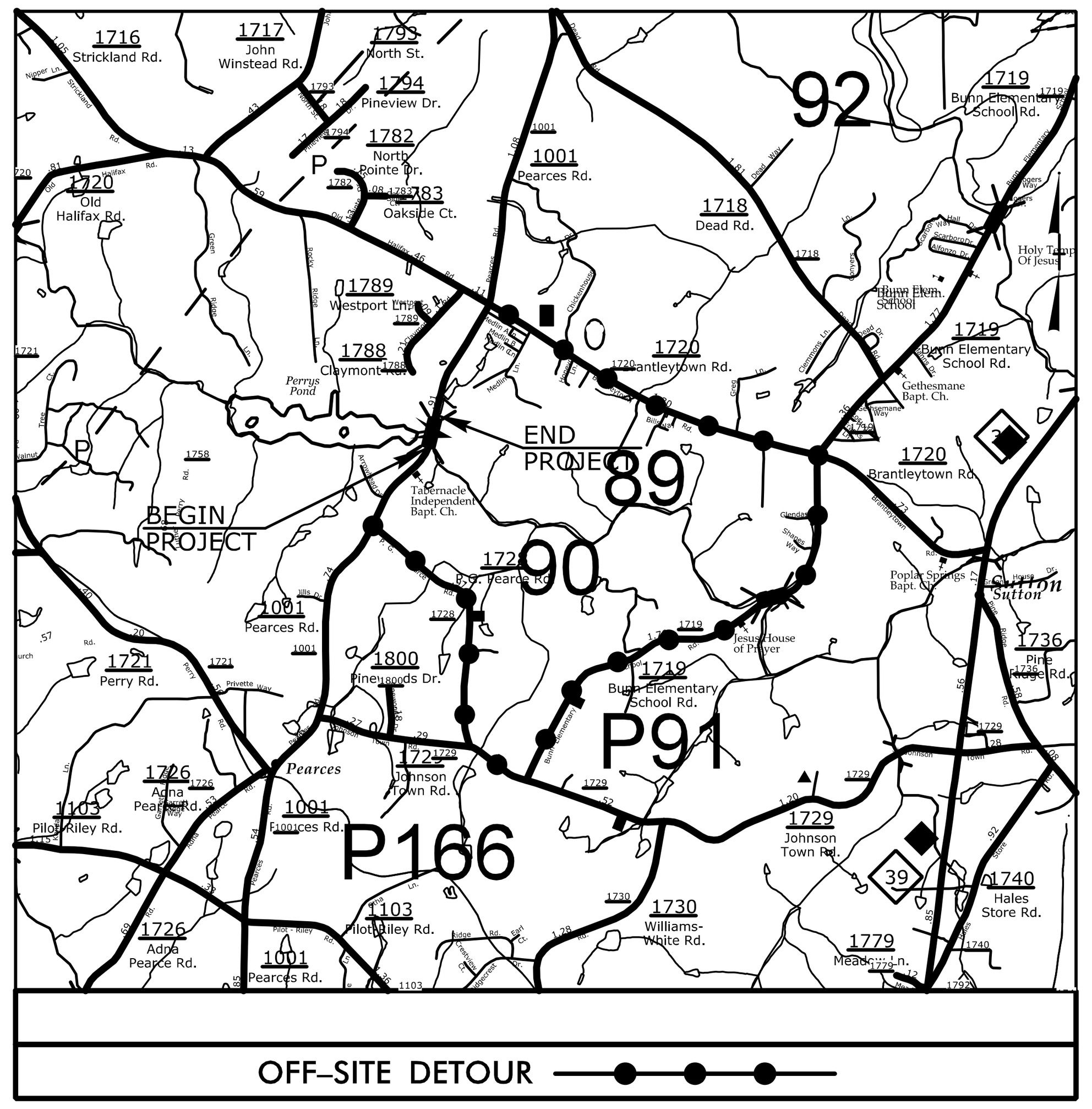
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.68	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.5.R.68	N/A	PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

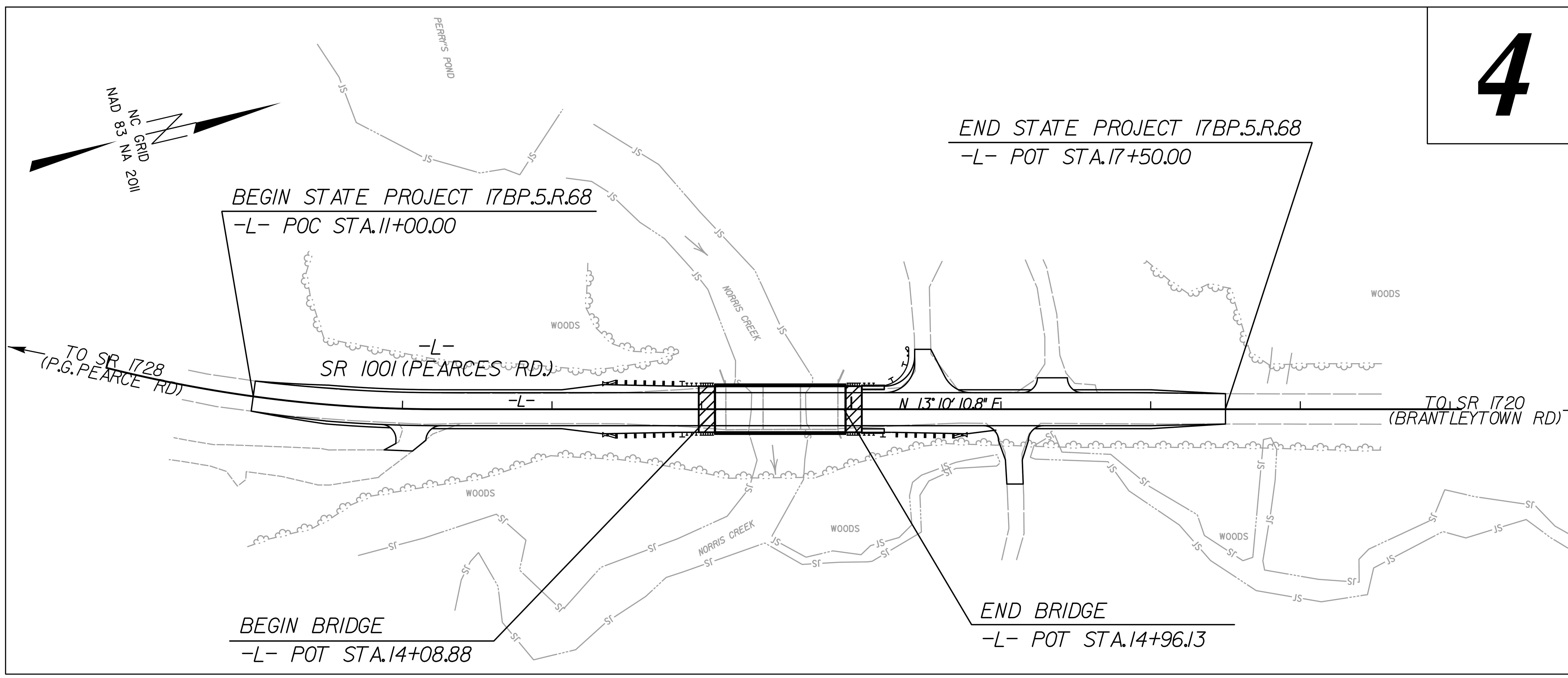
FRANKLIN COUNTY



See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

LOCATION: BRIDGE NO. 89 OVER NORRIS CREEK ON SR 1001 (PEARCES RD.)

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



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	FW / CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

25 0 50
PLANS

25 0 50
PROFILE (HORIZONTAL)

5 0 10
PROFILE (VERTICAL)

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

ECOLOGICAL ENGINEERING

NC FIRM LICENSE No: F-1148
1151 SE Cary Parkway
Suite 101
Cary, NC 27518
(919) 557-0929

Designed by:

REID ROBOL, PE	3409
NAME	LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

DONALD PEARSON

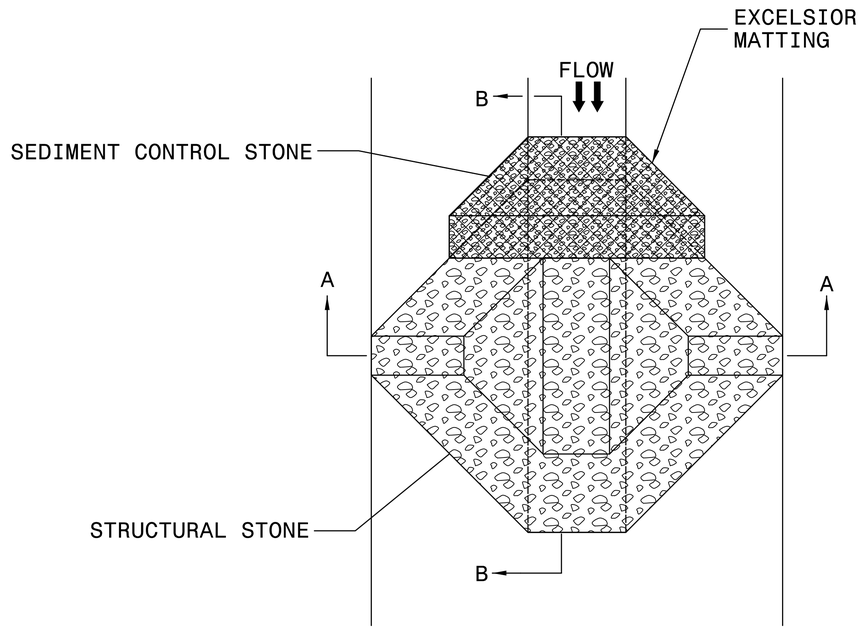
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

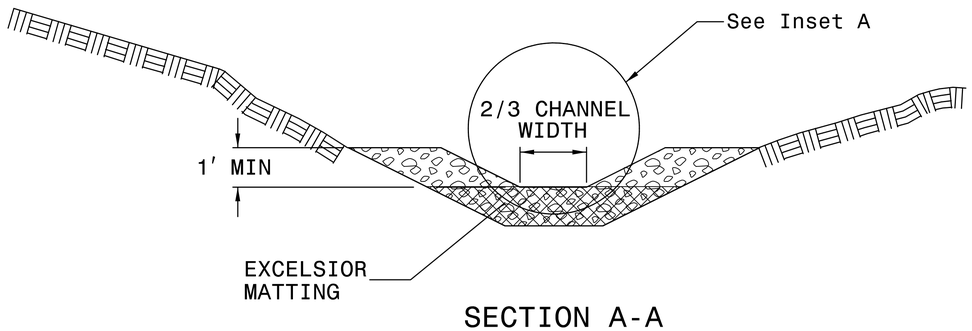
1604.01 *Railroad Erosion Control Detail*
1605.01 *Temporary Silt Fence*
1606.01 *Special Sediment Control Fence*
1607.01 *Gravel Construction Entrance*
1622.01 *Temporary Berms and Slope Drains*
1630.01 *Riser Basin*
1630.02 *Silt Basin Type B*
1630.03 *Temporary Silt Ditch*
1630.04 *Stilling Basin*
1630.05 *Temporary Diversion*
1630.06 *Special Stilling Basin*
1631.01 *Matting Installation*
1632.01 *Rock Inlet Sediment Trap Type A*
1632.02 *Rock Inlet Sediment Trap Type B*
1632.03 *Rock Inlet Sediment Trap Type C*
1633.01 *Temporary Rock Silt Check Type A*
1633.02 *Temporary Rock Silt Check Type B*
1634.01 *Temporary Rock Sediment Dam Type A*
1634.02 *Temporary Rock Sediment Dam Type B*
1635.01 *Rock Pipe Inlet Sediment Trap Type A*
1635.02 *Rock Pipe Inlet Sediment Trap Type B*
1640.01 *Coir Fiber Baffle*
1645.01 *Temporary Stream Crossing*

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	EC-02
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

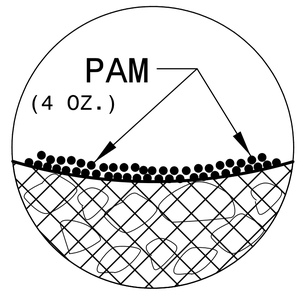
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

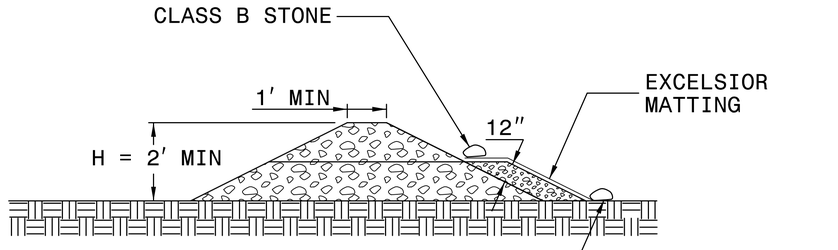
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	**-L-**	**11+00**	**12+20**	**RT**	**50**
				SUBTOTAL	**50**
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					**0**
				TOTAL	**50**
				SAY	**55**

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	EC-3B

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	EC-04/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STEWART — Firm License No. C-1051, 421 Fayetteville St., Suite 400, Raleigh, NC 27601, T 919.380.8750, www.stewartinc.com

ECOLOGICAL ENGINEERING — NC FIRM LICENSE No. F-1140, 1151 SE Cary Parkway, Suite 101, Cary, NC 27518, (919) 557-0929

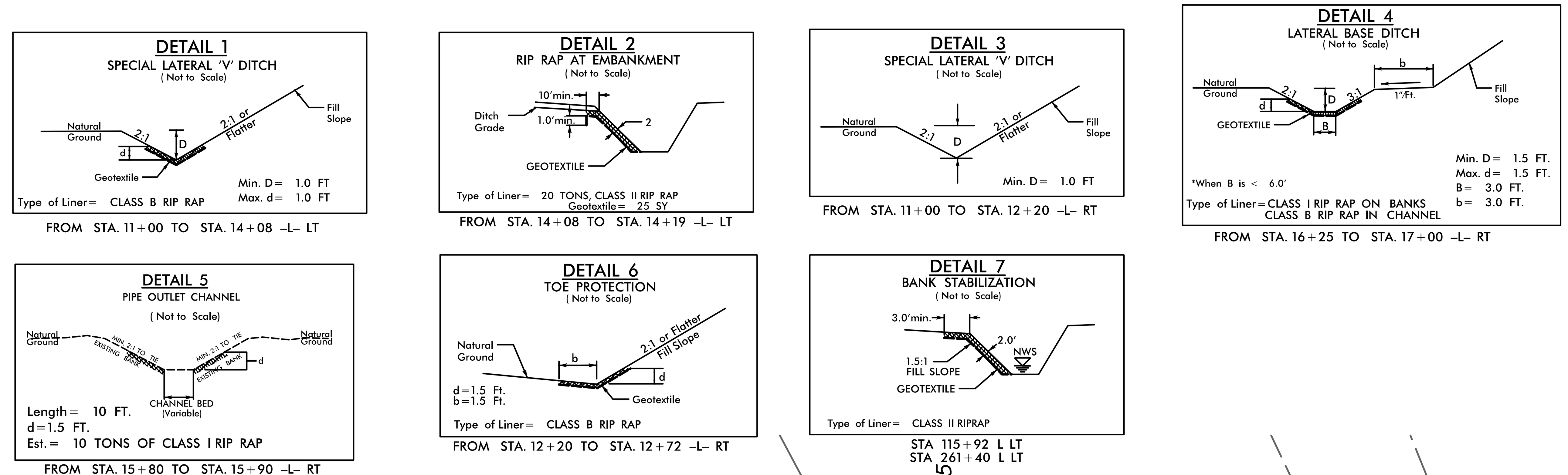
8/17/99

REVISIONS

ROW REV.- AUGUST 1,2017 - REVISED PROPERTY LINE BETWEEN PARCEL NO.2 & 4 RIGHT SIDE

-L-
PI Sta 11+13.08
Δ = 14° 08' 05.4" (LT)
D = 6° 16' 54.8"
L = 225.01'
T = 113.08'
R = 912.08'
Se = 0.04
Runoff = 88'
V_D = 45 MPH

