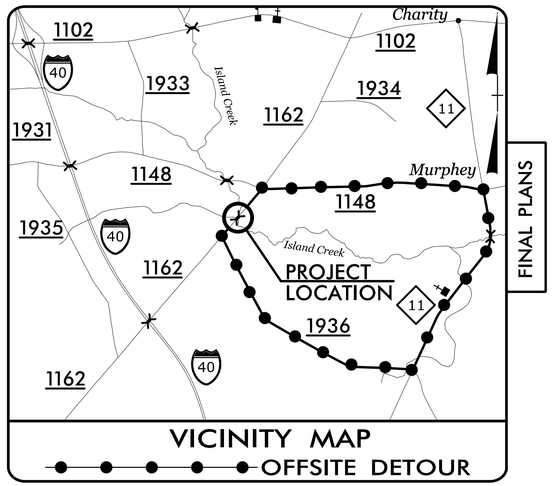
09/08/99

STATE PROJECT: 17BP.3.R.83 (FORMERLY B-5303)

CONTRACT: DC00289

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols
See Sheets RW01 thru RW04 For Survey Control and Right-of-Way Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DUPLIN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.83 (FORMERLY B-5303)	1	

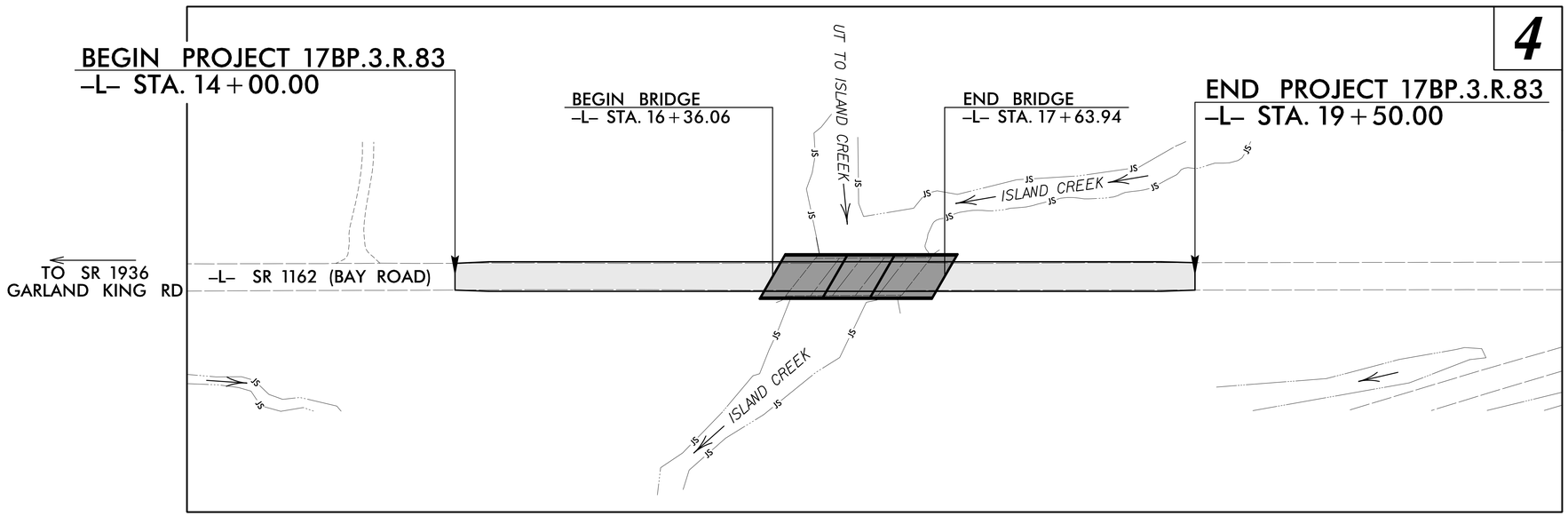
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.3.R.83	N/A	PE
17BP.3.R.83	N/A	R/W & UTIL
17BP.3.R.83	N/A	CONST.

LOCATION: REPLACE BRIDGE NO. 45 OVER ISLAND CREEK ON SR 1162 (BAY ROAD)

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

NAD 83/ NA 2011

4



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2020 = 865
ADT 2040 = 1050
K = 10 %
D = 55 %
T = 6 % *
V = 60 MPH
* TTST=1% DUAL=5%
FUNC CLASS = MINOR COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.3.R.83	=	*0.080 mile*
LENGTH STRUCTURES PROJECT 17BP.3.R.83	=	*0.024 mile*
TOTAL LENGTH PROJECT 17BP.3.R.83	=	*0.104 mile*

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610
By:

TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 20, 2019

LETTING DATE: JULY 29, 2021

V. MARCUS LOWERY, PE
PROJECT ENGINEER

DEREK PIELECH, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY

DocuSigned by: David B. Petty
SIGNATURE:
P.E.
6/14/2021 | 2:08 PM EDT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027418 ENGINEER V. MARCUS LOWERY

DocuSigned by: V. Marcus Lowery
SIGNATURE:
P.E.
6/14/2021 | 2:23 PM EDT

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

6/14/2021
C:\Projects\NCDOT\B-5303\Roadway\Proj\b5303_rdy_tsh_1.dgn
User:mlowery

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	1A

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ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027418 ENGINEER MARCUS LOWERY

6/4/2021 | 3:00 PM EDT

INDEX OF SHEETS

GENERAL NOTES

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 MODIFIED METHOD III.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

SUBSURFACE PLANS:

STRUCTURE SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT.

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

WATER — DUPLIN COUNTY WATER

POWER — FOUR COUNTY EMC

TELEPHONE — CENTURYLINK

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

RIGHT–OF–WAY MARKERS:

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

STANDARD DRAWINGS

EFF. 01–16–2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.03	Method of Clearing – Method III
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
275.01	Rock Plating
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 – MAJOR STRUCTURES	
422.02	Bridge Approach Fills – Type II Modiefied 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
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

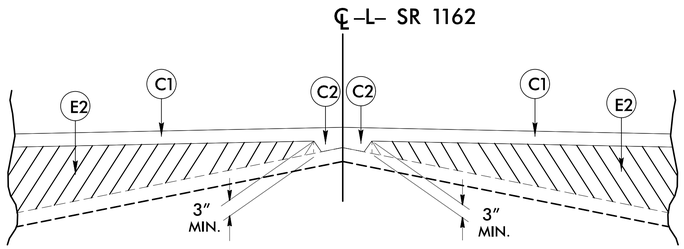
5/14/99

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN: NOVEMBER 14, 2018

C1	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 LESS THAN 1″ IN DEPTH OR GREATER THAN 1½″ IN DEPTH.
E1	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

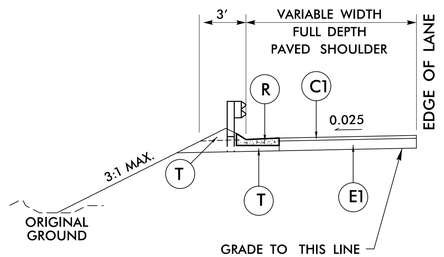
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging (W)

DETAIL FOR SHOULDER BERM GUTTER

SEE TYPICAL SECTIONS AND PLANS FOR ACTUAL DIMENSIONS.



LINE	STATIONS
–L–	16+16.00 to 16+34.26 LT
–L–	17+83.54 to 17+99.00 LT
–L–	16+01.00 to 16+16.46 RT
–L–	17+65.74 to 17+83.00 RT

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027418 V. MARCUS LOWERY

6/4/2021 | 3:00 PM EDT

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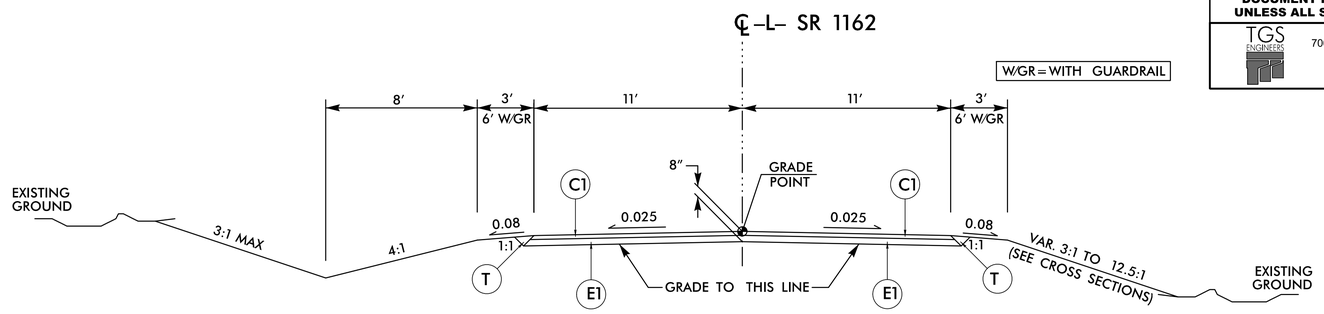
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

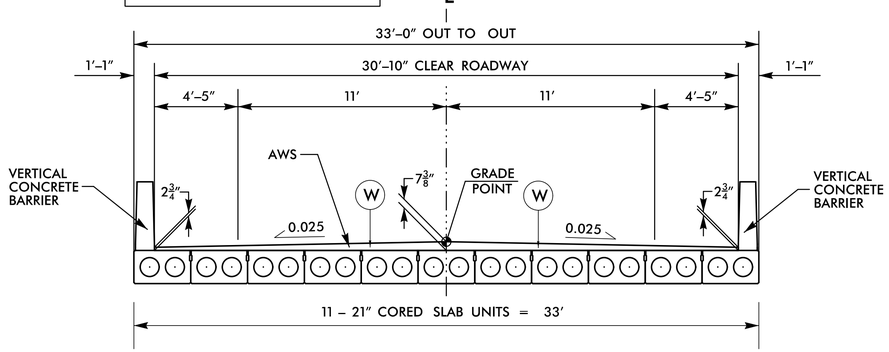


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

FROM –L– STA 14+00.00 TO STA 16+36.06 (BEGIN BRIDGE)
FROM –L– STA 17+63.94 (END BRIDGE) TO STA 19+50.00

NOTE: TRANSITION FROM EXISTING PAVEMENT WIDTH TO TYPICAL SECTION NO. 1 –L– STA 14+00.00 TO STA 14+25.00
TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING PAVEMENT WIDTH –L– 19+25.00 TO STA 19+50.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

FROM –L– STA 16+36.06 (BEGIN BRIDGE) TO STA 17+63.94 (END BRIDGE)

NOTE: SEE STRUCTURE PLANS FOR BRIDGE CONSTRUCTION DETAILS INCLUDING BARRIER RAIL HEIGHT AND ASPHALT THICKNESS DIMENSIONS

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	2C-1

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

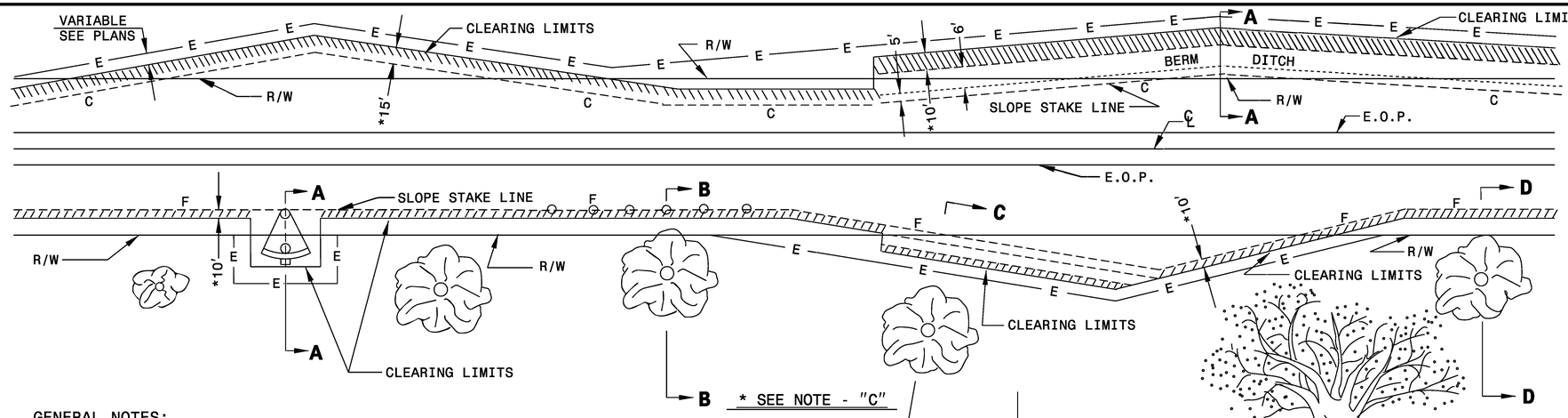
ENGLISH DETAIL DRAWING FOR

METHOD OF CLEARING

MODIFIED METHOD - III

SHEET 1 OF 1

200D03



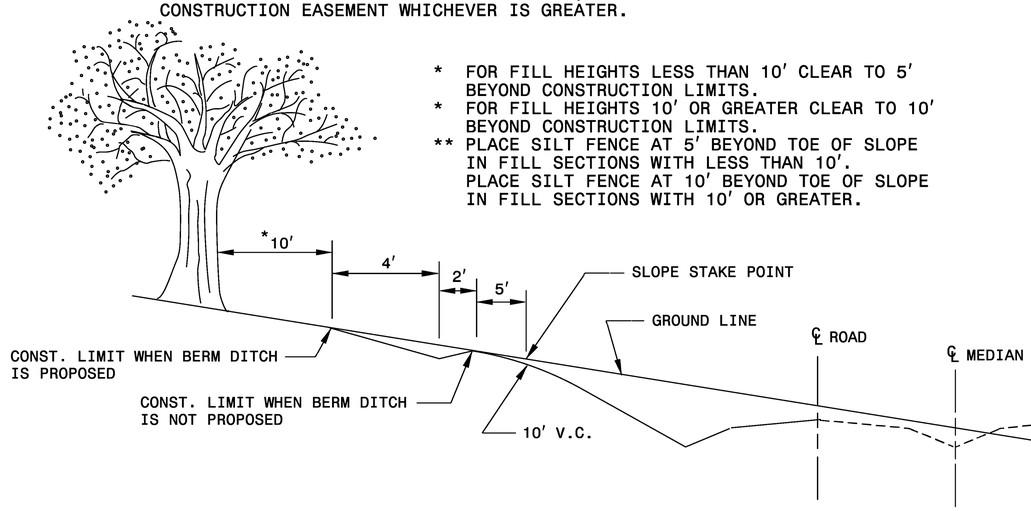
GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.

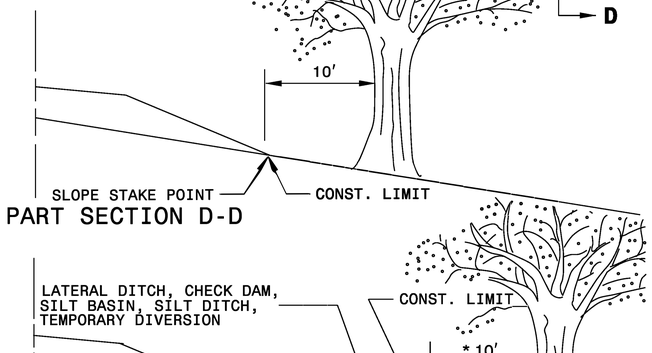
METHOD III CLEARING LIMITS

(A) CUTS -- CLEAR TO CONSTRUCTION LIMITS.
(B) FILLS - CLEAR TO 5'/10' * BEYOND CONSTRUCTION LIMITS, UNLESS SPECIFIED OTHERWISE BY WETLAND PERMIT.
(C) CUTS AND FILLS - WHEN THE CLEARING LIMITS (A AND B) EXCEED THE PROPOSED R/W OR PROPOSED CONSTRUCTION EASEMENTS, THEN CLEAR ONLY TO THE R/W OR CONSTRUCTION EASEMENT WHICHEVER IS GREATER.

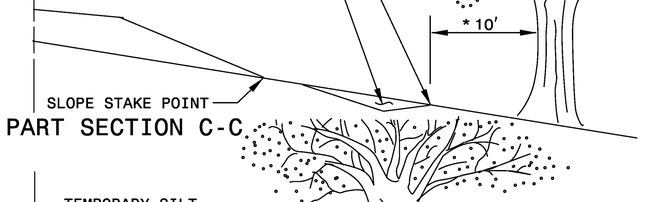
* FOR FILL HEIGHTS LESS THAN 10' CLEAR TO 5' BEYOND CONSTRUCTION LIMITS.
* FOR FILL HEIGHTS 10' OR GREATER CLEAR TO 10' BEYOND CONSTRUCTION LIMITS.
** PLACE SILT FENCE AT 5' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH LESS THAN 10'.
PLACE SILT FENCE AT 10' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH 10' OR GREATER.



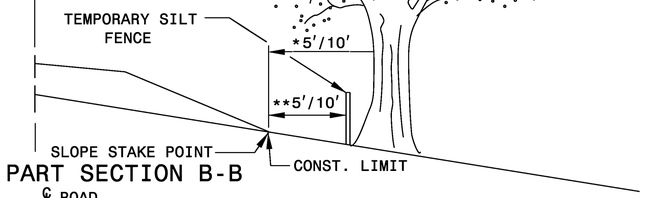
SECTION A-A



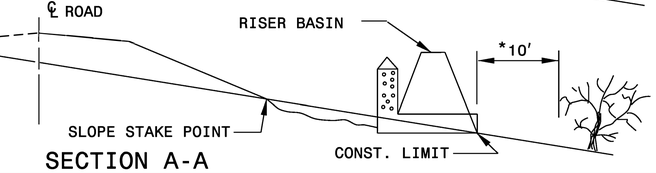
PART SECTION D-D



PART SECTION C-C



PART SECTION B-B



SECTION A-A

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

ENGLISH DETAIL DRAWING FOR

METHOD OF CLEARING

MODIFIED METHOD - III

SHEET 1 OF 1

200D03

Joel S. Howerton
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
6/4/2021 | 3:36 PM EDT

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

SEE TITLE BLOCK

ORIGINAL BY:	T.S.S.	DATE:	FEB.2000
MODIFIED BY:	K.A.K.	DATE:	AUG.2016
CHECKED BY:		DATE:	
FILE SPEC.:	kkempf/english/0200d301.dgn		

12/06/07

COMPUTED BY: VML DATE: 04 FEB 2020
CHECKED BY: DBE DATE: 04 FEB 2020

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	3B-1

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L– 14+00.00 TO 16+36.06 (BEGIN BRIDGE)	143		33		110
–L– 17+63.94 (END BRIDGE) TO 19+50.00	36		11		25
SUBTOTAL	179		44		135
MATERIAL FOR SHOULDER CONSTRUCTION			16	16	
WASTE IN LIEU OF BORROW				–16	–16
PROJECT TOTAL	179		60		119
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTAL	179		60		119
SAY	200				

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.

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".

PER "GEOTECHNICAL REPORT – DESIGN AND CONSTRUCTION RECOMMENDATIONS" DATED SEPTEMBER 10, 2019.

ESTIMATED UNDERCUT = 600 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)
SELECT GRANULAR MATERIAL = 600 CY (CONTINGENCY, TO BE USED AS UNDERCUT AREAS BACKFILL)
SHALLOW UNDERCUT = 100 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)
CLASS IV SUBGRADE STABILIZATION = 190 TONS (CONTINGENCY, AS DIRECTED BY THE ENGINEER)
DDE = 11 CY

PAVEMENT REMOVAL SUMMARY
IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
–L–	14+00.00	16+57.13 (EX. BRIDGE)	CL	571
–L–	17+42.93 (EX. BRIDGE)	19+50.00	CL	465
			TOTAL:	1036
			SAY:	1040

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LOCATION	LENGTH (LF)
–L–	16+16.00	16+34.26	LT	18.26
–L–	17+83.54	17+99.00	LT	15.46
–L–	16+01.00	16+16.46	RT	15.46
–L–	17+65.74	17+83.00	RT	17.26
			TOTAL:	66.44
			SAY:	67

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE GREU,TL-3	ANCHORS CAT-1	ANCHORS AT-1	ANCHORS TYPE III	ANCHORS B-77	ANCHORS .	ANCHORS .	ANCHORS .	ANCHORS .	IMPACT ATTENUATOR TYPE 350 EA	IMPACT ATTENUATOR TYPE 350 G	IMPACT ATTENUATOR TYPE 350 NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	14+63.71	16+44.96	LT	181.25				15+63.71	4'–5"	7'–5"		50'		1'	1			1												
–L–	17+72.84	18+54.09	LT	81.25			18+54.09		4'–5"	7'–5"	50'		1'		1			1												
–L–	15+45.91	16+27.16	RT	81.25			15+45.91		4'–5"	7'–5"	50'		1'		1			1												
–L–	17+55.04	18+36.29	RT	81.25				18+36.29	4'–5"	7'–5"		50'		1'	1			1												
		SUBTOTAL (LF)		425'									TOTAL ANCHORS OR ATTENUATORS (EA)		4			4												
		LESS ANCHORS (LF)		275'									ANCHOR UNIT LENGTH (LF)		50	6.25	6.25	18.75	18.75											
		TOTAL GUARDRAIL (LF)		150'									DEDUCTION PER TYPE (LF)		200			75												
		SAY GUARDRAIL (LF)		150'			ADDITIONAL GUARDRAIL POSTS: SAY 5 EA						TOTAL DEDUCTION (LF)		275.00																

3/17/2020
X:\NCDOT\B-5303\Roadway\Proj\b5303_rdy_psh_3b-1.dgn
User:mlowery

DESKTOP-3VNQ87H

COMPUTED BY:	Zachary Richard, PE	**DATE:**	10/3/2016
CHECKED BY:	David Petty, PE	**DATE:**	8/7/2019

PROJECT NO.	SHEET NO.
B-5303	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	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)								DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE								R. C. PIPE CLASS III								R. C. PIPE CLASS IV								15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	REINFORCED ENDWALLS	DRAINAGE STRUCTURE	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03				CONCRETE TRANSITIONAL SECTION		T.B.D.I STD. 840.35	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE								12	15	18	24	30	36	42	48						12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48							A	B		GRATE TYPE				D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05							
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%														.064	.064	.064	.064	.079	.079	.109	.109																			CY	CY	MASONRY CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G						CY	CY	CY	LIN. FT.	
L 16+23	15 LT	0401		48.2																																														1										1	1					
		0401	0402		44.2	42.9			16																																																									
L 16+08	15 RT	0403		48.1																																														1										1	1					
		0403	0404		45.3	45.1			12																																																									
L 17+92	15 LT	0405		48.1																																														1										1	1					
		0405	0406		46.2	46.0			20																																																									
L 17+76	15 RT	0407		48.1																																														1										1	1					
		0407	0408		45.4	43.7			20																																																									
SHEET TOTALS									68																																									4										4	4					
PROJECT TOTALS									68																																									4										4	4					

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

COMPUTED BY: Thein Tun Zan DATE: 09-04-2019
CHECKED BY: James Batts DATE: 09-04-2019

(12-17-19)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
17BP.3.R.83	3G-1

SUMMARY OF SUBSURFACE DRAINAGE

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

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

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	2.5:1	15+30	1.5:1	16+33	LT	1	*	110
							TOTAL SY:	110

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU	12	100	190	300		
			TOTAL CY/TONS/SY:		100	190**	300**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027418 ENGINEER V. MARCUS LOWERY — DocuSigned by: V. Marcus Lowery 6/4/2021 | 3:00 PM EDT	NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY — DocuSigned by: David B. Petty 6/4/2021 | 2:17 PM PDT

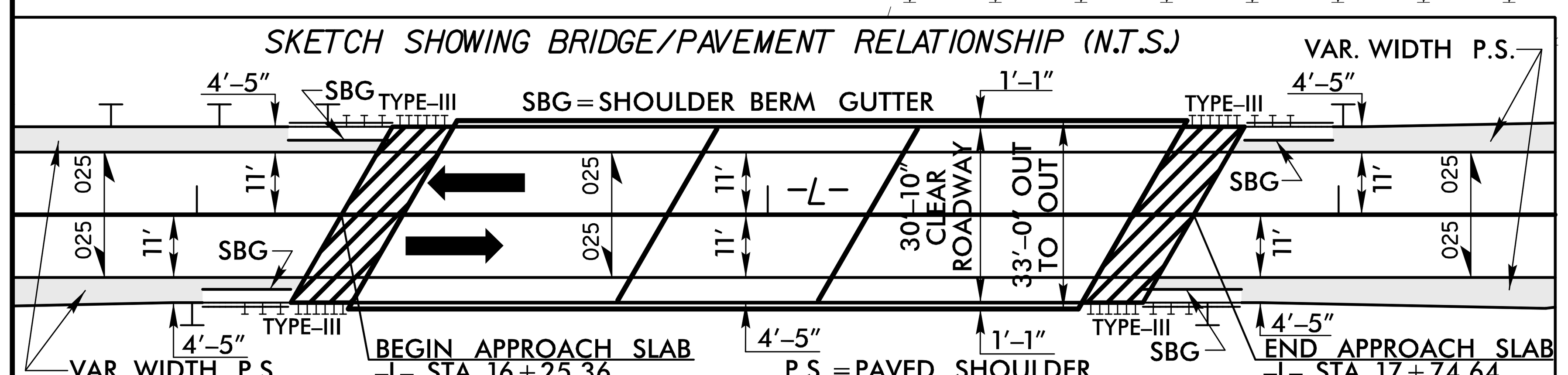
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

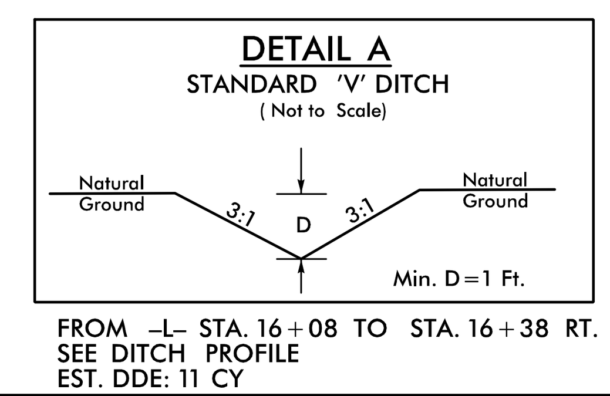
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

BEGIN TIP PROJECT 17BP.3.R.83
–L– POT Sta. 14+00.00

END TIP PROJECT 17BP.3.R.83
–L– POT Sta. 19+50.00


NAD 83 /NA 2011
–L– POT Sta. 10+00.00
–L– POT Sta. 24+00.00
E&B FARMS, INC
DB 1666 PG 798
1
E&B FARMS, INC
DB 1666 PG 793
2
LOU ANN OSTADI
DB 828 PG 44
3
HONEY HILL LLC
DB 1465 PG 672
4
BLANCHARD LAND CO. INC
NO DEED FOUND
5
HONEY HILL LLC
DB 1465 PG 672
BEGIN BRIDGE
–L– STA 16+36.06
END BRIDGE
–L– STA 17+63.94
CLASS II RIP RAP (STRUCTURES ITEM) (TYP.)
MAINTAIN 1.5:1 AROUND RADIUS
PROP. SBG –L– STA. 16+16.00 TO 16+34.26 LT
CLASS B RIP RAP EST. 1 TON GEOTEXTILE EST. 5 SY
MAX 10% SLOPE
ROCK PLATING FROM –L– STA. 15+30 TO 16+33 LT
REMOVE EXISTING BRIDGE
PROP. SBG –L– STA. 17+83.54 TO 17+99.00 LT
N 40° 32' 26.0" E
SR 1162 BAY ROAD 20' BST
ISLAND CREEK
PROP. SBG –L– STA. 16+01.00 TO 16+16.46 RT
CLASS B RIP RAP EST. 2 TON GEOTEXTILE EST. 7 SY
STANDARD 'V' DITCH SEE DETAIL A
CLASS B RIP RAP EST. 1 TON GEOTEXTILE EST. 5 SY
PROP. SBG –L– STA. 17+65.74 TO 17+83.00 RT
ABANDONED ROAD BED 17' BST
BL1
BL3
BM#1
EXISTING R/W
REVISIONS





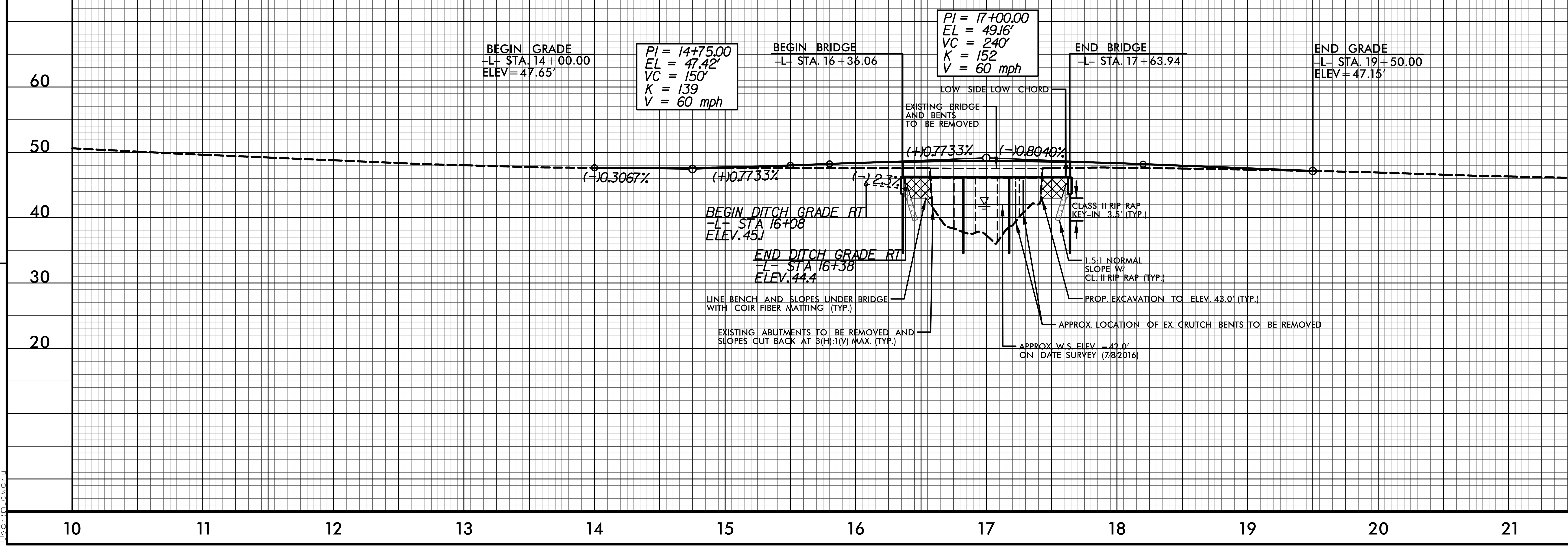
BRIDGE APPROACH SLAB

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-22

–L–
SR 1162

BM#1
RAILROAD SPIKE IN BASE OF 18" GUM
LT 24.32' OF –L– STA 12+66.74
ELEV. = 49.67'

