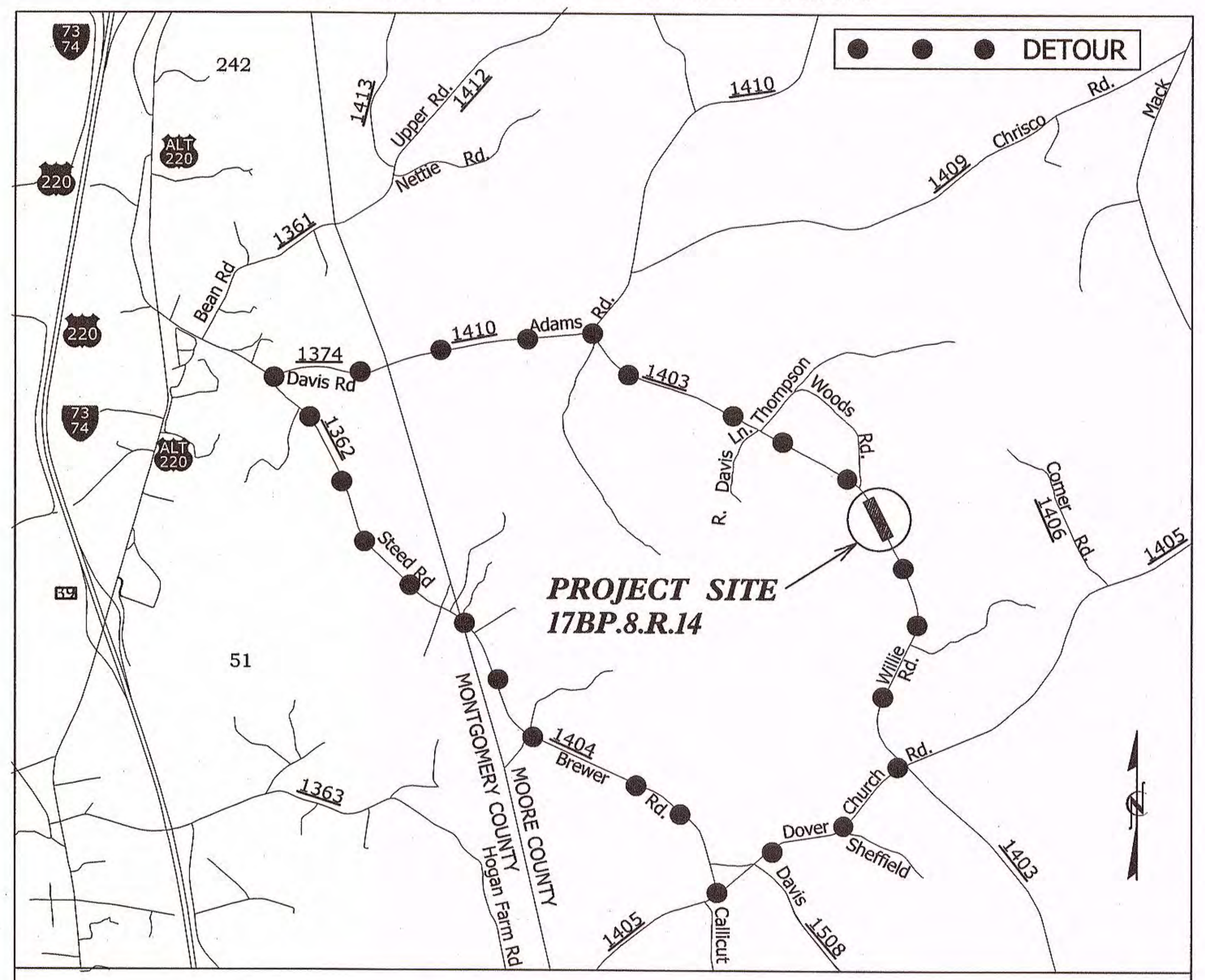
TIP PROJECT: 17BP.8.R.14

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.14	1	40

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.14		PE
17BP.8.R.14		CONSTRUCTION

See Sheet 1-A For Index of Sheets



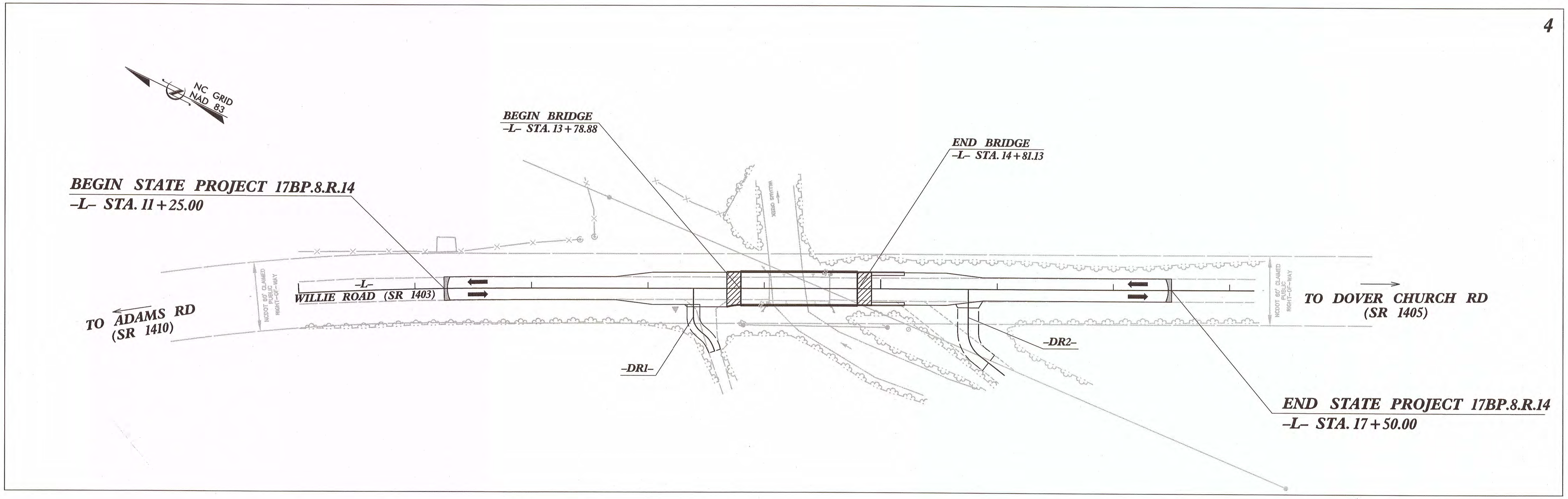
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MOORE COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 174 ON WILLIE RD. (SR 1403) OVER WILLIAMS CREEK

TYPE OF WORK: GRADING, PAVING, TRAFFIC CONTROL, DRAINAGE, & STRUCTURES



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

CONTACT: TIMOTHY F. WELCH, PE
NCDOT HIGHWAY DIVISION 8

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 130
ADT 2025 = 260
DHV = NA %
D = NA %
T = NA % *
V = 60 MPH
* TTST = NA DUAL
FUNC CLASS = LOCAL

SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.8.R.14	=	0.099 MILE
LENGTH OF STRUCTURE PROJECT 17BP.8.R.14	=	0.019 MILE
TOTAL LENGTH PROJECT 17BP.8.R.14	=	0.118 MILE

Prepared In the Office of:
WSP
For The
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: XX-XX-XXXX

LETTING DATE:

BRIAN D. DEHLER, PE
PROJECT ENGINEER

JENNIFER L. STARNES, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 28441 AMY J. WAZENEGGER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 016067 BRIAN D. DEHLER
SIGNATURE: P.E. 11/13/13

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

CONTRACT:

09/08/99

11/13/2013
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us_js04218

WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

PROJECT REFERENCE NO.	SHEET NO.
I7BP.8.R.14	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 016067 ENGINEER BRIAN D. DEHLER
11/13/13

INDEX OF SHEETS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11-01-11

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. 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 METHOD III.

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

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE:

UTILITY	UTILITY OWNER
Power	Randolph EMC
Phone	Century Link

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

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

2012 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, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.03	Method of Clearing – Method III
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 – MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills – Sub Regional Tier
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 6 – ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 – INCIDENTALS	
840.20	Frames and Wide Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

8/17/99

11/13/2013
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us004218

04/16/11

Note: Not to Scale

***S.U.E. = Subsurface Utility Engineering**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	1-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (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
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?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 (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

SURVEY CONTROL SHEET 17BP.8.R.14

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	L OFFSET
1	BL-1	622,922.75	1,784,122.23	471.81	10+95.61	21.24 LEFT
2	BL-2	622,658.11	1,784,244.51	458.01	13+86.52	13.55 LEFT
3	BL-3	622,520.47	1,784,275.36	457.90	15+23.73	19.21 RIGHT

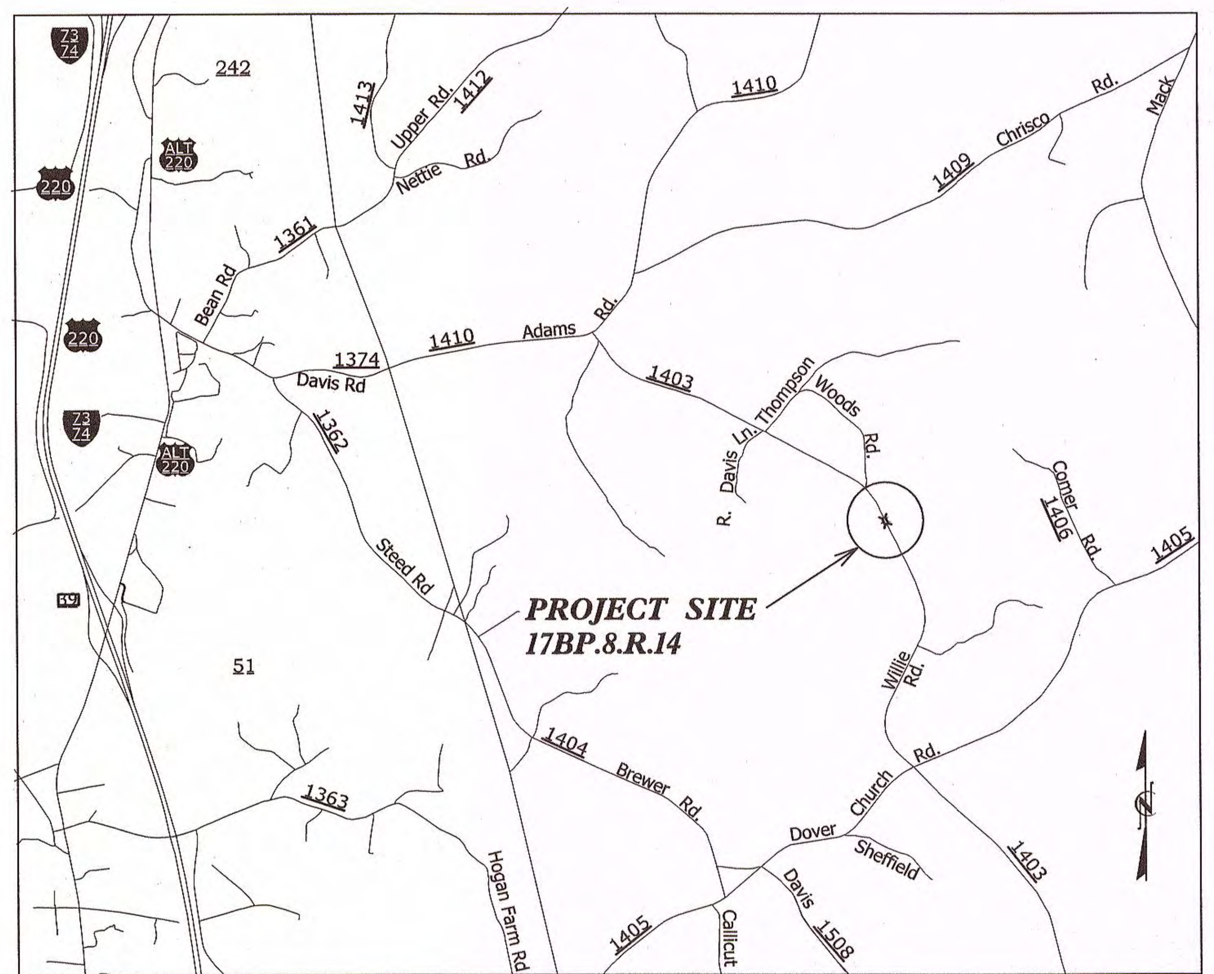
WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	1-C

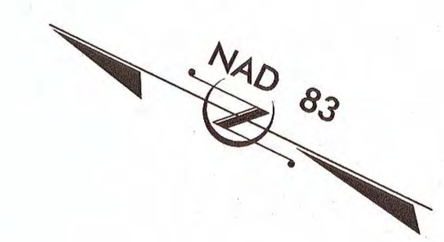
SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-2968 LAND SURVEYOR DAVID K. BRUBAKER

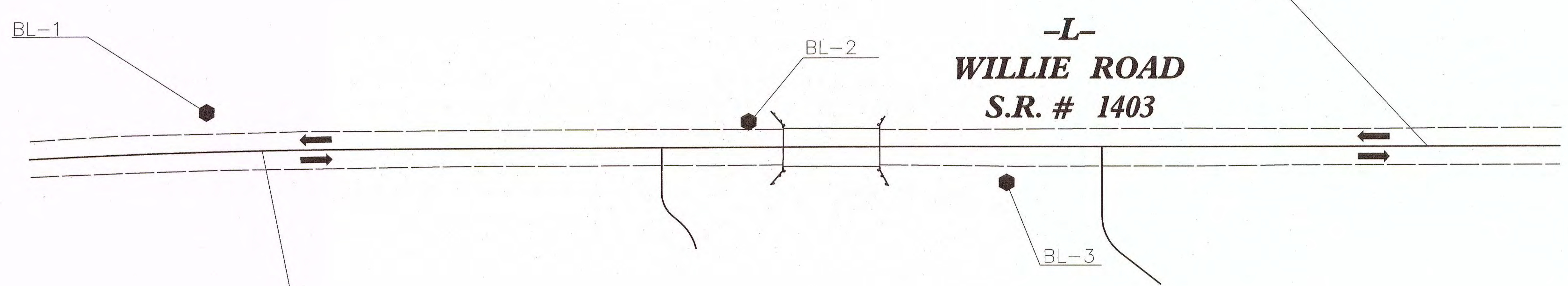
11/19/2013



VICINITY MAP NTS



-L- STA. 17+50.00 END STATE PROJECT 17BP.8.R.14
LOCALIZED PROJECT COORDINATES
N = 622,325.6501 E = 1,784,392.0430



-L- STA. 11+25.00 BEGIN STATE PROJECT 17BP.8.R.14
LOCALIZED PROJECT COORDINATES
N = 622,886.8149 E = 1,784,116.8795

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY WSP SELLS. CONTROL POINTS PROVIDED ARE AS FOLLOWS:

   BL–1
   BL–2
   BL–3

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.

3. ⬢ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY WSP SELLS.

   ◆ INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY WSP SELLS.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY WSP SELLS FOR MONUMENT "BL-2"
WITH NAD83/CORS96 STATE PLANE GRID COORDINATES OF NORTHING: 622,658.11 (FT), EASTING: 1,784,244.51 (FT), ELEVATION: 458.01 (FT).
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986166
THE N.C. LAMBERT GRID BEARING AND LOCALIZED GROUND DISTANCE FROM "BL-2" TO L- STATION 10+00 IS N 28° 47' 51" W 386.88'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD88.

8/17/99
11/13/2013
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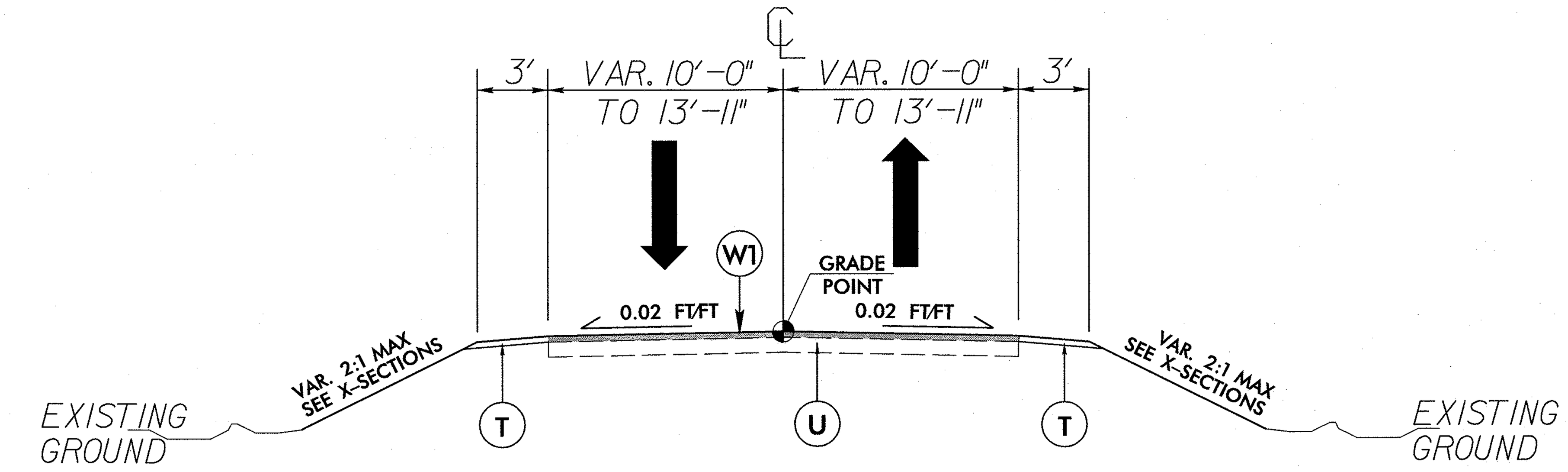
WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 016067 — 11/13/13

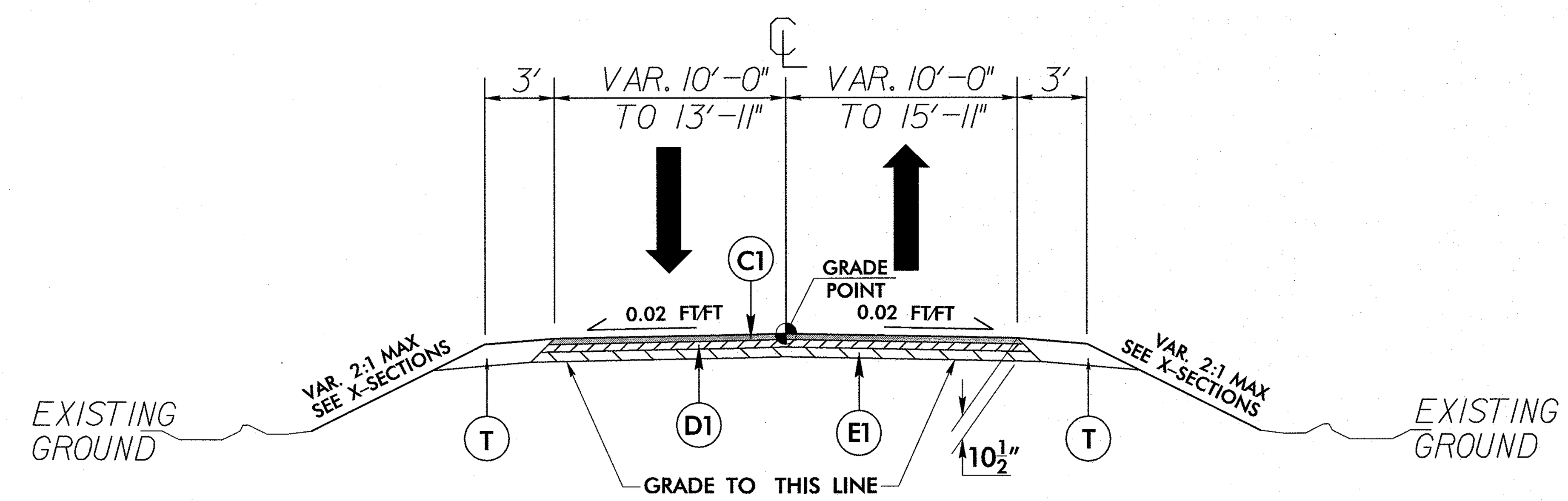
HYDRAULICS ENGINEER — SEAL 28441 — 11/6/13

REVISIONS



TYPICAL SECTION NO. 1

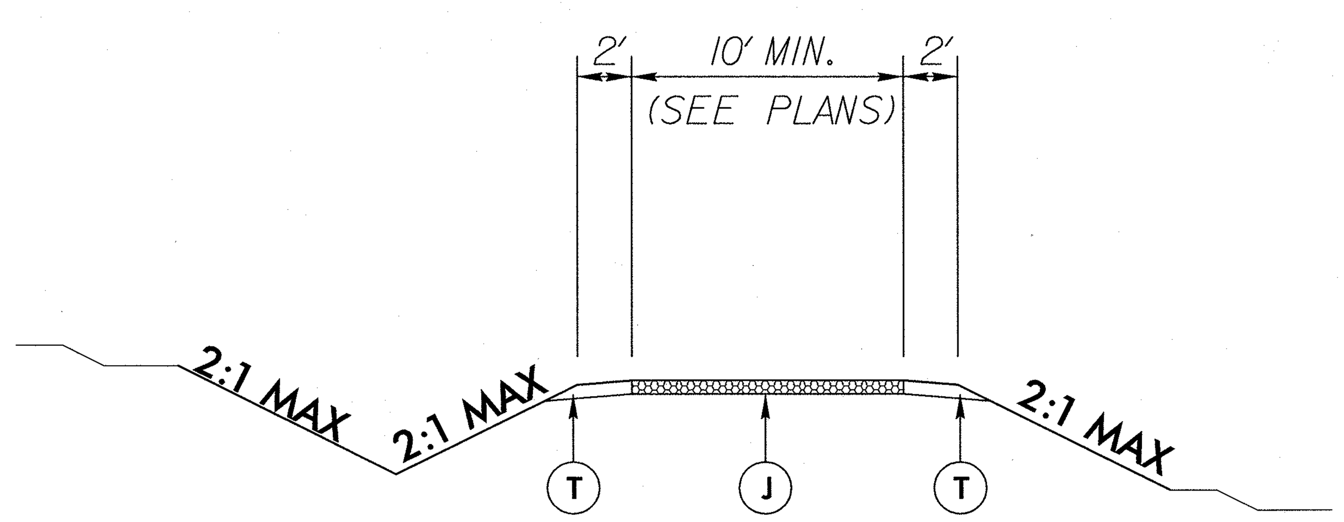
-L- STA. 11+25 TO 12+15.00
-L- STA. 15+56.00 TO 17+50



TYPICAL SECTION NO. 2

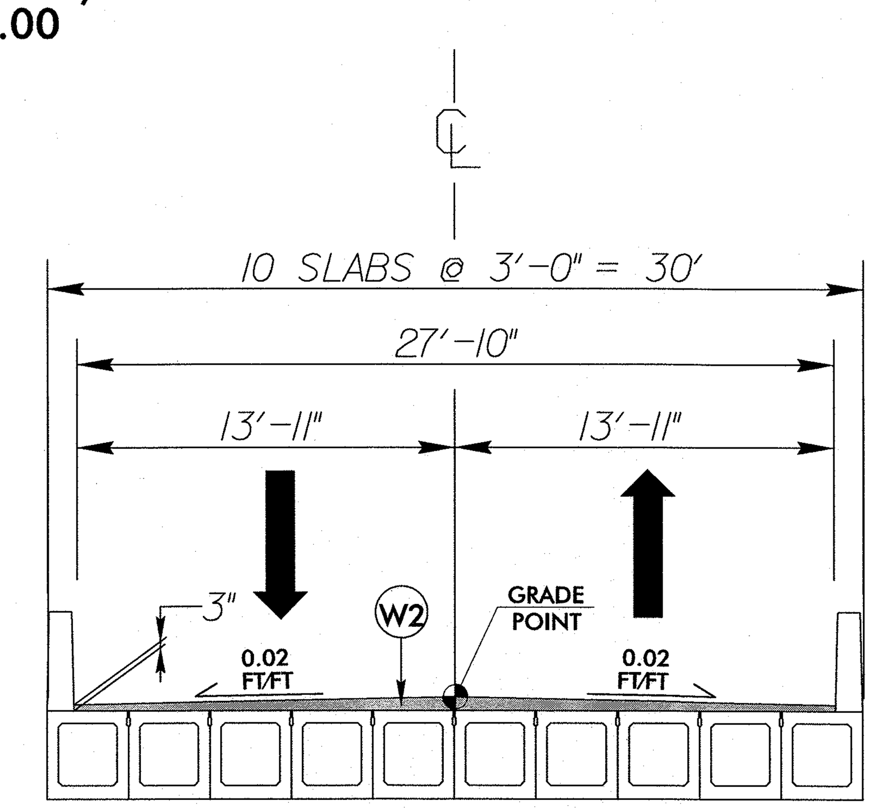
(USE IN CONJUNCTION WITH DETAIL A)

-L- STA. 12+15.00 TO 13+78.88 (BEGIN BRIDGE)
-L- STA. 14+81.13 (END BRIDGE) TO 15+56.00



TYPICAL SECTION NO. 3

DRIVEWAYS

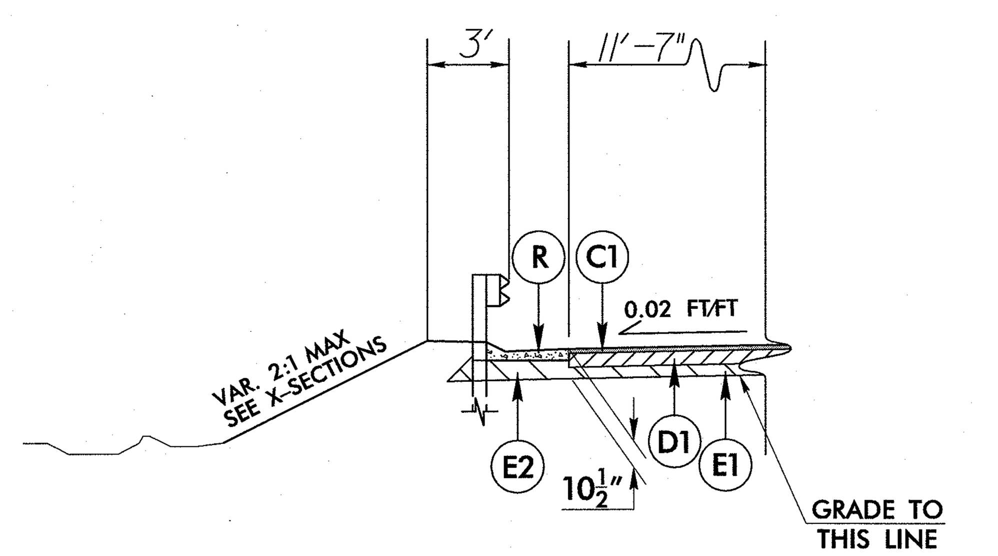


BRIDGE TYPICAL SECTION

	PAVEMENT SCHEDULE
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 3" IN DEPTH.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	6" AGGREGATE BASE COURSE
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT.
W1	WEDGING (SEE WEDGING DETAIL 1 THIS SHEET).
W2	WEDGING (SEE WEDGING DETAIL 2 THIS SHEET).

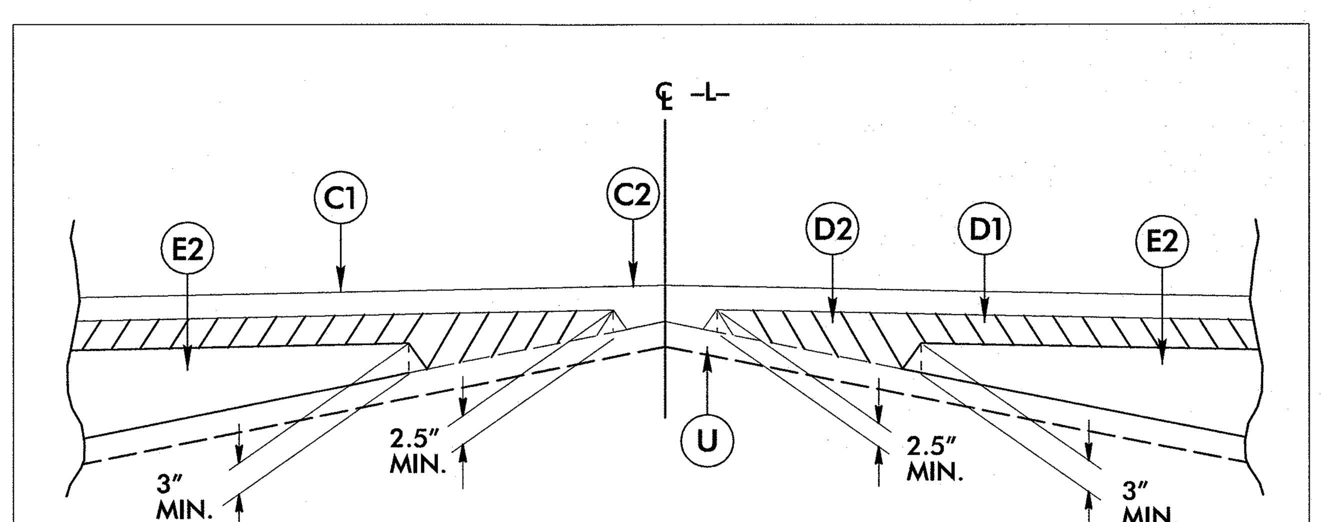
NOTES:

1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

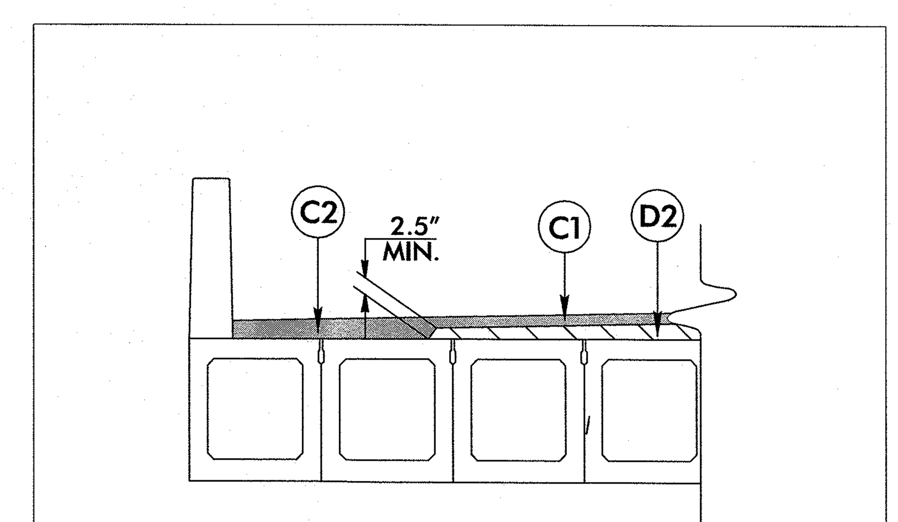


DETAIL A

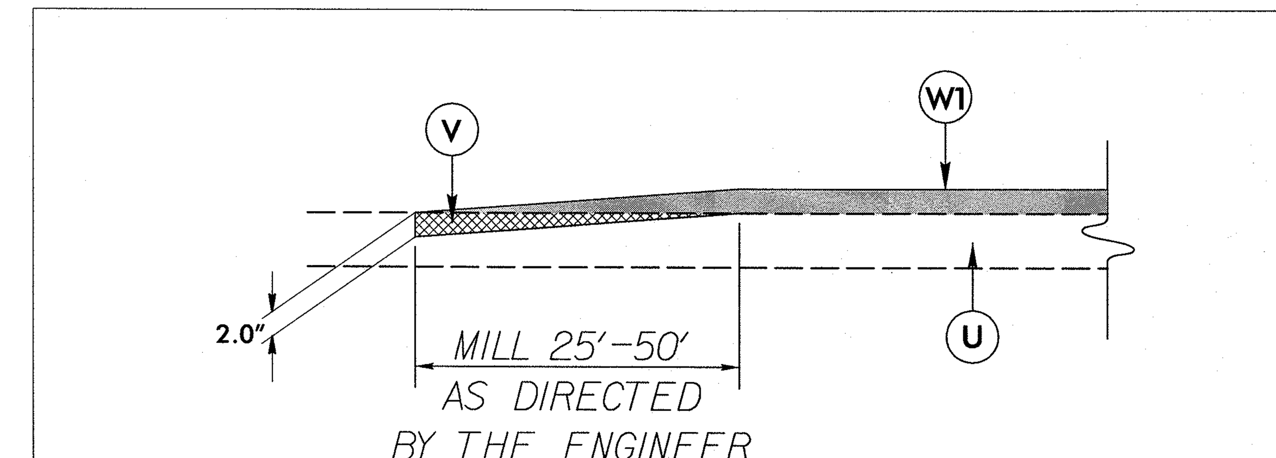
SHOULDER BERM GUTTER SECTION
(LEFT SIDE SHOWN)
-L- STA. 14+92.13 TO 15+20.16 (LT&RT)



WEDGING DETAIL 1



WEDGING DETAIL 2



MILLING DETAIL

8/17/99
11/13/2013
R:\17BP.8.R.14\Roadway\Proj\R.14_rdy_PSH02_typ.dgn

COMPUTED BY: J. STARNES, PE	DATE: 10-01-13	PROJECT REFERENCE NO.	SHEET NO.
CHECKED BY: B. DEHLER, PE	DATE: 10-01-13	17BP.8.R.14	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROADWAY SUMMARY OF QUANTITIES FOR PROJECT 17BP.8.R.14

ITEM NUMBER	SECTION NUMBER	QUANTITY	UNITS	DESCRIPTION
0000100000-N	800	1	LS	MOBILIZATION
0000400000-N	801	1	LS	CONSTRUCTION SURVEYING
0030000000-N	SP	1	LS	BRG APP SUB REG TIER STA. 14+30.00 -L-
0043000000-N	226	1	LS	GRADING
0050000000-E	226	1	ACR	SUPP CLEARING & GRUBBING
0318000000-E	300	10	TON	FND CONDIT MATL MINOR STRS
0320000000-E	300	30	SY	FND CONDIT GEOTEXTILE
0335200000-E	305	12	LF	15" DRAINAGE PIPE
0344000000-E	305	40	LF	18" SIDE DRAIN PIPE
0448200000-E	310	20	LF	15" RCP CULV CLASS IV
0995000000-E	340	21	LF	PIPE REMOVAL
1121000000-E	520	55	TON	AGGREGATE BASE COURSE
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1330000000-E	607	230	SY	INCIDENTAL MILLING
1489000000-E	610	240	TON	ASP CONC BASE CRS B25.0B
1498000000-E	610	140	TON	ASP CONC INTR CRS I19.0B
1525000000-E	610	200	TON	ASP CONC SURF CRS SF9.5A
1575000000-E	620	30	TON	ASP FOR PLANT MIX
2286000000-N	840	2	EA	MASNRY DRAINAGE STRUCT
2364200000-N	840	2	EA	FRAME W/2GRTS 840.20 STD
2556000000-E	846	57	LF	SHOULDER BERM GUTTER
3030000000-E	862	25	LF	STL BM GUARDRAIL
3045000000-E	862	12.5	LF	SBGR SHOP CURVED
3150000000-N	862	5	EA	ADDIT GUARDRAIL POSTS (SHOP CURVED, 50'R)
3210000000-N	862	1	EA	GR ANCHOR TYPE CAT-1
3215000000-N	862	4	EA	GR ANCHOR TYPE III (1 TYPE III ANCHOR UNIT SHALL BE SHOP CURVED, 50'R)
3270000000-N	862	3	EA	GR ANCHOR TYPE 350
3649000000-E	876	3	TON	RIP RAP, CLASS B
3656000000-E	876	255	SY	GEOTEXTILE FOR DRAINGE
4399000000-N	1105	1	LS	TEMP TRAFFIC CONTROL
4810000000-E	1205	5000	LF	PAINT PVT MARKINGS 4"
6000000000-E	1605	765	LF	TEMPORARY SILT FENCE
6006000000-E	1610	80	TON	EROS CONTRL STONE CL A
6009000000-E	1610	190	TON	EROS CONTRL STONE CL B
6012000000-E	1610	110	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMP SEEDING
6021000000-E	1620	0.25	TON	FERT FOR TEMP SEEDING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	100	LF	SAFETY FENCE
6030000000-E	1630	160	CY	SILT EXCAVATION
6036000000-E	1631	9820	SY	MATTING FOR EROS CONTROL
6037000000-E	SP	185	SY	COIR FIBER MAT
6038000000-E	SP	405	SY	PERM SOIL REINF MAT
6042000000-E	1632	310	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	50	LF	WATTLE
6071020000-E	SP	30	LB	POLYACRYLAMIDE (PAM)
6084000000-E	1660	3	ACR	SEEDING AND MULCHING
6087000000-E	1660	3	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERT FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPP SEEDING
6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	13	EA	RESPONSE FOR EROS CONTROL
8035000000-N	402	1	LS	REMV EXIST STR STA. 14+30.00 -L-
8121000000-N	412	1	LS	UNCL STR EXCAV STA. 14+30.00 -L-
8182000000-E	420	55	CY	CLASS A CONCRETE (BRIDGE)
8210000000-N	422	1	LS	BRG APPR SLAB STA. 14+30.00 -L-
8217000000-E	425	8780	LB	REINF STEEL (BRIDGE)
8384000000-E	450	125	LF	HP14X73 PILES
8391000000-N	450	10	EA	STEEL PILE POINTS
8505000000-E	460	200	LF	VERT CONC BARRIER RAIL
8608000000-E	876	245	TON	RIP RAP II (2'-0")
8622000000-E	876	275	SY	GEOTEXTILE FOR DRAINAGE
8657000000-N	430	1	LS	ELASTOMERIC BEARINGS
8753200000-E	430	1000	LF	3'-0"X 3'-3" PRESTR BOX BEAM

COMPUTED BY: J. STARNES, PE	DATE: 10-01-13
CHECKED BY: B. DEHLER, PE	DATE: 10-01-13

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	3-A

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	TEMP. CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
5	CELIA B. COOK & SHARON B. CLAYTON, CO-TRUSTEES OF MYRTLE L. BREWER TRUST					16129.71 SF	406.94 SF	

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV. (CY)	EMBANK. +20% (CY)	BORROW (CY)	WASTE (CY)
11+25.00	13+78.88	294	611	317	
BRIDGE					
14+81.13	17+50.00	305	95		210
SUBTOTAL 1:		599	706	317	210
DR-1			25	25	
DR-2			15	15	
SUBTOTAL 2:			40	40	
SUBTOTAL SUMMARIES 1-2		599	746	357	210
EARTH TO REPLACE BORROW:				-210	-210
PROJECT TOTALS		599	746	147	0
EST 5% TOPSOIL FOR BORROW PITS				7	
GRAND TOTALS:		599	746	154	0
SAY:		600	750	160	0

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."