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

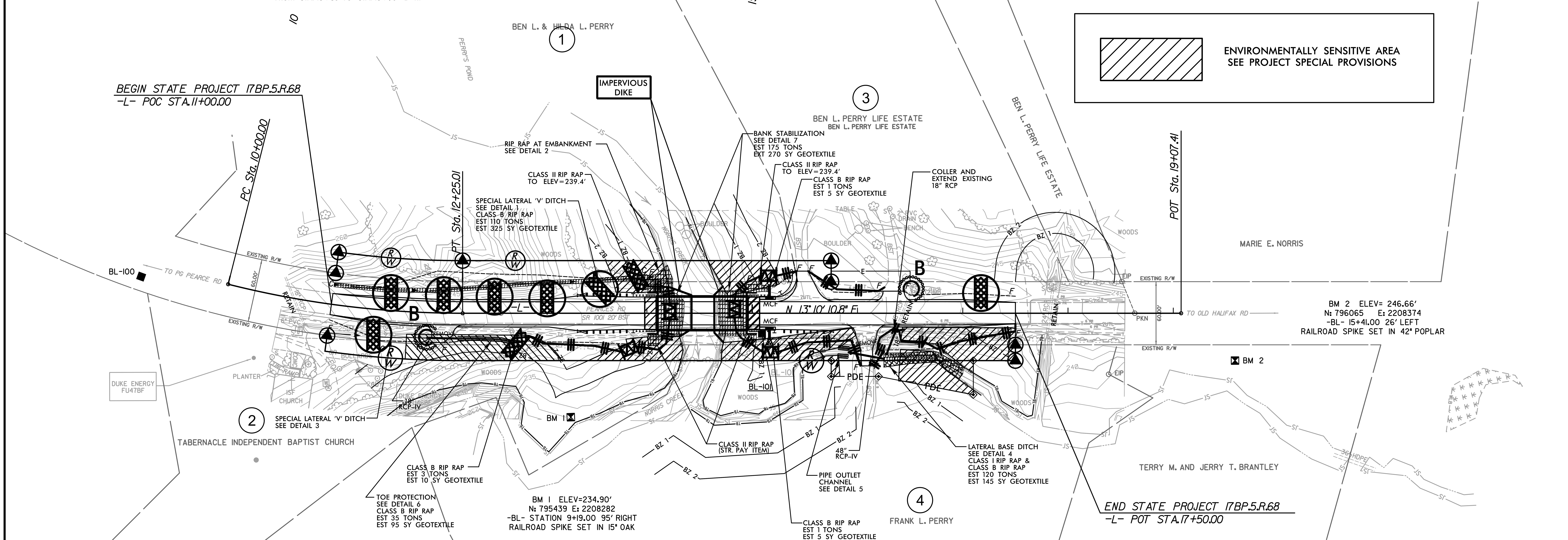


DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
2:1 or Flatter
Fill Slope
Geotextile
Min. D= 1.0 FT
Max. d= 1.0 FT
Type of Liner= CLASS B RIP RAP
FROM STA. 11+00 TO STA. 14+08 -L- LT
DETAIL 2
RIP RAP AT EMBANKMENT
(Not to Scale)
10' min.
1.0' min.
Ditch Grade
GEOTEXTILE
Type of Liner= 20 TONS, CLASS II RIP RAP
Geotextile= 25 SY
FROM STA. 14+08 TO STA. 14+19 -L- LT
DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
2:1 or Flatter
Fill Slope
Min. D= 1.0 FT
FROM STA. 11+00 TO STA. 12+20 -L- RT
DETAIL 4
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
GEOTEXTILE
Fill Slope
Min. D= 1.5 FT.
Max. d= 1.5 FT.
B= 3.0 FT.
b= 3.0 FT.
*When B is < 6.0'
Type of Liner= CLASS I RIP RAP ON BANKS
CLASS B RIP RAP IN CHANNEL
FROM STA. 16+25 TO STA. 17+00 -L- RT
DETAIL 5
PIPE OUTLET CHANNEL
(Not to Scale)
Natural Ground
CHANNEL BED (Variable)
Length= 10 FT.
d=1.5 FT.
Est.= 10 TONS OF CLASS I RIP RAP
FROM STA. 15+80 TO STA. 15+90 -L- RT
DETAIL 6
TOE PROTECTION
(Not to Scale)
Natural Ground
2:1 or Flatter
Fill Slope
Geotextile
d=1.5 Ft.
b=1.5 Ft.
Type of Liner= CLASS B RIP RAP
FROM STA. 12+20 TO STA. 12+72 -L- RT
DETAIL 7
BANK STABILIZATION
(Not to Scale)
3.0' min.
2.0'
NWS
1.5:1 FILL SLOPE
GEOTEXTILE
Type of Liner= CLASS II RIPRAP
STA 115+92 L LT
STA 261+40 L LT

NAD 83/NA 2011

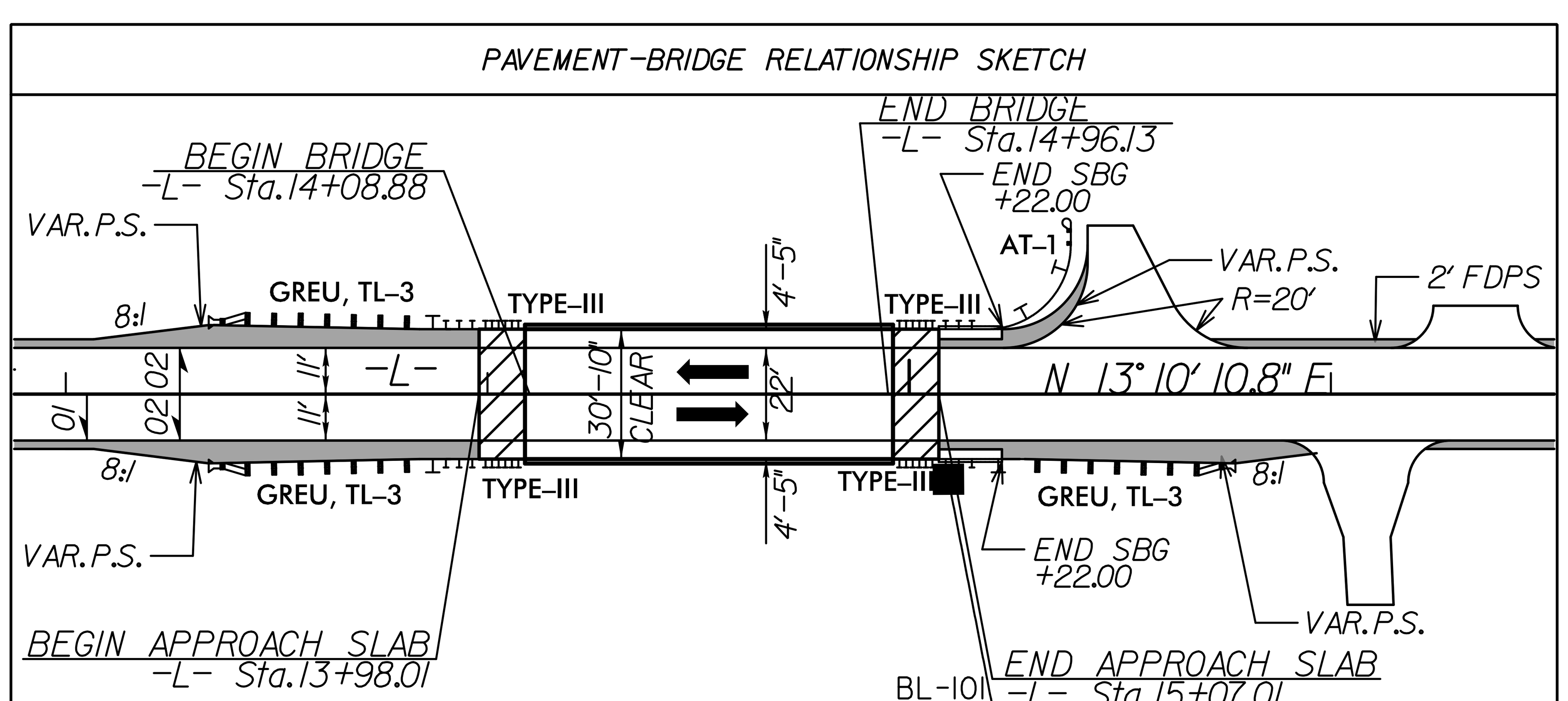
GRADING NOTE:
LIMIT TREE CLEARING ON PARCELS 1 & 3.
ENGINEER SHALL BE DIRECTED

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



BEN L. & HILDA L. PERRY
1
BEGIN STATE PROJECT 17BP.5.R.68
-L- POC STA.11+00.00
PC Sta. 10+00.00
PT Sta. 12+25.01
POT Sta. 19+07.41
IMPERVIOUS DIKE
3
BEN L. PERRY LIFE ESTATE
BEN L. PERRY LIFE ESTATE
RIP RAP AT EMBANKMENT
SEE DETAIL 2
CLASS II RIP RAP
TO ELEV=239.4'
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 1
CLASS B RIP RAP
EST 110 TONS
EST 325 SY GEOTEXTILE
BANK STABILIZATION
SEE DETAIL 7
EST 175 TONS
EST 270 SY GEOTEXTILE
CLASS II RIP RAP
TO ELEV=239.4'
CLASS B RIP RAP
EST 1 TONS
EST 5 SY GEOTEXTILE
COLLER AND
EXTEND EXISTING
18" RCP
MARIE E. NORRIS
WOODS
BL-100
TO PG PEARCE RD
EXISTING R/W
N 13° 10' 10.8" E
TO OLD HALIFAX RD
BM 2 ELEV= 246.66'
N: 796065 E: 2208374
-BL- 15+41.00 26' LEFT
RAILROAD SPIKE SET IN 42" POPLAR
BM 2
DUKE ENERGY
PLANTER
BM 1
BL-101
PDE
2
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
TABERNACLE INDEPENDENT BAPTIST CHURCH
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE
TOE PROTECTION
SEE DETAIL 6
CLASS B RIP RAP
EST 35 TONS
EST 95 SY GEOTEXTILE
BM 1 ELEV=234.90'
N: 795439 E: 2208282
-BL- STATION 9+19.00 95' RIGHT
RAILROAD SPIKE SET IN 15" OAK
CLASS II RIP RAP
(STR. PAY ITEM)
48" RCP-IV
PIPE OUTLET
CHANNEL
SEE DETAIL 5
CLASS B RIP RAP
EST 1 TONS
EST 5 SY GEOTEXTILE
4
FRANK L. PERRY
LATERAL BASE DITCH
SEE DETAIL 4
CLASS I RIP RAP &
CLASS B RIP RAP
EST 120 TONS
EST 145 SY GEOTEXTILE
TERRY M. AND JERRY T. BRANTLEY
END STATE PROJECT 17BP.5.R.68
-L- POT STA.17+50.00

PAVEMENT-BRIDGE RELATIONSHIP SKETCH



NOTE: STREAM RELOCATION SHALL BE CONSTUCTED IN THE DRY. SEE STREAM CHANNEL RELOCATION SPECIAL PROVISION. IMPERVIOUS DIKES, BYPASS PUMPS, AND DEWATERING PUMPS WILL BE CONSIDERED INCIDENTAL.

NOTE: THE CONTRACTOR SHALL COMPETELY REMOVE ALL EXISTING AND OLDER BRIDGE COMPONENTS. THE REMOVAL OF THE CONCRETE ABUTMENTS MUST BE DONE USING APPROVED NCDOT BMP METHODS. THE PLACEMENT OF THE IMPERVIOUS DIKE IS CONSIDERED INCIDENTAL TO REMOVAL OF THE EXISTING CONCRETE ABUTMENT AND INSTALLATION OF THE BANK STABILIZATION.

FOR -L- PROFILE,SEE SHEET 5

FOR STRUCTURE PLANS,SEE SHEETS S-1 THRU S-16

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

12:06:41PM
R:\Environmental\Design\340089_REV_PSH04.dgn

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	EC-05/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STEWART

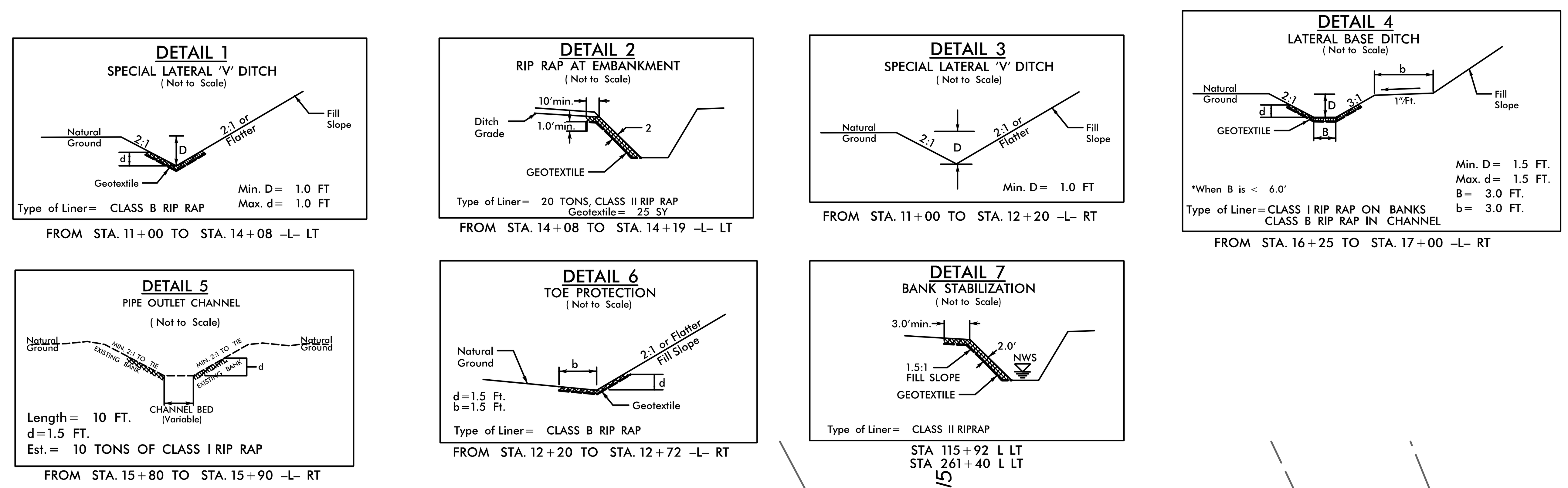
ECOLOGICAL ENGINEERING

REVISIONS

ROW REV.- AUGUST 1,2017 - REVISED PROPERTY LINE BETWEEN PARCEL NO.2 & 4 RIGHT SIDE

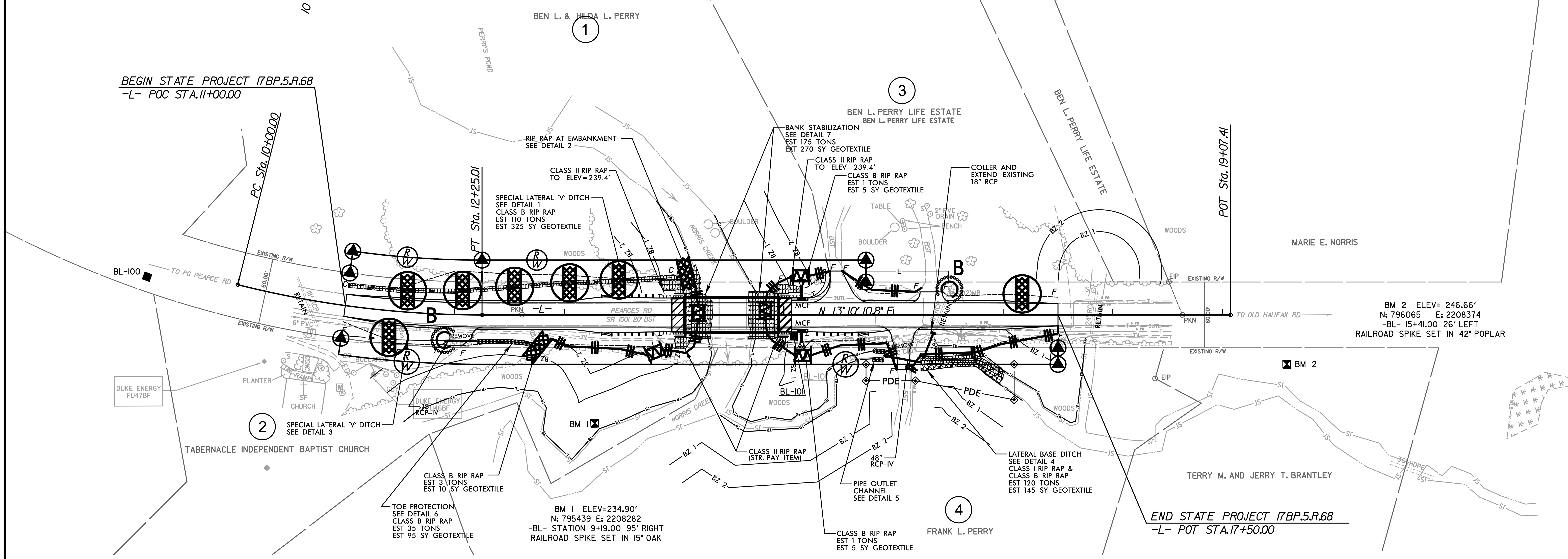
8/17/99

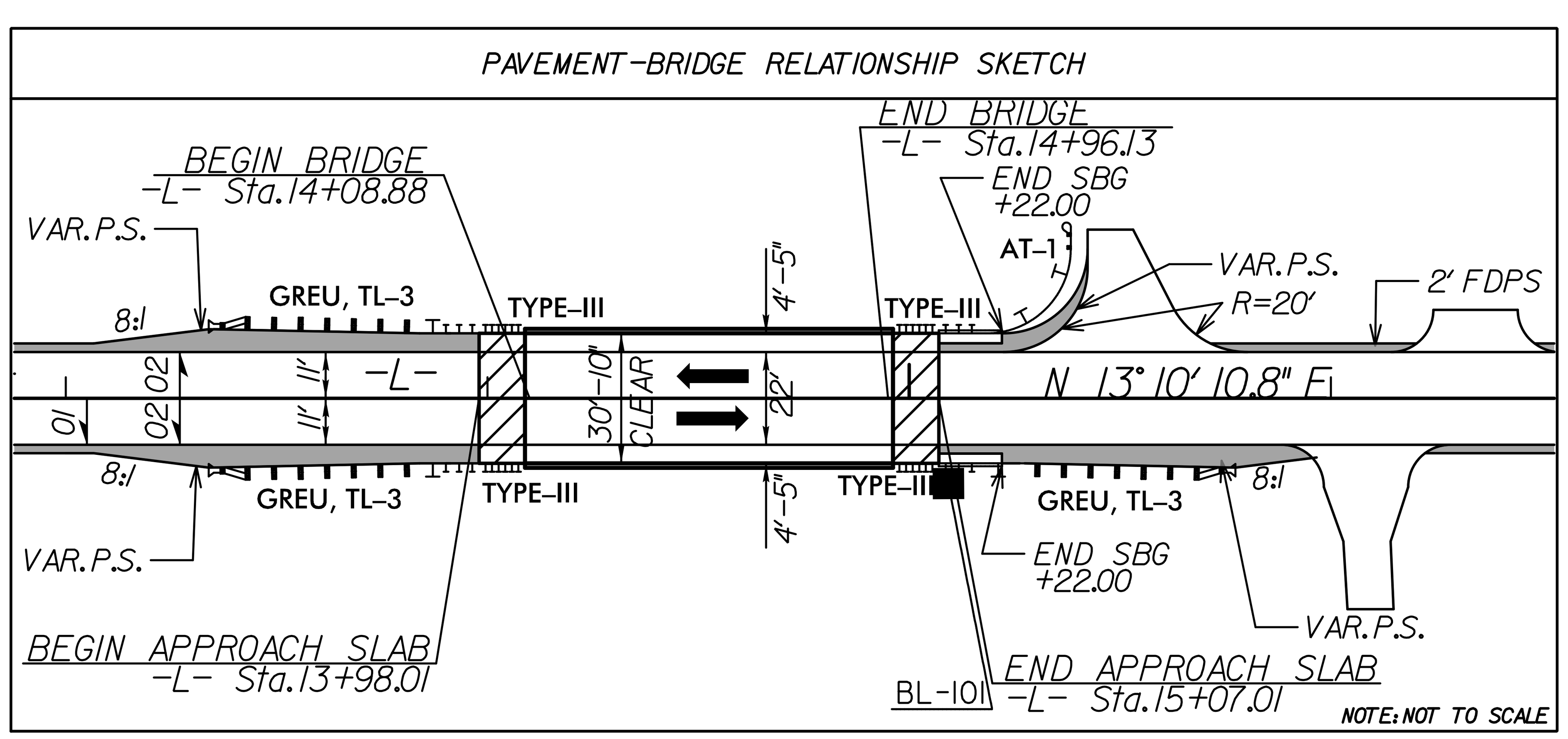
-L-
PI Sta 11+13.08
Δ = 14° 08' 05.4" (LT)
D = 6° 16' 54.8"
L = 225.01'
T = 113.08'
R = 912.08'
Se = 0.04
Runoff = 88'
V_D = 45 MPH