EXISTING GROUND	- - - - -
PROPOSED GRADE	———
LEFT DITCH GRADE	— - — - —
RIGHT DITCH GRADE	- - - - -


BEGIN GRADE –L– STA. 14+00.00 ELEV=47.65'
PI = 14+75.00 EL = 47.42' VC = 150' K = 139 V = 60 mph
BEGIN BRIDGE –L– STA. 16+36.06
PI = 17+00.00 EL = 49.16' VC = 240' K = 152 V = 60 mph
END BRIDGE –L– STA. 17+63.94
END GRADE –L– STA. 19+50.00 ELEV=47.15'
(–)0.3067%
(+)0.7733%
(+)0.7733%
(–)0.8040%
(–) 2.3%
LOW SIDE LOW CHORD
EXISTING BRIDGE AND BENTS TO BE REMOVED
BEGIN DITCH GRADE RT –L– STA 16+08 ELEV. 45.1
END DITCH GRADE RT –L– STA 16+38 ELEV. 44.4
CLASS II RIP RAP KEY-IN 3.5' (TYP.)
1.5:1 NORMAL SLOPE W/ CL. II RIP RAP (TYP.)
PROP. EXCAVATION TO ELEV. 43.0' (TYP.)
APPROX. LOCATION OF EX. CRUTCH BENTS TO BE REMOVED
LINE BENCH AND SLOPES UNDER BRIDGE WITH COIR FIBER MATTING (TYP.)
EXISTING ABUTMENTS TO BE REMOVED AND SLOPES CUT BACK AT 3(H):1(V) MAX. (TYP.)
APPROX. W.S. ELEV. = 42.0' ON DATE SURVEY (7/8/2016)
60
50
40
30
20
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1100	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	44.5	FT
BASE DISCHARGE	=	2550	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	46.0	FT
OVERTOPPING DISCHARGE	=	2300	CFS
OVERTOPPING FREQUENCY	=	50+	YRS
OVERTOPPING ELEVATION	=	45.4*	FT

*OVERTOPPING ELEVATION REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY WHICH OCCURS AT SAG @ –L– 25+82

DATE OF SURVEY	=	7/8/2016	
W.S. ELEVATION AT DATE OF SURVEY	=	42.0	FT

8/17/99
3/17/2020
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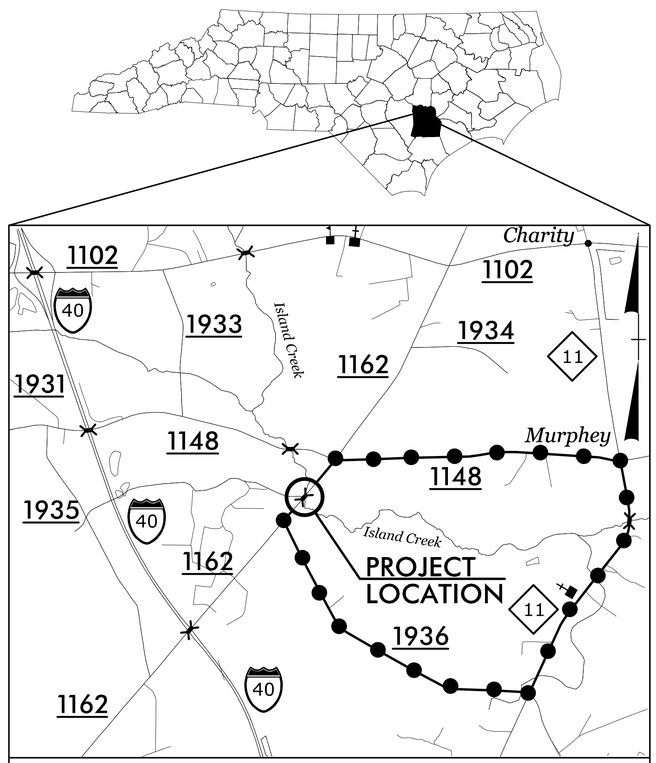
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

DUPLIN COUNTY



VICINITY MAP
OFFSITE DETOUR

INDEX OF SHEETS

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1145.01	BARRICADES

SHEET NO.
TMP-1

PROJECT: 17BP.3.R.83

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

PLANS PREPARED BY:

TOMMY REGISTER, PE — *PROJECT ENGINEER*

NCDOT CONTACTS:

DEREK PIELECH, PE

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

APPROVED: _____

DATE: 6/4/2021 | 2:09 PM PDT

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028392 REGISTERED

2/5/2020
X:\NCDOT\B-5303\Traffic\TrafficControl\TCP\B-5303_TC_TMP_0(TSH).dgn
User:dwhittington

PROJ. REFERENCE NO.	SHEET NO.
17BP.3.R.83	TMP-1A

TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

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 TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

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

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

F) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.

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

LOCAL NOTES

1) CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS WITHIN THE PROJECT LIMITS AT ALL TIMES.

MANAGEMENT STRATEGIES

DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, SR 1162 (BAY RD) WILL BE CLOSED TO THROUGH TRAFFIC. SR 1162 (BAY RD) TRAFFIC WILL BE MAINTAINED ON THE FOLLOWING DETOUR: FROM SR 1148 (MURPHYS STORE RD) TO NC 11 TO SR 1936 (GARLAND KING RD).

PHASING

STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, CONTRACTOR TO INSTALL ALL ADVANCE WARNING SIGNS FOR DETOUR, KEEPING SIGNS COVERED (SEE TMP-3 AND ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 AND 2 OF 9).

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE I, STEP 2.

STEP 2: CLOSE SR 1162 (BAY RD) TO TRAFFIC. UNCOVER ALL ADVANCE WARNING SIGNS FOR ROAD CLOSURE AND SHIFT TRAFFIC TO TEMPORARY DETOUR.

STEP 3: DISMANTLE AND REMOVE THE EXISTING BRIDGE NO. 45 OVER ISLAND CREEK.

STEP 4: COMPLETE CONSTRUCTION OF PROPOSED STRUCTURE, APPROACH ROADWAY WIDENING, AND PAVING (SEE ROADWAY PLANS).

STEP 5: CONTRACTOR TO PLACE FINAL PAVEMENT MARKINGS (THERMOPLASTIC) ON SR 1162 (BAY RD).

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE I, STEP 6.

STEP 6: USING ROADWAY STANDARD DRAWINGS NO. 1101.04, SHEET 1 OF 1, REMOVE ALL ADVANCE WARNING SIGNS FOR ROAD CLOSURE AND ALL TRAFFIC CONTROL DEVICES AND OPEN SR 1162 (BAY RD) TO TRAFFIC.

APPROVED: _____

DATE: 6/29/2021 | 12:14 PM PDT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028392 REGISTERED

DOCUSIGNED BY: _____

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

TRANSPORTATION OPERATIONS PLAN

6/29/2021
C:\Projects\NCDOT\B-5303\Traffic\TrafficControl\TCP\B-5303_TC_TMP_01A(TOP).dgn
User:mlowery

PROJ. REFERENCE NO.	SHEET NO.
17BP.3.R.83	TMP-2

TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH: (919) 773-8887
CORP. LICENSE NO.: C-0275

SIGN NUMBER: SP-1
TYPE: D
QUANTITY: SEE PLANS

SIGN WIDTH: 4′-0″
HEIGHT: 2′-0″
TOTAL AREA: 8.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0.38″
WIDTH: 0.38″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

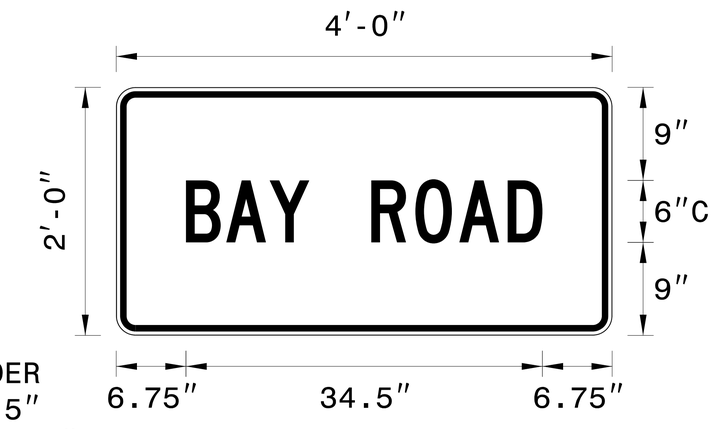
SYMBOL	X	Y	WID	HT

MAT′L: 0.125″ (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B, fluorescent orange, retroreflective sheeting.
3. To be mounted with Detour signing.

DESIGN BY: PAS
CHECKED BY:
DATE: AUG 06, 2019
PROJECT ID: 17BP.3.R.83
DIV: 3



BORDER
R=1.5″
TH=0.38″
IN=0.38″

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

Series/Size
Text Length

	B	A	Y		R	O	A	D																	Series/Size Text Length
	6.8	10.7	14.9	18.7	24.7	29	33.2	37.9																	C 2000 34.5

FILENAME: B-5303_TC_TMP_02(SD)

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED:
DATE: 6/4/2021 | 2:09 PM PDT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028392 REGISTERED

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

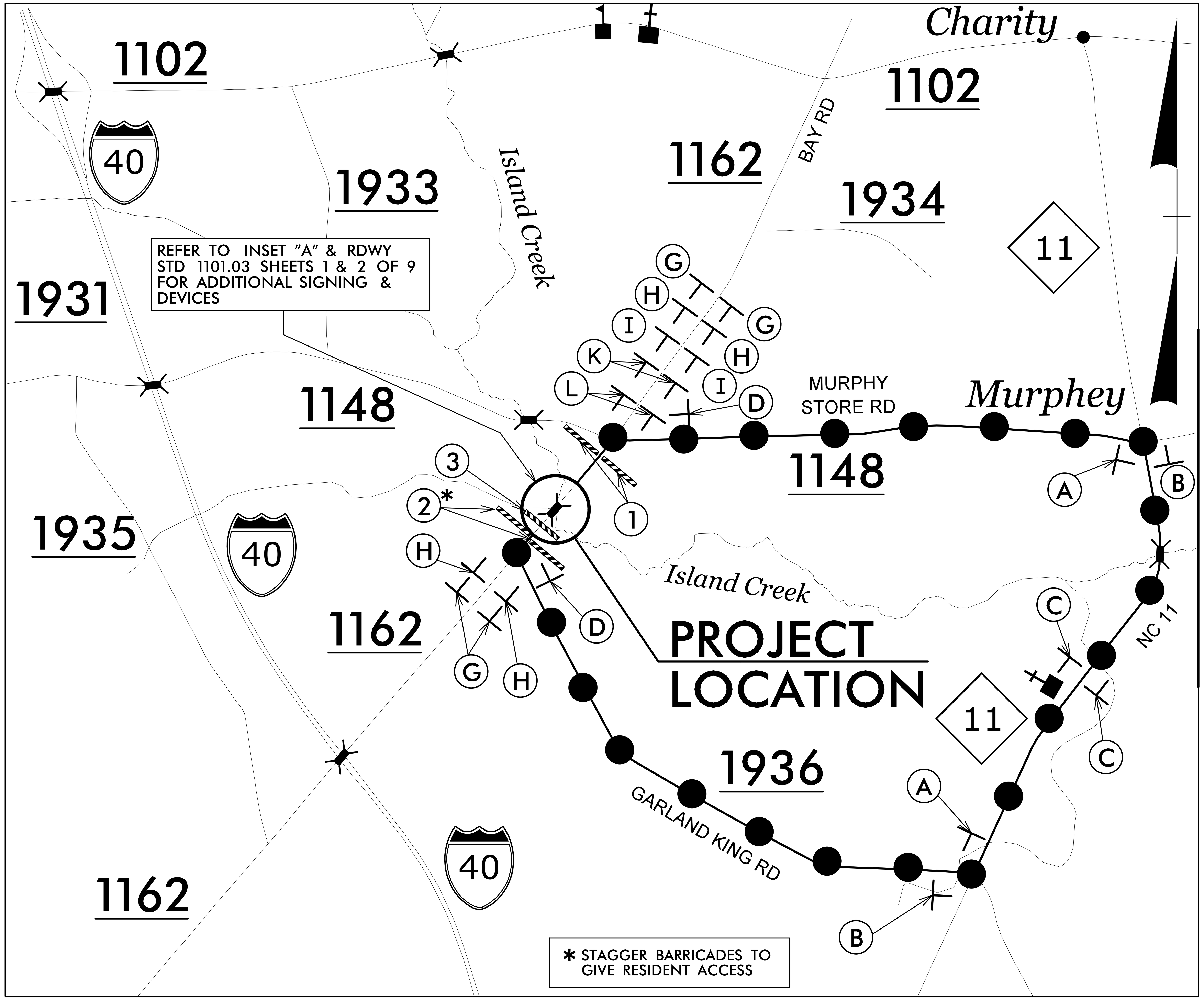
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

SPECIAL SIGN DESIGN

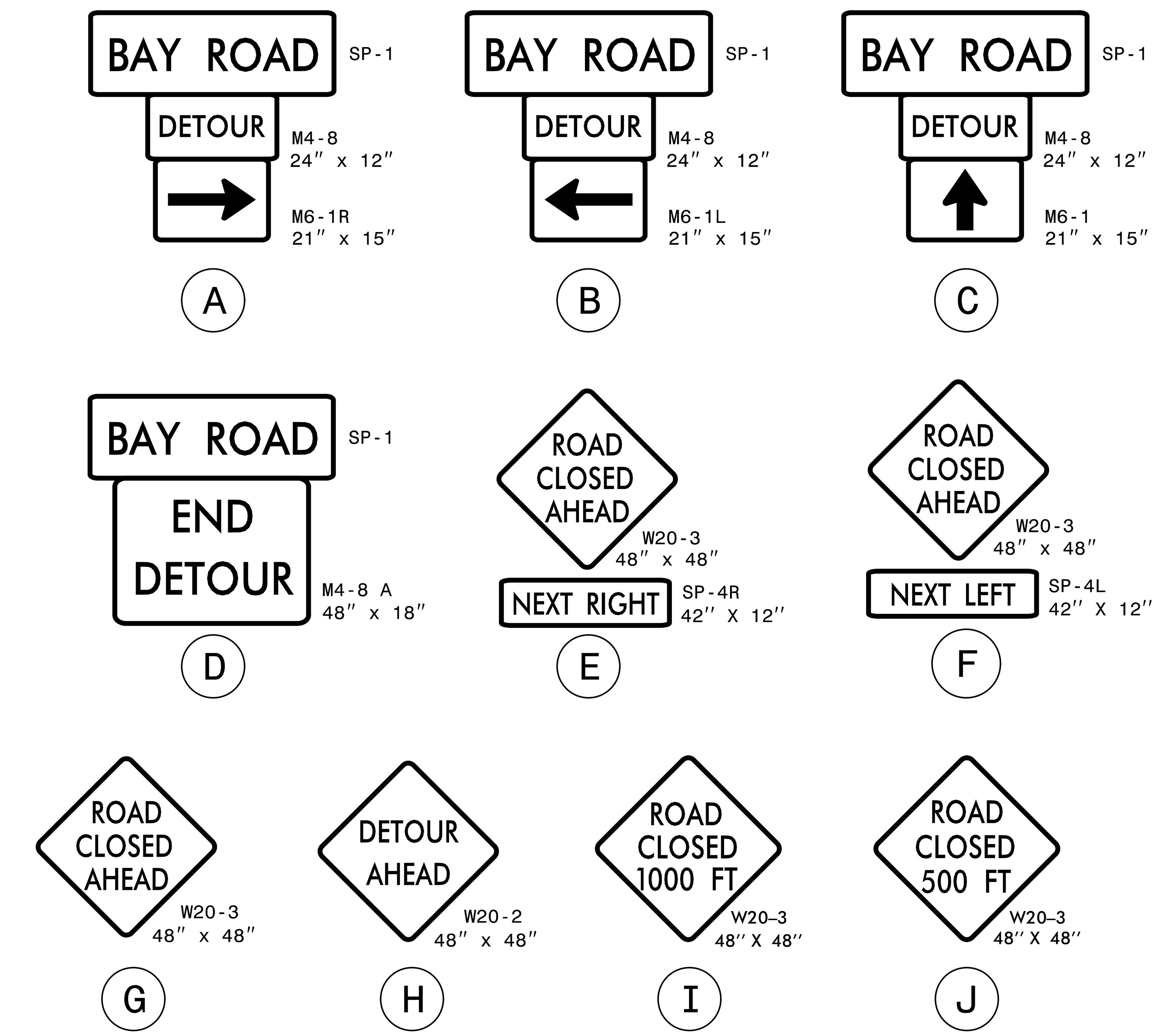
2/5/2020
X:\NCDOT\B-5303\Traffic\TrafficControl\TCP\B-5303_TC_TMP_02(SD).dgn
User:dwhittington

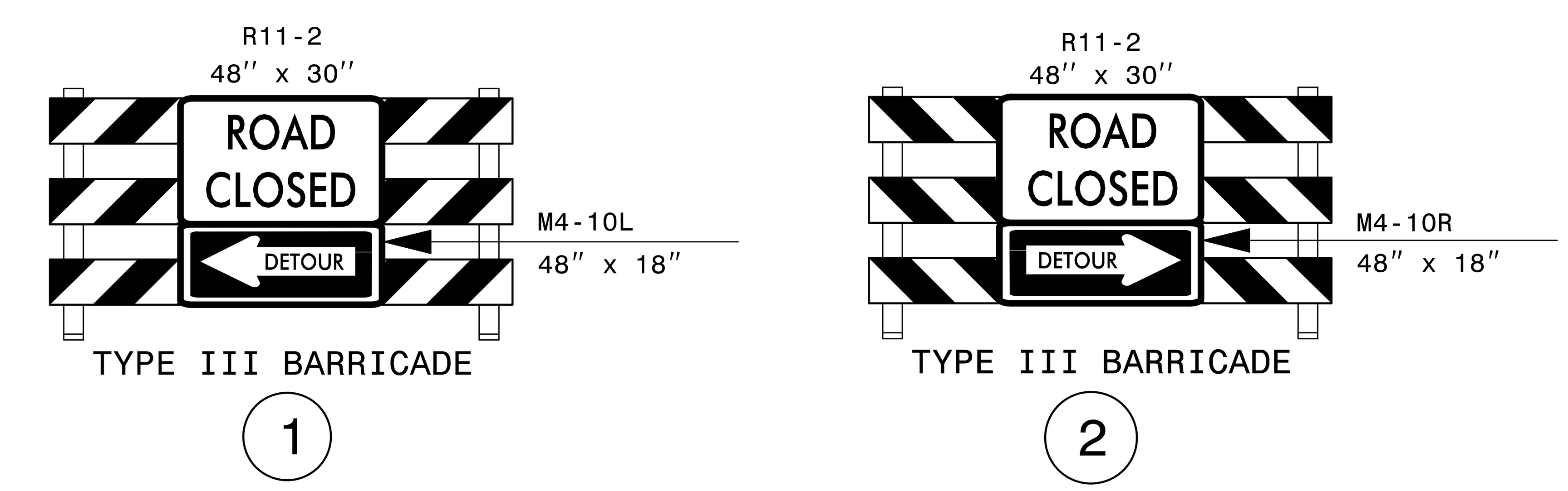
PROJ. REFERENCE NO.	SHEET NO.
17BP.3.R.83	TMP-3

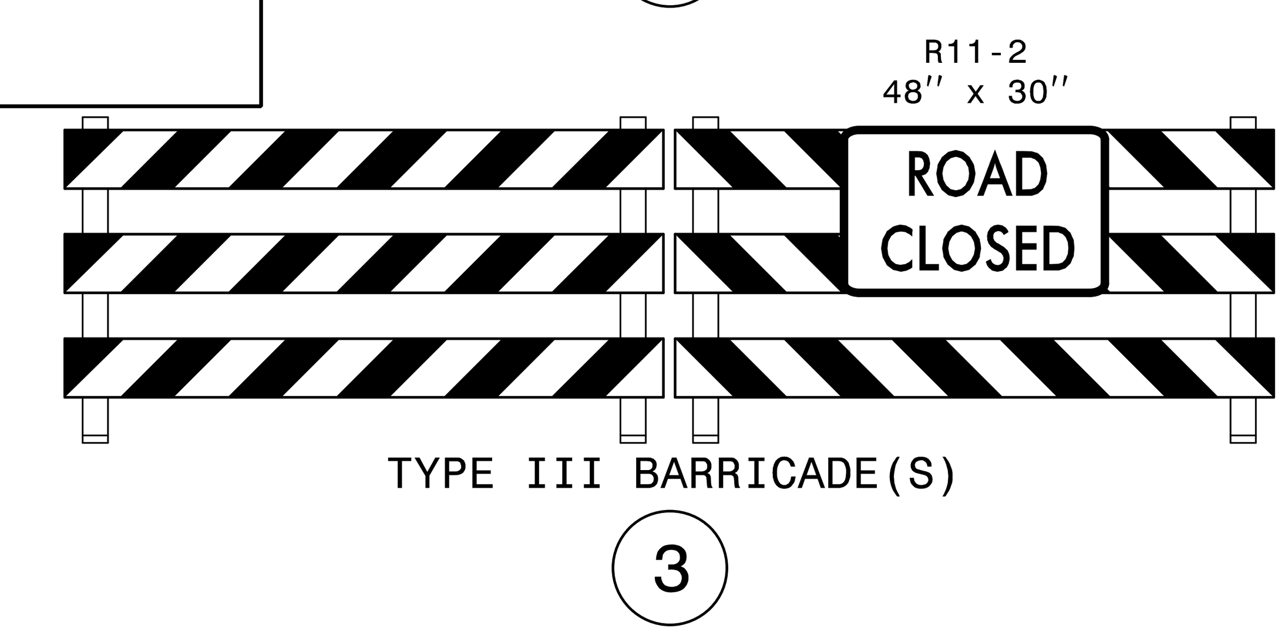
TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

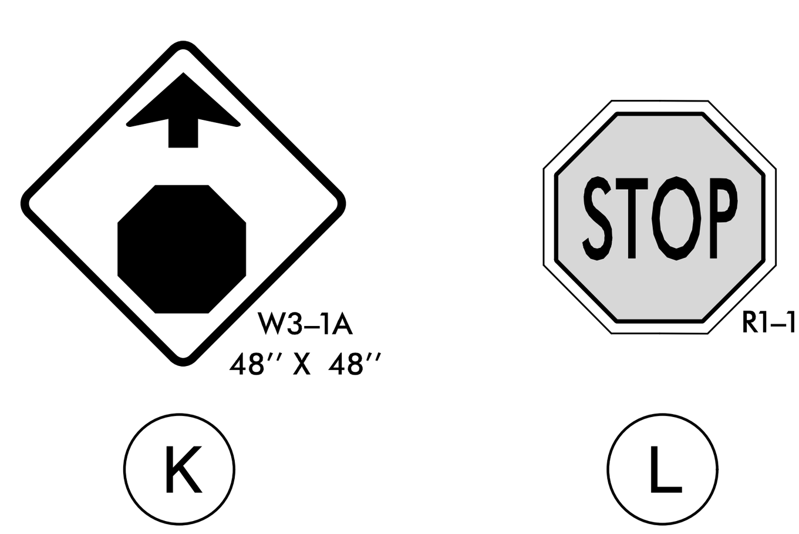


DETOUR ROUTE

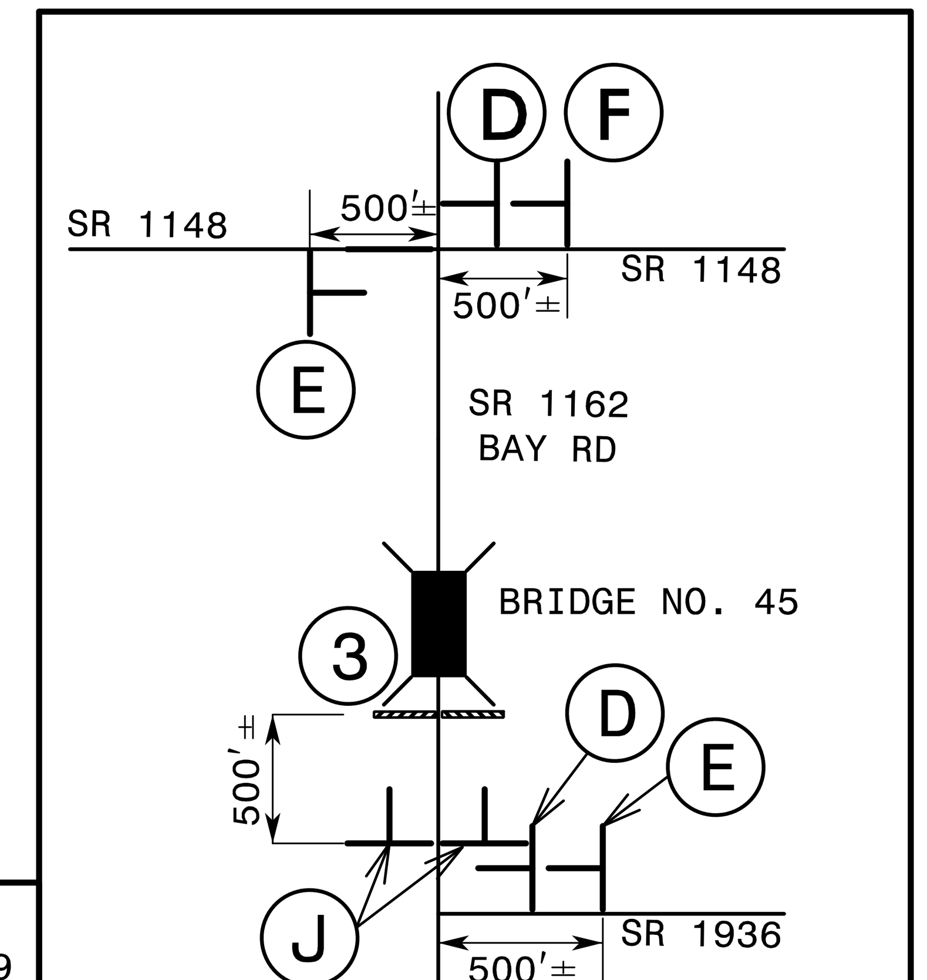








NOTE FOR SR 1162 INTERSECTION WITH SR 1148:
— INSTALL STOP BAR PER STANDARD DRAWING 1101.03 (SHEET 2 OF 9)
— FOLLOWING CONSTRUCTION, REMOVE TEMPORARY STOP SIGN AND STOP BAR



INSET "A"

REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEETS 1 & 2 OF 9 FOR APPLICABLE NOTES.

