STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.34	1	37

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.34		PE
17BP.8.R.34		CONSTRUCTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MOORE COUNTY

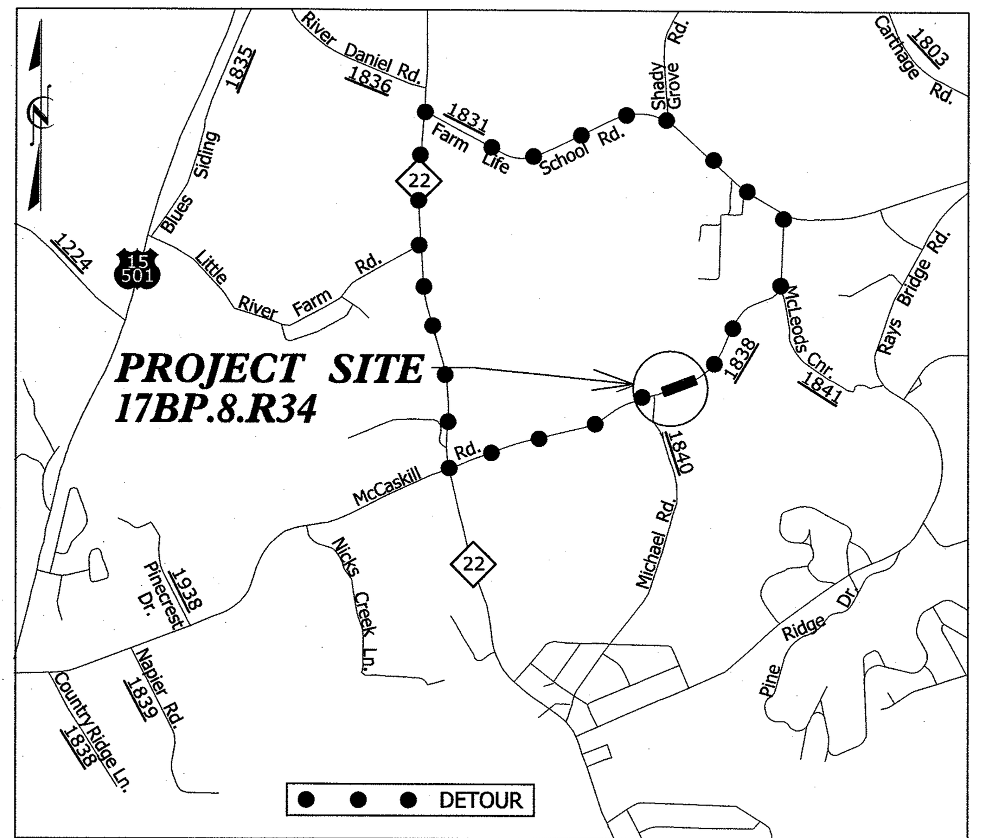
LOCATION: REPLACEMENT OF BRIDGE NO. 39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

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

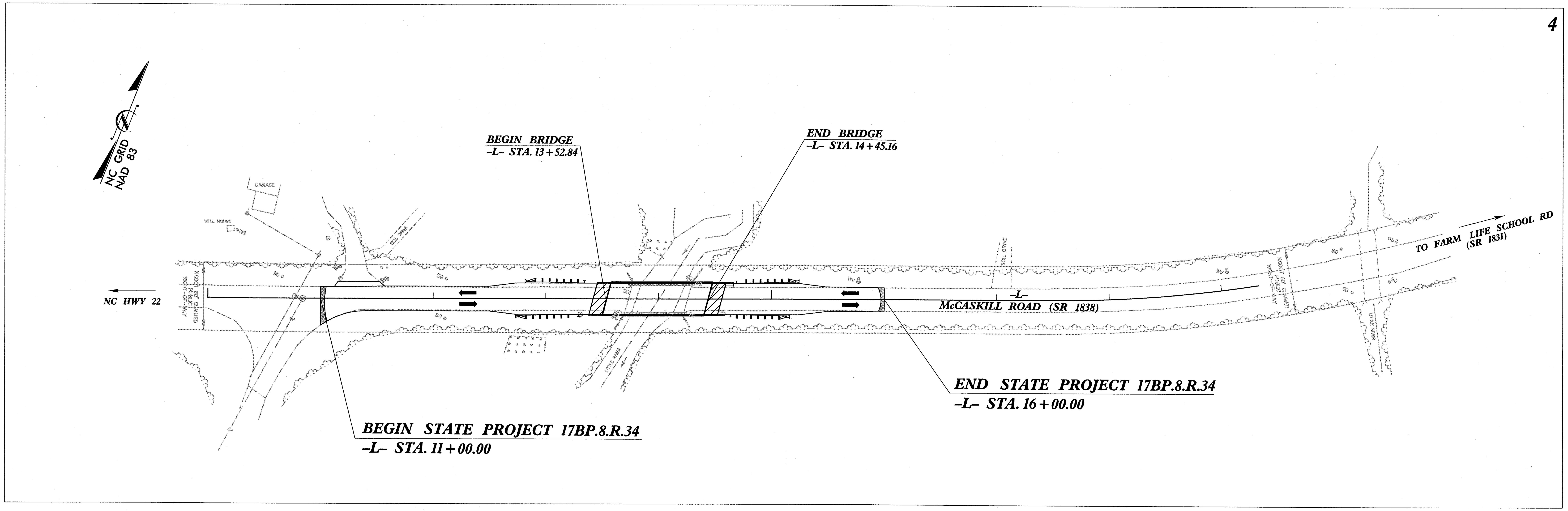
TIP PROJECT: 17BP.8.R.34

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP



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 = 1500
ADT 2025 = 3000
DHV = NA %
D = NA %
T = NA % *
V = 60 MPH
* TTST = NA
FUNC CLASS = MINOR COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.8.R.34 = 0.077 MILE
LENGTH OF STRUCTURE PROJECT 17BP.8.R.34 = 0.018 MILE
TOTAL LENGTH PROJECT 17BP.8.R.34 = 0.095 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 SEAL 28441 ENGINEER AMY J. WAZENEGGER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 016067 ENGINEER BRIAN D. DEHLER
SIGNATURE: P.E. 11/14/13

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY DESIGN ENGINEER P.E.

09/08/99
11/13/2013
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usjs04218

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.34	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 018097 ENGINEER BRIAN D. DEHLER 11/26/13

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
3	SUMMARY OF QUANTITIES
3-A	MISCELLANEOUS SUMMARIES (DRAINAGE, EARTHWORK, GUARDRAIL, PAVEMENT REMOVAL, RIGHT-OF-WAY, & SHOULDER BERM GUTTER)
4	PLAN & PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
SP-1	SPECIAL SIGN DESIGN
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
U-1 THRU U-4	UTILITY PLANS
X-1	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS
SN	STRUCTURE NOTES

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	Progress Energy
Water	Moore County Water
Sewer	Moore County Schools

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
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	
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

8/17/99
$$$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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.

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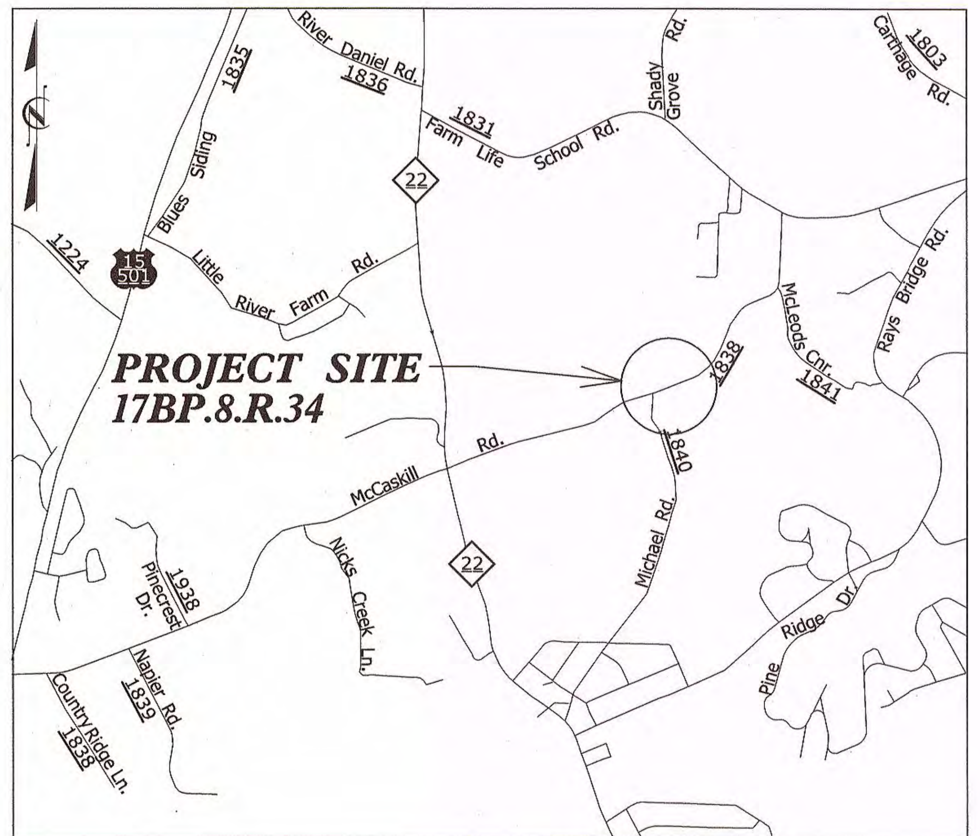
FAX: (919) 678-0206

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	I-C

SURVEYOR

SURVEY CONTROL SHEET 17BP.8.R.34



VICINITY MAP N.T.S.

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	L OFFSET
1	620039-1	552,059.98	1,879,155.62	356.32	OUTSIDE LIMITS	OUTSIDE LIMITS
101	BL-101	552,195.91	1,879,747.96	308.75	11+08.65	23.92 RIGHT
102	BL-102	552,326.74	1,879,977.83	304.77	13+70.43	13.87 LEFT
103	BL-103	552,410.34	1,880,269.00	304.42	16+72.01	14.72 RIGHT

NAD 83

NOTES:

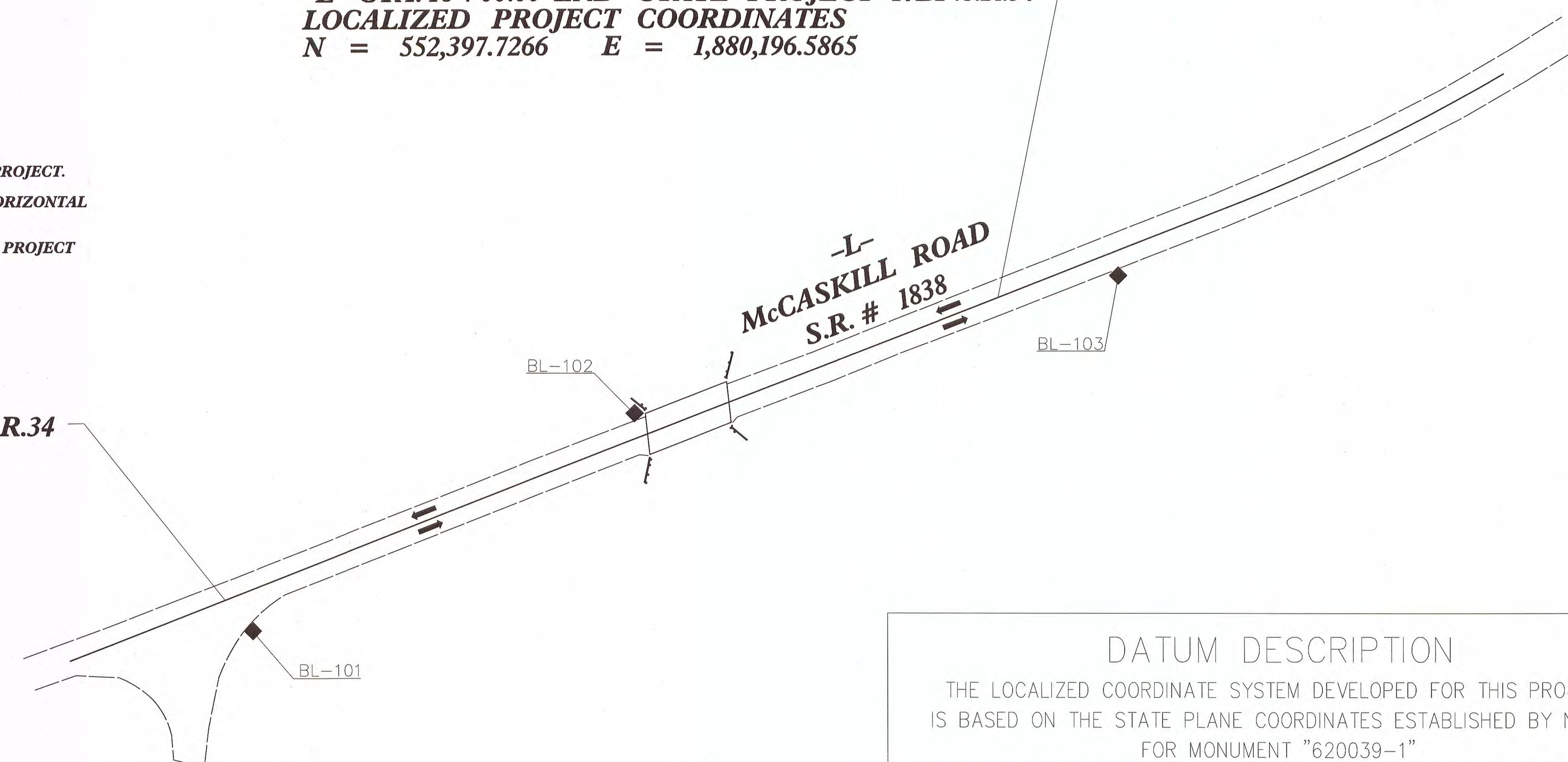
1. THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY NCDOT CONTROL POINTS PROVIDED ARE AS FOLLOWS:

   BL-1
   BL-101
   BL-102
   BL-103

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.
3. ⬢ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY NCDOT.

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

-L- STA. 16+00.00 END STATE PROJECT 17BP.8.R.34
LOCALIZED PROJECT COORDINATES
N = 552,397.7266 E = 1,880,196.5865



-L- STA. 11+00.00 BEGIN STATE PROJECT 17BP.8.R.34
LOCALIZED PROJECT COORDINATES
N = 552,215.0107 E = 1,879,731.1675

620039-1
BL-1

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "620039-1"
WITH NAD83/CORS96 STATE PLANE GRID COORDINATES OF NORTHING: 552,059.98(FT), EASTING: 1,879,155.62 (FT), ELEVATION: 356.32 (FT).
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985834
THE N.C. LAMBERT GRID BEARING AND LOCALIZED GROUND DISTANCE FROM "620039-1" TO L- STATION 10+00 IS N 76° 12' 07" E 496.80'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD88.

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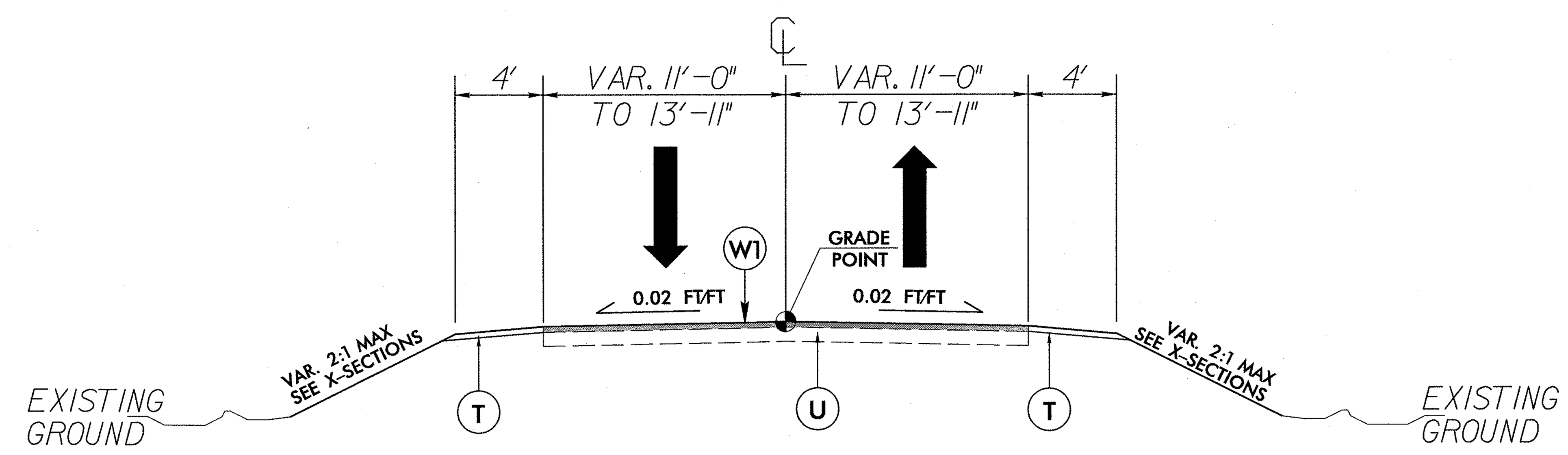
WSP
15401 Weston Parkway
Suite 100
Cary, NC 27513
NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

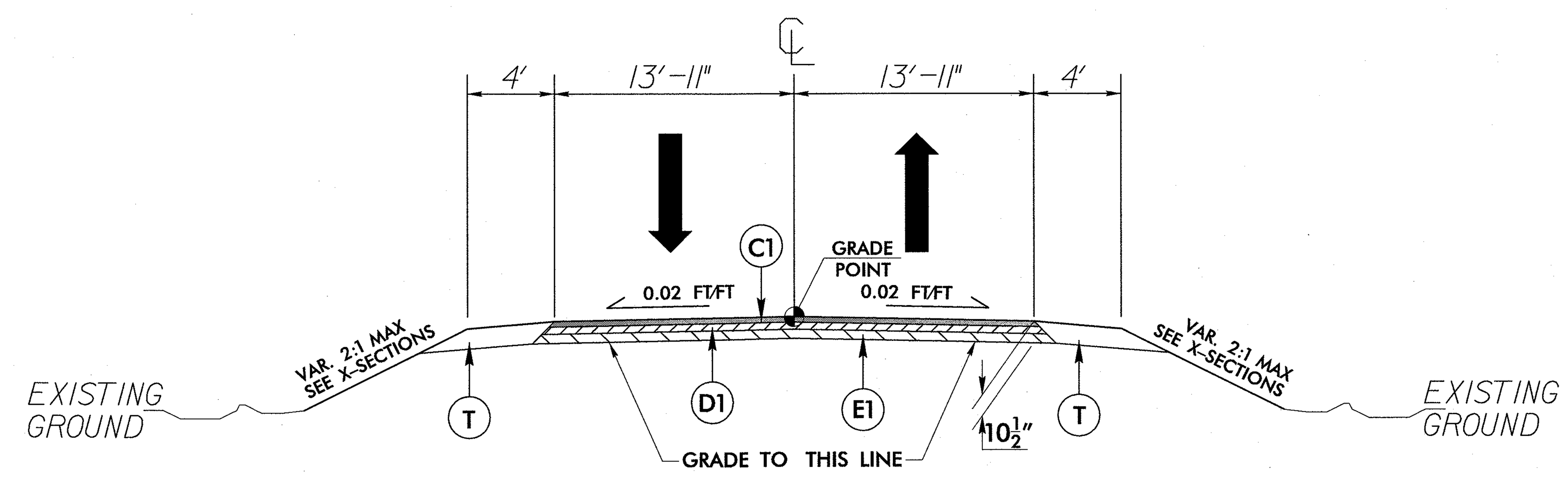
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 018067 BRIAN D. DEHLER 11/14/13

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 28441 JIMMY J. WAZENEGGER 11/18/13



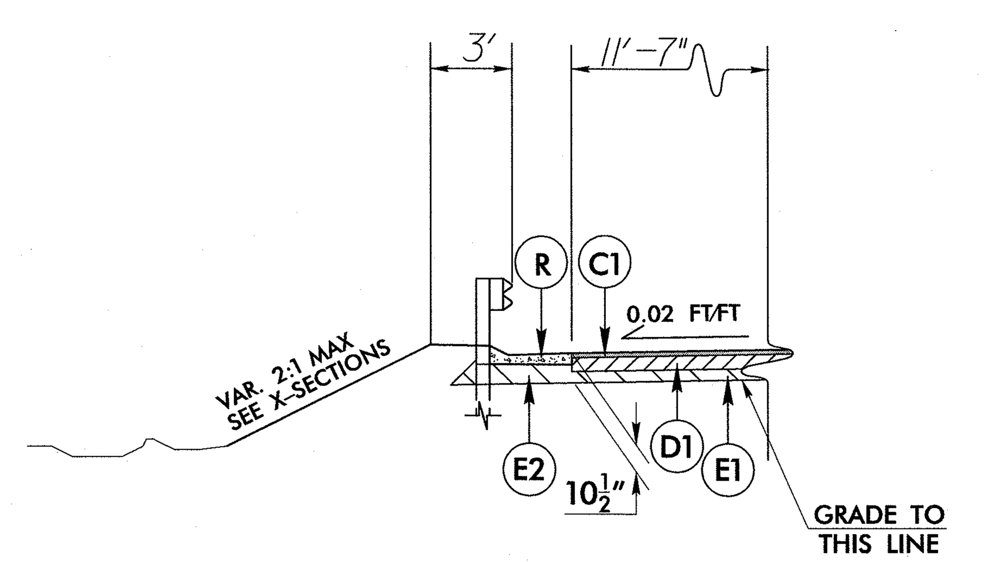
TYPICAL SECTION NO. 1

-L- STA. 11+00.00 TO STA. 13+10.00
-L- STA. 14+90.00 TO 16+00.00



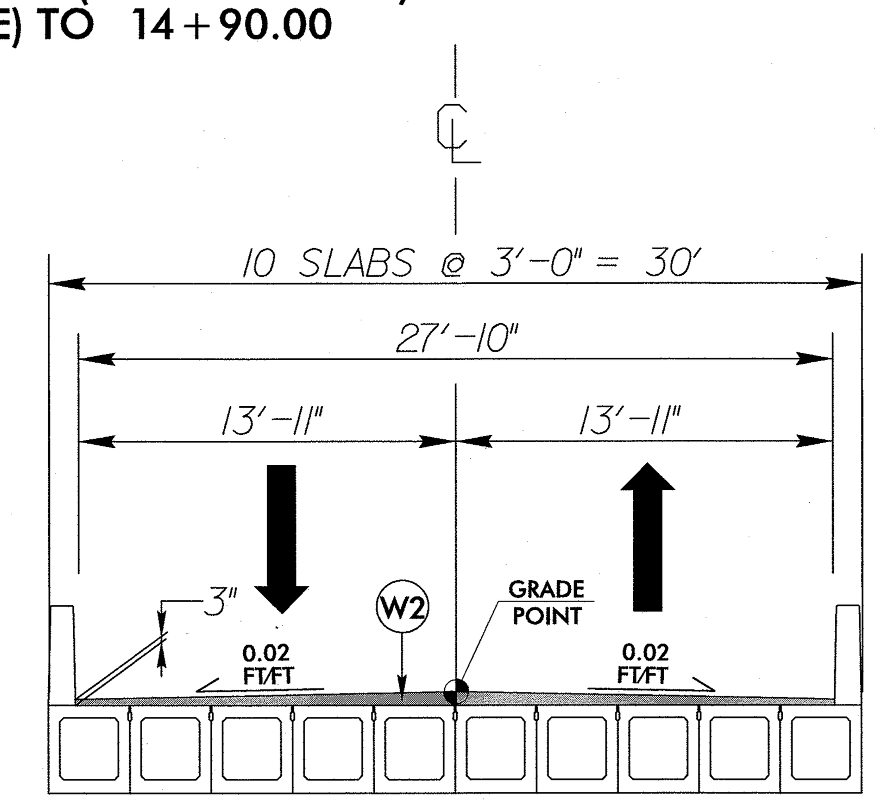
TYPICAL SECTION NO. 2
(USE IN CONJUNCTION WITH DETAIL A)

-L- STA. 13+10.00 TO STA. 13+52.84 (BEGIN BRIDGE)
-L- STA. 14+45.16 (END BRIDGE) TO 14+90.00



DETAIL A
SHOULDER BERM GUTTER SECTION
(LEFT SIDE SHOWN)

-L- STA. 14+52.40 TO 14+59.02 (RT)
-L- STA. 14+59.23 TO 14+66.48 (LT)



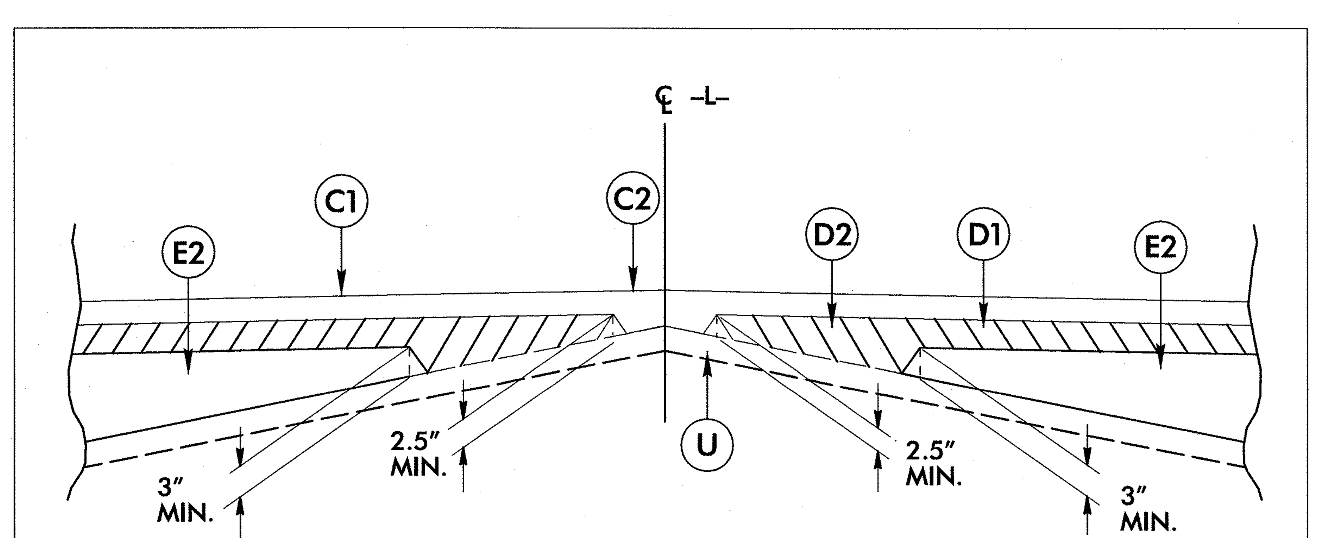
BRIDGE TYPICAL SECTION

PAVEMENT SCHEDULE

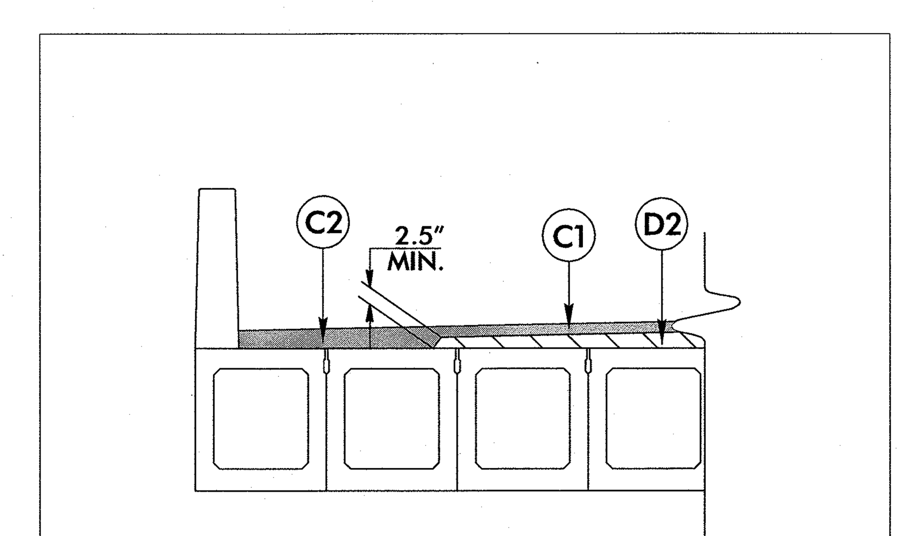
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 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.
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:

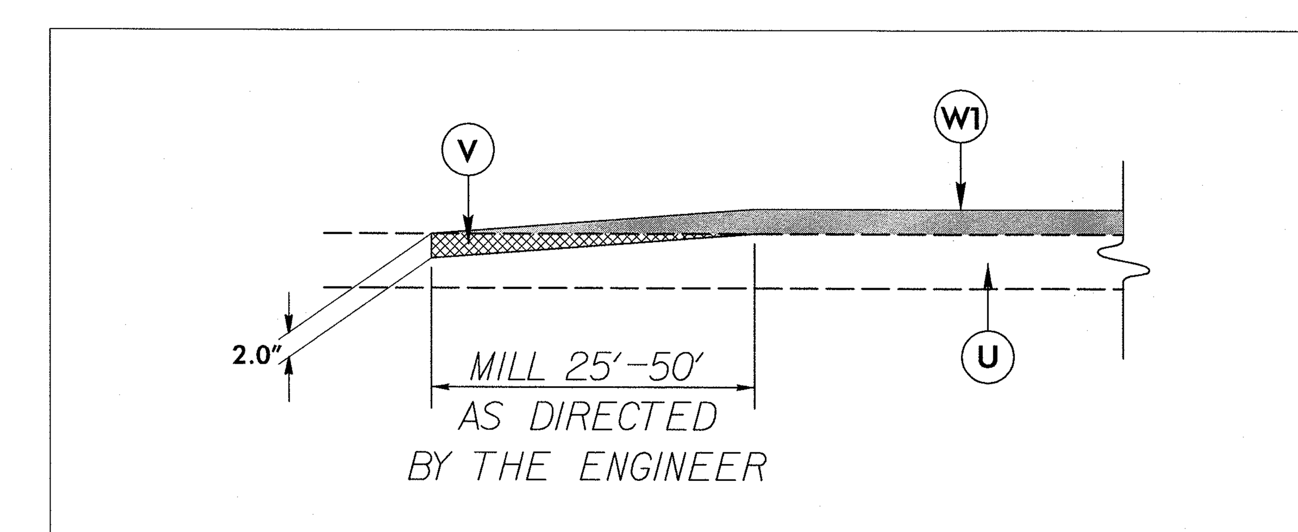
1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



WEDGING DETAIL 1



WEDGING DETAIL 2



MILLING DETAIL

REVISIONS

8/17/99

11/13/2013
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COMPUTED BY: J. STARNES, PE DATE: 10-01-13
CHECKED BY: B. DEHLER, PE DATE: 10-01-13

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROADWAY SUMMARY OF QUANTITIES FOR PROJECT 17BP.8.R.34

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. 13+99.00 -L-
0043000000-N	226	1	LS	GRADING
0050000000-E	226	1	ACR	SUPP CLEARING & GRUBBING
0318000000-E	300	172	TON	FND CONDIT MATL MINOR STRS
0320000000-E	300	20	SY	FND CONDIT GEOTEXTILE
0448200000-E	310	24	LF	15" RCP CULV CLASS IV
0582000000-E	310	20	LF	15" CS PIPE CULV 0.064"
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1330000000-E	607	250	SY	INCIDENTAL MILLING
1489000000-E	610	170	TON	ASP CONC BASE CRS B25.0B
1498000000-E	610	110	TON	ASP CONC INTR CRS I19.0B
1525000000-E	610	190	TON	ASP CONC SURF CRS SF9.5A
1575000000-E	620	25	TON	ASP FOR PLANT MIX
2286000000-N	840	2	EA	MASNRY DRAINAGE STRUCT
2355000000-N	840	2	EA	FRAME W/GRATE 840.29 STD
2556000000-E	846	14	LF	SHOULDER BERM GUTTER
3030000000-E	862	25	LF	STL BM GUARDRAIL
3150000000-N	862	5	EA	ADDIT GUARDRAIL POSTS
3215000000-N	862	4	EA	GR ANCHOR TYPE III
3270000000-N	862	4	EA	GR ANCHOR TYPE 350
3649000000-E	876	2	TON	RIP RAP, CLASS B
3656000000-E	876	200	SY	GEOTEXTILE FOR DRAINGE
4399000000-N	1105	1	LS	TEMP TRAFFIC CONTROL
4810000000-E	1205	4000	LF	PAINT PVT MARKINGS 4"
5326200000-E	1510	414	LF	12" WATER LINE
5538000000-E	1515	2	EA	4" VALVE
5709200000-E	1520	348	LF	4" FORCE MAIN SEWER
5804000000-E	1530	410	LF	ABANDON 12" UTILITY PIPE
5835000000-E	1540	46	LF	10" ENCASEMENT PIPE 0.250" THICK
5835900000-E	1540	44	LF	20" ENCASEMENT PIPE
5871600000-E	1550	23	LF	10" TRENCHLESS INSTALL (IN SOIL)
5871610000-E	1550	23	LF	10" TRENCHLESS INSTALL (NOT IN SOIL)
5872100000-E	1550	22	LF	20" TRENCHLESS INSTALL (IN SOIL)
5872110000-E	1550	22	LF	20" TRENCHLESS INSTALL (NOT IN SOIL)
6000000000-E	1605	975	LF	TEMPORARY SILT FENCE
6006000000-E	1610	80	TON	EROS CONTRL STONE CL A
6012000000-E	1610	55	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	0.5	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
6036000000-E	1631	6260	SY	MATTING FOR EROS CONTROL
6037000000-E	SP	75	SY	COIR FIBER MAT
6042000000-E	1632	275	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	25	LF	WATTLE
6084000000-E	1660	0.5	ACR	SEEDING AND MULCHING
6087000000-E	1660	0.5	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	0.5	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	13	EA	RESPONSE FOR EROS CONTROL
6123000000-E	1670	1	ACR	REFORESTATION
8035000000-N	402	1	LS	REMV EXIST STR STA. 13+99.00 -L-
8112730000-N	450	1	EA	PDA TESTING
8121000000-N	412	1	LS	UNCL STR EXCAV STA. 13+99.00 -L-
8182000000-E	420	50	CY	CLASS A CONCRETE (BRIDGE)
8210000000-N	422	1	LS	BRG APPR SLAB STA. 13+99.00 -L-
8217000000-E	425	6872	LB	REINF STEEL (BRIDGE)
8364000000-E	450	150	LF	HP12X53 PILES
8391000000-N	450	10	EA	STEEL PILE POINTS
8505000000-E	460	180	LF	VERT CONC BARRIER RAIL
8608000000-E	876	140	TON	RIP RAP II (2'-0")
8622000000-E	876	155	SY	GEOTEXTILE FOR DRAINAGE
8657000000-N	430	1	LS	ELASTOMERIC BEARINGS
8753100000-E	430	900	LF	3'-0"X 2'-9" PRESTR BOX BEAM

6/21/00
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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.34	3-A

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	TEMP. CONSTR. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
8	ROBERT T. DYER					877.16 SF		
9	ROBERT T. DYER					2860.28 SF	401.10 SF	
10	PHILLIP & CONNIE L. THOMAS					3025.01 SF		
11	REBECCA B. HAMOR, SOLE TRUSTEE UNDER THE RICHARD M. HAMOR LIVING TRUST					1934.37 SF		

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV. (CY)	EMBANK. +20% (CY)	BORROW (CY)	WASTE (CY)
11+00.00	13+52.84	262	22		240
BRIDGE					
14+45.17	16+00.00	296	39		257
SUBTOTALS:		558	61		497
PROJECT TOTALS:		558	61		497
GRAND TOTALS:		558	61		497
SAY:		600	100		500

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 / SIZE / THICKNESS OR GAUGE	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"
14+67.5	LT	0401	0402	304.87	301.70	300.74	4.0								
14+60	RRT	0402	0403	304.91	300.74	299.12	9.5								
PROJECT TOTAL															
SAY															

STATION	C.S. PIPE (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"
14+67.5															24						
14+60		17																			
PROJECT TOTAL		17													24						
SAY		20													24						

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 PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	
14+67.5						1							
14+60						1							
PROJECT TOTAL						2							
SAY						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 GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.35	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29						CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
14+67.5											1	1										USE CLASS IV R.C. PIPE
14+60											1	1										
PROJECT TOTAL											2	2										
SAY											2	2										

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+52.40 (RT)	14+59.02 (RT)	6.62 LF
-L-	14+59.23 (LT)	14+66.48 (LT)	7.25 LF
		TOTAL:	13.87 LF
		SAY:	14.00 LF

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	13+10.00	13+75.86	CL	144.06
-L-	14+22.56	14+90.00	CL	148.01
			TOTAL:	292.07 SY
			SAY:	295 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	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-	12+75.28	13+50.28	RT	75'					2'-11"	5'-11"	56'-3"	56'-3"	1'-1.5"	1'-1.5"		1	1							1		1				
-L-	12+82.73	13+57.73	LT	75'					2'-11"	5'-11"	56'-3"	56'-3"	1'-1.5"	1'-1.5"		1	1							1		1				
-L-	14+40.28	15+15.28	RT	75'					2'-11"	5'-11"	56'-3"	56'-3"	1'-1.5"	1'-1.5"		1	1							1		1				
-L-	14+47.73	15+22.73	LT	75'					2'-11"	5'-11"	56'-3"	56'-3"	1'-1.5"	1'-1.5"		1	1							1		1				
			SUBTOTAL	300'												4	4							4		4				
			LESS DEDUCTIONS																											
			GRAU-350 (4 x 50)=	200'																										
			TYPE III (4 x 18.75)=	75'																										
			SUBTOTAL	275'																										
			TOTALS	25'												4	4							4		4				
			SAY	25'			ADDITIONAL GUARDRAIL POSTS = 5									4	4							4		4				