NAD 83/NA 2011

GRADING NOTE:
LIMIT TREE CLEARING ON PARCELS 1 & 3.
ENGINEER SHALL BE DIRECTED





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FOR -L- PROFILE,SEE SHEET 5

FOR STRUCTURE PLANS,SEE SHEETS S-1THRU S-16

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

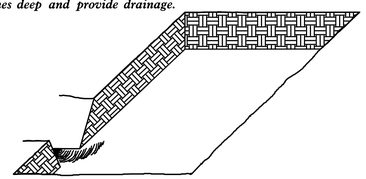
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.68	RF–1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

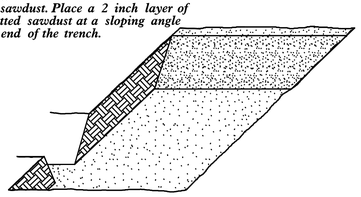
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

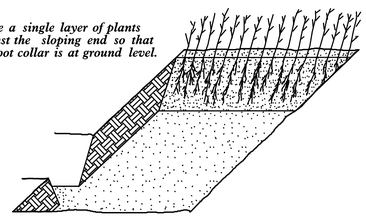
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



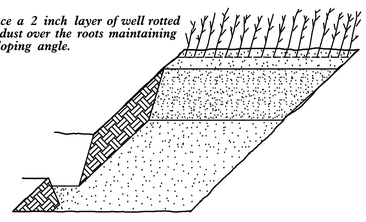
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

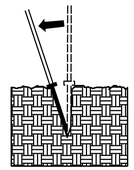


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

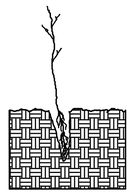


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

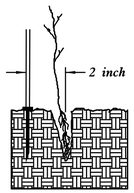
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



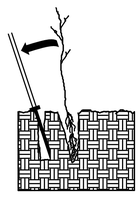
1. Insert planting bar as shown and pull handle toward planter.



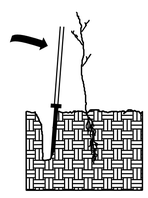
2. Remove planting bar and place seedling at correct depth.



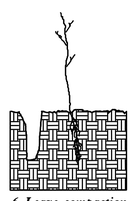
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

33%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
33%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
34%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. – ROADSIDE ENVIRONMENTAL UNIT

09/08/09

TIP PROJECT: 17BP.5.R.68

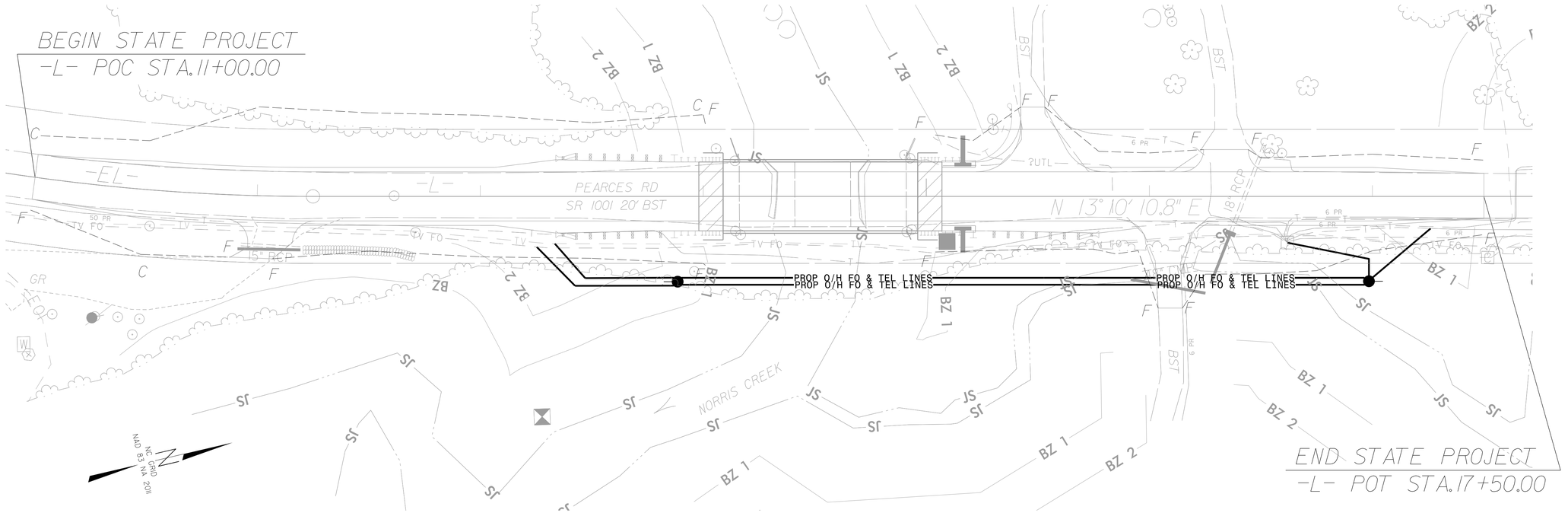
T.I.P. NO.	SHEET NO.
17BP.5.R.68	UO–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
FRANKLIN COUNTY

LOCATION: BRIDGE NO. 89 OVER NORRIS CREEK ON SR 1001 (PEARCES RD)

TYPE OF WORK: PERMANENT TELECOMMUNICATIONS RELOCATION



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UO–1	*TITLE SHEET*
UO–2	*UTILITY BY OTHERS PLAN SHEET*

UTILITY OWNERS ON PROJECT

(A) AT&T – TELECOMMUNICATIONS

(B) CHARTER (TIME WARNER) – TELECOMMUNICATIONS

PREPARED IN THE OFFICE OF:

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
firm license #: C-1051
www.stewartbc.com
PROJECT #:B11001

DAVID RUGGLES, PE — *PROJECT ENGINEER*
ELIZABETH PHELPS, EI — *PROJECT DESIGN ENGINEER*

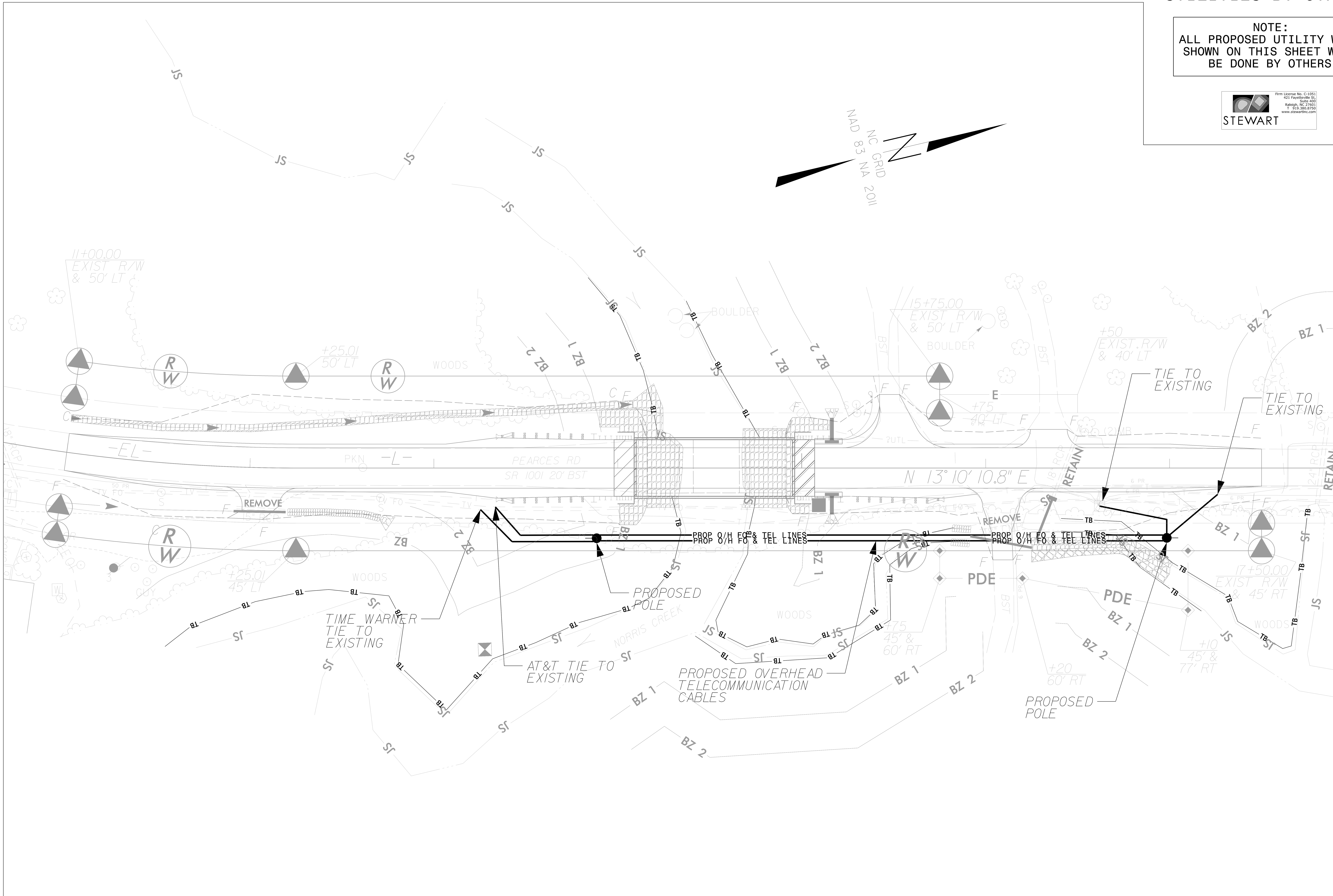
11/25/2018
...\340089_UTL_TSH_Revised.dgn
USER:default

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	UO-2

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

STEWART



NC GRID NAD 83 NA 2011
11+00.00 EXIST R/W & 50' LT
+25.01 50' LT
15+75.00 EXIST R/W & 50' LT
+50 EXIST. R/W & 40' LT
+75 40' LT
+25.01 45' LT
17+50.00 EXIST R/W & 45' RT
+75 45' & 60' RT
+20 60' RT
+10 45' & 77' RT
PEARCES RD
SR 1001 20' BST
N 13° 10' 10.8" E
BOULDER
WOODS
NORRIS CREEK
REMOVE
RETAIN
PDE
PROP O/H FO & TEL LINES
TIE TO EXISTING
TIME WARNER TIE TO EXISTING
AT&T TIE TO EXISTING
PROPOSED POLE
PROPOSED OVERHEAD TELECOMMUNICATION CABLES

PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.68	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+00.00	0	0
11+50.00	36	7
12+00.00	45	33
12+50.00	70	58
13+00.00	81	83
13+50.00	40	132
14+00.00	6	187
14+08.88	1	39

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+96.13	0	0
15+00.00	0	8
15+50.00	0	86
16+00.00	0	92
16+50.00	4	80
17+00.00	24	46
17+50.00	32	13

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".

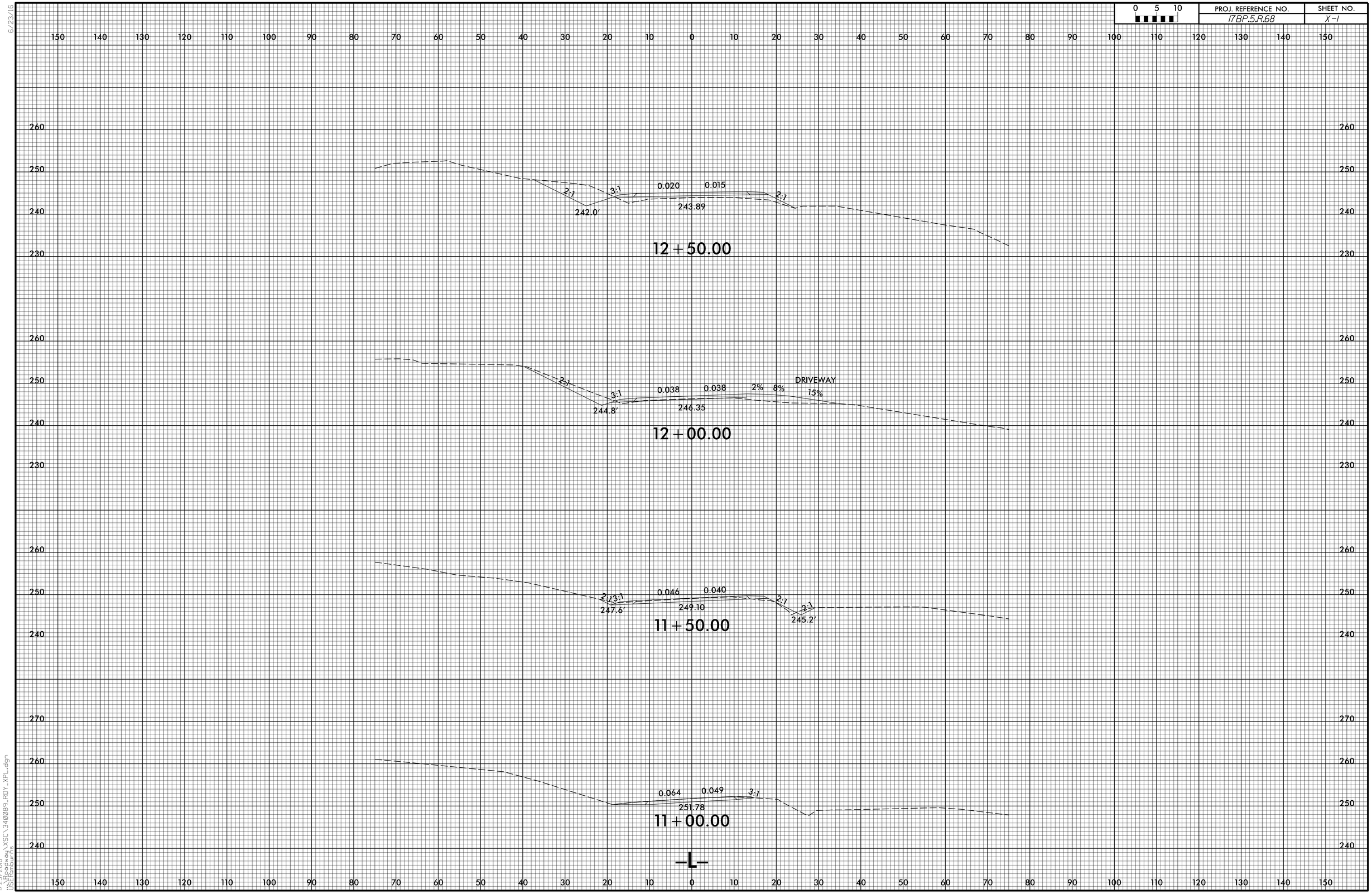
REVISIONS

8/17/99

1/24/2018
...XSC\340089_RDY_XPL_X-1A.dgn

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.5.R.68	X-1



1/25/2018
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USER:rmburns

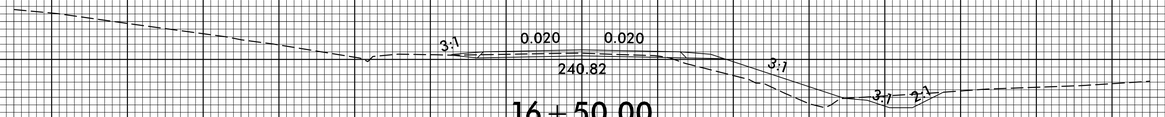
PROJ. REFERENCE NO.	SHEET NO.
17BP.5.R.68	X-2

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.5.R.68	X-3

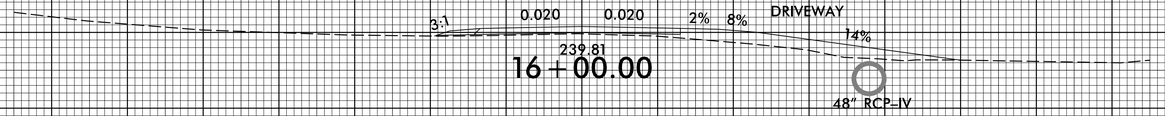
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

250
240
230



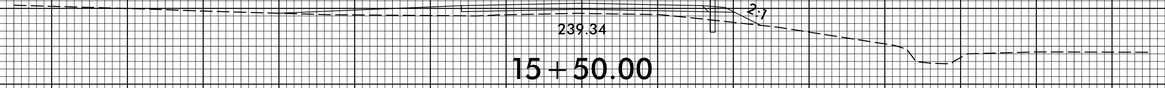
16+50.00

250
240
230



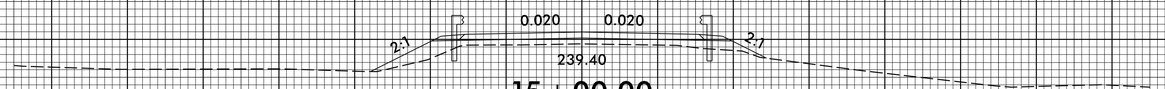
16+00.00

250
240
230



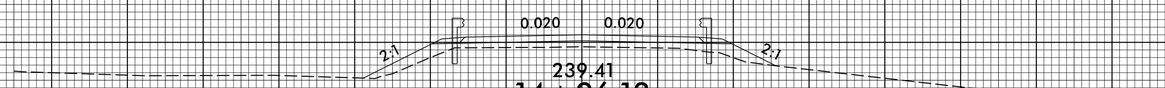
15+50.00

250
240
230



15+00.00

250
240
230



14+96.13
(END BRIDGE)
-L-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1/25/2018
...Roadway\XSC\340089_RDY_XPL.dgn
USER:rmburns

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.5.R.68	X-4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

260 250 240 230

246.10

18+50.00

250 240 230

244.65

18+00.00

250 240 230

3:1 0.008 0.046 3:1

243.36

17+50.00

250 240 230

3:1 0.016 0.024 3:1

242.06

17+00.00

–L–

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

13+50 14+00 14+50 15+00 15+50

(-)5.3114% (-)0.9667%

VPI STA. 12+60.00 -L-
EL = 243.28
VC = 290'

(-)0.9667% (+)2.8880%

VPI STA. 16+25.00 -L-
EL = 239.75
VC = 250'

260 250 240 230 220

FILL FACE AT END BENT 1
W.P. #1 STA. 14+08.88 -L-
ELEV. 241.84

1'-6" LIMITS OF EXCAVATION (TYP. EA. END)

EXISTING SUBSTRUCTURE (TYP.)