LEGEND

TRAFFIC CONTROL DEVICES
BARRICADE (TYPE III)

TEMPORARY SIGNING
STATIONARY SIGN

APPROVED:
DATE: 6/4/2021 | 2:09 PM PDT

NORTH CAROLINA PROFESSIONAL SEAL 028392 ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

OFF-SITE DETOUR ROUTE AND BARRICADE PLACEMENT

6/3/2021
C:\Projects\NCDOT\B-5303\Traffic\TrafficControl\TCP\B-5303_TC_TMP_03(DETOUR).dgn
User:mlowery

T.I.P.: 17BP.3.R.83

CONTRACT:

TIP NO.	SHEET NO.
17BP.3.R.83	PMP-1

APPROVED: _____

DATE: 6/29/2021 | 12:14 PM PDT

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028392 CLIFTON T. REGISTER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

DUPLIN COUNTY

LOCATION: REPLACE BRIDGE #45 OVER ISLAND CREEK ON SR 1162 (BAY ROAD)

INDEX

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
SR 1162 (BAY ROAD)	THERMOPLASTIC	PERMANENT RAISED

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

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

FINAL PAVEMENT MARKING SCHEDULE & QUANTITIES

SYMBOL	DESCRIPTION	QUANTITY
	PAVEMENT MARKINGS	
THERMOPLASTIC (4", 90 MILS)		
T1-E	WHITE EDGELINE	1,100 LF
T13-E	YELLOW DOUBLE CENTER	1,100 LF
PERMANENT RAISED PAVEMENT MARKERS		
MA	YELLOW & YELLOW	6 EA

PLAN REVIEWED BY: N.C.D.O.T. DIVISION 3 TRAFFIC SERVICES

JESSI LEONARD, PE DIVISION 3 TRAFFIC ENGINEER

RODERICK WYATT DIVISION 3 TRAFFIC SERVICES SUPERVISOR

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO. : C-0275

TOMMY REGISTER, PE PROJECT ENGINEER

_____ DESIGN TECHNICIAN

6/29/2021
C:\Projects\NCDOT\B-5303\Traffic\Pavement Marking\210.001_B-5303_Sgn_PMP_01(TSH).dgn
User:tlowery

TIP NO.	SHEET NO.
17BP.3.R.83	PMP-2

APPROVED:

DATE: 6/29/2021 | 12:14 PM PDT

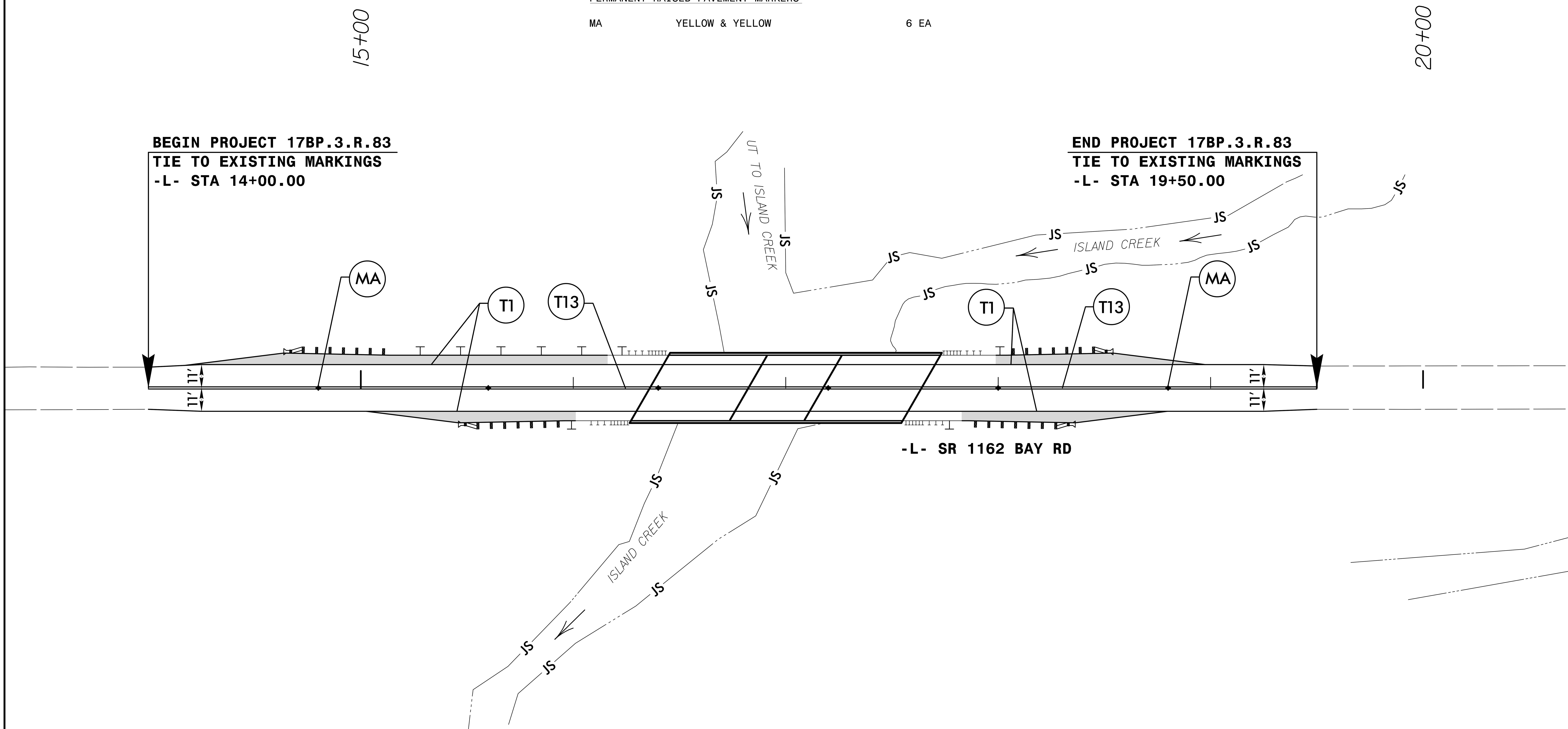
SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028392 CLIFTON T. REGISTER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

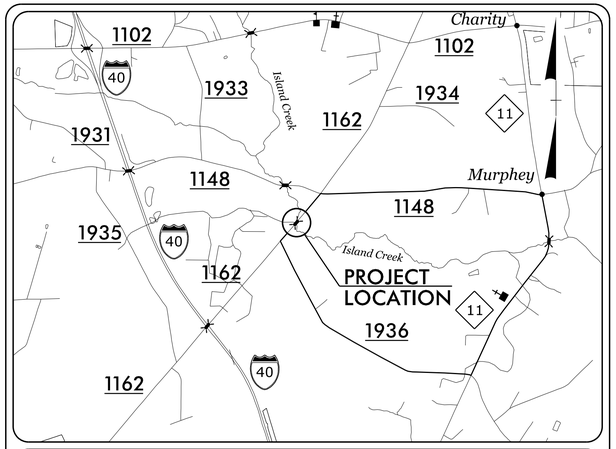
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

SYMBOL	DESCRIPTION	QUANTITY
THERMOPLASTIC (4", 90 MILS)		
T1-E	WHITE EDGELINE	1,100 LF
T13-E	YELLOW DOUBLE CENTER	1,100 LF
PERMANENT RAISED PAVEMENT MARKERS		
MA	YELLOW & YELLOW	6 EA



PAVEMENT MARKING DETAIL

TIP PROJECT: 17BP.3.R.83



VICINITY MAP
NOT TO SCALE

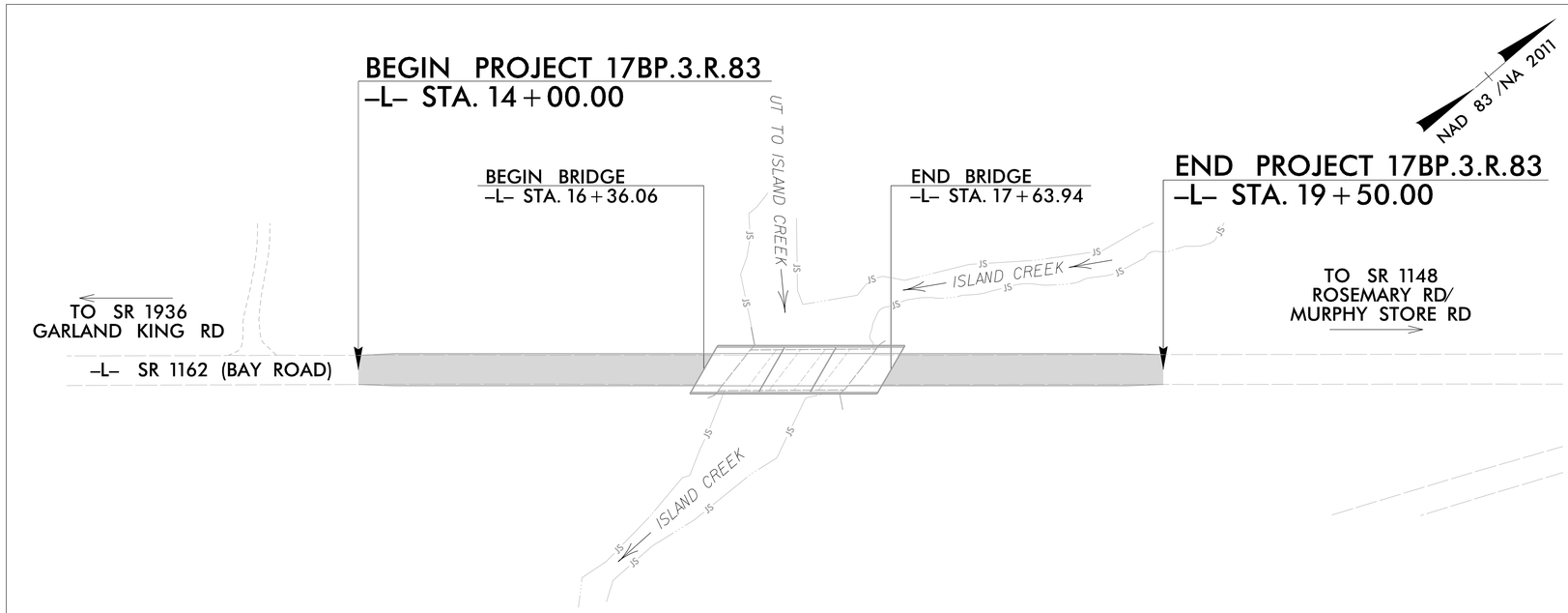
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED HIGHWAY EROSION CONTROL
DUPLIN COUNTY

LOCATION: BRIDGE NO. 45 OVER ISLAND CREEK ON SR 1162 (BAY ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.83	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.3.R.83	N/A	PE
17BP.3.R.83	N/A	R/W & UTIL
17BP.3.R.83	N/A	CONST.



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	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	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	SK

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

GRAPHIC SCALE

50 25 0 50 100

PLANS

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.

TGS ENGINEERS

Prepared in the Office of:

TGS ENGINEERS

804-C N. LAFAYETTE ST.
SHELBY, NC 28150

Designed by:

Briana A. James, EI ***4041***

NAME *LEVEL III CERTIFICATION NO.*

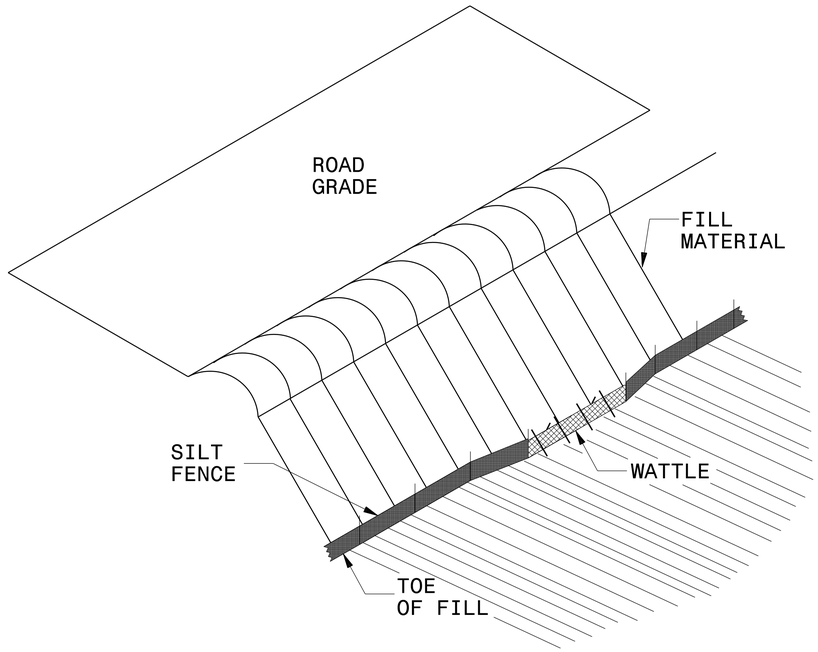
Roadway Standard Drawings

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

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW

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.

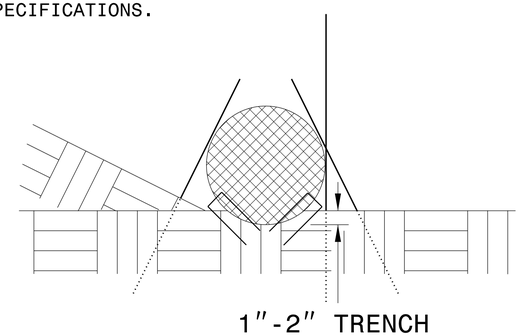
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

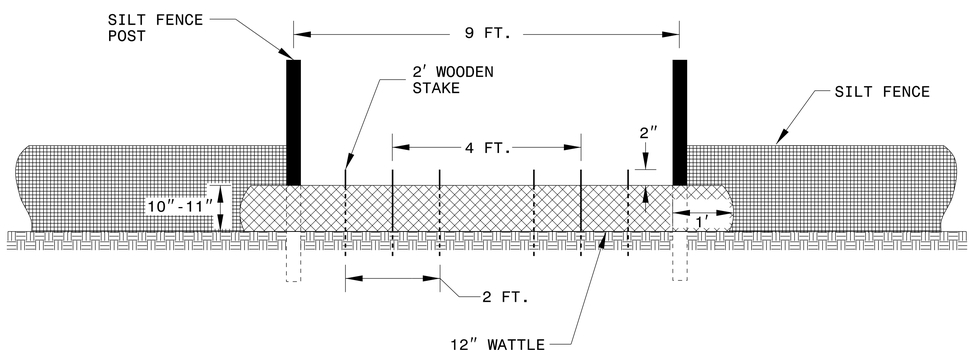
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

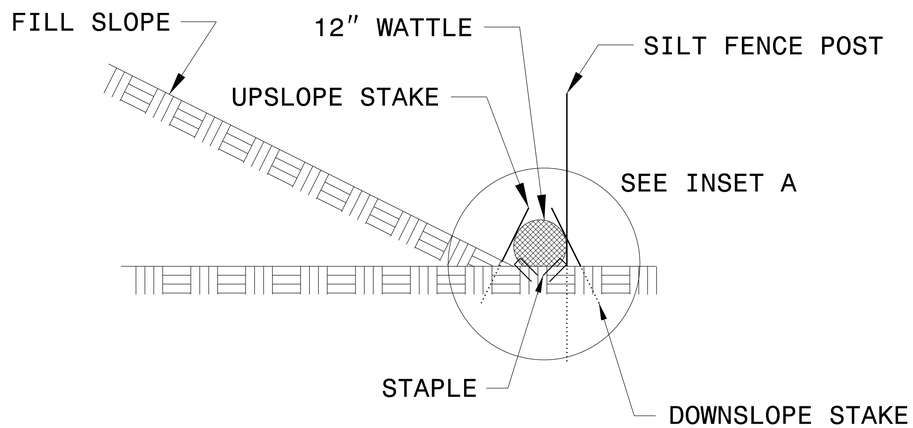
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





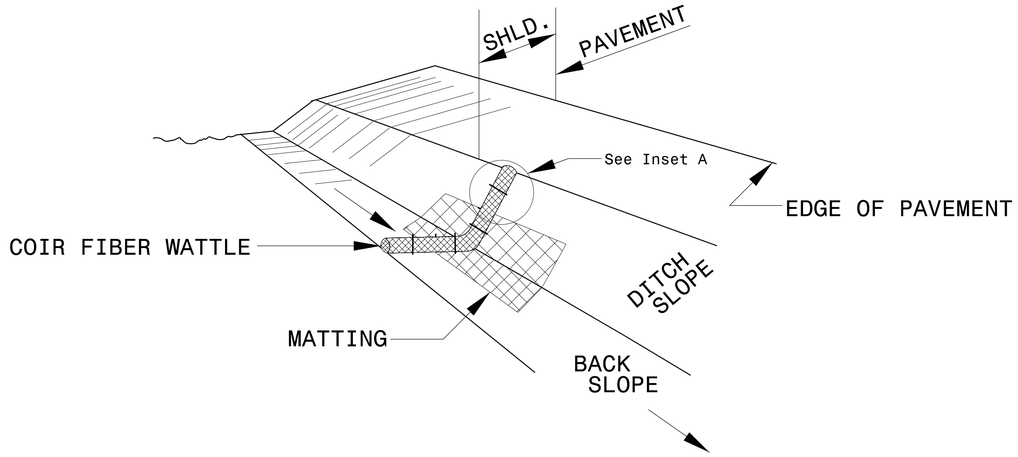
VIEW FROM SLOPE



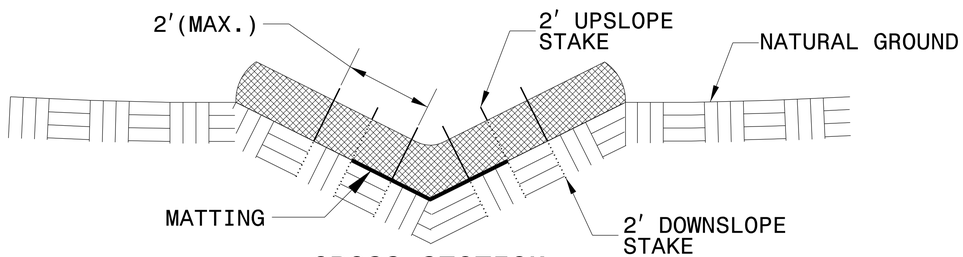
SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

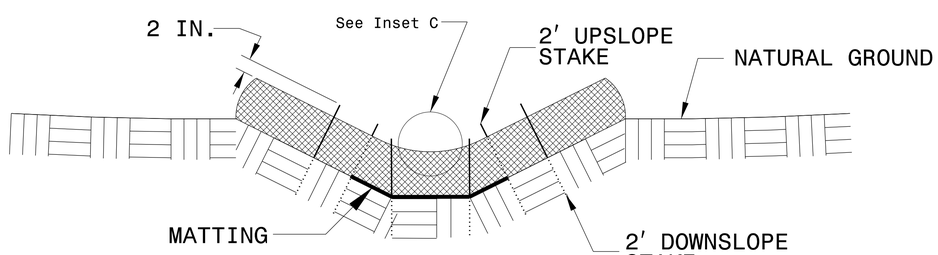
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

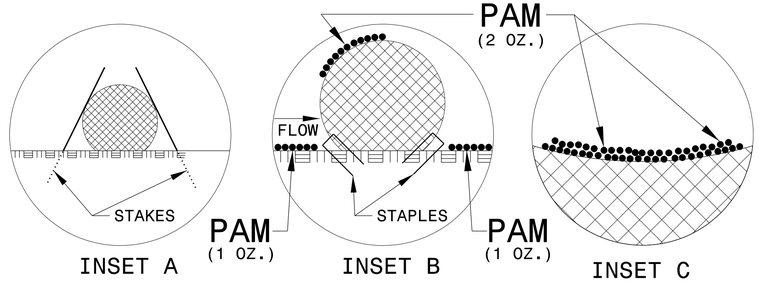
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

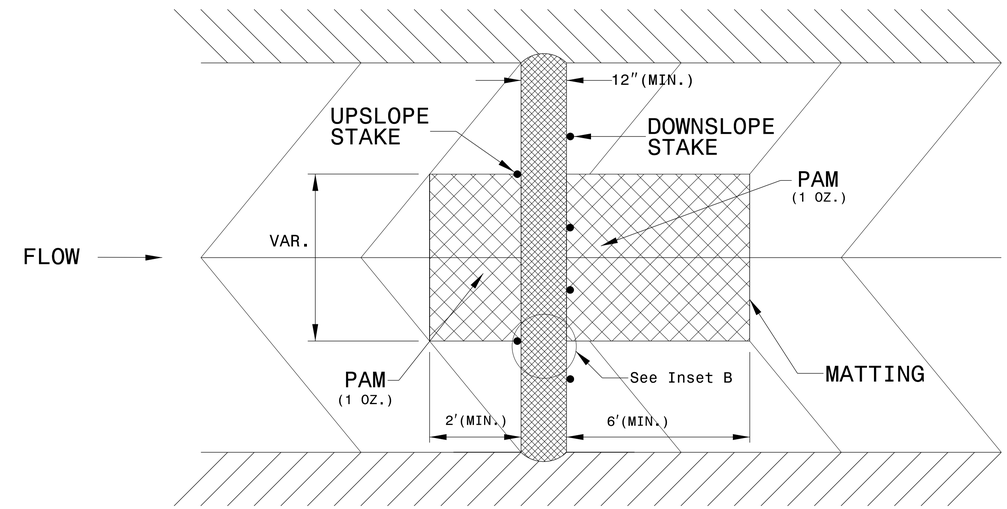
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.





TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

IMPERVIOUS DIKE MAY BE MODIFIED AND/OR ELIMINATED AS DIRECTED.

UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS/JURISDICTIONAL AREAS, AND AS DIRECTED.

THE OUTSIDE BUFFER, WETLAND, OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).

NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

Duplin County Bridge #300045

NAD 83 /NA 2011

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

BEGIN TIP PROJECT 17BP.3.R.83
-L- POT Sta. 14+00.00

END TIP PROJECT 17BP.3.R.83
-L- POT Sta. 19+50.00

-L- POT Sta. 10+00.00

-L- POT Sta. 24+00.00

BEGIN BRIDGE
-L- STA. 16+36.06

END BRIDGE
-L- STA. 17+63.94

PLACE COIR FIBER MATTING ON EXPOSED SOIL UNDER BRIDGE WHICH WILL NOT BE PLATED WITH STONE.

CLASS II RIP RAP (STRUCTURES ITEM) (TYP.)

MAINTAIN 1.5:1 AROUND RADIUS

REMOVE EXISTING BRIDGE

IMPERVIOUS DIKE (TYP.)

PROP. SBG
-L- STA. 16+16.00
TO 16+34.26 LT

CLASS B RIP RAP
EST. 1 TON
GEOTEXTILE
EST. 5 SY

MAX 10% SLOPE

ROCK PLATING FROM
-L- STA. 15+30
TO 16+33 LT

CLASS B RIP RAP
EST. 1 TON
GEOTEXTILE
EST. 5 SY

PROP. SBG
-L- STA. 17+83.54
TO 17+99.00 LT

PLACE COIR FIBER MATTING ON EXPOSED SOIL UNDER BRIDGE WHICH WILL NOT BE PLATED WITH STONE.

FLOATING TURBIDITY CURTAIN (TYP.)

STANDARD 'V' DITCH
SEE DETAIL A

CLASS B RIP RAP
EST. 2 TON
GEOTEXTILE
EST. 7 SY

PROP. SBG
-L- STA. 16+01.00
TO 16+16.46 RT

CLASS B RIP RAP
EST. 1 TON
GEOTEXTILE
EST. 5 SY

PROP. SBG
-L- STA. 17+65.74
TO 17+83.00 RT

DETAIL A
STANDARD 'V' DITCH
(Not to Scale)

Natural Ground — 3:1 — D — 3:1 — Natural Ground

Min. D=1 Ft.

FROM -L- STA. 16+08 TO STA. 16+38 RT.
SEE DITCH PROFILE
EST. DDE: 11 CY

E&B FARMS, INC

LOU ANN OSTADI

BLANCHARD LAND CO. INC

HONEY HILL LLC

SR 1162 BAY ROAD 20' BST

ABANDONED ROAD BED 7' BST

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

IMPERVIOUS DIKE MAY BE MODIFIED AND/OR ELIMINATED AS DIRECTED.

UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS/JURISDICTIONAL AREAS, AND AS DIRECTED.

THE OUTSIDE BUFFER, WETLAND, OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).

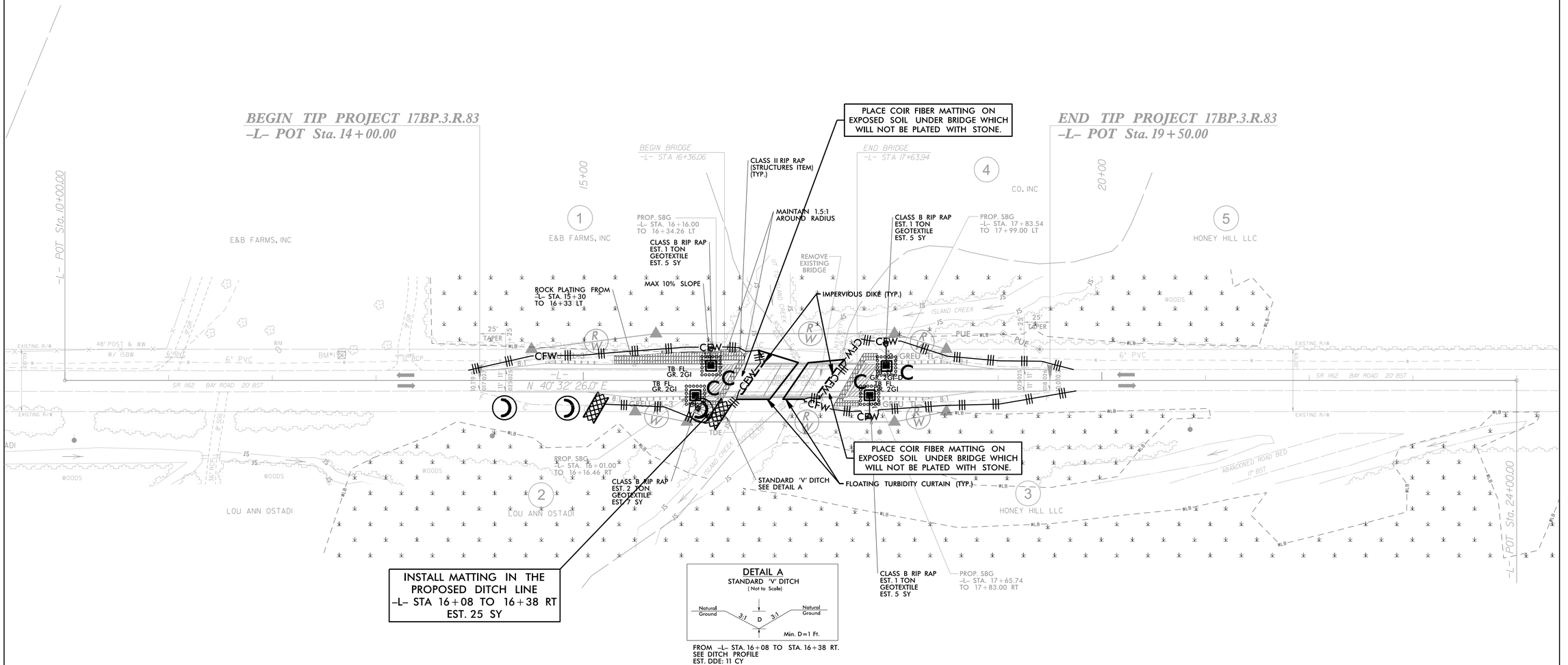
NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

Duplin County Bridge #300045

NAD 83 /NA 2011

PROJECT REFERENCE NO.	SHEET NO.
17BP.3.R.83	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

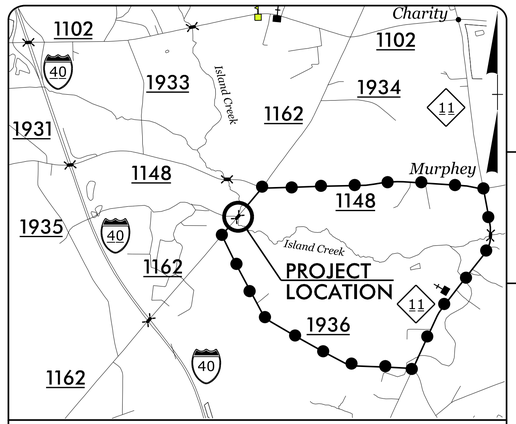


STATE PROJECT: 17BP.3.R.83

T.I.P. NO.	SHEET NO.
B–5303	UC–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
DUPLIN COUNTY



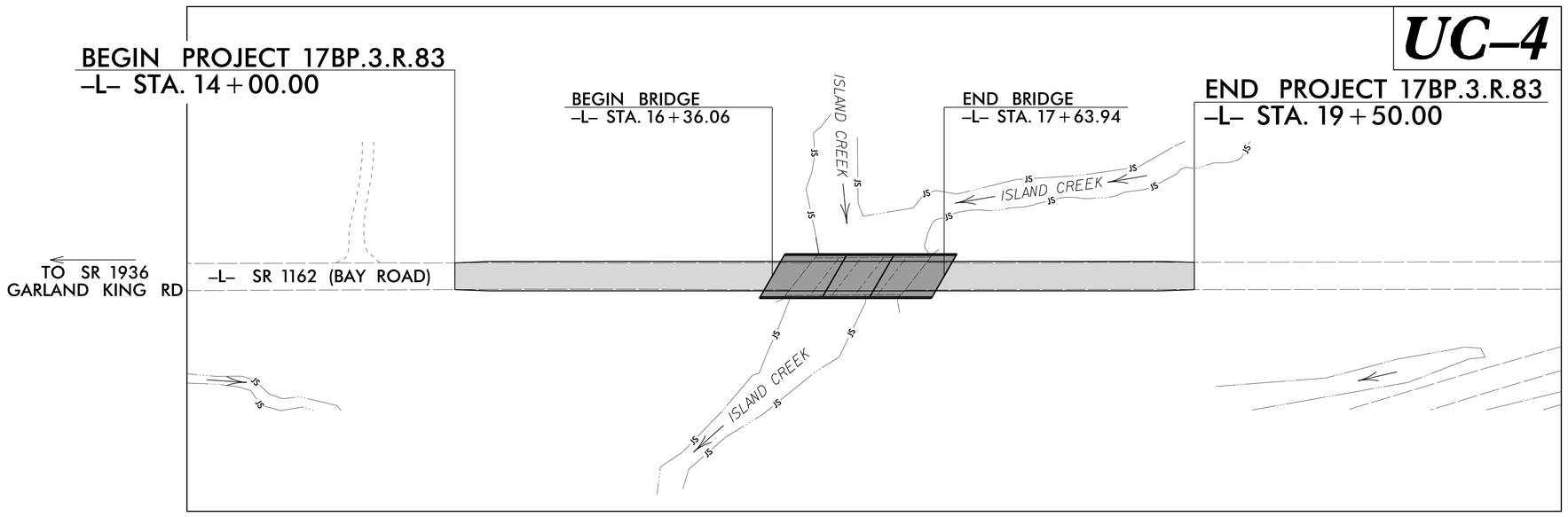
UC PLANS

LOCATION: REPLACE BRIDGE NO. 45 OVER ISLAND CREEK ON SR 1162 (BAY ROAD)

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

NAD 83/
NA 2011

UC–4



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III (MODIFIED).
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) DUPLIN COUNTY WATER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER
Docusigned by:
2/11/2020

PREPARED IN THE OFFICE OF:

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RICHARD BOLLINGER, PE
PROJECT ENGINEER

ALEXANDER VINSON, PE
PROJECT DESIGN ENGINEER

DEREK PIELECH, PE
NCDOT CONTACT

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5303	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal — T
- CATV Pedestal — C
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REV: 2/1/2012

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UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING UTILITIES BELONG TO DUPLIN COUNTY WATER DEPARTMENT.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. SERVICE CAN BE INTERRUPTED FOR THE PURPOSE OF CONNECTING THE RELOCATED WATERLINES TO THE EXISTING WATERLINES, BUT MUST BE DONE DURING NORMAL OPERATING HOURS MONDAY - FRIDAY, 8:00AM - 4:30PM. SERVICE MUST BE RESTORED TO ALL CUSTOMERS IN A TIMELY MANNER SAME DAY.