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

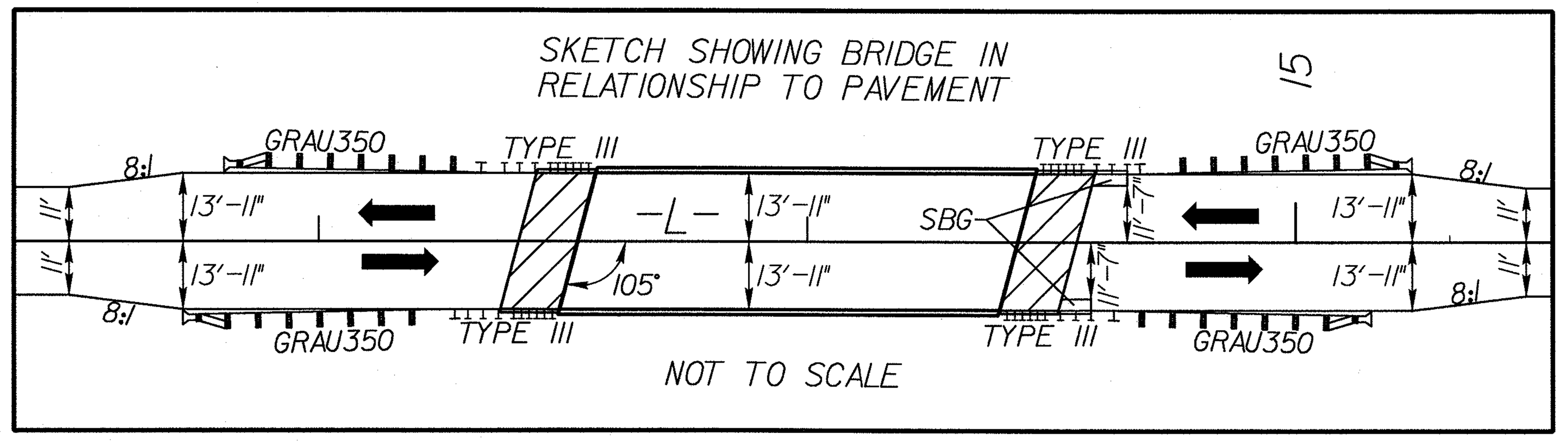
PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

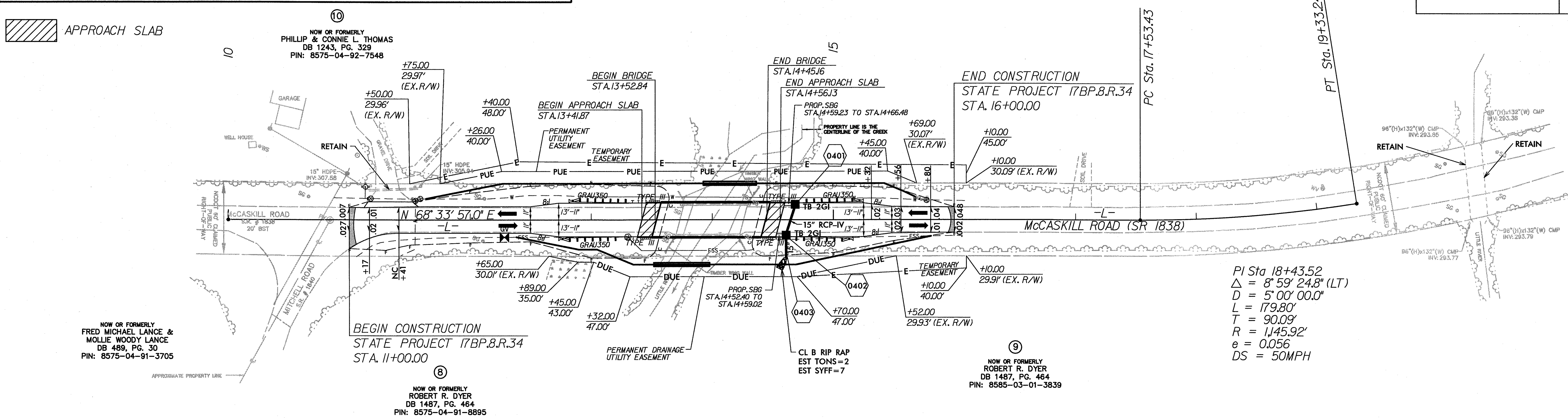
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036067 BRIAN D. DEHLER 11/14/13

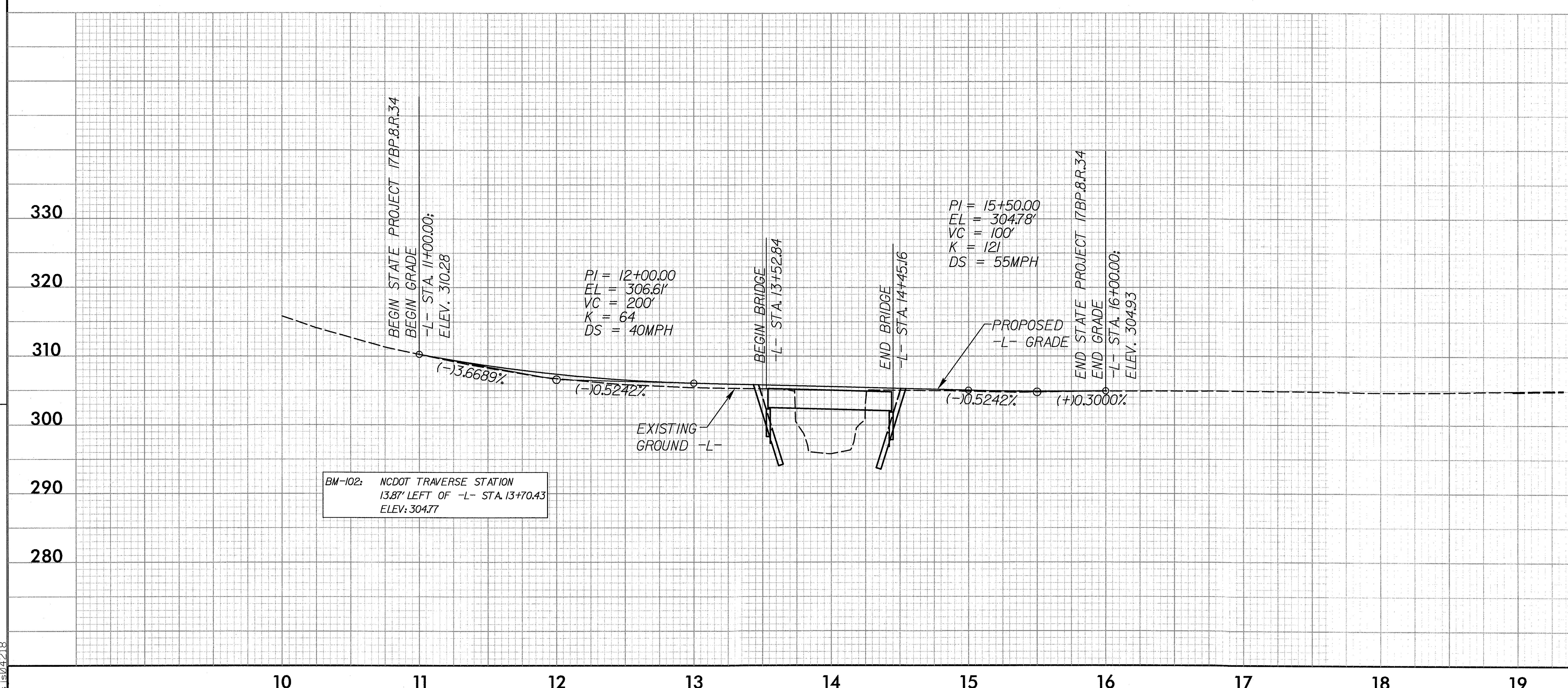
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 28441 WAZENEGGER 11-18-13

REVISIONS



APPROACH SLAB





BM-102: NCDOT TRAVERSE STATION 13.87' LEFT OF -L- STA. 13+70.43 ELEV: 304.77

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2,600	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 302.20'	FT
BASE DISCHARGE	= 3,553	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 303.55'	FT
OVERTOPPING DISCHARGE	= 6,070 +/-	CFS
OVERTOPPING FREQUENCY	= 500 +/-	YRS
OVERTOPPING ELEVATION	= 304.20'	FT
DATE OF SURVEY	= 3/30/12	
W.S. ELEVATION AT DATE OF SURVEY	= 294.50'	FT
BASE FEMA DISCHARGE	= 3,553	CFS
BASE FEMA FREQUENCY	= 100	YRS
BASE FEMA HW ELEVATION	= 303.55'	FT

8/17/99

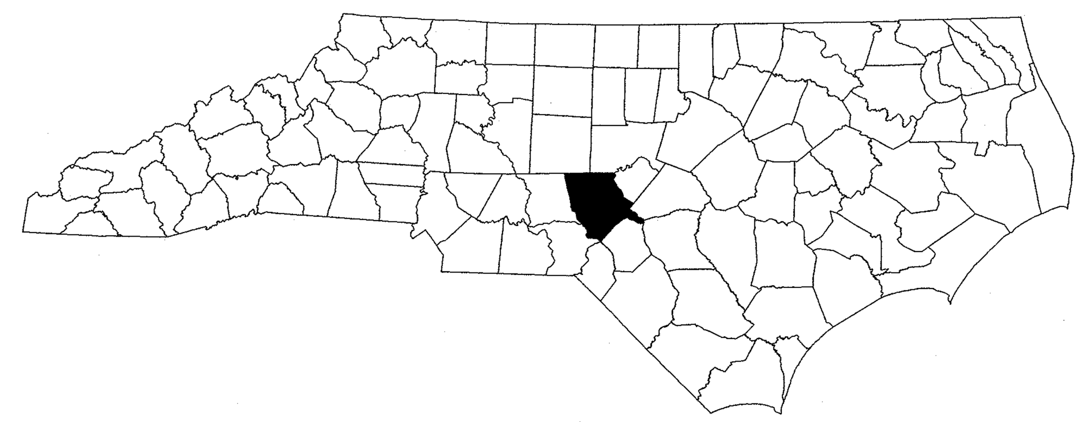
11/13/2013 R:\17BP.8.R.34\Roadway\Proj\R.34_rdy_psh04_pln.dgn

SHEET NO. TMP-1

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

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

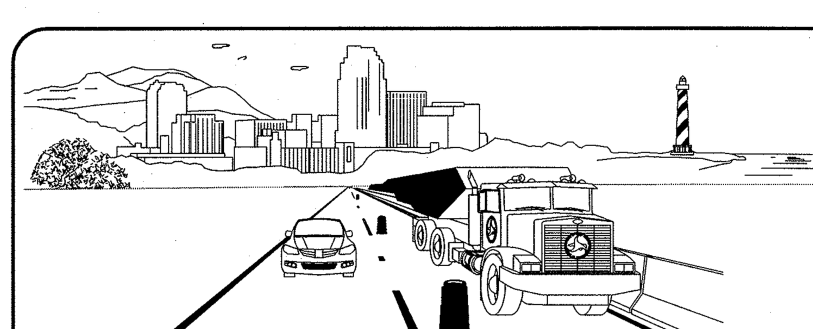
EXISTING LINES
TEMPORARY LINES

PAVEMENT MARKERS

CRYSTAL/CRYSTAL
CRYSTAL/RED
YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS



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

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

APPROVED: Bri D. Oehler
DATE: 11/14/13

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 016067 BRIAN D. OEHLER

TIP PROJECT: 17BP.8.R.34

11/13/2013
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PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.34	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. #1838 (McCASKILL ROAD) TO THRU TRAFFIC.

STEP 2:

REMOVE THE EXISTING BRIDGE OVER LITTLE RIVER AND BEGIN CONSTRUCTION OF -L- BRIDGE OVER LITTLE RIVER.

-L- STA. 13+53 +/- TO 14+45 +/- (BRIDGE)

STEP 3:

COMPLETE CONSTRUCTION OF THE FOLLOWING:

-L- STA. 13+53 +/- TO 14+45 +/- (BRIDGE)

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

-L- STA. 11+00 +/- TO 16+00 +/- (BOTH DIRECTIONS)

STEP 4:

INSTALL PERMANENT PAVEMENT MARKINGS IN THE FOLLOWING LOCATIONS:

-L- STA. 11+00 +/- TO 16+00 +/- (BOTH DIRECTIONS)

STEP 5:

REMOVE TYPE III BARRICADES AND DETOUR, AND OPEN S.R. #1838 (McCASKILL 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
McCaskill 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.

10/22/2014
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WSP
15401 Weston Parkway
Suite 100
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NC License # F-0891
TEL: (919) 678-0035
FAX: (919) 678-0206

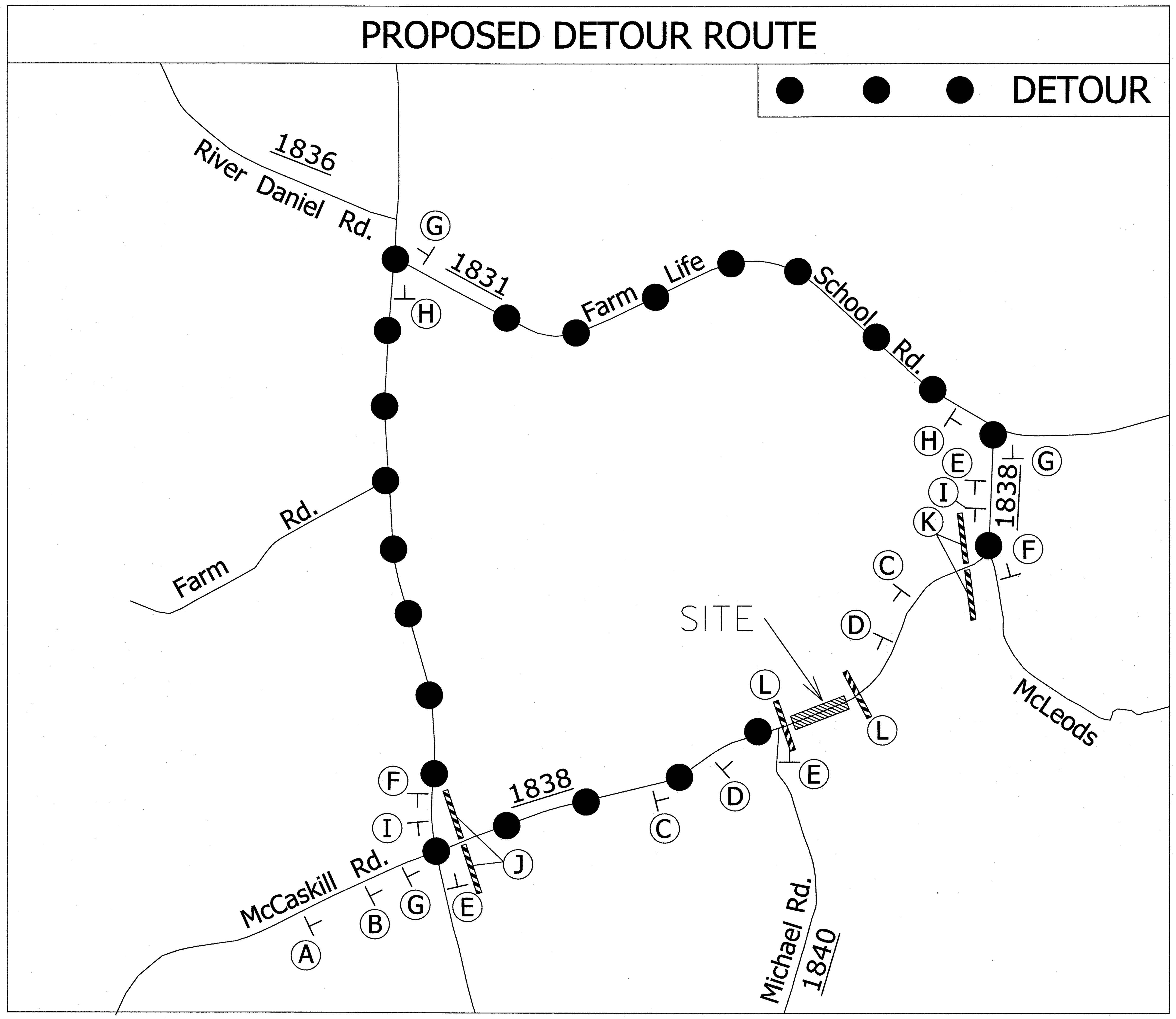
APPROVED: DATE:

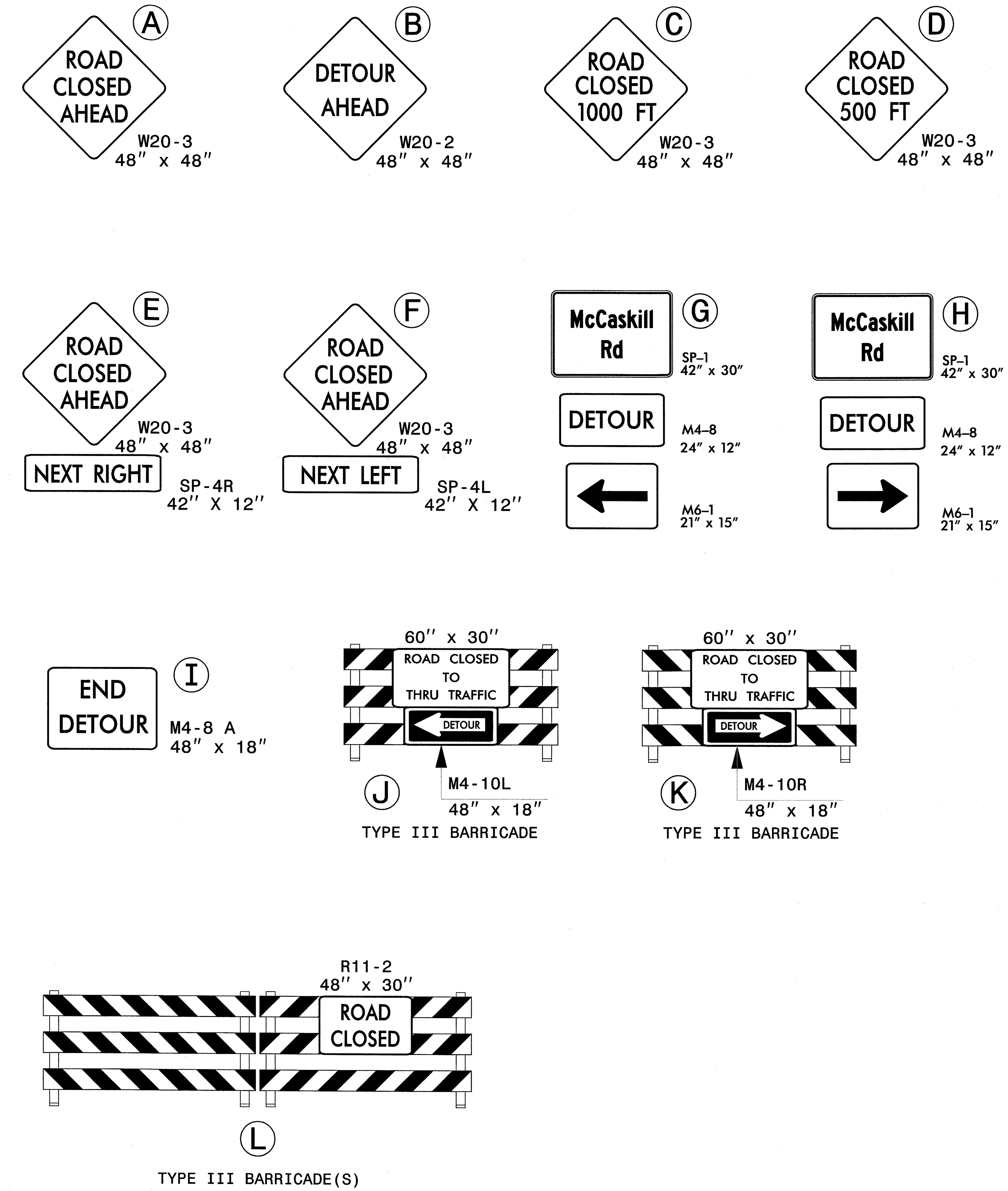
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30882 JENNIFER L. STARNES
10-22-14

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

CONSTRUCTION PHASING AND GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.34	TMP-2





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NC License # F-0891
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FAX: (919) 678-0206

APPROVED: [signature] DATE: 11/14/13

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 018067 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.34	SP-1

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

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SIGN WIDTH: 4'-0"
HEIGHT: 1'-6"
TOTAL AREA: 6.0 Sq.Ft.

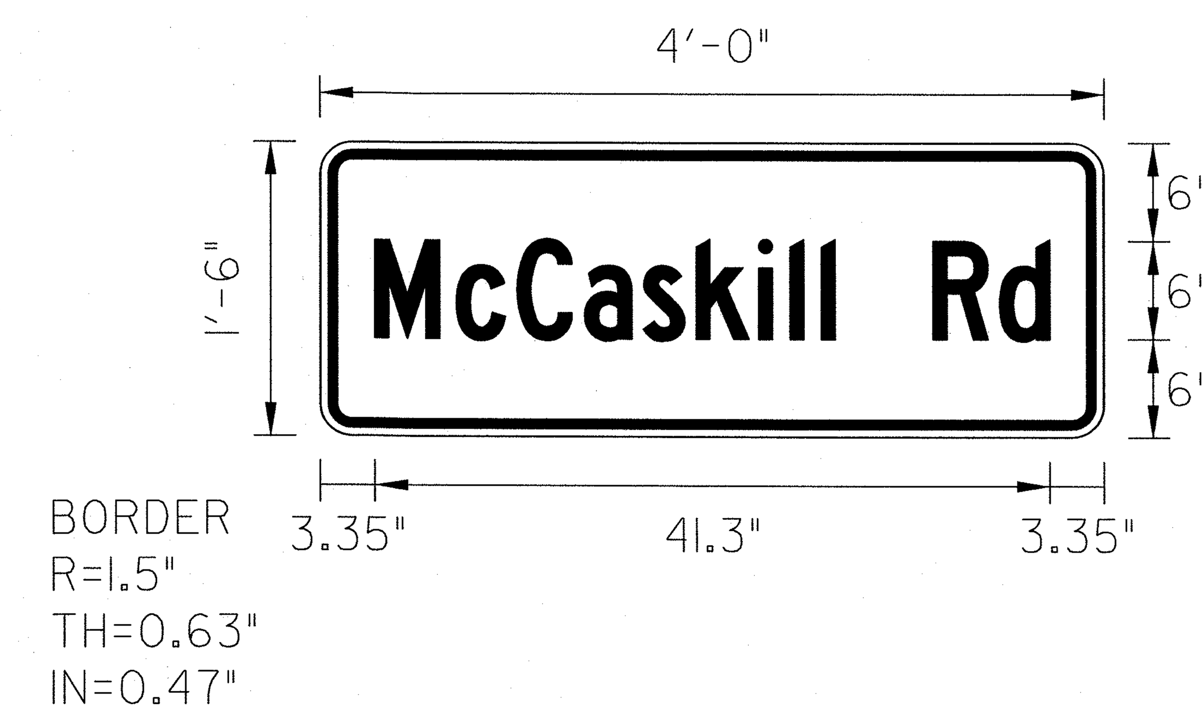
BORDER TYPE: INSET
RECESS: 0.47"
WIDTH: 0.63"
RADII: 1.5"

NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: G. TENG
PROJECT ID: 17BP.8.R.34
CHECKED BY: B. DEHLER
DIV: 8
DATE: Nov 14, 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 fluorescent orange retroreflective sheeting.

LETTER POSITIONS

Letter locations are panel edge to lower left corner

	M	c	C	a	s	k	i	l	l		R	d	Series/Size Text Length
	3.3	8.3	12	16.2	19.8	23	26.9	28.8	30.7	31.5	37.5	41.6	C 2000 41.3

FILENAME: R.34_TC_PSH_SP-1

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: 11/16/13

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032179 ENGINEER ZHAOLONG TENG

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

SPECIAL SIGN DESIGN

11/14/2013
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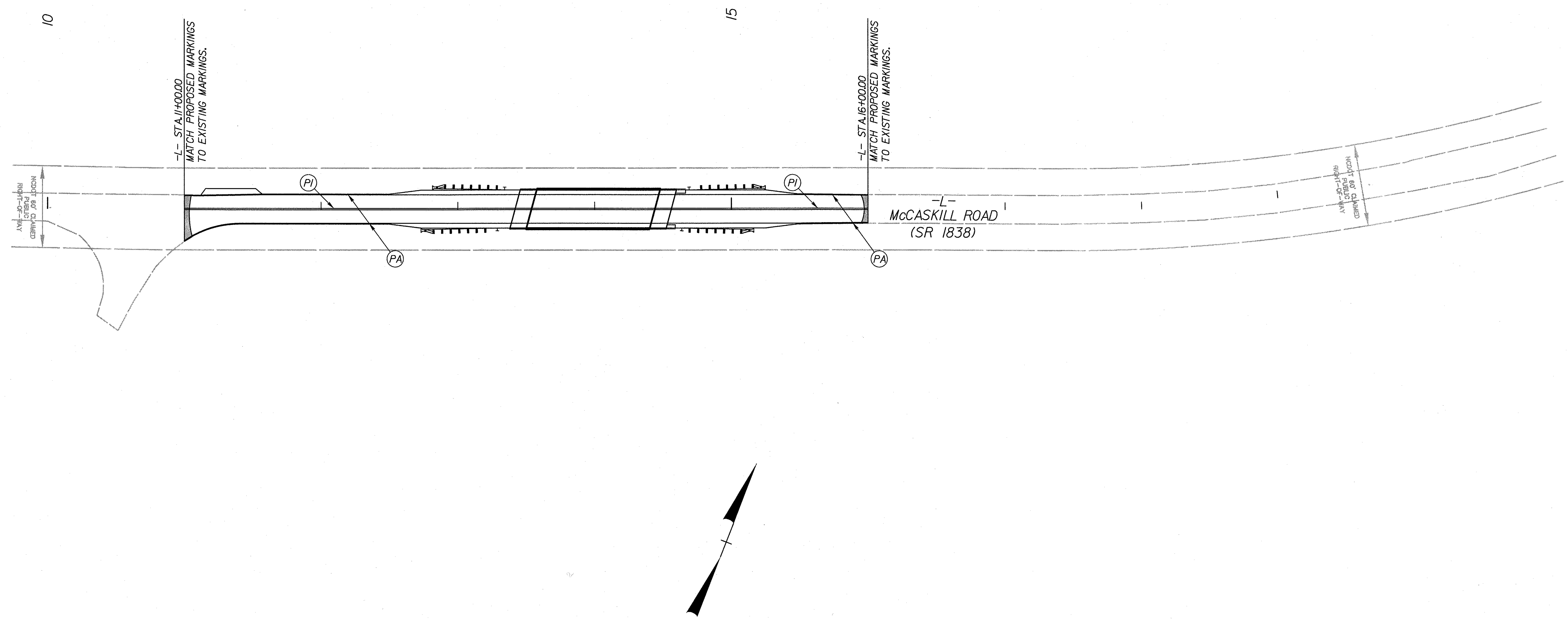
USZT04226

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.34	PMP-1

PAVEMENT MARKING SCHEDULE
TIP PROJECT # 17BP.8.R.34

SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS	PAY ITEM QUANTITY BREAKDOWN	TOTAL QUANTITY
PI	YELLOW DOUBLE CENTER	PAINT (4")	1000 LF (2 COATS)	2000 LF
PA	WHITE EDGELINE	PAINT (4")	1000 LF (2 COATS)	2000 LF

NOTES:
1. MATCH EXISTING LANE WIDTHS THROUGHOUT NEWLY CONTRUCTED AREA.



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

APPROVED: DATE: 11/25/13

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 016067 BRIAN D. DEHLER

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

PAVEMENT MARKING PLAN

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

TIP PROJECT: 17BP.8.R.34

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.34	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.34		PE

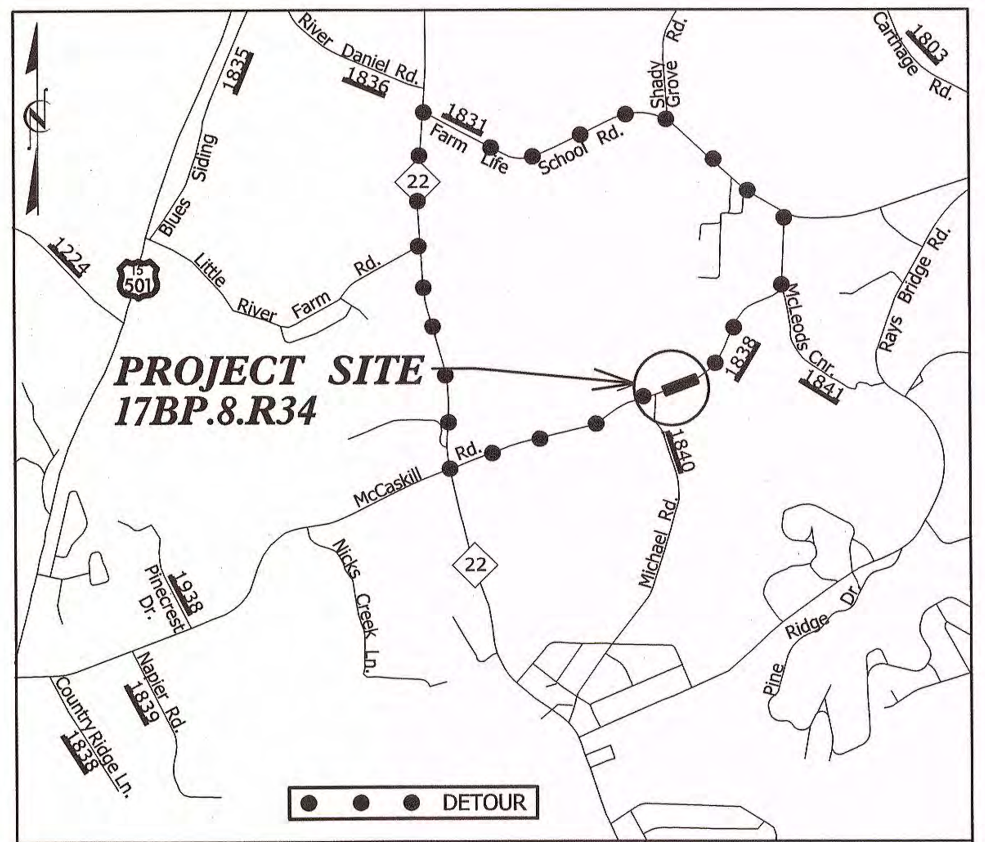
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

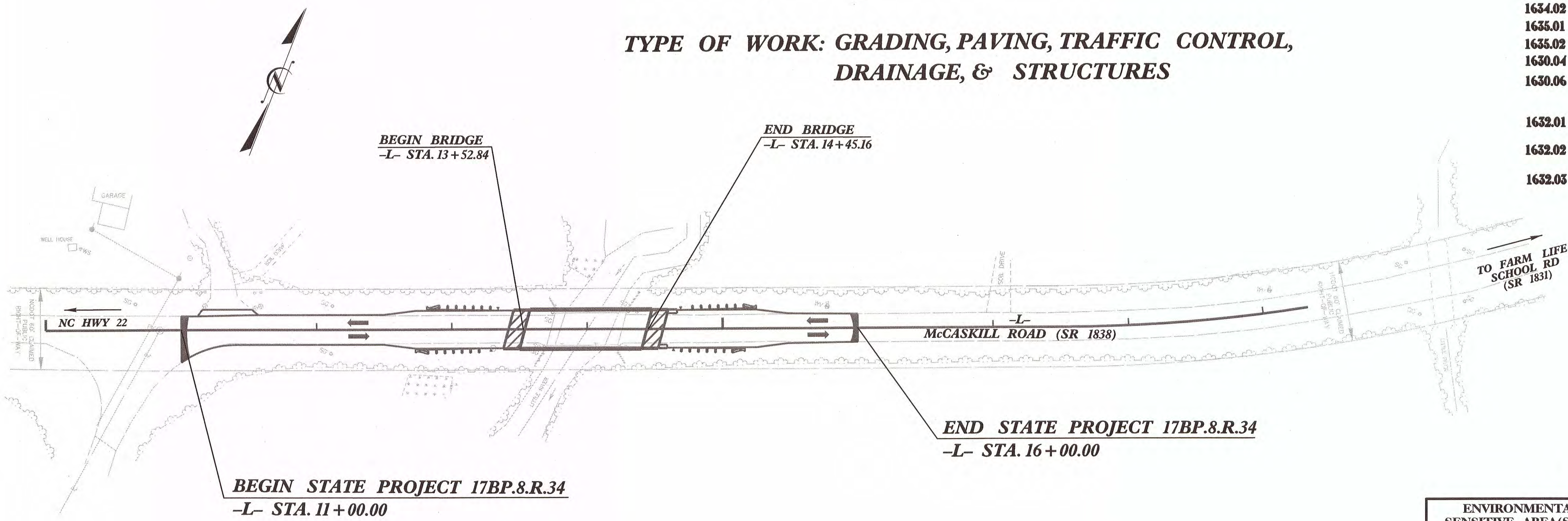
MOORE COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

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



VICINITY MAP



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	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. 13+04.03
to Sta. 15+26.67
Refer To E. C. Special Provisions for Special Considerations.

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		

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

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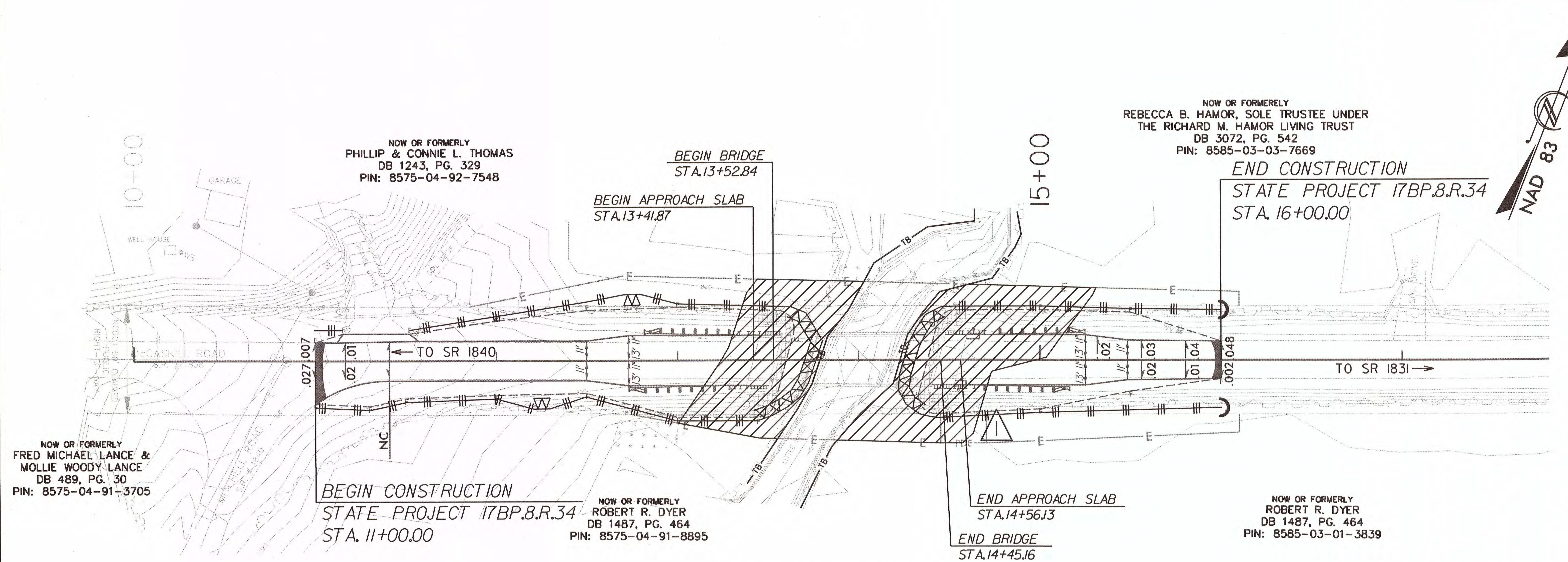
LICENSE NO. F-0891

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	EC-4/CONST.4
R/W SHEET NO.	
EROSION CONTROL ENGINEER	

NORTH CAROLINA PROFESSIONAL SEAL 035621 ENGINEER ANDREW M. HOWELL
3-15-13

8/17/99

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



PLAN ALONG -L-

SCALE : 1" = 30'

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

3/15/2013
R:\17BP.8.R.34\Drainage\62-0039_ec_EC4_Sheet.dgn

EROSION CONTROL PLAN

WSP • SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
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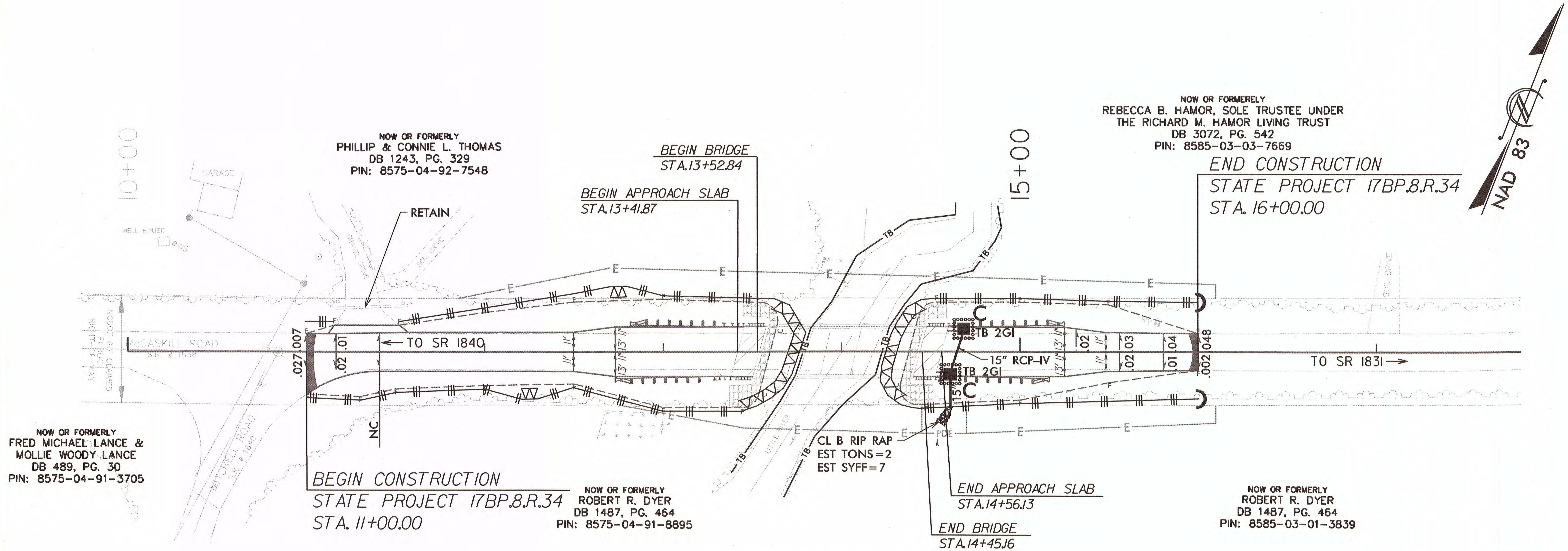
PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	EC-5/CONST.4
R/W SHEET NO.	
EROSION CONTROL ENGINEER	

