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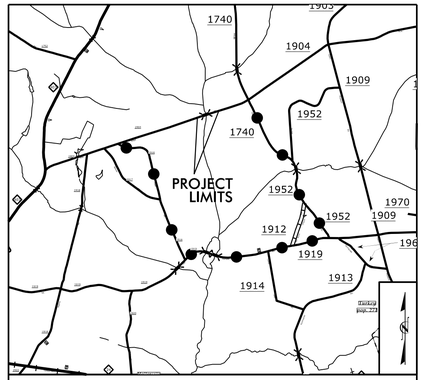
09/08/09

TIP PROJECT: B-5621

CONTRACT: DC00321

See Sheet 1A For Index of Sheets



VICINITY MAP — OFFSITE DETOUR

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SAMPSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5621	1	

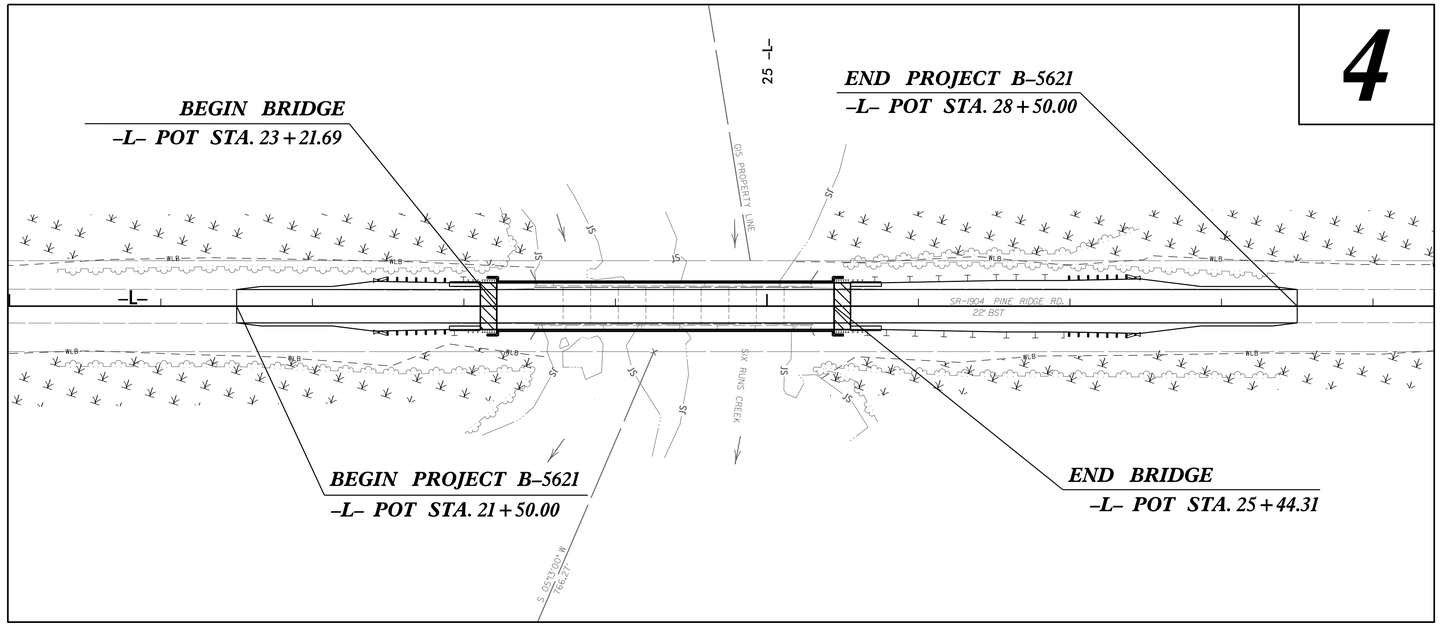
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45576.1.1	BRZ-1904(001)	PE
45576.2.1	1904003	R/W & UTIL
45576.3.1	1904003	CONST.

LOCATION: REPLACE BRIDGE NO. 248 OVER SIX RUNS CREEK ON SR 1904

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NC GRID NAD 83 NA 2011

4



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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 2013 = 1100
ADT 2025 = 2200
K = 10 %
D = 60 %
T = 6 % *
V = 60 MPH
* TTST = 2% DUAL 4%
FUNC CLASS = MINOR COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT B-5621 = 0.091 MILES
LENGTH OF STRUCTURE PROJECT B-5621 = 0.042 MILES
TOTAL LENGTH OF PROJECT B-5621 = 0.133 MILES

PREPARED IN THE OFFICE OF:
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
FOR NCDOT DIVISION 3

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 30, 2021

LETTING DATE: OCTOBER 14, 2021

G. JOHN HORNBECK, PE
PROJECT ENGINEER

DEREK PIELECH, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 015764 ENGINEER JAMES A. BYRD

DocuSigned by: James Byrd 9/10/2021

P.E. *SIGNATURE:*

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 047963 ENGINEER G. JOHN HORNBECK

DocuSigned by: John Hornbeck 9/10/2021

P.E. *SIGNATURE:*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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HNTB

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-5621	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 047963 ENGINEER

9/10/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES: 2018 SPECIFICATIONS

EFFECTIVE: 01-16-2018
REVISED:

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 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. 560.02

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

END BENTS:

THE 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 - SAMPSON COUNTY PUBLIC WORKS
POWER - FOUR COUNTY EMC
COMMUNICATIONS - STAR COMMUNICATIONS, CHARTER, STAR VISION

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

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 (Special Detail)
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 Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation (Special detail for Sheet 6 of 8)
862.03	Structure Anchor Units (Special Detail for Type III Anchor Units 1 of 7 and 2 of 7)
876.02	Guide for Rip Rap at Pipe Outlets

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5621	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

6/2/99

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
B-5621	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 047963 ENGINEER

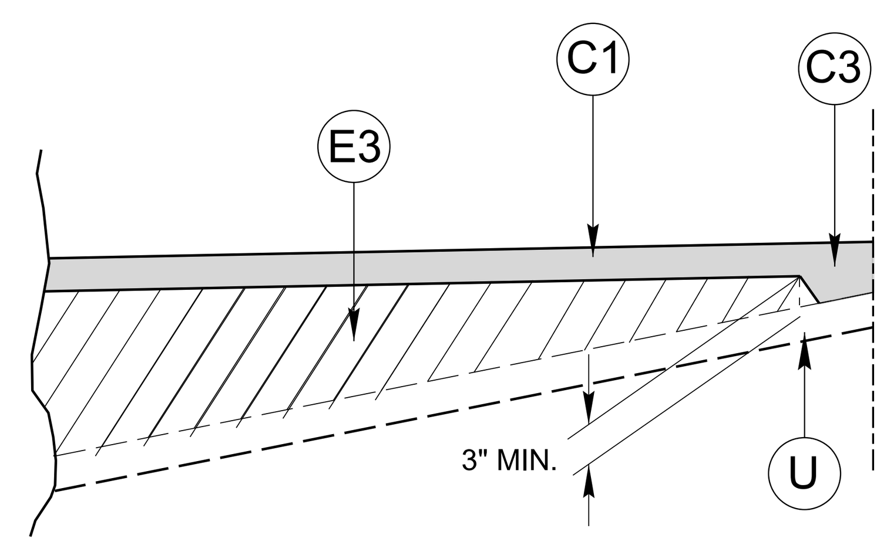
9/10/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

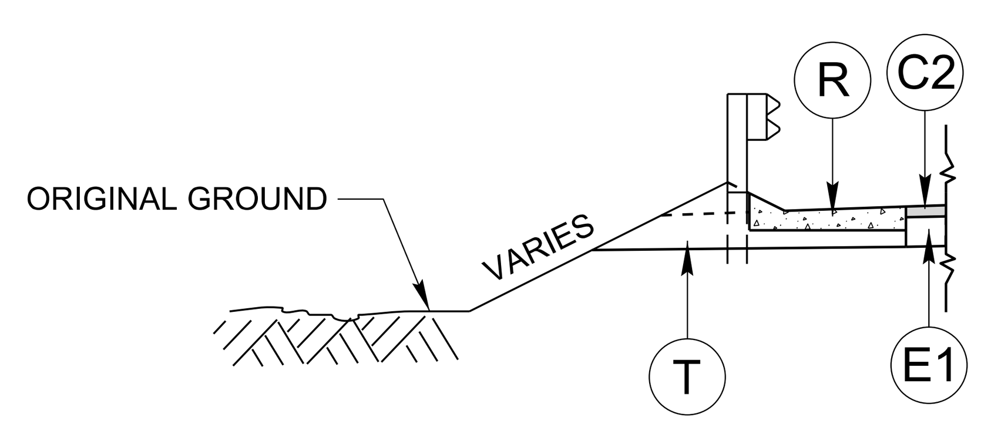
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1.5" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YARD.
E2	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
E3	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE DETAIL)

ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



DETAIL SHOWING METHOD OF WEDGING

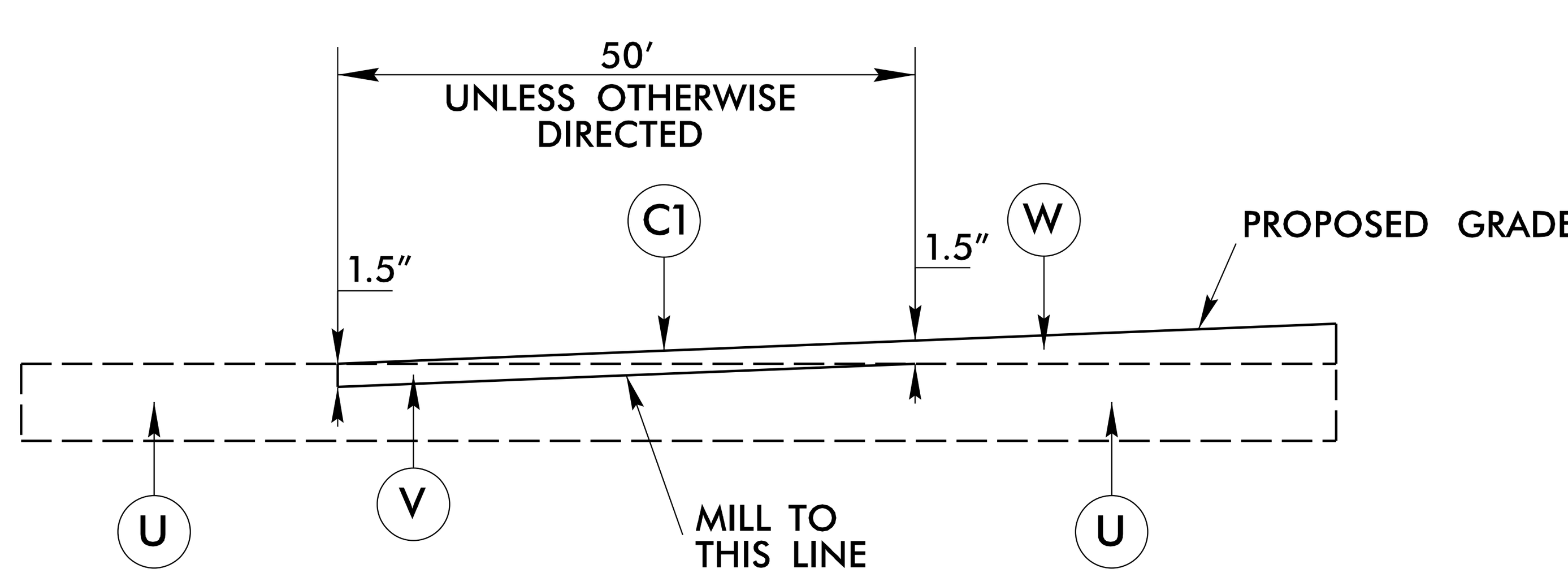
USE WITH TYPICAL SECTION 1



DETAIL A

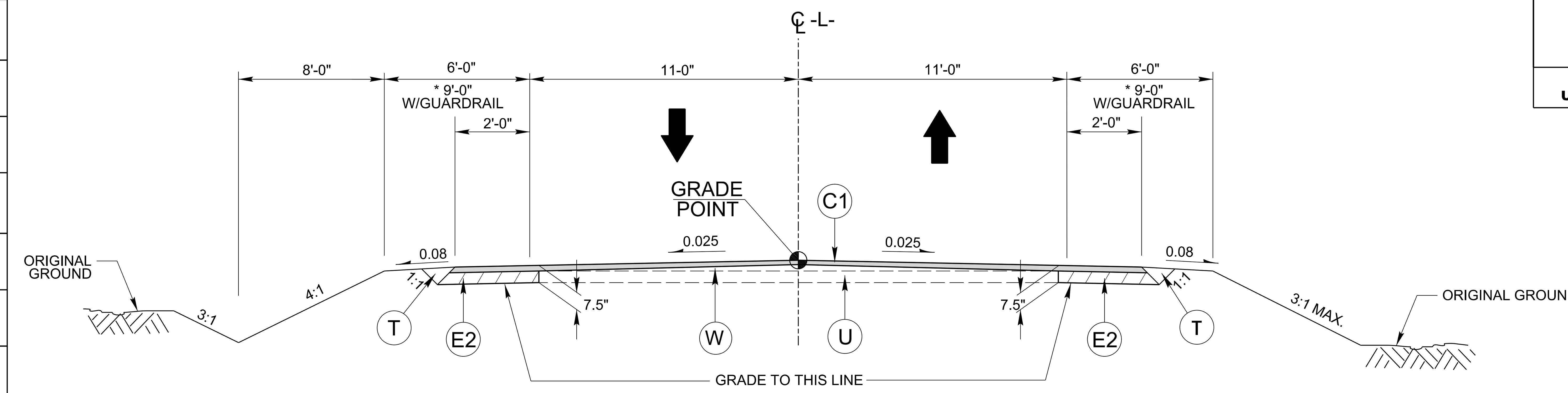
SHOULDER BERM GUTTER LOCATIONS

-L- STA 22+90.44 TO STA. 23+10.81 LT/RT
-L- STA 25+55.19 TO STA. 25+74.56 LT/RT



DETAIL FOR INCIDENTAL MILLING

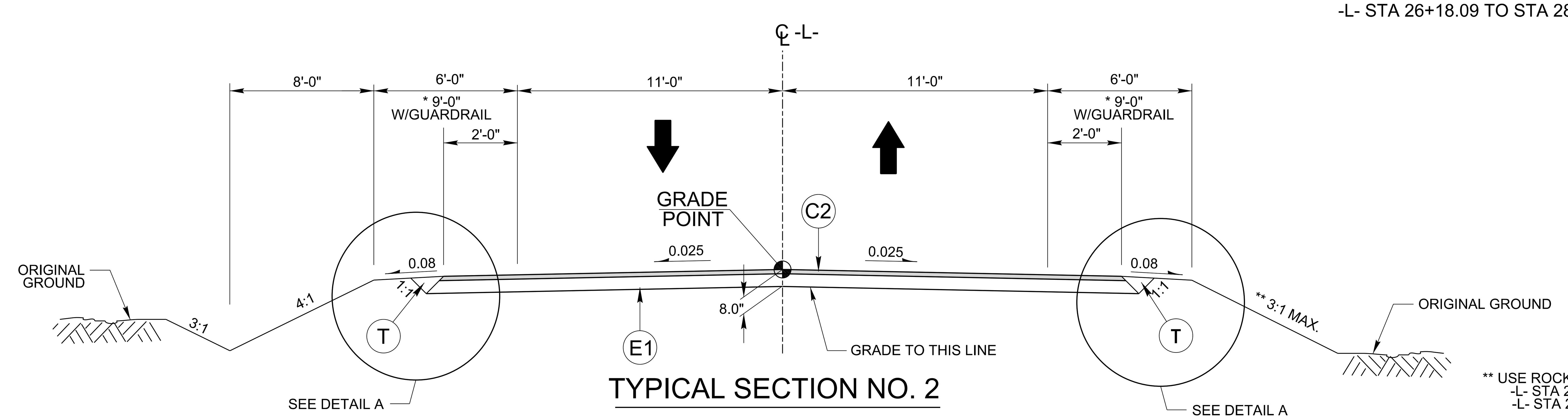
-L- STA 21+00.00 TO STA 21+50.00
-L- STA 28+50.00 TO STA 29+00.00



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FROM:

-L- STA 21+50.00 TO STA 22+48.09
-L- STA 26+18.09 TO STA 28+50.00

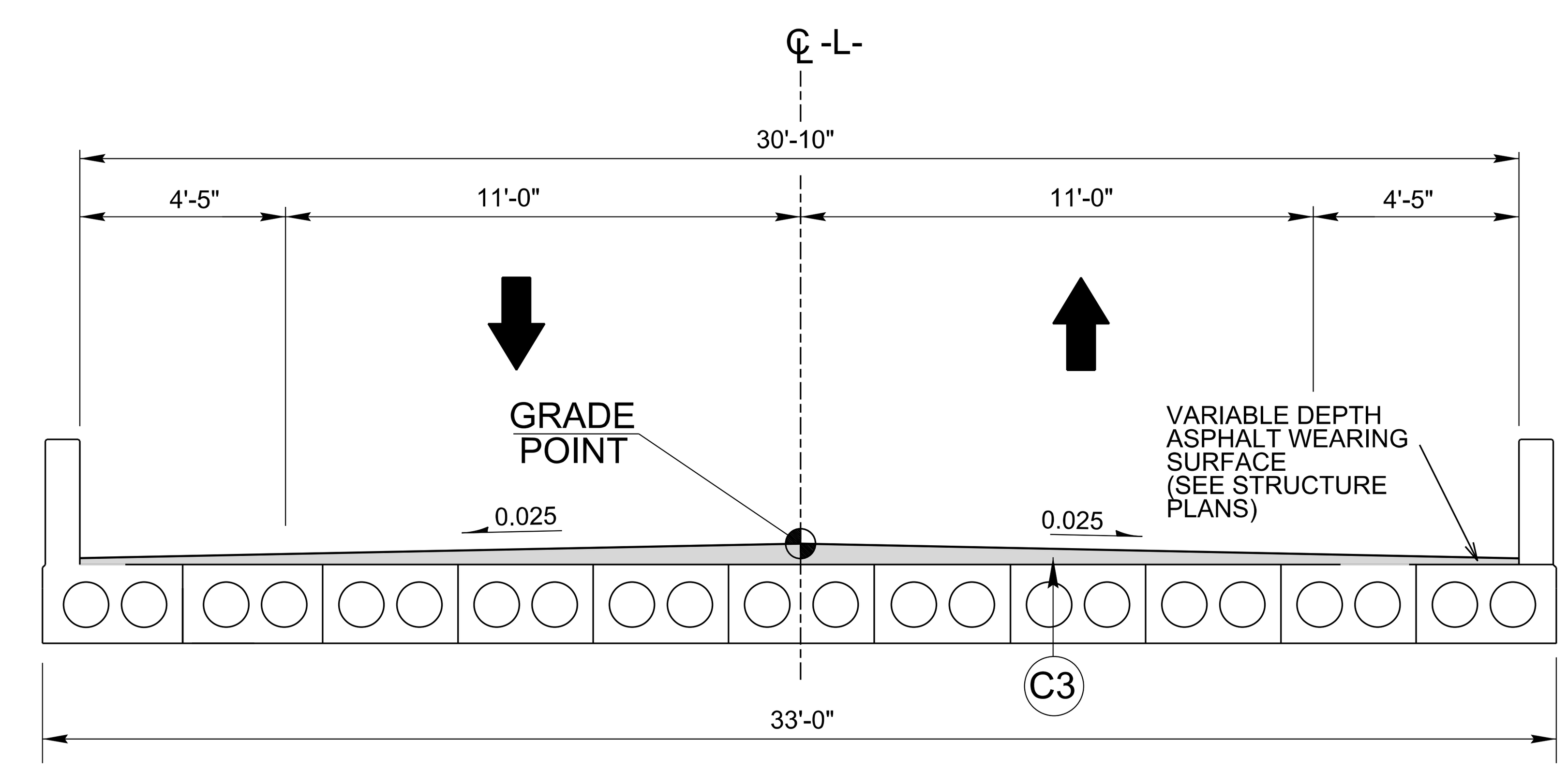


TYPICAL SECTION NO. 2

** USE ROCK PLATING FOR 2:1 SLOPES :
-L- STA 25+43.00 TO 26+00 LT/RT
-L- STA 26+75.00 TO 28+25.00 LT

USE TYPICAL SECTION NO. 2 FROM:

-L- STA 22+48.09 TO STA 23+21.69 (BRIDGE)
-L- STA 25+44.31 (BRIDGE) TO STA 26+18.09



TYPICAL SECTION NO. 2

CORED SLAB BRIDGE OVERLAY

USE TYPICAL SECTION NO. 2 FROM:

-L- STA 23+21.69 TO STA 25+44.31

NOTES: * SHOULDER WIDTH INCREASED 3' WITH THE USE OF GUARDRAIL

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PROJECT REFERENCE NO.	SHEET NO.
B-5621	2C-1
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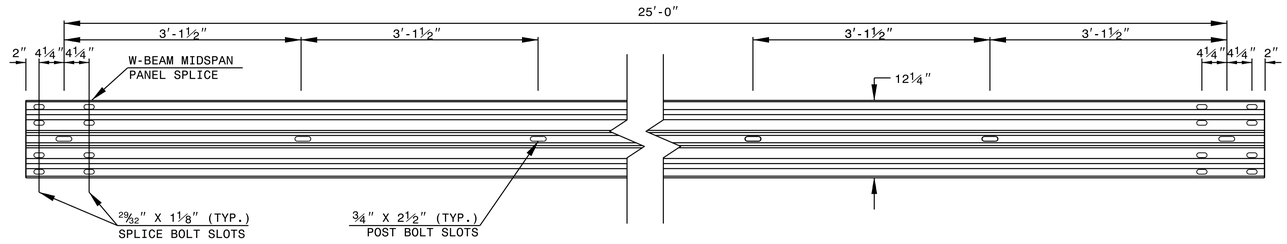
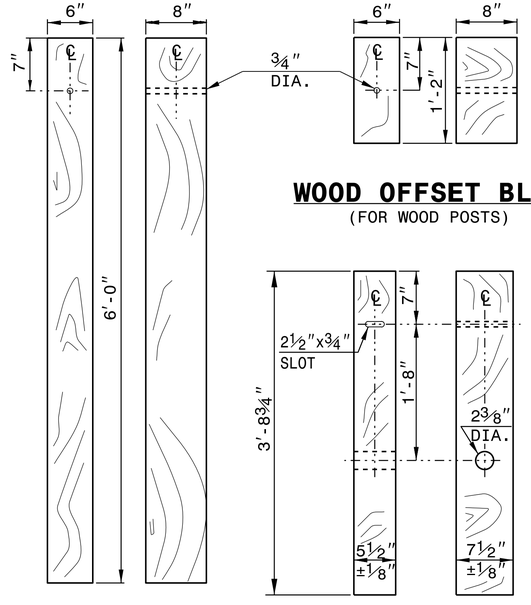
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



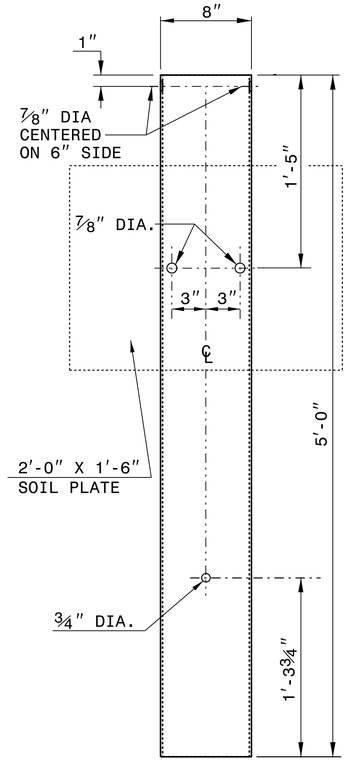
STANDARD W-BEAM GUARDRAIL



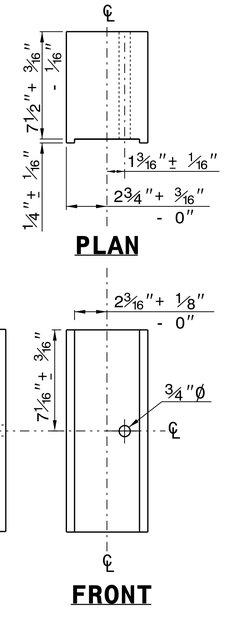
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

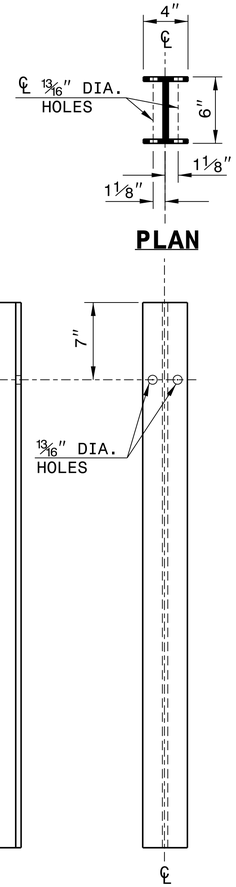
SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



ROUTED OFFSET BLOCK



"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

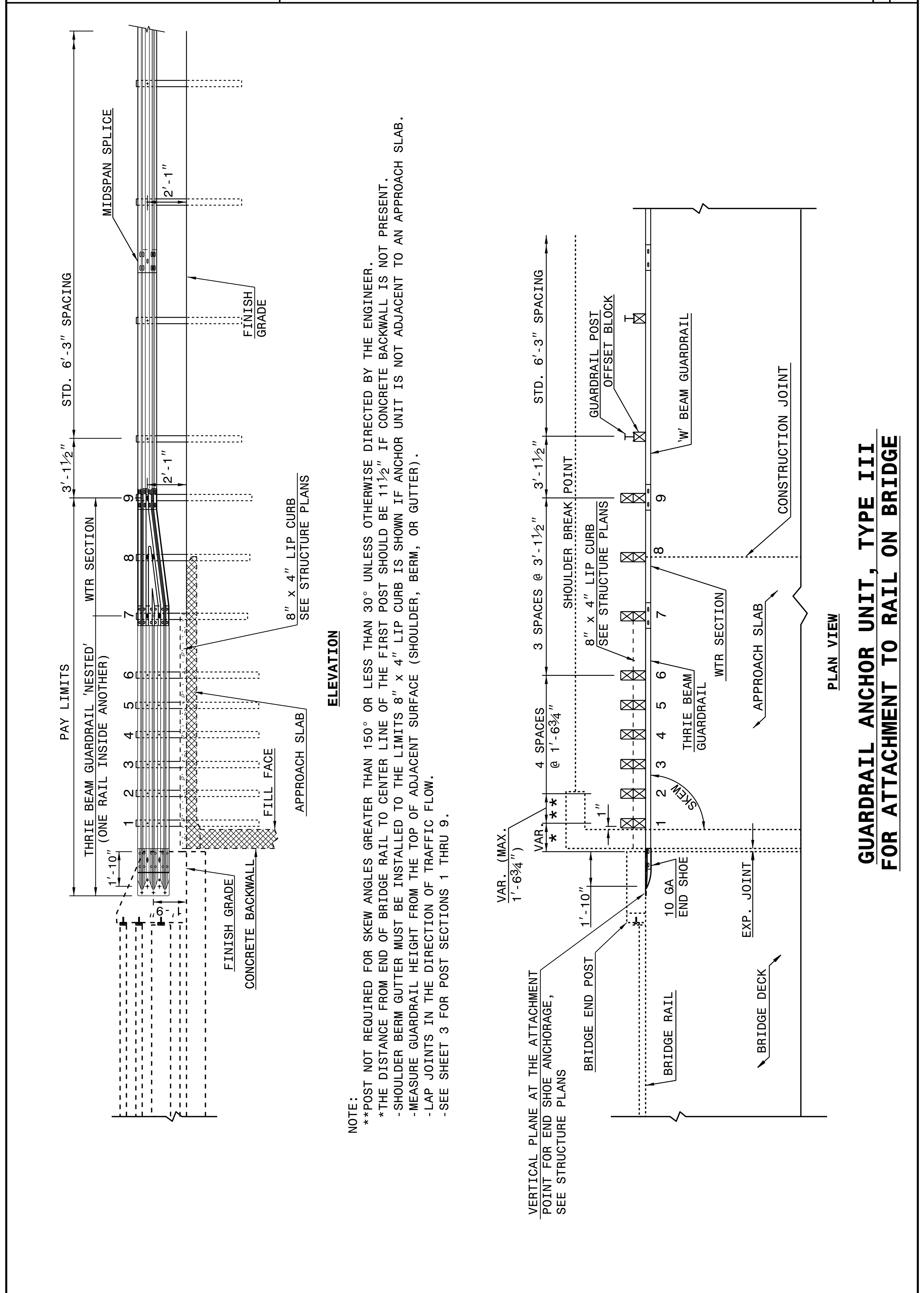
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER J. HOWERTON
Digitally signed by J. HOWERTON
873F3D1...
9/7/2021

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

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
B-5621	2C-2

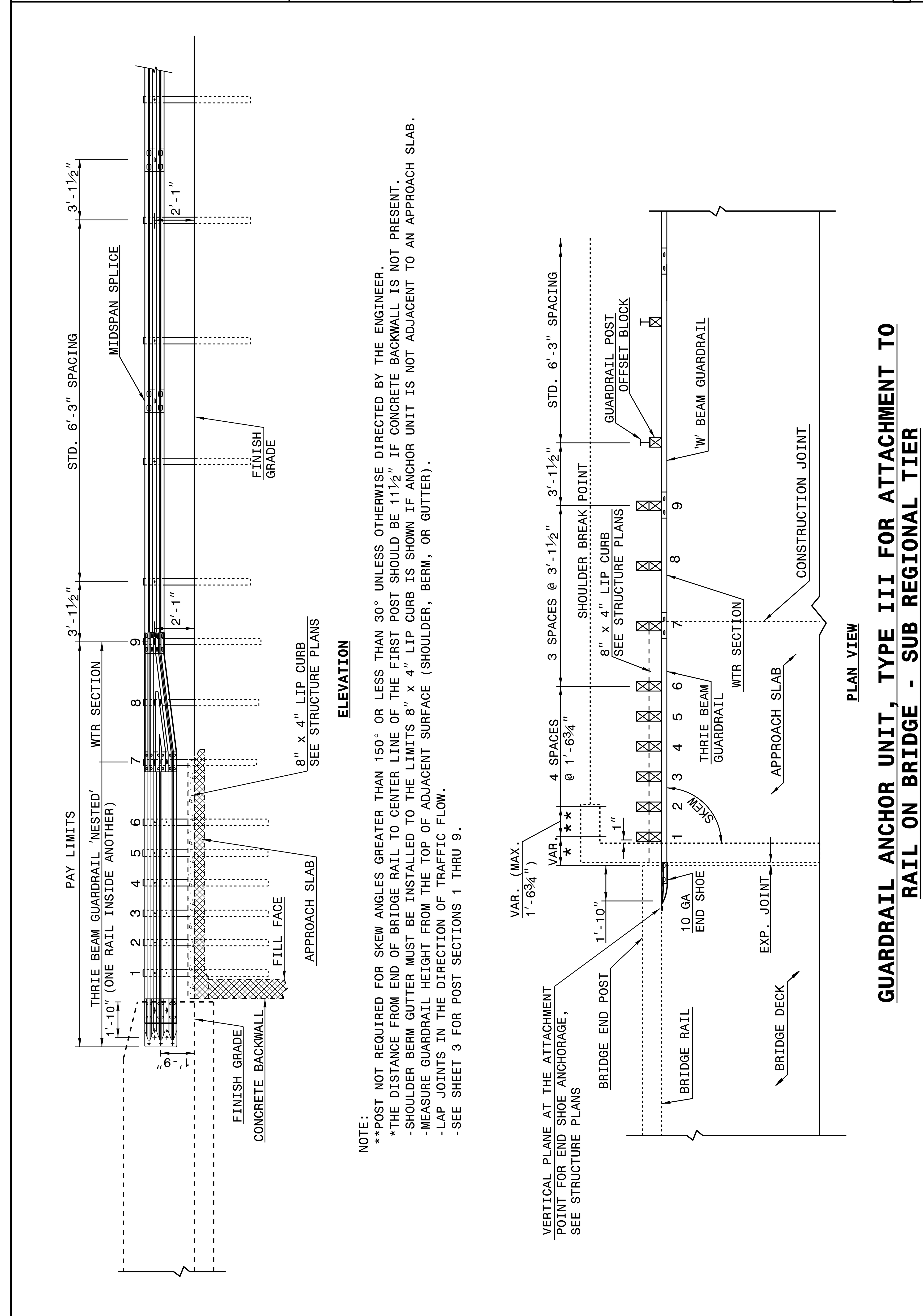


GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE
ELEVATION
PLAN VIEW
PAY LIMITS
THRIE BEAM GUARDRAIL 'NESTED' (ONE RAIL INSIDE ANOTHER)
WTR SECTION
STD. 6'-3" SPACING
MIDSPAN SPLICE
FINISH GRADE
8" x 4" LIP CURB SEE STRUCTURE PLANS
FILL FACE
APPROACH SLAB
CONCRETE BACKWALL
SHOULDER BREAK POINT
GUARDRAIL POST OFFSET BLOCK
'W' BEAM GUARDRAIL
CONSTRUCTION JOINT
THRIE BEAM GUARDRAIL
10 GA END SHOE
EXP. JOINT
BRIDGE DECK
BRIDGE RAIL
BRIDGE END POST
VERTICAL PLANE AT THE ATTACHMENT POINT FOR END SHOE ANCHORAGE, SEE STRUCTURE PLANS
NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

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

SHEET 1 OF 7 — 862D03



GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER
ELEVATION
PLAN VIEW
PAY LIMITS
THRIE BEAM GUARDRAIL 'NESTED' (ONE RAIL INSIDE ANOTHER)
WTR SECTION
STD. 6'-3" SPACING
MIDSPAN SPLICE
FINISH GRADE
8" x 4" LIP CURB SEE STRUCTURE PLANS
FILL FACE
APPROACH SLAB
CONCRETE BACKWALL
SHOULDER BREAK POINT
GUARDRAIL POST OFFSET BLOCK
'W' BEAM GUARDRAIL
CONSTRUCTION JOINT
THRIE BEAM GUARDRAIL
10 GA END SHOE
EXP. JOINT
BRIDGE DECK
BRIDGE RAIL
BRIDGE END POST
VERTICAL PLANE AT THE ATTACHMENT POINT FOR END SHOE ANCHORAGE, SEE STRUCTURE PLANS
NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

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

SHEET 2 OF 7 — 862D03

SEAL 022966 — NORTH CAROLINA PROFESSIONAL ENGINEER — J. S. Howerton — 9/7/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5621	2C-3

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

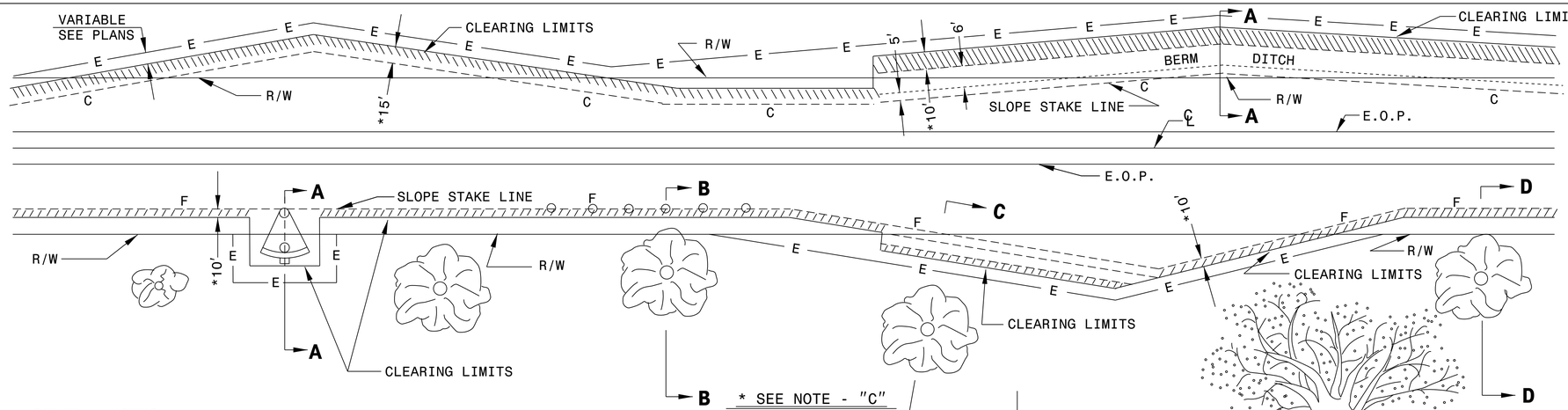
ENGLISH DETAIL DRAWING FOR

METHOD OF CLEARING

MODIFIED METHOD - III

SHEET 1 OF 1

200D03



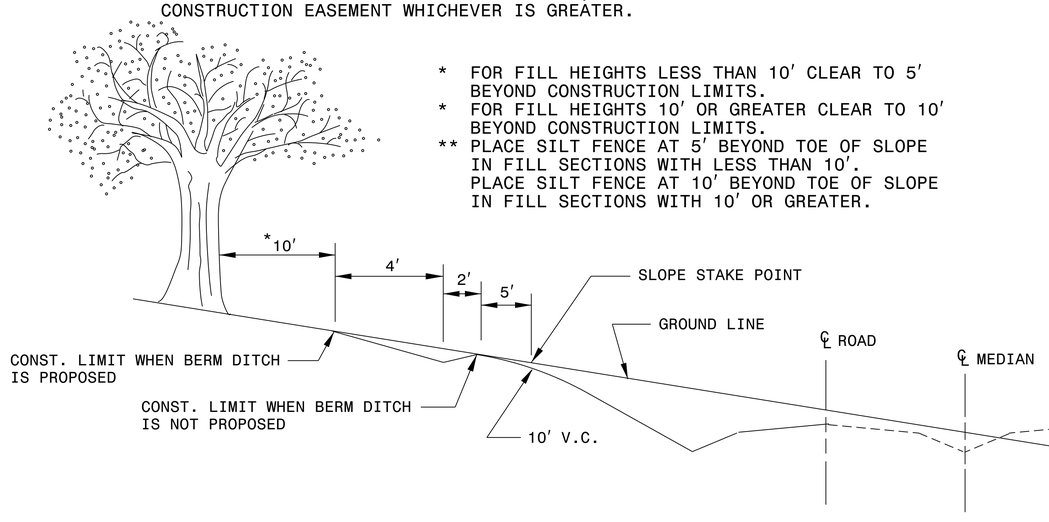
GENERAL NOTES:

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.

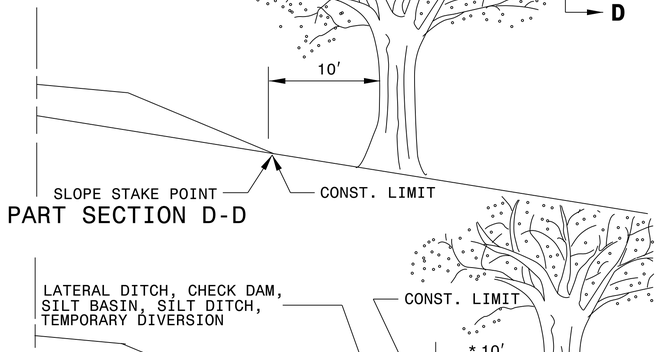
METHOD III CLEARING LIMITS

(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.

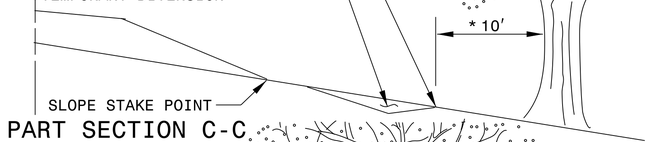
* FOR FILL HEIGHTS LESS THAN 10′ CLEAR TO 5′ BEYOND CONSTRUCTION LIMITS.
* FOR FILL HEIGHTS 10′ OR GREATER CLEAR TO 10′ BEYOND CONSTRUCTION LIMITS.
** PLACE SILT FENCE AT 5′ BEYOND TOE OF SLOPE IN FILL SECTIONS WITH LESS THAN 10′. PLACE SILT FENCE AT 10′ BEYOND TOE OF SLOPE IN FILL SECTIONS WITH 10′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



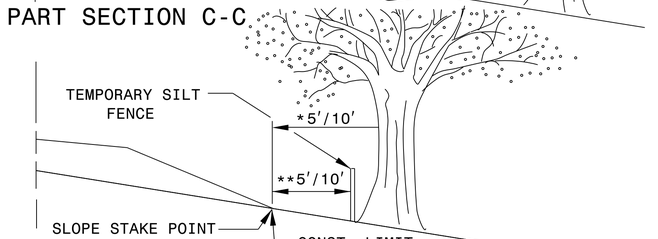
SECTION A-A



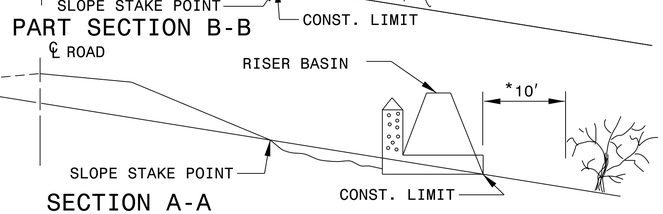
PART SECTION D-D



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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
9/7/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

05-DEC-2017 09:31
S:\Contracts\Special Details\kkempf\english\0200D301_modified method III CandG.dgn
jhoverton
Contracts AT CSD-292695

PROJECT REFERENCE NO.	SHEET NO.
B-5621	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030943 ENGINEER THEIN TUN ZAN

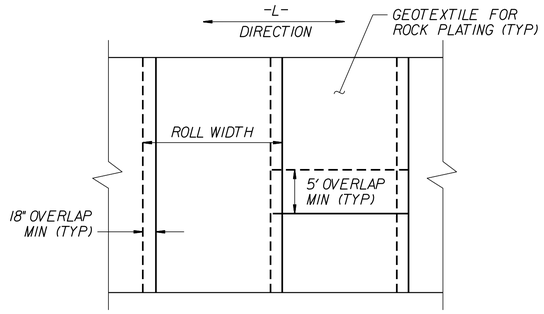
DocuSigned by: Thein Tun Zan 7/29/2021 A43688C08C19472...

SIGNATURE DATE

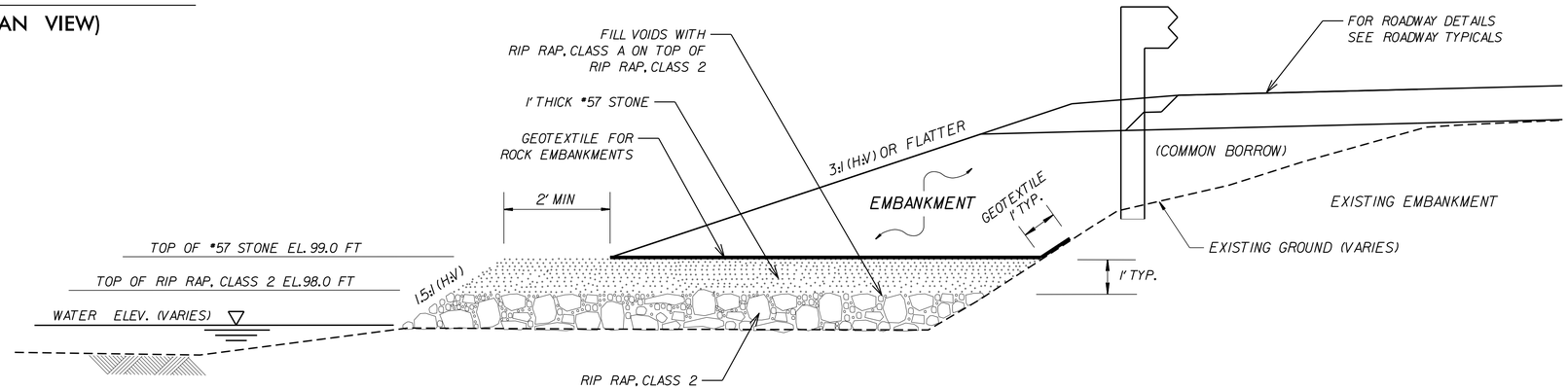
ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)



ROCK EMBANKMENTS – TYPICAL SECTION
(NOT TO SCALE)

ROCK EMBANKMENTS

FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENTS SPECIAL PROVISION.

USE ROCK EMBANKMENTS AT FOLLOWING LOCATIONS:

-LINE-	APPROX. BEGINNING STATION	APPROX. ENDING STATION	LOCATION LT/RT
-L-	26+75 +/-	28+25 +/-	LEFT

CONSTRUCT ROCK EMBANKMENTS (RIP RAP, CLASS 2) TO THE ELEVATION SWHON IN THE ROCK EMBANKMENTS DETAIL AND ACCORDING TO THE ROCK EMBANKMENTS SPECIAL PROVISION.

FILL VOIDS IN THE TOP OF ROCK EMBANKMENTS (RIP RAP, CLASS 2) WITH RIP RAP, CLASS A.

PLACE #57 STONE (SELECT MATERIAL, CLASS VI) UP TO 1 FT. ABOVE ROCK EMBANKMENTS AS SHOWN IN THE PLAN.

INSTALL GEOTEXTILE ON TOP OF NO. 57 STONE AS SHOWN IN THE ROCK EMBANKMENTS DETAIL AND IN ACCORDANCE WITH THE ARTICLE 270-3 OF THE STANDARD SPECIFICATIONS.