2. GARETH HARVEL WILL BE THE PRIMARY POINT OF CONTACT FOR TECHNICAL QUESTIONS CONCERNING WATERLINE CONSTRUCTIN AT (910) 289-1222. DONNA BROWN WILL BE THE POINT OF CONTACT FOR ANY PERMITTING REQUIREMENTS AT (910) 296-0144.

PROJECT REFERENCE NO.	SHEET NO.
B-5303	UC-3
DESIGNED BY: ARV	
DRAWN BY: ARV	
CHECKED BY: RLB	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 18443 ENGINEER RICHARD LEON BOLLINGER III
2/11/2020

UTILITY CONSTRUCTION

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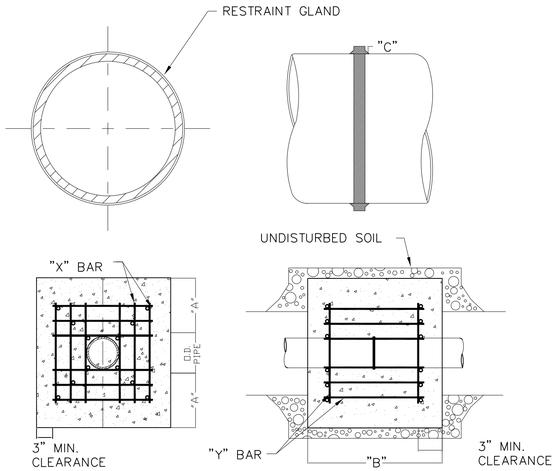
5/14/99

PROJECT TYPICAL DETAILS

PROJECT REFERENCE NO.	SHEET NO.
B-5303	UC-3A
DESIGNED BY: ARV	
DRAWN BY: ARV	
CHECKED BY: RLB	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	2/11/2020 UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18442 RICHARD LEON BOLLINGER III

UTILITY CONSTRUCTION



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" – 36"	#5	2'–2"+ O.D. PIPE	1.043 LBS/FT	1'–1"	1.1 LBS. EACH	X–24, Y–12
48" & greater	#6	3'–0"+ O.D. PIPE	1.502 LBS/FT	1'–3"	1.9 LBS. EACH	X–24, Y–12

THRUST COLLAR, AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C–6"–16", 20"–24", 30"–36", 48"			
6" – 36"	1'–4"	1'–7"	2"	3"	4"	
48" & greater	1'–8"	1'–9"				6"

NOTES:

1. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
2. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD EMBEDMENT DETAIL.
4. BACKFILL TAMPED IN 6" LIFTS PER STANDARD EMBEDMENT DETAIL.

THRUST COLLAR DESIGN QUANTITY TABLE

NOT TO SCALE

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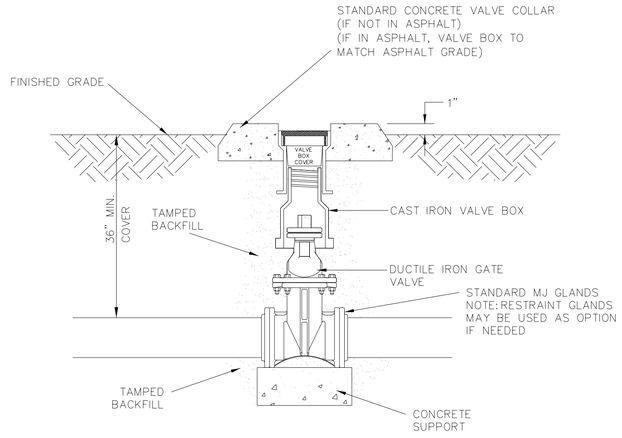
PROJECT TYPICAL DETAILS

PROJECT REFERENCE NO.	SHEET NO.
B-5303	UC-3B
DESIGNED BY: ARV	
DRAWN BY: ARV	
CHECKED BY: RLB	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	2/11/2020 UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18442 RICHARD LEON BOLLINGER JR.

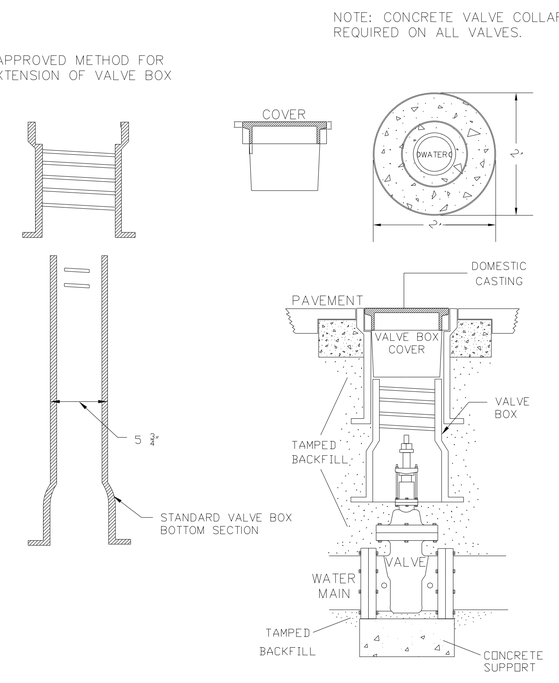
UTILITY CONSTRUCTION



TYPICAL INLINE VALVE DETAIL

NOT TO SCALE

NOTE: CONCRETE VALVE COLLAR REQUIRED ON ALL VALVES.



VALVE BOX DETAIL

NOT TO SCALE

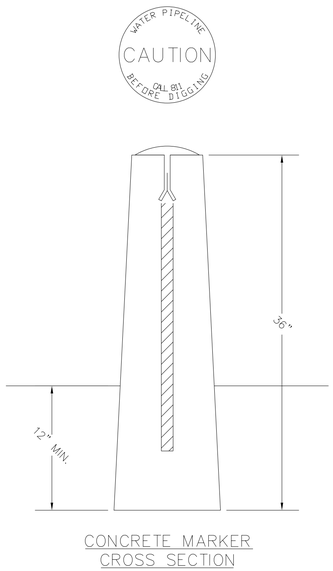
5/14/99

PROJECT TYPICAL DETAILS

PROJECT REFERENCE NO.	SHEET NO.
B-5303	UC-3C
DESIGNED BY: ARV	
DRAWN BY: ARV	
CHECKED BY: RLB	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	2/11/2020 UTILITY CONSTRUCTION PLANS ONLY

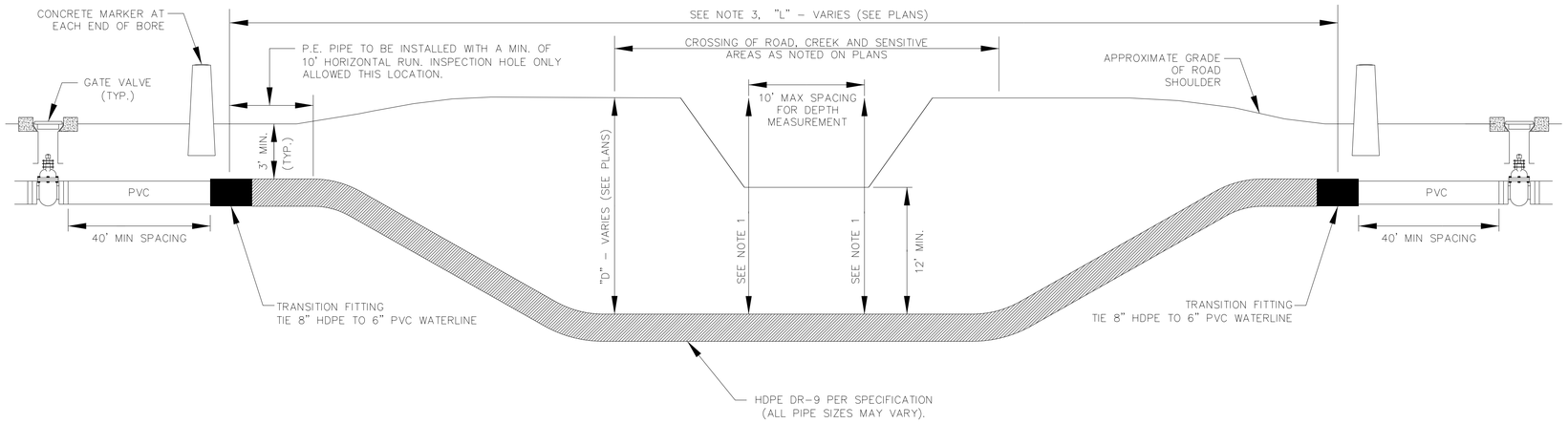
NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER LEON BOLLINGER III

UTILITY CONSTRUCTION



CONCRETE MARKER
CROSS SECTION

NOTES:
1. A PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR.
2. ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED, PER SPECIFICATIONS UPON COMPLETION OF INSTALLATION AND PRIOR TO CONNECTION TO THE MAIN WATER LINE.
3. LENGTH OF CROSSING, LOCATION OF INSPECTION/OBSERVATION EXCAVATION, NUMBER OF P.E. PIPE JOINTS, LOCATION OF BORE MACHINE, AUGER ENTRANCE LOCATION, AND TIE-IN POINTS ARE TO BE APPROVED BY DUPLIN COUNTY PRIOR TO ANY START OF WORK OR ORDERING MATERIALS.
4. CONCRETE MARKERS SHALL BE PLACED AT THE BOTH THE ENTRY AND EXIT POINT OF ALL DIRECTIONAL BORES, REFERENCING THE TYPE OF UTILITY UNDERGROUND.
5. THE BORE DEVELOPED FOR THE LEAD IN END OF THE PIPE SHALL BE KEPT AT A MINIMUM DIAMETER FOR THE PIPE INSTALLATION.
6. IF BURIED OBSTRUCTIONS ARE LOCATED IN THE LENGTH OF THE DIRECTIONAL BORE, DIRECTIONAL BORE CONTRACTOR SHALL AVOID CONFLICT WITH THESE OBSTRUCTIONS BY GOING UNDER A MINIMUM OF 12" WITH PROPOSED PIPE UNLESS OTHERWISE SPECIFIED OR IDENTIFIED IN GENERAL NOTES ON SHEET, OR IN SPECIFICATIONS.



HORIZONTAL DIRECTIONAL DRILL PROFILE (TYP.)
NOT TO SCALE

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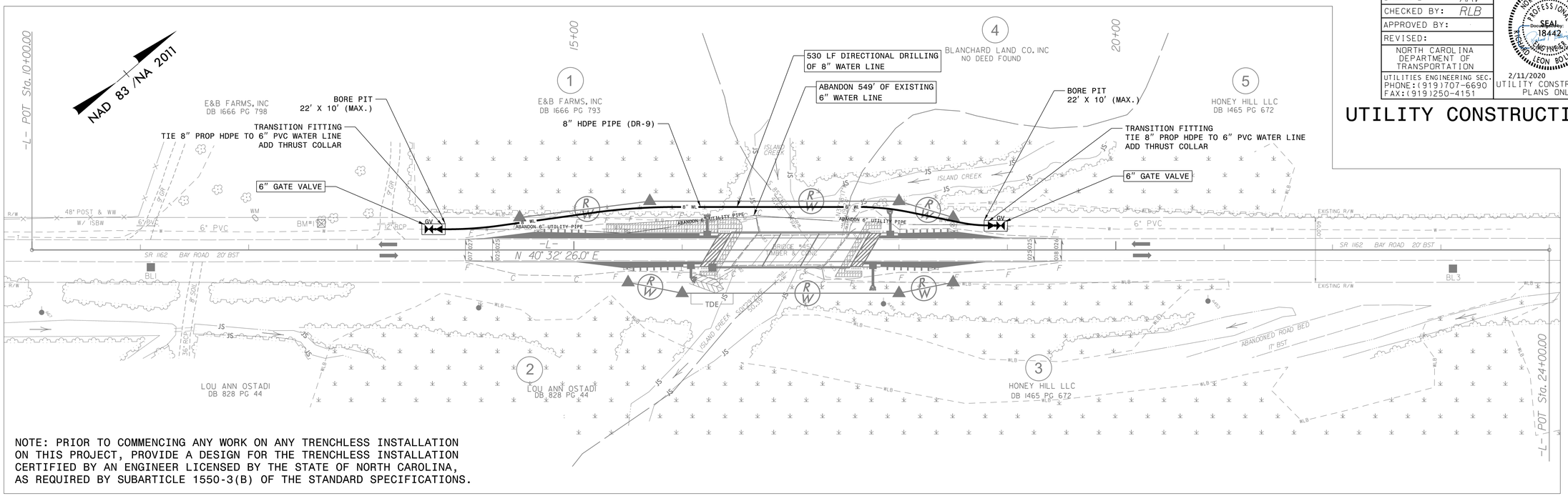
8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5303	UC-4
DESIGNED BY: ARV	
DRAWN BY: ARV	
CHECKED BY: RLB	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	2/11/2020 UTILITY CONSTRUCTION PLANS ONLY

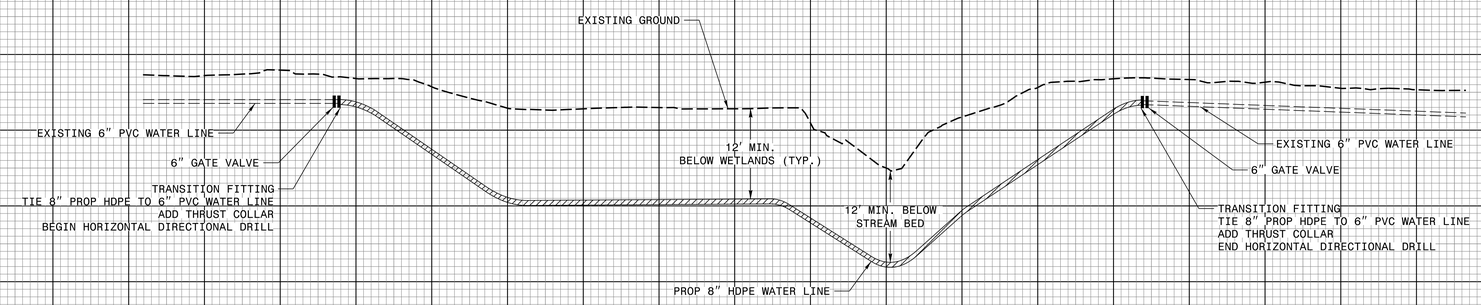
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18442 REGISTERED LEON BOLLINGER JR

UTILITY CONSTRUCTION



NOTE: PRIOR TO COMMENCING ANY WORK ON ANY TRENCHLESS INSTALLATION ON THIS PROJECT, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

WATER LINE PROFILE



HORIZ. SCALE 1" = 50'
VERT. SCALE 1" = 10'

PROJ. REFERENCE NO.	SHEET NO.
17BP.3.R.83	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

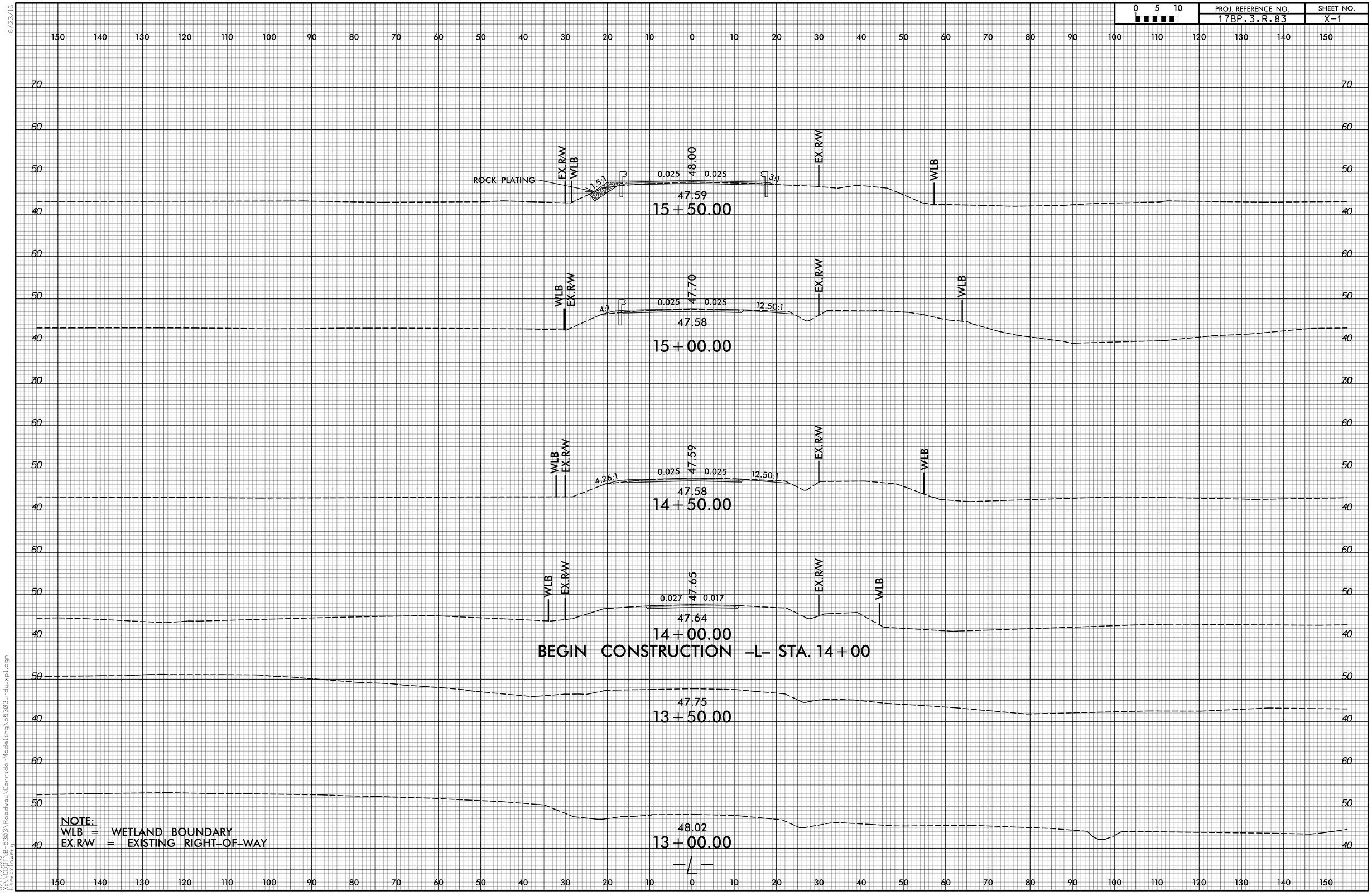
CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+00.00	0	0
14+50.00	32	1
15+00.00	35	3
15+50.00	31	2
16+00.00	27	8
16+36.06	18	11

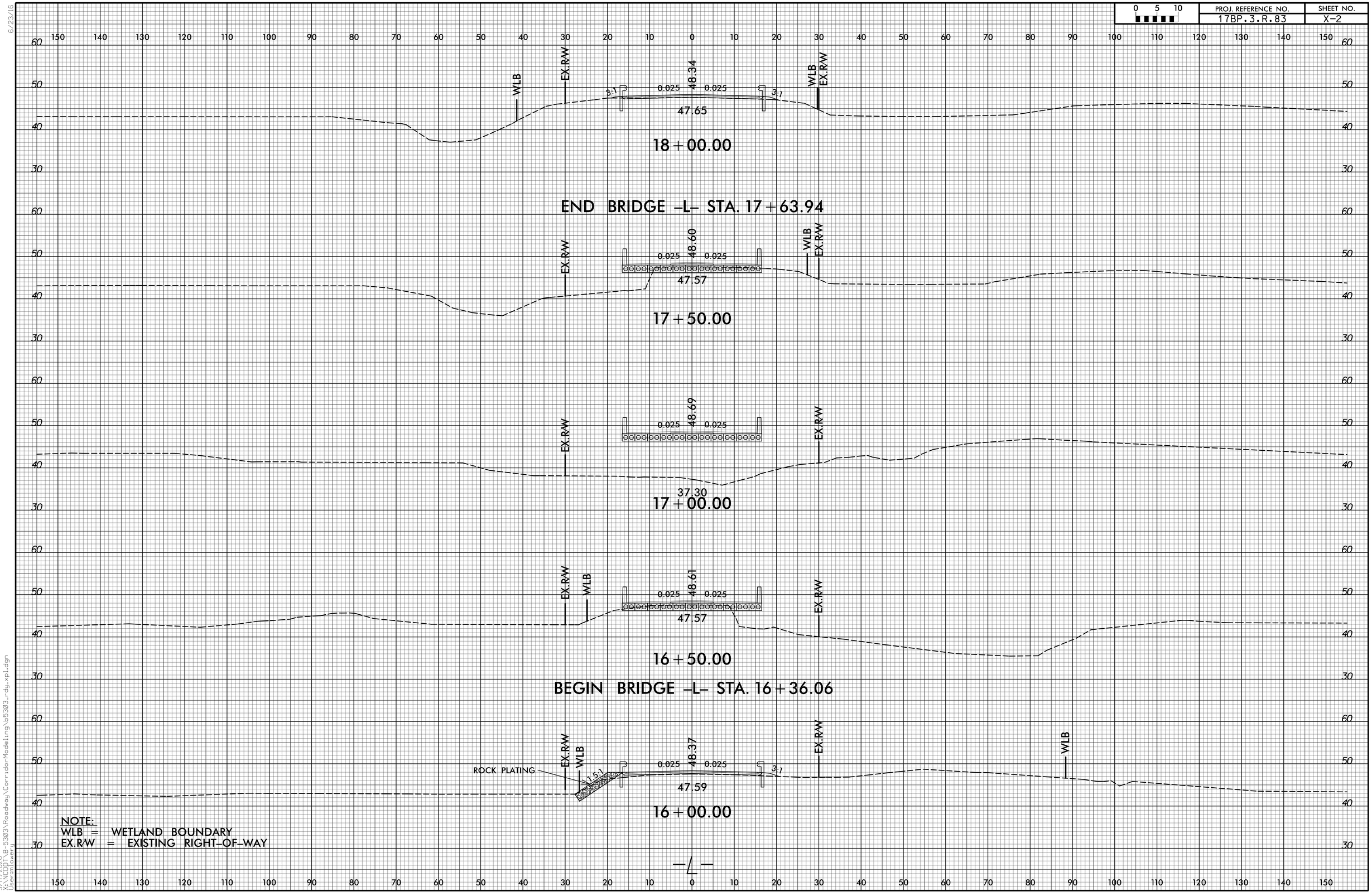
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
17+63.94	0	0
18+00.00	1	2
18+50.00	8	2
19+00.00	12	3
19+50.00	15	2

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.3.R.83	X-1



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.3.R.83	X-2



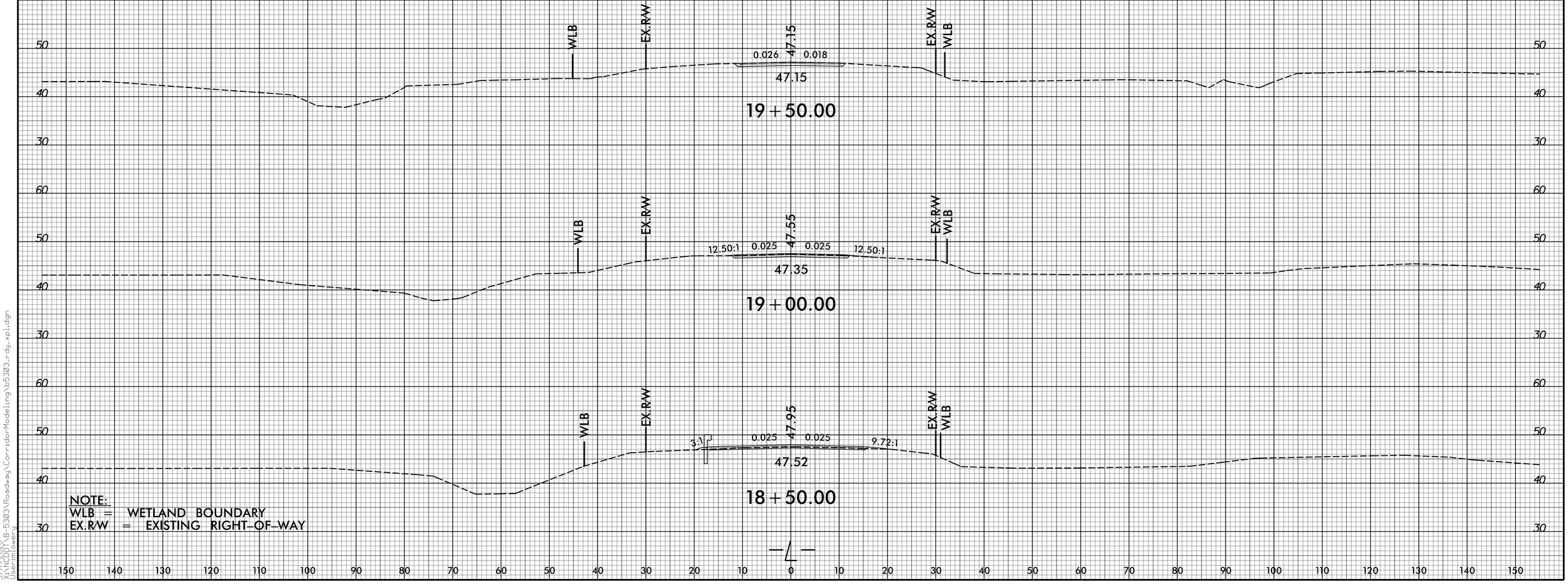
NOTE:
WLB = WETLAND BOUNDARY
EX.R/W = EXISTING RIGHT–OF–WAY

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.3.R.83	X-3

46.59
20+50.00

46.91
20+00.00

END CONSTRUCTION –L– STA. 19+50



NOTE:
WLB = WETLAND BOUNDARY
EX.R/W = EXISTING RIGHT-OF-WAY

3/17/2020
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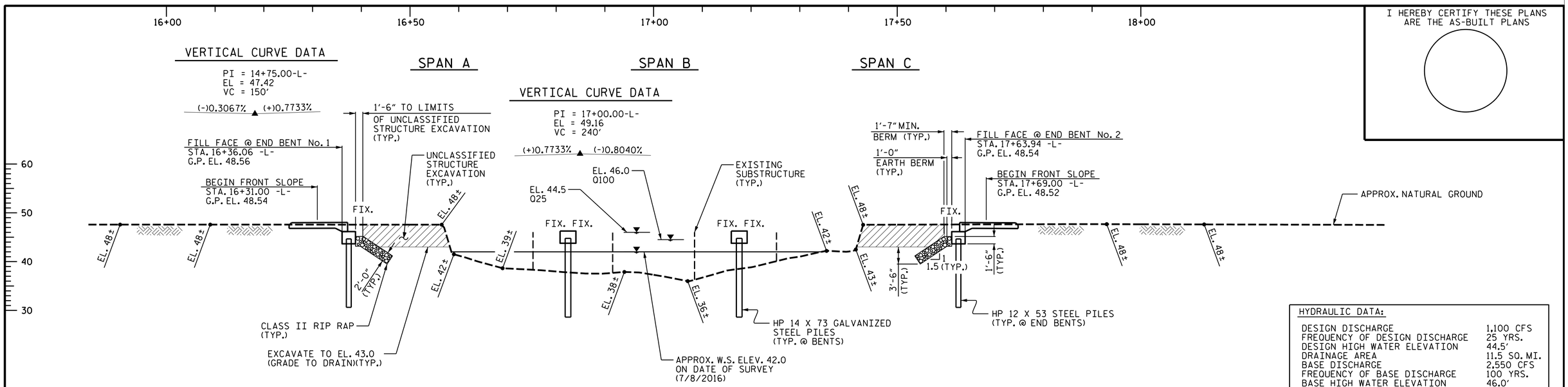
User:mlowery

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



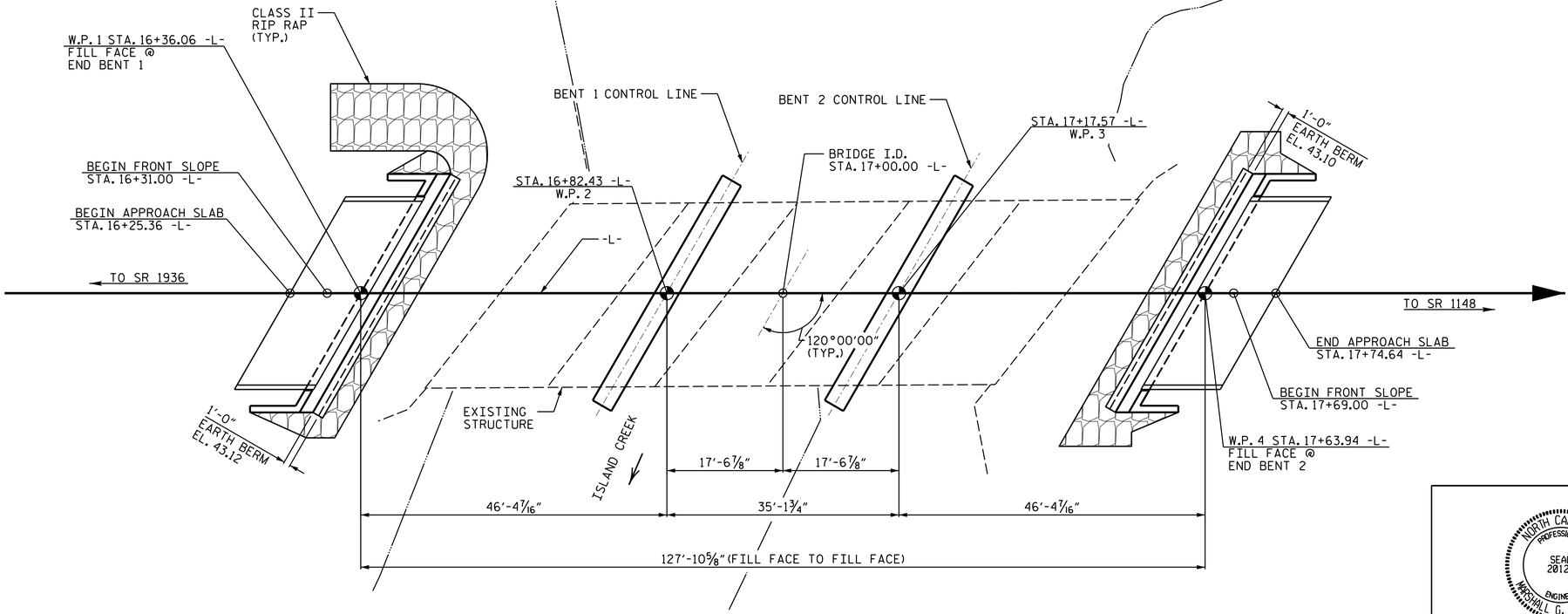
SECTION ALONG -L-

SECTION THRU END BENTS & BENTS ARE AT RIGHT ANGLES.

