TIP PROJECT: BD-5102M

CONTRACT:

STATE	PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
NC	BD-5102M	1	X

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
45348.1.13	BRZ-1141(27)	LIB REPLACEMENT

See Sheet 1-A For Index of Sheets

VICINITY MAP ●●● **DETOUR ROUTE**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LENOIR COUNTY

LOCATION: BRIDGE NO. 032 OVER DEEEP RUN
ON SR 1141 (JOHN GREEN SMITH ROAD)

TYPE OF WORK: LOW IMPACT BRIDGE REPLACEMENT

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

GRAPHIC SCALES

DESIGN DATA

ADT 2008 = 1200
ADT 2035 = 2400
DHV = 10%
D = 60%
T = 6% *
V = 55 MPH STATUTORY
50 MPH ADVISORY
* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT BD-5102M =	0.09 MI.
LENGTH OF STRUCTURE TIP PROJECT BD-5102M =	0.01 MI.
TOTAL LENGTH OF TIP PROJECT BD-5102M =	0.10 MI.

Prepared In the Office of:

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 16, 2012

LETTING DATE:
APRIL 24, 2013

ENRICO A. ROQUE, P.E.
PROJECT ENGINEER

ANTHONY THOMPSON, P.E
PROJECT DESIGNER

MARIA ROGERSON, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER
James A. Byrd P.E.
SIGNATURE:
SEAL 15764
JAMES A. BYRD
2/11/13

ROADWAY DESIGN ENGINEER
2/11/13
Enrico A. Roque P.E.
SIGNATURE:
SEAL 19824
ENRICO A. ROQUE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

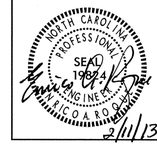
P.E.
STATE HIGHWAY DESIGN ENGINEER

$$$DATE$$$$
$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$

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

PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	I-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER



INDEX OF SHEETS

GENERAL NOTES:

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

GRADE LINE:

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE
Electric - Progress Energy Co.
Water - Deep Run Water Corp.
Sewer - Town of Pink Hill
Phone - Century Link

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

RIGHT-OF-WAY MARKERS:

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

REVISIONS

$$$$DATE$$$$
$$$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- 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 — HH
- 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
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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

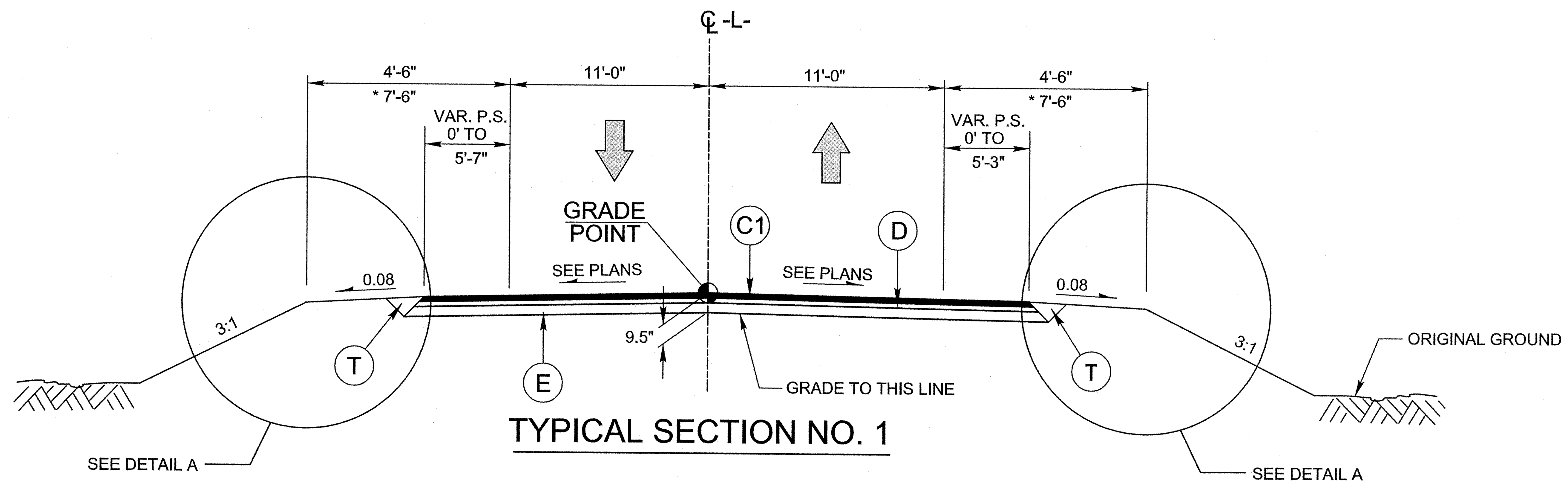
PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER
2/11/13

REVISIONS

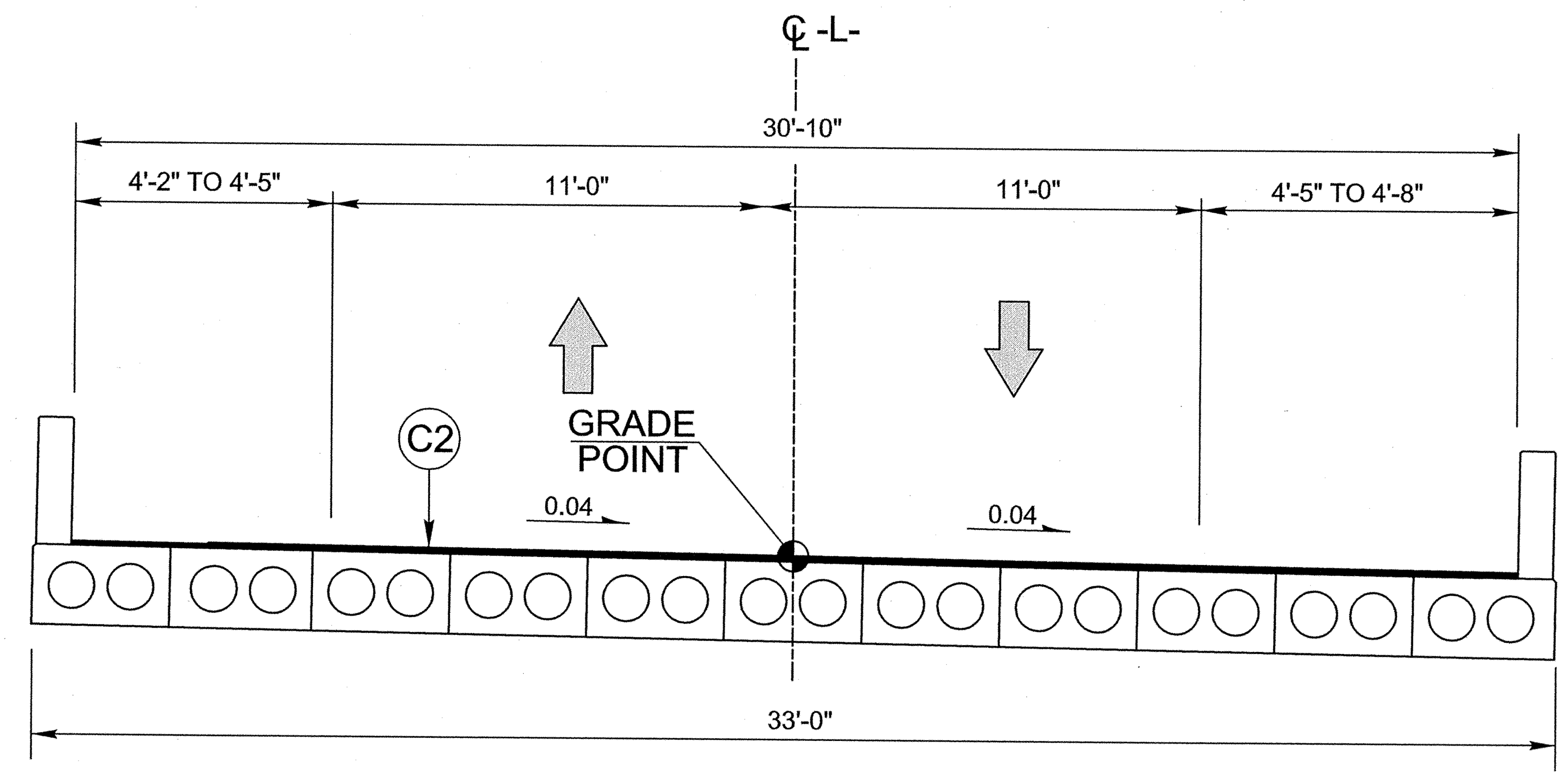
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3.75" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 206.25 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
D	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D1	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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E1	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER INCH DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" IN DEPTH OR LESS THAN 3" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE DETAIL)

ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 1

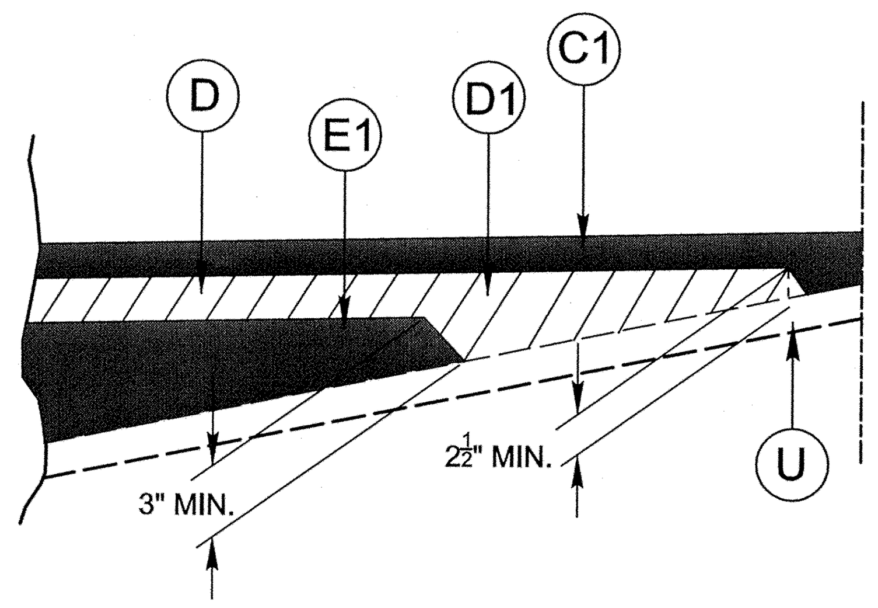
USE TYPICAL SECTION NO. 1 FROM:
-L- STA. 11+50.00 TO -L- STA. 12+58.87 +/- (BEGIN BRIDGE)
-L- STA. 13+31.13+/- (END BRIDGE) TO -L- STA. 14+75.00



TYPICAL SECTION NO. 2

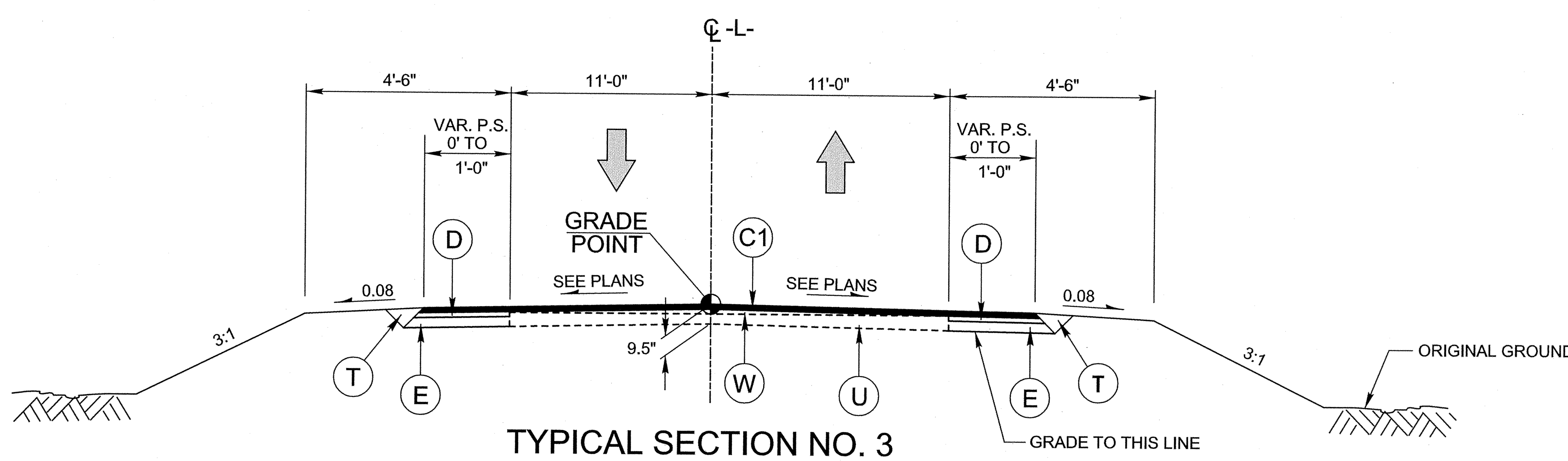
CORED SLAB BRIDGE OVERLAY

USE TYPICAL SECTION NO. 2 FROM:
-L- STA.12+58.87 +/- TO -L- STA. 13+31.13



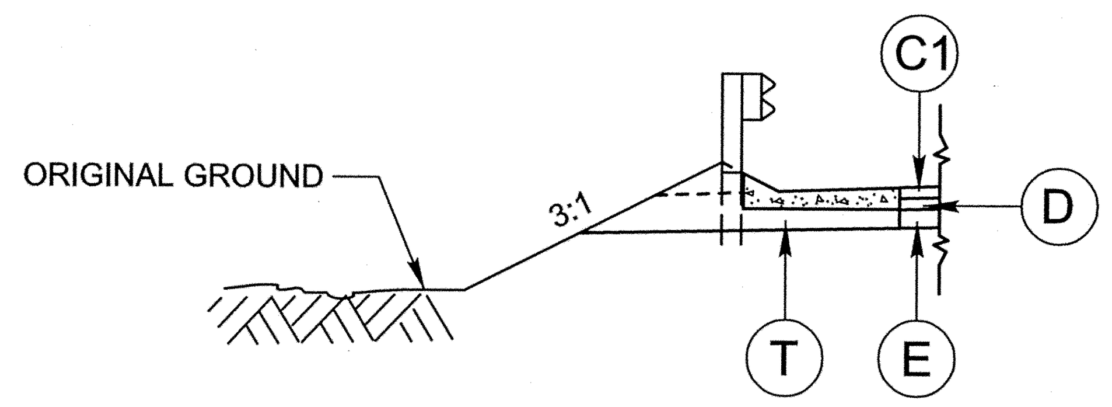
DETAIL SHOWING METHOD OF WEDGING

SEE TYPICAL SECTIONS



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 FROM:
-L- STA. 10+50.00 TO -L- STA. 11+50.00
-L- STA. 14+75.00 TO -L- STA. 16+00.00



DETAIL A

SHOULDER BERM GUTTER LOCATIONS
-L- STA. 11+97.9 TO -L- STA. 12+47.9 RT

* SHOULDER WIDTH INCREASED 3' WITH THE USE OF GUARDRAIL

$$$$DATE$$$$
$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19822 ENRICO A. ROSS 2/11/13

REVISIONS

ROW AREA DATA SUMMARY

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN (SQFT)	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
1	MARY RUTH DAVIS HARPER	–	1820.6					
2	CLARENCE LEE KENNEDY	–	1134.9					

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCLASSIFIED EXCAVATION	EMBANK. +%	BORROW	WASTE
-L- STA. 10+50.00	-L- STA. 12+73.00	103	282	179	
-L- STA. 13+25.00	-L- STA. 16+00.00	106	388	282	
GRAND TOTALS:		209	670	461	
SAY:		210	670	465	

DRAINAGE SUMMARY

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS IV R.C. PIPE (UNLESS NOTED OTHERWISE) 15"	18"	24"	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'): A 5.0' THRU 10.0'	B 10.0' AND ABOVE	SIDE DRAIN PIPE 15"	18"	24"	GRATED T.B.D.I., TYPE 'B' STD. 840.36	T.B.D.I. FRAME AND GRATE STD. 840.37		REMARKS
-L- 12+37.73	RT	0401		79.53							1						1	1		
-L- 12+00.00	RT	0402		79.10							1						1	1		
-L- 12+18.87	RT	0401	0402		76.50	75.10		36												
-L- 12+00.00	RT	0402	OUT		75.10	74.66		16												
TOTAL								52			2						2	2		

ABBREVIATIONS

- C.B. CATCH BASIN
- N.D.I. NARROW DROP INLET
- D.I. DROP INLET
- M.D.I. MEDIAN DROP INLET
- M.D.I. (N.S.) MEDIAN 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 JUCTION BOX

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

LOCATION	REMOVAL OF ASPHALT PAVEMENT	BREAKING OF ASPHALT PAVEMENT
-L- STA. 10+50 TO 12+74	600	
-L- STA. 13+26 TO 16+00	708	
GRAND TOTAL	1308	
SAY	1310	

