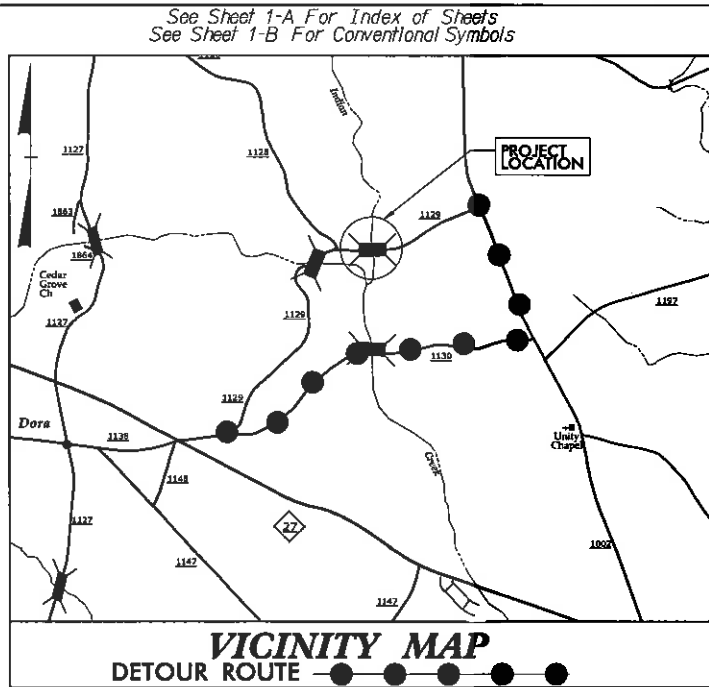


09/10/15

TIP PROJECT: 17BP.12.R.57

CONTRACT: DL00103

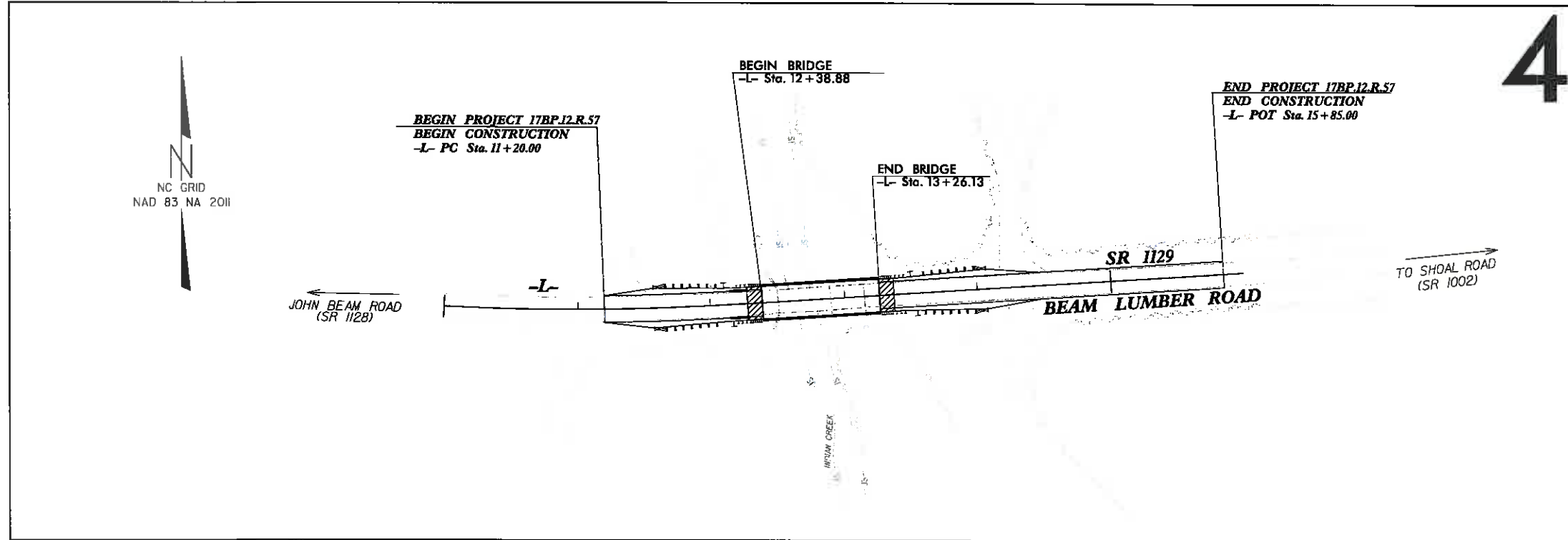


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
LINCOLN COUNTY

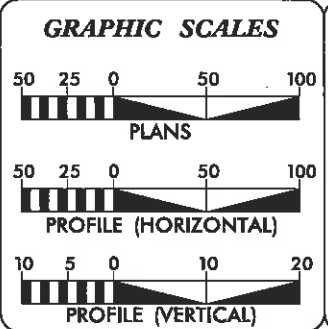
**LOCATION: STRUCTURE NO. 115 OVER INDIAN CREEK
ON SR 1129**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.12.R.57	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45358.1.FD27	BRZ-1129(15)	PE, RW, UTILITY & CONST	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2012 = 290 vpd
V = 60 MPH
FUNC CLASS = R. LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.12.R.57 = 0.071 MI
LENGTH STRUCTURE PROJECT 17BP.12.R.57 = 0.017 MI
TOTAL LENGTH OF PROJECT 17BP.12.R.57 = 0.088 MI

NC DOT CONTACT: STEVE RACKLEY, PE
DIVISION 12

Prepared in the Office of:
Michael Baker International
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 10, 2014

LETTING DATE: AUGUST 23, 2016

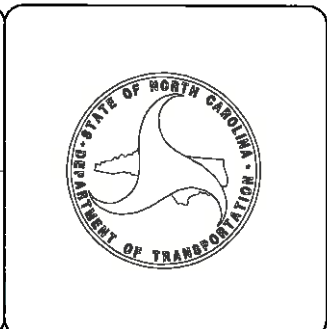
TODD H. BUCKNER, PE
PROJECT ENGINEER

SUE FLOWERS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Seal: **Michael M. ...** 6/30/2016
P.E.

Seal: **Todd H. Buckner** 6/30/2016
P.E.

