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

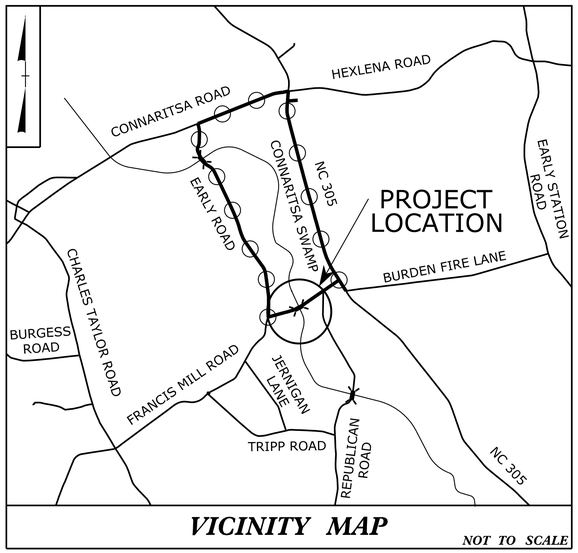
PROJECT: BP1.R004.1

CONTRACT: DA00528

3/24/2022

K:\RAL_Roadway\DII036574 - BP1.R004\Roadway\Pro\BP1.R004_rdy_tshdgn

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet RW01 THRU RW04 For Survey Control Sheet



VICINITY MAP

NOT TO SCALE

OFF SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BERTIE COUNTY

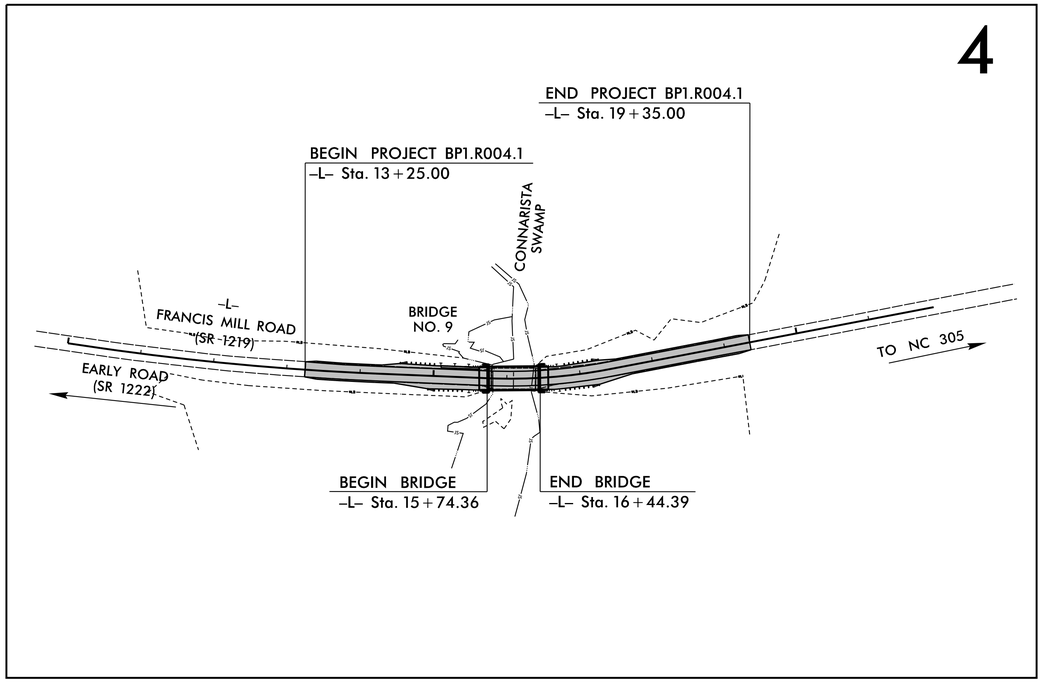
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R004.1	1	

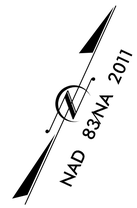
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP1.R004.1		PE
BP1.R004.2		R / W + UTL
BP1.R004.3		CONST.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

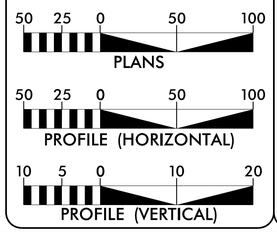
LOCATION: ***BRIDGE NO. 9 OVER CONNARITSA SWAMP ON SR 1219 (FRANCIS MILL ROAD)***

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





GRAPHIC SCALES



DESIGN DATA

ADT 2022 = 350 vpd
ADT 2040 = 500 vpd

V = 60 MPH

FUNC CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BP1.R004.1 = 0.098 MILES
LENGTH STRUCTURE PROJECT BP1.R004.1 = 0.018 MILES
TOTAL LENGTH PROJECT BP1.R004.1 = 0.116 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn ©2022

NC LICENSE #C-0102
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 677-2000

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 22, 2021

LETTING DATE:
JUNE 1, 2022

MATTHEW WEST, P.E.
PROJECT ENGINEER

JACK CRINO, E.I.
PROJECT DESIGN ENGINEER

RYAN L. SHOOK
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENNETT

DocuSigned by: Jordan Bennett 5/30/2022
AF5420677CAC4F4...

P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST

DocuSigned by: Matthew S. West 5/30/2022
AC71A1D0796B425...

P.E.

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Kimley»Horn ©2022
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004J	1A

ROADWAY ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 MATTHEW S. WEST — 3/30/2022

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL — 3/30/2022

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

BP1.R004.1
BERTIE COUNTY

INDEX OF SHEETS

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 II.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

END BENTS

THE ENGINEER 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:
POWER: ROANOKE ELECTRIC COOPERATION: BILL BUNN 252-209-2236
WATER: BERTIE COUNTY: RICKEY SPIVEY 252-724-1691 RICKEY.SPIVEY@BERTIE.NC.GOV

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.01	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	
815.02	Subsurface Drain
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
BPIR004J	IB

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW/CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage/Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE

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:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

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 — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — 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 Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)* — T
- U/G Telephone Cable (SUE – LOS C)* — T
- U/G Telephone Cable (SUE – LOS D)* — T
- U/G Telephone Conduit (SUE – LOS B)* — TC
- U/G Telephone Conduit (SUE – LOS C)* — TC
- U/G Telephone Conduit (SUE – LOS D)* — TC
- U/G Fiber Optics Cable (SUE – LOS B)* — T FO
- U/G Fiber Optics Cable (SUE – LOS C)* — T FO
- U/G Fiber Optics Cable (SUE – LOS D)* — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)* — W
- U/G Water Line (SUE – LOS C)* — W
- U/G Water Line (SUE – LOS D)* — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)* — TV
- U/G TV Cable (SUE – LOS C)* — TV
- U/G TV Cable (SUE – LOS D)* — TV
- U/G Fiber Optic Cable (SUE – LOS B)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS C)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS D)* — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — 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 Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE – LOS B)* — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

09/08/99

TIP PROJECT: BP1.R004.1

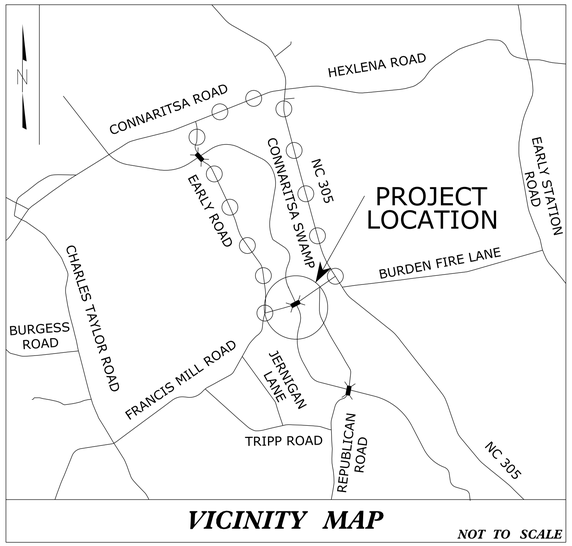
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R004.1	RW01	6

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

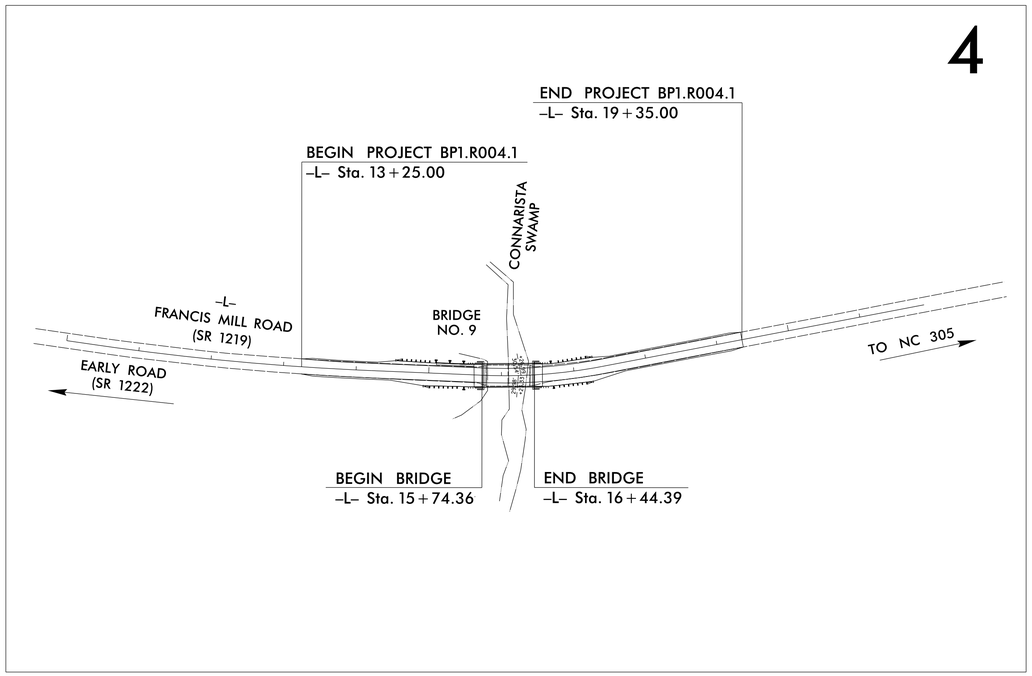
BERTIE COUNTY

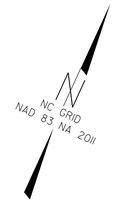
LOCATION: BRIDGE NO. 9 OVER CONNARITSA SWAMP ON SR 1219 (FRANCIS MILL ROAD)



VICINITY MAP

NOT TO SCALE





GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BP1R004-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 881267.2934(ft) EASTING: 2568296.1171(ft) ELEVATION: 46.72(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000004058 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BP1R004-2" TO -L- STATION 13+25.00 IS N 67°32'18.50" E 258.72(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared In the Office of:

NCDOT
LOCATION & SURVEYS
DIVISION 1
1300 US 64W
PLYMOUTH,NC 27962

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: ***NOVEMBER 22, 2021***

LETTING DATE: ***JUNE 1, 2022***

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III 02/17/2022
8A59211D2432489...

SIGNATURE: ***Date:***

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

17-FEB-2022 13:36
B:\bp1r004 (Bertie 9)\Control\Control Sheets\RW and Title-Sheets\bp1r004_1_ls_rw01.dgn
tdowns AT LS-3i565

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004.1	RW02C-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 1 FIELD OFFICE
1300 US HWY 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

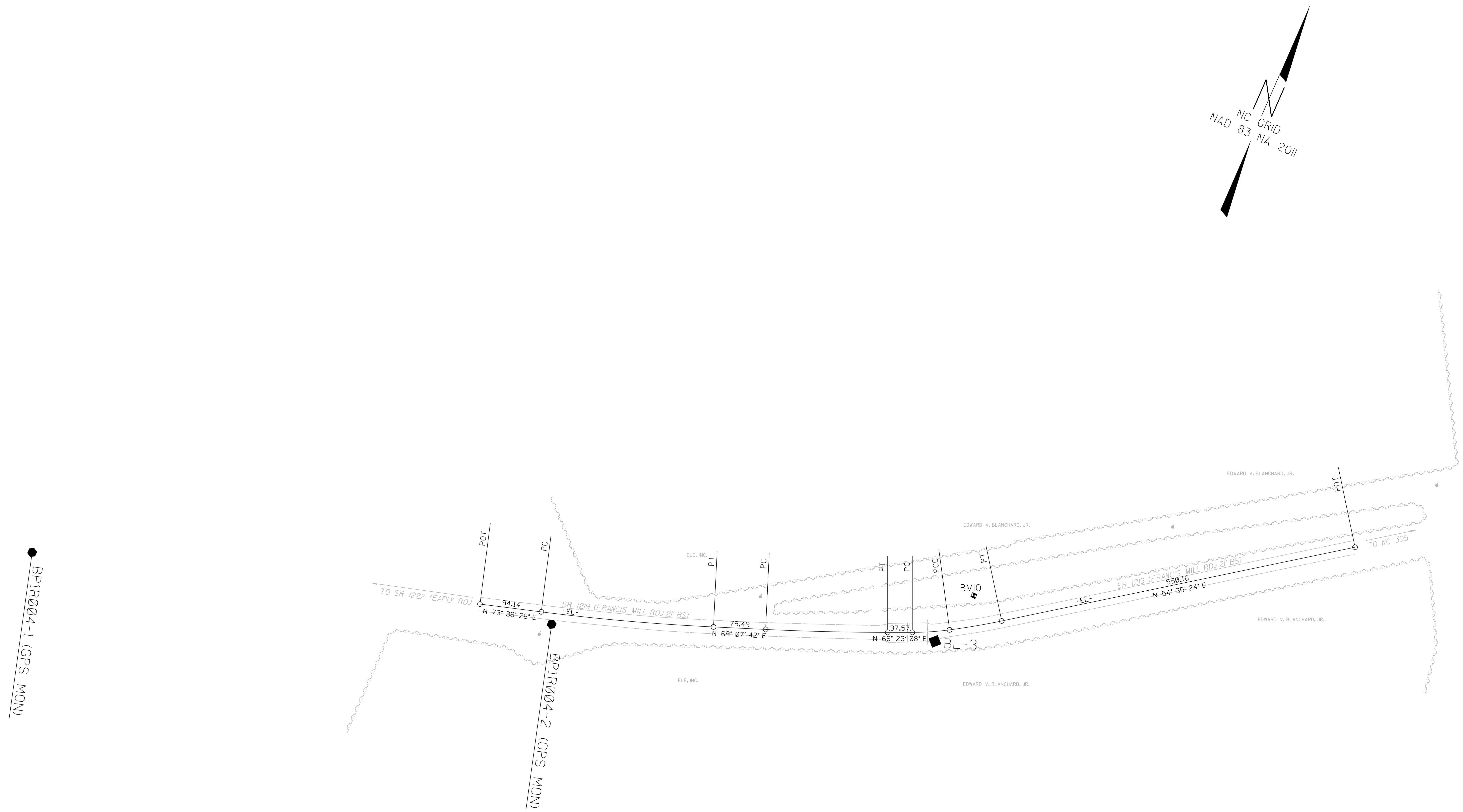
NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



I, Linwood T. Downs III, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: VRS RTN
Dates of survey: 2/26/2021
Datum/Epoch:NAD 83/2011
Published/Fixed-control use: Project Control
Localized around: BP1R004-2
Northing: 881267.2934
Easting: 2568296.1171
Combined grid factor: 1.0000004058
Geoid model: Geoid 12
Units: US Survey Foot

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 2/26/2021 to 3/5/2021 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 6th day of April, 2021.

DocuSigned by:
Linwood T. Downs III
Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

NOTES:

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

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004.1	RW02C-2

Location and Surveys

LOCATION & SURVEYS
DIVISION 1 FIELD OFFICE
1300 US HWY 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	881251.890	2568183.667							
LINE			N 73°38'25.9" E	94.14					
PC	881278.407	2568274.000							
CURVE			N 71°23'04.2" E	263.54	04°30'43.4"(LT)	01°42'41.9"	263.61	131.87	3347.40
PT	881362.534	2568523.753							
LINE			N 69°07'42.5" E	79.49					
PC	881390.853	2568598.024							
CURVE			N 67°45'25.2" E	186.12	02°44'34.5"(LT)	01°28'24.9"	186.14	93.09	3888.22
PT	881461.307	2568770.297							
LINE			N 66°23'08.0" E	37.57					
PC	881476.358	2568804.725							
CURVE			N 62°35'17.0" E	56.96	07°35'42.1"(LT)	13°19'28.6"	57.00	28.54	430.00
PCC	881502.581	2568855.288							
CURVE			N 56°41'25.1" E	80.63	04°12'01.7"(LT)	05°12'31.3"	80.64	40.34	1100.00
PT	881546.858	2568922.668							
LINE			N 54°35'24.2" E	550.16					
POT	881865.633	2569371.064							

BL

POINT	DESC.	NORTH	EAST	ELEVATION
BPR0041	BP1R004-1	881050.6184	2567526.5980	59.19
BPR0042	BP1R004-2	881267.2934	2568296.1171	46.72
BL3	BL-3	881477.5660	2568841.8090	48.27

BM10 ELEVATION = 46.61
N 881565 E 2568868
RR SPIKE IN 18" GUM

I, Linwood T. Downs III, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: VRS RTN
Dates of survey: 2/26/2021
Datum/Epoch:NAD 83/2011
Published/Fixed-control use: Project Control
Localized around: BP1R004-2

Northing: 881267.2934
Easting: 2568296.1171
Combined grid factor: 1.0000004058
Geoid model: Geoid 12
Units: US Survey Foot

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 2/26/2021 to 3/5/2021 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 6th day of April, 2021.

DocuSigned by: Linwood T. Downs III

Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

NOTES:

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

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

17-FEB-2022 12:58
B:_bp1r004 (Bertie 9)\Control\Control Sheets\C-Sheets\bp1r004_ls_rw02c-2.dgn
ltdowns AT LS-311565

6/2/99

REVISIONS

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004.1	RW02D-1

Location and Surveys

NCDOT
LOCATION & SURVEYS
DIVISION 1
1300 US 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-5327 LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III
8A592[illegible]

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Linwood T. Downs III, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 18th day of February, 2021.

DocuSigned by:
Linwood T. Downs III
Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-5327 LINWOOD T. DOWNS III

L

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	881264.496	2568226.610							
LINE			N 73°38'25.9" E	44.75					
PC	881277.101	2568269.552							
CURVE			N 70°43'41.5" E	375.98	Ø5°49'28.7"(LT)	Ø1°32'54.7"	376.14	188.23	3700.00
PT	881401.193	2568624.461							
LINE			N 67°48'57.2" E	153.89					
PC	881459.299	2568766.959							
CURVE			N 61°12'10.7" E	163.76	13°13'33.0"(LT)	Ø8°03'30.5"	164.12	82.43	711.00
PT	881538.183	2568910.466							
LINE			N 54°35'24.2" E	451.09					
POT	881799.557	2569278.120							

NOTES:

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

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

17-FEB-2022 09:21
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ltdowns
Al LS 31565

DocuSign Envelope ID: DE37CC09-5C6D-467F-AEF3-47822EB8B706

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004.1	RW03E-1

Location and Surveys

NCDOT
LOCATION & SURVEYS
DIVISION 1
1300 US 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RIGHT OF WAY CONTROL SHEET

ROW MARKER PERMANENT EASEMENT-E

	ALIGN	STATION	OFFSET	NORTH	EAST
	L	13+58.00	-41.00	881416.1638	2568551.1905
	L	13+58.00	-30.66	881406.5279	2568554.9300
	L	15+09.00	-29.48	881461.7623	2568694.9123
	L	15+09.00	-42.00	881473.3512	2568690.1867
	L	15+09.00	-52.00	881482.6110	2568686.4108
	L	15+25.00	-52.00	881488.6523	2568701.2264
	L	15+62.00	41.00	881416.5073	2568770.6028
	L	15+62.00	29.79	881426.8899	2568766.3691
	L	15+72.00	-42.00	881497.1390	2568748.5231
*	L	15+76.00	38.00	881424.5969	2568782.4935
	L	15+83.00	-30.66	881490.7027	2568762.6441
*	L	15+84.00	29.33	881435.8222	2568786.8966
*	L	16+24.00	50.00	881434.5627	2568833.8903
*	L	16+24.01	29.91	881452.5969	2568825.0415
*	L	16+27.00	-40.04	881516.6411	2568796.7415
*	L	16+27.00	-30.03	881507.6725	2568801.1896
	L	16+41.00	50.00	881442.7760	2568850.1250
	L	16+41.00	44.00	881448.0971	2568847.3526
	L	16+50.00	-46.00	881531.8500	2568813.2076
	L	16+50.00	-40.00	881526.5645	2568816.0471
	L	16+55.00	43.00	881455.9732	2568859.9889
	L	16+55.00	30.27	881467.1424	2568853.8870
	L	16+72.00	-40.00	881536.6716	2568834.1822
	L	16+72.00	-29.90	881527.9306	2568839.2326
	L	19+35.00	-40.00	881684.4052	2569047.1108
	L	19+35.00	-30.00	881676.2549	2569052.9050

*=MONUMENT NOT SET DUE TO INACCESSIBILITY

I , Linwood T. Downs III , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from on February 15, 2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 17th day of February, 2022.