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	LENGTH: DOUBLE FACED	WARRANT POINT: APPROACH END	WARRANT POINT: TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH: APPROACH END	FLARE LENGTH: TRAILING END	W: APPROACH END	W: TRAILING END	ANCHORS: XI MOD	XI	GRAU 350	TYPE 350 (TL-3)	XIII	CAT-1	III	BIC	AT-1	IMPACT ATTENUATOR TYPE 350: EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	11+45.54	12+58.65	RT	112.5			12+58.65		3	6	50		1					1			1									
-L-	11+84.10	12+59.10	LT	75.0				12+59.10	3	6		50		1				1			1									
-L-	13+31.30	14+06.74	RT	75.0				13+31.30	3	6		50		1				1			1									
-L-	13+30.95	14+05.50	LT	75.0			13+30.95		3	6	50		1					1			1									
	LESS ANCHOR DEDUCTIONS																													
	TYPE 350, TL-3	4 @ 50.00'	=	200.00																										
	TYPE III	4 @ 18.75'	=	75.00																										
			TOTAL	62.5														4			4									
			SAY	75																										
	(5 ADDITIONAL GUARDRAIL POST)																													

$$$$DATE$$$$
$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$

PLAN

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

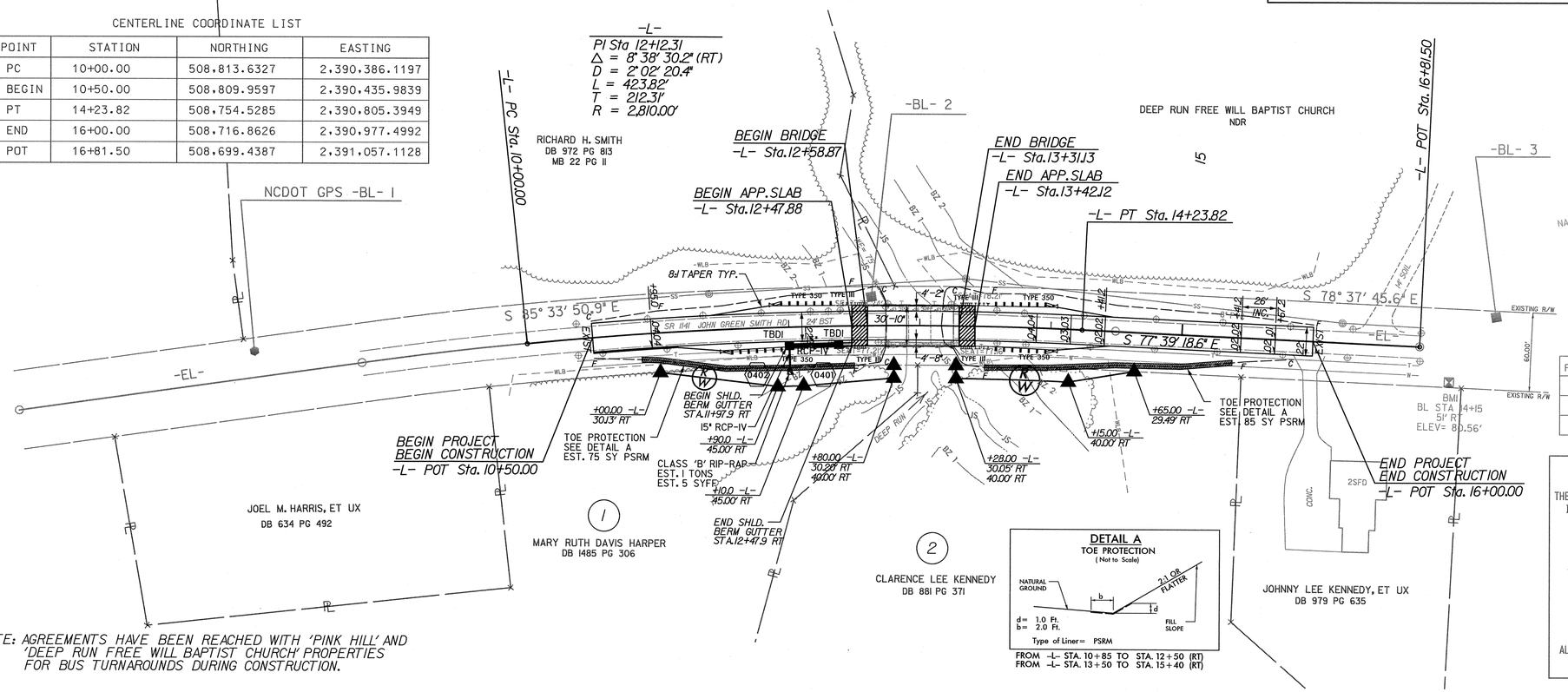
PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 029424 ENGINEER — 2/11/13

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER — 2/11/13

CENTERLINE COORDINATE LIST

POINT	STATION	NORTHING	EASTING
PC	10+00.00	508,813.6327	2,390,386.1197
BEGIN	10+50.00	508,809.9597	2,390,435.9839
PT	14+23.82	508,754.5285	2,390,805.3949
END	16+00.00	508,716.8626	2,390,977.4992
POT	16+81.50	508,699.4387	2,391,057.1128



Point	North	East	Elevation
BL1	508,842.6110	2,390,180.1540	77.4300
BL2	508,806.0868	2,390,650.9745	77.7600
BL3	508,712.0880	2,391,118.3912	81.1400

DETAIL A
TOE PROTECTION
(Not to Scale)

Type of Liner= PSRM
FROM -L- STA. 10+85 TO STA. 12+50 (RT)
FROM -L- STA. 13+50 TO STA. 15+40 (RT)

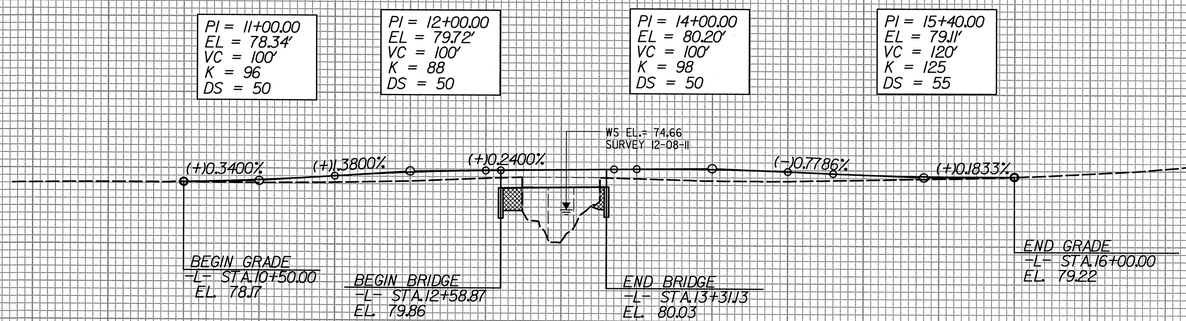
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 508842.611(ft) EASTING: 2390180.154(ft)
ELEVATION: 77.430(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999876400
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO -L- 10+00.00 STATION IS S 81° 59' 29.85" W 208.0257 (FT)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: AGREEMENTS HAVE BEEN REACHED WITH 'PINK HILL' AND 'DEEP RUN FREE WILL BAPTIST CHURCH' PROPERTIES FOR BUS TURNAROUNDS DURING CONSTRUCTION.

PROFILE

MATERIAL TO BE REMOVED



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 720	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 76.8	FT
BASE DISCHARGE	= 1150	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 77.41	FT
OVERTOPPING DISCHARGE	= 1700	CFS
OVERTOPPING FREQUENCY	= 200 (+)	YRS
OVERTOPPING ELEVATION	= 78.3	FT
DATE OF SURVEY	= 12-8-11	
W.S. ELEVATION AT DATE OF SURVEY	= 74.7	FT

90 80 70 60 50

10+00 11+00 12+00 13+00 14+00 15+00 16+00

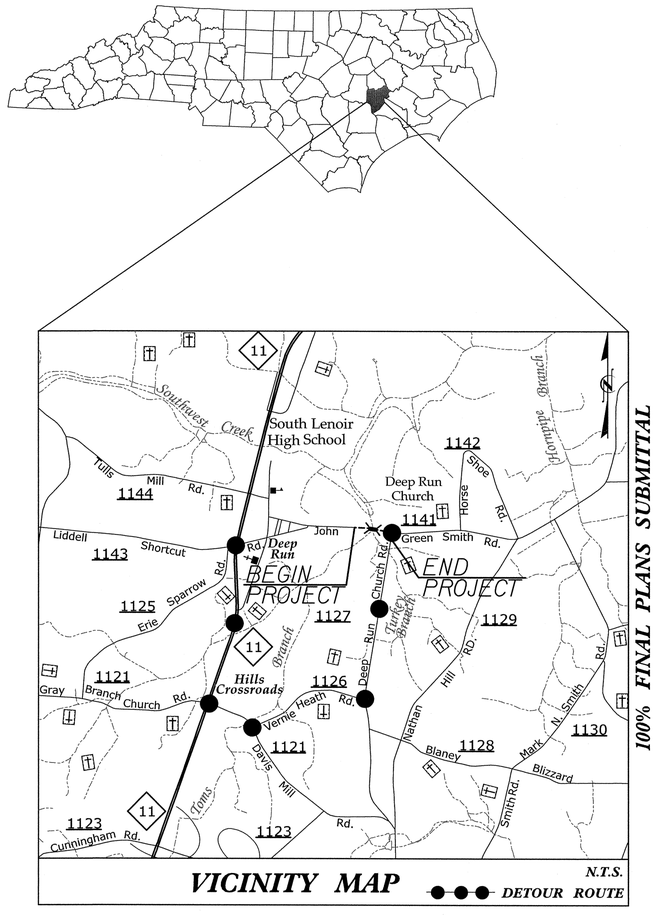
REVISIONS

$$$$DATE$$$$
$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

LENOIR COUNTY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET WITH VICINTY MAP & INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	PROJECT NOTES, DETOUR AND PLANS.

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 JAN 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCED WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.11	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1150.01	FLAGGING DEVICES

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)

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

R. B. EARLY, PE — *TRAFFIC CONTROL PROJECT ENGINEER*
R. B. EARLY, PE — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
J. A. PHILLIPS — *TRAFFIC CONTROL DESIGN ENGINEER*

APPROVED: Rhonda B Early
DATE: 8.28.12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023521 ENGINEER RHONDA B. EARLY

SHEET NO.
TMP-1

BD-5102M

TIP PROJECT:

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

STEVEN HAMILTON, PE — *DIVISION TRAFFIC ENGINEER*

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

$$$$USERNAME$$$$
$$$$SYSTIME$$$$

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

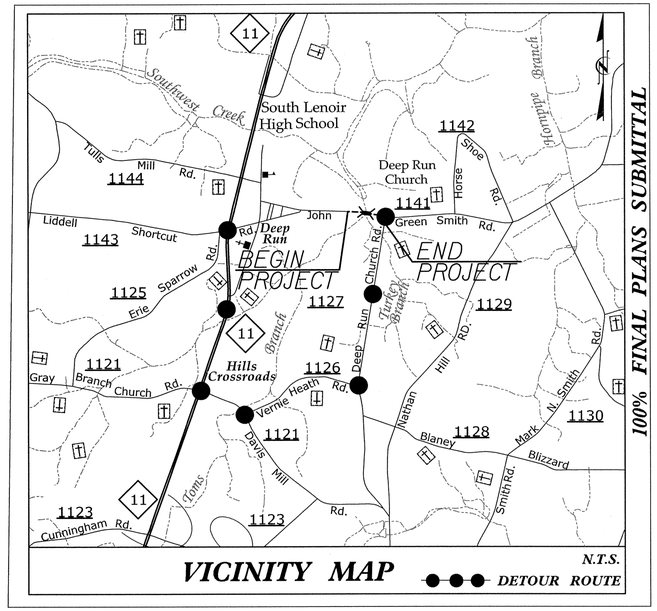
PROJ. REFERENCE NO.	SHEET NO.
BD-5102M	TMP-2

GENERAL NOTES

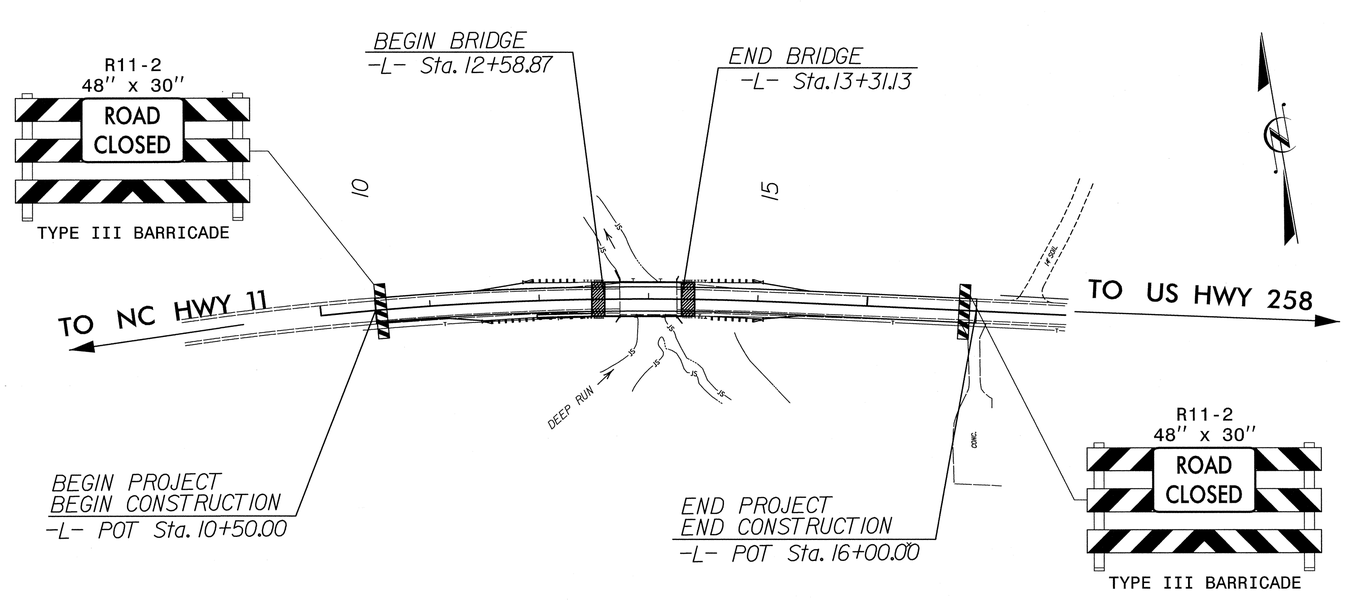
IMPLEMENT TRAFFIC CONTROL IN ACCORDANCE WITH THE ROADWAY STANDARD DRAWINGS LISTED ON TMP-1.

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

STATE FORCES WILL INSTALL AND MAINTAIN THE PROJECT DETOUR AND THE TYPE III BARRICADES AT THE PROJECT LIMITS.
STATE FORCES WILL INSTALL PAINT AND MARKERS ON THE FINISHED PROJECT.
CALL JIM EVANS AT 252-830-3493 FOR COORDINATION.



100% FINAL PLANS SUBMITTAL



APPROVED: Rhonda B. Early DATE: 8.28.12

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 023521 ENGINEER RHONDA B. EARLY

PROJECT NOTES

SCALE:	NONE
DATE:	7/24/12
DWG. BY:	JAP
DESIGN BY:	JAP
REVIEWED BY:	RBE

DIVISION OF HIGHWAYS — STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION — TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5102M	EC-1	5

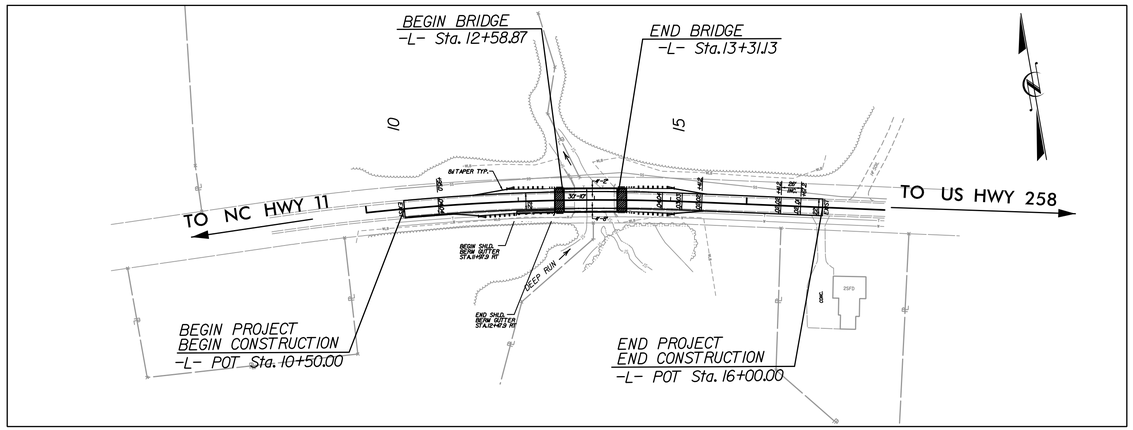
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

LOCATION: LENOIR COUNTY BRIDGE NO. 032 OVER DEEP RUN ON SR 1141 (JOHN GREEN SMITH ROAD)

TYPE OF WORK: LOW IMPACT BRIDGE REPLACEMENT



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	
	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
	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	

TIP PROJECT: BD-5102M

GRAPHIC SCALE

0
PLANS
0
PROFILE (HORIZONTAL)
0
PROFILE (VERTICAL)

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.