ESTIMATED MATERIAL QUANTITIES FOR ROCK EMBANKMENTS

RIP RAP, CLASS 2 = 150 TONS

RIP RAP, CLASS A = 50 TONS

#57 STONE (SELECT MATERIAL, CLASS VI) = 70 TONS

GEOTEXTILE FOR ROCK EMBANKMENTS = 80 SY

PREPARED BY: THEIN T. ZAN	DATE: 07-2021
REVIEWED BY: JAMES R. BATTS	DATE: 07-2021

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

ROCK EMBANKMENT DETAILS

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

COMPUTED BY: AJM DATE: 4/27/2021
CHECKED BY: RHT DATE: 5/3/2021

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
B-5621	3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK +%	BORROW	WASTE
-L- 21+50.00	-L- 23+21.69 (BRIDGE)	1	110	109	
-L- 25+44.31 (BRIDGE)	-L- 28+50.00	15	460	445	
TOTALS:		16	570	554	
WASTE IN LIEU OF BORROW					
PROJECT TOTALS:		16	570	554	
5% TO REPLACE TOP SOIL ON BORROW PIT				28	
GRAND TOTALS:		16		582	
SAY:		50		600	

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

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

REMOVAL OF EXISTING ASPHALT PAVEMENT SUMMARY

SURVEY LINE	STATION	STATION	SQUARE YARDS
-L-, CL	22+48.09	23+47.08	242.79
-L-, CL	25+29.72	26+18.09	220.85
		TOTAL:	463.64
		SAY:	500

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
-L-, LT	22+90.44	23+10.81	20.37
-L-, RT	22+90.44	23+10.81	20.37
-L-, LT	25+55.19	25+74.56	19.37
-L-, RT	25+55.19	25+74.56	19.37
		TOTAL:	79.48
		SAY:	80

ROW AREA DATA SUMMARY

PARCEL NO.	PROPERTY OWNERS NAMES	PROP. R/W	PERM. UTILITY EASE.	PERM. DRAIN. EASE.	TEMP. DRAINAGE EASE.	CONST. EASE.
1	LILLIE BARBER CHAPMAN, ET AL			400.00 SF		3348.40 SF
2	PELMON JART HUDSON, JR.	4440.00 SF				1862.10 SF
3	VICKY LUCAS, JAMES TIMOTHY HAIRR, JEFF HAIRR AND B. SCOTT KING			500.00 SF		3026.77 SF
4	WILBERT EARL JACKSON, JR	800.00 SF		260.00 SF		4946.23 SF

"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			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS			IMPACT ATTENUATOR 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	AT-1	GREU TL-3	TYPE-III	EA	G	NG				
-L-	22+40.44	23+21.69	LT	81.25'				23+21.69 (BRIDGE)	4.42'	7.42'		50'		1'		1	1							
-L-	22+40.44	23+21.69	RT	81.25'			23+21.69 (BRIDGE)		4.42'	7.42'	50'		1'			1	1							
-L-	25+44.31	27+46.43	LT	202.12'			26+00.00 (ROCK PLATING)	25+44.31 (BRIDGE)	4.42'	8.92'	50'		1'			1	1							ROCK PLATING FOR 2:1 SLOPES
-L-	25+44.31	27+46.43	RT	202.12'			25+44.31 (BRIDGE)	26+00.00 (ROCK PLATING)	4.42'	8.92		50'		1'		1	1							ROCK PLATING FOR 2:1 SLOPES
		SUBTOTAL:		566.74'												4	4							
		ANCHOR DEDUCTIONS:																						
		GREU, TL-3: 4@50'		-200.00'																				
		TYPE-III: 4@18.75'		-75.00'																				
		TOTAL:		291.74'																				
		SAY:		300'																				
		5 ADDITIONAL POST																						

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CAAP 12"	CAAP 15"	CAAP 18"	CAAP 24"	CAAP 30"	CAAP 36"	CAAP 42"	CAAP 48"	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, OR PVC) 12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE											.064	.079		.109									
-L- STA 23+00	LT	0401		103.4																			
	LT	0401	0402		98.4	97.0											20'						
-L- STA 25+66	LT	0403		103.6																			
	LT	0403	0404		98.6	96.0											20'						
-L- STA 23+00	RT	0406		103.4																			
	RT	0406	0405		98.4	95.9											28'						
-L- STA 25+66	RT	0407		103.6																			
	RT	0407	0408		98.6	96.5											20'						
TOTAL																							

STATION	CLASS IV R.C. PIPE 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
-L- STA 23+00														1						
-L- STA 25+66														1						
-L- STA 23+00														1						
-L- STA 25+66														1						
TOTAL														4						

STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	TB GRATED D.I., TYPE 'B' STD. 840.35	T.B.D.I. (N.S.) FRAME AND TWO GRATES STD. 840.29	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- STA 23+00												1					
-L- STA 25+66												1					
-L- STA 23+00												1					
-L- STA 25+66												1					
TOTAL												4					

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: Tyler C. Bottoms DATE: 6/4/2020
CHECKED BY: Thein Tun Zan DATE: 8/4/2020

(5-15-18)

PROJECT NO.	SHEET NO.
B-5621	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

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

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

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	Station	Station	Geotextile for Pavement Stabilization SY	Class IV Subgrade Stabilization TONS
CONTINGENCY				
		TOTAL SY/TONS:	0	0*

*Total tons of "Class IV Subgrade Stabilization" is only the estimated quantity for pavement stabilization and may only represent a portion of the subgrade stabilization quantity shown in the Item Sheets of the Proposal.

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									
				TOTAL CY/TONS/SY:	0	0**	0**	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.

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-	2:1	25+43	2.5:1	26+00	LT	1	*	60
-L-	2:1	25+43	2.5:1	26+00	RT	1	*	110
							TOTAL SY:	170

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

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
					TOTAL SY:	0	0	0*	0**

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.
**Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

SUMMARY OF PRE-SPLITTING OF ROCK

LINE	Beginning Rock Cut Slope (H:V)	Approx. Station	Ending Rock Cut Slope (H:V)	Approx. Station	Location LT/RT	Pre-splitting of Rock SY
					TOTAL SY:	0

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE and Station	Offset	
		Distance FT	Direction LT/RT
	TOTAL GAUGES (EACH):		

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

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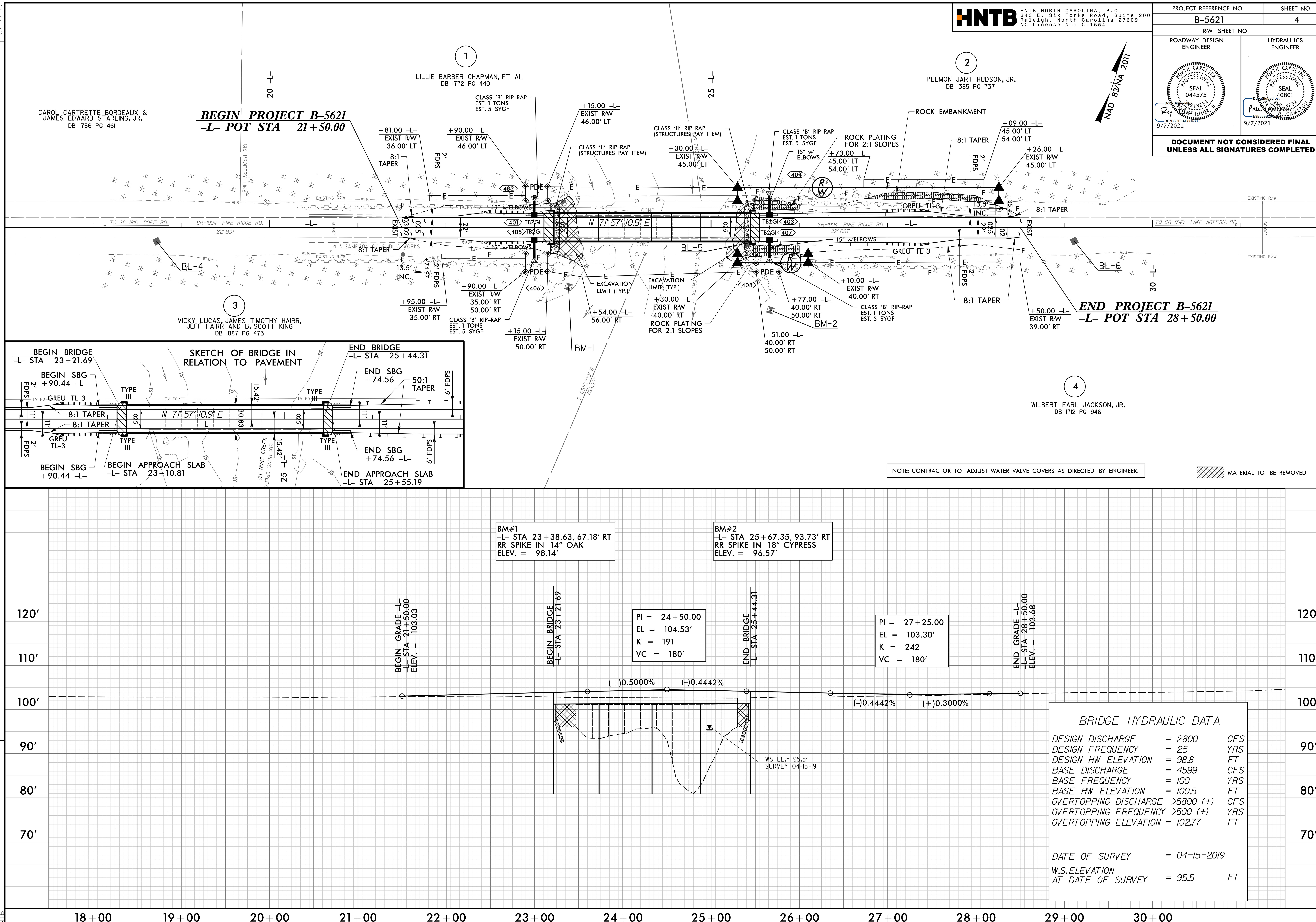
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
B-5621	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 044575 — 9/7/2021	SEAL 40801 — 9/7/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



BEGIN PROJECT B-5621
-L- POT STA 21+50.00
END PROJECT B-5621
-L- POT STA 28+50.00
NAD 83/NA 2011
1 LILLIE BARBER CHAPMAN, ET AL DB 1772 PG 440
2 PELMON JART HUDSON, JR. DB 1385 PG 737
3 VICKY LUCAS, JAMES TIMOTHY HAIRR, JEFF HAIRR AND B. SCOTT KING DB 1887 PG 473
4 WILBERT EARL JACKSON, JR. DB 1712 PG 946
CAROL CARTRETTE BORDEAUX & JAMES EDWARD STARLING, JR. DB 1756 PG 461
SR-1904 PINE RIDGE RD.
TO SR-1916 POPE RD.
TO SR-1740 LAKE ARTESIA RD.
N 71° 57' 10.9" E
BL-4
BL-5
BL-6
BM-1
BM-2
ROCK EMBANKMENT
ROCK PLATING FOR 2:1 SLOPES
CLASS 'B' RIP-RAP EST. 1 TONS EST. 5 SYGF
CLASS 'II' RIP-RAP (STRUCTURES PAY ITEM)
EXCAVATION LIMIT (TYP.)
GREU TL-3
8:1 TAPER
SKETCH OF BRIDGE IN RELATION TO PAVEMENT
BEGIN BRIDGE -L- STA 23+21.69
END BRIDGE -L- STA 25+44.31
BEGIN SBG +90.44 -L-
END SBG +74.56 -L-
50:1 TAPER
BEGIN APPROACH SLAB -L- STA 23+10.81
END APPROACH SLAB -L- STA 25+55.19
NOTE: CONTRACTOR TO ADJUST WATER VALVE COVERS AS DIRECTED BY ENGINEER.
MATERIAL TO BE REMOVED
BM#1 -L- STA 23+38.63, 67.18' RT RR SPIKE IN 14" OAK ELEV. = 98.14'
BM#2 -L- STA 25+67.35, 93.73' RT RR SPIKE IN 18" CYPRESS ELEV. = 96.57'
BEGIN GRADE -L- STA 21+50.00 ELEV. = 103.03
BEGIN BRIDGE -L- STA 23+21.69
END BRIDGE -L- STA 25+44.31
END GRADE -L- STA 28+50.00 ELEV. = 103.68
PI = 24+50.00 EL = 104.53' K = 191 VC = 180'
PI = 27+25.00 EL = 103.30' K = 242 VC = 180'
(+)0.5000%
(-)0.4442%
(-)0.4442%
(+)0.3000%
WS EL.= 95.5' SURVEY 04-15-19

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	2800	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	98.8	FT
BASE DISCHARGE	=	4599	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	100.5	FT
OVERTOPPING DISCHARGE		>5800 (+)	CFS
OVERTOPPING FREQUENCY		>500 (+)	YRS
OVERTOPPING ELEVATION	=	102.77	FT
DATE OF SURVEY	=	04-15-2019	
W.S. ELEVATION AT DATE OF SURVEY	=	95.5	FT

REVISIONS

17-AUG-2021 14:14 \Roadway\Proj\B5621_RDY_PSH4.dgn HNTB

09/08/99

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5621	RW01	5

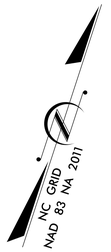
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

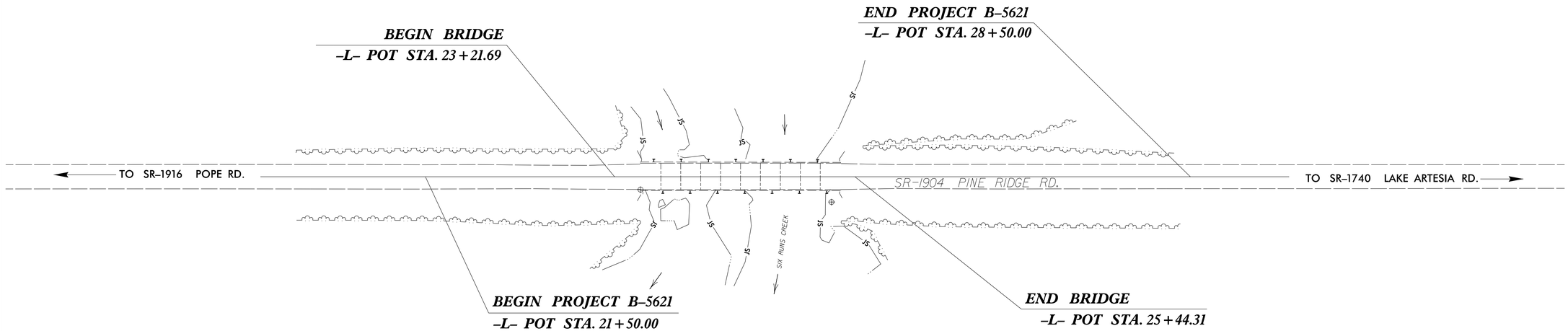
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

SAMPSON COUNTY

LOCATION: BRIDGE #248 OVER SIX RUNS CREEK ON SR 1904 (PINE RIDGE RD.)

TIP PROJECT: B–5621





GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5621-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 470677.581(ft) EASTING: 2227687.136(ft) ELEVATION: 138.909(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998781499 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5621-2" TO -L- STATION 10+00.00 IS N 71-10'47.38" E 1111.62(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88 GEIOD G12NC

Prepared in the Office of:

LOCATION & SURVEYS, DIVISION 3
5310 BARBADOS BLVD. #102
CASTLE HAYNE, NC 28429
(910) 341–2281

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	***LETTING DATE:***
APRIL 30, 2021	***OCTOBER 14, 2021***

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J. SAWYER

DocuSigned by: 8/16/2021
87700CB2E1D21467

SIGNATURE: ***Date:***

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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wbfrancis AT LS-29902

PROJECT REFERENCE NO.	SHEET NO.
B5621	RW02C-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 3
5310 BARBADOS BLVD. #102
CASTLE HAYNE, NC 28429
(910) 341-2281

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J. SAWYER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BL

POINT	DESC.	NORTH	EAST	ELEVATION
B56211	GPS CAP & REBAR	470385.7380	2226679.2080	147.47
B56212	GPS CAP & REBAR	470677.5810	2227687.1360	138.91
BL3	TRV CAP & REBAR	471023.8400	2228618.0210	110.47
BL4	TRV CAP & REBAR	471291.4870	2229573.4920	101.74
BL5	TRV CAP & REBAR	471496.2670	2230209.5360	102.01
BL6	TRV CAP & REBAR	471613.6080	2230561.4960	102.80

EL

POINT	N	E	BEARING	DIST
POT	471036.189	2228739.325		
LINE			N 71°57'10.9" E	2610.80
POT	471845.007	2231221.685		

BM1 ELEVATION = 98.14
N 471387 E 2230033
R/R SPIKE IN 14" OAK

BM2 ELEVATION = 96.57
N 471433 E 2230259
R/R SPIKE IN 18" CYPRESS

I, CHRISTOPHER J. SAWYER, PLS, certify that the Project Control was [performed/verified] under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

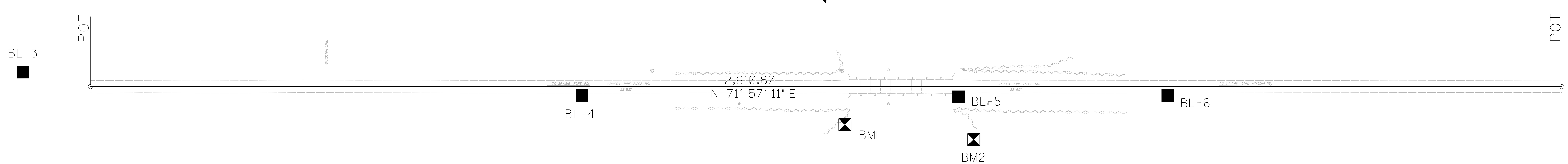
Class of survey: ***AA***
Type of GPS field procedure: NC-VRS-RTN
Date of survey: MARCH 2016
Datum/Epoch:NAD 83/NA 2011
Published/Fixed-control use: Project Control N/A for RTN
Localized around: B5621-2
Northing:470677.581
Easting:2227687.136
Combined grid factor: 0.9998781499
Geoid model: G12NC
Units: US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from March 1, 2016 to March 30, 2016 and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 16th day of August, 2021.

DocuSigned by:

Professional Land Surveyor L-4526



NOTES:

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

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

6/2/99

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wbfrancis AT LS-299902

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B5621	RW02D-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 3
5310 BARBADOS BLVD. #102
CASTLE HAYNE, NC 28429
(910) 341-2281

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-4526 CHRISTOPHER J. SAWYER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

This 16th day of August, 2021.

DocuSigned by:

Professional Land Surveyor L-4526

REVISIONS

L

POINT	N	E	BEARING	DIST
POT	471036.189	2228739.325		
LINE			N 71°57'10.9" E	2610.80
POT	471845.007	2231221.685		

NOTES:

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

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

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16-AUG-2021 13:45
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xbfrancis AT LS-299902

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REVISIONS

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wbfrancis AT LS-299902

PROJECT REFERENCE NO.	SHEET NO.
B5621	RW02E-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 3
5310 BARBADOS BLVD. #102
CASTLE HAYNE, NC 28429
(910) 341-2281

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J. SAWYER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RIGHT OF WAY CONTROL SHEET

I , CHRISTOPHER J. SAWYER , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from July 25 2021 to July 28 2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 16th day of August, 2021.

DocuSigned by:

Professional Land Surveyor L-4526

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST	
L	25+30.00	-45.00	471552.96384	2230180.11221	UNDER WATER (NOT SET)
L	25+30.00	-30.00	471538.70180	2230184.75916	UNDER WATER (NOT SET)
L	25+30.00	30.00	471481.65363	2230203.34696	
L	25+30.00	40.00	471472.14560	2230206.44493	
L	26+10.00	40.00	471496.92934	2230282.50916	UNDER WATER (NOT SET)
L	26+10.00	30.00	471506.43737	2230279.41119	
L	28+26.00	-45.00	471644.66368	2230461.54984	UNDER WATER (NOT SET)
L	28+26.00	-30.00	471630.40163	2230466.19679	

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST	
L	22+90.00	50.00	471388.28636	2229981.35025	
L	22+90.00	30.00	471407.30241	2229975.15429	
L	22+90.00	-46.00	471479.56342	2229951.60974	
L	22+90.00	-30.00	471464.35058	2229956.56648	
L	23+15.00	50.00	471396.03127	2230005.12029	
L	23+15.00	30.00	471415.04733	2229998.92436	
L	23+15.00	-46.00	471487.30834	2229975.37981	UNDER WATER (NOT SET)
L	23+15.00	-30.00	471472.09550	2229980.33656	
L	25+51.00	50.00	471469.14330	2230229.50976	
L	25+51.00	40.00	471478.65133	2230226.41179	
L	25+77.00	50.00	471477.19802	2230254.23063	
L	25+77.00	40.00	471486.70605	2230251.13266	

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

PROJECT REFERENCE NO.	SHEET NO.
B5621	RW04

Location and Surveys

LOCATION & SURVEYS
DIVISION 3
5310 BARBADOS BLVD. #102
CASTLE HAYNE, NC 28429
(910) 341-2280

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J. SAWYER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

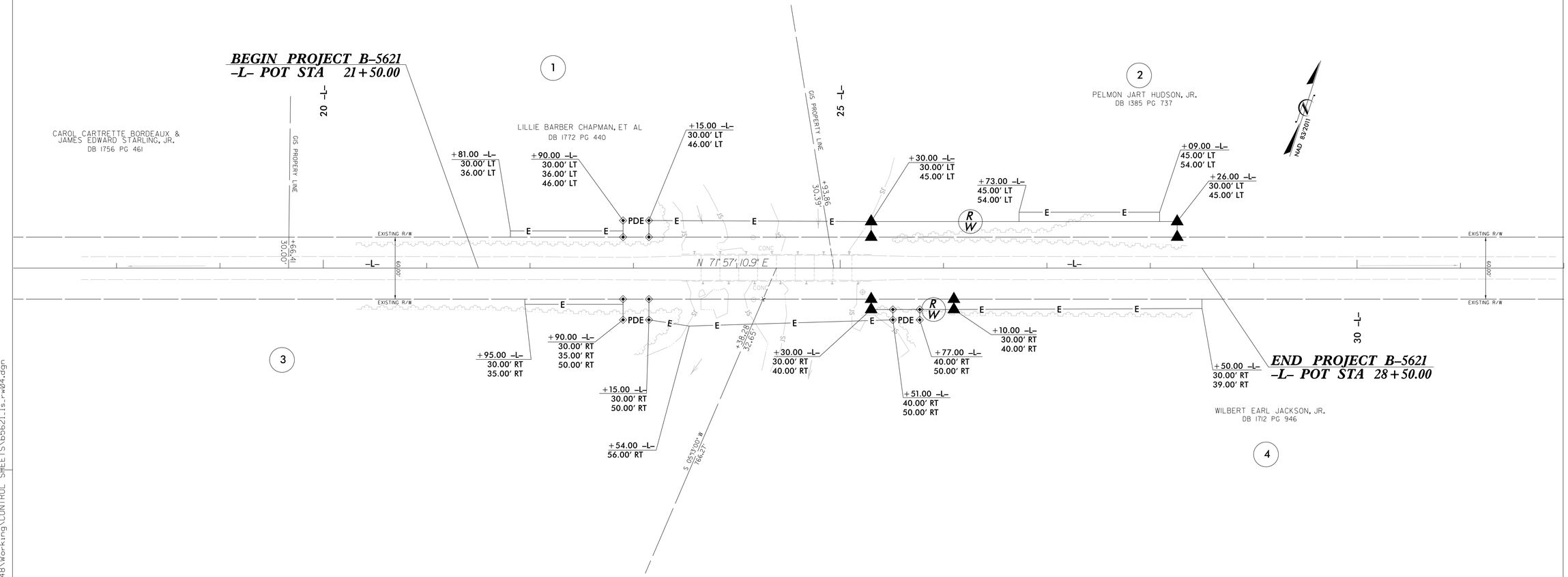
I , CHRISTOPHER J. SAWYER , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from June 2021 to July 2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 16th day of August, 2021.

DocuSigned by:
Christopher Sawyer

Professional Land Surveyor L-4526

REVISIONS 6/2/99



NOTES:

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

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

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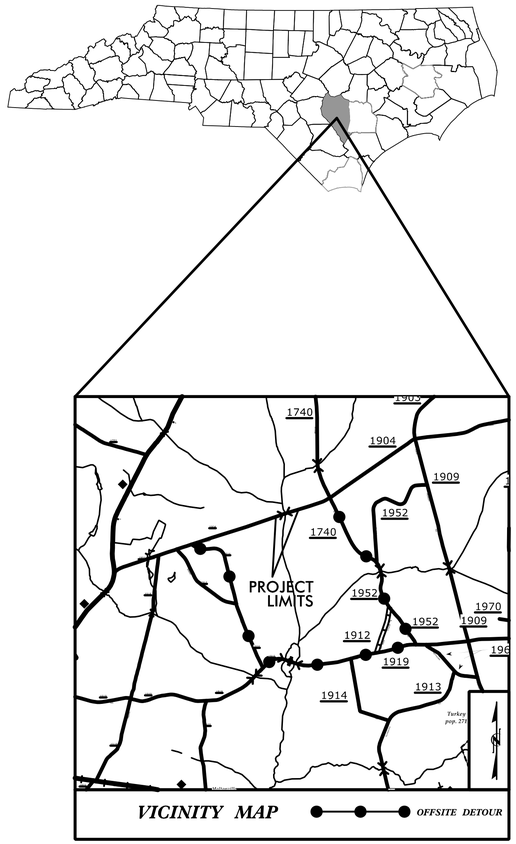
wbrancis
AT LS-29902

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

SAMPSON COUNTY



VICINITY MAP — *OFFSITE DETOUR*

LOCATION: ***REPLACE BRIDGE NO. 248 OVER SIX RUNS CREEK ON SR 1904***

GRADING, DRAINAGE, PAVING AND STRUCTURE

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

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

JESSI LEONARD, PE — *DIVISION TRAFFIC ENGINEER*

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

INDEX OF SHEETS

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS FOR TWO-WAY UNDIVIDED FACILITIES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & 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 DELINEATOR SPACING - INSTALLATION SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR-TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

H. SHYU, PE — *TRAFFIC CONTROL PROJECT ENGINEER*

J. A. PHILLIPS — *TRAFFIC CONTROL DESIGN TECHNICIAN*

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Ste 200
Raleigh, North Carolina 27609
NC License No: C-1554

APPROVED: DocuSigned by: Helen Shyu 0F15075A95E44EF...

DATE: 9/7/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042517 ENGINEER HELEN SHYU

SHEET NO. TMP-1

B-5621

TIP PROJECT:

8/12/2021
\\TCP\B-5621_tc_TCP_01_title.dgn
HNTB

PROJ. REFERENCE NO.	SHEET NO.
B-5621	TMP-2

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 THE DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

B) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN ON THIS SHEET.

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKING AND MARKERS

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

ROAD NAME	MARKING	MARKERS
SR 1904 (PINE RIDGE RD)	THERMOPLASTIC	RAISED
SR 1904 BRIDGE	POLYUREA	RAISED

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

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

J) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PHASING

THE TERM RSD REFERS TO ROADWAY STANDARD DRAWINGS.

PHASE I

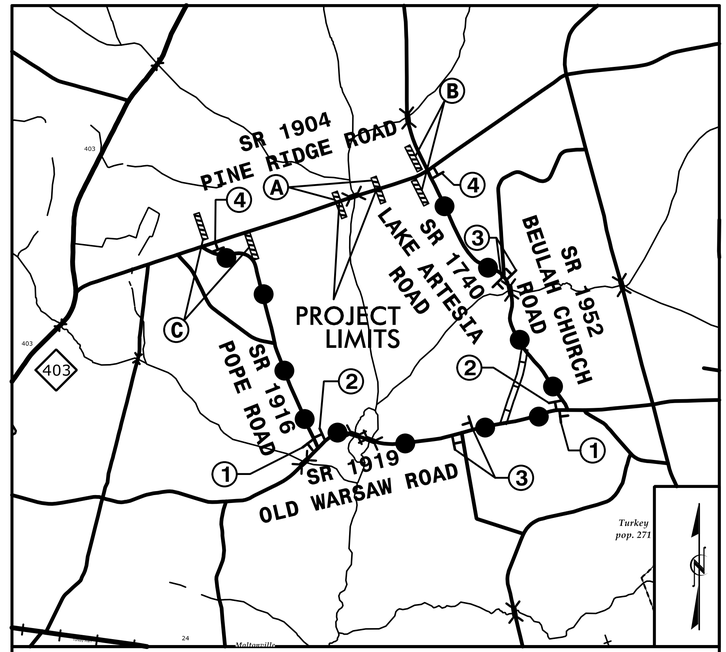
PRIOR TO ANY CONSTRUCTION OPERATIONS, INSTALL ADVANCE WARNING SIGNS ACCORDING TO RSD 1101.01 (SHEET 3 OF 3) AND PLACE AND COVER OFF-SITE DETOUR SIGNS AS SHOWN AND IN ACCORDANCE WITH RSD 1101.03 (SHEET 1 OF 9).

PHASE II

USING OFF-SITE, UNCOVER DETOUR SIGNS, CLOSE -L- (SR 1904 / PINE RIDGE ROAD) TO TRAFFIC AND CONSTRUCT BRIDGE, APPROACHES, AND ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.

PHASE III

UPON COMPLETION OF BRIDGE, APPROACHES AND ROADWAY, PLACE FINAL PAVEMENT MARKINGS IN ACCORDANCE WITH RSD 1205.01, 1205.02 AND 1205.12. REMOVE BARRICADES AND DETOUR SIGNS AND OPEN -L- (SR 1904 / PINE RIDGE ROAD) TO TRAFFIC.



VICINITY MAP — OFFSITE DETOUR

① DETOUR M4-8 24″ X 12″ — M6-1 L 21″ X 15″

② DETOUR M4-8 24″ X 12″ — M6-1 21″ X 15″

③ DETOUR M4-8 24″ X 12″ — M6-3 21″ X 15″

④ END DETOUR M4-8 A 24″ X 18″

Ⓐ R11-2 48″ x 30″ — ROAD CLOSED — TYPE III BARRICADE

Ⓑ R11-4 60″ x 30″ — ROAD CLOSED TO THRU TRAFFIC — DETOUR — M4-10L 48″ x 18″ — TYPE III BARRICADE

Ⓒ R11-3 60″ x 30″ — ROAD CLOSED 1 MILE AHEAD LOCAL TRAFFIC ONLY — DETOUR — M4-10R 48″ x 18″ — TYPE III BARRICADE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED Digitally signed by: Helen Shyu DF15975A95E44EF...

DATE: 9/7/2021

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042517 HELEN SHYU

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

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

TRANSPORTATION MANAGEMENT PLAN

PHASING, GENERAL NOTES, AND DETOUR

8/12/2021
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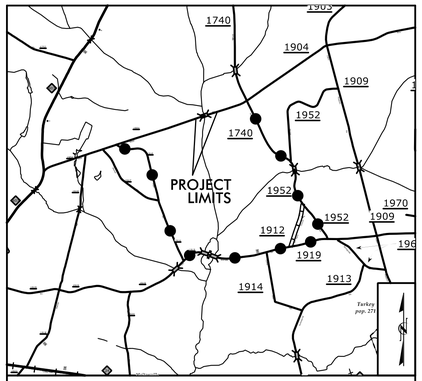
HNTB

TIP PROJECT: B-5621



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

SAMPSON COUNTY

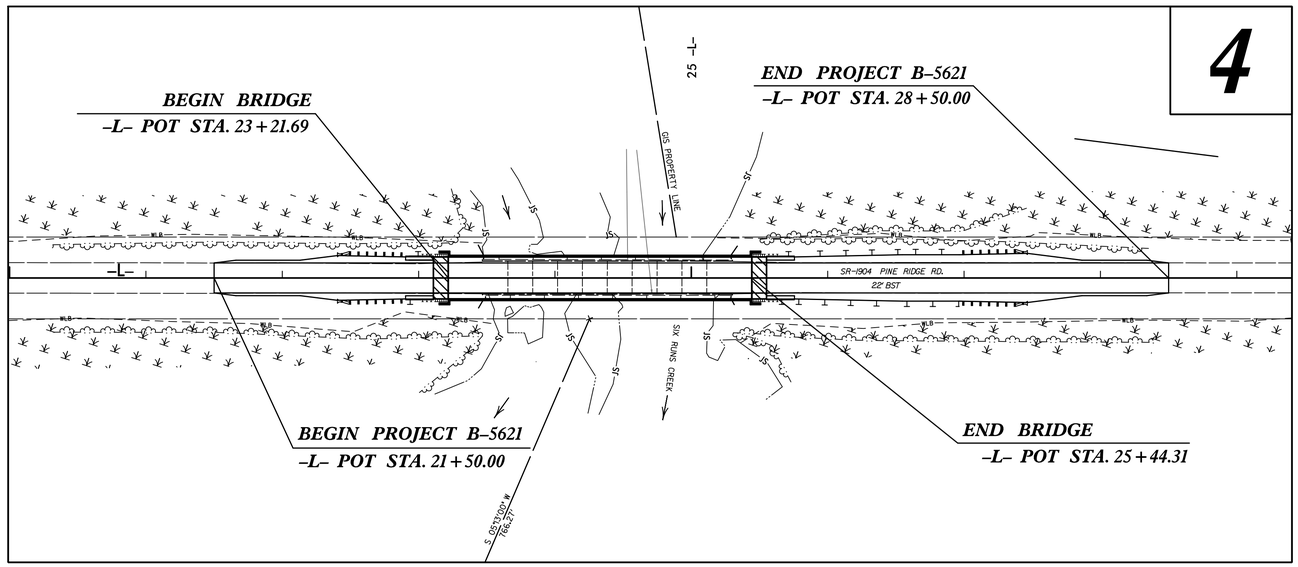
LOCATION: REPLACE BRIDGE NO. 248 OVER SIX RUNS CREEK ON SR 1904

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5621	EC-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
45576.1.1	BRZ-1904(001)		

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	SW 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	
	Infiltration Basin	



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.

HNTB

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PREPARED IN THE OFFICE OF:

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

FOR NCDOT DIVISION 3

Designed by:

NATALIE CHAN P.E. ***3444***

NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

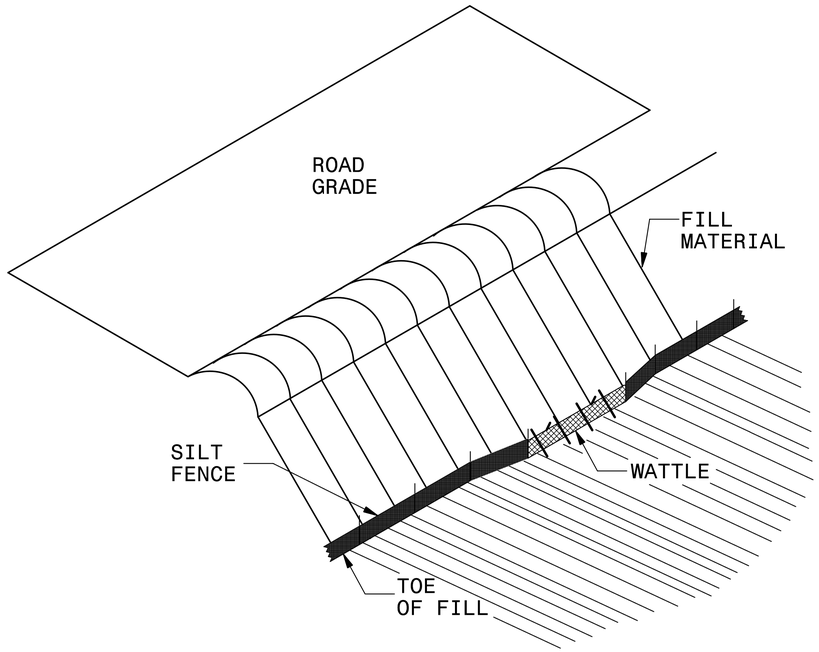
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

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		

2/17/2021
"N:\Design\B-5621_EC_tsh.dgn"

PROJECT REFERENCE NO.	SHEET NO.
B-5621	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



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.

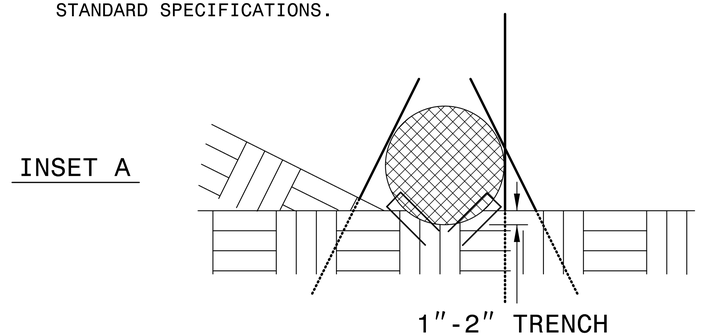
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

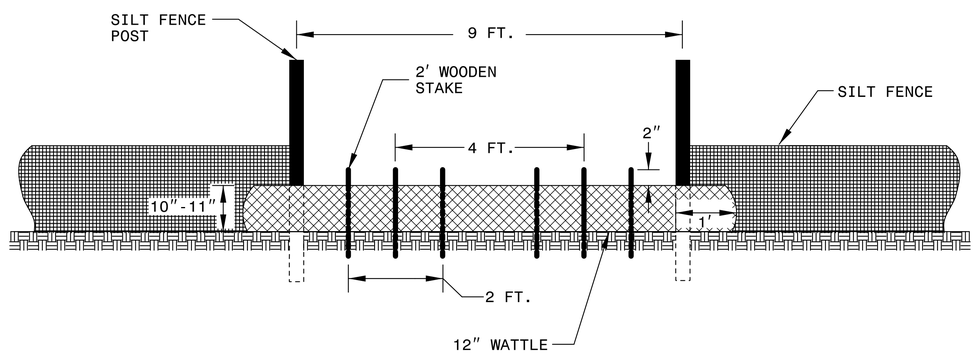
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

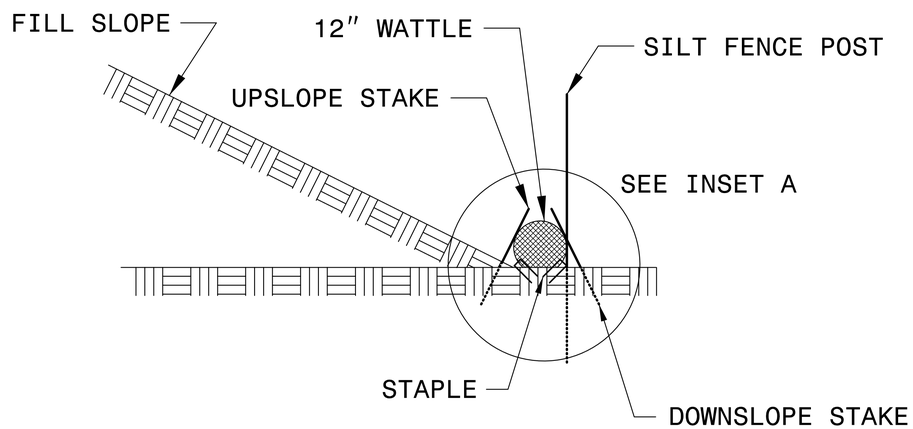
WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

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





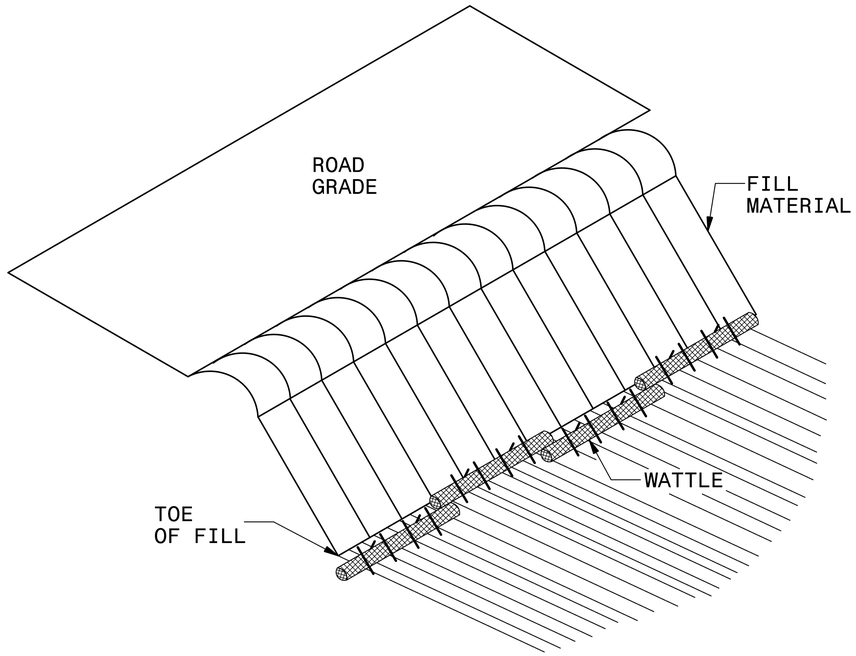
VIEW FROM SLOPE



SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5621	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

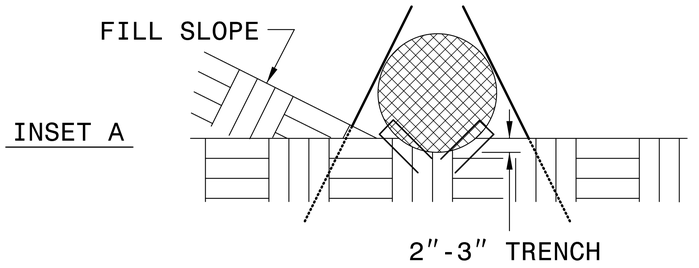
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

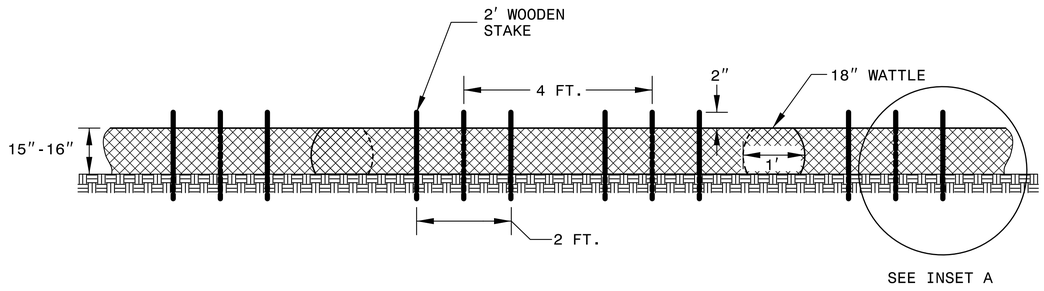
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

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

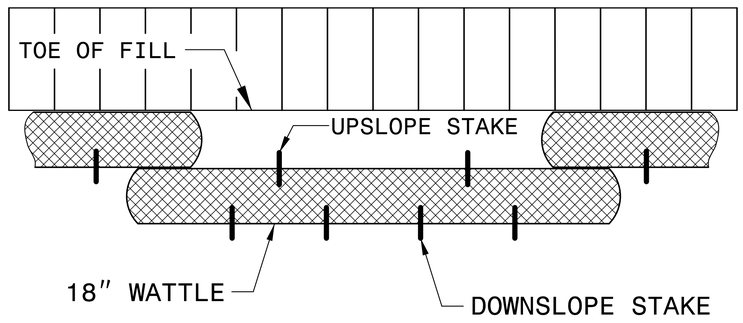
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.





FRONT VIEW



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5621	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

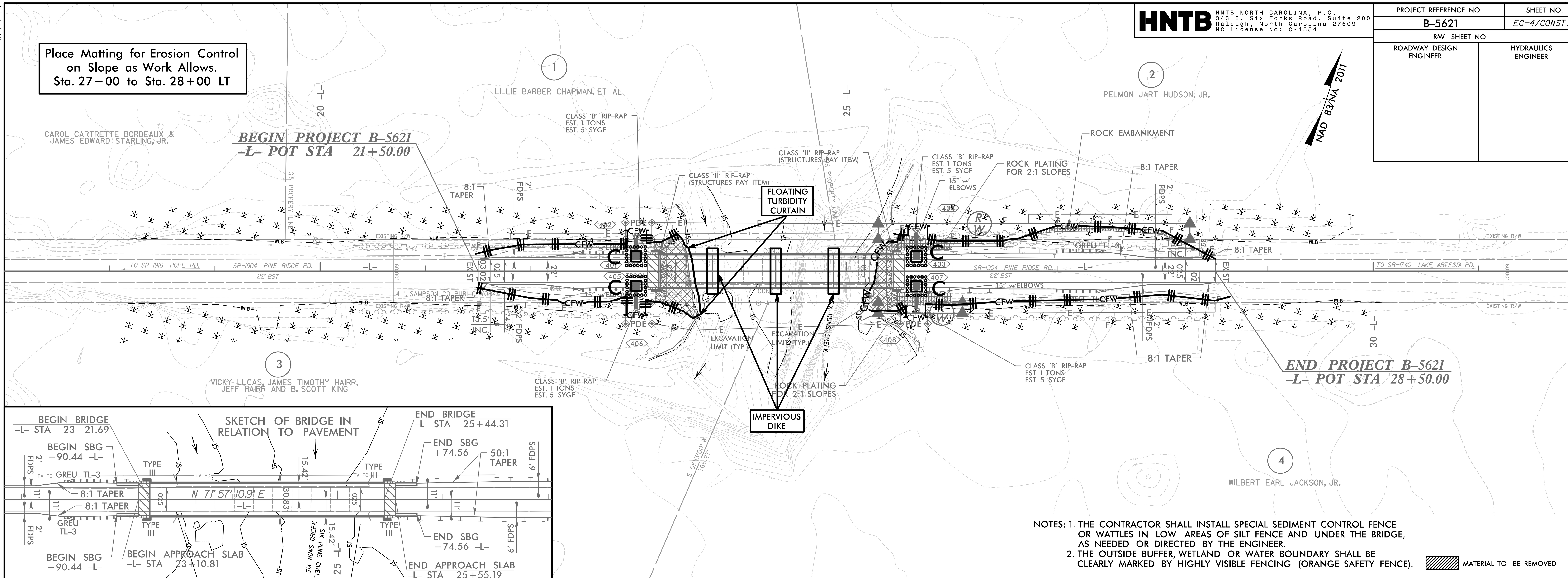
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

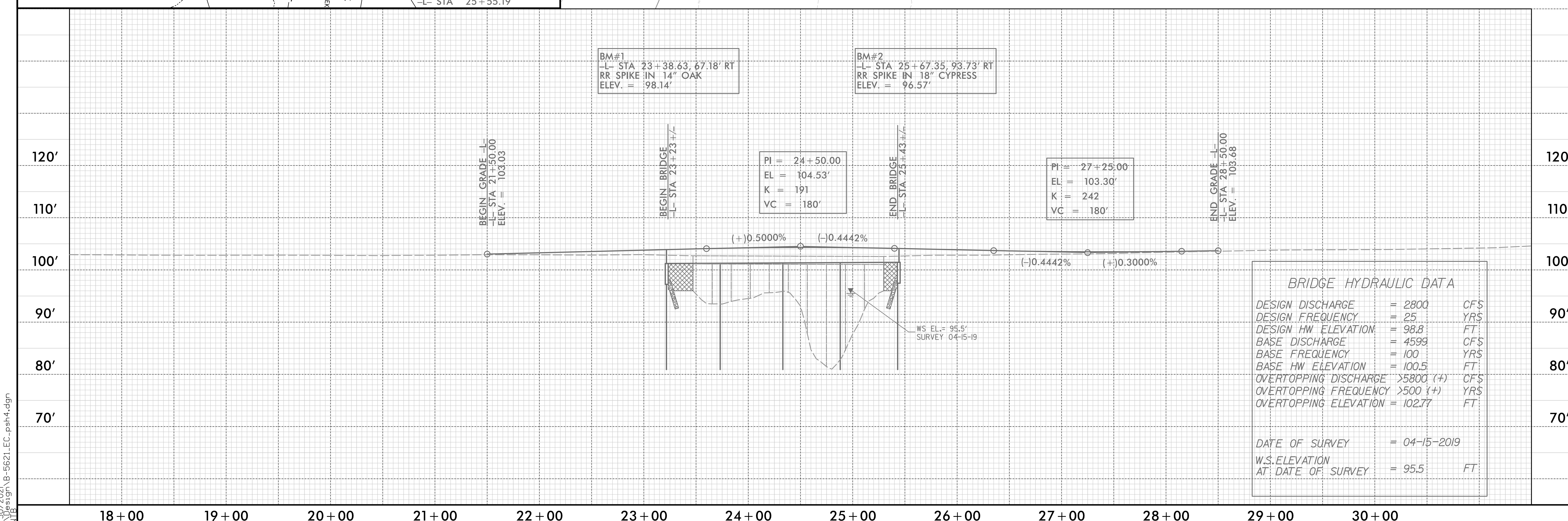
PROJECT REFERENCE NO.	SHEET NO.
B-5621	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554


Place Matting for Erosion Control on Slope as Work Allows. Sta. 27+00 to Sta. 28+00 LT
BEGIN PROJECT B-5621
-L- POT STA 21+50.00
END PROJECT B-5621
-L- POT STA 28+50.00
LILLIE BARBER CHAPMAN, ET AL
PELMON JART HUDSON, JR.
CAROL CARTRETTE BORDEAUX & JAMES EDWARD STARLING, JR.
VICKY LUCAS, JAMES TIMOTHY HAIRR, JEFF HAIRR AND B. SCOTT KING
WILBERT EARL JACKSON, JR.
NAD 83/NA 2011
CLASS 'B' RIP-RAP EST. 1 TONS EST. 5 SYGF
CLASS 'II' RIP-RAP (STRUCTURES PAY ITEM)
FLOATING TURBIDITY CURTAIN
IMPERVIOUS DIKE
ROCK PLATING FOR 2:1 SLOPES
ROCK EMBANKMENT
EXCAVATION LIMIT (TYP.)
8:1 TAPER
15" w/ ELBOWS
SR-1904 PINE RIDGE RD.
TO SR-1916 POPE RD.
TO SR-1740 LAKE ARTESIA RD.
SIX RUNS CREEK
SKETCH OF BRIDGE IN RELATION TO PAVEMENT
BEGIN BRIDGE -L- STA 23+21.69
END BRIDGE -L- STA 25+44.31
BEGIN SBG +90.44 -L-
END SBG +74.56
50:1 TAPER
BEGIN APPROACH SLAB -L- STA 23+10.81
END APPROACH SLAB -L- STA 25+55.19
N 71°57'10.9" E
TYPE III
GREU TL-3

NOTES: 1. THE CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AND UNDER THE BRIDGE, AS NEEDED OR DIRECTED BY THE ENGINEER.
2. THE OUTSIDE BUFFER, WETLAND OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).