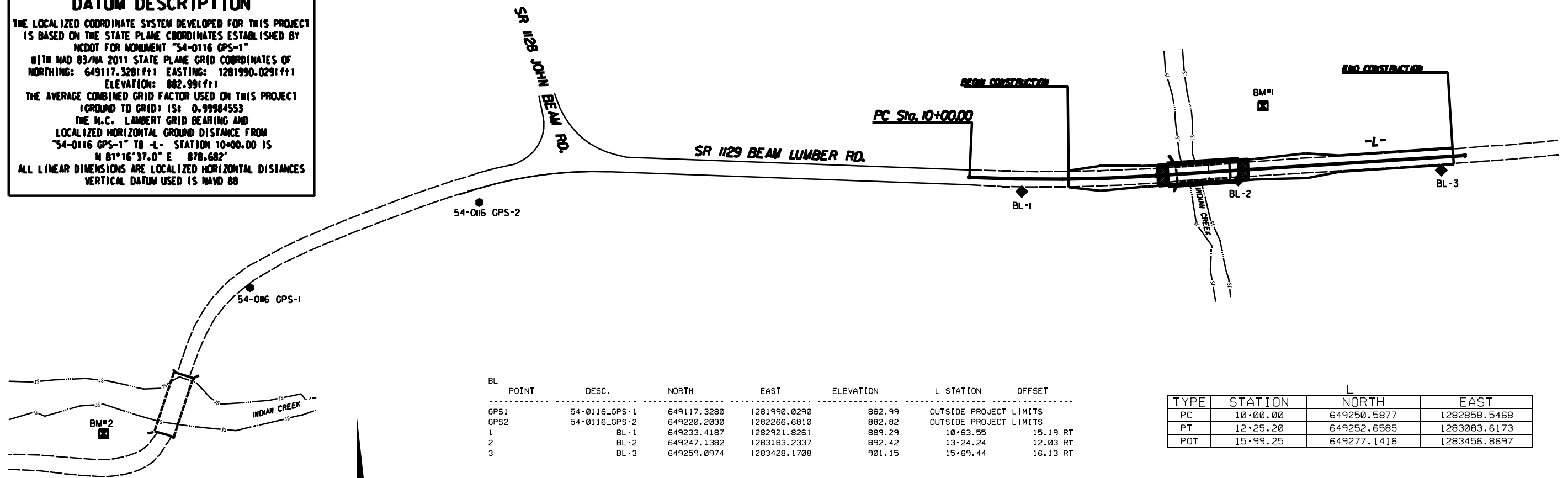


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USER: Todd.Buckner

SURVEY CONTROL SHEET

-Preliminary-

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "54-0116 GPS-1"
 WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 649117.3281(ft) EASTING: 1281990.0291(ft)
 ELEVATION: 882.99(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984553
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "54-0116 GPS-1" TO -L- STATION 10+00.00 IS
 N 81°16'37.0" E 878.682'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
GPS1	54-0116_GPS-1	649117.3280	1281990.0290	882.99	OUTSIDE PROJECT LIMITS	
GPS2	54-0116_GPS-2	649220.2030	1282266.6810	882.82	OUTSIDE PROJECT LIMITS	
1	BL-1	649233.4187	1282921.8261	889.29	10+63.55	15.19 RT
2	BL-2	649247.1382	1283183.2337	892.42	13+24.24	12.03 RT
3	BL-3	649259.0974	1283428.1708	901.15	15+69.44	16.13 RT

TYPE	STATION	NORTH	EAST
PC	10+00.00	649250.5877	1282858.5468
PT	12+25.20	649252.6585	1283083.6173
POT	15+99.25	649277.1416	1283456.8697

NC GRID
NAD 83 NA 2011

.....
 BM1 ELEVATION = 889.00
 N 649337 E 1283213
 L STATION 13+60 75 LEFT
 RR SPIKE IN 16" POPLAR

 BM2 ELEVATION = 883.53
 N 648941 E 1281813
 L STATION 10+00.00
 S 73+30'52.34" W DIST 1090.42
 RR SPIKE SET IN 24" MAPLE

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+20.00	-30.00	649278.5337	1282978.1242
L	11+20.00	-17.50	649266.0347	1282978.2855
L	11+20.00	17.50	649231.0376	1282978.7370
L	11+20.00	20.00	649228.5378	1282978.7692
L	12+25.00	20.00	649232.6882	1283084.7258
L	12+25.20	-50.00	649302.5513	1283080.3446
L	12+40.00	40.00	649213.7130	1283101.0047
L	15+85.00	-50.00	649326.1014	1283439.3741
L	15+85.00	-17.50	649293.6711	1283441.5013
L	15+85.00	17.50	649258.7462	1283443.7922
L	15+85.00	40.00	649236.2944	1283445.2649

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 540015_LS_CONTROL.TXT
 540015_LS_LOCAL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, UTILIZING THE NCGS RTN SYSTEM (VRS).
 MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:
 ● INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
 ■ INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
 ☒ INDICATES BENCHMARKS FOR VERTICAL CONTROL

PERMANENT EASEMENT MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+83.57	-58.08	649308.3878	1283039.4615
L	11+83.94	-42.85	649293.1891	1283040.4988
L	13+73.99	-58.48	649320.7508	1283228.2606
L	13+75.32	-77.67	649339.9896	1283228.3333
L	13+92.40	39.41	649224.2729	1283253.0367
L	14+13.50	-50.00	649314.8760	1283268.2387
L	14+15.20	125.82	649139.5469	1283281.4438
L	14+15.22	-74.90	649339.8384	1283268.3331
L	14+34.02	40.00	649226.4123	1283294.6086
L	14+53.87	115.61	649152.2625	1283319.3690