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	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"
15+06	LT	0401	0402	460.39	457.64	457.55	0.5								
15+06	RT	0402	0403	460.39	457.55	457.13	4.2		10						
15+75	RT	0404	0405		459.73	458.44	3.4								
15+52	RT														
PROJECT TOTAL									10						
SAY									12						

STATION	C.S. PIPE (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"
15+06										19						
15+06																
15+75																
15+52																
PROJECT TOTAL										19						
SAY										20						

STATION	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 * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	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
15+06						1						
15+06						1						
15+75		38										
15+52												
PROJECT TOTAL		38				2						
SAY		40				2						

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 TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.24	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	T.B.D.I. STD. 840.35	G.D.I. FRAME WITH TWO GRATES STD. 840.20	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
15+06											1	1					USE CLASS IV R.C. PIPE
15+06											1	1					
15+75																	DRIVEWAY PIPE
15+52																21	REMOVE 18" R.C. PIPE
PROJECT TOTAL											2	2				21	
SAY											2	2				21	

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

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

SHOULDER BERM GUTTER SUMMARY

LINE	STATION	STATION	LENGTH
-L-	14+92.13 (RT)	15+20.16 (RT)	28.03 LF
-L-	14+92.13 (LT)	15+20.16 (LT)	28.03 LF
		TOTAL:	56.06 LF
		SAY:	57.00 LF

PAVEMENT REMOVAL SUMMARY

LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	12+15.00	14+04.49	CL	409.27
-L-	14+56.27	15+56.00	CL	217.44
			TOTAL:	626.70 SY
			SAY:	630 SY

"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

LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END
-L-	13+05.00	13+80.00	LT	75'					3'-11"	6'-11"	56'-3"	56'-3"	1'-1.5"	1'-1.5"
-L-	13+47.00	13+80.00	RT		37.50'				***	***	***	***	***	***
-L-	14+80.00	15+55.00	RT	75'					3'-11"	6'-11"	56'-3"	56'-3"	1'-1.5"	1'-1.5"
-L-	14+80.00	15+55.00	LT	75'					3'-11"	6'-11"	56'-3"	56'-3"	1'-1.5"	1'-1.5"
			SUBTOTAL	225'	37.50'									
			LESS DEDUCTIONS											
			GRAU-350 (3 x 50)=	150'										
			CAT-1 (1 x 6.25)=		6.25'									
			TYPE III (4 x 18.75)=	56.25'	18.75'									
			SUBTOTAL	206.25'	25.00'									
			TOTALS	18.75'	12.5'									
			SAY	25.00'	12.5'		ADDITIONAL GUARDRAIL POSTS = 5							

LINE	BEG. STA.	ANCHORS XI MOD	TYPE III	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	13+05.00		1	1							1		1				
-L-	13+47.00		1				1				1		1				
-L-	14+80.00		1	1							1		1				
-L-	14+80.00		1	1							1		1				
SUBTOTAL			4	3			1				4		4				
TOTALS			4	3			1				4		4				
SAY			4	3			1				4		4				

6/21/00

11/13/2013
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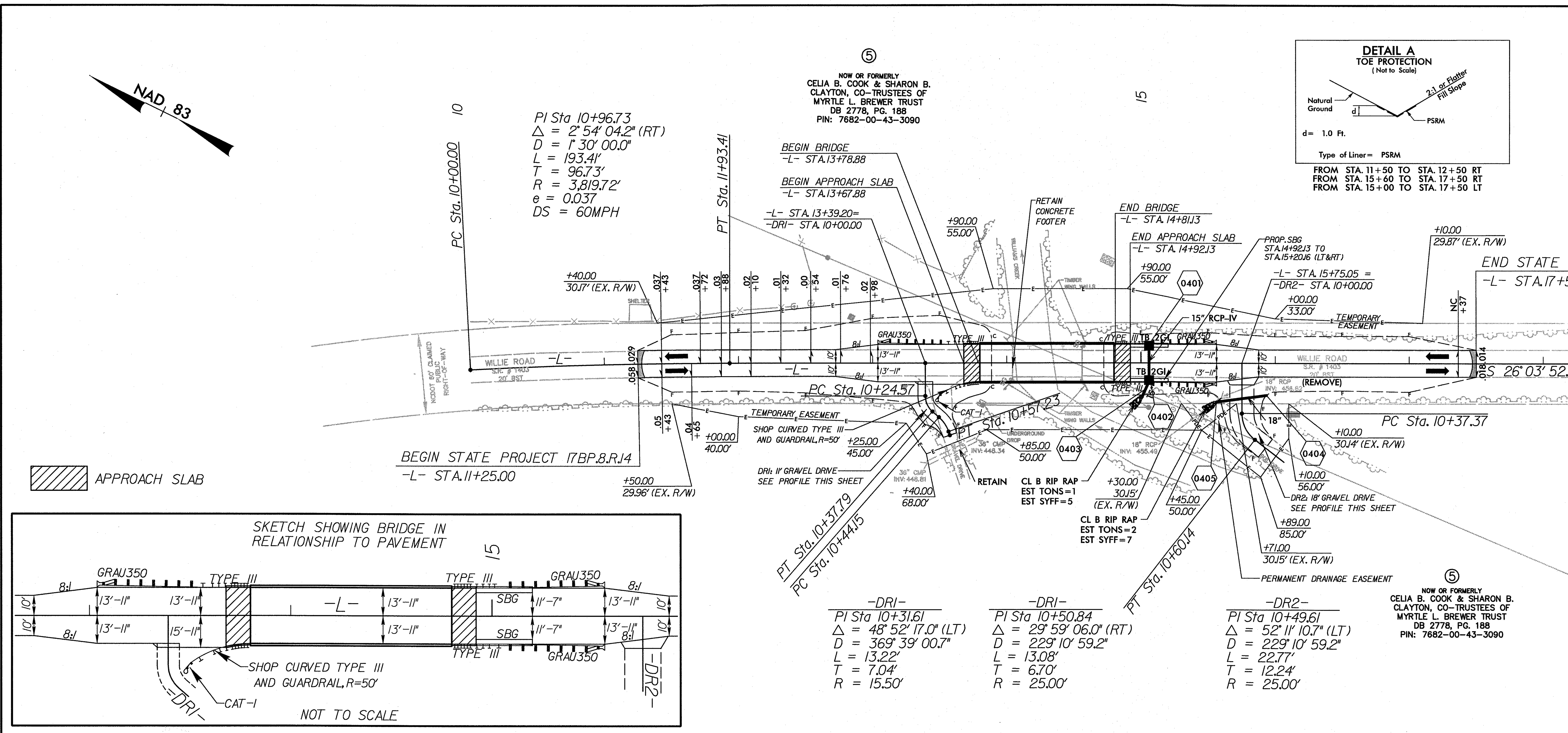
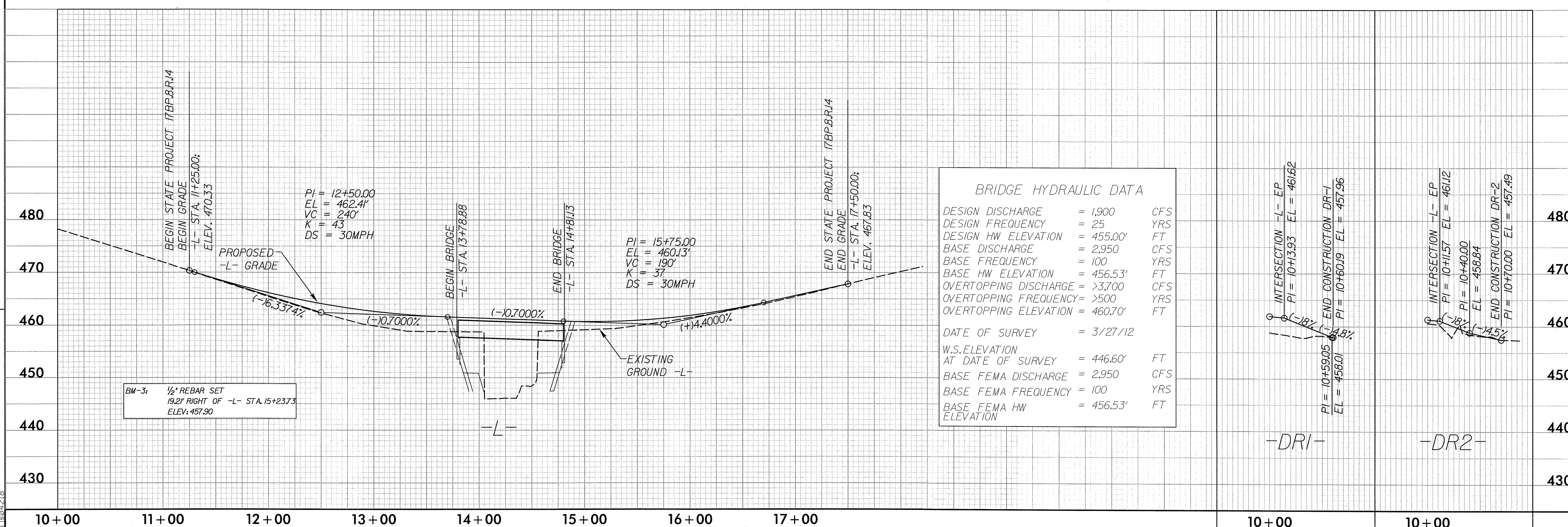
PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	4
R/W SHEET NO.	

WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER





BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1,900	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	455.00'	FT
BASE DISCHARGE	=	2,950	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	456.53'	FT
OVERTOPPING DISCHARGE	=	>3,700	CFS
OVERTOPPING FREQUENCY	=	>500	YRS
OVERTOPPING ELEVATION	=	460.70'	FT
DATE OF SURVEY	=	3/27/12	
W.S. ELEVATION AT DATE OF SURVEY	=	446.60'	FT
BASE FEMA DISCHARGE	=	2,950	CFS
BASE FEMA FREQUENCY	=	100	YRS
BASE FEMA HW ELEVATION	=	456.53'	FT

REVISIONS

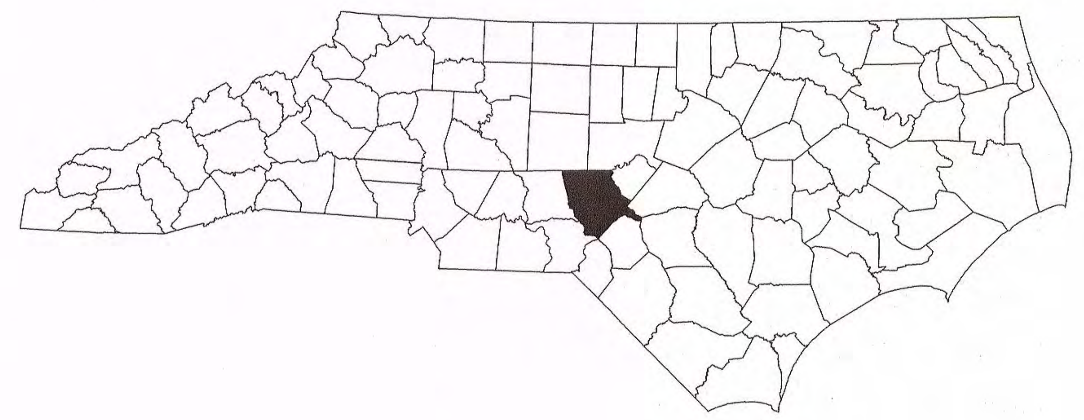
8/17/99

11/13/2013 R:\17BP.8.R.14\Roadway\Proj\R14_rdy_PSH04.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MOORE COUNTY

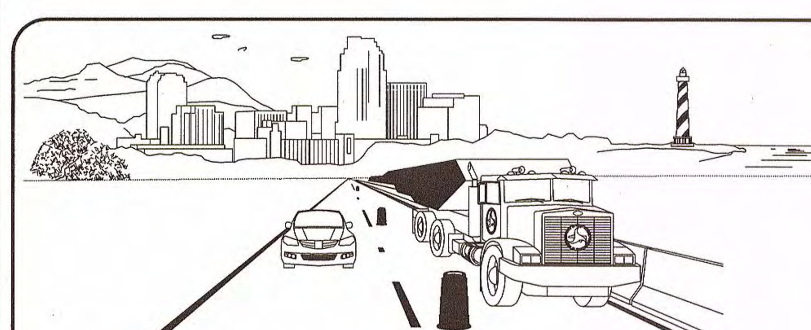


INDEX OF SHEETS

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANAUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION



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

J. S. BOURNE, P.E. — STATE TRAFFIC MANAGEMENT ENGINEER
_______ — TRAFFIC CONTROL PROJECT ENGINEER
_______ — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
_______ — TRAFFIC CONTROL DESIGN ENGINEER

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

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

- EXISTING
- PROPOSED
- TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

APPROVED:
DATE: 11/13/13

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 016067 BRIAN D. DEHLER

SHEET NO. TMP-1

TIP PROJECT: 17BP.8.R.14

11/13/2013
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usjs04218

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.14	TMP-1A

CONSTRUCTION PHASING

STEP 1:

INSTALL WORK ZONE ADVANCE WARNING SIGNS AND DETOUR AS SHOWN ON TMP-2. PLACE TYPE III BARRICADES WITH "ROAD CLOSED" SIGNS AND CLOSE S.R. #1403 (WILLIE ROAD) TO THRU TRAFFIC.

STEP 2:

REMOVE THE EXISTING BRIDGE OVER WILLIAMS CREEK AND BEGIN CONSTRUCTION OF -L- BRIDGE OVER WILLIAMS CREEK.

-L- STA. 13+79 +/- TO 14+81 +/- (BRIDGE)

STEP 3:

COMPLETE CONSTRUCTION OF THE FOLLOWING:

-L- STA. 13+79 +/- TO 14+81 +/- (BRIDGE)

CONSTRUCT THE FOLLOWING, INCLUDING THE FINAL LAYER OF SURFACE COURSE BETWEEN THE FOLLOWING STATIONS:

-L- STA. 11+25 +/- TO 17+50 +/- (BOTH DIRECTIONS)

STEP 4:

INSTALL PERMANENT PAVEMENT MARKINGS IN THE FOLLOWING LOCATIONS:

-L- STA. 11+25 +/- TO 17+50 +/- (BOTH DIRECTIONS)

STEP 5:

REMOVE TYPE III BARRICADES AND DETOUR, AND OPEN S.R. #1403 (WILLIE ROAD) TO TRAFFIC.

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

C) CONTRACTOR WILL BE RESPONSIBLE FOR PERMANENT SIGNING.

D) CONTRACTOR WILL BE RESPONSIBLE FOR DETOUR SIGNING OFF THE PROJECT LIMITS.

E) COVER OR REMOVE ALL DETOUR SIGNS WITHIN AND OFF THE PROJECT LIMITS WHEN A DETOUR IS NOT IN OPERATION.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
Willie Rd	Paint	None

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

J) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

APPROVED: ______ DATE: ______

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30882 JENNIFER L. STARNES

10-22-14

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

CONSTRUCTION PHASING AND GENERAL NOTES

10/22/2014
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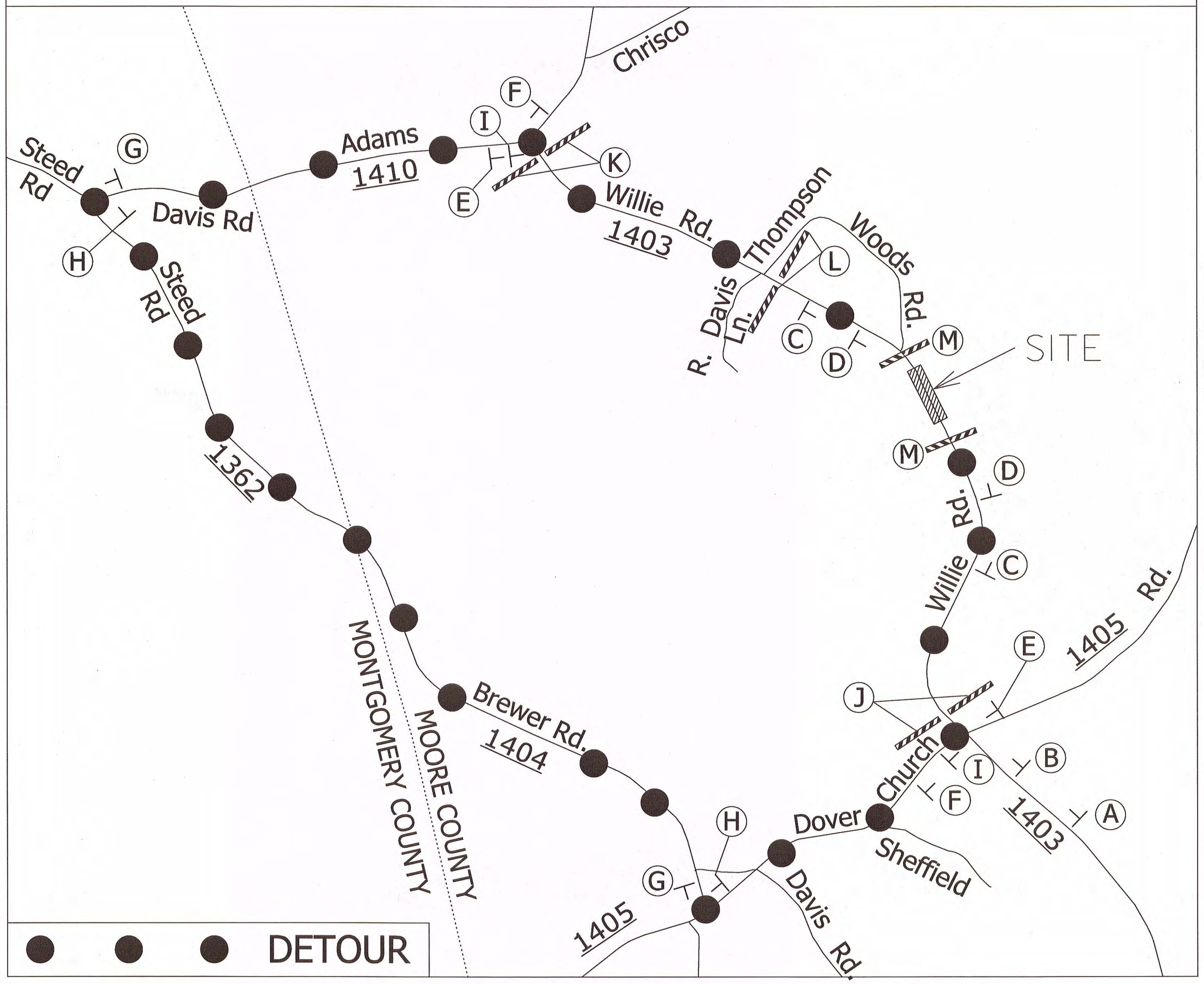
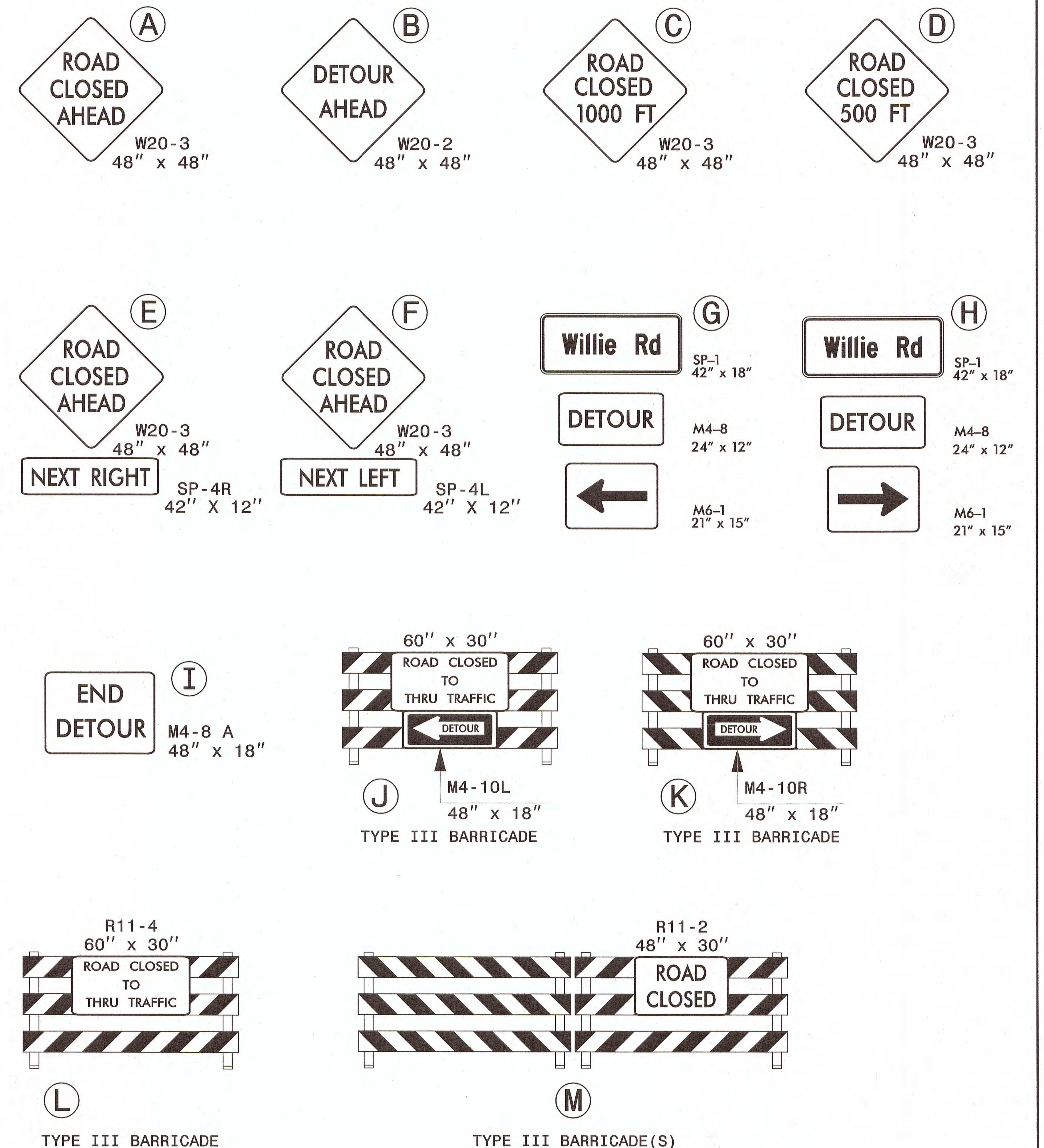
usjs04216

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.14	TMP-2

PROPOSED DETOUR ROUTE





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15401 Weston Parkway
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NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

APPROVED: [signature] DATE: 11/13/13

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 016067 BRIAN D. DEHLER

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

OFFSITE DETOUR PLAN

11/13/2013
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usjs04218

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.14	SP-1

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

SIGN WIDTH: 3′-6″
HEIGHT: 1′-6″
TOTAL AREA: 5.3 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.47″
WIDTH: 0.63″
RADII: 1.5″

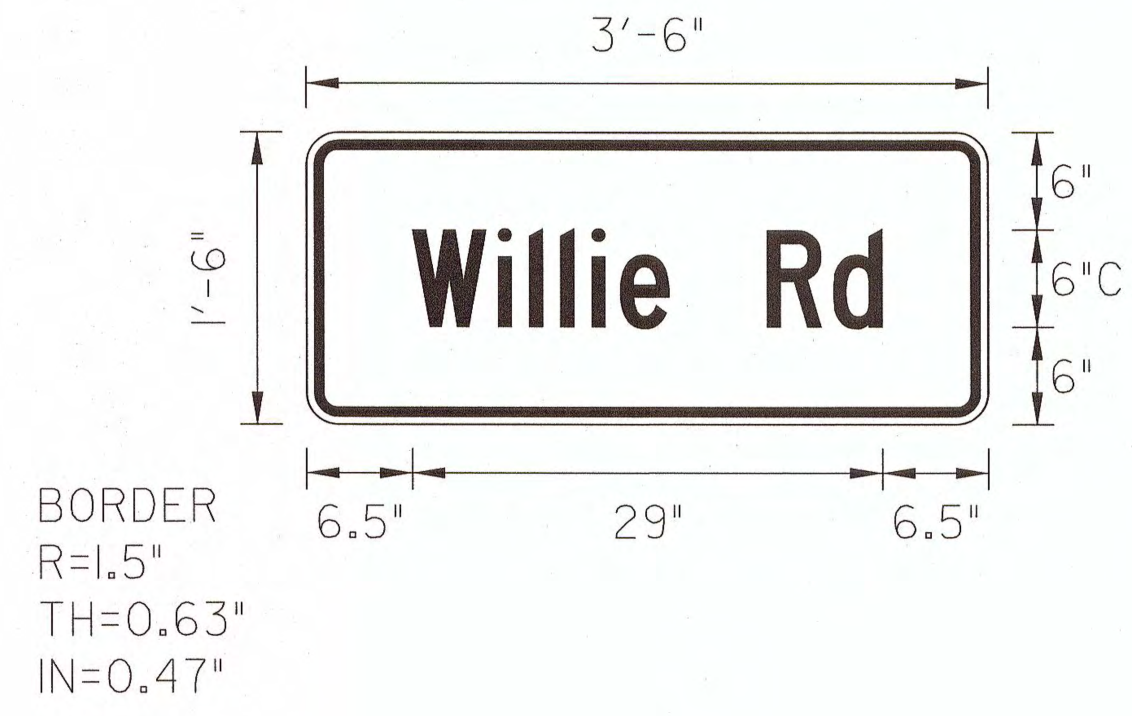
NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080″ (2.0 mm) ALUMINUM

DESIGN BY: G. TENG
PROJECT ID: 17BP.8.R.14
CHECKED BY: B. DEHLER
DIV: 8
DATE: Jun 03, 2013



Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

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

LETTER POSITIONS

Letter locations are panel edge to lower left corner

W	i	l	l	i	e		R	d	Series/Size Text Length
6.5	11.8	13.7	15.6	17.6	19.3	22.4	28.4	32.4	C 2000 29

FILENAME: WILLIE RD

NORTH CAROLINA D.O.T. SIGN DETAIL

WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

APPROVED: DATE: 11/14/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032179 ENGINEER ZHAOLONG TENG

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

SPECIAL SIGN DESIGN

11/14/2013
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USZT04226

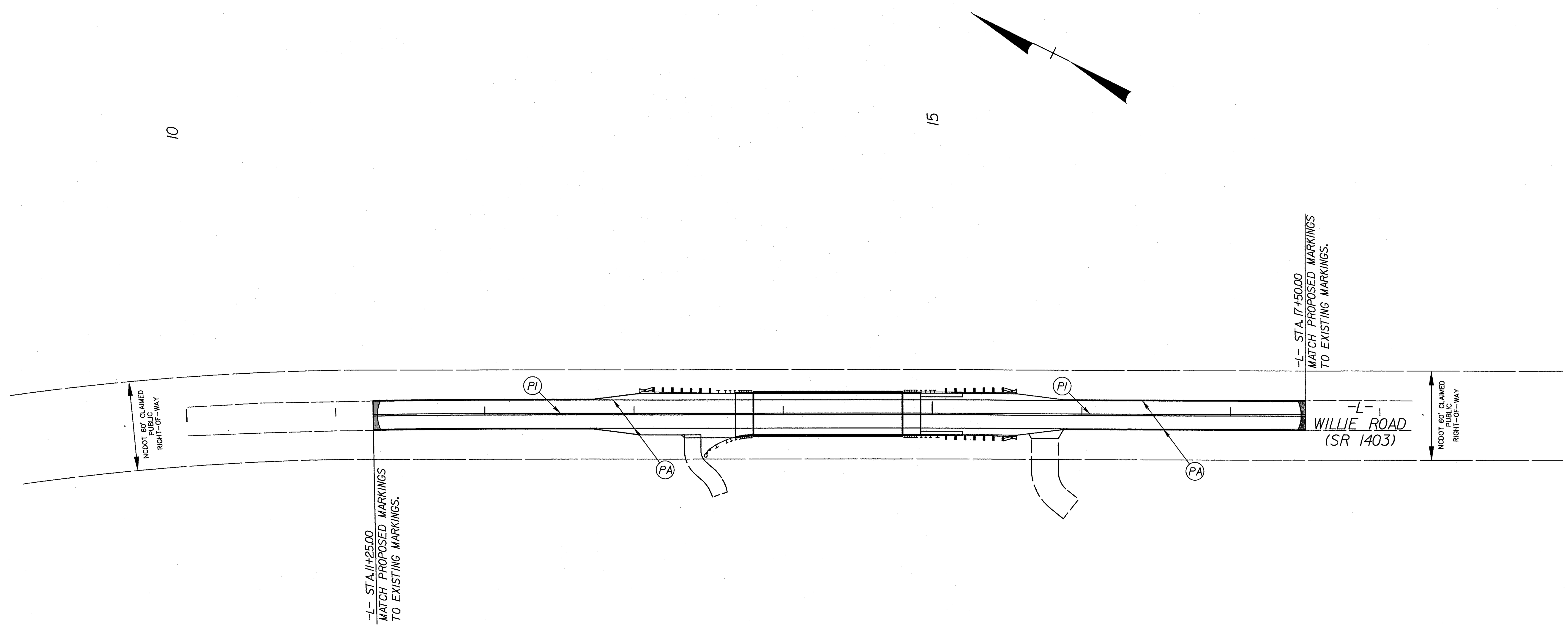
PAVEMENT MARKING SCHEDULE

TIP PROJECT # 17BP.8.R.14

SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS	PAY ITEM QUANTITY BREAKDOWN	TOTAL QUANTITY
PI	YELLOW DOUBLE CENTER	PAINT (4")	1250LF (2 COATS)	2500 LF
PA	WHITE EDGELINE	PAINT (4")	1250LF (2 COATS)	2500 LF

NOTES:

1. MATCH EXISTING LANE WIDTHS THROUGHOUT NEWLY CONTRUCTED AREA.



WSP
15401 Weston Parkway
Suite 100
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NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

APPROVED: [signature] DATE: 11/25/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 016067 ENGINEER BRIAN D. DEHLER

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

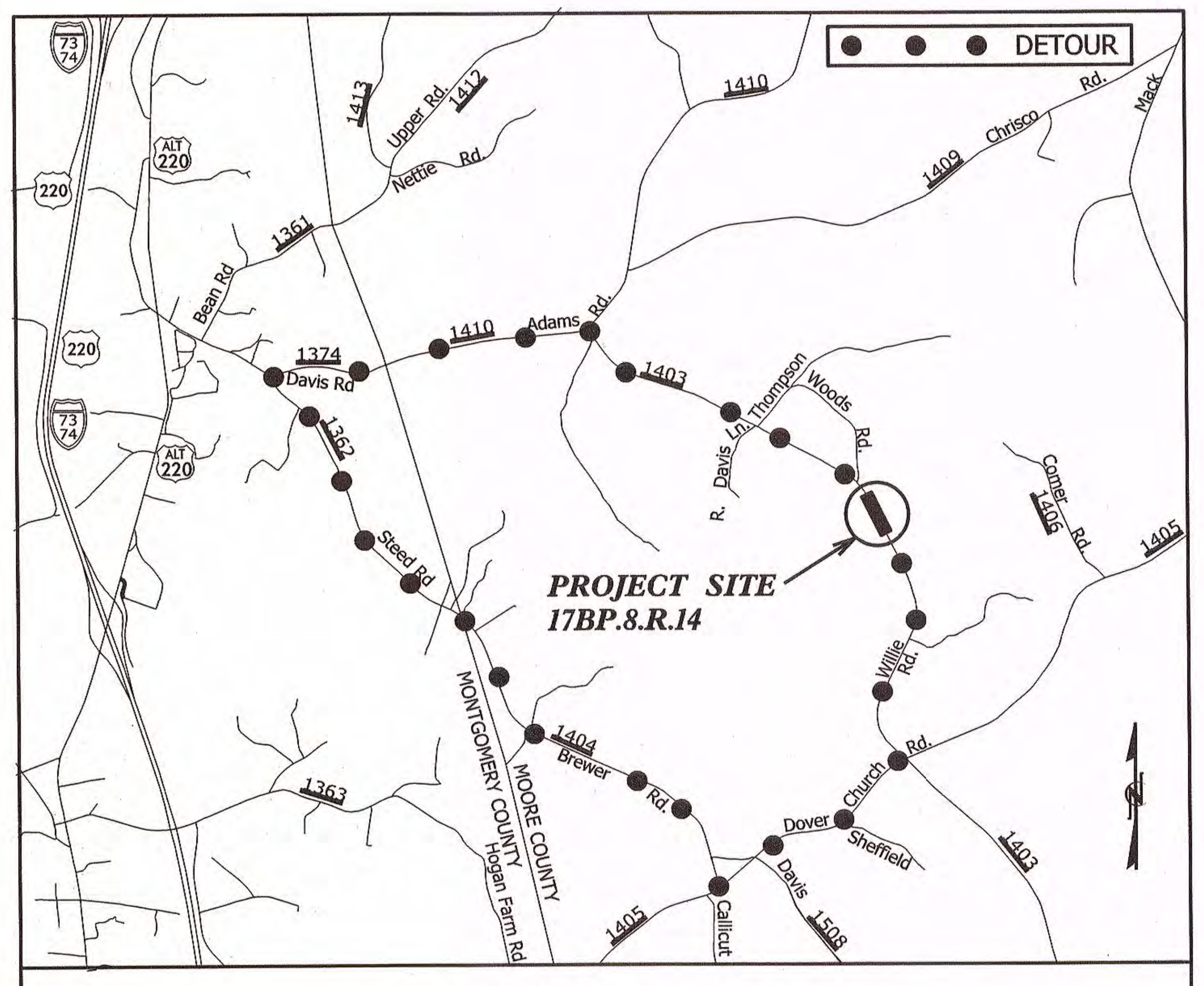
PAVEMENT MARKING PLAN

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

TIP PROJECT: 17BP.8.R.14

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.14	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.14		PE



VICINITY MAP

STATE OF NORTH CAROLINA

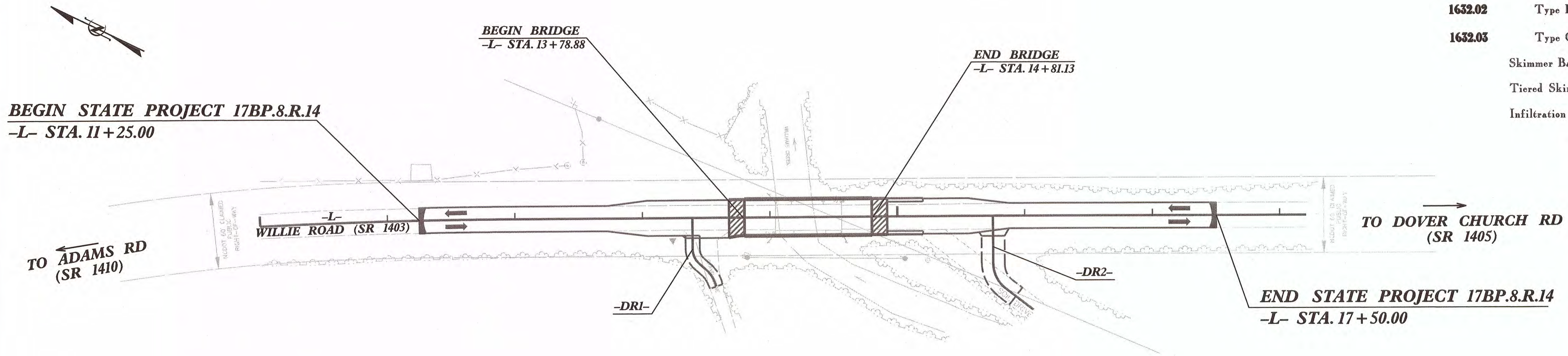
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

MOORE COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 174 ON WILLIE RD. (SR 1403) OVER WILLIAMS CREEK

TYPE OF WORK: GRADING, PAVING, TRAFFIC CONTROL, DRAINAGE, & STRUCTURES



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	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

GRAPHIC SCALE

15 0 30

PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

PLANS PREPARED IN THE OFFICE OF:

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspsells.com
LICENSE NO. F-0891