MATERIAL TO BE REMOVED

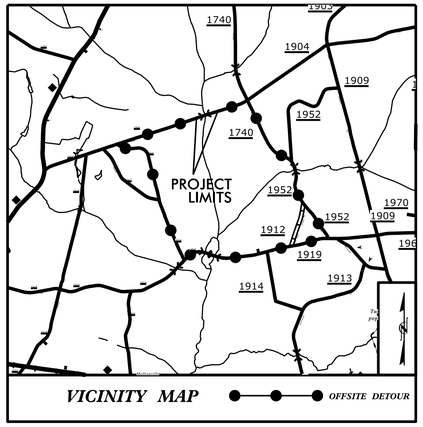

BM#1
-L- STA 23+38.63, 67.18' RT
RR SPIKE IN 14" OAK
ELEV. = 98.14'
BM#2
-L- STA 25+67.35, 93.73' RT
RR SPIKE IN 18" CYPRESS
ELEV. = 96.57'
BEGIN GRADE -L- STA 21+50.00 ELEV. = 103.03
BEGIN BRIDGE -L- STA 23+23 +/-
PI = 24+50.00
EL = 104.53'
K = 191
VC = 180'
END BRIDGE -L- STA 25+43 +/-
PI = 27+25.00
EL = 103.30'
K = 242
VC = 180'
END GRADE -L- STA 28+50.00 ELEV. = 103.68
(+)0.5000%
(-)0.4442%
(-)0.4442%
(+)0.3000%
WS EL.= 95.5'
SURVEY 04-15-19
120'
110'
100'
90'
80'
70'
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 98.8	FT
BASE DISCHARGE	= 4599	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 100.5	FT
OVERTOPPING DISCHARGE	>5800 (+)	CFS
OVERTOPPING FREQUENCY	>500 (+)	YRS
OVERTOPPING ELEVATION	= 102.77	FT
DATE OF SURVEY	= 04-15-2019	
W.S. ELEVATION AT DATE OF SURVEY	= 95.5	FT

8/17/99
4/30/2021 ...Design\B-5621_EC_psh4.dgn

TIP PROJECT: B–5621



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
SAMPSON COUNTY

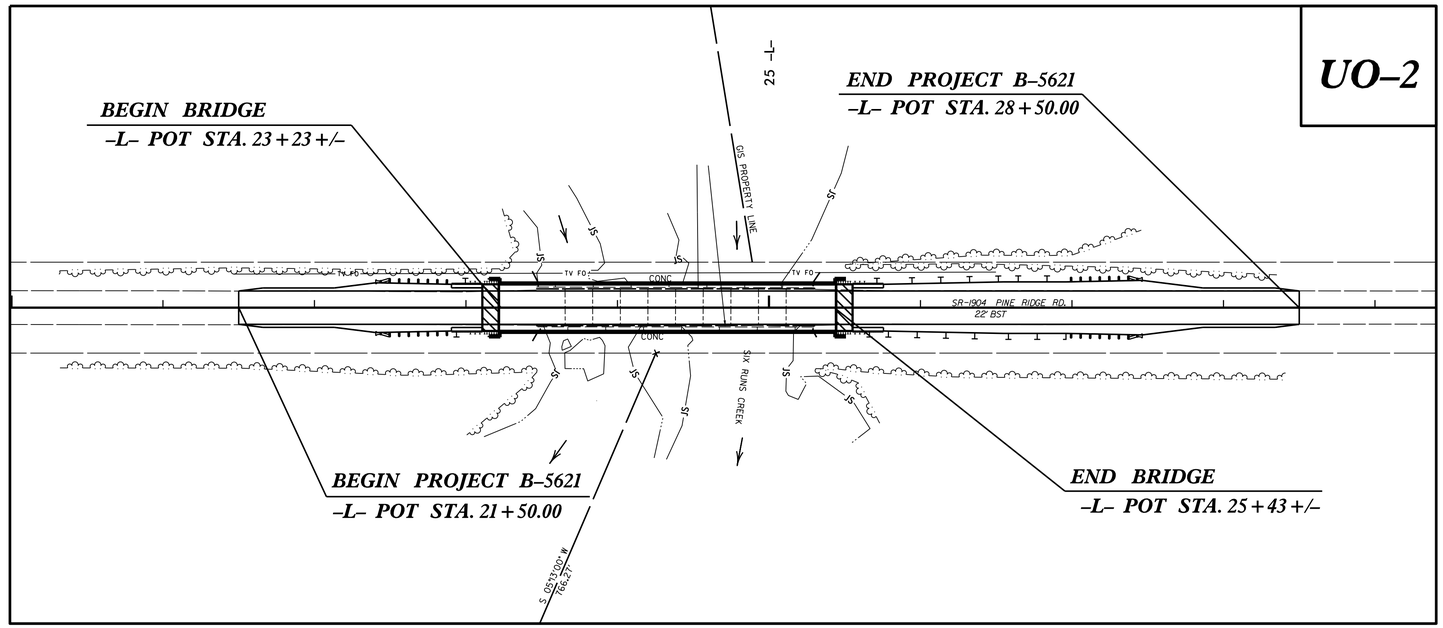
LOCATION: REPLACE BRIDGE NO. 248 OVER SIX RUNS CREEK ON SR 1904 (PINE RIDGE ROAD)

TYPE OF WORK: POWER, PHONE, AND CATV RELOCATION

T.I.P. NO.	SHEET NO.
B–5621	UO–1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

UO–2



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

UTILITY OWNERS WITH CONFLICTS

(A) POWER – FOUR COUNTY EMC
(B) PHONE – STAR COMMUNICATIONS
(C) CATV – STAR VISION
(D) CATV – SPECTRUM (CHARTER COMMUNICATIONS) /FORMERLY TWC

PREPARED IN THE OFFICE OF:

Weston & Sampson SM
WSE of North Carolina, PC
598 East Chatham Street Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: C-4647

GAIL KOGUT, PE — PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
DIVISION 3
5501 BARBADOS BOULEVARD
CASTLE HAYNE, NC 28429
PHONE (910) 341–2000
FAX (910) 675–0143

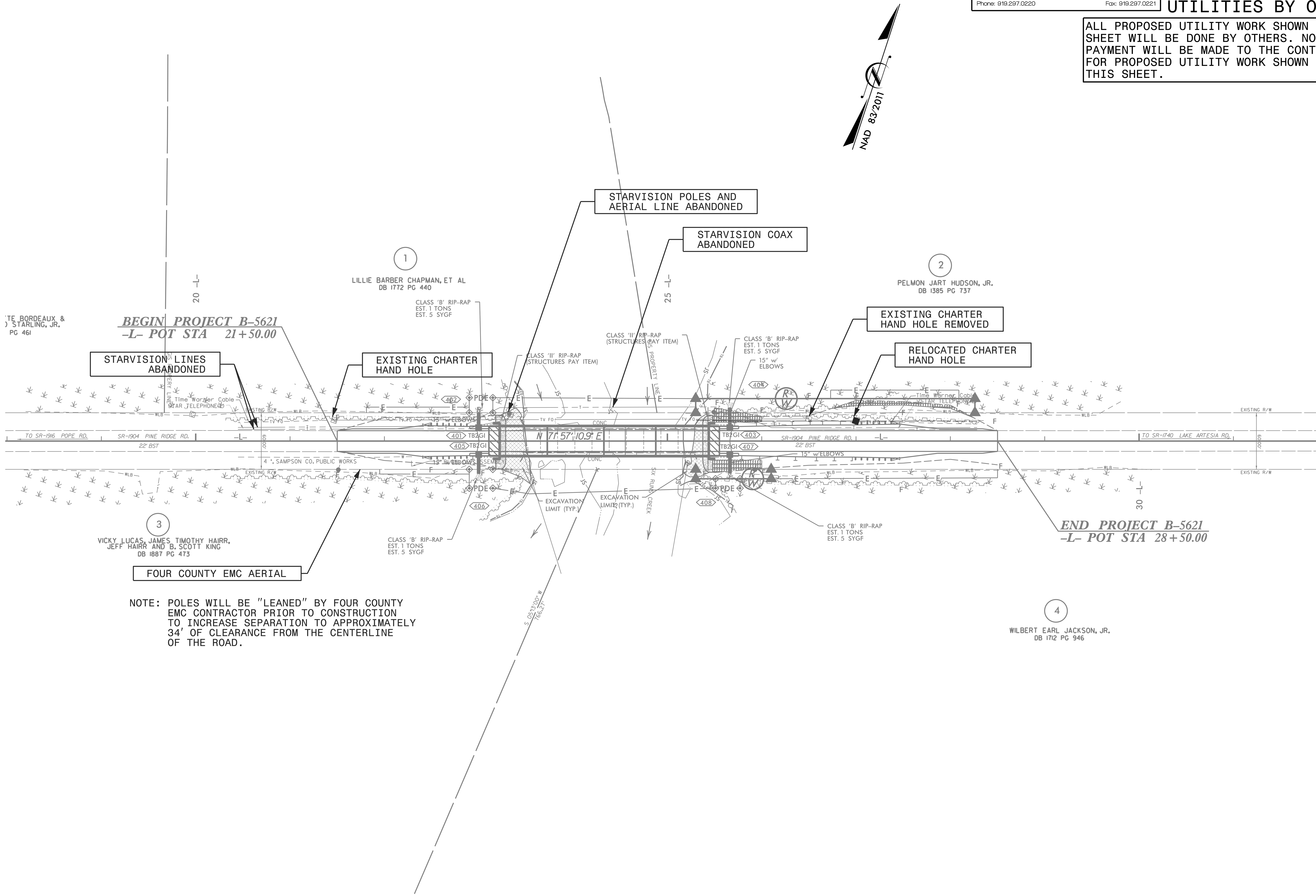
_____ UTILITIES REGIONAL ENGINEER
LONNY A. SLEEPER — UTILITIES ENGINEER
_____ UTILITIES AREA COORDINATOR
MIKE BROWN — UTILITIES COORDINATOR

PROJECT REFERENCE NO.	SHEET NO.
B-5621	UO-2
THIS SHEET CORRESPONDS TO RDY-04	

Weston & Sampson
WSE of North Carolina, PC
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: C-4847

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.


NAD 83/2011
STARVISION POLES AND AERIAL LINE ABANDONED
STARVISION COAX ABANDONED
1
LILLIE BARBER CHAPMAN, ET AL
DB 1772 PG 440
2
PELMON JART HUDSON, JR.
DB 1385 PG 737
EXISTING CHARTER HAND HOLE REMOVED
RELOCATED CHARTER HAND HOLE
BEGIN PROJECT B-5621
-L- POT STA 21+50.00
STARVISION LINES ABANDONED
EXISTING CHARTER HAND HOLE
CLASS 'B' RIP-RAP
EST. 1 TONS
EST. 5 SYGF
CLASS 'II' RIP-RAP
(STRUCTURES PAY ITEM)
15" w/ ELBOWS
TO SR-1916 POPE RD.
SR-1904 PINE RIDGE RD.
22' BST
N 71°57'10.9" E
TO SR-1740 LAKE ARTESIA RD.
EXISTING R/W
EXCAVATION LIMIT (TYP.)
SIX RUNS CREEK
3
VICKY LUCAS, JAMES TIMOTHY HAIRR,
JEFF HAIRR AND B. SCOTT KING
DB 1887 PG 473
FOUR COUNTY EMC AERIAL
END PROJECT B-5621
-L- POT STA 28+50.00
4
WILBERT EARL JACKSON, JR.
DB 1712 PG 946

NOTE: POLES WILL BE "LEANED" BY FOUR COUNTY EMC CONTRACTOR PRIOR TO CONSTRUCTION TO INCREASE SEPARATION TO APPROXIMATELY 34' OF CLEARANCE FROM THE CENTERLINE OF THE ROAD.

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5621	X-1

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

110 105 100 95 90

WLB

EX R/W

102.82

21+00.00

WLB

EX R/W

110 105 100 95 90

EX R/W

102.76

20+50.00

EX R/W

115 110 105 100 95

EX R/W

102.79

20+00.00

EX R/W

—L—

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

16-AUG-2021 21:13
\Roadway\CorridorModeling\B5621_RDY_XPL.dgn
HNTB

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5621	X-2

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

110 105 100 95 90

WLB

EX R/W

VAR.

103.53

0.025 0.025

102.84

VAR.

WLB

EX R/W

22+50.00

WLB

EX R/W

VAR.

103.28

0.025 0.025

102.90

3:1

WLB

EX R/W

22+00.00

WLB

EX R/W

VAR.

103.03

0.025 0.018

102.90

VAR.

WLB

EX R/W

21+50.00

—L—

16-AUG-2021 12:13
\Roadway\Corridor Modeling\B5621_RDY_XPL.dgn
MNB

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B–5621	X–3

104.23
0.025 0.025
EX R/W
94.41
EX R/W
24+00.00

104.03
0.025 0.025
WLB
EX R/W
JS
EX R/W
JS
95.63
23+50.00

BEGIN BRIDGE
–L– STA. 23+21.69

WLB
103.36
103.78
0.025 0.025
103.36
WLB
VAR.
VAR.
EX R/W
EX R/W
102.91
23+00.00

–L–

16-AUG-2021 12:13
\Roadway\Corridor Modeling\B5621_RDY_XPL.dgn
MNB

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5621	X-4

WLB

104.08

0.025 0.025

2:1

EX R/W

102.67

EX R/W

WLB

JS

25+50.00

END BRIDGE

–L– STA. 25+44.31

104.26

0.025 0.025

EX R/W

EX R/W

87.20

25+00.00

104.31

0.025 0.025

EX R/W

EX R/W

93.14

24+50.00

–L–

16-AUG-2021 12:13
\Roadway\Corridor Modeling\B5621_RDY_XPL.dgn
MNB

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5621	X-5

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

110 105 100 95

WLB

EX R/W

3:1

1.5:1

103.50

0.025 0.025

103.03

VAR.

EX R/W

WLB

27+00.00

115 110 105 100 95

WLB

EX R/W

VAR.

103.64

0.025 0.025

102.89

VAR.

EX R/W

WLB

26+50.00

110 105 100 95

WLB

EX R/W

2:1

103.86

0.025 0.025

102.82

2:1

EX R/W

WLB

26+00.00

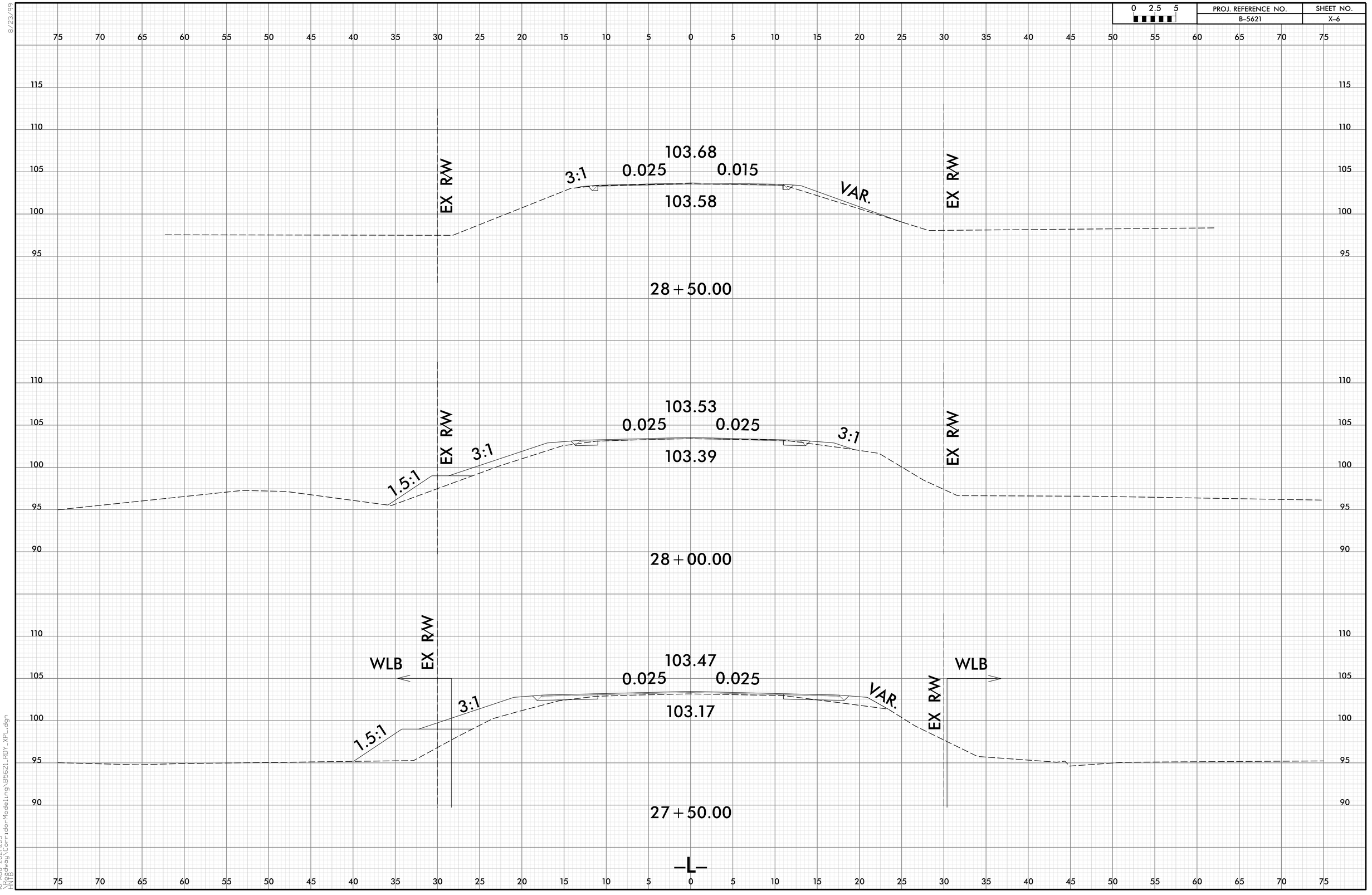
–L–

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

16-AUG-2021 12:13
\Roadway\Corridor Modeling\B5621_ROY_XPL.dgn
JNB

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5621	X-6



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\Roadway\Corridor-Modeling\B5621_RDY_XPL.dgn
VNB

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5621	X-7

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

120 115 110 105 100

103.76

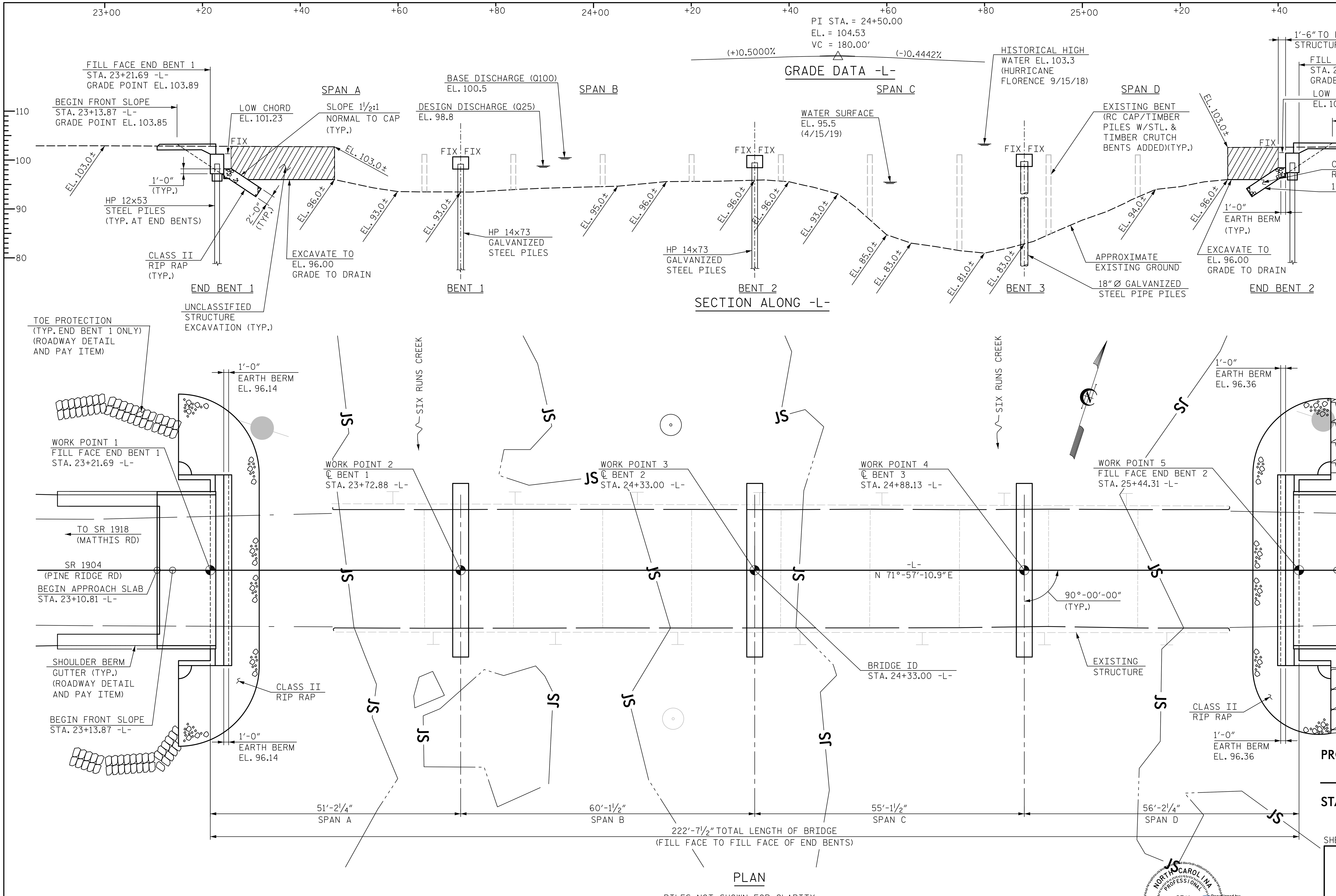
29+00.00

-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

16-AUG-2021 21:13
\Roadway\CorridorModeling\B5621_RDY_XPL.dgn
MNTB

F.A. PROJECT NO.: BRZ-1904(003)



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	2,800 CFS
FREQUENCY OF DESIGN FLOOD	=	25 YR
DESIGN HIGH WATER ELEVATION	=	98.8 FT.
DRAINAGE AREA	=	56.0 SQ. MI.
BASE DISCHARGE (Q100)	=	4,599 CFS
BASE HIGH WATER ELEVATION	=	100.5 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	>5,800(+) CFS
FREQUENCY OF OVERTOPPING FLOOD	=	500(+) YR
OVERTOPPING FLOOD ELEVATION	=	102.77 FT.

NOTE: OVERTOPS AT SHOULDER STA. 20+50.00 -L-

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 248

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR
BRIDGE ON SR 1904 OVER
SIX RUNS CREEK BETWEEN
SR 1918 AND SR 1740

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan
3/29/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY	M. WRIGHT	DATE	1/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 1

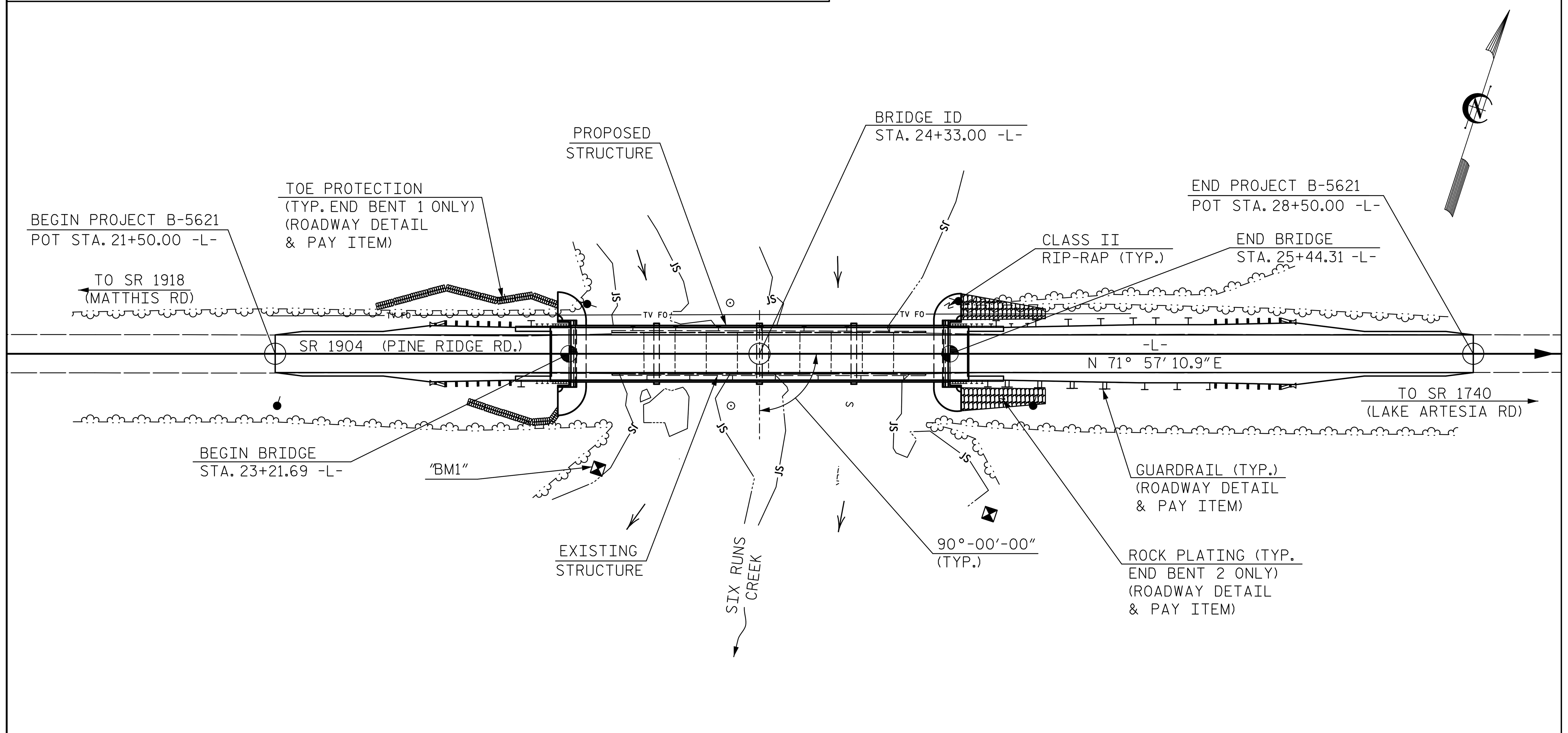
REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-1
TOTAL SHEETS 25

3/29/2021
9:55:08 AM
...\401_001_B5621_SMU_GD01_01_B10248.dgn

BM: "BM1" - RR SPIKE IN BASE OF 14" OAK, 67.18' RT. OF STA. 23+38.63 -L-, EL. 98.14



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

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 70 TONS AND 75 TONS PER PILE, RESPECTIVELY.

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS AND 125 TONS PER PILE, RESPECTIVELY.

PILES AT BENT NO. 1, BENT NO. 2 AND BENT NO. 3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS, 125 TONS AND 120 TONS PER PILE, RESPECTIVELY.

DRIVE PILES AT BENT NO. 1, BENT NO. 2 AND BENT NO. 3 TO A REQUIRED DRIVING RESISTANCE OF 205 TONS, 210 TONS AND 205 TONS PER PILE, RESPECTIVELY. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR SCOUR.

INSTALL PILES AT BENT NO. 1, BENT NO. 2, AND BENT NO. 3 TO A TIP ELEVATION NO HIGHER THAN 65 FT, 70 FT AND 55 FT, RESPECTIVELY.

THE SCOUR CRITICAL ELEVATIONS FOR BENT NO. 1, BENT NO. 2 AND BENT NO. 3 ARE ELEVATION 88 FT, 90 FT AND 73 FT, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY RANGE OF 43,200 FT-LBS TO 59,750 FT-LBS WILL BE REQUIRED TO DRIVE PILES AT BENT NO. 3. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED AT END BENT NO. 1, BENT NO. 1, BENT NO. 2 OR END BENT NO. 2. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PIPE PILE PLATES ARE REQUIRED FOR STEEL PIPE PILES AT BENT NO. 3. USE PIPE PILE PLATES WITH A DIAMETER EQUAL TO THE PIPE PILE DIAMETER FOR STEEL PIPE PILE PLATES. SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STATION 24+33.00 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 24+33.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STATION 24+33.00 -L-	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 GALVANIZED STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 18x0.50 GALVANIZED STEEL PILES	HP 12x53 STEEL PILES		HP 14x73 GALVANIZED STEEL PILES		PP 18x0.50 GALVANIZED STEEL PILES		PIPE PILE PLATES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	EACH	EACH	NO.	LIN. FT.	NO.	LIN. FT.	NO.	LIN. FT.	EACH	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	—	—	—	—	LUMP SUM	—	—	—	—	—	—	—	—	—	—	—	—	441.00	—	—	LUMP SUM	44	2,420
END BENT 1	—	—	—	LUMP SUM	21.8	—	2,636	7	—	—	7	385	—	—	—	—	—	4	—	140	155	—	—	—
BENT 1	—	—	—	—	10.7	—	2,136	—	8	—	—	—	8	520	—	—	—	4	—	—	—	—	—	—
BENT 2	—	—	—	—	10.7	—	2,136	—	8	—	—	—	8	480	—	—	—	4	—	—	—	—	—	—
BENT 3	—	—	—	—	10.2	—	2,075	—	—	7	—	—	—	—	7	315	7	4	—	—	—	—	—	—
END BENT 2	—	—	—	LUMP SUM	21.8	—	2,636	7	—	—	7	385	—	—	—	—	—	4	—	110	120	—	—	—
TOTAL	LUMP SUM	LUMP SUM	2	LUMP SUM	75.2	LUMP SUM	11,619	14	16	7	14	770	16	1,000	7	315	7	20	441.00	250	275	LUMP SUM	44	2,420

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 19.5 FT. ON EACH SIDE OF CENTERLINE 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 EXISTING TEN SPAN STRUCTURE WITH SPAN LENGTHS OF 1 @ 18'-6", 1 @ 18'-2", 1 @ 18'-3", 1 @ 18'-1", 2 @ 18'-2", 1 @ 18'-4", 2 @ 18'-3", AND 1 @ 18'-6" CONSISTING OF A REINFORCED CONCRETE DECK SUPPORTED ON STEEL I-BEAMS WITH A 24'-0" ROADWAY ON TIMBER PILE BENTS AND STEEL CRUTCH BENTS 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, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. IN ADDITION, ANY PILES REMAINING FROM PREVIOUS BRIDGE CONSTRUCTION OR MAINTENANCE OPERATIONS SHALL BE REMOVED AND INCLUDED IN THE LUMP SUM BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 24+33.00 -L-"

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THE 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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

SAMPLE BAR REPLACEMENT

SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan
3/29/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 1/21
CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21
DWG. NO. 2

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1904 OVER SIX RUNS CREEK BETWEEN SR 1918 AND SR 1740

REVISIONS							
NO.	BY	DATE		NO.	BY	DATE	
1				3			
2				4			

SHEET NO. S-2
TOTAL SHEETS 25

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: LIVELOAD FACTORS	STRENGTH I MOMENT: DISTRIBUTION FACTORS (DF)	STRENGTH I MOMENT: RATING FACTOR	STRENGTH I MOMENT: SPAN	STRENGTH I MOMENT: GIRDER LOCATION	STRENGTH I MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	STRENGTH I SHEAR: DISTRIBUTION FACTORS (DF)	STRENGTH I SHEAR: RATING FACTOR	STRENGTH I SHEAR: SPAN	STRENGTH I SHEAR: GIRDER LOCATION	STRENGTH I SHEAR: DISTANCE FROM LEFT END OF SPAN (ft)	SERVICE III LIMIT STATE: LIVELOAD FACTORS	SERVICE III MOMENT: DISTRIBUTION FACTORS (DF)	SERVICE III MOMENT: RATING FACTOR	SERVICE III MOMENT: SPAN	SERVICE III MOMENT: GIRDER LOCATION	SERVICE III MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	COMMENT NUMBER
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	2.053	--	1.75	0.276	2.26	50′	EL	29.5	0.52	2.05	50′	EL	5.9	0.80	0.276	2.22	50′	EL	29.5	
		HL-93(Opr)	N/A	--	2.661	--	1.35	0.276	2.93	50′	EL	29.5	0.52	2.66	50′	EL	5.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	2.47	88.93	1.75	0.276	2.86	50′	EL	29.5	0.52	2.47	50′	EL	5.9	0.80	0.276	2.81	50′	EL	29.5	
		HS-20(Opr)	36.000	--	3.202	115.279	1.35	0.276	3.71	50′	EL	29.5	0.52	3.2	50′	EL	5.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	6.053	81.711	1.4	0.276	7.7	50′	EL	29.5	0.52	7.14	50′	EL	5.9	0.80	0.276	6.05	50′	EL	29.5	
		SNGARBS2	20.000	--	4.634	92.672	1.4	0.276	5.89	50′	EL	29.5	0.52	5.14	50′	EL	5.9	0.80	0.276	4.63	50′	EL	29.5	
		SNAGRIS2	22.000	--	4.43	97.466	1.4	0.276	5.65	50′	EL	29.5	0.52	4.8	50′	EL	5.9	0.80	0.276	4.43	50′	EL	29.5	
		SNCOTTS3	27.250	--	3.015	82.171	1.4	0.276	3.84	50′	EL	29.5	0.52	3.57	50′	EL	5.9	0.80	0.276	3.02	50′	EL	29.5	
		SNAGGRS4	34.925	--	2.567	89.643	1.4	0.276	3.27	50′	EL	29.5	0.52	3.01	50′	EL	5.9	0.80	0.276	2.57	50′	EL	29.5	
		SNS5A	35.550	--	2.507	89.116	1.4	0.276	3.19	50′	EL	29.5	0.52	3.07	50′	EL	5.9	0.80	0.276	2.51	50′	EL	29.5	
		SNS6A	39.950	--	2.32	92.685	1.4	0.276	2.95	50′	EL	29.5	0.52	2.82	50′	EL	5.9	0.80	0.276	2.32	50′	EL	29.5	
		SNS7B	42.000	--	2.21	92.825	1.4	0.276	2.81	50′	EL	29.5	0.52	2.8	50′	EL	5.9	0.80	0.276	2.21	50′	EL	29.5	
	TTST	TNAGRIT3	33.000	--	2.835	93.559	1.4	0.276	3.61	50′	EL	29.5	0.52	3.34	50′	EL	5.9	0.80	0.276	2.84	50′	EL	29.5	
		TNT4A	33.075	--	2.853	94.369	1.4	0.276	3.63	50′	EL	29.5	0.52	3.24	50′	EL	5.9	0.80	0.276	2.85	50′	EL	29.5	
		TNT6A	41.600	--	2.352	97.863	1.4	0.276	2.99	50′	EL	29.5	0.52	3.03	50′	EL	5.9	0.80	0.276	2.35	50′	EL	29.5	
		TNT7A	42.000	--	2.375	99.744	1.4	0.276	3.02	50′	EL	29.5	0.52	2.89	50′	EL	5.9	0.80	0.276	2.37	50′	EL	29.5	
		TNT7B	42.000	--	2.475	103.971	1.4	0.276	3.16	50′	EL	29.5	0.52	2.71	50′	EL	5.9	0.80	0.276	2.48	50′	EL	29.5	
		TNAGRIT4	43.000	--	2.343	100.737	1.4	0.276	2.98	50′	EL	29.5	0.52	2.62	50′	EL	5.9	0.80	0.276	2.34	50′	EL	29.5	
		TNAGT5A	45.000	--	2.2	98.988	1.4	0.276	2.8	50′	EL	29.5	0.52	2.63	50′	EL	5.9	0.80	0.276	2.20	50′	EL	29.5	
		TNAGT5B	45.000	3	2.165	97.428	1.4	0.276	2.75	50′	EL	29.5	0.52	2.49	50′	EL	5.9	0.80	0.276	2.17	50′	EL	29.5	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

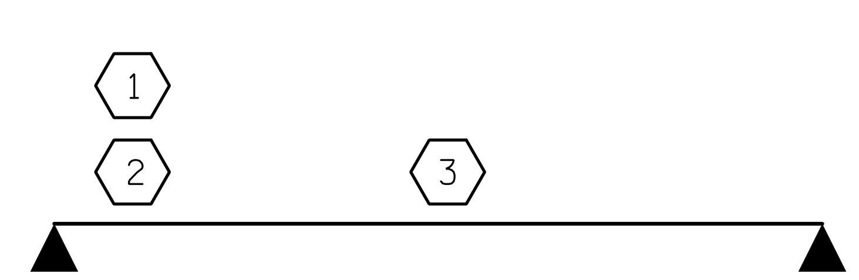
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING ✱✱

✱✱ SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan
3/29/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 50′ CORED SLAB UNIT

ASSEMBLED BY : M. WRIGHT DATE : 1/21
CHECKED BY : S. SULLIVAN DATE : 3/21
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB
HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 1/21
CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21
DWG. NO. 3

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-3
TOTAL SHEETS 25

STD. NO. 24LRFR1_90S_50L (TOP DOWN)

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
							LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT					
								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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	2.073	--	1.75	0.28	3.04	60′	EL	24.5	0.534	2.07	60′	EL	2.45	0.80	0.28	2.85	60′	EL	24.5	
		HL-93(Opr)	N/A	--	2.687	--	1.35	0.28	3.93	60′	EL	24.5	0.534	2.69	60′	EL	2.45	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	2.479	89.25	1.75	0.28	3.76	60′	EL	24.5	0.534	2.48	60′	EL	2.45	0.80	0.28	3.52	60′	EL	24.5	
		HS-20(Opr)	36.000	--	3.214	115.694	1.35	0.28	4.88	60′	EL	24.5	0.534	3.21	60′	EL	2.45	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	6.997	94.455	1.4	0.28	9.57	60′	EL	24.5	0.534	7	60′	EL	2.45	0.80	0.28	7.20	60′	EL	24.5	
		SNGARBS2	20.000	--	5.091	101.826	1.4	0.28	7.56	60′	EL	24.5	0.534	5.09	60′	EL	2.45	0.80	0.28	5.65	60′	EL	24.5	
		SNAGRIS2	22.000	--	4.772	104.98	1.4	0.28	7.26	60′	EL	19.6	0.534	4.77	60′	EL	2.45	0.80	0.28	5.45	60′	EL	19.6	
		SNCOTTS3	27.250	--	3.505	95.499	1.4	0.28	4.78	60′	EL	24.5	0.534	3.5	60′	EL	2.45	0.80	0.28	3.59	60′	EL	24.5	
		SNAGGRS4	34.925	--	2.991	104.445	1.4	0.28	4.15	60′	EL	24.5	0.534	2.99	60′	EL	2.45	0.80	0.28	3.12	60′	EL	24.5	
		SNS5A	35.550	--	3.044	108.209	1.4	0.28	4.05	60′	EL	24.5	0.534	3.07	60′	EL	2.45	0.80	0.28	3.04	60′	EL	24.5	
		SNS6A	39.950	--	2.84	113.453	1.4	0.28	3.79	60′	EL	24.5	0.534	2.84	60′	EL	2.45	0.80	0.28	2.85	60′	EL	24.5	
		SNS7B	42.000	--	2.712	113.918	1.4	0.28	3.61	60′	EL	24.5	0.534	2.84	60′	EL	2.45	0.80	0.28	2.71	60′	EL	24.5	
	TTST	TNAGRIT3	33.000	--	3.351	110.572	1.4	0.28	4.64	60′	EL	24.5	0.534	3.35	60′	EL	2.45	0.80	0.28	3.49	60′	EL	24.5	
		TNT4A	33.075	--	3.228	106.768	1.4	0.28	4.68	60′	EL	24.5	0.534	3.23	60′	EL	2.45	0.80	0.28	3.52	60′	EL	24.5	
		TNT6A	41.600	--	2.93	121.871	1.4	0.28	3.9	60′	EL	24.5	0.534	3.1	60′	EL	2.45	0.80	0.28	2.93	60′	EL	24.5	
		TNT7A	42.000	--	2.892	121.477	1.4	0.28	3.96	60′	EL	24.5	0.534	2.89	60′	EL	2.45	0.80	0.28	2.97	60′	EL	24.5	
		TNT7B	42.000	--	2.736	114.922	1.4	0.28	4.12	60′	EL	24.5	0.534	2.74	60′	EL	2.45	0.80	0.28	3.08	60′	EL	24.5	
		TNAGRIT4	43.000	--	2.637	113.381	1.4	0.28	3.91	60′	EL	24.5	0.534	2.64	60′	EL	2.45	0.80	0.28	2.94	60′	EL	24.5	
		TNAGT5A	45.000	--	2.676	120.405	1.4	0.28	3.66	60′	EL	24.5	0.534	2.68	60′	EL	2.45	0.80	0.28	2.75	60′	EL	24.5	
		TNAGT5B	45.000	3	2.502	112.57	1.4	0.28	3.58	60′	EL	24.5	0.534	2.5	60′	EL	2.45	0.80	0.28	2.69	60′	EL	24.5	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

LRFR SUMMARY

FOR SPAN 'B'

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 60′ CORED SLAB UNIT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN

DocuSigned by: Sean R. Sullivan 2953731A836458...

3/29/2021

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY	M. WRIGHT	DATE	1/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-4

TOTAL SHEETS 25

ASSEMBLED BY : M. WRIGHT DATE : 1/21
CHECKED BY : S. SULLIVAN DATE : 3/21

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

3/29/2021
9:30:29 AM
...\401_007_B5621_SMU_GD04_04_81024B.dgn

STD. NO. 24LRFR1_90S_60L (TOP DOWN)

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	1.974	--	1.75	0.278	2.49	55′	EL	27	0.526	1.97	55′	EL	5.4	0.80	0.278	2.27	55′	EL	27	
		HL-93(Opr)	N/A	--	2.559	--	1.35	0.278	3.23	55′	EL	27	0.526	2.56	55′	EL	5.4	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	2.358	84.885	1.75	0.278	3.12	55′	EL	27	0.526	2.36	55′	EL	5.4	0.80	0.278	2.84	55′	EL	27	
		HS-20(Opr)	36.000	--	3.057	110.036	1.35	0.278	4.04	55′	EL	27	0.526	3.06	55′	EL	5.4	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	5.965	80.53	1.4	0.278	8.19	55′	EL	27	0.526	6.71	55′	EL	5.4	0.80	0.278	5.97	55′	EL	27	
		SNGARBS2	20.000	--	4.621	92.422	1.4	0.278	6.36	55′	EL	27	0.526	4.86	55′	EL	5.4	0.80	0.278	4.62	55′	EL	27	
		SNAGRIS2	22.000	--	4.434	97.548	1.4	0.278	6.12	55′	EL	21.6	0.526	4.55	55′	EL	5.4	0.80	0.278	4.43	55′	EL	27	
		SNCOTTS3	27.250	--	2.974	81.029	1.4	0.278	4.08	55′	EL	27	0.526	3.36	55′	EL	5.4	0.80	0.278	2.97	55′	EL	27	
		SNAGGRS4	34.925	--	2.555	89.234	1.4	0.278	3.51	55′	EL	27	0.526	2.85	55′	EL	5.4	0.80	0.278	2.56	55′	EL	27	
		SNS5A	35.550	--	2.494	88.65	1.4	0.278	3.42	55′	EL	27	0.526	2.93	55′	EL	5.4	0.80	0.278	2.49	55′	EL	27	
		SNS6A	39.950	--	2.318	92.619	1.4	0.278	3.18	55′	EL	27	0.526	2.7	55′	EL	5.4	0.80	0.278	2.32	55′	EL	27	
		SNS7B	42.000	--	2.209	92.776	1.4	0.278	3.03	55′	EL	27	0.526	2.69	55′	EL	5.4	0.80	0.278	2.21	55′	EL	27	
	TTST	TNAGRIT3	33.000	--	2.836	93.596	1.4	0.278	3.89	55′	EL	27	0.526	3.19	55′	EL	5.4	0.80	0.278	2.84	55′	EL	27	
		TNT4A	33.075	--	2.857	94.504	1.4	0.278	3.92	55′	EL	27	0.526	3.08	55′	EL	5.4	0.80	0.278	2.86	55′	EL	27	
		TNT6A	41.600	--	2.366	98.442	1.4	0.278	3.25	55′	EL	27	0.526	2.94	55′	EL	5.4	0.80	0.278	2.37	55′	EL	27	
		TNT7A	42.000	--	2.395	100.575	1.4	0.278	3.29	55′	EL	27	0.526	2.76	55′	EL	5.4	0.80	0.278	2.39	55′	EL	27	
		TNT7B	42.000	--	2.499	104.94	1.4	0.278	3.43	55′	EL	27	0.526	2.6	55′	EL	5.4	0.80	0.278	2.50	55′	EL	27	
		TNAGRIT4	43.000	--	2.365	101.706	1.4	0.278	3.25	55′	EL	27	0.526	2.51	55′	EL	5.4	0.80	0.278	2.37	55′	EL	27	
		TNAGT5A	45.000	--	2.216	99.716	1.4	0.278	3.04	55′	EL	27	0.526	2.53	55′	EL	5.4	0.80	0.278	2.22	55′	EL	27	
		TNAGT5B	45.000	3	2.177	97.95	1.4	0.278	2.99	55′	EL	27	0.526	2.38	55′	EL	5.4	0.80	0.278	2.18	55′	EL	27	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

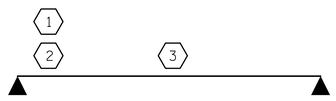
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPANS 'C' AND 'D'

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN

DocuSigned by: Sean R. Sullivan 2955F731A836458...