NOTE: DRAWING NOT TO SCALE

4/28/16

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO. 178P.12.R.57	SHEET NO. 1-A
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ROADWAY DESIGN
ENGINEER
NORTH CAROLINA
PROFESSIONAL
SEAL
034367
MICHAEL BAKER
ENGINEERING, INC.
4/27/2016
Michael Baker Engineering, Inc.
200 Highway 275
Raleigh, NC 27615
INTERNATIONAL REG. NO. 7-104

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL PLAN SHEET SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	TYPICAL SECTIONS
2D-1	GUARDRAIL ANCHOR UNIT DETAIL
3B-1	SUMMARY OF QUANTITIES
4	ROADWAY PLAN AND PROFILE SHEET
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION SUMMARY SHEET
X-2 THRU X-5	CROSS SECTIONS
S-1 THRU S-15	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 10-31-2014

**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.

SUBSURFACE PLANS:
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATIONS AS TO THE SUBSURFACE CONDITIONS.

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 ONE CALL: RUTHERFORD EMC AND AT&T.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

STANDARD DRAWINGS

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 Superlevation - 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 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets

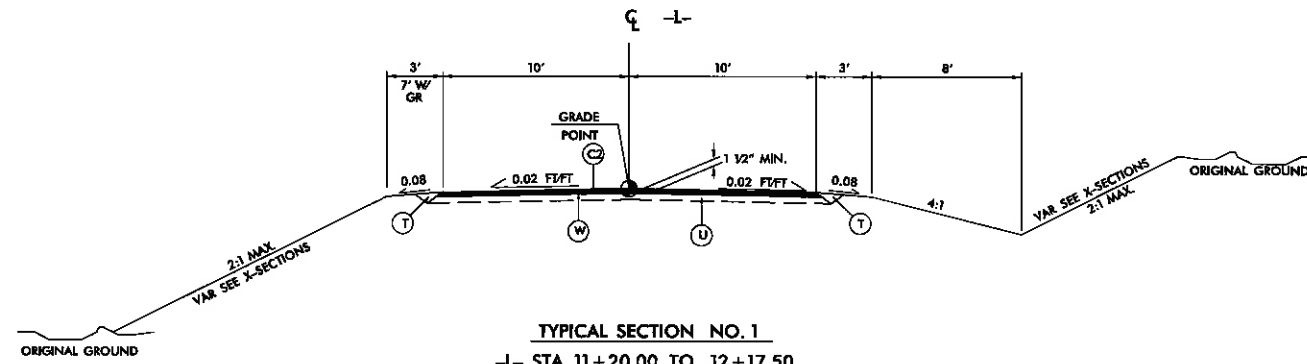
5/14/99

PAVEMENT SCHEDULE

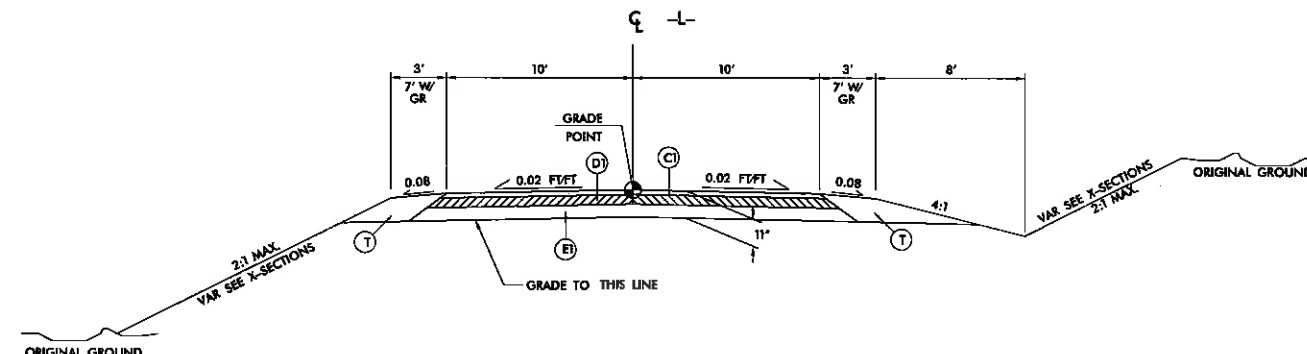
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SQ. YARD.	D2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.	E1	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS PER SQ. YARD.	U	EXISTING PAVEMENT.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 576 LBS PER SQ. YARD.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" IN DEPTH OR LESS THAN 3.0" IN DEPTH. FOR B25.0B PLACED ON UNSTABILIZED SUBGRADE, MINIMUM LIFT THICKNESS IS 4".	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

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

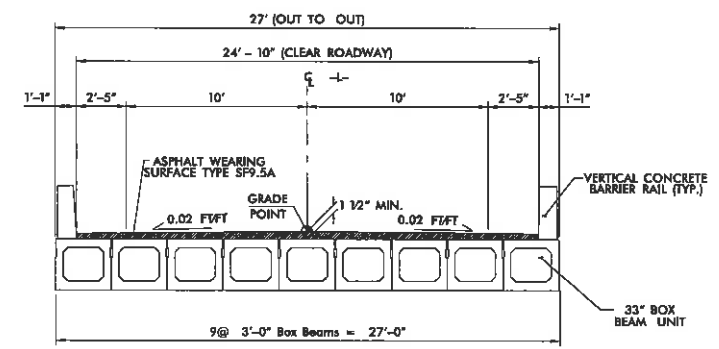
PROJECT REFERENCE NO. 17BP.12.R.57	SHEET NO. 2
RW SHEET NO.	
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



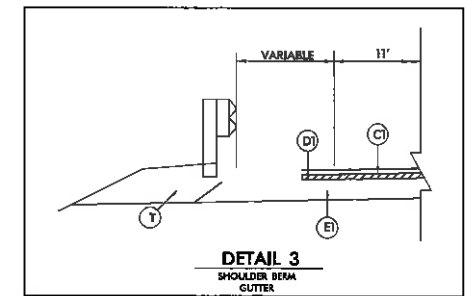
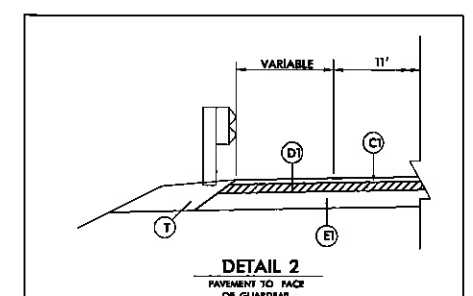
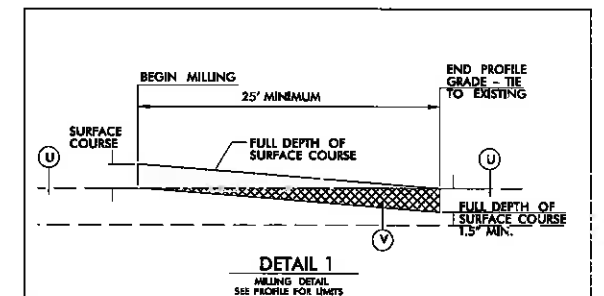
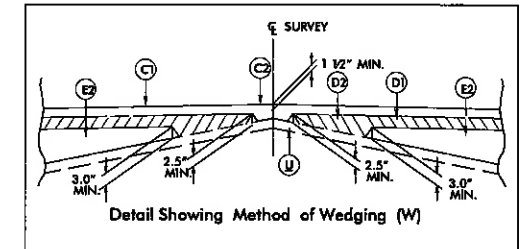
TYPICAL SECTION NO. 1
 -L- STA. 11+20.00 TO 12+17.50
 -L- STA. 13+54.75 TO 15+85.00