Prepared In the Office of:

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

2012 STANDARD SPECIFICATIONS

BENJAMIN J. HENEGAR, EI
EROSION CONTROL
LEVEL III-A
CERTIFICATION #641

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		

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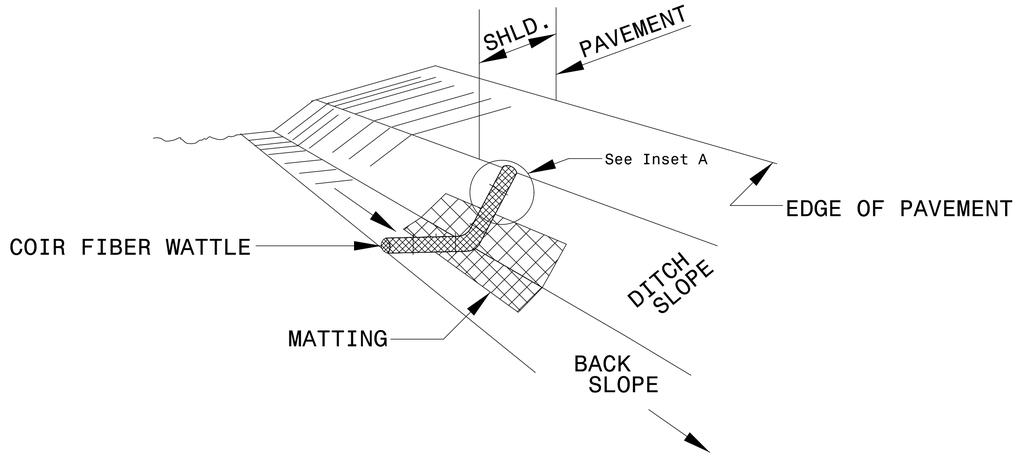
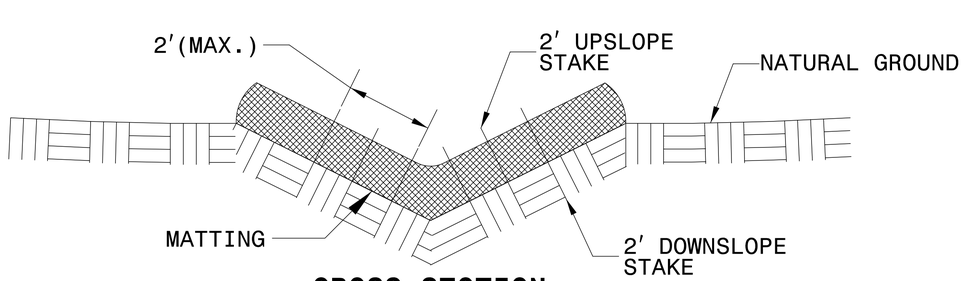
PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	EC-2

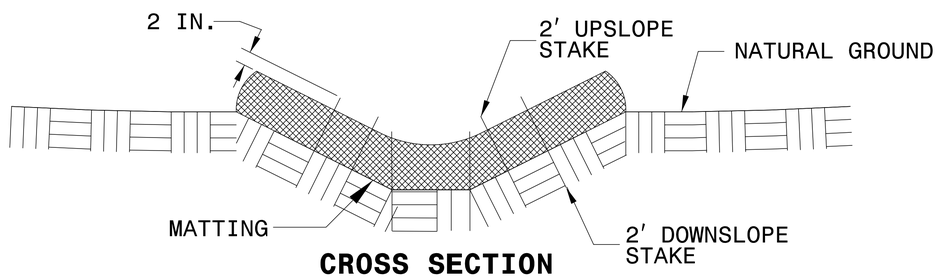
COIR FIBER WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

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

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

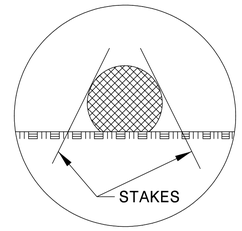
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

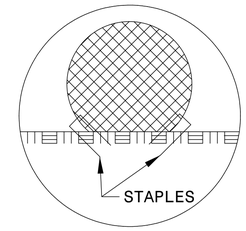
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

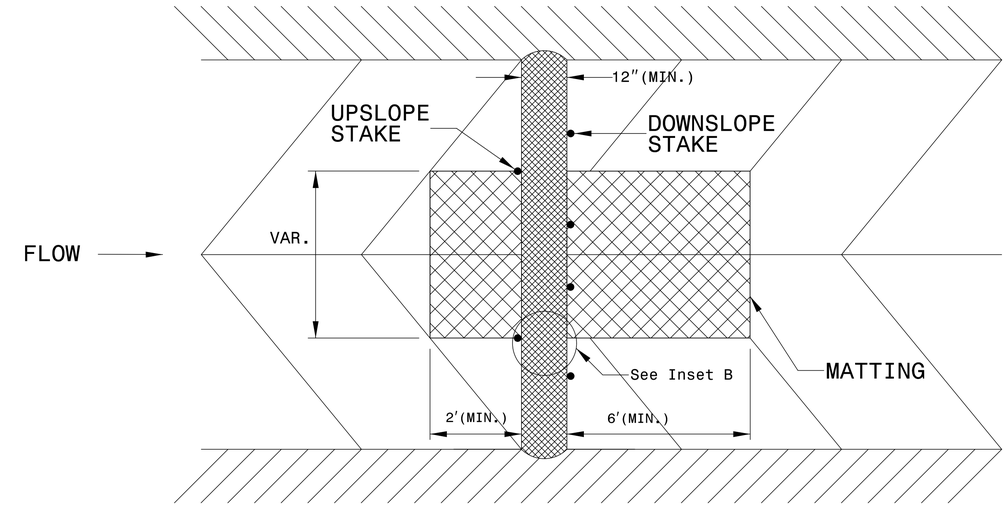
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

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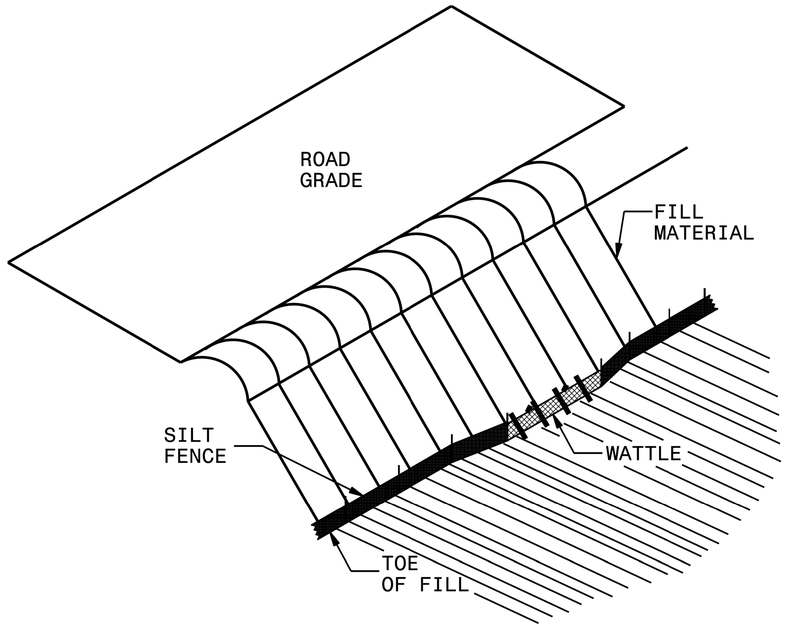
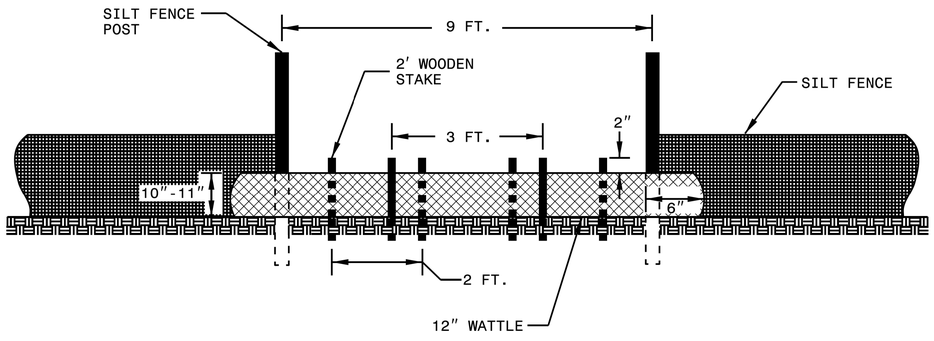
PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	EC-3

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

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

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

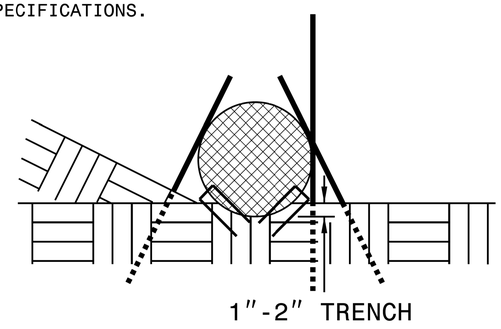
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

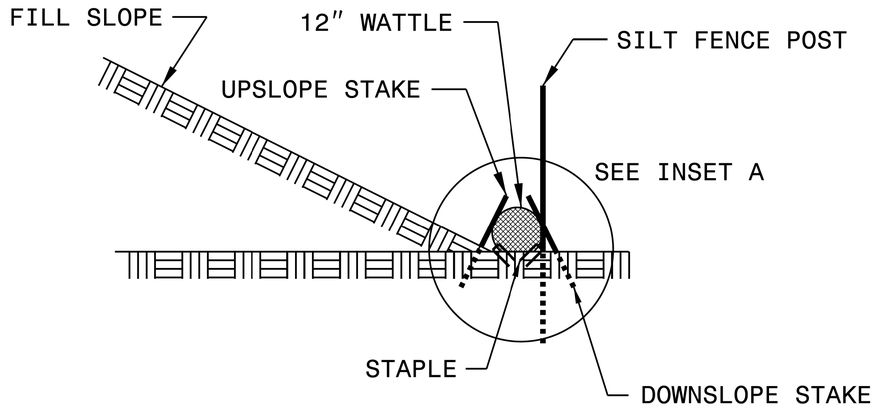
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

INSET A





SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	EC-4

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.

PLAN

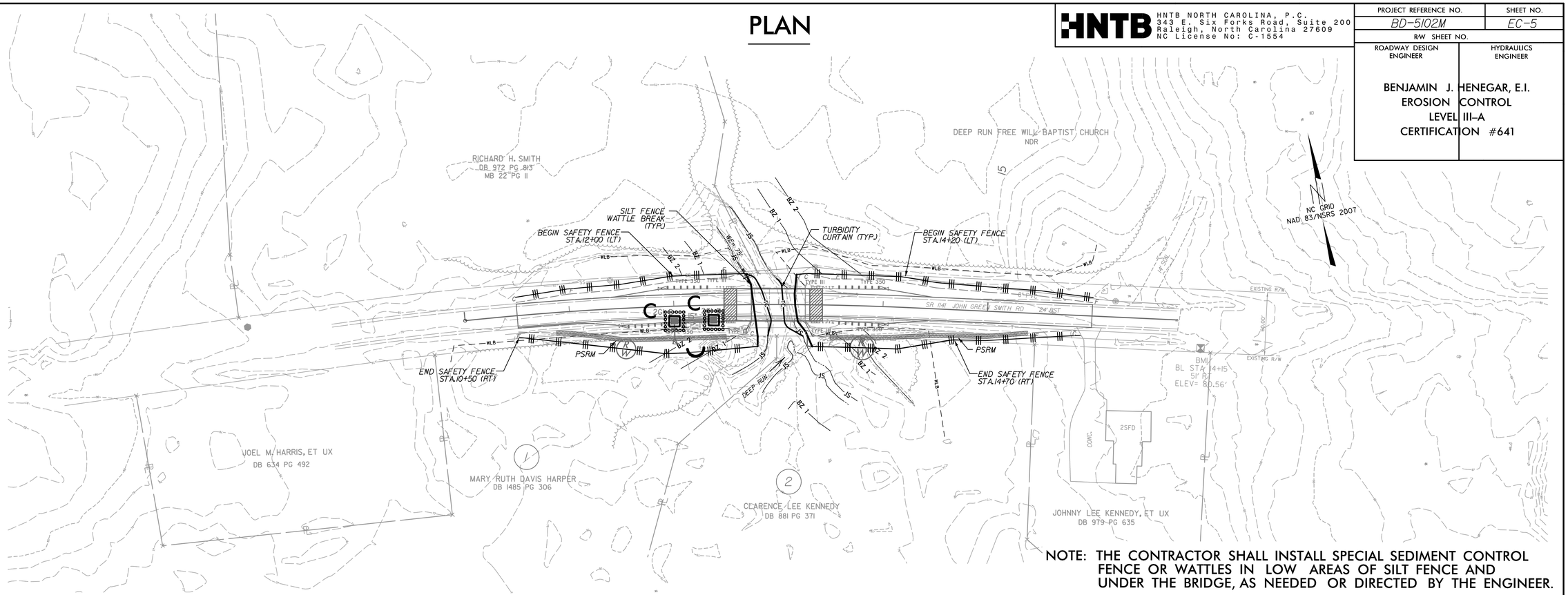
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	EC-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

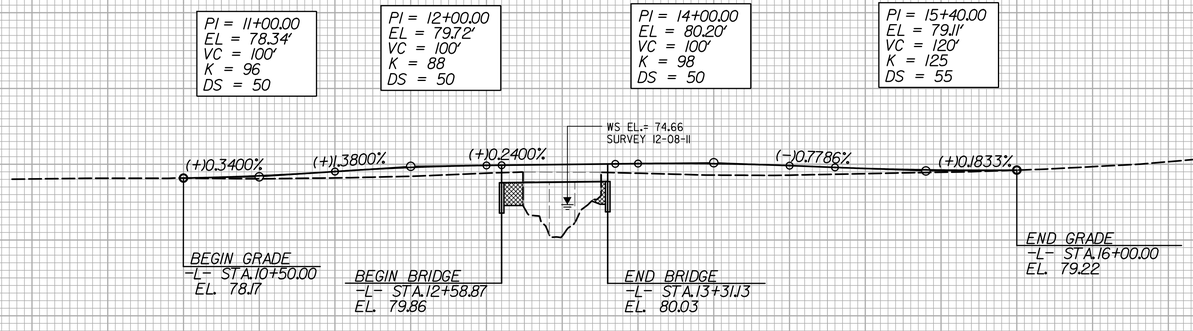
BENJAMIN J. HENEGAR, E.I.
EROSION CONTROL
LEVEL III-A
CERTIFICATION #641



NOTE: THE CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AND UNDER THE BRIDGE, AS NEEDED OR DIRECTED BY THE ENGINEER.

PROFILE

MATERIAL TO BE REMOVED



BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 720	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 76.8	FT
BASE DISCHARGE	= 1150	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 77.41	FT
OVERTOPPING DISCHARGE	= 1700	CFS
OVERTOPPING FREQUENCY	= 200 (+)	YRS
OVERTOPPING ELEVATION	= 78.3	FT
DATE OF SURVEY	= 12-8-11	
W.S. ELEVATION AT DATE OF SURVEY	= 74.7	FT

90 80 70 60 50

10+00 11+00 12+00 13+00 14+00 15+00 16+00

REVISIONS

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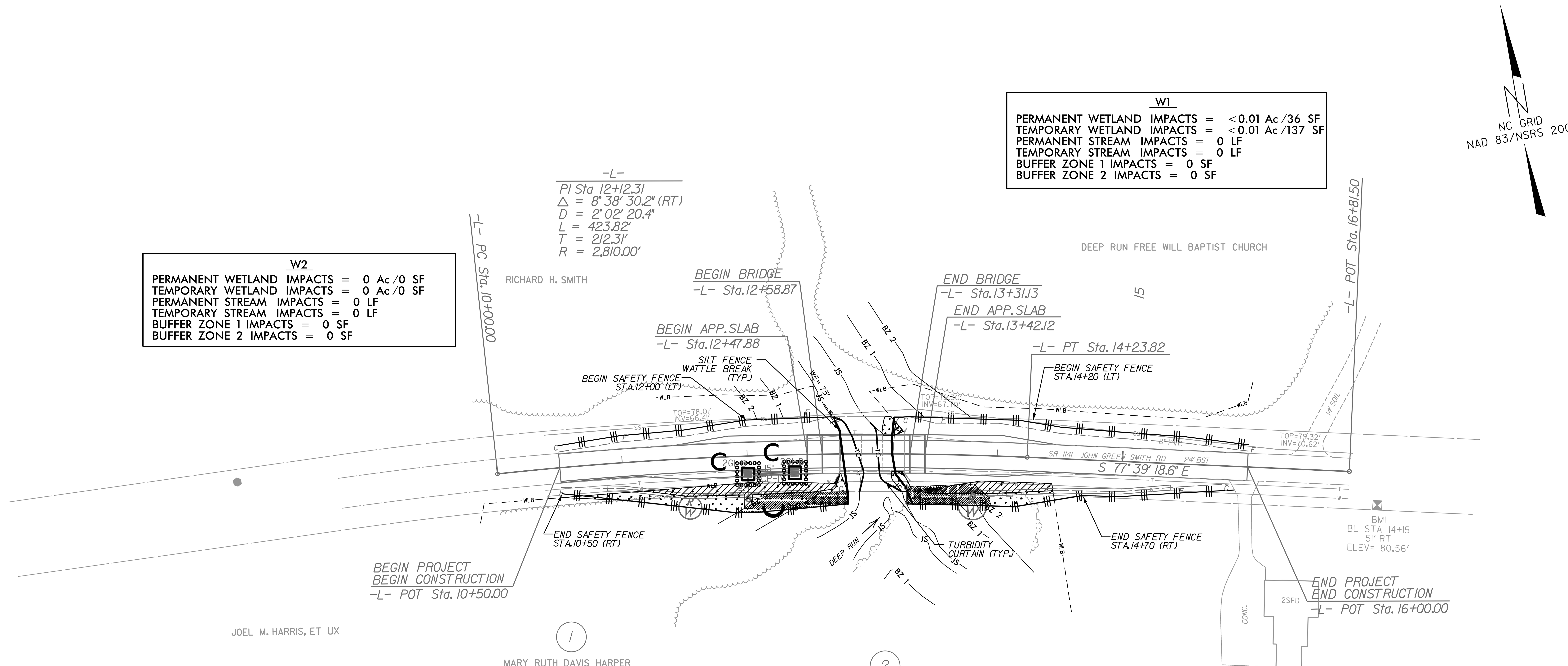
PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	P-1
R/W SHEET NO.	

W1

PERMANENT WETLAND IMPACTS = <0.01 Ac /36 SF
TEMPORARY WETLAND IMPACTS = <0.01 Ac /137 SF
PERMANENT STREAM IMPACTS = 0 LF
TEMPORARY STREAM IMPACTS = 0 LF
BUFFER ZONE 1 IMPACTS = 0 SF
BUFFER ZONE 2 IMPACTS = 0 SF

W2

PERMANENT WETLAND IMPACTS = 0 Ac /0 SF
TEMPORARY WETLAND IMPACTS = 0 Ac /0 SF
PERMANENT STREAM IMPACTS = 0 LF
TEMPORARY STREAM IMPACTS = 0 LF
BUFFER ZONE 1 IMPACTS = 0 SF
BUFFER ZONE 2 IMPACTS = 0 SF



W3

PERMANENT WETLAND IMPACTS = 0.03 Ac /1173 SF
TEMPORARY WETLAND IMPACTS = 0.05 Ac /2180 SF
PERMANENT STREAM IMPACTS = 0 LF
TEMPORARY STREAM IMPACTS = 0 LF
BUFFER ZONE 1 IMPACTS = 351 SF
BUFFER ZONE 2 IMPACTS = 594 SF

W4

PERMANENT WETLAND IMPACTS = 0.02 Ac /750 SF
TEMPORARY WETLAND IMPACTS = 0.03 Ac /1295 SF
PERMANENT STREAM IMPACTS = 0 LF
TEMPORARY STREAM IMPACTS = 0 LF
BUFFER ZONE 1 IMPACTS = 489 SF
BUFFER ZONE 2 IMPACTS = 480 SF

IMPACT SUMMARY:

404 WETLAND IMPACTS = 0.13 AC
STREAM IMPACTS = 0 FT.
BUFFER ZONE 1 IMPACT = 840 SQ FT.
BUFFER ZONE 2 IMPACT = 1074 SQ FT.