3/29/2021

PROJECT NO. B-5621

SAMPSON **COUNTY**

STATION: 24+33.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 55′ CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-5
1			3			TOTAL SHEETS
2			4			25

STD. NO. 24LRFR1_90S_55L (TOP DOWN)

ASSEMBLED BY : M. WRIGHT DATE : 1/21
CHECKED BY : S. SULLIVAN DATE : 3/21

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

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NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 1/21
CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21

DWG. NO. 5

3/29/2021 9:30:36 AM
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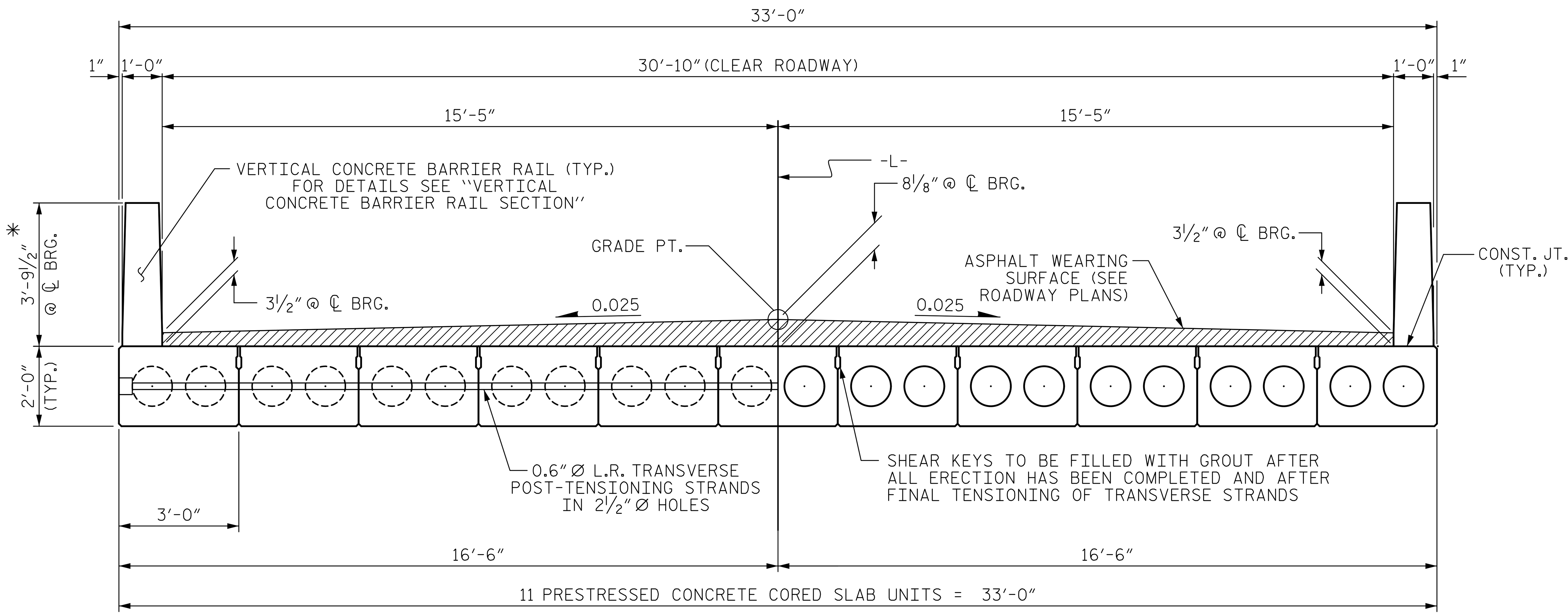


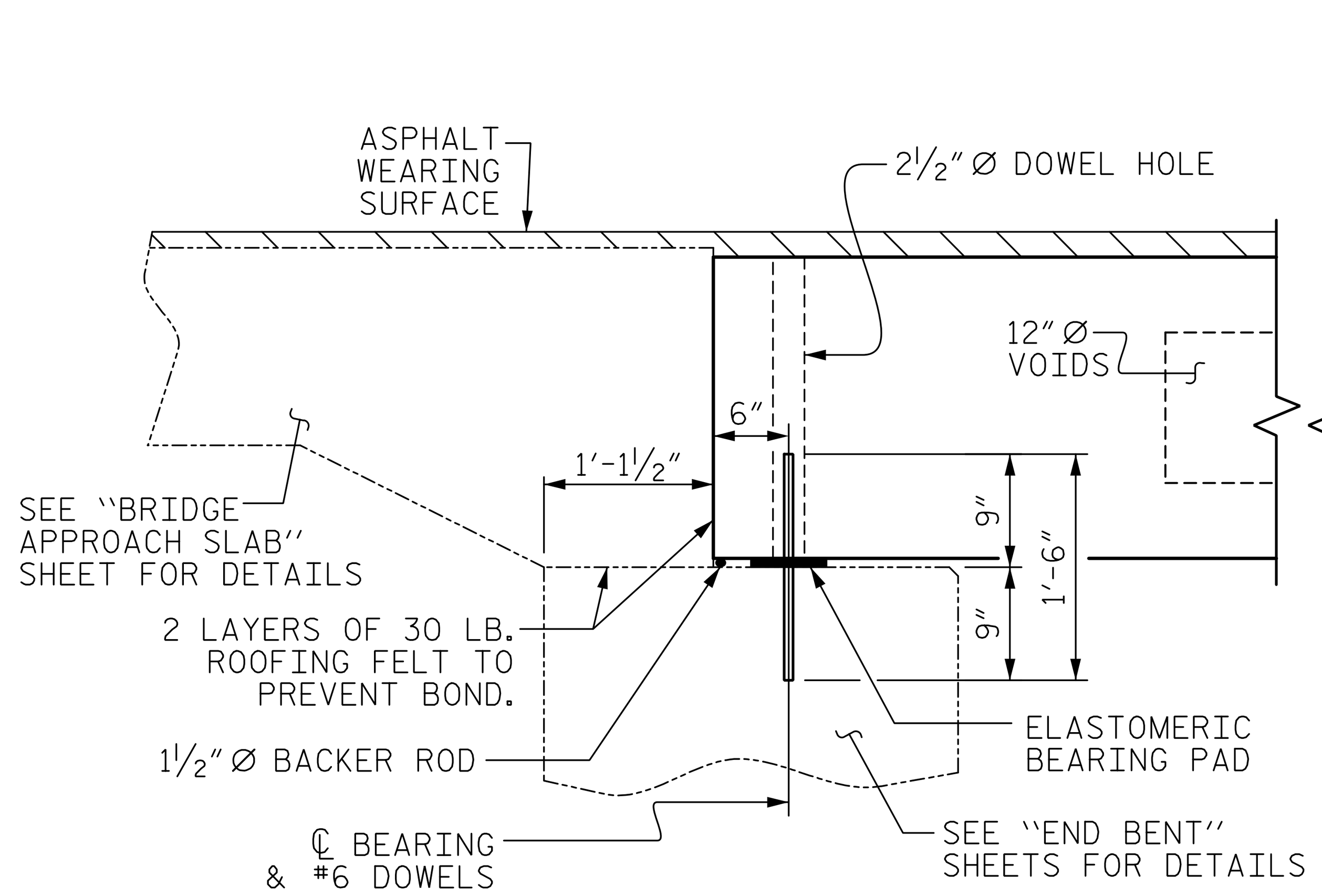
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

HALF SECTION
THROUGH VOIDS

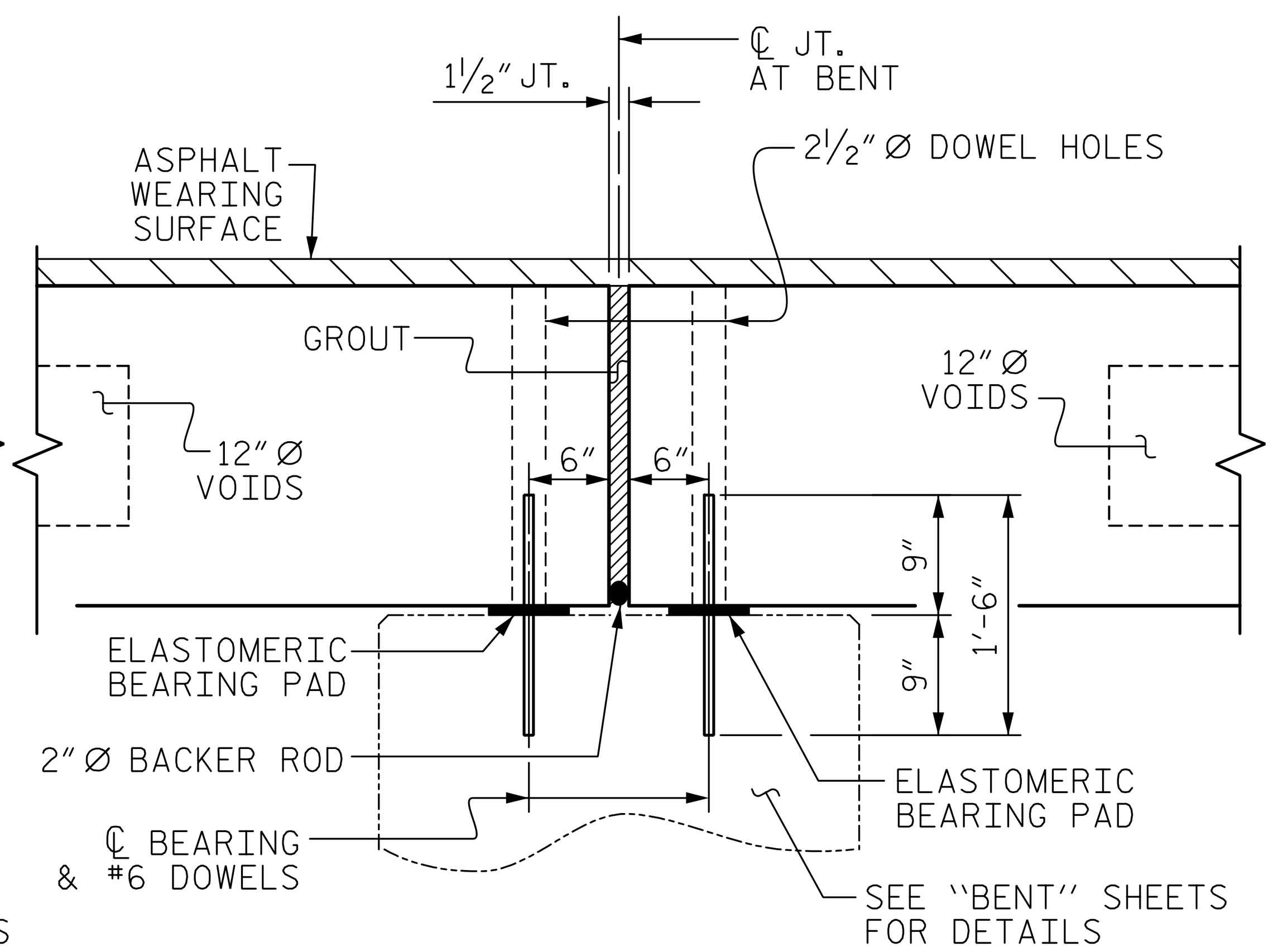
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END



SECTION AT END BENT

FIXED END FIXED END



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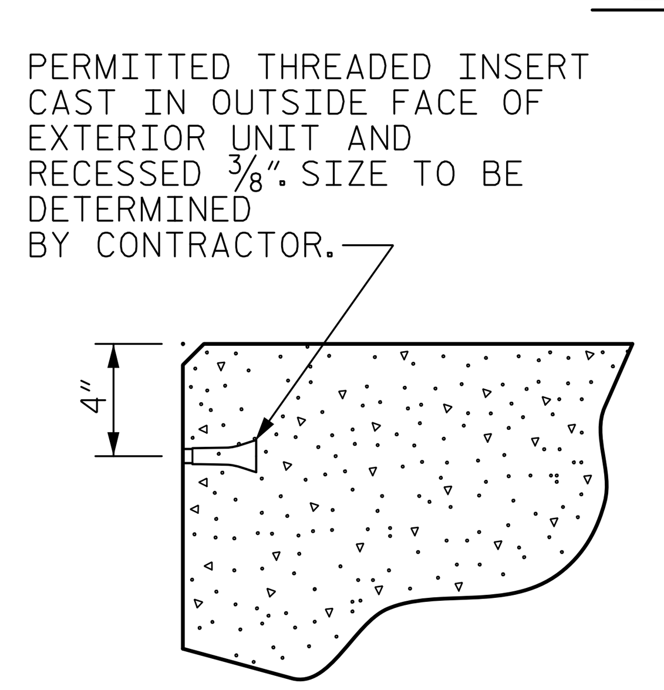
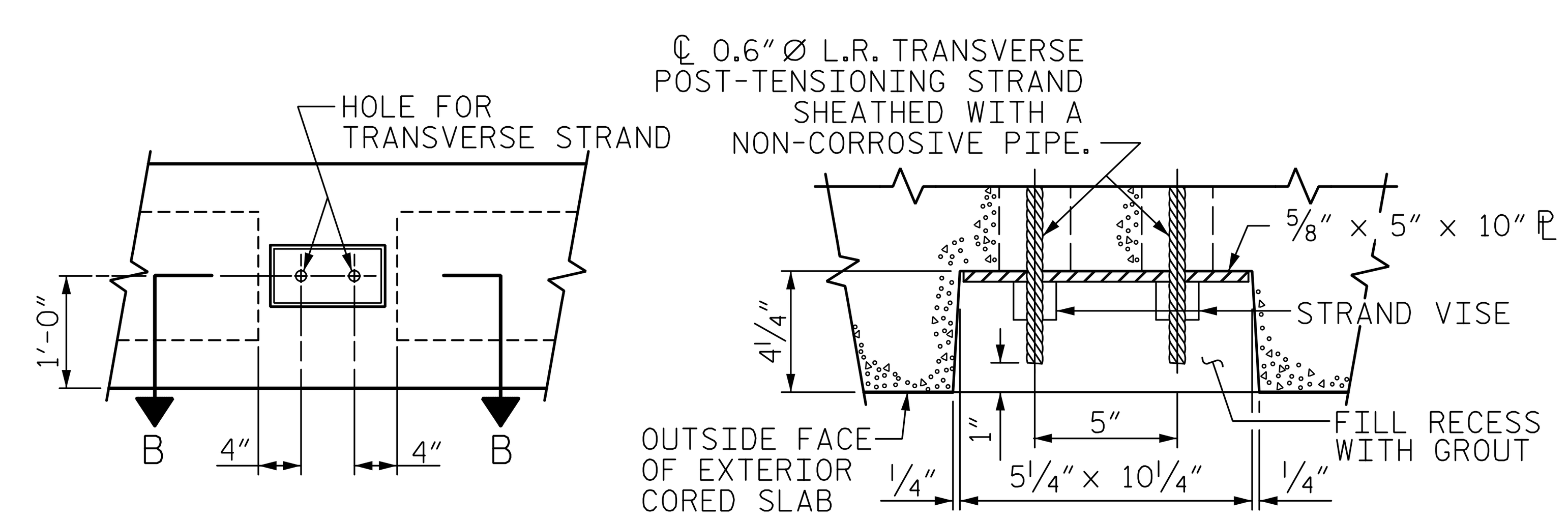
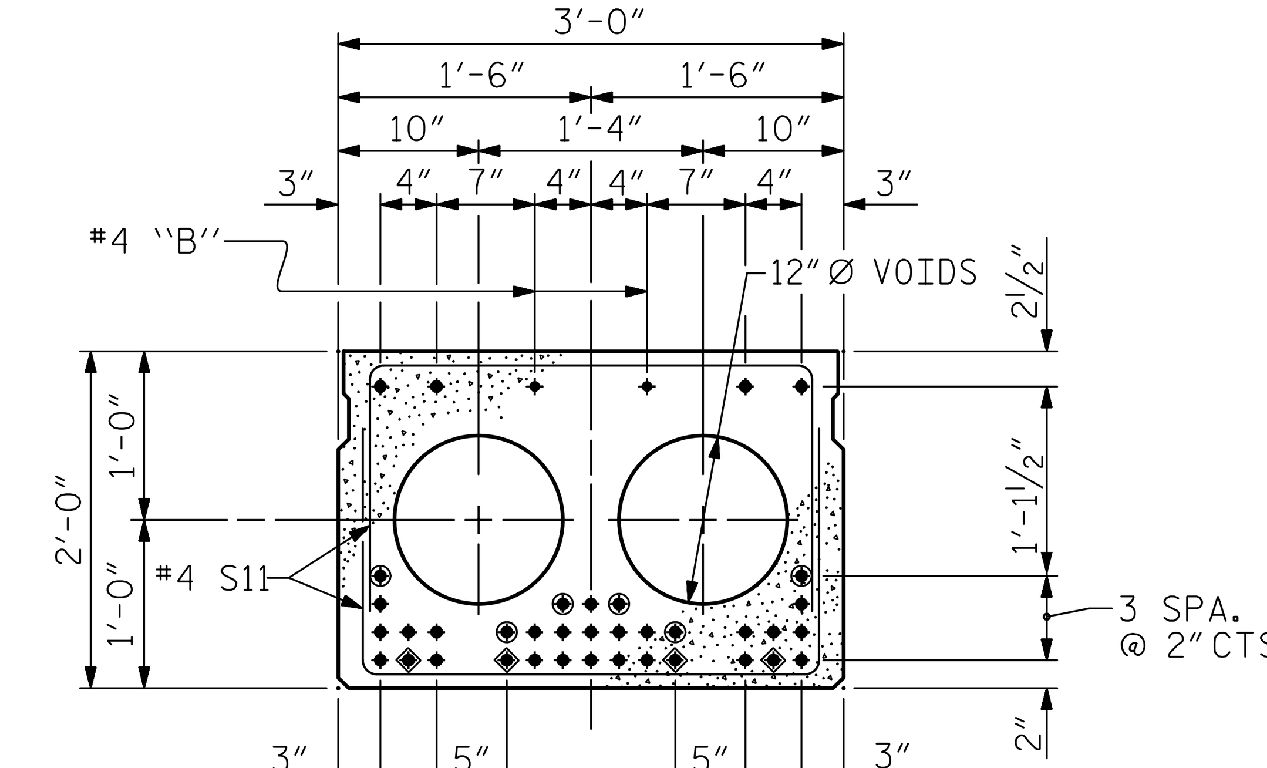


THREADED INSERT DETAIL

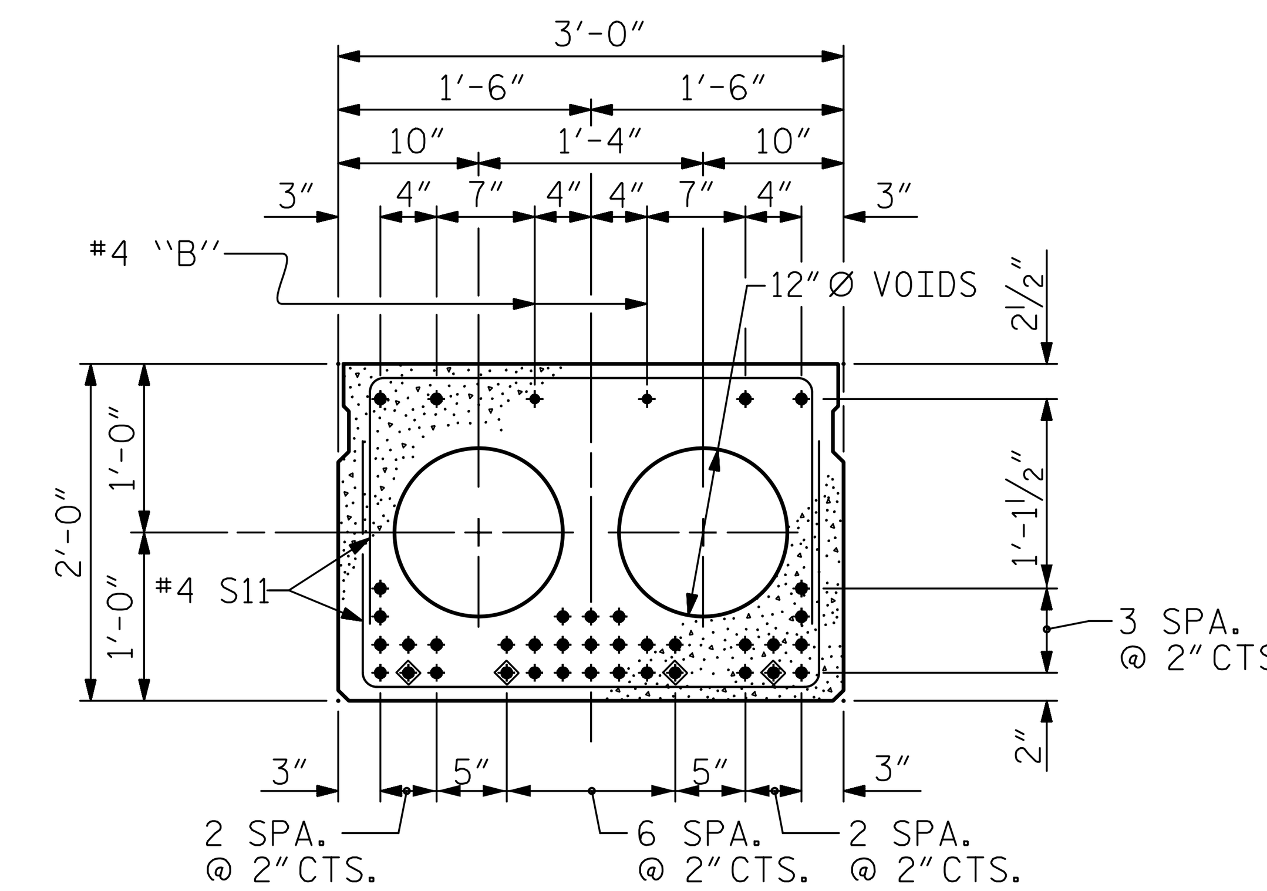


ELEVATION VIEW SECTION B-B

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

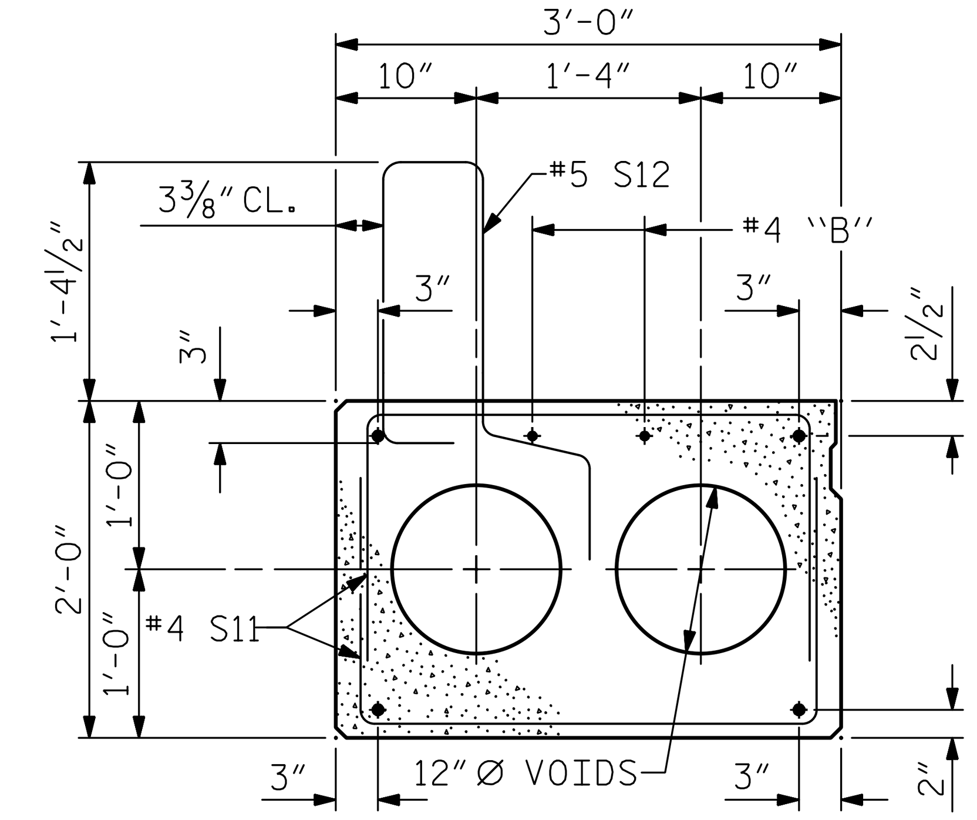


INTERIOR SLAB SECTION (50' & 55' UNIT)
(31 STRANDS REQUIRED)



INTERIOR SLAB SECTION (60' UNIT)
(37 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT



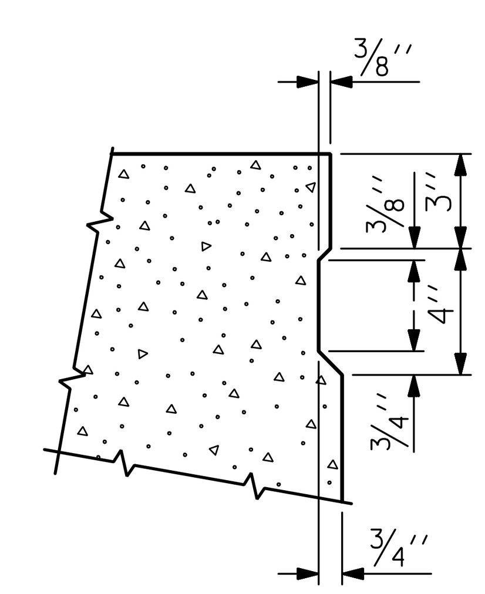
EXTERIOR SLAB SECTION

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

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

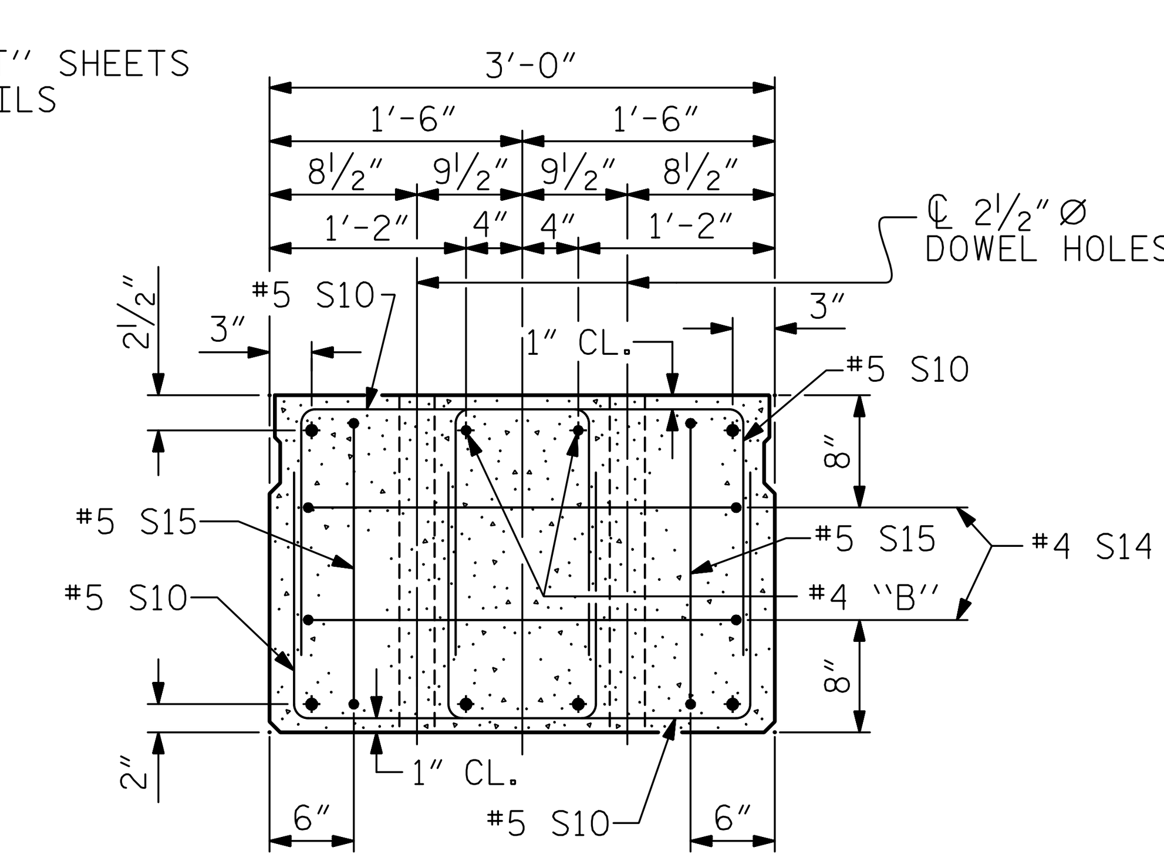
◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR 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.

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan 29537731A836458...
3/29/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT

ASSEMBLED BY : M. WRIGHT	DATE : 1/21
CHECKED BY : S. SULLIVAN	DATE : 3/21

DRAWN BY : MAA 7/10	REV. 9/14	MAA/TMG
CHECKED BY : MKT 8/10		

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NC License No. C-1554
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DRAWN BY	M. WRIGHT	DATE	1/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 6

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REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-6
TOTAL SHEETS 25

STD. NO. 24PCS4_33_90S (TOP DOWN)

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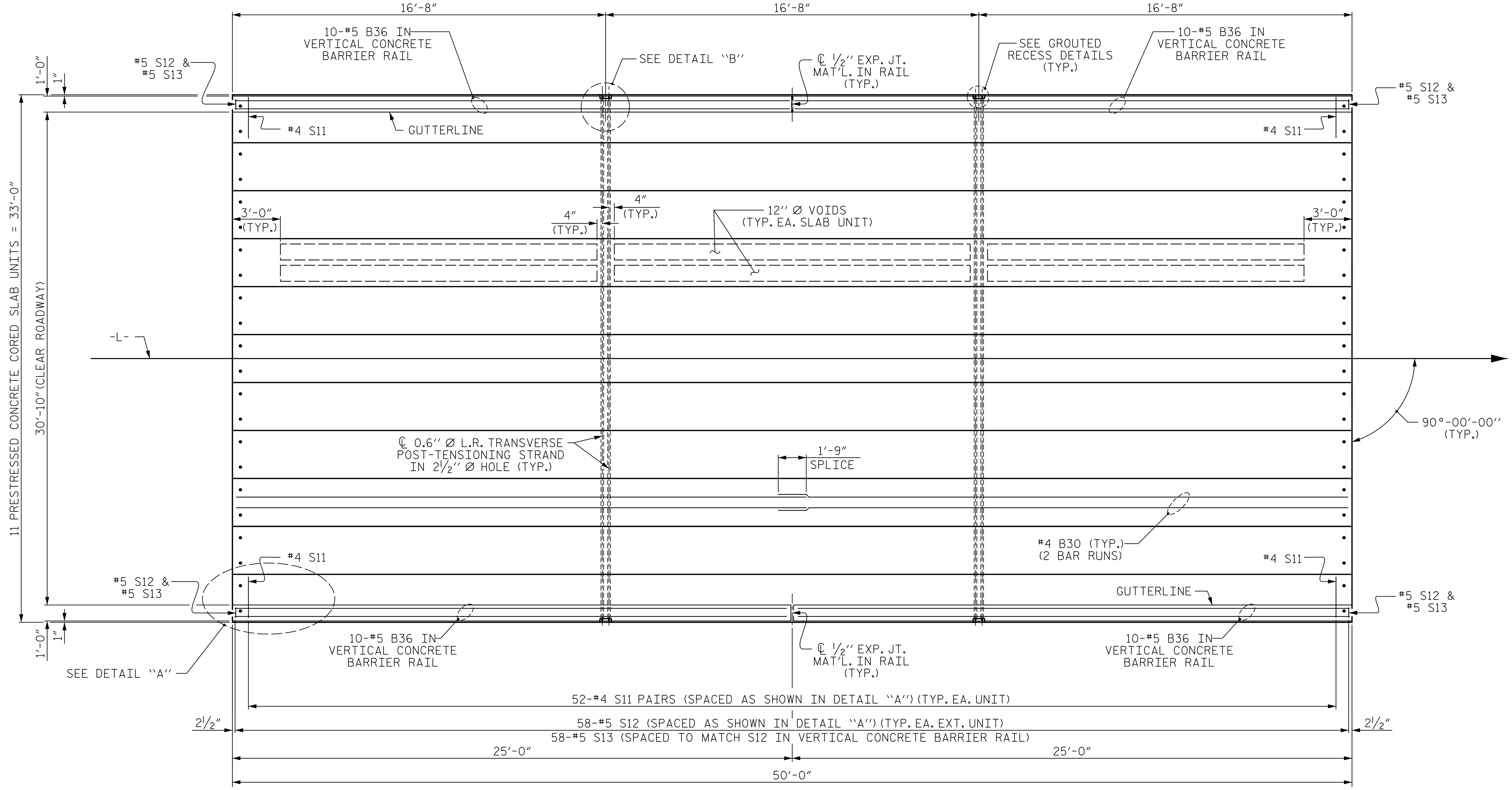
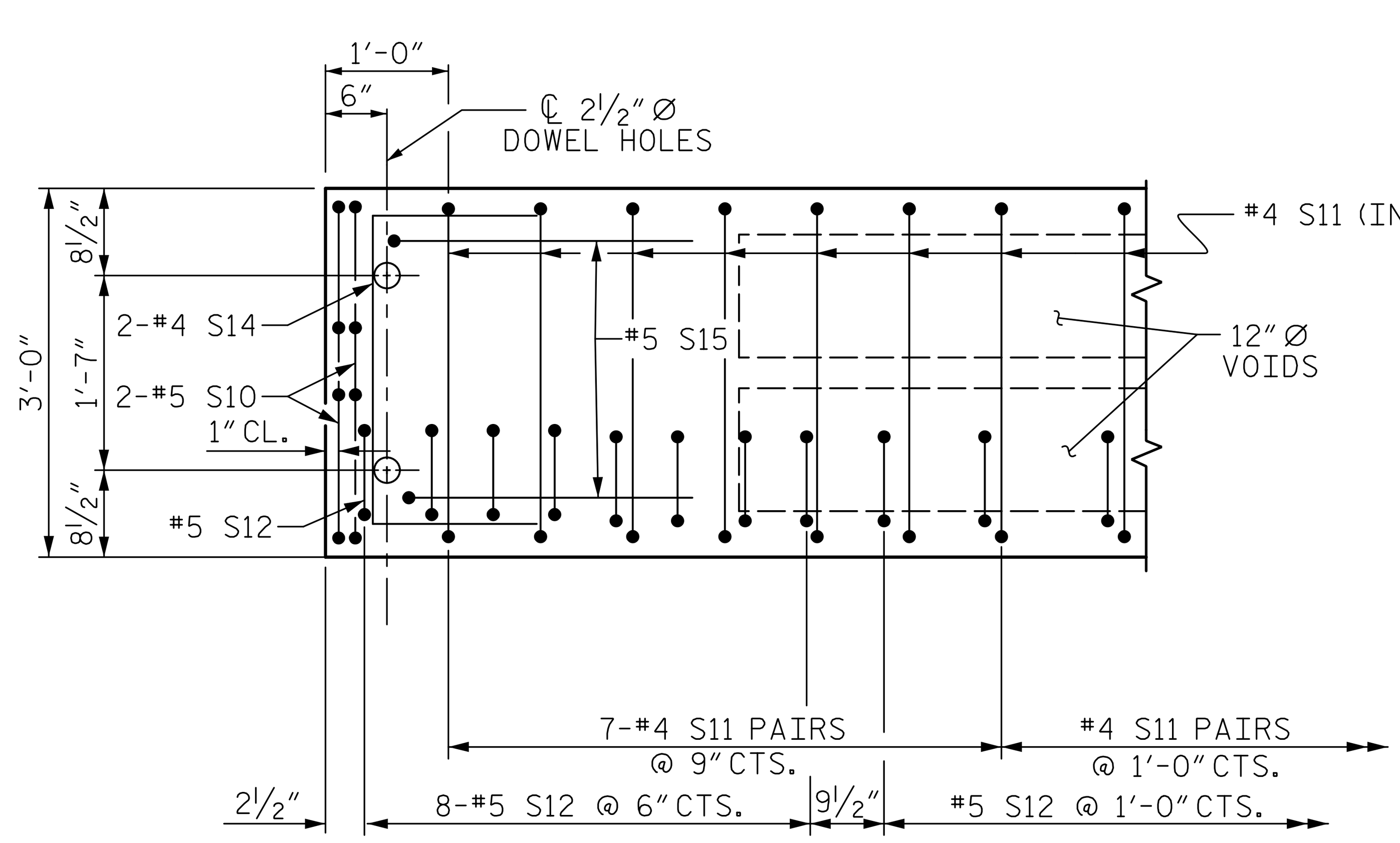
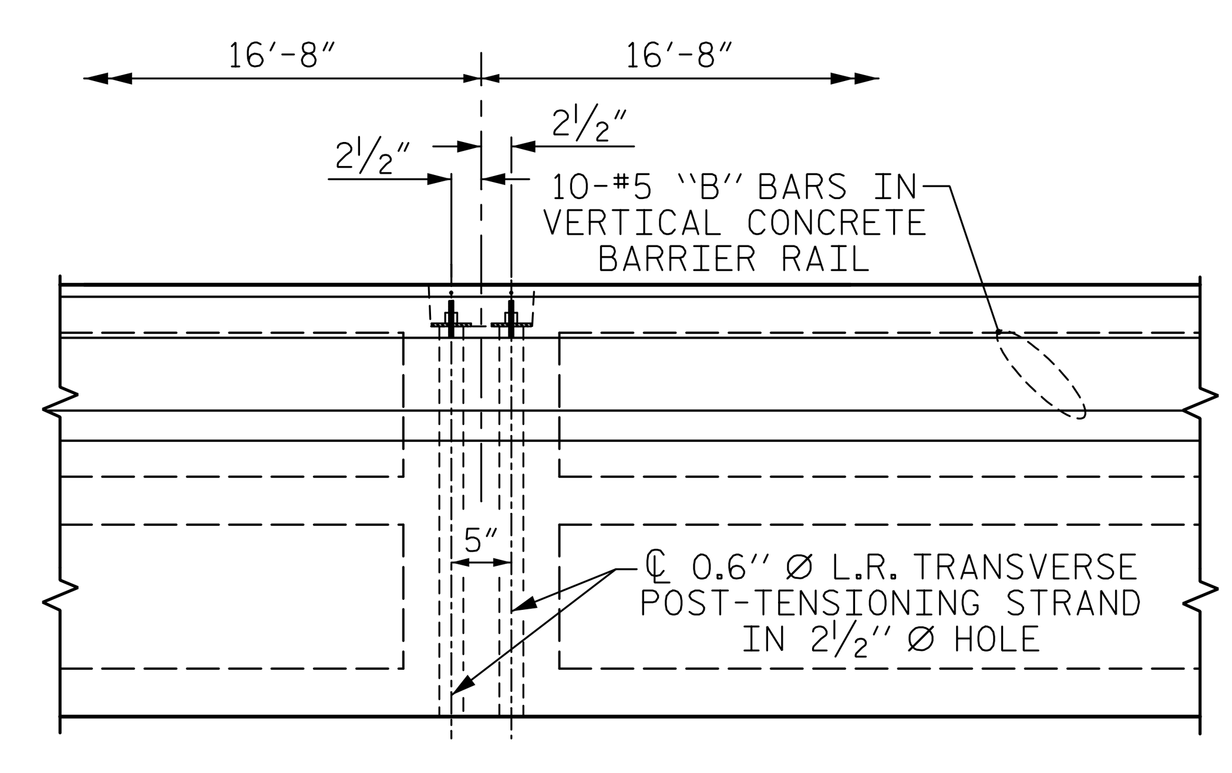


PLAN OF UNIT



DETAIL "A"

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



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan
3/29/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 50' UNIT
30'-10" CLEAR ROADWAY
SPAN A

HNTB NORTH CAROLINA, P.C.
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DRAWN BY	M. WRIGHT	DATE	1/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 7

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-7
TOTAL SHEETS 25

ASSEMBLED BY : M. WRIGHT	DATE : 1/21		
CHECKED BY : S. SULLIVAN	DATE : 3/21		
DRAWN BY : MAA 7/10	REV. 12/5/11	MAA/AAC	
CHECKED BY : MKT 8/10	REV. 8/14	MAA/TMG	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STD. NO. 24PCS_33_90S_50L (TOP DOWN)

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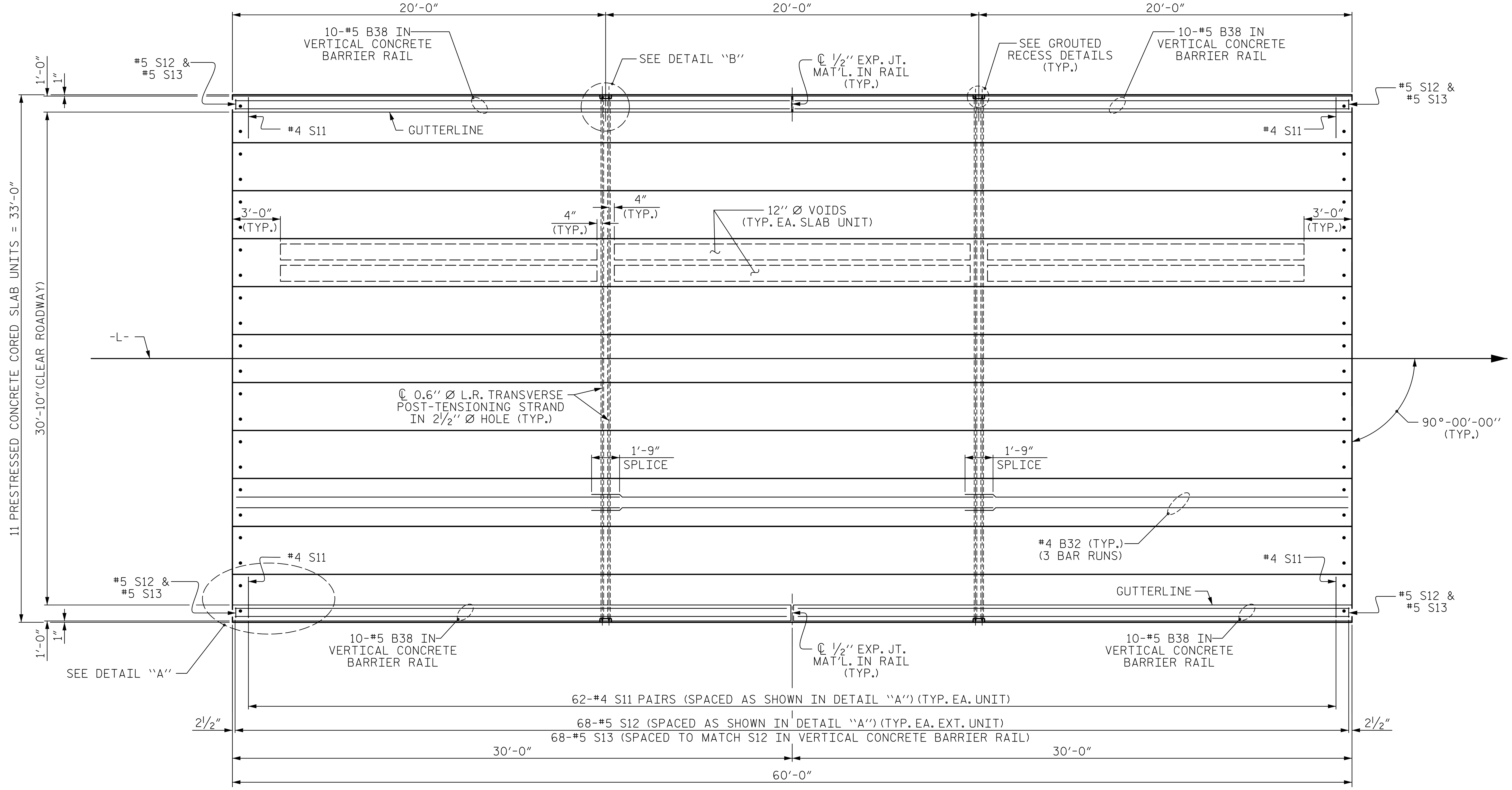
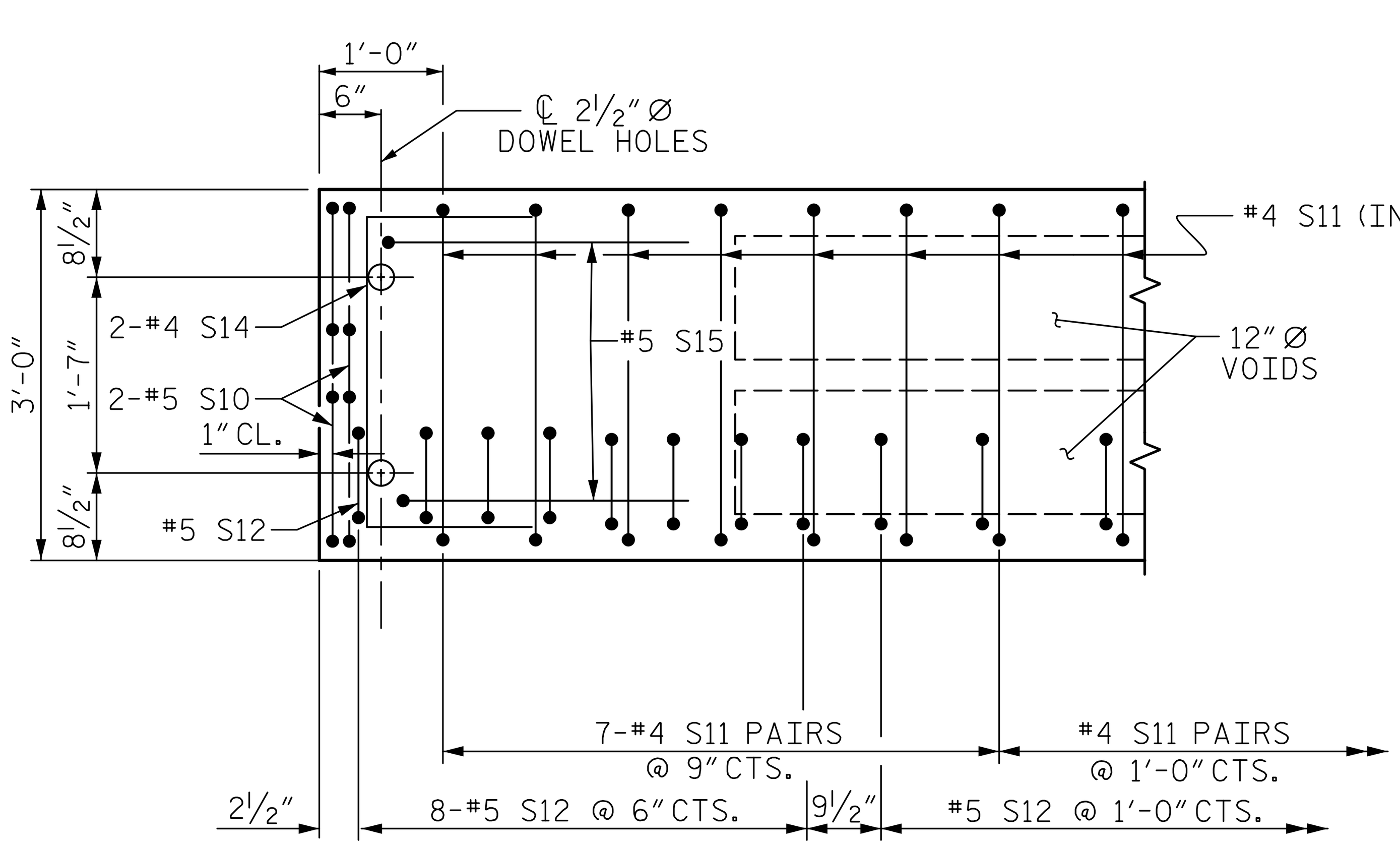
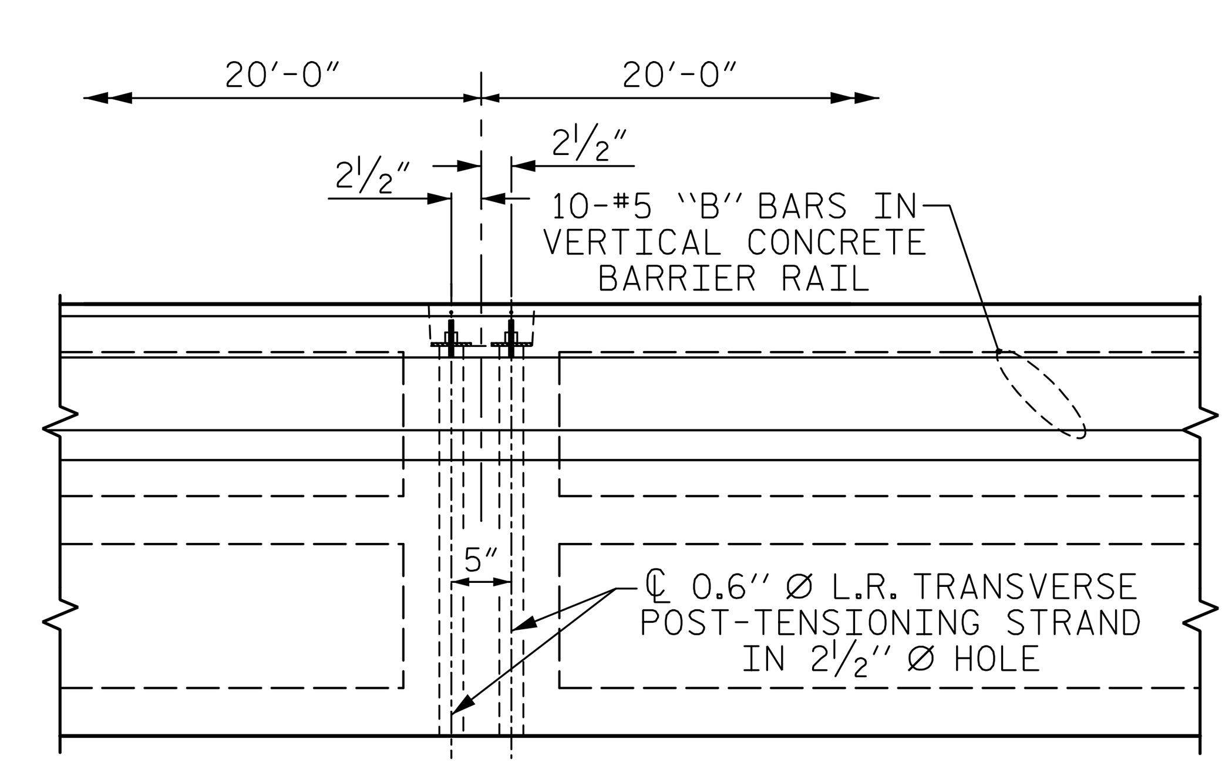