FILL FACE AT END BENT 2
W.P. #2 STA. 14+96.13 -L-
ELEV. 241.00

1'-7" MIN. BERM (TYP. EA. END)

BEGIN FRONT SLOPE
STA. 13+99.81 -L-
G.P. ELEV. 241.93

2'-0" TH. CLASS II RIP RAP W/ GEOTEXTILE (TYP. EA. END)

FIX.

EL. 239±

BASE HW (Q100) ELEV. 239.90

LOW CHORD ELEV. = 237.66

BEGIN FRONT SLOPE
STA. 15+04.87 -L-
G.P. ELEV. 240.91

1.5:1 SLOPE NORMAL TO CAP (TYP.)

FIX.

LOW CHORD ELEV. = 238.47

APPROX. NATURAL GROUND LINE

1'-0"

EL. 233±

NWS ELEV. 230.10 (04/26/2016)

EL. 232±

1'-0"

APPROX. NATURAL GROUND LINE

BOTTOM OF CAP ELEV. = 234.39

EL. 234.0 SLOPE TO DRAIN

EL. 229±

EL. 227±

EL. 228±

EL. 234.0 SLOPE TO DRAIN

BOTTOM OF CAP ELEV. = 233.58

CLASS II RIP RAP W/ GEOTEXTILE

UNCLASSIFIED STRUCTURE EXC. (TYP. EA. END)

HP 12X53 STEEL PILES (TYP.)

1'-0" MIN. BERM (TYP. EA. END)

EXISTING ABANDONED CONCRETE ABUTMENT (TYP.) (TO BE REMOVED)

END BENT No. 1

END BENT No. 2

SECTION ALONG -L-

CLASS II RIP RAP (TYP. EA. END)

EARTH BERM ELEV. = 233.39 (LEVEL)

CLASS II RIP RAP (TYP. EA. END)

EXISTING ABANDONED CONCRETE ABUTMENT (TYP.) (TO BE REMOVED)

BRIDGE I.D. STA. 14+52.50 -L-

STA. 14+96.13 -L-
W.P. #2

STA. 14+08.88 -L-
W.P. #1

BEGIN FRONT SLOPE
STA. 15+04.87 -L-

STA. 13+98.01 -L-
BEGIN APPROACH SLAB

1'-0" MIN. EARTH BERM (TYP.)

STA. 15+07.01 -L-
END APPROACH SLAB

-L-

TO SR 1728

TO SR 1720

BEGIN FRONT SLOPE
STA. 13+99.81 -L-

90°00'00" (TYP.)

1'-7" MIN. RIP RAP BERM (TYP.)

FILL FACE AT END BENT No. 1

FILL FACE AT END BENT No. 2

EXISTING SUBSTRUCTURE (TYP.)

NORRIS CREEK

EARTH BERM ELEV. = 232.58 (LEVEL)

43'-7½"

LENGTH OF BRIDGE (FILL FACE TO FILL FACE) = 87'-3"

PLAN

(PILES NOT SHOWN FOR CLARITY)

NAD 83/NA 2011

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

DocuSigned by: Jeff Loftus FE51DC02E6794A8... 2/22/2018

NORTH CAROLINA PROFESSIONAL SEAL 041425 ENGINEER JEFFREY M. LOFTUS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.5.R.68

FRANKLIN COUNTY

STATION: 14+52.50 -L-

SHEET 1 OF 2 REPLACES BRIDGE 340089

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

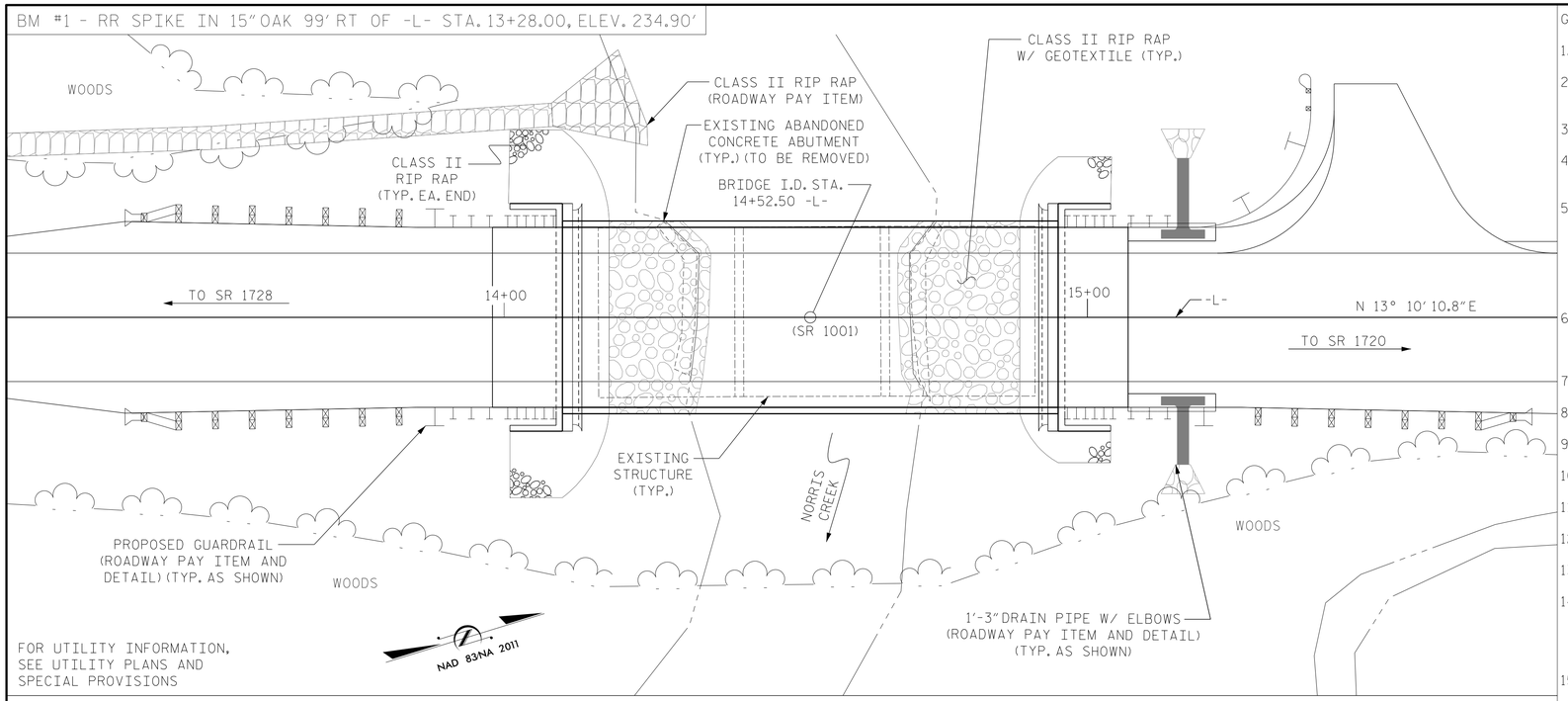
GENERAL DRAWING
BRIDGE OVER NORRIS CREEK ON SR 1001 (PEARCES RD) BETWEEN SR 1720 AND SR 1728

STEWART
Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			16

DRAWN BY: E. PHELPS DATE: 06-17
CHECKED BY: J. LOFTUS DATE: 06-17
DESIGN ENGINEER OF RECORD: J. LOFTUS DATE: 06-17

FRANKLIN 89
1/27/2018
...\400_001_340089_SMU_GD01.dgn
USER:jloftus



LOCATION SKETCH

GENERAL NOTES:

1. ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING
2. THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
3. THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1
4. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH ''HEC 18 - EVALUATING SCOUR AT BRIDGES.''
5. THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCE BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
6. REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
7. FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
8. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
9. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
10. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
11. FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
12. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
13. ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
14. THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20'± FT LEFT SIDE AND 20'± RIGHT SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS
15. THE EXISTING STRUCTURE #340089 CONSISTING OF THREE (3) PRESTRESSED CONCRETE CHANNEL GIRDER SPANS @ 25'-6", 25'-0", & 25'-6" (76'-0" TOTAL LENGTH), 29'-3" CLEAR ROADWAY WIDTH AND CONCRETE DECK WITH AN ASPHALT WEARING SURFACE ON REINFORCED CONCRETE END BENTS & BENTS WITH TIMBER PILES LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED IN THEIR ENTIRETY. ALL OLD BRIDGE COMPONENTS, INCLUDING EXISTING ABANDONED CONCRETE ABUTMENTS, SHALL BE REMOVED IN THEIR ENTIRETY.
16. FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	HP 12X53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	LUMP SUM	LUMP SUM	CY	LUMP SUM	LBS	EACH	No.	LF	EACH	LF	TON	SY	LUMP SUM	No.	LF
SUPERSTRUCTURE					LUMP SUM						170.0			LUMP SUM	11	935
END BENT No. 1			LUMP SUM	25.6		3,576	7	7	105	7		142.1	157.9			
END BENT No. 2			LUMP SUM	25.6		3,576	7	7	70	7		130.5	145.0			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	51.2	LUMP SUM	7,152	14	14	175	14	170.0	272.6	302.9	LUMP SUM	11	935

HYDRAULIC DATA

DESIGN DISCHARGE	2000 CFS
FREQUENCY OF DESIGN FLOOD	25 YR.
DESIGN HIGHWATER ELEV.	238.40 FT.
DRAINAGE AREA	8.7 SQ. MI.
BASE DISCHARGE (Q100)	2974 C.F.S
BASE HIGHWATER ELEV.	239.90 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	3286 CFS
FREQUENCY OF OVERTOPPING FLOOD	100+ YR.
OVERTOPPING FLOOD ELEV.	✳241.00 FT.

✳SAG STA. 15+62.70 -L-

FOUNDATION NOTES:

1. FOR PILES, SEE SECTION 405 OF THE STANDARD SPECIFICATIONS.
2. PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.
3. DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.
4. STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1 AND END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DocuSigned by: Jeff Loftus FE51DC02E6794A9... 2/22/2018

NORTH CAROLINA PROFESSIONAL SEAL 041425 ENGINEER JEFFREY M. LOFTUS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STEWART
Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

PROJECT NO. 17BP.5.R.68

FRANKLIN COUNTY

STATION: 14+52.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE OVER NORRIS CREEK
ON SR 1001 (PEARCES RD)
BETWEEN SR 1720 AND SR 1728

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			16

DRAWN BY: E. PHELPS DATE: 06-17
CHECKED BY: J. LOFTUS DATE: 06-17
DESIGN ENGINEER OF RECORD: J. LOFTUS DATE: 06-17

FRANKLIN 89
2/22/2018
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USER:default

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.401	--	1.75	0.273	1.73	A	EL	41.75	0.497	1.54	A	EL	8.35	0.80	0.273	1.40	A	EL	41.75	
		HL-93(Opr)	N/A	--	1.994	--	1.35	0.273	2.25	A	EL	41.75	0.497	1.99	A	EL	8.35	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.882	67.762	1.75	0.273	2.33	A	EL	41.75	0.497	1.99	A	EL	8.35	0.80	0.273	1.88	A	EL	41.75	
		HS-20(Opr)	36.000	--	2.584	93.027	1.35	0.273	3.02	A	EL	41.75	0.497	2.58	A	EL	8.35	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	4.355	58.789	1.4	0.273	6.74	A	EL	41.75	0.497	6.03	A	EL	8.35	0.80	0.273	4.35	A	EL	41.75	
		SNGARBS2	20.000	--	3.199	63.989	1.4	0.273	4.95	A	EL	41.75	0.497	4.26	A	EL	8.35	0.80	0.273	3.20	A	EL	41.75	
		SNAGRIS2	22.000	--	3.011	66.245	1.4	0.273	4.66	A	EL	41.75	0.497	3.94	A	EL	8.35	0.80	0.273	3.01	A	EL	41.75	
		SNCOTTS3	27.250	--	2.166	59.016	1.4	0.273	3.35	A	EL	41.75	0.497	3.01	A	EL	8.35	0.80	0.273	2.17	A	EL	41.75	
		SNAGGRS4	34.925	--	1.792	62.595	1.4	0.273	2.77	A	EL	41.75	0.497	2.47	A	EL	8.35	0.80	0.273	1.79	A	EL	41.75	
		SNS5A	35.550	--	1.754	62.349	1.4	0.273	2.71	A	EL	41.75	0.497	2.49	A	EL	8.35	0.80	0.273	1.75	A	EL	41.75	
		SNS6A	39.950	--	1.602	63.995	1.4	0.273	2.48	A	EL	41.75	0.497	2.27	A	EL	8.35	0.80	0.273	1.60	A	EL	41.75	
		SNS7B	42.000	--	1.525	64.059	1.4	0.273	2.36	A	EL	41.75	0.497	2.22	A	EL	8.35	0.80	0.273	1.53	A	EL	41.75	
	TTST	TNAGRIT3	33.000	--	1.951	64.392	1.4	0.273	3.02	A	EL	41.75	0.497	2.7	A	EL	8.35	0.80	0.273	1.95	A	EL	41.75	
		TNT4A	33.075	--	1.958	64.758	1.4	0.273	3.03	A	EL	41.75	0.497	2.64	A	EL	8.35	0.80	0.273	1.96	A	EL	41.75	
		TNT6A	41.600	--	1.594	66.309	1.4	0.273	2.47	A	EL	41.75	0.497	2.34	A	EL	8.35	0.80	0.273	1.59	A	EL	41.75	
		TNT7A	42.000	--	1.598	67.128	1.4	0.273	2.47	A	EL	41.75	0.497	2.3	A	EL	8.35	0.80	0.273	1.60	A	EL	41.75	
		TNT7B	42.000	--	1.645	69.07	1.4	0.273	2.54	A	EL	41.75	0.497	2.17	A	EL	8.35	0.80	0.273	1.64	A	EL	41.75	
		TNAGRIT4	43.000	--	1.571	67.556	1.4	0.273	2.43	A	EL	41.75	0.497	2.11	A	EL	8.35	0.80	0.273	1.57	A	EL	41.75	
		TNAGT5A	45.000	--	1.484	66.8	1.4	0.273	2.3	A	EL	41.75	0.497	2.08	A	EL	8.35	0.80	0.273	1.48	A	EL	41.75	
		TNAGT5B	45.000	3	1.469	66.118	1.4	0.273	2.27	A	EL	41.75	0.497	2	A	EL	8.35	0.80	0.273	1.47	A	EL	41.75	

LOAD FACTORS:

	LIMIT STATE	γ_{DC}	γ_{DW}
DESIGN LOAD RATING FACTORS	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

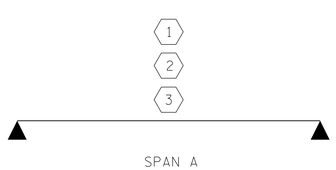
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

DocuSigned by: Jeff Loftus FE51DC02E6794A9... 2/22/2018

NORTH CAROLINA PROFESSIONAL SEAL 041425 ENGINEER JEFFREY M. LOFTUS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.5.R.68