HYDRAULIC DATA:	
DESIGN DISCHARGE	1,100 CFS
FREQUENCY OF DESIGN DISCHARGE	25 YRS.
DESIGN HIGH WATER ELEVATION	44.5'
DRAINAGE AREA	11.5 SQ. MI.
BASE DISCHARGE	2,550 CFS
FREQUENCY OF BASE DISCHARGE	100 YRS.
BASE HIGH WATER ELEVATION	46.0'
OVERTOPPING FLOOD DATA:	
OVERTOPPING DISCHARGE	2,300 CFS
FREQUENCY OF OVERTOPPING FLOOD	50+ YRS.
OVERTOPPING FLOOD ELEVATION	45.4*

* OVERTOPPING OCCURS AT LOWEST HIGH POINT ON DECK/ROADWAY @ STA. 25+82-L-.

LOW CHORD ELEVATION	
EB1 46.20	EB2 46.18



PLAN

PILES NOT SHOWN FOR CLARITY.

NAD 83/2011

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00-L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 0045

DRAWN BY : S T MASSINOPLE DATE : 01/19
CHECKED BY : R A RAYNOR JR DATE : 02/19
DESIGN ENGINEER OF RECORD: M G CHEEK DATE : 09/19

2/10/2020
X:\NCDOT\B-5303\Structures\FinalPlans\DGNs\401_003_B-5303_SMU_ GDI_300045.dgn
User:smassinople

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

DocuSigned by: Marshall G. Cheek Jr. 5FBCC2F3A4DC413... 3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

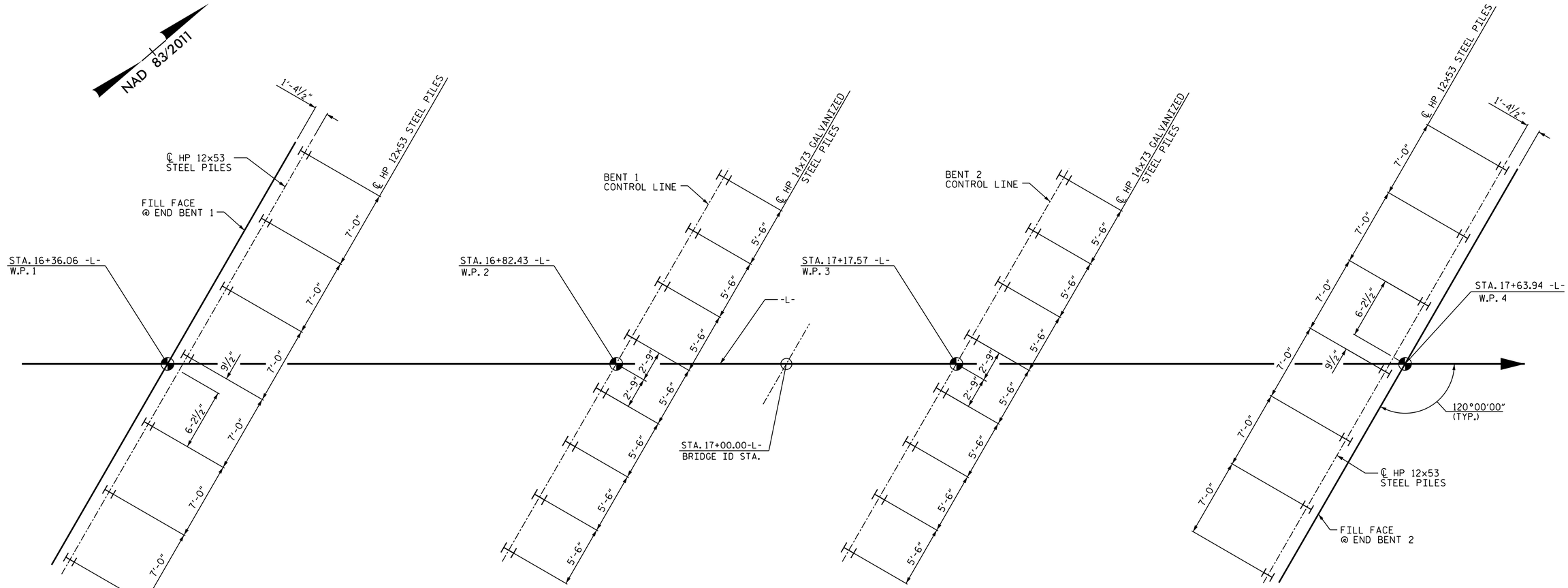
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER ISLAND CREEK ON SR 1162 BETWEEN SR 1936 AND SR 1148

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			22



END BENT 1 | BENT 1 | BENT 2 | END BENT 2

FOUNDATION LAYOUT PLAN

ALL END BENT PILES ARE HP 12x53 STEEL PILES.
DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES. ORIENT PILES AS SHOWN.
ALL BENT PILES ARE HP 14x73 GALVANIZED STEEL PILES.

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 61 TONS PER PILE.

PILES AT BENT NO. 1 AND BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 88 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT BENT NO. 1 AND BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE AND 160 TONS PER PILE, RESPECTIVELY. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO. 1 AND BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 11 FT AND 9 FT, RESPECTIVELY.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT ALL BENTS. FOR STEEL PILE POINTS, SEE SECTION 450 FOR THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 AND BENT NO. 2 ARE ELEVATION 28 FT AND ELEVATION 29 FT, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. 17BP.3.R.83
DUPLIN COUNTY
STATION: 17+00.00 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
Marshall G. Cheek Jr.
3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER ISLAND CREEK ON SR 1162 BETWEEN SR 1936 AND SR 1148

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			22

DRAWN BY : S T MASSINOPLE DATE : 02/19
CHECKED BY : R A RAYNOR JR DATE : 02/19
DESIGN ENGINEER OF RECORD: M G CHEEK DATE : 09/19

2/10/2020
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User:smassinople

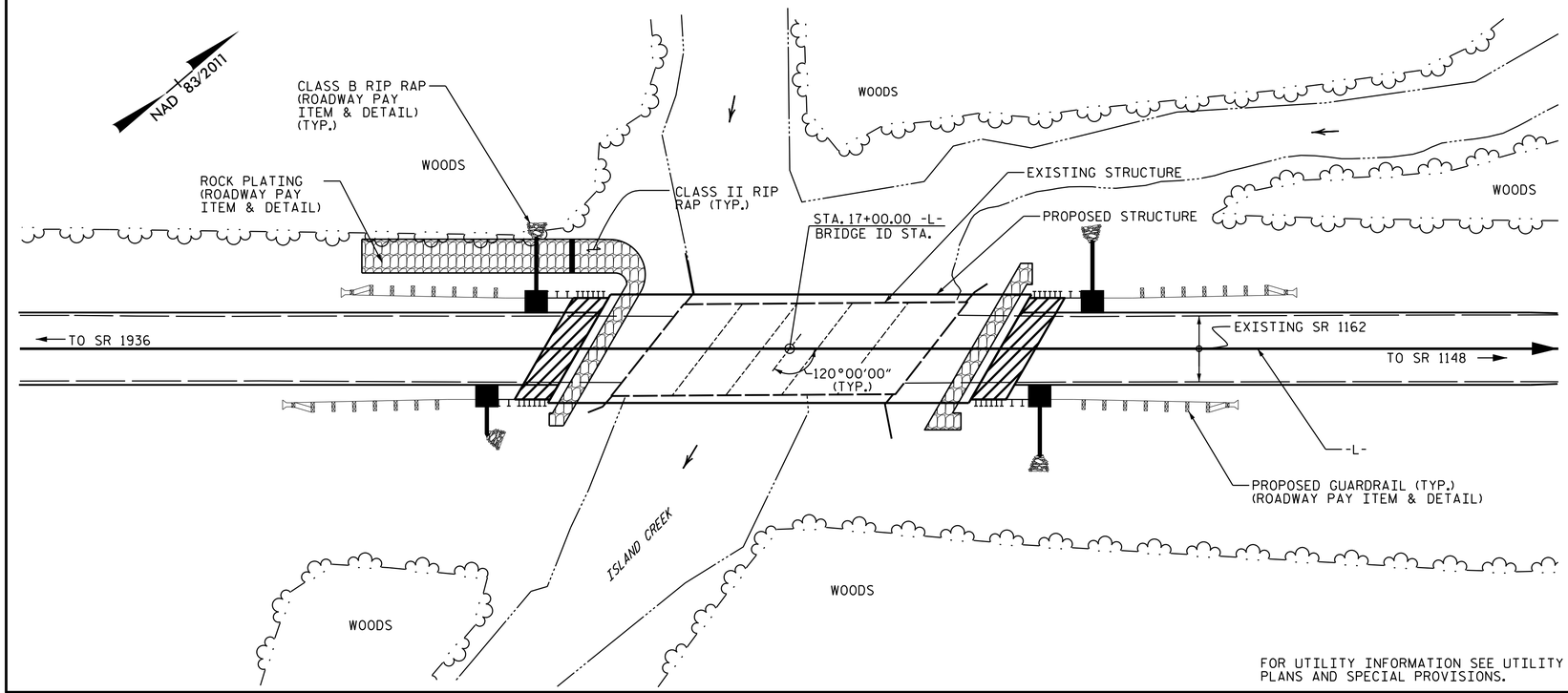
TOTAL BILL OF MATERIAL

ITEM	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 12x53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 GALVANIZED STEEL PILES	HP 12x53 STEEL PILES		HP 14x73 GALVANIZED STEEL PILES		STEEL PILES POINTS	PILE REDRIVES
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	C.Y.	LUMP SUM	LBS.	EACH	EACH	NO.	LIN. FT.	NO.	LIN. FT.	EACH	EACH
SUPERSTRUCTURE															
END BENT 1					15.8		2,357	7		7	350			7	4
BENT 1					12.9		2,500		8			8	400	8	4
BENT 2					12.9		2,500		8			8	400	8	4
END BENT 2					15.8		2,357	7		7	350			7	4
TOTALS	LUMP SUM	LUMP SUM	1	LUMP SUM	57.4	LUMP SUM	9,714	14	16	14	700	16	800	30	16

TOTAL BILL OF MATERIAL

ITEM	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THK.)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS		FIBER OPTIC CONDUIT SYSTEM
	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LIN. FT.
SUPERSTRUCTURE	250.58				33	1375.00	246.58
END BENT 1		95	105				
BENT 1							
BENT 2							
END BENT 2		110	125				
TOTALS	250.58	205	230	LUMP SUM	33	1375.00	246.58

BENCH MARK #1: RAILROAD SPIKE IN BASE OF 18" GUM TREE, 24' LT. OF STA. 12+67 -L-, ELEV.= 49.67' (NAVD 88)



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.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN (S-22).

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING 2 SPAN (2 @ 30'-6") WITH A SUPERSTRUCTURE CONSISTING OF PRESTRESSED CONCRETE CHANNELS AND A SUBSTRUCTURE CONSISTING OF PRESTRESSED CONCRETE CAPS ON TIMBER PILES AND LOCATED AT THE SITE OF THE PROPOSED BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THIS LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THIS PROJECT.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT (LT) AND 30 FT (RT) AT END BENT 1 AND A DISTANCE OF 30 FT (LT) AND 30 FT (RT) AT END BENT 2 EACH SIDE OF THE CENTERLINE OF THE BRIDGE 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 SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

AN IMPERVIOUS DIKE MAY BE REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED BENTS. FOR IMPERVIOUS DIKE PAY ITEM SEE EROSION CONTROL PLANS.

FOR FIBER OPTIC CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 3 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

DocuSigned by: Marshall G. Cheek Jr. 5FBCC2F3A4DC413...

3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER ISLAND CREEK ON SR 1162 BETWEEN SR 1936 AND SR 1148

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			22

DRAWN BY : S T MASSINOPLE DATE : 02/19
CHECKED BY : R A RAYNOR JR DATE : 02/19
DESIGN ENGINEER OF RECORD: M G CHEEK DATE : 09/19

3/25/2020
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User:smassinople

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	1.179	--	1.75	0.251	1.48	45'	EL	21.923	0.654	**1.18**	45'	EL	**8.769**	0.80	0.251	1.20	45'	EL	21.923	
		HL-93(Opr)	N/A	--	1.529	--	1.35	0.251	1.92	45'	EL	21.923	0.654	1.53	45'	EL	8.769	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.36	48.973	1.75	0.251	1.82	45'	EL	21.923	0.654	**1.36**	45'	EL	**8.769**	0.80	0.251	1.47	45'	EL	21.923	
		HS-20(Opr)	36.000	--	1.763	63.484	1.35	0.251	2.36	45'	EL	21.923	0.654	1.76	45'	EL	8.769	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.873	38.783	1.4	0.251	4.44	45'	EL	21.923	0.654	3.59	45'	EL	8.769	0.80	0.251	2.87	45'	EL	21.923	
		SNGARBS2	20.000	--	2.321	46.427	1.4	0.251	3.59	45'	EL	21.923	0.654	2.69	45'	EL	8.769	0.80	0.251	2.32	45'	EL	21.923	
		SNAGRIS2	22.000	--	2.277	50.09	1.4	0.251	3.48	45'	EL	17.538	0.654	2.55	45'	EL	8.769	0.80	0.251	2.28	45'	EL	21.923	
		SNCOTTS3	27.250	--	1.434	39.088	1.4	0.251	2.22	45'	EL	21.923	0.654	1.81	45'	EL	8.769	0.80	0.251	1.43	45'	EL	21.923	
		SNAGGRS4	34.925	--	1.266	44.231	1.4	0.251	1.96	45'	EL	21.923	0.654	1.6	45'	EL	8.769	0.80	0.251	1.27	45'	EL	21.923	
		SNS5A	35.550	--	1.234	43.856	1.4	0.251	1.91	45'	EL	21.923	0.654	1.67	45'	EL	8.769	0.80	0.251	1.23	45'	EL	21.923	
		SNS6A	39.950	--	1.162	46.437	1.4	0.251	1.8	45'	EL	21.923	0.654	1.57	45'	EL	8.769	0.80	0.251	1.16	45'	EL	21.923	
		SNS7B	42.000	3	1.108	46.54	1.4	0.251	1.71	45'	EL	21.923	0.654	1.61	45'	EL	8.769	0.80	0.251	**1.11**	45'	EL	**21.923**	
	TTST	TNAGRIT3	33.000	--	1.427	47.083	1.4	0.251	2.21	45'	EL	21.923	0.654	1.83	45'	EL	8.769	0.80	0.251	1.43	45'	EL	21.923	
		TNT4A	33.075	--	1.442	47.687	1.4	0.251	2.23	45'	EL	21.923	0.654	1.74	45'	EL	8.769	0.80	0.251	1.44	45'	EL	21.923	
		TNT6A	41.600	--	1.21	50.352	1.4	0.251	1.87	45'	EL	21.923	0.654	1.71	45'	EL	8.769	0.80	0.251	1.21	45'	EL	21.923	
		TNT7A	42.000	--	1.234	51.826	1.4	0.251	1.91	45'	EL	21.923	0.654	1.59	45'	EL	8.769	0.80	0.251	1.23	45'	EL	21.923	
		TNT7B	42.000	--	1.285	53.952	1.4	0.251	1.99	45'	EL	21.923	0.654	1.52	45'	EL	8.769	0.80	0.251	1.28	45'	EL	21.923	
		TNAGRIT4	43.000	--	1.224	52.616	1.4	0.251	1.89	45'	EL	21.923	0.654	1.46	45'	EL	8.769	0.80	0.251	1.22	45'	EL	21.923	
		TNAGT5A	45.000	--	1.138	51.23	1.4	0.251	1.76	45'	EL	21.923	0.654	1.52	45'	EL	8.769	0.80	0.251	1.14	45'	EL	21.923	
		TNAGT5B	45.000	--	1.111	50.015	1.4	0.251	1.72	45'	EL	21.923	0.654	1.38	45'	EL	8.769	0.80	0.251	1.11	45'	EL	21.923	

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.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

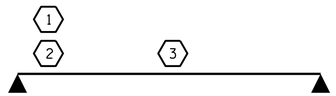
(2) DESIGN LOAD RATING (HS-20)

(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 SPANS 'A' & 'C'

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

ASSEMBLED BY : S T MASSINOPLE DATE : 02/19
CHECKED BY : R A RAYNOR JR DATE : 02/19

DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

DocuSigned by: Marshall G. Cheek Jr. 5FBCC2F3A4DC413... 3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 45' CORED SLAB UNIT 60° SKEW & 120° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			22

2/10/2020
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STD. NO. 21LRFR1_60&120S_45L

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**	1.142	--	1.75	0.254	1.5	35'	EL	16.923	0.653	**1.14**	35'	EL	**1.692**	0.80	0.254	1.16	35'	EL	16.923	
		HL-93(Opr)	N/A	--	1.48	--	1.35	0.254	1.95	35'	EL	16.923	0.653	1.48	35'	EL	1.692	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.318	47.43	1.75	0.254	1.99	35'	EL	13.538	0.653	**1.32**	35'	EL	**1.692**	0.80	0.254	1.54	35'	EL	16.923	
		HS-20(Opr)	36.000	--	1.708	61.484	1.35	0.254	2.57	35'	EL	13.538	0.653	1.71	35'	EL	1.692	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.649	35.758	1.4	0.254	4.3	35'	EL	16.923	0.653	3.39	35'	EL	1.692	0.80	0.254	2.65	35'	EL	16.923	
		SNGARBS2	20.000	--	2.276	45.521	1.4	0.254	3.64	35'	EL	13.538	0.653	2.56	35'	EL	1.692	0.80	0.254	2.28	35'	EL	13.538	
		SNAGRIS2	22.000	--	2.27	49.949	1.4	0.254	3.61	35'	EL	13.538	0.653	2.44	35'	EL	1.692	0.80	0.254	2.27	35'	EL	13.538	
		SNCOTTS3	27.250	--	1.326	36.138	1.4	0.254	2.15	35'	EL	16.923	0.653	1.71	35'	EL	1.692	0.80	0.254	1.33	35'	EL	16.923	
		SNAGGRS4	34.925	--	1.228	42.883	1.4	0.254	1.99	35'	EL	16.923	0.653	1.53	35'	EL	1.692	0.80	0.254	1.23	35'	EL	16.923	
		SNS5A	35.550	--	1.192	42.369	1.4	0.254	1.93	35'	EL	16.923	0.653	1.61	35'	EL	1.692	0.80	0.254	1.19	35'	EL	16.923	
		SNS6A	39.950	--	1.15	45.932	1.4	0.254	1.87	35'	EL	16.923	0.653	1.52	35'	EL	1.692	0.80	0.254	1.15	35'	EL	16.923	
		SNS7B	42.000	**3**	1.098	46.1	1.4	0.254	1.78	35'	EL	16.923	0.653	1.55	35'	EL	1.692	0.80	0.254	**1.10**	35'	EL	**16.923**	
	TTST	TNAGRIT3	33.000	--	1.422	46.913	1.4	0.254	2.31	35'	EL	16.923	0.653	1.77	35'	EL	1.692	0.80	0.254	1.42	35'	EL	16.923	
		TNT4A	33.075	--	1.419	46.934	1.4	0.254	2.3	35'	EL	16.923	0.653	1.67	35'	EL	1.692	0.80	0.254	1.42	35'	EL	16.923	
		TNT6A	41.600	--	1.244	51.758	1.4	0.254	2.02	35'	EL	16.923	0.653	1.64	35'	EL	1.692	0.80	0.254	1.24	35'	EL	16.923	
		TNT7A	42.000	--	1.286	54.015	1.4	0.254	2.09	35'	EL	16.923	0.653	1.52	35'	EL	1.692	0.80	0.254	1.29	35'	EL	16.923	
		TNT7B	42.000	--	1.263	53.051	1.4	0.254	2.05	35'	EL	16.923	0.653	1.48	35'	EL	1.692	0.80	0.254	1.26	35'	EL	16.923	
		TNAGRIT4	43.000	--	1.279	55.012	1.4	0.254	2.06	35'	EL	13.538	0.653	1.42	35'	EL	1.692	0.80	0.254	1.28	35'	EL	16.923	
		TNAGT5A	45.000	--	1.182	53.19	1.4	0.254	1.92	35'	EL	16.923	0.653	1.5	35'	EL	1.692	0.80	0.254	1.18	35'	EL	16.923	
		TNAGT5B	45.000	--	1.14	51.296	1.4	0.254	1.85	35'	EL	16.923	0.653	1.34	35'	EL	1.692	0.80	0.254	1.14	35'	EL	16.923	

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.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

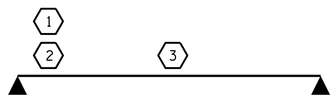
(2) DESIGN LOAD RATING (HS-20)

(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 'B'

PROJECT NO. 17BP.3.R.83
DUPLIN COUNTY
STATION: 17+00.00 -L-

ASSEMBLED BY : S T MASSINOPLE DATE : 02/19
CHECKED BY : R A RAYNOR JR DATE : 02/19
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

2/10/2020
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User:smassinople

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
DocuSigned by: Marshall G. Cheek Jr. 5FBCC2F3A4DC413...
3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

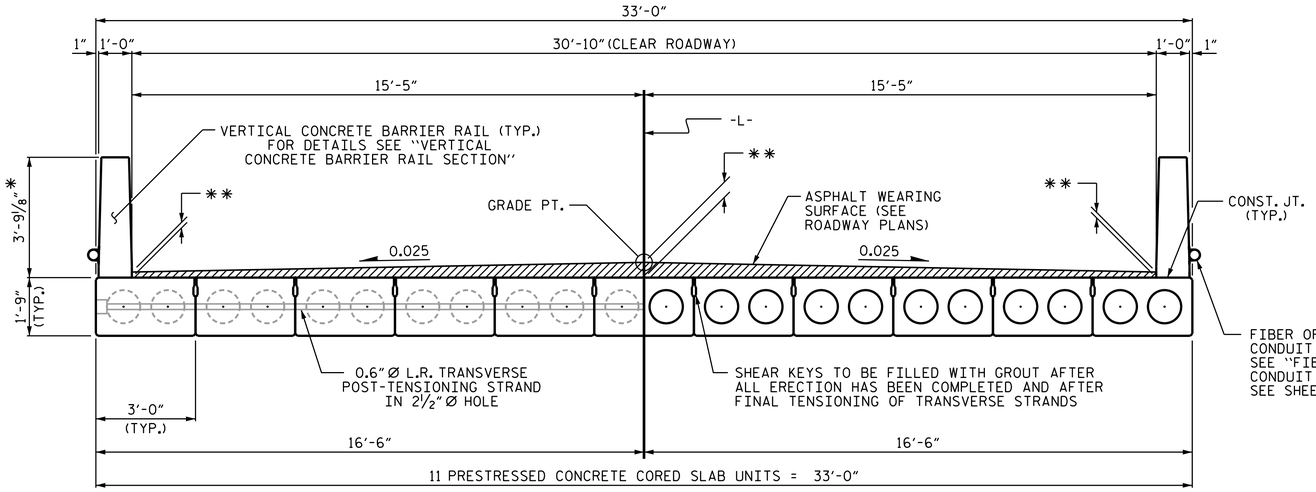
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 35' CORED SLAB UNIT 60° SKEW & 120° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			22

STD. NO. 21LRFR1_60&120S_35L



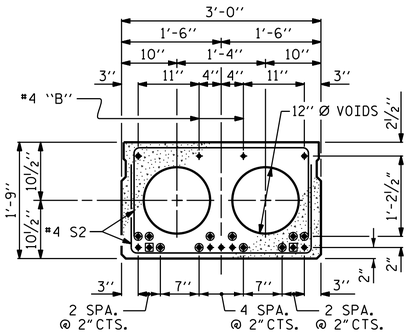
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

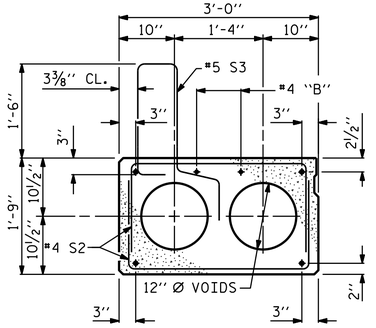
TYPICAL SECTION

* - 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, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

** SEE "ASPHALT WEARING SURFACE THICKNESS TABLE".



INTERIOR SLAB SECTION
(35' UNIT)
(9 STRANDS REQUIRED)



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

ASPHALT WEARING SURFACE THICKNESS TABLE

BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

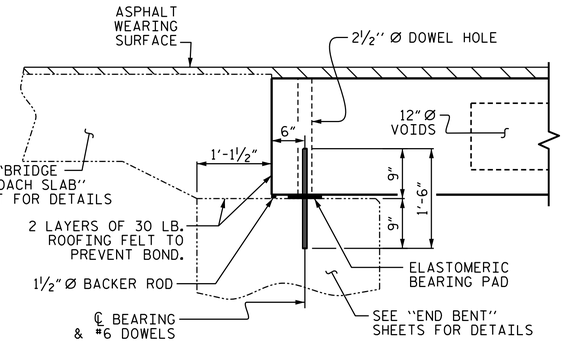
		LT. GUTTER	GRADE PT.	RT. GUTTER
SPAN A	℄ BRG. @ END BENT 1	3 1/8"	7 3/8"	2 5/16"
	MID-SPAN	2 7/16"	6 13/16"	1 7/8"
	℄ BRG. @ BENT 1	2 13/16"	7 3/8"	2 5/8"
SPAN B	℄ BRG. @ BENT 1	2 13/16"	7 3/8"	2 5/8"
	MID-SPAN	2 11/16"	7 3/8"	2 5/8"
	℄ BRG. @ BENT 2	2 9/16"	7 3/8"	2 7/8"
SPAN C	℄ BRG. @ BENT 2	2 9/16"	7 3/8"	2 7/8"
	MID-SPAN	1 13/16"	6 13/16"	2 7/16"
	℄ BRG. @ END BENT 2	2 1/4"	7 3/8"	3 1/8"

◉ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

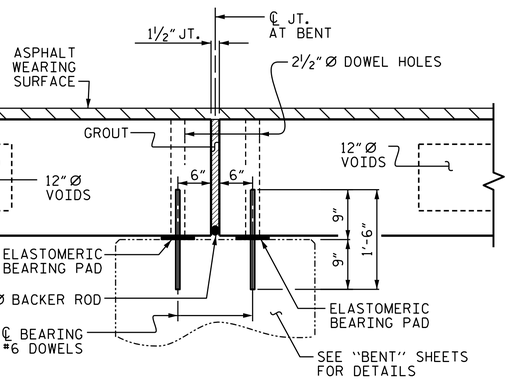
DEBONDING LEGEND

FIXED END

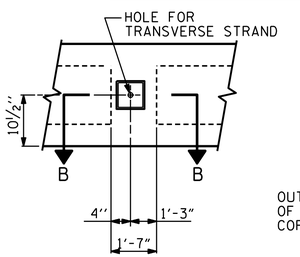


SECTION AT END BENT

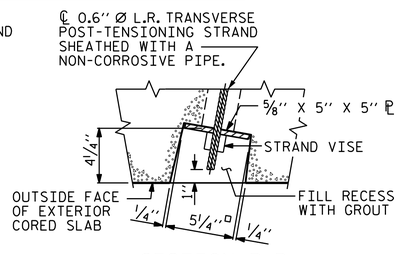
FIXED END FIXED END



SECTION AT BENT

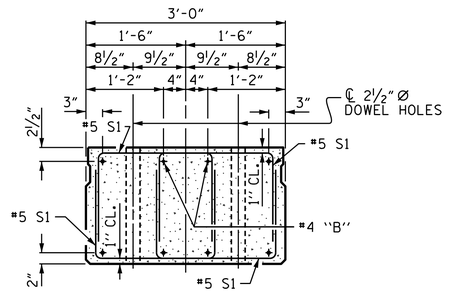


ELEVATION VIEW



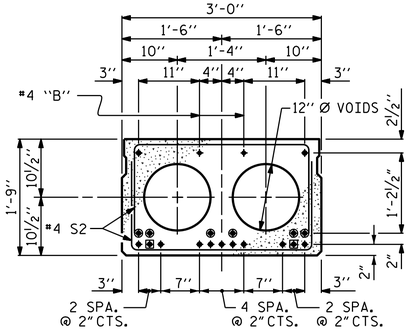
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



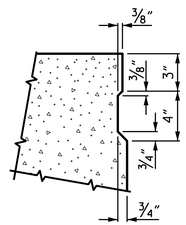
END ELEVATION

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.