PLAN OF UNIT



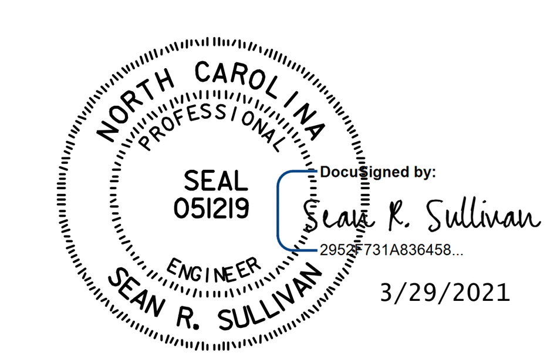
DETAIL "A"

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



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES



PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 60' UNIT
30'-10" CLEAR ROADWAY
SPAN B

ASSEMBLED BY : M. WRIGHT	DATE : 1/21
CHECKED BY : S. SULLIVAN	DATE : 3/21

DRAWN BY : MAA	7/10	REV. 12/5/11	MAA/AAC
CHECKED BY : MKT	8/10	REV. 8/14	MAA/TMG

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NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY	M. WRIGHT	DATE	1/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-8
TOTAL SHEETS 25

STD. NO. 24PCS_33_90S_60L (TOP DOWN)

3/29/2021
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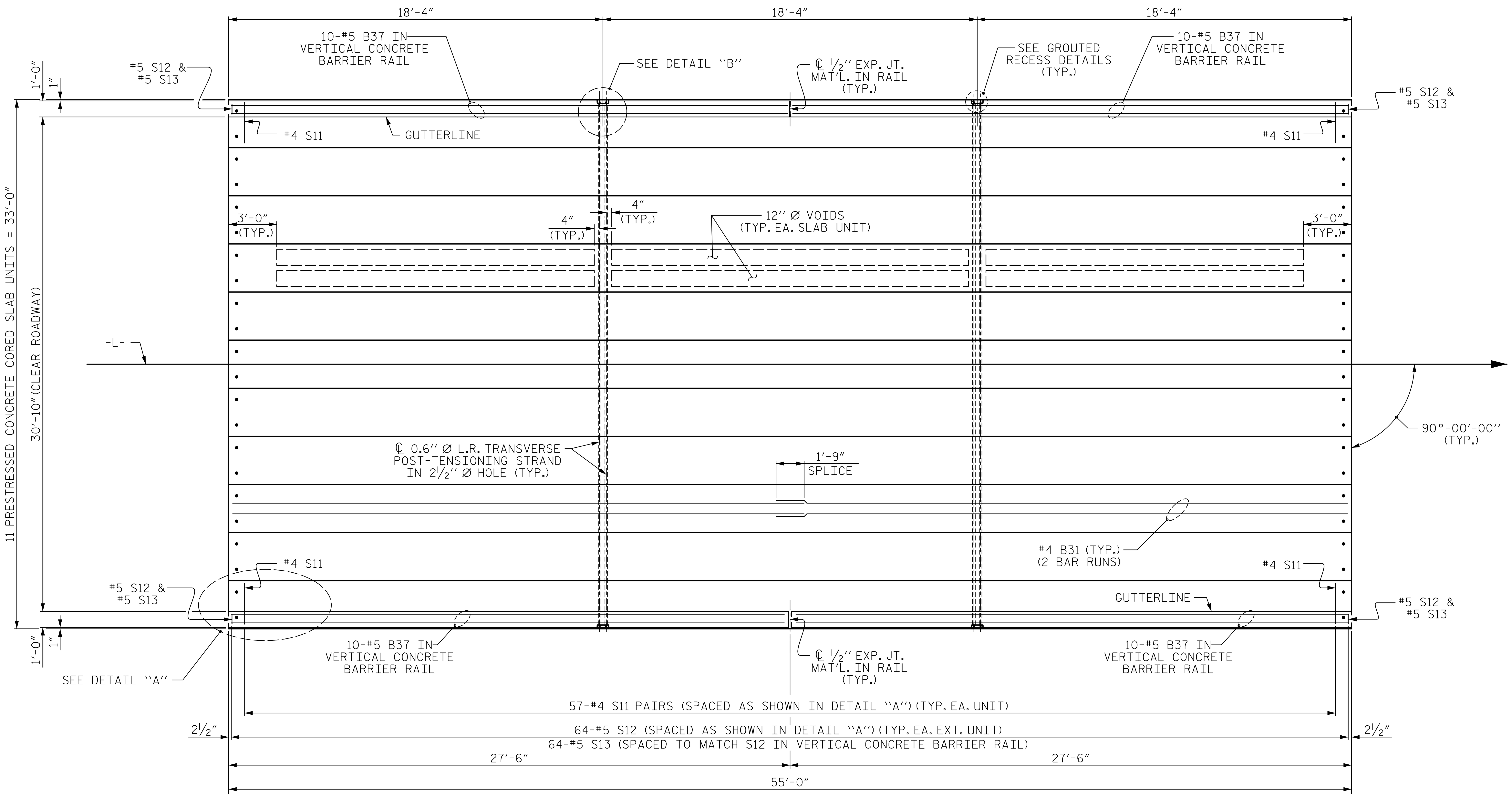
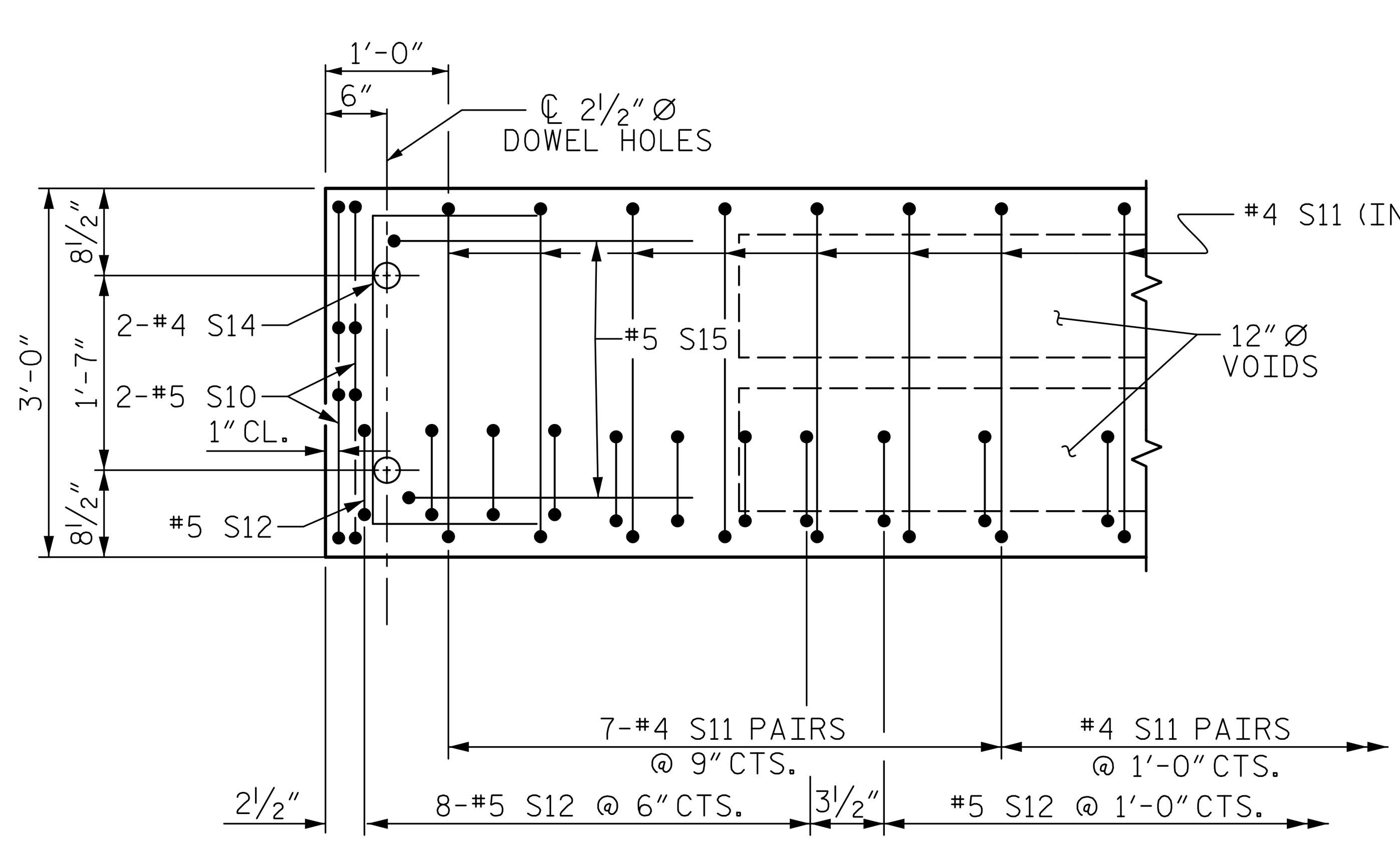
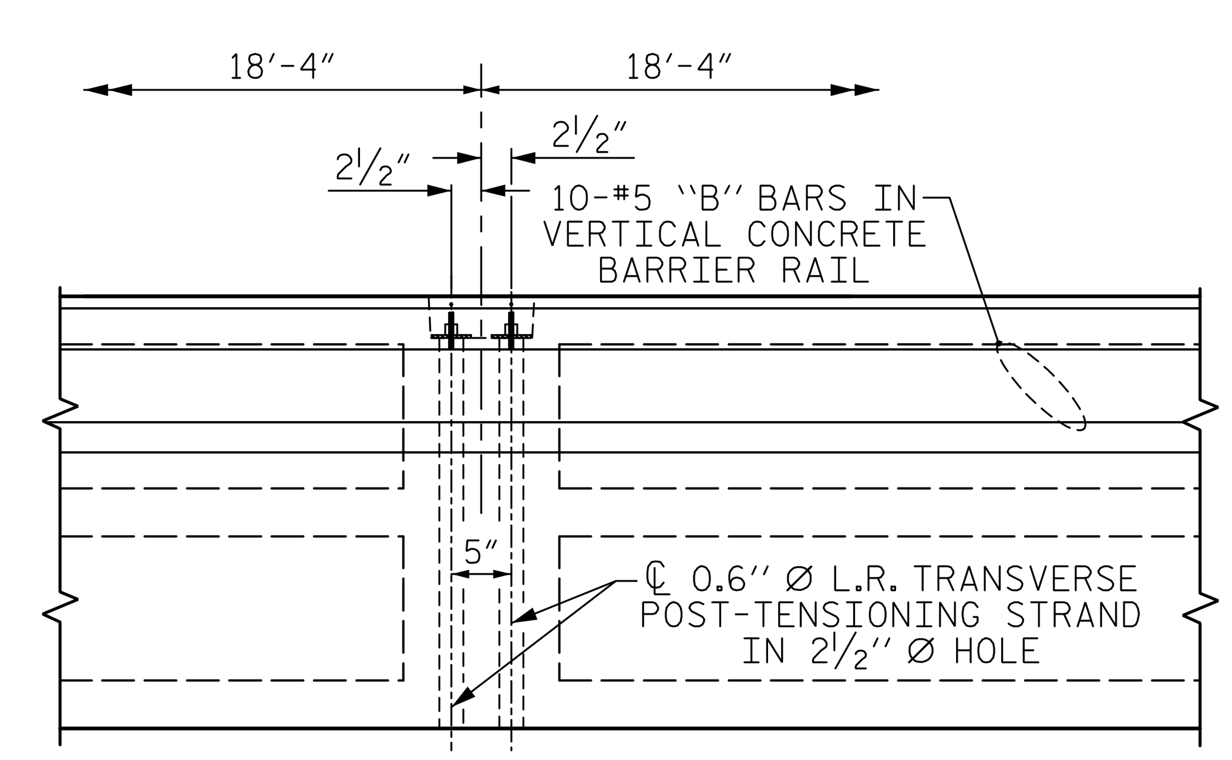


PLAN OF UNIT



DETAIL "A"

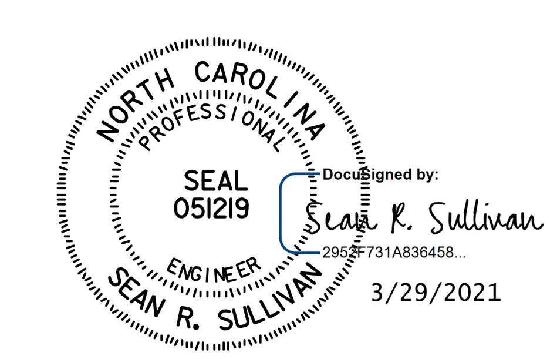
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55' UNIT
30'-10" CLEAR ROADWAY
SPANS C & D

ASSEMBLED BY : M. WRIGHT	DATE : 1/21
CHECKED BY : S. SULLIVAN	DATE : 3/21

DRAWN BY : MAA 7/10	REV. 12/5/11 MAA/AAC
CHECKED BY : MKT 8/10	REV. 8/14 MAA/TMG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY	M. WRIGHT	DATE 1/21	DWG. NO. 9
CHECKED BY	S. SULLIVAN	DATE 3/21	
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE 3/21	

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-9
TOTAL SHEETS 25

STD. NO. 24PCS_33_90S_55L (TOP DOWN)

3/29/2021
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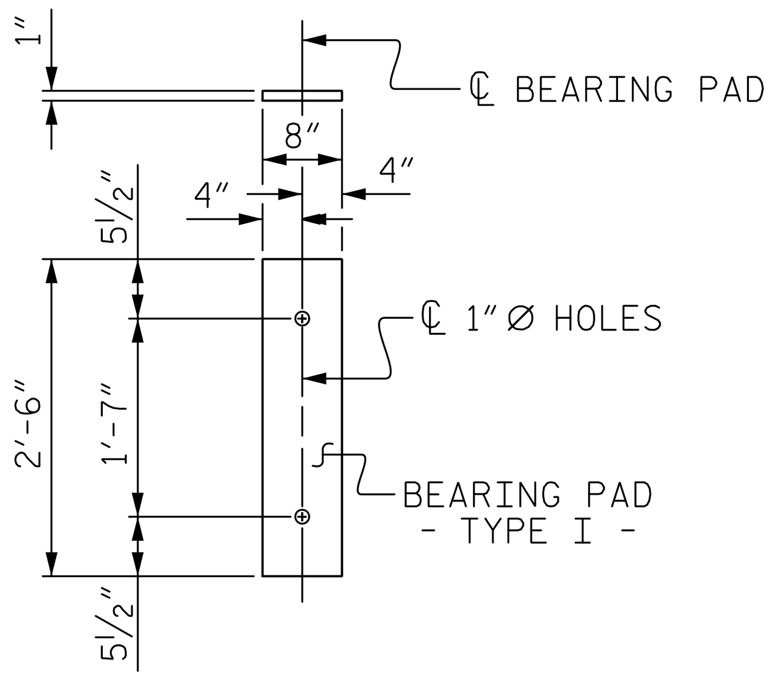


FIXED END
(TYPE I - 22 REQ'D)

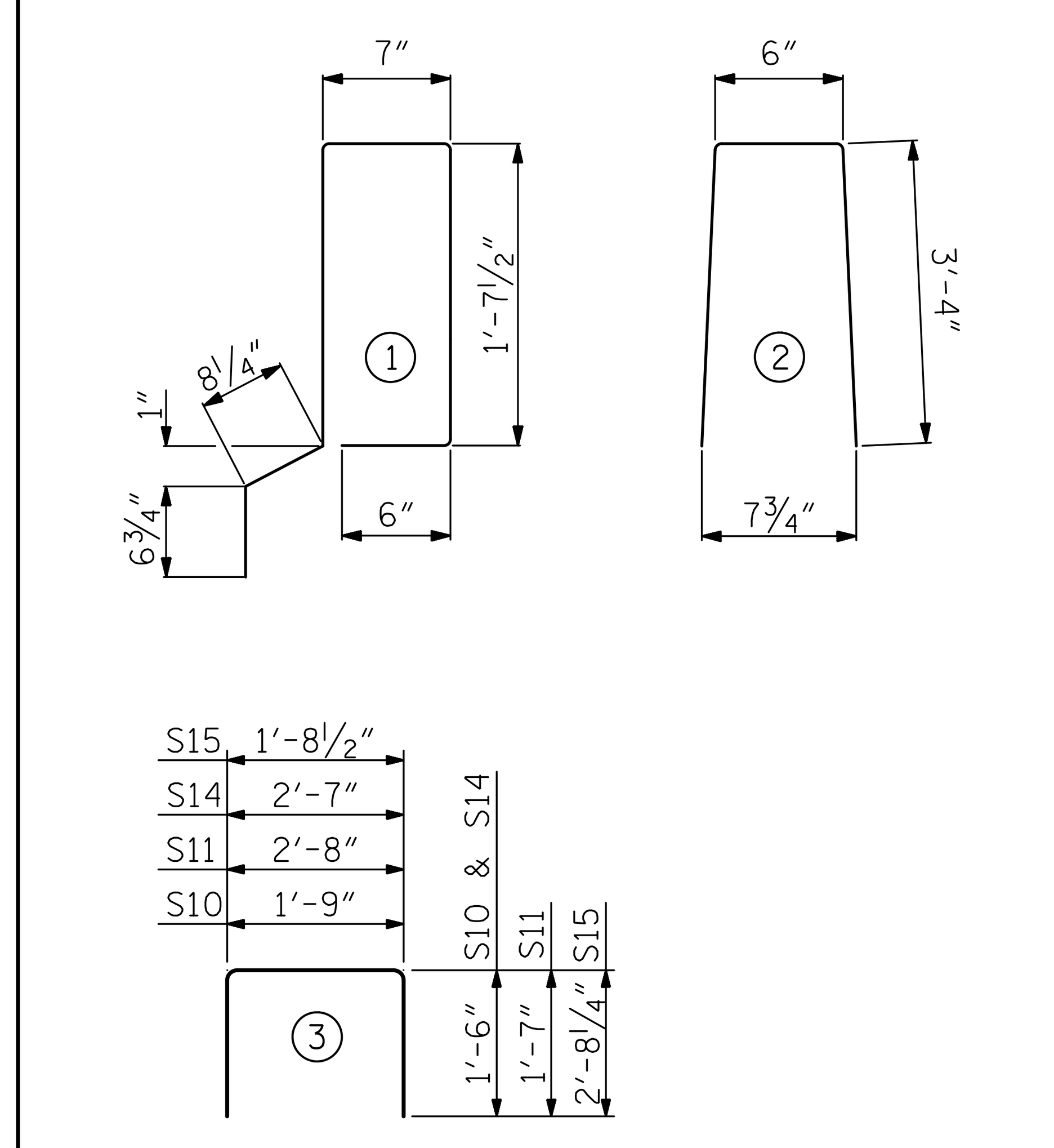
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
50' UNITS	2⅛"	3'-8⅛"

BILL OF MATERIAL FOR ONE 50' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B30	4	#4	STR	25'-9"	69	25'-9"	69
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	104	#4	3	5'-10"	405	5'-10"	405
*S12	58	#5	1	5'-7"	338		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		559		559
* EPOXY COATED REINFORCING STEEL			LBS.		338		
8500 P.S.I. CONCRETE			CU. YDS.		8.6		8.6
0.6" Ø L.R. STRANDS			No.		31		31



NOTES

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

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

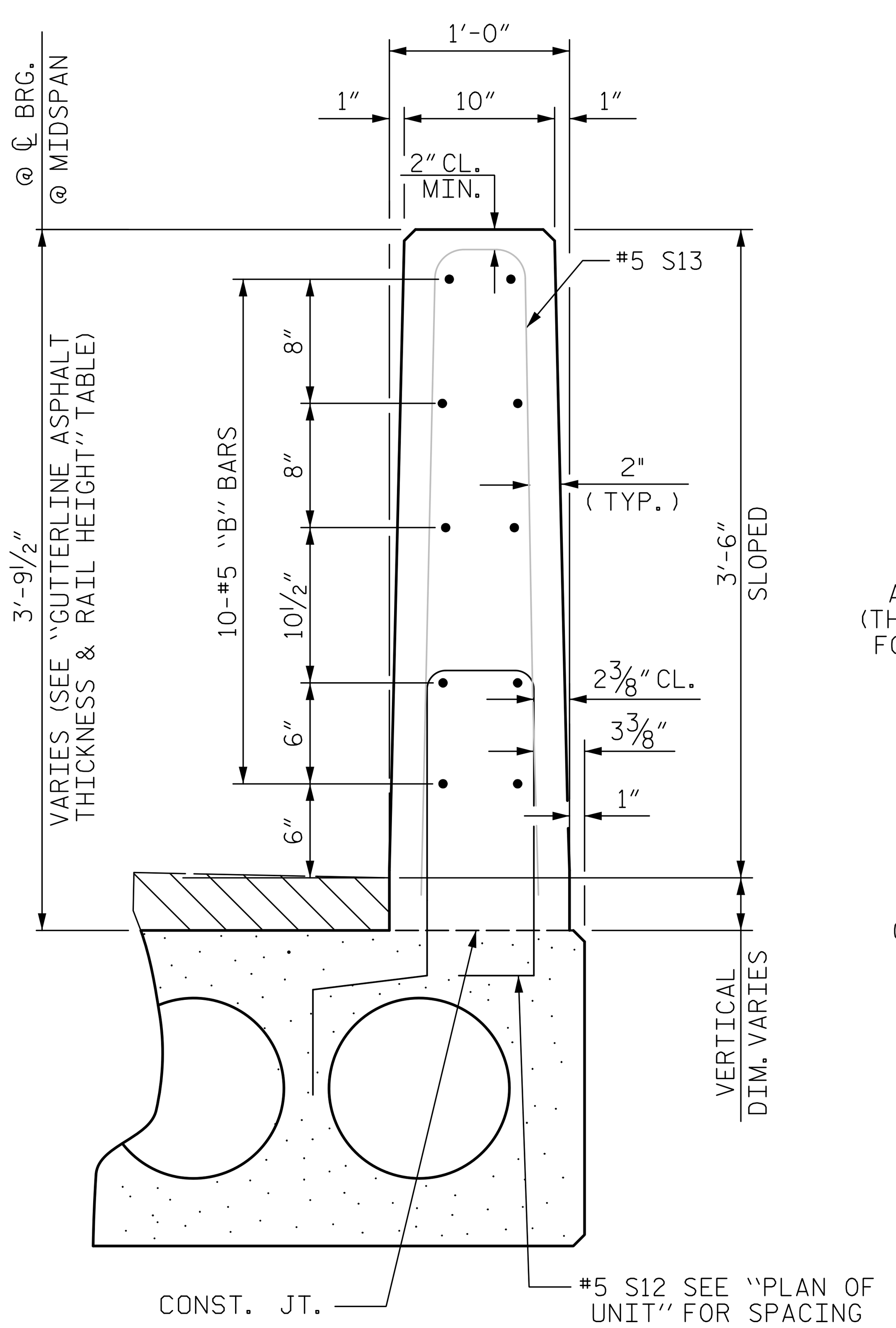
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

DEAD LOAD DEFLECTION AND CAMBER	3'-0" × 2'-0"
50' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	⅛" ↓
FINAL CAMBER	1⅜" ↑

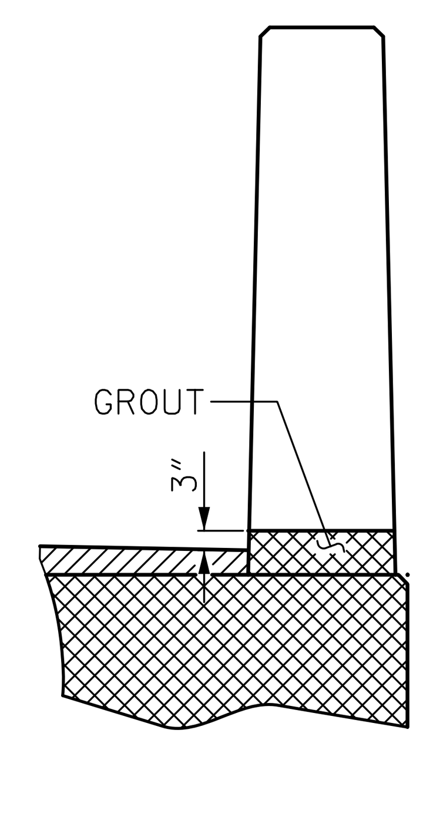
** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

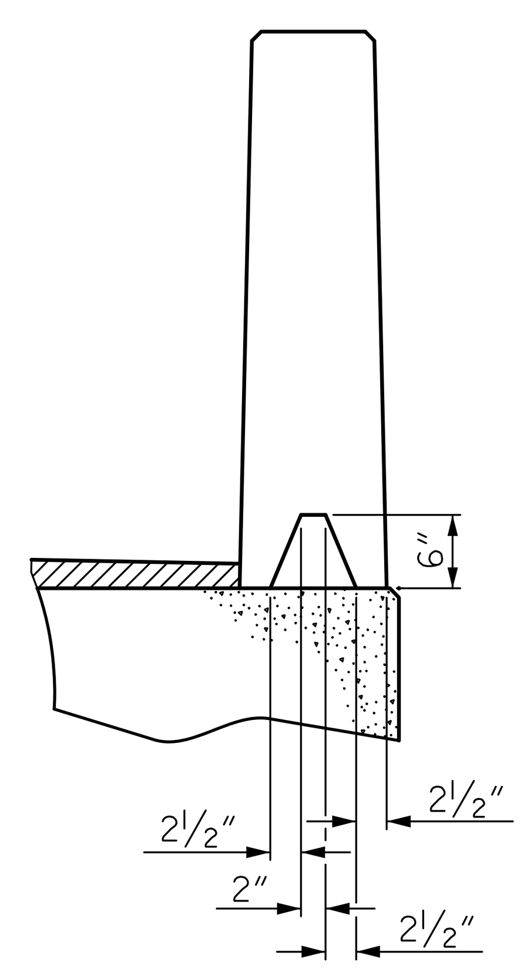
BAR	BARS PER PAIR OF EXTERIOR UNITS 50' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B36	40	40	#5	STR	24'-7"	1026
*S13	116	116	#5	2	7'-2"	867
* EPOXY COATED REINFORCING STEEL			LBS.			1893
CLASS AA CONCRETE			CU.YDS.			13.0
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			100.25



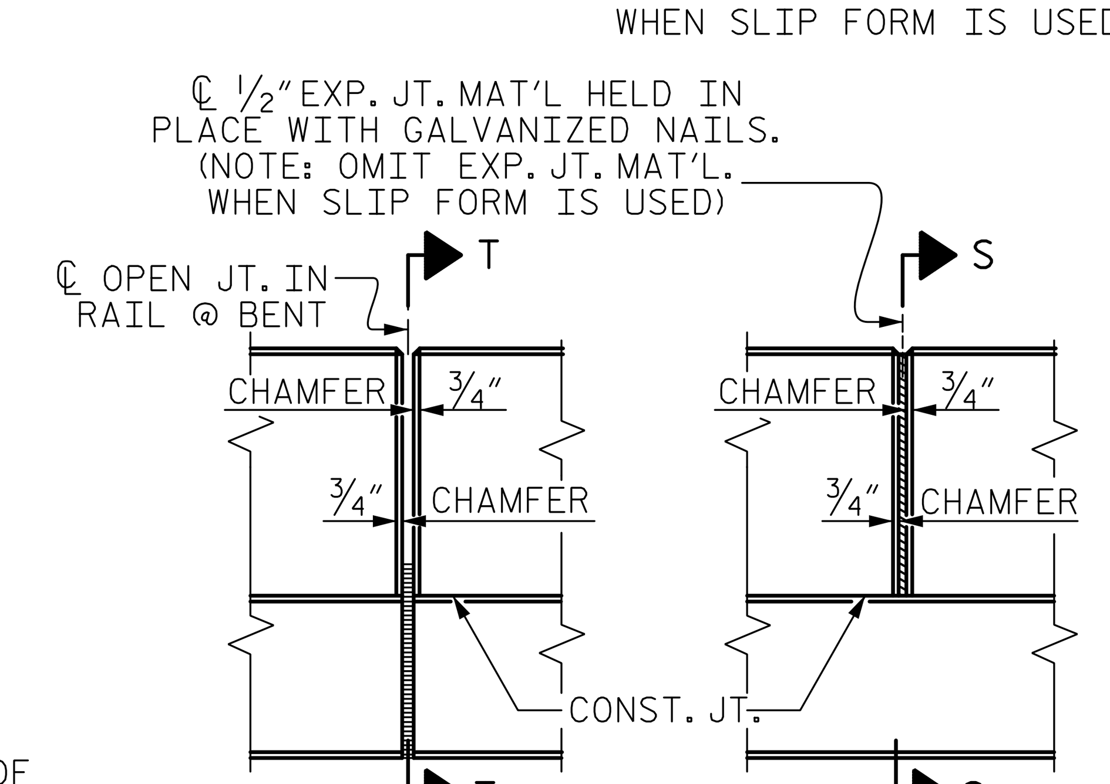
SECTION THRU RAIL



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

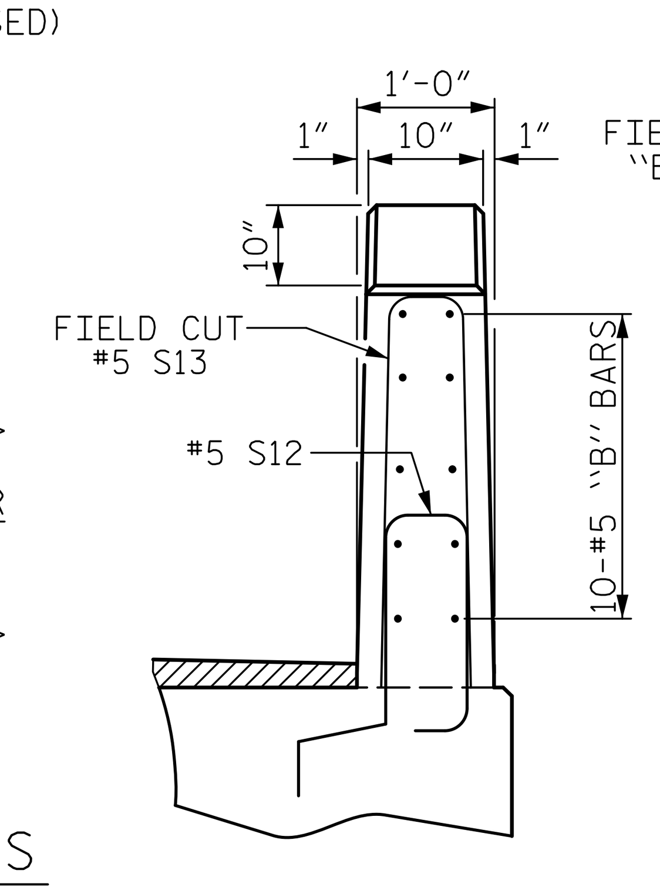


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

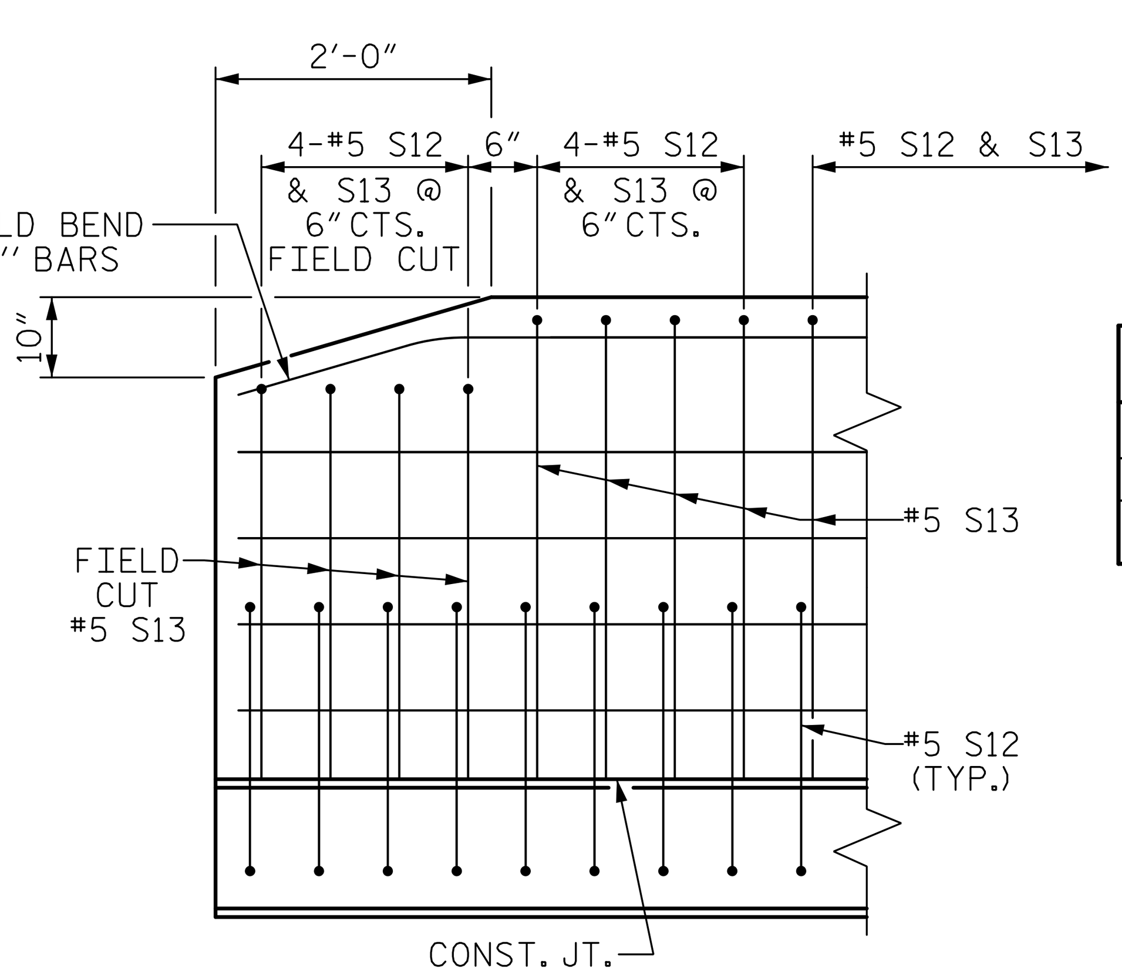


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

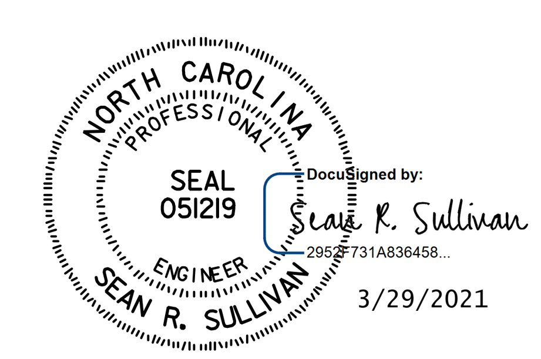
CORED SLABS REQUIRED	NUMBER	LENGTH	TOTAL LENGTH
50' UNIT			
EXTERIOR C.S.	2	50'-0"	100'-0"
INTERIOR C.S.	9	50'-0"	450'-0"
TOTAL	11		550'-0"

GRADE 270 STRANDS	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CONCRETE RELEASE STRENGTH

UNIT	PSI
50' UNITS	6200

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS								SHEET NO.
NO.	BY	DATE		NO.	BY	DATE		S-10
1				3				TOTAL SHEETS
2				4				25

HNTB
HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 1/21
CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21
DWG. NO. 10

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : M. WRIGHT DATE : 1/21
CHECKED BY : S. SULLIVAN DATE : 3/21
DRAWN BY : MAA 6/10
CHECKED BY : MKT 8/10
REV. 5/18 MAA/THC

3/29/2021
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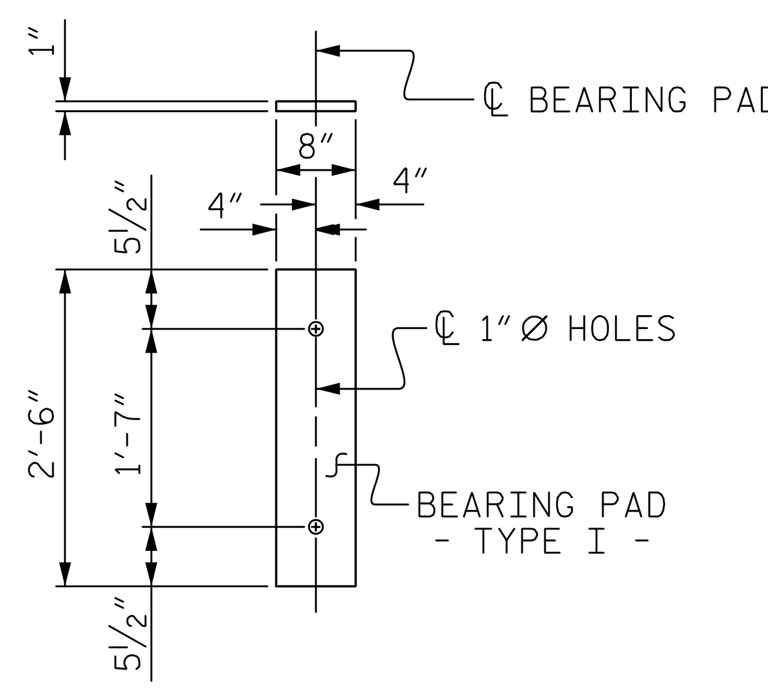
STD. NO. 24PCS3_33_90S (TOP DOWN)



FIXED END
(TYPE I - 22 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

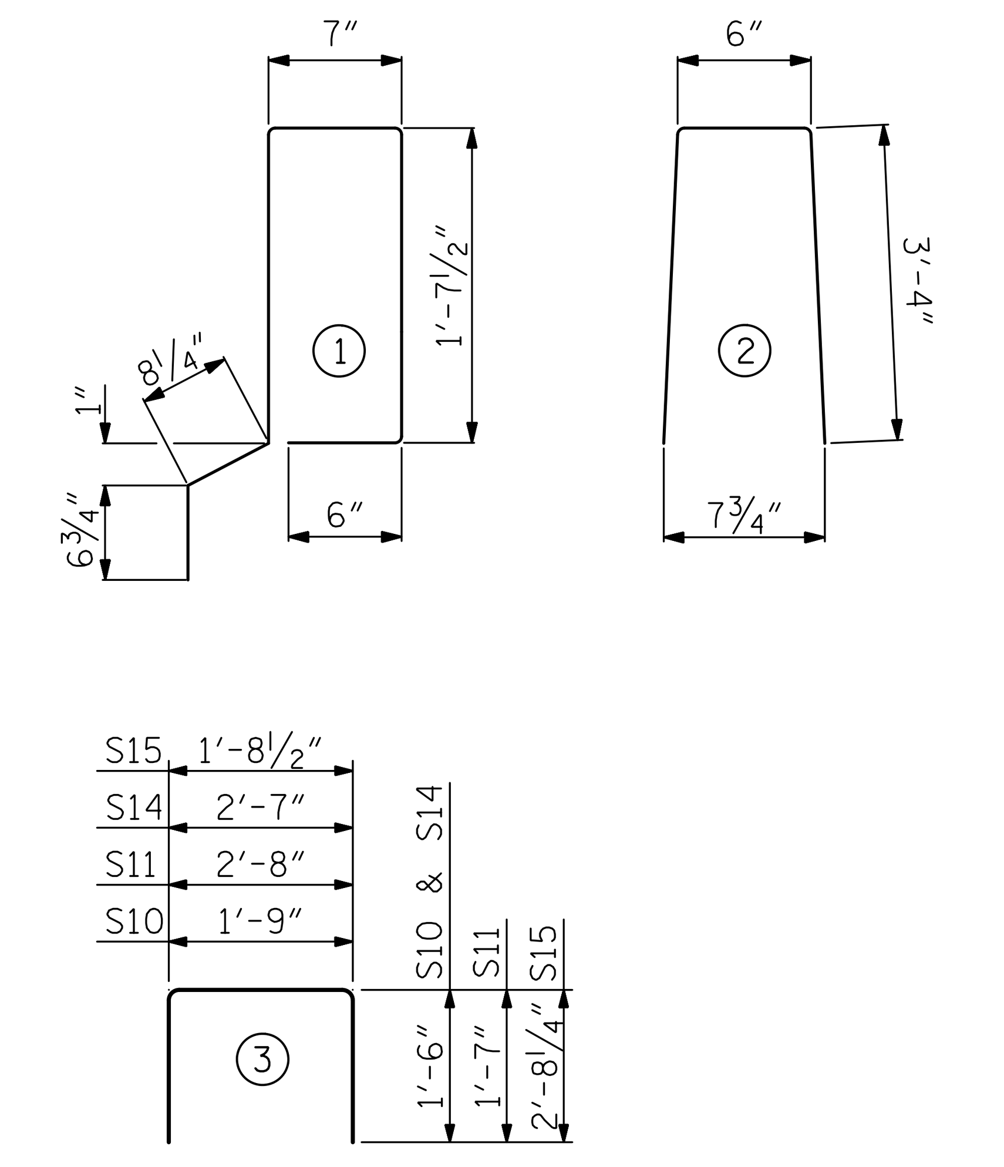
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
60' UNITS	1⅝"	3'-7⅝"

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B32	6	#4	STR	21'-2"	85	21'-2"	85
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	124	#4	3	5'-10"	483	5'-10"	483
*S12	68	#5	1	5'-7"	396		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		653		653
* EPOXY COATED REINFORCING STEEL			LBS.		396		
9500 P.S.I. CONCRETE			CU. YDS.		10.3		10.3
0.6"Ø L.R. STRANDS			No.		37		37

BAR TYPES

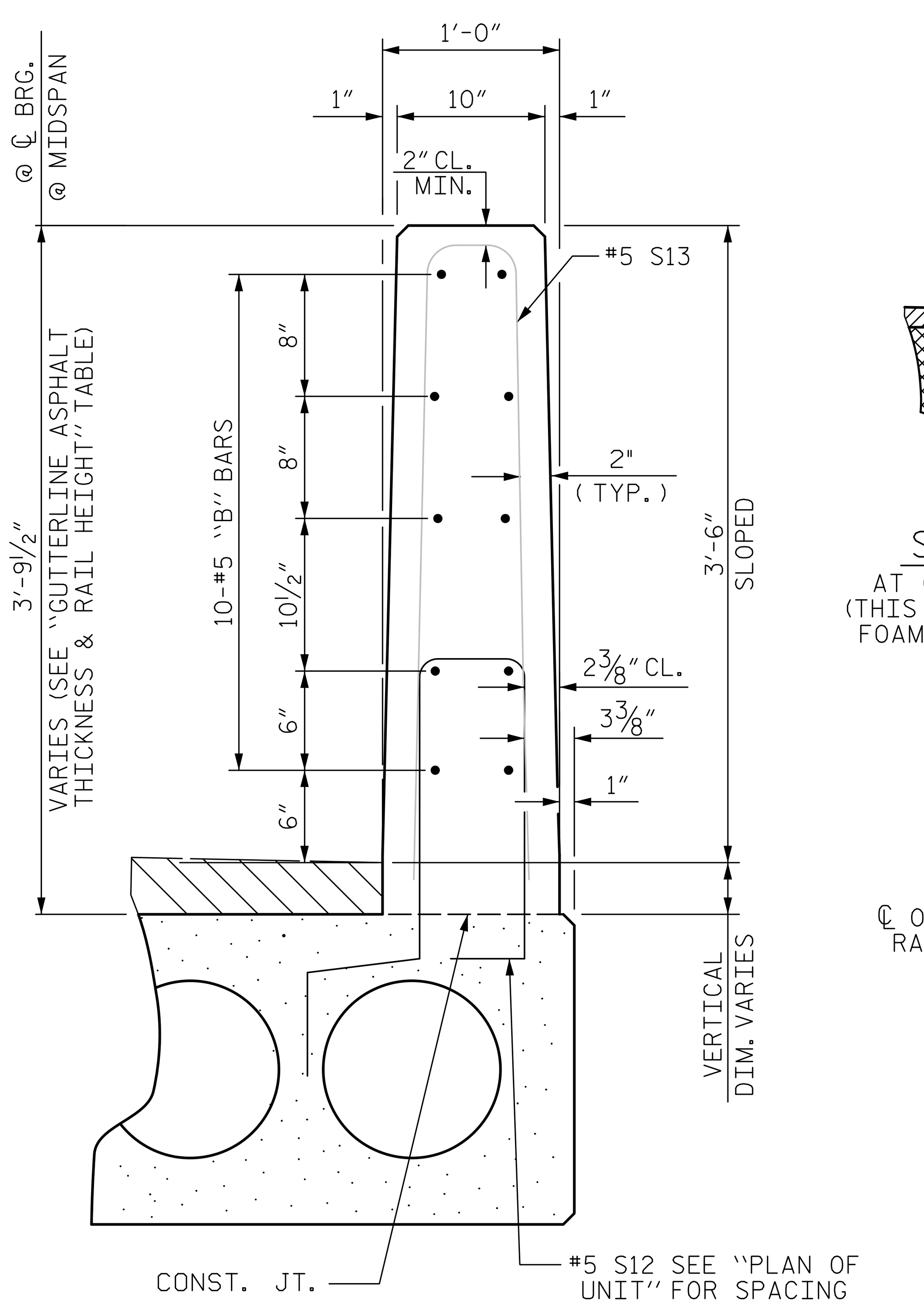


ALL BAR DIMENSIONS ARE OUT TO OUT

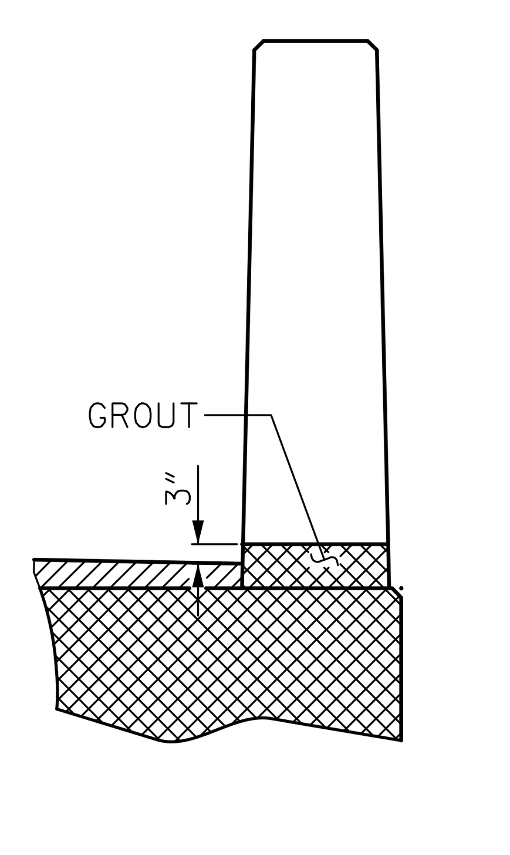
DEAD LOAD DEFLECTION AND CAMBER

60' CORED SLAB UNIT	3'-0" × 2'-0" 0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	⅜" ↓
FINAL CAMBER	1⅞" ↑