2012 STANDARD SPECIFICATIONS

EROSION CONTROL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035621 ENGINEER ANDREW M. HOWELL

3-15-13

ANDREW M. HOWELL
LEVEL IIIA NAME

3105
LEVEL IIIA CERTIFICATION NO.

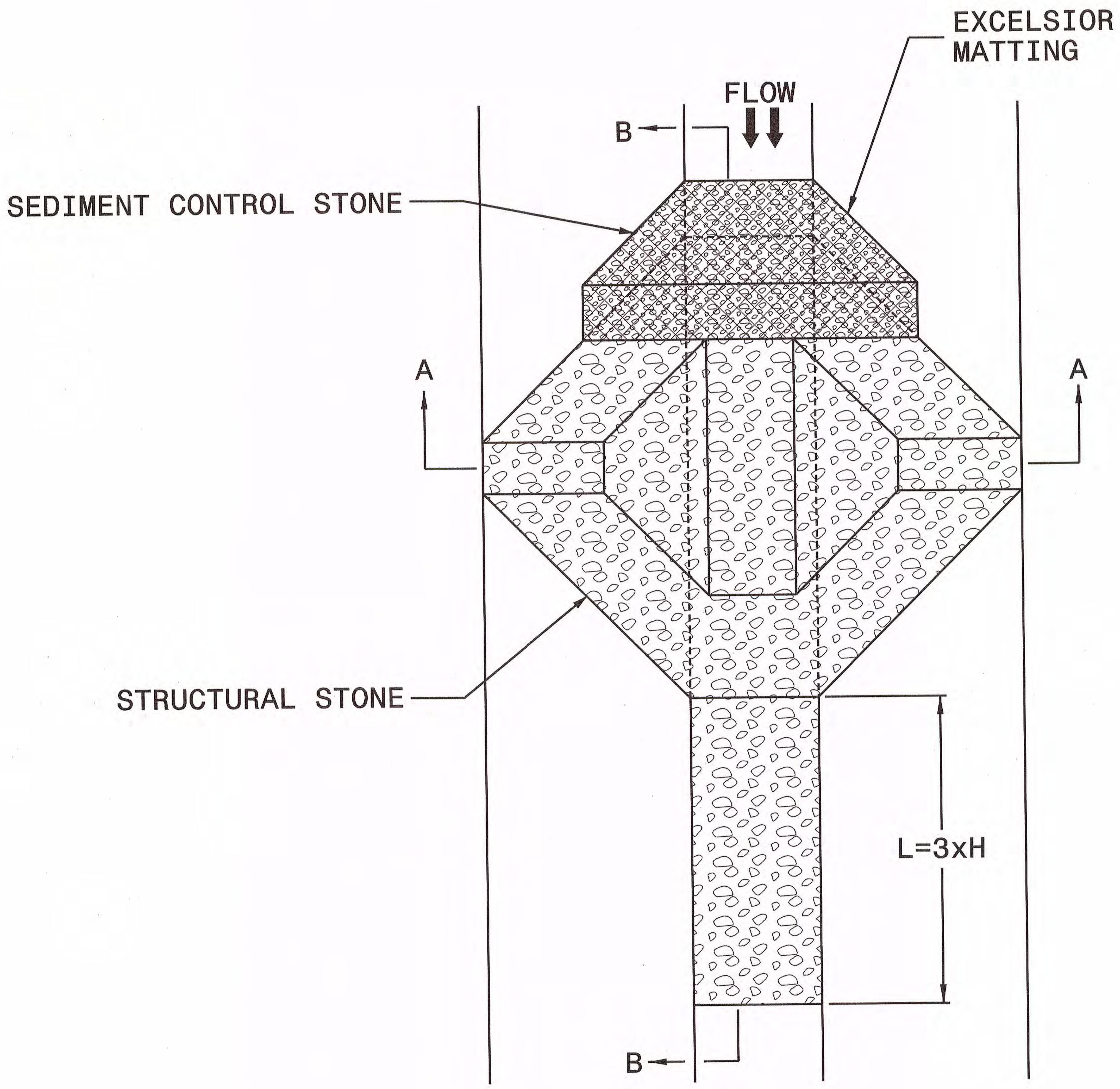
Roadway Standard Drawings

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

1604.01	Railroad Erosion Control Detail	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		

R:\17BP.8.R.14\Drainage\62-0174_ec_EC1_tsh.dgn 3/15/2013 usmo04281

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



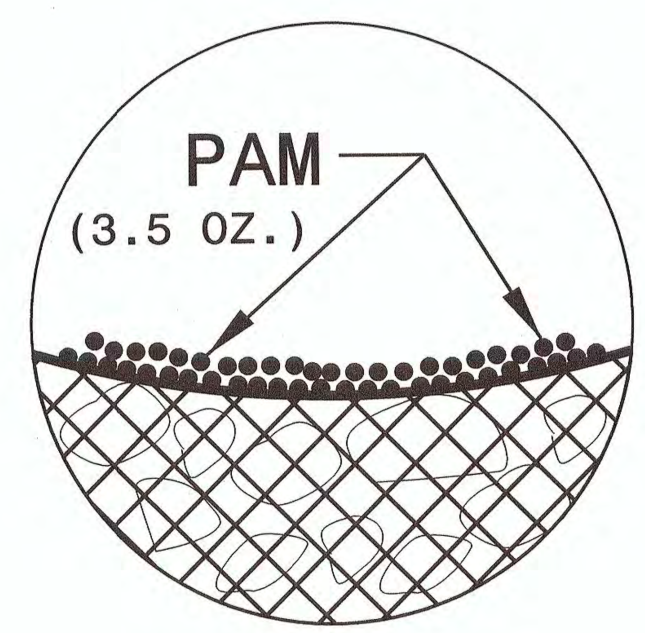
PLAN

NOTES

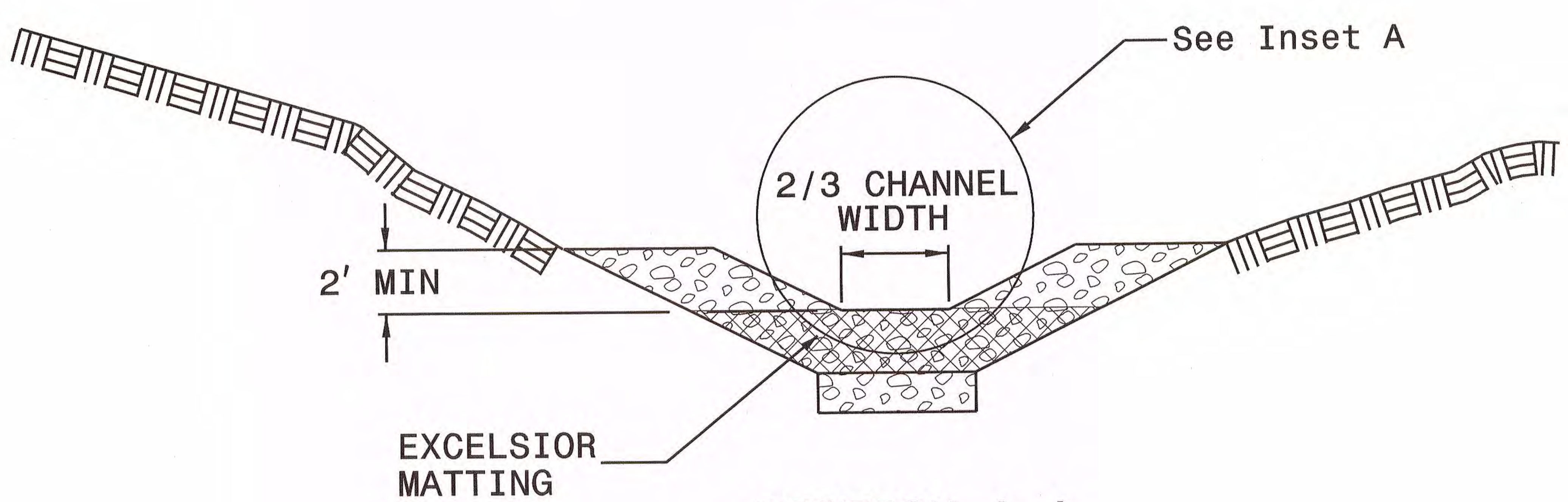
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

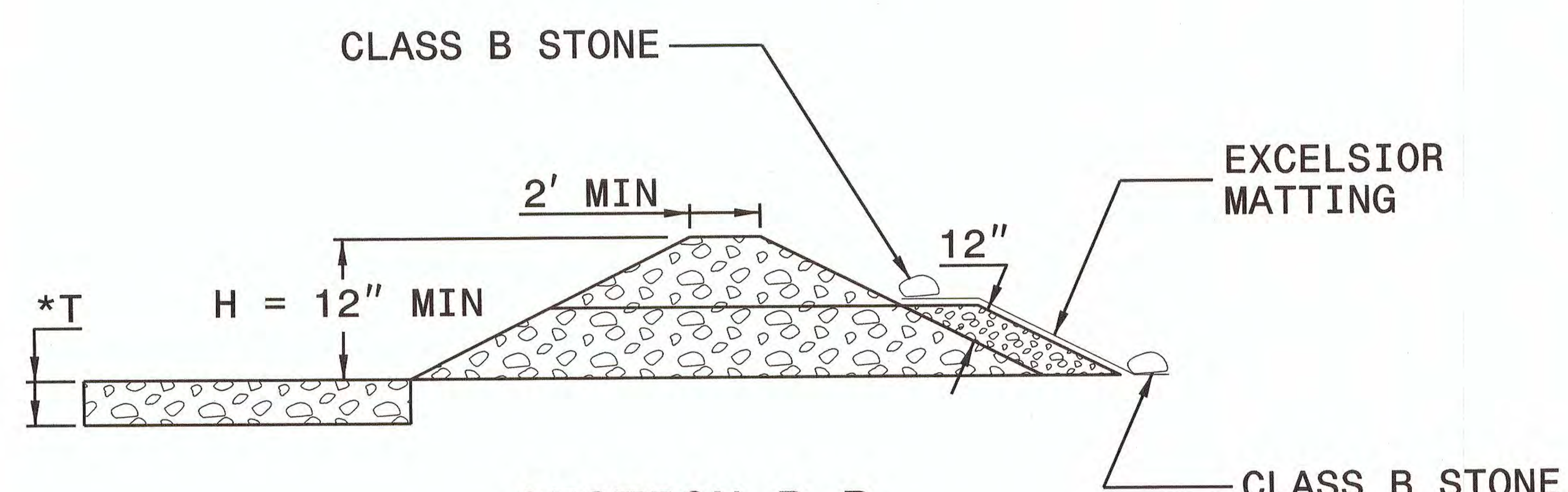
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	EC-3

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.

EROSION CONTROL PLAN

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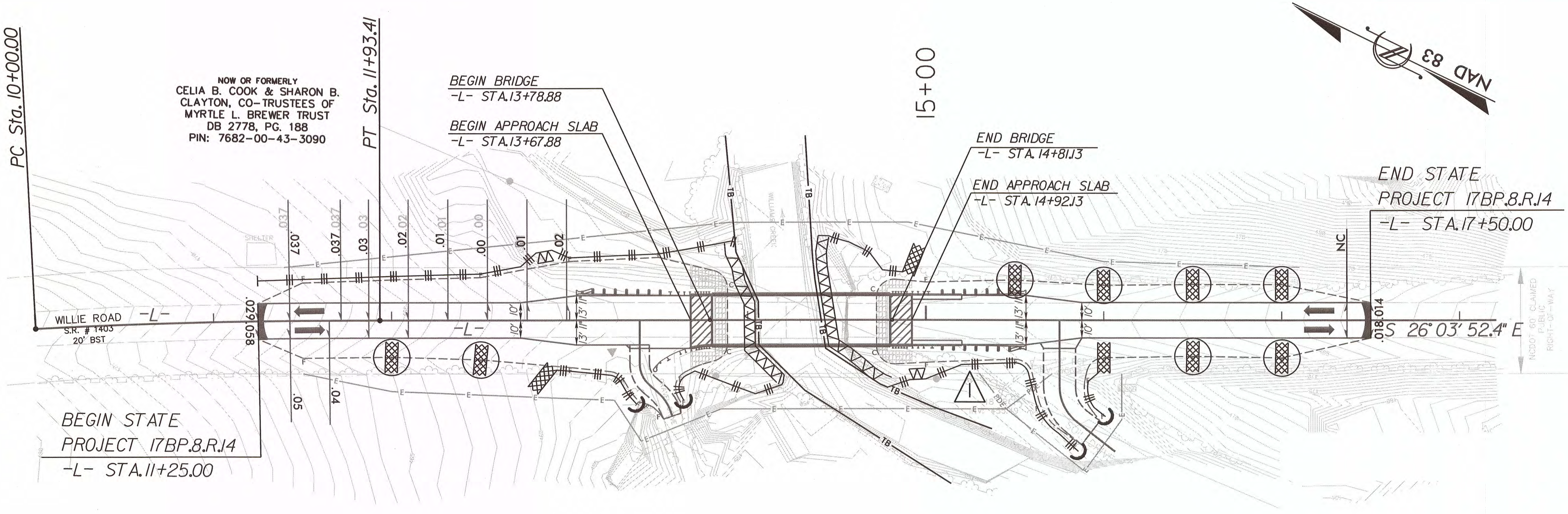
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspsells.com
LICENSE NO. F-0891

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	EC-4/CONST.4
R/W SHEET NO.	
EROSION CONTROL ENGINEER	

NORTH CAROLINA PROFESSIONAL SEAL 035621 ENGINEER ANDREW M. HOWELL
8-15-13



PLAN ALONG -L-
SCALE : 1" = 30'

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

REVISIONS
REVISION 1 BY A.M.H. 03-15-13 - REMOVED PROPOSED DRAINAGE FROM C&G PLAN. ORIGINALLY SEALED ON 1-24-13 BY A.M.H.

8/17/99
3/15/2013
R:\17BP.8.R.14\Drainage\62-0174_ec_EC4 Sheet.dgn

EROSION CONTROL PLAN

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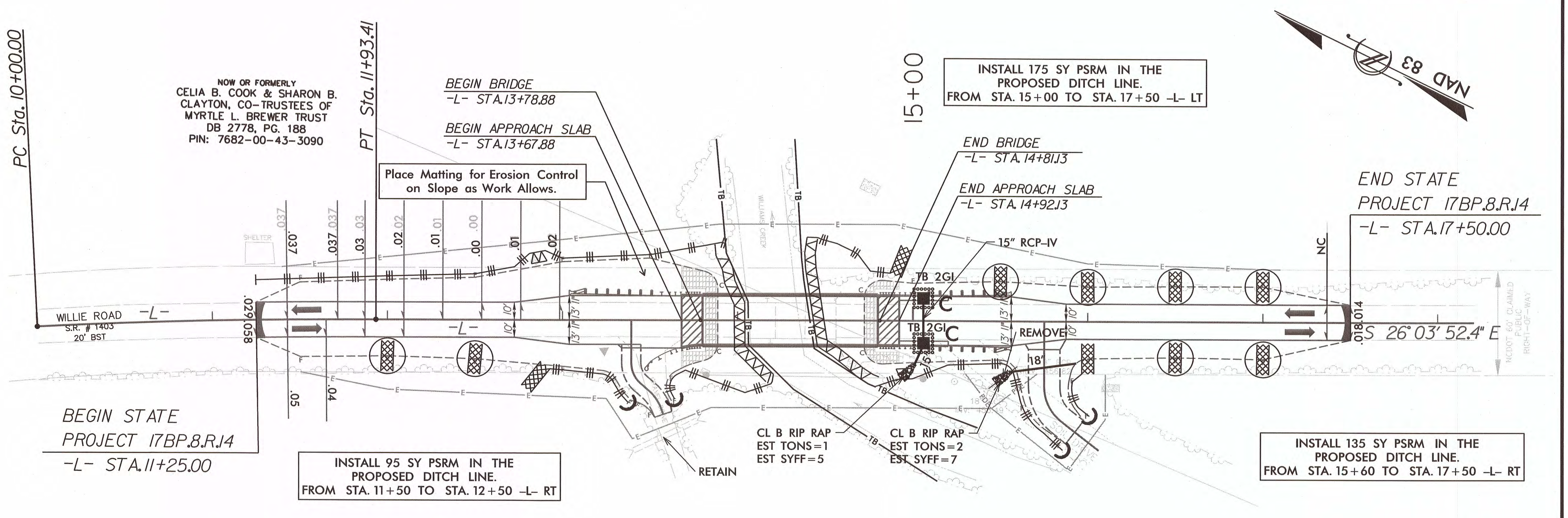
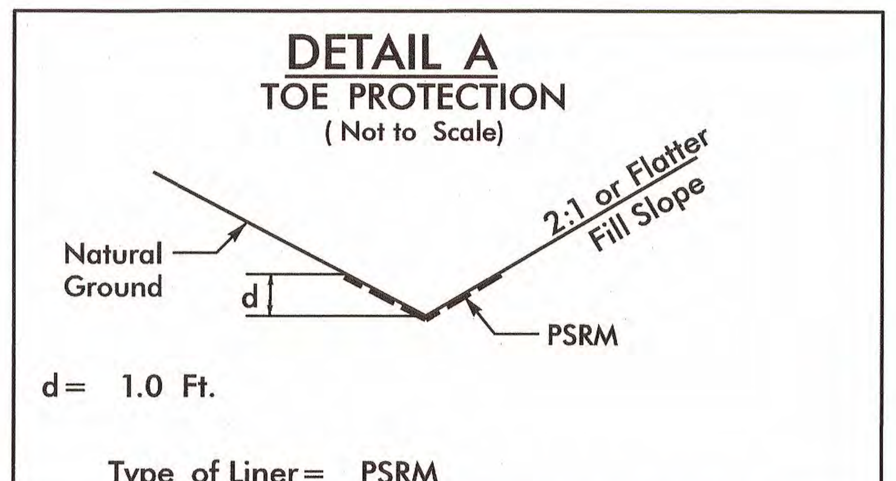
LICENSE NO. F-0891

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	EC-5/CONST.4
R/W SHEET NO.	
EROSION CONTROL ENGINEER	



PLAN ALONG -L-

SCALE : 1" = 30'



FROM STA. 11+50 TO STA. 12+50 RT
FROM STA. 15+60 TO STA. 17+50 RT
FROM STA. 15+00 TO STA. 17+50 LT

REVISIONS

8/17/99

3/15/2013
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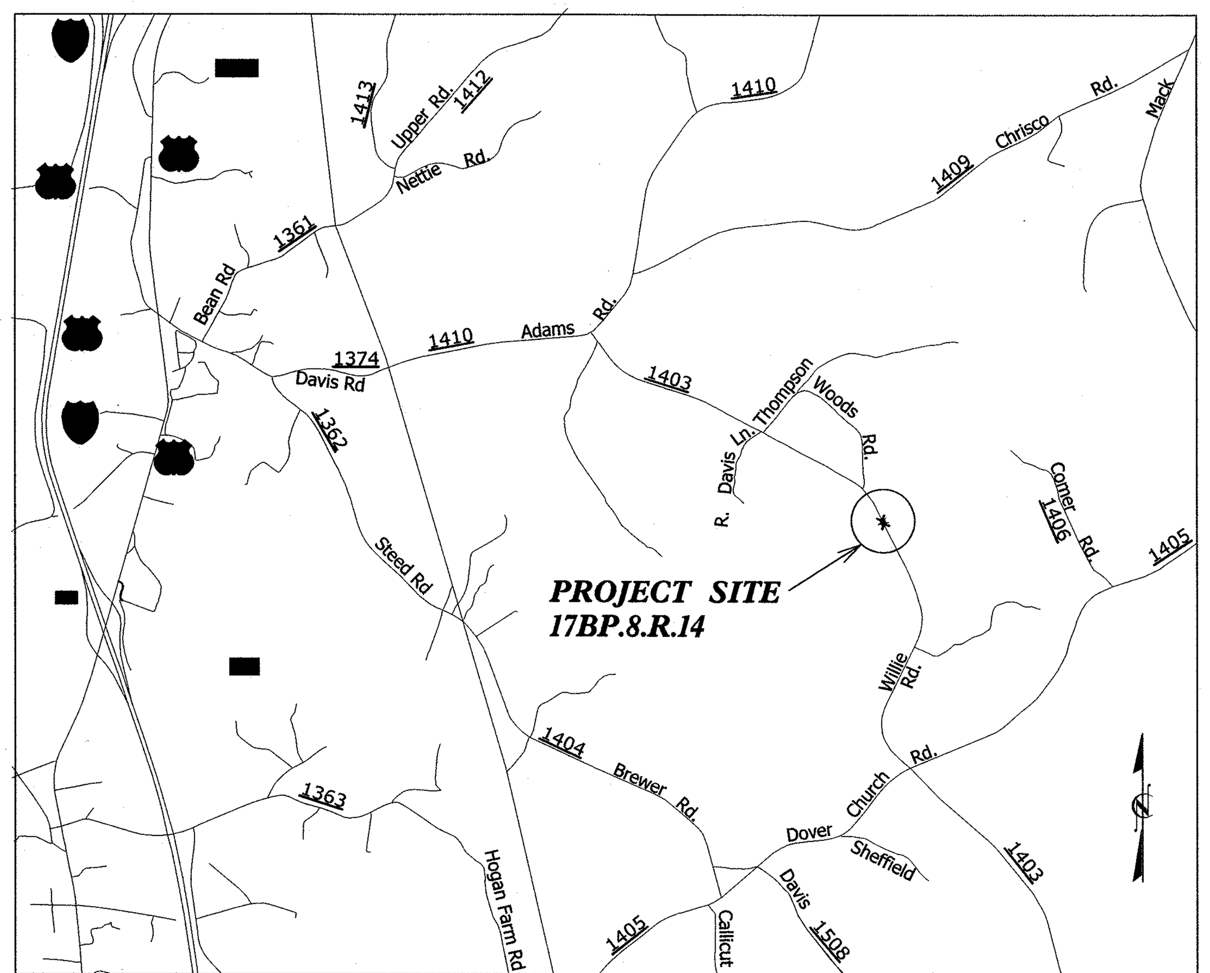
TIP PROJECT: 17BP.8.R.14

T.I.P. NO.	SHEET NO.
17BP.8.R.14	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

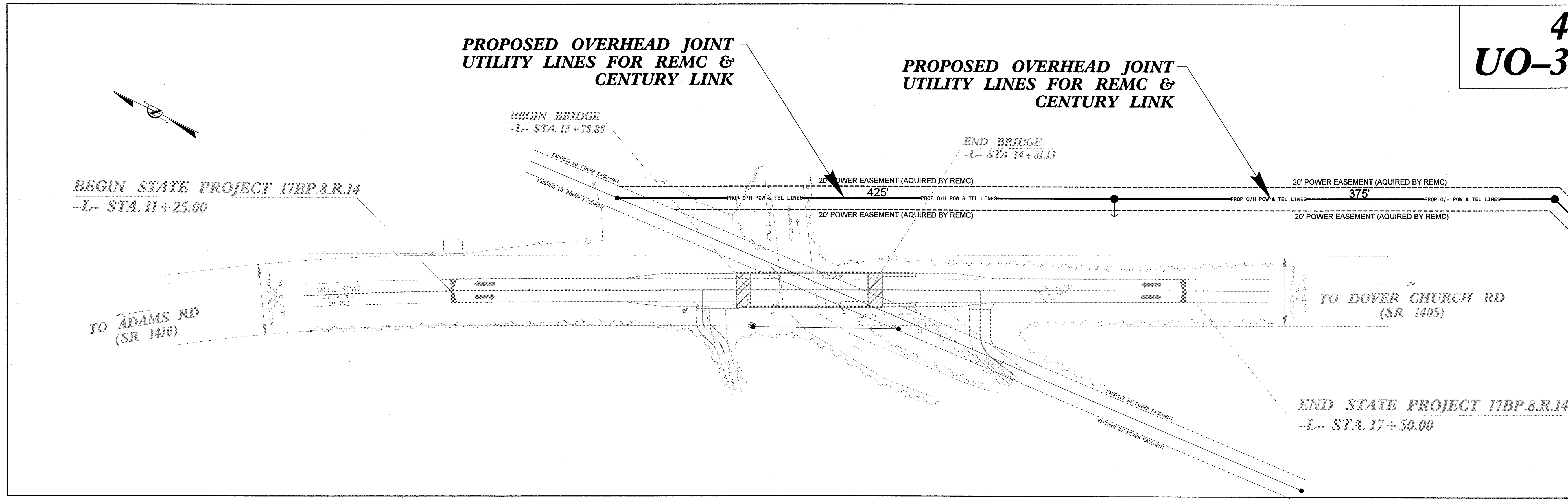
UTILITIES BY OTHERS PLANS
MOORE COUNTY



VICINITY MAP

LOCATION: REPLACEMENT OF BRIDGE No. 174 ON WILLIE RD (SR 1403) OVER WILLIAMS CREEK.

TYPE OF WORK: ELECTRIC POWER, TELEPHONE



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY SYMBOLOGY SHEET
UO-3	UBO PLAN SHEET

PRIVATE UTILITY OWNERS ON PROJECT

(1) POWER - REMC

(2) TELECOMMUNICATIONS - CENTURY LINK

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	UO-2

UTILITIES BY OTHERS

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

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

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

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

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

EXISTING UTILITIES SYMBOLS

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

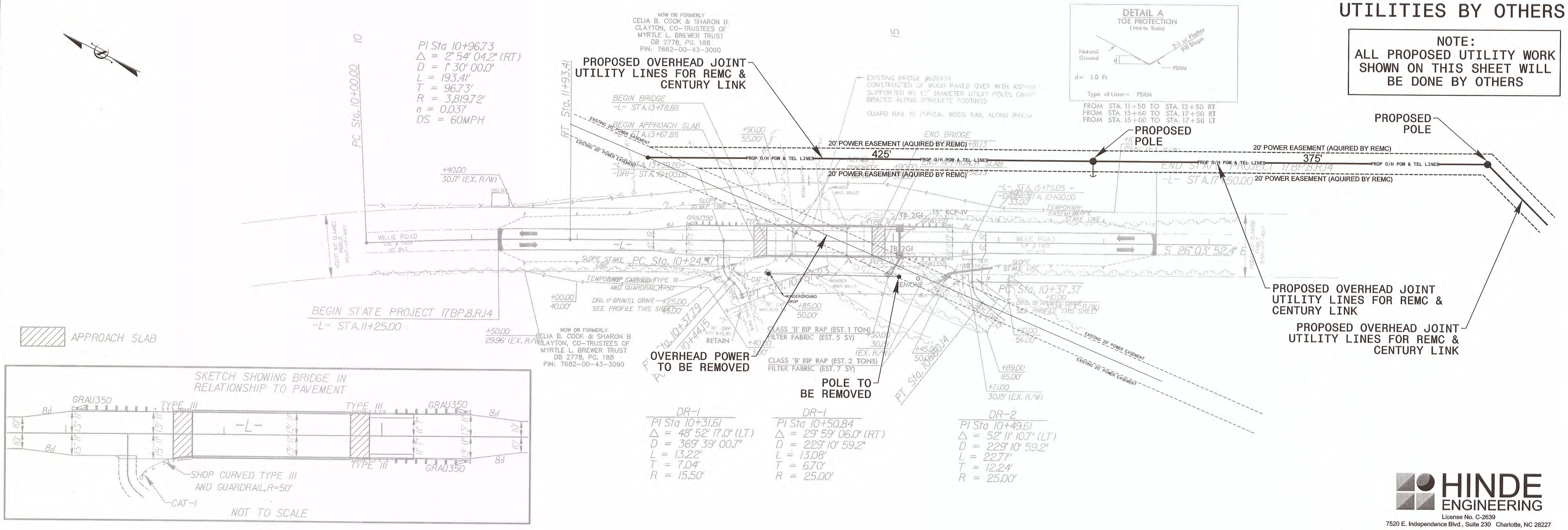
*For Existing Utilities

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.14	UO-3

UTILITIES BY OTHERS

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



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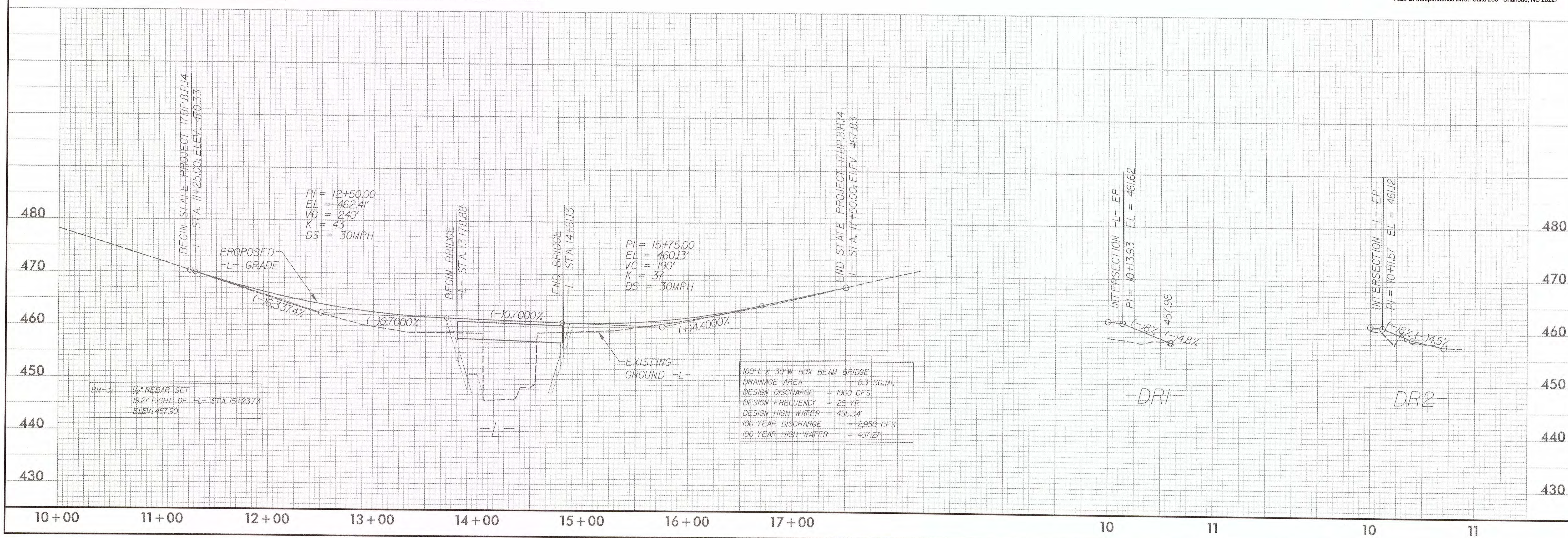
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227



PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.14	X-1

8/23/99

11/13/2013
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usjs04218

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.14	X-2

TIP PROJECT: 17BP.8.R.14

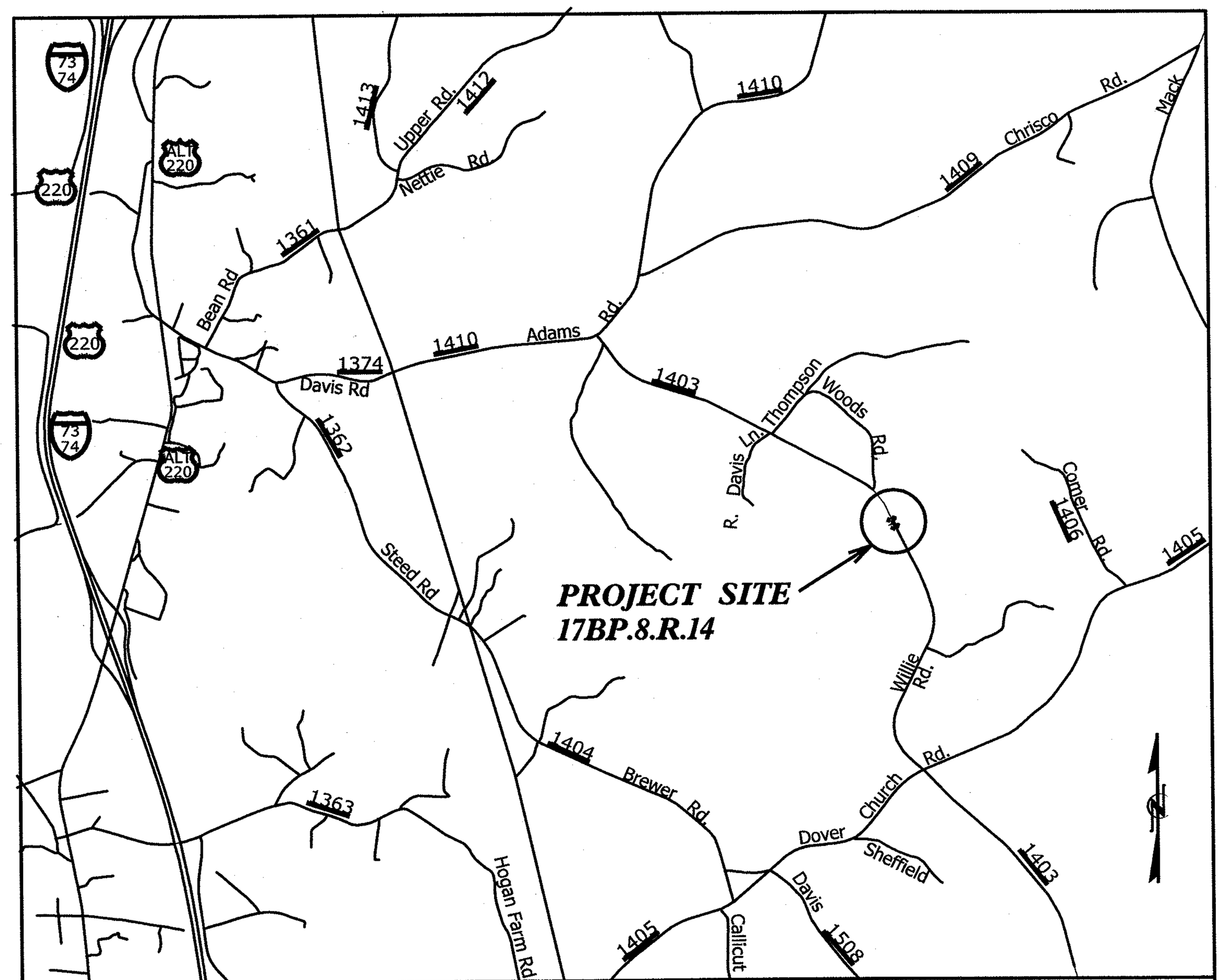
CONTRACT:

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.14		

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.14		PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

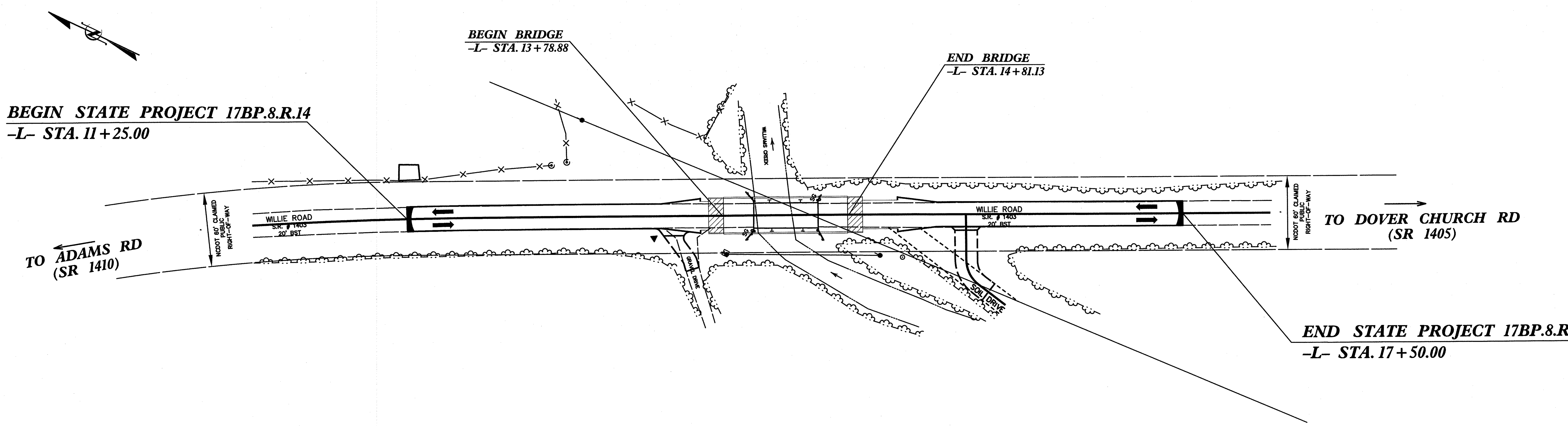
MOORE COUNTY



VICINITY MAP

LOCATION: REPLACEMENT OF BRIDGE NO. 174 ON WILLIE RD. (SR 1403) OVER WILLIAMS CREEK

TYPE OF WORK: GRADING, PAVING, TRAFFIC CONTROL, DRAINAGE, & STRUCTURE



STRUCTURES

DESIGN DATA

ADT 2009 = 130
ADT 2025 = 260
DHV = NA %
D = NA %
T = NA % *
V = 60 MPH
* TTST = NA DUAL
FUNC CLASS = LOCAL

SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.8.R.14	=	0.099 MILE
LENGTH OF STRUCTURE PROJECT 17BP.8.R.14	=	0.019 MILE
TOTAL LENGTH PROJECT 17BP.8.R.14	=	0.118 MILE