DocuSigned by: Linwood T. Downs III
Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

REVISIONS

6/2/99

17-FEB-2022 10:41
B:_bp1.r004 (Bertie 9)\Control\Control Sheets\E-Sheets\bp1r004.1_ls_rw03e-1.dgn
ltdowns AT LS-31565

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON FEBRUARY 15, 2022.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004.1	RW04

Location and Surveys

NCDOT
LOCATION & SURVEYS
DIVISION 1
1300 US 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

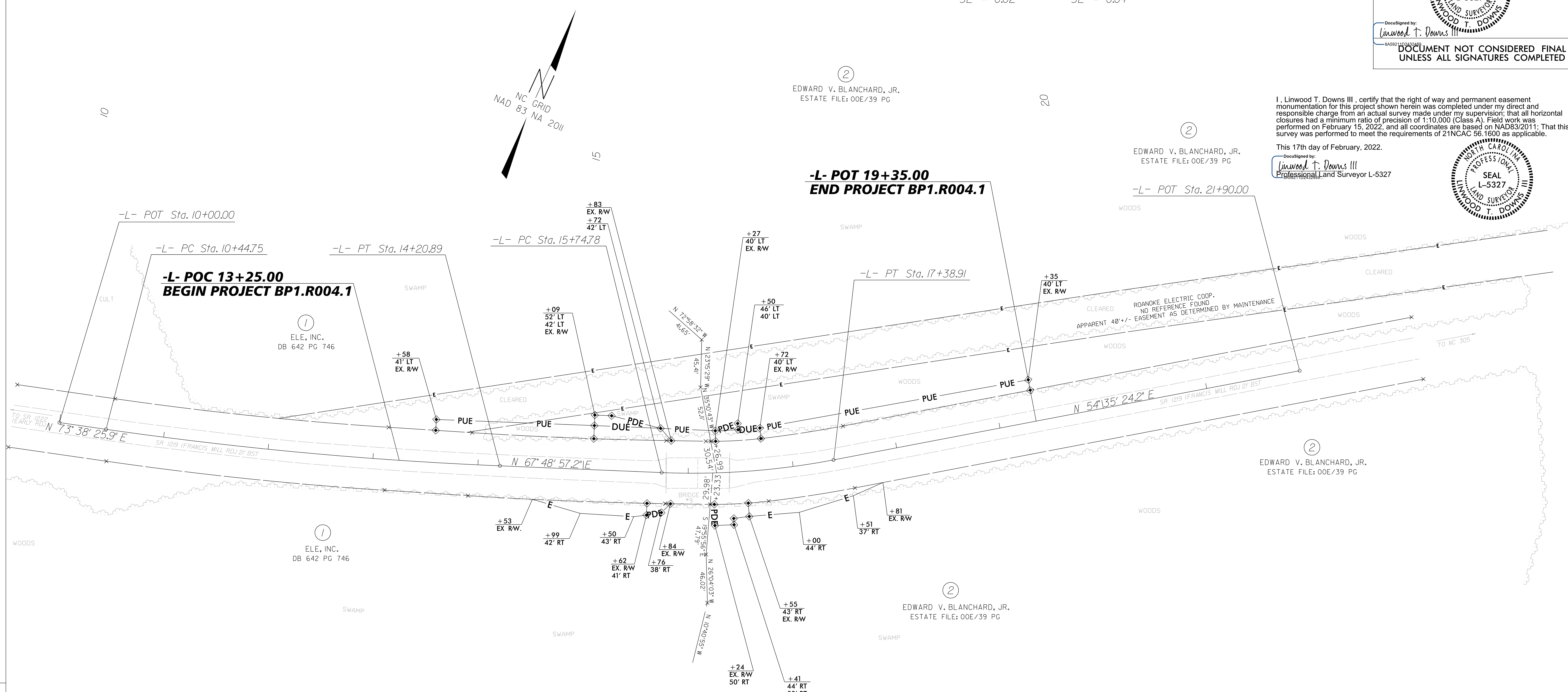
PI Sta 12+32.99	PI Sta 16+57.21
△ = 5° 49' 28.7" (LT)	△ = 13° 13' 33.0" (LT)
D = 1° 32' 54.7"	D = 8° 03' 30.5"
L = 376.14'	L = 164.12'
T = 188.23'	T = 82.43'
R = 3,700.00'	R = 711.00'
DS = 45 MPH	DS = 45 MPH
SE = 0.02	SE = 0.04

I , Linwood T. Downs III , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed on February 15, 2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 17th day of February, 2022.

DocuSigned by: Linwood T. Downs III
Professional Land Surveyor L-5327

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III



NOTES:

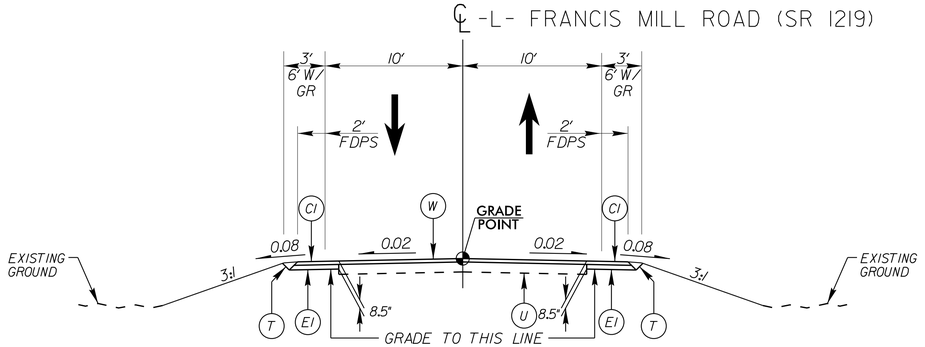
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON FEBRUARY 15, 2022.

REVISIONS

6/2/99

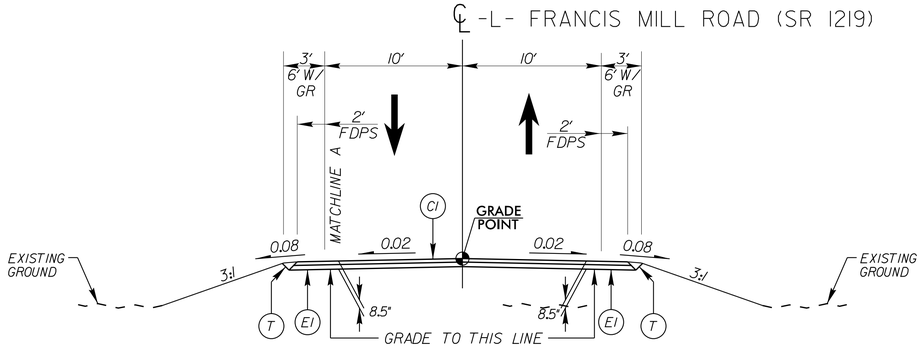
17-FEB-2022 14:19
B:_bp1.r004 (Bertie 9)\Control\Control Sheets\RW and Title-Sheets\bp1r004.1.ls_rw04.dgn
ltdowns AT LS-3I1565

REVISIONS



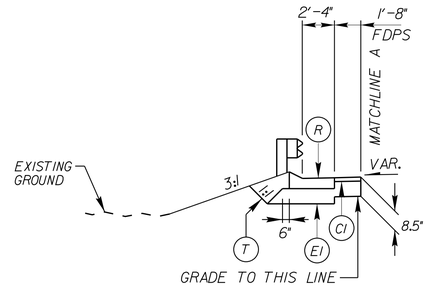
TYPICAL SECTION NO. 1

-L- STA 13+25.00 TO STA 14+00.00
-L- STA 18+50.00 TO STA 19+35.00



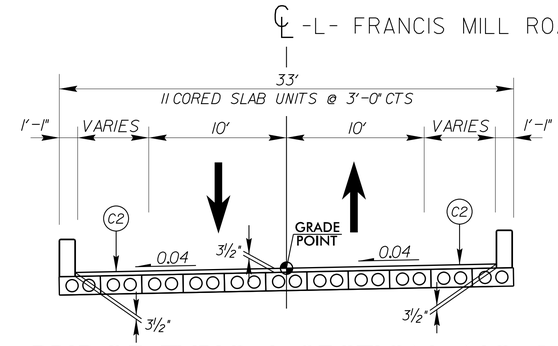
TYPICAL SECTION NO. 2

-L- STA 14+00.00 TO STA 15+74.36
-L- STA 16+44.39 TO STA 18+00.00



TYPICAL SECTION NO. 2A

-L- STA 15+10.00 TO STA 15+62.00 (LT)



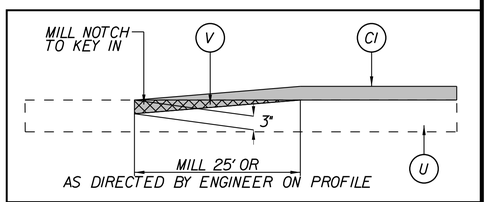
BRIDGE TYPICAL SECTION NO. 1

-L- STA 15+74.36 TO STA 16+44.39

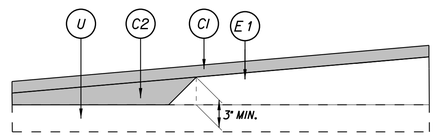
NOTES:

1) MILL NOTCH TO KEY-IN S9.5B FROM -L- STA 13+25.00 TO STA 13+50.00 AND -L- STA 19+10.00 TO STA 19+35.00
2) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
3) TRANSITION FULL DEPTH SHOULDERS IN AREAS OF 8:1 TAPERS.

	FINAL PAVEMENT DESIGN
CI	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ.YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH
EI	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ.YD.
R	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL BELOW)



PROFILE KEY-IN DETAIL



WEDGING DETAIL FOR RESURFACING

Kimley»Horn © 2022
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPI.R004J	2A-1

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 ENGINEER MATTHEW S. WEST
3/30/2022

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 ENGINEER JORDAN BENDL
3/30/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/24/2022 K:\RAL_Roadway\011036574 - BPI.R004J\Roadway\Proj\BPI.R004J_rdy_typdgn

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004J	3B-1

Kimley»Horn
©2022
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	EXCAVATION		EMBANKMENT	BORROW	WASTE
		TOTAL UNCLASSIFIED	UNDERCUT	EMBANKMENT +25%		TOTAL
–L– 13+25	–L– 15+74.36	5		713	713	5
–L– 16+44.39	19+35	2		675	675	2
	SUBTOTAL	7		1388	1388	7
	SHOULDER MATERIAL			19	19	
	PROJECT TOTAL	7		1407	1407	7
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					70	
	GRAND TOTAL	7			1477	7
	SAY	10			1480	10

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL AREA TAKEN	CONST. EASE.	PERM. DRAIN. EASE.	PERM. UTILITY EASE.	PERM. DRAIN. UTILITY EASE.
1	ELE, INC.	397 SY	114 SY	63 SY	128 SY	92 SY
2	EDWARD V. BLANCHARD, JR	589 SY	142 SY	69 SY	329 SY	49 SY
	ROANOKE ELECTRIC COOP.				72 SY	

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

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

3/24/2022 K:\RAL_Roadway\011036574 - BP1.R004J\Roadway\Pro\BP1.R004J_rdy_sum.dgn

COMPUTED BY: JRC DATE: 09/09/21
CHECKED BY: TGS DATE: 09/10/21

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004J	3B-2

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE TL-3
NG = NON-GATING IMPACT ATTENUATOR TYPE TL-3

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TL-3			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	TYPE III			EA	G	NG				
-L-	14+91.25	15+72.50	LT	118.75					4	4		50'		1	1	1									
-L-	14+92.75	15+74.00	RT	81.25					7	7	50'		1		1	1									
-L-	16+45.15	17+26.40	LT	81.25					4	4	50'		1		1	1									
-L-	16+44.75	17+26.00	RT	81.25					7	7		50'		1	1	1									
			SUBTOTAL	362.5																					
	LESS ANCHOR DEDUCTIONS																								
	GREU TL-3	4 @ 50'	=	200																					
	TYPE III	4 @ 18.75'	=	75																					
			TOTAL	87.5											4	4									
			SAY	87.5																					

ADDITIONAL GUARDRAIL POSTS = 0 EA

SUMMARY OF SHOULDER BERM GUTTER			
LINE	STATION TO STATION	LOCATION	LENGTH (LF)
-L-	15+10 TO 15+62	LT	52
TOTAL			52
SAY			55

LL22352

COMPUTED BY:	TB	**DATE:**	09/21/21
CHECKED BY:	JCB	**DATE:**	09/22/21

PROJECT NO.	SHEET NO.
BP1.R004.1	3D-1

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)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	R. C. PIPE CLASS IV 12	15	18	24	30	36	42		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	SPRING BOX STD. 840.41	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" DRAINAGE PIPE ELBOW	##" DRAINAGE PIPE ELBOW		MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 15+14	14 LT	0401		49.8																															1																								1						1																				
		0401	0402		47.0	44.4			24					X	X																																																												2											
SHEET TOTALS									24																										1																								1						1										2											
PROJECT TOTALS									24																										1																								1						1										2											

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

REVISIONS

BM10 ELEVATION = 46.61
N 881565 E 2568868
RR SPIKE IN 18" GUM

-L-

PI Sta 12+32.99
Δ = 5° 49' 28.7" (LT)
D = 1° 32' 54.7"
L = 376.14'
T = 188.23'
R = 3,700.00'
DS = 45 MPH
SE = 0.02

PI Sta 16+57.21
Δ = 13° 13' 33.0" (LT)
D = 8° 03' 30.5"
L = 164.12'
T = 82.43'
R = 711.00'
DS = 45 MPH
SE = 0.04

NAD 83/NA 2011 NC GRID

Kimley»Horn © 2022
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004J	4

RW SHEET NO.

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 ENGINEER MATTHEW S. WEST
3/30/2022

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 ENGINEER JORDAN BENDL
3/30/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

10 15 20

-L- POT Sta. 10+00.00
-L- PC Sta. 10+44.75
-L- PT Sta. 14+20.89
-L- POC 13+25.00
BEGIN PROJECT BP1.R004.1
-L- POT 19+35.00
END PROJECT BP1.R004.1
-L- PT Sta. 17+38.91
-L- POT Sta. 21+90.00

(1) ELE, INC. DB 642 PG 746
(2) EDWARD V. BLANCHARD, JR. ESTATE FILE: 00E/39 PG

FRANCIS MILL RD (SR 1219)
TO SR 1222 (EARLY RD)
TO NC 305
N 73° 38' 25.9" E
N 67° 48' 57.2" E
N 54° 35' 24.2" E

REMOVE EXISTING BRIDGE (STRUCTURE ITEM)
BEGIN BRIDGE -L- POT 15+74.36
END BRIDGE -L- POT 16+44.39
BRIDGE #9
BEGIN APPROACH SLAB -L- POT 15+62.35
END APPROACH SLAB -L- POT 16+56.41
-BL-3 -L- STA 16+49.39 OFF 15.40 RT

RIPRAP PAD AT OUTLET 1 TONS CL-B RIPRAP 5 S.Y. GFD
15" W/2 ELBOWS SBG FROM +10 TO +61.67
RIPRAP BANK PROTECTION (EXTEND ABUTMENT PROTECTION APPROX. 7' UPSTREAM)
EXISTING BRIDGE EXCAVATION (SEE STRUCTURES PLANS)
CLASS II RIPRAP TO ELEV. = 47.8' (STRUCTURES PAY ITEM TYP.)
RIPRAP BANK PROTECTION (EXTEND ABUTMENT PROTECTION APPROX. 6' DOWNSTREAM)

BP1R004-2 (GPS MON) -L- STA 10+67.38 OFF 16.96' RT
STA. 12+96.00
STA. 18+65.00
30" X 30" W1-2L
18" X 18" W13-1P
30" X 30" W1-2
18" X 18" W13-1
40 MPH

ROANOKE ELECTRIC COOP. NO REFERENCE FOUND APPARENT 40'+/- EASEMENT AS DETERMINED BY MAINTENANCE

SWAMP CONNARISTA SWAMP CLEARED WOODS CULT

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-14 FOR STRUCTURE PLANS

*DESIGN EXCEPTION REQUIRED FOR HORIZONTAL DESIGN SPEED

DATUM DESCRIPTION

LOCALIZED PROJECT COORDINATES ARE BASED ON THE NAD 83/NA 2011 STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR STATION "BP1R004-2"
NORTHING: 881267.2934(ft) EASTING: 2568296.1171(ft)
ELEVATION: 46.72(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (LOCALIZED TO GRID) IS: 1.0000004058
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BP1R004-2 (GPS MON)" TO -L- STATION 10+00 IS S87°41'43"W 69.5638'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
UNITS ARE "US SURVEY FOOT". VERTICAL DATUM IS NAVD88. "GEIOD 12".

3/24/2022 K:\RAL_Roadway\011036574 - BP1.R004J\Roadway\Pro\BP1.R004J_rdy_psh_4.dgn

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RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

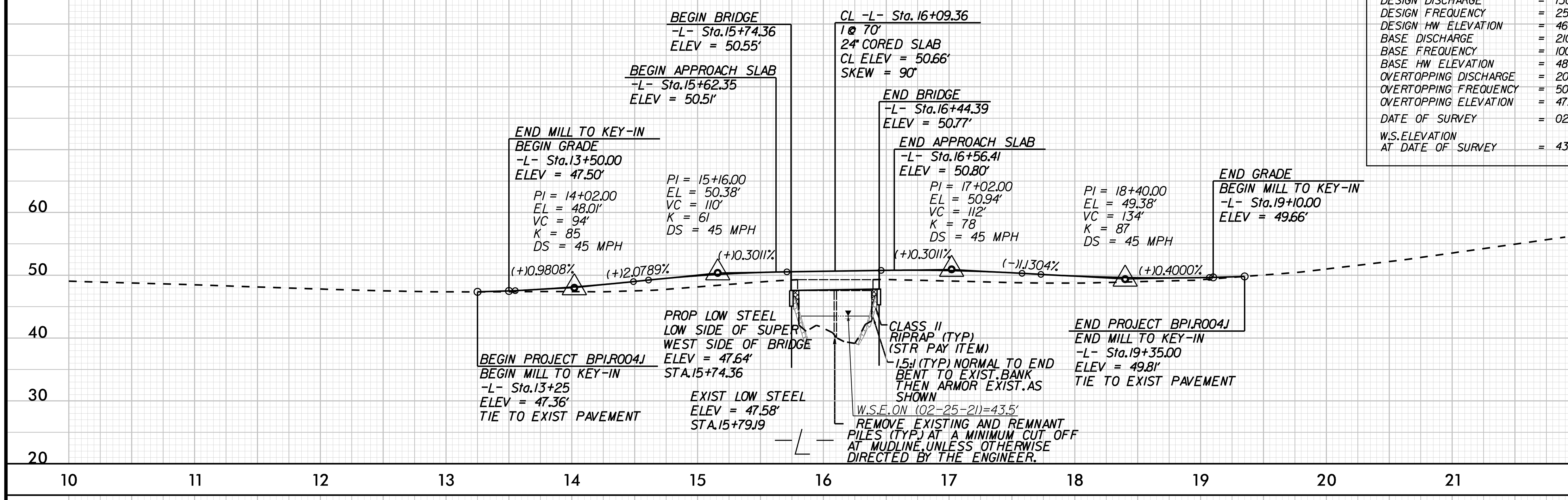
PROJECT REFERENCE NO.	SHEET NO.
BP1.R004J	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 MATTHEW S. WEST — 3/30/2022	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL — 3/30/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1300 CFS
DESIGN FREQUENCY	= 25 YR
DESIGN HW ELEVATION	= 46.8 FT
BASE DISCHARGE	= 2100 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 48.2 FT
OVERTOPPING DISCHARGE	= 2000 CFS
OVERTOPPING FREQUENCY	= 50+ YR
OVERTOPPING ELEVATION	= 47.4 FT
DATE OF SURVEY	= 02/25/2021
W.S. ELEVATION AT DATE OF SURVEY	= 43.5 FT



PROJ. REFERENCE NO.	SHEET NO.
BP1.R004.1	TMP-1

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 JANAUARY 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
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

MANAGEMENT STRATEGIES

CONSTRUCTION SUMMARY:
PROPOSED BRIDGE REPLACEMENT WILL BE CONSTRUCTED AWAY FROM TRAFFIC USING A ROAD CLOSURE AND DETOUR ROUTE.

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.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER AND STATE FORCES THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION, SUCH THAT NECESSARY PROVISIONS CAN BE MADE TO INFORM LOCAL EMERGENCY, LAW ENFORCEMENT, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.

SIGNING

B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

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

D) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTES USING ROADWAY STANDARD DRAWING NUMBER 1101.03.

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

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

G) INSTALL SIGNS BEFORE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL AND REMOVE SIGNS/BARRICADES IN THE SAME CALENDER DAY.

TRAFFIC CONTROL DEVICES

H) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

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

PHASING

STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, PERFORM THE FOLLOWING:

- INSTALL ALL ROAD CLOSURE AND DETOUR SIGNING, INCLUDING BARRICADES
- IMPLEMENT A TEMPORARY CLOSURE OF SR 1219 (FRANCIS MILL RD) USING A DETOUR ALONG SR 1222 (EARLY RD), SR 1200 (CONNARITSA RD), AND NC 305.

STEP 2: REMOVE EXISTING BRIDGE #9 OVER CONNARISTA SWAMP AND CONSTRUCT THE PROPOSED BRIDGE AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS.

STEP 3: INSTALL ALL FINAL PAVEMENT MARKINGS.

STEP 4: REMOVE ALL TRAFFIC CONTROL SIGNING AND DEVICES AND OPEN SR 1219 (FRANCIS MILL RD) TO THE FINAL TRAFFIC PATTERN.

Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, North Carolina 27601

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST

3/30/2022

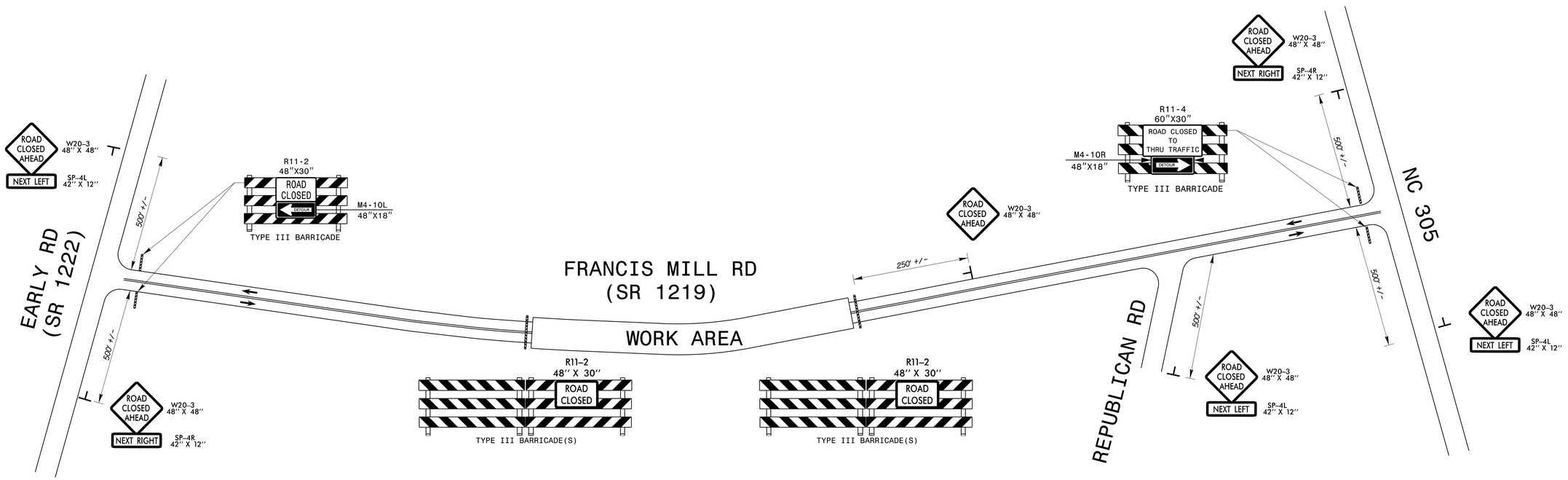
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

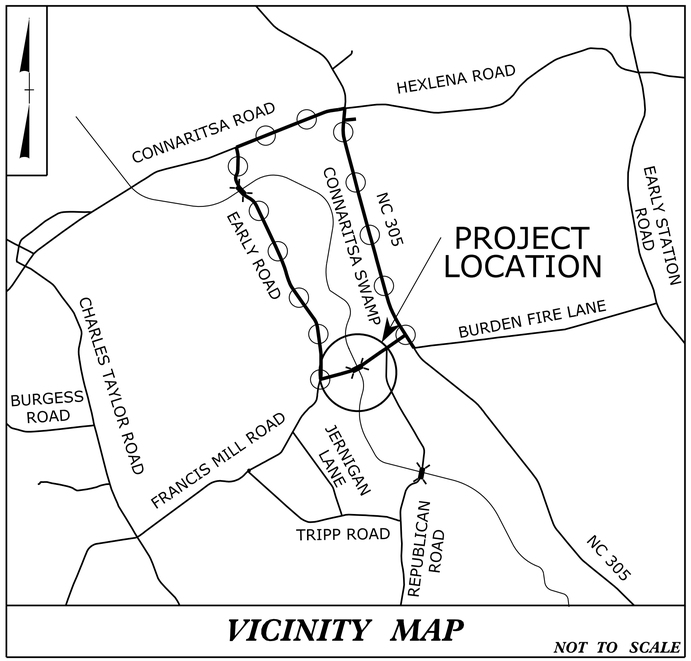
TRANSPORTATION OPERATIONS PLAN

K:\RAL_Roadway\0II0365?4 - BP1.R004\NTraffic\Traffic Control\NTCPTMP_psh_Idgn

3/24/2022

PROJ. REFERENCE NO.	SHEET NO.
BP1.R004.1	TMP-2





VICINITY MAP

NOT TO SCALE

LEGEND

- ⊢ STATIONARY SIGN
- ← DIRECTION OF TRAFFIC FLOW

OFF SITE DETOUR ROUTE

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421 Fayetteville Street, Suite 600
Raleigh, North Carolina 27601

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 MATTHEW S. WEST
3/30/2022

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

TRANSPORTATION OPERATIONS PLAN

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3/24/2022

TIP PROJECT: BP1.R004.1

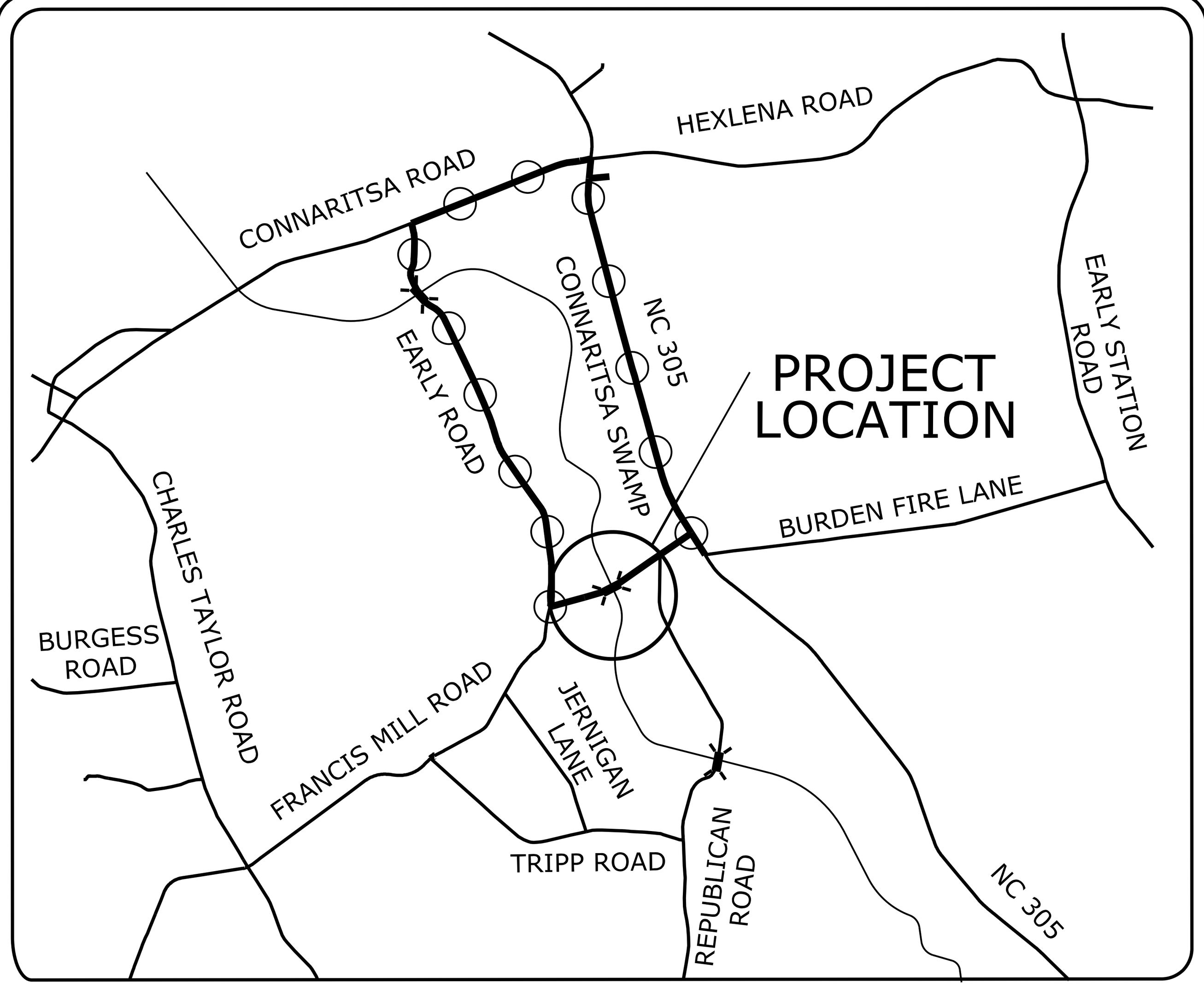
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R004.1	EC-1	5

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
BP1.R004.1		PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
BERTIE COUNTY

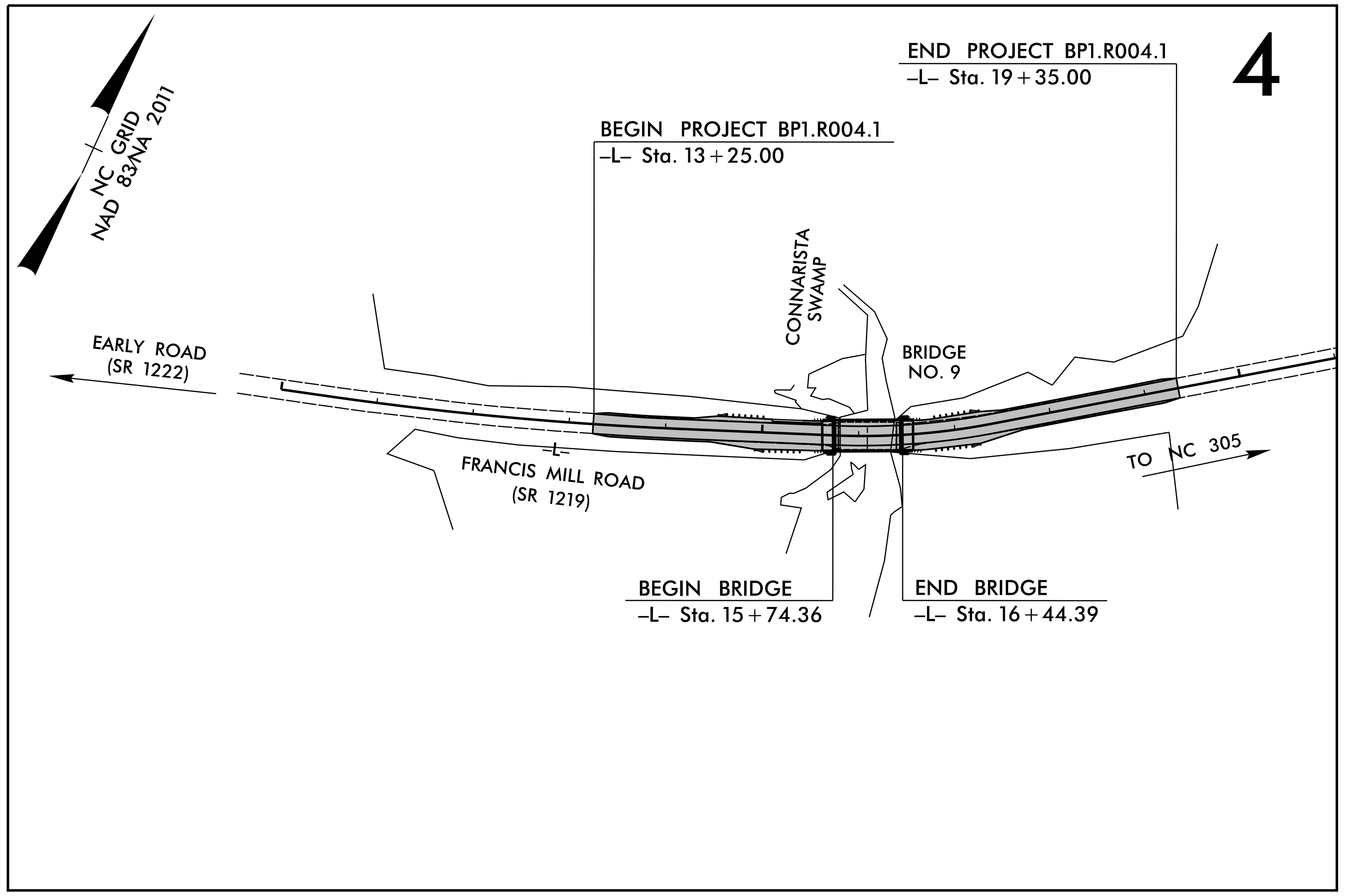
***LOCATION:** BRIDGE NO. 9 OVER CONNARITSA SWAMP ON SR 1219 (FRANCIS MILL ROAD)*

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



VICINITY MAP
NOT TO SCALE

OFF SITE DETOUR ROUTE



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	P.E.	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		EW / 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.

GRAPHIC SCALE

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

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Prepared In the Office of:

Kimley-Horn

421 Fayetteville Street, Suite 600
Raleigh, NC 27601

Designed by:

JORDAN BENDL, P.E.	*3928*
NAME	*LEVEL III CERTIFICATION NO.*

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 2018 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

COIR FIBER WATTLE DETAIL

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CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPLR0041	EC-2

ROADWAY ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029816 MATTHEW S. WEST
3/30/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL
3/30/2022

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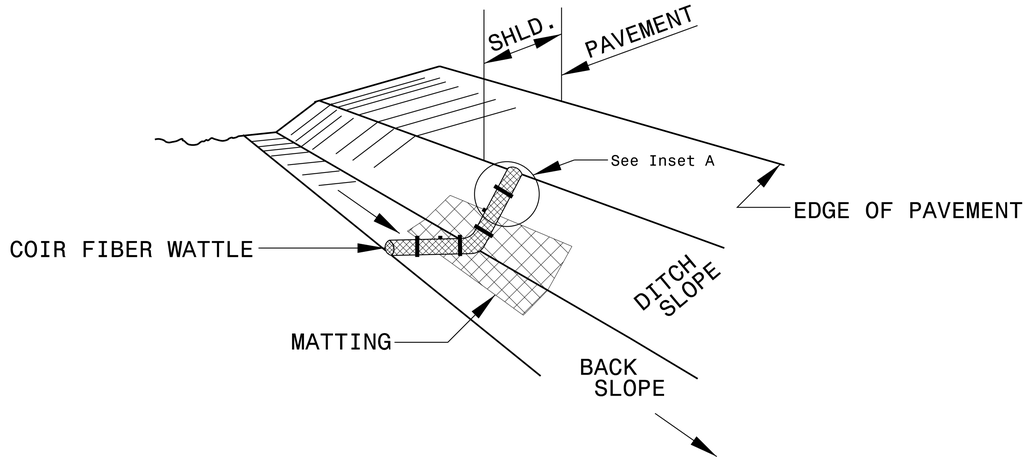
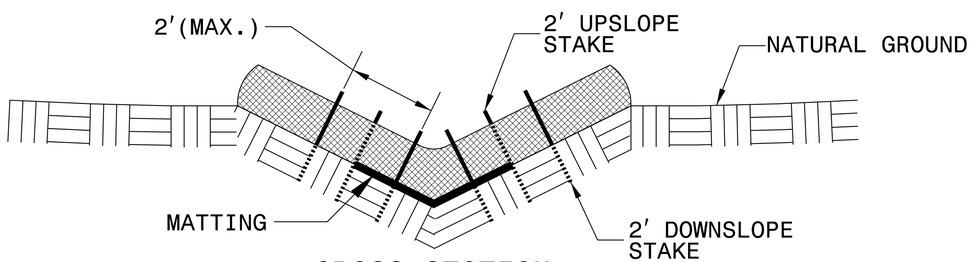
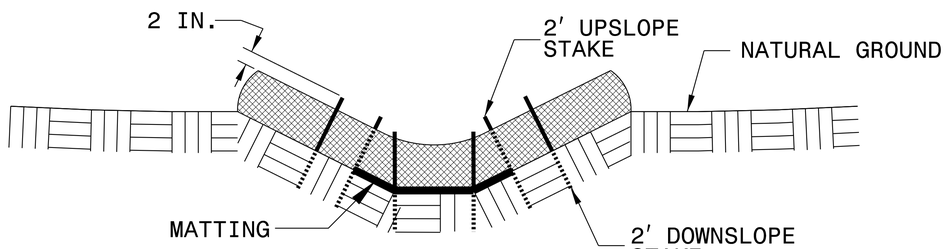
REVISIONS



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

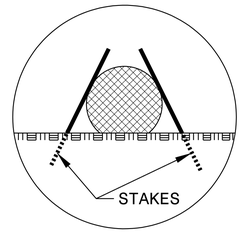
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

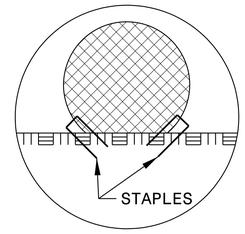
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

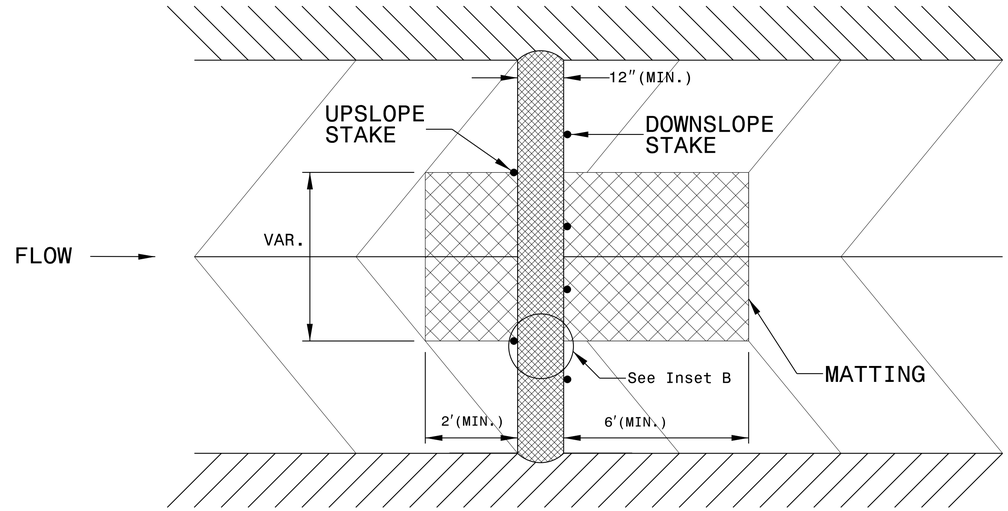
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

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PROJECT REFERENCE NO.	SHEET NO.
BPLR004J	EC-2A

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029816 MATTHEW S. WEST
3/30/2022

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL
3/30/2022

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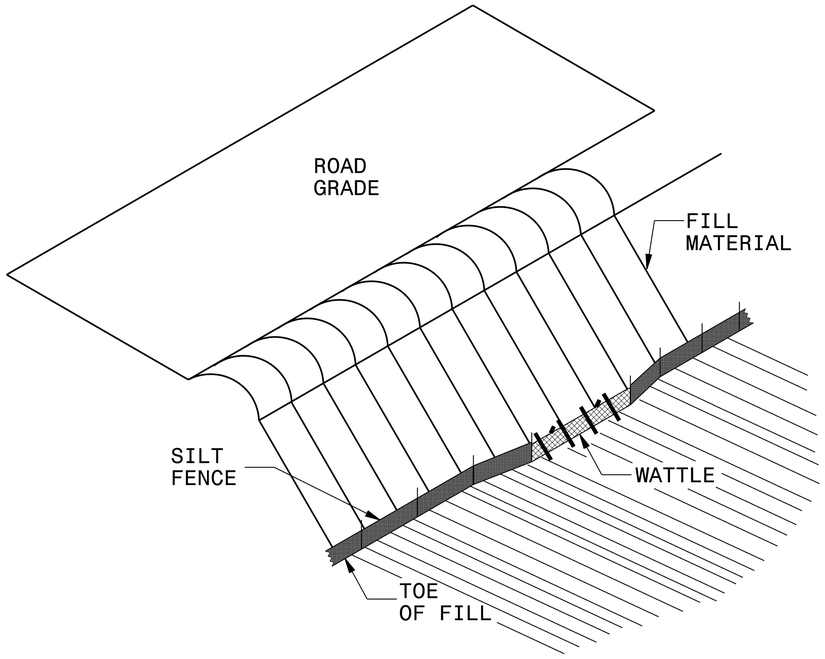
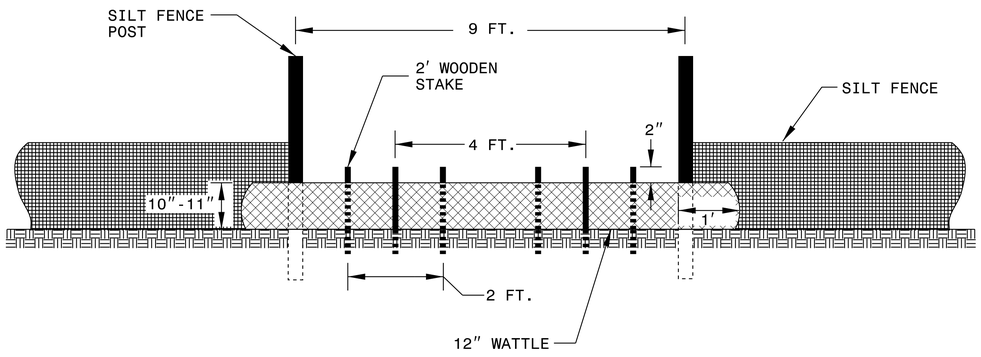


ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

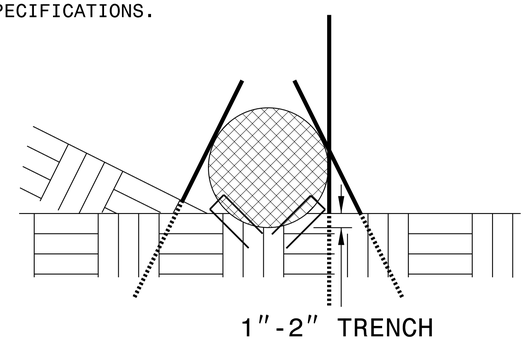
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

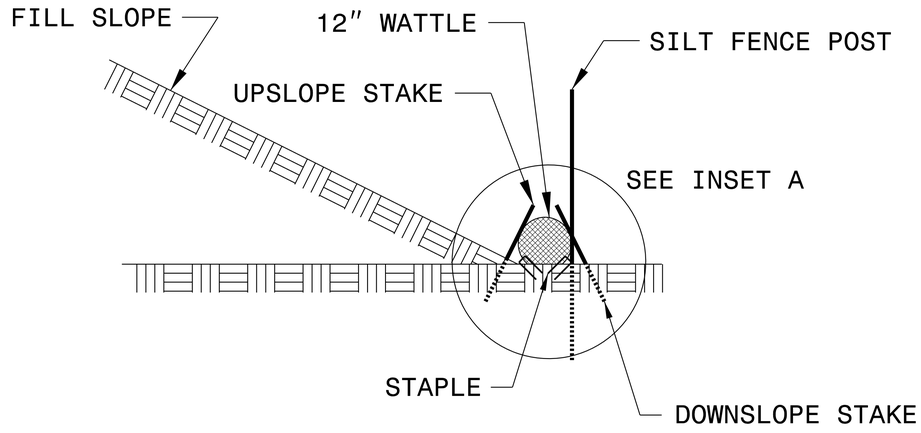
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





SIDE VIEW

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PROJECT REFERENCE NO. BP1.R004J
SHEET NO. EC-3
ROADWAY ENGINEER — 3/30/2022
HYDRAULICS ENGINEER — 3/30/2022
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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.