INTERIOR SLAB SECTION
(45' UNIT)
(13 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT



SHEAR KEY DETAIL

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

THREADED INSERT DETAIL

PROJECT NO. 17BP.3.R.83
DUPLIN COUNTY
STATION: 17+00.00 -L-

SHEET 1 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
Marshall G. Cheek Jr.
3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

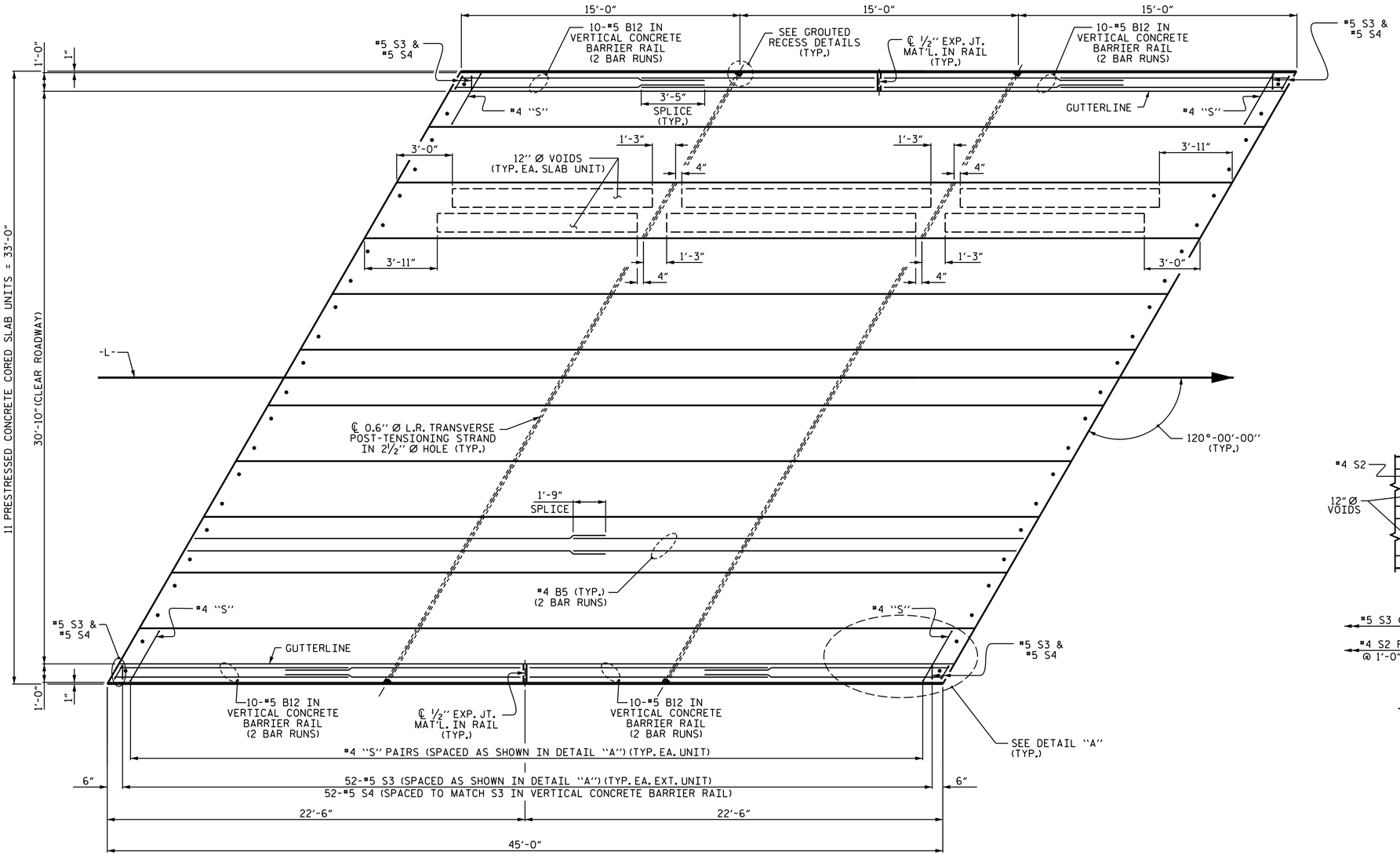
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			22

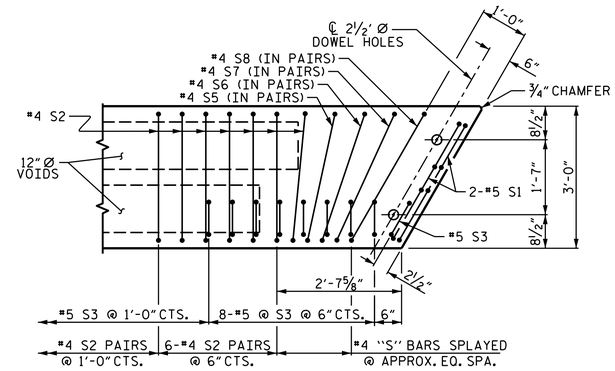
ASSEMBLED BY : S T MASSINOPLE DATE : 01/19
CHECKED BY : R A RAYNOR JR DATE : 02/19
DESIGN ENGINEER OF RECORD : M G CHEEK DATE : 01/20

2/10/2020
X:\NCDOT\B-5303\Structures\Final Plans\DGNs\401_013_B-5303_SMU_ CS01_300045.dgn
User:smassinople

STD. NO. 21"PCS2_33_120S



PLAN OF UNIT



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. 17BP.3.R.83
DUPLIN COUNTY
STATION: 17+00.00 -L-

SHEET 2 OF 5

ASSEMBLED BY : S T MASSINOPLE	DATE : 01/19		
CHECKED BY : R A RAYNOR JR	DATE : 02/19		
DRAWN BY : DGE	3/09	REV. 12/5/11	MAA/AAC
CHECKED BY : BCH	3/09	REV. 8/14	MAA/TMG

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
Marshall G. Cheek Jr.
5FBCC2F3A4DC413...
3/26/2020

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SUITE 200
RALEIGH, NC 27603
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CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 45' UNIT 30'-10" CLEAR ROADWAY 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			22

STD. NO. 21"PCS_33_120S_45L

2/10/2020
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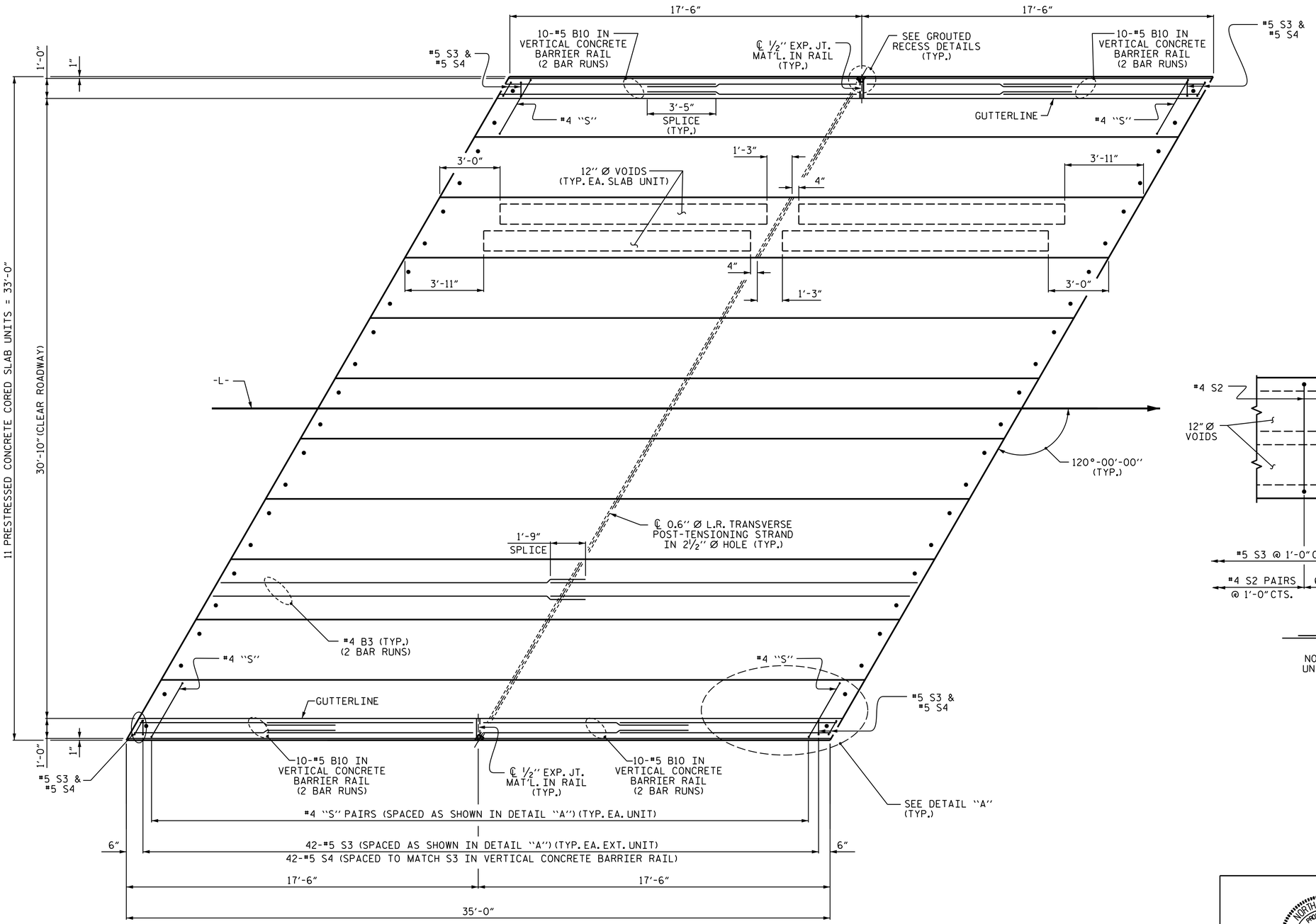
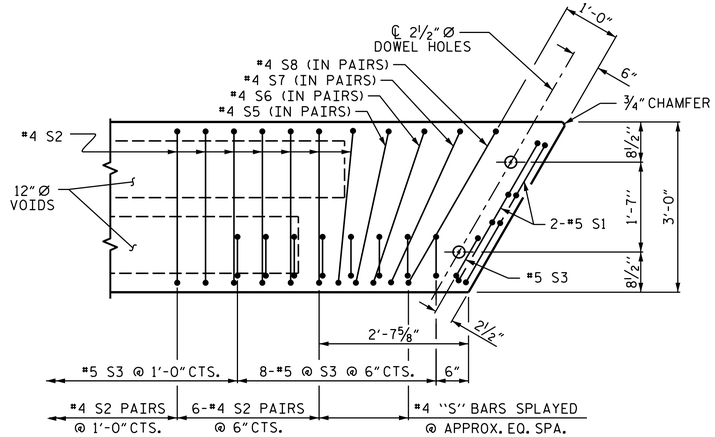


PLAN OF UNIT



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. 17BP.3.R.83
DUPLIN COUNTY
STATION: 17+00.00 -L-

SHEET 3 OF 5

ASSEMBLED BY : S T MASSINOPLE	DATE : 01/19
CHECKED BY : R A RAYNOR JR	DATE : 02/19
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	REV. 8/14 MAA/TMG

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
DocuSigned by: Marshall G. Cheek Jr. 5FBCC2F3A4DC413...
3/26/2020

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TGS ENGINEERS
706 HILLSBOROUGH STREET
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 35' UNIT 30'-10" CLEAR ROADWAY 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			22

2/10/2020
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User:smassinople

STD. NO. 21"PCS_33_120S_35L

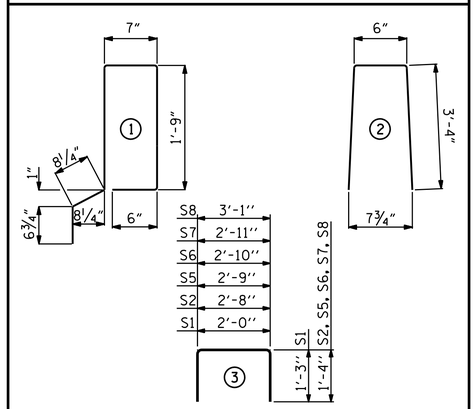
BILL OF MATERIAL FOR ONE 35' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	18'-3"	49	18'-3"	49
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	72	#4	3	5'-4"	257	5'-4"	257
✱ S3	44	#5	1	5'-10"	268		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL LBS.					403		403
✱ EPOXY COATED REINFORCING STEEL LBS.					268		
5000 P.S.I. CONCRETE CU. YDS.					5.2		5.2
0.6" Ø L.R. STRANDS No.					9		9

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	92	#4	3	5'-4"	328	5'-4"	328
✱ S3	54	#5	1	5'-10"	329		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL LBS.					487		487
✱ EPOXY COATED REINFORCING STEEL LBS.					329		
5000 P.S.I. CONCRETE CU. YDS.					6.6		6.6
0.6" Ø L.R. STRANDS No.					13		13

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL 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.

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.

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.

RAIL HEIGHT @ ℄ BEARING

	LEFT	RIGHT
END BENT 1	3'-9 1/8"	3'-8 5/16"
BENT 1	3'-8 13/16"	3'-8 5/8"
BENT 2	3'-8 5/16"	3'-8 7/8"
END BENT 2	3'-8 1/4"	3'-9 1/8"

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
35' UNIT			
EXTERIOR C.S.	2	35'-0"	70'-0"
INTERIOR C.S.	9	35'-0"	315'-0"
45' UNIT			
EXTERIOR C.S.	4	45'-0"	180'-0"
INTERIOR C.S.	18	45'-0"	810'-0"
TOTAL			1375'-0"

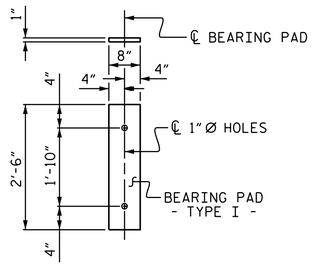
CONCRETE RELEASE STRENGTH

UNIT	PSI
35' UNITS	4000
45' UNITS	4000

DEAD LOAD DEFLECTION AND CAMBER

3'-0" x 1'-9"	35' CSU 0.6" Ø L.R. STRAND	45' CSU 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↑	7/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↑	1/8" ↑
FINAL CAMBER	1/8" ↑	3/4" ↑

** INCLUDES FUTURE WEARING SURFACE



FIXED END
(TYPE I - 66 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	35' UNIT					
✱B10	80	80	#5	STR	10'-5"	869
✱ S4	88	88	#5	2	7'-2"	658
✱ EPOXY COATED REINFORCING STEEL				LBS.		1527
CLASS AA CONCRETE				CU.YDS.		9.0
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN.FT.		70.29

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

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY @ MID-SPAN		RAIL HEIGHT @ MID-SPAN	
	LT. GUTTER	RT. GUTTER	LT. GUTTER	RT. GUTTER
SPAN A	2 7/16"	1 7/8"	3'-8 7/16"	3'-7 7/8"
SPAN B	2 11/16"	2 5/8"	3'-8 11/16"	3'-8 5/8"
SPAN C	1 13/16"	2 7/16"	3'-7 13/16"	3'-8 5/16"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	45' UNIT	2 SPANS				
✱B12	80	160	#5	STR	13'-0"	2169
✱ S4	108	216	#5	2	7'-2"	1615
✱ EPOXY COATED REINFORCING STEEL				LBS.		3784
CLASS AA CONCRETE				CU.YDS.		23.0
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN.FT.		180.29

PROJECT NO. 17BP.3.R.83
DUPLIN COUNTY
STATION: 17+00.00 -L-

SHEET 4 OF 5

ASSEMBLED BY : S T MASSINOPLE DATE : 01/19
CHECKED BY : R A RAYNOR JR DATE : 02/19
DRAWN BY : DGE 5/09
CHECKED BY : BCH 6/09
REV. 1/15 MAA/TMG

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL C. CHEEK, JR.
Marshall C. Cheek Jr.
3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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SUITE 200
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PH (919) 773-8887
CORP. LICENSE NO.: C-0275

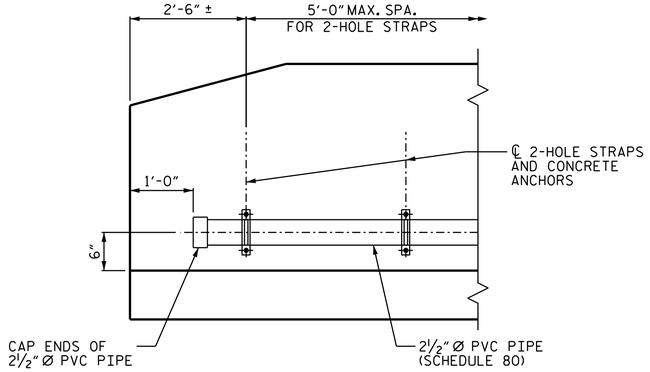
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 120° SKEW

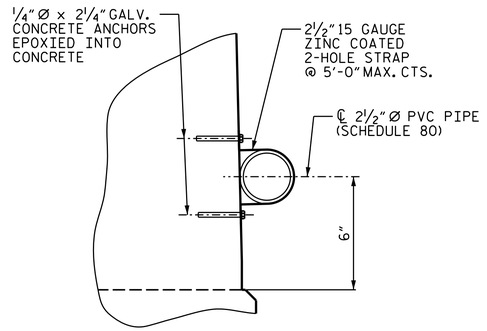
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			22

STD. NO. 21"PCS3_33_120S

2/10/2020
X:\NCDOT\B-5303\Structures\Final Plans\DGNs\401_019_B-5303_SMU_ CS04_300045.dgn
User:smassinople



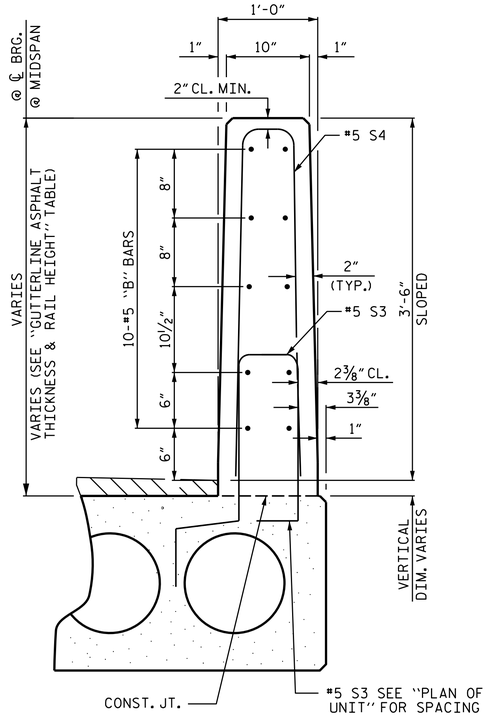
ELEVATION



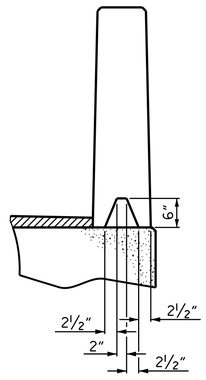
SECTION

FIBER OPTIC CONDUIT SYSTEM DETAILS

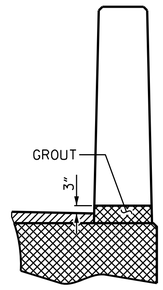
2½" Ø SCHEDULE 80 PVC PIPE ATTACHED TO THE BACK OF BOTH RAILS FOR FUTURE FIBER OPTIC CABLE.



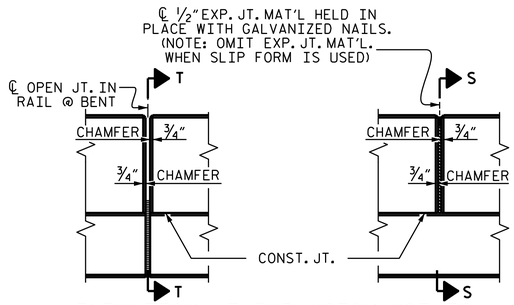
VERTICAL CONCRETE BARRIER RAIL SECTION



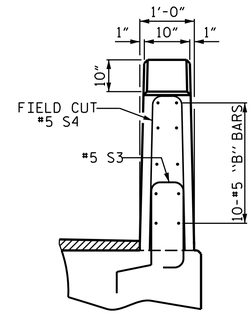
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



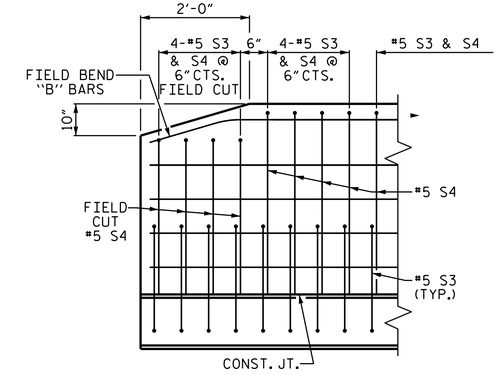
SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE
FOAM JOINT IS NOT USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 5 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek Jr.
5FBCC2F3A4DC413...

3/26/2020

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CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

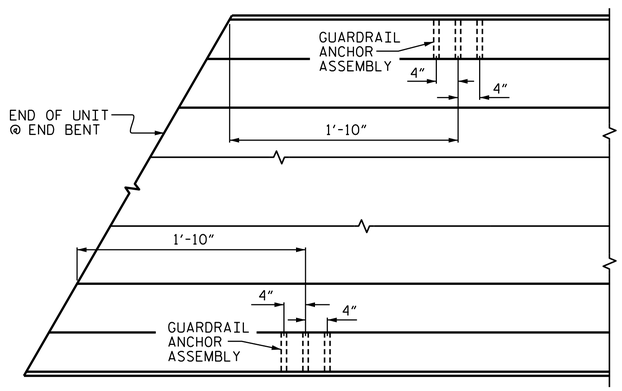
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : S T MASSINOPLE DATE : 01/19
CHECKED BY : R A RAYNOR JR DATE : 02/19

2/10/2020
X:\NCDOT\B-5303\Structures\FinalPlans\DGNs\401_021_B-5303_SMU_ CS05_300045.dgn
User:smassinople

STD. NO. 21"PCS3_33_120S



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

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.)

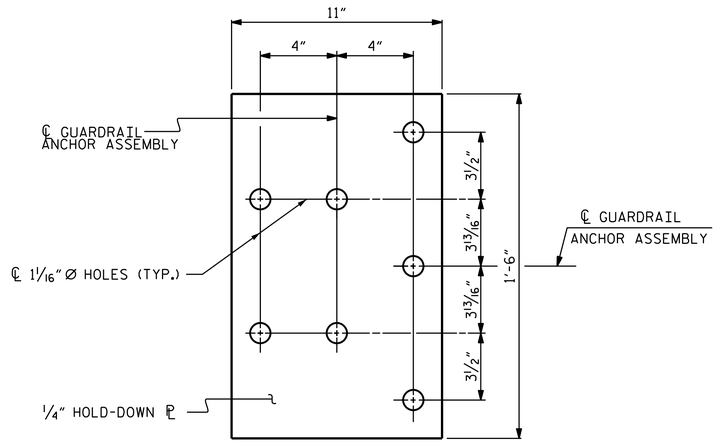
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

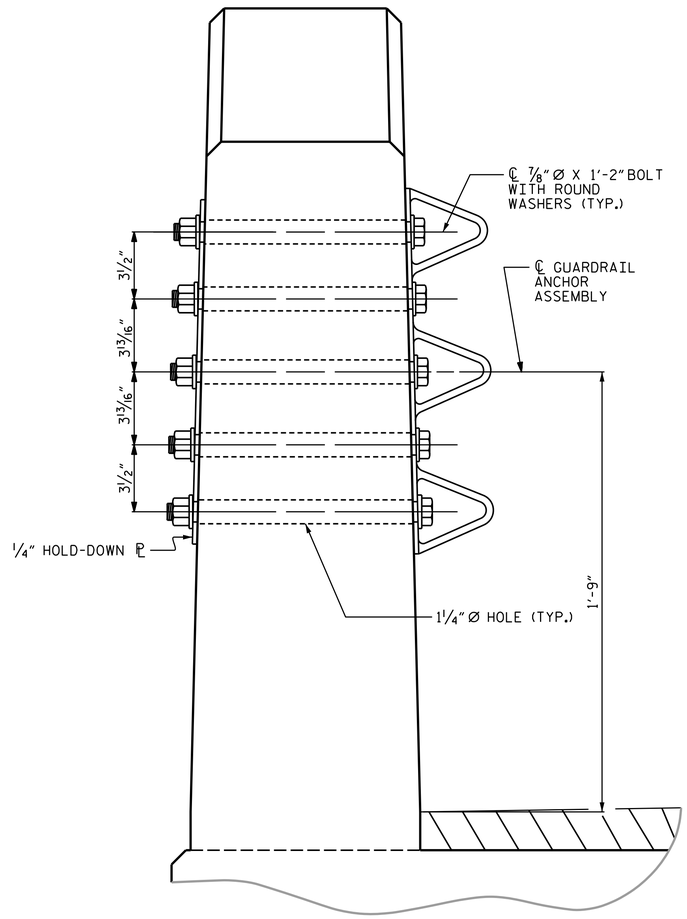
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.

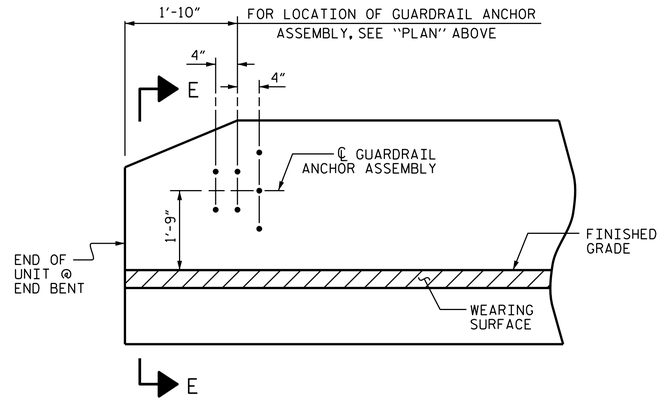


PLAN



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



ELEVATION

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL C. CHEEK, JR.