LEGEND

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND

NCDOT
BD-5102M LENOIR COUNTY
REPLACE BRIDGE NO. 0032
SR 1141 (JOHN GREEN SMITH RD.)
OVER DEEP RUN
BETWEEN NC HWY 11
AND NC HWY 258

SCALE: 1" = 50'
JULY 24, 2012
FOR PERMITTING ONLY:
NOT FOR CONSTRUCTION

5/14/99

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02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
BD-5102M	X-1	4

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS–SECTION SUMMARY
IN CUBIC YARDS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

STATION	UNCLASSIFIED EXCAVATION	EMBANK.	UNDERCUT
–L– STA. 10+50.00	0	0	0
–L– STA. 11+00.00	8	5	0
–L– STA. 11+50.00	2	29	0
–L– STA. 12+00.00	0	75	0
–L– STA. 12+50.00	0	90	0
–L– STA. 13+00.00	0	0	0
–L– STA. 13+50.00	55	18	0
–L– STA. 14+00.00	0	108	0
–L– STA. 14+50.00	0	99	0
–L– STA. 15+00.00	1	50	0
–L– STA. 15+50.00	3	18	0
–L– STA. 16+00.00	7	4	0

$$$$SYSTIME$$$$
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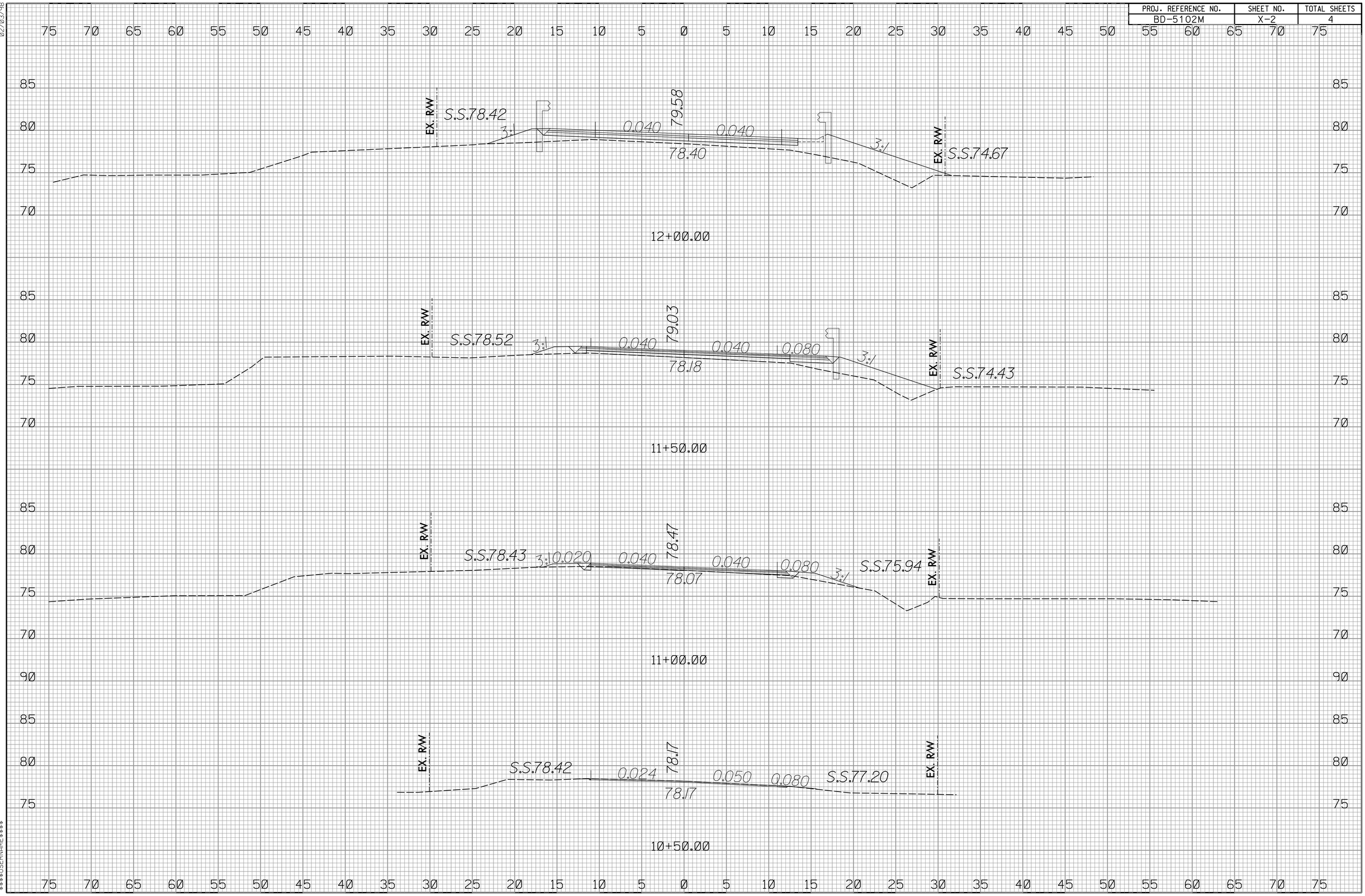
02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
BD-5102M	X-2	4



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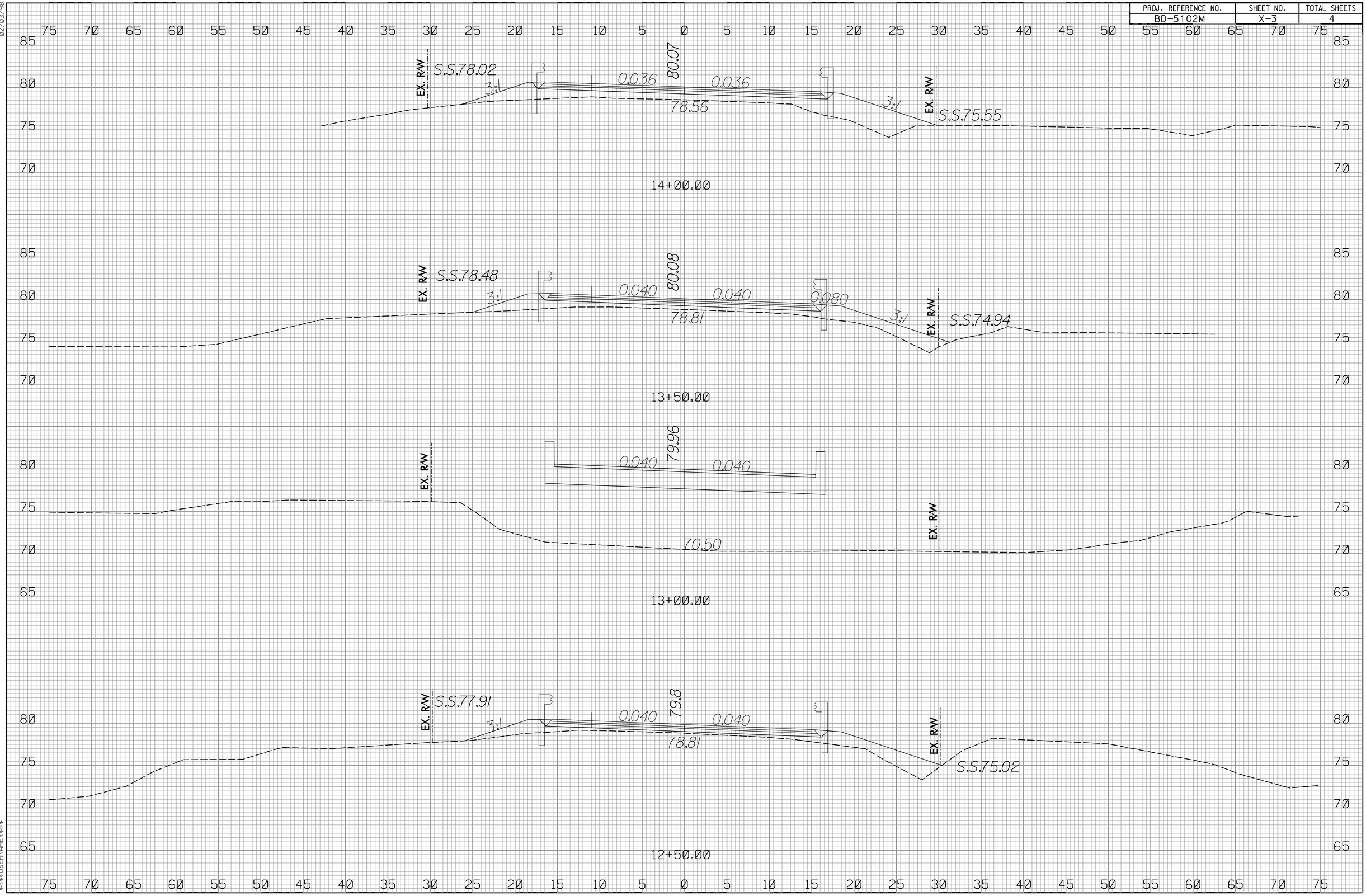
$$$$USERNAME$$$$
$$$$DWG$$$$

02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
BD-5102M	X-3	4



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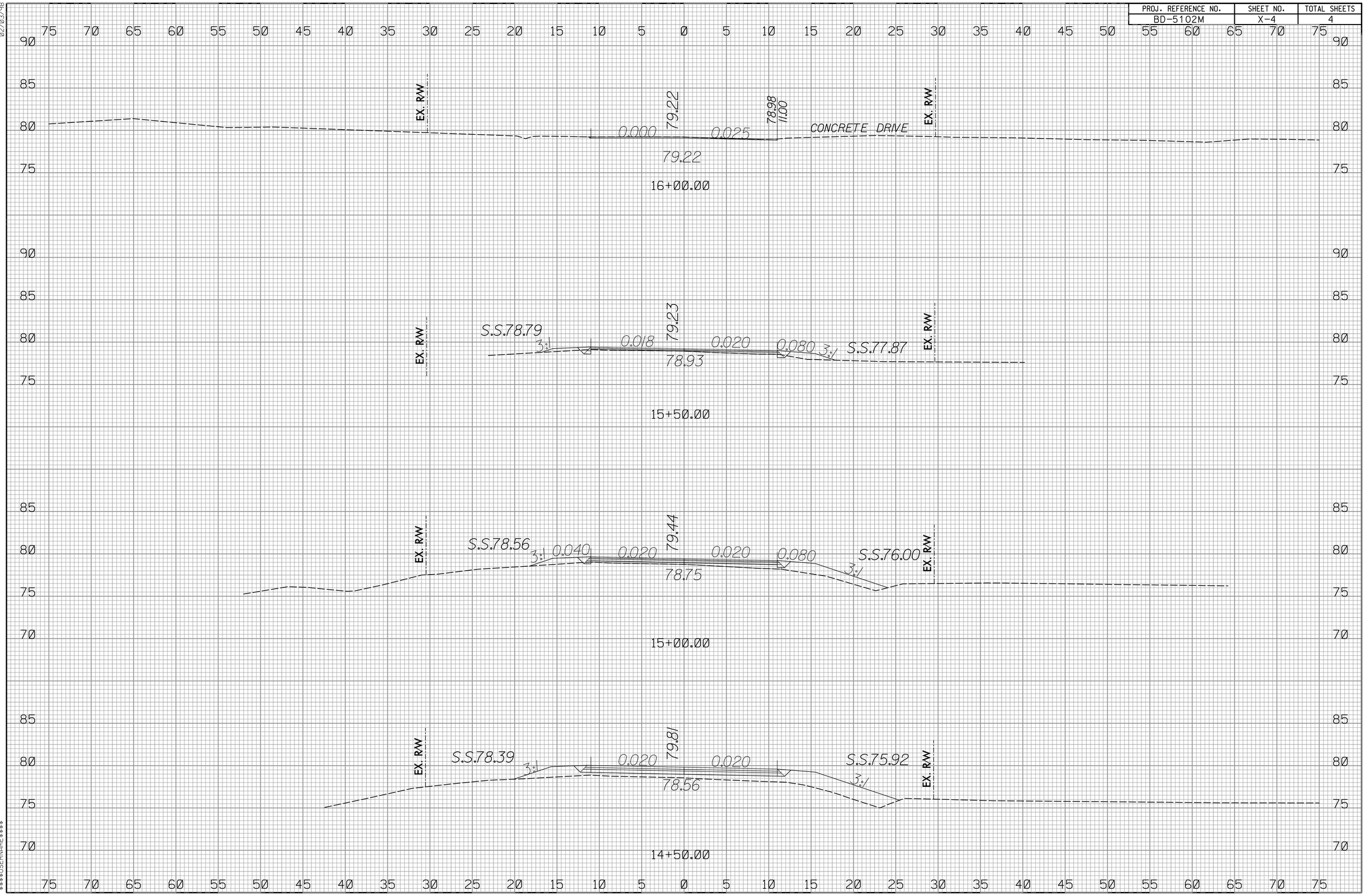
$$$$$$$$USERNAME$$$$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
BD-5102M	X-4	4

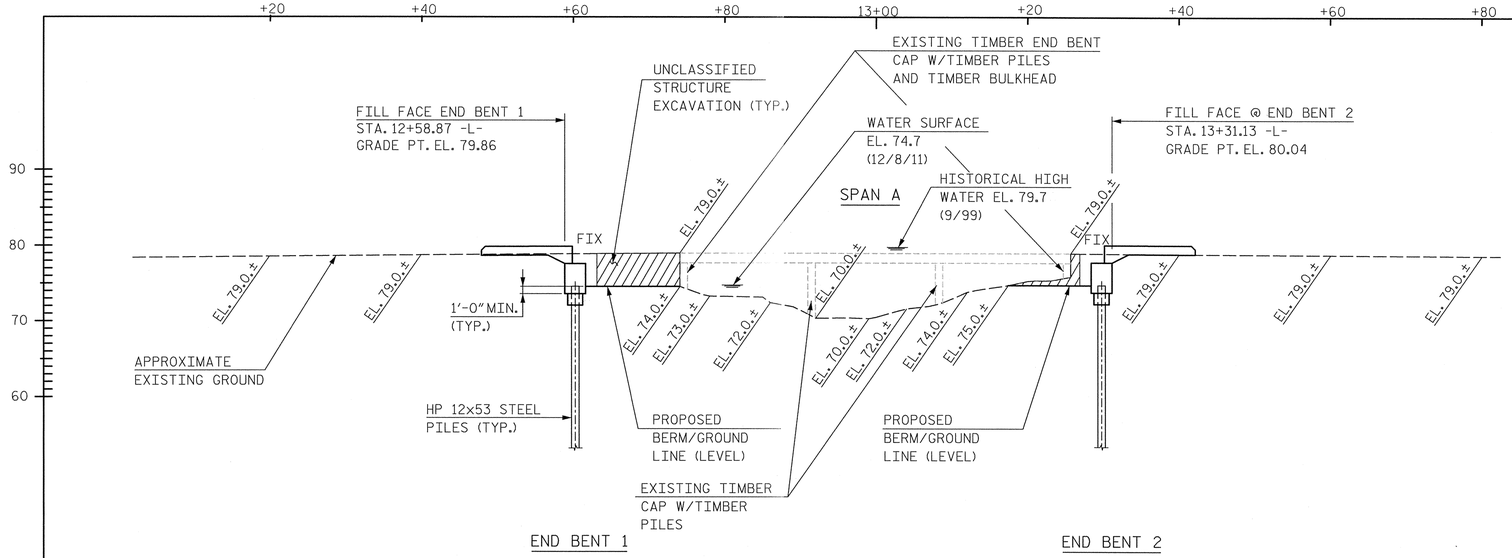


02/03/98

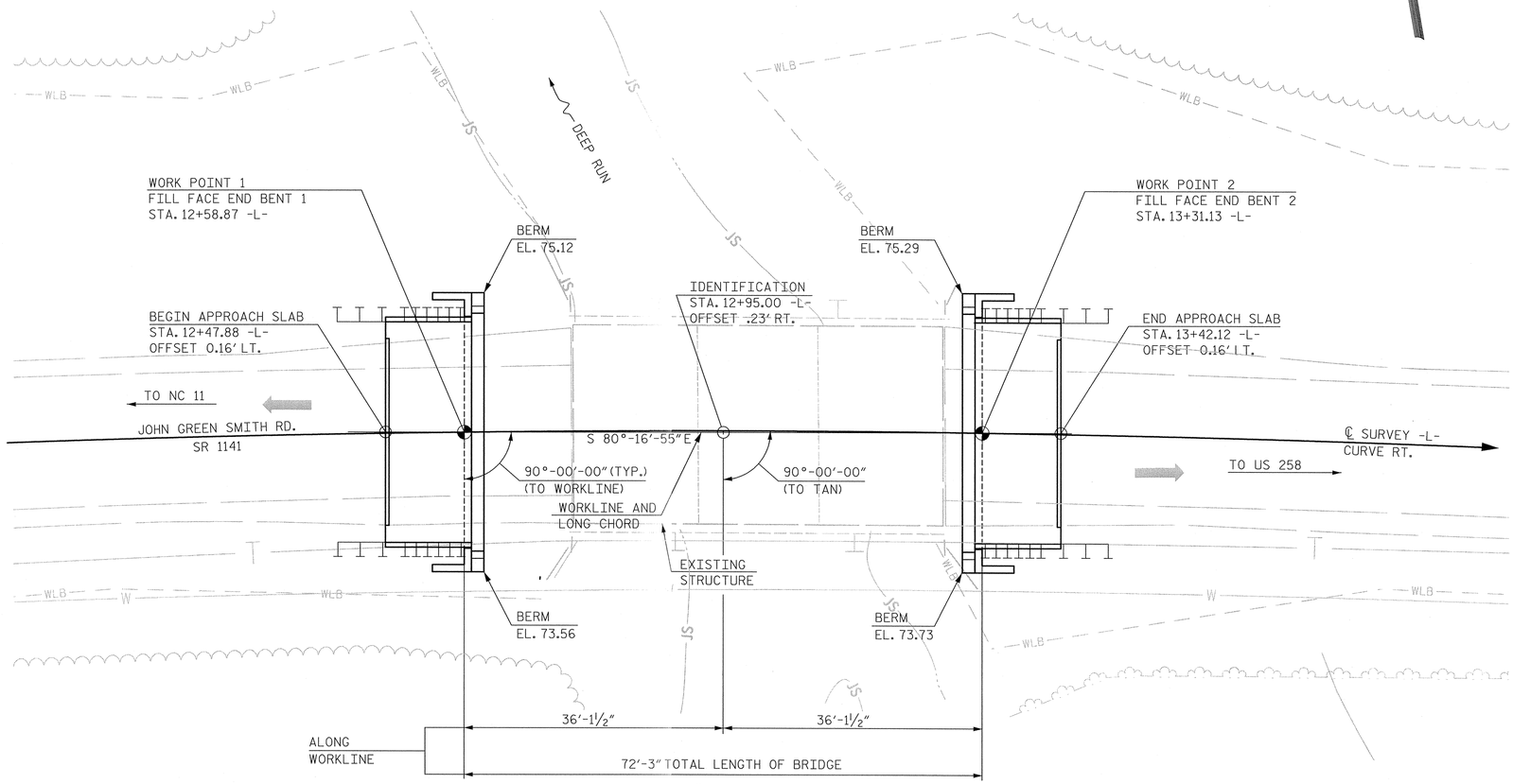
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

F.A. PROJECT NO. BRZ-1141(27)

FOR GENERAL NOTES, SEE SHEET 2.