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 22, 2013

WSP
Transportation & Infrastructure
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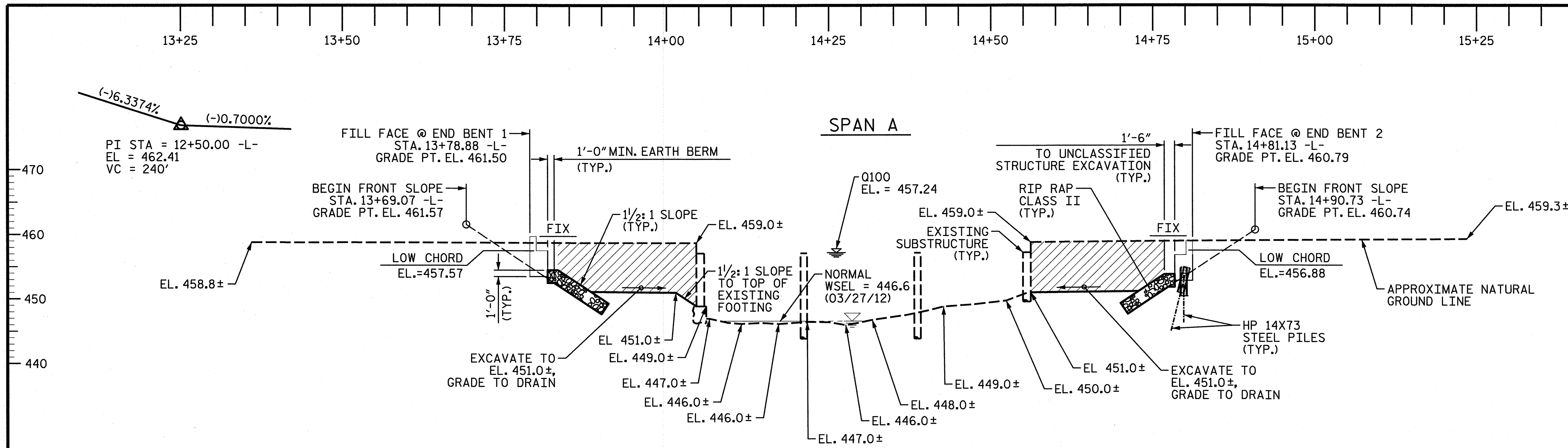
www.wspgroup.com
LICENSE NO. F-0891

J. J. Barcomb, P.E.
Project Engineer

N. A. Pierce, P.E.
Project Design Engineer

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

SECTION ALONG ℄ -L-

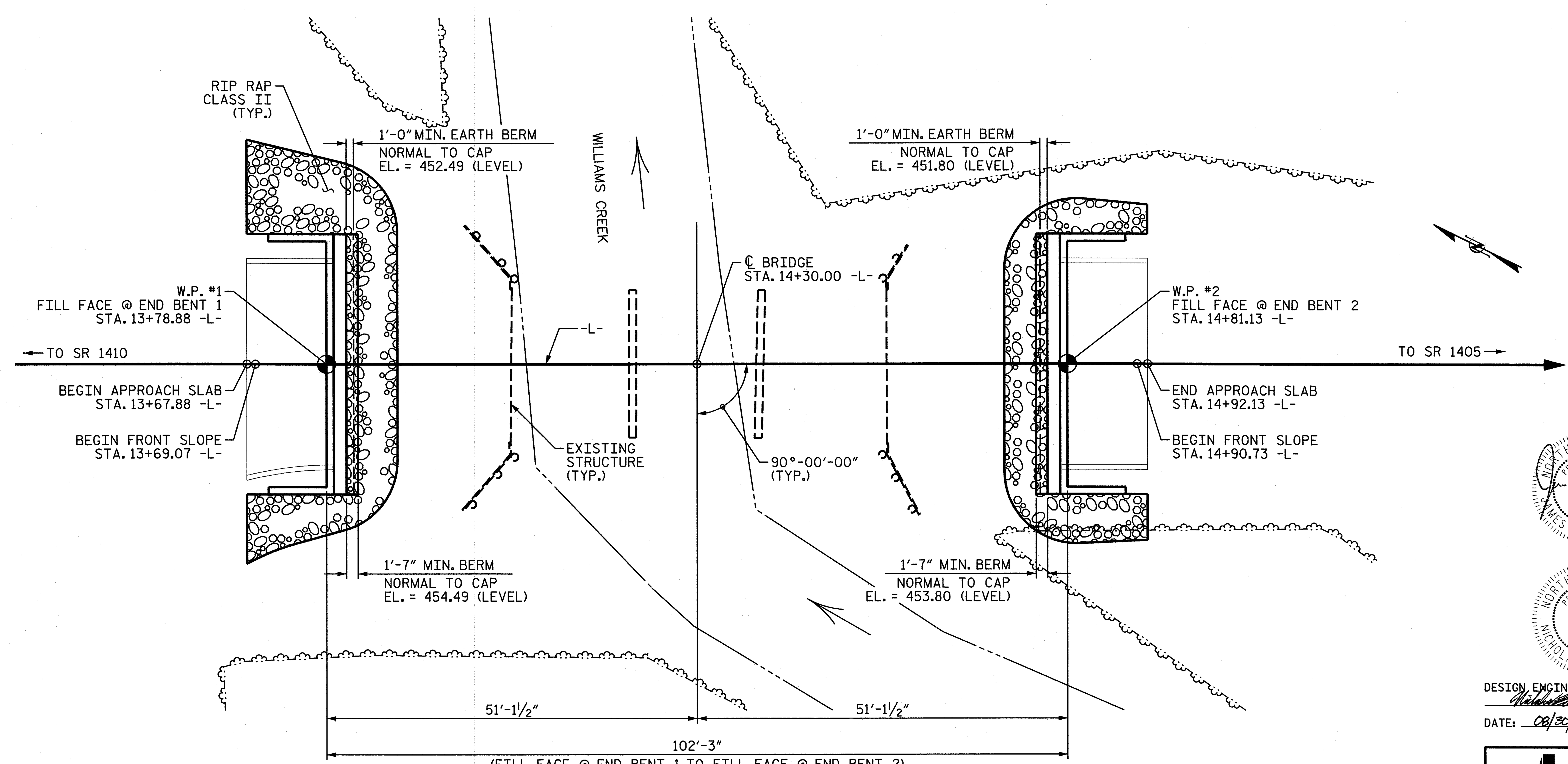
(SECTION TAKEN AT RIGHT ANGLES TO END BENTS)
(APPROXIMATE GROUND LINE ELEVATIONS ARE ALONG THE UPSTREAM EDGE OF THE EXISTING BRIDGE)

HYDRAULIC DATA

DESIGN DISCHARGE	=1900 CFS
FREQUENCY OF DESIGN FLOOD	=25 YEARS
DESIGN HIGH WATER ELEVATION	=455.4
DRAINAGE AREA	=8.3 SQ. MI.
BASE DISCHARGE (Q100)	=2950 CFS
BASE HIGH WATER ELEVATION	=457.24

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=>3700 CFS
FREQUENCY OF OVERTOPPING FLOOD	=>500 YEARS
OVERTOPPING FLOOD ELEVATION	=460.7



PLAN

(FOR CLARITY, PILES ARE NOT SHOWN IN PLAN VIEW)

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

NORTH CAROLINA PROFESSIONAL SEAL 22691 ENGINEER JAMES J. BARCOMB 8-30-13

NORTH CAROLINA PROFESSIONAL SEAL 37479 ENGINEER NICHOLAS A. PIERCE

DESIGN ENGINEER OF RECORD:

DATE: 08/30/13

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE #174

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR
BRIDGE OVER WILLIAMS CREEK
ON SR 1403 BETWEEN
SR 1410 AND SR 1405

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

DRAWN BY :	MJO	DATE :	01/13
CHECKED BY :	NAP	DATE :	01/13

8/29/2013
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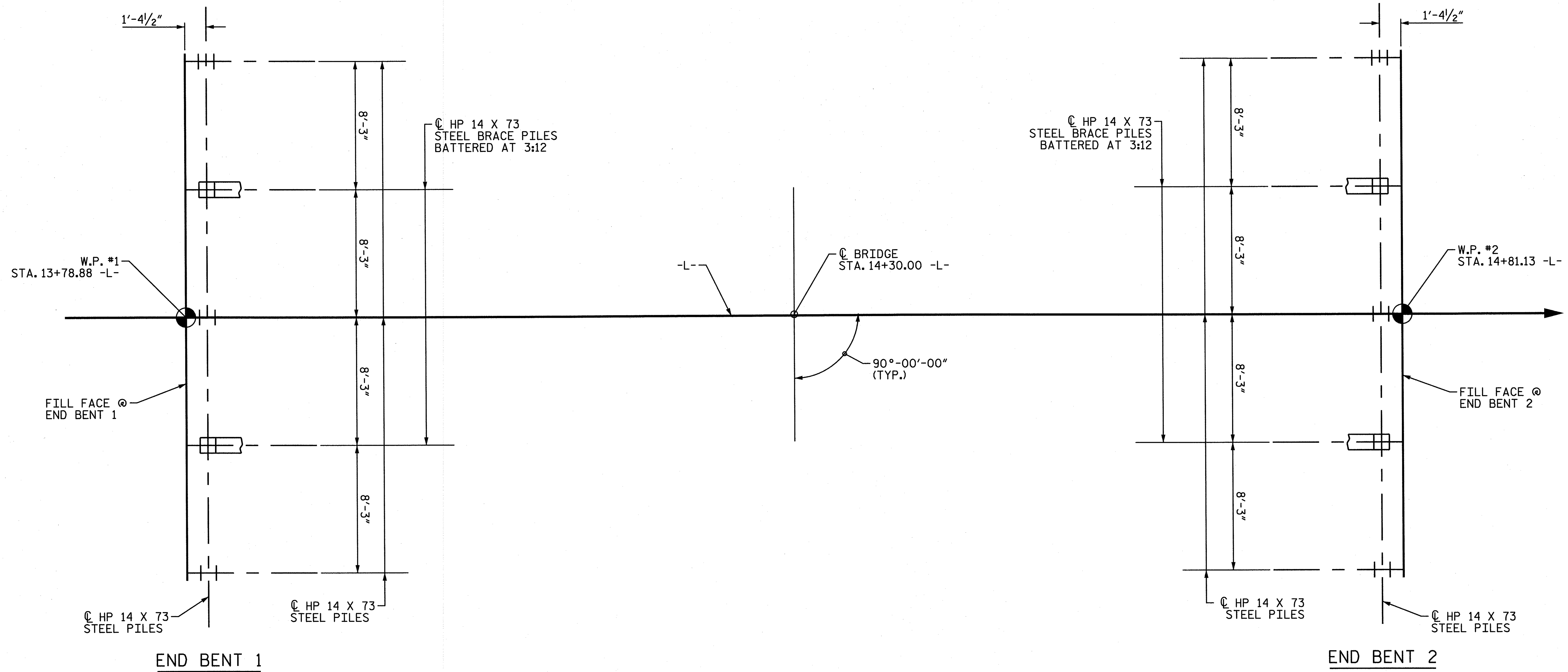
usmh04386



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE AT THE BOTTOM OF THE CAP)

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES ARE DESIGNED FOR A FACTORED RESISTANCE OF 139 TONS PER PILE FOR END BENT 1 AND END BENT 2.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 232 TONS PER PILE.

STEEL PILE POINTS ARE REQUIRED FOR PILES AT END BENT 1 AND END BENT 2.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 55 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT 1 AND END BENT 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 37479 NICHOLAS A. PIERCE

DESIGN ENGINEER OF RECORD:

DATE: 08/30/13

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR
BRIDGE OVER WILLIAMS CREEK
ON SR 1403 BETWEEN
SR 1410 AND SR 1405

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

SHEET NO. S-2

TOTAL SHEETS 16

DRAWN BY : M.J. OSTRISHKO DATE : 4/12
CHECKED BY : N. PIERCE DATE : 5/12

8/29/2013
R:\17BP.8.R.14\Structures\drafting\Gen\17BP.8.R.14_sd_gd2.dgn
usmh04386

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 14+30.00 -L-	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 14 X 73 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	No.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	No.	LIN. FT.
SUPERSTRUCTURE				LUMP SUM					200.00			LUMP SUM	10	1,000.00
END BENT 1		LUMP SUM	27.4		4,390	5	75	5		129	143			
END BENT 2		LUMP SUM	27.4		4,390	5	50	5		116	129			
TOTAL	LUMP SUM	LUMP SUM	54.8	LUMP SUM	8,780	10	125	10	200.00	245	272	LUMP SUM	10	1,000.00

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS 1 @ 17'-11", 1 @ 17'-1", 1 @ 17'-5", WITH A CLEAR ROADWAY WIDTH OF 19'-2"; TIMBER DECK WITH ASPHALT WEARING SURFACE ON TIMBER JOIST WITH TIMBER CAPS AND PILES, CONCRETE ENCASED, TIMBER BULKHEADS AND LOCATED AT PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

RETAIN THE EXISTING CONCRETE ABUTMENT FOOTING AT THE NORTH END OF THE EXISTING BRIDGE.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 42 FT (LEFT) AND 38 FT. (RIGHT) OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

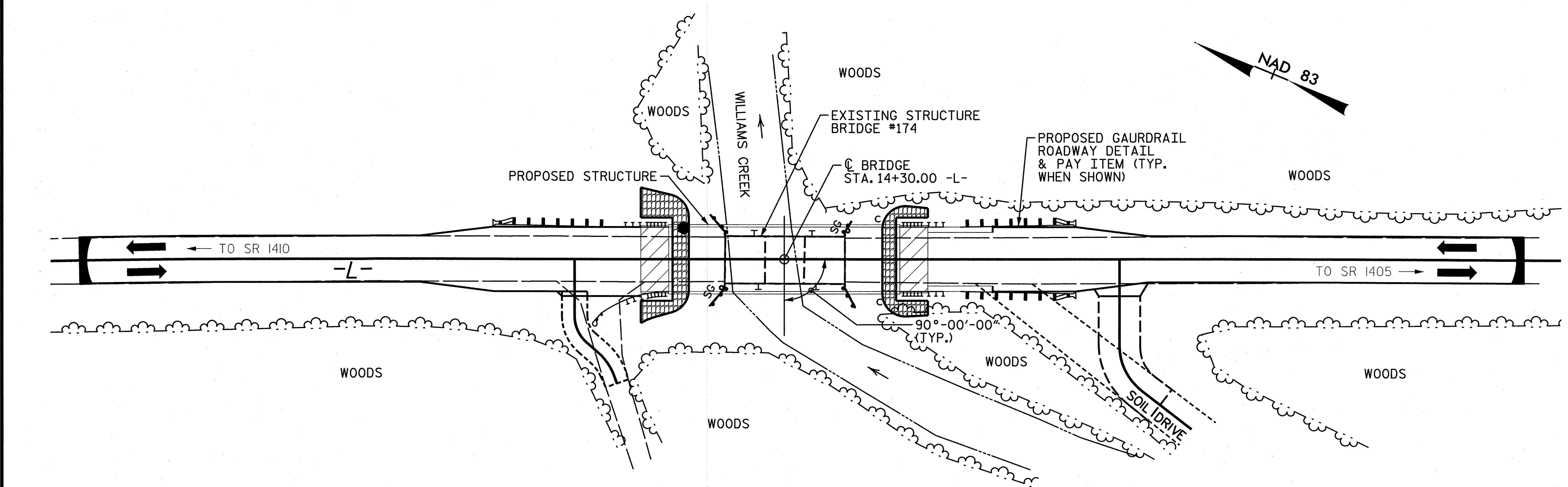
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

BM-3: 1/2" REBAR SET 19.21' RIGHT OF STA. 15+23.73 -L-, EL. 457.90



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

DRAWN BY : M.J. OSTRISHKO DATE : 5/12
CHECKED BY : N. PIERCE DATE : 5/12

8/29/2013
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usmh04386

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 37479 NICHOLAS A. PIERCE

DESIGN ENGINEER OF RECORD:

DATE: 08/30/13

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

PROJECT NO. 17BP.8.R.14
MOORE COUNTY
STATION: 14+30.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR
BRIDGE OVER WILLIAMS CREEK
ON SR 1403 BETWEEN
SR 1410 AND SR 1405

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

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	1.035	--	1.75	0.272	1.26	A	EL	49.25	0.489	1.34	A	EL	4.925	0.80	0.272	**1.04**	A	EL	**49.25**	
		HL-93(Opr)	N/A	--	1.633	--	1.35	0.272	1.63	A	EL	49.25	0.489	1.73	A	EL	4.925	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.44	51.84	1.75	0.272	1.75	A	EL	49.25	0.489	1.81	A	EL	4.925	0.80	0.272	**1.44**	A	EL	**49.25**	
		HS-20(Opr)	36.000	--	2.271	81.756	1.35	0.272	2.27	A	EL	49.25	0.489	2.35	A	EL	4.925	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.413	46.079	1.4	0.272	5.19	A	EL	49.25	0.489	5.59	A	EL	4.925	0.80	0.272	3.41	A	EL	49.25	
		SNGARBS2	20.000	--	2.473	49.452	1.4	0.272	3.76	A	EL	49.25	0.489	3.91	A	EL	4.925	0.80	0.272	2.47	A	EL	49.25	
		SNAGRIS2	22.000	--	2.313	50.885	1.4	0.272	3.52	A	EL	49.25	0.489	3.6	A	EL	4.925	0.80	0.272	2.31	A	EL	49.25	
		SNCOTTS3	27.250	--	1.696	46.228	1.4	0.272	2.58	A	EL	49.25	0.489	2.78	A	EL	4.925	0.80	0.272	1.70	A	EL	49.25	
		SNAGGRS4	34.925	--	1.39	48.556	1.4	0.272	2.11	A	EL	49.25	0.489	2.26	A	EL	4.925	0.80	0.272	1.39	A	EL	49.25	
		SNS5A	35.550	--	1.361	48.398	1.4	0.272	2.07	A	EL	49.25	0.489	2.27	A	EL	4.925	0.80	0.272	1.36	A	EL	49.25	
		SNS6A	39.950	--	1.238	49.456	1.4	0.272	1.88	A	EL	49.25	0.489	2.05	A	EL	4.925	0.80	0.272	1.24	A	EL	49.25	
		SNS7B	42.000	--	1.178	49.496	1.4	0.272	1.79	A	EL	49.25	0.489	2	A	EL	4.925	0.80	0.272	1.18	A	EL	49.25	
	TTST	TNAGRIT3	33.000	--	1.506	49.709	1.4	0.272	2.29	A	EL	49.25	0.489	2.46	A	EL	4.925	0.80	0.272	1.51	A	EL	49.25	
		TNT4A	33.075	--	1.51	49.942	1.4	0.272	2.3	A	EL	49.25	0.489	2.41	A	EL	4.925	0.80	0.272	1.51	A	EL	49.25	
		TNT6A	41.600	--	1.224	50.926	1.4	0.272	1.86	A	EL	49.25	0.489	2.09	A	EL	4.925	0.80	0.272	1.22	A	EL	49.25	
		TNT7A	42.000	--	1.225	51.442	1.4	0.272	1.86	A	EL	49.25	0.489	2.05	A	EL	4.925	0.80	0.272	1.22	A	EL	49.25	
		TNT7B	42.000	--	1.254	52.657	1.4	0.272	1.91	A	EL	49.25	0.489	1.96	A	EL	4.925	0.80	0.272	1.25	A	EL	49.25	
		TNAGRIT4	43.000	--	1.203	51.711	1.4	0.272	1.83	A	EL	49.25	0.489	1.91	A	EL	4.925	0.80	0.272	1.20	A	EL	49.25	
		TNAGT5A	45.000	--	1.139	51.236	1.4	0.272	1.73	A	EL	49.25	0.489	1.87	A	EL	4.925	0.80	0.272	1.14	A	EL	49.25	
		TNAGT5B	45.000	3	1.129	50.805	1.4	0.272	1.72	A	EL	49.25	0.489	1.82	A	EL	4.925	0.80	0.272	**1.13**	A	EL	**49.25**	

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)

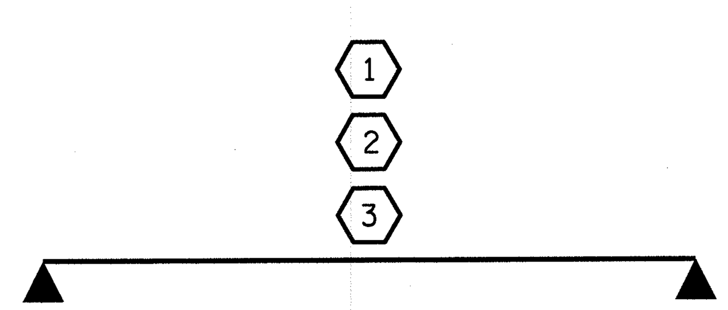
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. 17BP.8.R.14
MOORE COUNTY
STATION: 14+30.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 100' BOX BEAM UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

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

ASSEMBLED BY : M.J. OSTRISHKO DATE : 08/17/12
CHECKED BY : N.A. PIERCE DATE : 08/30/12
DRAWN BY : TMG 11/11
CHECKED BY : AAC 11/11

8/29/2013
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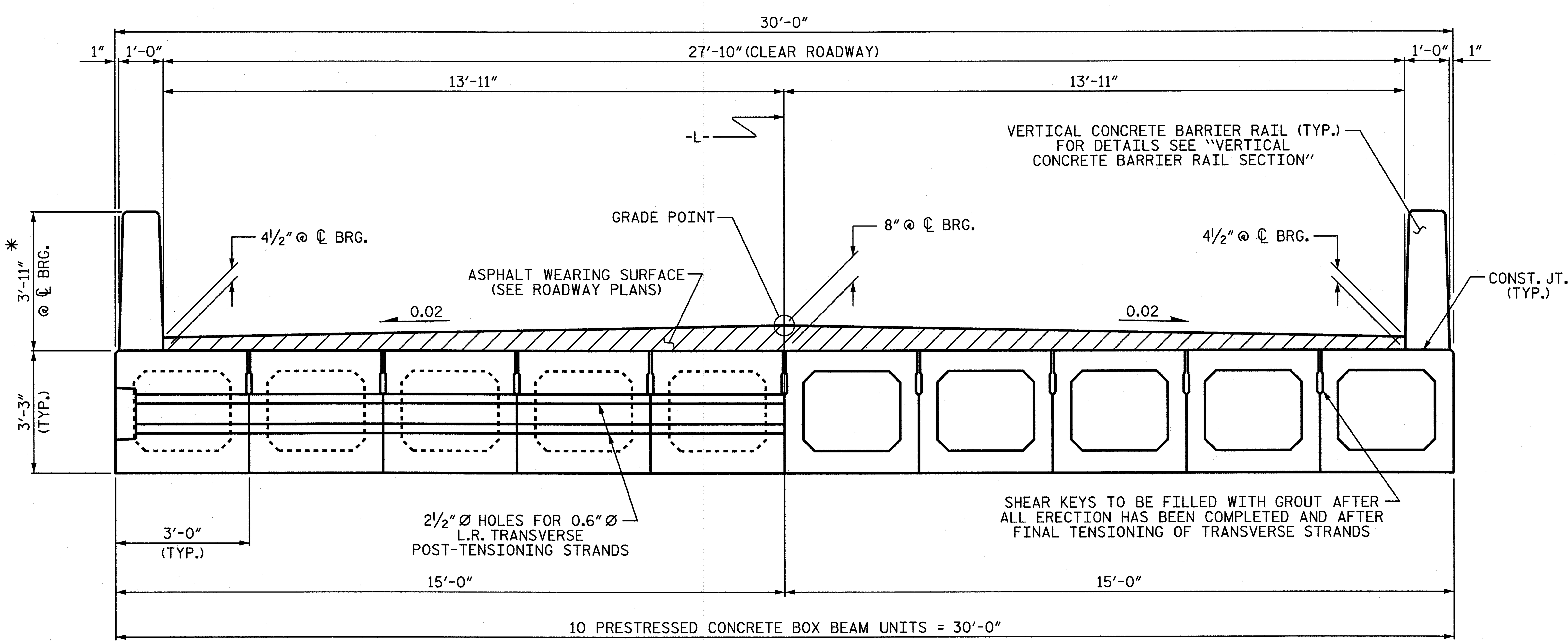


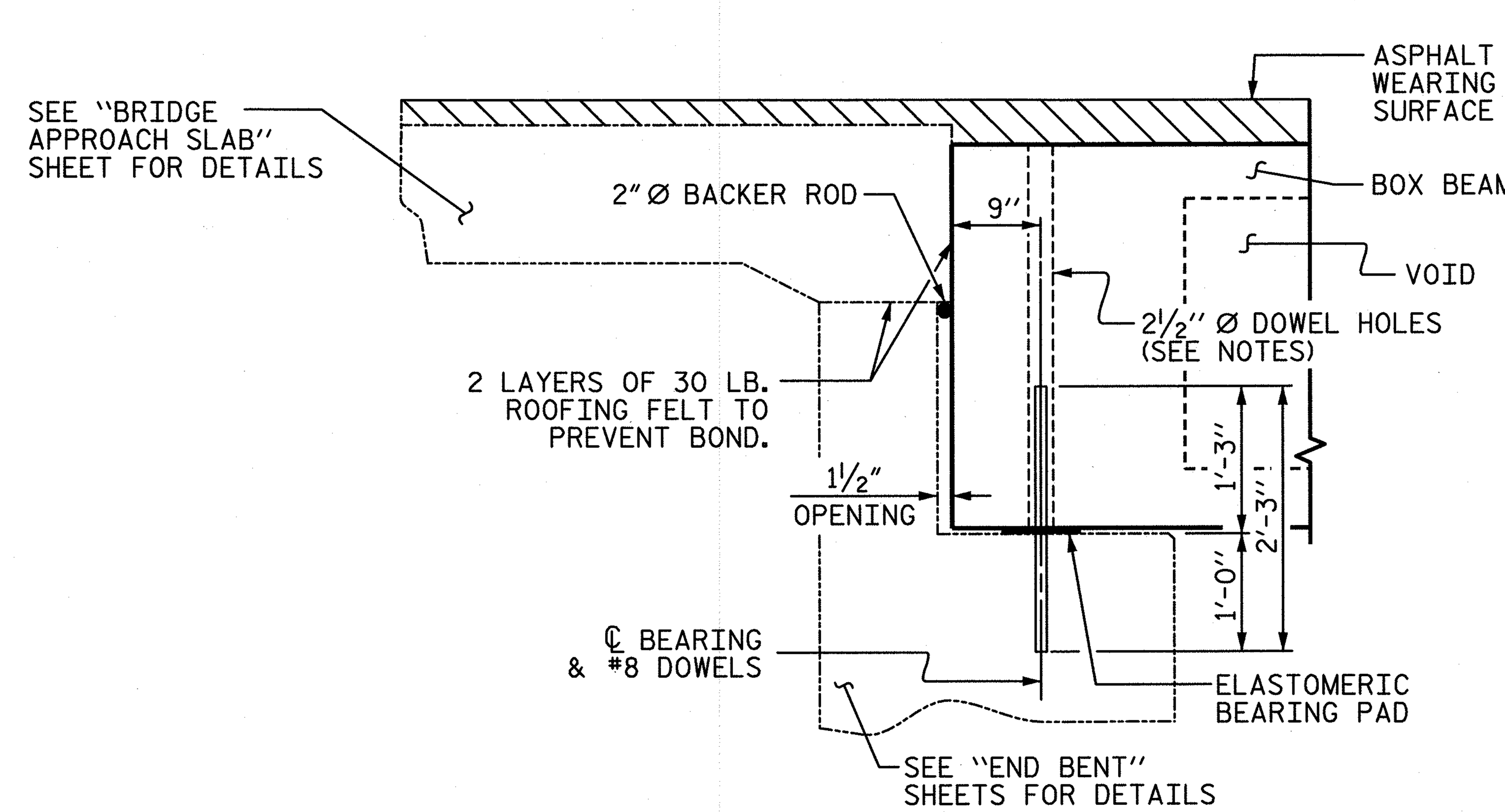
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

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

FIXED END



SECTION AT END BENT

NOTES

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

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

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

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

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5500 PSI.

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

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

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.8.R.14
MOORE COUNTY
STATION: 14+30.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER NICHOLAS A. PIERCE

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15401 Weston Parkway Suite 100
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			16

STD. NO. 39PCBB1_30

ASSEMBLED BY : M.J. OSTRISHKO	DATE : 08/17/12
CHECKED BY : N.A. PIERCE	DATE : 08/30/12
DRAWN BY : DGE 8/11	
CHECKED BY : TMG 11/11	

8/29/2013
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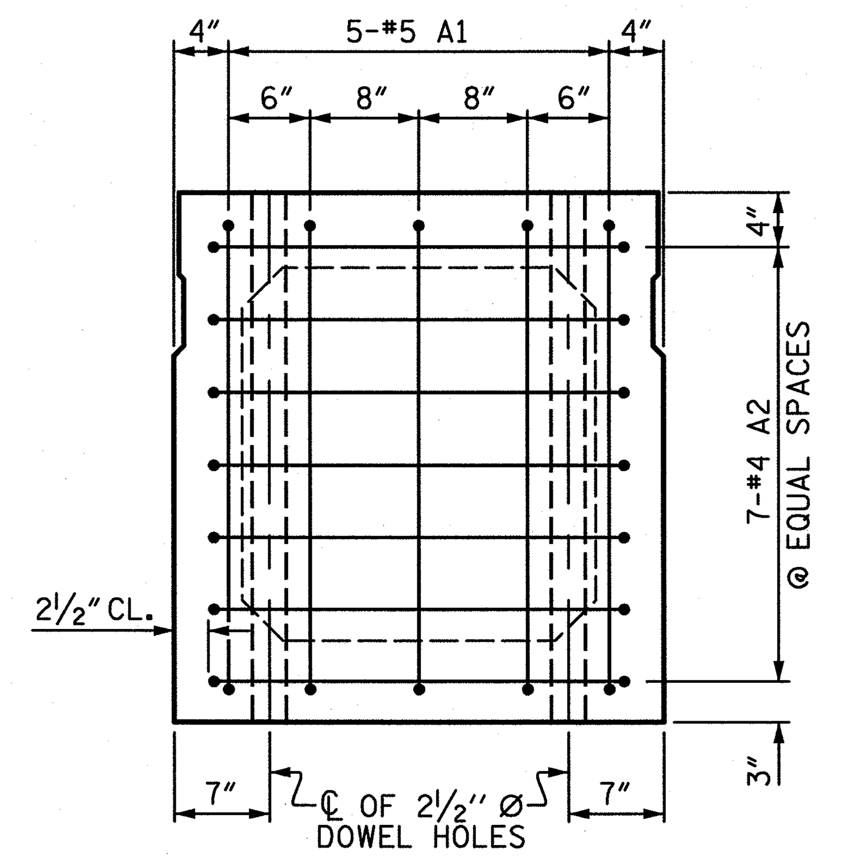
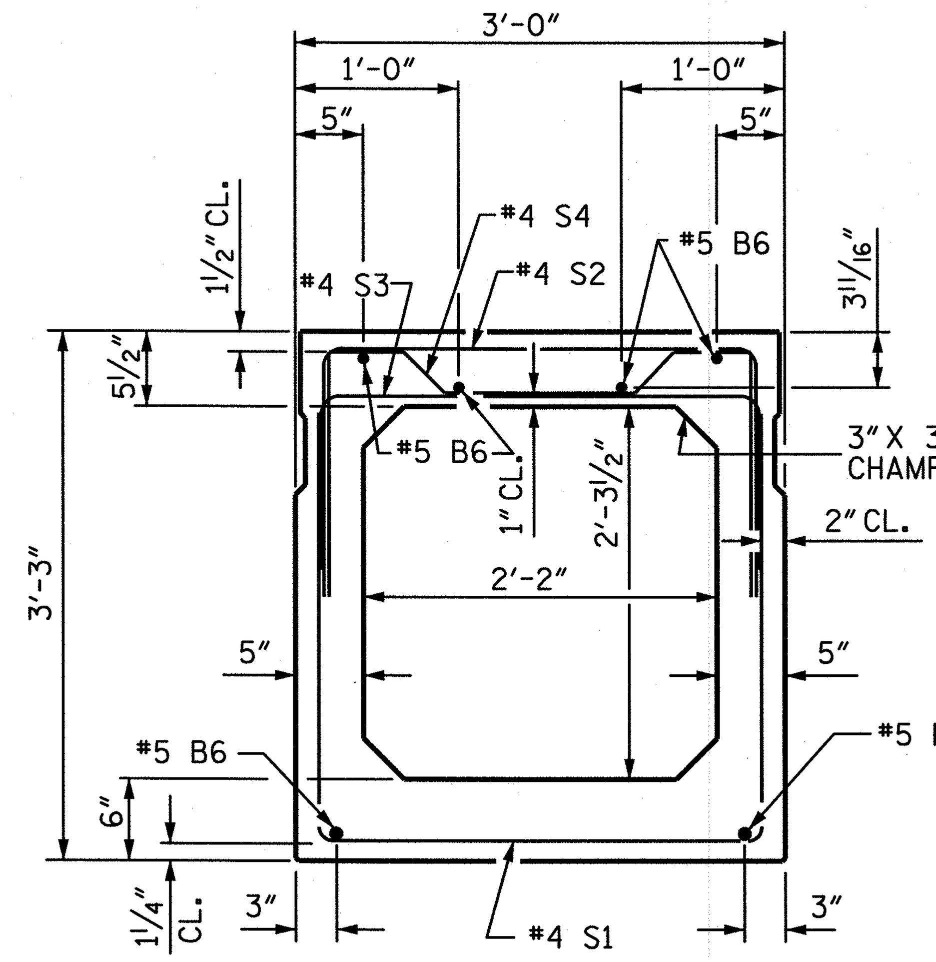


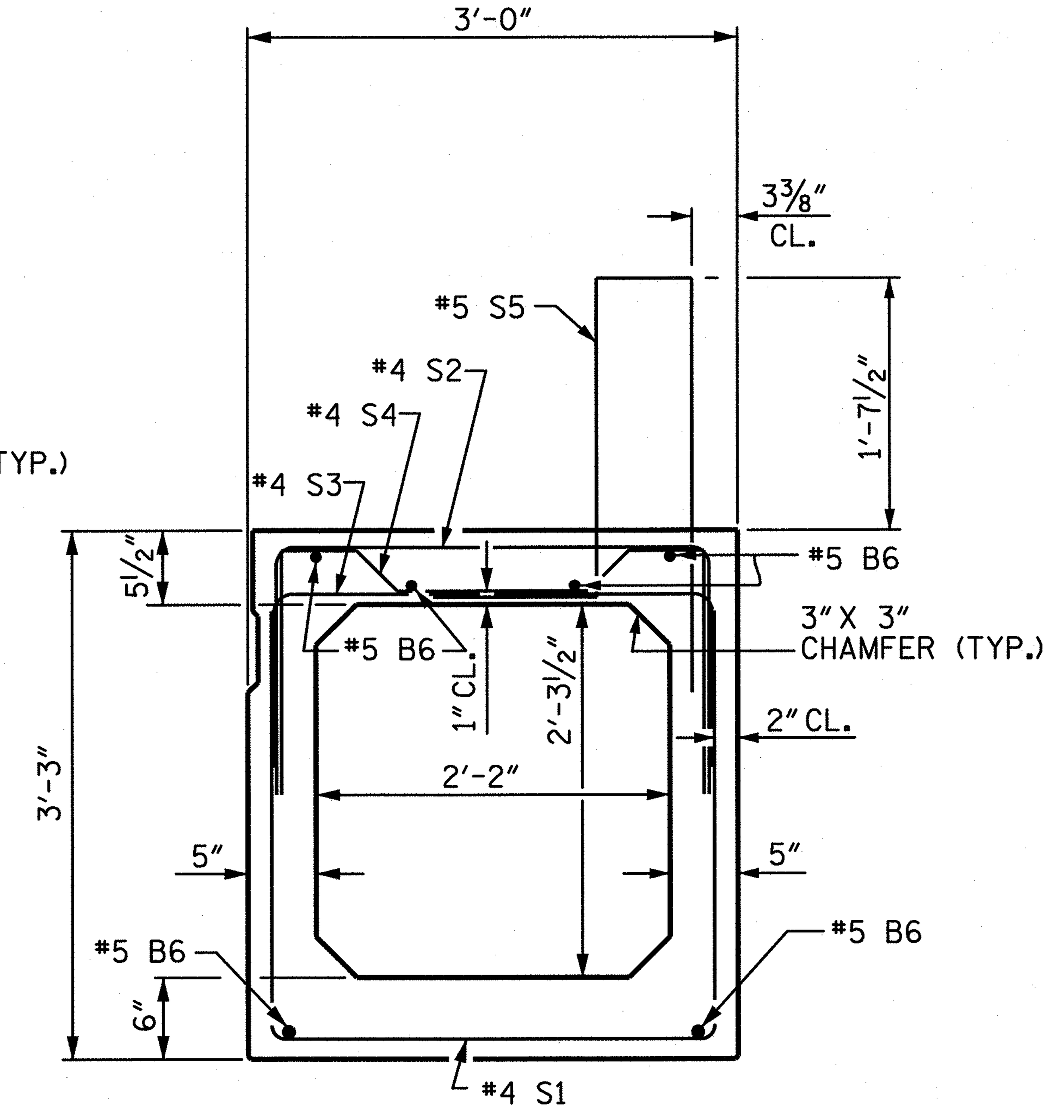
END ELEVATION

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



INTERIOR BOX BEAM SECTION

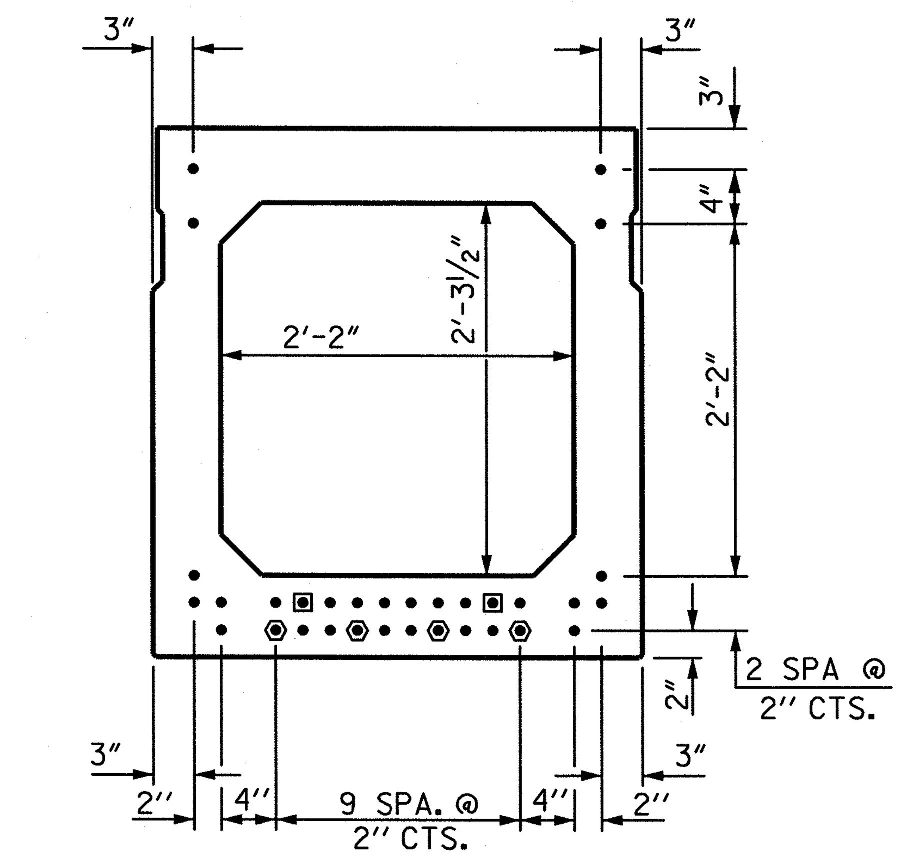
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6″ Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