FRANKLIN COUNTY

STATION: 14+52.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 85' BOX BEAM UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
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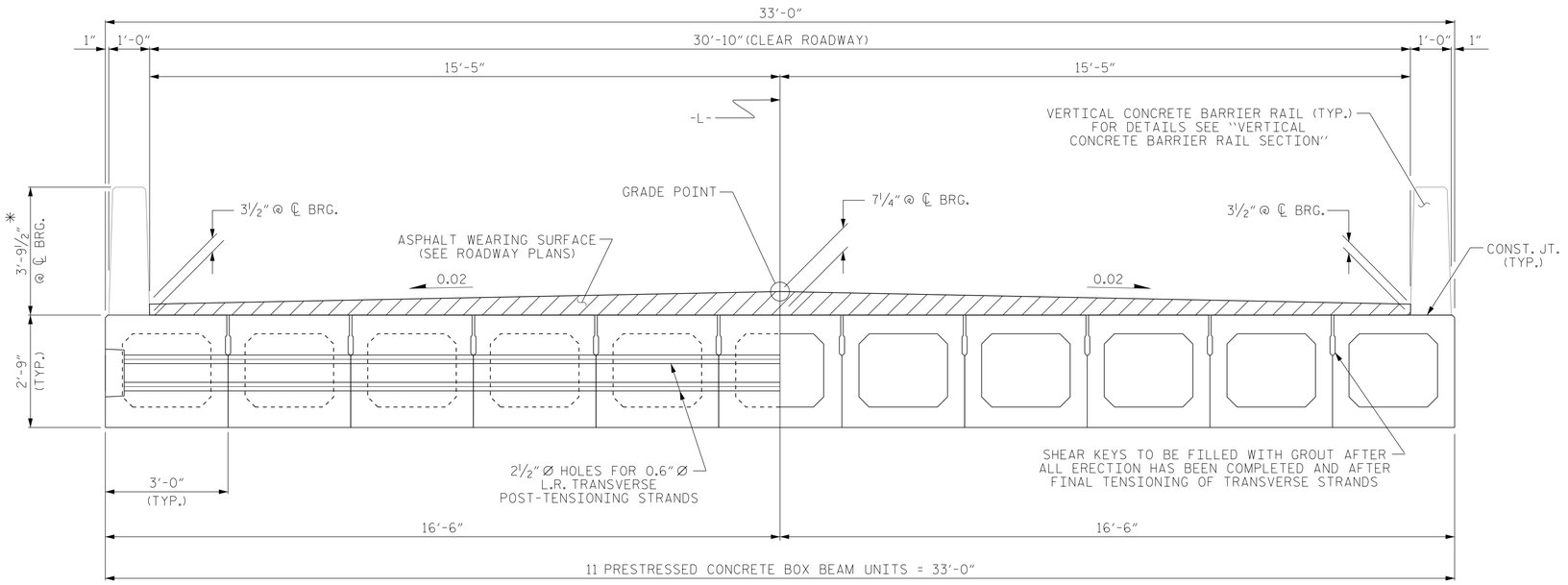


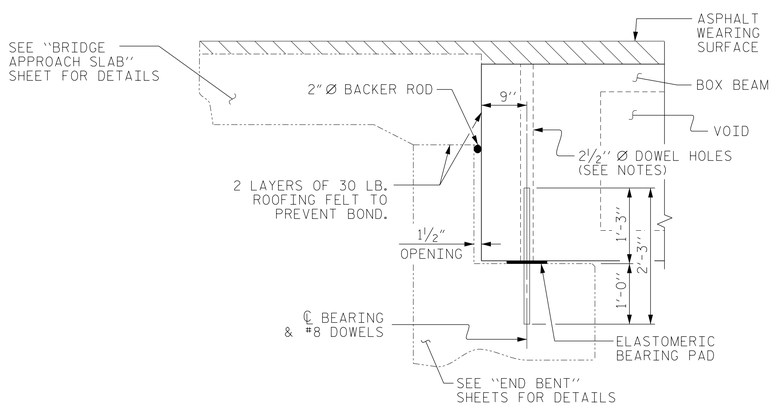
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

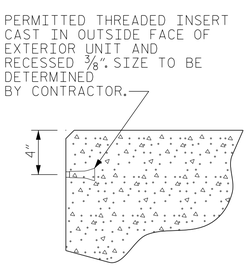
TYPICAL SECTION

*THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE ''VERTICAL CONCRETE BARRIER RAIL SECTION'' DETAIL.

FIXED END



SECTION AT END BENT



THREADED INSERT DETAIL

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½″ Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, ½″ IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4′-0″ CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

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SHEET 1 OF 5

STATE OF NORTH CAROLINA
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RALEIGH

STANDARD

3′-0″ X 2′-9″ PRESTRESSED CONCRETE BOX BEAM UNIT

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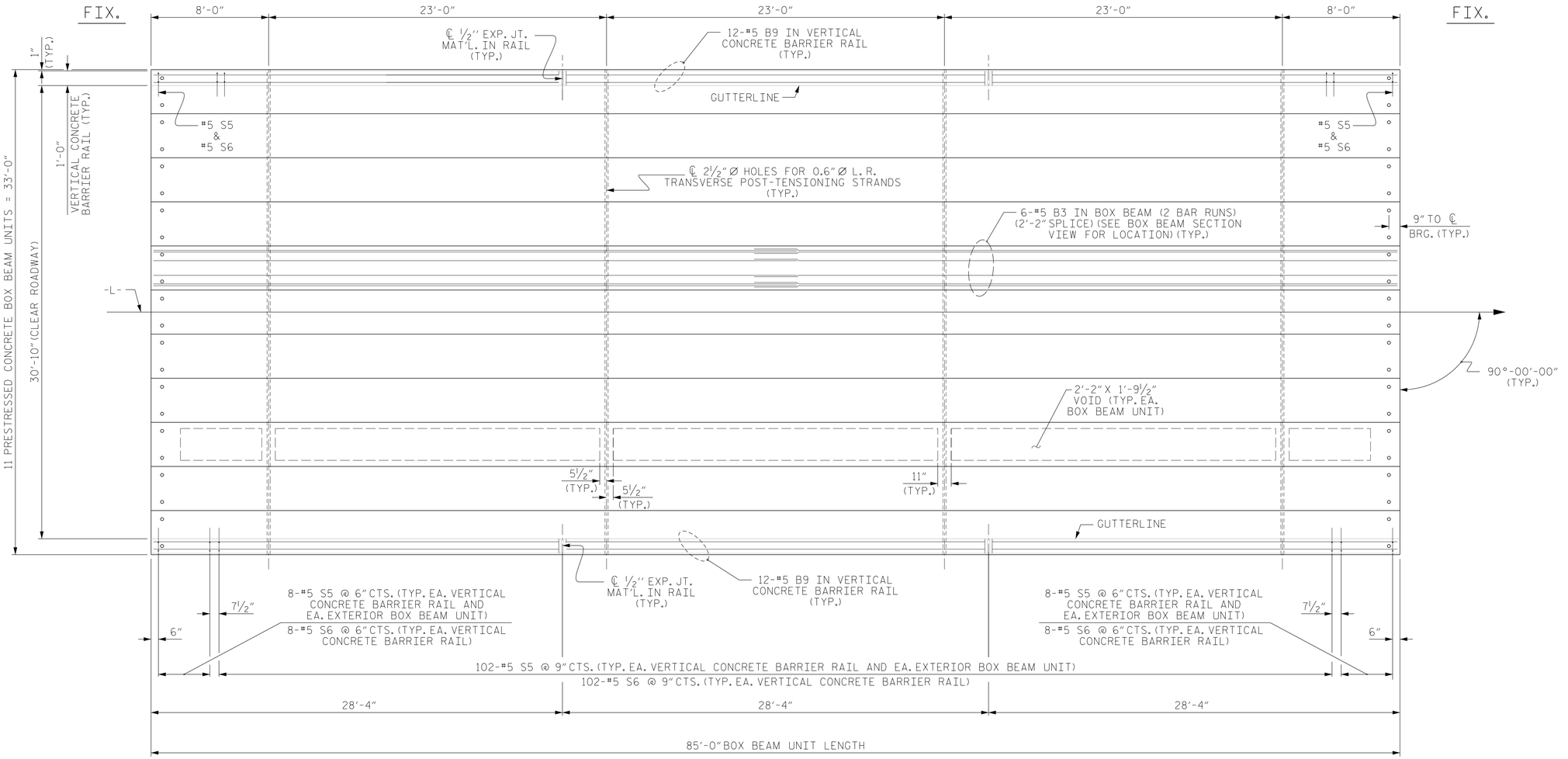
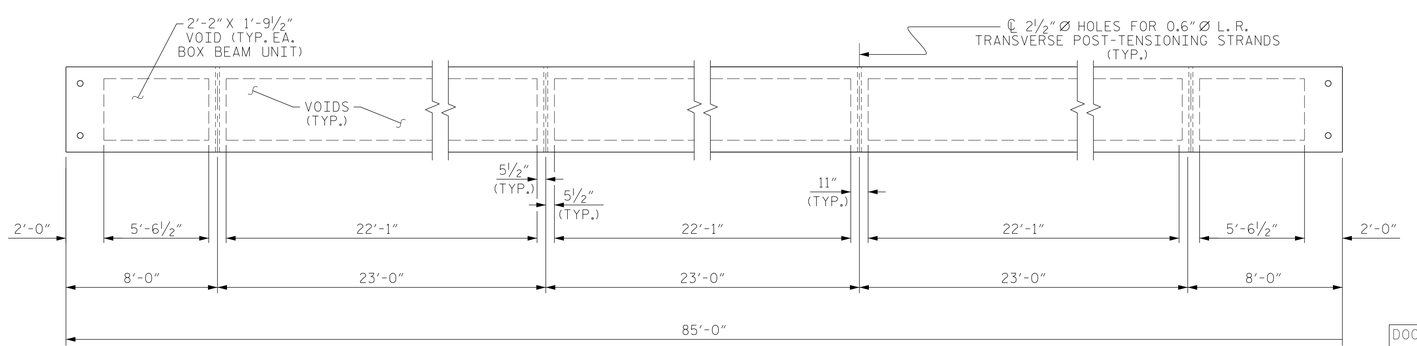


PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

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SHEET 2 OF 5

STATE OF NORTH CAROLINA
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PLAN OF 85' UNIT 30'-10" CLEAR ROADWAY 90° SKEW

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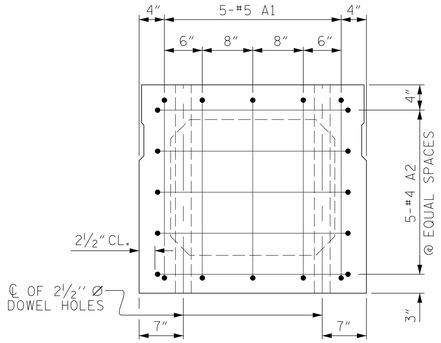
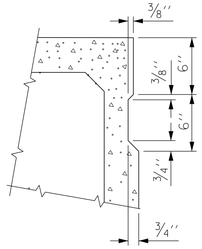


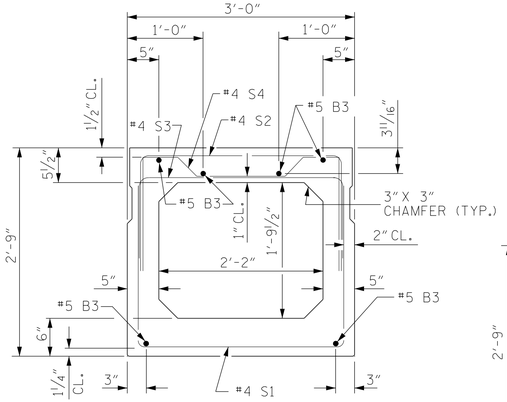
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



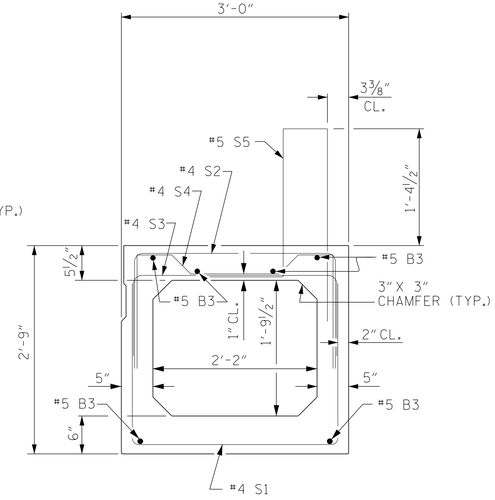
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



INTERIOR BOX BEAM SECTION

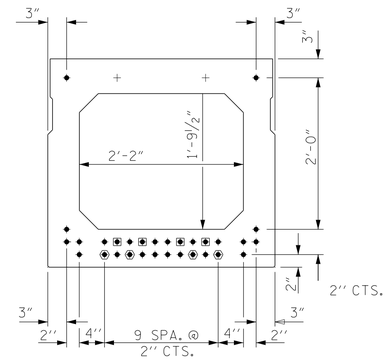
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(30 STRANDS REQUIRED)

DEBONDING LEGEND

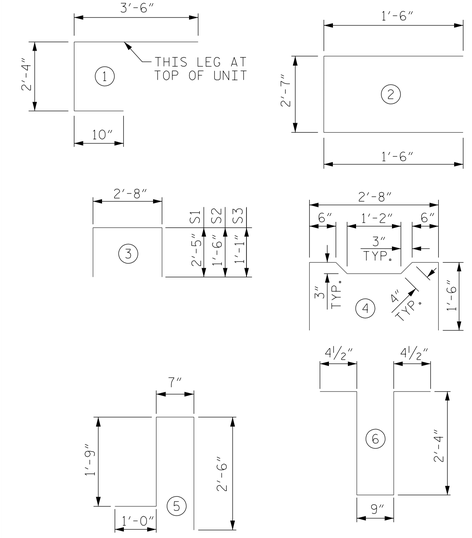
- ● FULLY BONDED STRANDS
- ◘ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ⬢ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

GRADE 270 STRANDS

	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

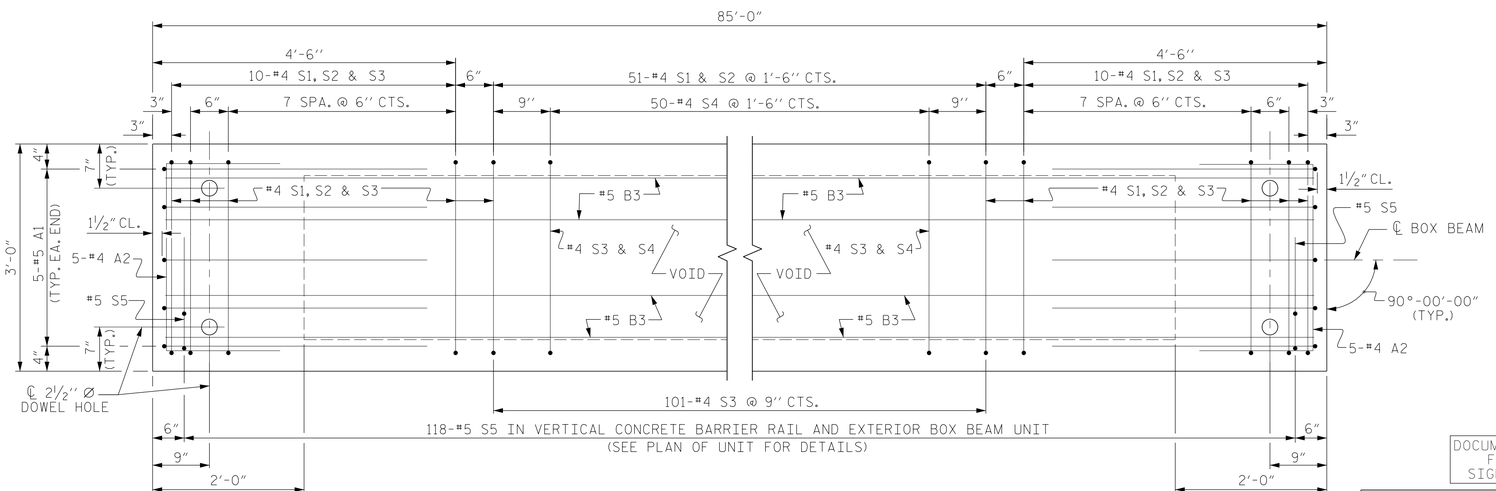
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	34	#4	2	5'-7"	127	5'-7"	127
B3	12	#5	STR	43'-5"	543	43'-5"	543
K1	12	#4	6	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	71	#4	3	7'-6"	356	7'-6"	356
S2	71	#4	3	5'-8"	269	5'-8"	269
S3	121	#4	3	4'-10"	391	4'-10"	391
S4	50	#4	4	5'-10"	195	5'-10"	195
✳ S5	118	#5	5	5'-10"	718	--	--
REINFORCING STEEL				2014	LBS.	2014	LBS.
✳ EPOXY COATED REINF. STEEL				718	LBS.		
8000 P.S.I. CONCRETE				15.1	CU. YDS.	15.0	CU. YDS.
0.6" Ø L.R. STRANDS				No. 30		No. 30	



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS.
FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT".
FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL".
FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS".