SECTION ALONG ℄ SURVEY -L-



PLAN

NOTES: SUBSTRUCTURE UNITS ARE PARALLEL.

PILES NOT SHOWN FOR CLARITY.

WORKLINE FOR BRIDGE SHALL BE THE ROADWAY LONG CHORD BETWEEN FILL FACE WORK POINTS AND ITS EXTENSION.

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	720 CFS
FREQUENCY OF DESIGN FLOOD	=	25 YR
DESIGN HIGH WATER ELEVATION	=	76.8 FT.
DRAINAGE AREA	=	6.30 SQ. MI.
BASIC DISCHARGE (Q100)	=	1150 CFS
BASIC HIGH WATER ELEVATION	=	77.41 FT.

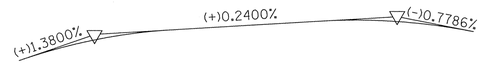
OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	1700 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	200 YR +
OVERTOPPING FLOOD ELEVATION	=	78.3 FT.

NOTE: OVERTOPPING OCCURS AT ROADWAY STA. 9+10±.

PI STA. = 12+00.00
ELEV = 79.72
V.C. = 100'

PI STA. = 14+00.00
ELEV = 80.20
V.C. = 100'



GRADE DATA -L-

PI STA. = 12+12.31
△ = 8°38'30.2" (RT)
D = 2°02'20.4"
L = 423.82'
T = 212.31'
R = 2,810.00'
SE = .04

CURVE DATA -L-

I HEREBY CERTIFY THESE PLANS
ARE AS-BUILT PLANS

PROJECT NO. BD-5102M

LENOIR COUNTY

STATION: 12+95.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 32

NORTH CAROLINA PROFESSIONAL SEAL 12916 ENGINEER PAUL J. BARBER 7/13/12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1141 OVER DEEP RUN BETWEEN NC 11 AND US 258

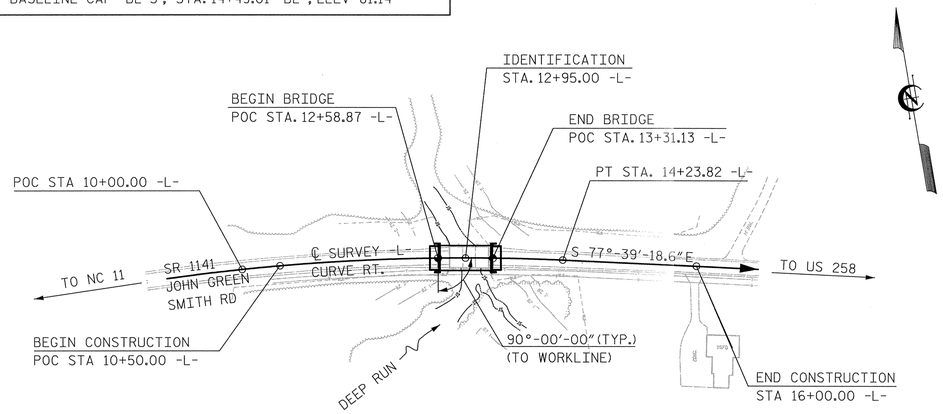
HNTB

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

DRAWN BY J. BAYNE DATE 5/12
CHECKED BY P. BARBER DATE 5/12
DWG. NO. 1

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

BM - BASELINE CAP "BL-3", STA. 14+49.01 -BL-, ELEV 81.14



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 50 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STATION 12+95.00 -L-	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 12+95.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STATION 12+95.00 -L-	REINFORCING STEEL	HP 12x53 STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	ELASTOMERIC BEARINGS	3'-0"x2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	LIN. FT.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	———	———	LUMP SUM	———	—	———	———	140.25	LUMP SUM	11	770
END BENT NO. 1	———	LUMP SUM	21.8	———	2,636	7	385	4	———	———	—	———
END BENT NO. 2	———	LUMP SUM	21.8	———	2,636	7	385	4	———	———	—	———
TOTAL	LUMP SUM	LUMP SUM	43.6	LUMP SUM	5,272	14	770	8	140.25	LUMP SUM	11	770

GENERAL 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 REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING 3 SPAN STRUCTURE WITH SPAN LENGTHS OF 18'-0", 17'-0" AND 18'-0" WITH 22 LINES OF TIMBER JOISTS AT VARYING CENTERS AND A REINFORCED CONCRETE DECK WITH A 28'-0" CLEAR ROADWAY WIDTH ON TIMBER CAP AND TIMBER PILE BENTS AND END BENTS SHALL BE REMOVED. IN ADDITION, ANY PILES REMAINING FROM PREVIOUS BRIDGE CONSTRUCTION OR MAINTENANCE OPERATIONS SHALL BE REMOVED AND INCLUDED IN THE LUMP SUM PAY ITEM FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+95.00 -L-".

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 SHALL BE EXCAVATED FOR A DISTANCE OF 19.5 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.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES" MAY, 2001

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

PROJECT NO. BD-5102M

LENOIR COUNTY

STATION: 12+95.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER 5/13/12

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

DRAWN BY J. BAYNE DATE 5/12
CHECKED BY P. BARBER DATE 5/12
DWG. NO. 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1141 OVER DEEP RUN BETWEEN NC 11 AND US 258

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

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	**1**	1.006	--	1.75	0.273	1.03	70′	EL	34.5	0.507	1.32	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	
		HL-93(Opr)	N/A	--	1.341	--	1.35	0.273	1.34	70′	EL	34.5	0.507	1.72	70′	EL	6.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.306	47.02	1.75	0.273	1.34	70′	EL	34.5	0.507	1.65	70′	EL	6.9	0.80	0.273	**1.31**	70′	EL	**34.5**	
		HS-20(Opr)	36.000	--	1.74	62.64	1.35	0.273	1.74	70′	EL	34.5	0.507	2.14	70′	EL	6.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.917	39.379	1.4	0.273	3.75	70′	EL	34.5	0.507	4.87	70′	EL	6.9	0.80	0.273	2.92	70′	EL	34.5	
		SNGARBS2	20.000	--	2.187	43.741	1.4	0.273	2.81	70′	EL	34.5	0.507	3.47	70′	EL	6.9	0.80	0.273	2.19	70′	EL	34.5	
		SNAGRIS2	22.000	--	2.077	45.69	1.4	0.273	2.67	70′	EL	34.5	0.507	3.23	70′	EL	6.9	0.80	0.273	2.08	70′	EL	34.5	
		SNCOTTS3	27.250	--	1.452	39.565	1.4	0.273	1.87	70′	EL	34.5	0.507	2.43	70′	EL	6.9	0.80	0.273	1.45	70′	EL	34.5	
		SNAGGRS4	34.925	--	1.218	42.554	1.4	0.273	1.57	70′	EL	34.5	0.507	2.03	70′	EL	6.9	0.80	0.273	1.22	70′	EL	34.5	
		SNS5A	35.550	--	1.191	42.346	1.4	0.273	1.53	70′	EL	34.5	0.507	2.06	70′	EL	6.9	0.80	0.273	1.19	70′	EL	34.5	
		SNS6A	39.950	--	1.095	43.747	1.4	0.273	1.41	70′	EL	34.5	0.507	1.88	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		SNS7B	42.000	--	1.043	43.801	1.4	0.273	1.34	70′	EL	34.5	0.507	1.85	70′	EL	6.9	0.80	0.273	1.04	70′	EL	34.5	
	TTST	TNAGRIT3	33.000	--	1.336	44.087	1.4	0.273	1.72	70′	EL	34.5	0.507	2.23	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT4A	33.075	--	1.342	44.401	1.4	0.273	1.72	70′	EL	34.5	0.507	2.17	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT6A	41.600	--	1.1	45.746	1.4	0.273	1.41	70′	EL	34.5	0.507	1.98	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		TNT7A	42.000	--	1.106	46.462	1.4	0.273	1.42	70′	EL	34.5	0.507	1.94	70′	EL	6.9	0.80	0.273	1.11	70′	EL	34.5	
		TNT7B	42.000	--	1.147	48.18	1.4	0.273	1.47	70′	EL	34.5	0.507	1.8	70′	EL	6.9	0.80	0.273	1.15	70′	EL	34.5	
		TNAGRIT4	43.000	--	1.089	46.838	1.4	0.273	1.4	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.09	70′	EL	34.5	
		TNAGT5A	45.000	--	1.026	46.175	1.4	0.273	1.32	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.03	70′	EL	34.5	
		TNAGT5B	45.000	**3**	1.013	45.579	1.4	0.273	1.3	70′	EL	34.5	0.507	1.66	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

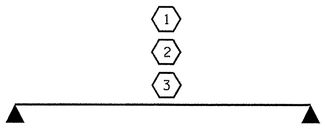
1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)
(2) DESIGN LOAD RATING (HS-20)
(3) LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. BD-5102M
LENOIR COUNTY
STATION: 12+95.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
70′ CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 12005 ENGINEER KEITH PASCHAL
5/4/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-3
1			3			TOTAL SHEETS
2			4			12

ASSEMBLED BY :	E. K. POPE	DATE :	4-11-12
CHECKED BY :	G. KOUCHEKI	DATE :	5-8-12
DRAWN BY : CVC	6/10		
CHECKED BY : DNS	6/10		

24-MAY-2012 11:57
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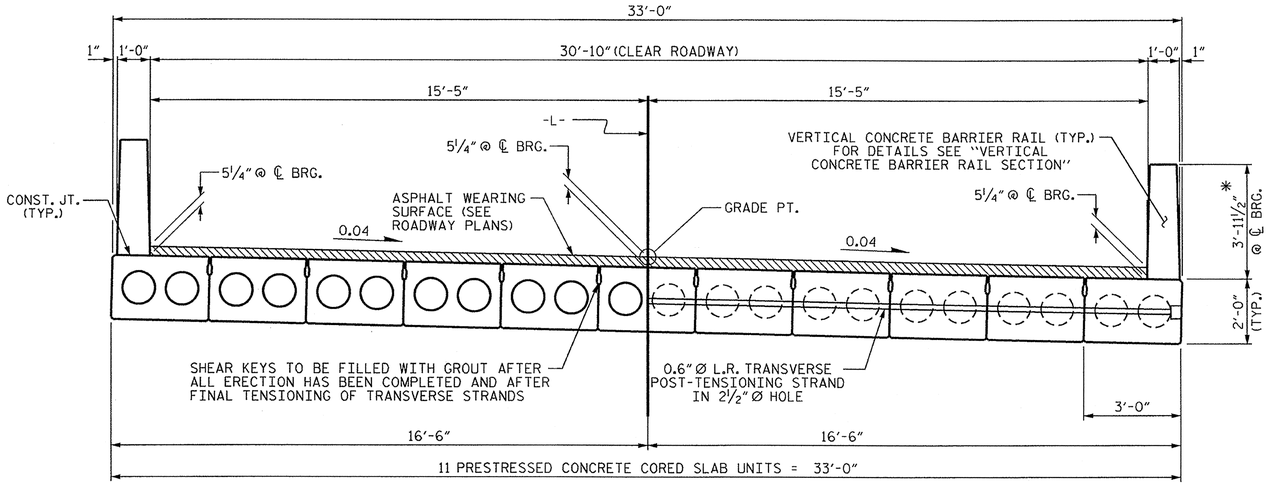
kpaschal

STD. NO. 24LRFR1_90S_70L



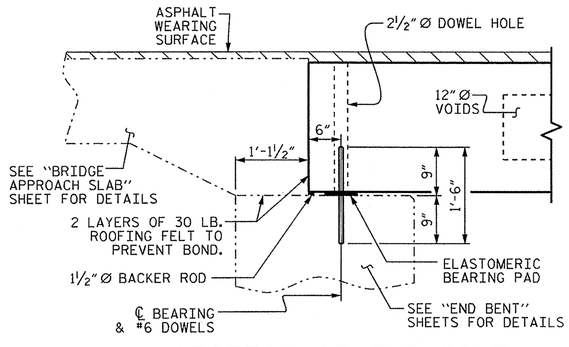
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

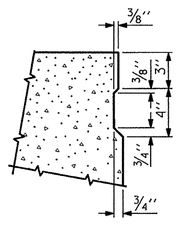
TYPICAL SECTION

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

FIXED END

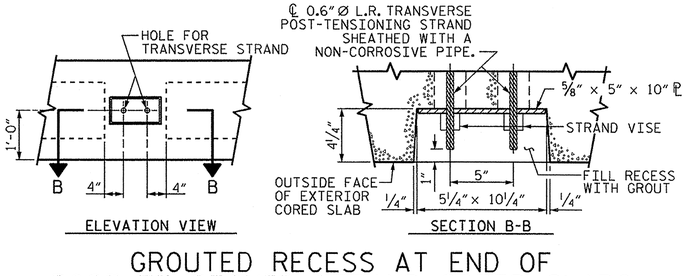


SECTION AT END BENT

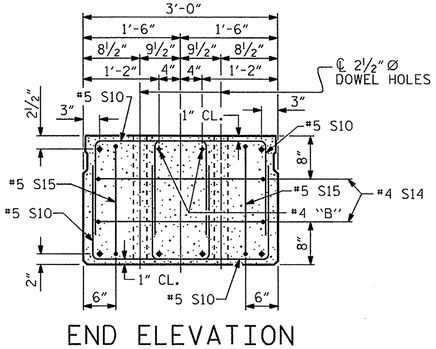


SHEAR KEY DETAIL

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

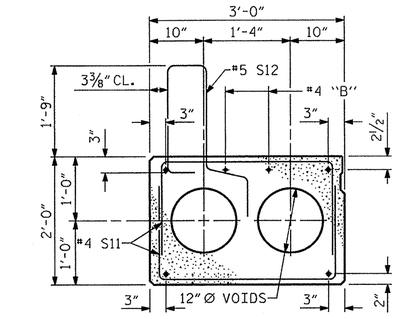


GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



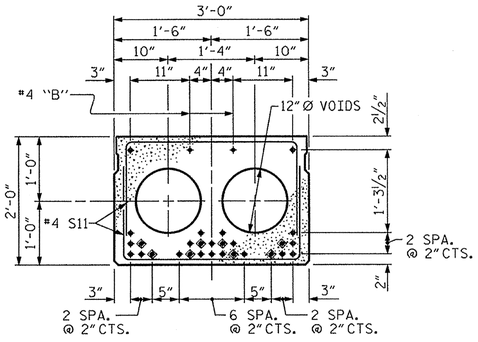
END ELEVATION

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



EXTERIOR SLAB SECTION

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



INTERIOR SLAB SECTION (70' UNIT)

(28 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

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

DEBONDING LEGEND

PROJECT NO. BD-5102M
LENOIR COUNTY
STATION: 12+95.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

NORTH CAROLINA PROFESSIONAL SEAL 020055 ENGINEER KEITH PASCHAL
5/24/12

ASSEMBLED BY : E. K. POPE	DATE : 4-11-12
CHECKED BY : G. KOUCHEKI	DATE : 3-8-12
DRAWN BY : MAA 6/10	REV. 12/11 MAA/AAC
CHECKED BY : MKT 7/10	