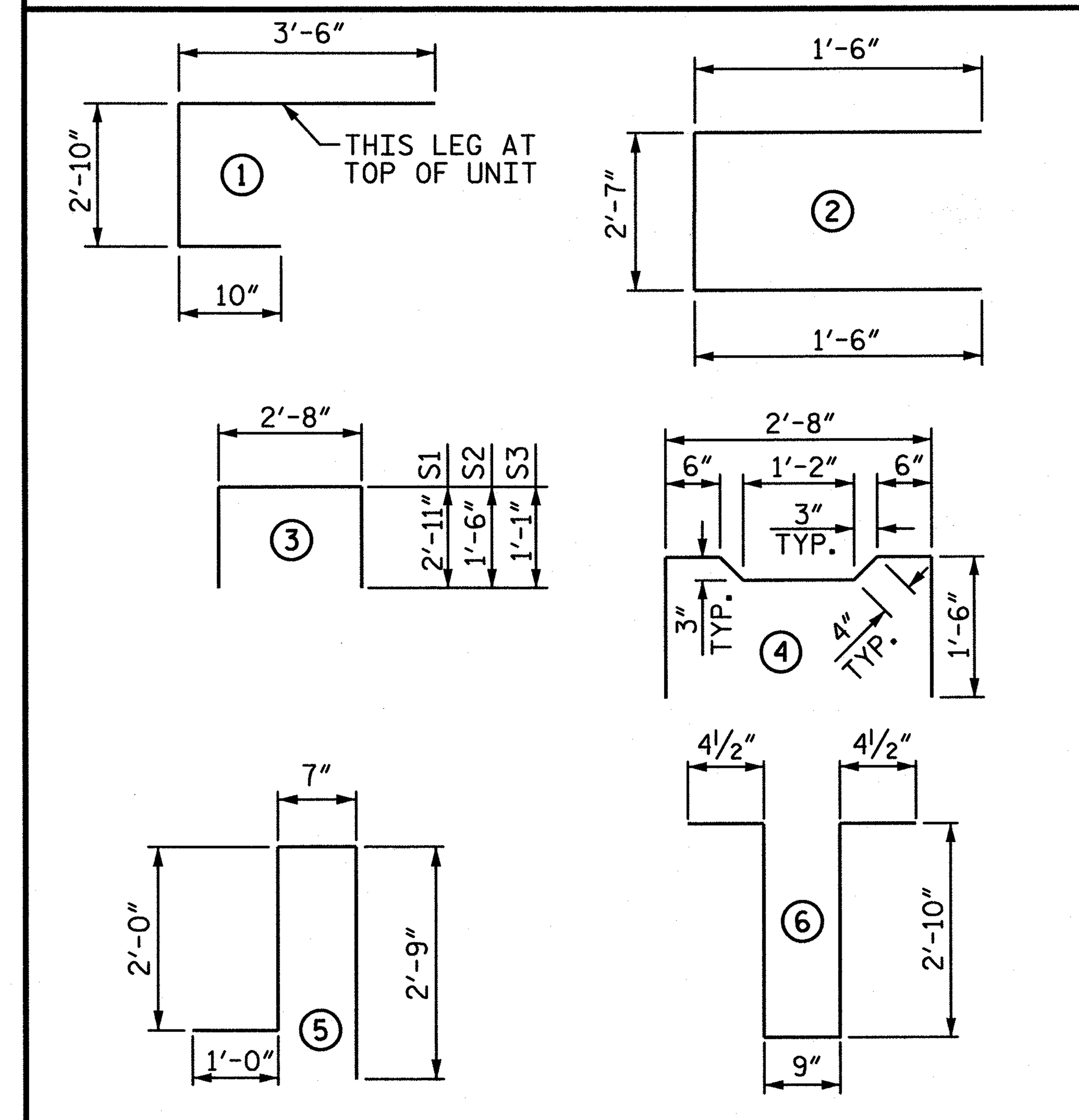
(32 STRANDS REQUIRED)

DEBONDING LEGEND

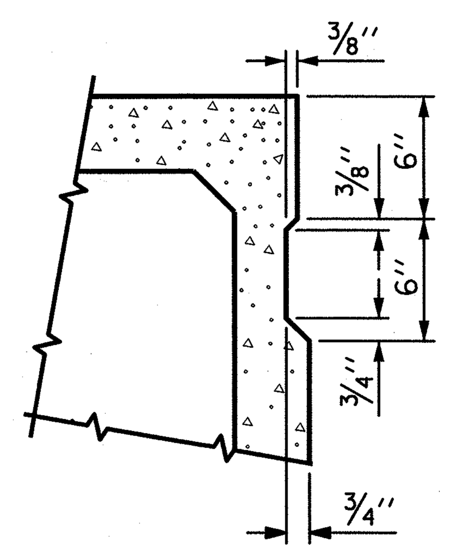
- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 4′-0″ FROM END OF GIRDER
- STRANDS DEBONDED FOR 12′-0″ FROM END OF GIRDER

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



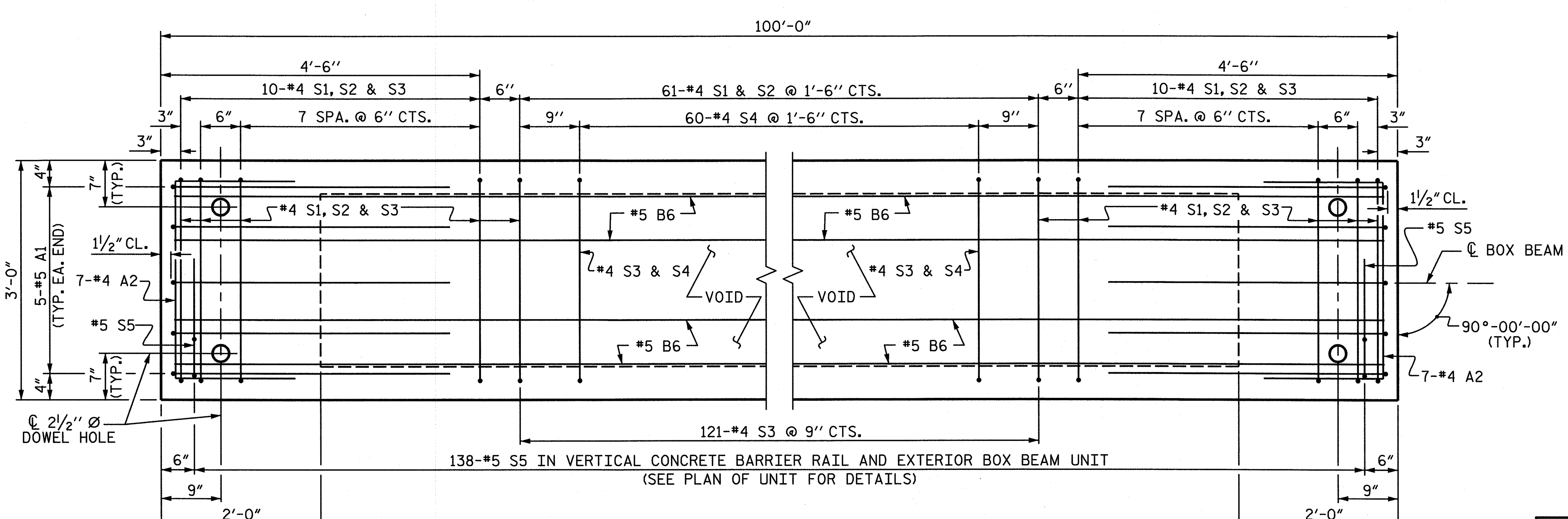
SHEAR KEY DETAIL

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

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

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	7′-2″	75	7′-2″	75
A2	44	#4	2	5′-7″	164	5′-7″	164
B6	12	#5	STR	50′-11″	637	50′-11″	637
K1	15	#4	6	7′-2″	72	7′-2″	72
K2	10	#4	STR	2′-7″	17	2′-7″	17
S1	81	#4	3	8′-6″	460	8′-6″	460
S2	81	#4	3	5′-8″	307	5′-8″	307
S3	141	#4	3	4′-10″	455	4′-10″	455
S4	60	#4	4	5′-10″	234	5′-10″	234
✱ S5	138	#5	5	6′-4″	912	--	--
REINFORCING STEEL				2421	LBS.	2421	LBS.
✱ EPOXY COATED REINF. STEEL				912	LBS.		
7500 P.S.I. CONCRETE				19.6	CU. YDS.	19.4	CU. YDS.
0.6″ Ø L.R. STRANDS				No. 32		No. 32	



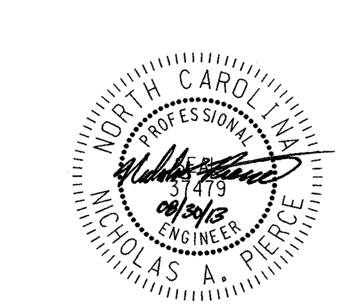
PLAN OF BOX BEAM

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

PROJECT NO. 17BP.8.R.14
MOORE COUNTY
STATION: 14+30.00 -L-
SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

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



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ASSEMBLED BY : M.J. OSTRISHKO DATE : 08/17/12
CHECKED BY : N.A. PIERCE DATE : 08/30/12
DRAWN BY : DGE 11/11
CHECKED BY : TMG 11/11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			16

STD. NO. 39PCBB6_90S_100L

8/29/2013
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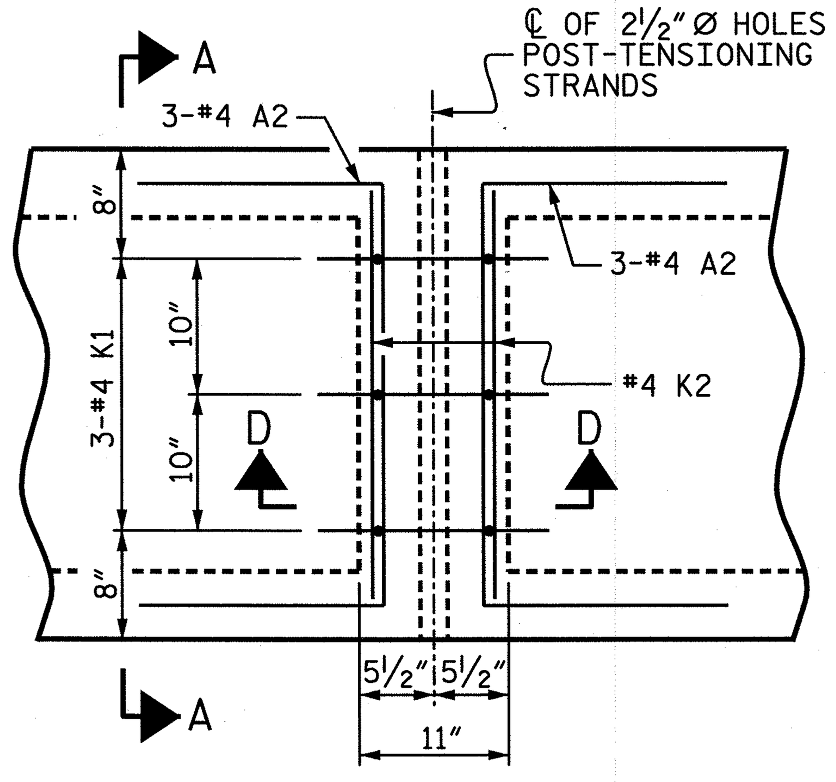
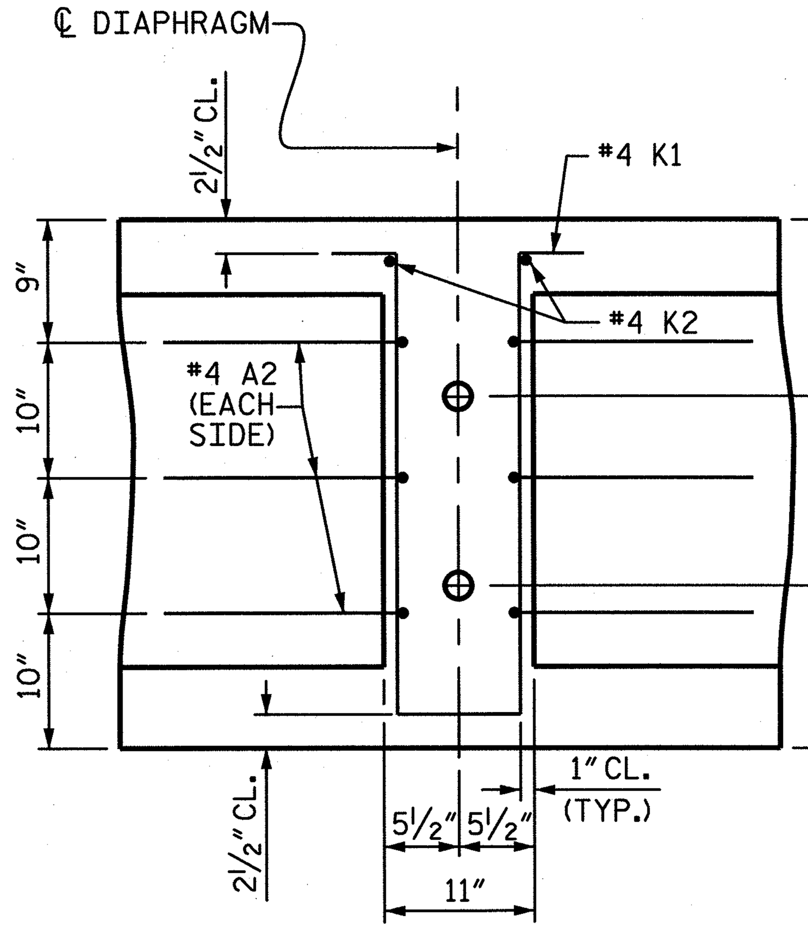
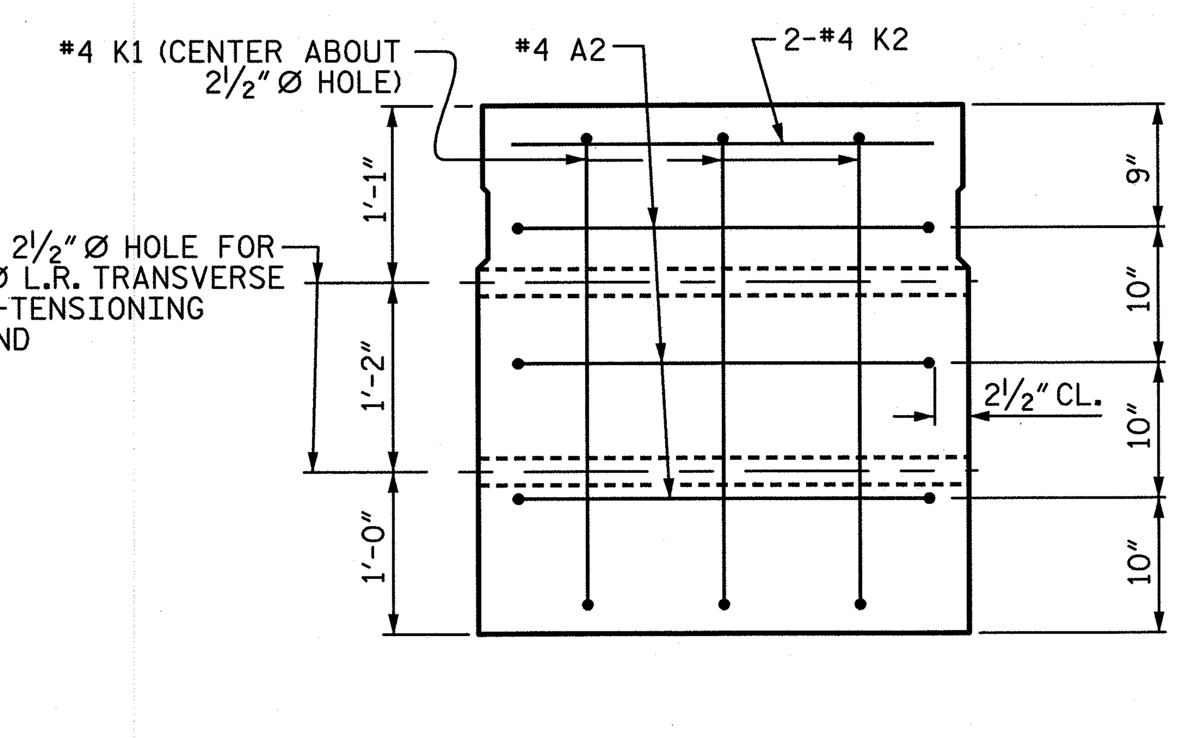


PLAN



SECTION D-D

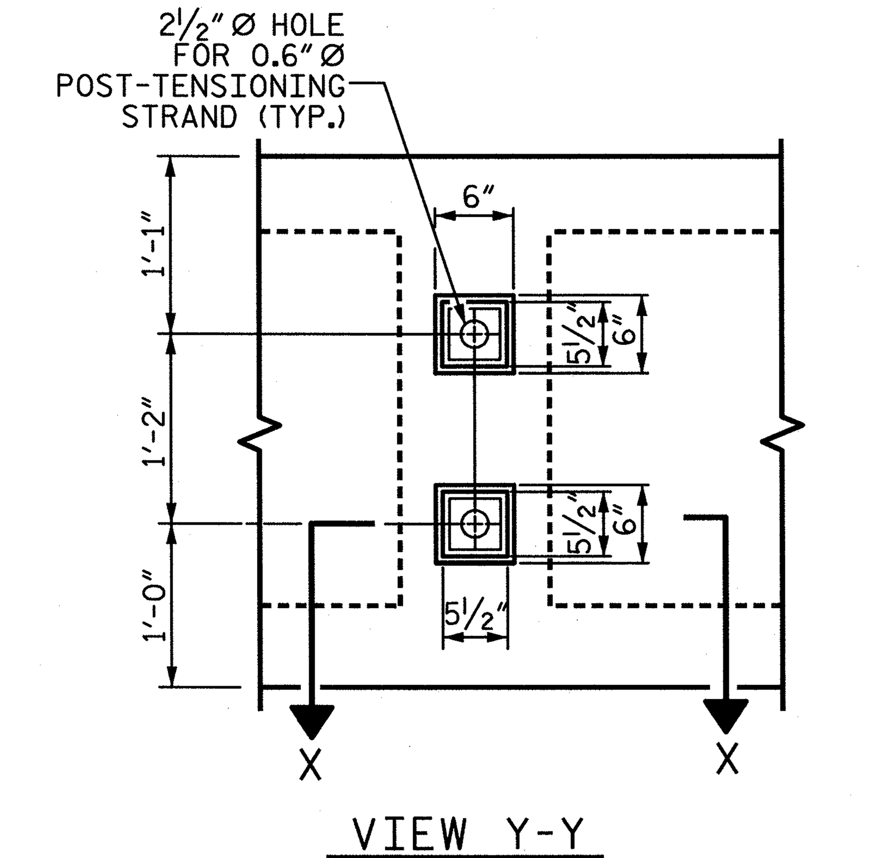


SECTION A-A

VOIDS NOT SHOWN

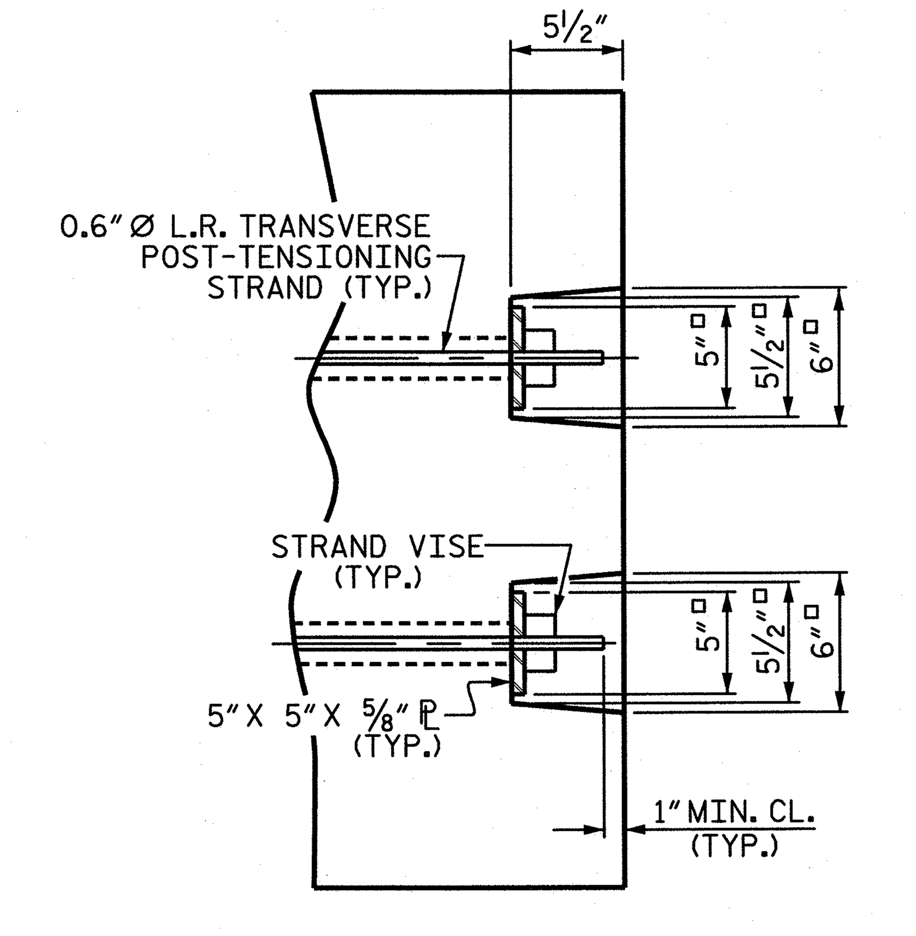
DOUBLE DIAPHRAGM DETAILS

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

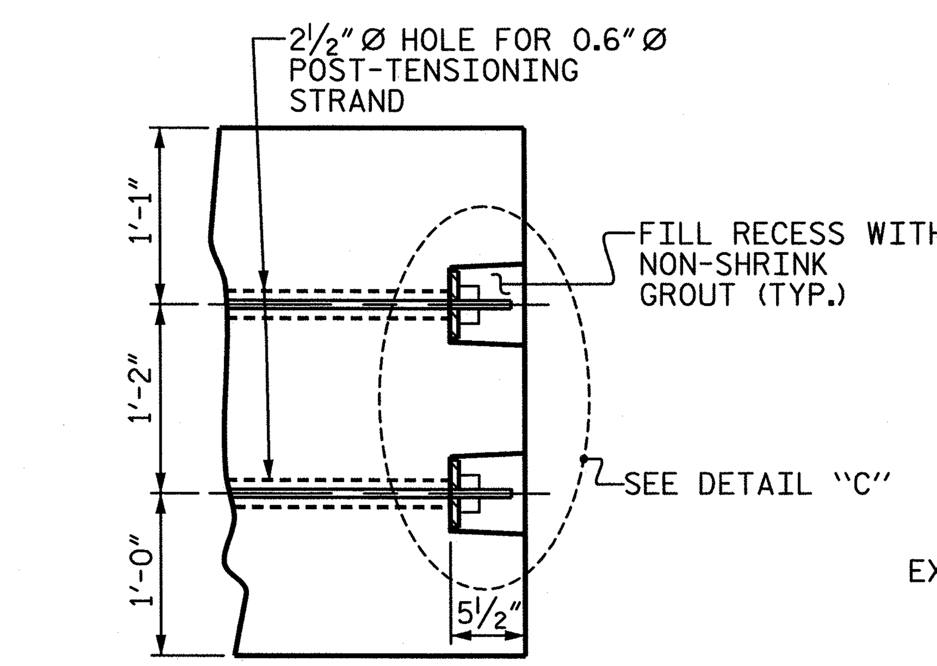


VIEW Y-Y

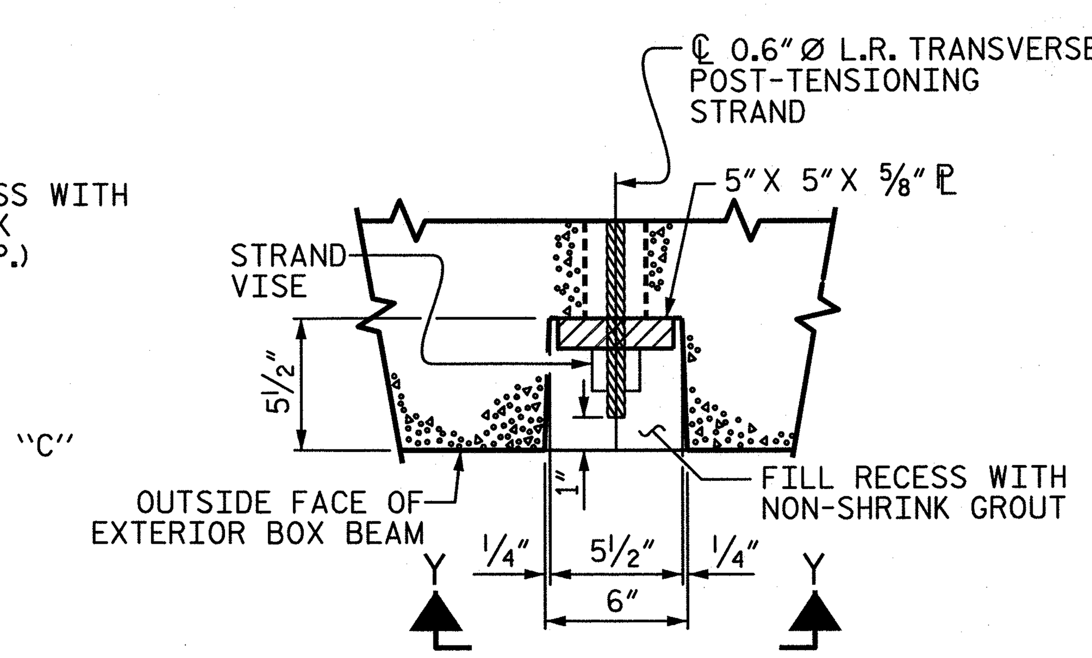
SHOWING ELEVATION VIEW OF GROUTED RECESS



DETAIL "C"



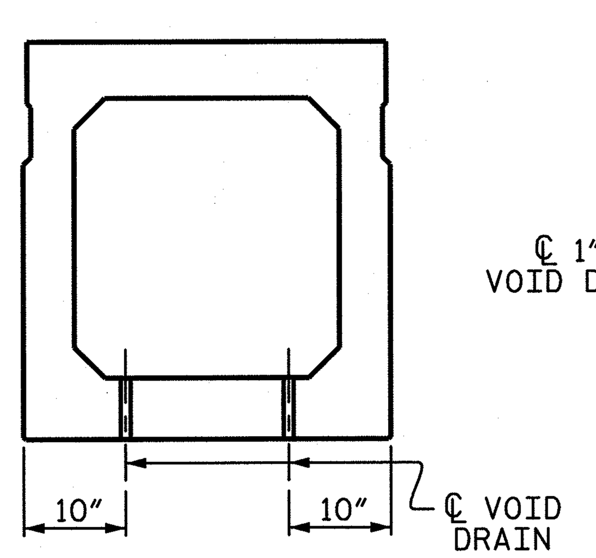
PART SECTION AT RECESS



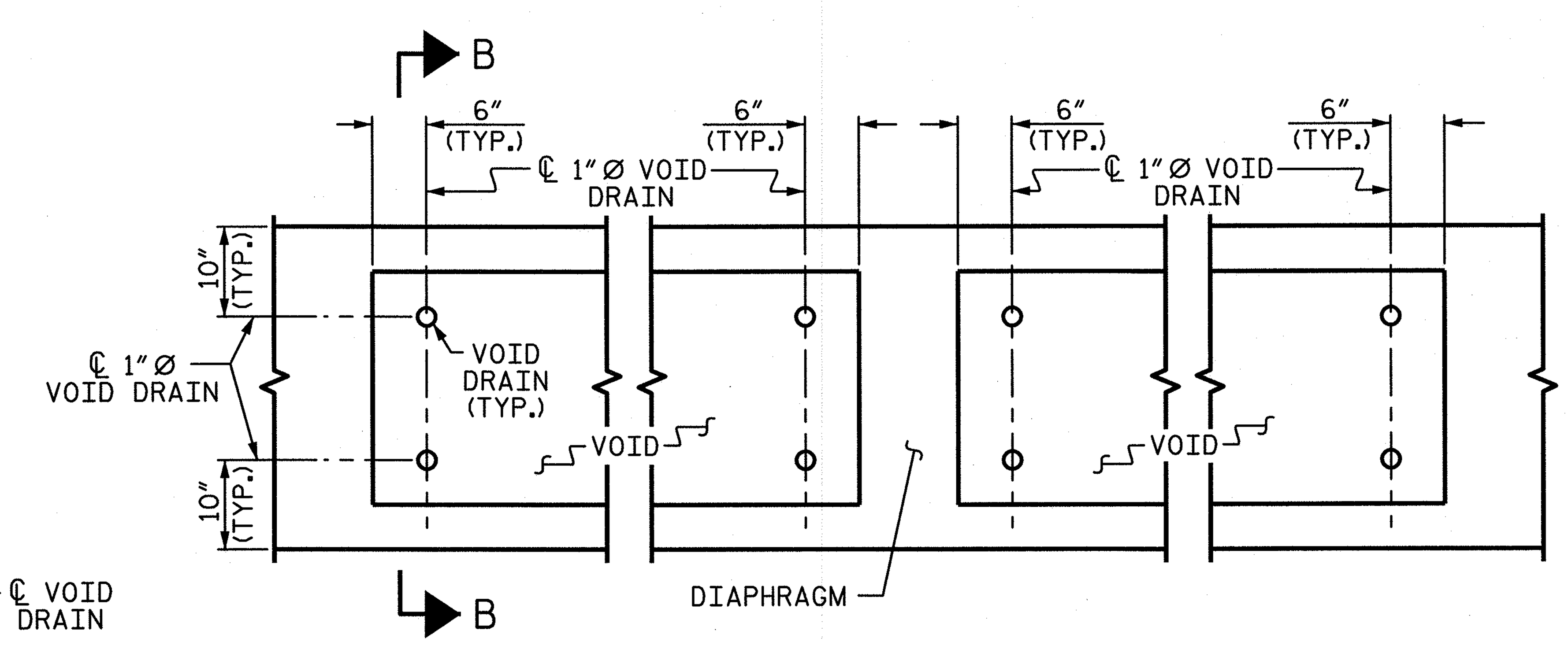
SECTION X-X

SHOWING PLAN VIEW OF GROUTED RECESS

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



SECTION B-B



PART PLAN

VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
	3′-0″ x 3′-3″
100′ BOX BEAM UNIT (NC & SE)	0.6″ Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3½″ ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1″ ↓
FINAL CAMBER	2½″ ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

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REVISIONS							SHEET NO.
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1			3				TOTAL SHEETS
2			4				16

ASSEMBLED BY : M.J. OSTRISHKO DATE : 08/17/12
CHECKED BY : N.A. PIERCE DATE : 08/30/12

DRAWN BY : DGE 5/05
CHECKED BY : GMG 6/05

ADDED 7/11/05
REV. 5/1/06 TLA/GM
REV. 10/1/11 MAA/GM

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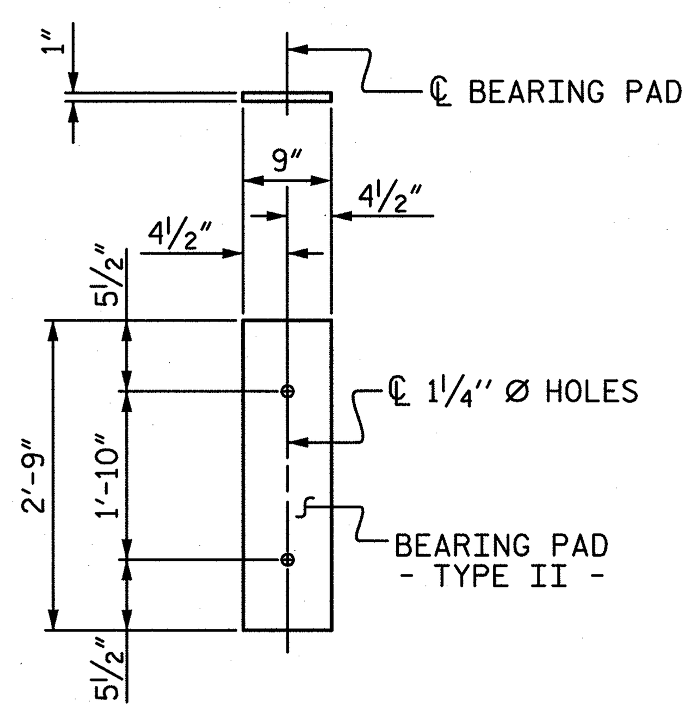
usmh04386

STD.NO.39PCBB7_90S

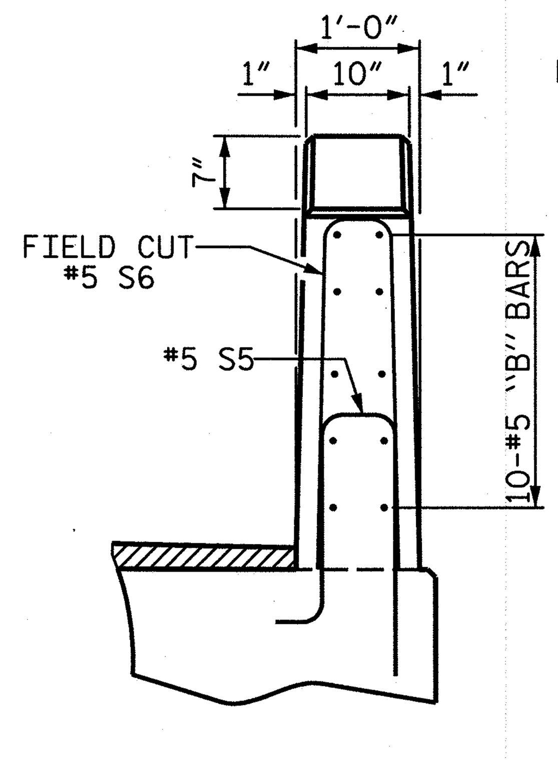


FIXED END

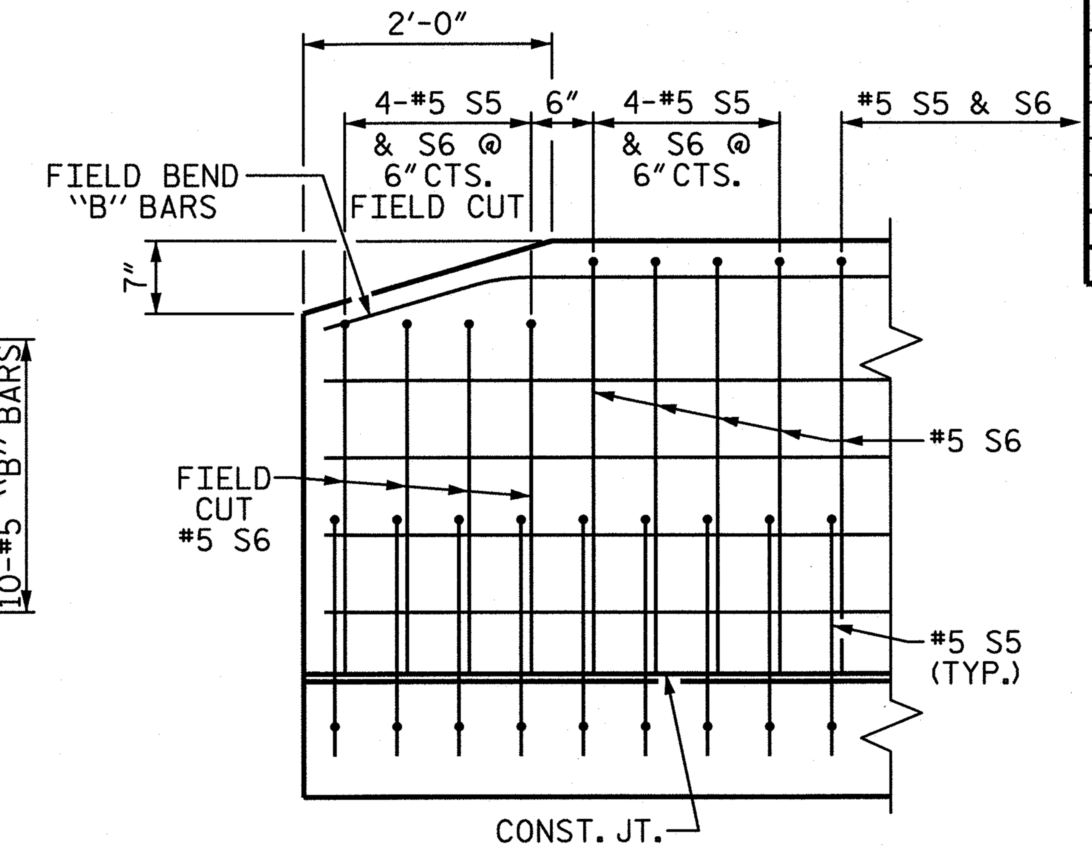
(TYPE II - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