REVISIONS

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3/24/2022

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PROJECT REFERENCE NO.	SHEET NO.
BPLR004J	EC-2B

ROADWAY ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029816 MATTHEW S. WEST
ACTIVATION DATE
3/30/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL
ACTIVATION DATE
3/30/2022

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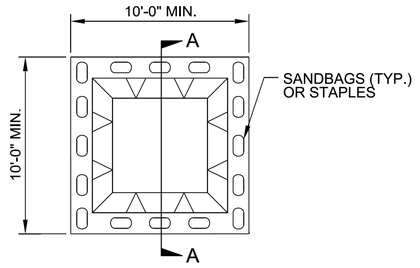
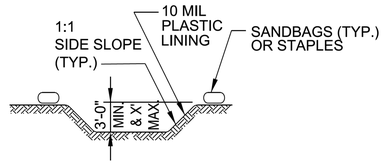
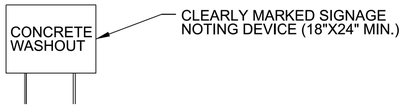
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER







PLAN

SECTION A-A

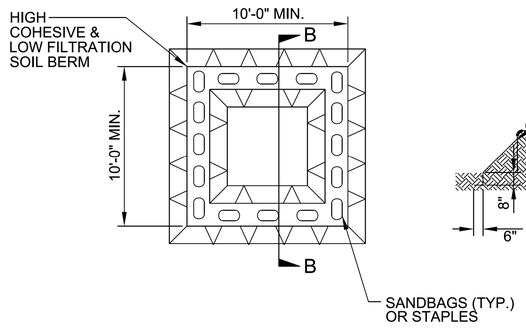
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

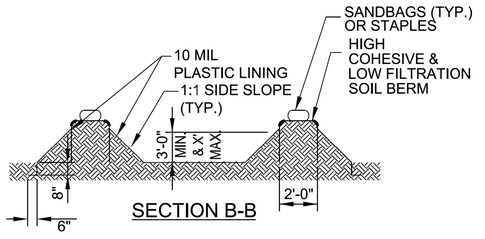
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE





SECTION B-B

PLAN

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

3/24/2022 K:\RAL_Roadway\0ll036574 - BPLR004J\Erosion Control\PSH\BPLR004J_rdy_ero_psh_02B_conc_washout.dgn

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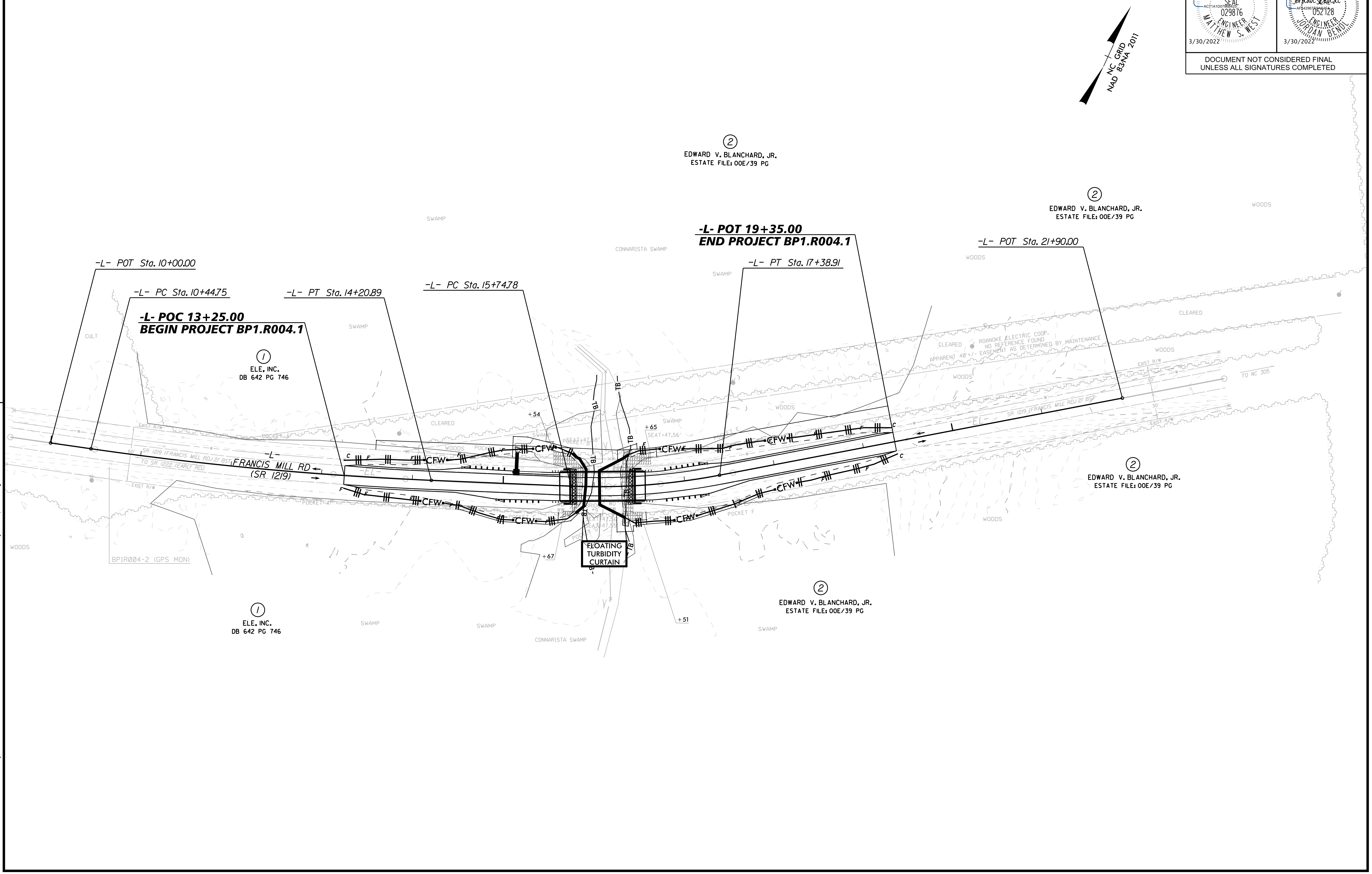
PROJECT REFERENCE NO.	SHEET NO.
BP1.R004J	EC 4/CONST.4
RW SHEET NO.	

ROADWAY ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST — 3/30/2022	NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENDL — 3/30/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NC GRID NAD 83/NA 2011
2
EDWARD V. BLANCHARD, JR.
ESTATE FILE: 00E/39 PG
-L- POT 19+35.00
END PROJECT BP1.R004.1
-L- PT Sta. 17+38.91
-L- POT Sta. 21+90.00
-L- POT Sta. 10+00.00
-L- PC Sta. 10+44.75
-L- PT Sta. 14+20.89
-L- PC Sta. 15+74.78
-L- POC 13+25.00
BEGIN PROJECT BP1.R004.1
1
ELE, INC.
DB 642 PG 746
SWAMP
CONNARISTA SWAMP
WOODS
CLEARED
CULT
-L-
FRANCIS MILL RD
(SR 1219)
SR 1219 (FRANCIS MILL RD) 21' BST
TO SR 1222 (EARLY RD)
TO NC 305
EXIST R/W
ROANOKE ELECTRIC COOP.
NO REFERENCE FOUND
APPARENT 40' +/- EASEMENT AS DETERMINED BY MAINTENANCE
CFW
TB
FLOATING TURBIDITY CURTAIN
POCKET F
BP1R004-2 (GPS MON)
+54
+65
+67
+51

3/24/2022 K:\RAL_Roadway\011036574 - BP1.R004J\Erosion Control\PSH\BP1R004J_rdy_ero_psh_4.dgn

Kimley»Horn ©2022

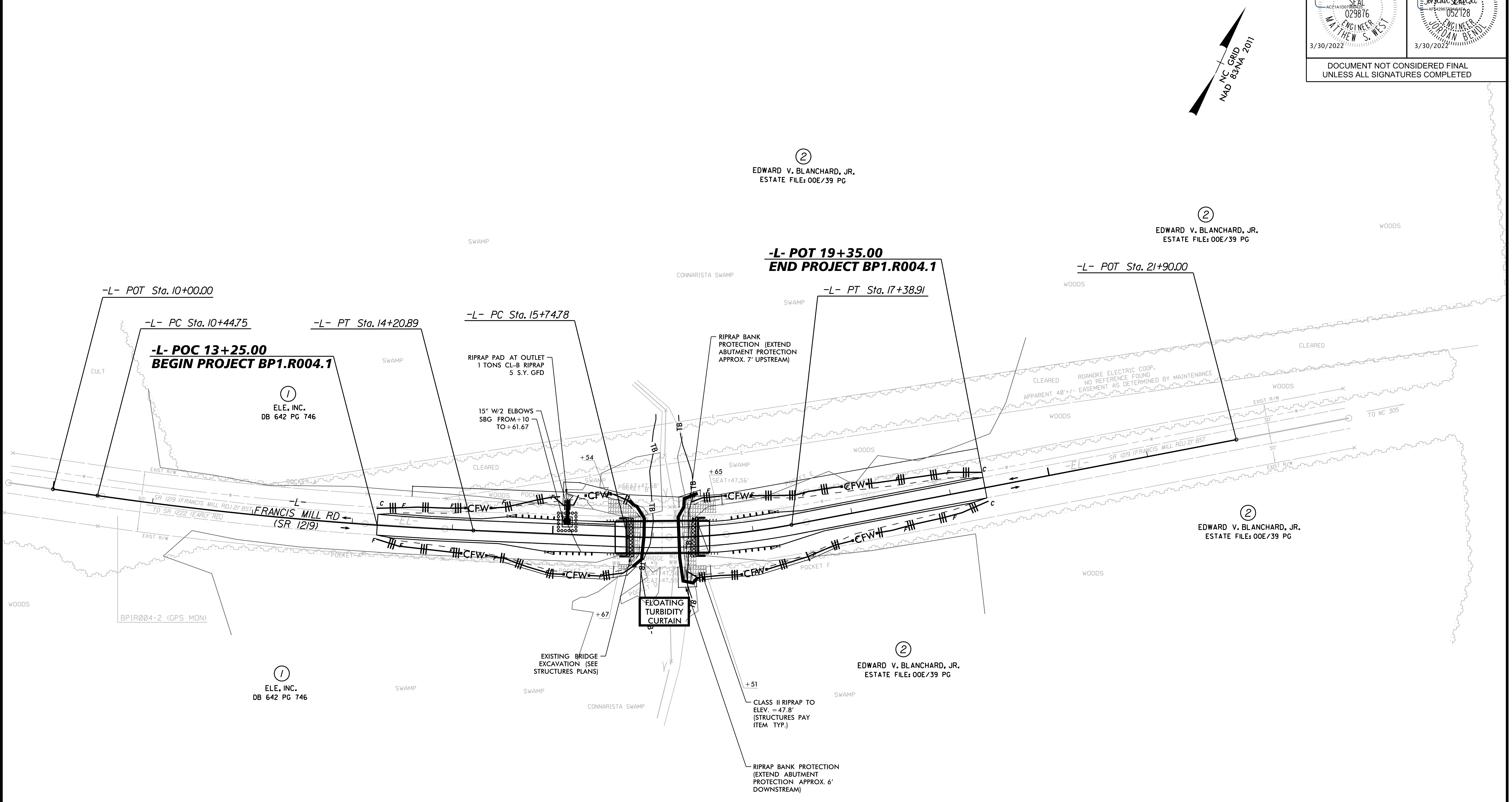
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R004J	EC 5/CONST.4
RW SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST — 3/30/2022	NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENDL — 3/30/2022

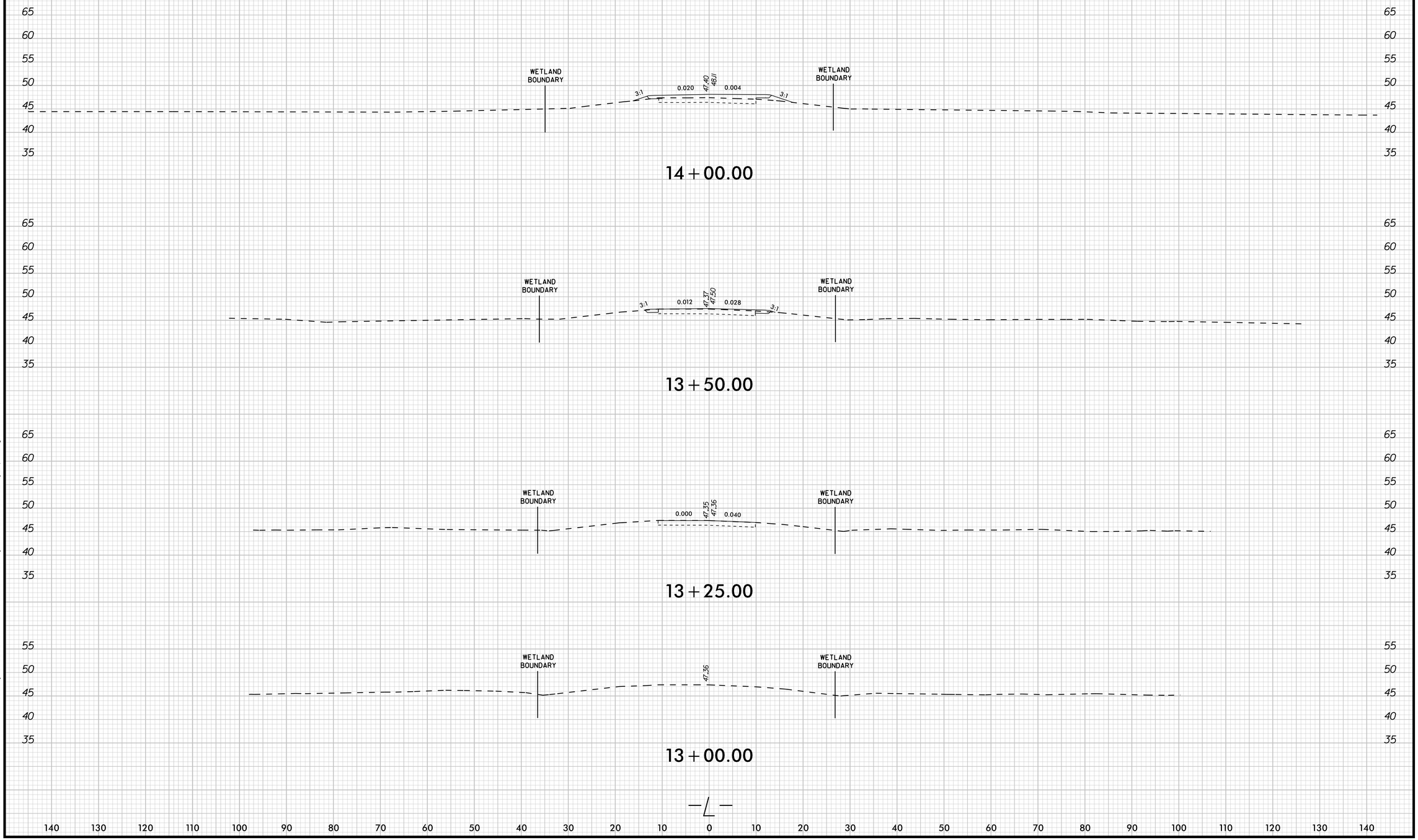
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS


NC GRID NAD 83/NA 2011
-L- POT Sta. 10+00.00
-L- PC Sta. 10+44.75
-L- POC 13+25.00
BEGIN PROJECT BP1.R004.1
-L- PT Sta. 14+20.89
-L- PC Sta. 15+74.78
-L- POT 19+35.00
END PROJECT BP1.R004.1
-L- PT Sta. 17+38.91
-L- POT Sta. 21+90.00
1
ELE, INC.
DB 642 PG 746
2
EDWARD V. BLANCHARD, JR.
ESTATE FILE: 00E/39 PG
RIPRAP PAD AT OUTLET
1 TONS CL-B RIPRAP
5 S.Y. GFD
15" W/2 ELBOWS
SBG FROM +10
TO +61.67
RIPRAP BANK
PROTECTION (EXTEND
ABUTMENT PROTECTION
APPROX. 7' UPSTREAM)
FRANCIS MILL RD
(SR 1219)
CFW
TB
FLOATING
TURBIDITY
CURTAIN
EXISTING BRIDGE
EXCAVATION (SEE
STRUCTURES PLANS)
+54
+65
+67
+51
CLASS II RIPRAP TO
ELEV. =47.8'
(STRUCTURES PAY
ITEM TYP.)
RIPRAP BANK PROTECTION
(EXTEND ABUTMENT
PROTECTION APPROX. 6'
DOWNSTREAM)
BP1R004-2 (GPS MON)
SWAMP
CONNARISTA SWAMP
WOODS
CLEARED
CULT
POCKET F
TO NC 305
ROANOKE ELECTRIC COOP.
NO REFERENCE FOUND
APPARENT 40' +/- EASEMENT AS DETERMINED BY MAINTENANCE

3/24/2022 K:\RAL_Roadway\011036574 - BP1.R004J\Erosion Control\PSH\BP1.R004J_rdy_ero_psh_5.dgn

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BPI.R004J	X-1



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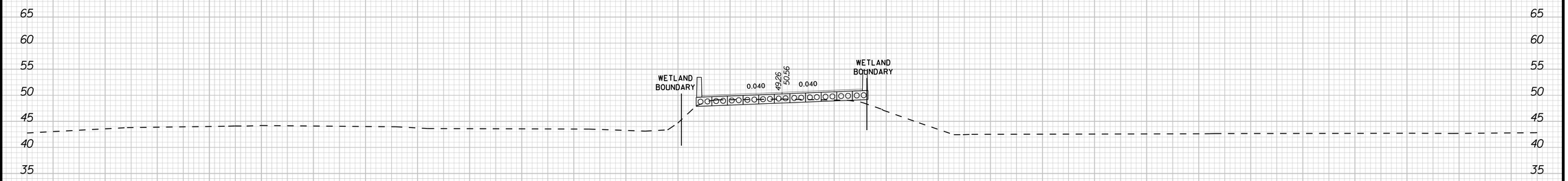
3/24/2022

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BPJ.R004J	X-2



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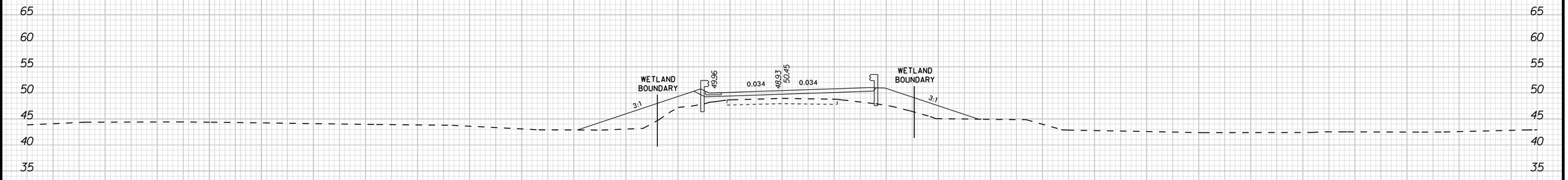

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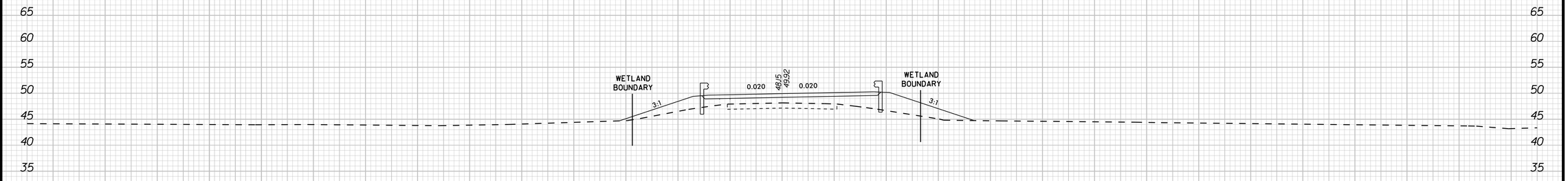

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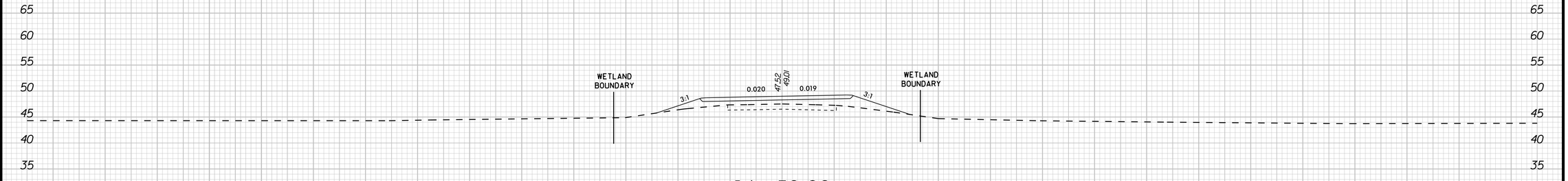
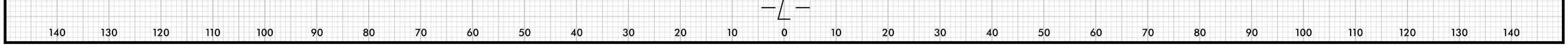