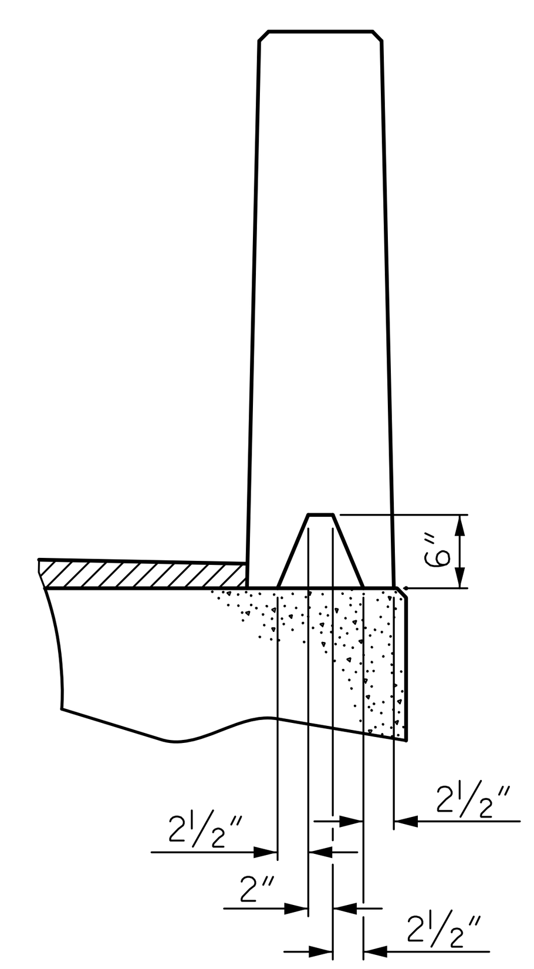
** INCLUDES FUTURE WEARING SURFACE



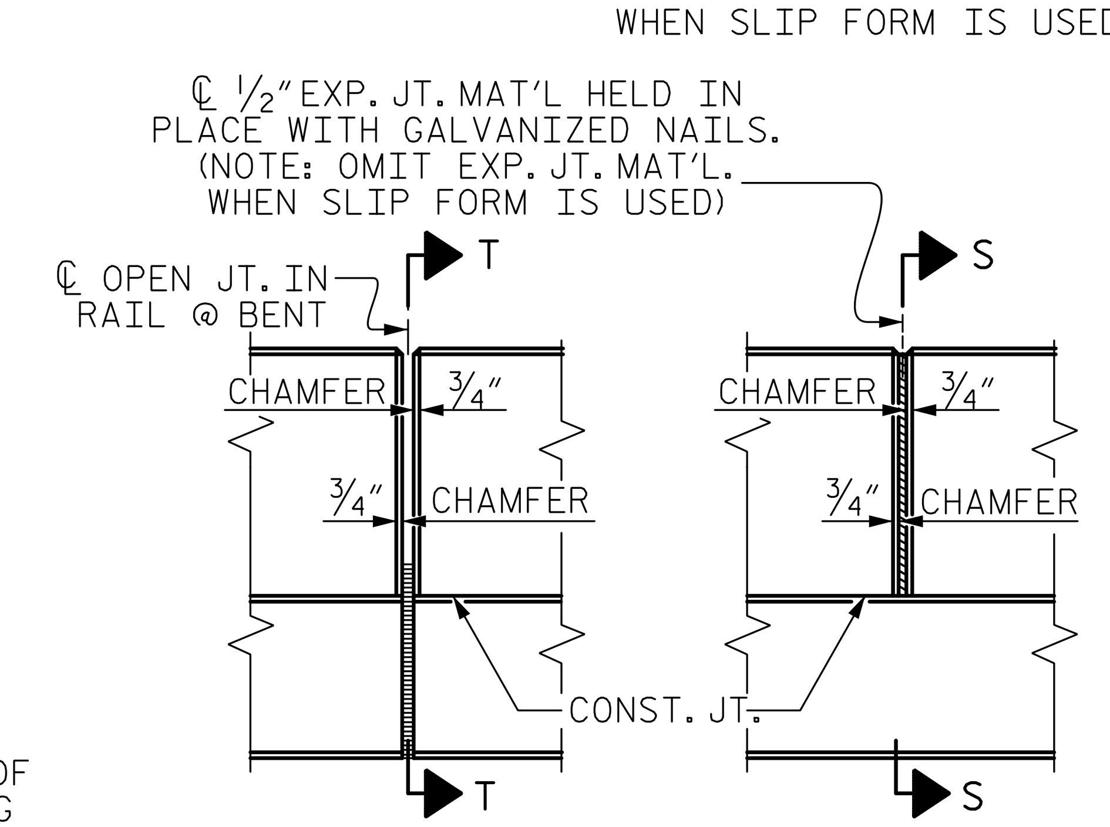
SECTION THRU RAIL



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



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



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 60' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B38	40	40	#5	STR	29'-7"	1234
*S13	136	136	#5	2	7'-2"	1017
* EPOXY COATED REINFORCING STEEL				LBS.		2251
CLASS AA CONCRETE				CU.YDS.		15.6
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		120.25

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	9	60'-0"	540'-0"
TOTAL	11		660'-0"

GRADE 270 STRANDS

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

CONCRETE RELEASE STRENGTH

UNIT	PSI
60' UNITS	7200

NOTES

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

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

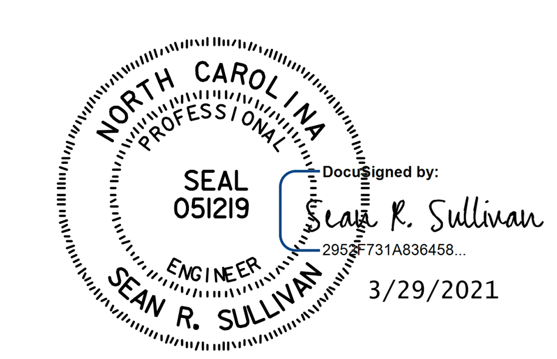
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

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

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

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

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS							
NO.	BY	DATE		NO.	BY	DATE	
1				3			
2				4			

SHEET NO. S-11
TOTAL SHEETS 25

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 1/21
CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21
DWG. NO. 11

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : M. WRIGHT DATE : 1/21
CHECKED BY : S. SULLIVAN DATE : 3/21
DRAWN BY : MAA 6/10
CHECKED BY : MKT 8/10
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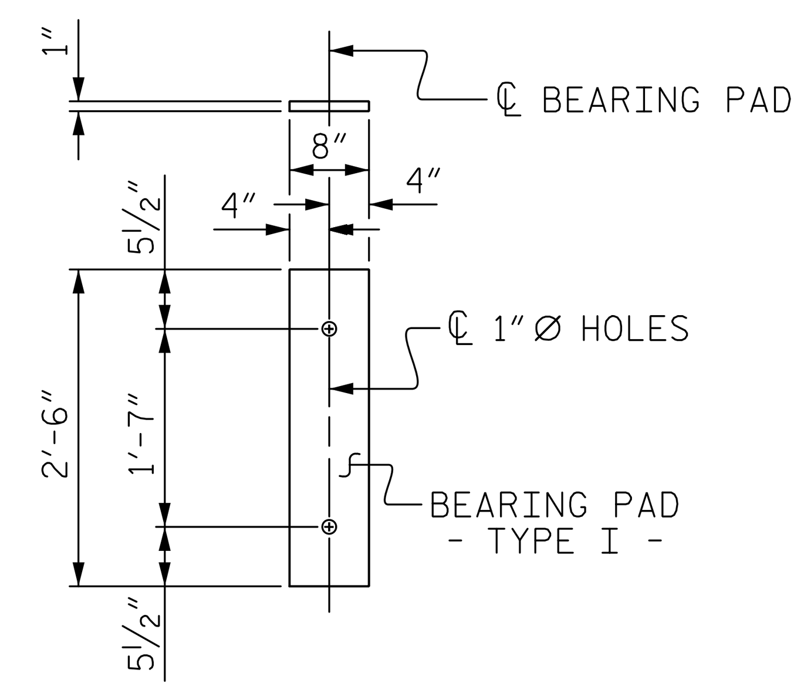


FIXED END
(TYPE I - 44 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

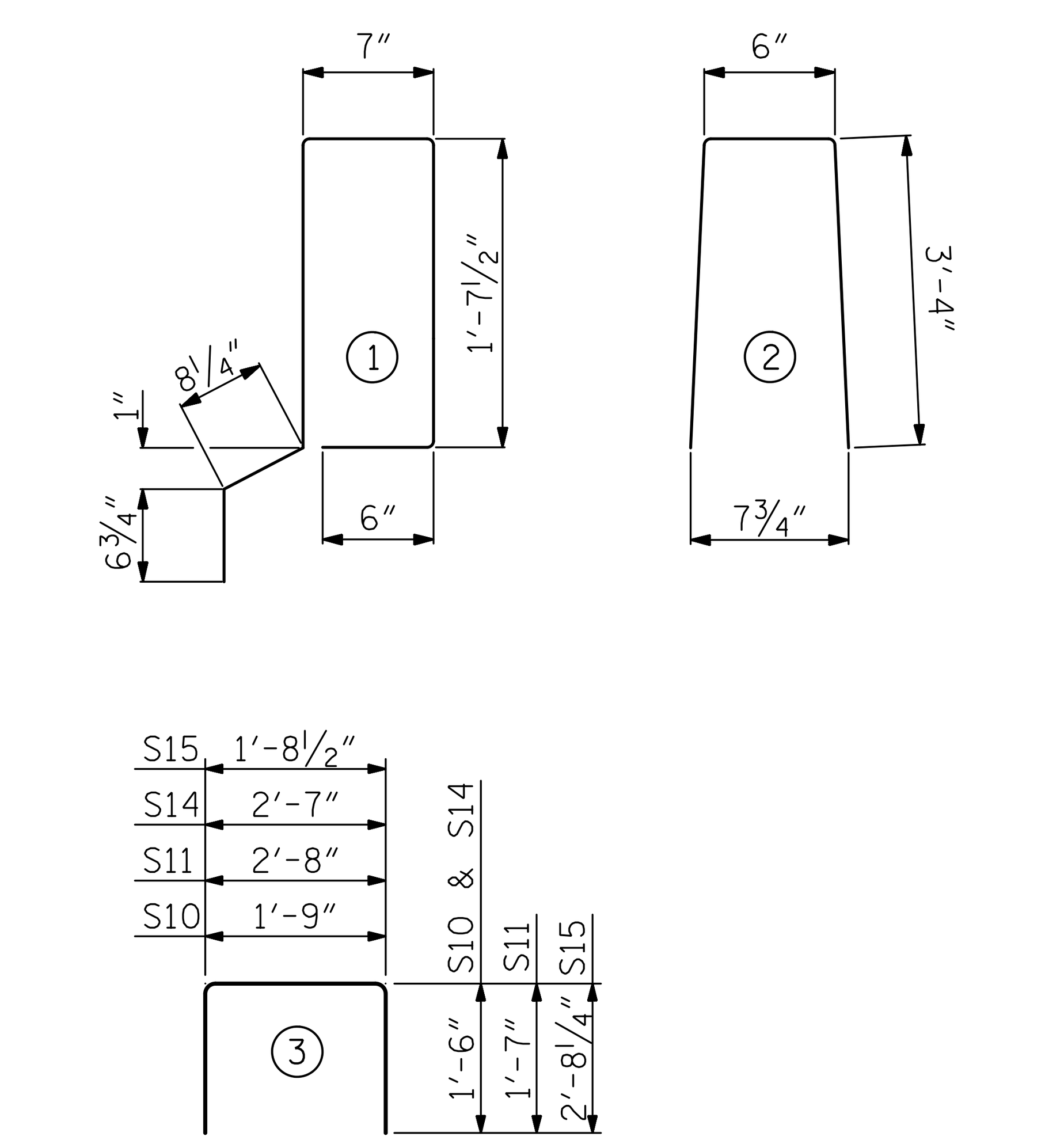
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

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

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B31	4	#4	STR	28'-3"	75	28'-3"	75
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	114	#4	3	5'-10"	444	5'-10"	444
✱S12	64	#5	1	5'-7"	373		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		604		604
✱EPOXY COATED REINFORCING STEEL			LBS.		373		
8500 P.S.I. CONCRETE			CU. YDS.		9.4		9.4
0.6"Ø L.R. STRANDS			No.		31		31

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

DEAD LOAD DEFLECTION AND CAMBER

55' CORED SLAB UNIT	3'-0" × 2'-0" 0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1¾" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ✱✱	¼" ↓
FINAL CAMBER	1½" ↑

✱✱ INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 55' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
✱B37	40	80	#5	STR	27'-1"	2,260
✱S13	128	256	#5	2	7'-2"	1,914
✱EPOXY COATED REINFORCING STEEL			LBS.			4,174
CLASS AA CONCRETE			CU.YDS.			28.6
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			220.50

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	4	55'-0"	220'-0"
INTERIOR C.S.	18	55'-0"	990'-0"
TOTAL	22		1,210'-0"

GRADE 270 STRANDS

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

CONCRETE RELEASE STRENGTH

UNIT	PSI
55' UNITS	6200

NOTES

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

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

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

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

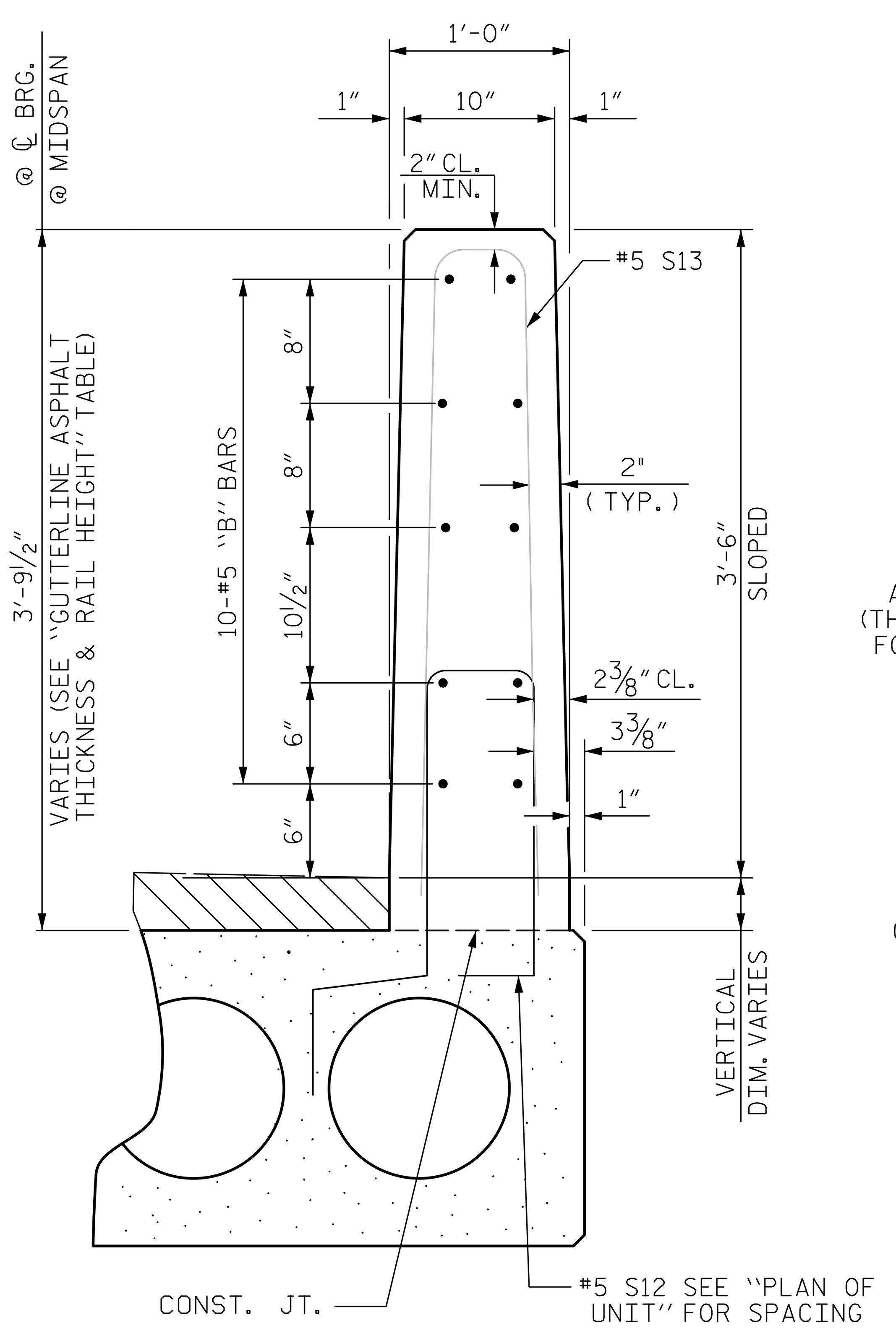
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

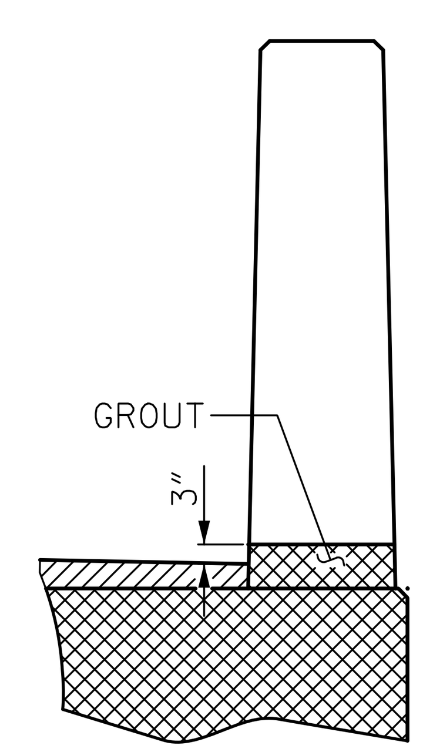
THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

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

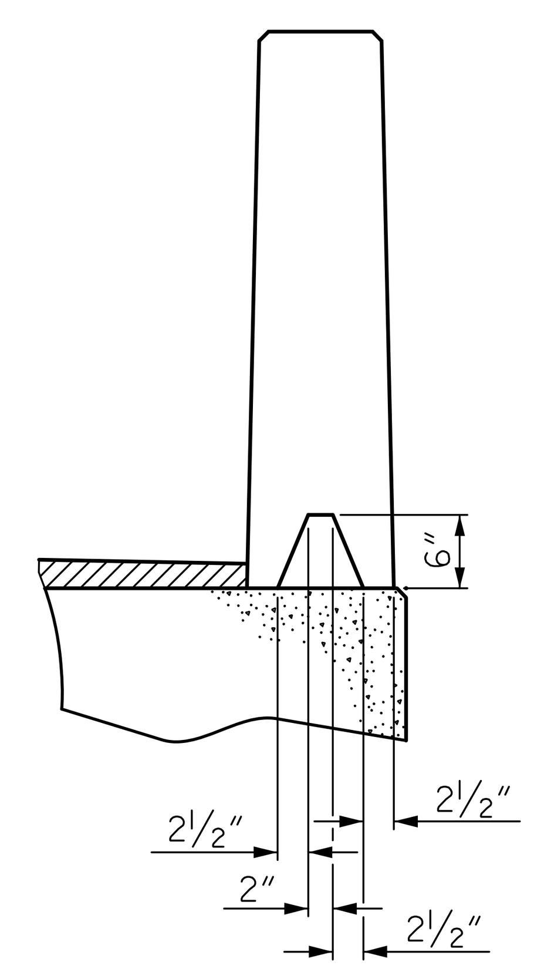
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



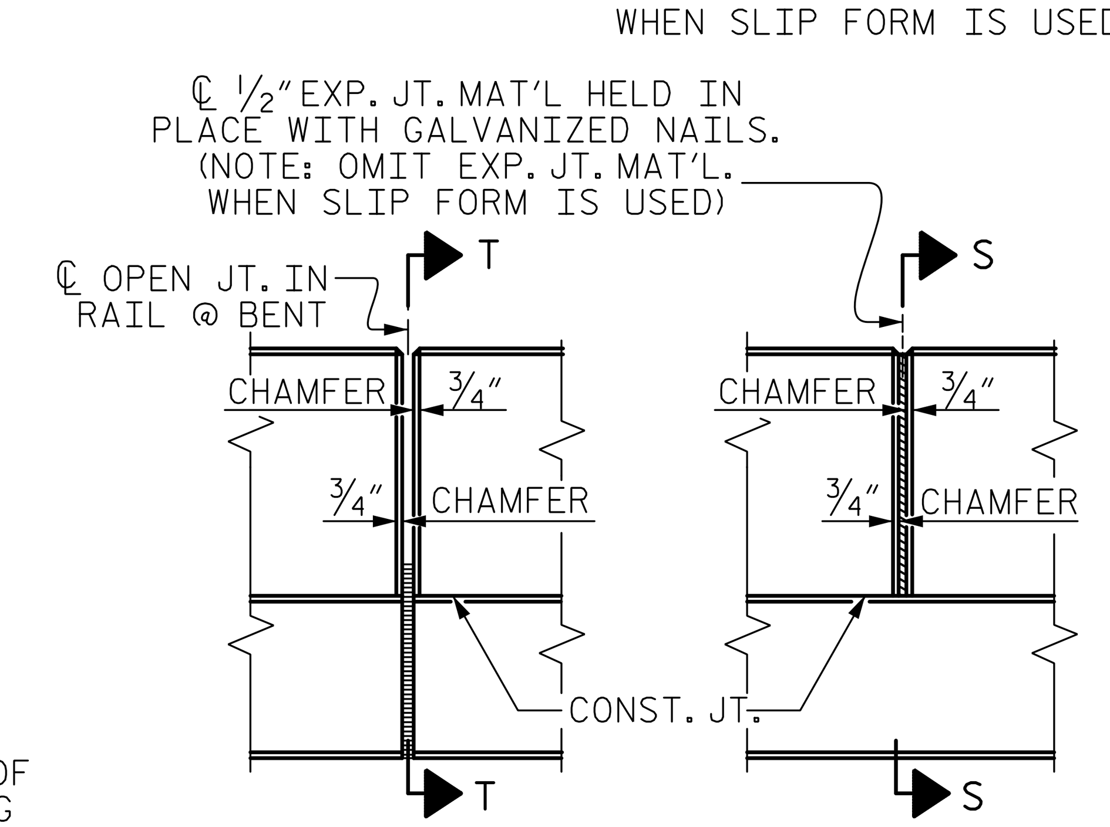
SECTION THRU RAIL



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

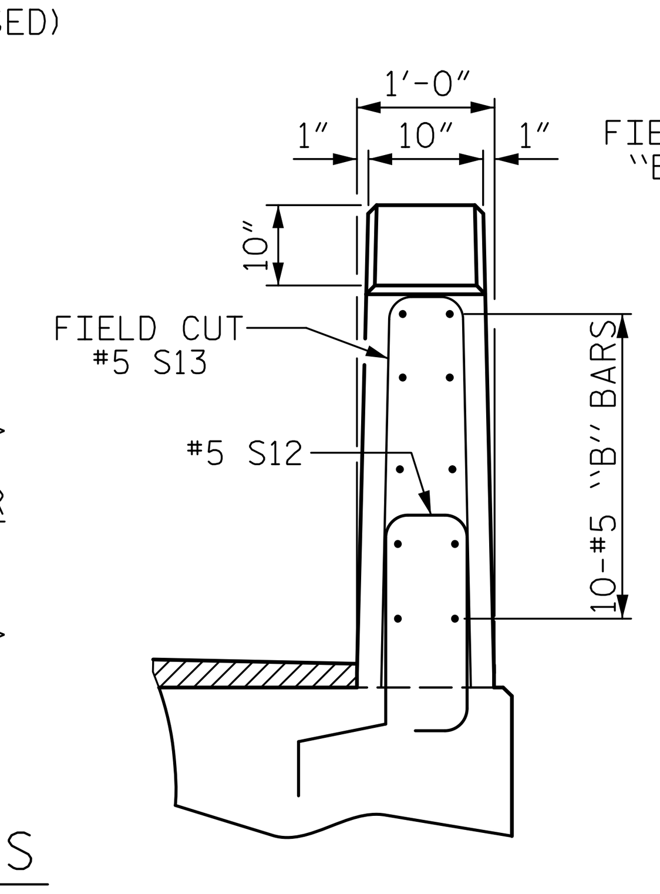


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

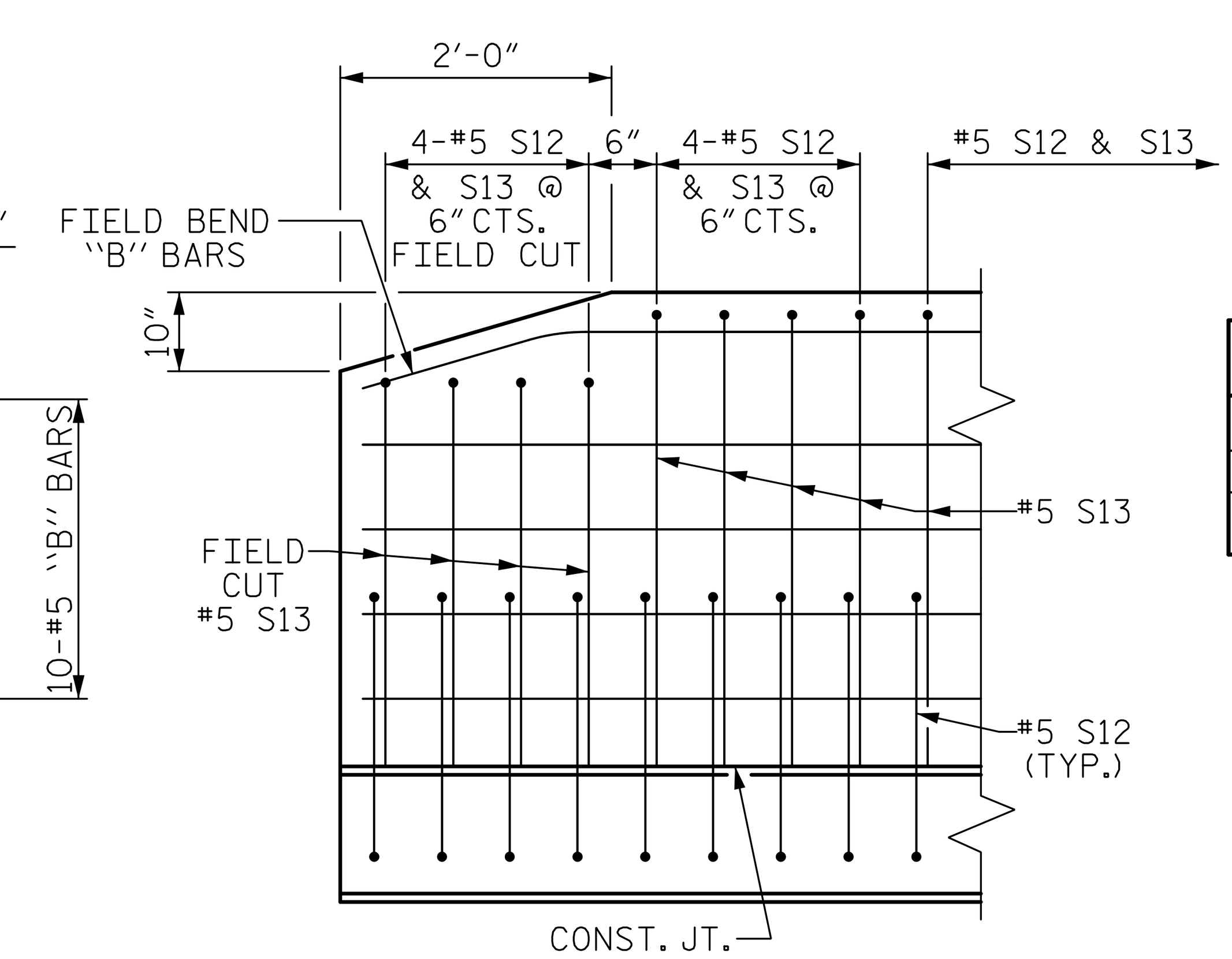


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS



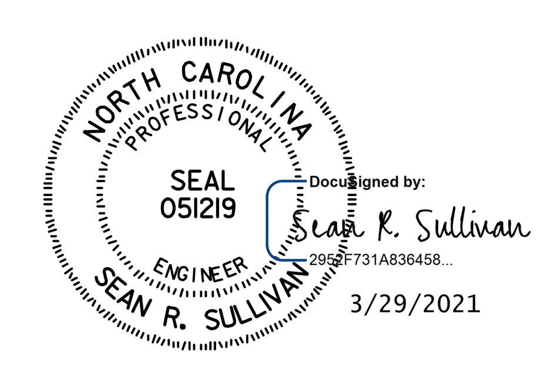
END VIEW



SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT
SPANS C & D

REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		S-12
1			3				TOTAL SHEETS
2			4				25

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NC License No. C-1554
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DRAWN BY	M. WRIGHT	DATE	1/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 12

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ASSEMBLED BY : M. WRIGHT		DATE : 1/21	
CHECKED BY : S. SULLIVAN		DATE : 3/21	
DRAWN BY : MAA 6/10	REV. 5/18		MAA/THC
CHECKED BY : MKT 8/10			

3/29/2021
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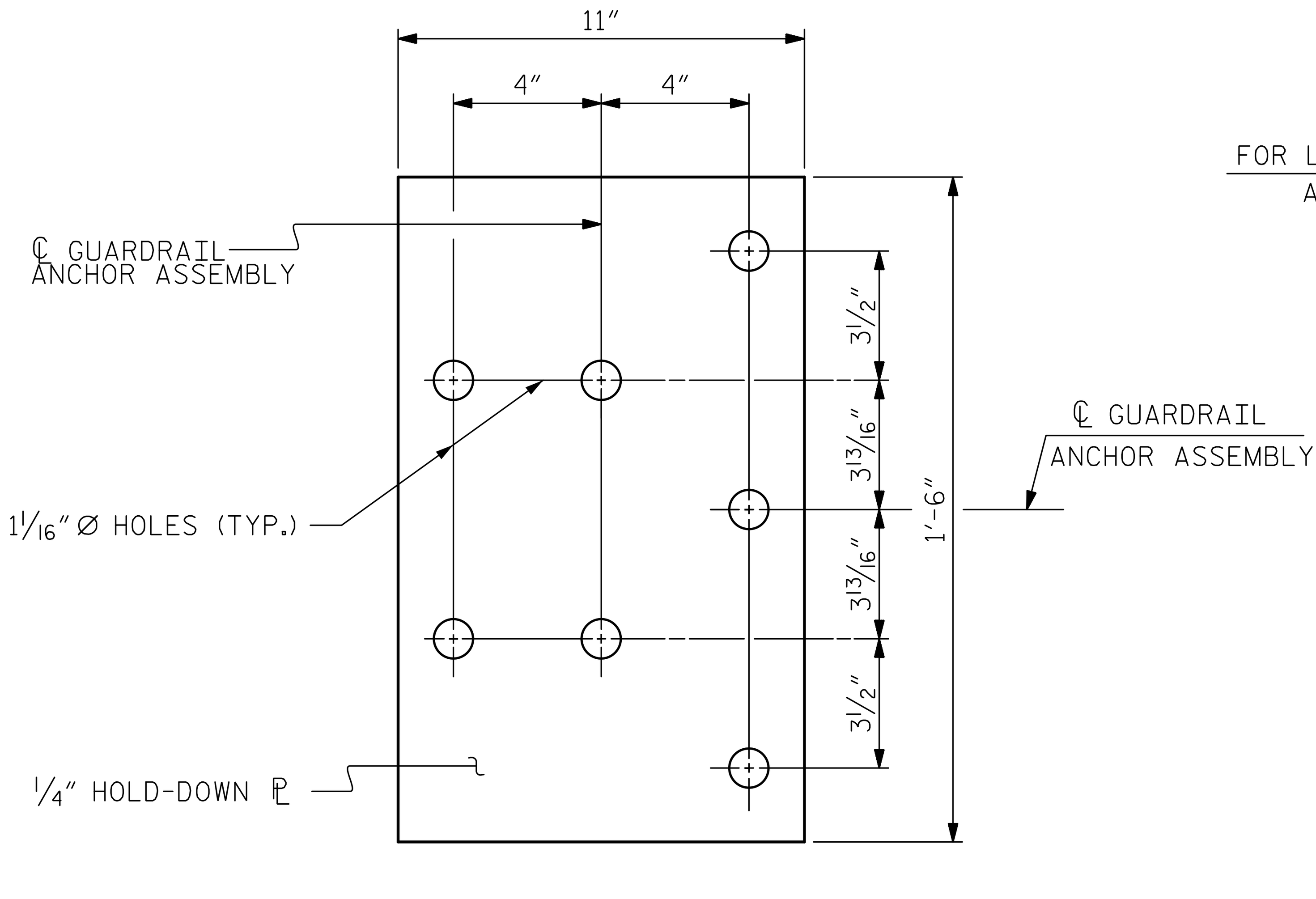
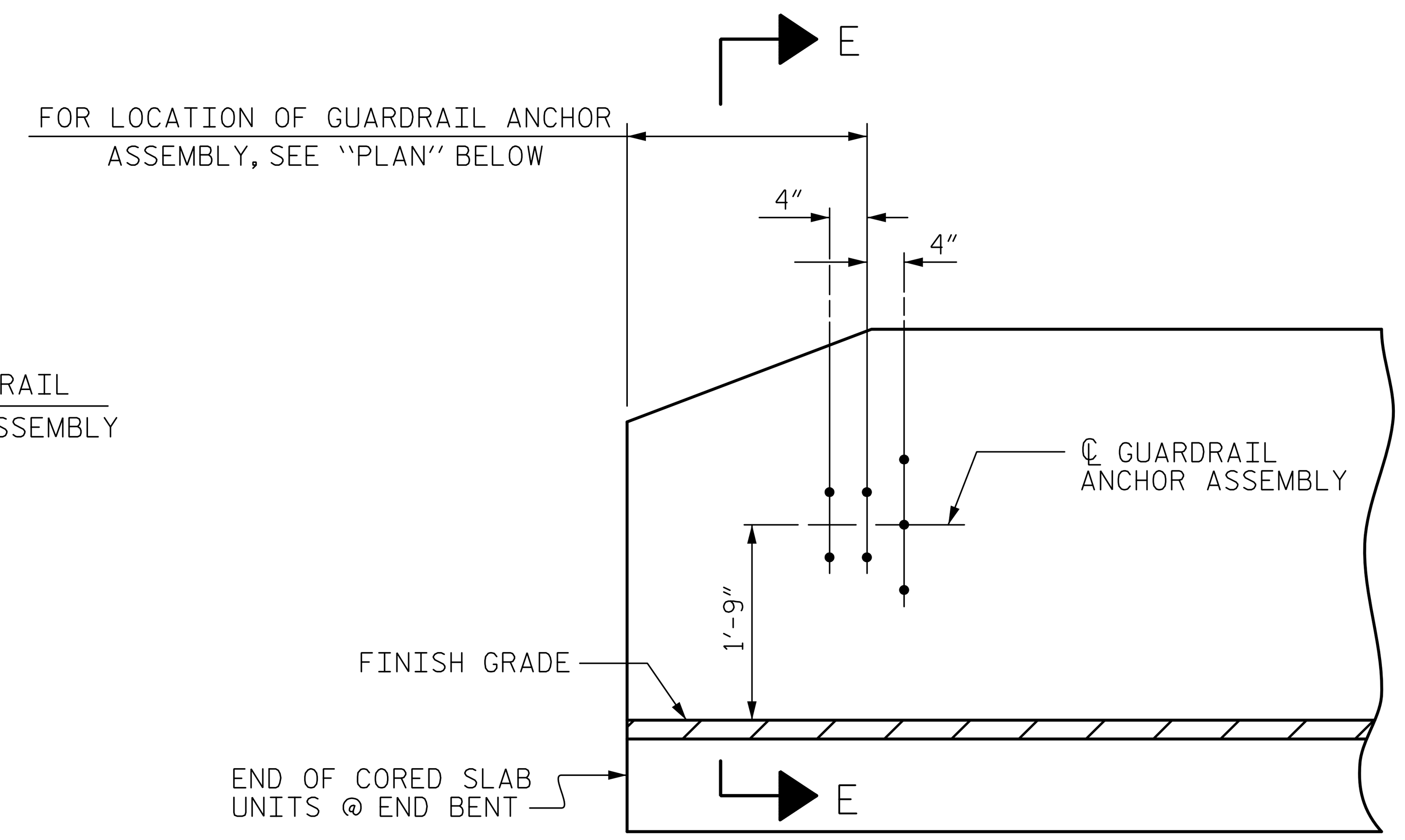
STD. NO. 24PCS3_33_90S (TOP DOWN)



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼″ HOLD DOWN PLATE AND 7 - ⅞″ 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 ⅞″ 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.

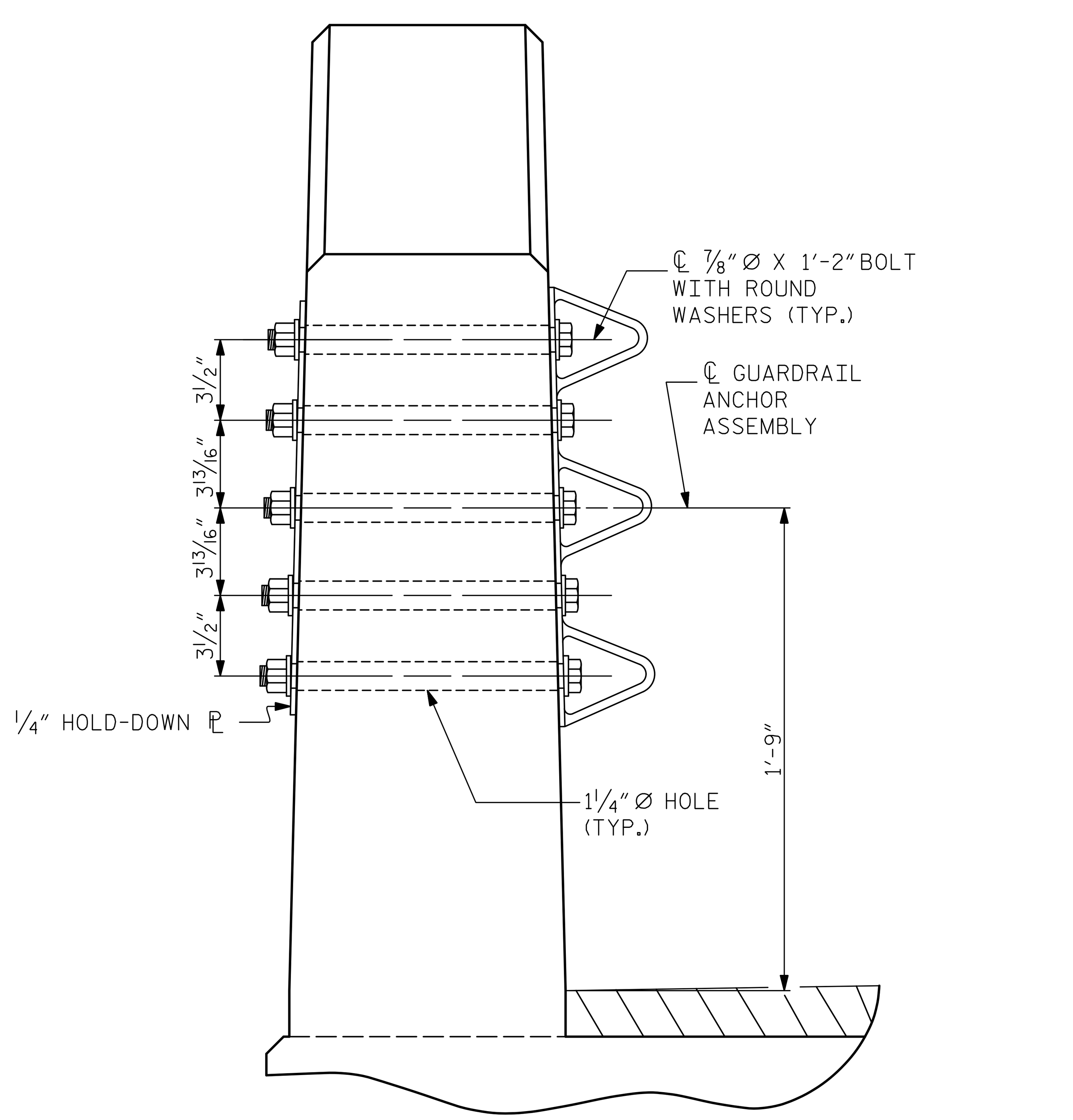
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

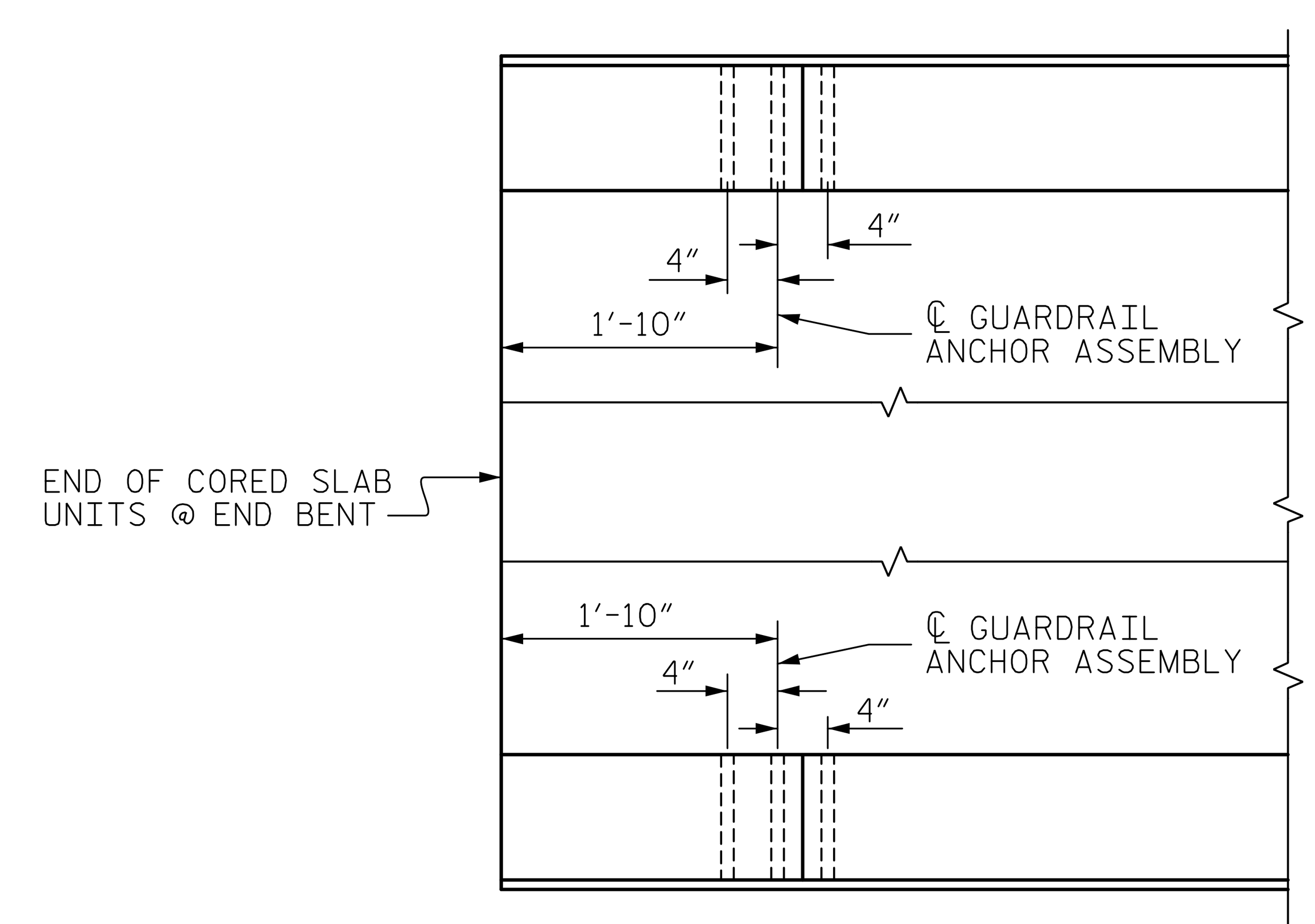
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1¼″ Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan
3/29/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

ASSEMBLED BY : M. WRIGHT	DATE : 1/21
CHECKED BY : S. SULLIVAN	DATE : 3/21

DRAWN BY : MAA 5/10	REV. 1/15	MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17	MAA/THC
	REV. 5/18	MAA/THC

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DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 13