TYPICAL SECTION NO. 2
 -L- STA. 12+17.50 TO 12+38.88 (BEGIN BRIDGE)
 -L- STA. 13+26.13 (END BRIDGE) TO 13+54.75



TYPICAL SECTION NO. 3



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12/06/07

COMPUTED BY: DATE: CHECKED BY: DATE:

PROJECT REFERENCE NO. 17BP.12.R.57 SHEET NO. 3

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

GUARDRAIL SUMMARY

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

Table with columns: SURVEY 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 SHOULDER WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (XI MOD, XI, GRAU 350 TL-3, M-350, XIII, CAT-1, VIMOD, HI), IMPACT ATTENUATOR TYPE 350 (G, NG), SINGLE FACED CONCRETE BARRIER, REMOVE EXISTING GUARDRAIL, REMOVE & STOCKPILE EXISTING GUARDRAIL, REMARKS.

DRAINAGE SUMMARY

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

Table with columns: STATION, LOCATION (L, RT, OR C/L), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, INVERT ELEVATION, SLOPE/CRITICAL, DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), C.S. PIPE (12"-48"), R.C. PIPE CLASS III (12"-48"), R.C. PIPE CLASS IV (12"-48"), ENDWALLS (STD. 838.01, 838.11, 838.20), QUANTITIES FOR DRAINAGE STRUCTURES, TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. A * (12' X COL. B), PER EACH (IF THRU 50'), 5.0' THRU 10.0', 10.0' AND ABOVE, C.B. STD. 840.14 OR STD. 840.15, TYPE OF GRATE, CONCRETE TRANSITIONAL SECTION (DRAINAGE INLET, CATCH BASIN), FRAME, GRATES, AND HOOD STANDARD 840.03, TYPE OF GRATE (DRAINAGE INLET, CATCH BASIN), DRAINAGE INLET (D.I. STD. 840.14 OR STD. 840.15), D.I. FRAME AND 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 "C" STD. 840.19 OR 840.28, G.D.I. FRAME WITH GRATE STD. 840.20, G.D.I. FRAME WITH TWO GRATES STD. 840.21, G.D.I. (M.S.) FRAME WITH GRATE STD. 840.24, G.D.I. (M.S.) FRAME WITH TWO GRATES STD. 840.24, CONCRETE C.B. TO D.I., T.B.D.I. STD. 840.35, T.B.D.I. (H.S.) FRAME WITH TWO GRATES STD. 840.29, CONVERT C.B. TO J.S.M.H., MODIFIED CONCRETE FLUME, DRAINAGE PIPE ELBOWS NO. & SIZE, CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71, CONC. COLLARS CL "B" C.Y. STD. 840.72, PIPE REMOVAL LN. FT., REMARKS, ABBREVIATIONS (C.B., N.D.I., D.I., G.D.I. (M.S.), J.B., M.H., T.B.D.I., T.B.J.B., CATCH BASIN, NARROW DROP INLET, DROP INLET, GRATED DROP INLET, (NARROW SLOT) JUNCTION BOX, MANHOLE, TRAFFIC BEARING DROP INLET, TRAFFIC BEARING JUNCTION BOX).

EARTHWORK SUMMARY

Table with columns: STATION, EXCAVATION (TOTAL UNCLASS., UNDERCUT), EMBANK (EMBANK., BORROW), WASTE (TOTAL).