14+50.00



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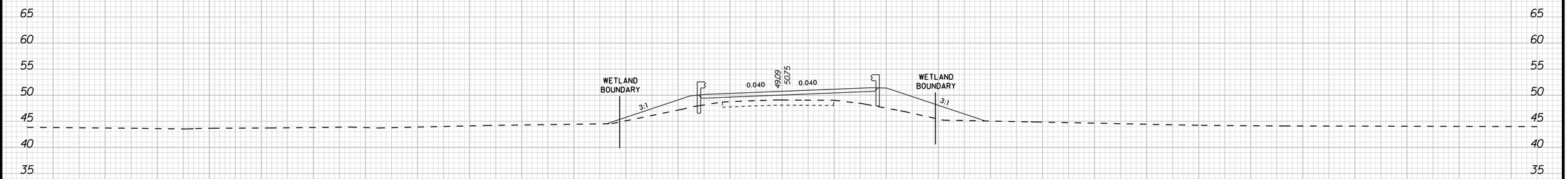
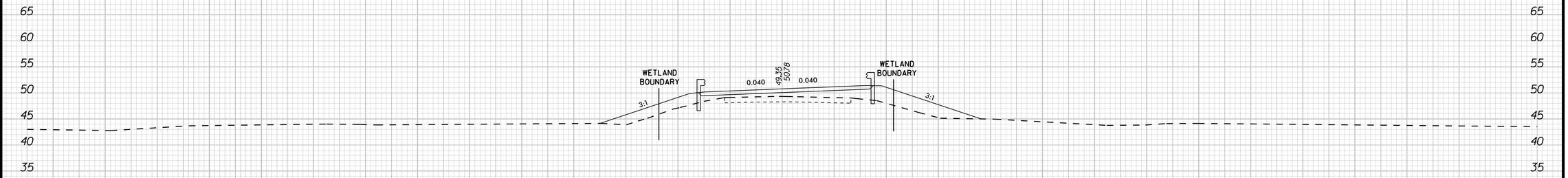
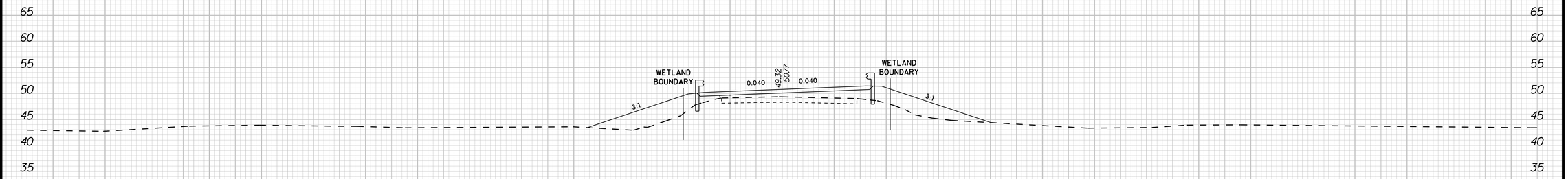
	BPJ.R004J	X-3



17+00.00



16+50.00



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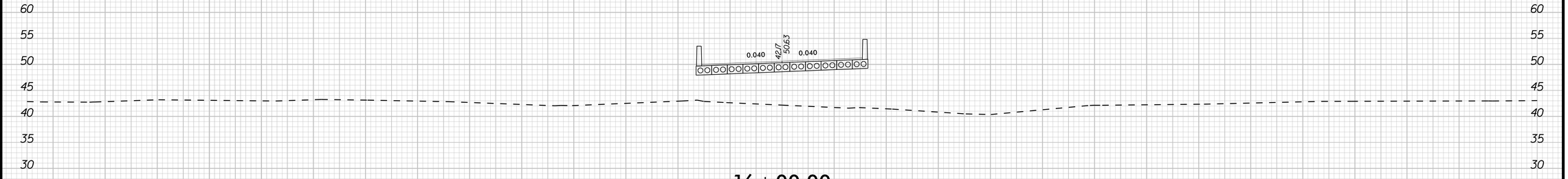

16+00.00

—L—

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

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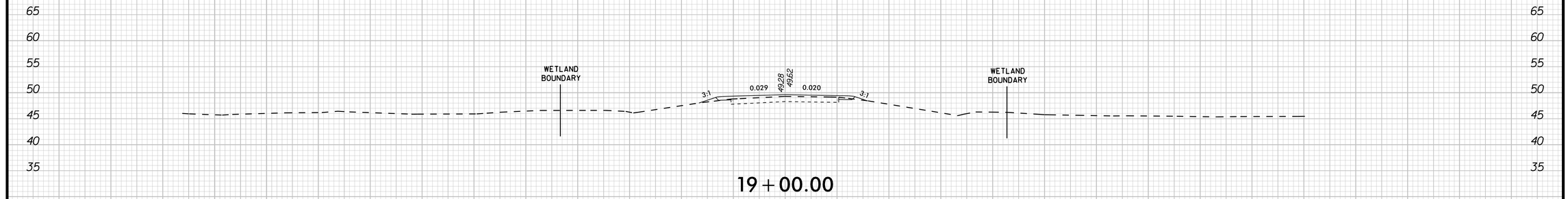
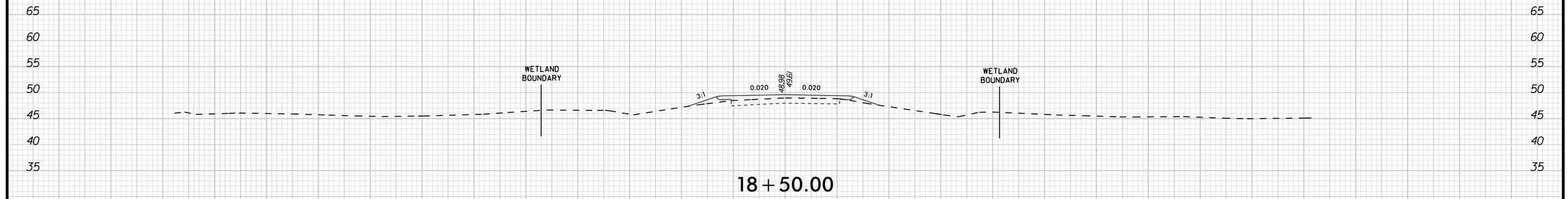
3/24/2022

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BPI.004J	X-4



19+00.00



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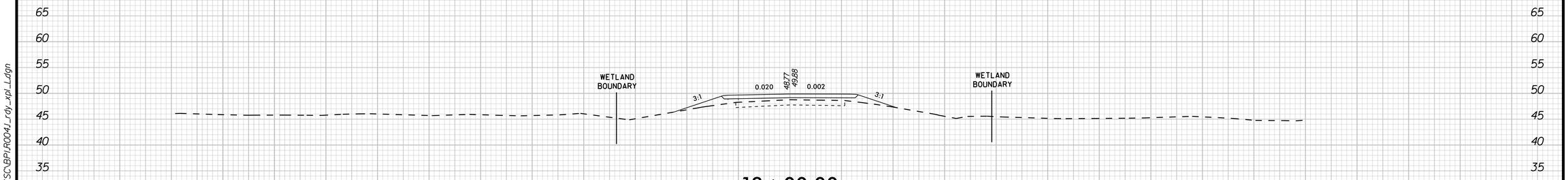

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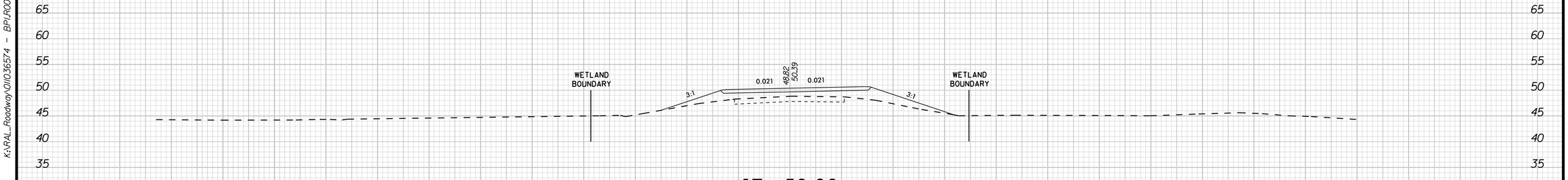

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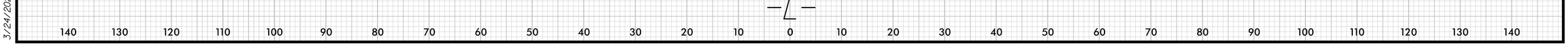

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3/24/2022

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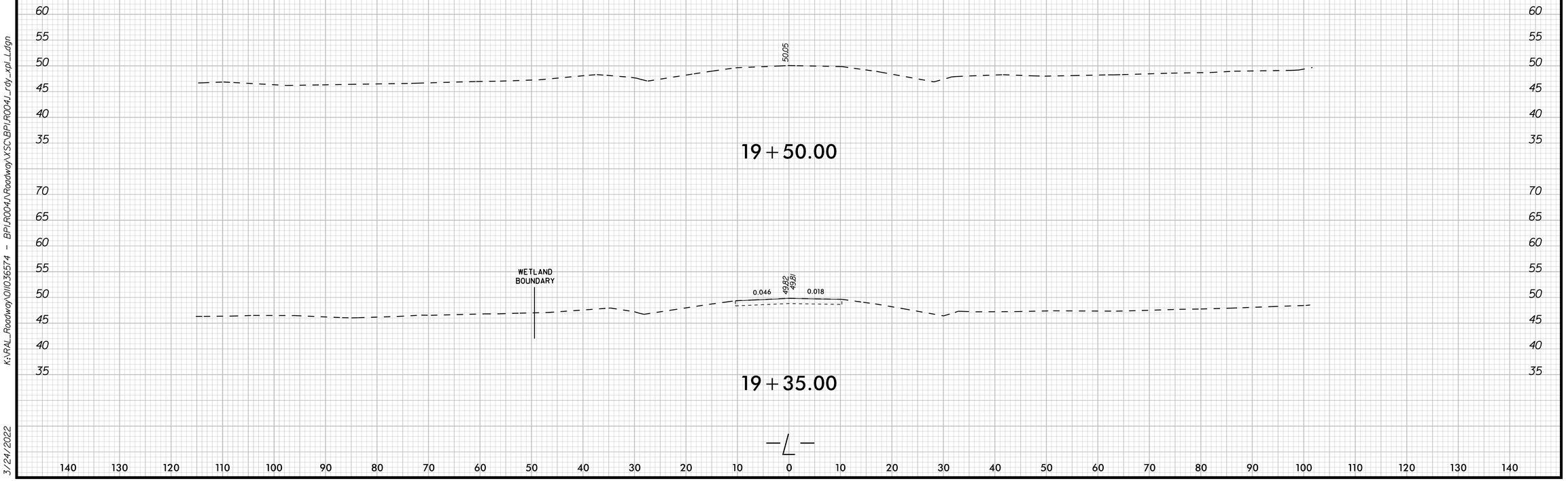
	BP1.004J	X-5



15+00 16+00 17+00

(+)2.0789% (+0.3011%)

P.I. STA. = 15+16.00 -L-
EL. = 50.38'
V.C. = 110'

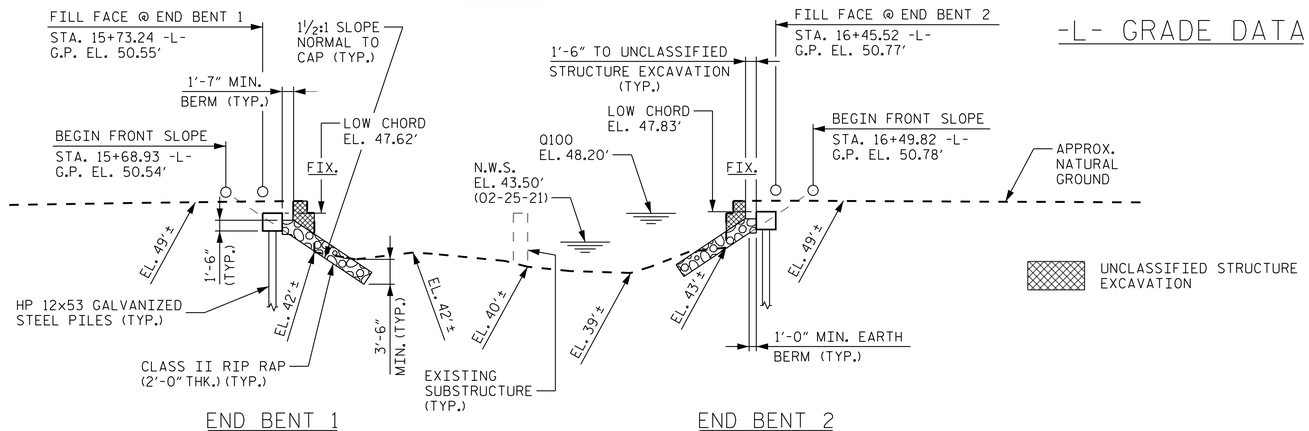
-L- GRADE DATA

(+0.3011% (-)1.1304%

P.I. STA. = 17+02.00 -L-
EL. = 50.94'
V.C. = 112'

-L- GRADE DATA

SPAN A



SECTION ALONG -L-

SECTIONS @ END BENTS ARE @ RIGHT ANGLES

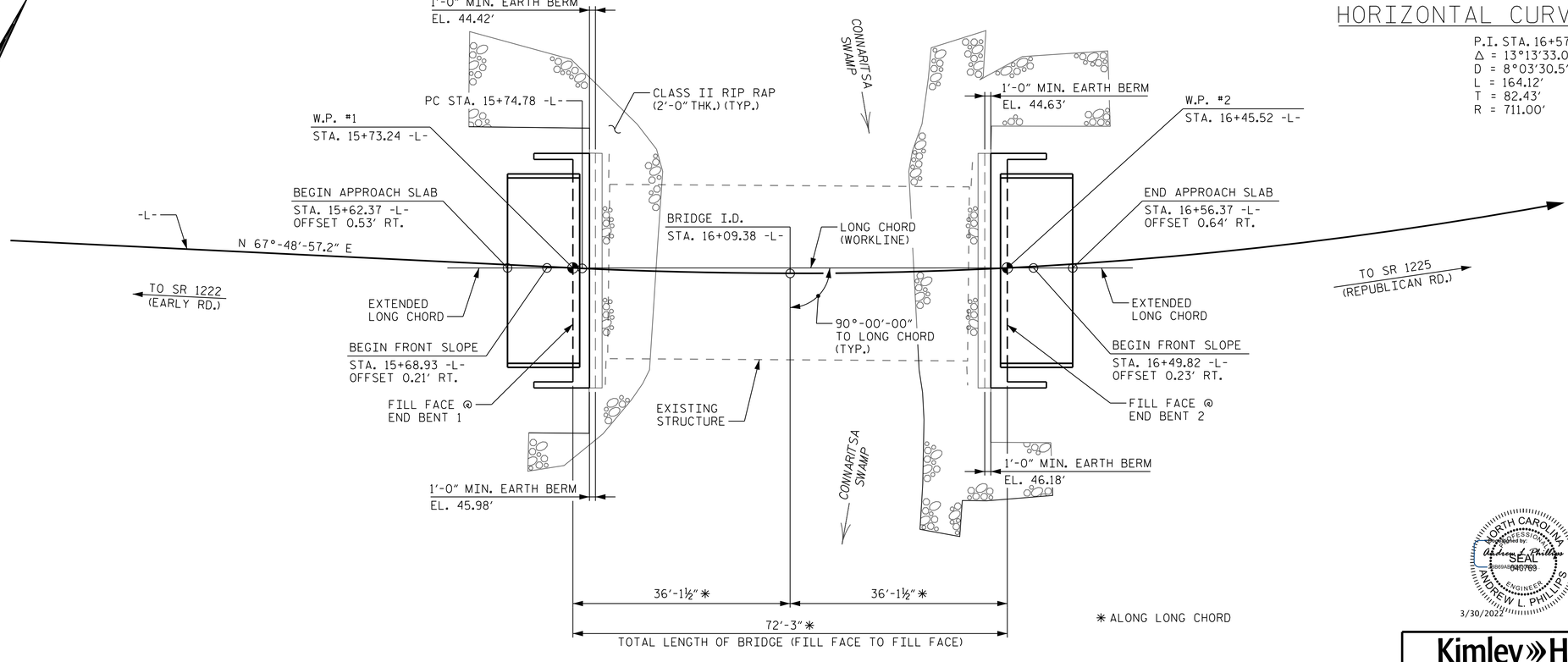
HYDRAULIC DATA

DESIGN DISCHARGE	1300	C.F.S.
FREQUENCY OF DESIGN FLOOD	25	YRS.
DESIGN HIGH WATER ELEVATION	46.8	FT.
DRAINAGE AREA	14.6	SQ. MI.
BASE DISCHARGE (Q100)	2100	C.F.S.
BASE HIGH WATER ELEVATION	48.2	FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	2000	C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	50+	YRS.
OVERTOPPING FLOOD ELEVATION	47.4	FT.

APPROXIMATE OVERTOPPING
STA. 13+00.00 -L-



PLAN

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY

* ALONG LONG CHORD

HORIZONTAL CURVE DATA -L-

P.I. STA. 16+57.21
Δ = 13°13'33.0" (L.T.)
D = 8°03'30.5"
L = 164.12'
T = 82.43'
R = 711.00'

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. BP1.R004.1
BERTIE COUNTY
STATION: 16+09.38 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 9

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
Digitally signed by: Andrew L. Phillips
3/30/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
CONNARITSA SWAMP
ON SR 1219 BETWEEN
SR 1222 & SR 1225

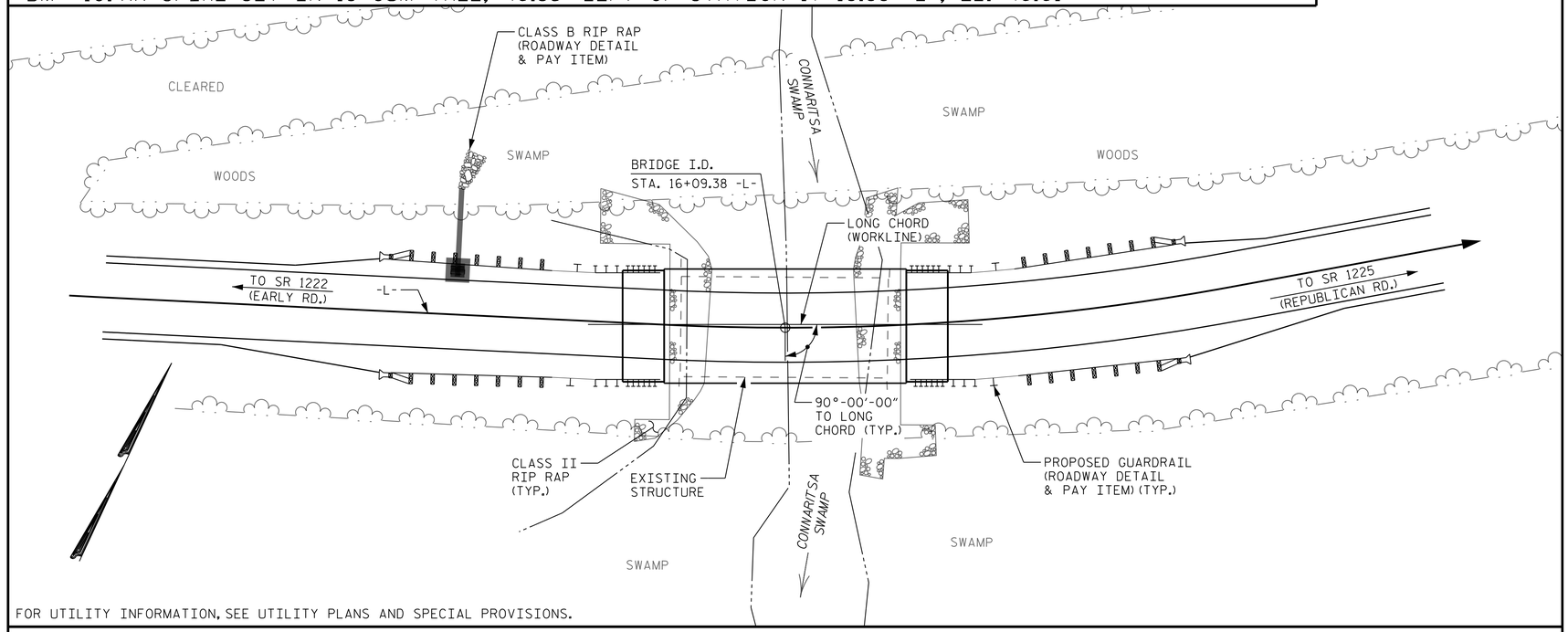
Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000 NC LICENSE # F-0102

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

DRAWN BY: J.I. KIMBLE	DATE:	01/2022
CHECKED BY: C.T. POOLE	DATE:	01/2022
DESIGN ENGINEER OF RECORD: A.L. PHILLIPS	DATE:	01/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/11/2022 K:\RDT_Structures_Bridge\NC\0110365?4 - BP1.R004.1 (Bertie 9)\Cad\Dgn\001_G001.dgn



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF ℄ 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.

THE EXISTING STRUCTURE CONSISTING OF 2 @ 30'-0" SPANS, 60' LENGTH, REINFORCED CONCRETE DECK WITH CONCRETE CHANNEL BEAMS, 29.9' CLEAR ROADWAY WIDTH ON TIMBER ABUTMENTS AND CONCRETE CAPS WITH TIMBER PILES AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS CURRENTLY CLOSED TO ALL TRAFFIC.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COSTS INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES".