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STATE OF NORTH CAROLINA
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RALEIGH

STANDARD

3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT

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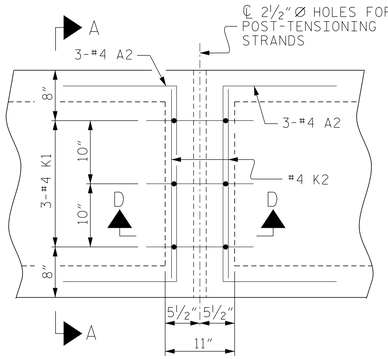
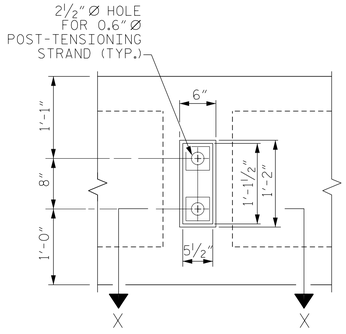
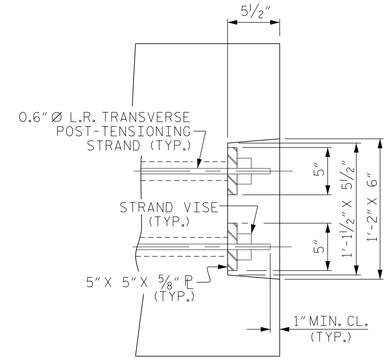


PLAN

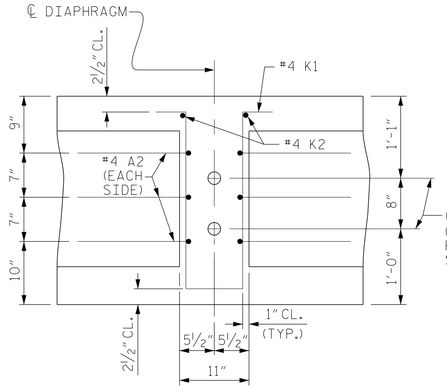


VIEW Y-Y

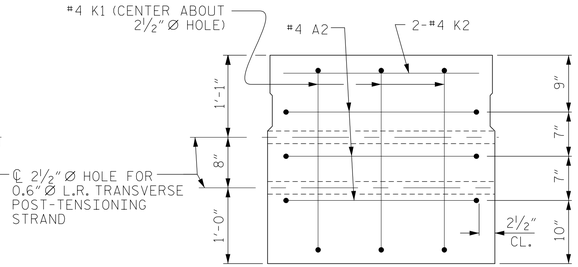
SHOWING ELEVATION VIEW OF GROUTED RECESS



DETAIL "C"



SECTION D-D

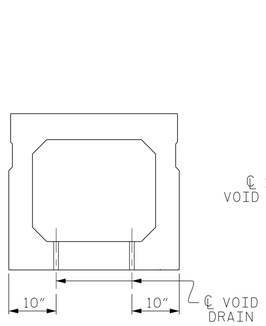


SECTION A-A

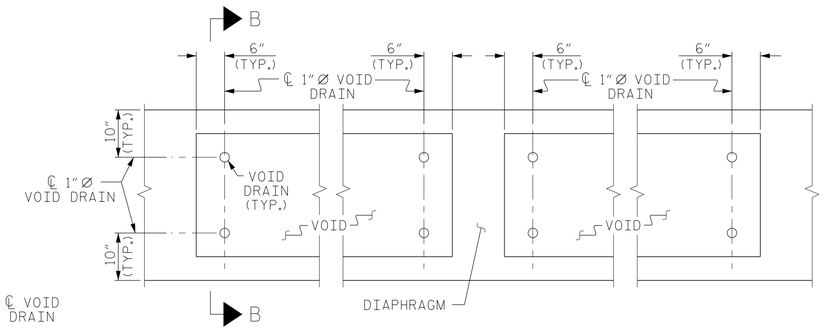
VOIDS NOT SHOWN

DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2½" Ø HOLE.



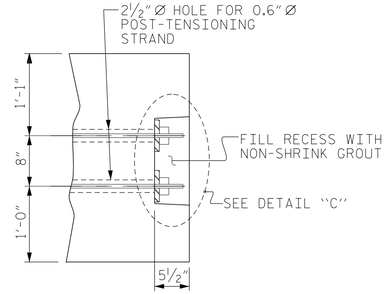
SECTION B-B



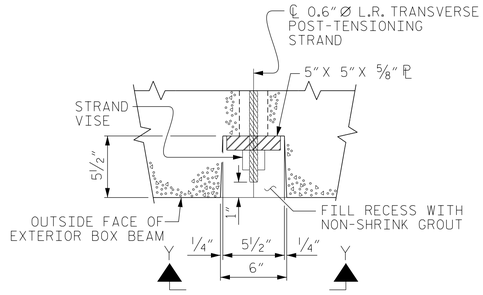
PART PLAN

VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



PART SECTION AT RECESS



SECTION X-X

SHOWING PLAN VIEW OF GROUTED RECESS

GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-9"
85' BOX BEAM UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2¾" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	¾" ↓
FINAL CAMBER	2" ↑

** INCLUDES FUTURE WEARING SURFACE

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SHEET 4 OF 5

STATE OF NORTH CAROLINA
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RALEIGH

STANDARD 3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT

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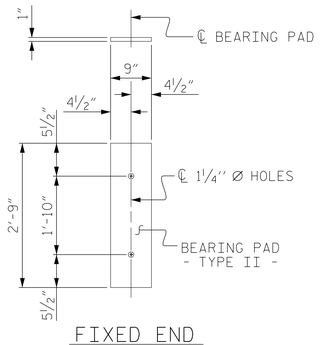
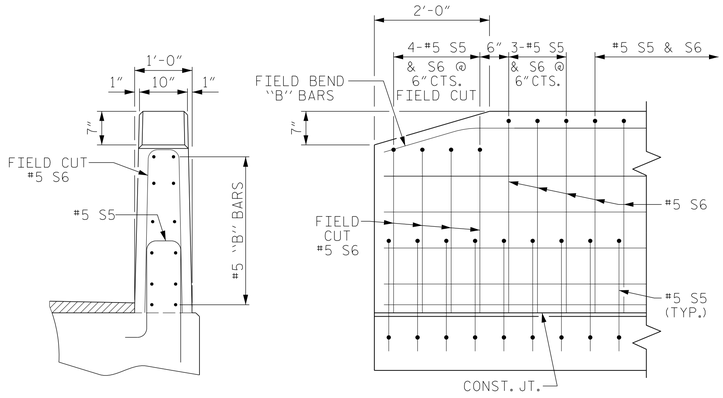


FIXED END

(TYPE II - 22 REQ'D)

ELASTOMERIC BEARING DETAILS

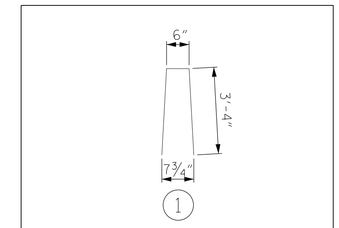
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



END VIEW

SIDE VIEW

END OF RAIL DETAILS



BAR TYPE

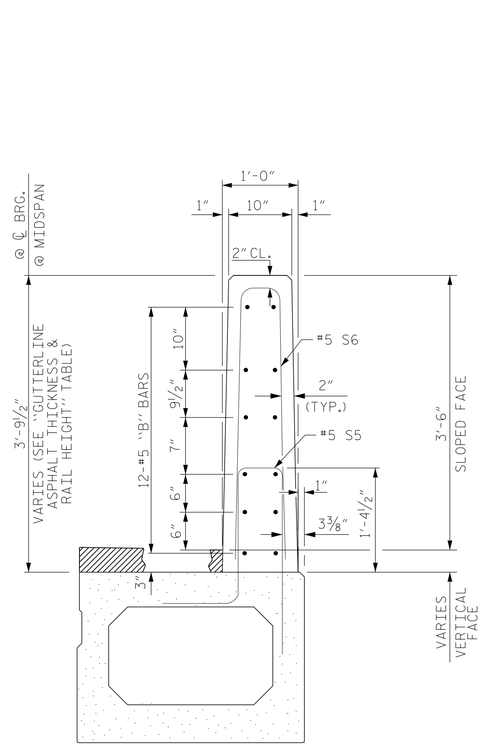
BAR DIMENSIONS ARE OUT TO OUT

BOX BEAM UNITS REQUIRED

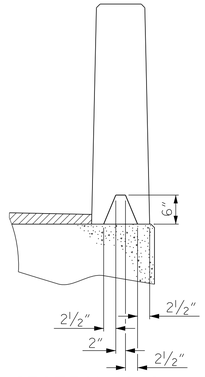
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	85'-0"	170'-0"
INTERIOR B.B.	9	85'-0"	765'-0"
TOTAL	11	———	935'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
	85' UNIT				
* B9	72	#5	STR	27'-11"	2096
* S6	236	#5	1	7'-2"	1764
* EPOXY COATED REINFORCING STEEL			LBS.		3860
CLASS AA CONCRETE			CU.YDS.		22.0
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.		170.0

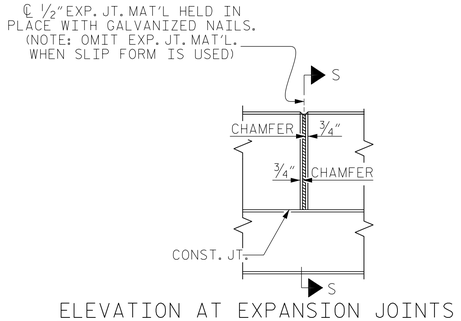


SECTION THRU RAIL



SECTION S-S

AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

33"BOX BEAM UNITS	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
85' UNITS	1½"	3'-7½"

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SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT

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1			3			TOTAL SHEETS
2			4			16

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CHECKED BY: J. LOFTUS DATE: 06-17
DESIGN ENGINEER OF RECORD: J. LOFTUS DATE: 06-17

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2/22/2018
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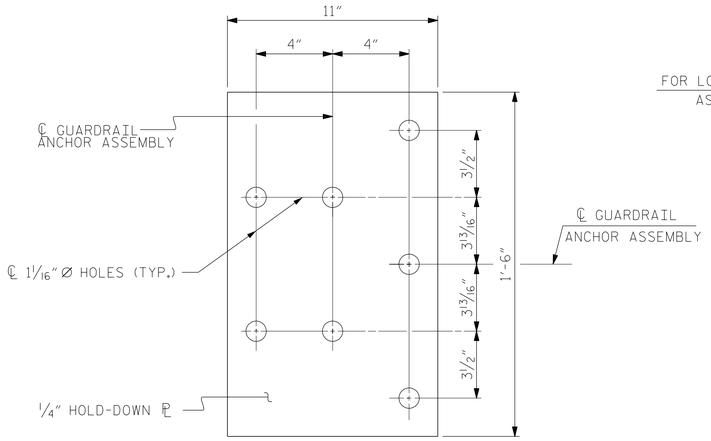
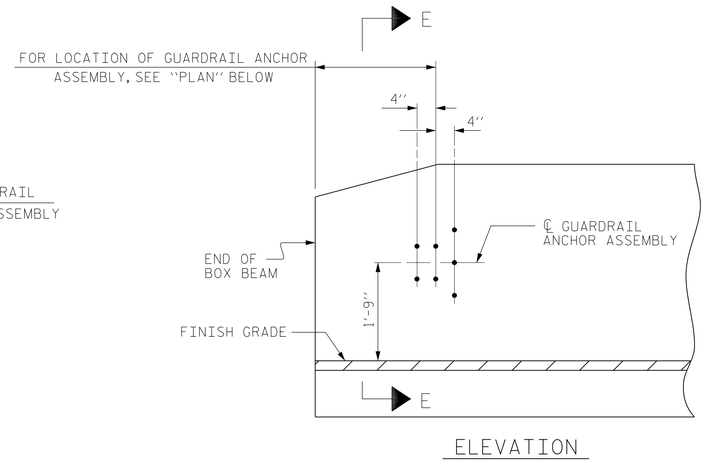


PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

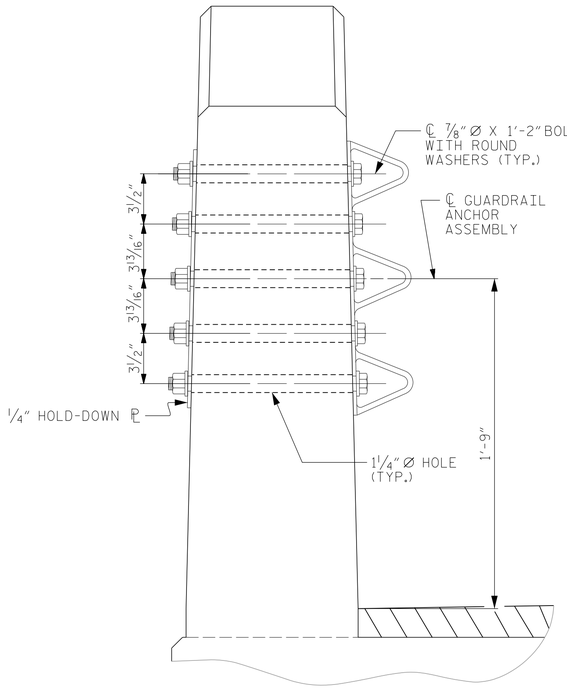
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

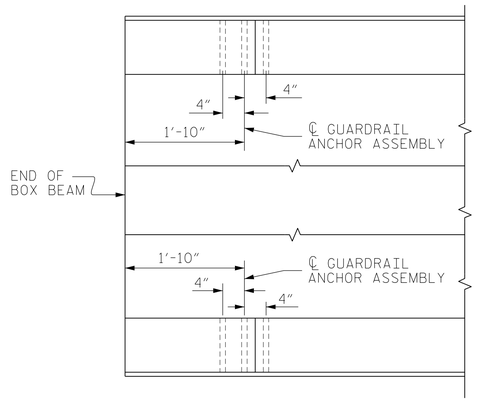
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E



PLAN

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

GUARDRAIL ANCHOR ASSEMBLY DETAILS

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

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PROJECT NO. 17BP.5.R.68

FRANKLIN COUNTY

STATION: 14+52.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS
FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			16

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2/22/2018
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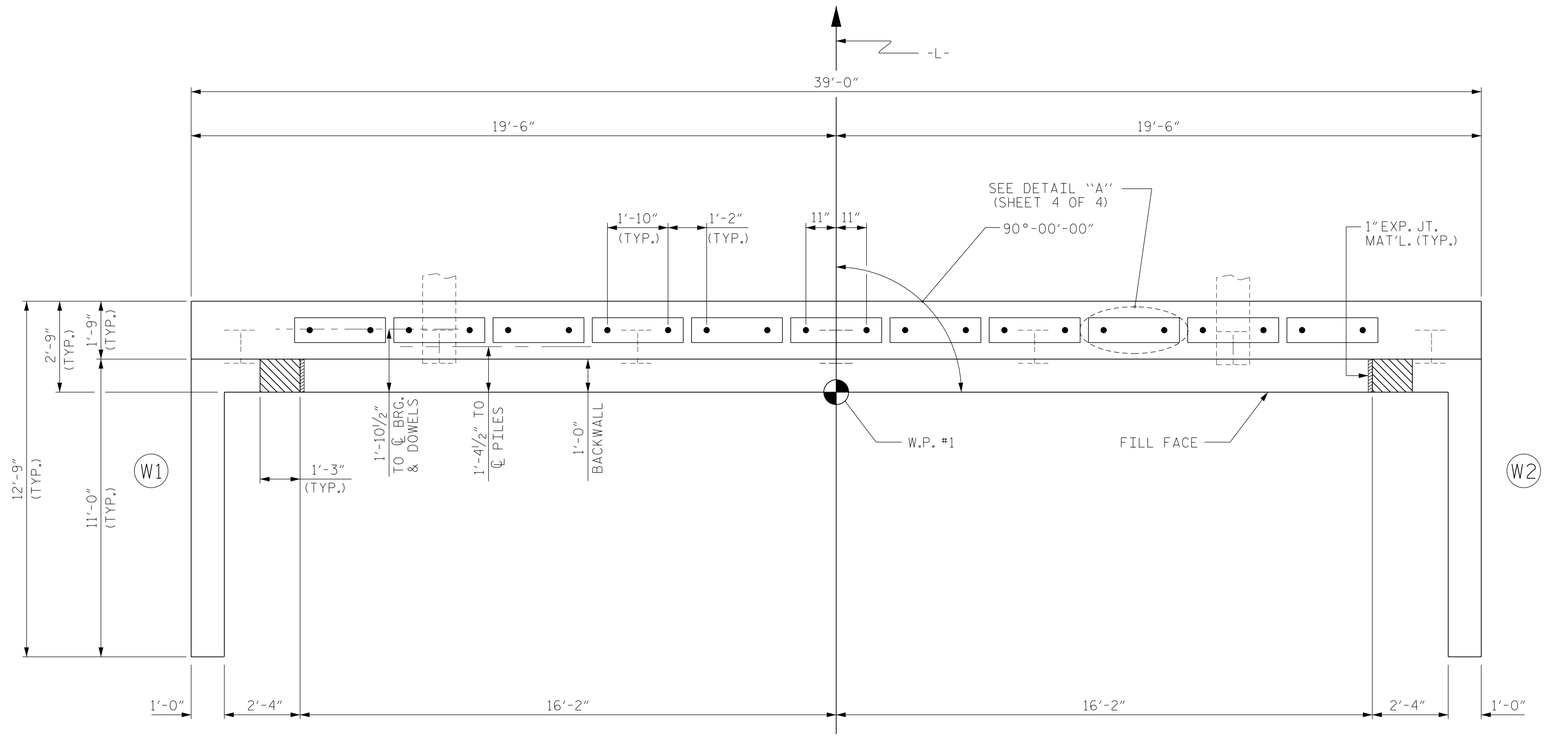
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