NORTH CAROLINA PROFESSIONAL SEAL 035621 ENGINEER ANDREW M. HOWELL
3-15-13



PLAN ALONG -L-

SCALE : 1" = 30'

8/17/99

3/15/2013
R:\17BP.8.R.34\Drainage\62-0039_ec_EC5_Sheet.dgn

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.34	RF-1	

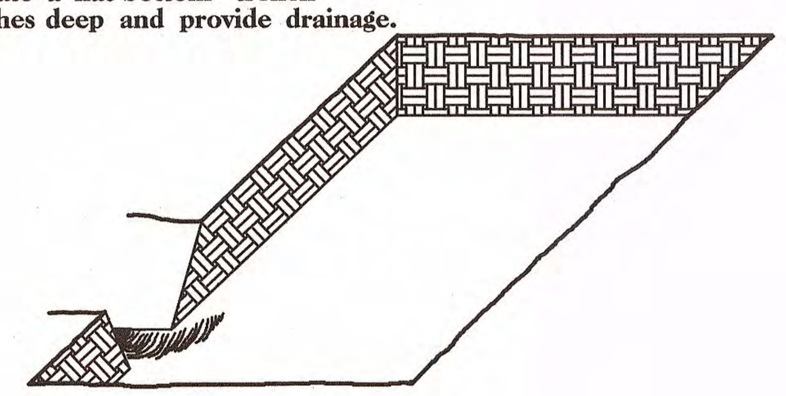
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.34		PE

PLANTING DETAILS

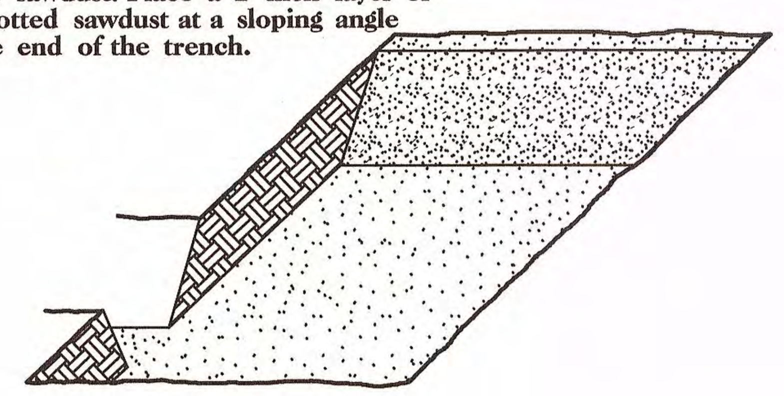
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

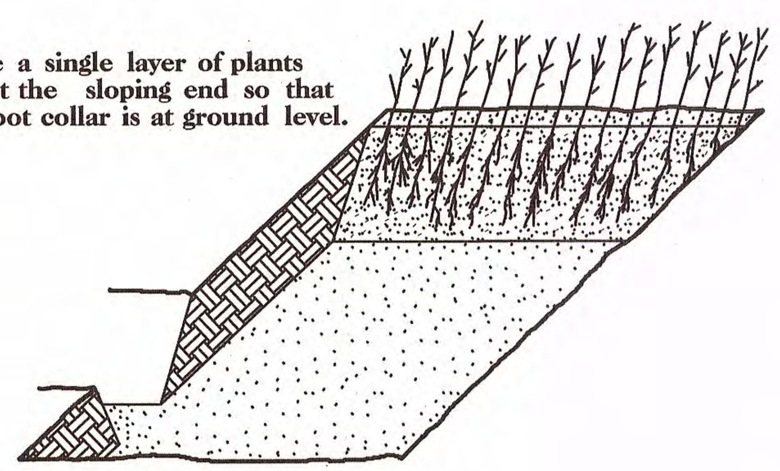
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



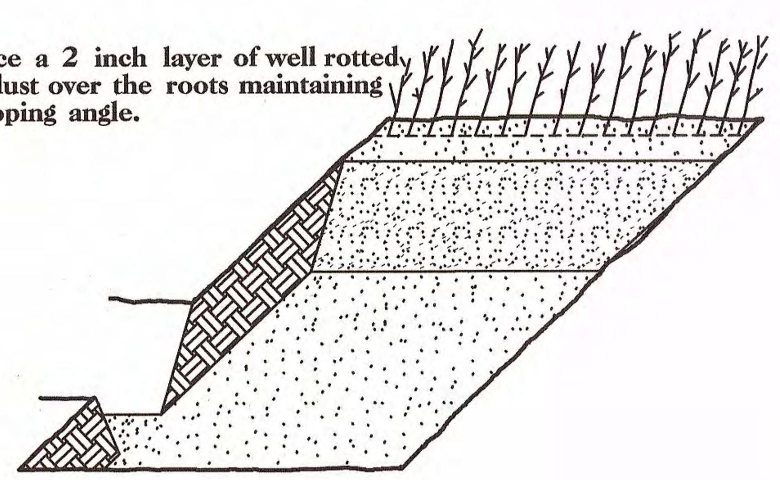
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

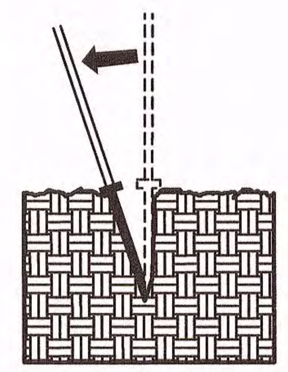


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

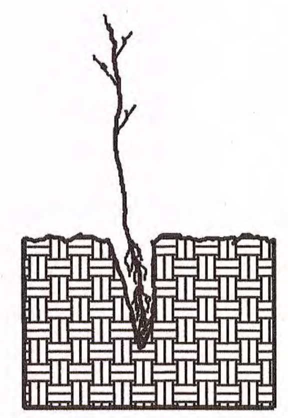


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

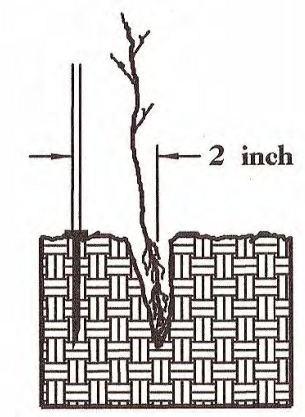
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



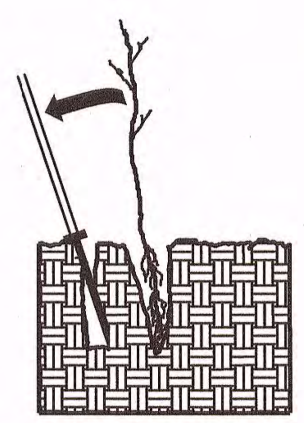
1. Insert planting bar as shown and pull handle toward planter.



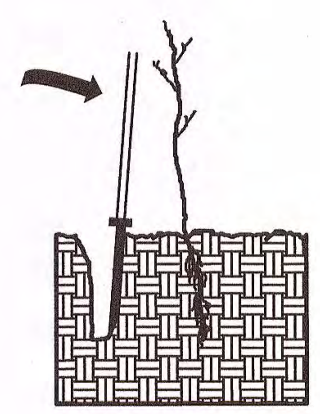
2. Remove planting bar and place seedling at correct depth.



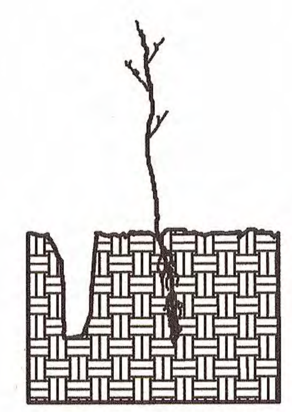
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

REFORESTATION

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

REFORESTATION

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

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

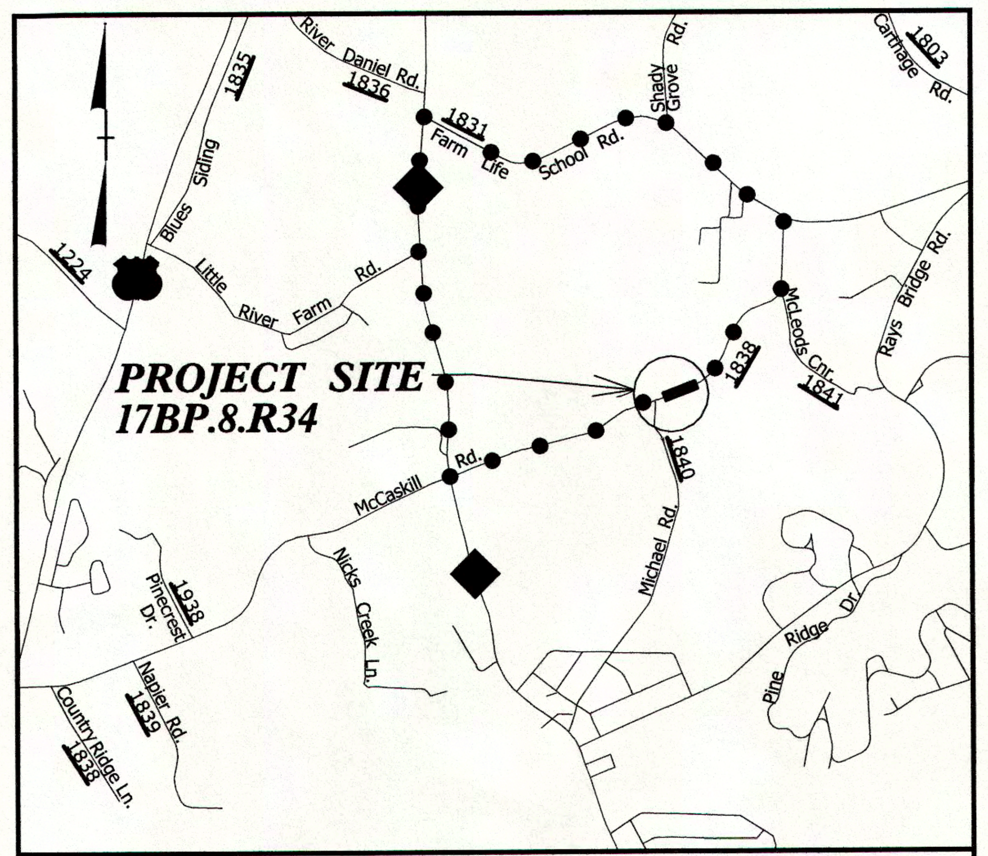
PROJECT: 17BP.8.R.34

CONTRACT:

T.I.P. NO.	SHEET NO.
17BP.8.R.34	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
MOORE COUNTY

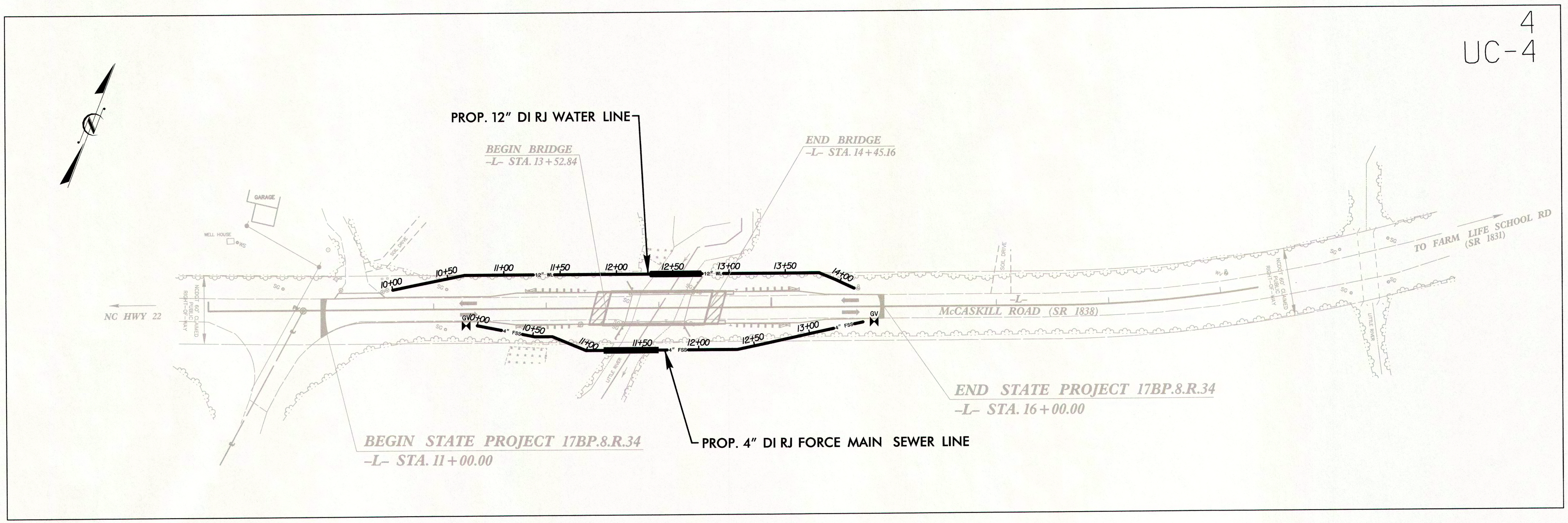


VICINITY MAP

OFF-SITE DETOUR ROUTE

LOCATION: REPLACEMENT OF BRIDGE NO. 39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

TYPE OF WORK: UTILITIES



LOCATION SKETCH

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)

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY SHEET
UC-3	GENERAL NOTES SHEET
UC-3A	UTILITY DETAILS SHEET
UC-4	UTILITY CONSTRUCTION PLAN & PROFILE SHEET

WATER AND SEWER OWNERS ON PROJECT

(1) WATER - MOORE COUNTY EAST MOORE WATER DISTRICT

(1) SEWER - MOORE COUNTY SCHOOLS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029901 KEVIN S. HINDE 2/28/13

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.34	UC-2

DESIGNED BY: BKA
DRAWN BY: BKA
CHECKED BY: KSH
APPROVED BY: KSH
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029901 8/28/13 KEVIN S. HINDE

UTILITY CONSTRUCTION PLANS ONLY

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

UTILITY CONSTRUCTION

SCALE: 0 50 100

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 FH
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)
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
*Underground Telephone Cable
*Underground Telephone Conduit
*Underground Fiber Optics Telephone Cable
*Underground TV Cable
*Underground Fiber Optics TV Cable
*Underground Gas Pipeline
Aboveground Gas Pipeline A/G Gas
*Underground Water Line
Aboveground Water Line A/G Water
*Underground Gravity Sanitary Sewer Line
Aboveground Gravity Sanitary Sewer Line A/G Sanitary Sewer
*Underground SS Forced Main Line
Underground Unknown Utility Line
SUE Test Hole
Water Meter
Water Valve
Fire Hydrant
Sanitary Sewer Cleanout

*For Existing Utilities
Utility Line Drawn from Record (Type as Shown)
Designated Utility Line (Type as Shown)

NORTH CAROLINA DEPT. OF TRANSPORTATION ENGINEERING DIVISION RALEIGH, NORTH CAROLINA

REPLACEMENT OF BRIDGE NO.39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

Designed By:	Checked By:	Date:	Sheet:	Of:
BKA	KSH	8-28-13	UC-2	UC-4

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	UC-3

DESIGNED BY: BKA
DRAWN BY: BKA
CHECKED BY: KSH
APPROVED BY: KSH
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/28/13

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.

2. THE EXISTING WATER BELONGS TO MOORE COUNTY, EAST MOORE WATER DISTRICT AND THE EXISTING SEWER BELONGS TO MOORE COUNTY SCHOOLS.

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

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

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

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

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

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

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

PROJECT SPECIFIC NOTES:

1. CONTRACTOR SHALL CONNECT ALL WATER & SEWER LINES AND SERVICE CONNECTIONS USING NECESSARY FITTINGS.

2. CONTRACTOR SHALL COORDINATE ALL WATER WORK WITH MOORE COUNTY. CONTACT LEX KELLY WITH MOORE COUNTY AT (910) 947-6315.
CONTRACTOR SHALL COORDINATE ALL SEWER WORK WITH MOORE COUNTY SCHOOLS. CONTACT JOHN HAWTHORNE WITH MOORE COUNTY SCHOOLSAT (910) 947-2976 EXT. 252.

3. CONTRACTOR SHALL MAKE PREPARATIONS TO PROTECT THE EXISTING WATER AND SEWER SYSTEMS DURING RELOCATION.

4. CONTRACTOR SHALL HAVE METHODS AND SYSTEMS IN PLACE TO CONTAIN ANY POTENTIAL SPILLS. SPILLS OR ANY DAMAGE TO THE SEWER FORCE MAIN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR CLEAN UP, REPAIRS AND ALL ASSOCIATED COSTS.

5. ALL PREPARATIONS SHALL BE MADE TO MINIMIZE DOWN TIME. FINAL CONNECTIONS SHALL BE MADE AT NIGHT, WEEKENDS OR HOLIDAYS WHEN SCHOOL IS NOT IN SESSION.

6. ANY SHUT DOWNS OF THE SEWAGE SYSTEM SHALL REQUIRE A PUMP AND HAUL OPERATION OF THE SEWAGE LIFT STATION NOT LESS THAN TWO (2) TIMES PER DAY. ALL COSTS ASSOCIATED WITH THIS OPERATION IS THE RESPONSIBILITY OF THE CONTRACTOR.

LIST OF STANDARD DRAWINGS

1515.01 WATER METER

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

REPLACEMENT OF BRIDGE NO.39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

Designed By:	Checked By:	Date:	Sheet:	Of:
BKA	KSH	8-28-13	UC-3	UC-4

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	UC-3A

DESIGNED BY: BKA
DRAWN BY: BKA
CHECKED BY: KSH
APPROVED BY: KSH
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

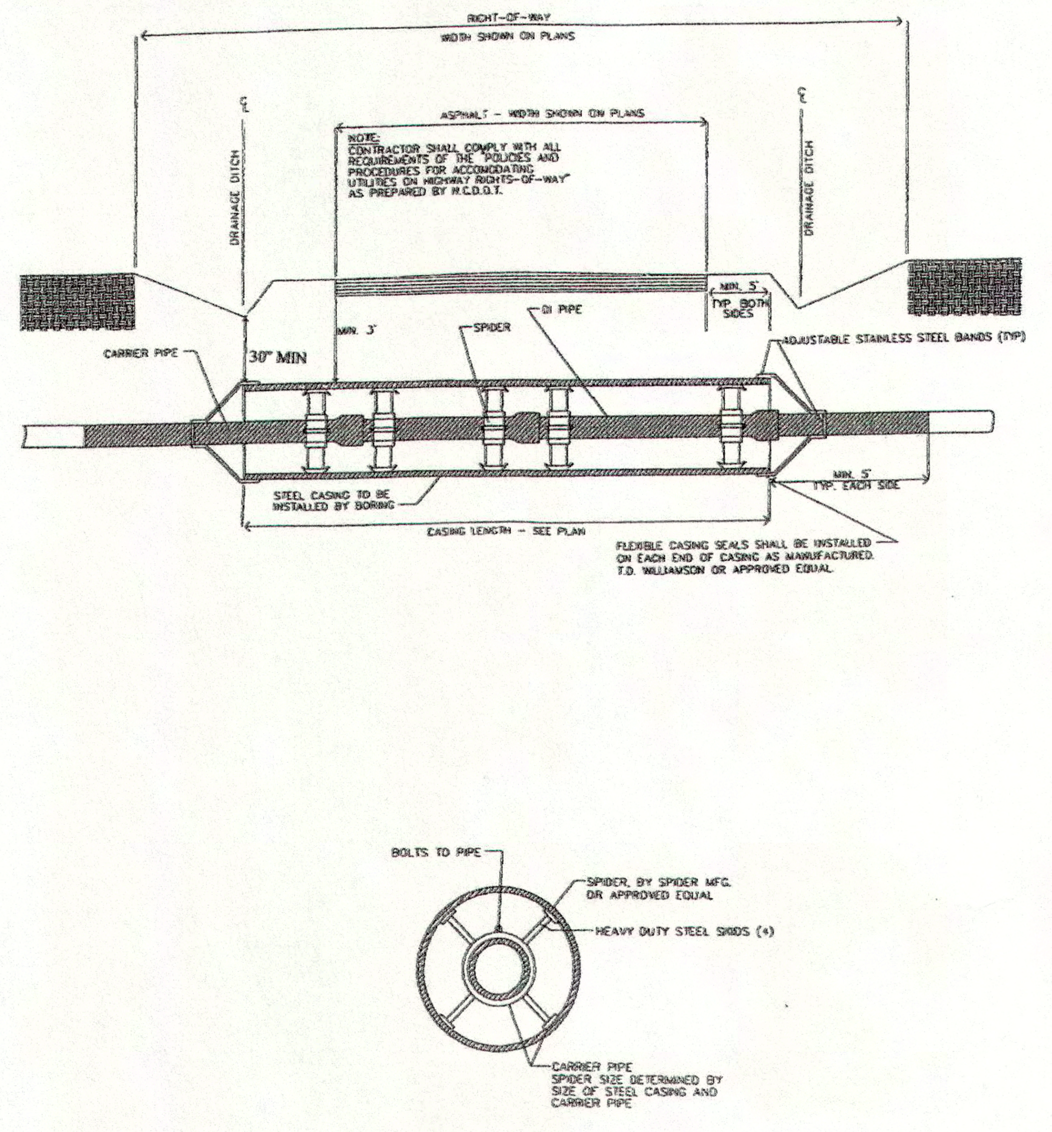
UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029901 KEVIN S. HINDE 8/28/13

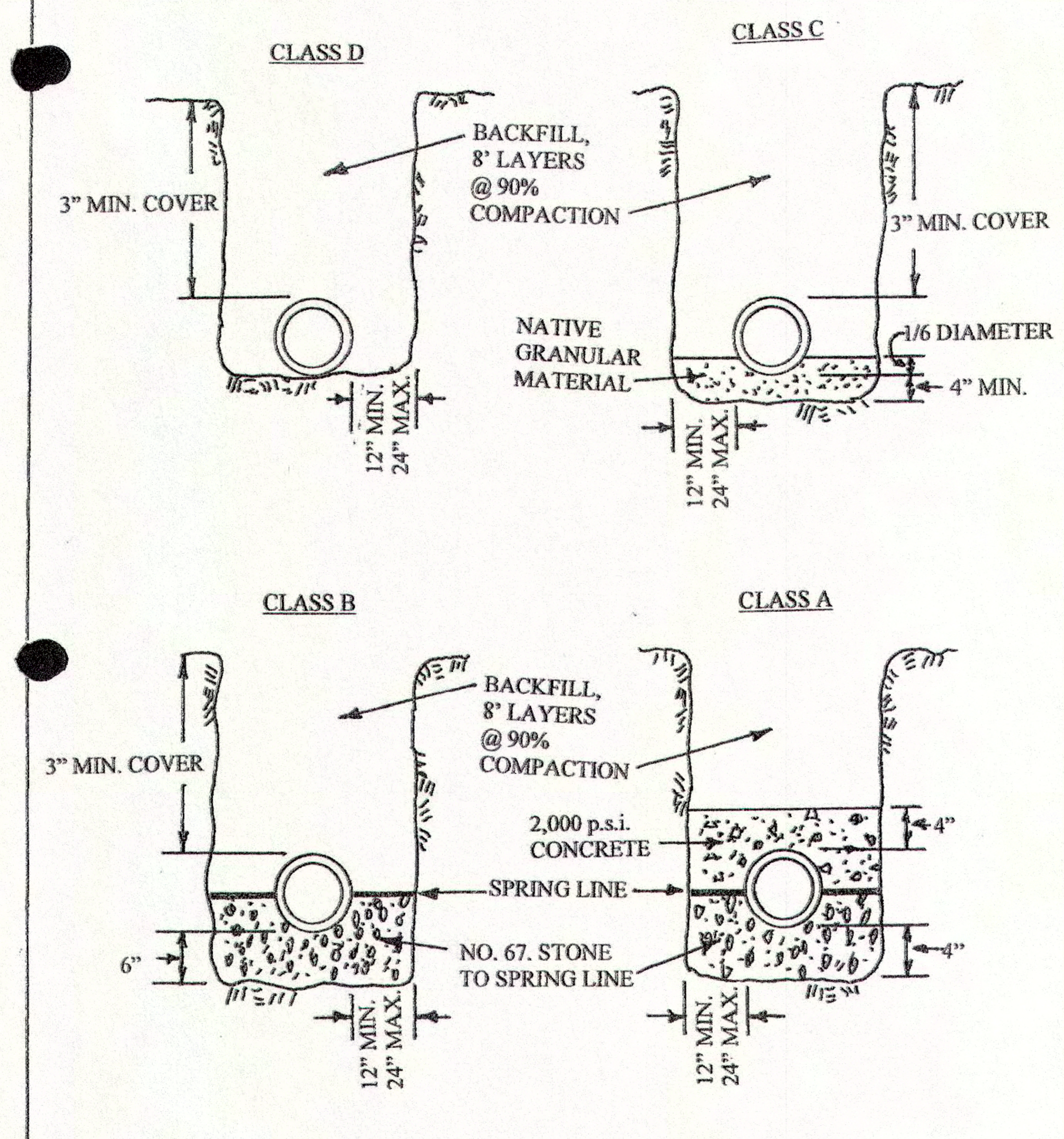
UTILITY CONSTRUCTION

SCALE:
0 50 100

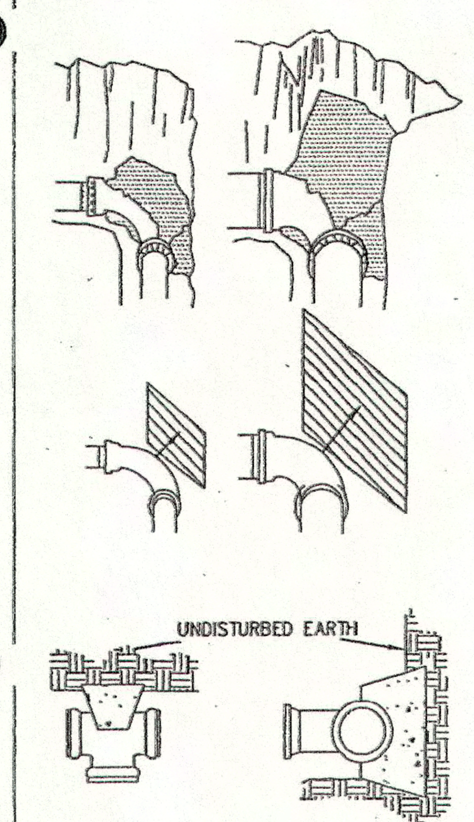
OWNER'S DETAILS



REVISED DATE	DESCRIPTION	MOORE COUNTY PUBLIC WORKS ENGINEERING DEPARTMENT	STANDARD BORE ENCASEMENT	STD. NO. GC 7



REVISED DATE	DESCRIPTION	MOORE COUNTY PUBLIC WORKS ENGINEERING DEPARTMENT	PIPE BEDDING	STD. NO. GC 8



MINIMUM CONCRETE BLOCKING (C.Y.)

PIPE DIA. IN.	TEES AND DEAD ENDS	90 BEND	45 BEND	22 ½ BEND	11 ¼ BEND
4	0.1	0.1	0.1	0.1	0.1
6	0.2	0.2	0.1	0.1	0.1
8	0.2	0.3	0.2	0.1	0.1
10	0.3	0.5	0.3	0.2	0.2
12	0.4	0.6	0.5	0.3	0.3
14	0.7	0.9	0.6	0.5	0.5
16	0.7	0.9	0.6	0.5	0.5
18	0.9	1.2	0.7	0.6	0.6
20	1.1	1.6	1.1	0.7	0.7
24	1.7	2.3	1.6	0.9	0.9

NOTES:
1. CONCRETE SHALL BE 3,000 PSI MIN.
2. ALL FITTINGS AND ACCESSORIES TO BE WRAPPED WITH 6 MIL POLYETHYLENE PRIOR TO POURING CONCRETE.
3. NO CONCRETE SHALL COVER ANY BOLTS OR GLANDS.
4. POURED CONCRETE SHOULD BE ON THE DRY SIDE

REVISED DATE	DESCRIPTION	MOORE COUNTY PUBLIC WORKS ENGINEERING DEPARTMENT	THRUST BLOCKING	STD. NO. PW 4

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

REPLACEMENT OF BRIDGE NO.39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

Designed By:	Checked By:	Date:	Sheet:	Of:
BKA	KSH	8-28-13	UC-3A	UC-4

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.34	UC-4

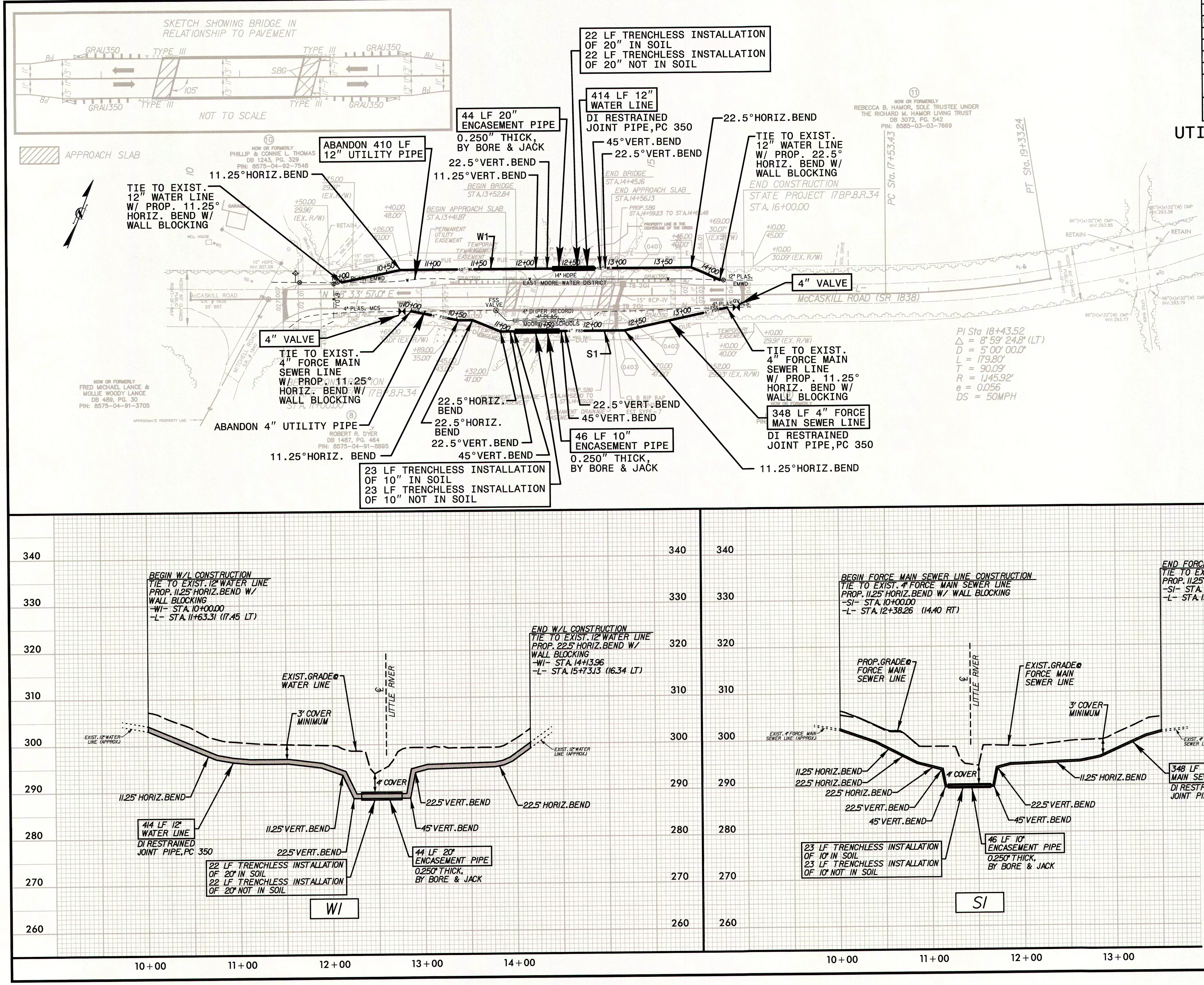
DESIGNED BY: BKA
DRAWN BY: BKA
CHECKED BY: KSH
APPROVED BY: KSH
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

SCALE: 0 50 100



NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

REPLACEMENT OF BRIDGE NO. 39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

Designed By:	Checked By:	Date:	Sheet:	Of:
BKA	KSH	8-28-13	UC-4	UC-4

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

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.34	X-1

11/13/2013
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us\s04218

TIP PROJECT: 17BP.8.R.34

CONTRACT: DH00132

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.34		

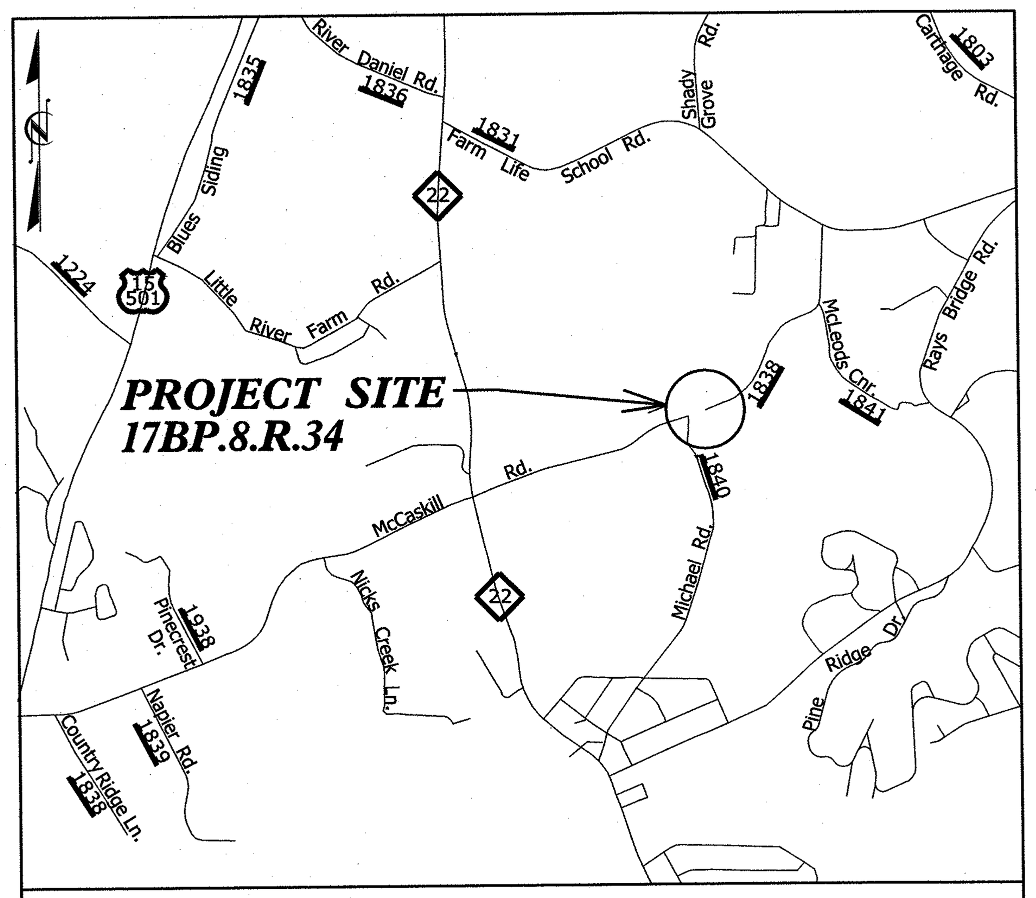
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.34		PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

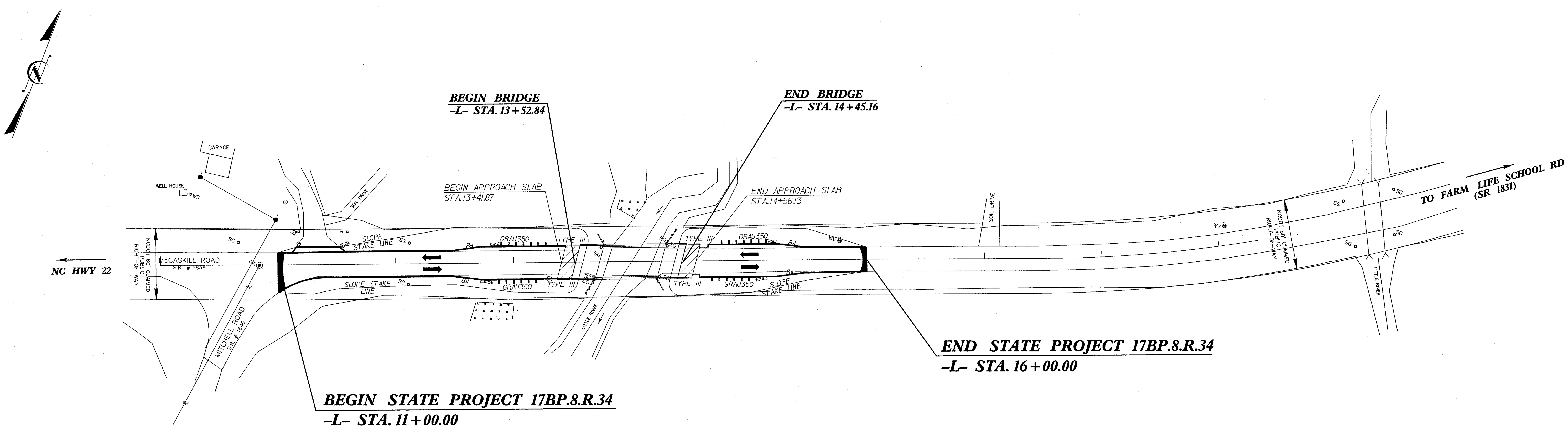
MOORE COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 39 ON McCASKILL RD (SR 1838) OVER LITTLE RIVER

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



VICINITY MAP



STRUCTURE

DESIGN DATA

ADT 2009 = 1500
ADT 2025 = 3000
DHV = NA %
D = NA %
T = NA % *
V = 60 MPH
* TTST = NA
FUNC CLASS = MINOR COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.8.R.34	=	0.073 MILE
LENGTH OF STRUCTURE PROJECT 17BP.8.R.34	=	0.017 MILE
TOTAL LENGTH PROJECT 17BP.8.R.34	=	0.090 MILE