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 GALVANIZED STEEL PILES	HP 12 X 53 GALVANIZED STEEL PILES		STEEL PILE POINTS	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU.YDS.	LUMP SUM	LBS.	EACH	NO.	LIN.FT.	EACH	EACH	LIN. FT.	TON	SQ.YD.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE						LUMP SUM							140.25			LUMP SUM	11	770
END BENT 1				LUMP SUM	14.4		2,115	7	7	385	7			138	154			
END BENT 2				LUMP SUM	14.4		2,115	7	7	490				202	224			
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	28.8	LUMP SUM	4,230	14	14	875	7	7	140.25	340	378	LUMP SUM	11	770

FOUNDATION NOTES

FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

OBSERVE A TWO MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT AND BRIDGE APPROACH FILL, IF APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT NO. 1 AND END BENT NO. 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/30/2022

Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000
NC LICENSE # F-0102

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CONNARITSA SWAMP ON SR 1219 BETWEEN SR 1222 & SR 1225

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

DRAWN BY: J.I. KIMBLE DATE: 01/2022
CHECKED BY: C.T. POOLE DATE: 01/2022
DESIGN ENGINEER OF RECORD: A.L. PHILLIPS DATE: 01/2022

3/11/2022 K:\RDT_Structures_Bridge\NC\0110365?4 - BP1.R004.1 (Bertie 9)\Cad\Dgn\002.1.S01.dgn

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Lenth per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-7	81	See Substructure	55			145			33.0	17			
End Bent 2, Piles 1-7	81	Plans	70			140	7						

*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$^{**}RDR = \frac{Factored\ Resistance + Factored\ Downdrag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Downdrag\ Resistance + \frac{Nominal\ Scour\ Resistance}{Scour\ Resistance\ Factor}$$

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent 1, Piles 1-7	MAYBE	60	1		
End Bent 2, Piles 1-7	MAYBE	75			

*EST = Pile order lengths from estimated pile lengths; PDA = Pile order lengths based on PDA testing. For groups of end bents/bents with pile order lengths based on PDA testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the PDA.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-7	97	2.8		0.60	2.2		
End Bent 2, Piles 1-7	97	0.5		0.60	0.4		

*Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates Required? YES or MAYBE	Steel Pile Points			Steel Pile Tips Required? YES
		Pipe Pile Cutting Shoes Required? YES	Pipe Pile Conical Points Required? YES	H-Pile Points Required? YES	
End Bent 1, Piles 1-7				YES	
TOTAL QTY:				7	

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Jinyoung Park, PE# 032171) on 1-24-2022.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer will determine the need for PDA Testing when PDAs may be required.

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

NORTH CAROLINA PROFESSIONAL SEAL 040769 ENGINEER ANDREW L. PHILLIPS

DocuSigned by: Andrew L. Phillips 1/24/2022
SIGNATURE DATE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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	1.006	--	1.75	0.273	1.03	70′	EL	34.5	0.507	1.32	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	
		HL-93(Opr)	N/A	--	1.341	--	1.35	0.273	1.34	70′	EL	34.5	0.507	1.72	70′	EL	6.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.306	47.02	1.75	0.273	1.34	70′	EL	34.5	0.507	1.65	70′	EL	6.9	0.80	0.273	**1.31**	70′	EL	**34.5**	
		HS-20(Opr)	36.000	--	1.74	62.64	1.35	0.273	1.74	70′	EL	34.5	0.507	2.14	70′	EL	6.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.917	39.379	1.4	0.273	3.75	70′	EL	34.5	0.507	4.87	70′	EL	6.9	0.80	0.273	2.92	70′	EL	34.5	
		SNGARBS2	20.000	--	2.187	43.741	1.4	0.273	2.81	70′	EL	34.5	0.507	3.47	70′	EL	6.9	0.80	0.273	2.19	70′	EL	34.5	
		SNAGRIS2	22.000	--	2.077	45.69	1.4	0.273	2.67	70′	EL	34.5	0.507	3.23	70′	EL	6.9	0.80	0.273	2.08	70′	EL	34.5	
		SNCOTTS3	27.250	--	1.452	39.565	1.4	0.273	1.87	70′	EL	34.5	0.507	2.43	70′	EL	6.9	0.80	0.273	1.45	70′	EL	34.5	
		SNAGGRS4	34.925	--	1.218	42.554	1.4	0.273	1.57	70′	EL	34.5	0.507	2.03	70′	EL	6.9	0.80	0.273	1.22	70′	EL	34.5	
		SNS5A	35.550	--	1.191	42.346	1.4	0.273	1.53	70′	EL	34.5	0.507	2.06	70′	EL	6.9	0.80	0.273	1.19	70′	EL	34.5	
		SNS6A	39.950	--	1.095	43.747	1.4	0.273	1.41	70′	EL	34.5	0.507	1.88	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		SNS7B	42.000	--	1.043	43.801	1.4	0.273	1.34	70′	EL	34.5	0.507	1.85	70′	EL	6.9	0.80	0.273	1.04	70′	EL	34.5	
	TTST	TNAGRIT3	33.000	--	1.336	44.087	1.4	0.273	1.72	70′	EL	34.5	0.507	2.23	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT4A	33.075	--	1.342	44.401	1.4	0.273	1.72	70′	EL	34.5	0.507	2.17	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT6A	41.600	--	1.1	45.746	1.4	0.273	1.41	70′	EL	34.5	0.507	1.98	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		TNT7A	42.000	--	1.106	46.462	1.4	0.273	1.42	70′	EL	34.5	0.507	1.94	70′	EL	6.9	0.80	0.273	1.11	70′	EL	34.5	
		TNT7B	42.000	--	1.147	48.18	1.4	0.273	1.47	70′	EL	34.5	0.507	1.8	70′	EL	6.9	0.80	0.273	1.15	70′	EL	34.5	
		TNAGRIT4	43.000	--	1.089	46.838	1.4	0.273	1.4	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.09	70′	EL	34.5	
		TNAGT5A	45.000	--	1.026	46.175	1.4	0.273	1.32	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.03	70′	EL	34.5	
		TNAGT5B	45.000	3	1.013	45.579	1.4	0.273	1.3	70′	EL	34.5	0.507	1.66	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	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.

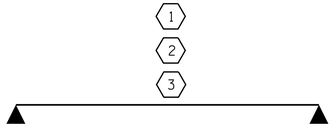
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) 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

FOR SPAN 'A'

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/30/2022

Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000
NC LICENSE # F-0102

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 70′ CORED SLAB UNIT 90° SKEW

(NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : JJ. KIMBLE	DATE : 01/2022	
CHECKED BY : A. L. PHILLIPS	DATE : 01/2022	
DRAWN BY : CVC 6/10		
CHECKED BY : DNS 6/10		

3/11/2022

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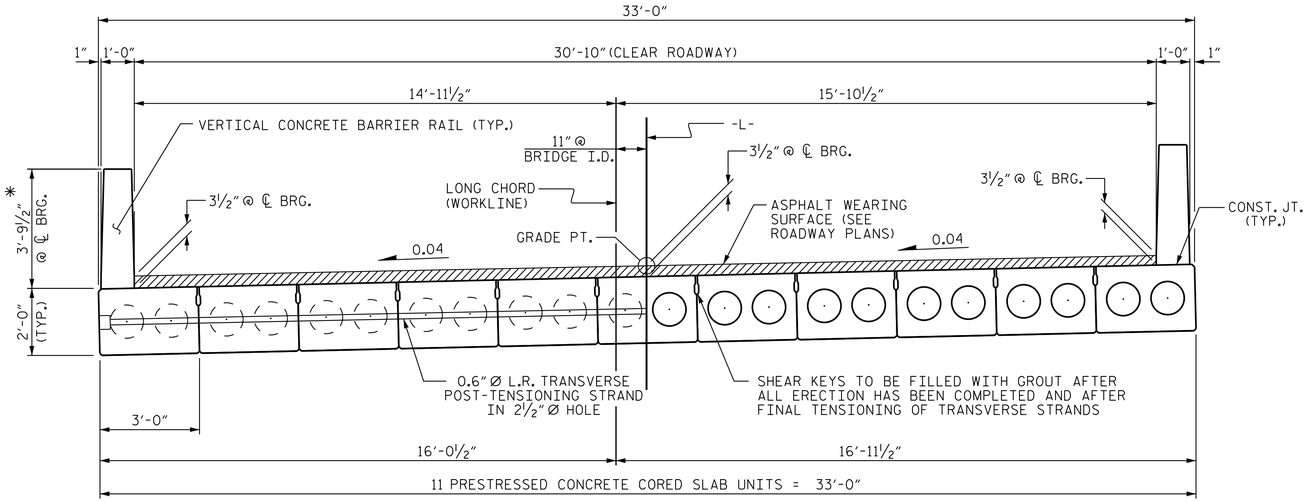
STD. NO. 24LRFR1_90S_70L



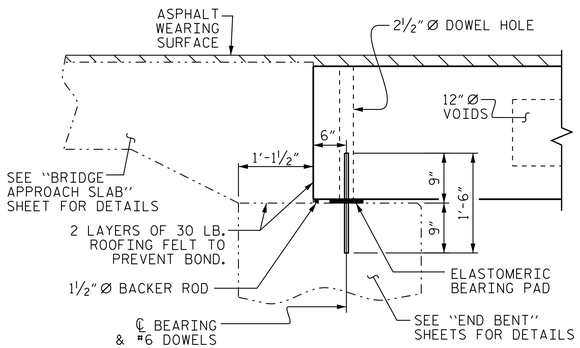
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

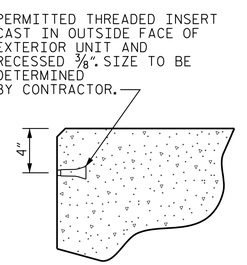
TYPICAL SECTION

* - 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.

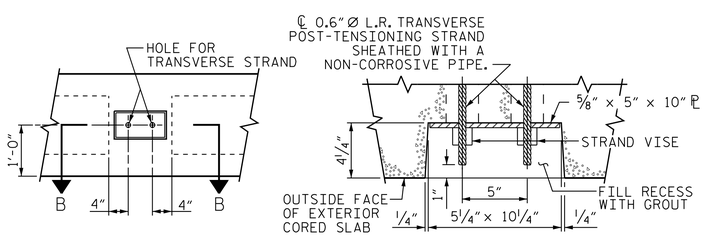
FIXED END



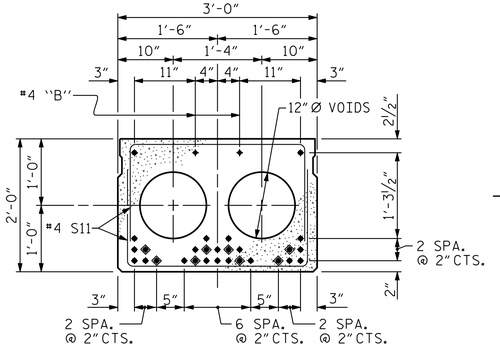
SECTION AT END BENT



THREADED INSERT DETAIL



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

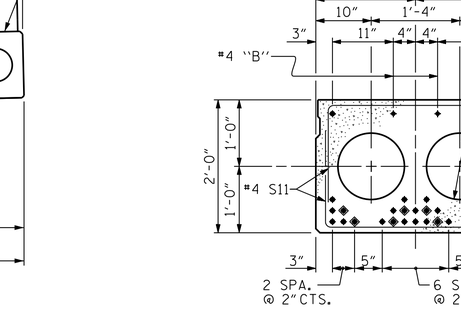


INTERIOR SLAB SECTION
(28 STRANDS REQUIRED)

0.6'' Ø LOW RELAXATION STRAND LAYOUT

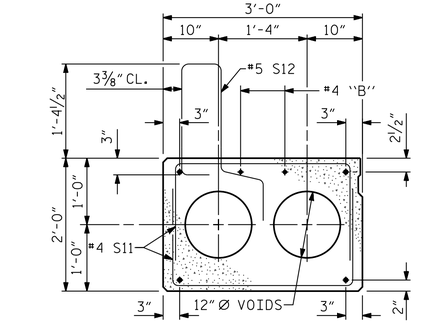
◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



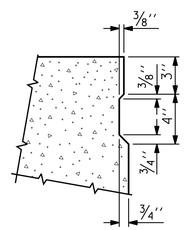
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. BP1.R004.1
BERTIE COUNTY
STATION: 16+09.38 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

3'-0'' X 2'-0'' PRESTRESSED CONCRETE CORED SLAB UNIT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/30/2022

Kimley»Horn
421 Fayetteville Street, Suite 600
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Phone (919) 677-2000
NC LICENSE # F-0102

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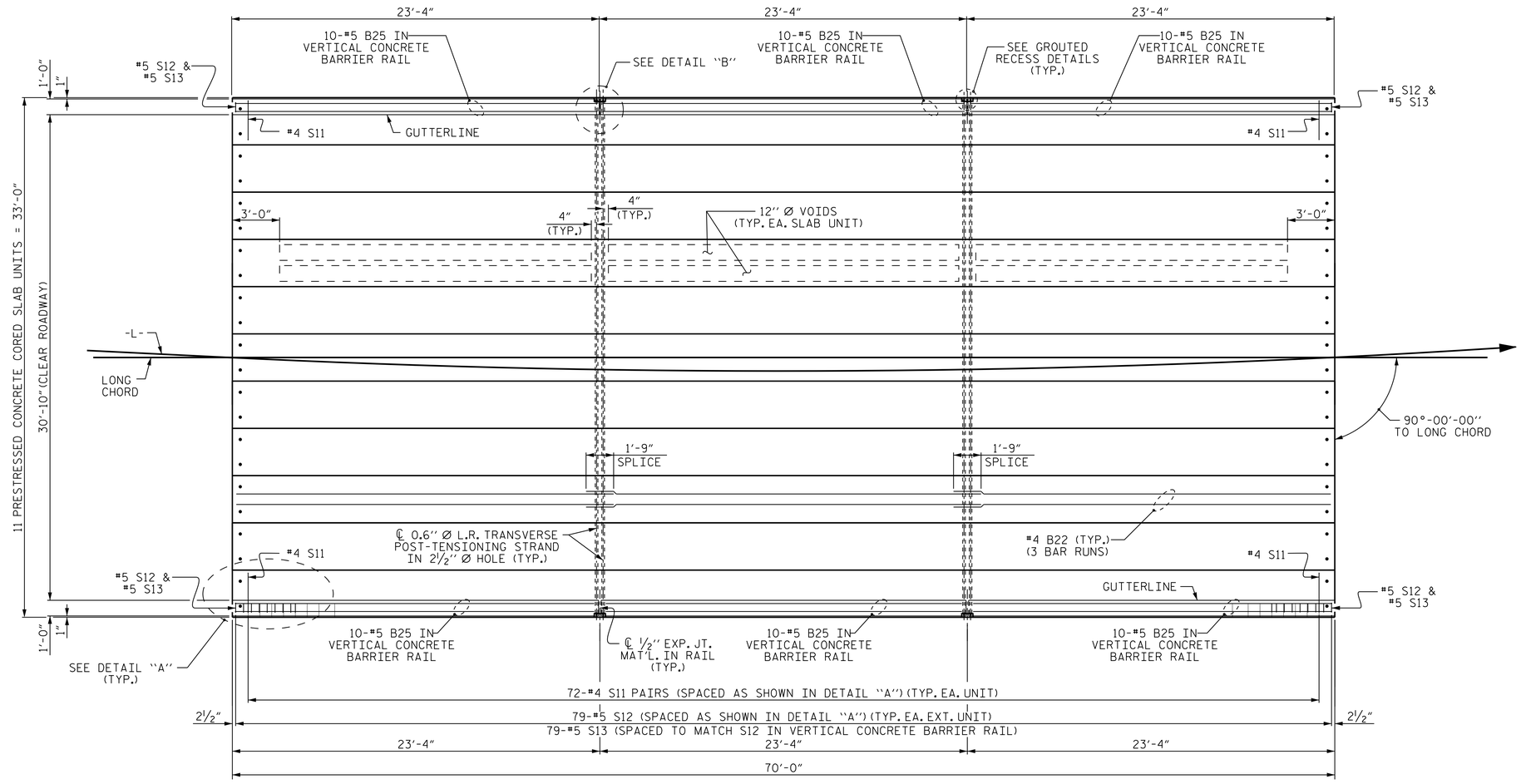
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			14

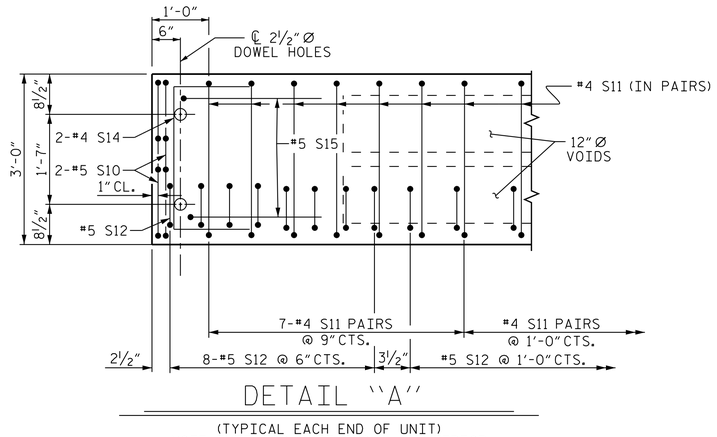
ASSEMBLED BY : JJ. KIMBLE		DATE :	01/2022
CHECKED BY : A. L. PHILLIPS		DATE :	01/2022
DRAWN BY : MAA	6/10	REV. 9/14	MAA/TMG
CHECKED BY : MKT	7/10		

3/11/2022 K:\RDT_Structures_Bridge\NC\01036574 - BP1.R004.1 (Bertie 9)\Cad\Dgn\005_PCS01.dgn

STD. NO. 24PCS4_33_90S

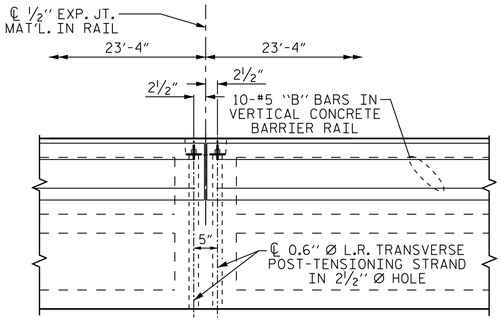


PLAN OF UNIT



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. BP1.R004.1
BERTIE COUNTY
STATION: 16+09.38 -L-

SHEET 2 OF 3

NORTH CAROLINA REGISTERED ENGINEER SEAL 040709 ENGINEER ANDREW L. PHILLIPS
3/30/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 70' UNIT 30'-10" CLEAR ROADWAY 90° SKEW

ASSEMBLED BY : JJ. KIMBLE		DATE : 01/2022			
CHECKED BY : A. L. PHILLIPS		DATE : 01/2022			
DRAWN BY : MAA 6/10	REV. 12/5/11	MAA/AAC			
CHECKED BY : MKT 7/10	REV. 8/14	MAA/TMG			

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14

STD. NO. 24PCS_33_90S_70L

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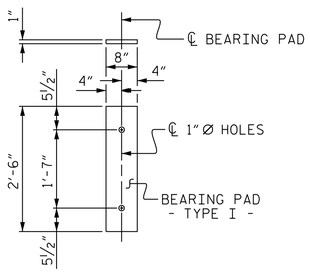
3/11/2022



FIXED END
(TYPE I - 22 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	70' UNIT					
✳B25	60	60	#5	STR	22'-11"	1434
✳S13	158	158	#5	2	7'-2"	1181
✳EPOXY COATED REINFORCING STEEL				LBS.		2615
CLASS AA CONCRETE				CU.YDS.		18.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		140.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

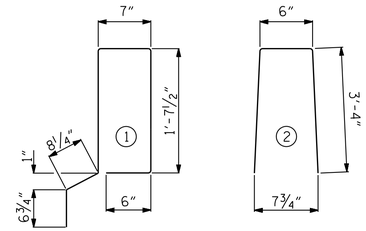
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
70' UNITS	2"	3'-8"

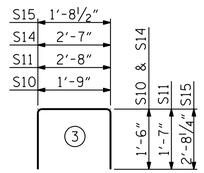
DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✳✳	¾" ↓
FINAL CAMBER	1½" ↑

✳✳ INCLUDES FUTURE WEARING SURFACE

BAR TYPES





ALL BAR DIMENSIONS ARE OUT TO OUT

CONCRETE RELEASE STRENGTH

UNIT	PSI
70' UNITS	5500

CORED SLABS REQUIRED

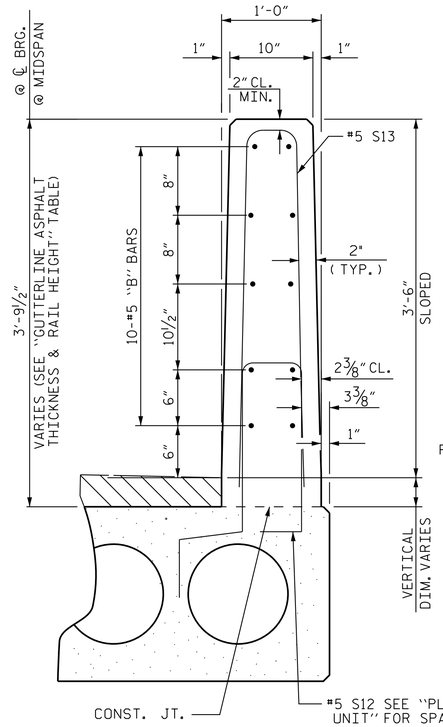
	NUMBER	LENGTH	TOTAL LENGTH
70' UNIT			
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	9	70'-0"	630'-0"
TOTAL	11		770'-0"

GRADE 270 STRANDS

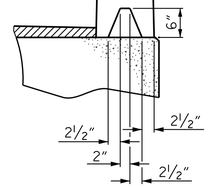
	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	144	#4	3	5'-10"	561	5'-10"	561
✳S12	79	#5	1	5'-7"	460		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL		LBS.		744		744	
✳EPOXY COATED REINFORCING STEEL		LBS.		460			
7000 P.S.I. CONCRETE		CU. YDS.		11.8		11.8	
0.6"Ø L.R. STRANDS		No.		28		28	

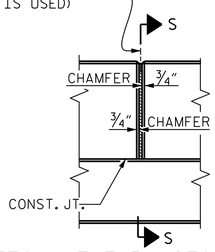


SECTION THRU RAIL

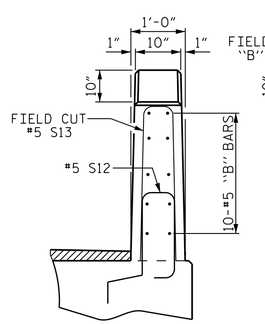


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

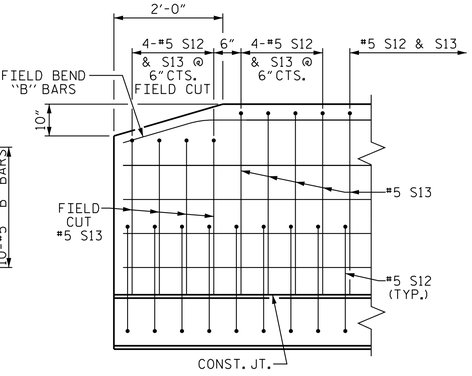
℄ ½" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

VERTICAL CONCRETE BARRIER RAIL DETAILS

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 CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB 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.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

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

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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 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.