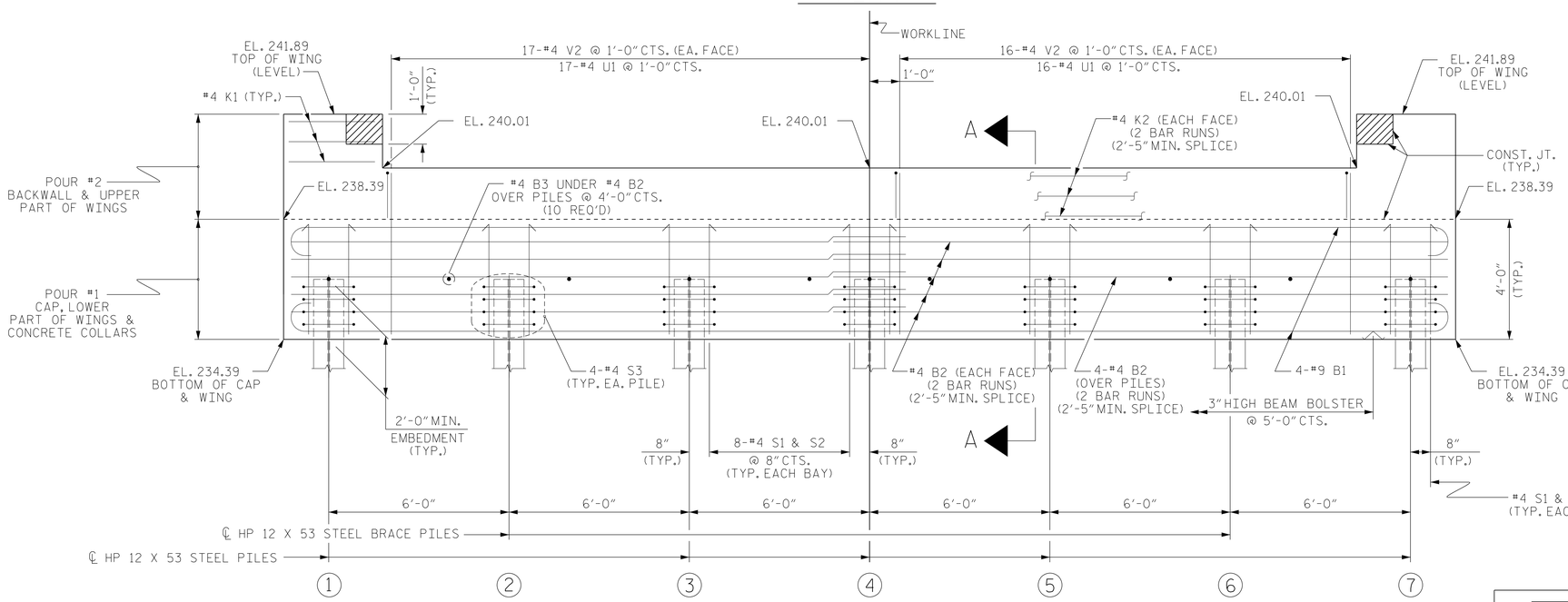
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			16

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1/27/2018
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USER:jloftus

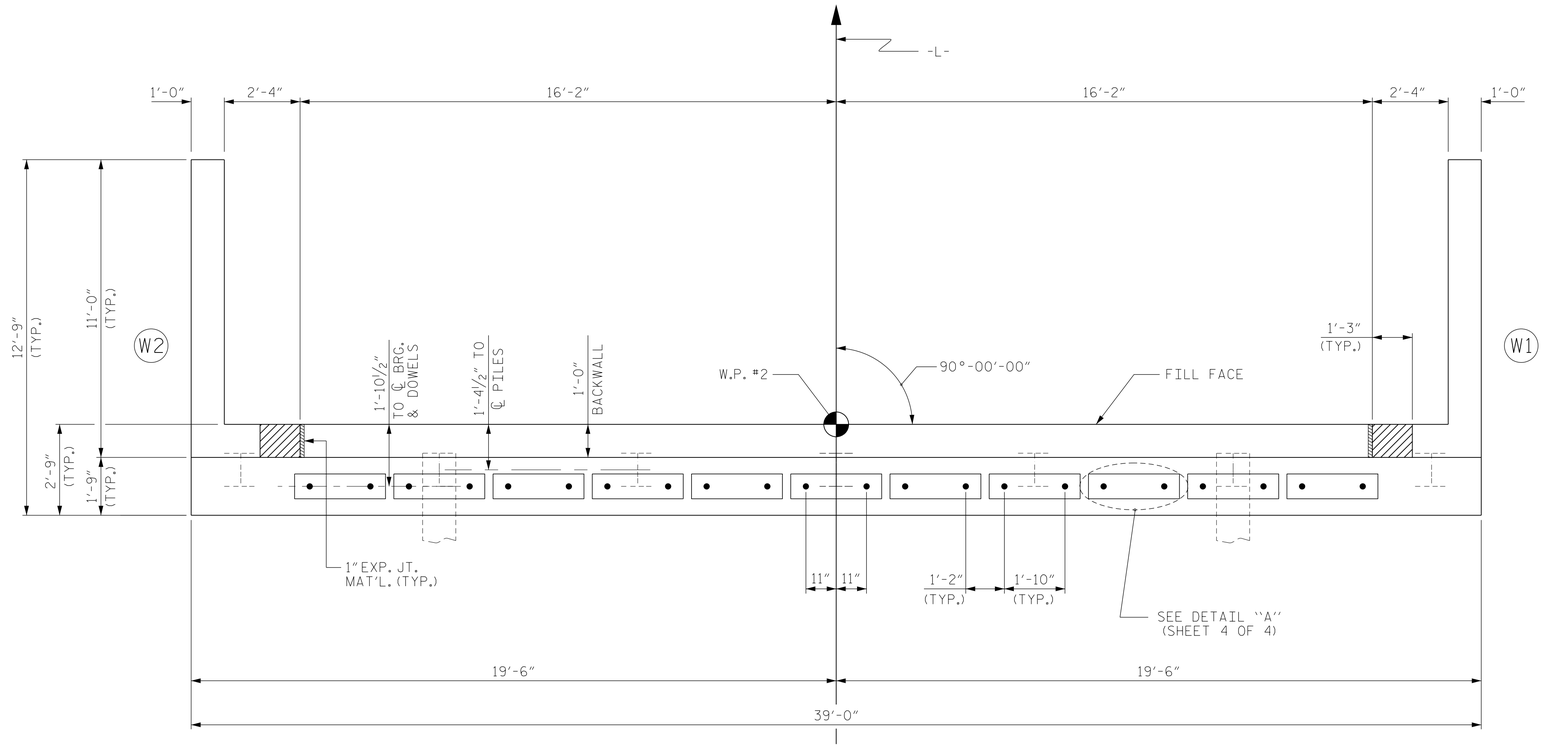
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



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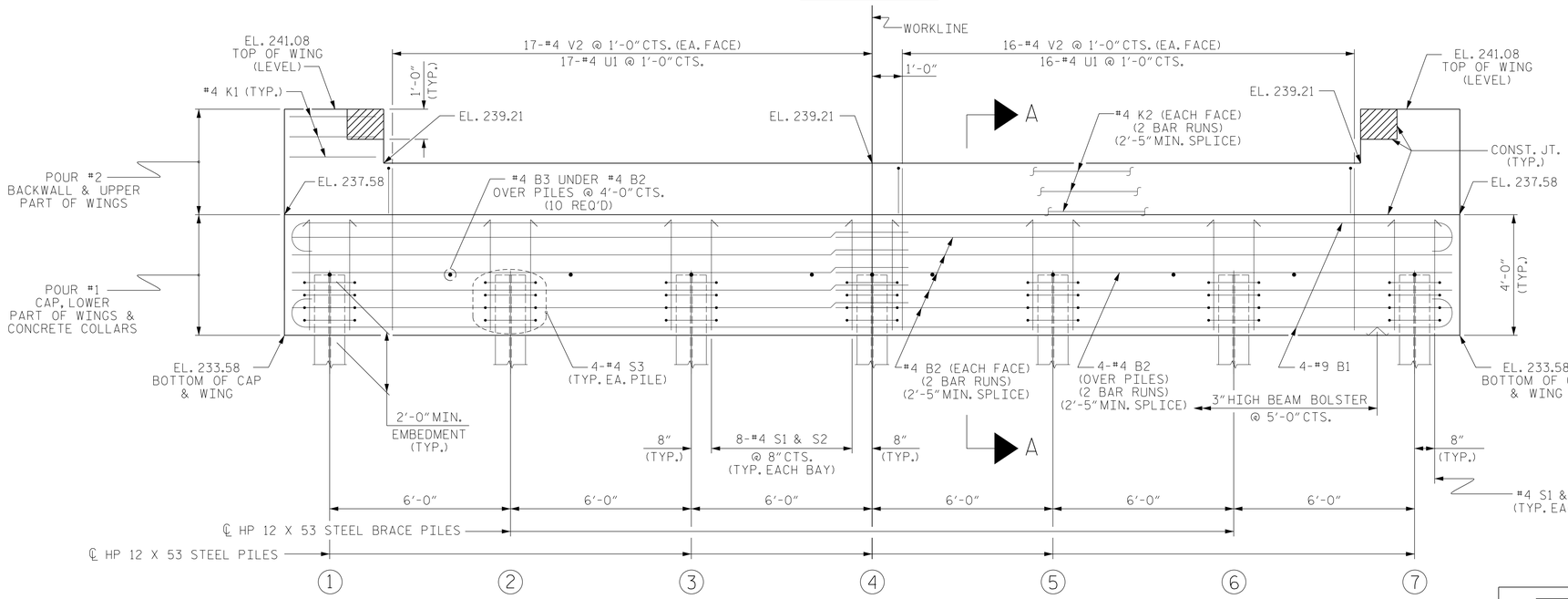

ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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SHEET 2 OF 4

STATE OF NORTH CAROLINA
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RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			16

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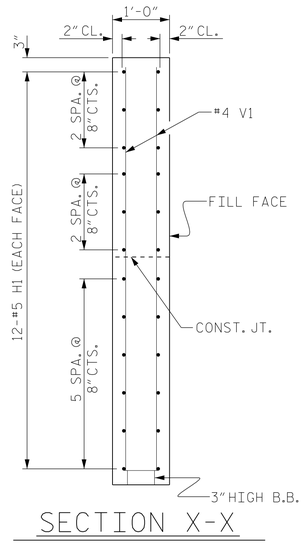
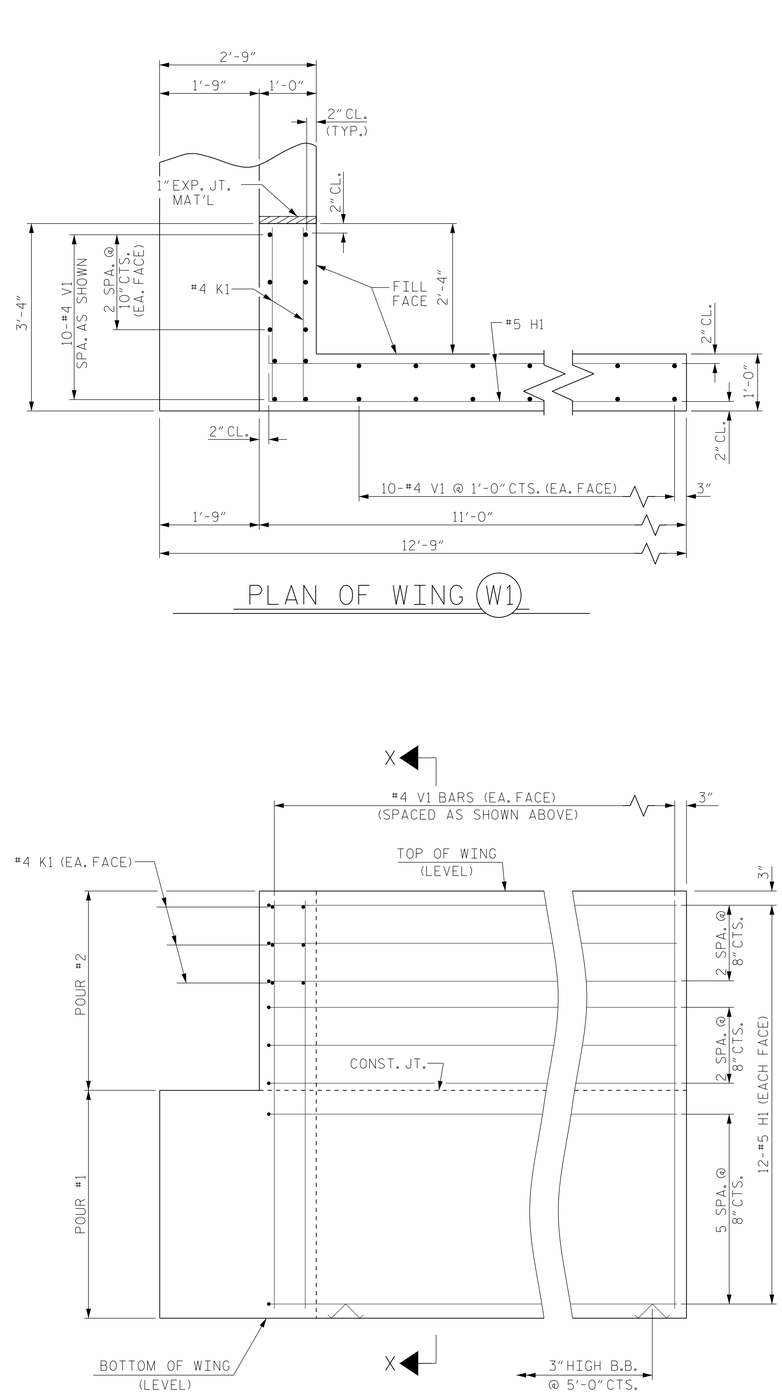
STD. NO. EB_33_90S4_33BB

PLAN OF WING (W1)

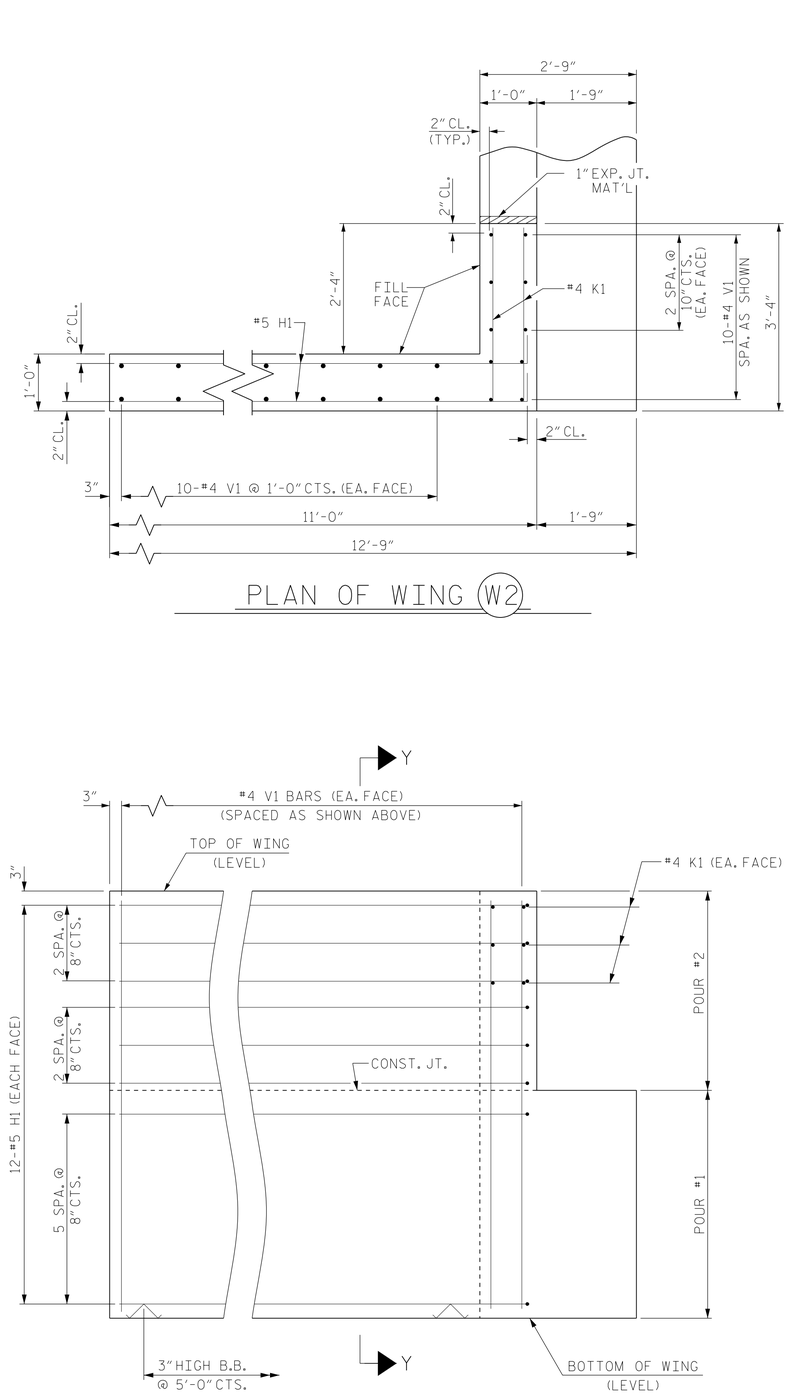
PLAN OF WING (W2)



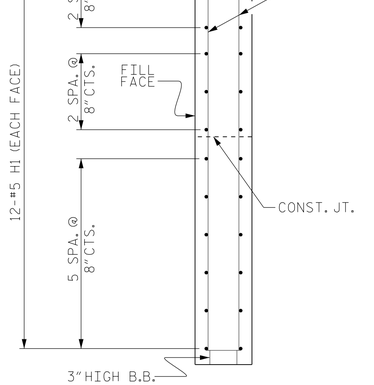
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

WING DETAILS

PROJECT NO. 17BP.5.R.68

FRANKLIN COUNTY

STATION: 14+52.50 -L-

SHEET 3 OF 4

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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			16

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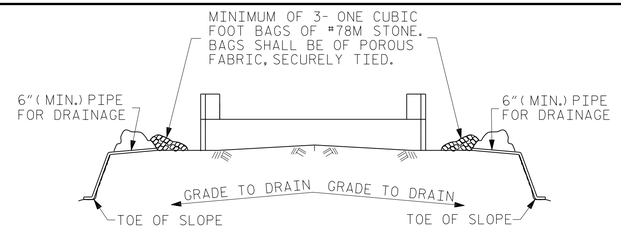
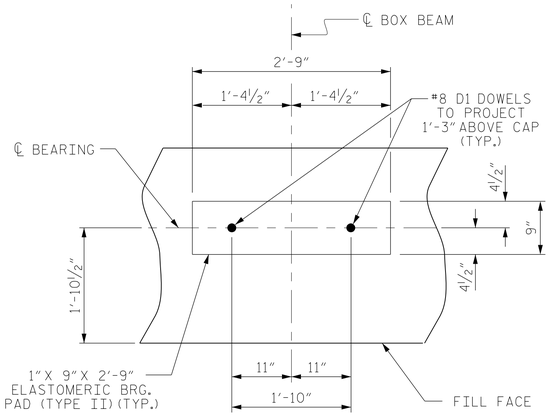