2012 STANDARD SPECIFICATIONS

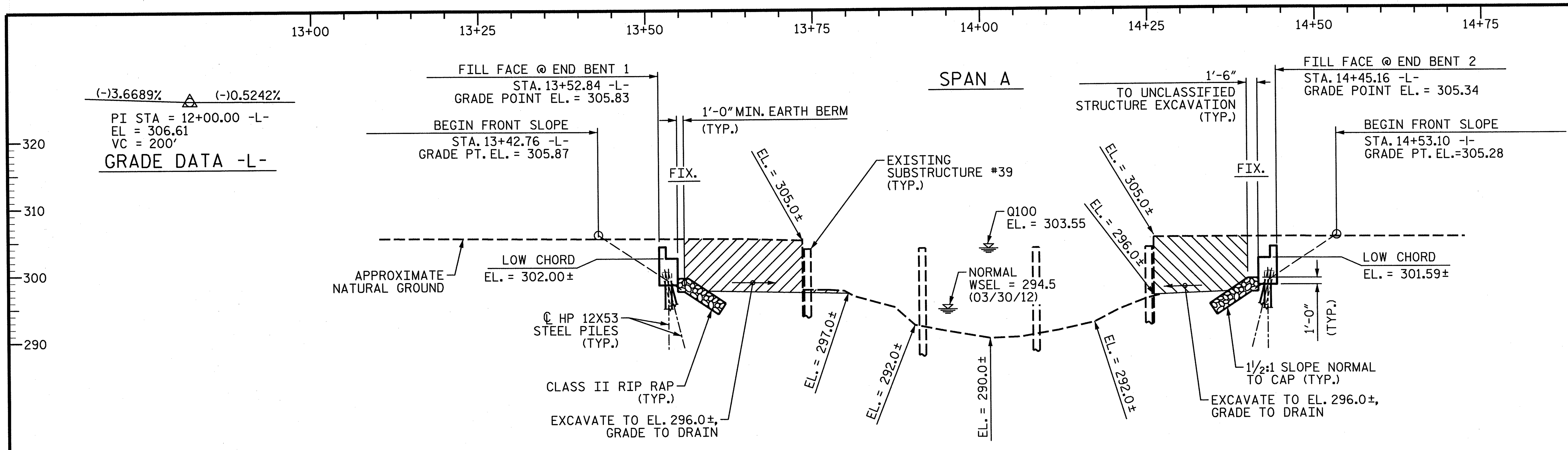
LETTING DATE:
OCTOBER 22, 2013

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100 • Cary, NC 27513 • 919.678.0035
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



SECTION ALONG ℄ -L-

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

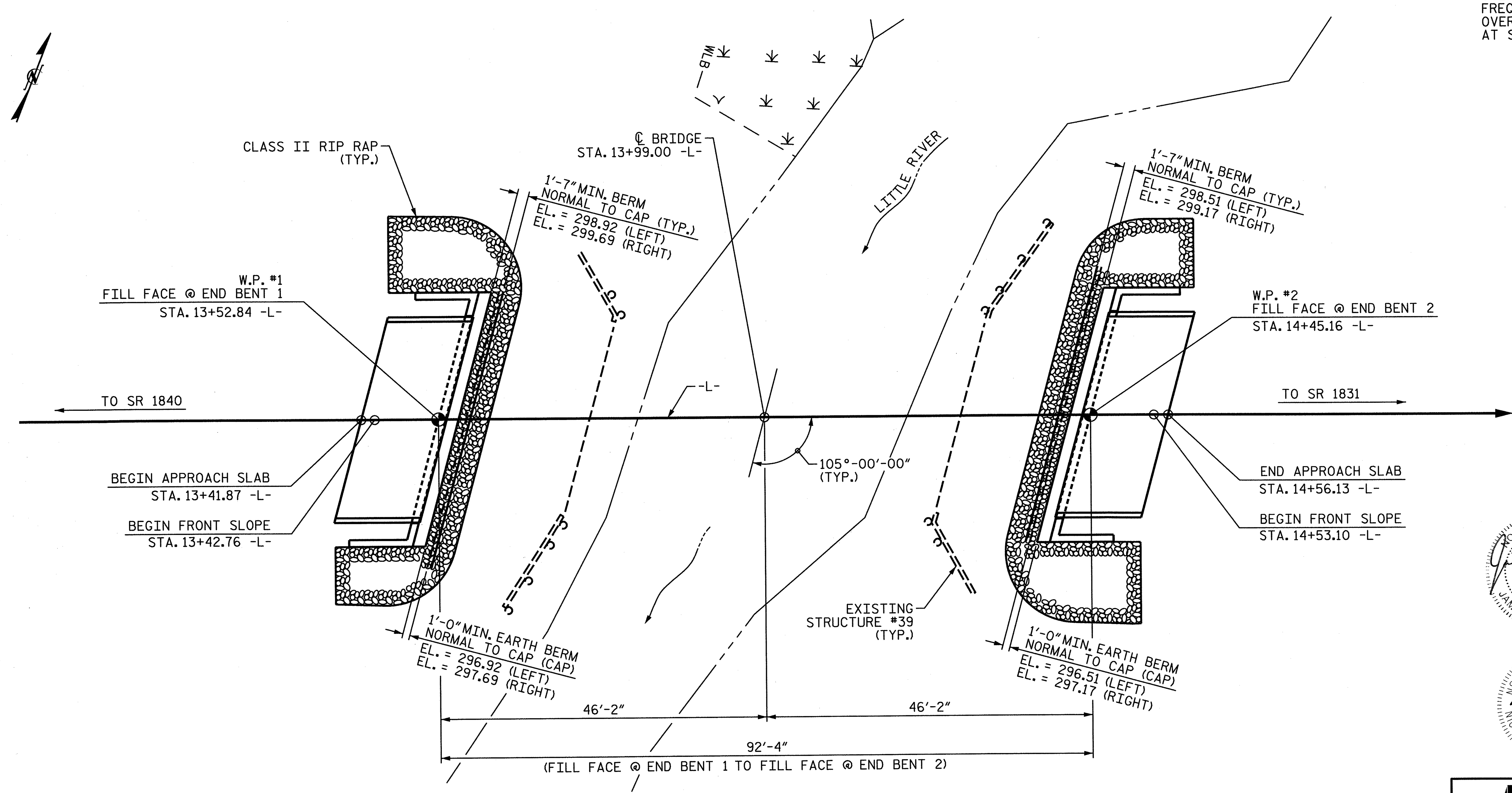
UNCLASSIFIED STRUCTURE EXCAVATION
(SEE NOTES)

HYDRAULIC DATA

DESIGN DISCHARGE	=2600 CFS
FREQUENCY OF DESIGN FLOOD	=25 YEARS
DESIGN HIGH WATER ELEVATION	=302.2
DRAINAGE AREA	=29.6 SQ. MI.
BASE DISCHARGE (Q100)	=3553 CFS
BASE HIGH WATER ELEVATION	=303.55

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=6070± CFS
FREQUENCY OF OVERTOPPING FLOOD	=500±(FEMA) YEARS
OVERTOPPING FLOOD ELEVATION	=304.2
AT SAG STA. 19+33.24 -L-	



PLAN

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

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22997 JAMES J. BARCOMB 9/3/13

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 37479 NICHOLAS A. PIERCE 09/03/13

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PROJECT NO. 17BP.8.R.34
MOORE COUNTY
STATION: 13+99.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE #39

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER LITTLE RIVER ON SR 1838 BETWEEN SR 1840 AND SR 1831

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

DRAWN BY : MAH DATE : 08/12
CHECKED BY : NAP DATE : 08/12

9/3/2013
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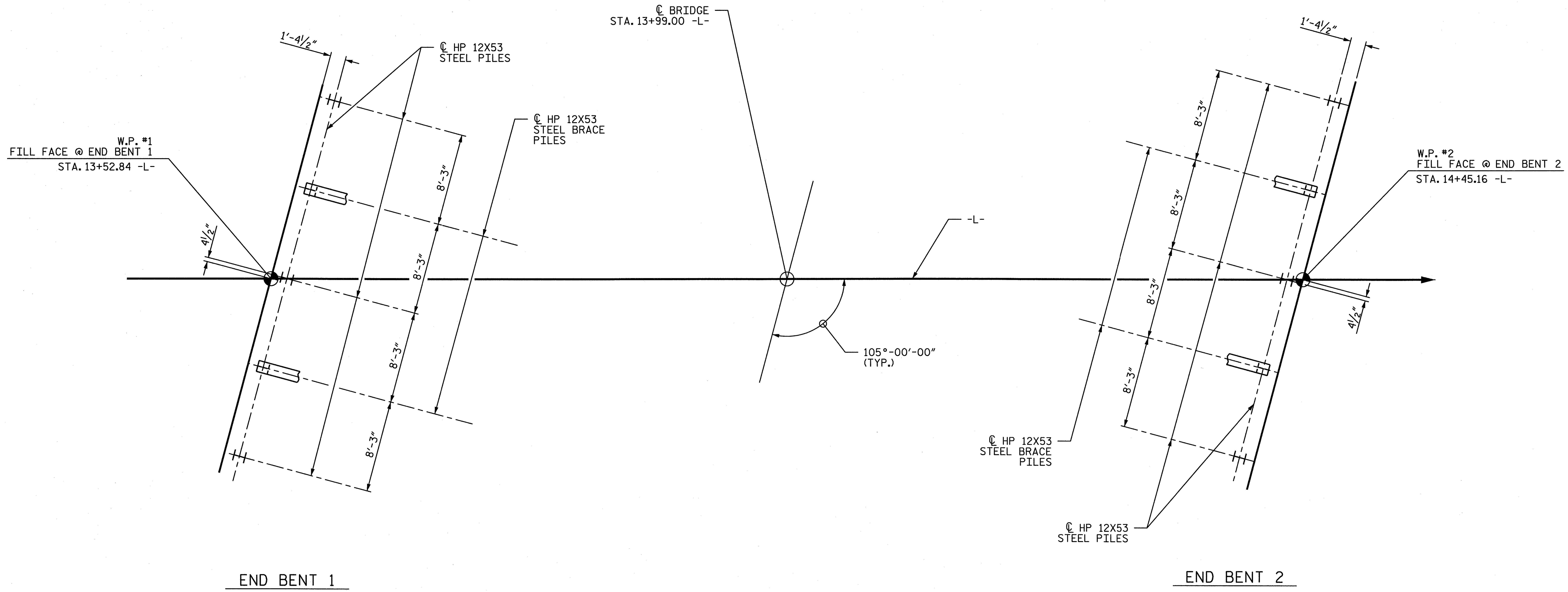

FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE AT THE BOTTOM OF THE CAP)
(BRACE PILES ARE BATTERED 3:12)

FOUNDATION NOTES

PILES AT END BENT 1 ARE DESIGNED FOR FACTORED RESISTANCE OF 127 TONS PER PILE.

DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 212 TONS.

PILES AT END BENT 2 ARE DESIGNED FOR FACTORED RESISTANCE OF 127 TONS PER PILE.

DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 212 TONS.

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

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT 1 AND END BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATION.

PROJECT NO. 17BP.8.R.34
MOORE COUNTY
STATION: 13+99.00 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL ENGINEER 037479 NICHOLAS A. PIERCE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER LITTLE RIVER ON SR 1838 BETWEEN SR 1840 AND SR 1831

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

DRAWN BY : MAH DATE : 08/12
CHECKED BY : NAP DATE : 08/12

9/3/2013
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TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 13+99.00 -L-	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM		LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	EACH	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE					LUMP SUM					180.00			LUMP SUM	10	900.00
END BENT 1			LUMP SUM	24.5		3436	5	75	5		68	75			
END BENT 2			LUMP SUM	24.5		3436	5	75	5		69	77			
TOTAL	LUMP SUM	1	LUMP SUM	49.0	LUMP SUM	6872	10	150	10	180.00	137	152	LUMP SUM	10	900.00

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 #39 CONSISTING OF 3 SPANS, 1 @ 18'-5", 1 @ 16'-10", AND 1 @ 17'-9" WITH A CLEAR ROADWAY WIDTH OF 24'-1", CONCRETE DECK ON TIMBER JOISTS WITH TIMBER BULKHEADS AND INTERIOR BENTS WITH TIMBER CAPS AND PILES 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.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

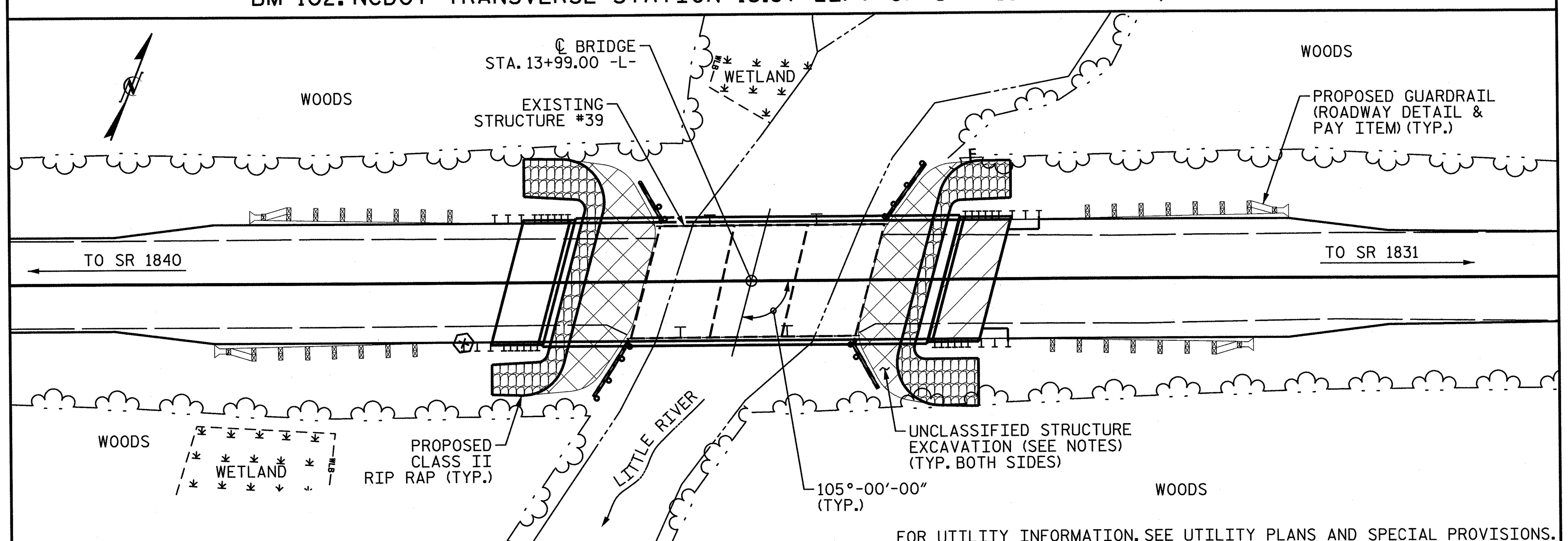
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

BM-102: NCDOT TRANSVERSE STATION 13.87' LEFT OF STA 13+70.43 -L-, EL. 304.77



LOCATION SKETCH

PROJECT NO. 17BP.8.R.34

MOORE COUNTY

STATION: 13+99.00 -L-

SHEET 3 OF 3

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER LITTLE RIVER ON SR 1838 BETWEEN SR 1840 AND SR 1831

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

DRAWN BY : MAH DATE : 08/12
CHECKED BY : NAP DATE : 08/12

9/3/2013
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usmh04386

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	1.126	--	1.75	0.267	1.49	A	EL	44.224	0.584	1.15	A	EL	8.845	0.80	0.267	**1.13**	A	EL	**44.224**	
		HL-93(Opr)	N/A	--	1.488	--	1.35	0.267	1.94	A	EL	44.224	0.584	1.49	A	EL	8.845	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.491	53.666	1.75	0.267	2.03	A	EL	44.224	0.584	**1.49**	A	EL	**8.845**	0.80	0.267	1.53	A	EL	44.224	
		HS-20(Opr)	36.000	--	1.932	69.567	1.35	0.267	2.63	A	EL	44.224	0.584	1.93	A	EL	8.845	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.573	48.237	1.4	0.267	5.92	A	EL	44.224	0.584	4.53	A	EL	8.845	0.80	0.267	3.57	A	EL	44.224	
		SNGARBS2	20.000	--	2.611	52.229	1.4	0.267	4.33	A	EL	44.224	0.584	3.19	A	EL	8.845	0.80	0.267	2.61	A	EL	44.224	
		SNAGRIS2	22.000	--	2.452	53.948	1.4	0.267	4.07	A	EL	44.224	0.584	2.95	A	EL	8.845	0.80	0.267	2.45	A	EL	44.224	
		SNCOTTS3	27.250	--	1.777	48.412	1.4	0.267	2.95	A	EL	44.224	0.584	2.26	A	EL	8.845	0.80	0.267	1.78	A	EL	44.224	
		SNAGGRS4	34.925	--	1.465	51.163	1.4	0.267	2.43	A	EL	44.224	0.584	1.85	A	EL	8.845	0.80	0.267	1.46	A	EL	44.224	
		SNS5A	35.550	--	1.434	50.974	1.4	0.267	2.38	A	EL	44.224	0.584	1.87	A	EL	8.845	0.80	0.267	1.43	A	EL	44.224	
		SNS6A	39.950	--	1.307	52.234	1.4	0.267	2.17	A	EL	44.224	0.584	1.69	A	EL	8.845	0.80	0.267	1.31	A	EL	44.224	
		SNS7B	42.000	--	1.245	52.283	1.4	0.267	2.06	A	EL	44.224	0.584	1.65	A	EL	8.845	0.80	0.267	1.24	A	EL	44.224	
	TTST	TNAGRIT3	33.000	--	1.592	52.537	1.4	0.267	2.64	A	EL	44.224	0.584	2.02	A	EL	8.845	0.80	0.267	1.59	A	EL	44.224	
		TNT4A	33.075	--	1.597	52.815	1.4	0.267	2.65	A	EL	44.224	0.584	1.98	A	EL	8.845	0.80	0.267	1.60	A	EL	44.224	
		TNT6A	41.600	--	1.298	53.997	1.4	0.267	2.15	A	EL	44.224	0.584	1.74	A	EL	8.845	0.80	0.267	1.30	A	EL	44.224	
		TNT7A	42.000	--	1.3	54.619	1.4	0.267	2.16	A	EL	44.224	0.584	1.71	A	EL	8.845	0.80	0.267	1.30	A	EL	44.224	
		TNT7B	42.000	--	1.335	56.09	1.4	0.267	2.21	A	EL	44.224	0.584	1.62	A	EL	8.845	0.80	0.267	1.34	A	EL	44.224	
		TNAGRIT4	43.000	--	1.278	54.943	1.4	0.267	2.12	A	EL	44.224	0.584	1.57	A	EL	8.845	0.80	0.267	1.28	A	EL	44.224	
		TNAGT5A	45.000	--	1.208	54.37	1.4	0.267	2	A	EL	44.224	0.584	1.55	A	EL	8.845	0.80	0.267	1.21	A	EL	44.224	
		TNAGT5B	45.000	3	1.197	53.852	1.4	0.267	1.98	A	EL	44.224	0.584	1.5	A	EL	8.845	0.80	0.267	**1.20**	A	EL	**44.224**	

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:

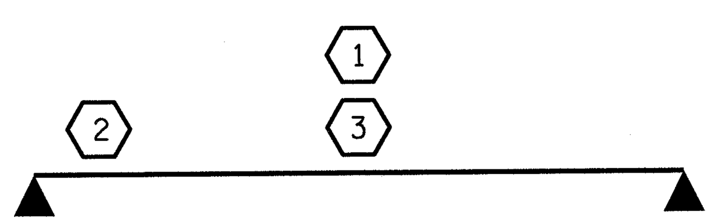
1.
2.
3.
4.

 # 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.34
MOORE COUNTY
STATION: 13+99.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 90' BOX BEAM UNIT 75° SKEW & 105° SKEW
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE

WSP Transportation & Infrastructure
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Cary, NC 27513 - 919.678.0035
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REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-4
1				3				TOTAL SHEETS
2				4				16

ASSEMBLED BY :	NAP	DATE :	08-12
CHECKED BY :	MAH	DATE :	08-12
DRAWN BY :	TMG	11/11	
CHECKED BY :	AAC	11/11	

9/3/2013
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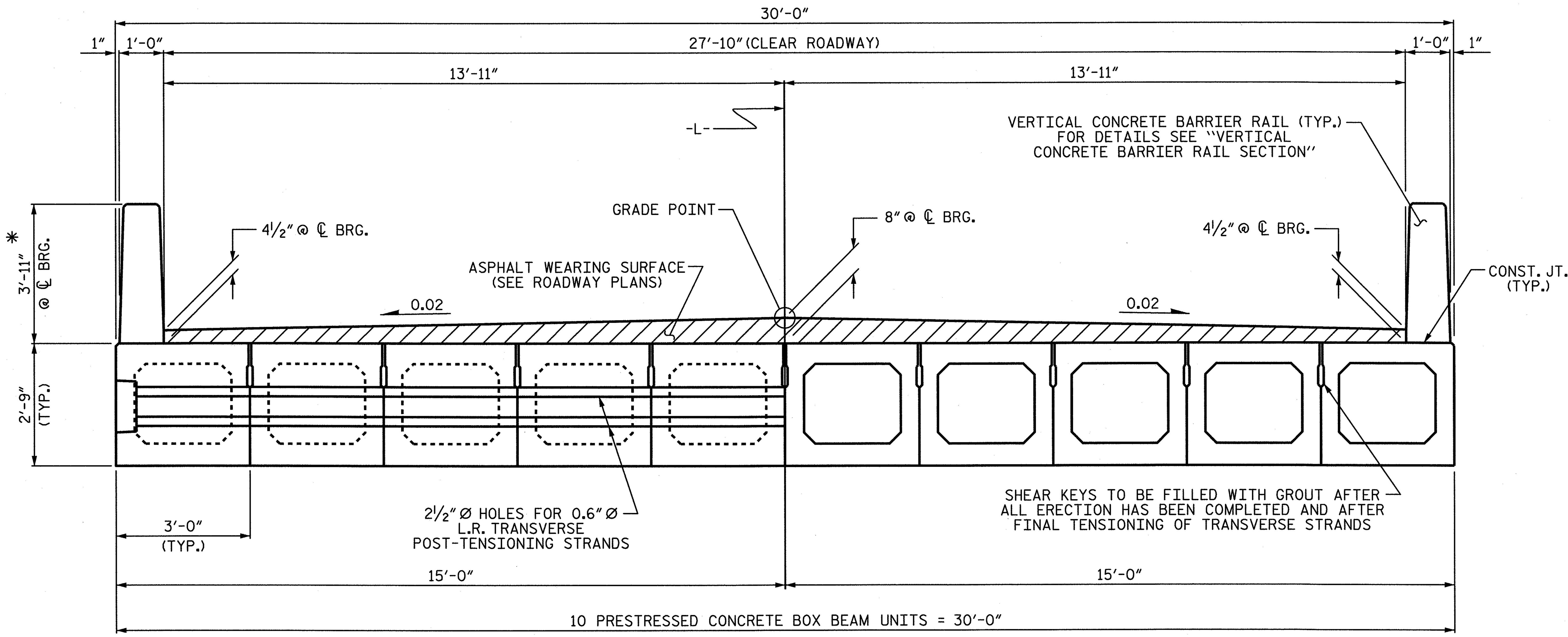
usmh04386

STD. NO. 33LRFR1_75&105S_90L



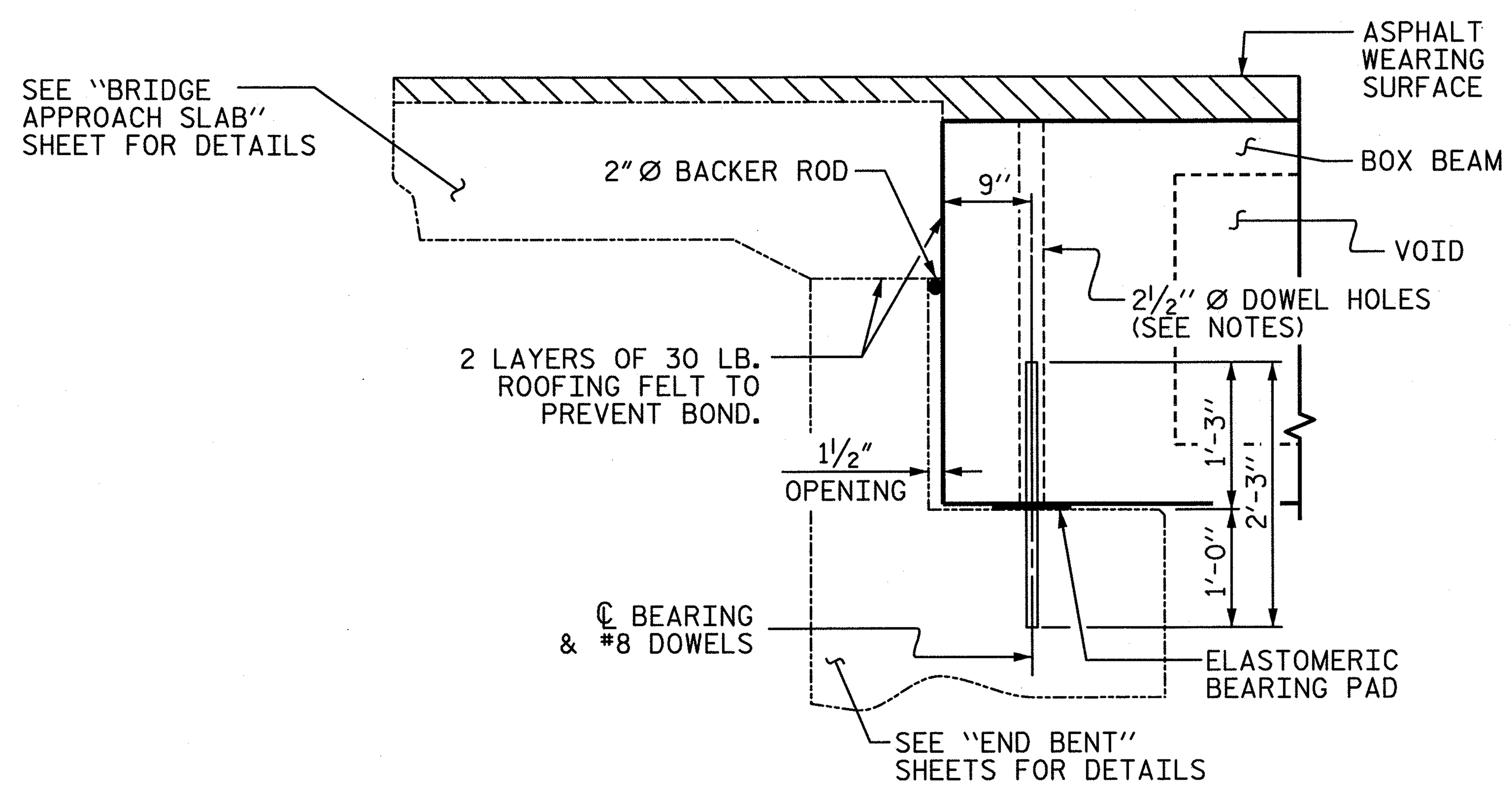
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

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 6000 PSI.

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

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

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.8.R.34
MOORE COUNTY
STATION: 13+99.00-L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE

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1			3					TOTAL SHEETS
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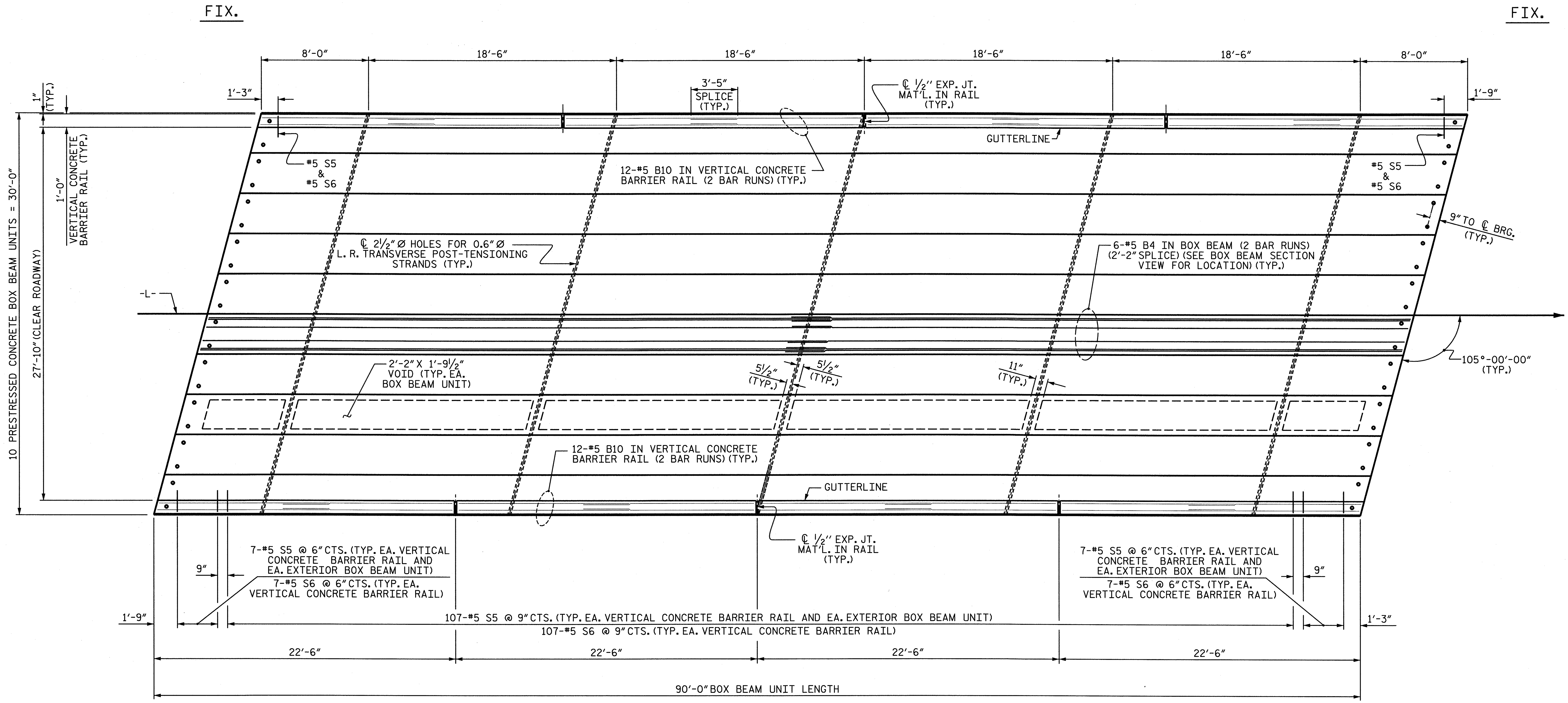
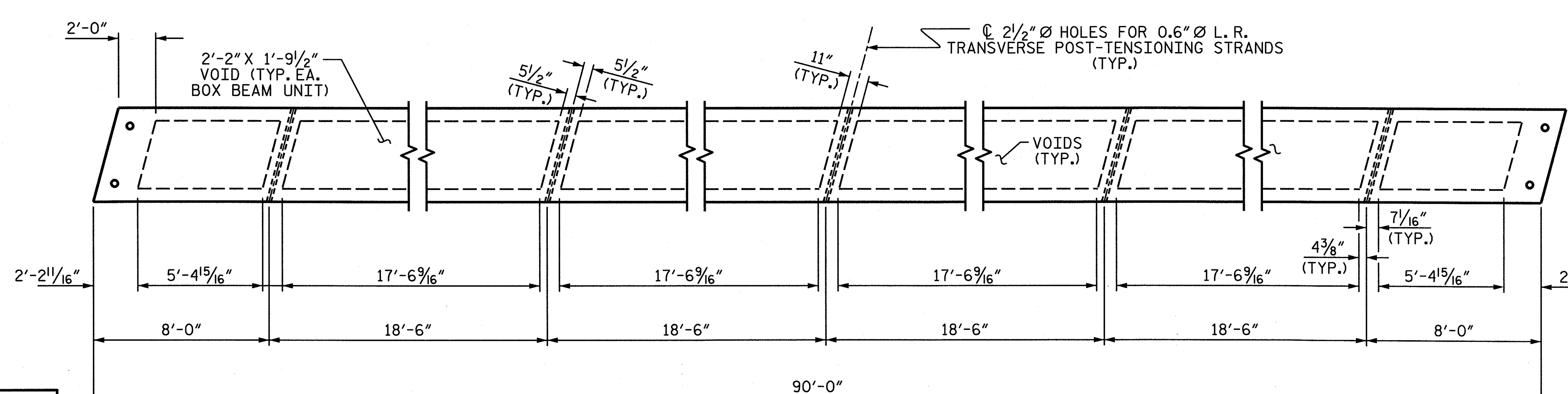


PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.8.R.34
MOORE COUNTY
STATION: 13+99.00-L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 90' UNIT
27'-10" CLEAR ROADWAY
105° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE 09/03/13

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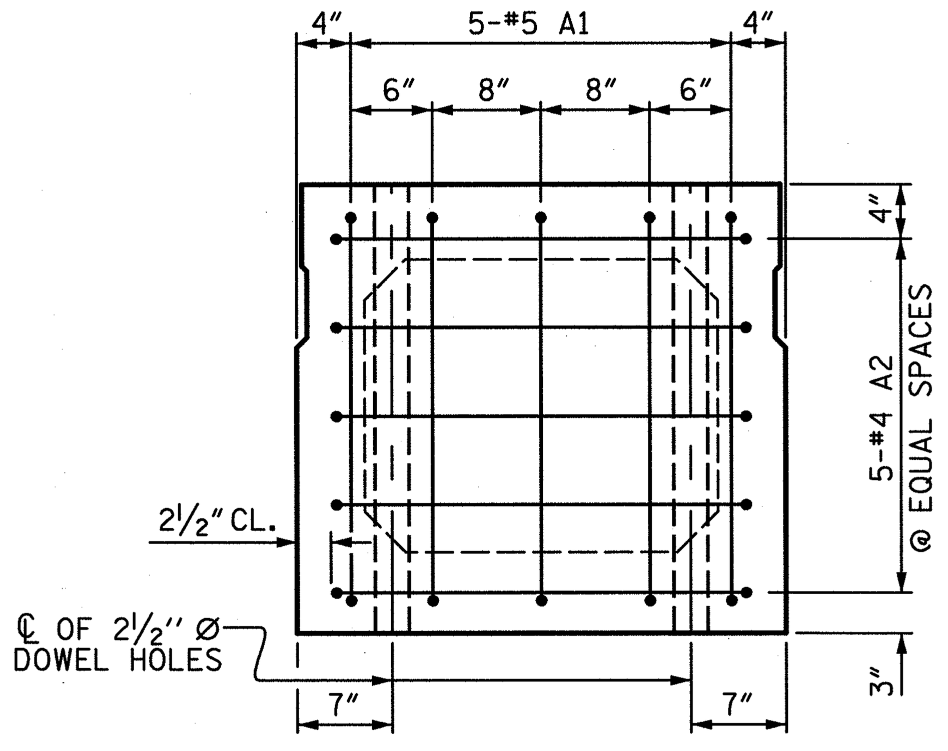
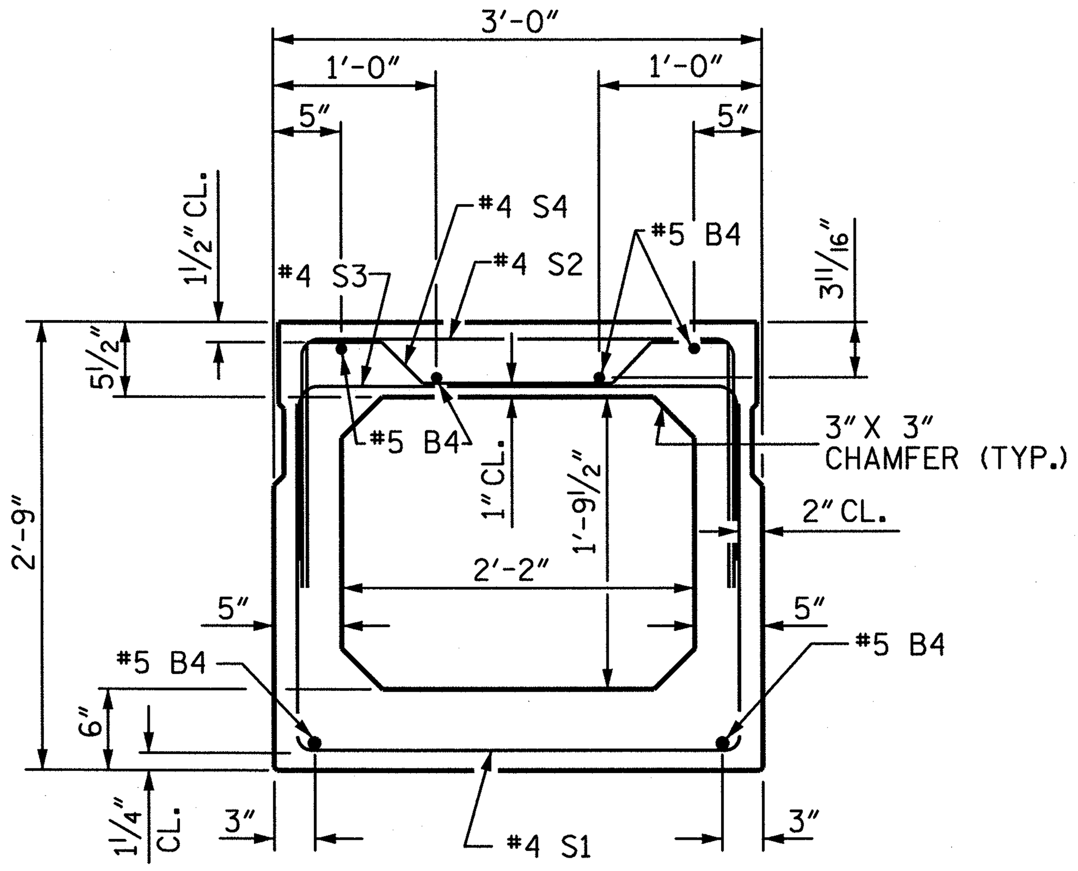