Marshall C. Cheek Jr.
5FBCC2F3A4DC413...
3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

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-11
1			3			TOTAL SHEETS
2			4			22

STD. NO. GRA3

ASSEMBLED BY : S T MASSINOPLE	DATE : 01/19		
CHECKED BY : R A RAYNOR JR	DATE : 02/19		
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

2/10/2020
X:\NCDOT\B-5303\Structures\FinalPlans\DGNs\401_023_B-5303_SMU_ GR_300045.dgn
User:smassinople

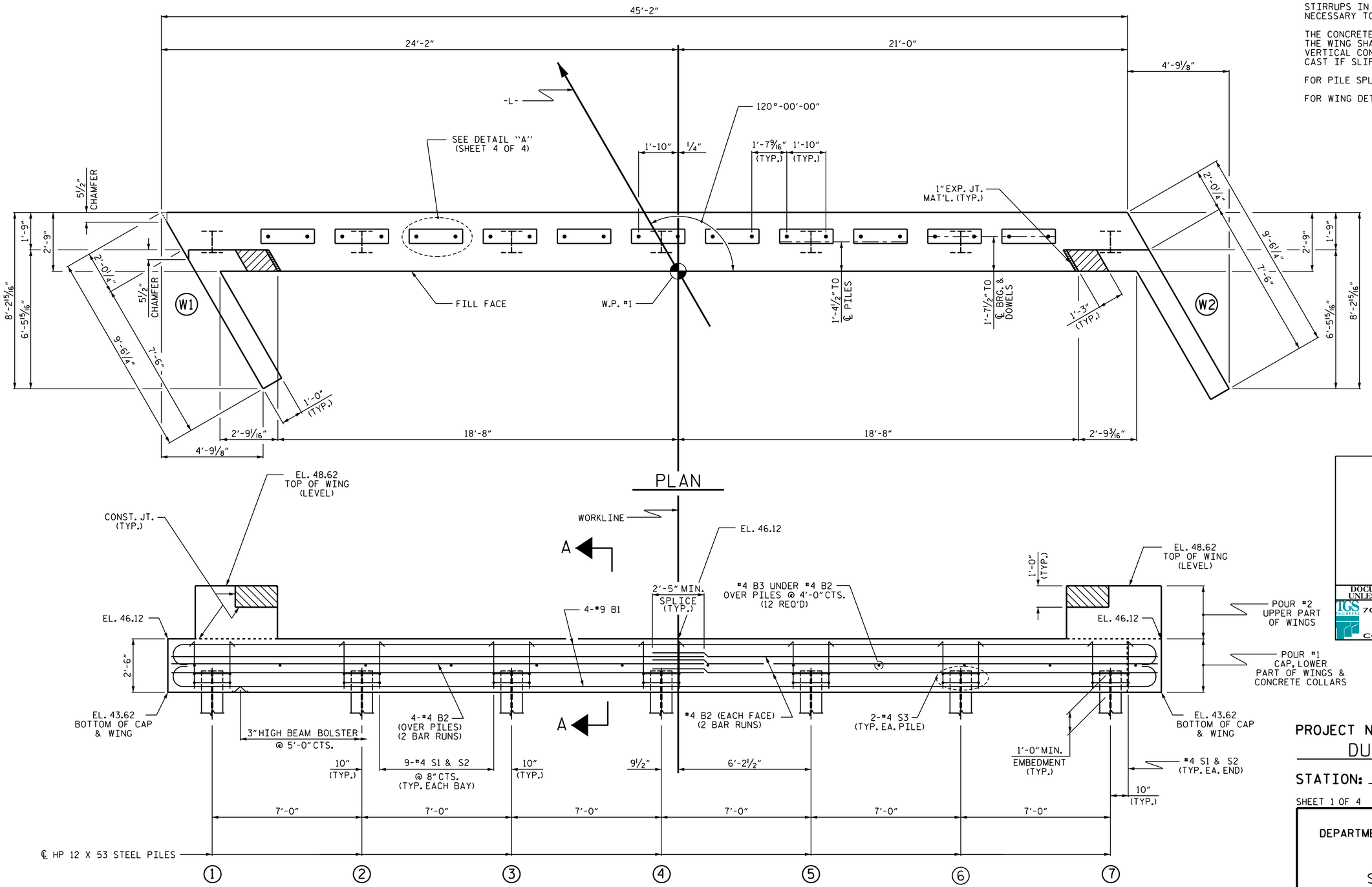
NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

ELEVATION

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

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
Marshall G. Cheek Jr.
5FBCC2F3A4DC413...
3/26/2020

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706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : S T MASSINOPLE	DATE : 01/19
CHECKED BY : R A RAYNOR JR	DATE : 02/19
DRAWN BY : DGE 01/10	REV. 4/15 MAA/TMG
CHECKED BY : MKT 01/10	

2/10/2020
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User:smassinople

STD. NO. EB_33_120S

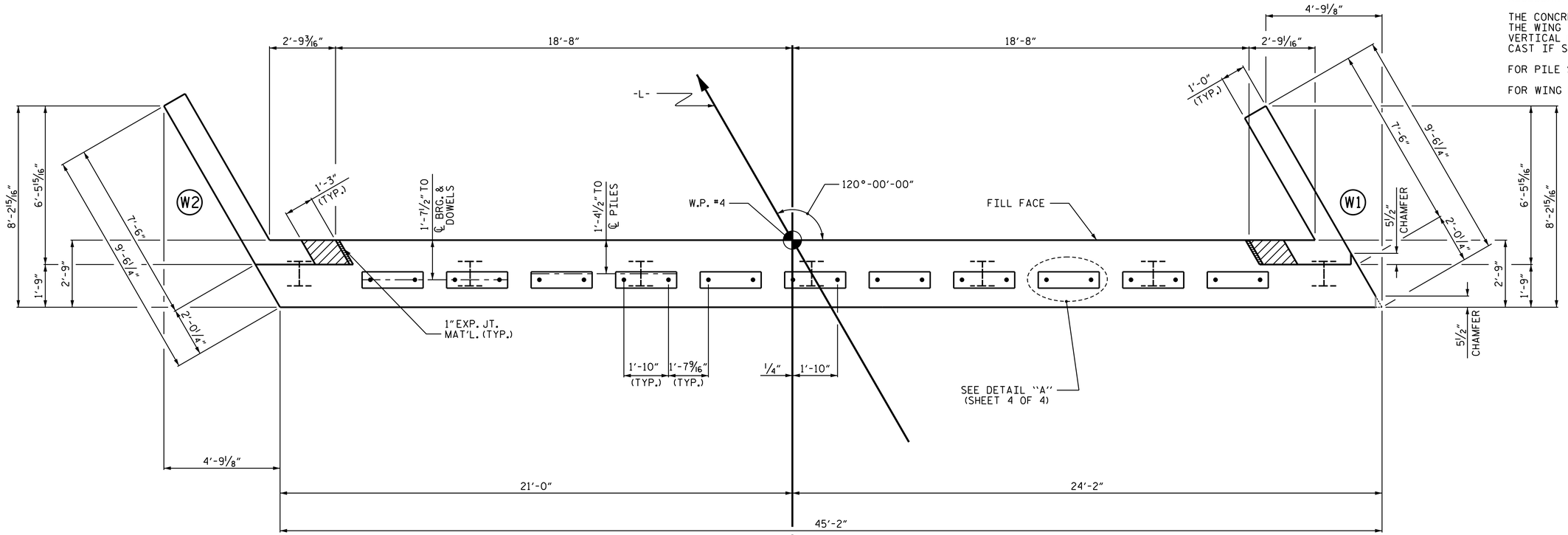
NOTES

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

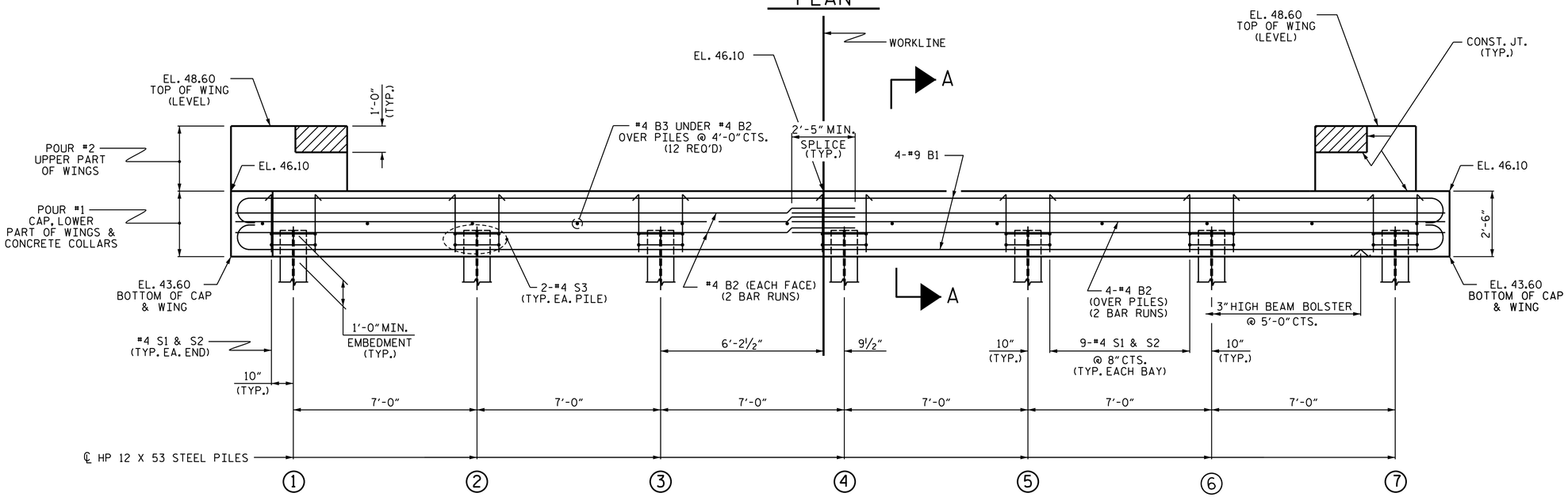
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

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

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
Marshall G. Cheek Jr.
5FBCC2F3A4DC413...
3/26/2020

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706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
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CORP. LICENSE NO.: C-0275

PROJECT NO. 17BP.3.R.83
DUPLIN COUNTY
STATION: 17+00.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : S T MASSINOPLE	DATE : 01/19
CHECKED BY : R A RAYNOR	DATE : 02/19
DRAWN BY : DGE 01/10	REV. 4/15 MAA/TMG
CHECKED BY : MKT 01/10	

2/10/2020
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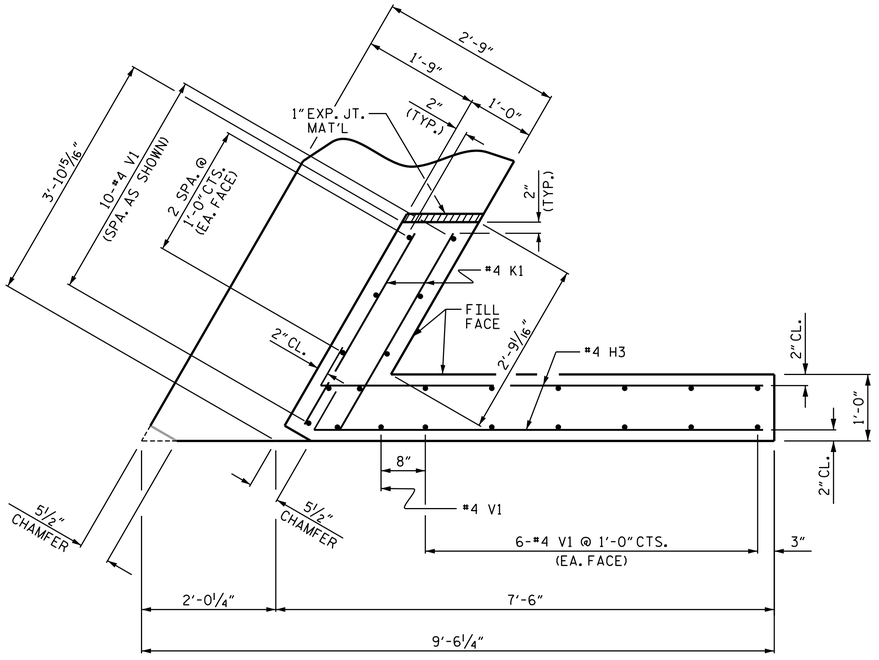
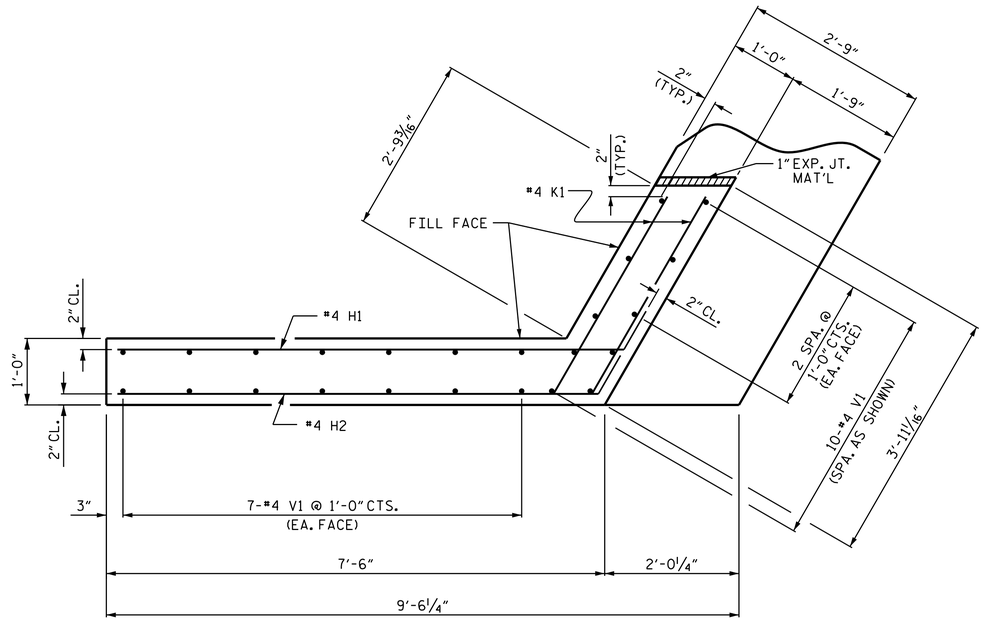
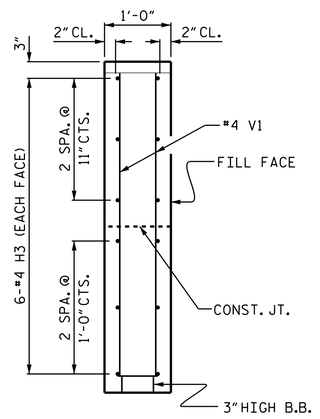
STD. NO. EB_33_120S



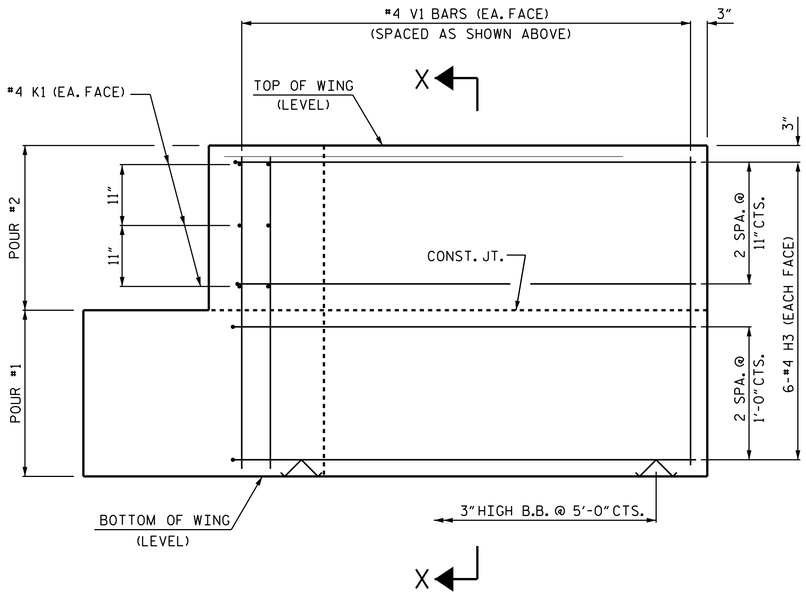
PLAN OF WING (W1)



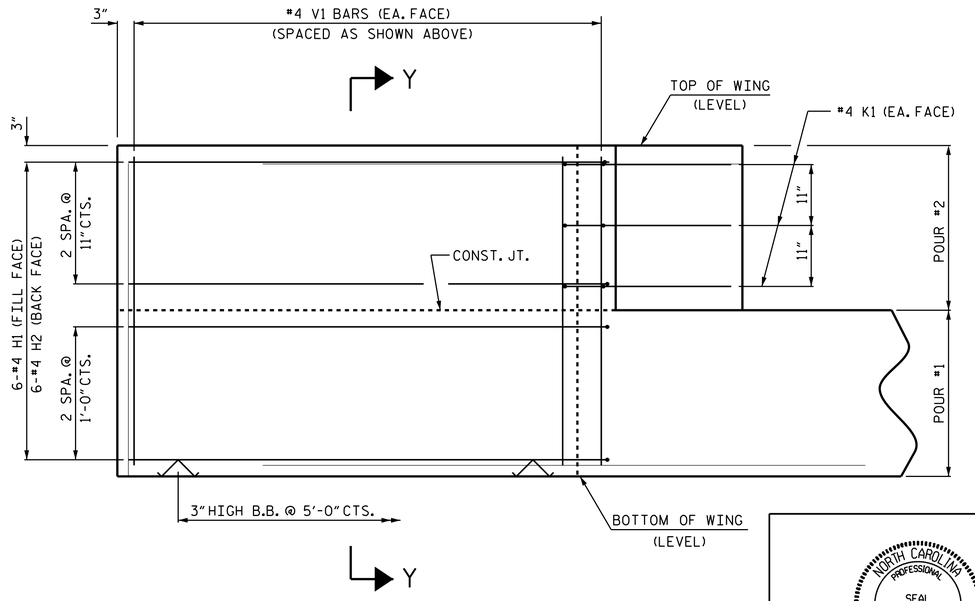
PLAN OF WING (W2)



SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

SECTION Y-Y

WING DETAILS

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 3 OF 4

ASSEMBLED BY : S T MASSINOPLE	DATE : 01/19
CHECKED BY : R A RAYNOR JR	DATE : 02/19
DRAWN BY : DGE	12/09
CHECKED BY : MKT	01/10
REV. 4/15	MAA/TMG

2/10/2020
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User:smassinople

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL E. CHEEK, JR.

Document by: Marshall E. Cheek Jr.
SFBCC2F3A4DC413...

3/26/2020

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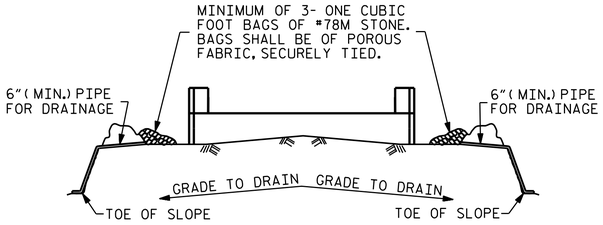
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			22

STD. NO. EB_33_120S

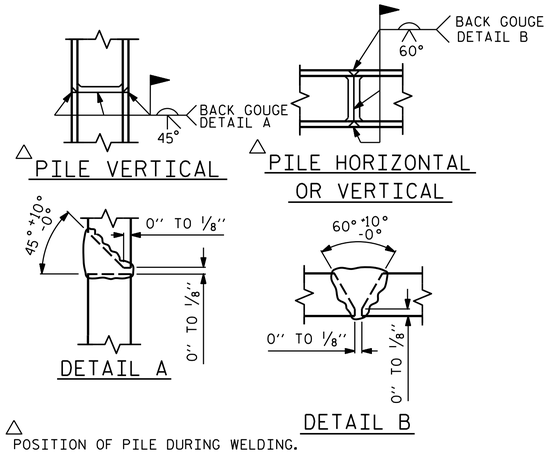


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

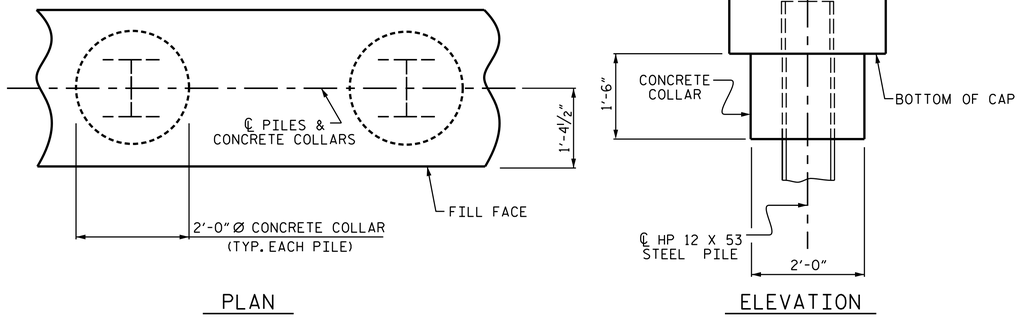
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



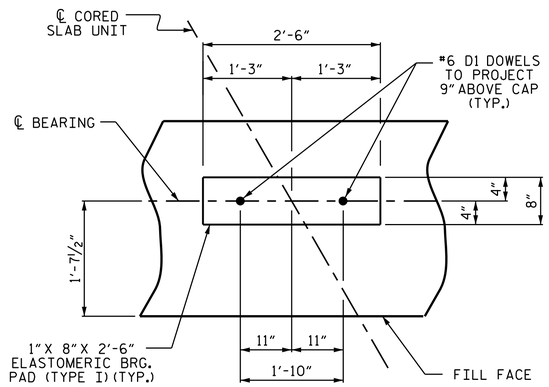
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



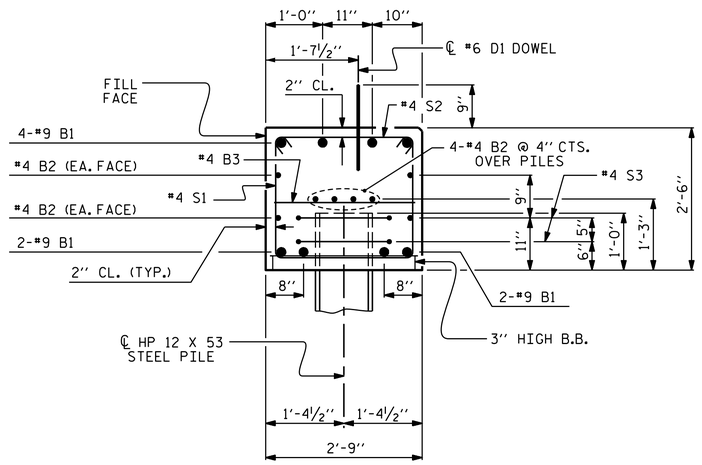
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



DETAIL "A"

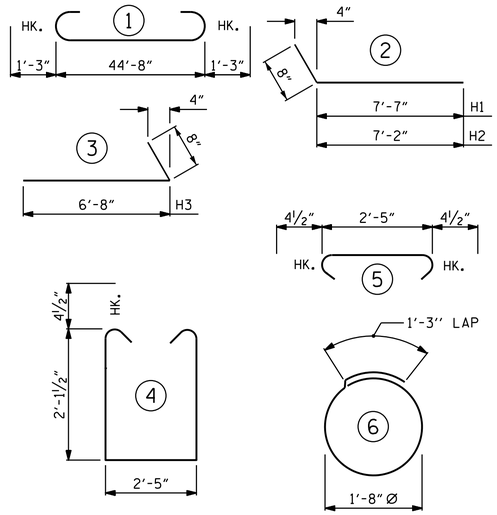
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



SECTION A-A

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 350	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 350
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7 EA.	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7 EA.
PILE REDRIVES NO: 4 EA.	PILE REDRIVES NO: 4 EA.
STEEL PILE POINTS NO: 7 EA.	STEEL PILE POINTS NO: 7 EA.

BILL OF MATERIAL FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	47'-2"	1283
B2	16	#4	STR	23'-8"	253
B3	12	#4	STR	2'-5"	19
D1	22	#6	STR	1'-6"	50
H1	6	#4	2	8'-3"	33
H2	6	#4	2	7'-10"	31
H3	12	#4	3	7'-4"	59
K1	12	#4	STR	3'-3"	26
S1	56	#4	4	7'-5"	277
S2	56	#4	5	3'-2"	118
S3	14	#4	6	6'-6"	61
V1	47	#4	STR	4'-8"	147

REINFORCING STEEL (FOR ONE END BENT) 2357 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 13.9 C.Y.

POUR #2 UPPER PART OF WINGS 1.9 C.Y.

TOTAL CLASS A CONCRETE 15.8 C.Y.

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL C. CREEK, JR.

Document Signed by: Marshall C. Creek Jr. 5FBCC2F3A4DC413...

3/26/2020

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TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : S T MASSINOPLE	DATE : 02/19
CHECKED BY : R A RAYNOR JR	DATE : 02/19
DRAWN BY : DGE 12/09	REV. 4/17 MAA/THC
CHECKED BY : MKT 01/10	

2/10/2020
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Usersmassinople

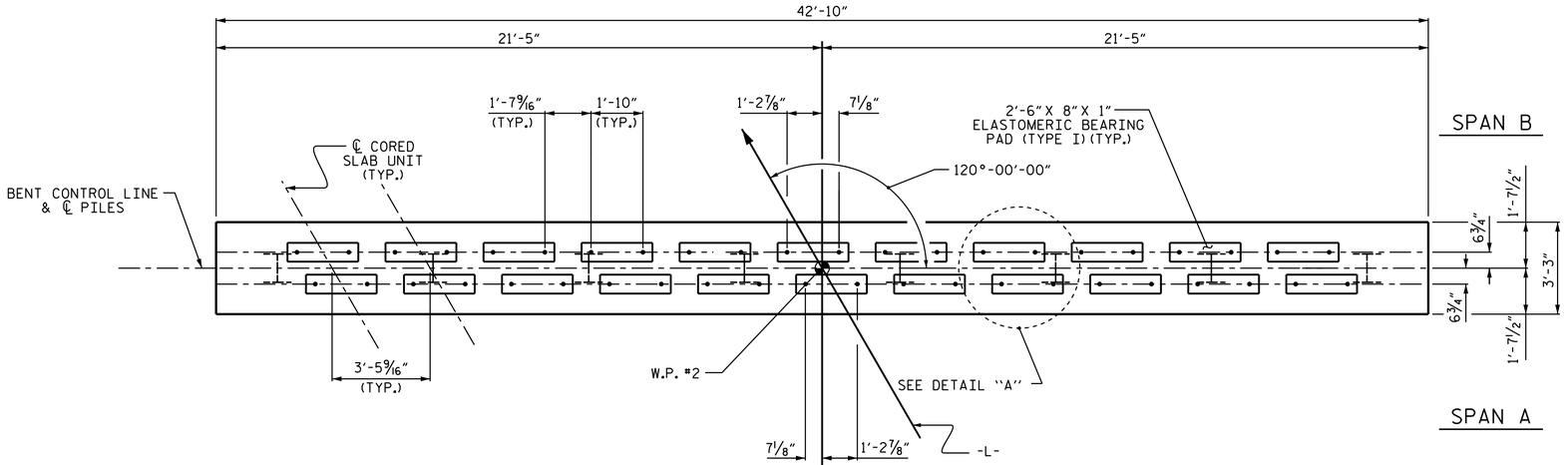
STD. NO. EB_33_120S

NOTES

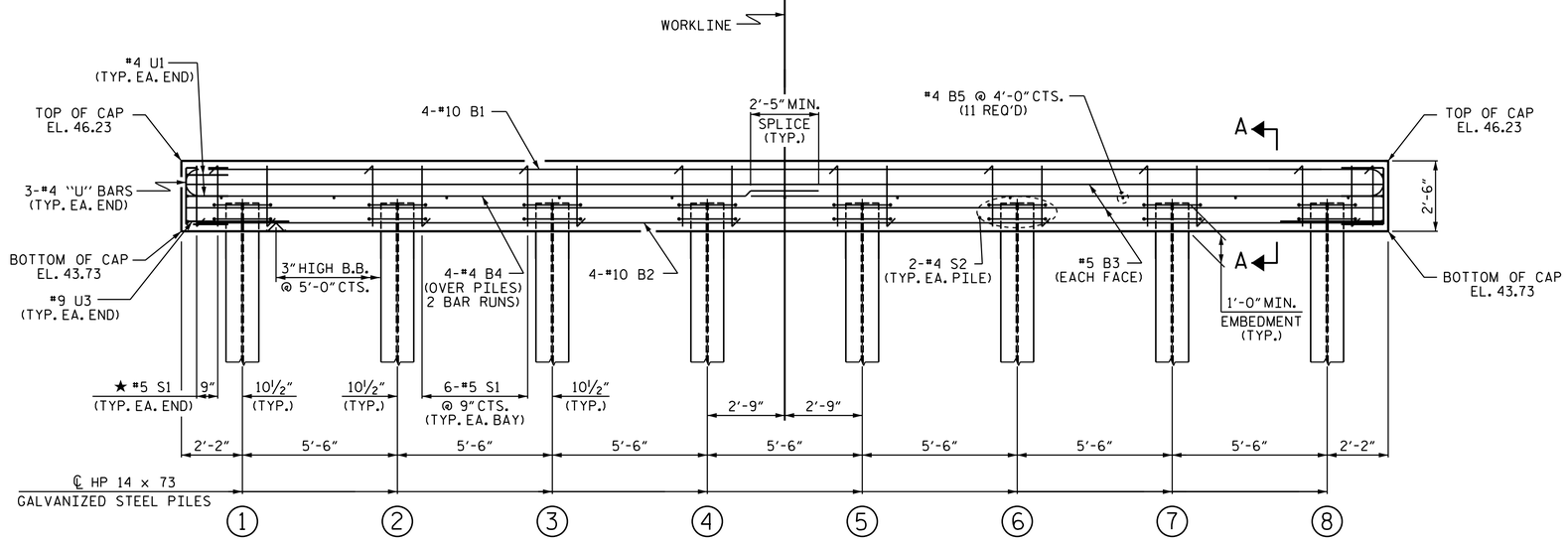
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 27 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

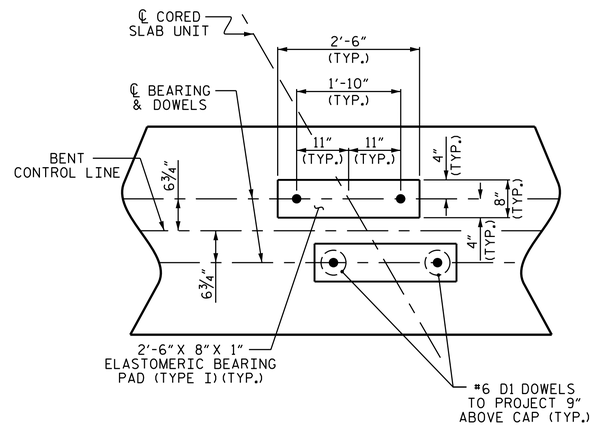


PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL D. CHEEK, JR.