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

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

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.

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

SHEET 3 OF 3

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/30/2022

STATE OF NORTH CAROLINA
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RALEIGH

3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT

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1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY :	J.J. KIMBLE	DATE :	01/2022
CHECKED BY :	A. L. PHILLIPS	DATE :	01/2022
DRAWN BY :	MAA 6/10	REV. 5/18	MAA/THC
CHECKED BY :	MKT 7/10		

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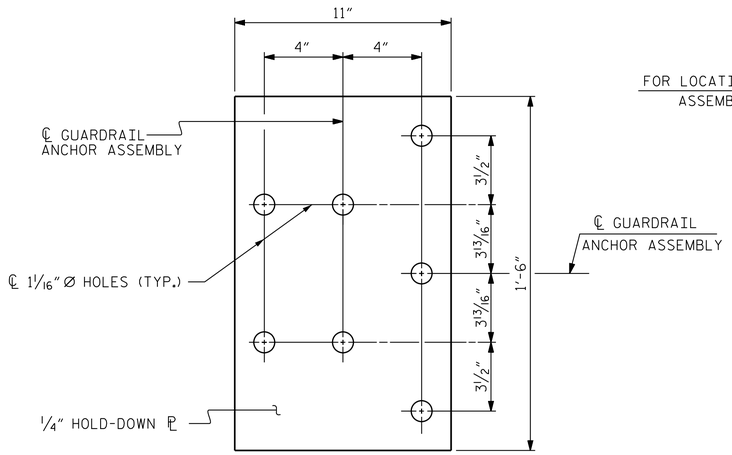
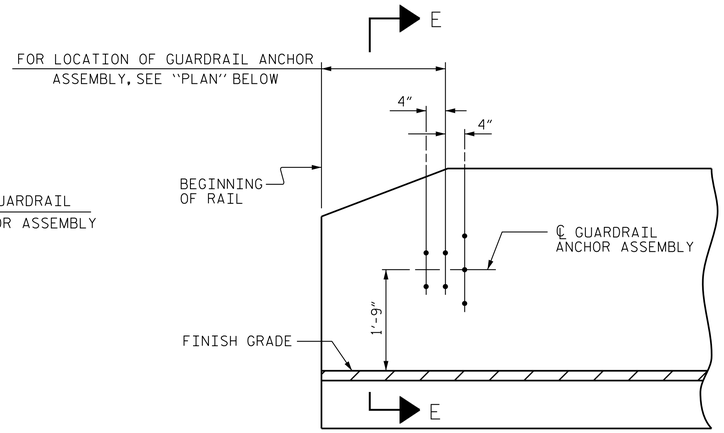


PLAN



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.

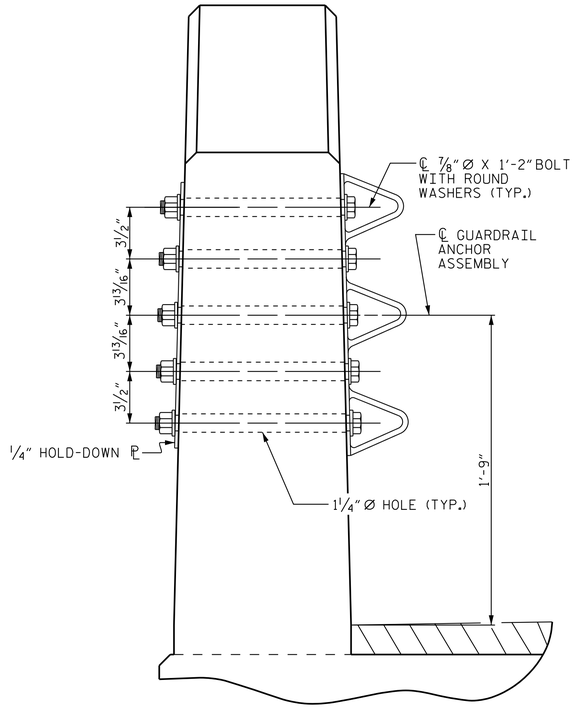
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.

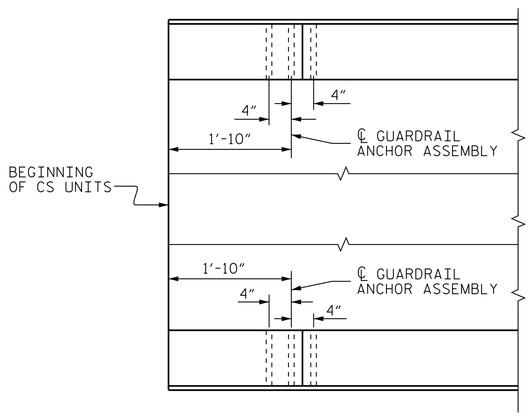
SKETCH SHOWING POINTS OF ATTACHMENT

✳ LOCATION OF GUARDRAIL ATTACHMENT



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAIL



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -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-8
1			3			TOTAL SHEETS
2			4			14

STD. NO. GRA3

ASSEMBLED BY : JJ. KIMBLE		DATE :	01/2022
CHECKED BY : A. L. PHILLIPS		DATE :	01/2022
DRAWN BY : MAA 5/10	REV. 1/15		MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17		MAA/THC
	REV. 5/18		MAA/THC

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/30/2022

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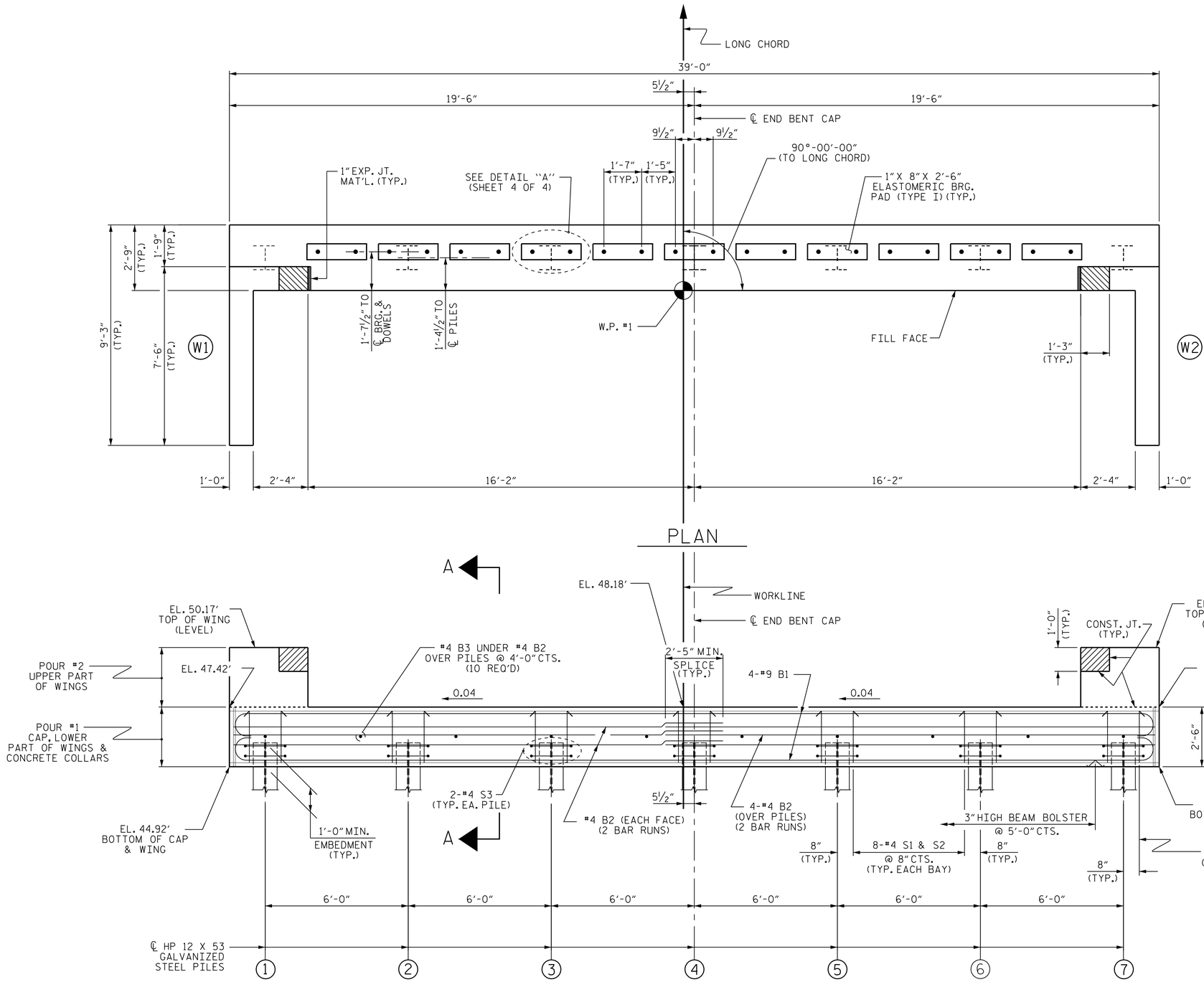

PLAN

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.

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.

THE CONTRACTOR′S ATTENTION IS CALLED TO THE FACT THAT THE BRIDGE LONG CHORD IS OFFSET FROM THE ℄ OF END BENT CAP AS NOTED IN PLAN AND ELEVATION VIEWS. ALL PILE DIMENSIONS ARE BASED ON THE ℄ END BENT CAP.

TOP OF PILE ELEVATIONS	
1	45.98′
2	46.22′
3	46.46′
4	46.70′
5	46.94′
6	47.18′
7	47.42′

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L PHILLIPS
3/30/2022

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1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : JJ. KIMBLE	DATE : 01/2022		
CHECKED BY : A. L. PHILLIPS	DATE : 01/2022		
DRAWN BY : DGE 01/10	REV. 4/15	MAA/TMG	
CHECKED BY : MKT 01/10			

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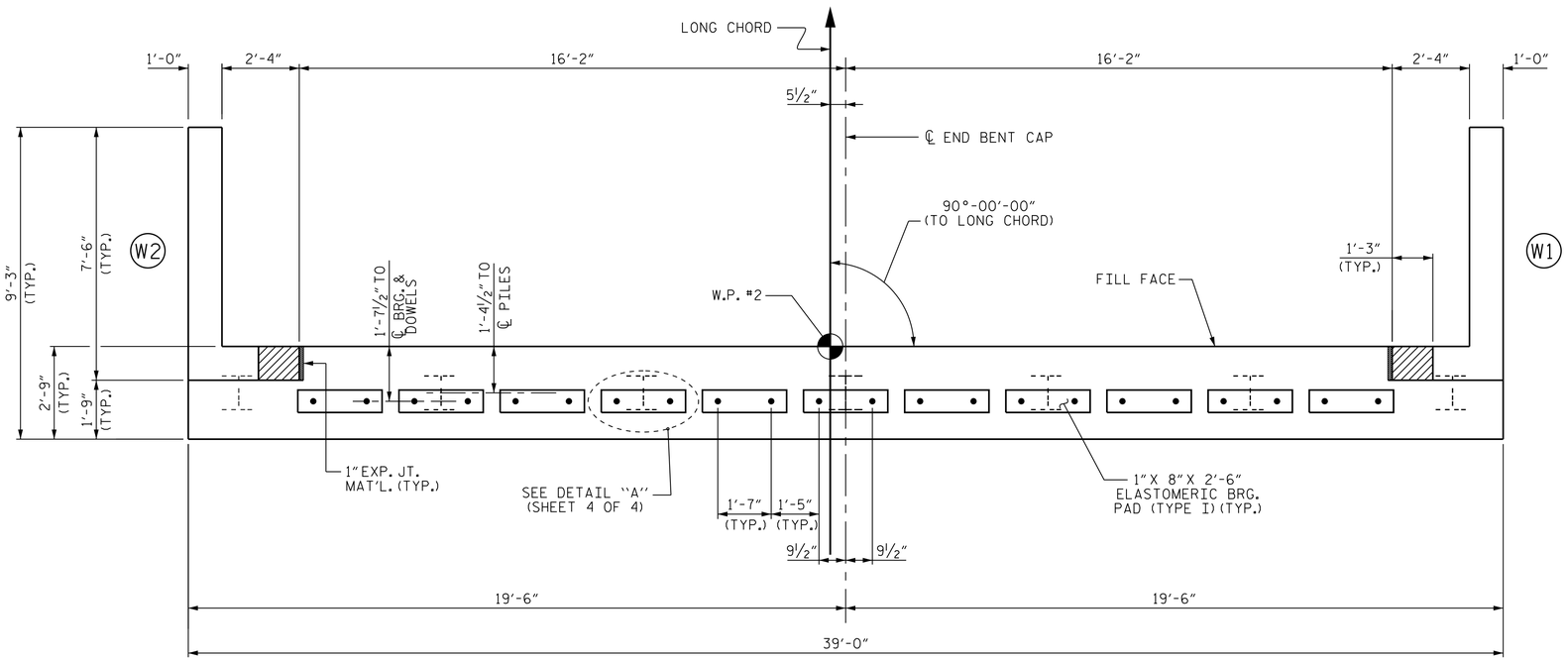
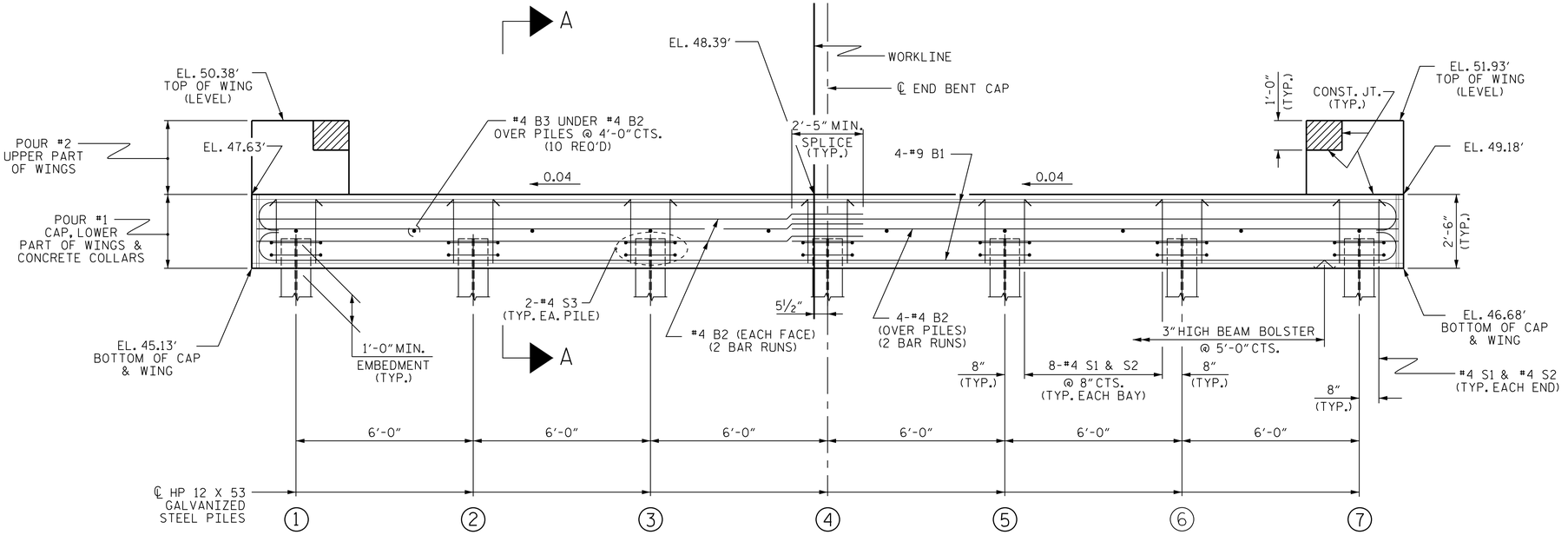


PLAN



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.

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE BRIDGE LONG CHORD IS OFFSET FROM THE ℄ OF END BENT CAP AS NOTED IN PLAN AND ELEVATION VIEWS. ALL PILE DIMENSIONS ARE BASED ON THE ℄ END BENT CAP.

TOP OF PILE ELEVATIONS	
1	46.19'
2	46.43'
3	46.67'
4	46.91'
5	47.15'
6	47.38'
7	47.62'

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

SHEET 2 OF 4

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L PHILLIPS
3/30/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY :	J.J. KIMBLE	DATE :	01/2022
CHECKED BY :	A.L. PHILLIPS	DATE :	01/2022
DRAWN BY :	DGE 01/10	REV. 4/15	MAA/TMG
CHECKED BY :	MKT 01/10		

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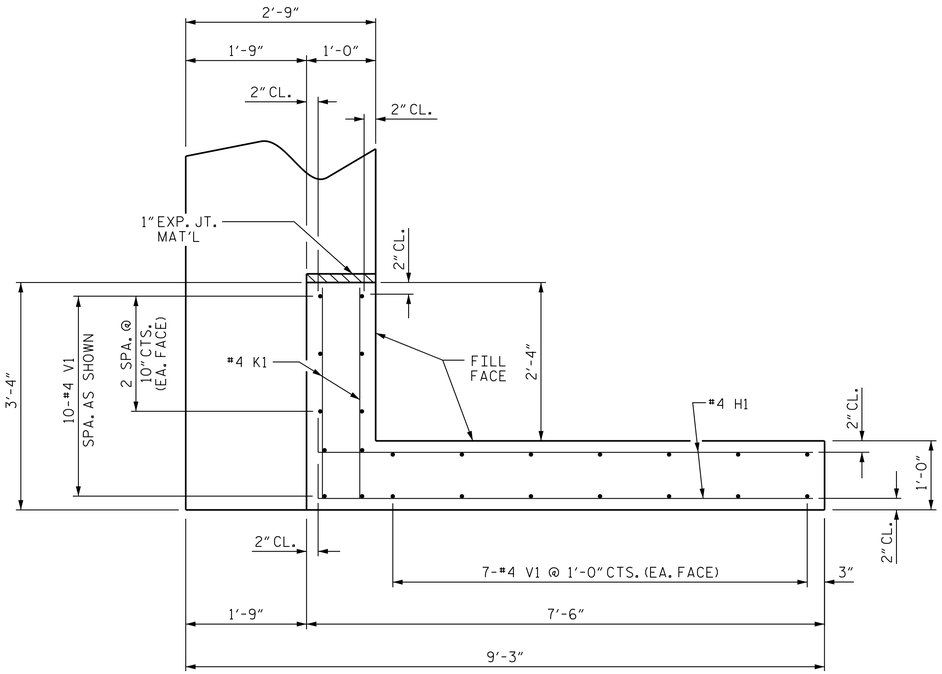
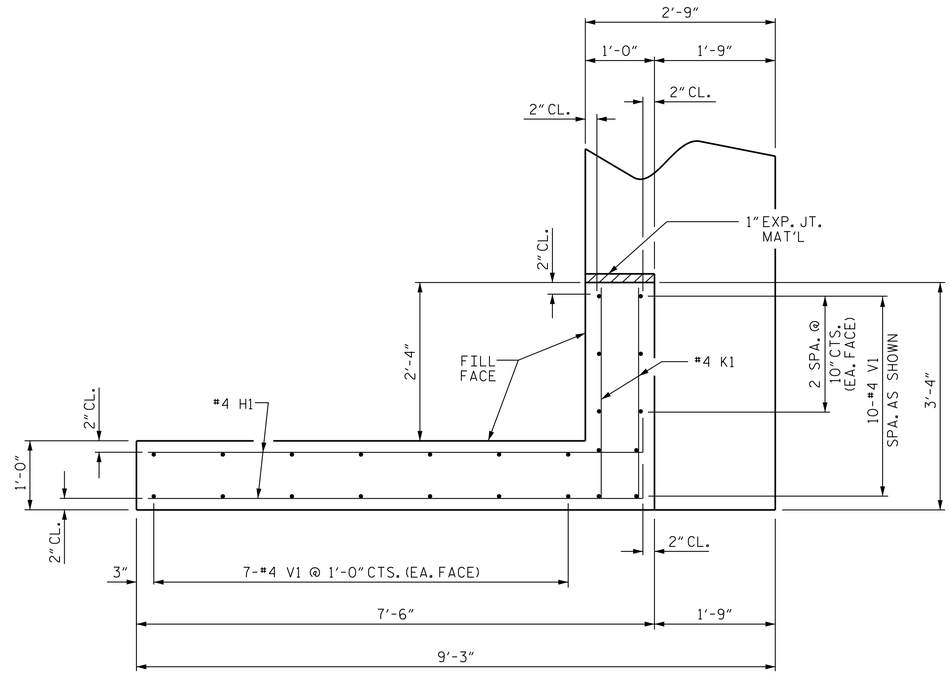
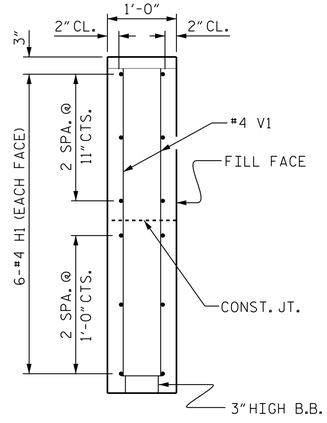


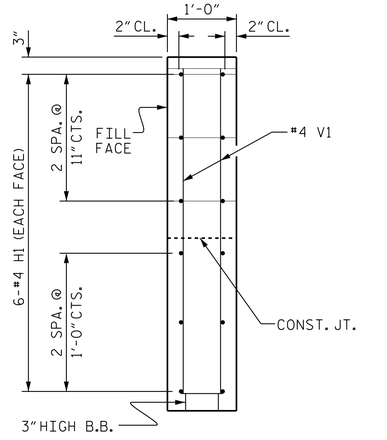
PLAN OF WING (W1)