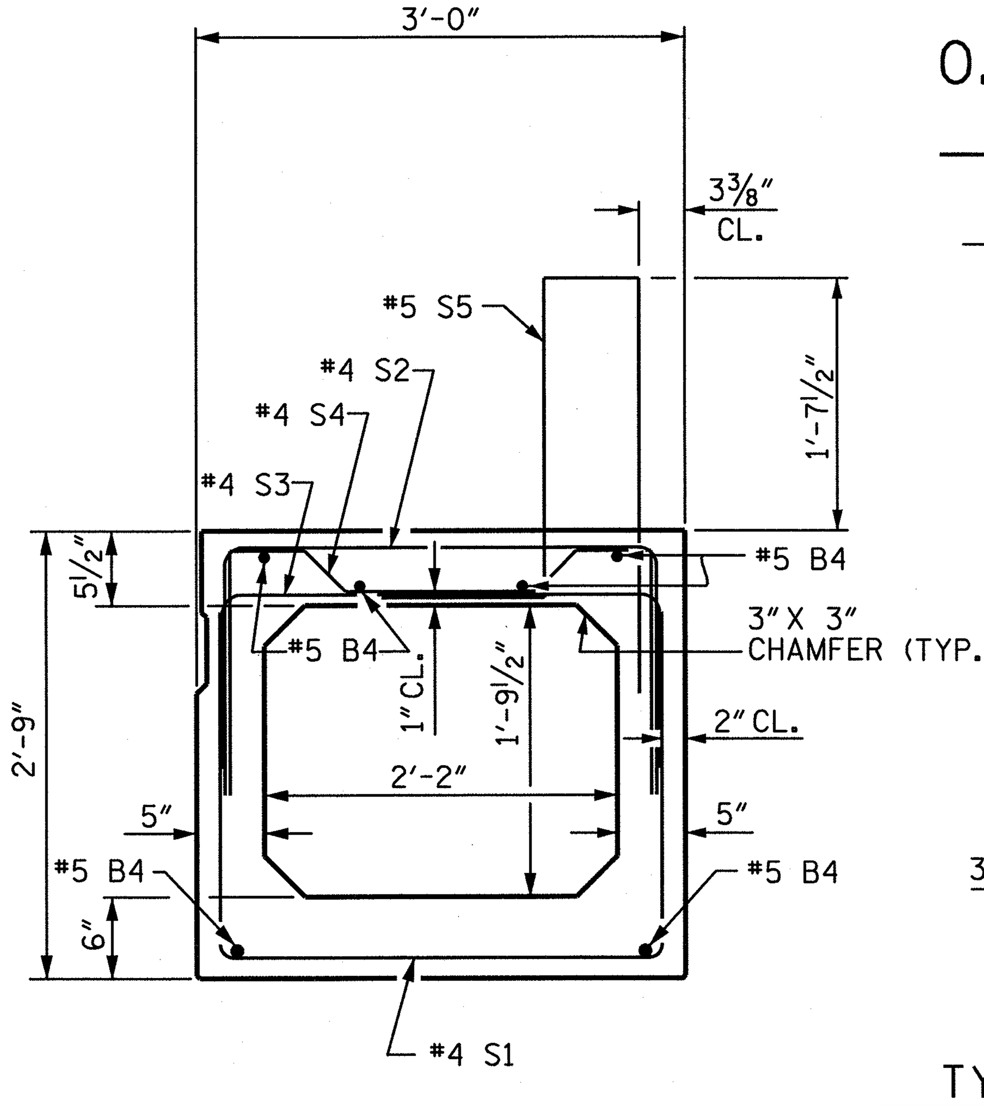
END ELEVATION

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

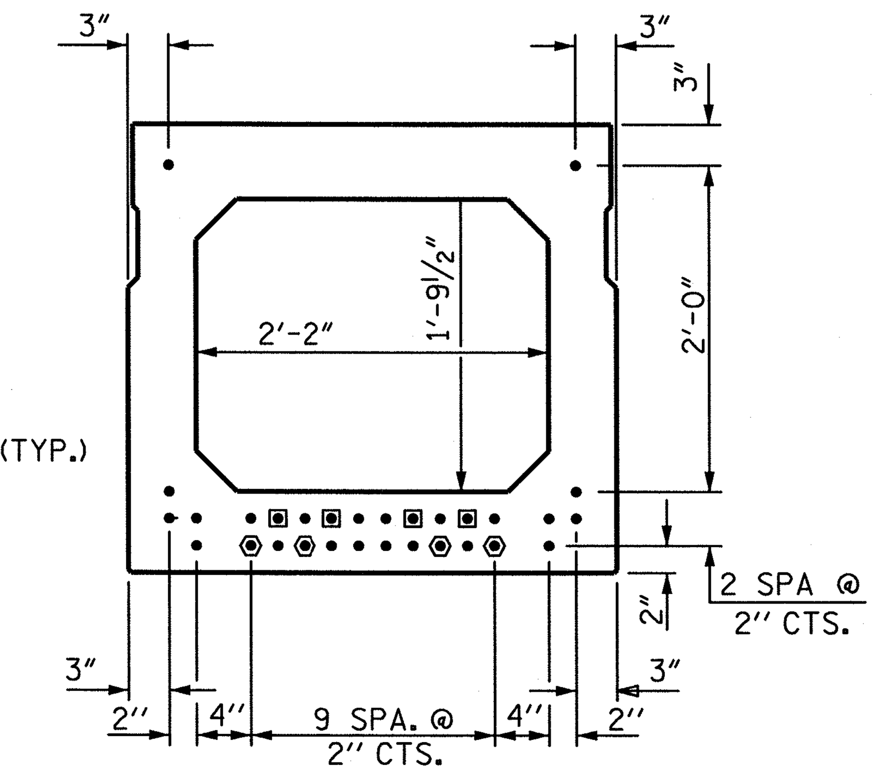
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(30 STRANDS REQUIRED)

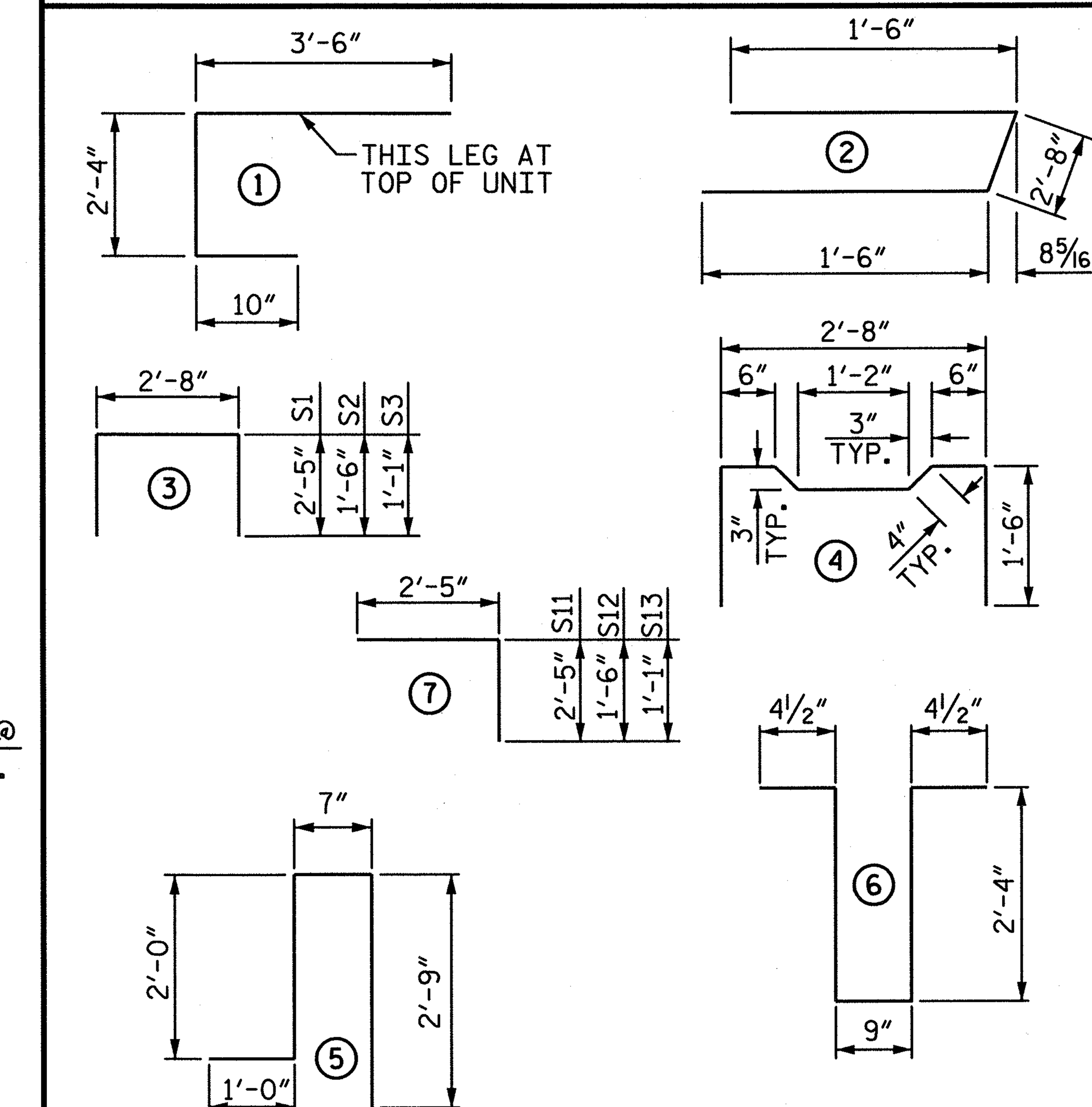
DEBONDING LEGEND

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

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

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

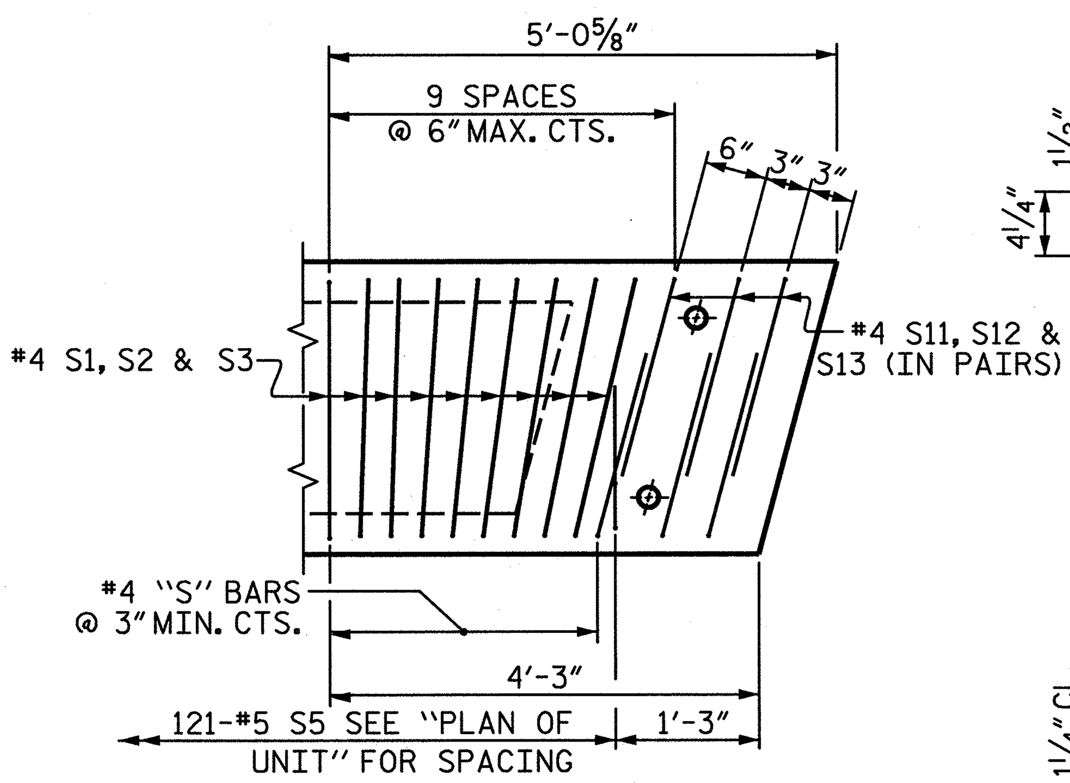
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

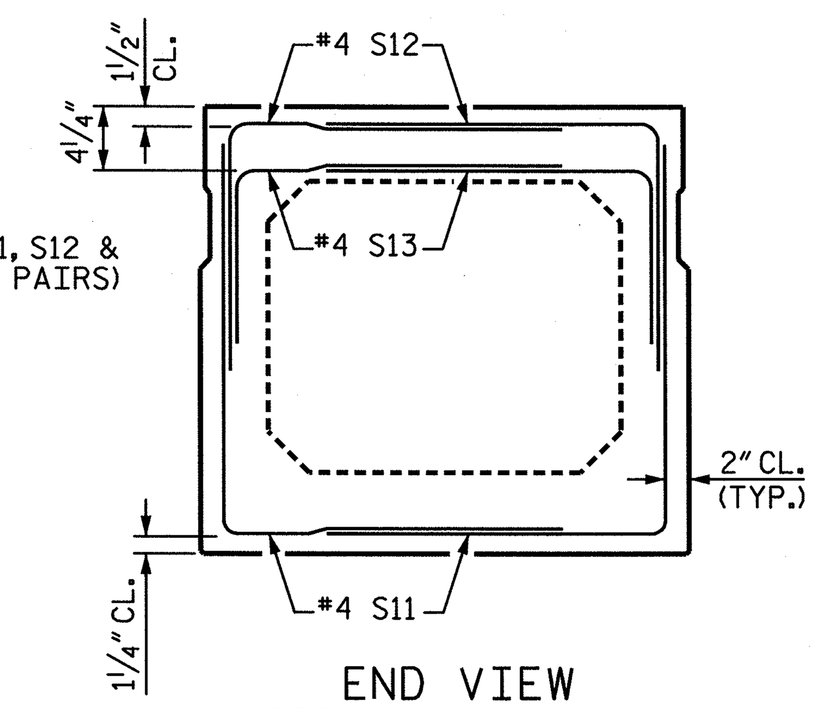
BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	40	#4	2	5'-8"	151	5'-8"	151
B4	12	#5	STR	45'-11"	575	45'-11"	575
K1	15	#4	6	6'-2"	62	6'-2"	62
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	72	#4	3	7'-6"	361	7'-6"	361
S2	72	#4	3	5'-8"	273	5'-8"	273
S3	125	#4	3	4'-10"	404	4'-10"	404
S4	53	#4	4	5'-10"	207	5'-10"	207
S11	12	#4	7	4'-10"	39	4'-10"	39
S12	12	#4	7	3'-11"	31	3'-11"	31
S13	12	#4	7	3'-6"	28	3'-6"	28
✱ S5	121	#5	5	6'-4"	799	--	--
REINFORCING STEEL				2218	LBS.	2218	LBS.
✱ EPOXY COATED REINF. STEEL				799	LBS.		
8000 P.S.I. CONCRETE				16.0	CU. YDS.	15.9	CU. YDS.
0.6" Ø L.R. STRANDS				No.	30	No.	30



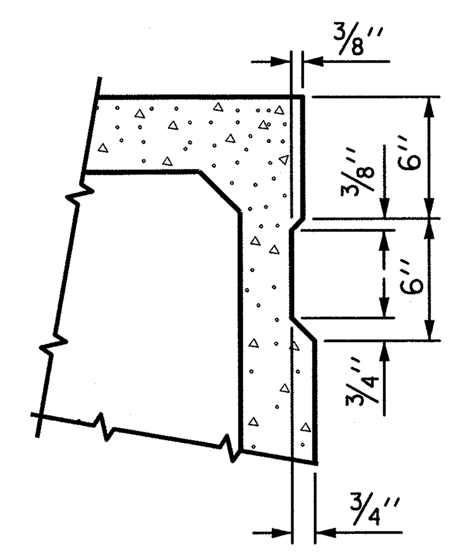
DETAIL "B"

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. "B" BARS AND "A" BARS NOT SHOWN.



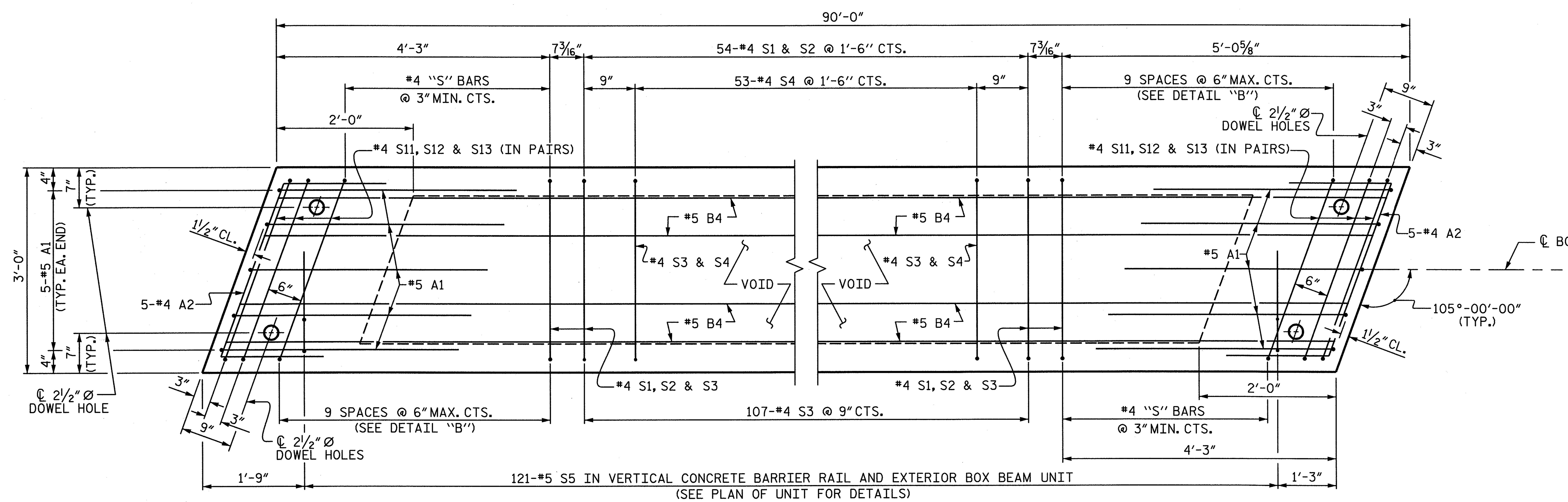
END VIEW

(SHOWING #4 "S" BARS IN END OF BEAM)



SHEAR KEY DETAIL

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

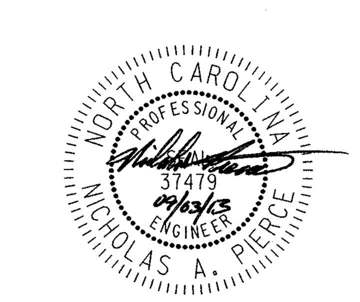


PLAN OF BOX BEAM

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.34
MOORE COUNTY
STATION: 13+99.00-L-

SHEET 3 OF 5



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

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

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

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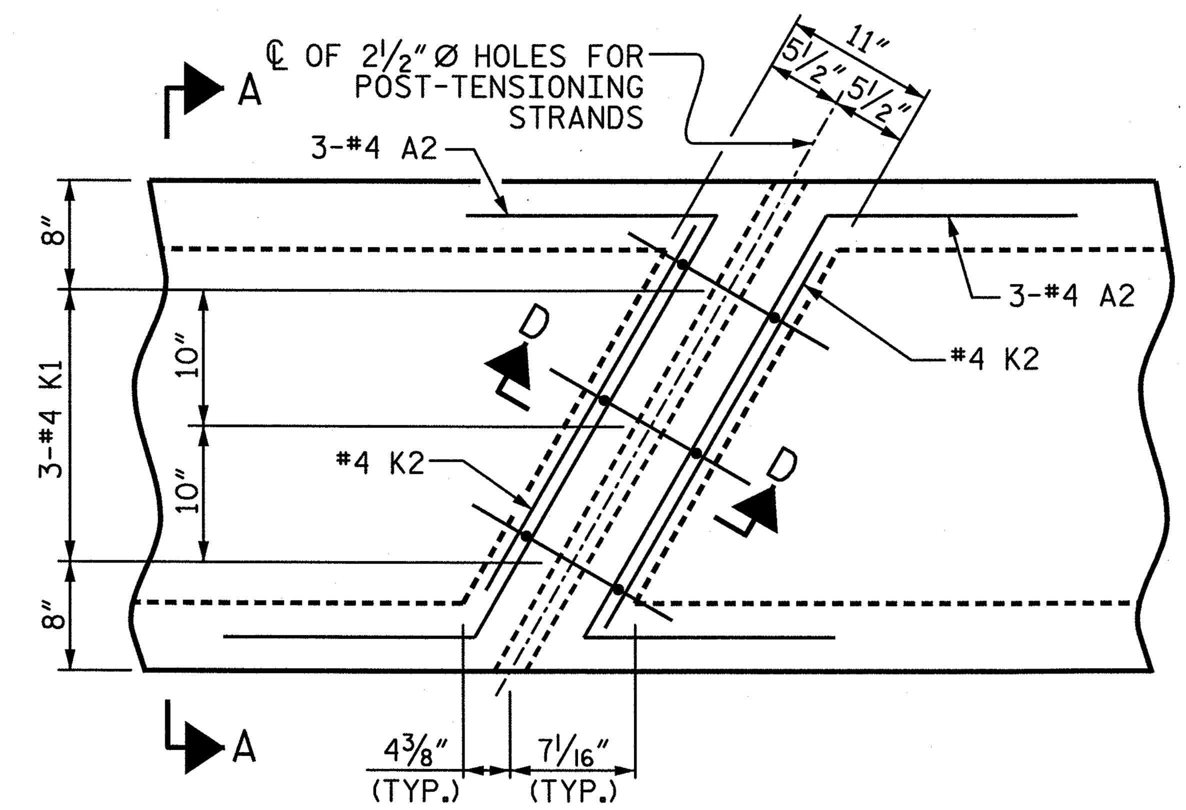
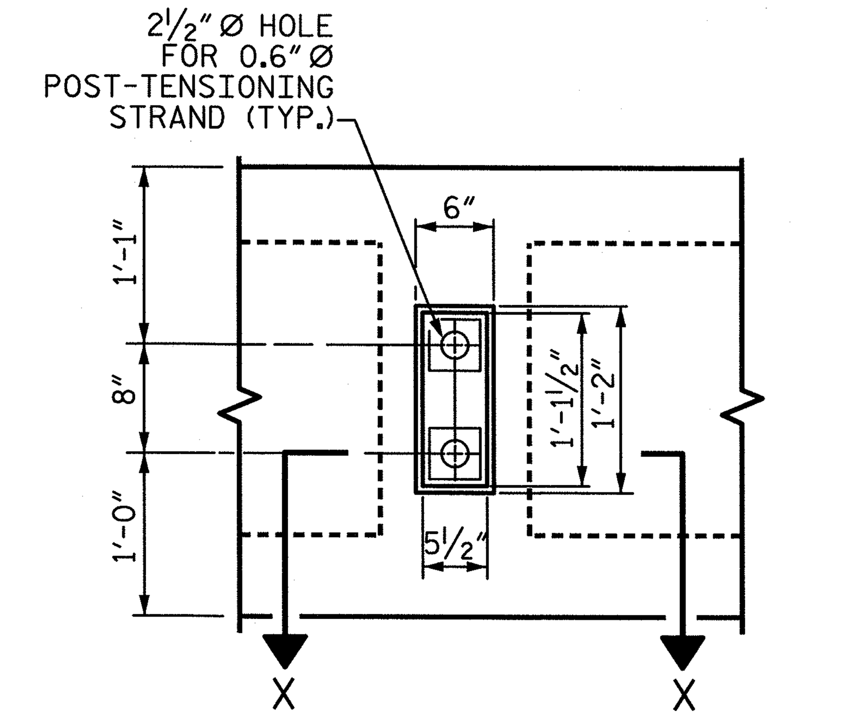
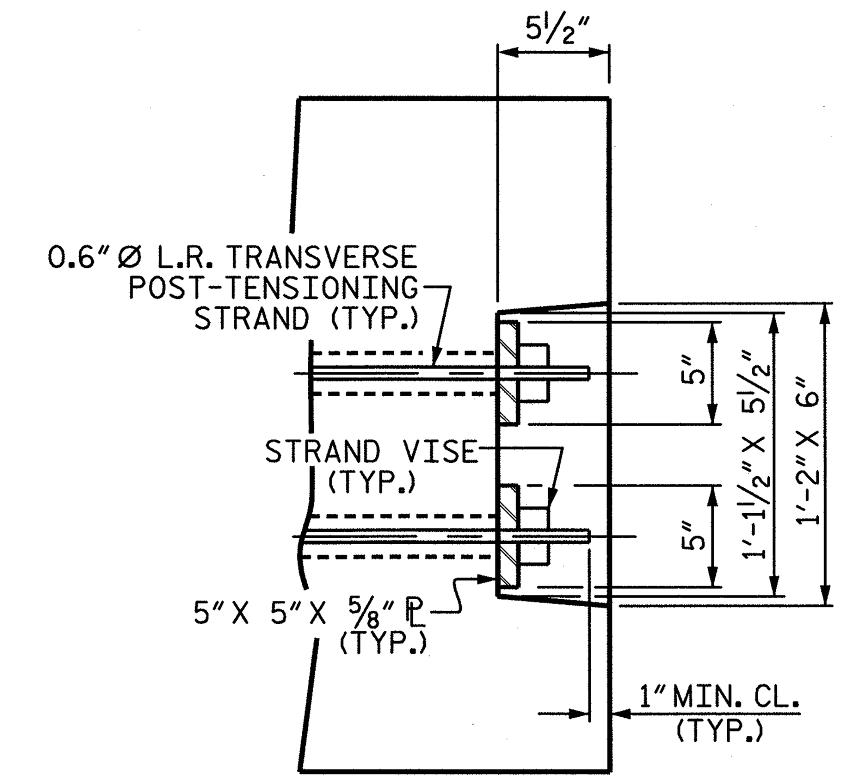


PLAN

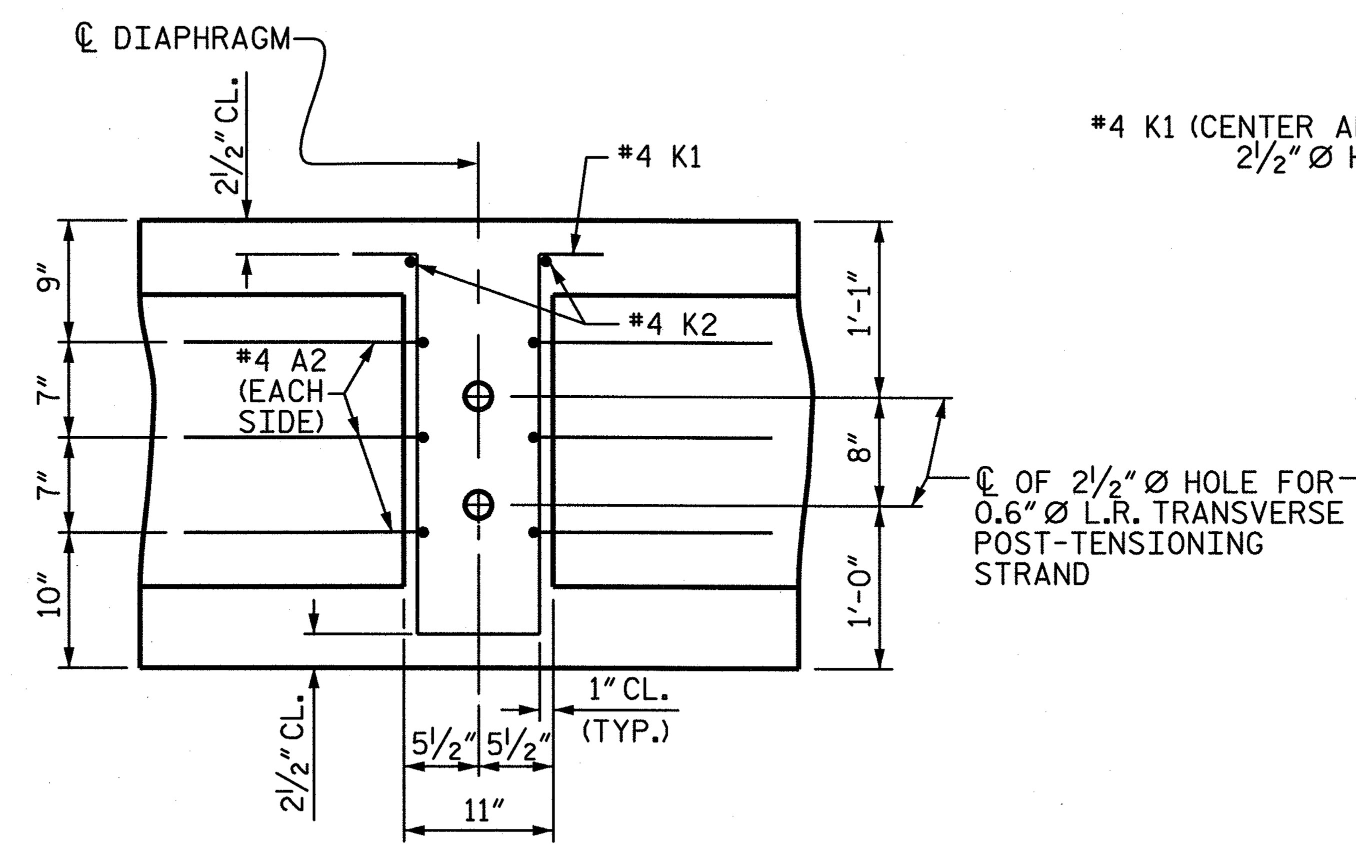


VIEW Y-Y

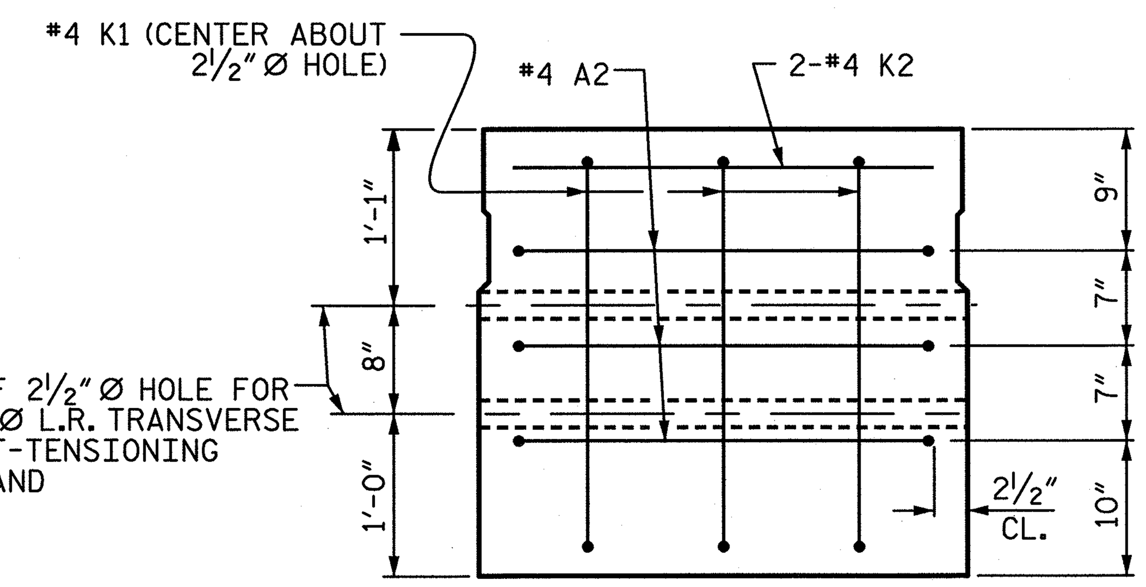
SHOWING ELEVATION VIEW OF GROUTED RECESS



DETAIL "C"



SECTION D-D

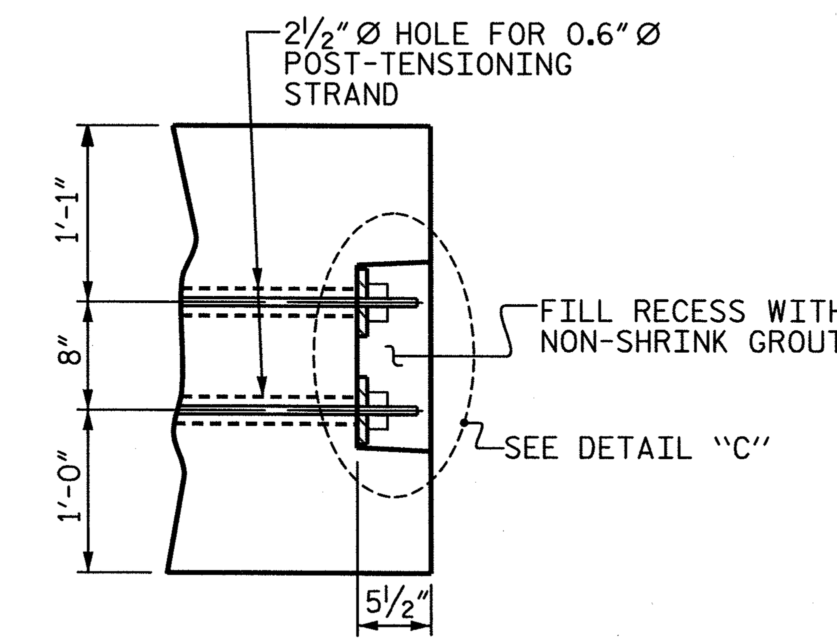


SECTION A-A

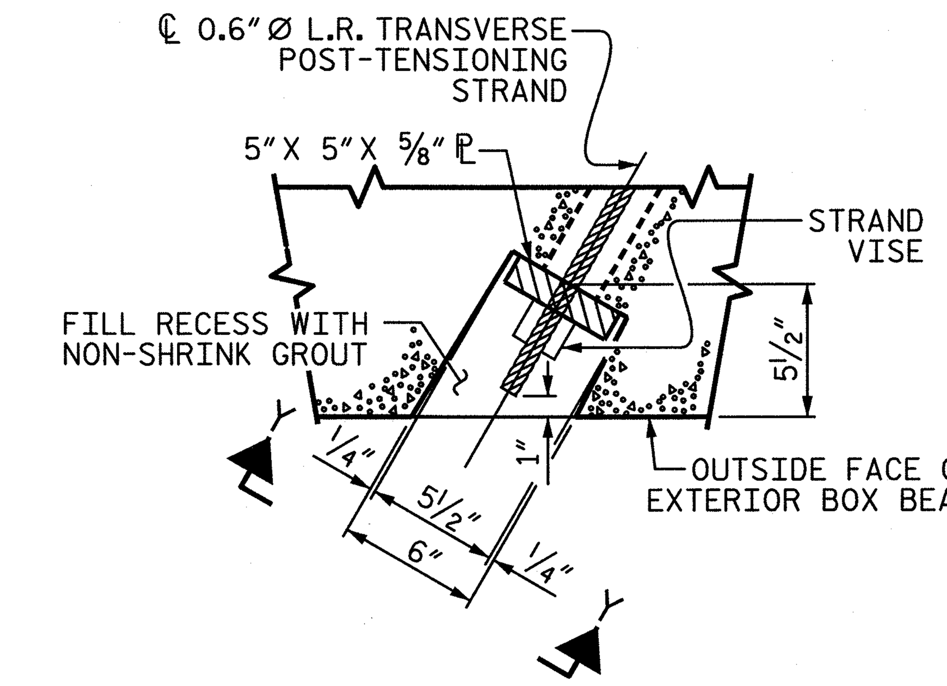
VOIDS NOT SHOWN

DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2″ Ø HOLE.