Marshall D. Cheek Jr. 3/26/2020

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TGS ENGINEERS
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SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

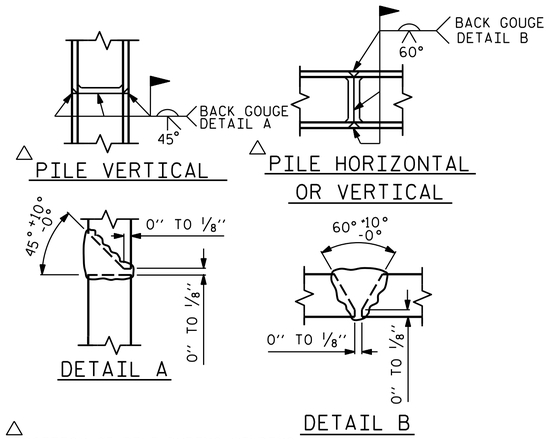
BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : S T MASSINOPLE DATE : 02/19	
CHECKED BY : R A RAYNOR JR DATE : 02/19	
DRAWN BY : DGE 05/10	REV. 6/17 MAA/THC
CHECKED BY : MKT 05/10	

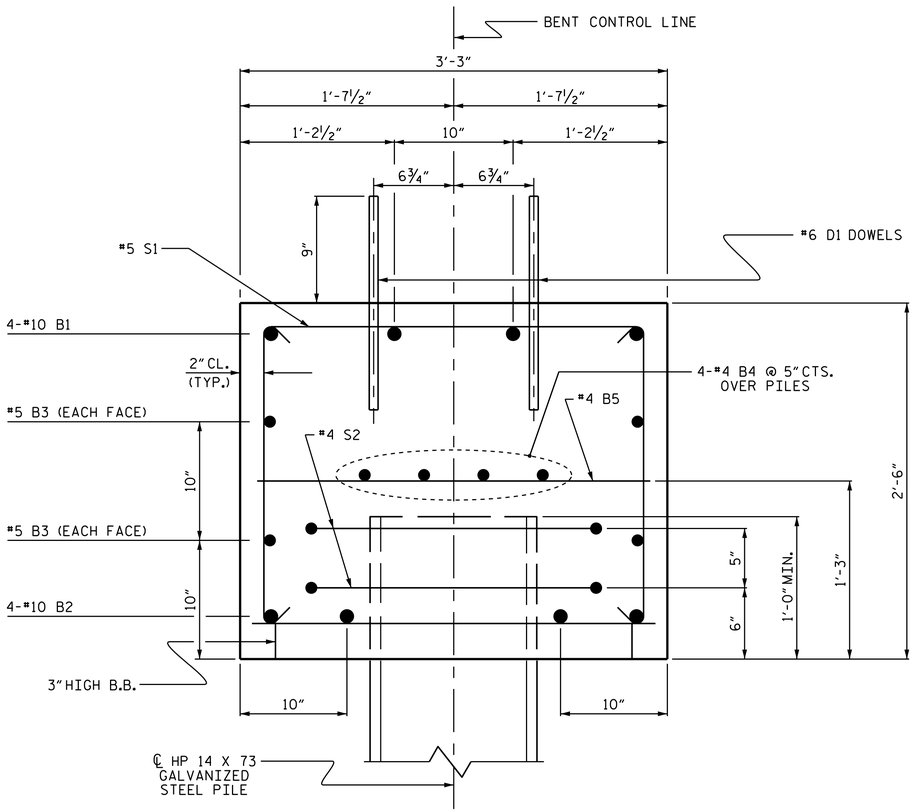
2/10/2020
X:\NCDOT\B-5303\Structures\FinalPlans\DGNs\401_033_B-5303_SMU_ B1_300045.dgn
User:smassinople

STD. NO. 14"HP_BT_33_120S_<60'

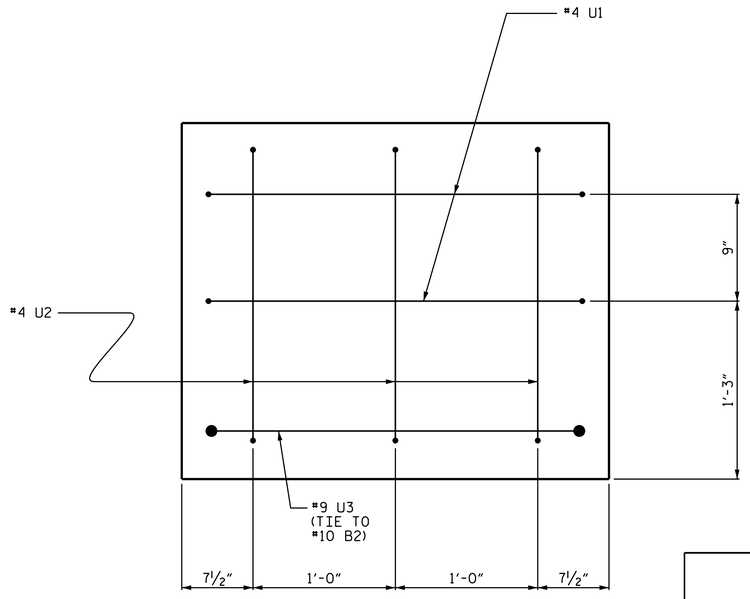


△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



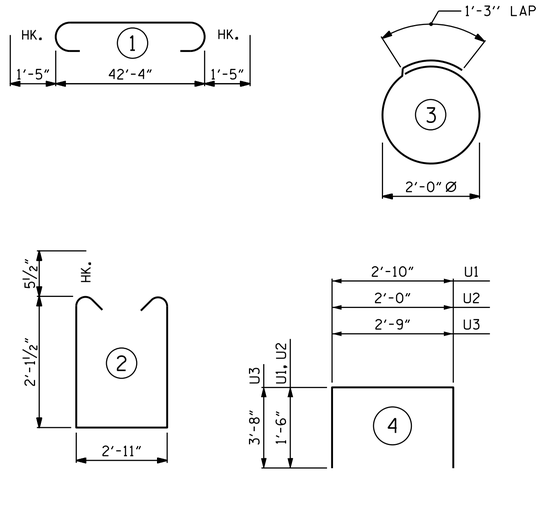
SECTION A-A



END OF CAP VIEW

(TYPICAL BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR BENT No. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	45'-2"	777
B2	4	#10	STR	42'-6"	732
B3	4	#5	STR	42'-6"	177
B4	8	#4	STR	22'-6"	120
B5	11	#4	STR	2'-11"	21
D1	44	#6	STR	1'-6"	99
S1	46	#5	2	8'-1"	388
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69

REINFORCING STEEL 2500 LBS

CLASS A CONCRETE BREAKDOWN

TOTAL CLASS A CONCRETE 12.9 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES

No. 8 LIN. FT. 400

PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 GALVANIZED STEEL PILES NO: 8 EA.

PILE REDRIVES NO: 4 EA.

STEEL PILE POINTS NO: 8 EA.

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek Jr. 3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

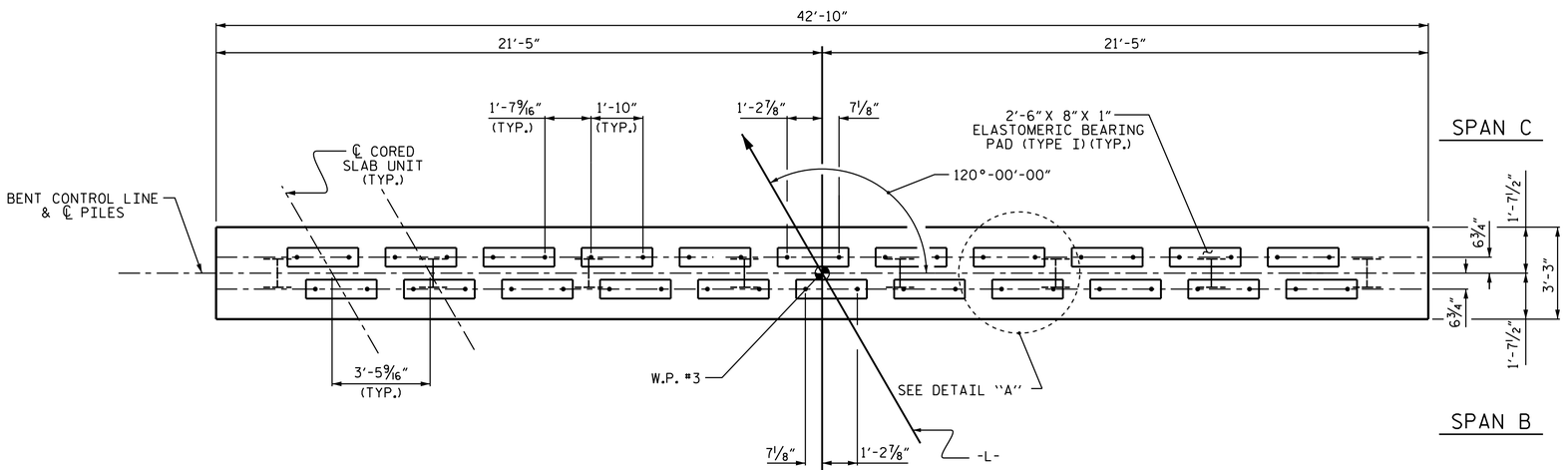
BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			22

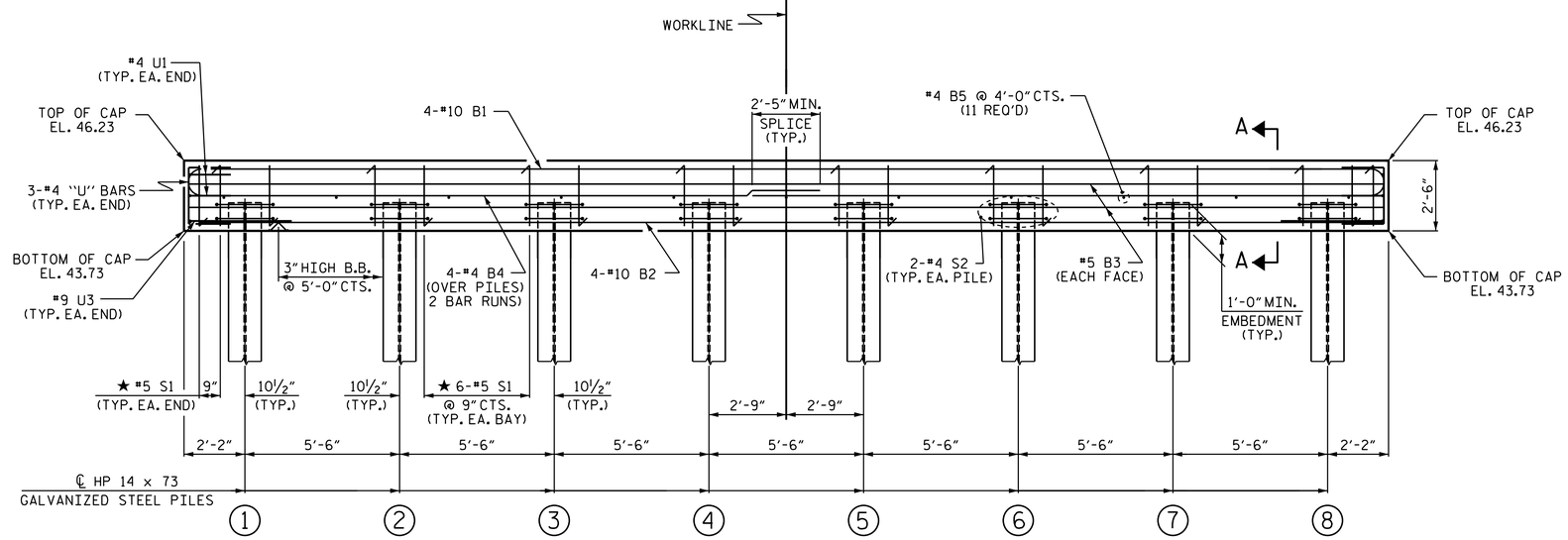
ASSEMBLED BY : S T MASSINOPLE	DATE : 02/19	
CHECKED BY : R A RAYNOR JR	DATE : 02/19	
DRAWN BY : DGE 05/10	REV. 6/17	MAA/THC
CHECKED BY : MKT 05/10		

2/10/2020
X:\NCDOT\B-5303\Structures\FinalPlans\DGNs\401_035_B-5303_SMU_B2_300045.dgn
User:smassinople

STD. NO. 14" HP_BT_33_60&120S_<60'



PLAN



ELEVATION

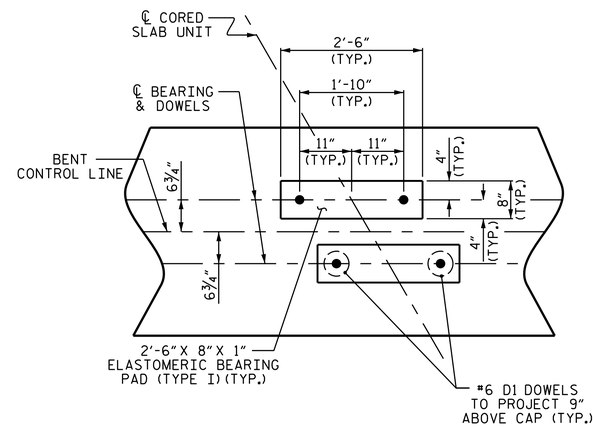
FOR SECTION A-A, SEE SHEET 2 OF 2

NOTES

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

★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 27 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek Jr. 3/26/2020

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706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : S T MASSINOPLE	DATE : 02/19	
CHECKED BY : R A RAYNOR JR	DATE : 02/19	
DRAWN BY : DGE 05/10	REV. 6/17	MAA/THC
CHECKED BY : MKT 05/10		

2/10/2020
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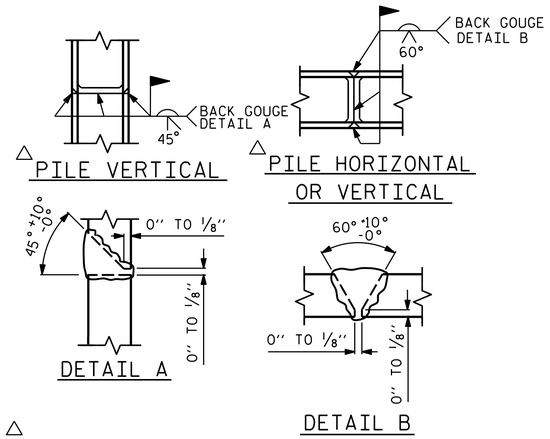
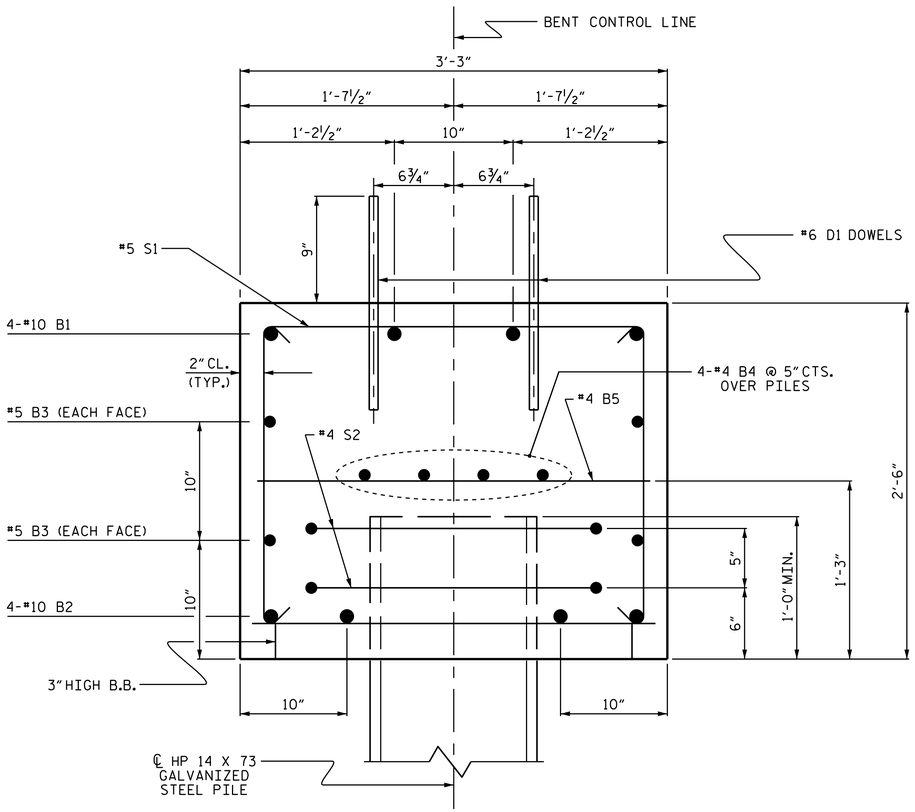
User:smassinople

STD. NO. 14"HP_BT_33_120S_<60'

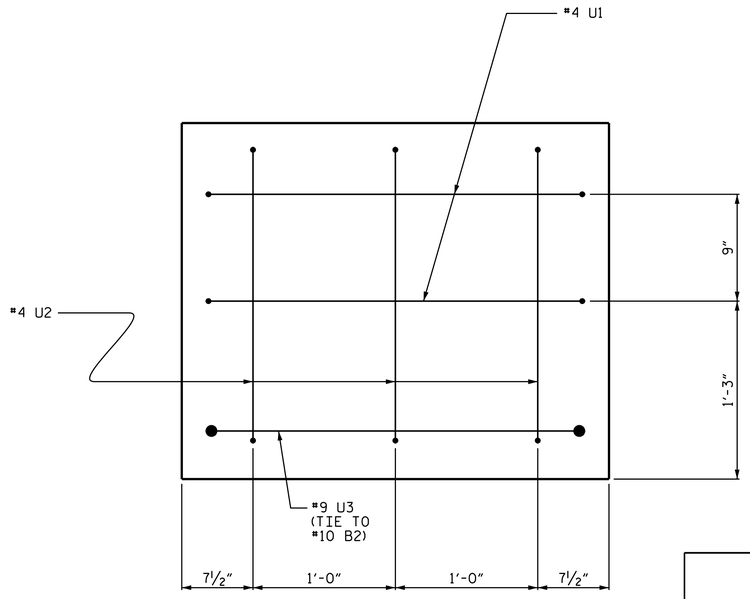


△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



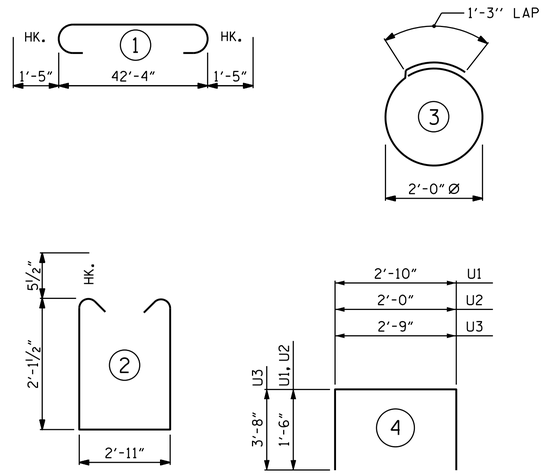
SECTION A-A



END OF CAP VIEW

(TYPICAL BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR BENT No. 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	45'-2"	777
B2	4	#10	STR	42'-6"	732
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B4	8	#4	STR	22'-6"	120
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PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 GALVANIZED STEEL PILES NO: 8 EA.

PILE REDRIVES NO: 4 EA.

STEEL PILE POINTS NO: 8 EA.

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek Jr.
5FBCC2F3A4DC413...

3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
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SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			22

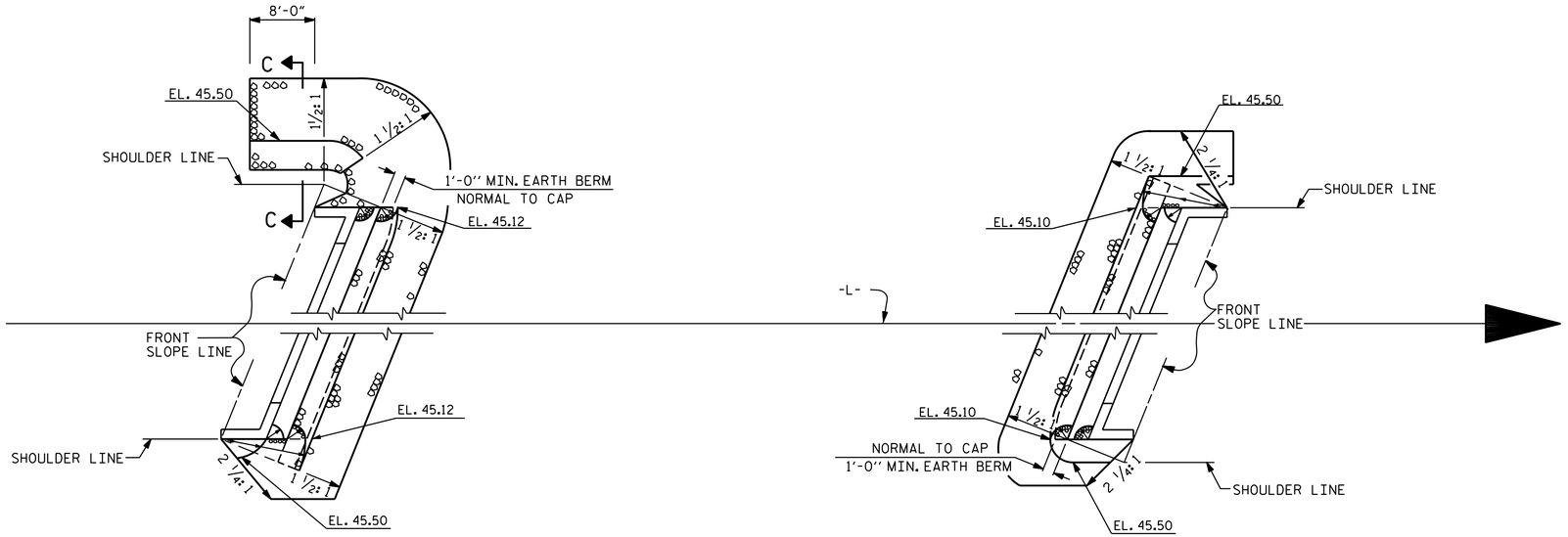
ASSEMBLED BY : S T MASSINOPLE DATE : 02/19
CHECKED BY : R A RAYNOR JR DATE : 02/19

DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10

REV. 6/17 MAA/THC

2/10/2020
X:\NCDOT\B-5303\Structures\FinalPlans\DGNs\401_039_B-5303_SMU_ B4_300045.dgn
User:smassinople

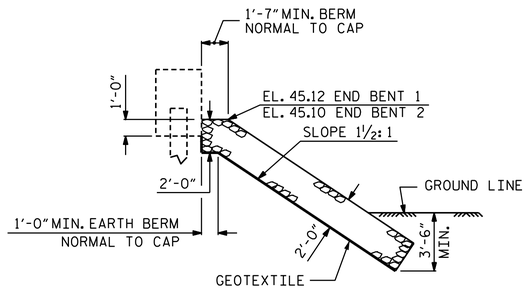
STD. NO. 14" HP_BT_33_60&120S_<60'



END BENT 1

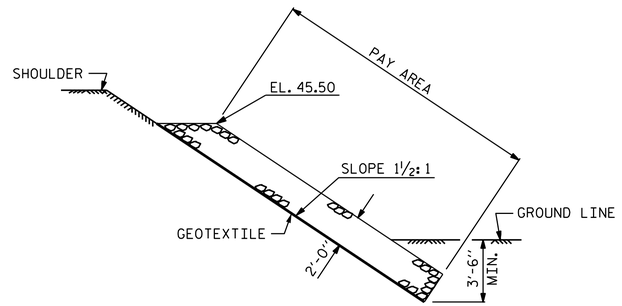
END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+00.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	95	105
END BENT 2	110	125



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

DocuSigned by: Marshall G. Cheek Jr. 5FBCC2F3A4DC413...

3/26/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY :	STM	DATE :	02/19
CHECKED BY :	MGC	DATE :	09/19
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

2/10/2020
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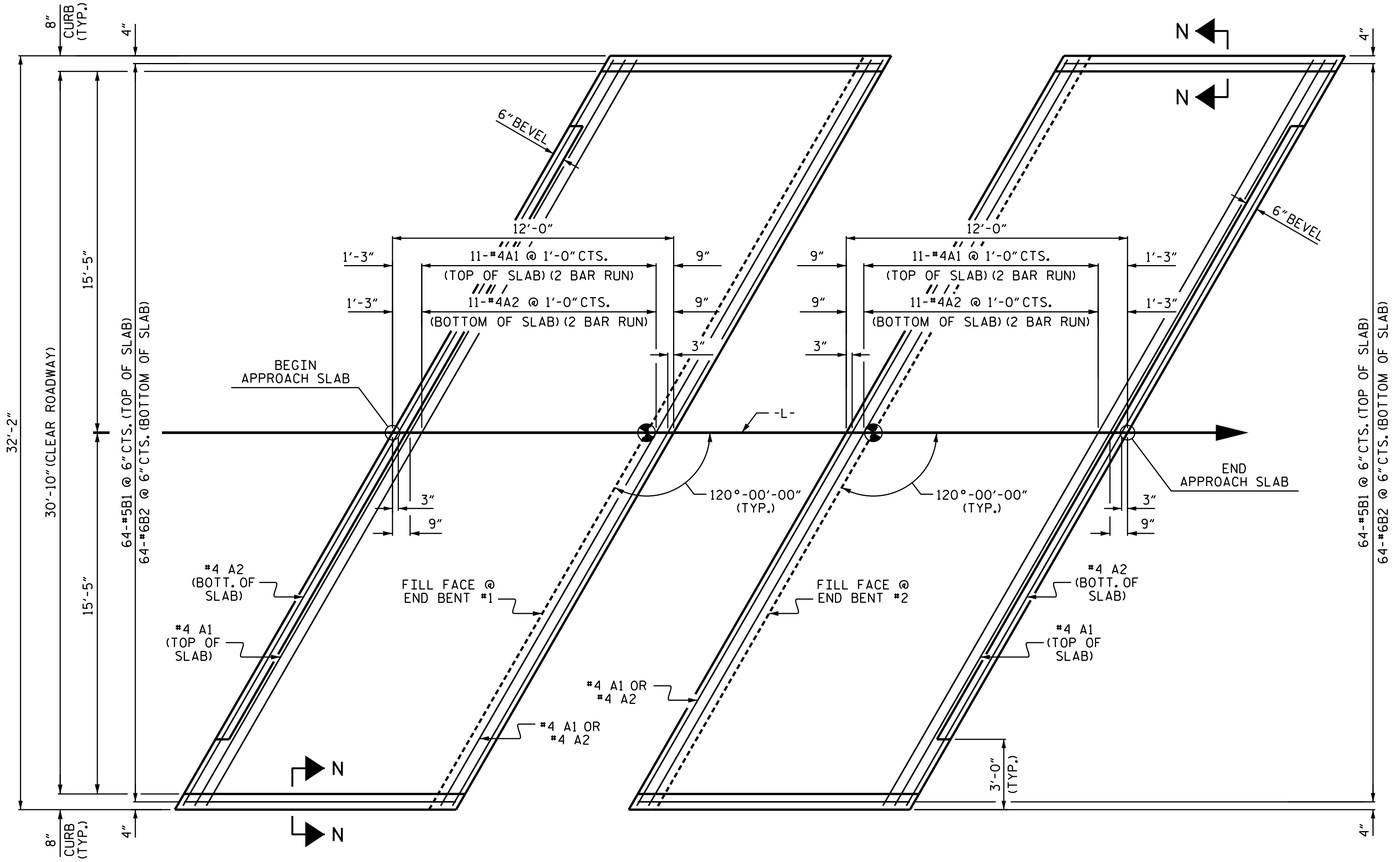
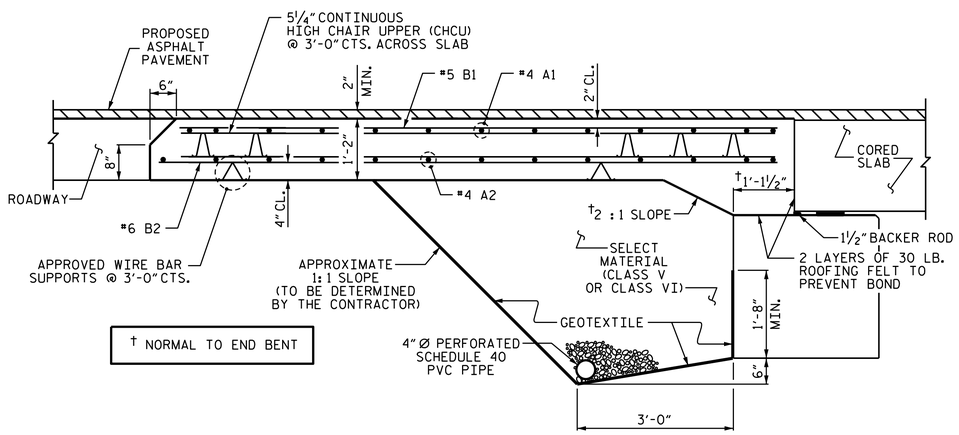
User:smassinople



PLAN @ END BENT #1

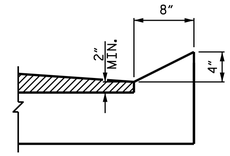
PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



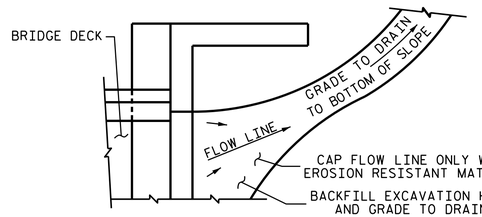
SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)



SECTION N-N

CURB DETAILS



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

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.

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

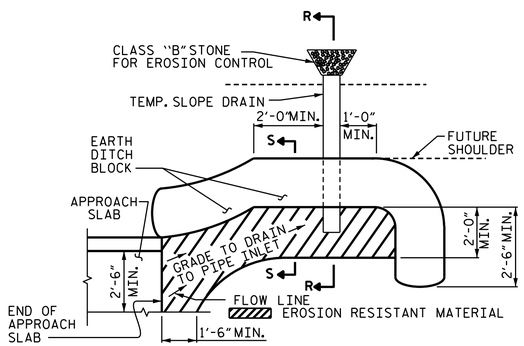
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	26	#4	STR	19'-5"	337
A2	26	#4	STR	19'-4"	336
✱ B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1449
✱ EPOXY COATED REINFORCING STEEL				LBS.	1077
CLASS AA CONCRETE				C.Y.	18.6

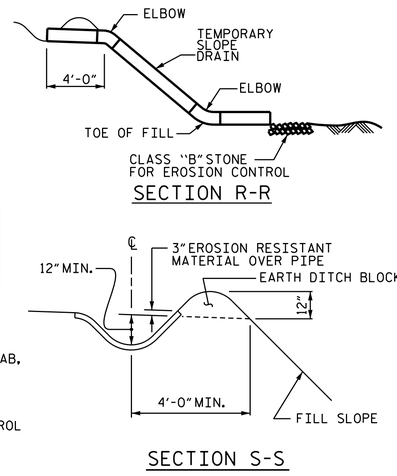
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	26	#4	STR	19'-5"	337
A2	26	#4	STR	19'-4"	336
✱ B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1449
✱ EPOXY COATED REINFORCING STEEL				LBS.	1077
CLASS AA CONCRETE				C.Y.	18.6



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 I OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW



SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

ASSEMBLED BY : STM	DATE : 01/19		
CHECKED BY : MGC	DATE : 09/19		
DRAWN BY : SHS/MAA 5-09	REV. 12-17	MAA/THC	
CHECKED BY : BCH 5-09			

2/10/2020
X:\NCDOT\B-5303\Structures\FinalPlans\DGNs\401_043_B-5303_SMU_ AS_300045.dgn
User:smassinople

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL C. CHEEK, JR.

Marshall C. Cheek Jr.
5FBCC2F3A4DC413...

3/26/2020

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RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT

(SUB-REGIONAL TIER)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			22

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.

PROJECT NO. 17BP.3.R.83

DUPLIN COUNTY

STATION: 17+00.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			22

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

9/4/2019
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