END VIEW

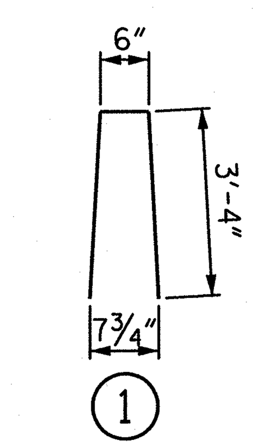


SIDE VIEW

END OF RAIL DETAILS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 100' UNIT	SIZE	TYPE	LENGTH	WEIGHT
*B12	96	#5	STR	24'-7"	2461
* S6	276	#5	1	7'-2"	2063
* EPOXY COATED REINFORCING STEEL		LBS.			4524
CLASS AA CONCRETE		CU.YDS.			26.9
TOTAL VERTICAL CONCRETE BARRIER RAIL		LN. FT.			200.0



BAR TYPE

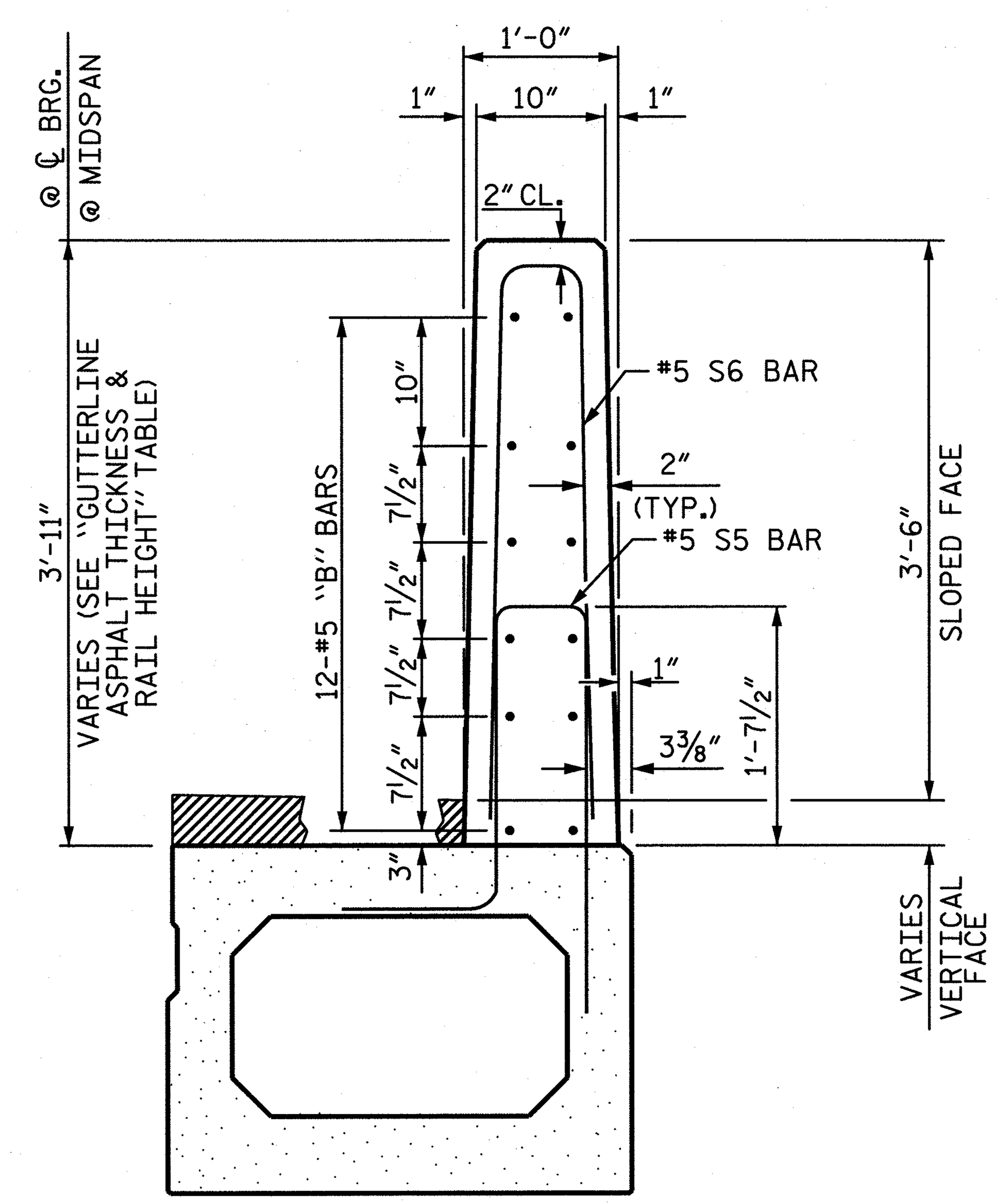
BAR DIMENSIONS ARE OUT TO OUT

BOX BEAM UNITS REQUIRED

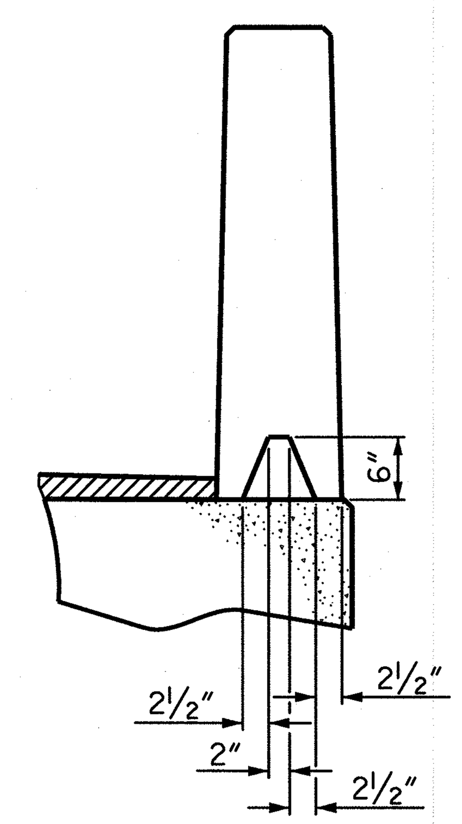
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	100'-0"	200'-0"
INTERIOR B.B.	8	100'-0"	800'-0"
TOTAL	10	———	1000'-0"

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
100' UNITS	2"	3'-8½"

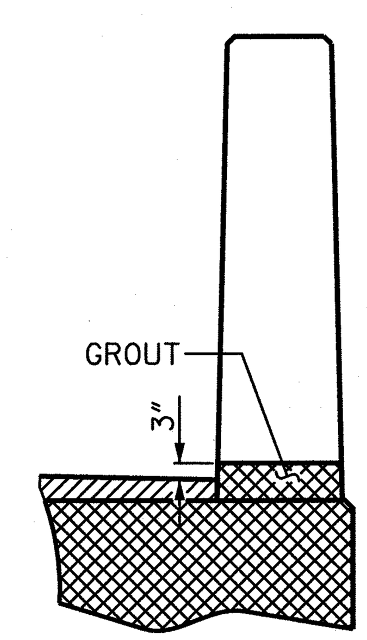


SECTION THRU RAIL



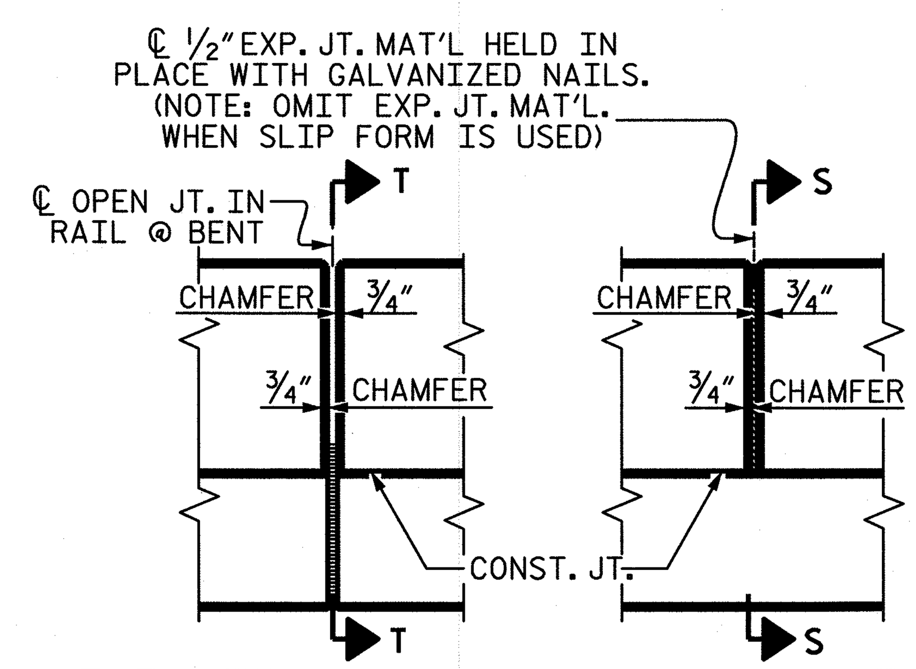
SECTION S-S

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



SECTION T-T

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



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

NORTH CAROLINA PROFESSIONAL ENGINEER 31479 NICHOLAS A. PIERCE

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1			3			TOTAL SHEETS
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CHECKED BY : N PIERCE DATE : 01/13

DRAWN BY : DGE 10/11
CHECKED BY : TMG 11/11

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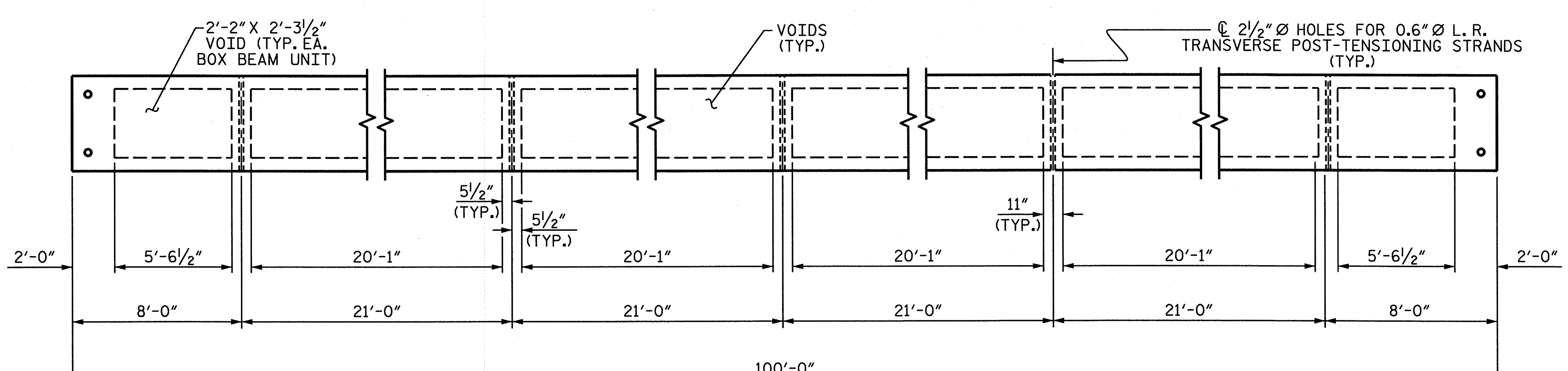
STD. NO. 39PCBB8_90S

PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 100' UNIT 27'-10" CLEAR ROADWAY 90° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER 37429 NICHOLAS A. PIERCE 09/03/13

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1			3				TOTAL SHEETS 16
2			4				

ASSEMBLED BY : M.J. OSTRISHKO DATE : 08/17/12
CHECKED BY : N.A. PIERCE DATE : 08/30/12

DRAWN BY : DGE 8/10
CHECKED BY : TMG 11/11

8/29/2013
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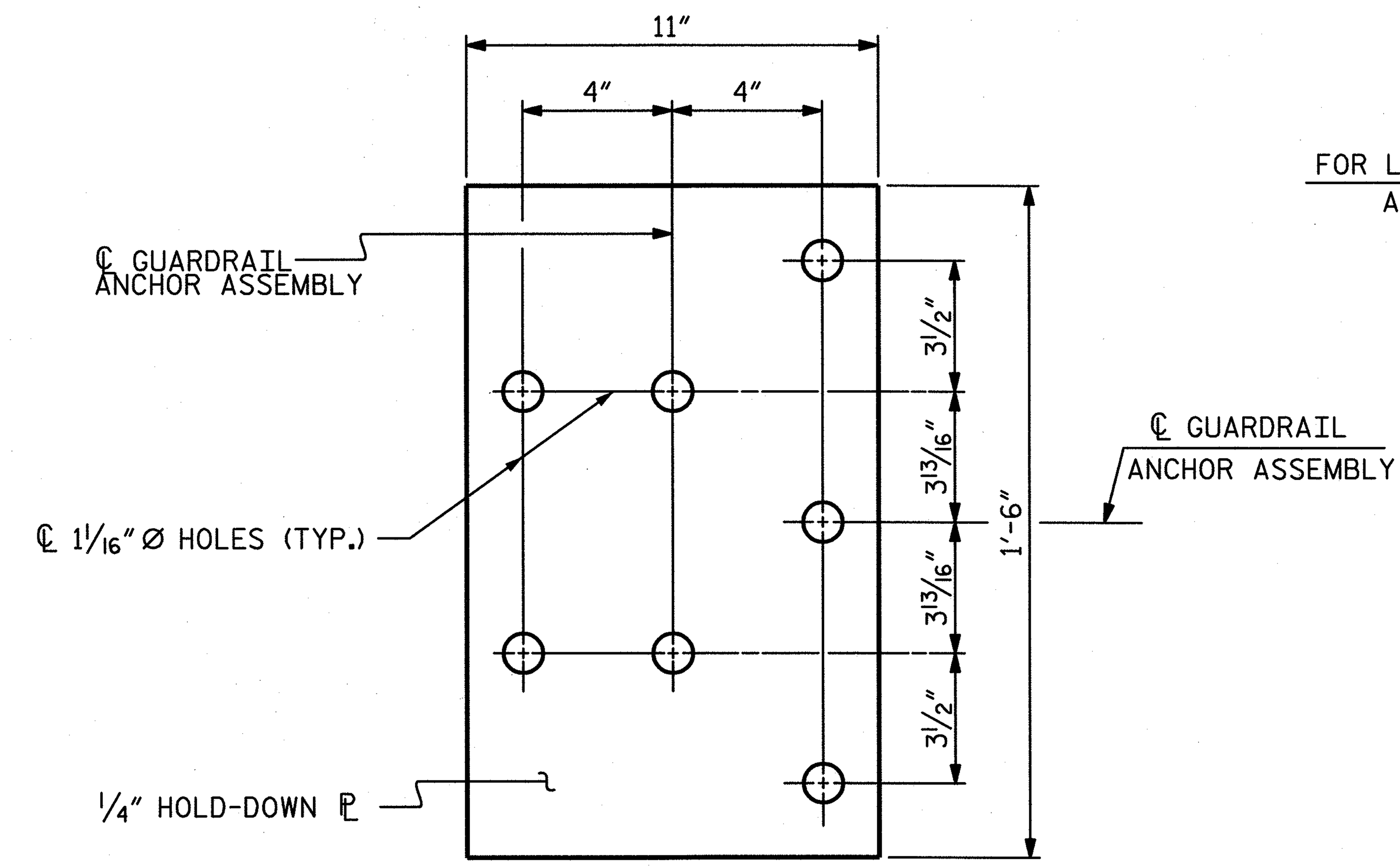
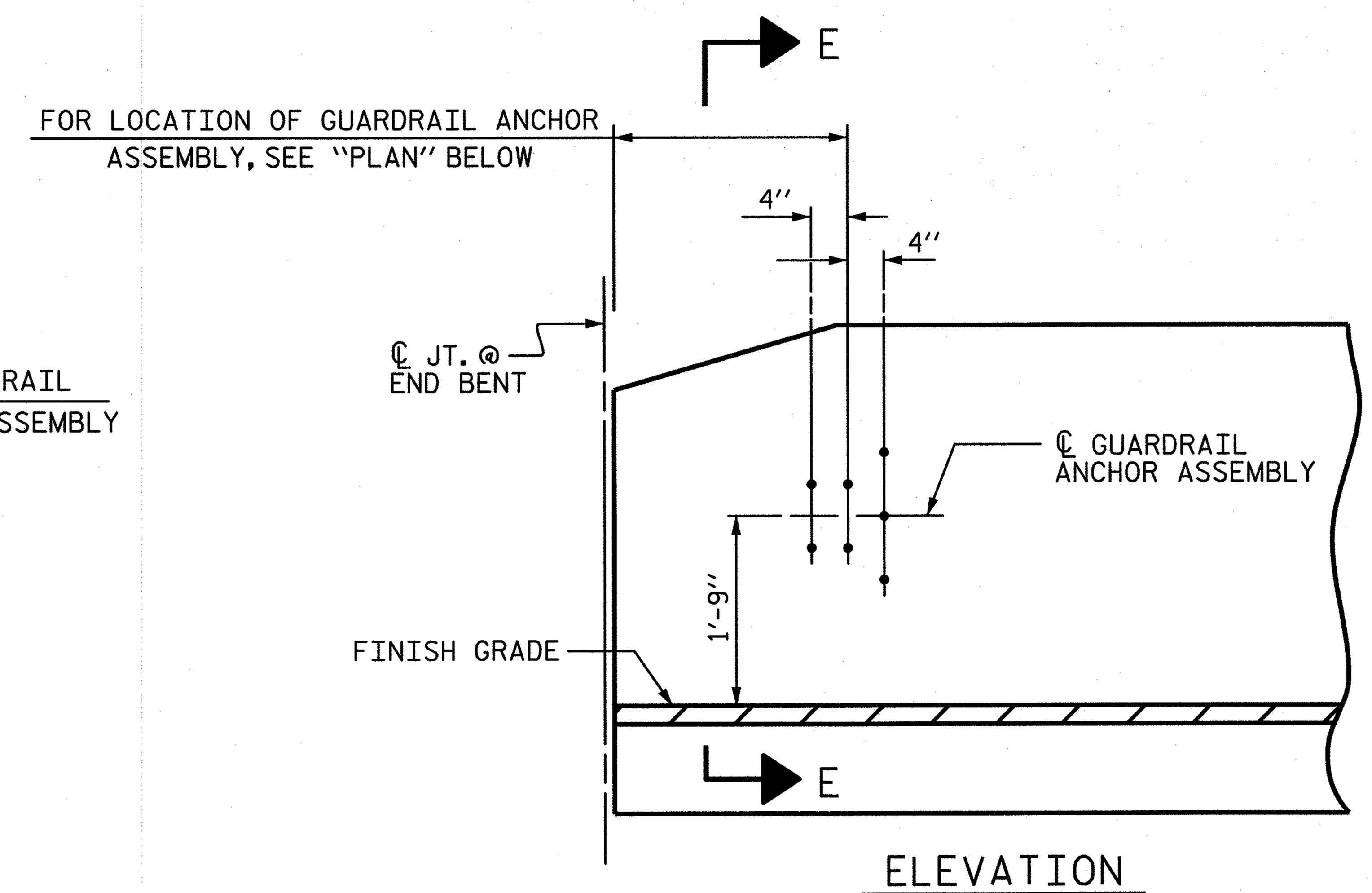


PLAN



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.)

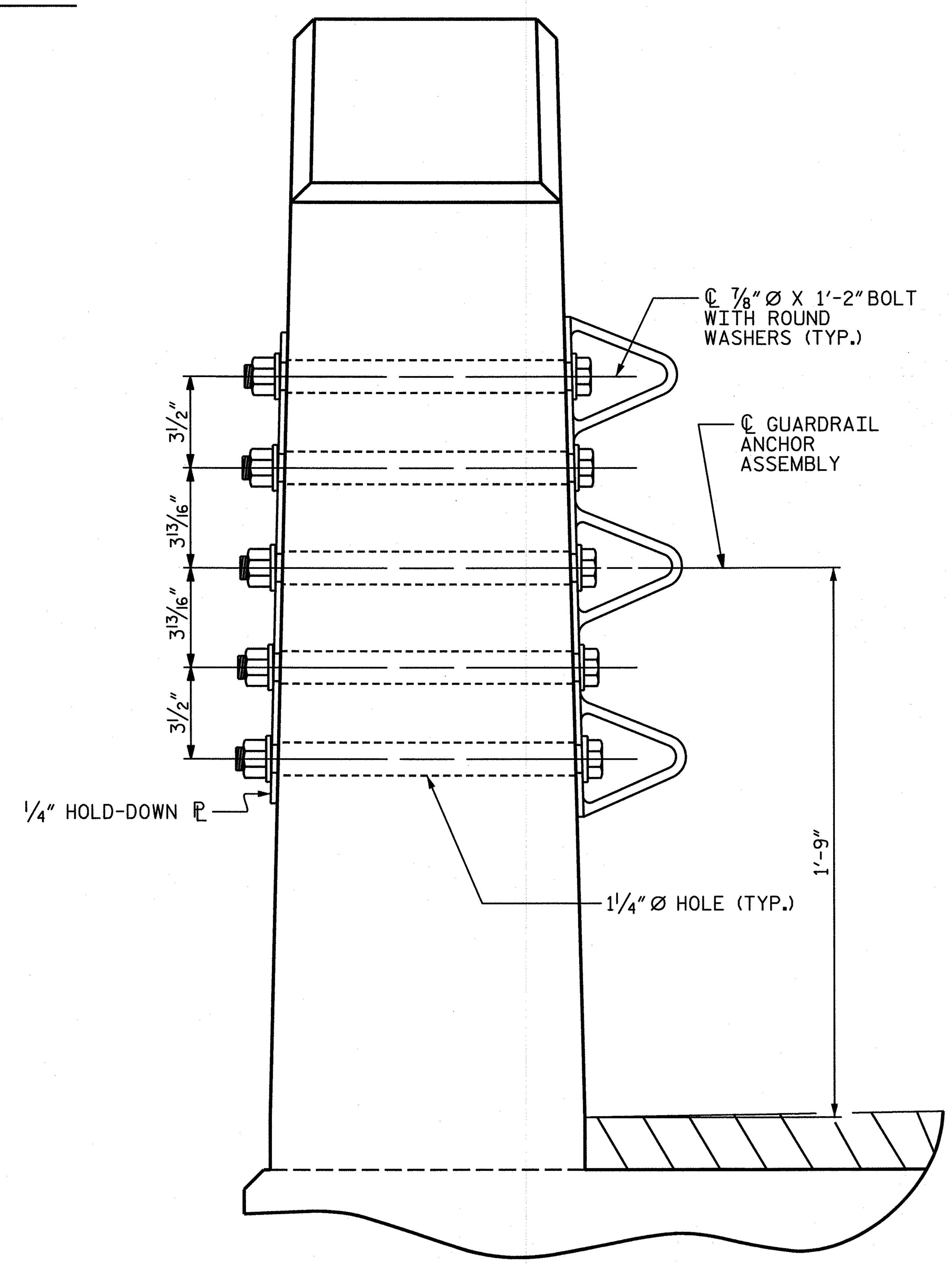
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

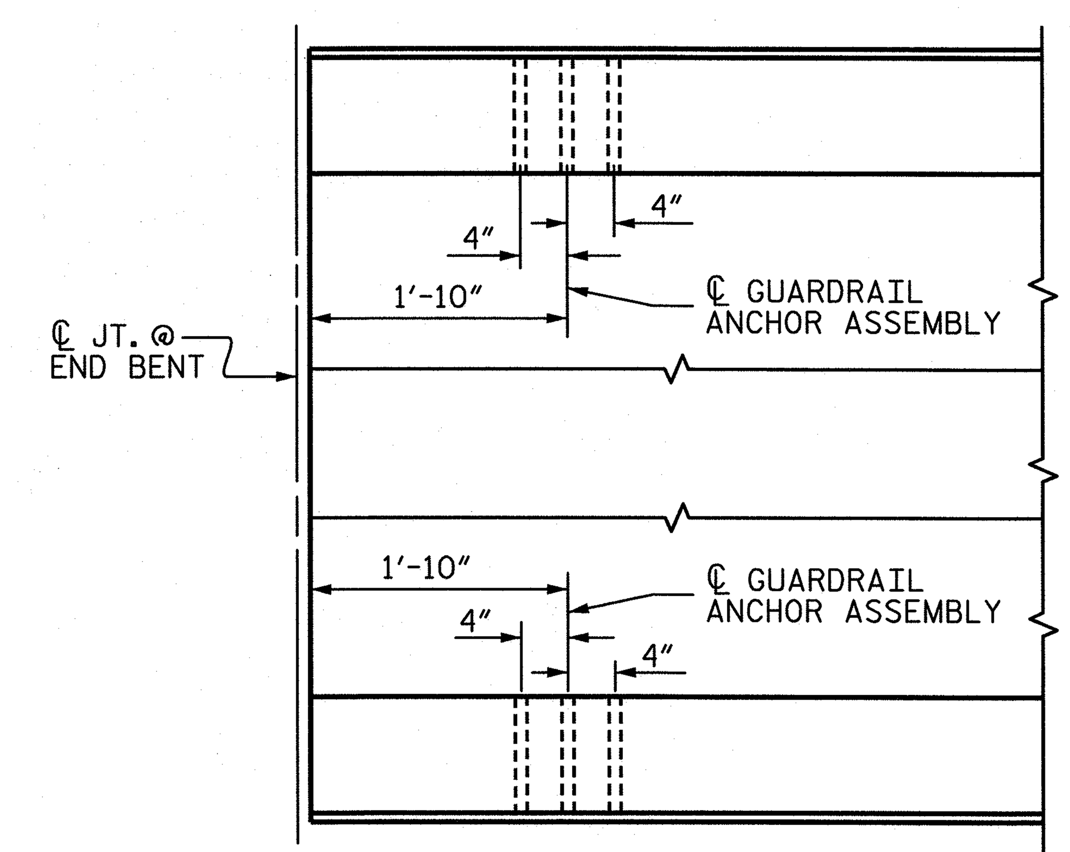
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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

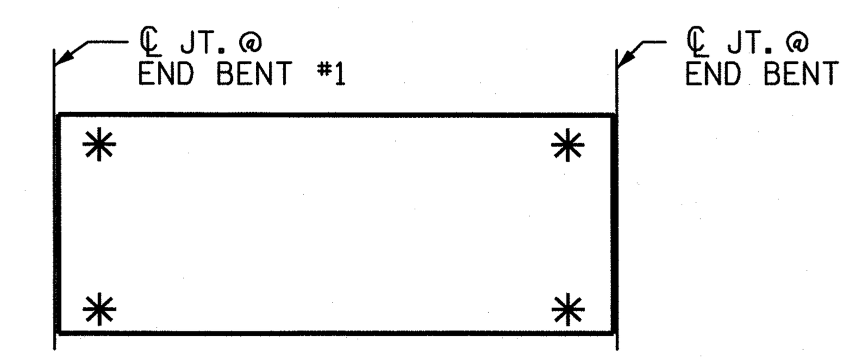
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE 08/29/13

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(SHT 1) STD. NO. GRA3

ASSEMBLED BY : M HOBBS	DATE : 01/13
CHECKED BY : N PIERCE	DATE : 01/13
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM REV. 12/5/11 MAA/GM

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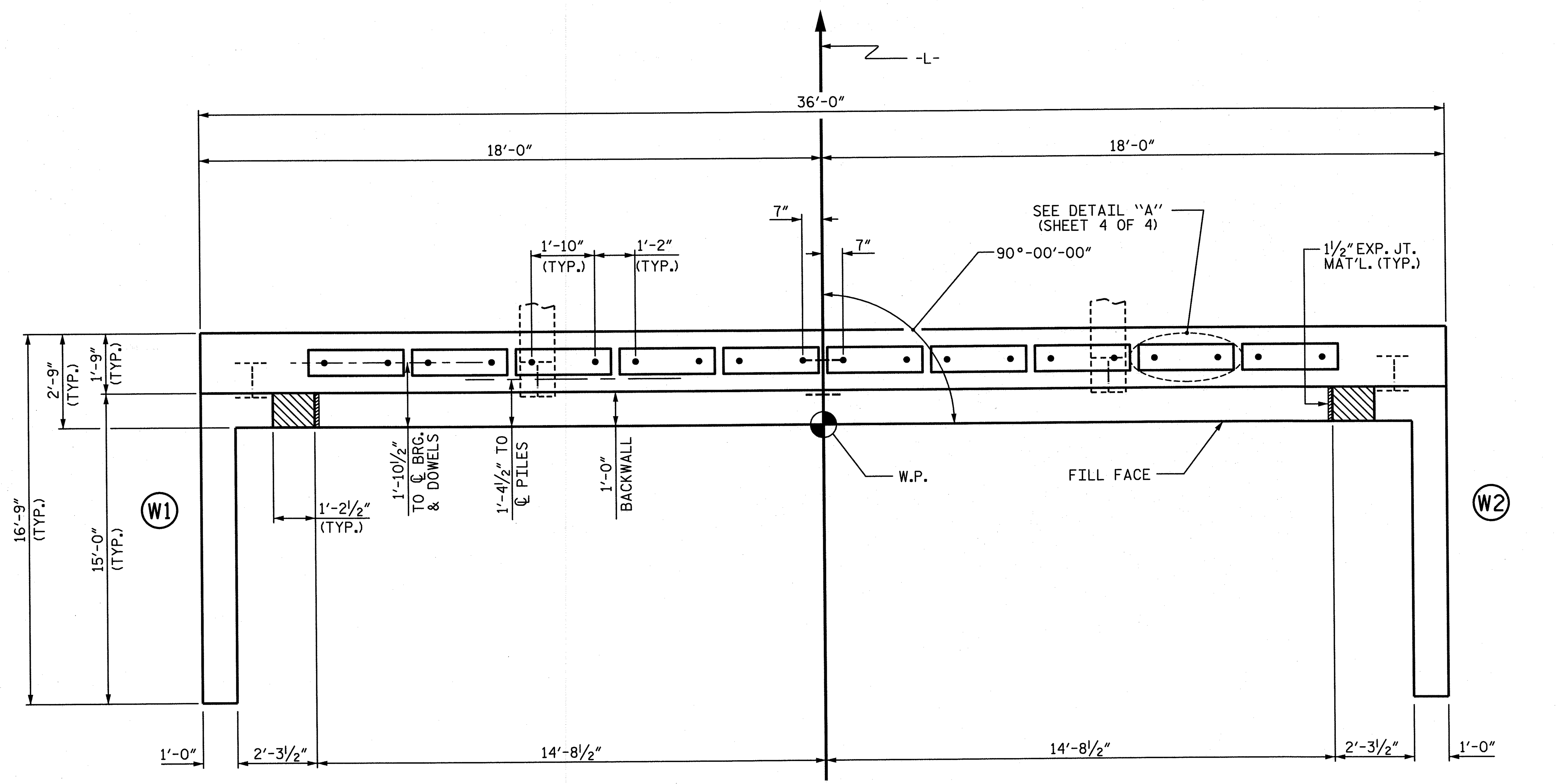
NOTES

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

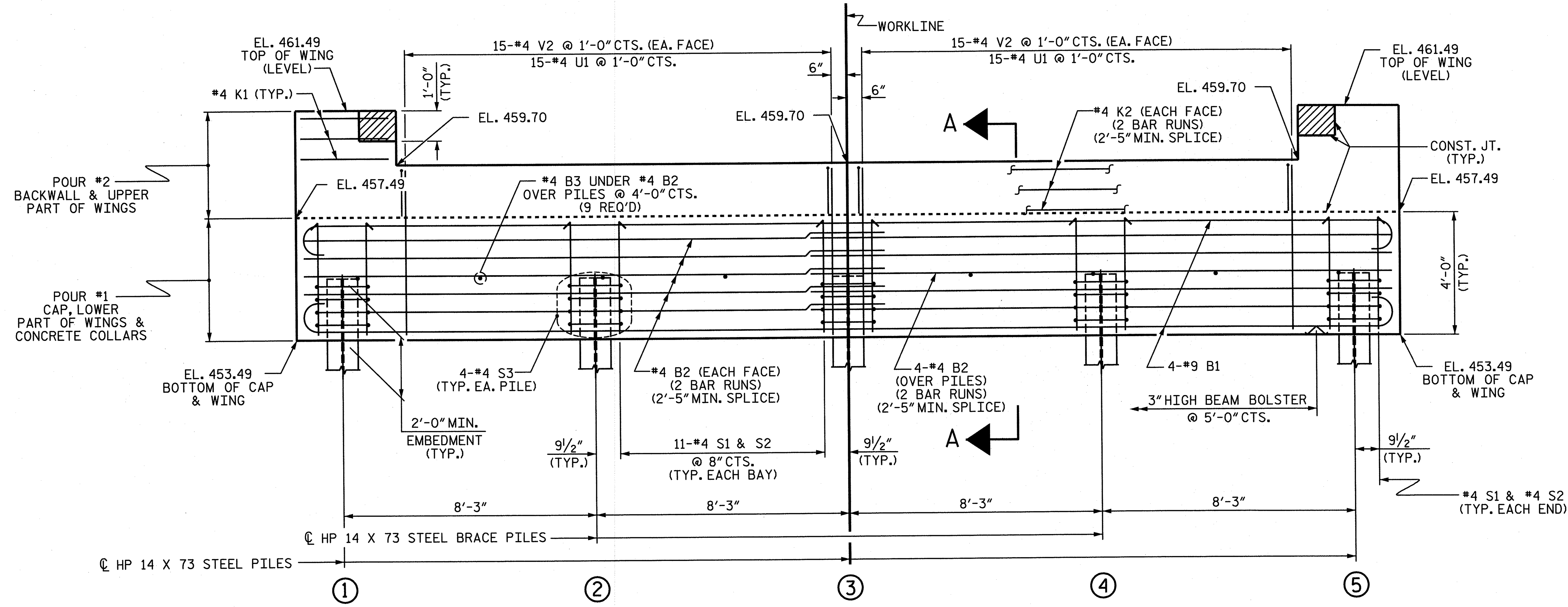
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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. 17BP.8.R.14
MOORE COUNTY
STATION: 14+30.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

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CHECKED BY : N.A. PIERCE DATE : 01/13
DRAWN BY : WJH 12/11
CHECKED BY : AAC 12/11