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

SHEET NO. 5-4
TOTAL SHEETS 12

24-MAY-2012 11:57
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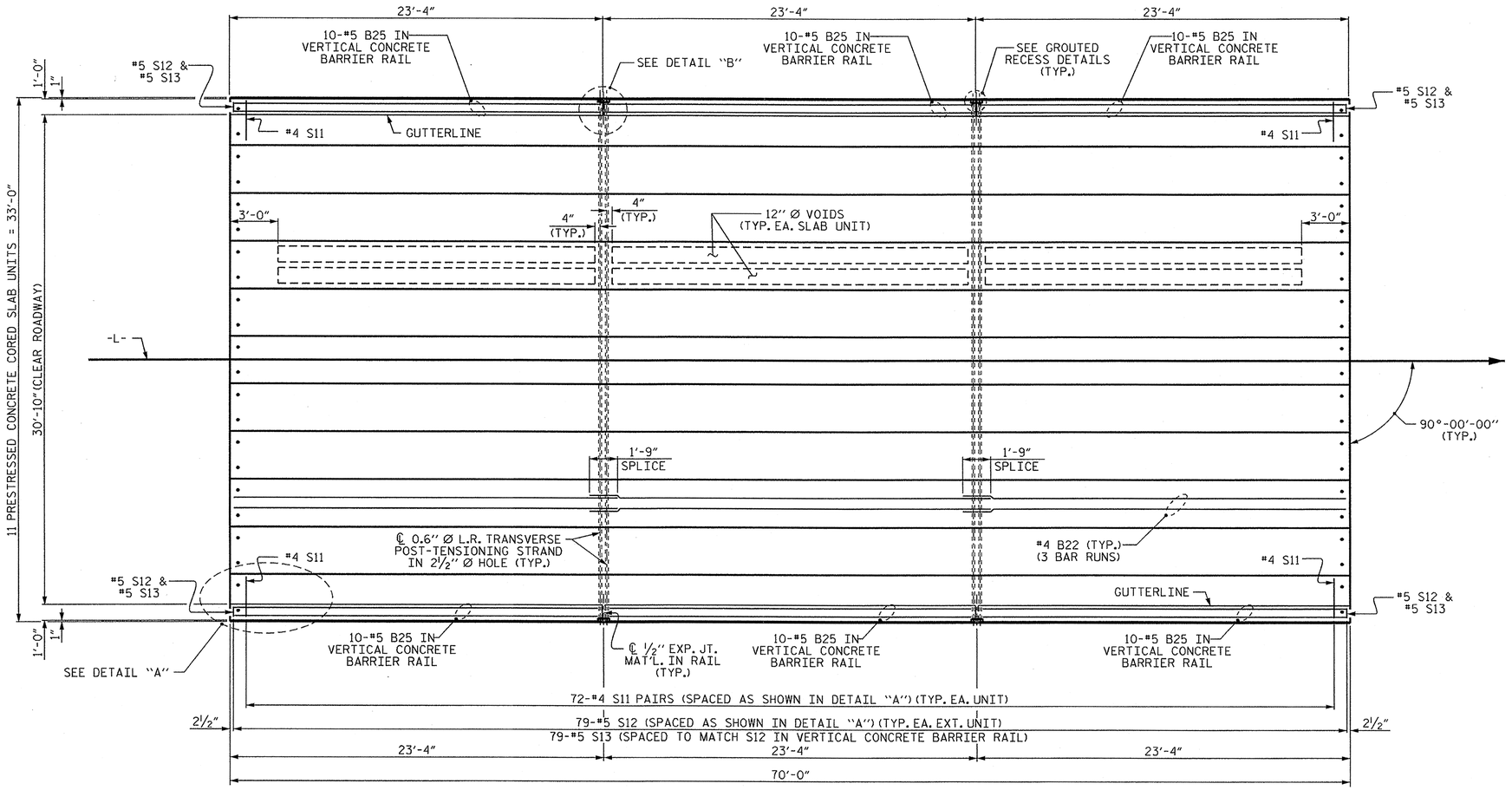
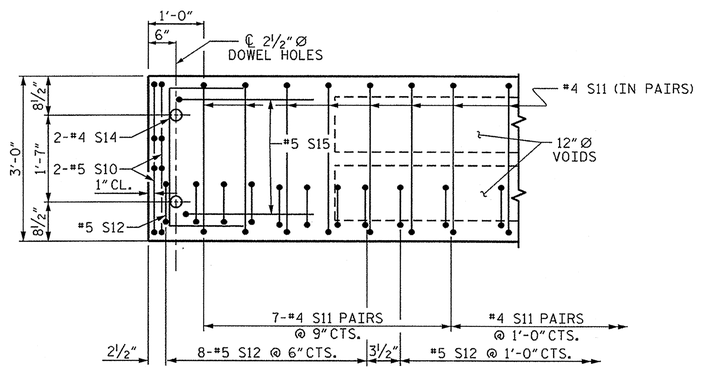
kpaschal

STD. NO. 24PCS4_33_90S

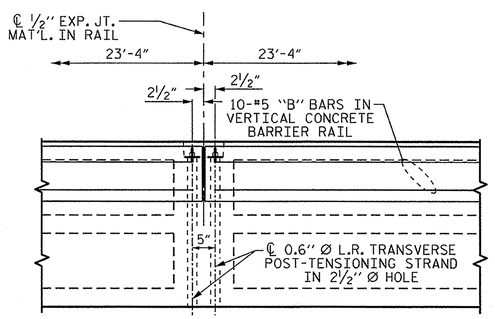


PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

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

ASSEMBLED BY :	E. K. POPE	DATE :	4-11-12
CHECKED BY :	G. KOUCHEKI	DATE :	3-8-12
DRAWN BY : MAA	6/10	REV. 12/5/11	MAA/AAC
CHECKED BY : MKT	7/10		

24-MAY-2012 11:57
S:\DPGI\Keith\BD-5102M\ekpope\BD5102M_SD_CS.dgn
kpaschal

PROJECT NO. BD-5102M

LENOIR COUNTY

STATION: 12+95.00 -L-

SHEET 2 OF 3

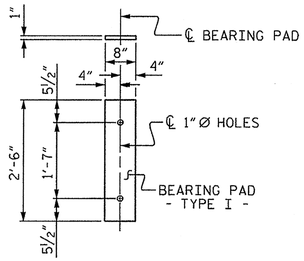
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

NORTH CAROLINA PROFESSIONAL SEAL 22006 ENGINEER KEITH PASCHAL
5/24/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			12

STD. NO. 24PCS_33_90S_70L



FIXED END
(TYPE I - 22 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

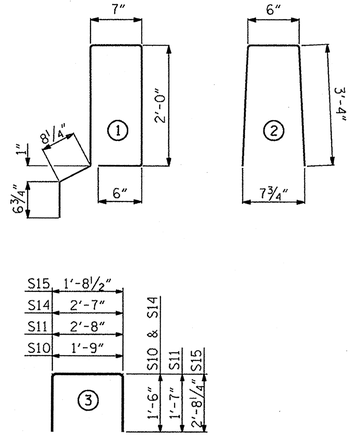
GRADE 270 STRANDS	
	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

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

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	4 5/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	13/16" ↓
FINAL CAMBER	3½" ↑

** INCLUDES FUTURE WEARING SURFACE

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

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

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

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

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

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

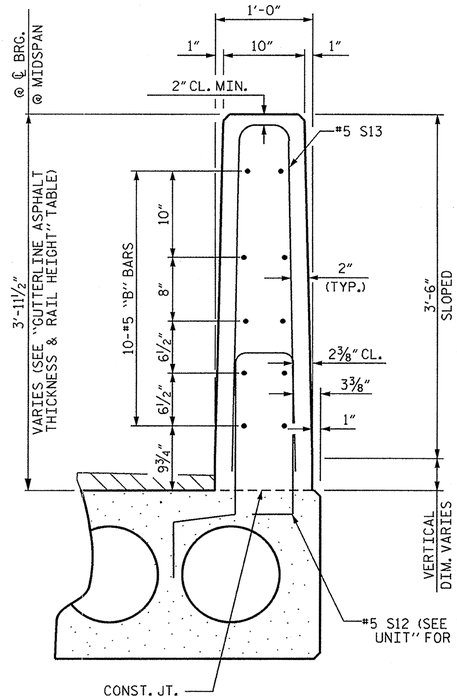
GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED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

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

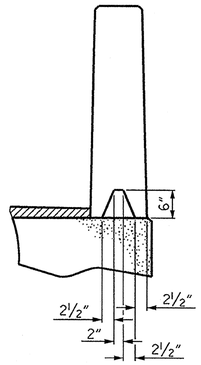
MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

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

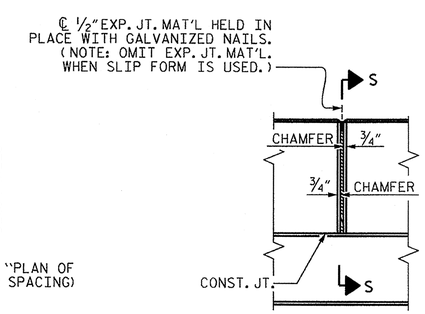
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



SECTION THRU RAIL



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



ELEVATION AT EXPANSION JOINTS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 70' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B25	60	60	#5	STR	22'-11"	1434
*S13	158	158	#5	2	7'-2"	1181
* EPOXY COATED REINFORCING STEEL				LBS.		2615
CLASS AA CONCRETE				CU.YDS.		18.9
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		140.25

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	144	#4	3	5'-10"	561	5'-10"	561
*S12	79	#5	1	6'-4"	522		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		744		744
* EPOXY COATED REINFORCING STEEL			LBS.		522		
7000 P.S.I. CONCRETE			CU. YDS.		11.8		11.8
0.6"Ø L.R. STRANDS			No.		28		28

CONCRETE RELEASE STRENGTH	
UNIT	PSI
70' UNITS	5500

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
70' UNITS	1¾"	3'-8"

PROJECT NO. BD-5102M
LENOIR COUNTY
STATION: 12+95.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	3-6
1			3			TOTAL SHEETS
2			4			12

NORTH CAROLINA PROFESSIONAL SEAL 22006 ENGINEER KENNETH PASCHAL
5/24/12

VERTICAL CONCRETE BARRIER RAIL DETAILS

ASSEMBLED BY : E. K. POPE	DATE : 4-11-12	
CHECKED BY : G. KOUCHEKI	DATE : 3-8-12	
DRAWN BY : MAA 6/10	REV. 12/11	MAA/AAC
CHECKED BY : MKT 7/10		

24-MAY-2012 11:57
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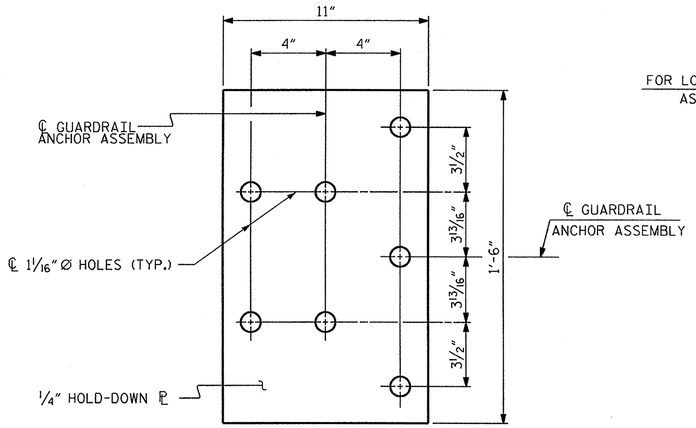
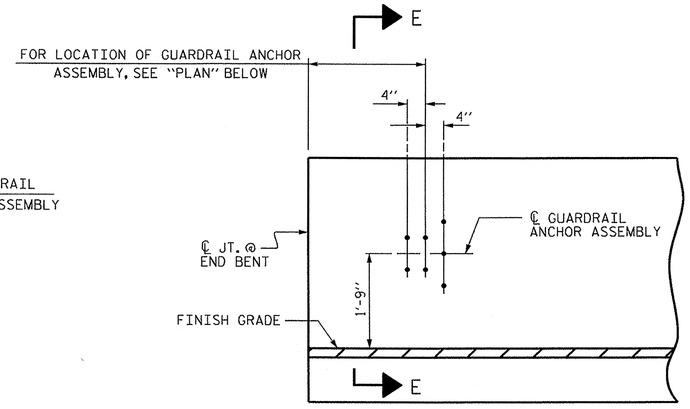
kpaschal

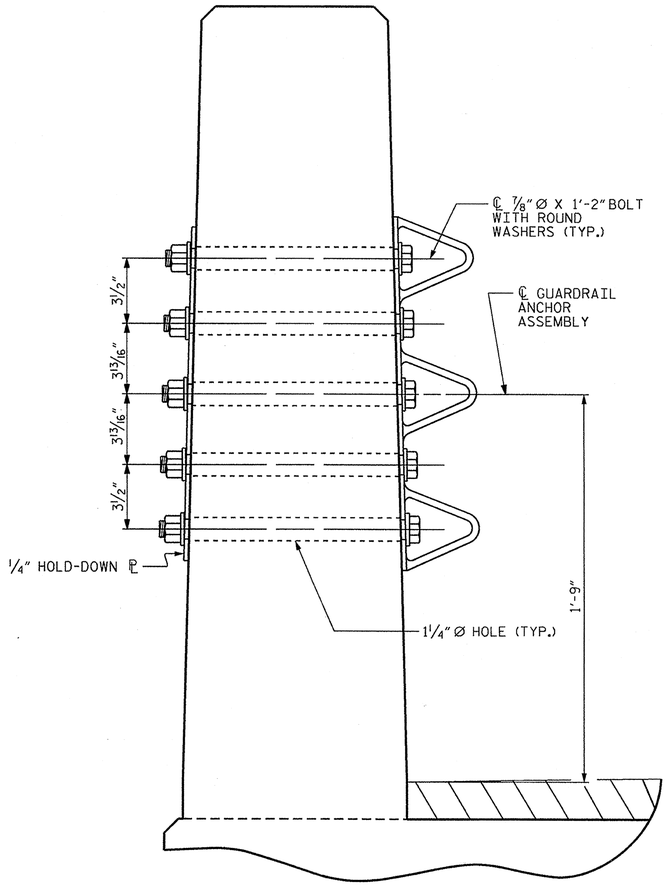
STD. NO. 24PCS3_33_90S



PLAN

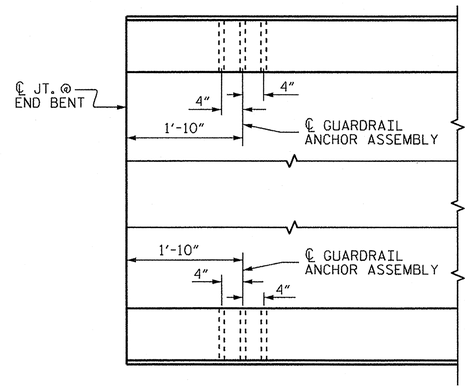


ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

NOTES

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

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

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

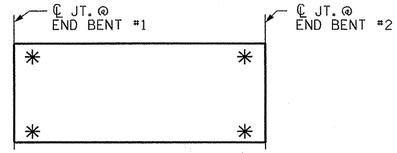
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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

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



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5102M

LENOIR COUNTY

STATION: 12+95.00 -L-

ASSEMBLED BY : E. K. POPE	DATE : 4-11-12		
CHECKED BY : G. KOUCHEKI	DATE : 5-8-12		
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	

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kpaschal

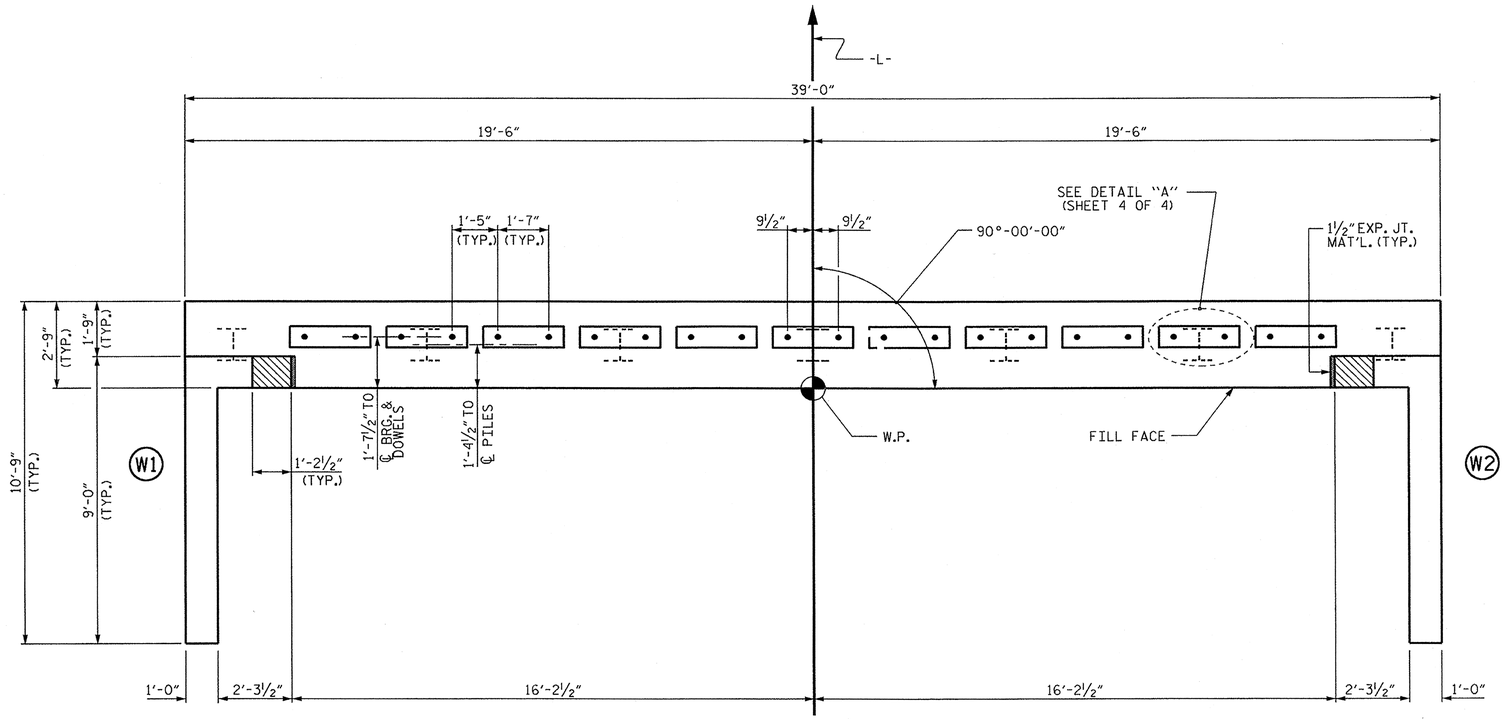
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

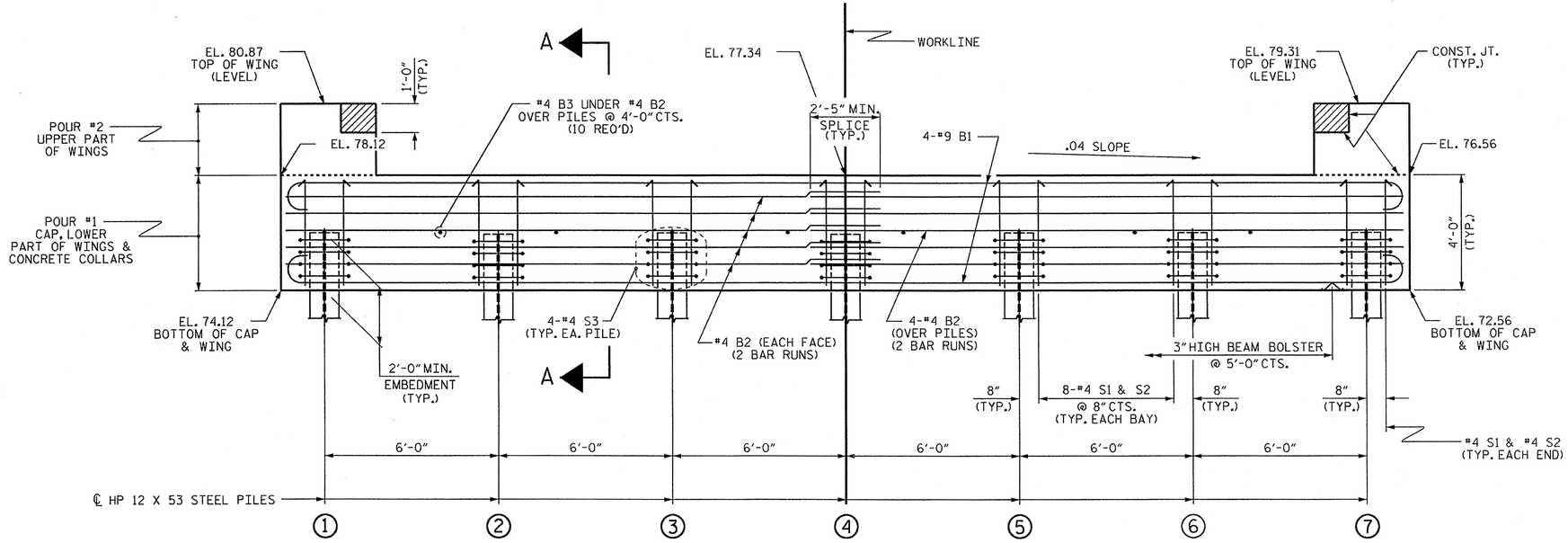
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-7
1			3			TOTAL SHEETS
2			4			12

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER KEITH PASCHAL
5/24/12

(SHT 1) 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.