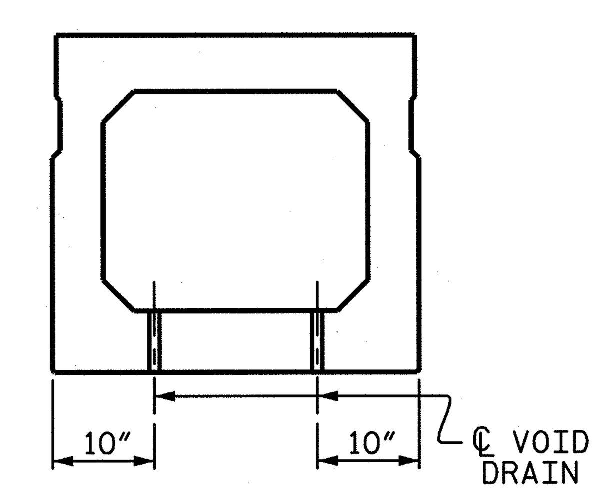
PART SECTION AT RECESS



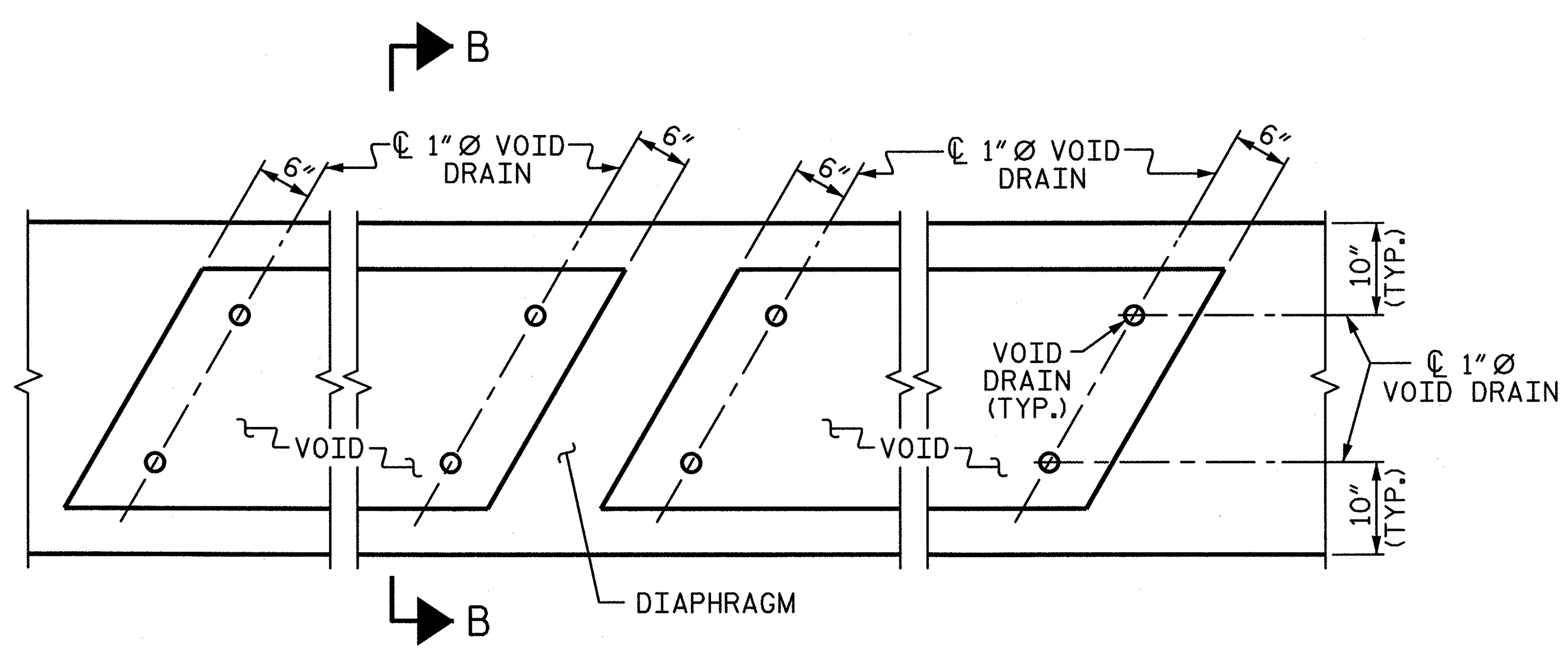
SECTION X-X

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 2′-9″
85′ & 90′ BOX BEAM UNIT (NC & SE)	0.6″ Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3¾″ ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	¾″ ↓
FINAL CAMBER	3″ ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.8.R.34

MOORE COUNTY

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SHEET 4 OF 5

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RALEIGH

STANDARD

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

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1			3					TOTAL SHEETS
2			4					16

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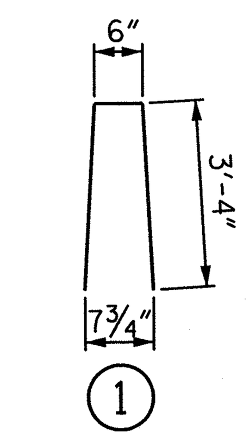
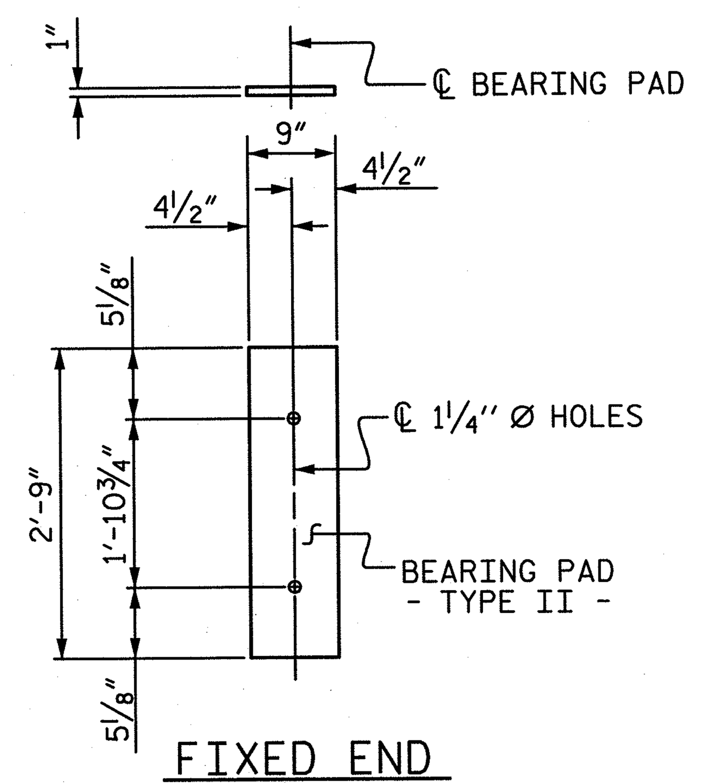
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
	90′ UNIT				
✻B10	192	#5	STR	12′-10″	2570
✻S6	242	#5	1	7′-2″	1809
✻EPOXY COATED REINFORCING STEEL		LBS.			4379
CLASS AA CONCRETE		CU.YDS.			24.2
TOTAL VERTICAL CONCRETE BARRIER RAIL		LN. FT.			180.0



BAR TYPE

BAR DIMENSIONS ARE OUT TO OUT



FIXED END

(TYPE II - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

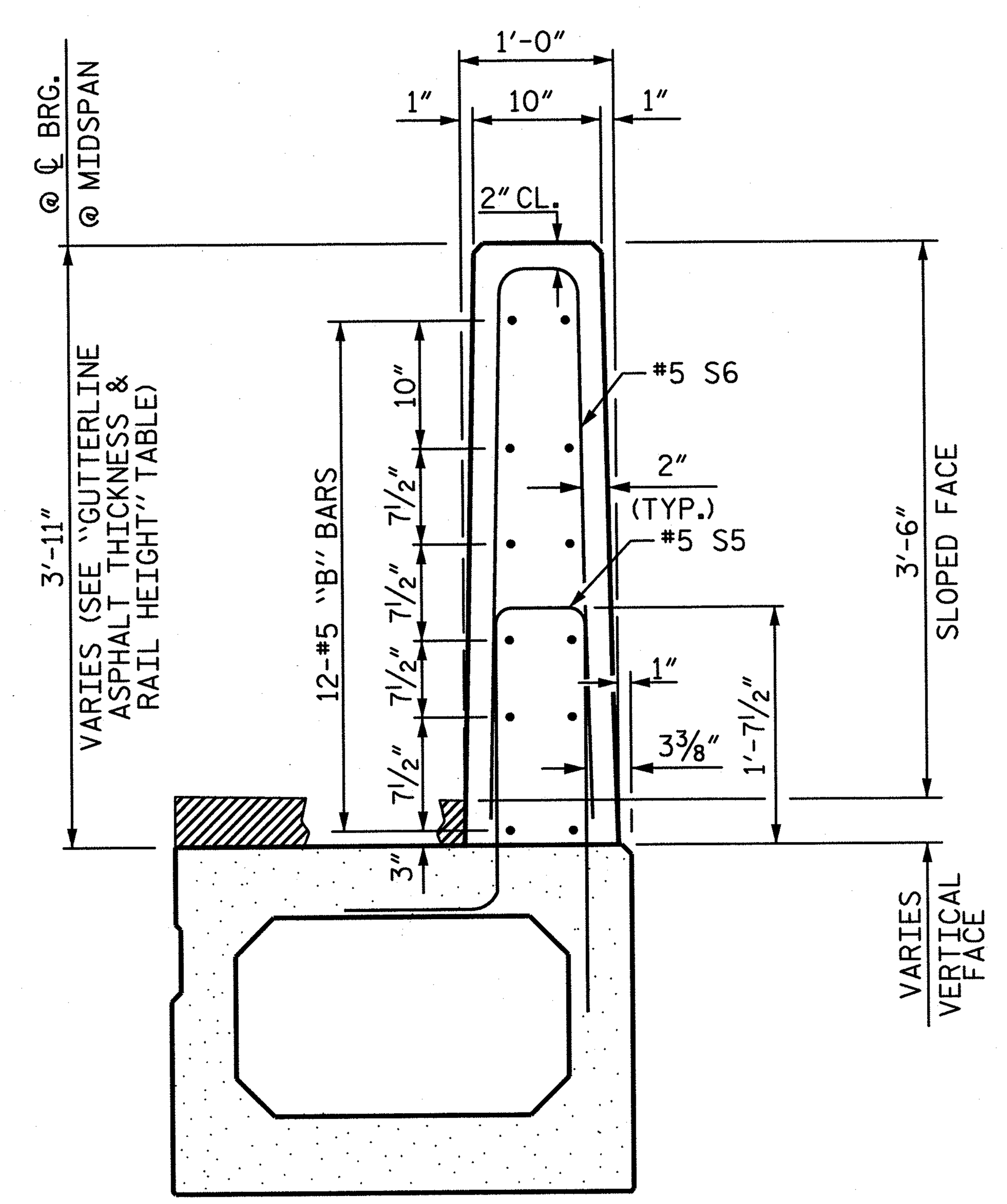
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

BOX BEAM UNITS REQUIRED

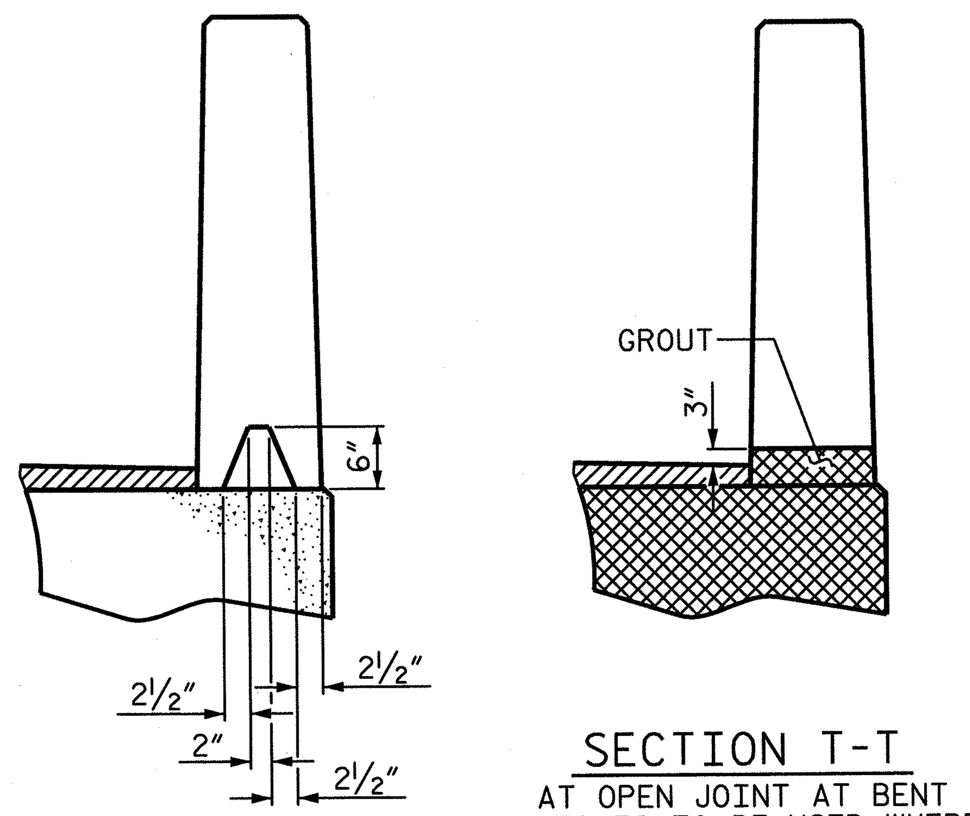
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	90′-0″	180′-0″
INTERIOR B.B.	8	90′-0″	720′-0″
TOTAL	10	——	900′-0″

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
90′ UNITS	1½″	3′-8″



SECTION THRU RAIL

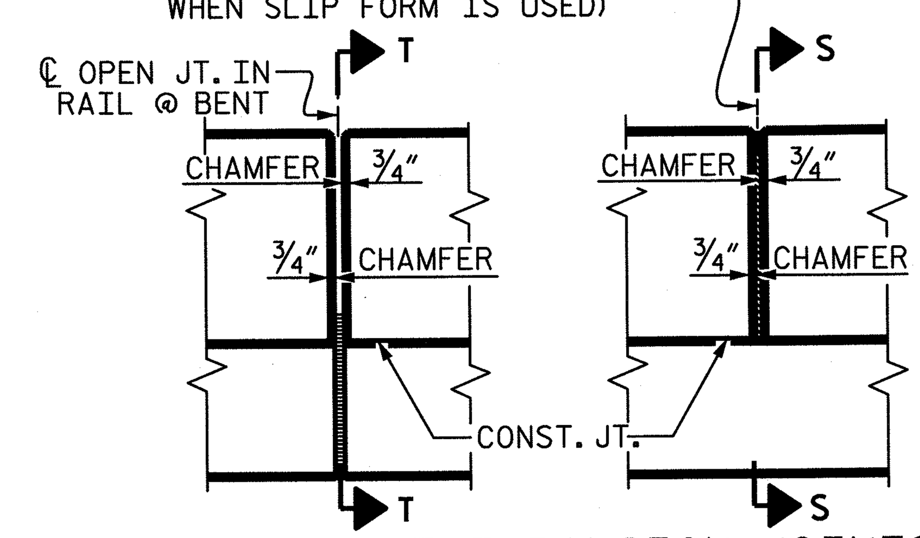


SECTION S-S

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

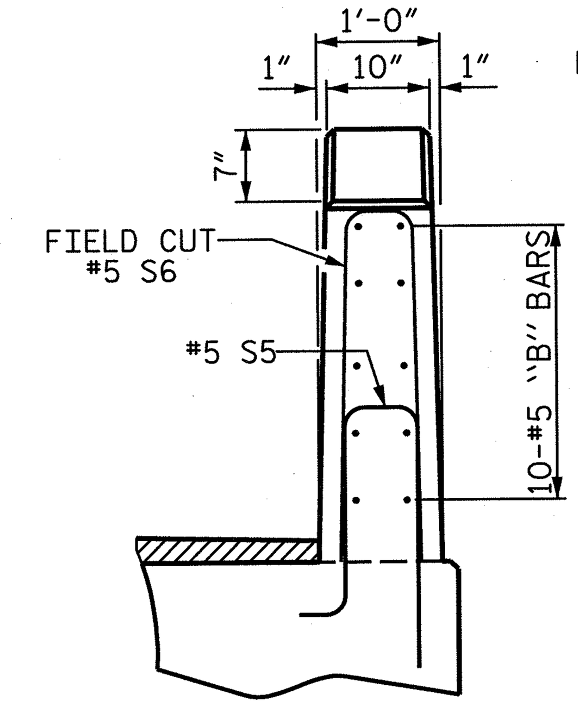
SECTION T-T

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

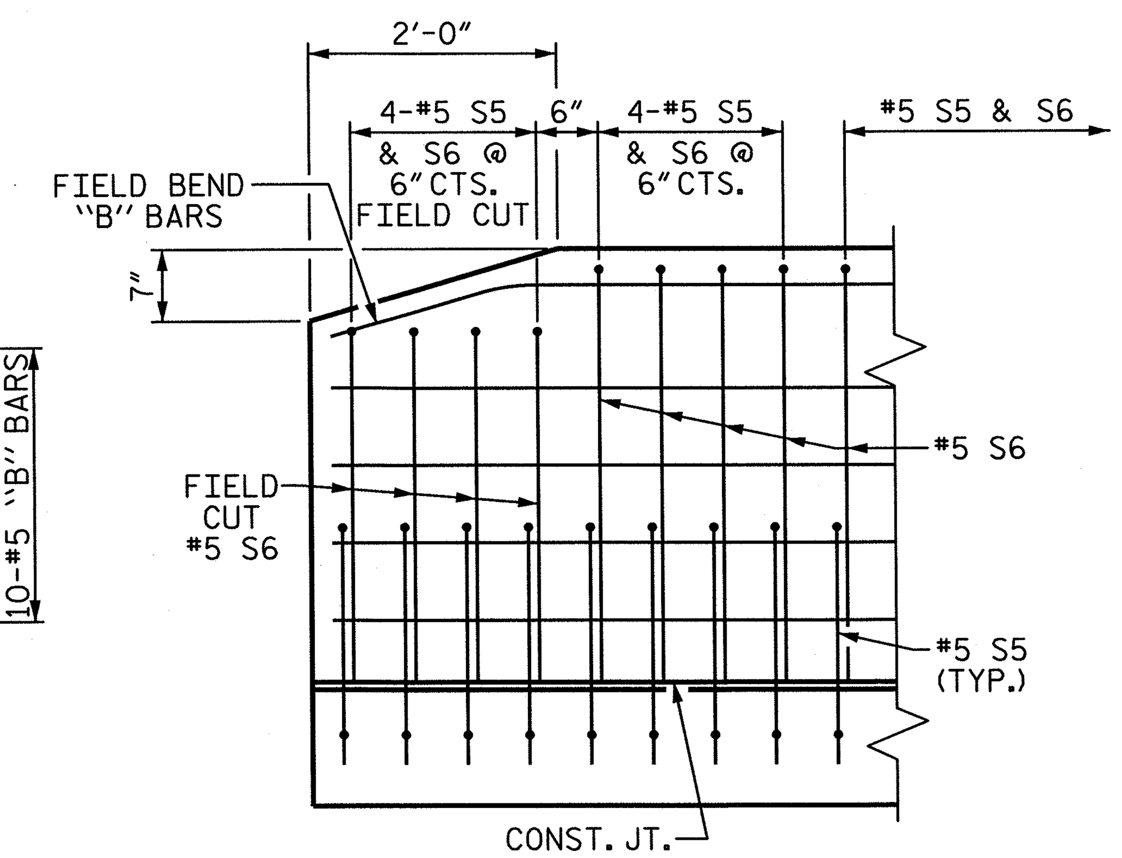


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

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MOORE COUNTY

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SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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2			4		

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TOTAL SHEETS 16

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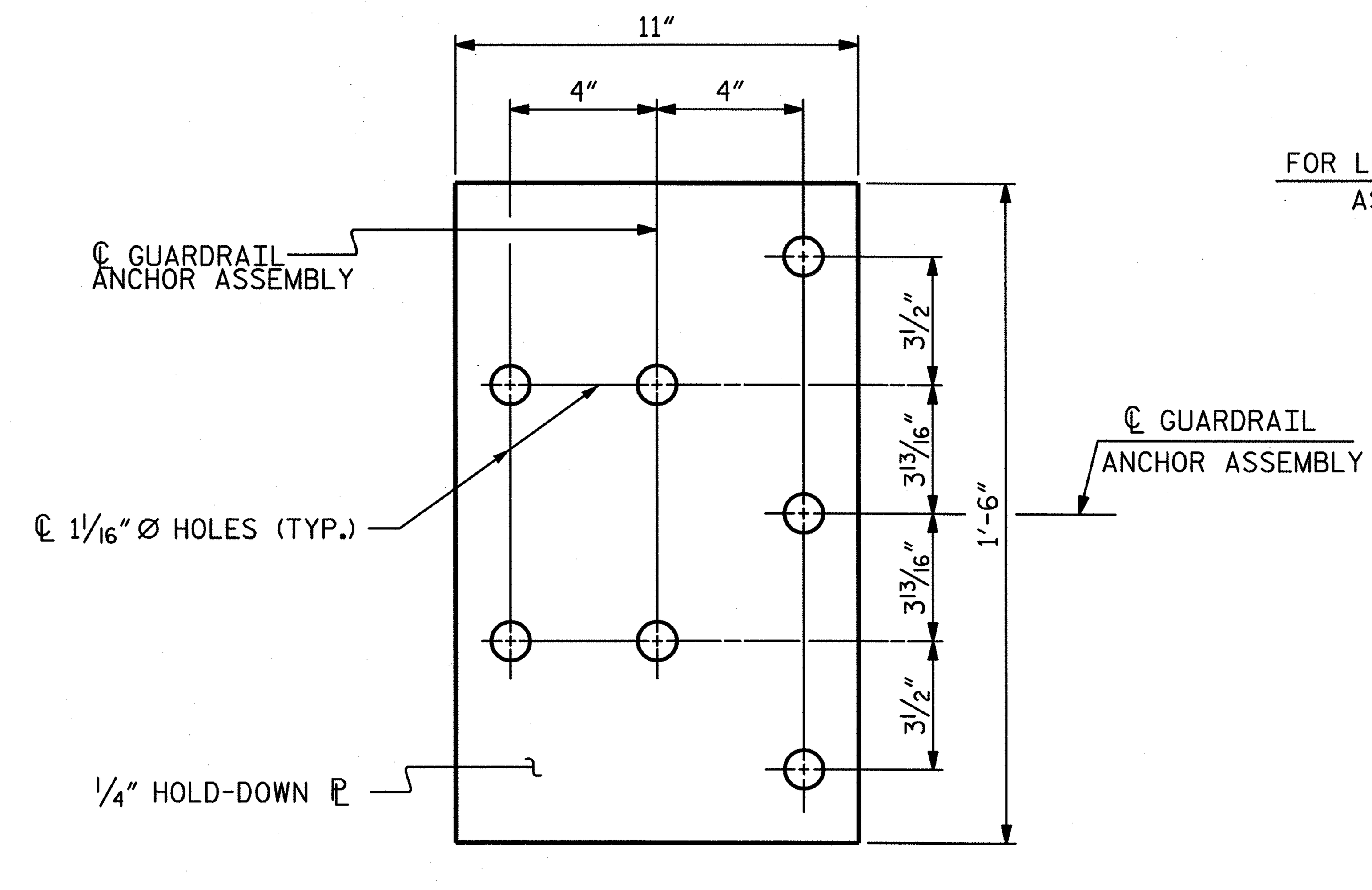
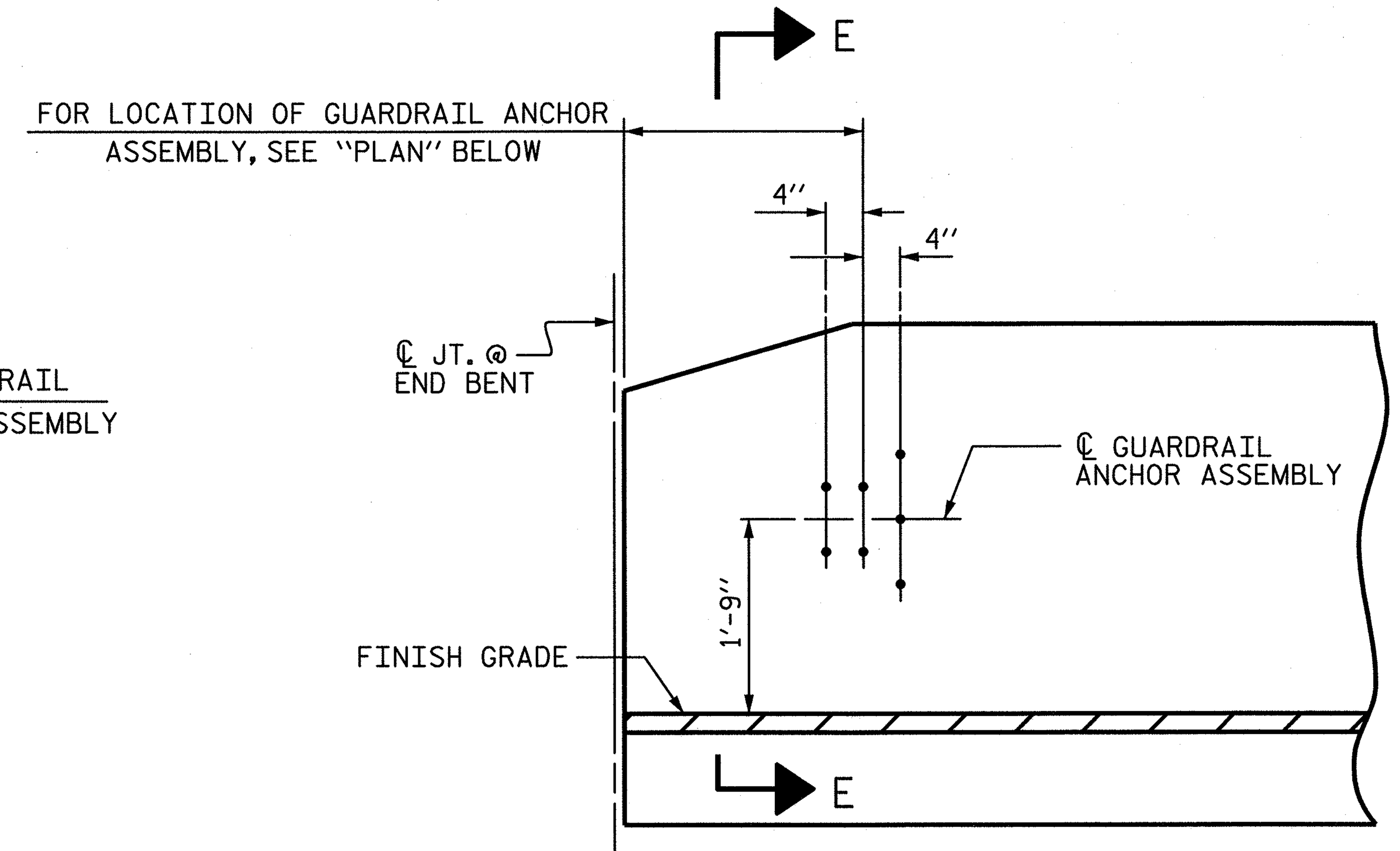


PLAN



ELEVATION

NOTES

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

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

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

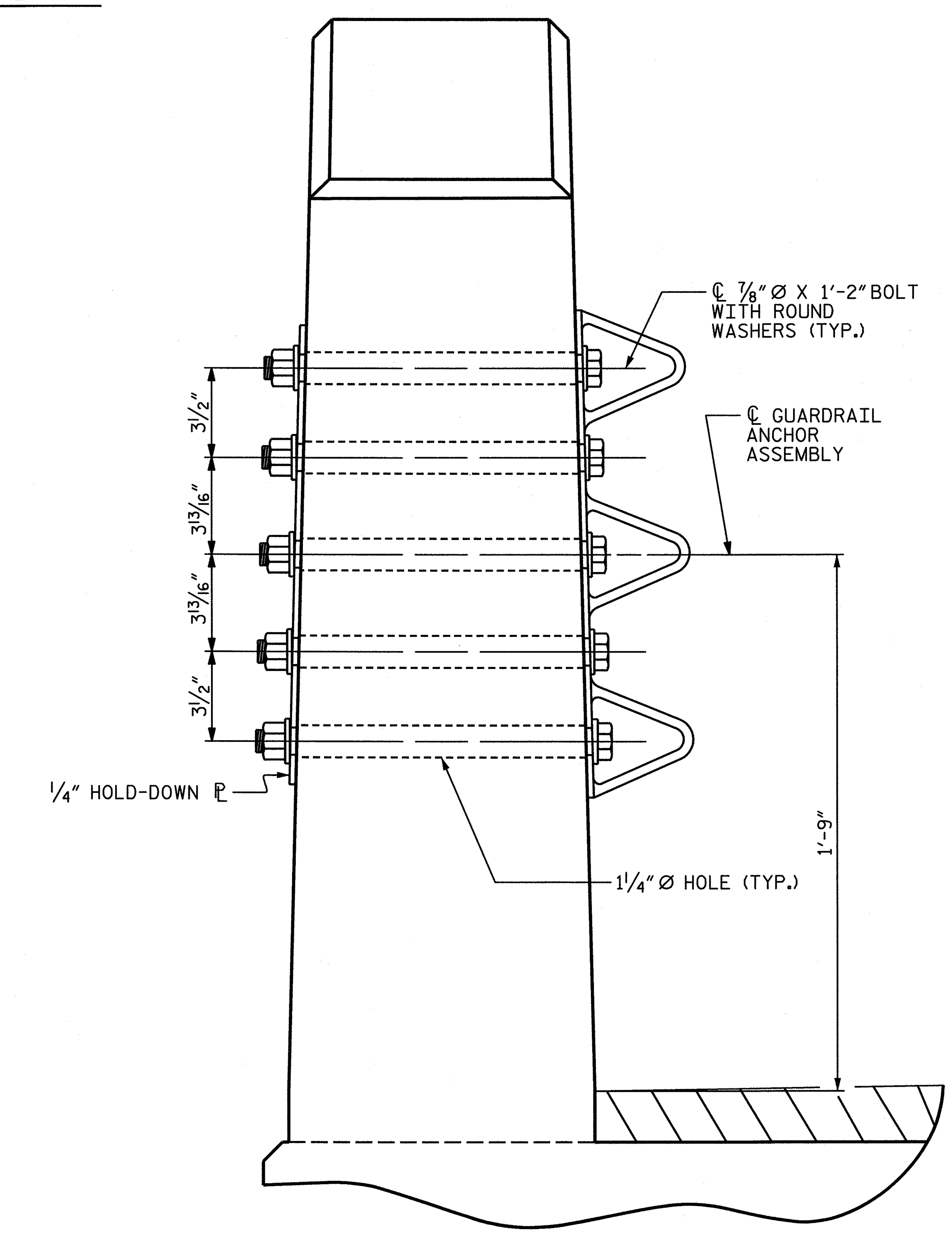
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

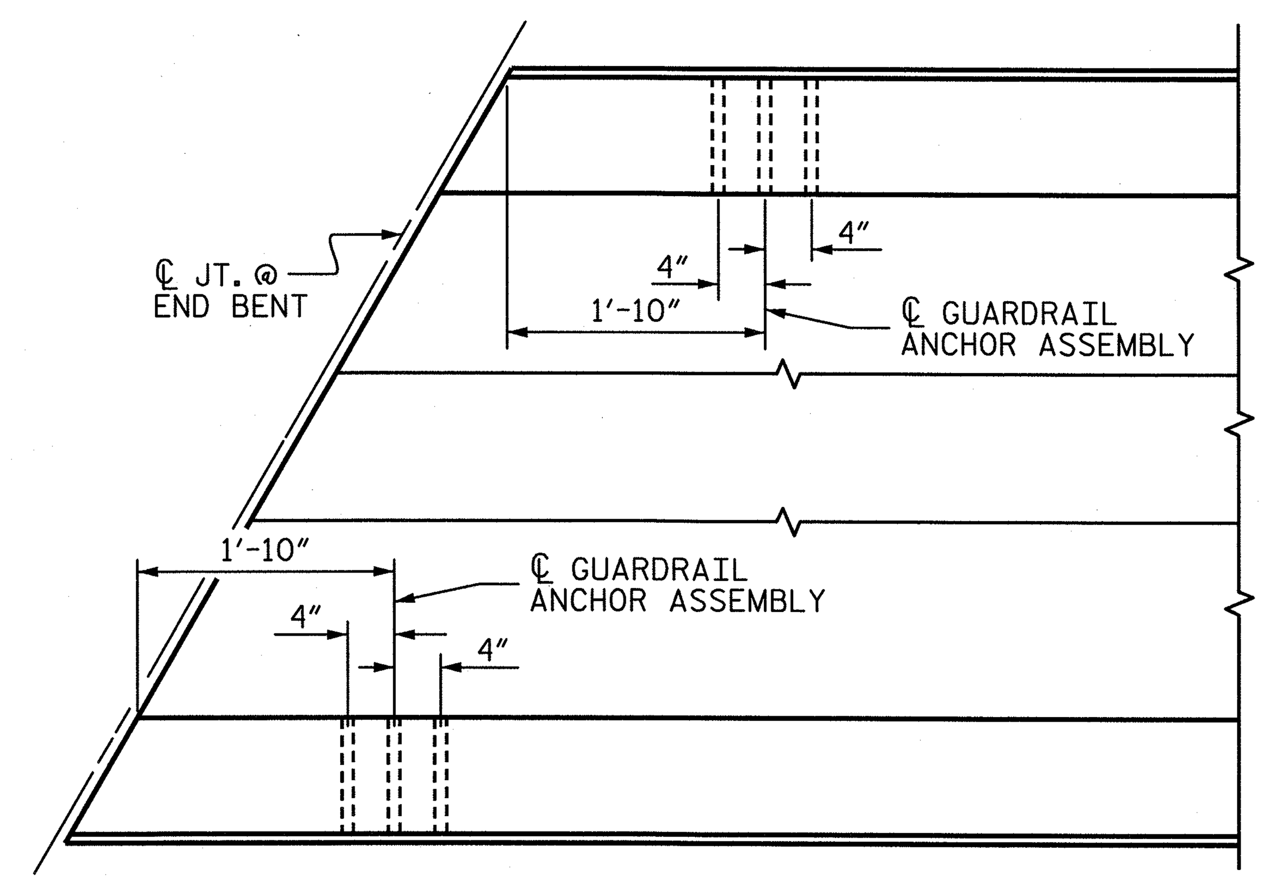
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



SECTION E-E

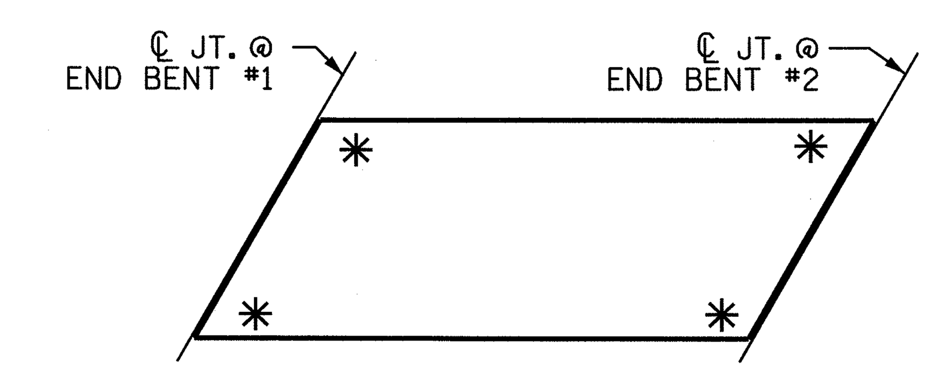
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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.34

MOORE COUNTY

STATION: 13+99.00-L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 37479 NICHOLAS A. PIERCE 09/03/13

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STATE OF NORTH CAROLINA
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STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

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

ASSEMBLED BY :	NAP	DATE :	08-12
CHECKED BY :	MAH	DATE :	08-12
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

9/3/2013
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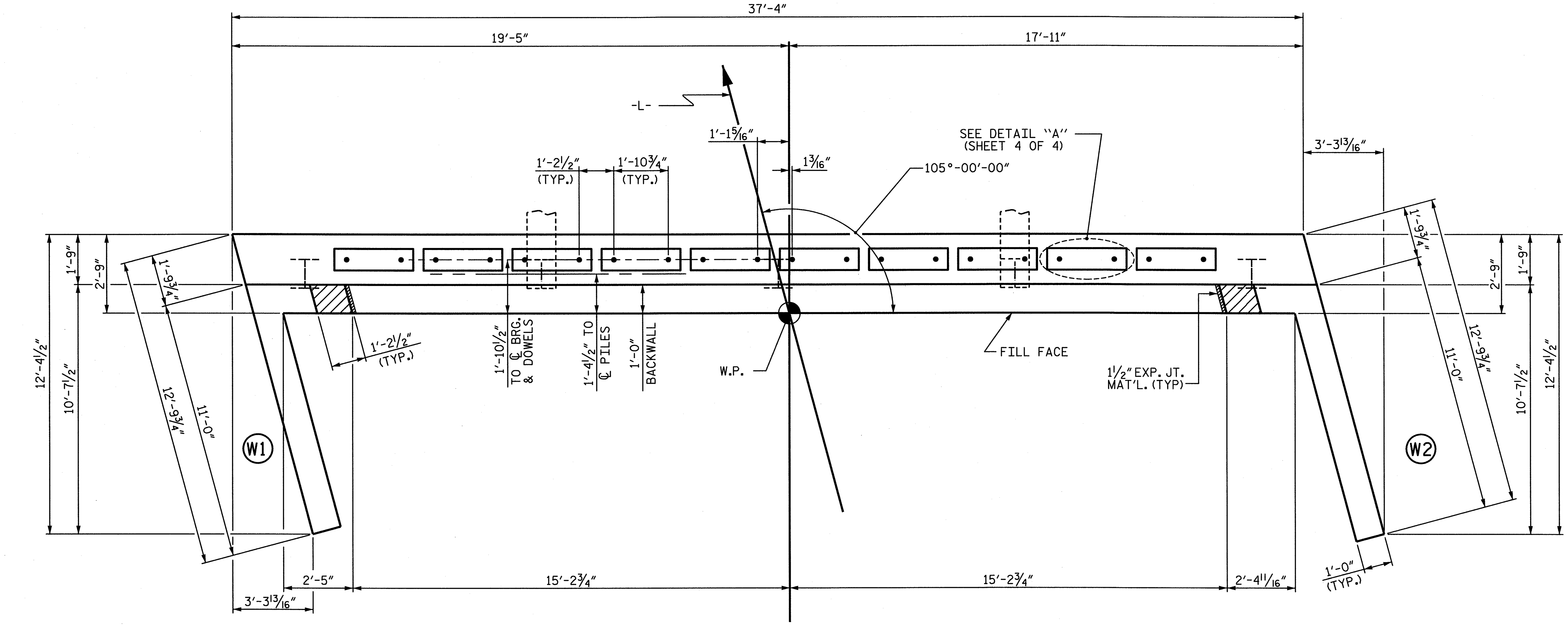
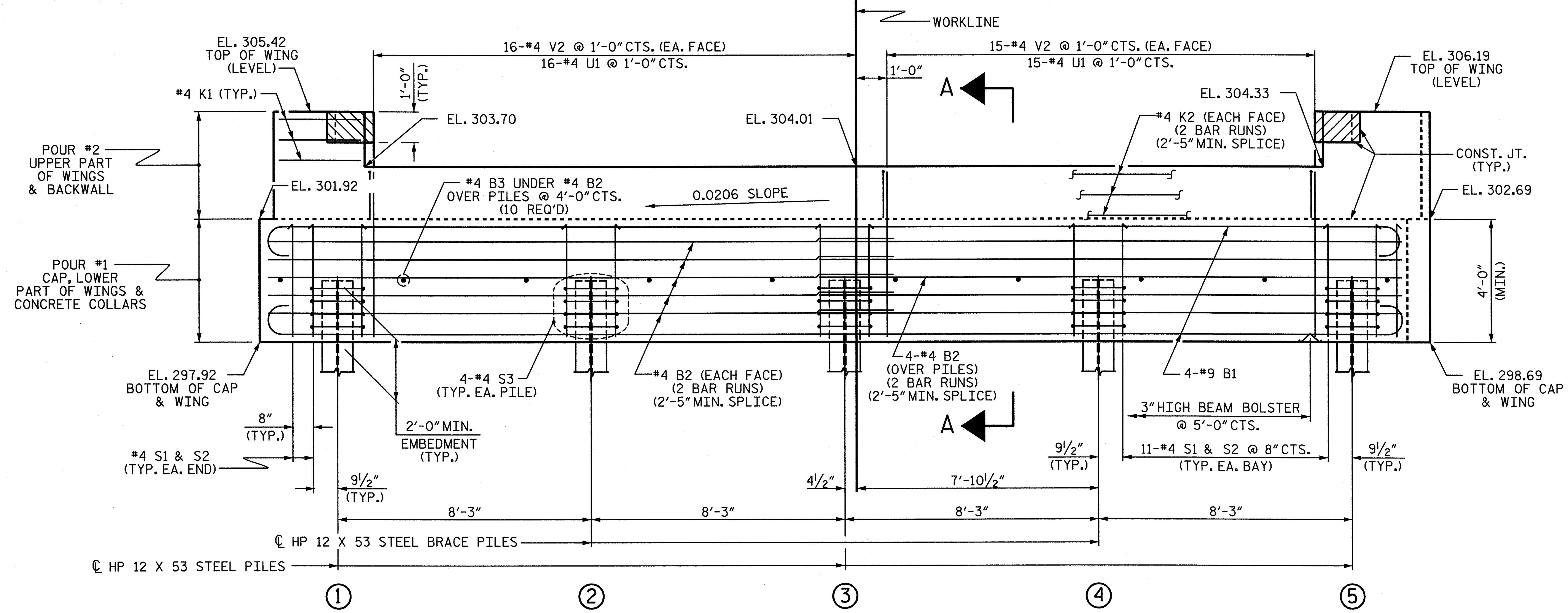
usmh04386

(SHT 2) STD. NO. GRA3



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.