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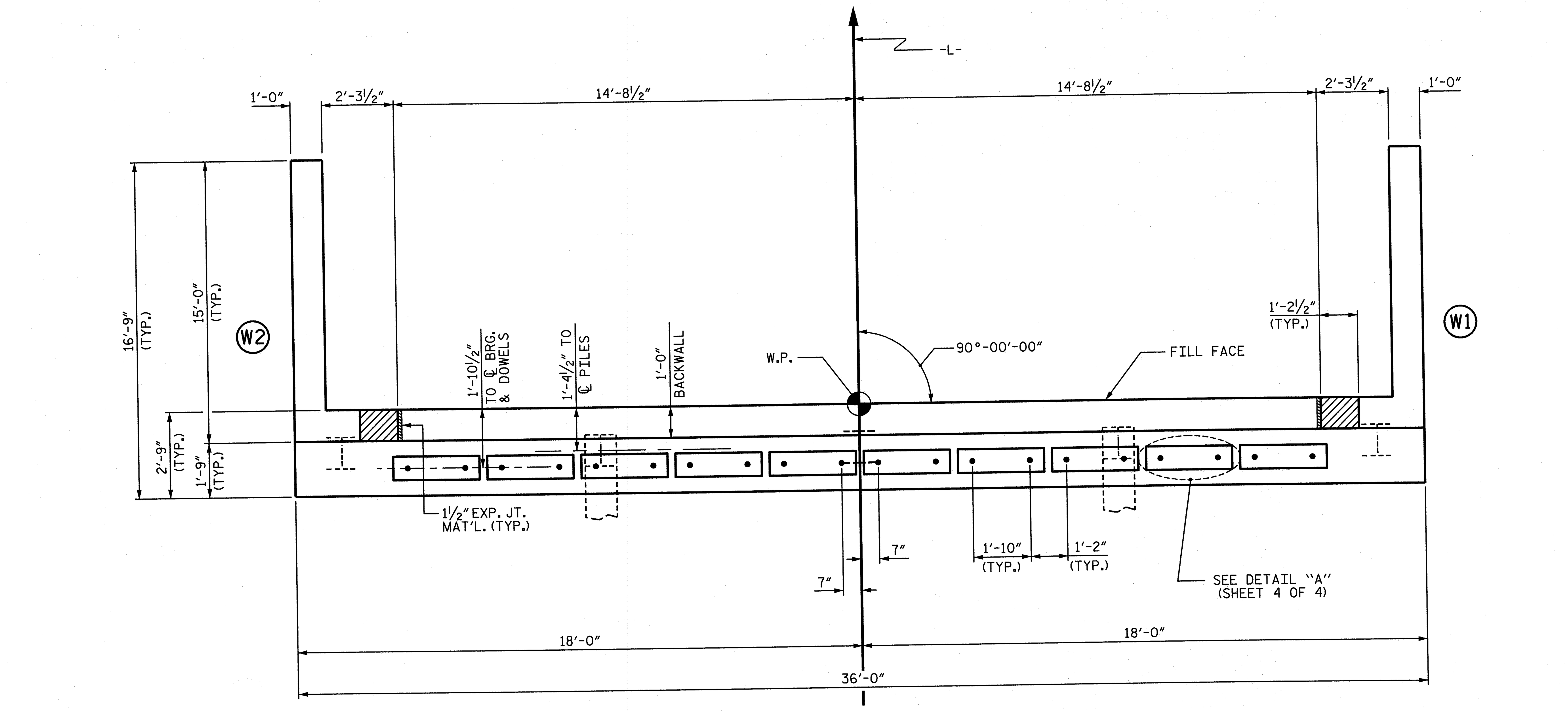
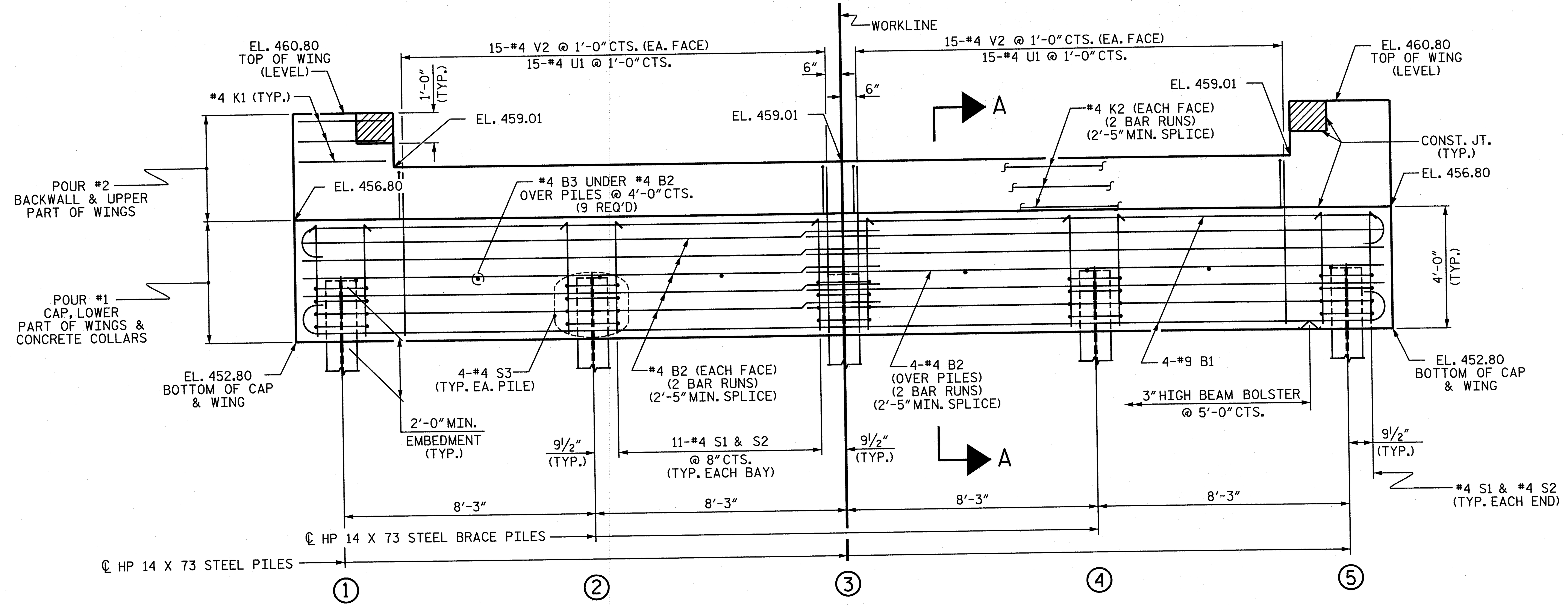


PLAN



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. 17BP.8.R.14
MOORE COUNTY
STATION: 14+30.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

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1			3			TOTAL SHEETS
2			4			16

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CHECKED BY : N.A. PIERCE	DATE : 08/30/12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

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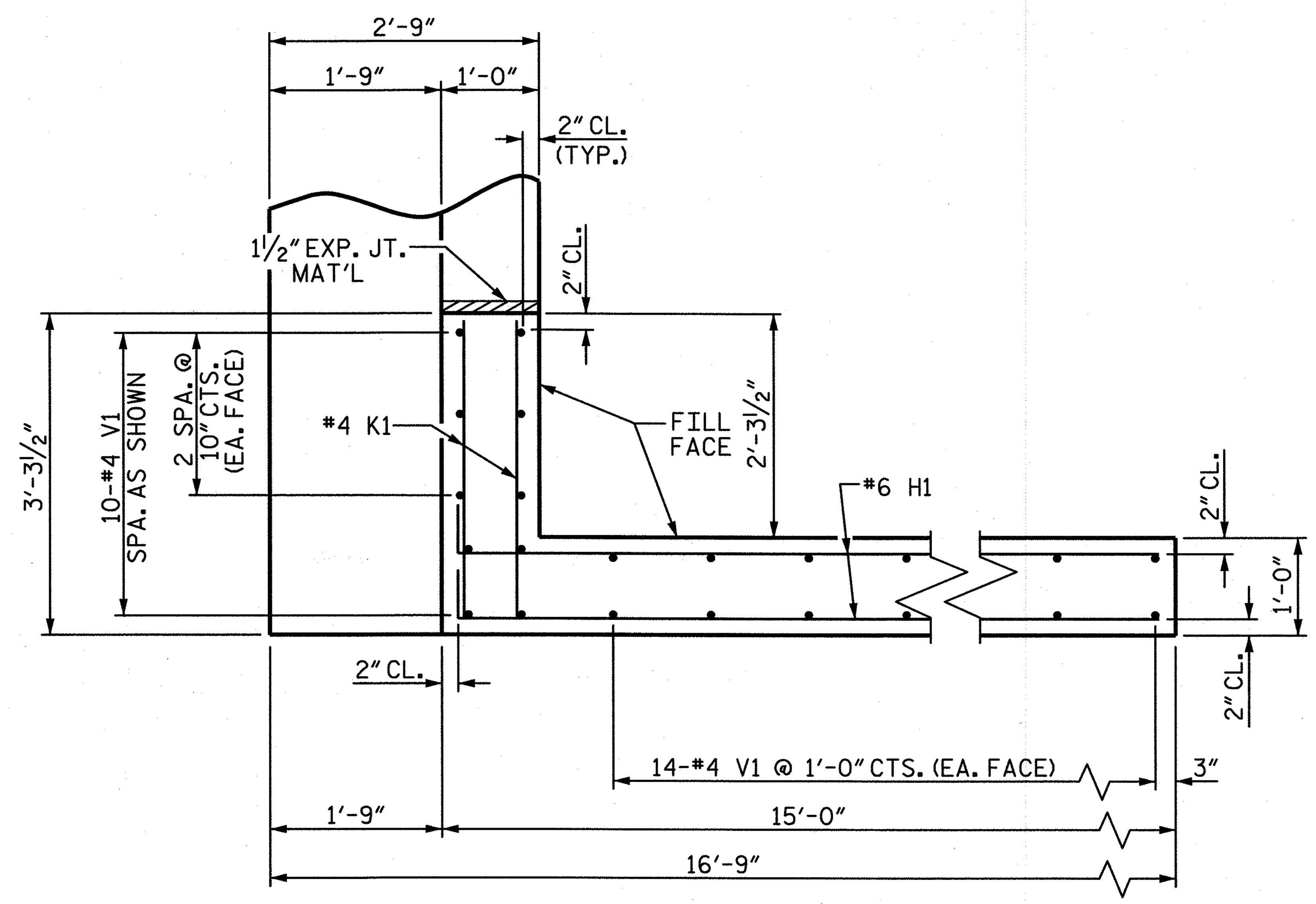
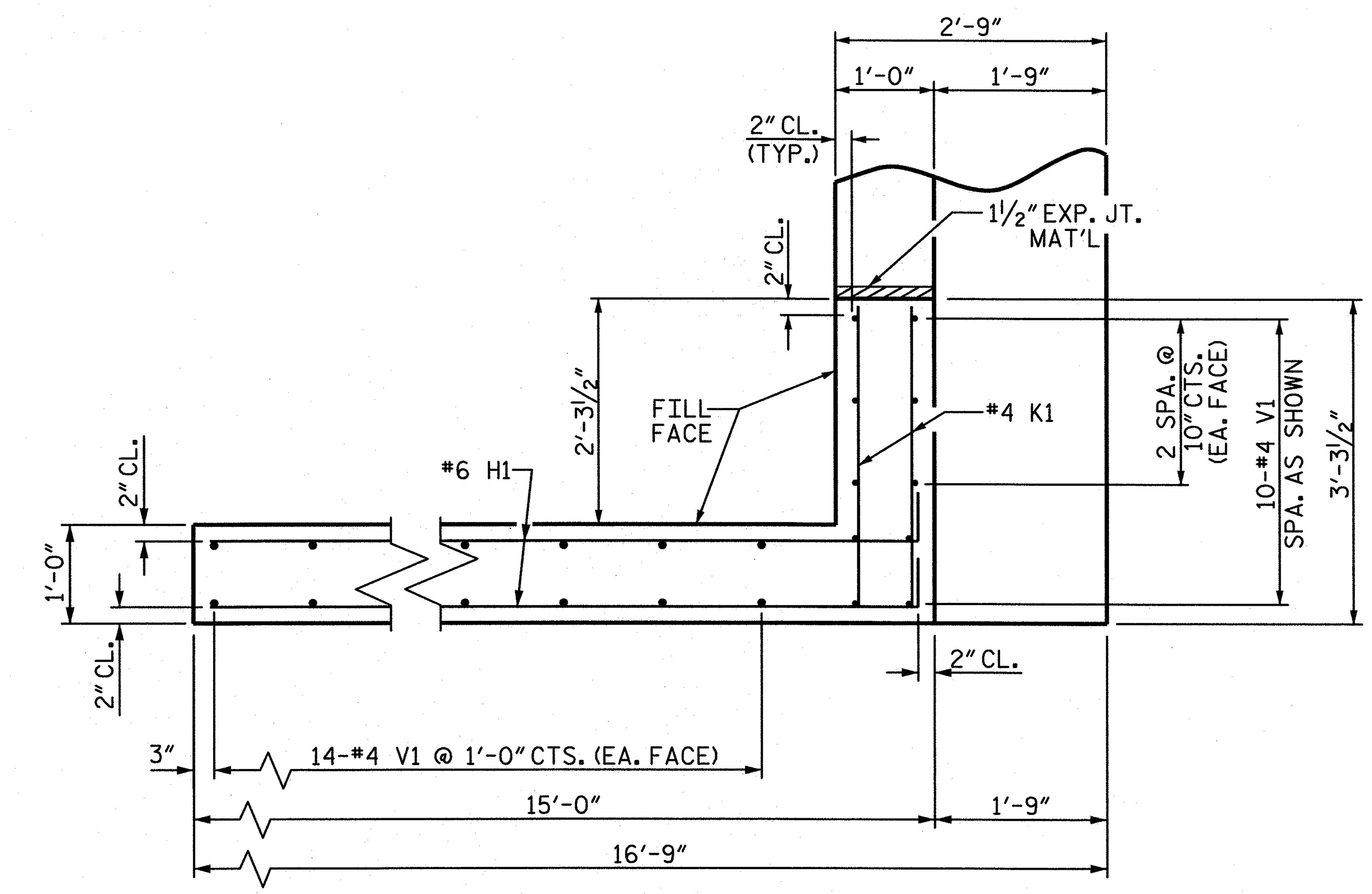
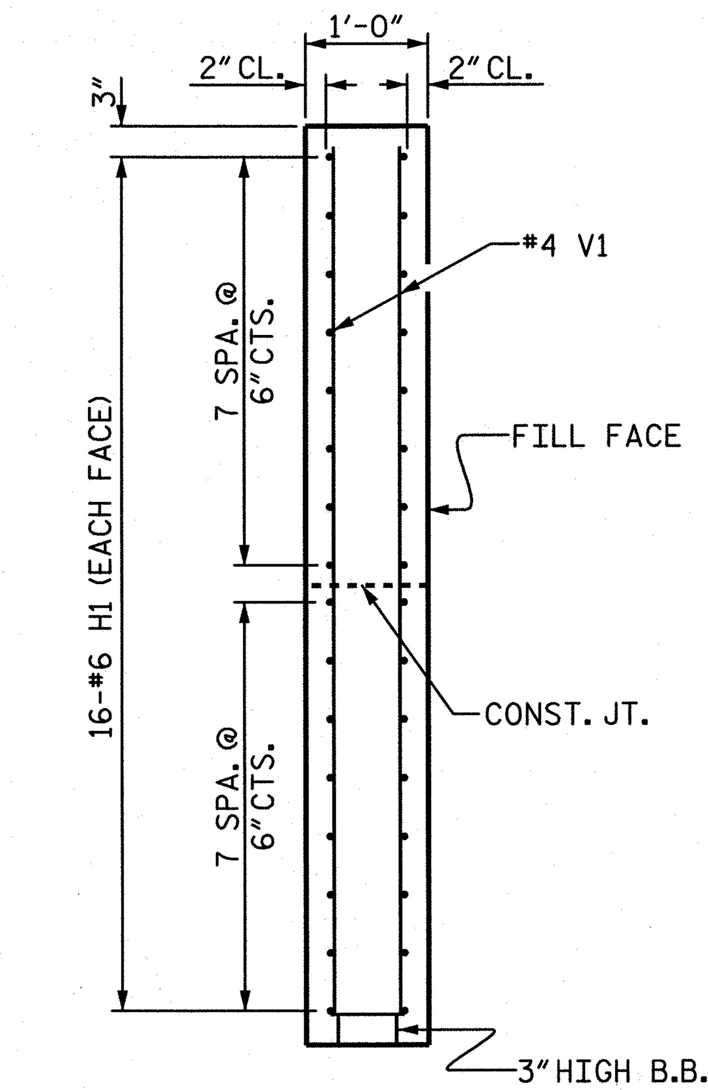


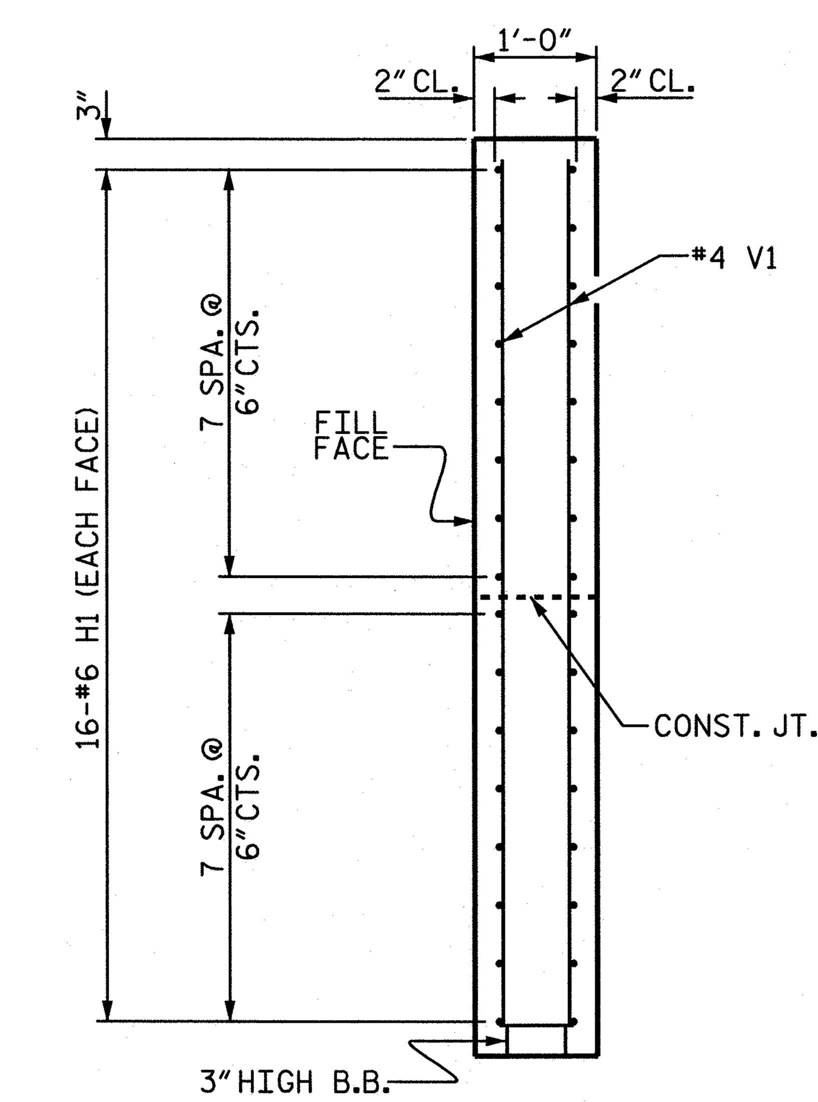
PLAN OF WING (W1)



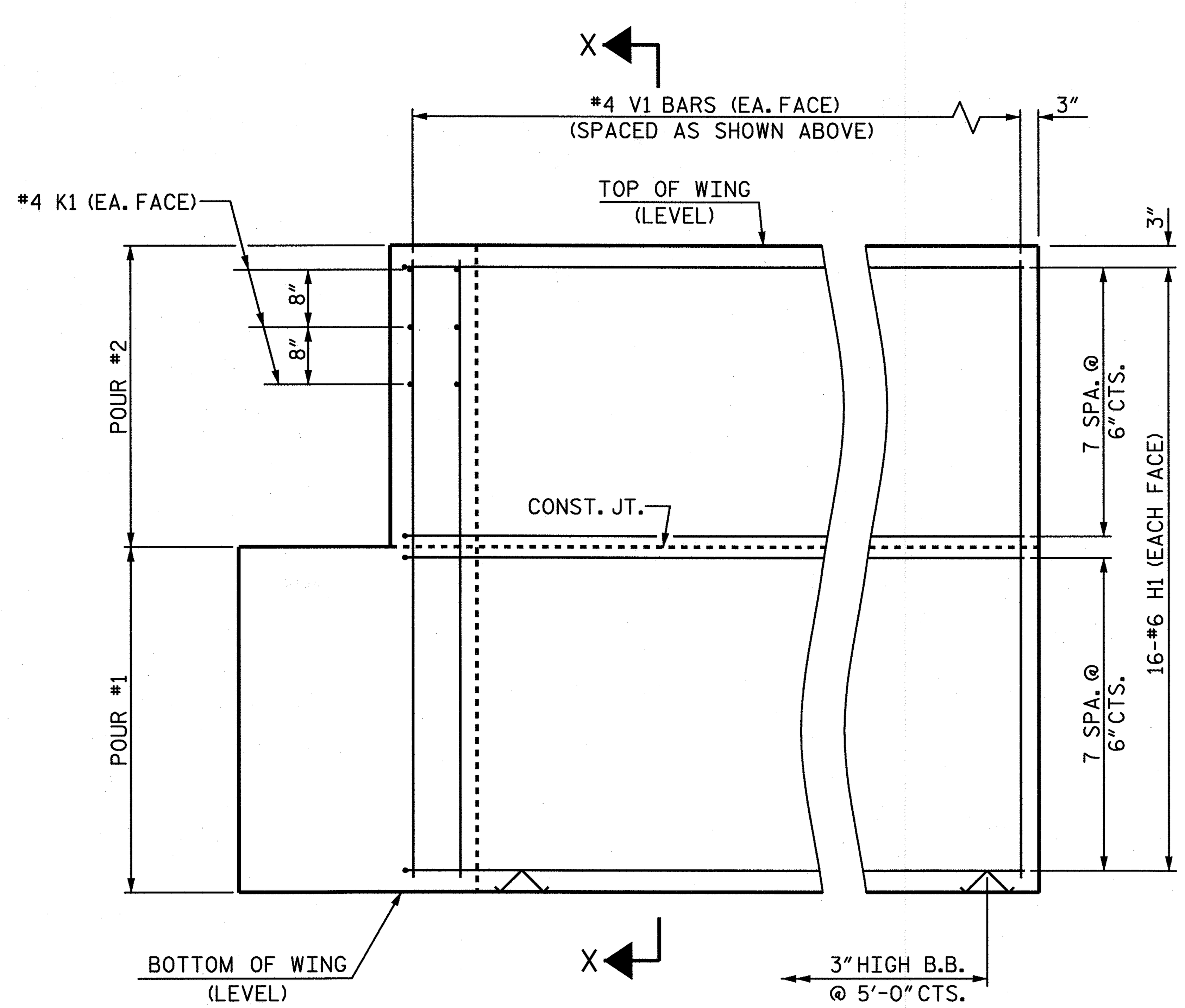
PLAN OF WING (W2)



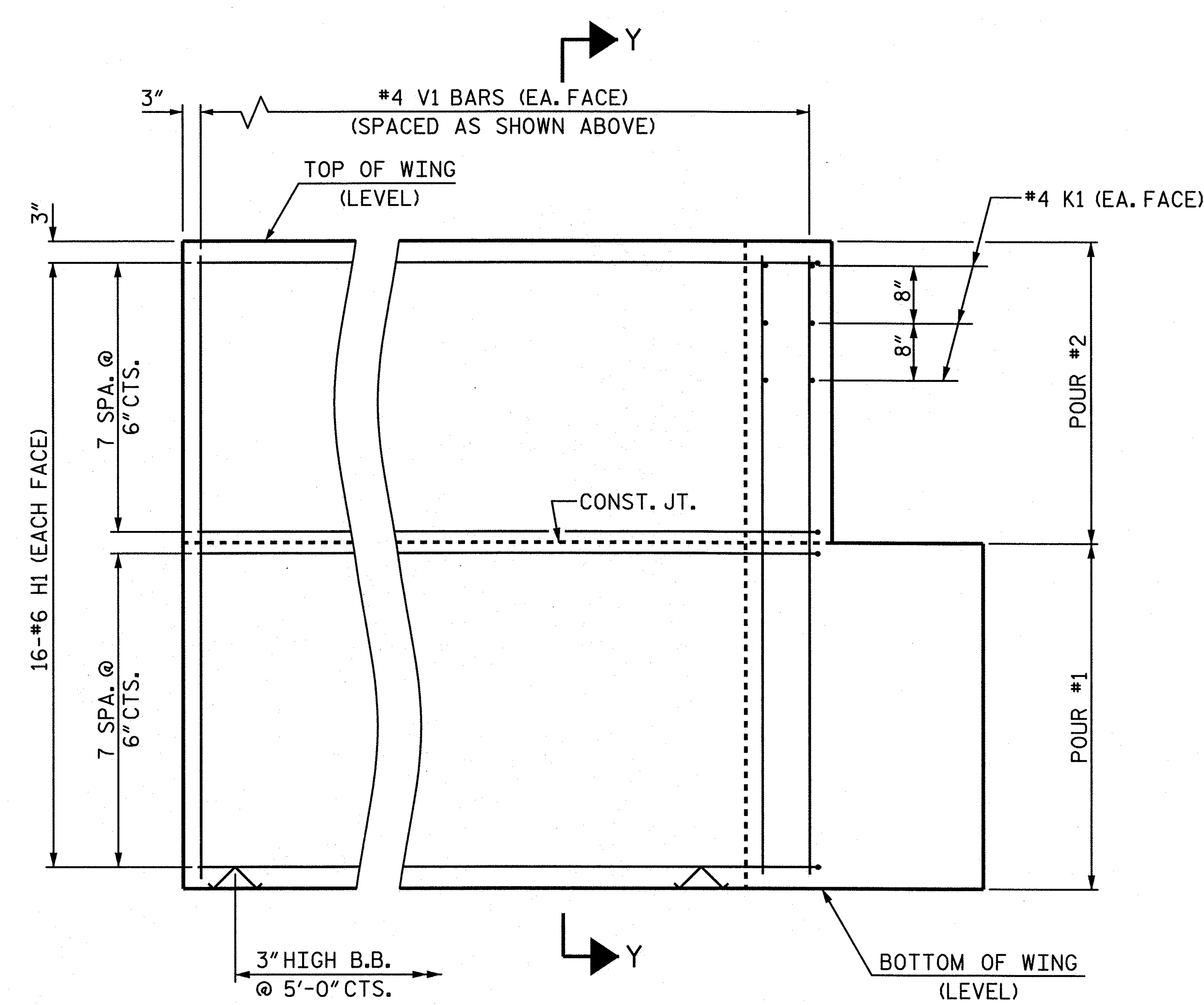
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
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RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE

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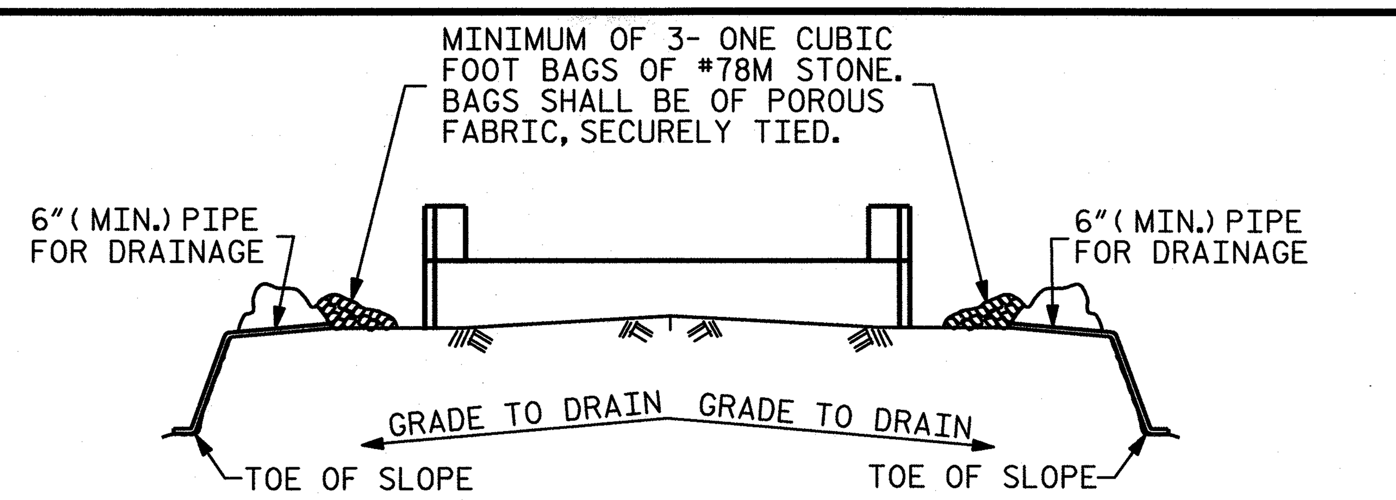
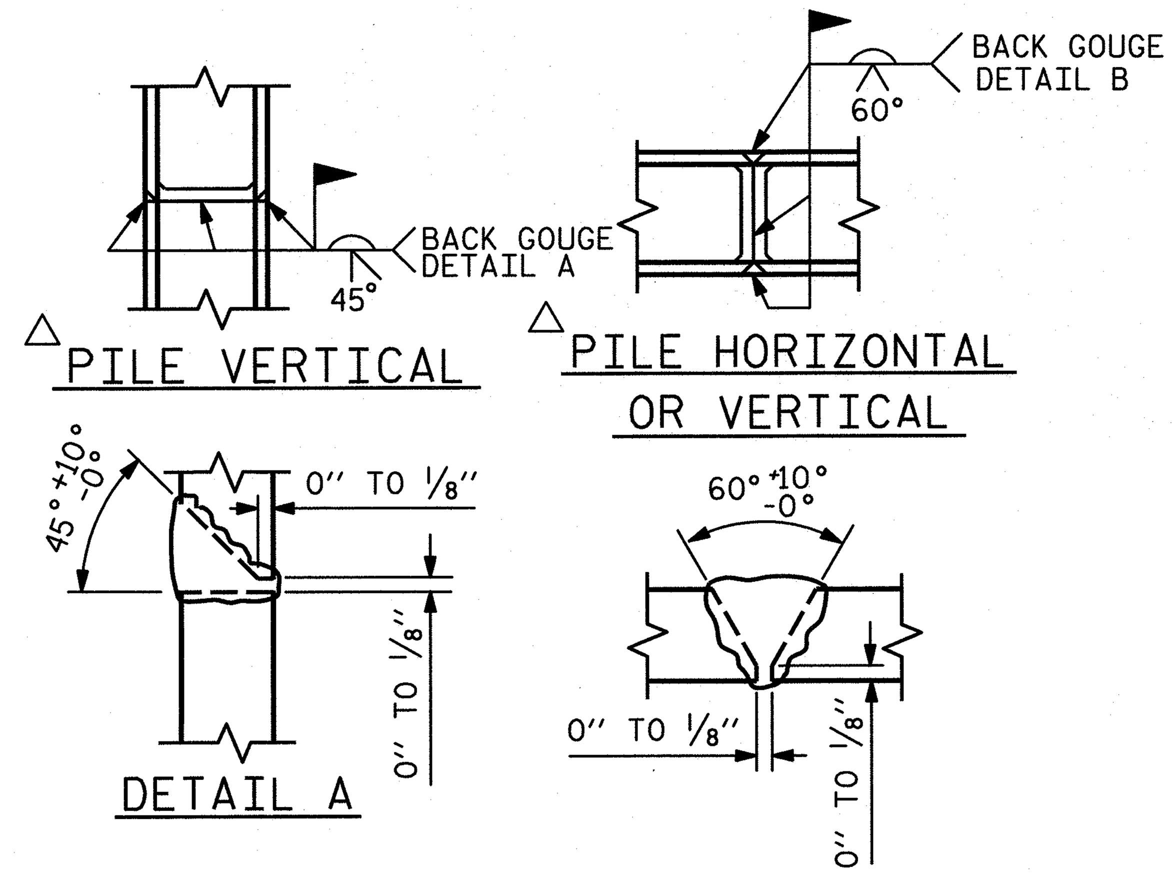


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

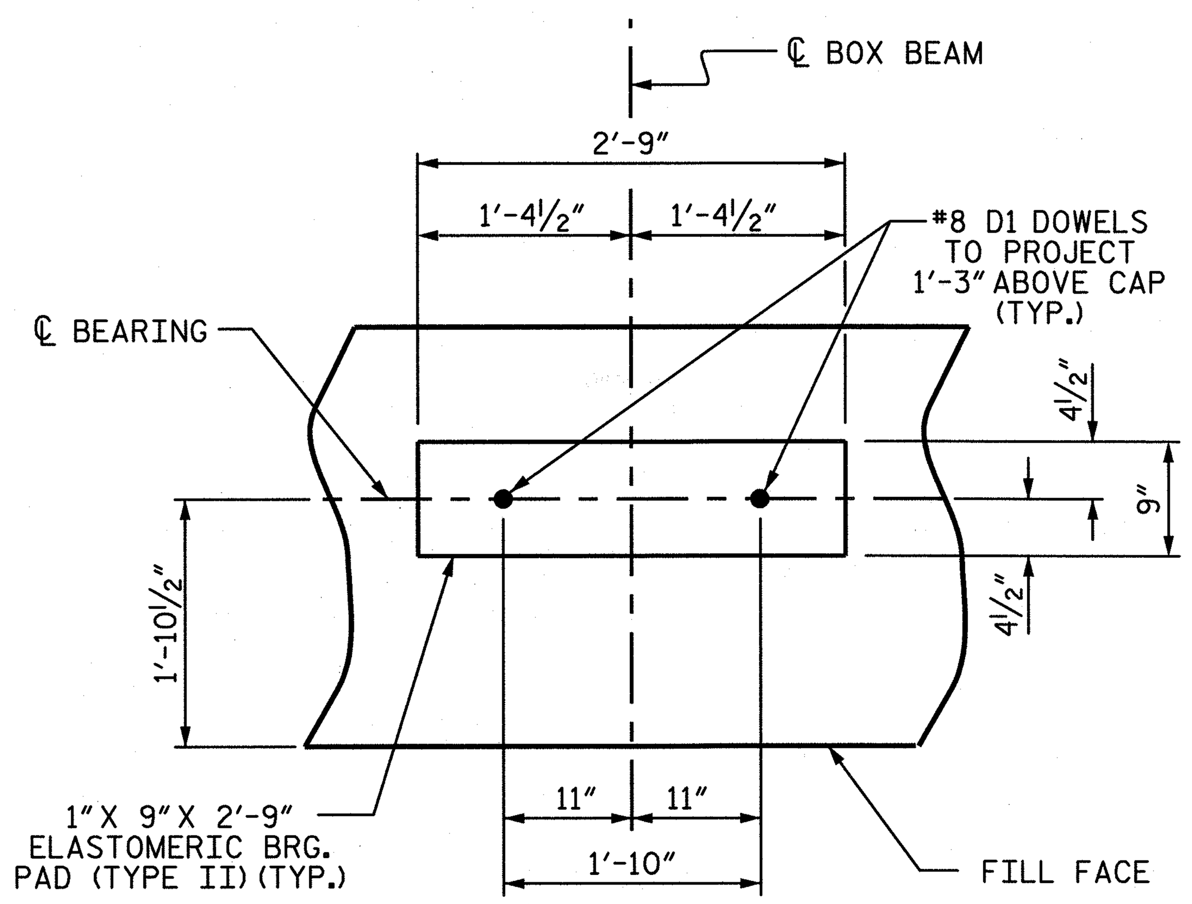
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



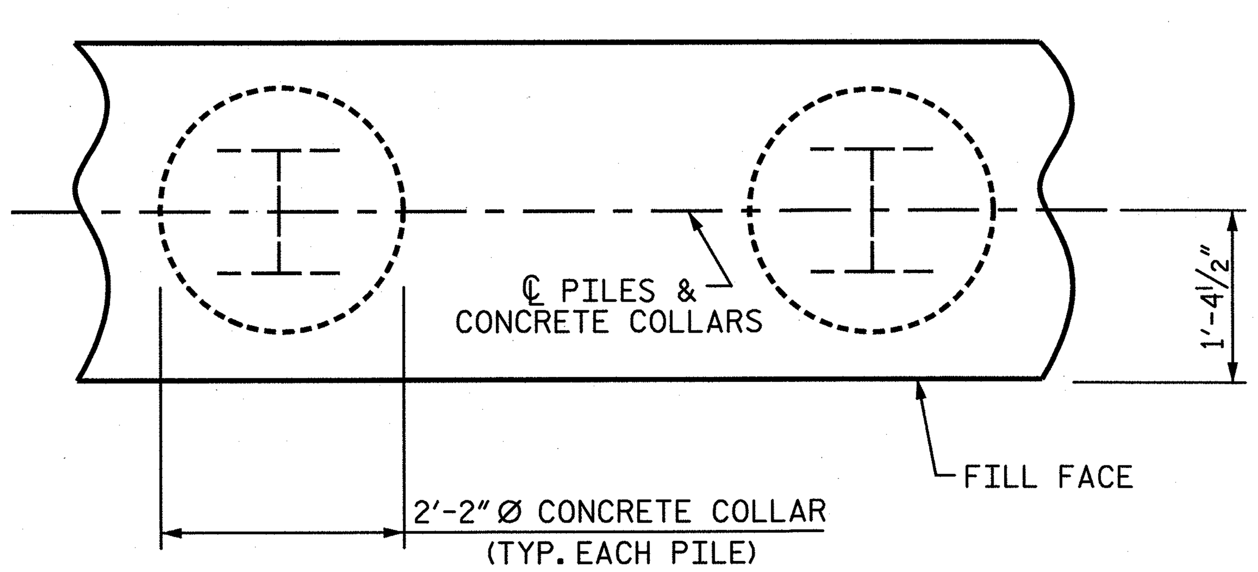
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