INSTALL THE 4"Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	75.06
②	74.82
③	74.58
④	74.34
⑤	74.10
⑥	73.86
⑦	73.62

PROJECT NO. BD-5102M
LENOIR COUNTY
STATION: 12+95.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			12

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER KEITH PASCHAL
5/14/12

ASSEMBLED BY :	E. K. POPE	DATE : 4-11-12
CHECKED BY :	G. KOUCHEKI	DATE : 3-8-12
DRAWN BY :	WJH 12/11	
CHECKED BY :	AAC 12/11	

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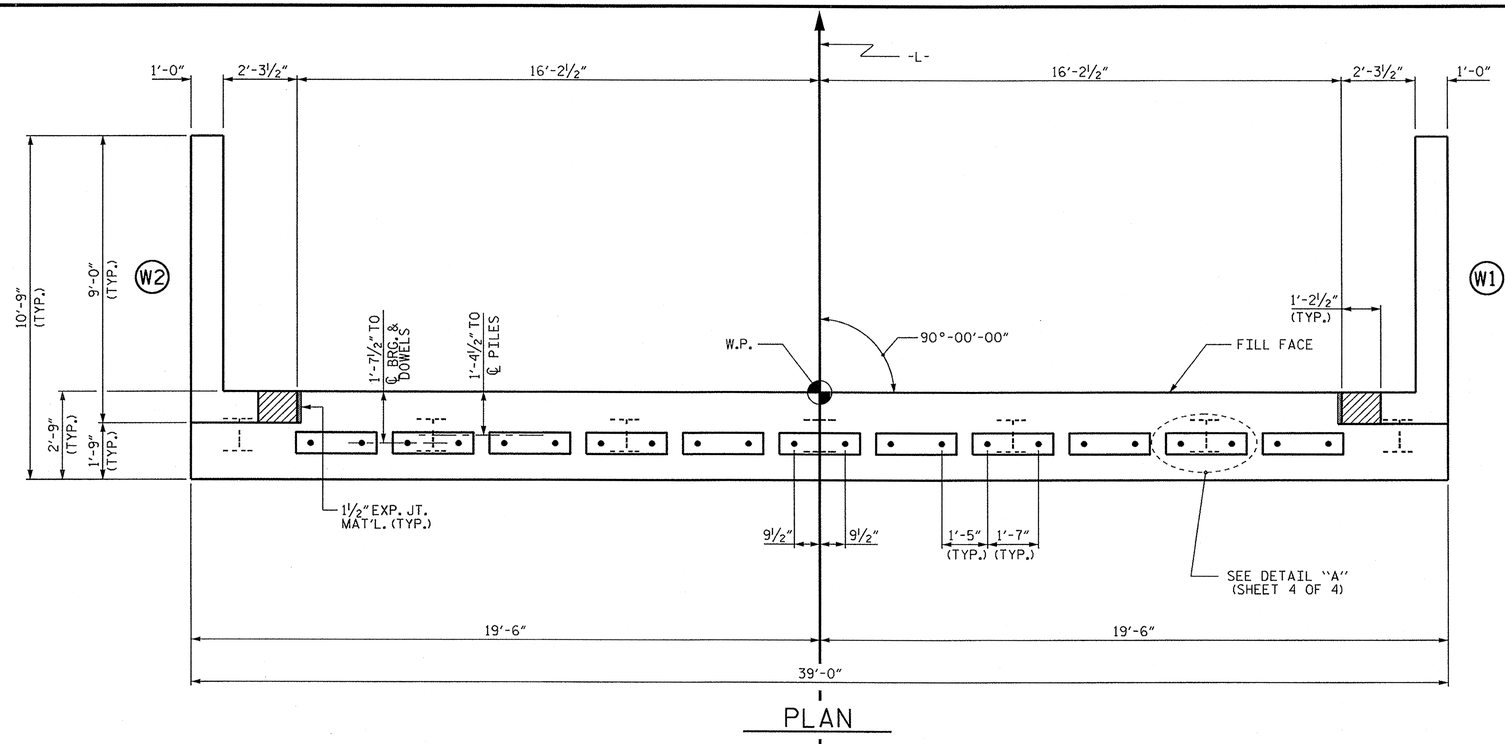
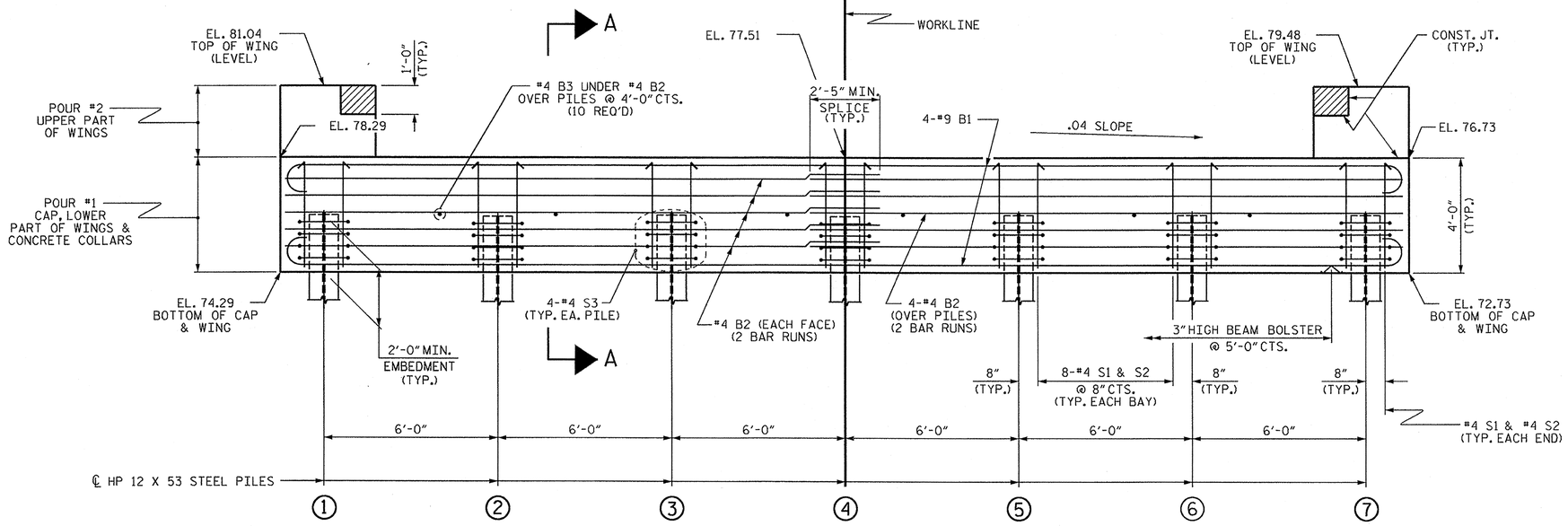
kpaschal

STD. NO. EB_33_90S4



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.

INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	75.23
②	74.99
③	74.75
④	74.51
⑤	74.27
⑥	74.03
⑦	73.79

PROJECT NO. BD-5102M
LENOIR COUNTY
STATION: 12+95.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL
5/24/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			12

ASSEMBLED BY : E. K. POPE	DATE : 4-11-12	
CHECKED BY : G. KOUCHEKI	DATE : 3-8-12	
DRAWN BY : WJH	12/11	
CHECKED BY : AAC	12/11	

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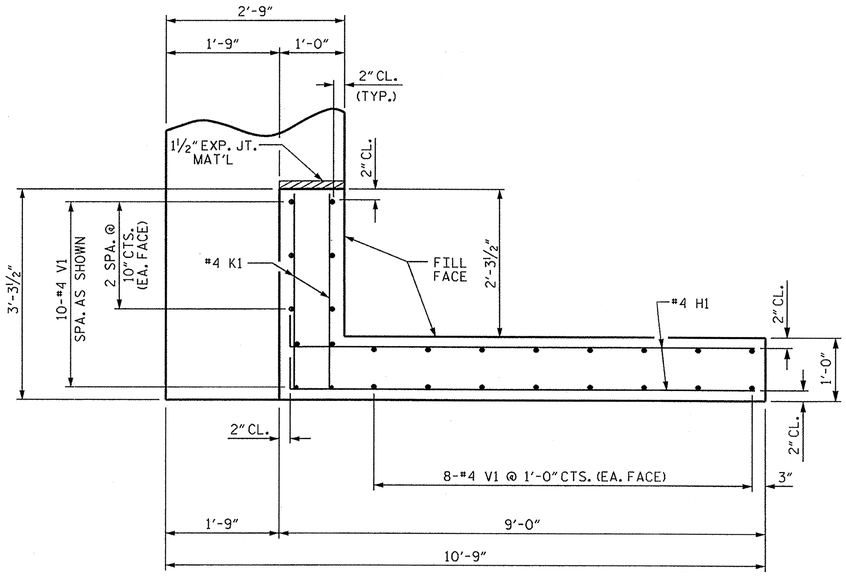
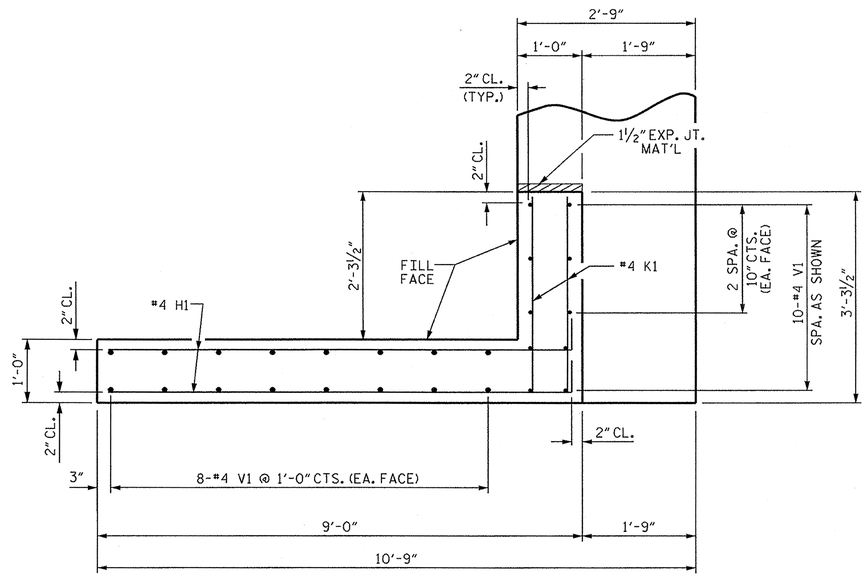
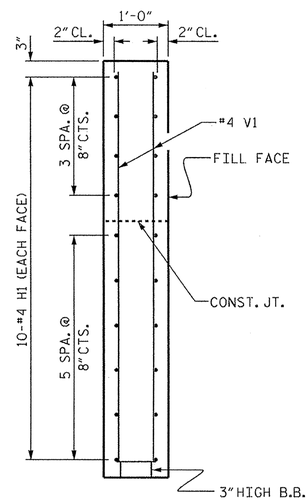
STD. NO. EB_33_90S4



PLAN OF WING (W1)

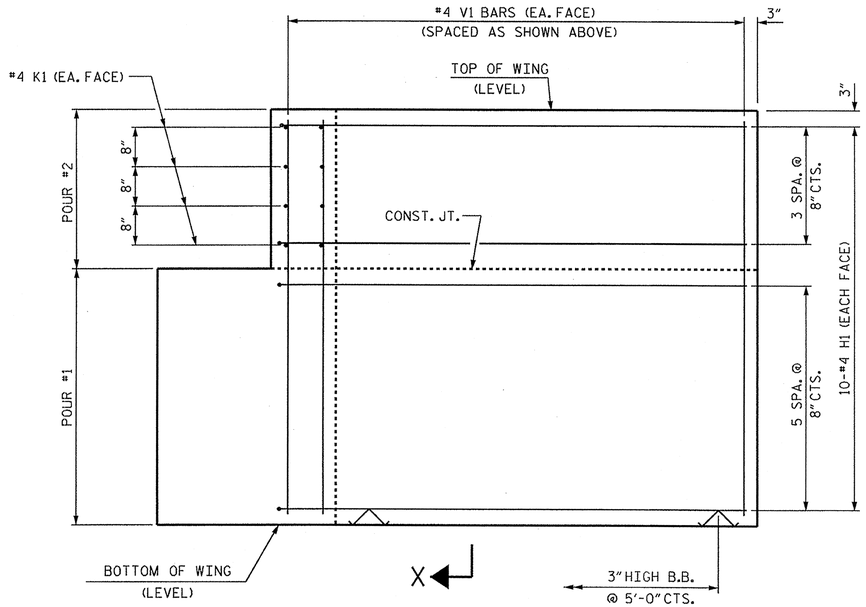


PLAN OF WING (W2)

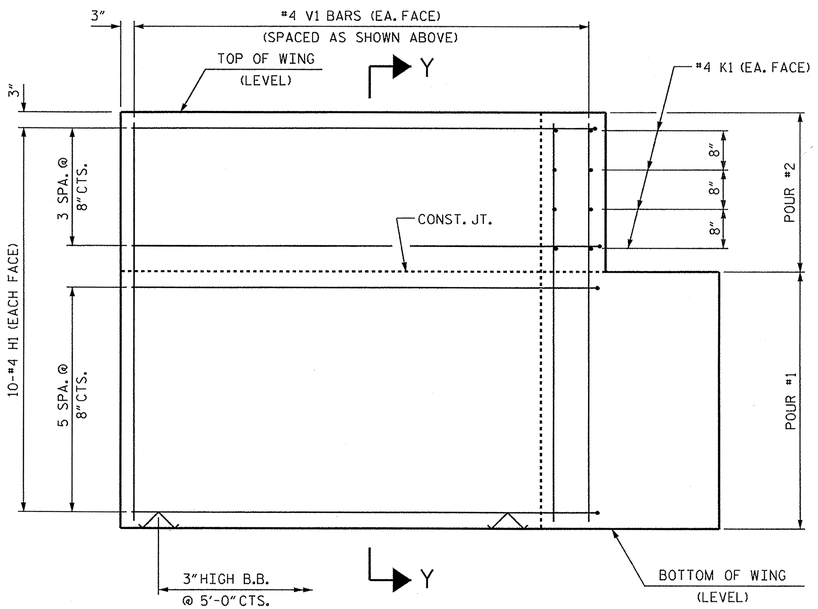


SECTION X-X

X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

SECTION Y-Y

WING DETAILS

PROJECT NO. BD-5102M

LENOIR COUNTY

STATION: 12+95.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			12

ASSEMBLED BY : E. K. POPE	DATE : 4-11-12
CHECKED BY : G. KOUCHEKI	DATE : 5-8-12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

NORTH CAROLINA PROFESSIONAL SEAL 022005 ENGINEER KEITH PASCHAL
5/24/12

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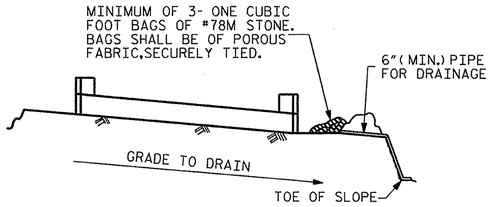
STD. NO. EB_33_90S4

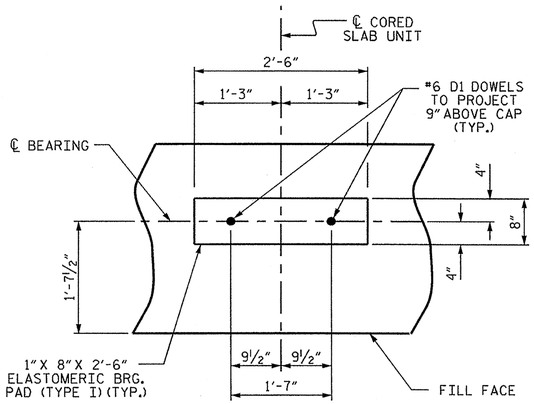


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

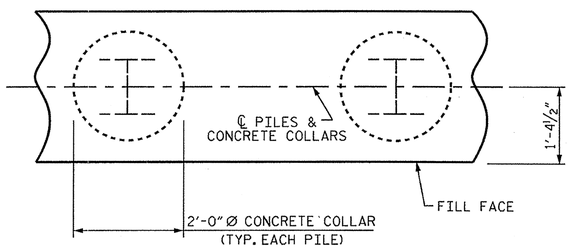
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

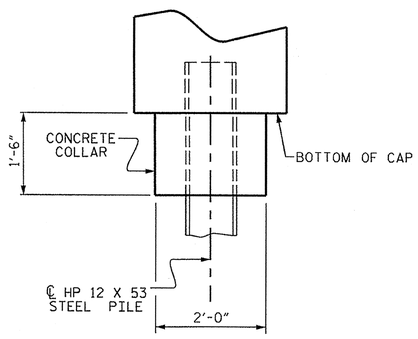


DETAIL "A"