TOP OF PILE ELEVATIONS	
1	299.97
2	300.14
3	300.31
4	300.48
5	300.65

PROJECT NO. 17BP.8.R.34
MOORE COUNTY
STATION: 13+99.00-L-
SHEET 1 OF 4

NORTH CAROLINA PROFESSIONAL ENGINEER 37419 NICHOLAS A. PIERCE 9/4/13

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STATE OF NORTH CAROLINA
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SUBSTRUCTURE

END BENT 1

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

ASSEMBLED BY : NAP	DATE : 08-12
CHECKED BY : MAH	DATE : 08-12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

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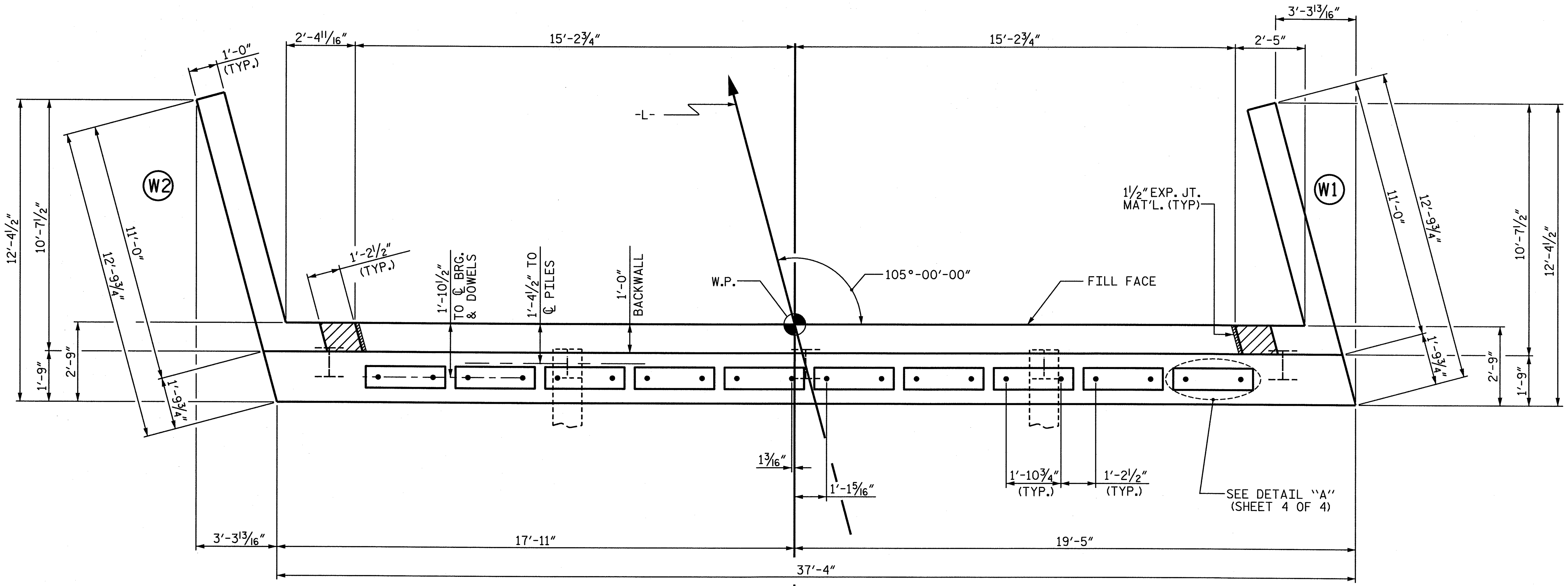
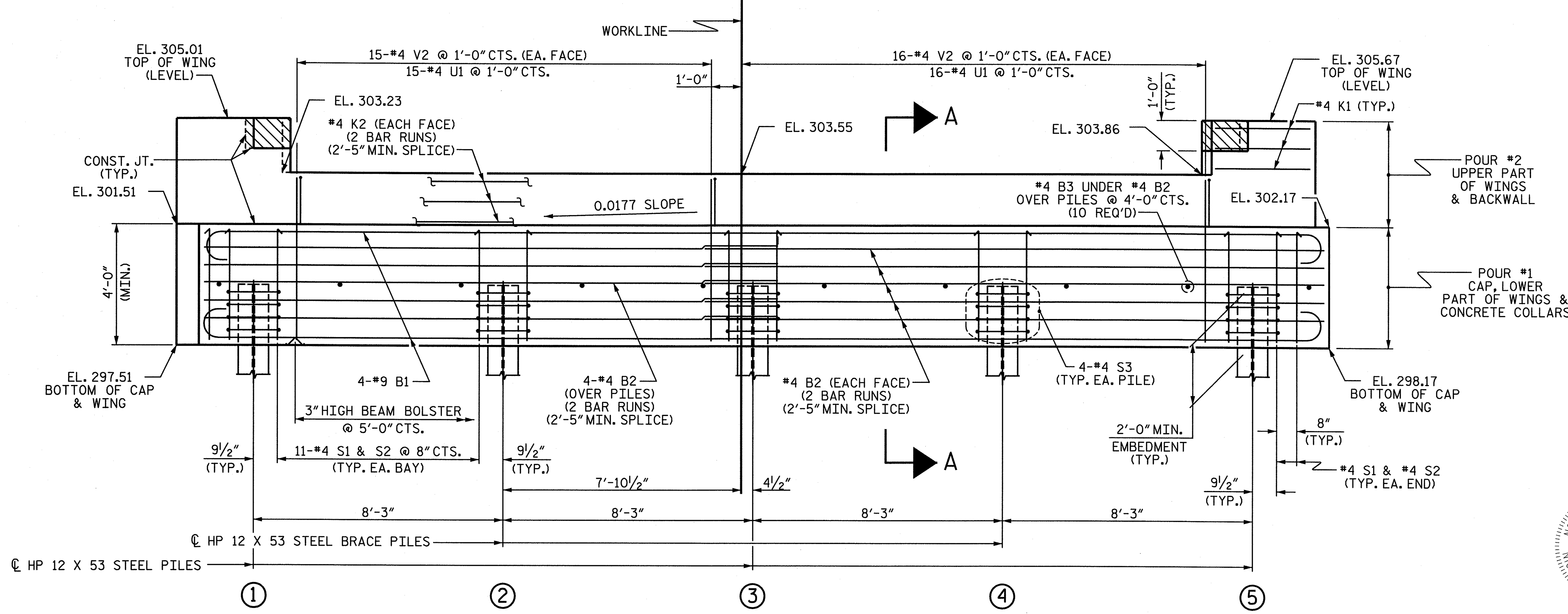
STD. NO. EB_30_105S_33BB



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.

TOP OF PILE ELEVATIONS	
1	299.54
2	299.69
3	299.83
4	299.98
5	300.12

PROJECT NO. 17BP.8.R.34
MOORE COUNTY
STATION: 13+99.00-L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
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SUBSTRUCTURE
END BENT 2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034190 NICHOLAS A. PIERCE 9/3/13

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

REVISIONS

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

SHEET NO. S-12
TOTAL SHEETS 16

9/3/2013
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usmh04386

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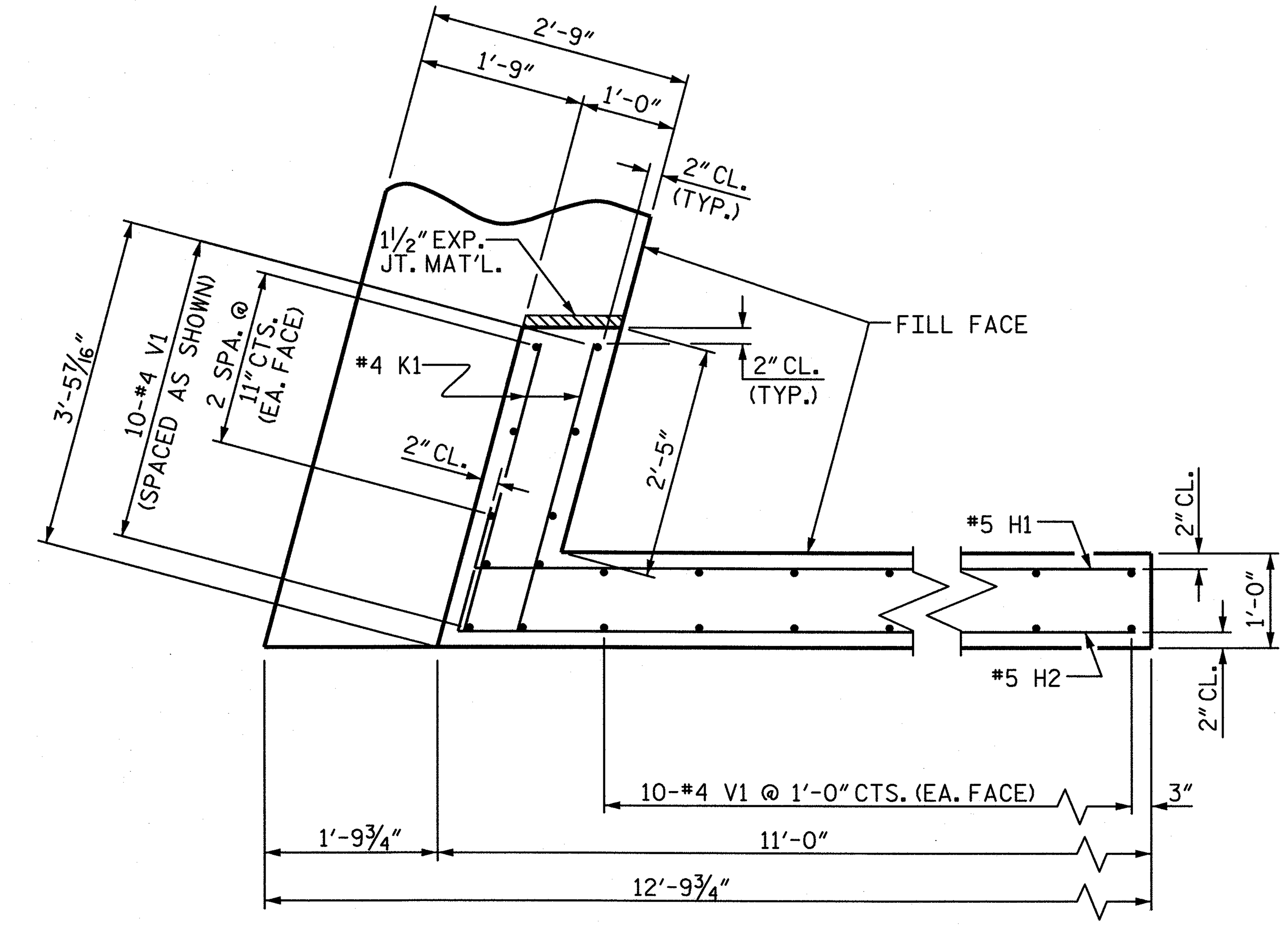
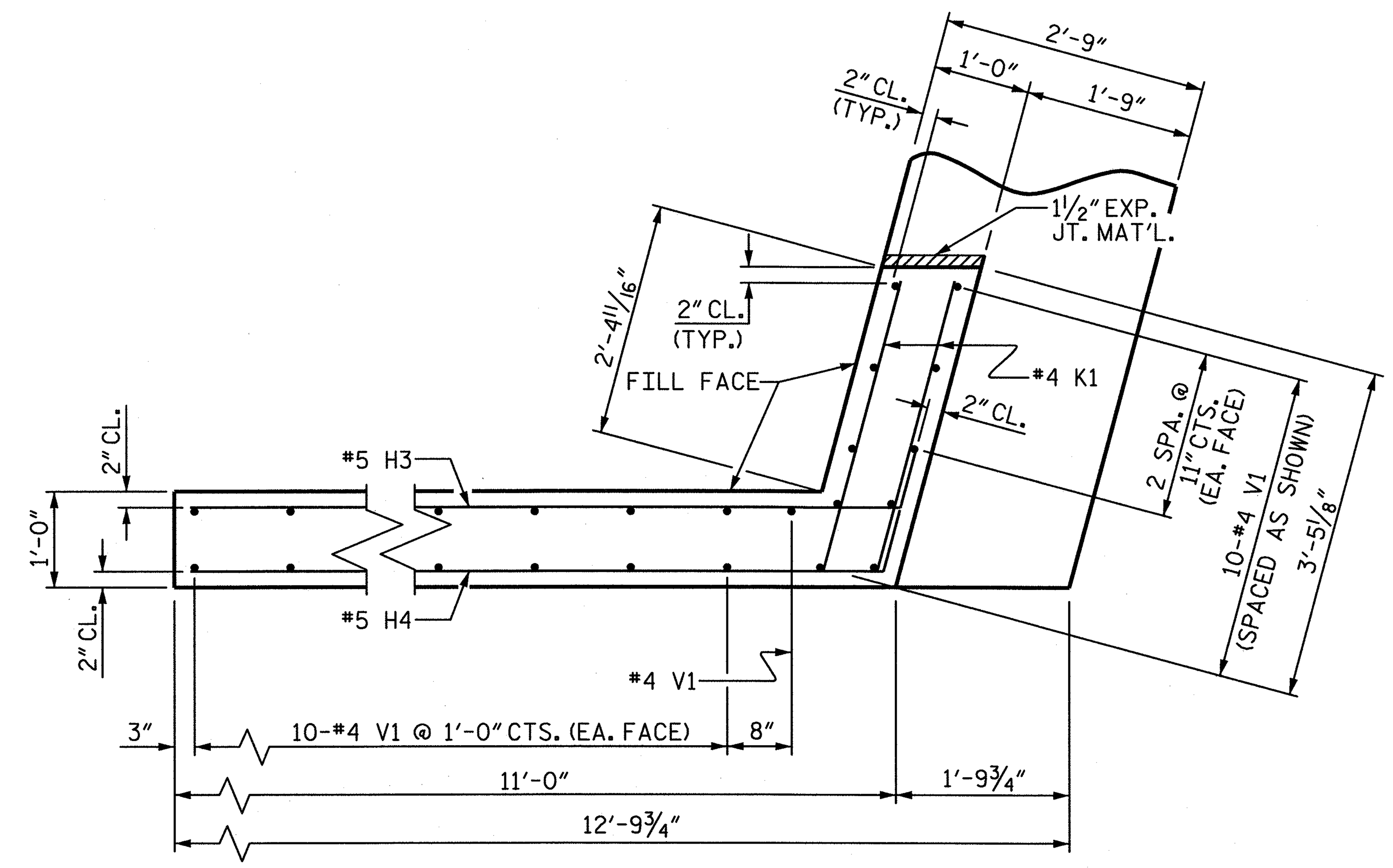
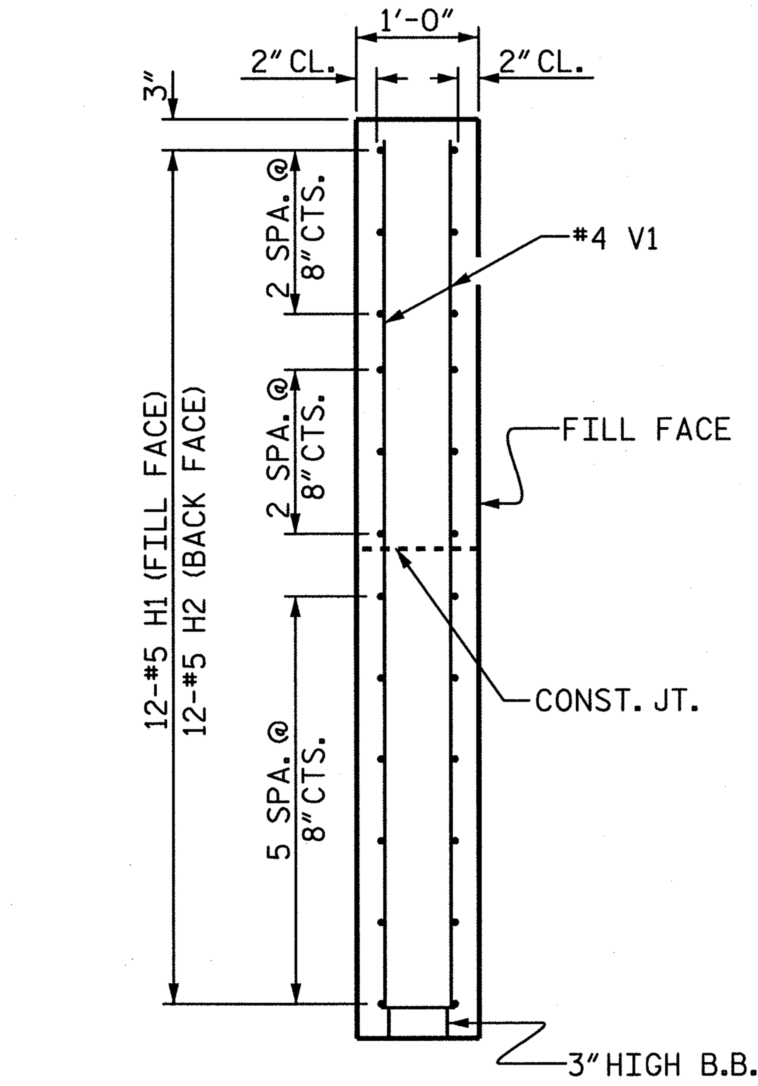


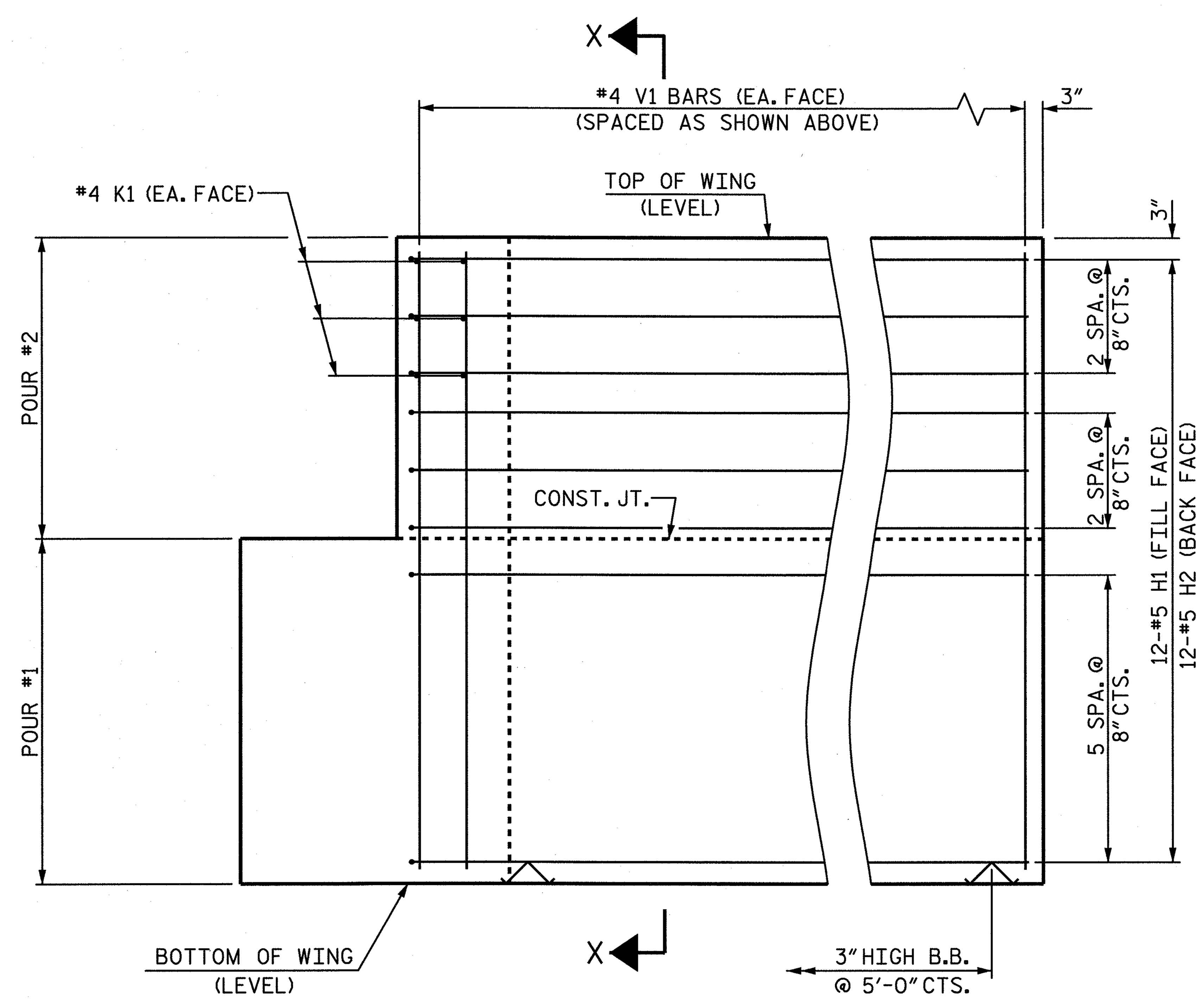
PLAN OF WING (W1)



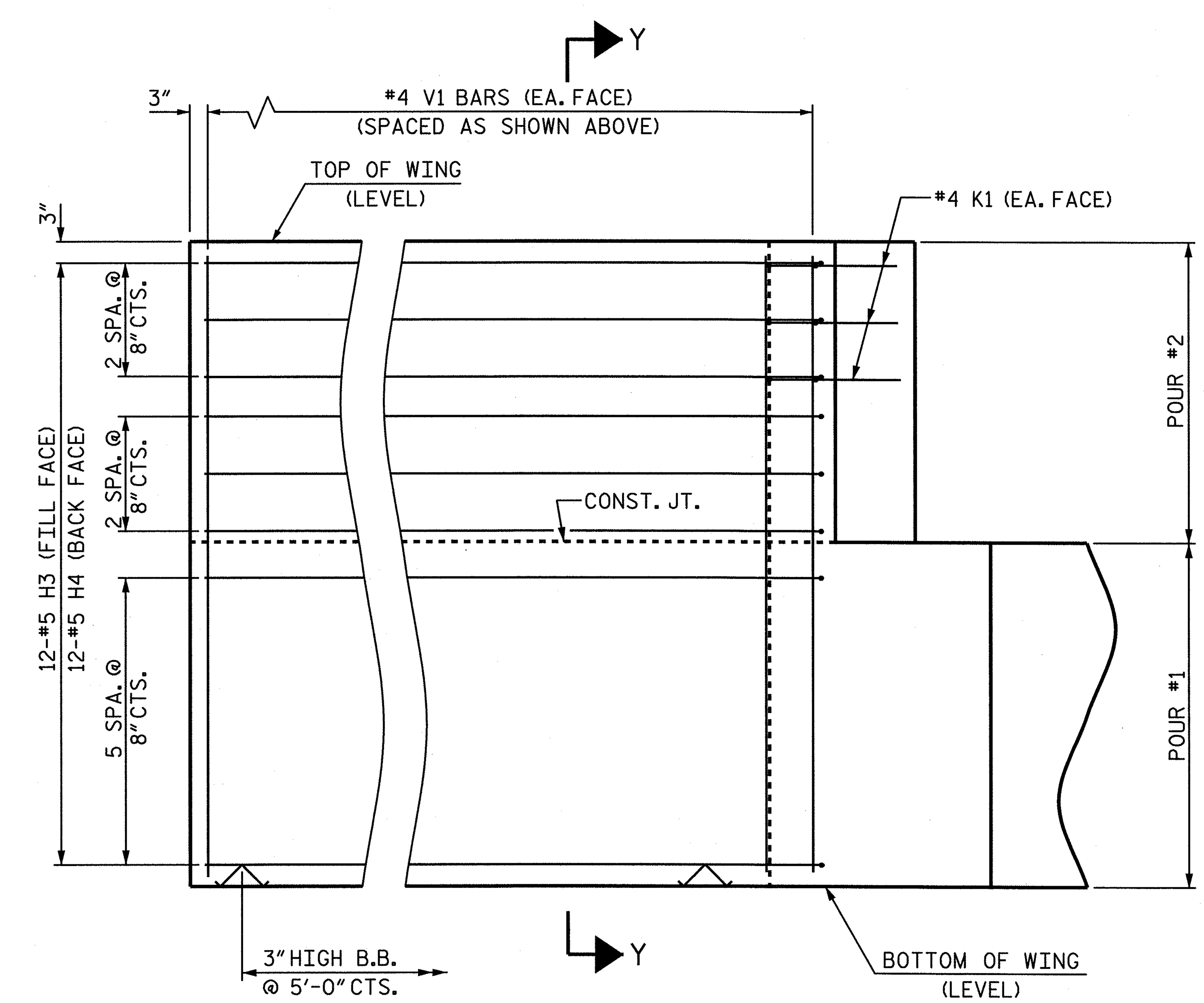
PLAN OF WING (W2)



SECTION X-X

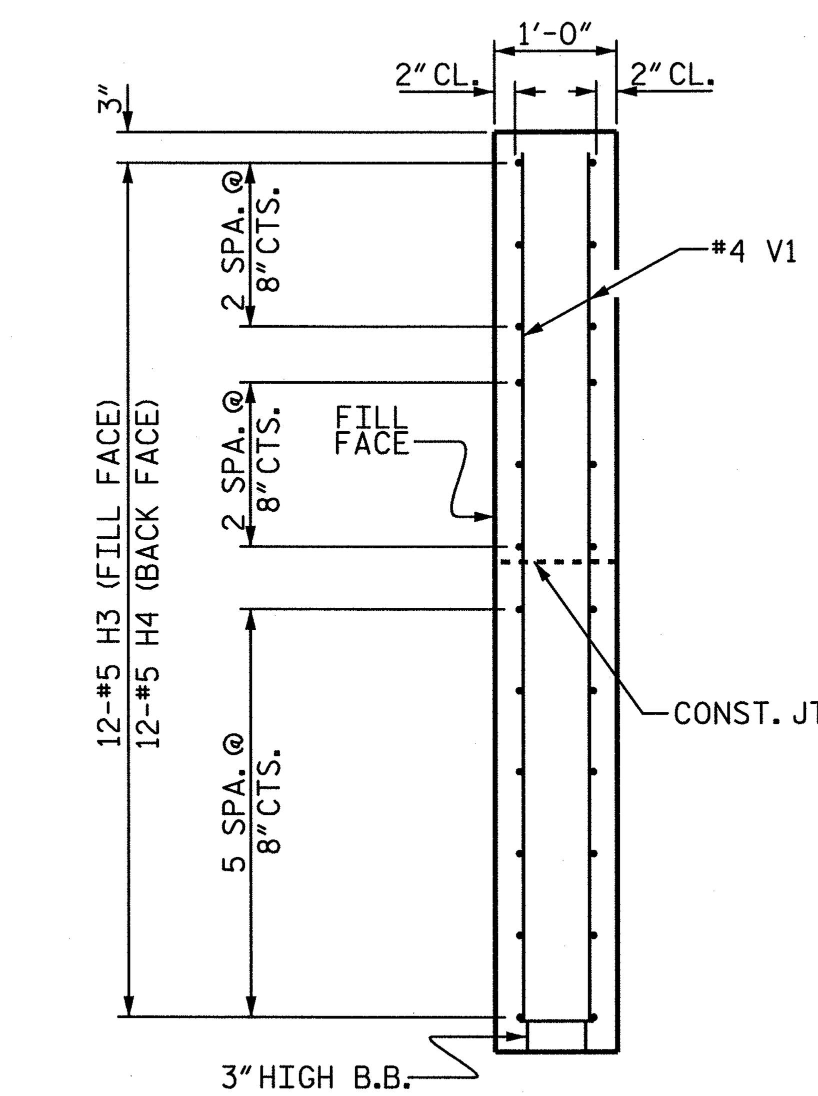


ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS



SECTION Y-Y

PROJECT NO. 17BP.8.R.34

MOORE COUNTY

STATION: 13+99.00-L-

SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL ENGINEER 37479 NICHOLAS A. PIERCE 09/05/13

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SUBSTRUCTURE

END BENT
WING DETAILS

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

ASSEMBLED BY : MAH	DATE : 08/12
CHECKED BY : NAP	DATE : 08/12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

9/3/2013
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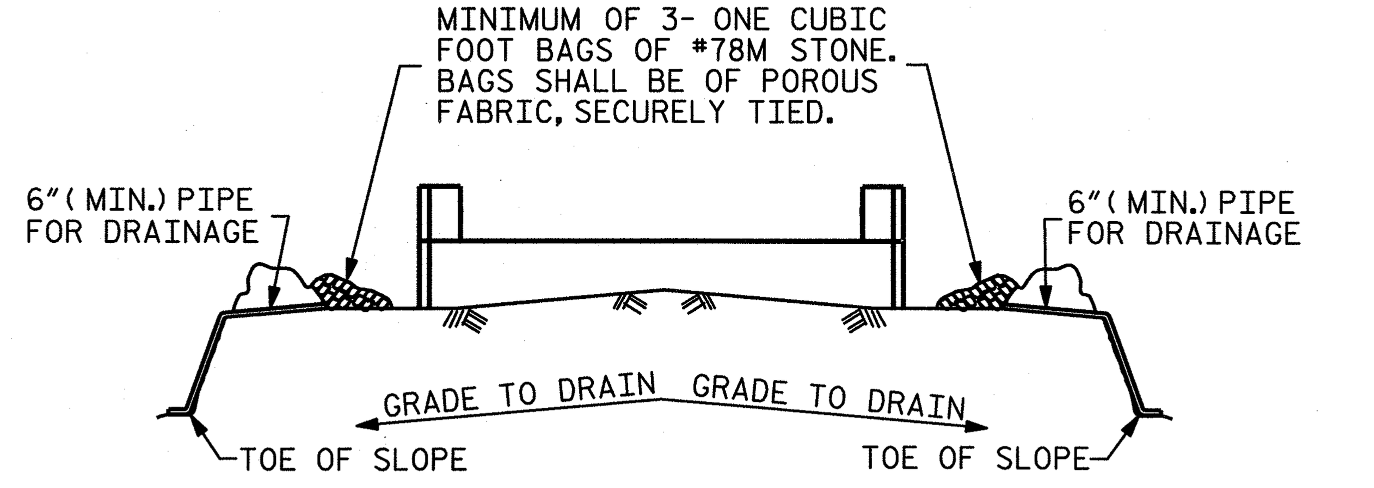
STD. NO. EB_30_105S4_33BB

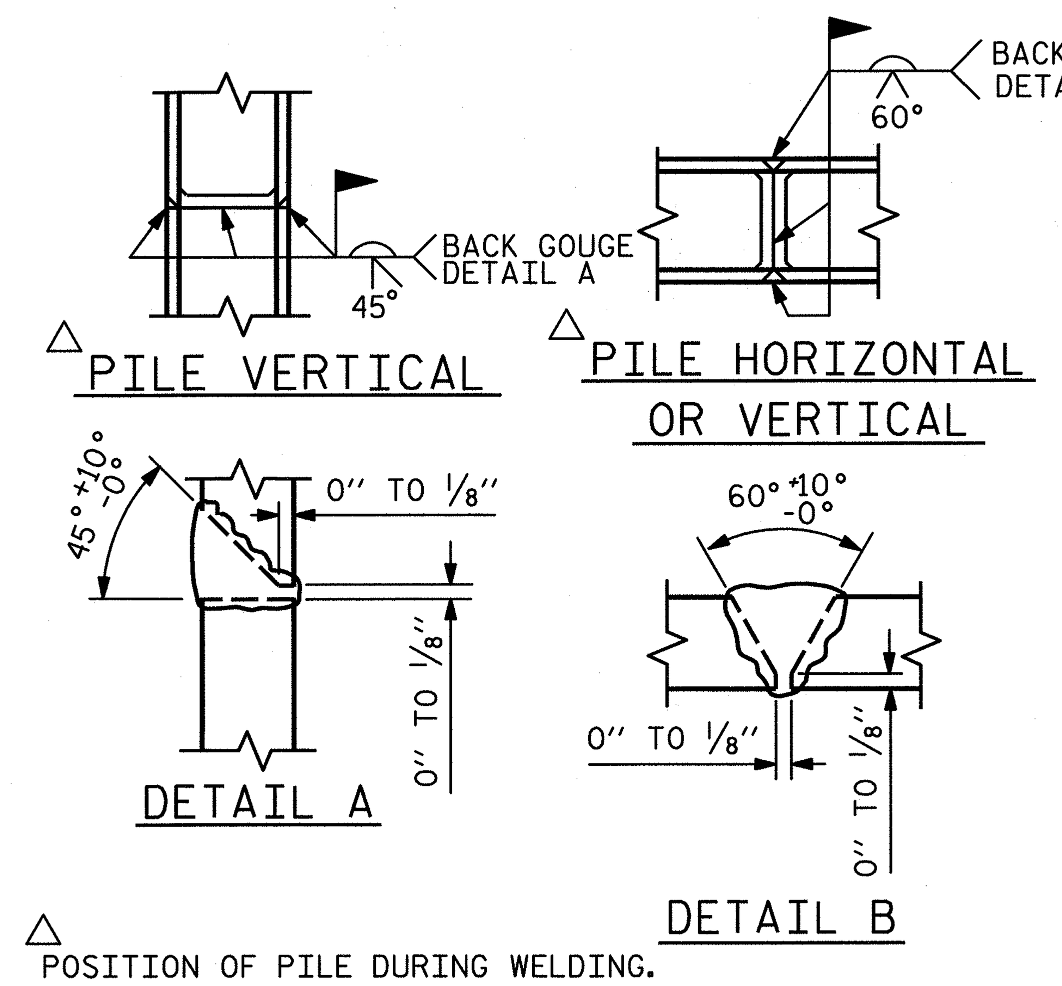


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

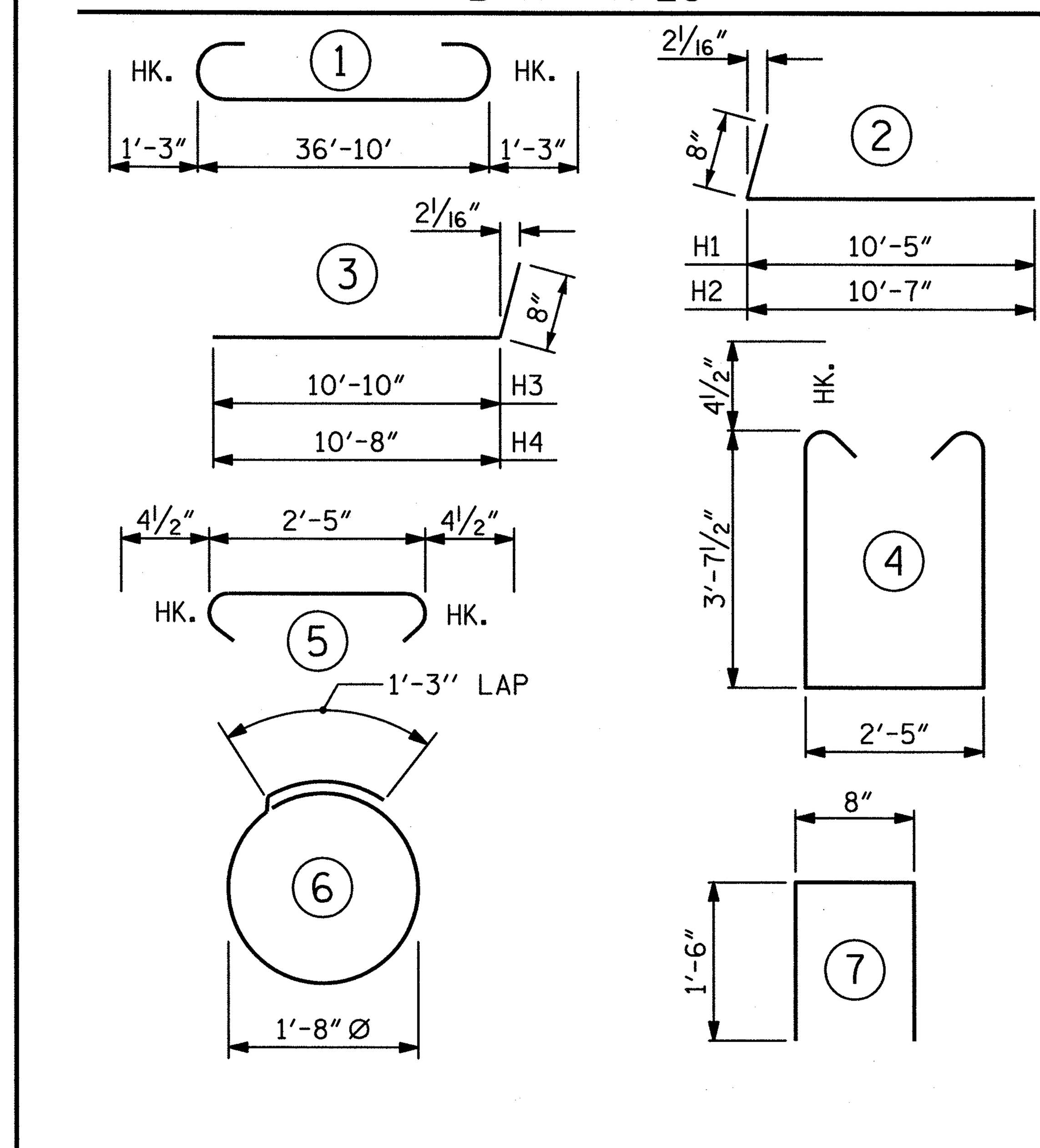
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

BAR TYPES



END BENT 1		END BENT 2	
HP 12 X 53 STEEL PILES		HP 12 X 53 STEEL PILES	
NO: 5	LIN. FT.= 75	NO: 5	LIN. FT.= 75
STEEL PILE POINTS	EA. = 5	STEEL PILE POINTS	EA. = 5

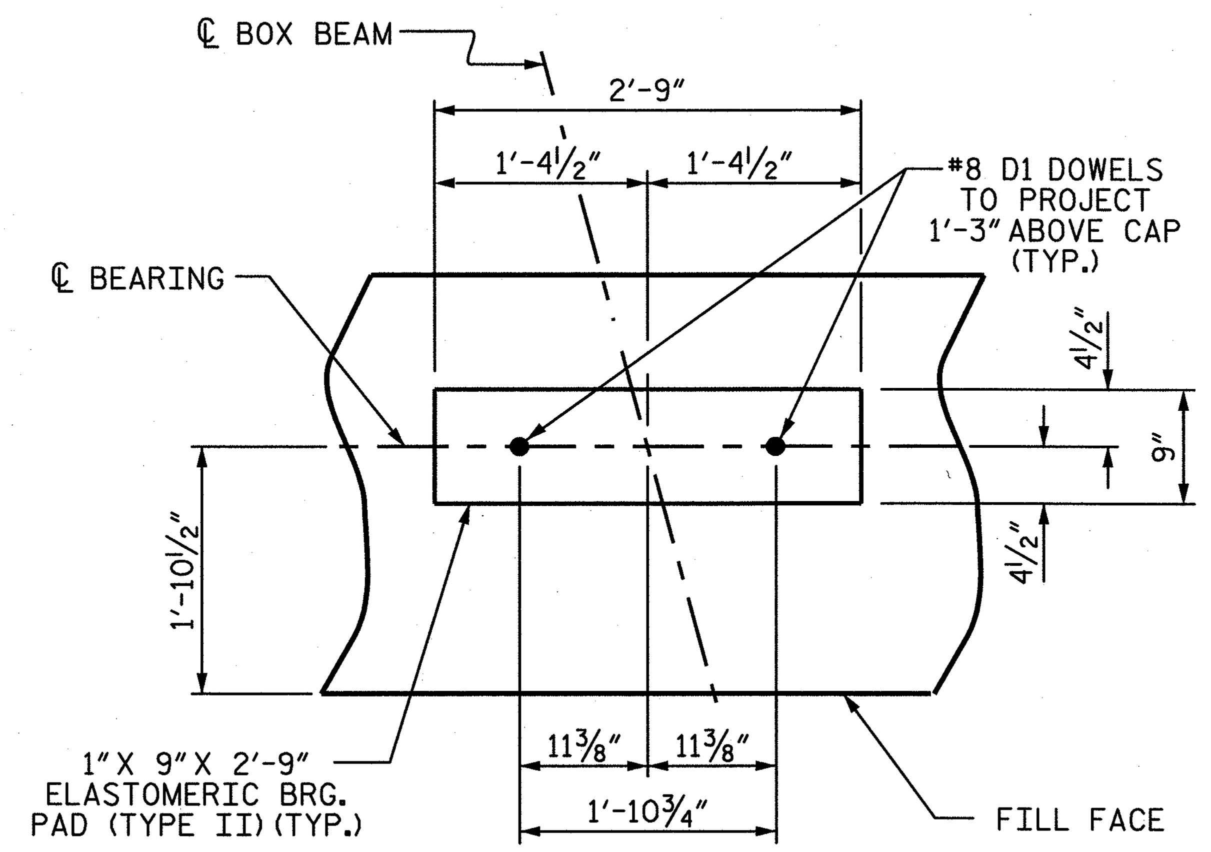
BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	39'-4"	1070
B2	28	#4	STR	19'-9"	369
B3	10	#4	STR	2'-5"	16
D1	20	#8	STR	2'-3"	120
H1	12	#5	2	11'-1"	139
H2	12	#5	2	11'-3"	141
H3	12	#5	3	11'-6"	144
H4	12	#5	3	11'-4"	142
K1	12	#4	STR	3'-1"	25
K2	12	#4	STR	19'-9"	158
S1	48	#4	4	10'-5"	334
S2	48	#4	5	3'-2"	102
S3	20	#4	6	6'-6"	87
U1	31	#4	7	3'-8"	76
V1	61	#4	STR	7'-2"	292
V2	62	#4	STR	5'-4"	221

REINFORCING STEEL (FOR ONE END BENT) 3436 LBS.