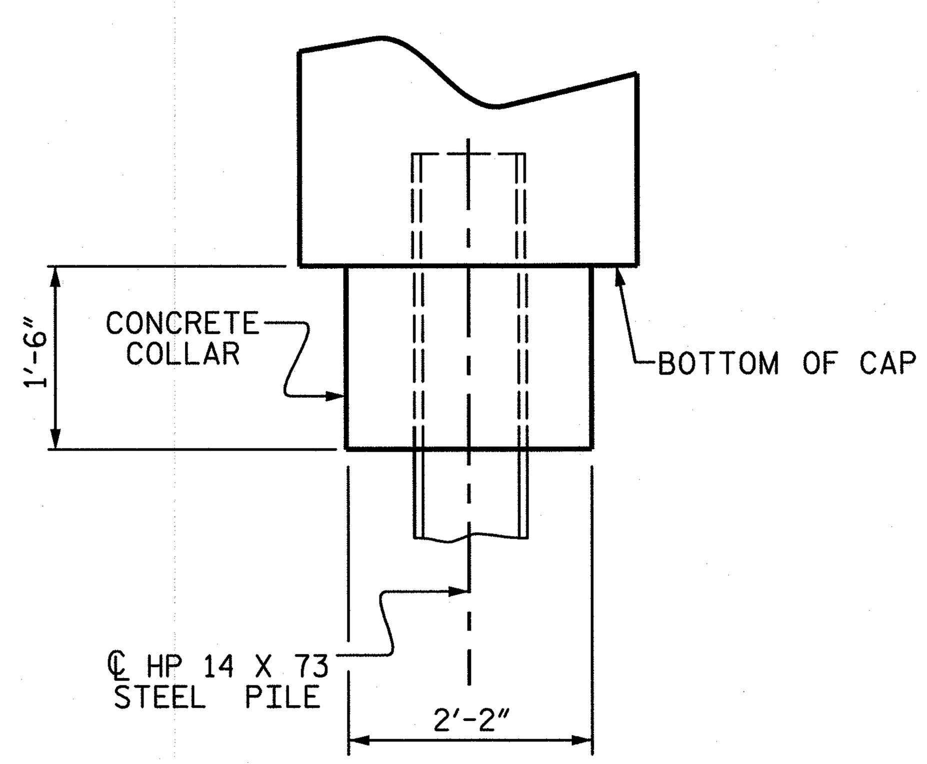


DETAIL "A"

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



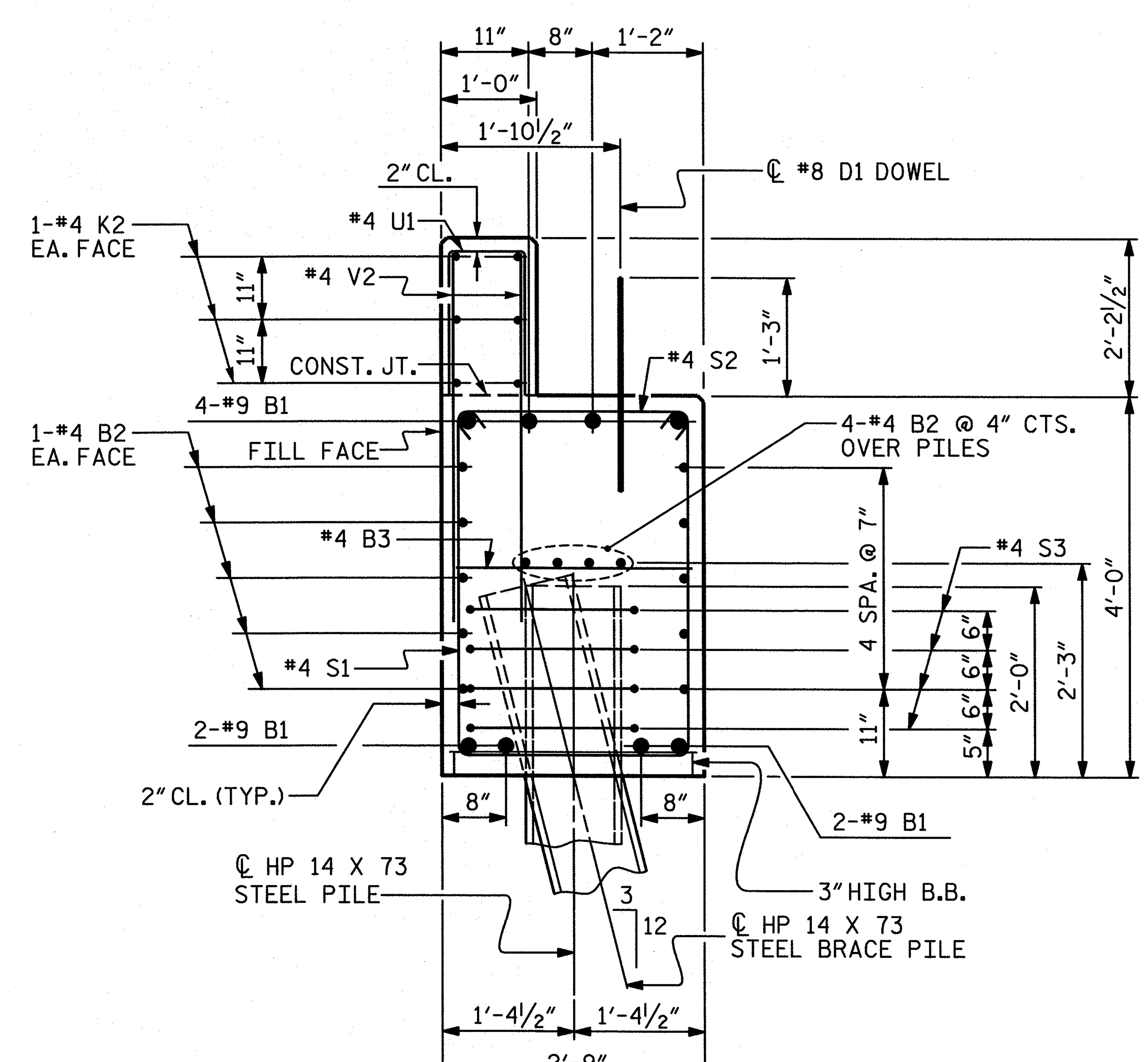
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

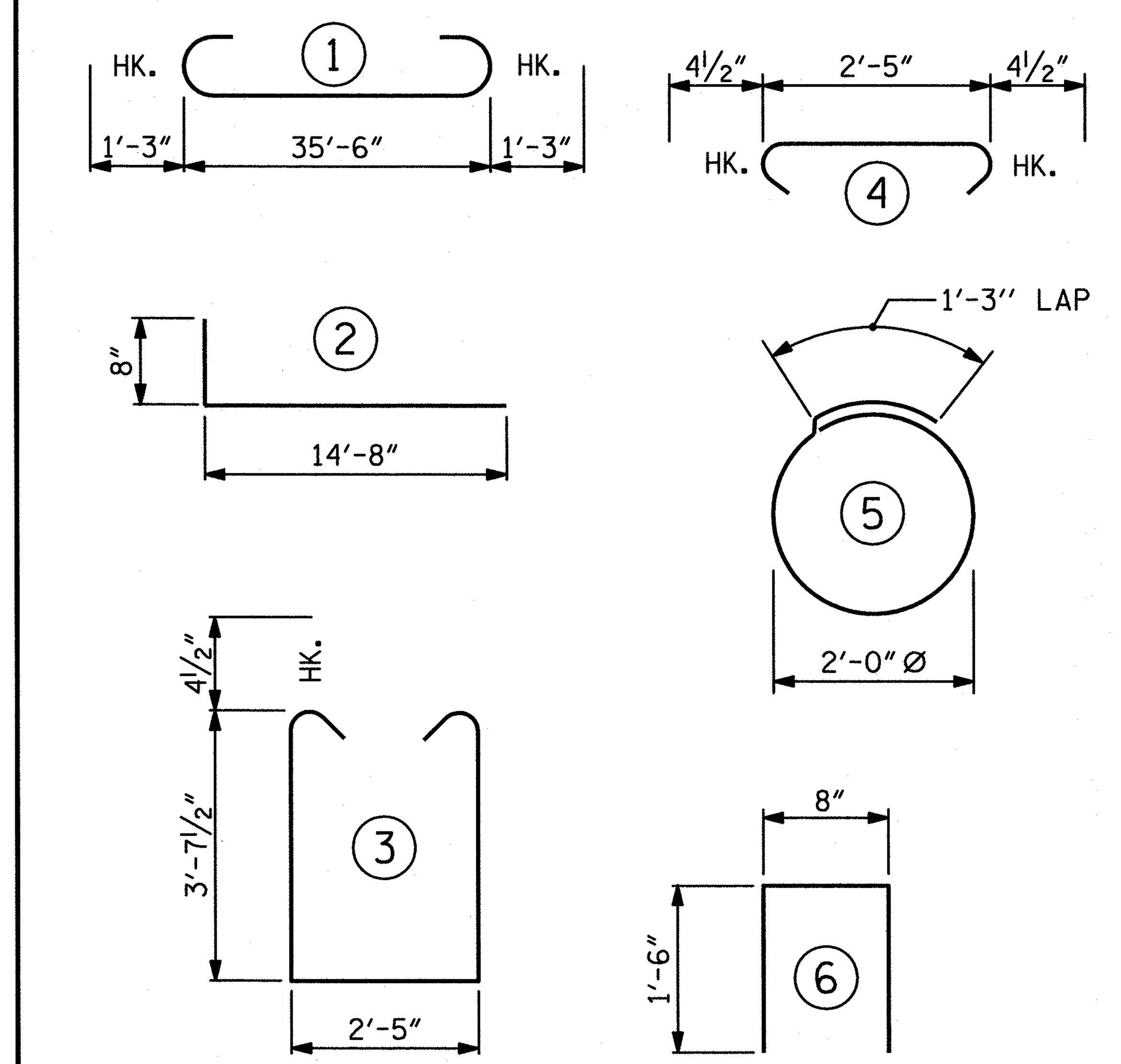
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



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 14 X 73 STEEL PILES		HP 14 X 73 STEEL PILES	
NO: 5	LIN. FT. = 75	NO: 5	LIN. FT. = 50
STEEL PILE POINTS	EA. = 5	STEEL PILE POINTS	EA. = 5

BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#8	STR	2'-3"	120
H1	64	#6	2	15'-4"	1474
K1	12	#4	STR	2'-11"	23
K2	12	#4	STR	19'-1"	153
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	7'-7"	101
U1	30	#4	6	3'-8"	73
V1	76	#4	STR	7'-8"	389
V2	60	#4	STR	5'-10"	234

REINFORCING STEEL (FOR ONE END BENT) 4390 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	19.9 C.Y.
POUR #2	BACKWALL & UPPER PART OF WINGS	7.5 C.Y.
TOTAL CLASS A CONCRETE		27.4 C.Y.

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE 08/30/13

WSP Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 & 2 DETAILS

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

ASSEMBLED BY : M.J. OSTRISHKO DATE : 08/17/12
CHECKED BY : N.A. PIERCE DATE : 08/30/12

DRAWN BY : WJH 12/11
CHECKED BY : AAC 12/11

8/29/2013
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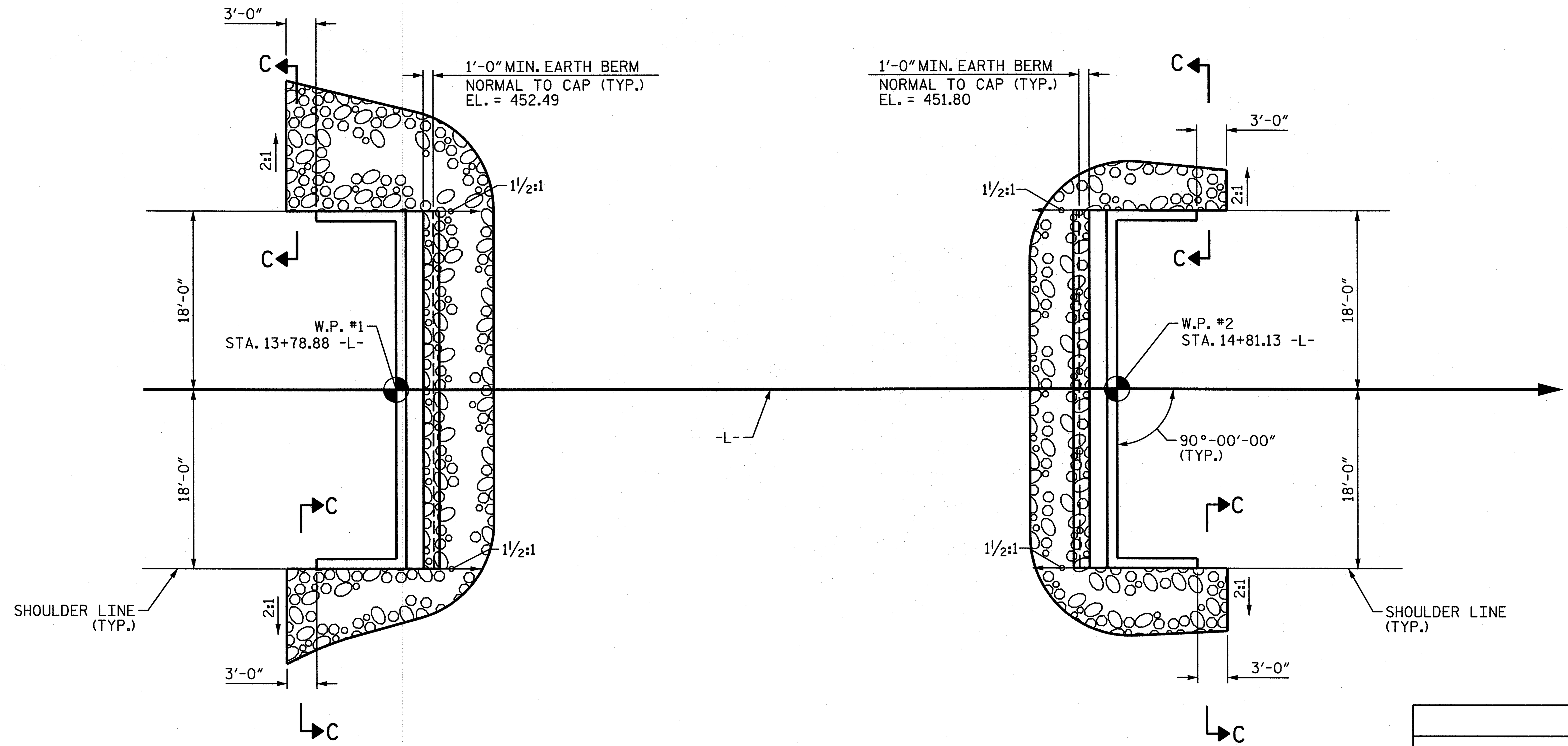
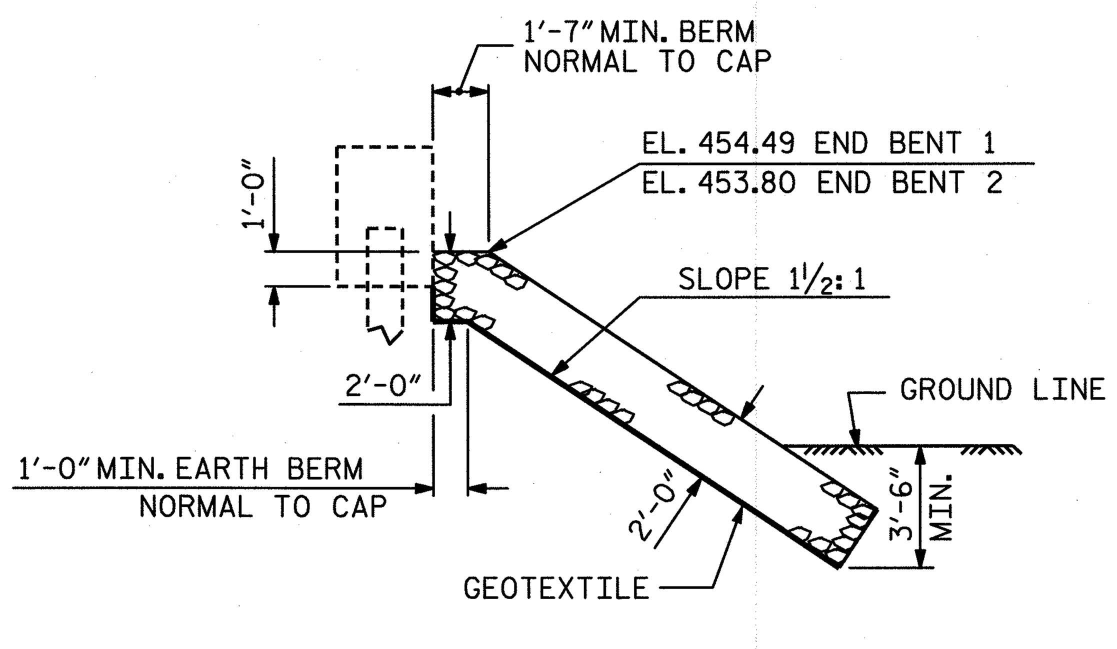
STD. NO. EB_30_90S4_39BB



NOTES :

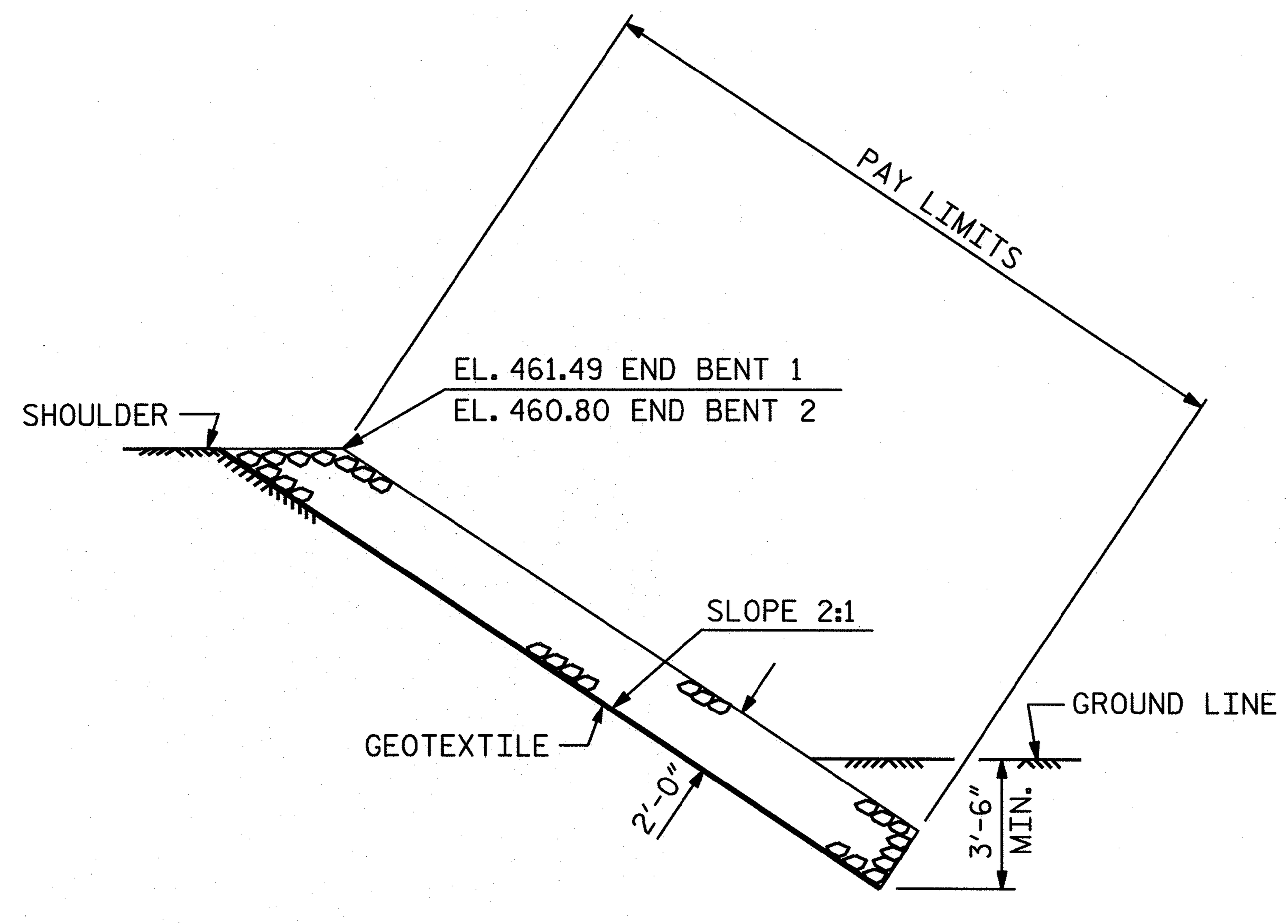
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+30.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	129	143
END BENT 2	116	129



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031479 NICHOLAS A. PIERCE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

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

ASSEMBLED BY : M.J. OSTRISHKO	DATE : 08/29/12	
CHECKED BY : N.A. PIERCE	DATE : 08/30/12	
DRAWN BY : REK 1/84	REV. 5/1/06R	TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11	MAA/GM
	REV. 12/21/11	MAA/GM

8/29/2013
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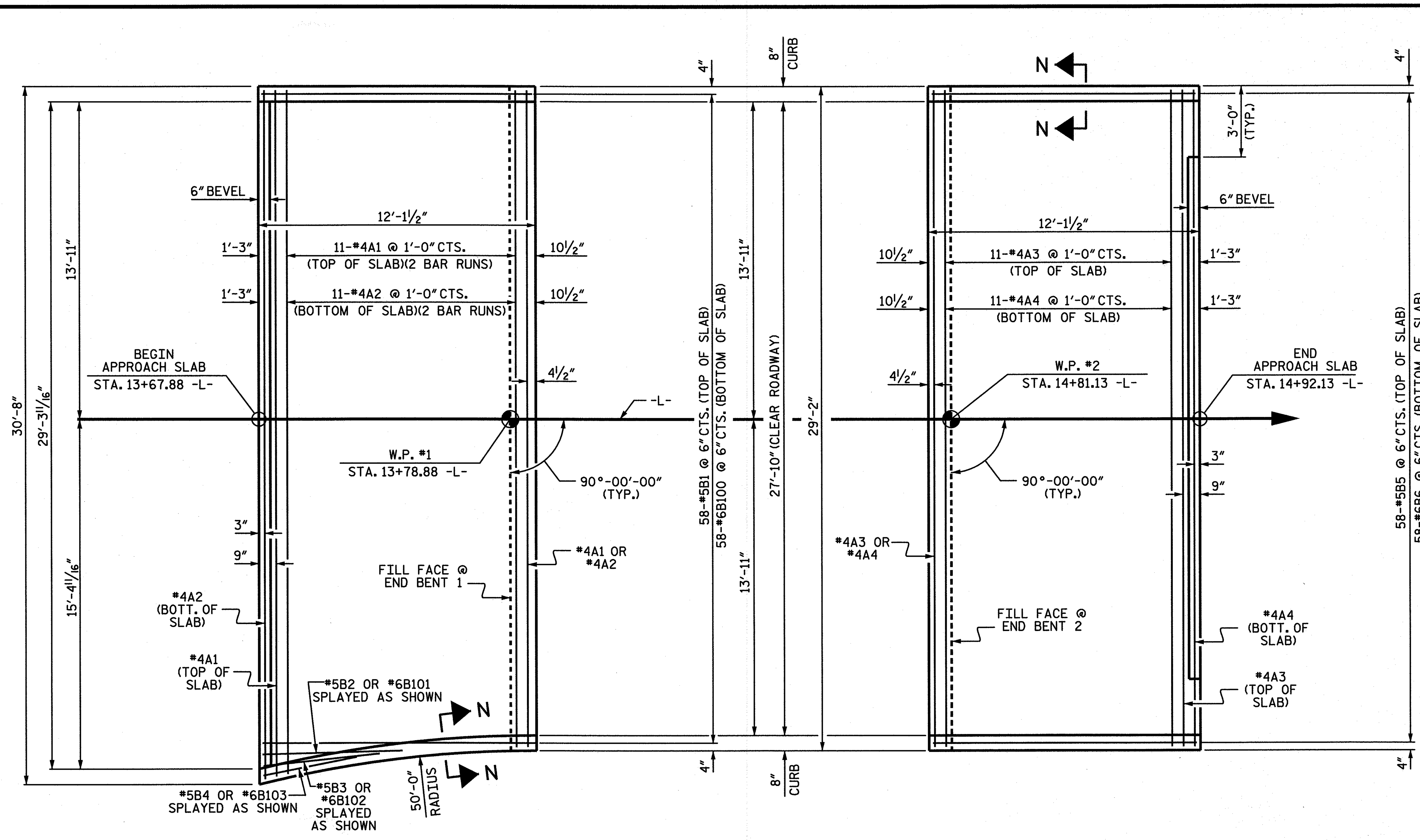
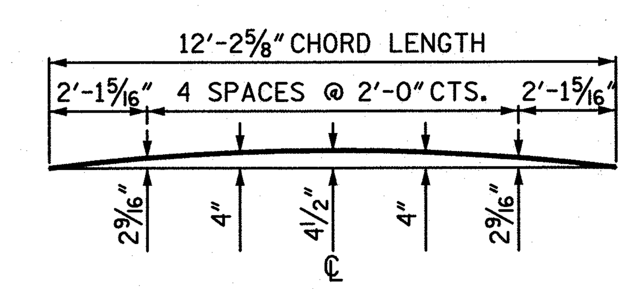


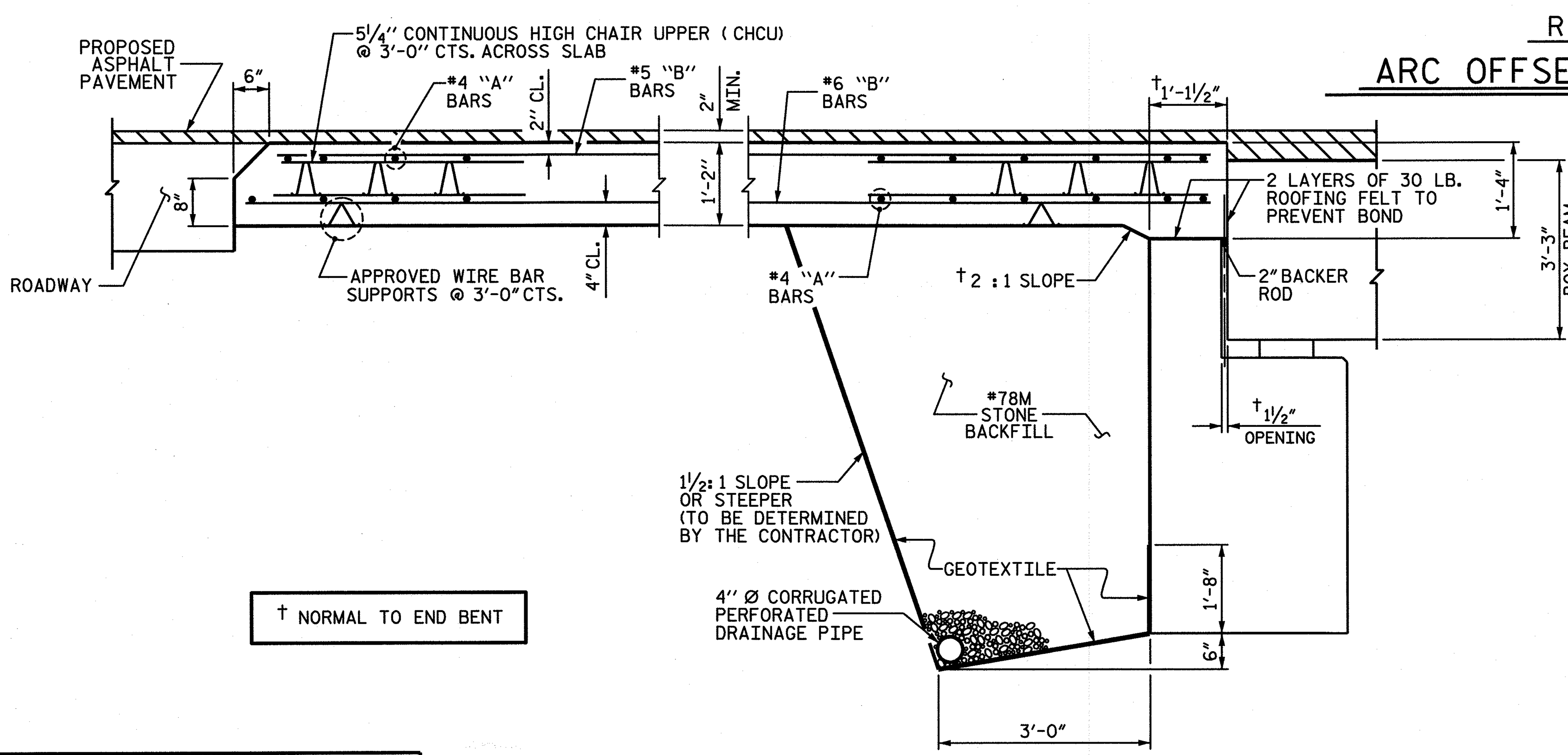
PLAN @ END BENT 1

PLAN @ END BENT 2



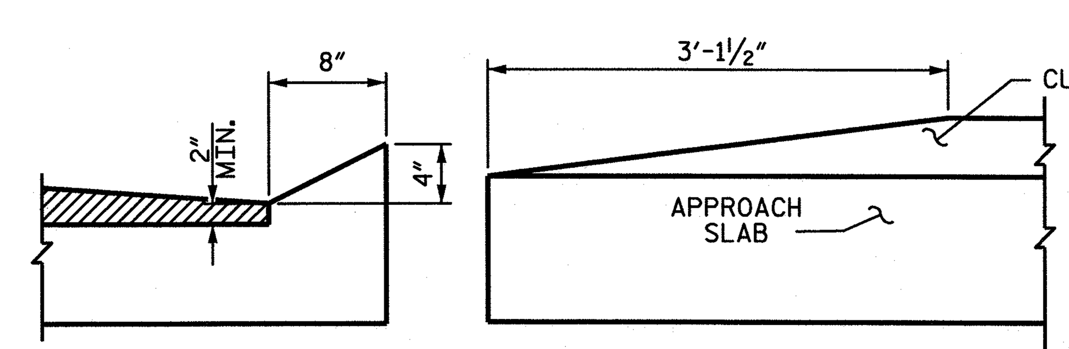
RIGHT SIDE

ARC OFFSETS @ END BENT 1



† NORMAL TO END BENT

SECTION THRU SLAB



SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

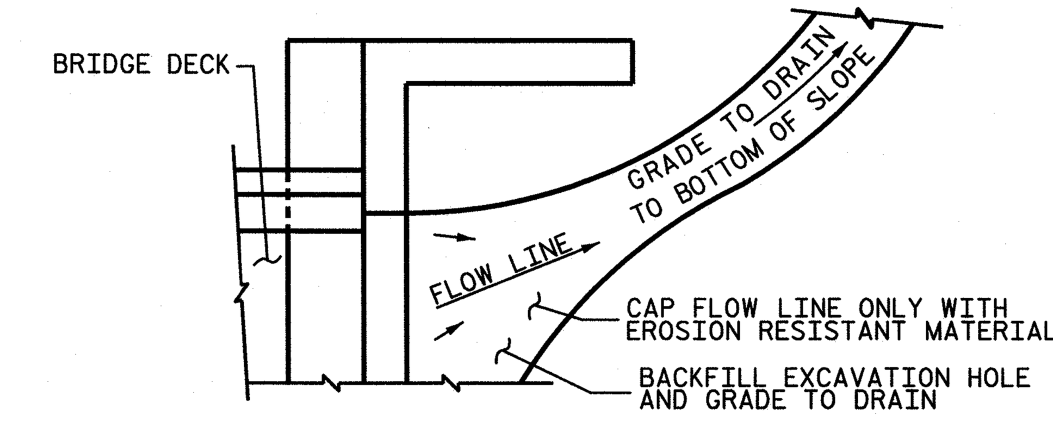
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE 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.

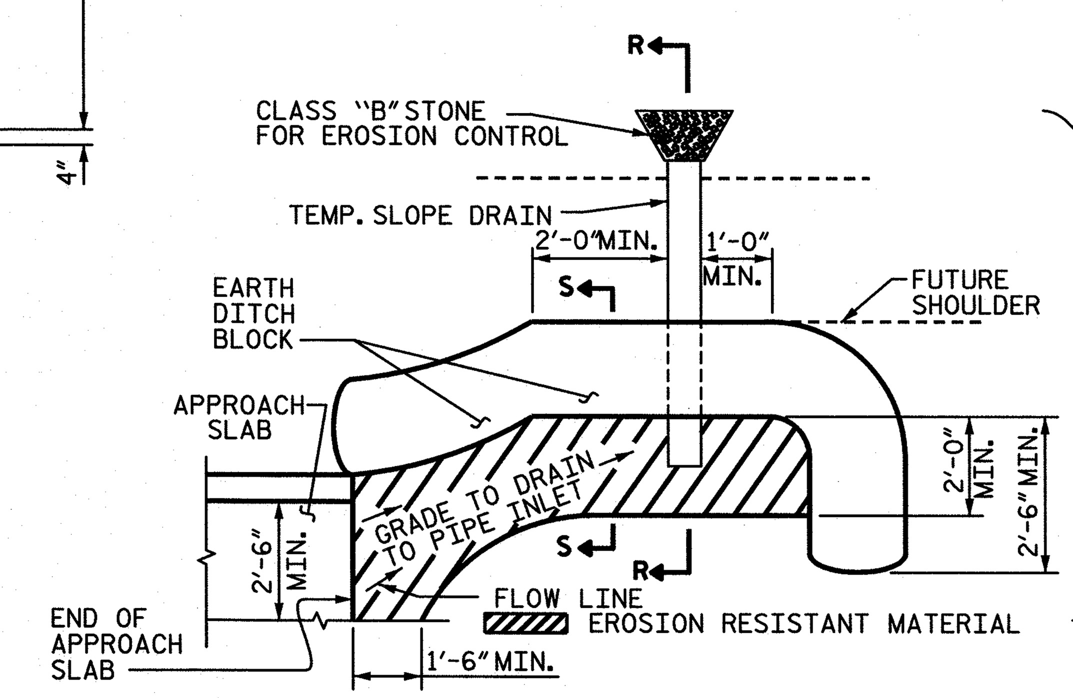
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



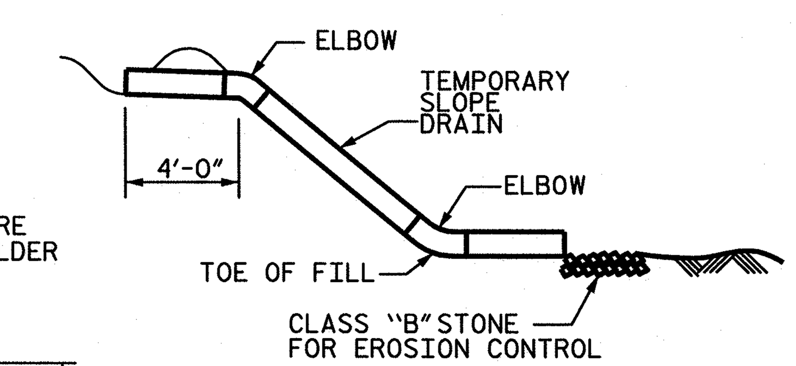
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

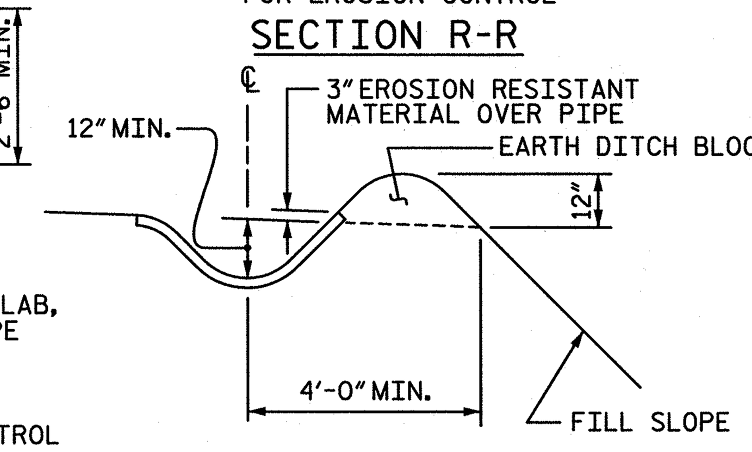


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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 R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

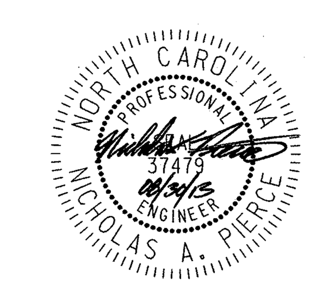
BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	16'-1"	279
A2	26	#4	STR	16'-1"	279
* B1	58	#5	STR	11'-4"	686
* B2	1	#5	STR	6'-1"	6
* B3	1	#5	STR	5'-1"	5
* B4	1	#5	STR	4'-2"	4
B100	58	#6	STR	11'-8"	1016
B101	1	#6	STR	6'-1"	9
B102	1	#6	STR	5'-1"	8
B103	1	#6	STR	4'-2"	6
REINFORCING STEEL				LBS.	1318
* EPOXY COATED REINFORCING STEEL				LBS.	980
CLASS AA CONCRETE				C. Y.	15.8
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A3	13	#4	STR	28'-10"	250
A4	13	#4	STR	28'-10"	250
* B5	58	#5	STR	11'-4"	686
B6	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	936
CLASS AA CONCRETE				C. Y.	15.4

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

PROJECT NO. 17BP.8.R.14

MOORE COUNTY

STATION: 14+30.00 -L-



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

ASSEMBLED BY : M.J. OSTRISHKO DATE : 08/17/12
CHECKED BY : N. PIERCE DATE : 09-10-12

DRAWN BY : MAA 11/11
CHECKED BY : AAC 11/11

8/29/2013
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STD. NO. BAS_BB_30_90S

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "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 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" 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 1/4" 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 7/8"Ø SHEAR STUDS FOR THE 3/4"Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8"Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4"Ø STUDS BASED ON THE RATIO OF 3 - 7/8"Ø STUDS FOR 4 - 3/4"Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

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