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

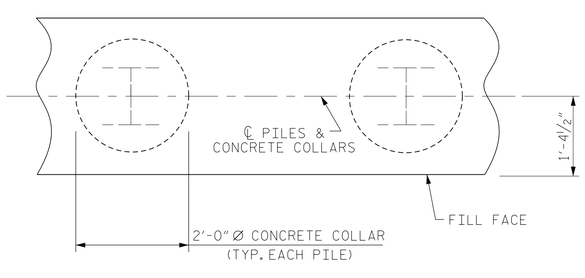
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

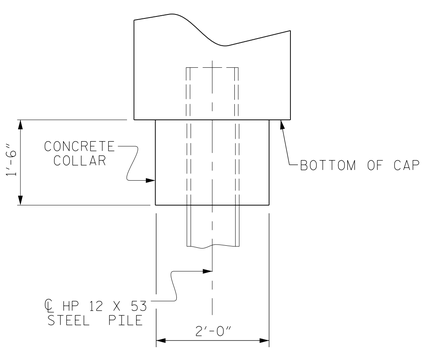


DETAIL ''A''

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



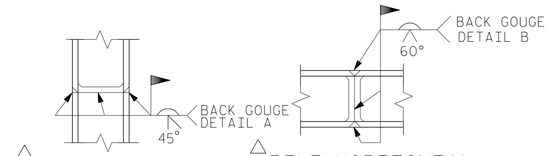
PLAN



ELEVATION

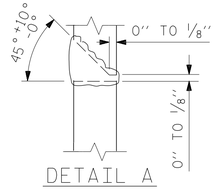
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

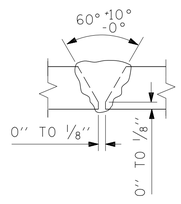


△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



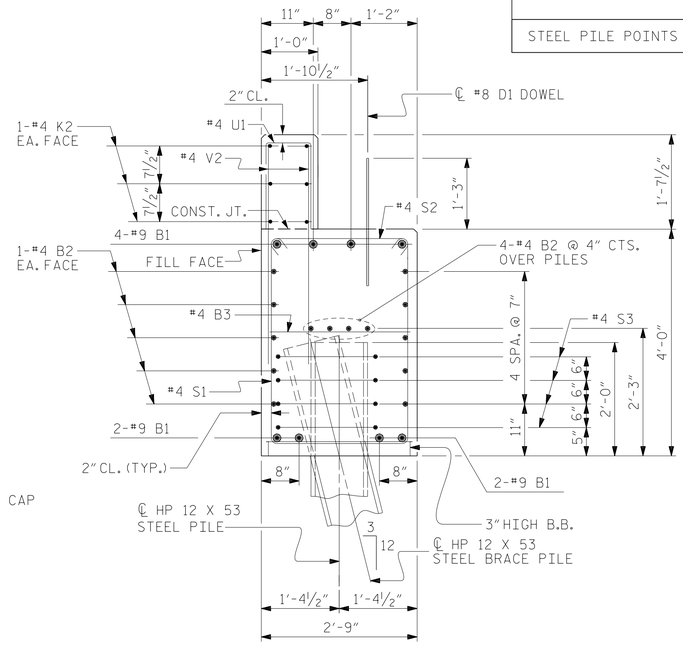
DETAIL A



DETAIL B

△ POSITION OF PILE DURING WELDING.

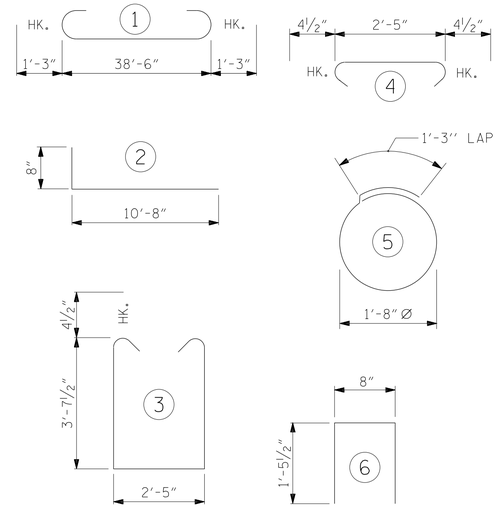
PILE SPLICE DETAILS



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE ''CORROSION PROTECTION FOR STEEL PILES DETAIL.'')

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 105	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 70
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7
STEEL PILE POINTS NO: 7	STEEL PILE POINTS NO: 7

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	28	#4	STR	20'-7"	385
B3	10	#4	STR	2'-5"	16
D1	22	#8	STR	2'-3"	132
H1	48	#5	2	11'-4"	567
K1	12	#4	STR	2'-11"	23
K2	12	#4	STR	20'-7"	165
S1	50	#4	3	10'-5"	348
S2	50	#4	4	3'-2"	106
S3	28	#4	5	6'-6"	122
U1	33	#4	6	3'-7"	79
V1	60	#4	STR	7'-2"	287
V2	66	#4	STR	5'-3"	231

REINFORCING STEEL (FOR ONE END BENT) 3576 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 20.1 C.Y.

POUR #2 BACKWALL & UPPER PART OF WINGS 5.4 C.Y.

TOTAL CLASS A CONCRETE 25.6 C.Y.

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SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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SUBSTRUCTURE

END BENT NO. 1 & 2 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			16

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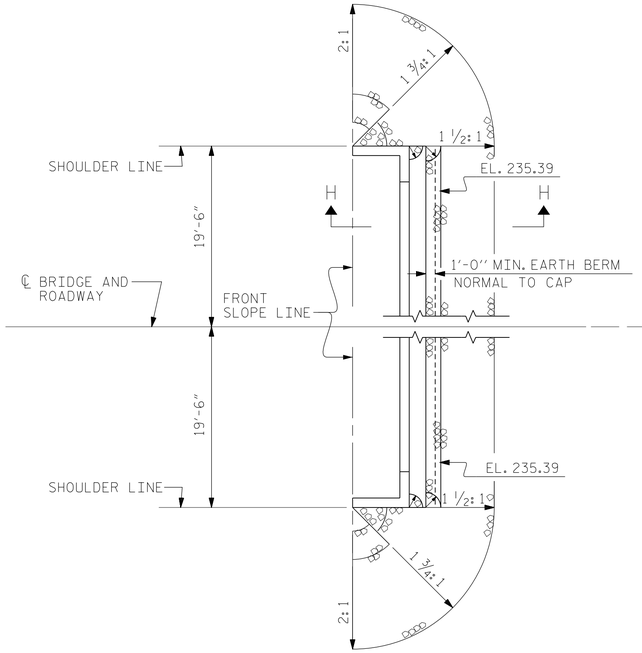
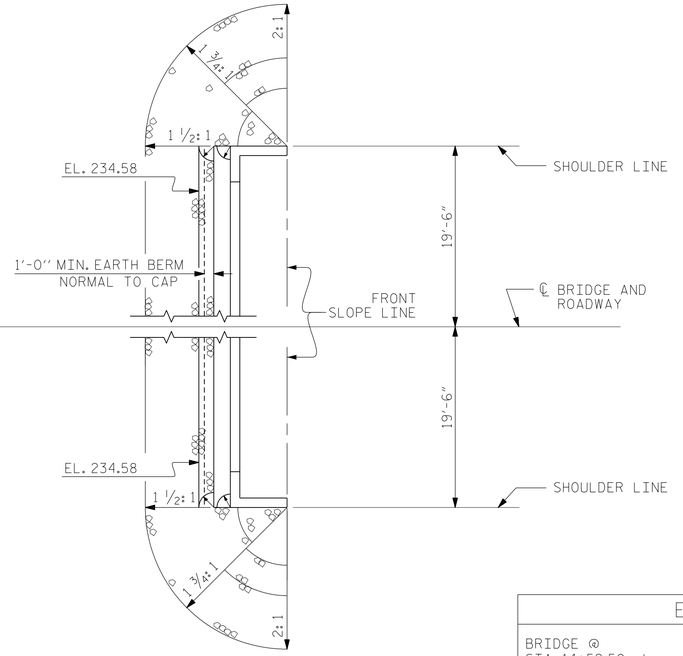
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



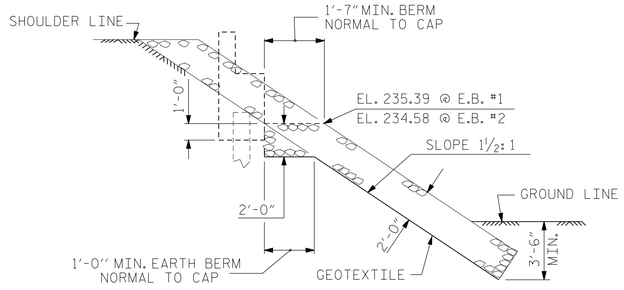
END BENT NO. 1



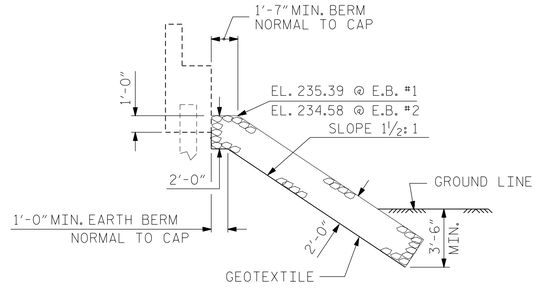
END BENT NO. 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+52.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	142.1	157.9
END BENT 2	130.5	145.0

PLAN VIEW



SECTION H-H



℄ SECTION
BERM RIP RAPPED

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STATE OF NORTH CAROLINA
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RALEIGH

STANDARD

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			16

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DESIGN ENGINEER OF RECORD:	J. LOFTUS	DATE : 06-17

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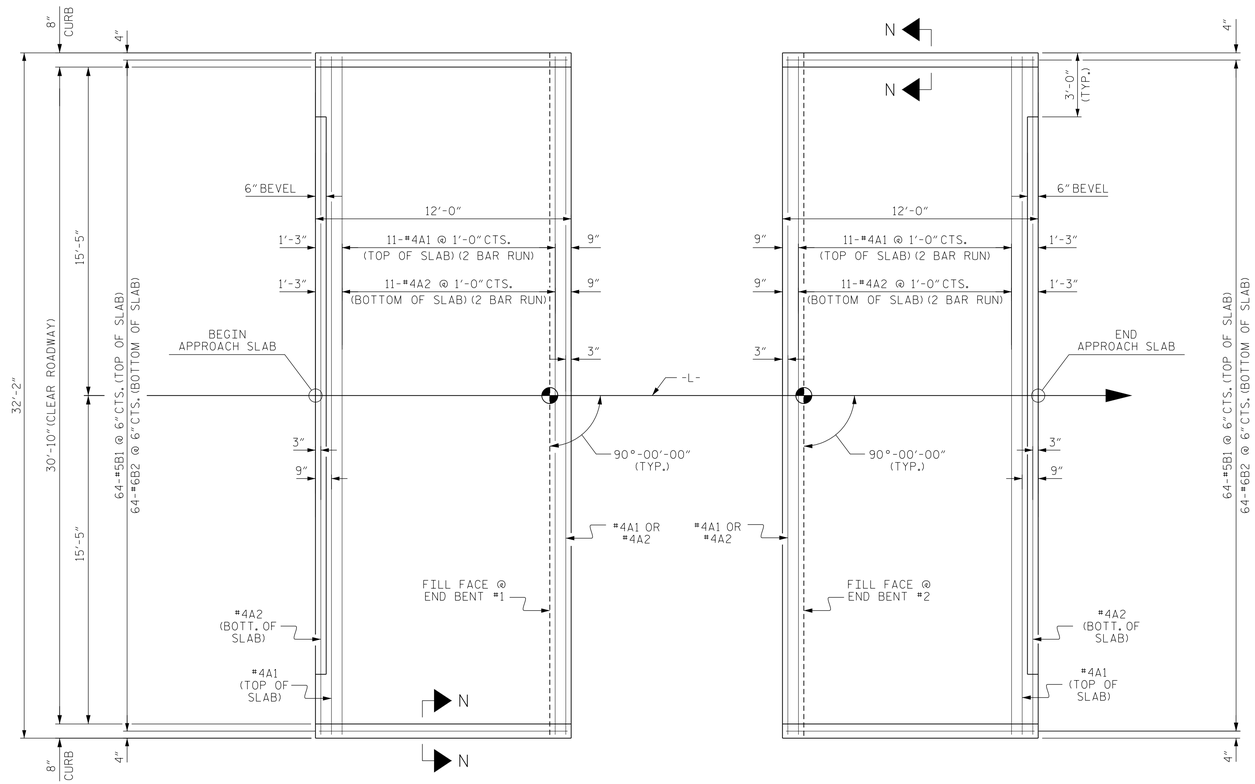
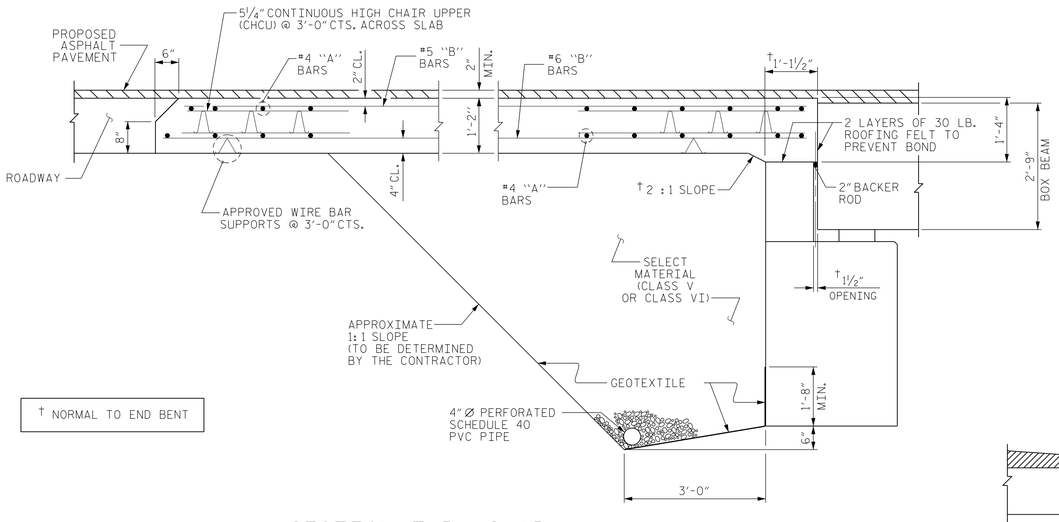


PLAN @ END BENT #1

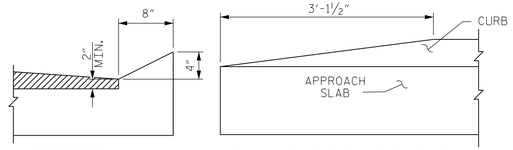
PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)



SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

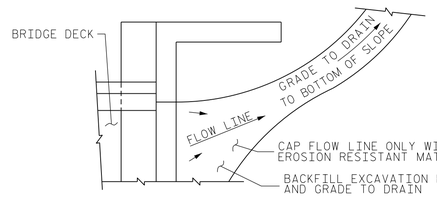
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

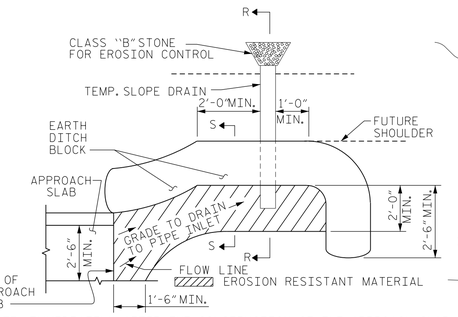
FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



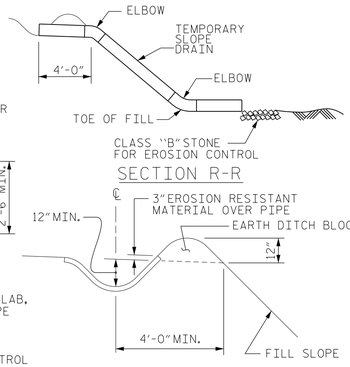
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW



SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-9"	291
✱ B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1412
✱ EPOXY COATED REINFORCING STEEL				LBS.	1039
CLASS AA CONCRETE				C. Y.	17.0
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-9"	291
✱ B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1412
✱ EPOXY COATED REINFORCING STEEL				LBS.	1039
CLASS AA CONCRETE				C. Y.	17.0

DocuSigned by: Jeff Loftus FE51DC02E6794A9... 2/22/2018

NORTH CAROLINA PROFESSIONAL SEAL 041425 ENGINEER JEFFREY M. LOFTUS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.5.R.68

FRANKLIN COUNTY

STATION: 14+52.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE BOX BEAM UNIT (SUB-REGIONAL TIER) 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			16

STEWART
Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

DRAWN BY:	E. PHELPS	DATE : 06-17
CHECKED BY:	J. LOFTUS	DATE : 06-17
DESIGN ENGINEER OF RECORD:	J. LOFTUS	DATE : 06-17

FRANKLIN 89

1/27/2018
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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

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FRANKLIN COUNTY

STATION: 14+52.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

STEWART
Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

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1			3			TOTAL SHEETS
2			4			16

REV. 6-16-95 EEM (/) RGW REV. 5-7-03 RWW (/) JTE REV. 10-1-11 MAA (/) GM
REV. 8-16-99 RWW (/) LES REV. 5-1-06 TLA (/) GM REV. 12-17 MAA (/) THC

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