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-13

TOTAL SHEETS 25

STD. NO. GRA3

3/29/2021
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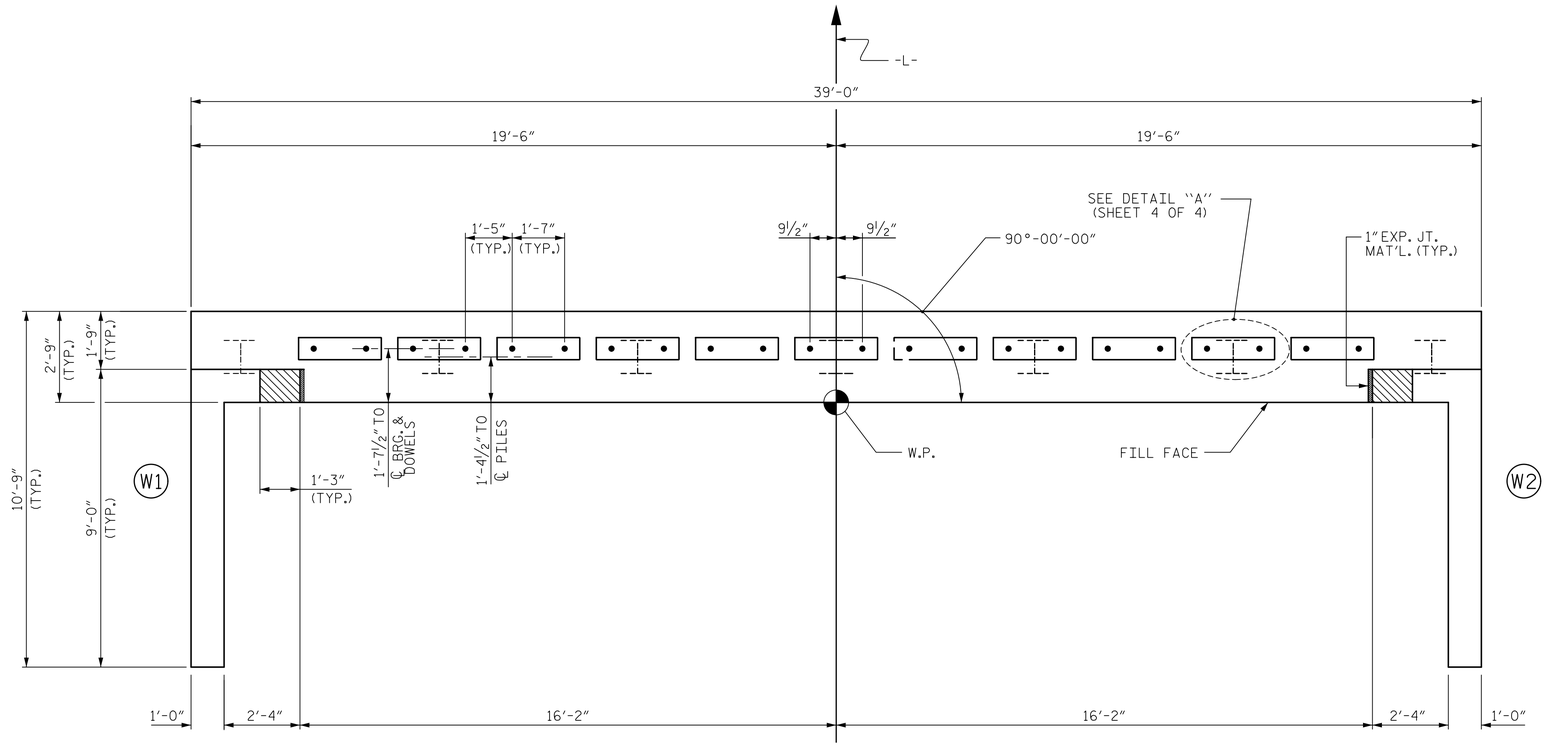
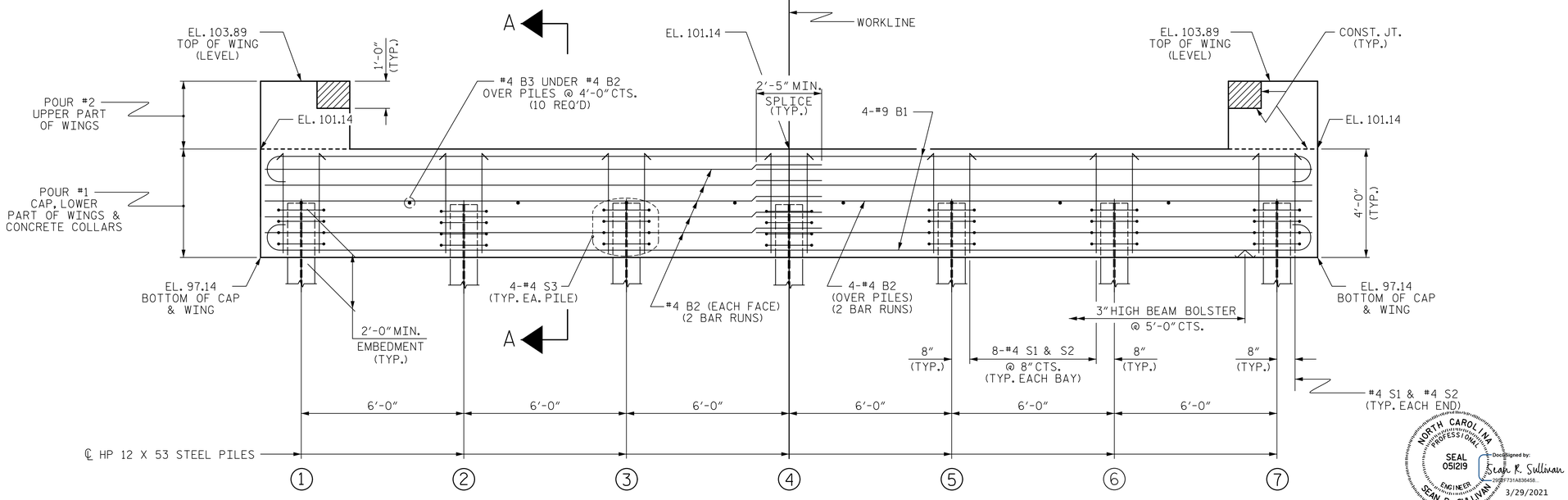


PLAN



ELEVATION

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

NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan 3F731A836458...
3/29/2021

ASSEMBLED BY : M. WRIGHT	DATE : 1/21
CHECKED BY : S. SULLIVAN	DATE : 3/21
DRAWN BY : WJH 12/11	REV. 4/15 MAA/TMG
CHECKED BY : AAC 12/11	

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DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 14

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-14
1			3			TOTAL SHEETS
2			4			25

STD. NO. EB_33_90S4

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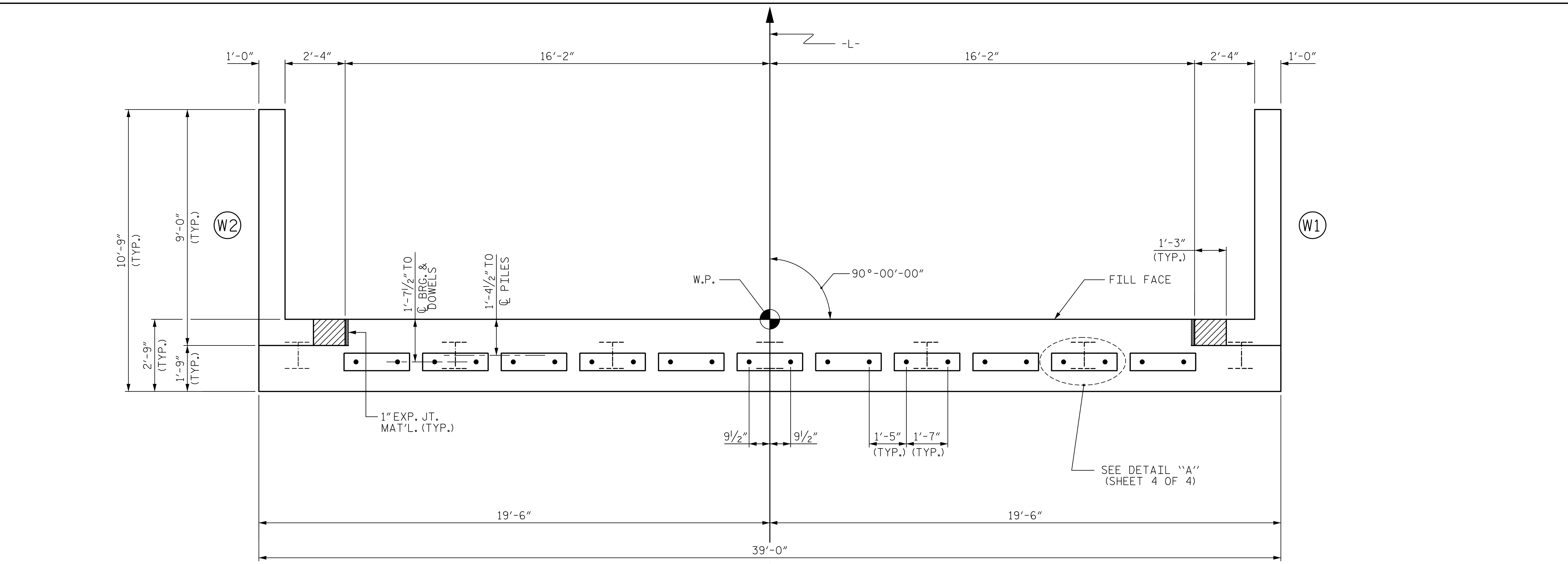
NOTES

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

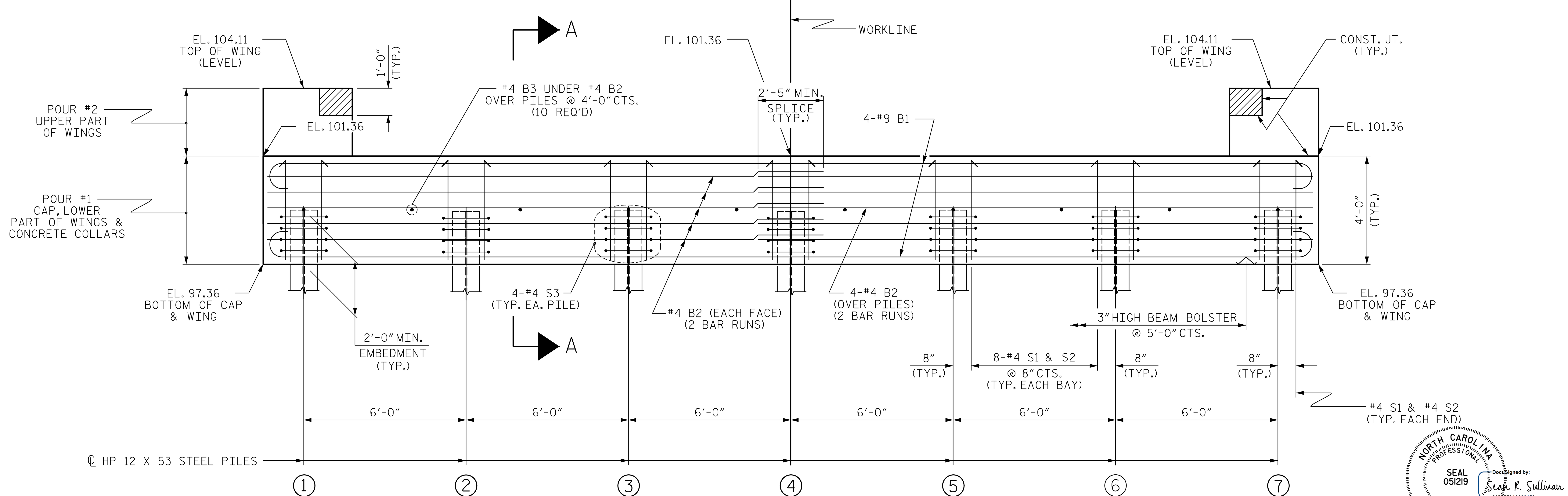
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

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

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

SEAL 051219 — NORTH CAROLINA PROFESSIONAL ENGINEER — SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan
3/29/2021

ASSEMBLED BY : M. WRIGHT		DATE : 1/21	
CHECKED BY : S. SULLIVAN		DATE : 3/21	
DRAWN BY : WJH 12/11	REV. 4/15	MAA/TMG	
CHECKED BY : AAC 12/11			

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DRAWN BY	M. WRIGHT	DATE 1/21	DWG. NO. 15
CHECKED BY	S. SULLIVAN	DATE 3/21	
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE 3/21	

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-15
TOTAL SHEETS 25

STD. NO. EB_33_90S4

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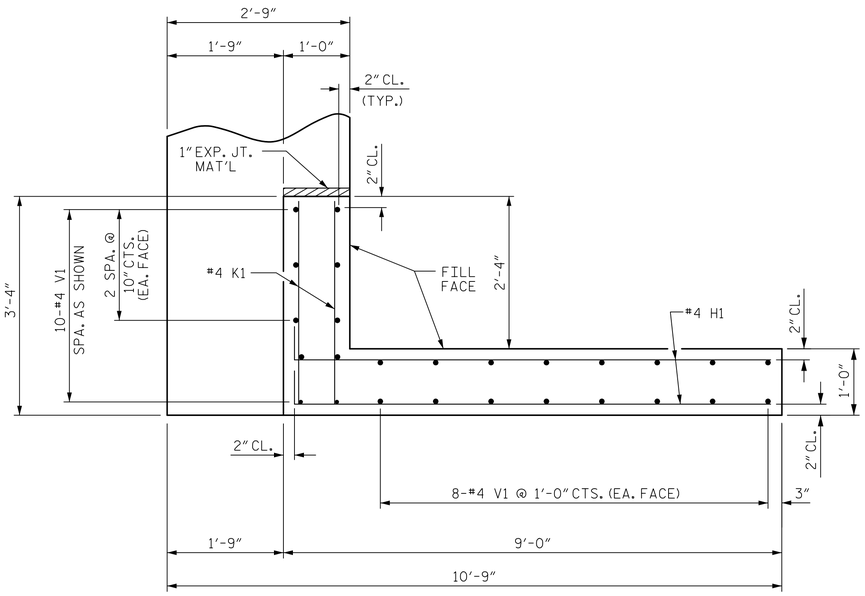
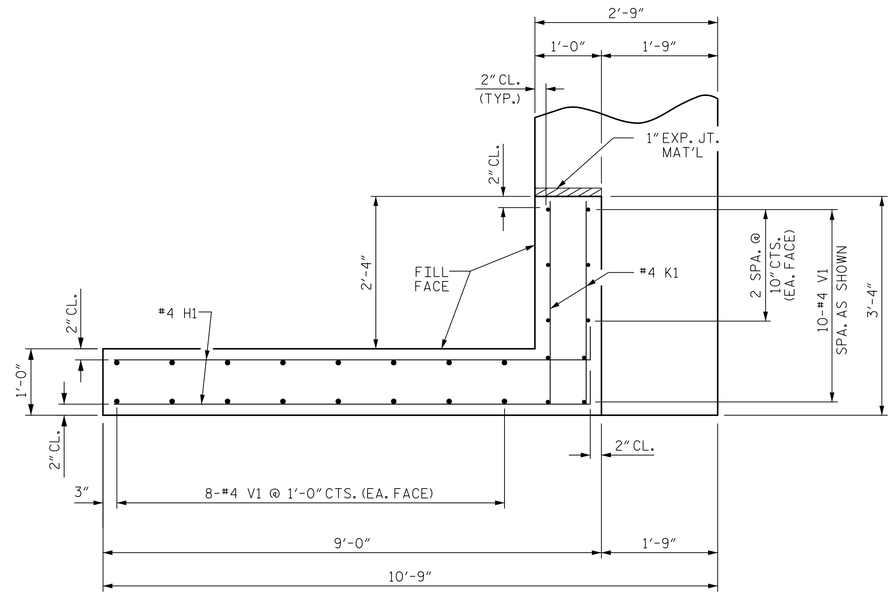
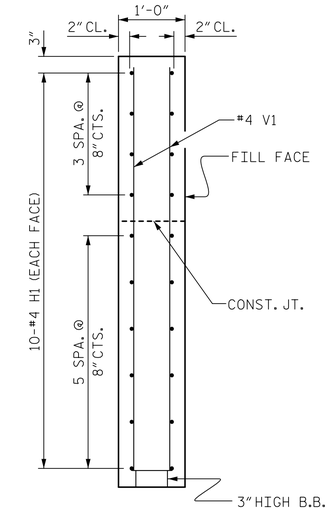


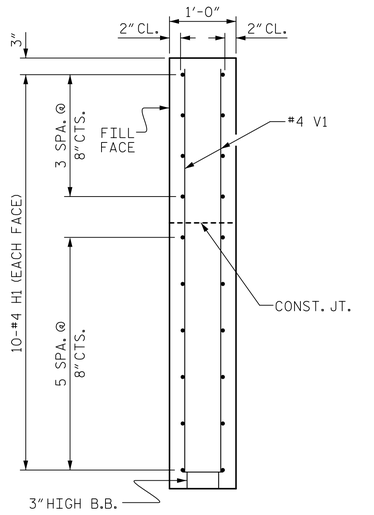
PLAN OF WING (W1)



PLAN OF WING (W2)

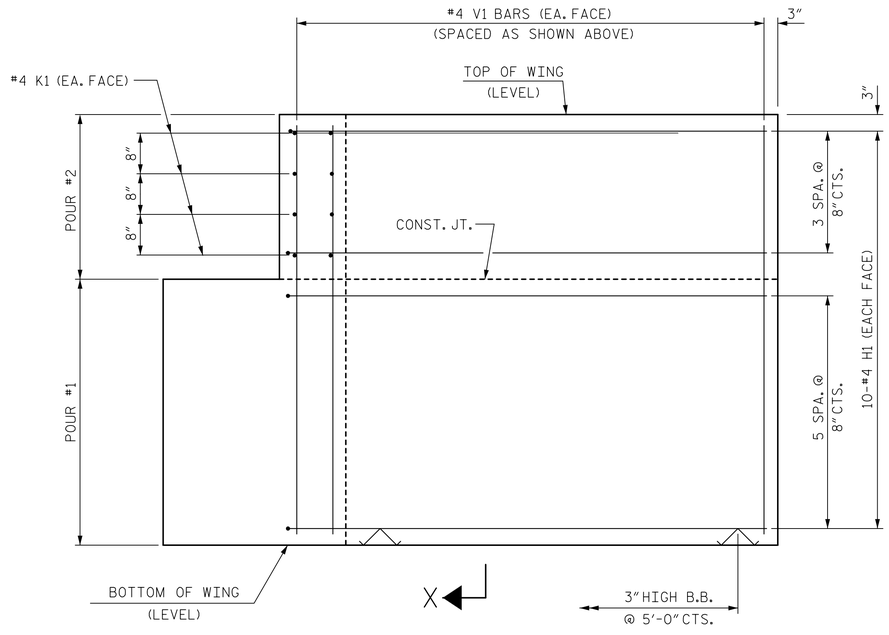


SECTION X-X

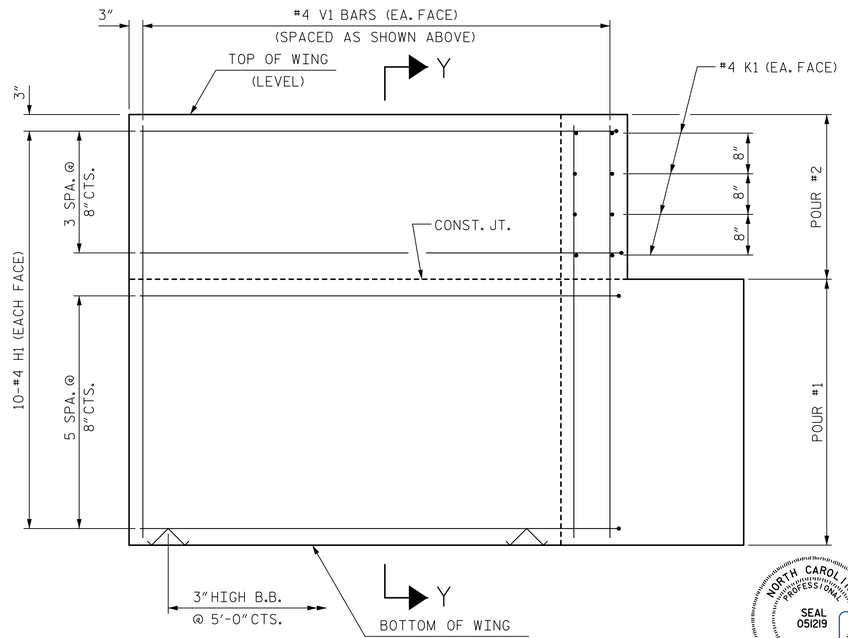


SECTION Y-Y

X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN

Docusigned by: Sean R. Sullivan 3/29/2021

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT WING DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-16
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : M. WRIGHT	DATE : 1/21		
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DWG. NO. 16

STD. NO. EB_33_90S4

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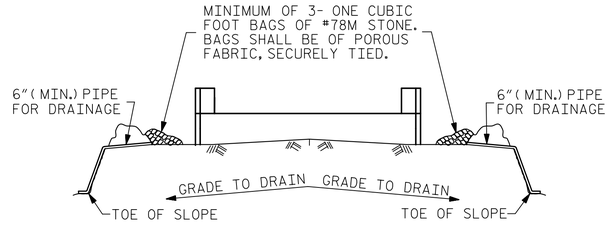
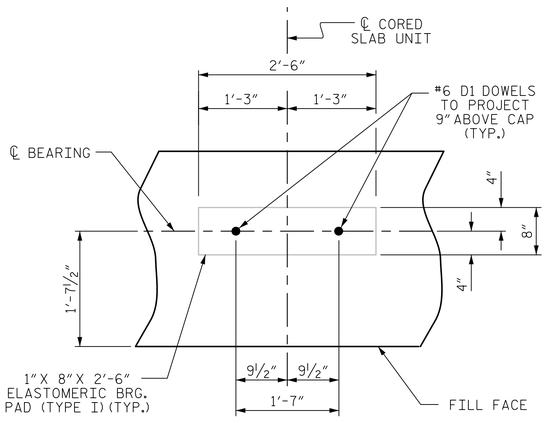


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

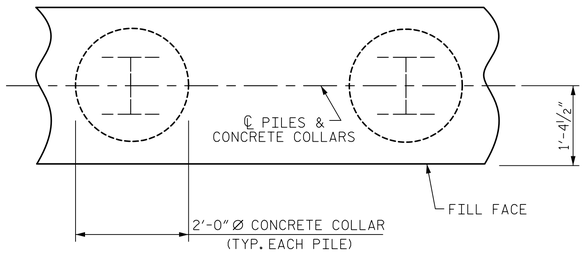
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

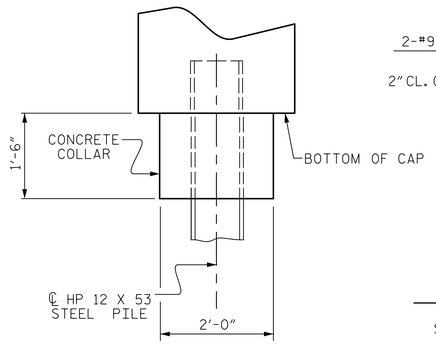


DETAIL "A"

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



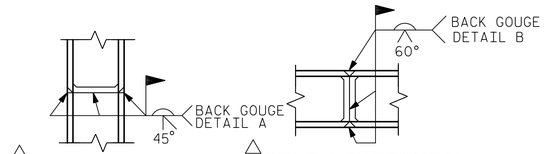
PLAN



ELEVATION

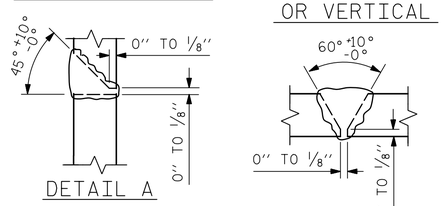
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



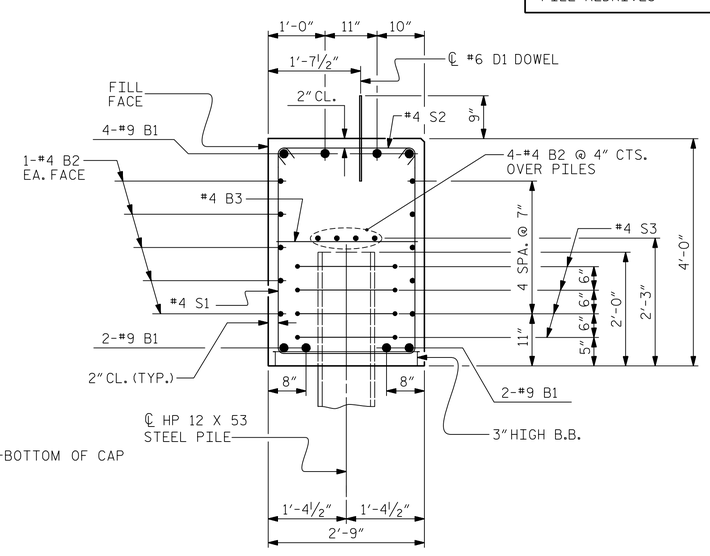
△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



△ POSITION OF PILE DURING WELDING.

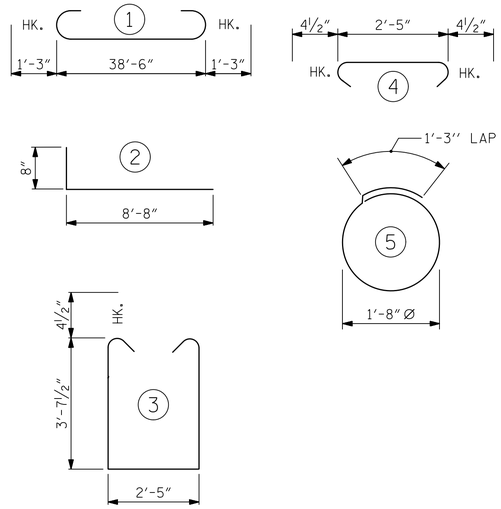
PILE SPLICE DETAILS



SECTION A-A

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 385	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 385
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7
PILE REDRIVES NO: 4	PILE REDRIVES NO: 4

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	28	#4	STR	20'-7"	385
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	50	#4	3	10'-5"	348
S2	50	#4	4	3'-2"	106
S3	28	#4	5	6'-6"	122
V1	52	#4	STR	6'-2"	214

REINFORCING STEEL (FOR ONE END BENT) 2636 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 19.5 C.Y.

POUR #2 UPPER PART OF WINGS 2.3 C.Y.

TOTAL CLASS A CONCRETE 21.8 C.Y.

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN

DocuSigned by: Sean R. Sullivan 3/29/2021

ASSEMBLED BY : M. WRIGHT	DATE : 1/21
CHECKED BY : S. SULLIVAN	DATE : 3/21
DRAWN BY : WJH 12/11	REV. 4/17 MAA/THC
CHECKED BY : AAC 12/11	

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343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY	M. WRIGHT	DATE 1/21
CHECKED BY	S. SULLIVAN	DATE 3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE 3/21

DWG. NO. 17

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-17
1			3			TOTAL SHEETS
2			4			25

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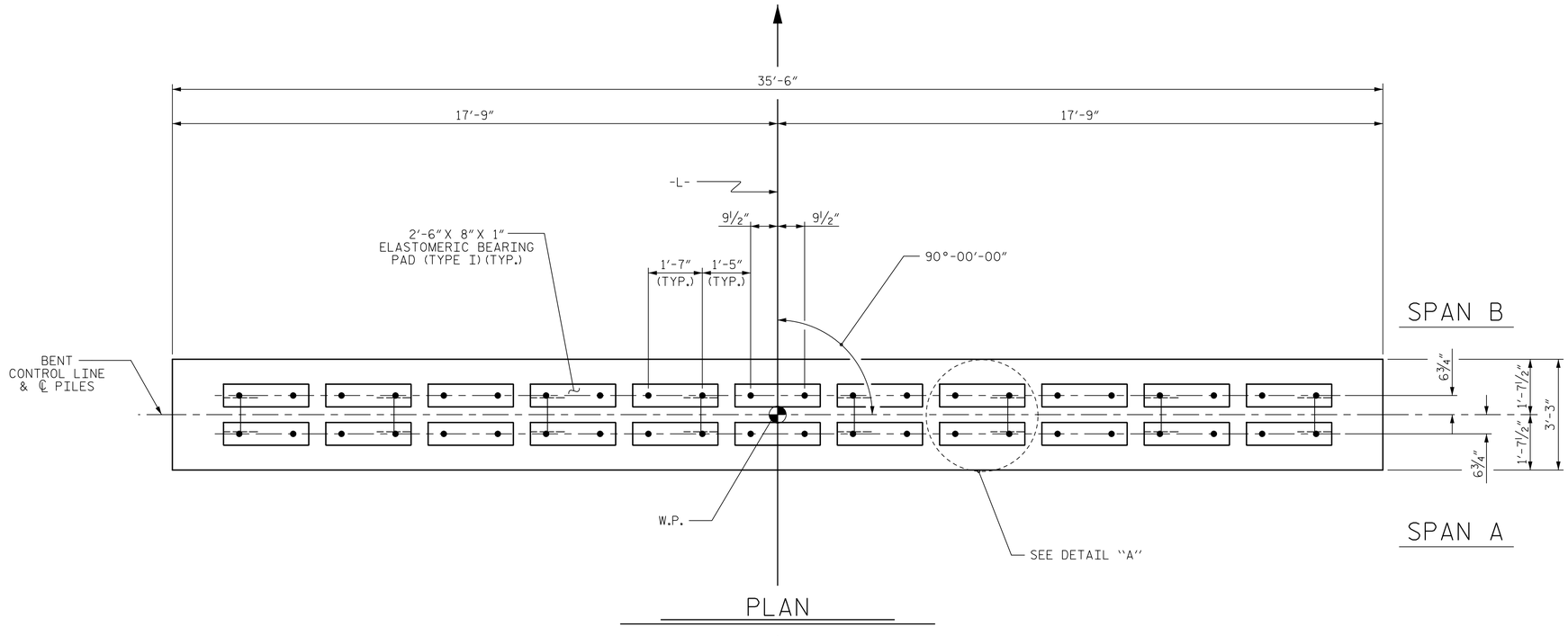
STD. NO. EB_33_90S4



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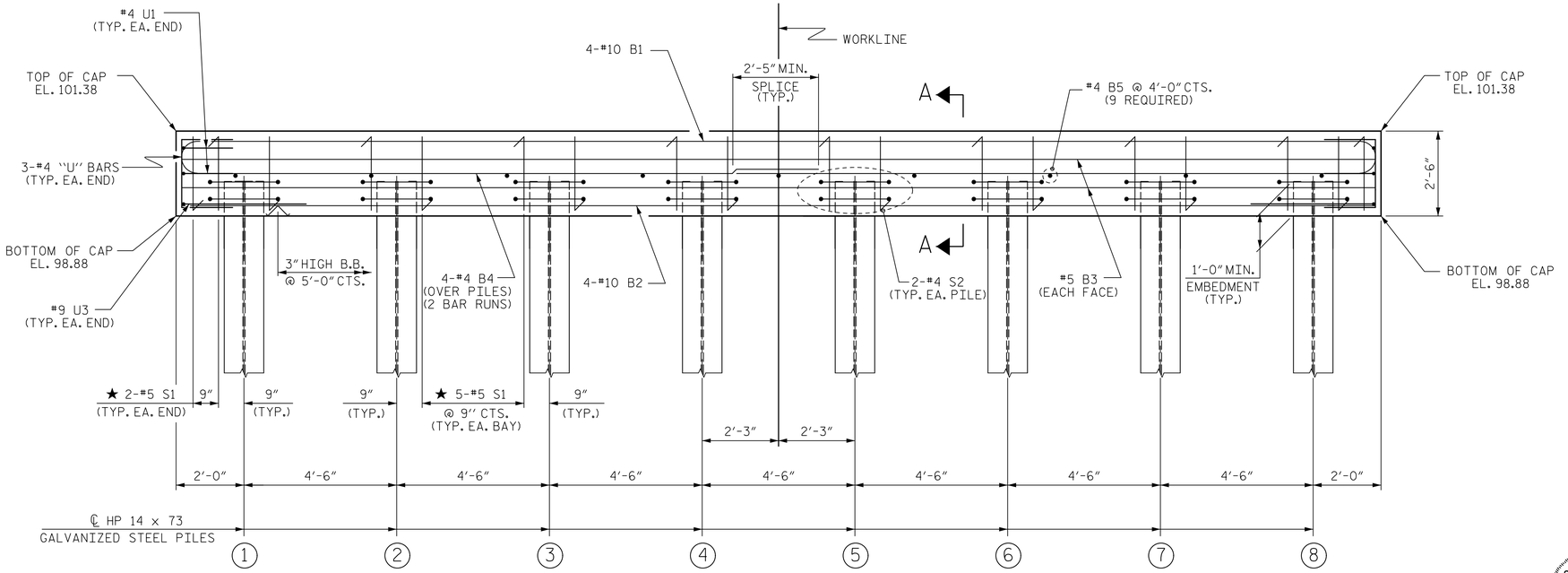


ELEVATION

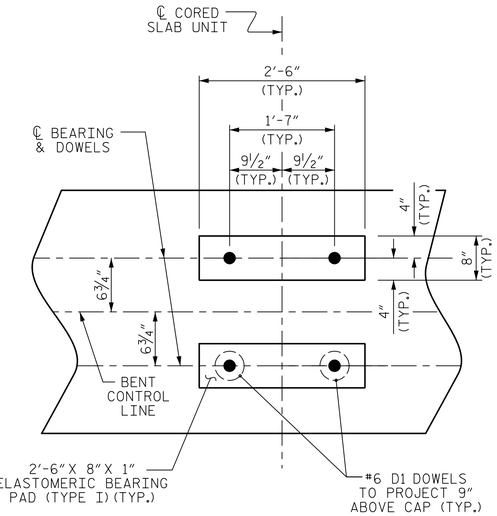
FOR SECTION A-A, SEE SHEET 3 OF 3

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 28 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



DETAIL ″A″

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN

DocuSigned by: Sean R. Sullivan 2063F731A836458...

3/29/2021

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-18
1			3			TOTAL SHEETS
2			4			25

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DRAWN BY M. WRIGHT DATE 1/21
CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21

DWG. NO. 18

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : M. WRIGHT	DATE : 1/21
CHECKED BY : S. SULLIVAN	DATE : 3/21
DRAWN BY : DGE 05/10	REV. 6/17 MAA/THC
CHECKED BY : MKT 05/10	

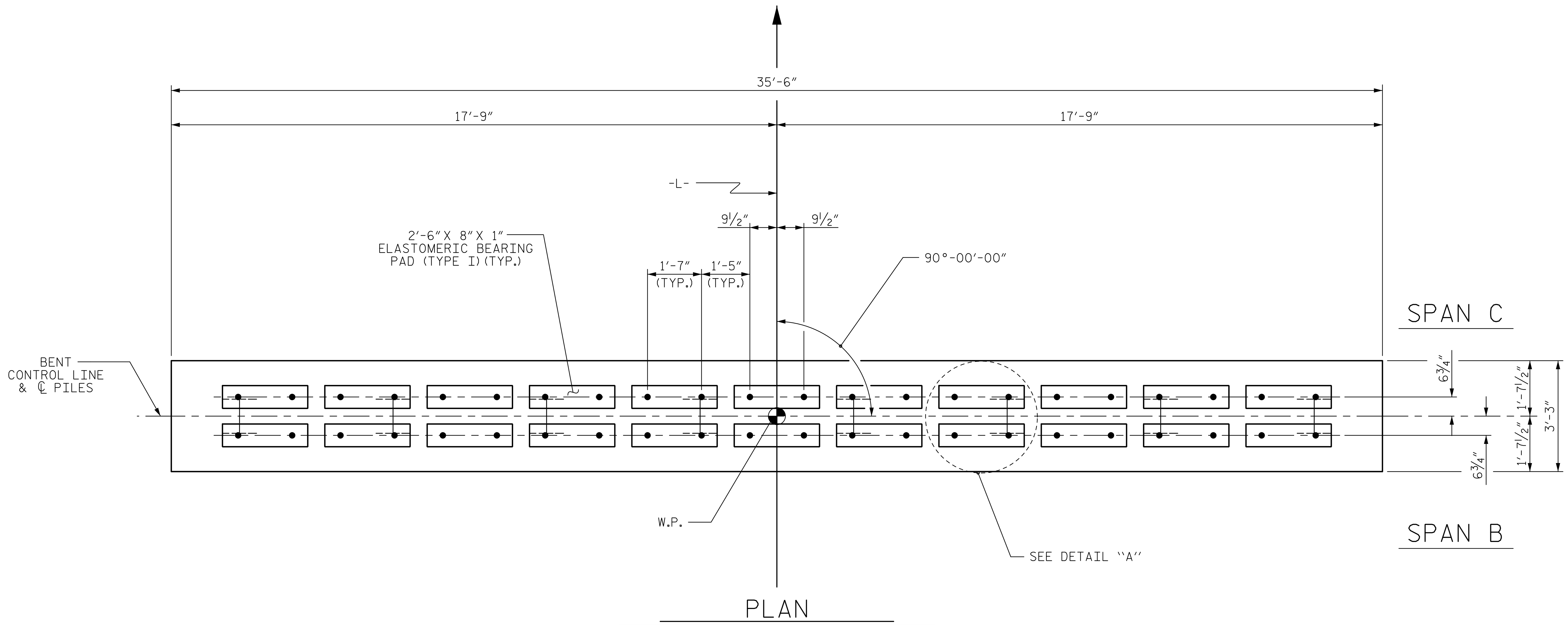
3/29/2021 9:31:56 AM
_1401.1035_B5621_SMU_B01_18_B102484.dgn

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 25 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



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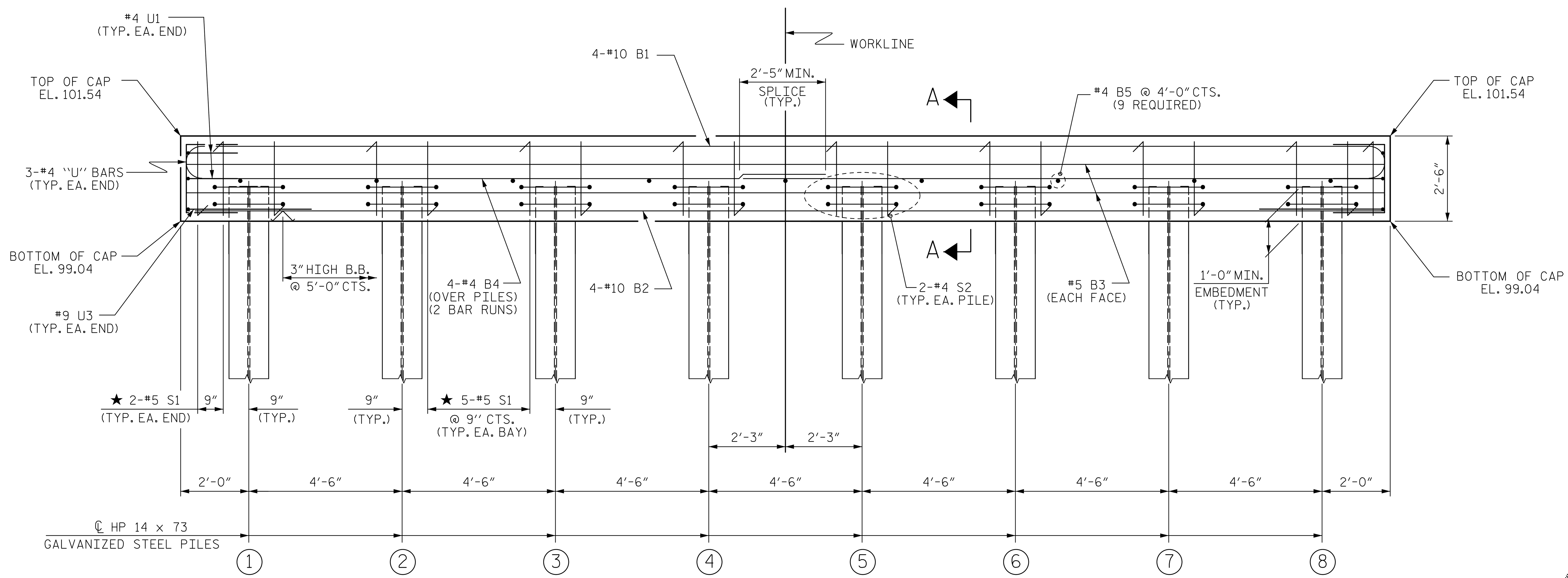
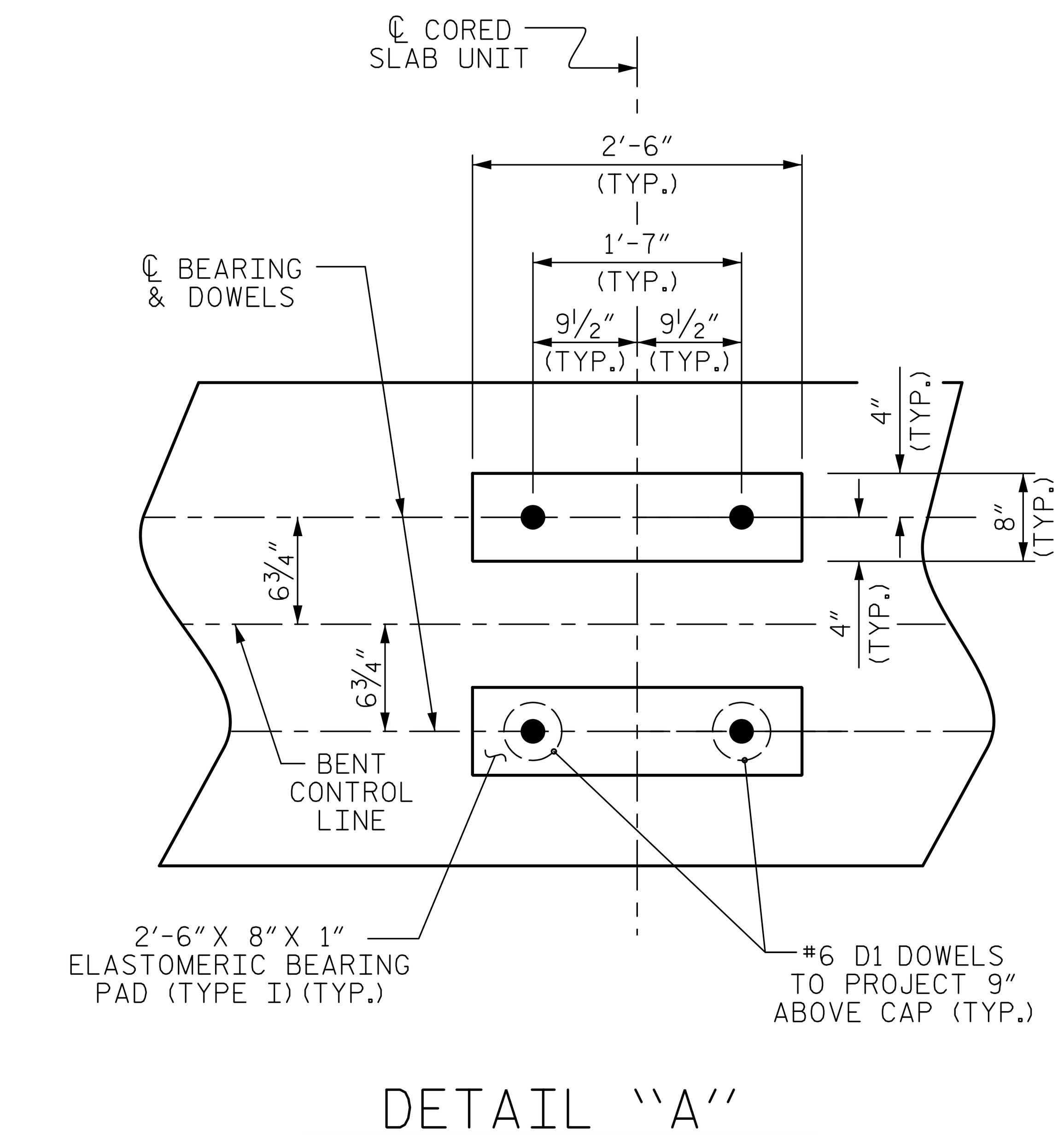


ELEVATION

FOR SECTION A-A, SEE SHEET 3 OF 3



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN

DocuSigned by: Sean R. Sullivan
3/29/2021

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DRAWN BY	M. WRIGHT	DATE 1/21	DWG. NO. 19
CHECKED BY	S. SULLIVAN	DATE 3/21	
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE 3/21	

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-19

TOTAL SHEETS 25

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ASSEMBLED BY : M. WRIGHT	DATE : 1/21		
CHECKED BY : S. SULLIVAN	DATE : 3/21		
DRAWN BY : DGE 05/10	CHECKED BY : MKT 05/10	REV. 6/17	MAA/THC

3/29/2021
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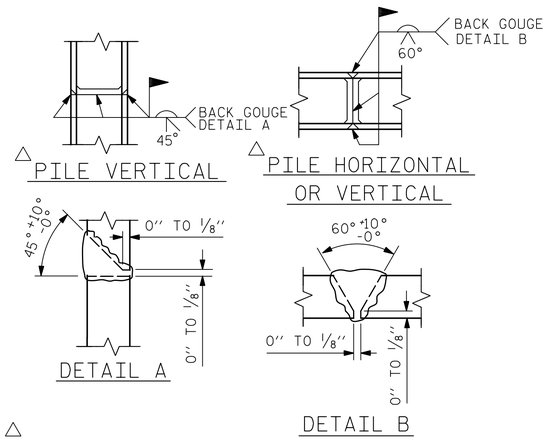
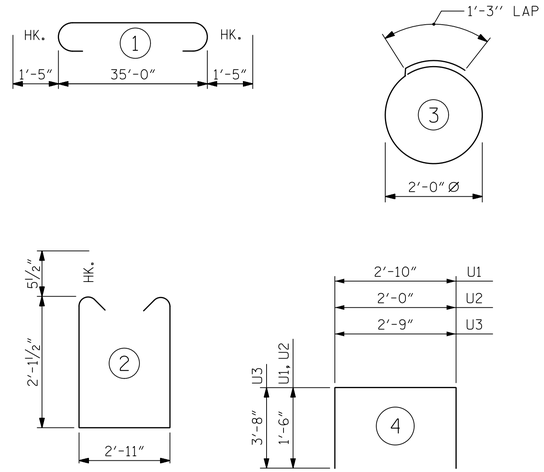


PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37'-10"	651
B2	4	#10	STR	35'-2"	605
B3	4	#5	STR	35'-2"	147
B4	8	#4	STR	18'-10"	101
B5	9	#4	STR	2'-11"	18
D1	44	#6	STR	1'-6"	99
S1	39	#5	2	8'-1"	329
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 (FOR ONE BENT) 2136 LBS

CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)

TOTAL CLASS A CONCRETE 10.7 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES

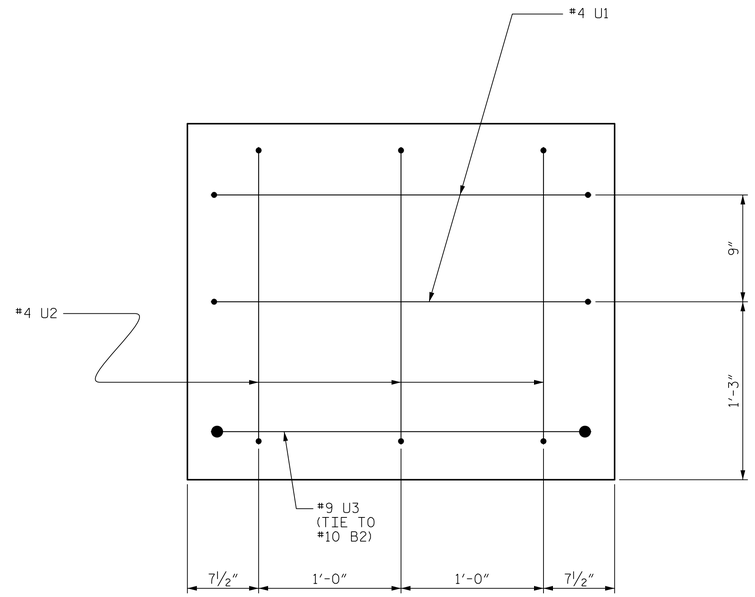
No. 8 (FOR BENT 1) LIN. FT. 520
No. 8 (FOR BENT 2) LIN. FT. 480

PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 GALVANIZED STEEL PILES

(FOR BENT 1) NO: 8
(FOR BENT 2) NO: 8

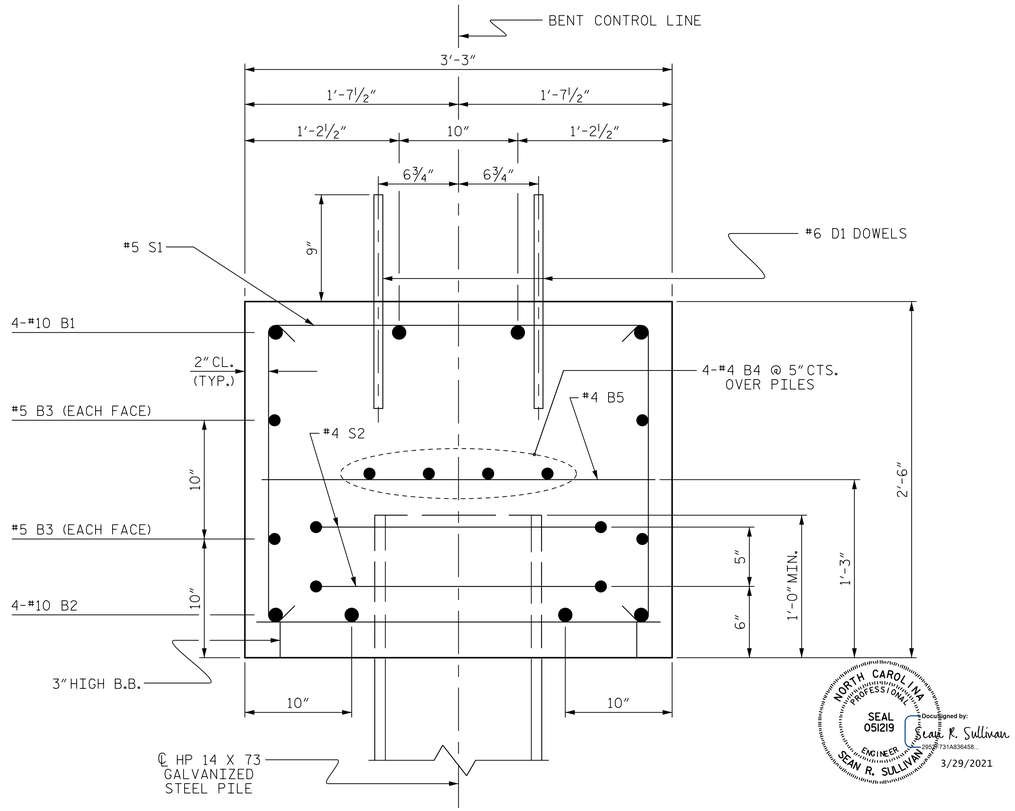
PILE REDRIVES

(FOR BENT 1) NO: 4
(FOR BENT 2) NO: 4



END OF CAP VIEW

(TYPICAL BOTH ENDS)



SECTION A-A

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan 3/29/2021

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PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1 AND 2

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-20
1			3			TOTAL SHEETS
2			4			25

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DRAWN BY M. WRIGHT DATE 2/21
CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21

DWG. NO. 20

ASSEMBLED BY : M. WRIGHT	DATE : 2/21	
CHECKED BY : S. SULLIVAN	DATE : 3/21	
DRAWN BY : DGE 05/10	REV. 6/17	MAA/THC
CHECKED BY : MKT 05/10		

3/29/2021 9:32:09 AM
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STD. NO. 14"HP_BT_33_90S_<60'

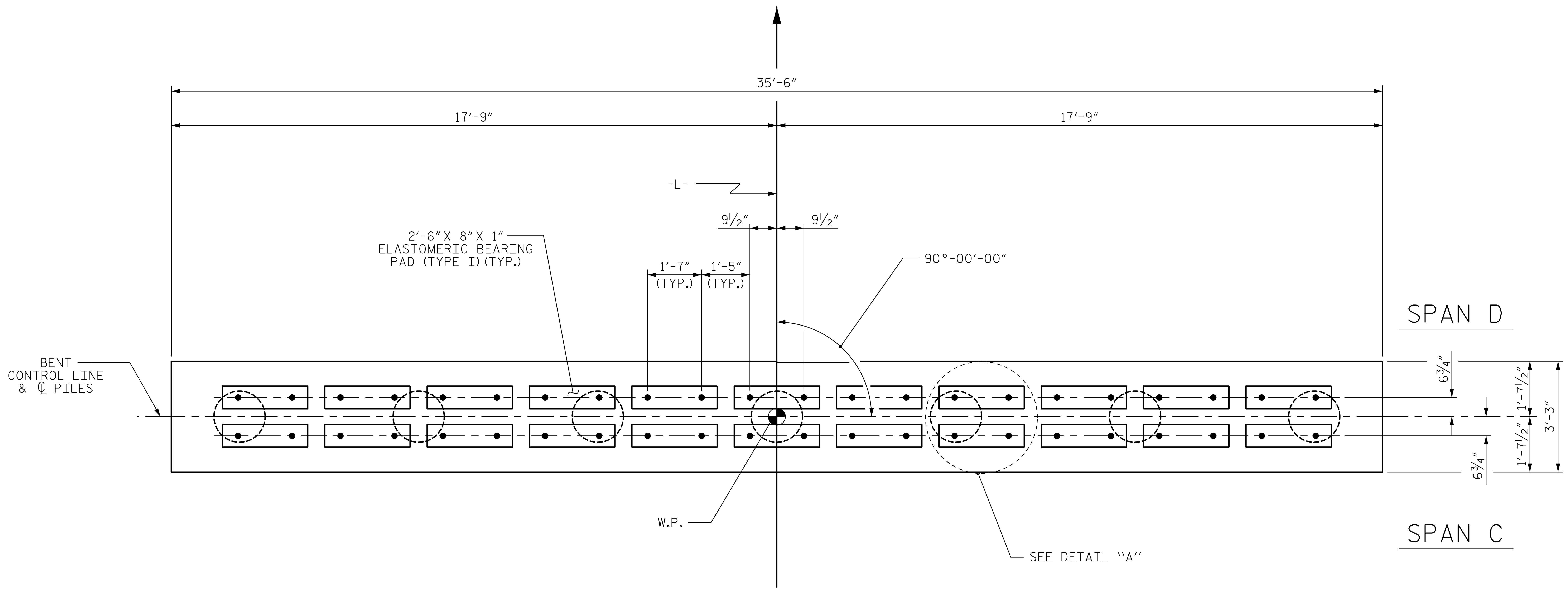
NOTES

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

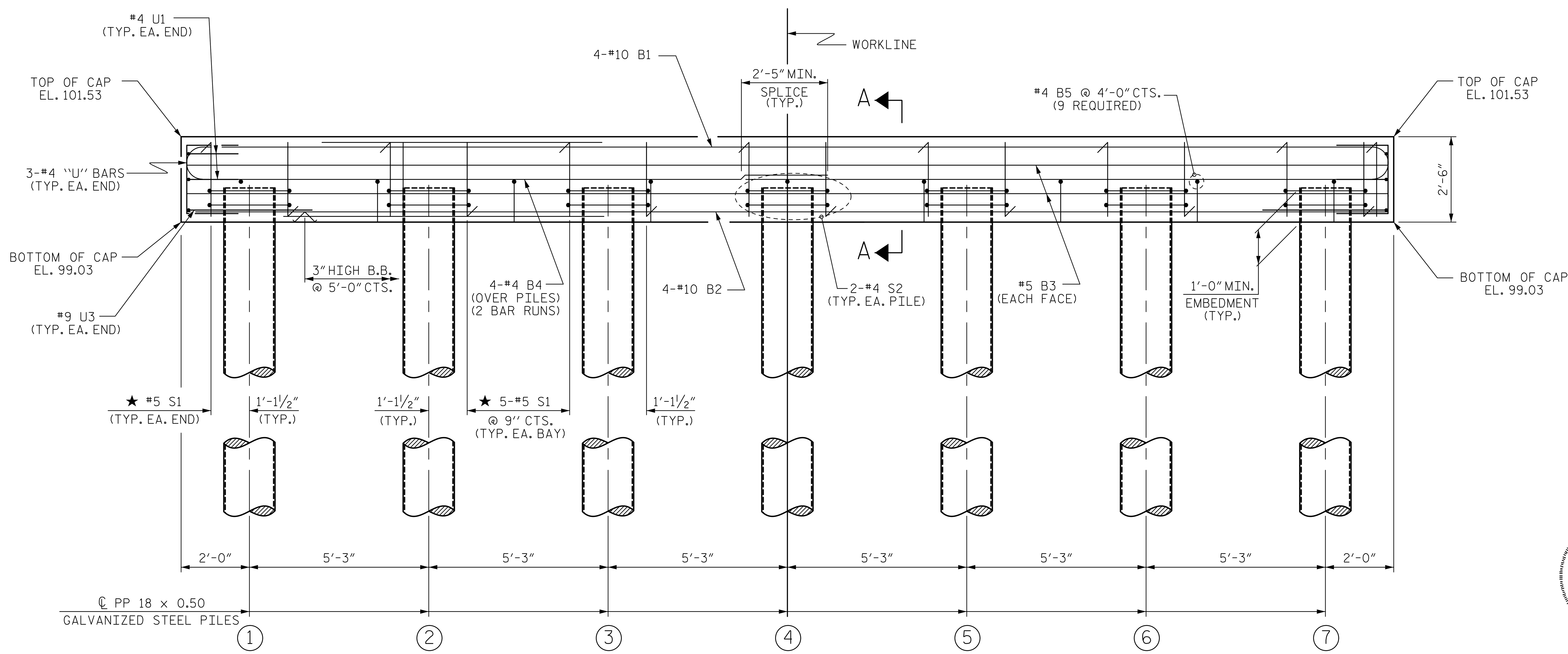
★ INVERT ALTERNATE STIRRUPS.

FOR ADDITIONAL REINFORCING STEEL IN PP 18 x 0.50 GALVANIZED STEEL PILES, SEE SHEET 3 OF 3.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 38 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

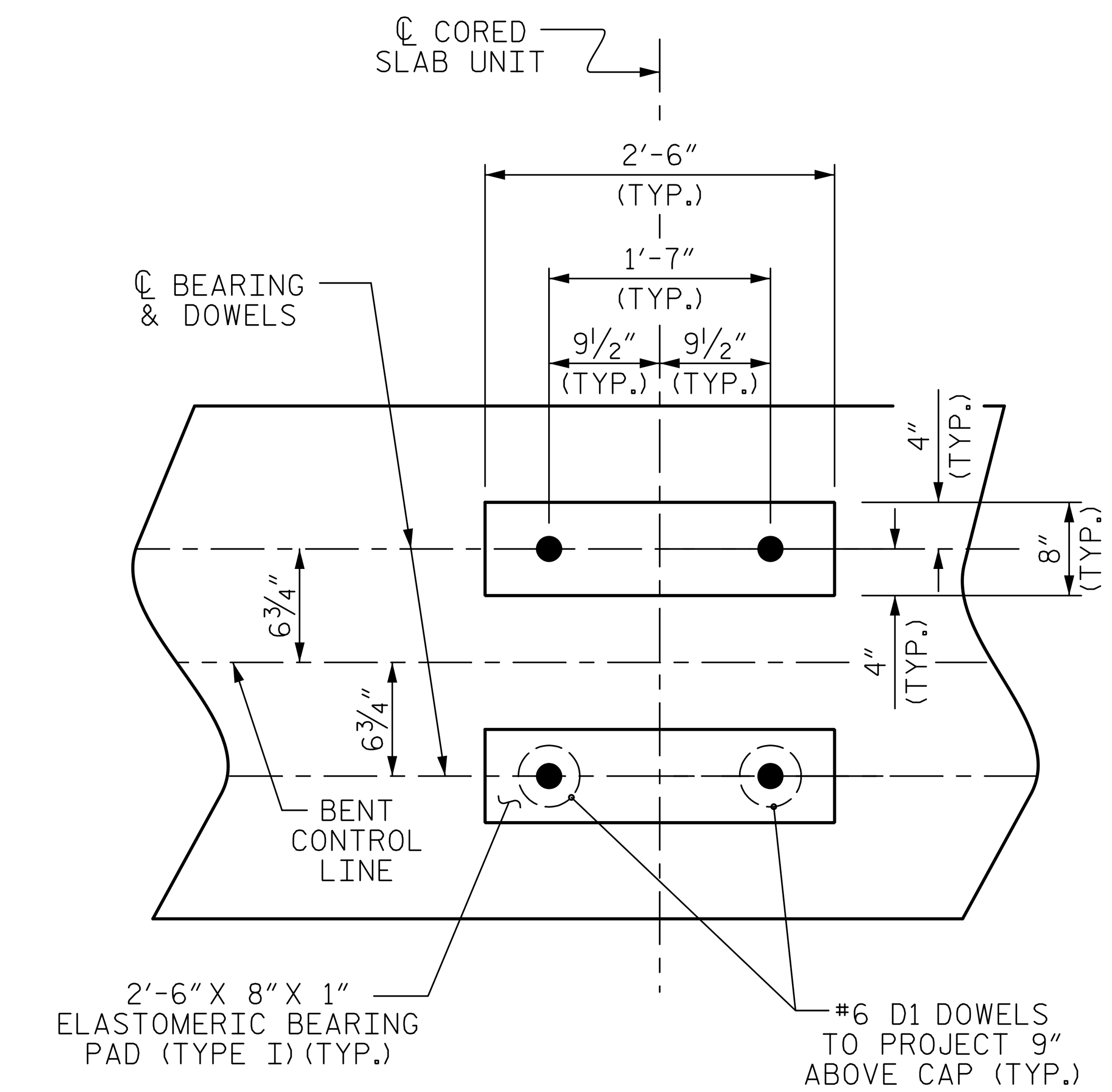


PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 3

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan
3/29/2021

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DRAWN BY M. WRIGHT	DATE 2/21	DWG. NO. 21
CHECKED BY S. SULLIVAN	DATE 3/21	
DESIGN ENGINEER OF RECORD S. SULLIVAN	DATE 3/21	

ASSEMBLED BY : M. WRIGHT	DATE : 2/21	
CHECKED BY : S. SULLIVAN	DATE : 3/21	
DRAWN BY : DGE 06/10	REV. 6/17	MAA/THC
CHECKED BY : MKT 06/10		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-21

TOTAL SHEETS 25

STD. NO. 18" PP_BT_33_90S_<60'

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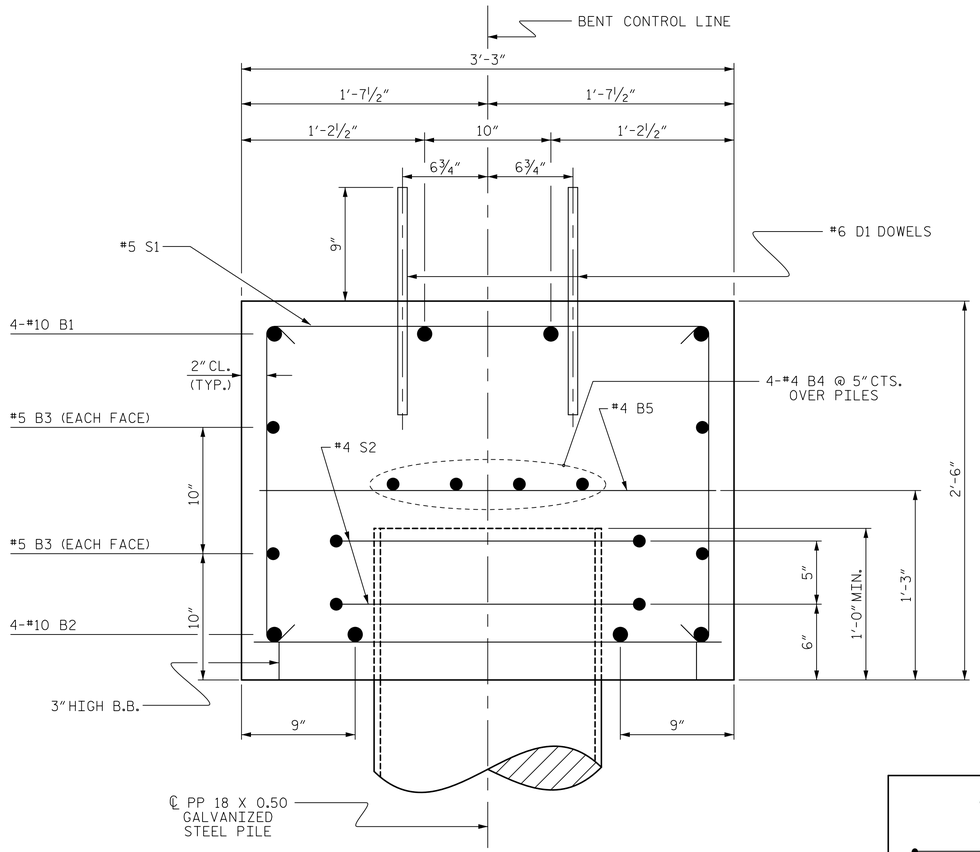
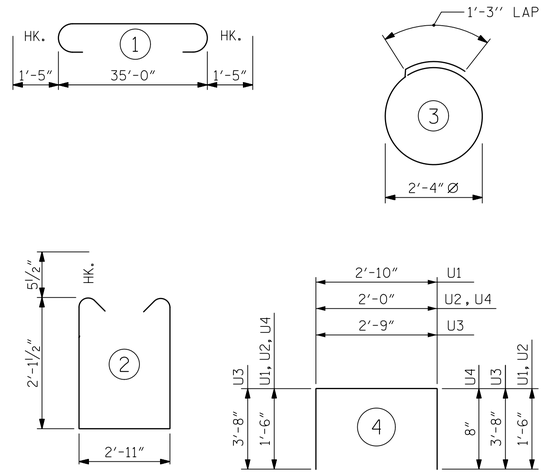


SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37′-10″	651
B2	4	#10	STR	35′-2″	605
B3	4	#5	STR	35′-2″	147
B4	8	#4	STR	18′-10″	101
B5	9	#4	STR	2′-11″	18
D1	44	#6	STR	1′-6″	99
S1	32	#5	2	8′-1″	270
S2	14	#4	3	8′-7″	80
U1	4	#4	4	5′-10″	16
U2	4	#4	4	5′-0″	13
U3	2	#9	4	10′-1″	69
U4	2	#4	4	4′-2″	6

REINFORCING STEEL (FOR ONE BENT) 2075 LBS

CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)

TOTAL CLASS A CONCRETE ▲ 10.2 C.Y.

PP 18 x 0.50 GALVANIZED STEEL PILES (FOR ONE BENT)

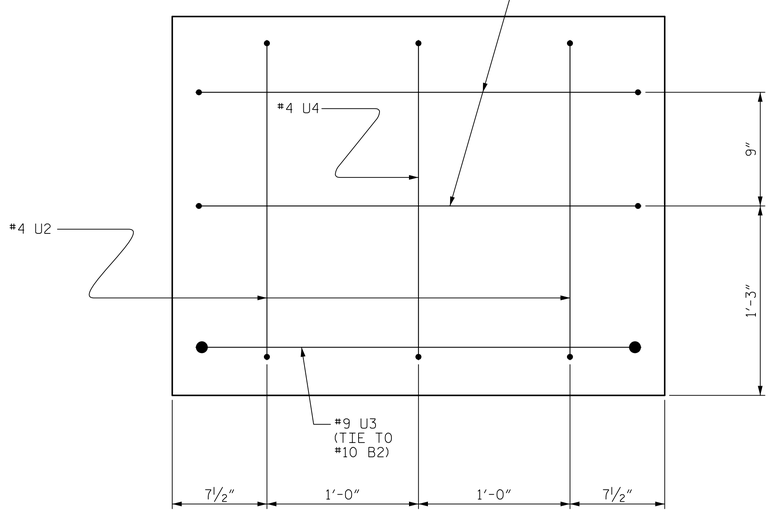
No. 7 LIN. FT. 315

PIPE PILE PLATES NO. 7

PILE DRIVING EQUIPMENT SETUP FOR PP 18 x 0.50 GALVANIZED STEEL PILES (FOR ONE BENT) NO. 7

PILE REDRIVES NO. 4

▲ CONCRETE DISPLACED BY THE PP 18 x 0.50 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.



END OF CAP VIEW
(TYPICAL BOTH ENDS)

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN
DocuSigned by: Sean R. Sullivan 2955BF731A836458...
3/29/2021

PROJECT NO. B-5621
SAMPSON COUNTY
STATION: 24+33.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 3

ASSEMBLED BY : M. WRIGHT	DATE : 2/21		
CHECKED BY : S. SULLIVAN	DATE : 3/21		
DRAWN BY : DGE 05/10	REV. 6/17	MAA/THC	
CHECKED BY : MKT 05/10			

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DRAWN BY	M. WRIGHT	DATE	2/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 22

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-22
1			3			TOTAL SHEETS
2			4			25

STD. NO. 18"PP_BT_33_90S_<60'

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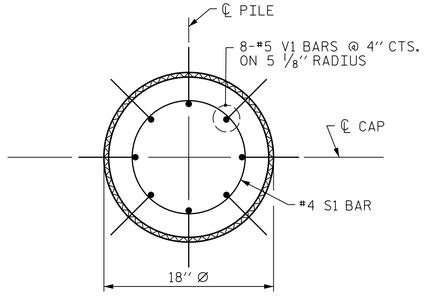

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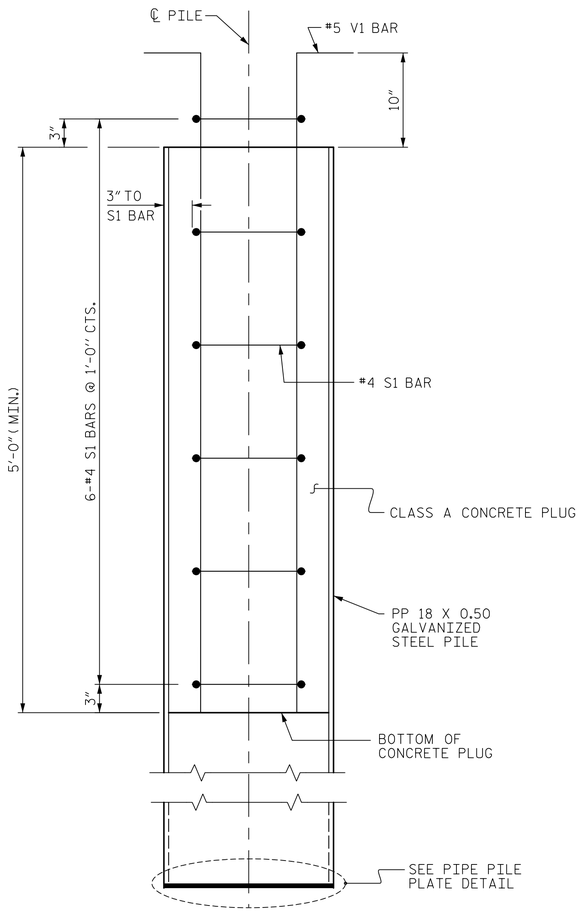
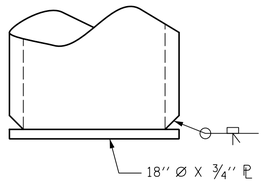
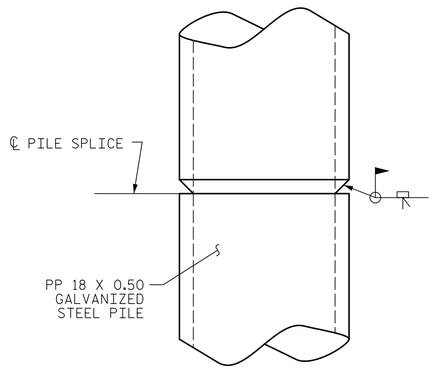


ELEVATION

PP 18 X 0.50 GALVANIZED STEEL PILE



PIPE PILE PLATE DETAIL



PIPE PILE SPLICE DETAIL

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

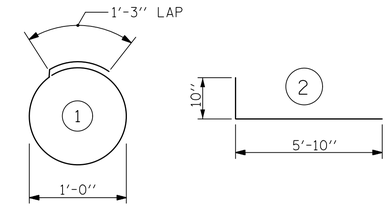
FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 18 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE PP 18 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	4'-5''	18
V1	8	#5	2	6'-8''	56
REINFORCING STEEL =					74 lbs
CLASS A CONCRETE					
5'-0'' MINIMUM PLUG					0.3 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN

Docusigned by: Sean R. Sullivan 731A536458...

3/29/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
18'' STEEL PIPE PILE

ASSEMBLED BY : M. WRIGHT	DATE : 2/21
CHECKED BY : S. SULLIVAN	DATE : 3/21

DRAWN BY : RWW 1/01	REV. 5/1/06R MAA/KMM
CHECKED BY : LES 1/01	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY	M. WRIGHT	DATE 2/21
CHECKED BY	S. SULLIVAN	DATE 3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE 3/21

DWG. NO. 23

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-23
1			3			TOTAL SHEETS
2			4			25

STD. NO. SPP3

3/29/2021 9:32:27 AM
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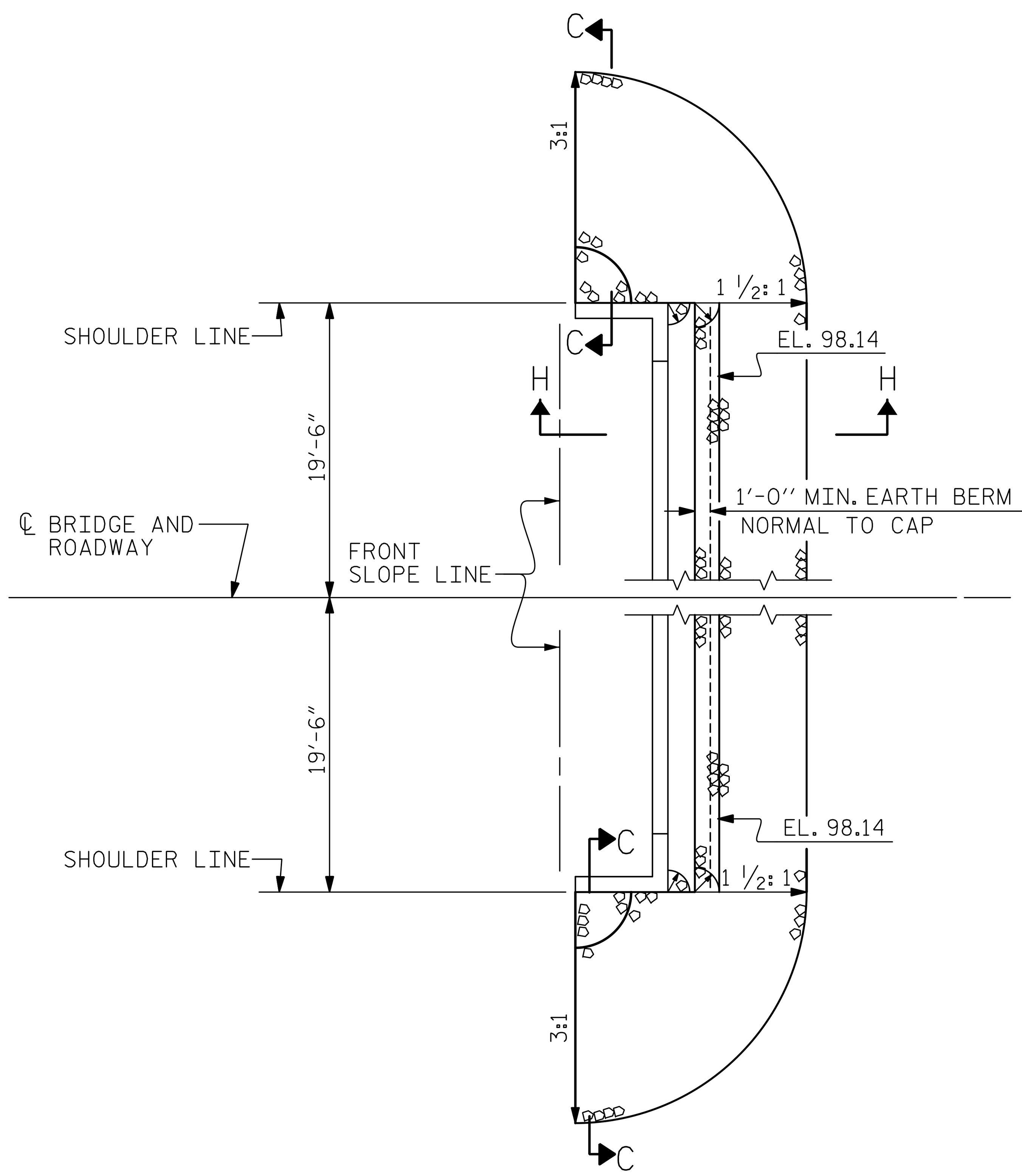
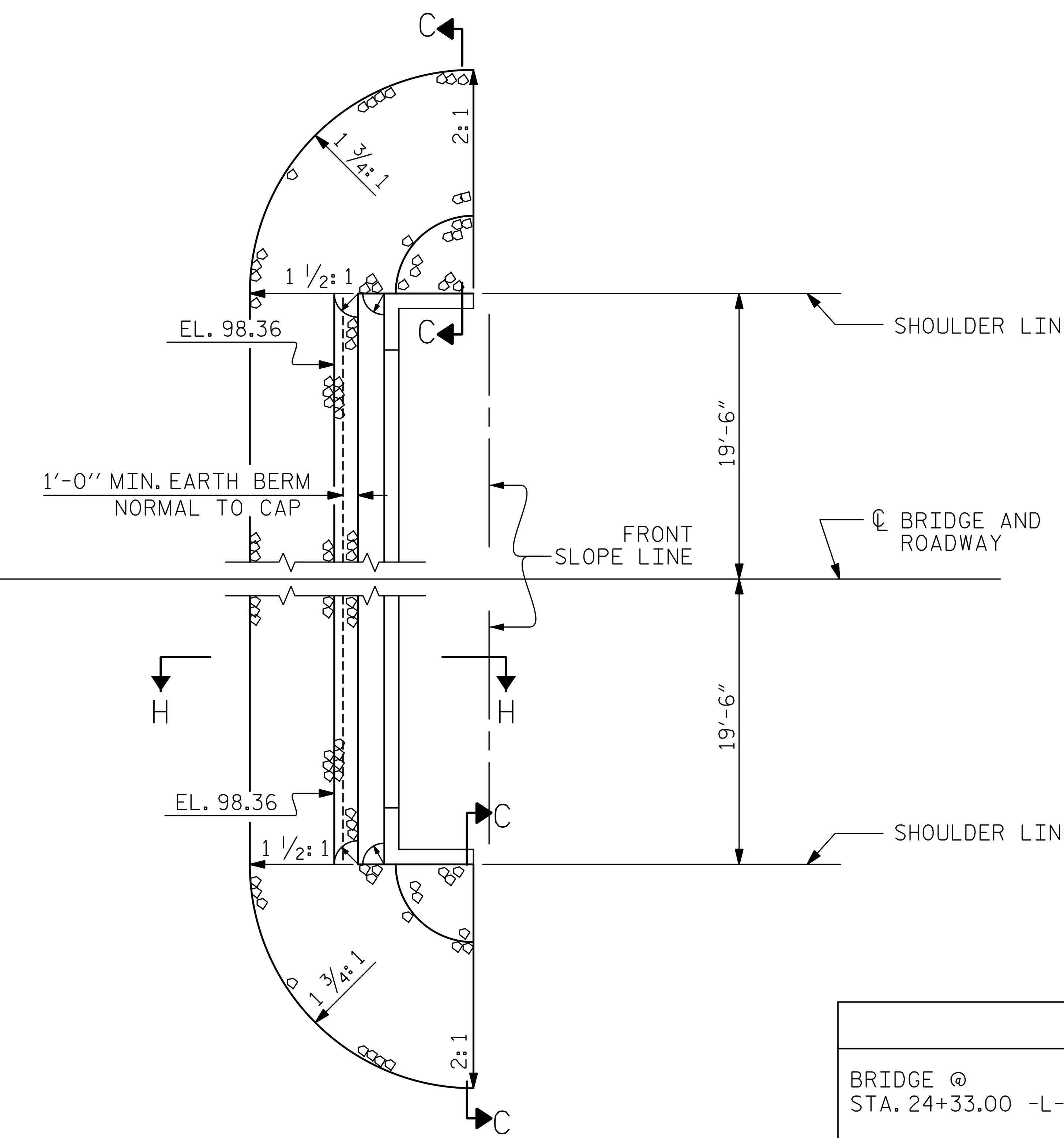
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

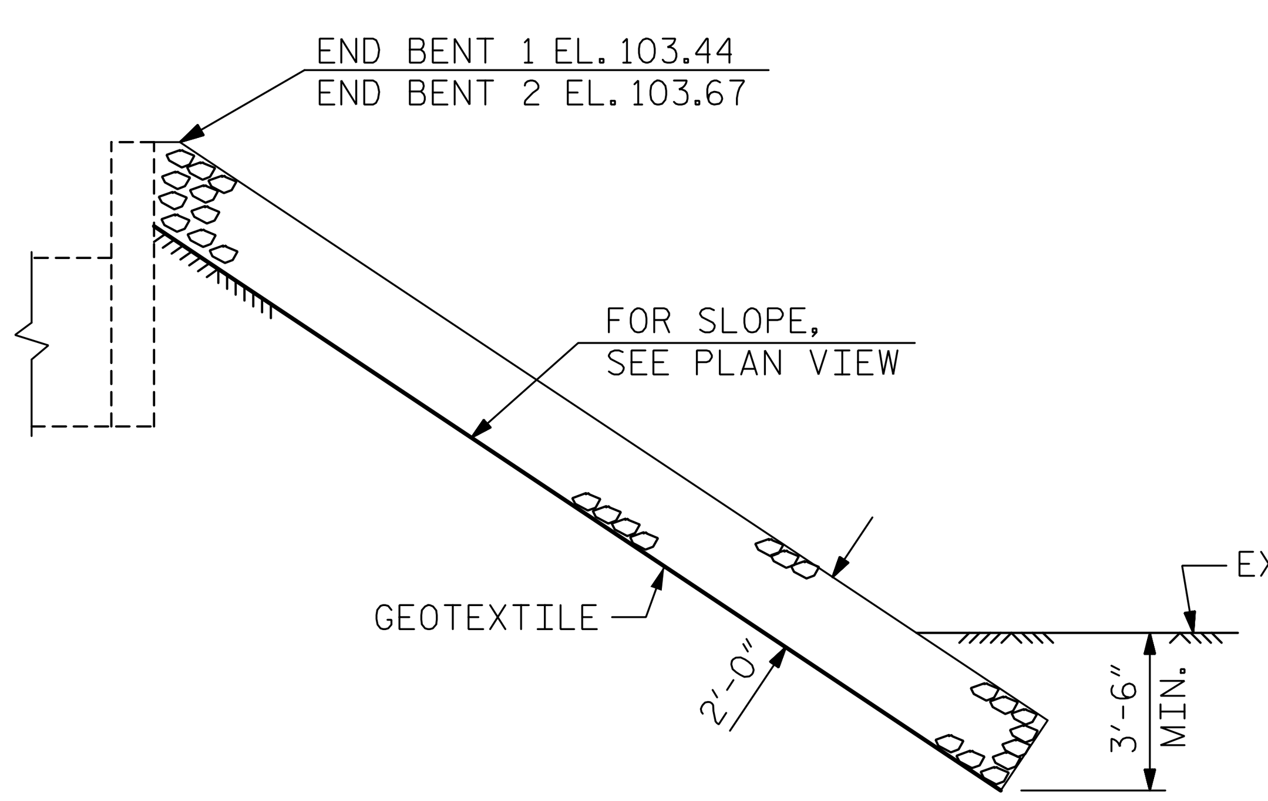


END BENT 1

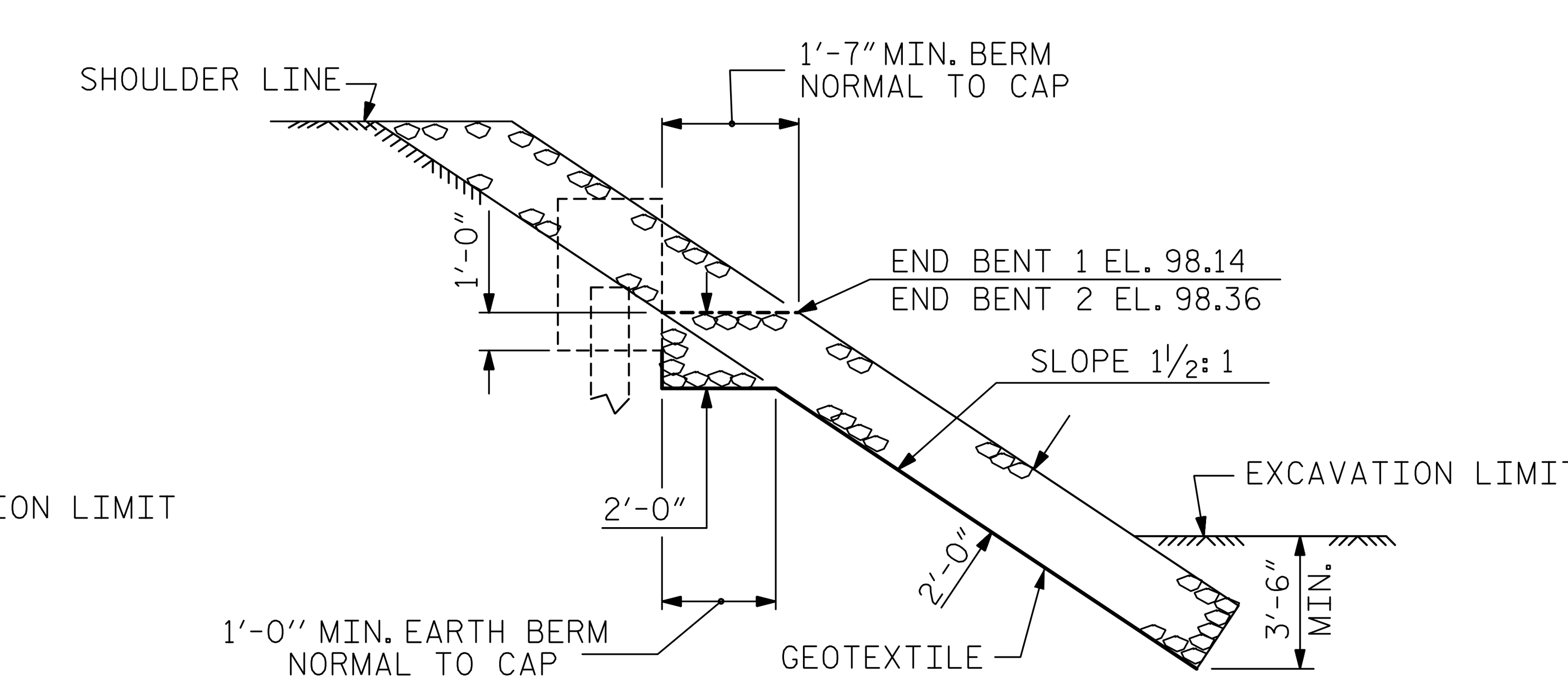


END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 24+33.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	140	155
END BENT 2	110	120



SECTION C-C



SECTION H-H

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051219 SEAN R. SULLIVAN

DocuSigned by: Sean R. Sullivan 2953F731A836458...

3/29/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

ASSEMBLED BY : M. WRIGHT DATE : 1/21
CHECKED BY : S. SULLIVAN DATE : 3/21

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

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CHECKED BY S. SULLIVAN DATE 3/21
DESIGN ENGINEER OF RECORD S. SULLIVAN DATE 3/21

DWG. NO. 24

REVISIONS							
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

SHEET NO. S-24

TOTAL SHEETS 25

STD. NO. RR1

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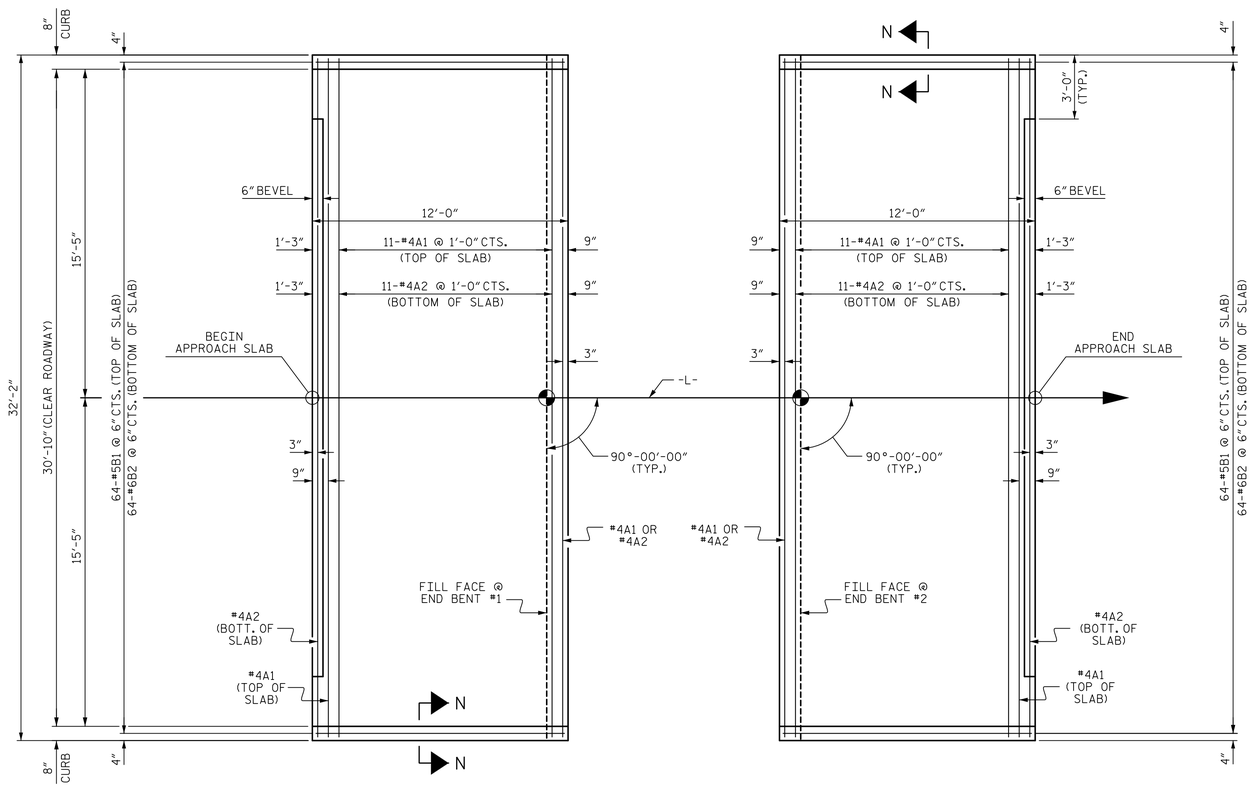
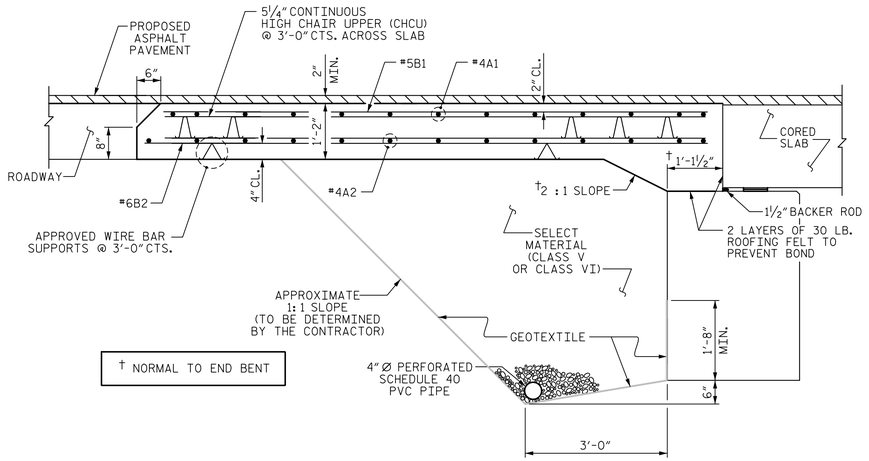


PLAN @ END BENT #1

PLAN @ END BENT #2

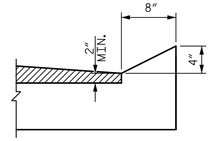
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)



SECTION N-N

CURB DETAILS

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

NOTES

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

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

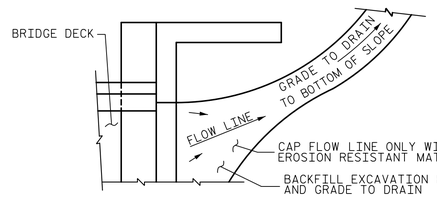
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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

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

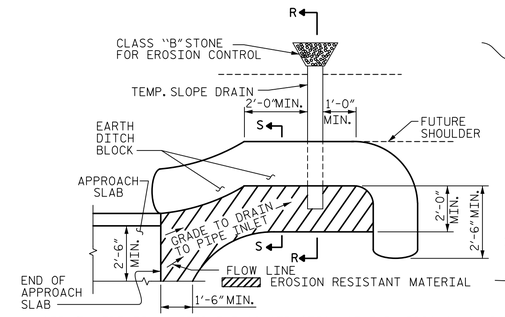
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



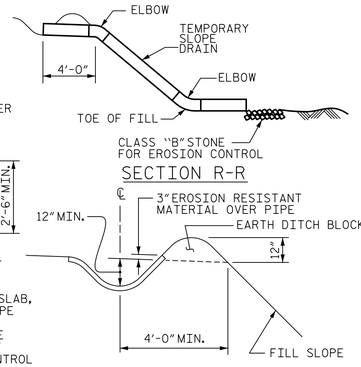
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



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

PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL

APPROACH SLAB AT EB #1

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

APPROACH SLAB AT EB #2

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

PROJECT NO. B-5621

SAMPSON COUNTY

STATION: 24+33.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 051219 ENGINEER SEAN R. SULLIVAN

Docusigned by: Sean R. Sullivan 3/29/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-25
1			3			TOTAL SHEETS
2			4			25

STD. NO. BAS_33_90S

ASSEMBLED BY : M. WRIGHT	DATE : 1/21	
CHECKED BY : S. SULLIVAN	DATE : 3/21	
DRAWN BY : SHS/MAA 5-09	REV. 12-17	MAA/THC
CHECKED BY : BCH 5-09	REV. 08-19	BNB/THC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY	M. WRIGHT	DATE	1/21
CHECKED BY	S. SULLIVAN	DATE	3/21
DESIGN ENGINEER OF RECORD	S. SULLIVAN	DATE	3/21

DWG. NO. 25

3/29/2021 9:32:39 AM
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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

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

ENGLISH

JANUARY, 1990 STD. NO. SN