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



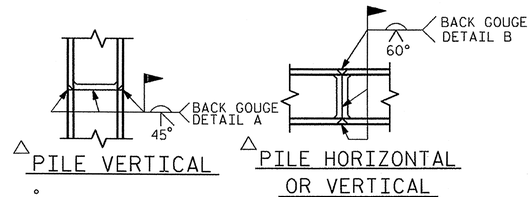
PLAN



ELEVATION

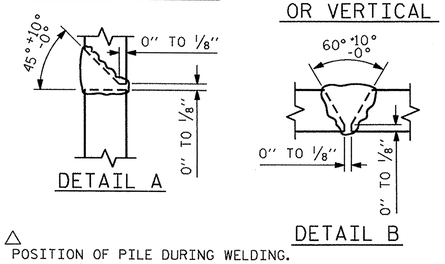
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



△ PILE VERTICAL

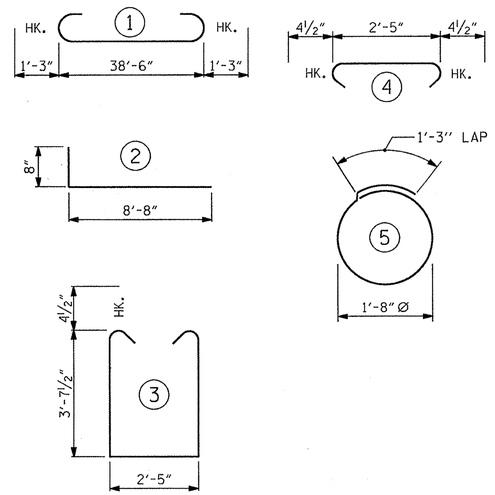
△ PILE HORIZONTAL OR VERTICAL



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL

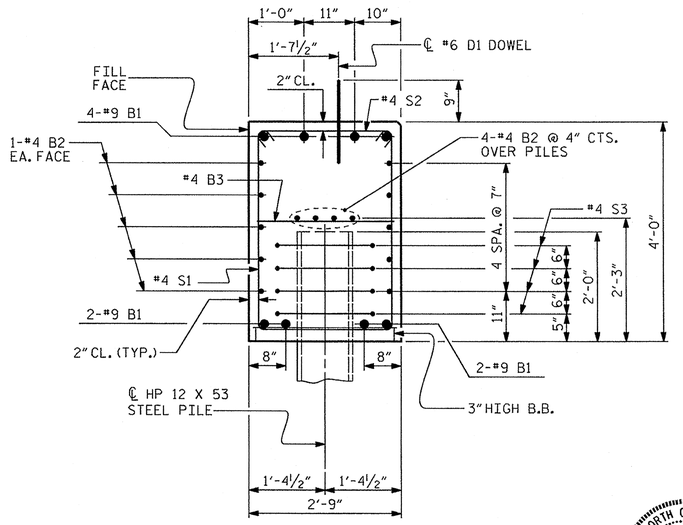
FOR ONE END BENT

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

REINFORCING STEEL (FOR ONE END BENT) 2636 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	19.5 C.Y.
POUR #2	UPPER PART OF WINGS	2.3 C.Y.
TOTAL CLASS A CONCRETE		21.8 C.Y.



SECTION A-A

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

NORTH CAROLINA PROFESSIONAL SEAL 22003 ENGINEER A. KEITH PASCHAL
5/24/12

PROJECT NO. BD-5102M

LENOIR COUNTY

STATION: 12+95.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			12

ASSEMBLED BY : E. K. POPE		DATE : 4-11-12
CHECKED BY : G. KOUCHEKI		DATE : 5-21-12
DRAWN BY : WJH 12/11		
CHECKED BY : AAC 12/11		

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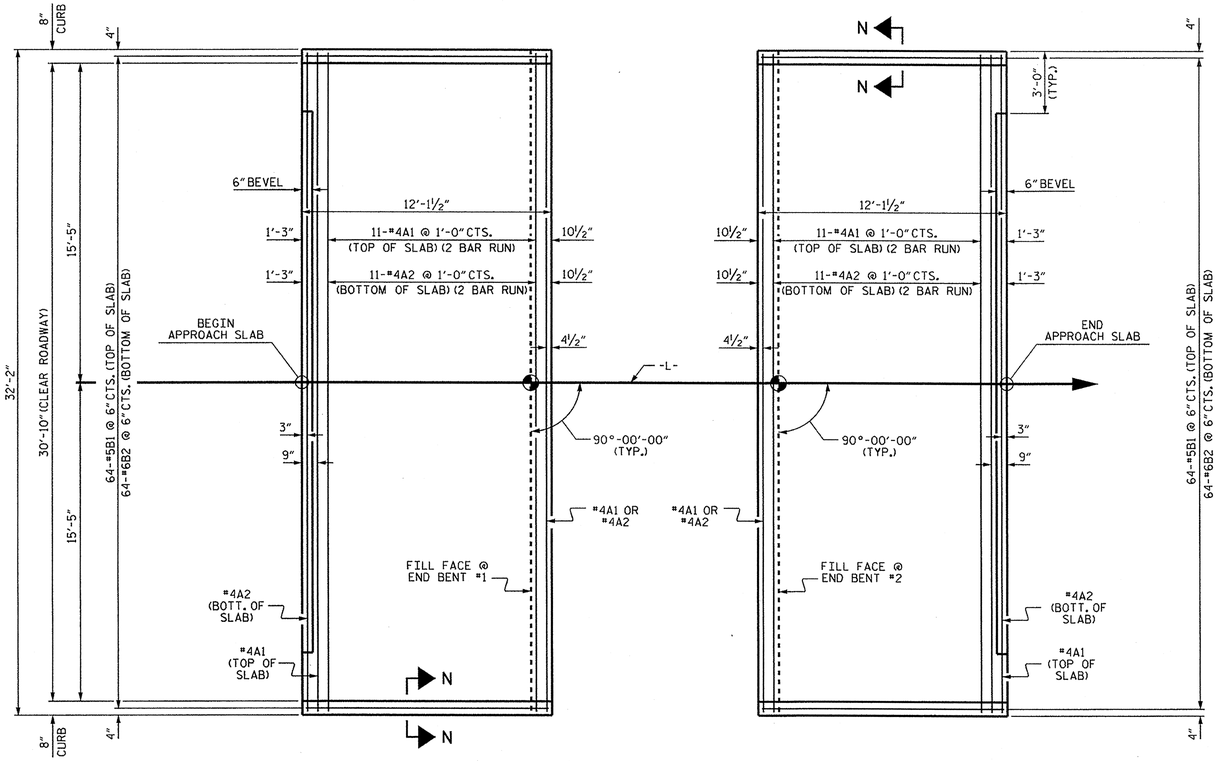
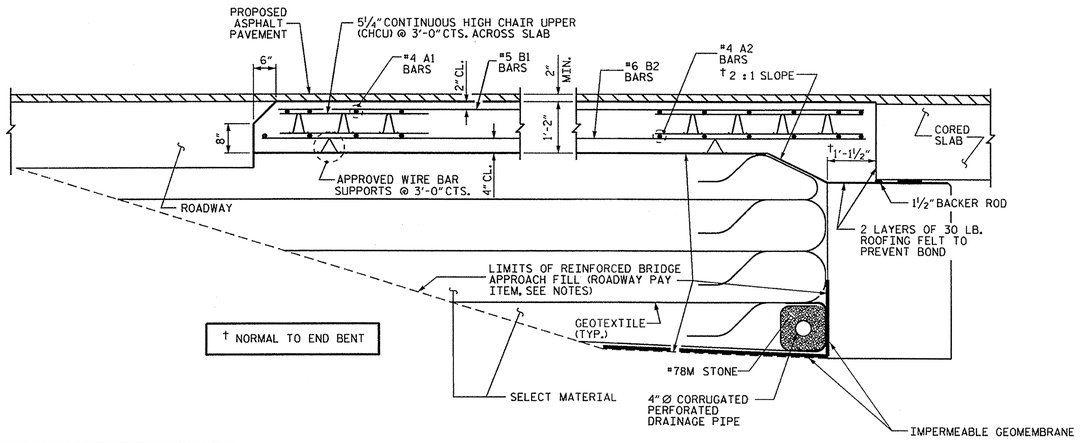
kpaschal

STD. NO. EB_33_90S4



PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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.

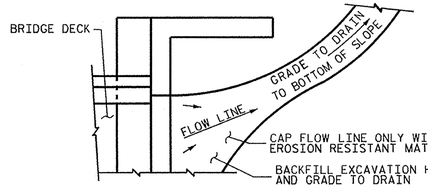
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-9"	291
* B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1412
* EPOXY COATED REINFORCING STEEL				LBS.	1039
CLASS AA CONCRETE				C. Y.	19.9

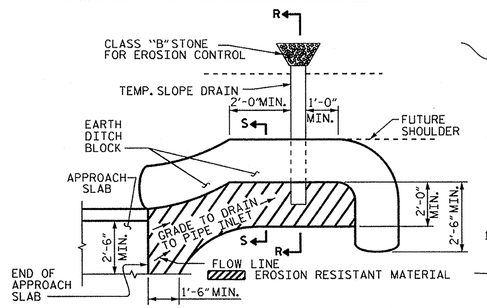
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-9"	291
* B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1412
* EPOXY COATED REINFORCING STEEL				LBS.	1039
CLASS AA CONCRETE				C. Y.	19.9

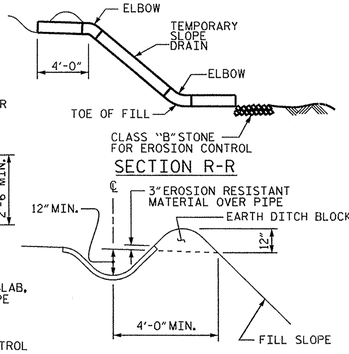


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



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

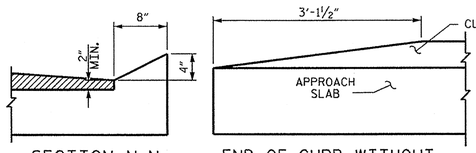


SECTION S-S

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

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

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL
3/24/12

PROJECT NO. BD-5102M

LENOIR COUNTY

STATION: 12+95.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

ASSEMBLED BY :	E. K. POPE	DATE :	4-11-12
CHECKED BY :	G. KOUCHEKI	DATE :	5-8-12
DRAWN BY : SHS/MAA 5-09	REV. 12-11		MAA/AAC
CHECKED BY : BCH 5-09			

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kpaschal

STD. NO. BAS_33_90S

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 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.

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

ENGLISH

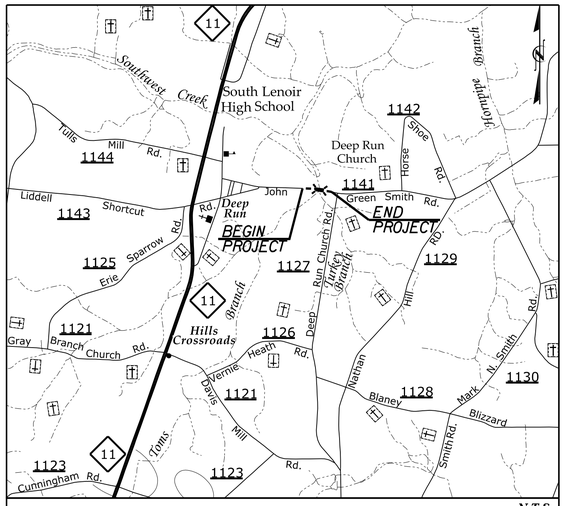
JANUARY, 1990

STD. NO. SN

09/28/99

TIP PROJECT: BD–5102M

CONTRACT:



VICINITY MAP *N.T.S.*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

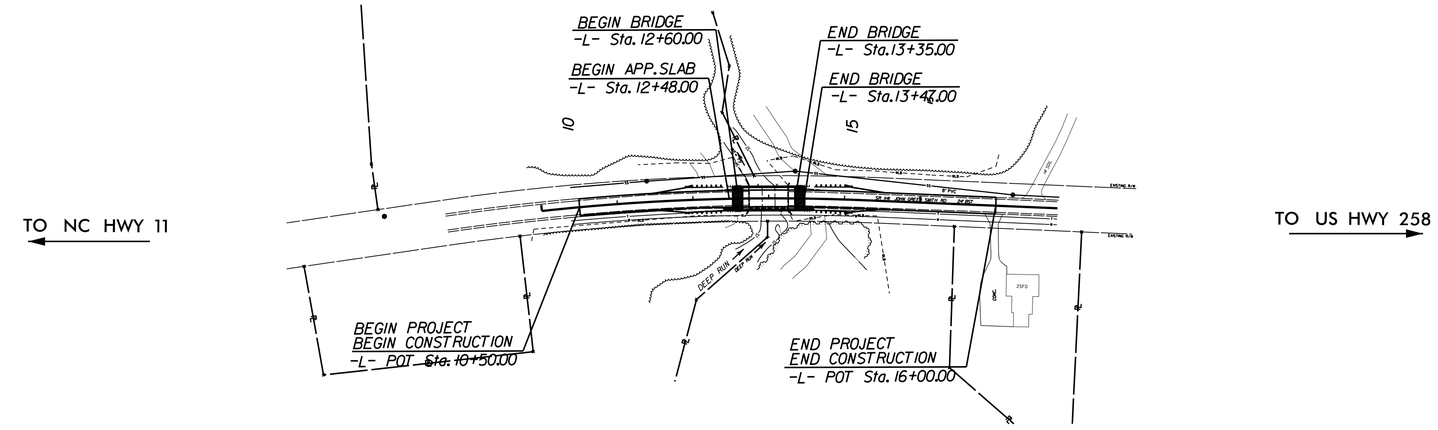
T.I.P. NO.	SHEET NO.
BD–5102M	UO–1

UTILITIES BY OTHERS PLANS
LENOIR COUNTY

LOCATION: BRIDGE NO. 032 OVER DEEP RUN ON SR 1141 (JOHN GREEN SMITH ROAD)

TYPE OF WORK: UTILITY BY OTHERS RELOCATION

NAD 83



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UO–1	*TITLE SHEET*
UO–2	*PLAN SHEET*

UTILITY OWNERS ON PROJECT

(1) TELEPHONE – CENTURY LINK – DENNIS STRICKLAND – (252) 571–1748

(2) WATER – DEEP RUN WATER – JAMIE CANNON – (252) 939–6270

(3) SEWER – TOWN OF PINK HILL – TIMMY KENNEDY – (252) 568–3181

UTILITY DESIGN BY:

MA Engineering CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919 297 0220 Fax: 919 297 0221

NCDOT PROJECT ENGINEER:
MARIA ROGERSON, P.E.
PREPARED FOR:
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION 2 BRIDGE PROGRAM
GREENVILLE, NC

7/25/2012
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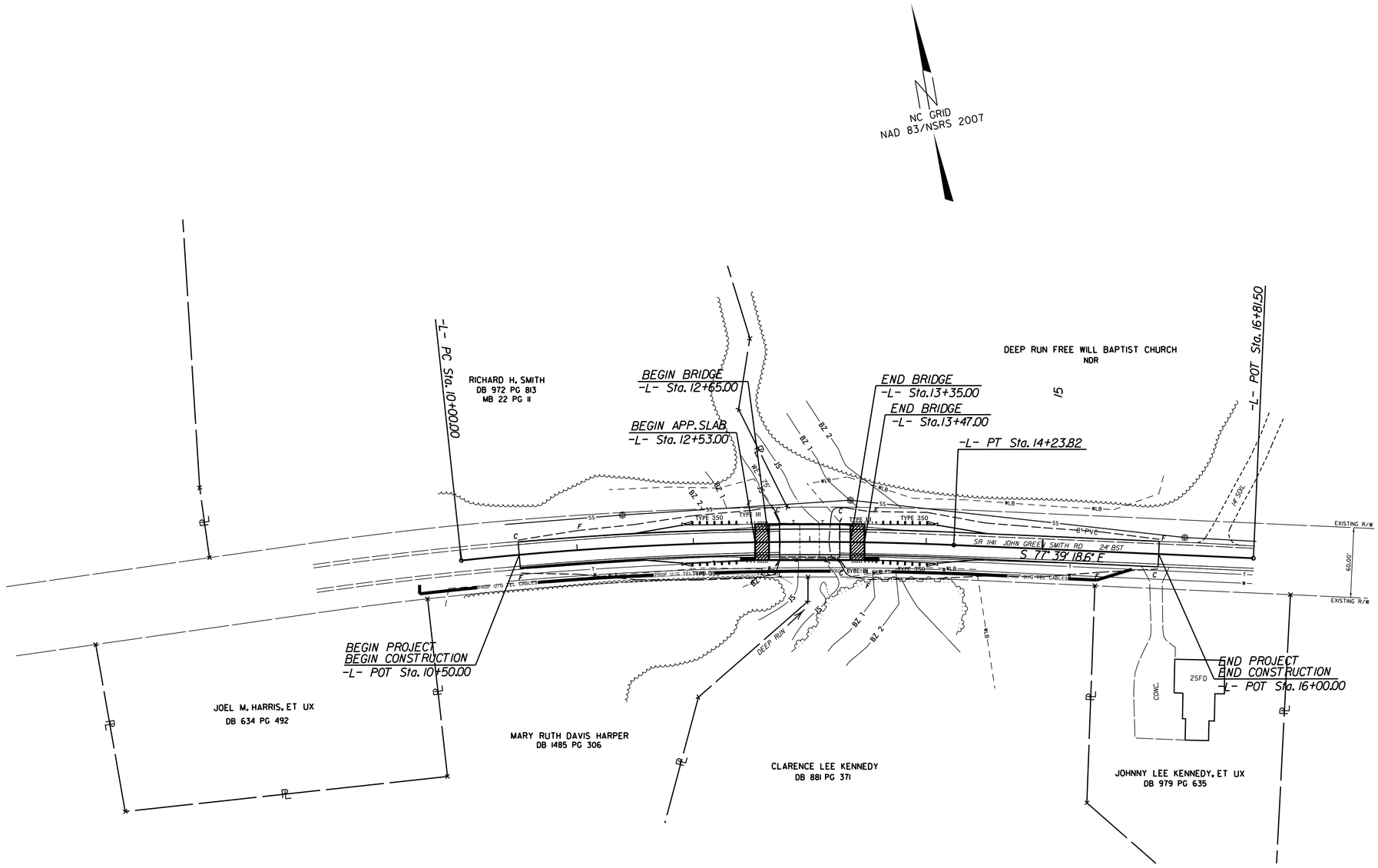
PROJECT REFERENCE NO.	SHEET NO.
BD-5102M	U0-2

UTILITIES BY OTHERS

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

MA Engineering
CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221



7/25/2012
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