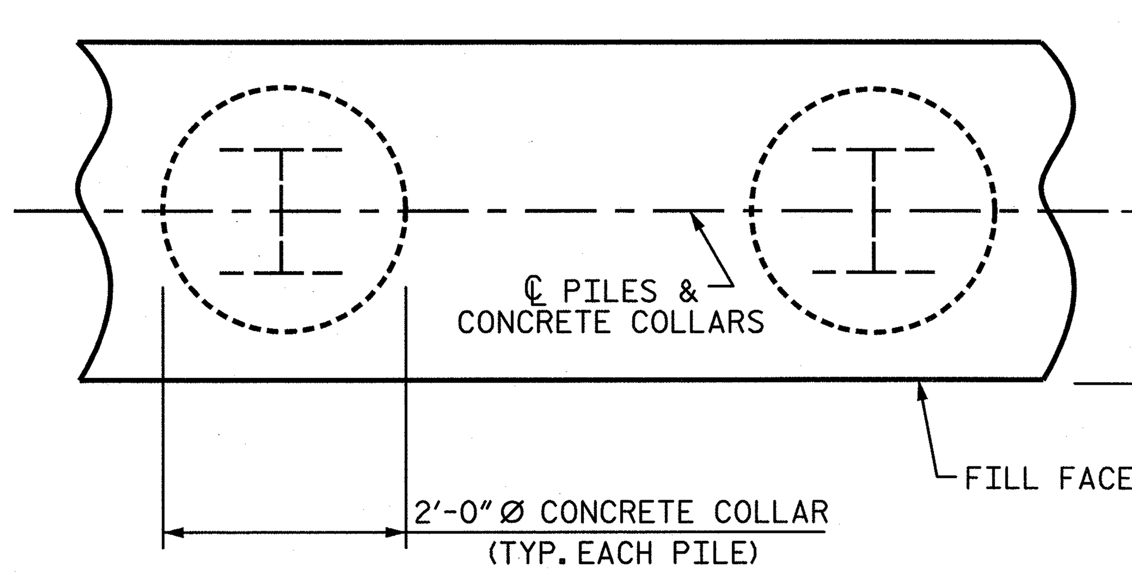
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	19.1 C.Y.
POUR #2	BACKWALL & UPPER PART OF WINGS	5.4 C.Y.
TOTAL CLASS A CONCRETE		24.5 C.Y.

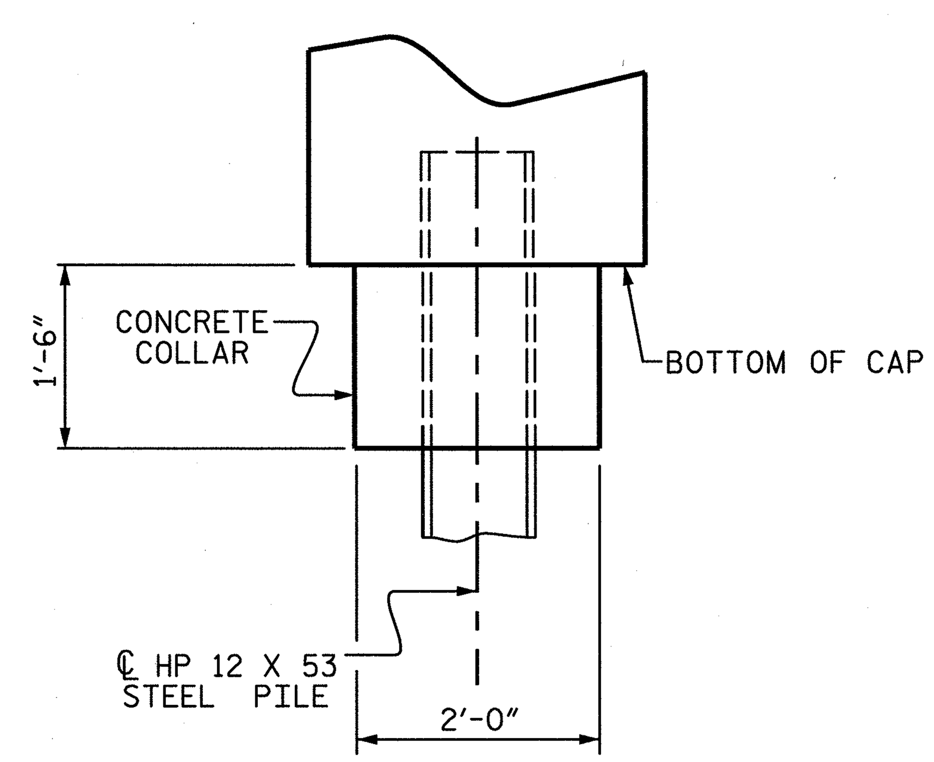


DETAIL "A"

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



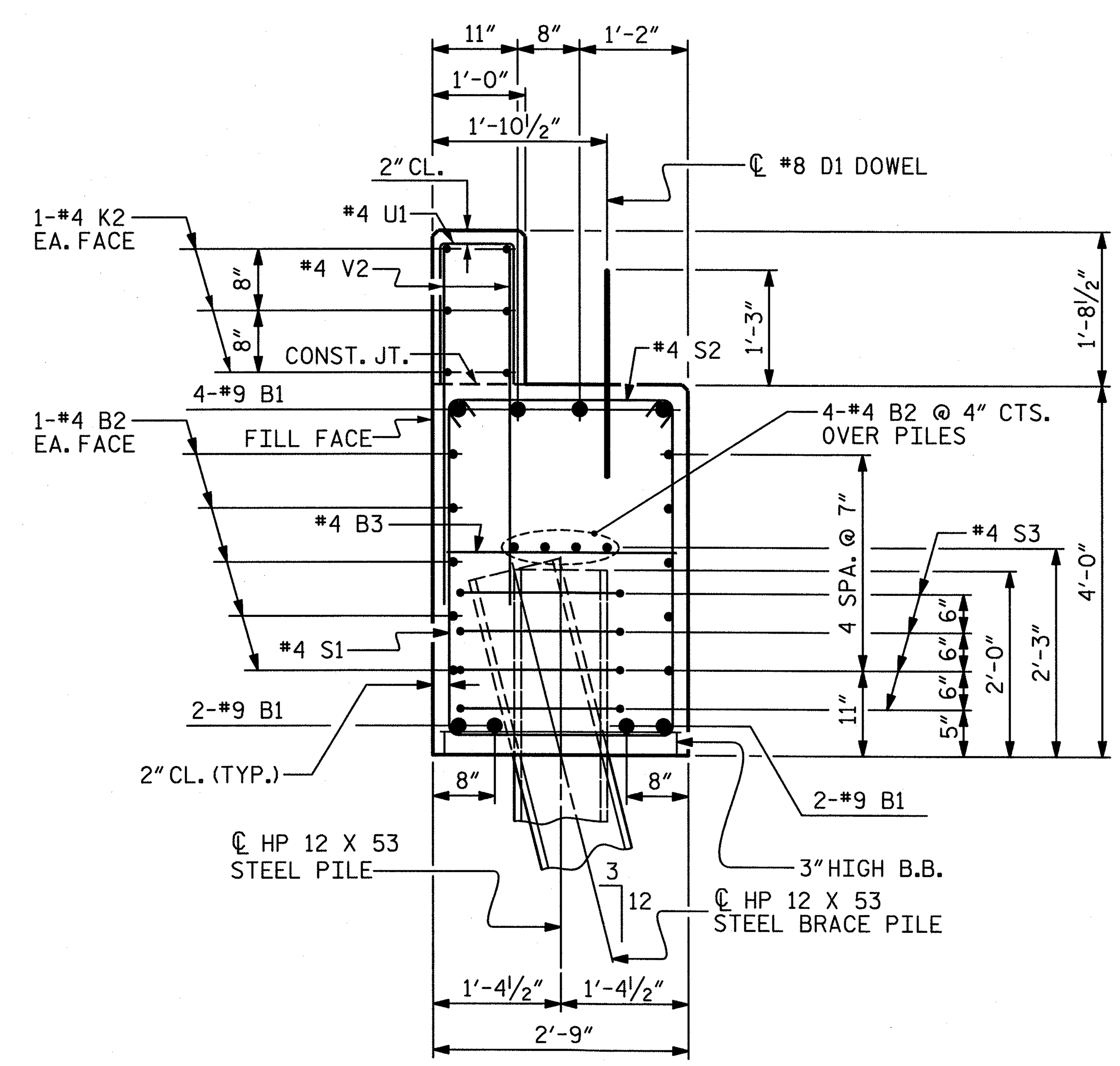
PLAN



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.")

PROJECT NO. 17BP.8.R.34

MOORE COUNTY

STATION: 13+99.00-L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

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1			3			TOTAL SHEETS
2			4			16

ASSEMBLED BY :	NAP	DATE :	08-12
CHECKED BY :	MAH	DATE :	08-12
DRAWN BY : WJH	12/11		
CHECKED BY : AAC	12/11		

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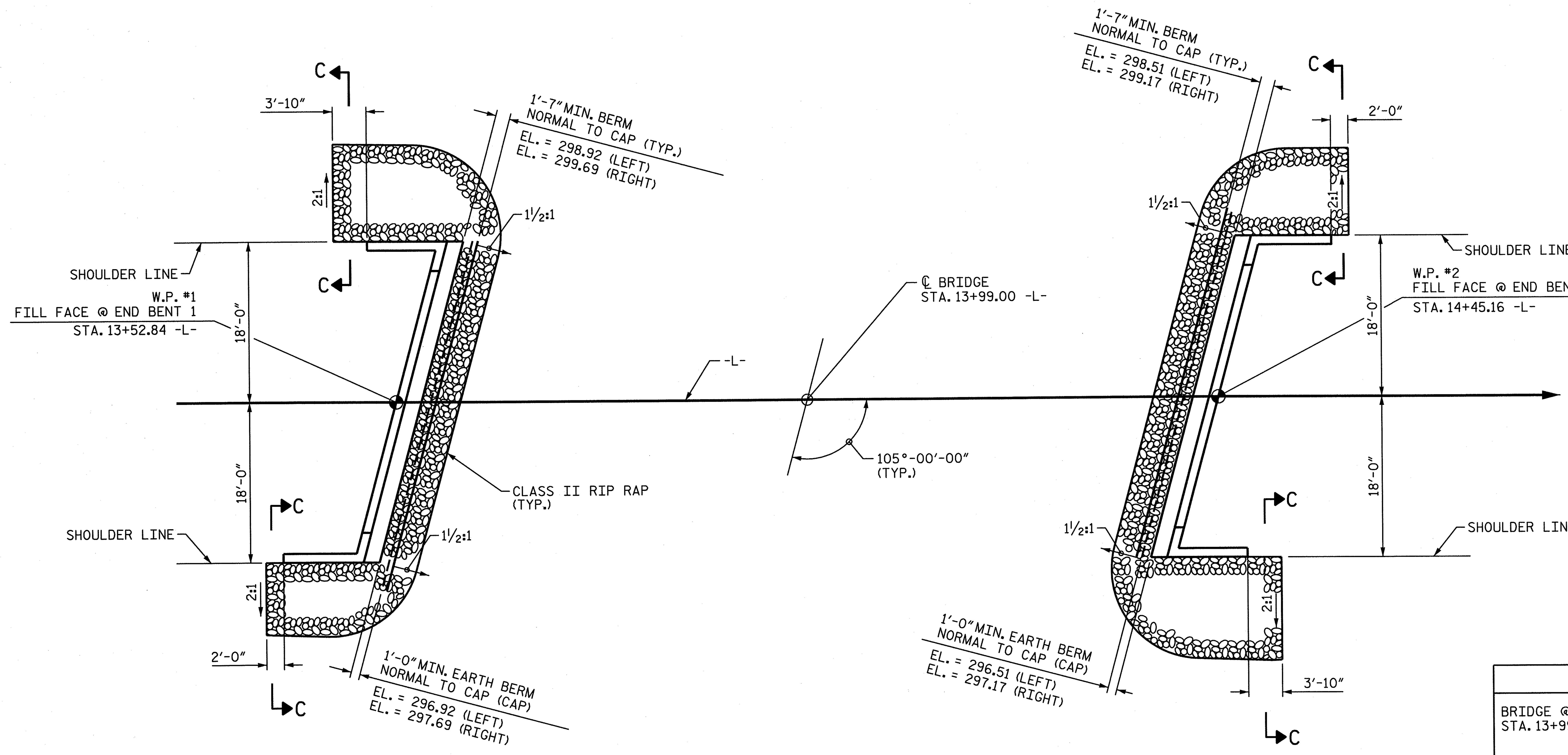
STD. NO. EB_30_105S4_33BB

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

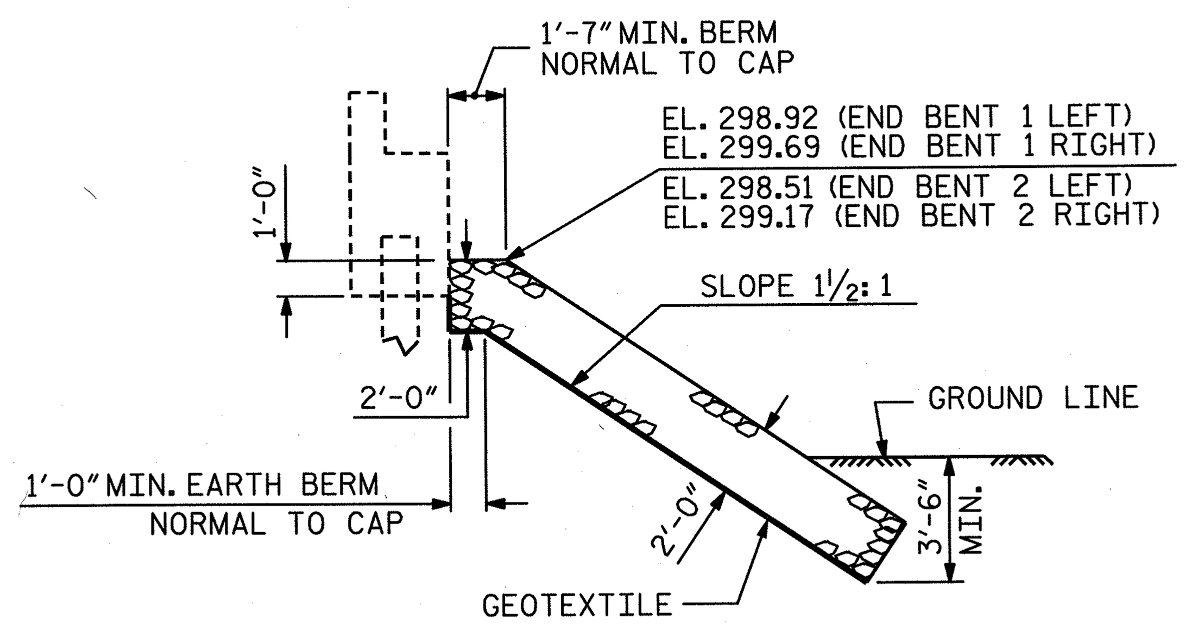


END BENT 1

END BENT 2

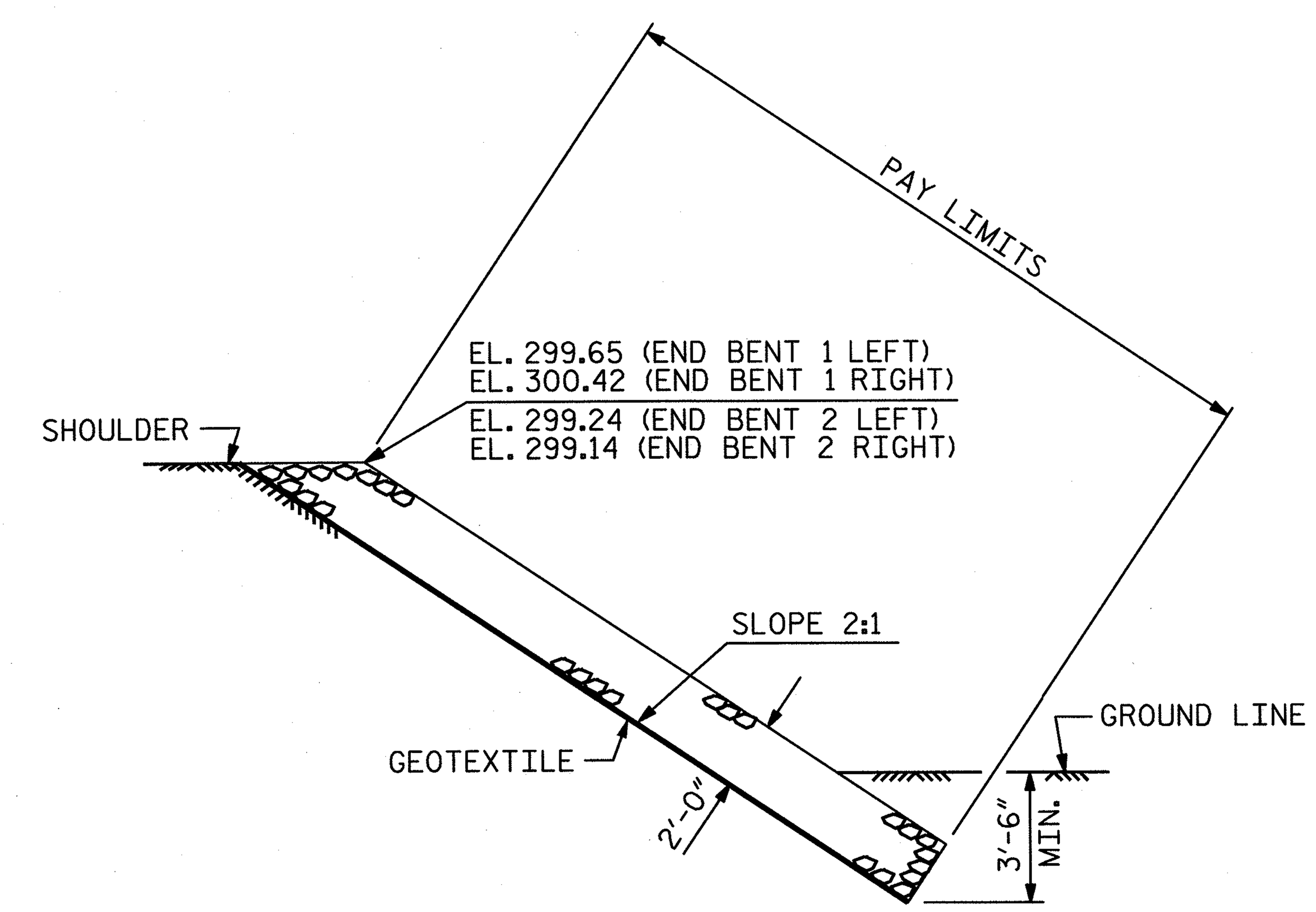
PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+99.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	68	75
END BENT 2	69	77



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. 17BP.8.R.34
MOORE COUNTY
STATION: 13+99.00 -L-

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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 : MAH	DATE : 08/12
CHECKED BY : NAP	DATE : 08/12
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

9/3/2013
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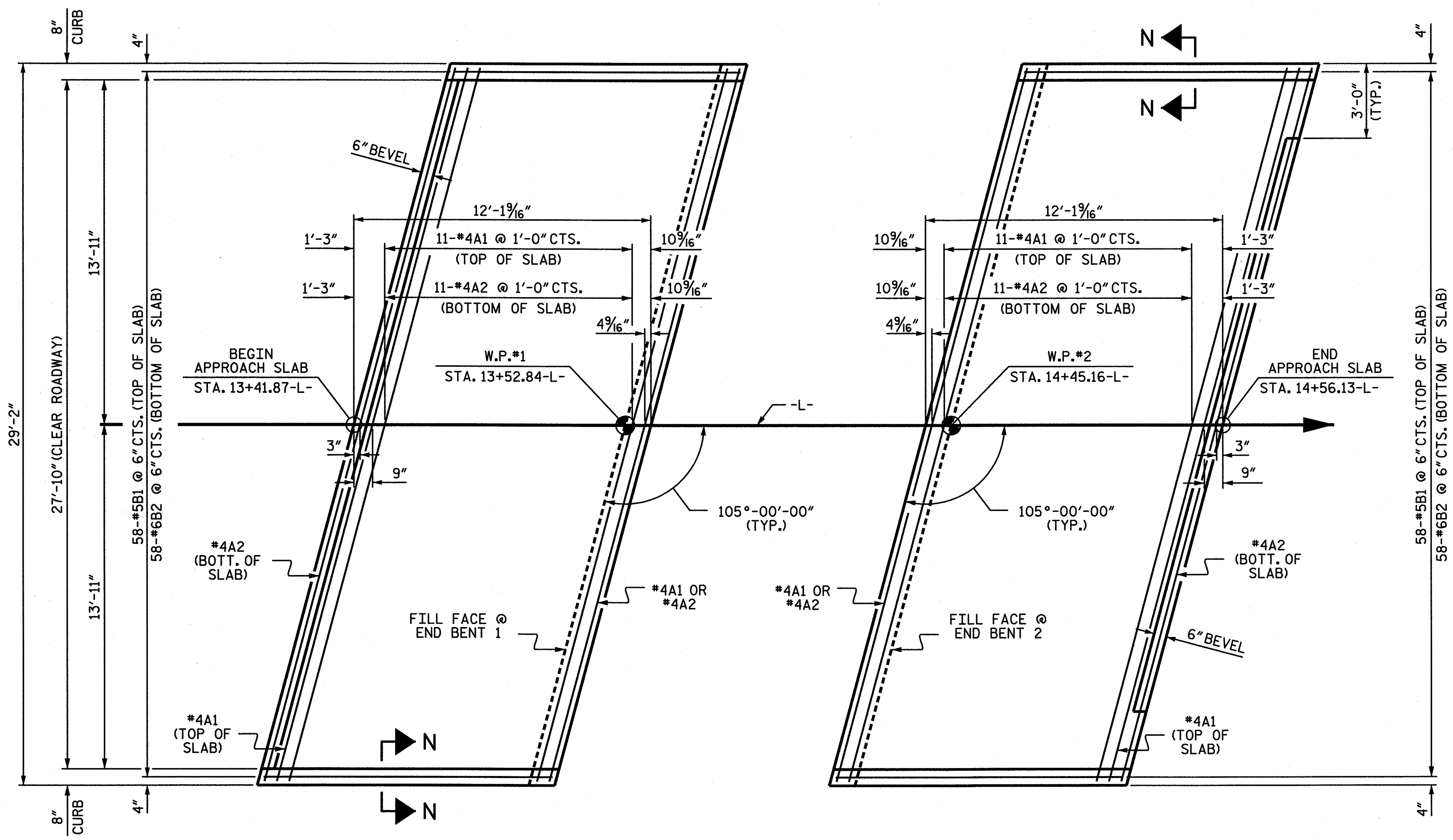
usmh04386

STD. NO. RR1



PLAN @ END BENT 1

PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

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.

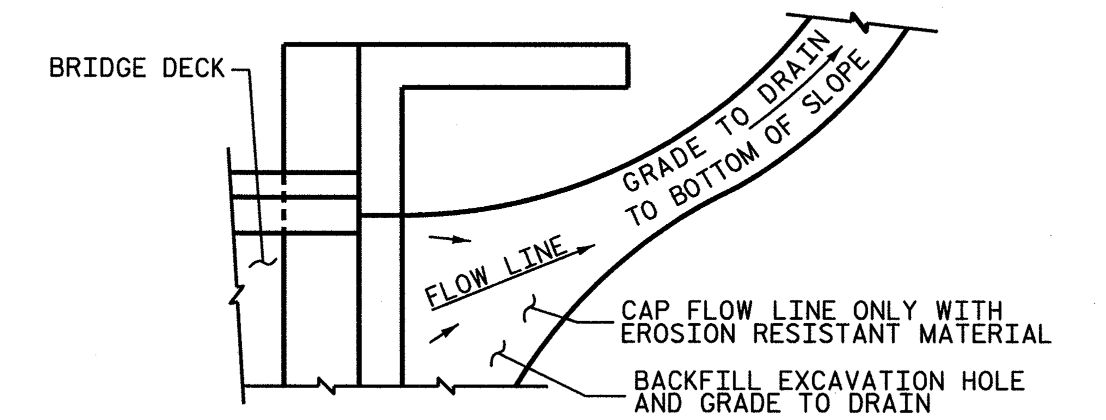
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#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

BILL OF MATERIAL

APPROACH SLAB AT EB 1

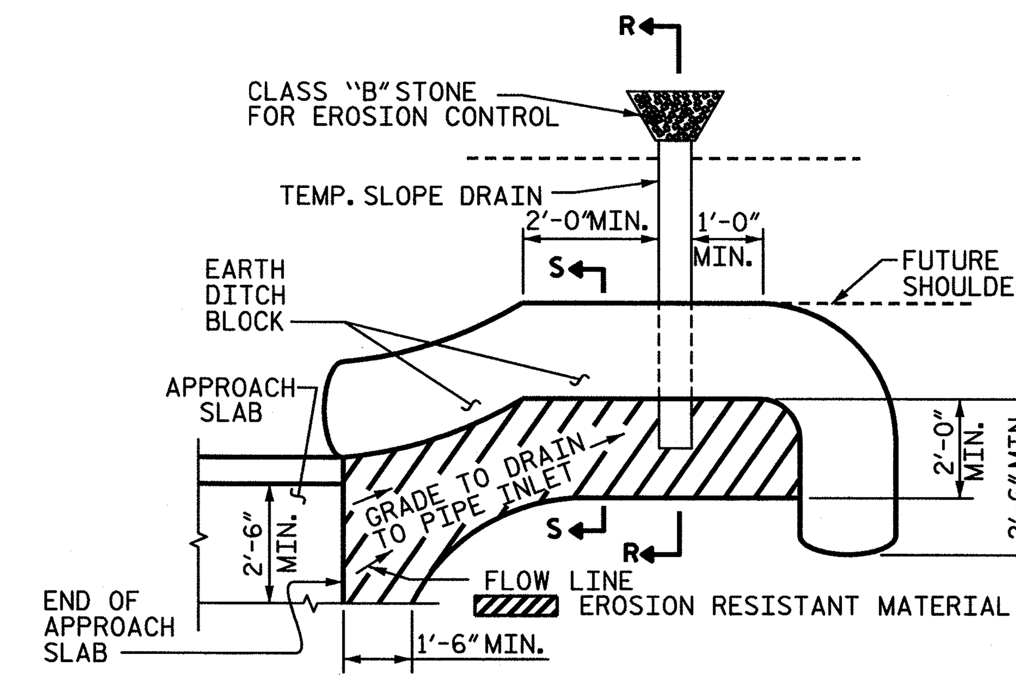
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-10"	259
A2	13	#4	STR	29'-10"	259
* B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1268
* EPOXY COATED REINFORCING STEEL				LBS.	929
CLASS AA CONCRETE				C. Y.	15.6

APPROACH SLAB AT EB 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-10"	259
A2	13	#4	STR	29'-10"	259
* B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1268
* EPOXY COATED REINFORCING STEEL				LBS.	929
CLASS AA CONCRETE				C. Y.	15.6

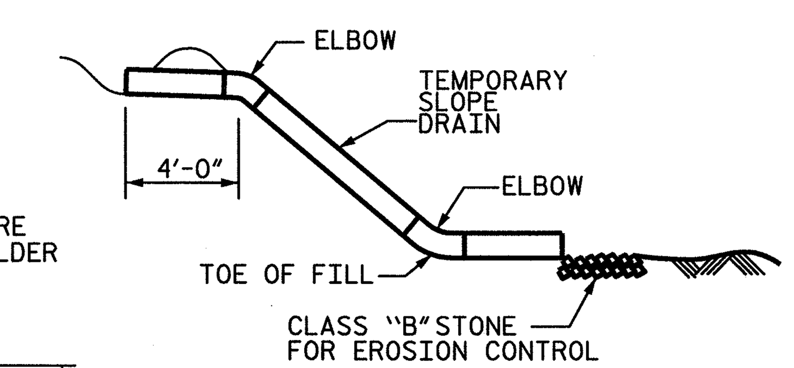
SPLICE LENGTHS

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

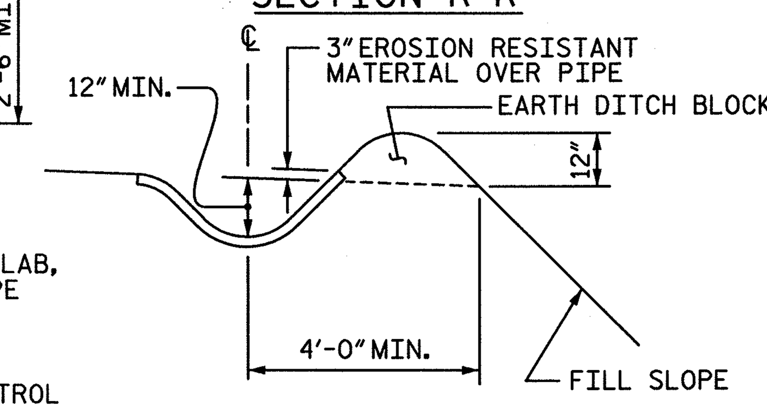


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



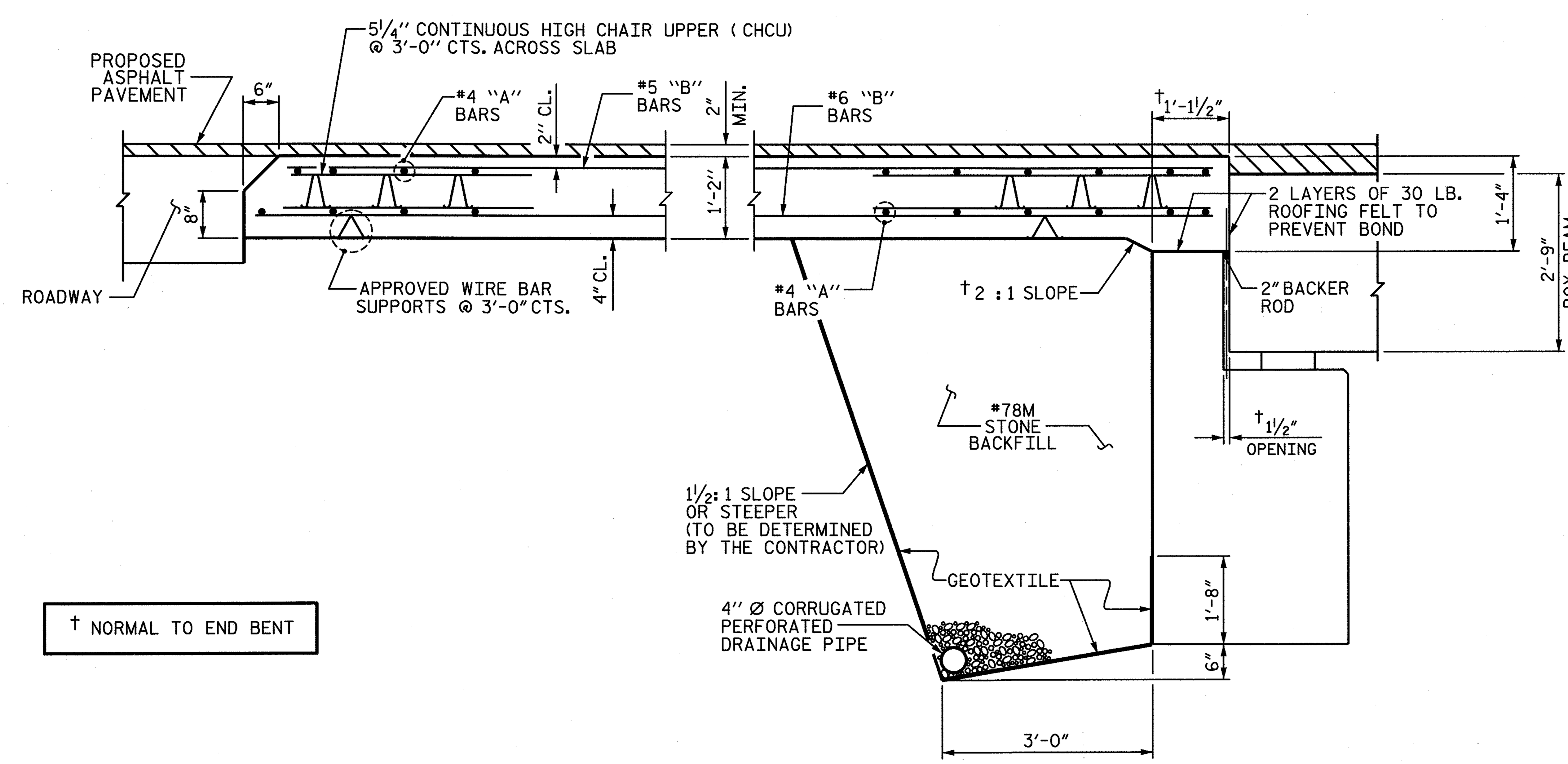
SECTION R-R



SECTION S-S

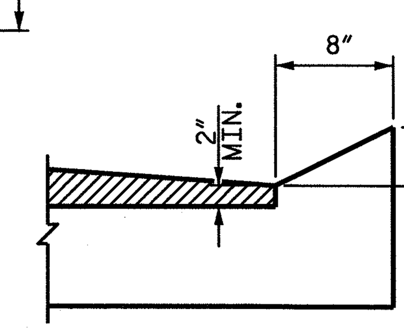
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

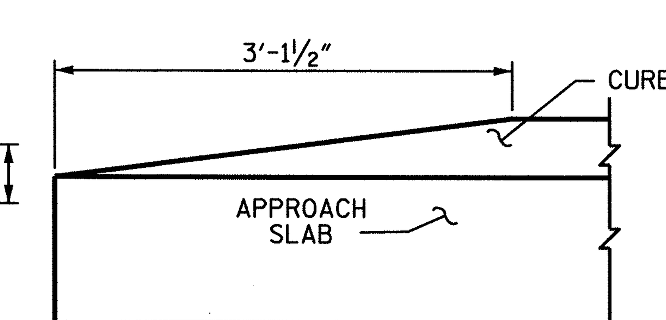


† NORMAL TO END BENT

SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. 17BP.8.R.34

MOORE COUNTY

STATION: 13+99.00-L-

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

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
BOX BEAM UNIT
(SUB-REGIONAL TIER)
105° SKEW

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

ASSEMBLED BY :	NAP	DATE :	08-12
CHECKED BY :	MAH	DATE :	08-12
DRAWN BY : MAA	11/11		
CHECKED BY : AAC	11/11		

9/3/2013
R:\17BP.8.R.34\Structures\Drafting\Misc\R.34_SD_AS.dgn
usmh04386

STD. NO. BAS_BB_30_105S

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

STD. NO. SN