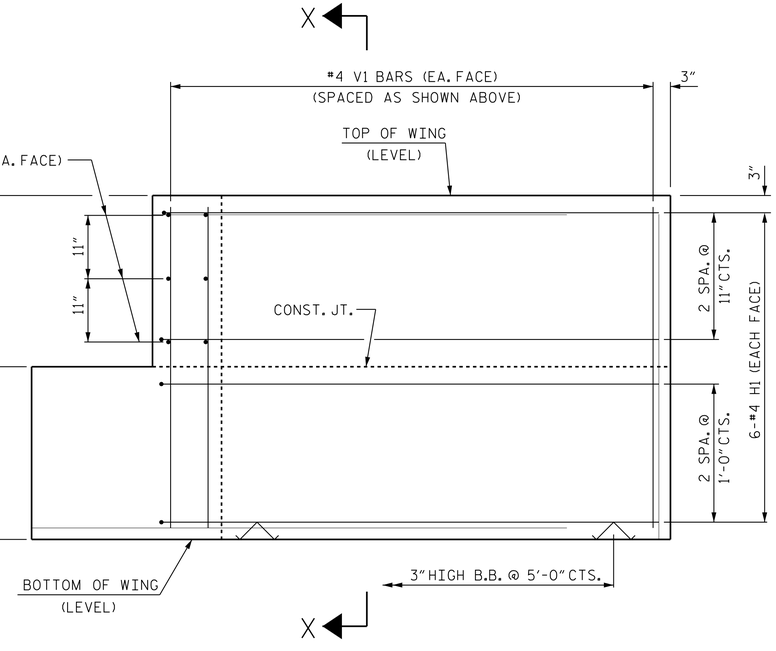
PLAN OF WING (W2)



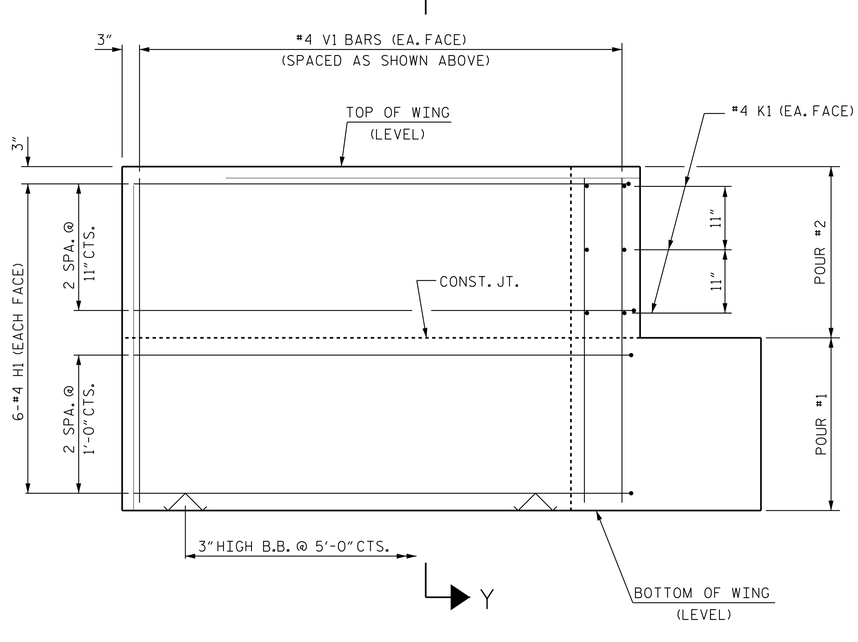
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/30/2022

ASSEMBLED BY : JJ. KIMBLE	DATE : 01/2022		
CHECKED BY : A. L. PHILLIPS	DATE : 01/2022		
DRAWN BY : DGE 02/10	REV. 4/15	MAA/TMG	
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

PROJECT NO. BP1.R004.1
BERTIE COUNTY
STATION: 16+09.38 -L-

SHEET 3 OF 4

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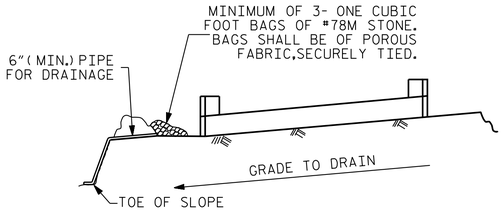
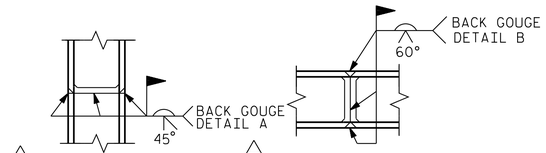


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

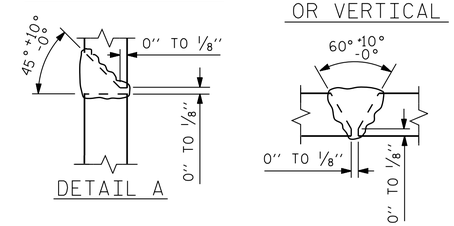
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



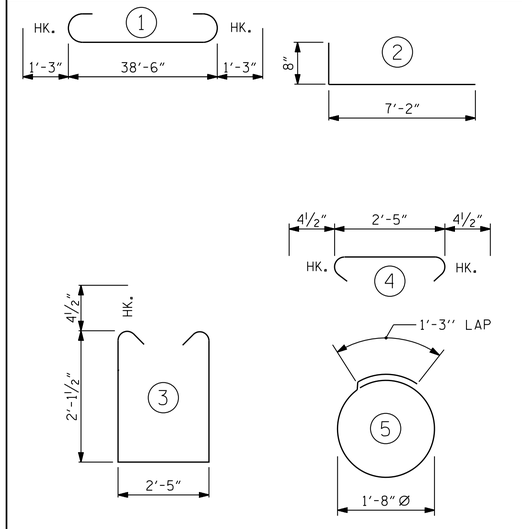
△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	16	#4	STR	20'-7"	220
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	50	#4	3	7'-5"	248
S2	50	#4	4	3'-2"	106
S3	14	#4	5	6'-6"	61
V1	48	#4	STR	4'-8"	150

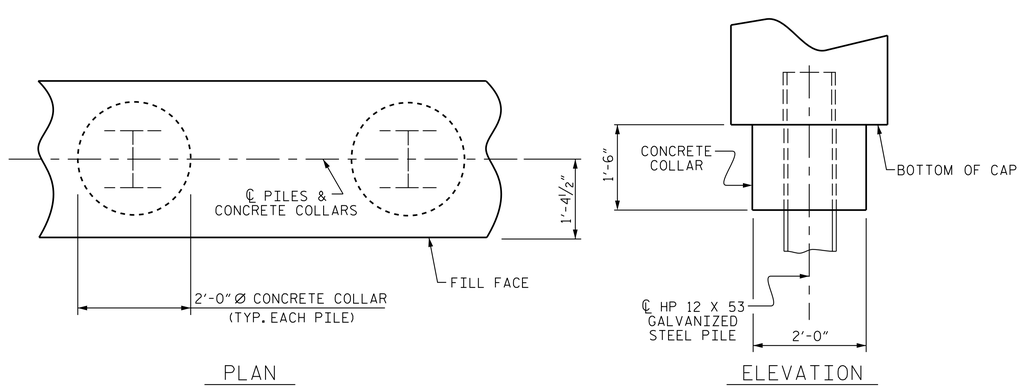
REINFORCING STEEL (FOR ONE END BENT) 2,115 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 12.4 C.Y.

POUR #2 UPPER PART OF WINGS 2.0 C.Y.

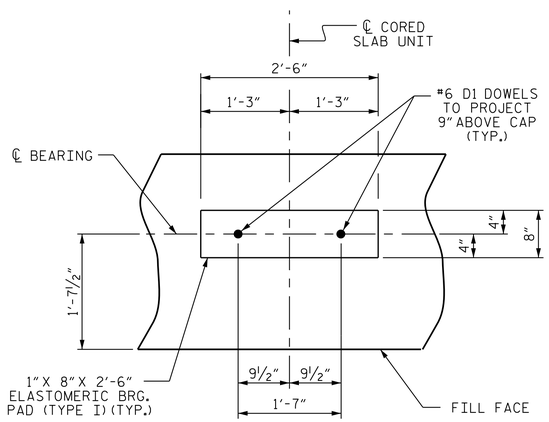
TOTAL CLASS A CONCRETE 14.4 C.Y.



PLAN ELEVATION

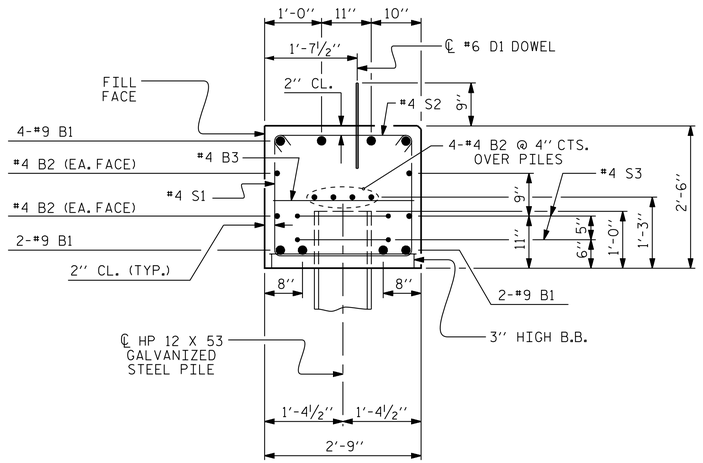
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT #1 SHOWN, END BENT #2 SIMILAR BY ROTATION)



DETAIL ''A''

(END BENT #1 SHOWN, END BENT #2 SIMILAR BY ROTATION)



SECTION A-A

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1 & 2 DETAILS

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

SHEET 4 OF 4

NORTH CAROLINA ENGINEERING SEAL 040769 ANDREW L. PHILLIPS ENGINEER
3/30/2022

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1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY :	J.I. KIMBLE	DATE :	01/2022
CHECKED BY :	A. L. PHILLIPS	DATE :	01/2022
DRAWN BY :	DGE 12/09	REV. 4/17	MAA/THC
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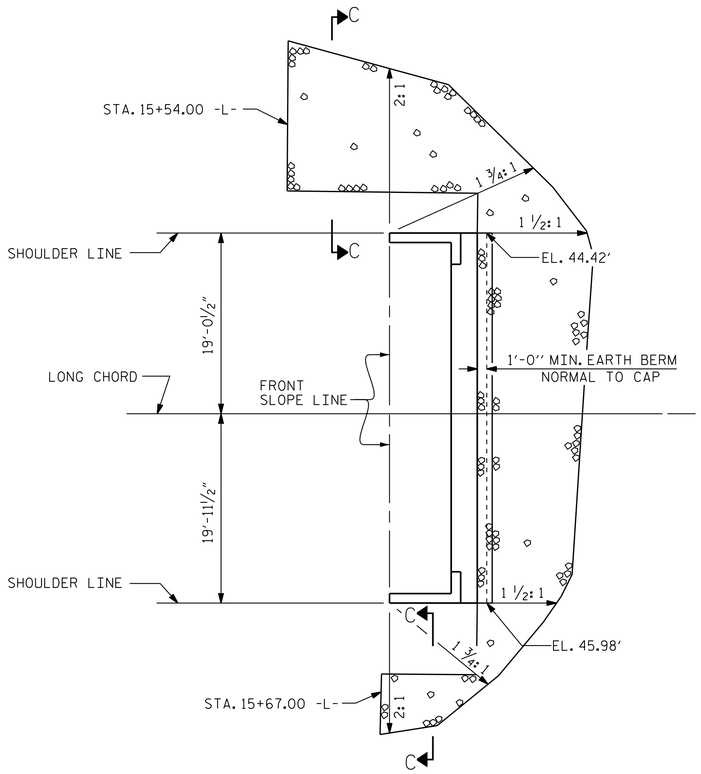
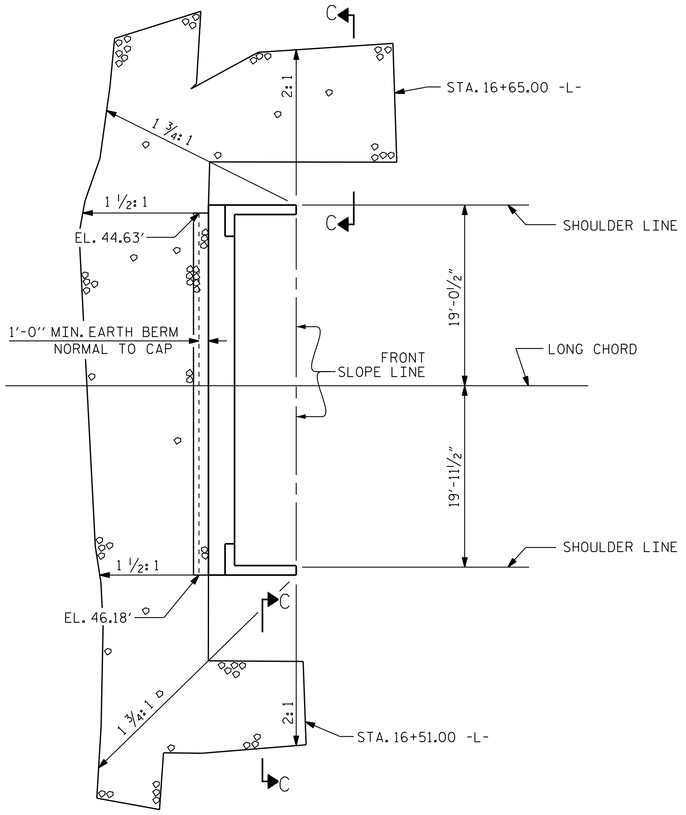


END BENT 1



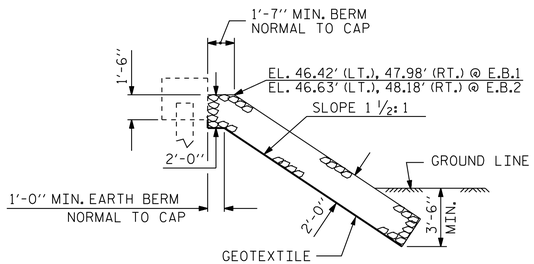
END BENT 2

NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

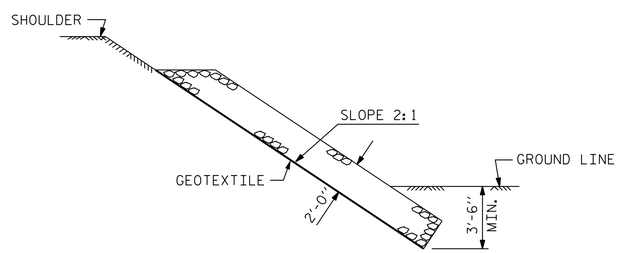
ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+09.38 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	138	154
END BENT 2	202	224

PLAN OF RIP RAP



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 040769 ANDREW L PHILLIPS ENGINEER
3/30/2022

Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000
NC LICENSE # F-0102

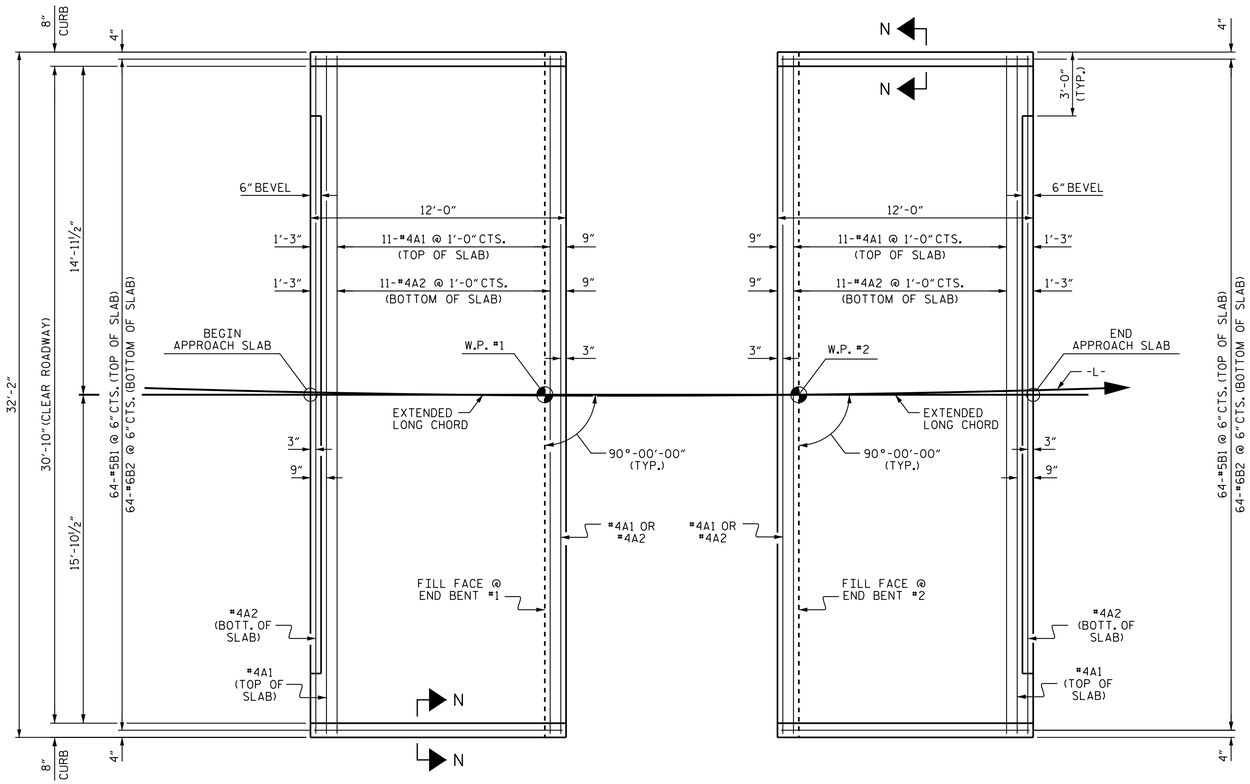
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : JJ. KIMBLE		DATE :	01/2022
CHECKED BY : A. L. PHILLIPS		DATE :	01/2022
DRAWN BY : REK 1/84	REV. 10/1/11		MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11		MAA/GM
	REV. 12/17		MAA/THC

3/11/2022 K:\RDT_Structures_Bridge\NC\011036574 - BP1.R004.1 (Bertie 9)\Cad\Dgn\013_SP01.dgn

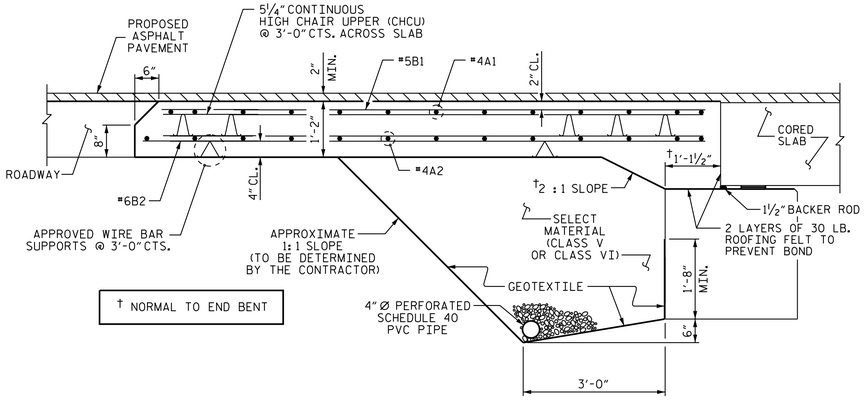
STD. NO. RR1



PLAN @ END BENT #1

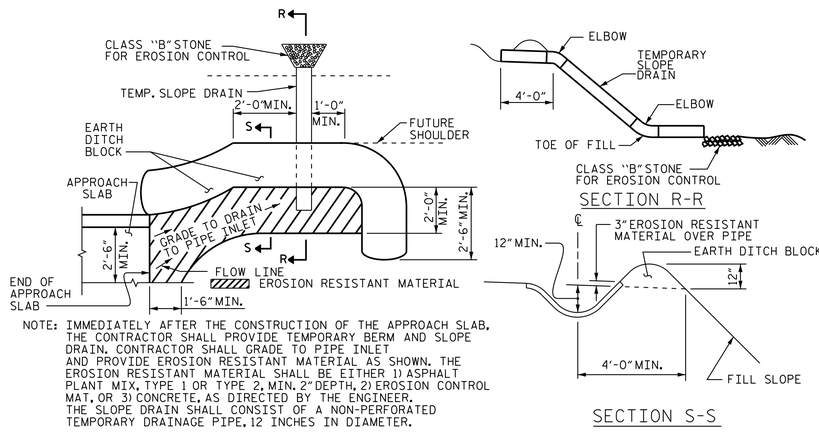
PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)



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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

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.

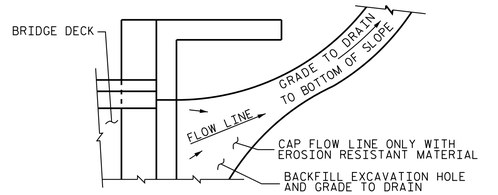
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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

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

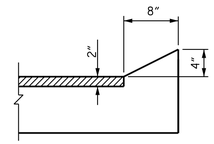
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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



SECTION N-N

CURB DETAILS

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	13	#4	STR	31'-10"	276
A2	13	#4	STR	31'-10"	276
✱ B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1397
✱ EPOXY COATED REINFORCING STEEL				LBS.	1021
CLASS AA CONCRETE				C.Y.	19.5

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	13	#4	STR	31'-10"	276
A2	13	#4	STR	31'-10"	276
✱ B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1397
✱ EPOXY COATED REINFORCING STEEL				LBS.	1021
CLASS AA CONCRETE				C.Y.	19.5

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

PROJECT NO. BP1.R004.1

BERTIE COUNTY

STATION: 16+09.38 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/30/2022

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Phone (919) 677-2000
NC LICENSE # F-0102

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

ASSEMBLED BY : J.I. KIMBLE	DATE : 01/2022		
CHECKED BY : A.L. PHILLIPS	DATE : 01/2022		
DRAWN BY : SHS/MAA 5-09	REV. 12-17	MAA/THC	
CHECKED BY : BCH 5-09	REV. 08-19	BNB/THC	

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3/11/2022

STD. NO. BAS_33_90S

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.

ENGLISH

JANUARY, 1990

STD. NO. SN

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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