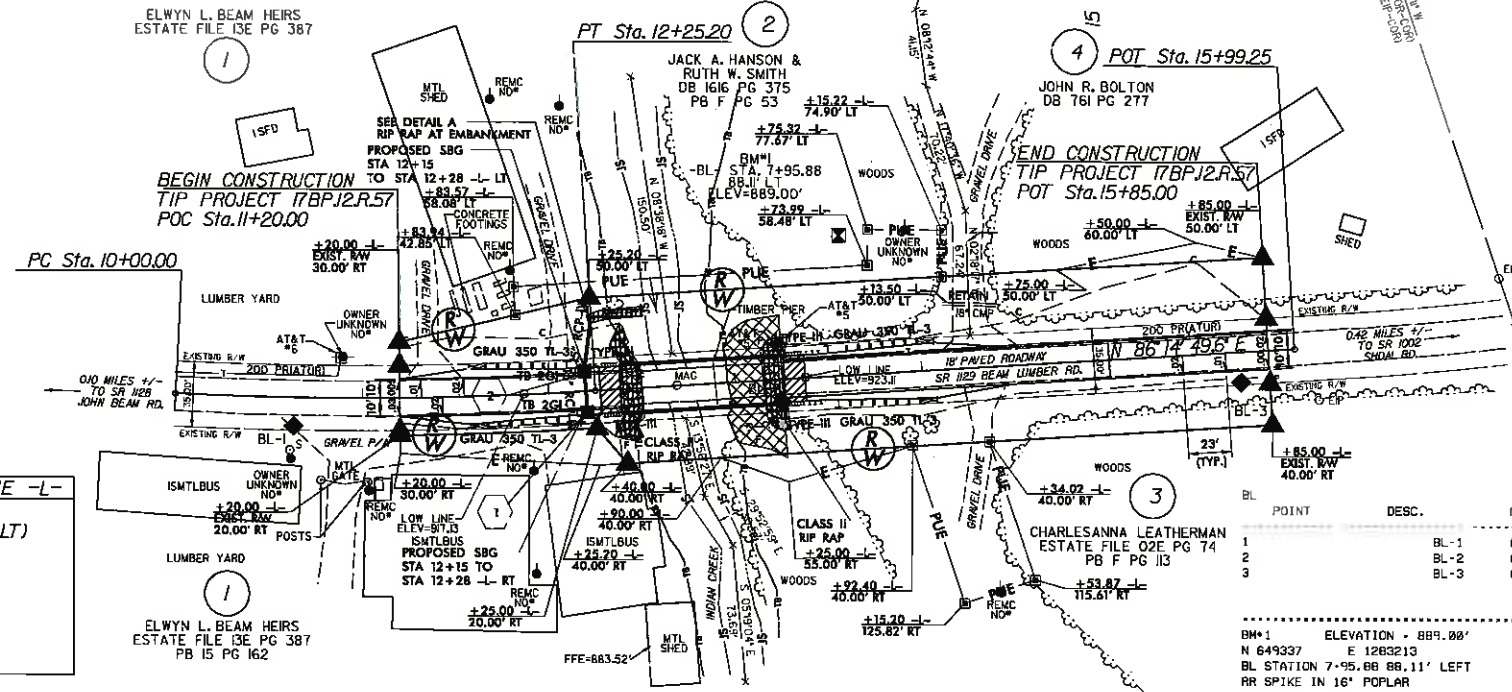
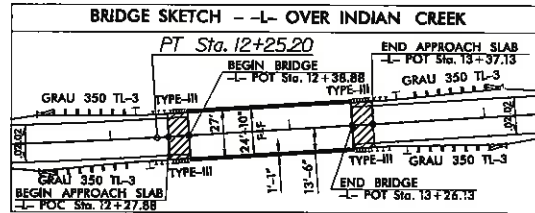
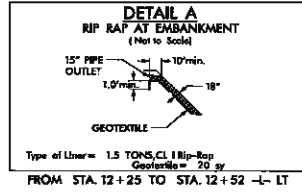
PAVEMENT REMOVAL SUMMARY

Table with columns: SURVEY LINE, STATION, LOCATION (L/RT/C/L), YD', TOTAL, SAY.

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

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8/17/09

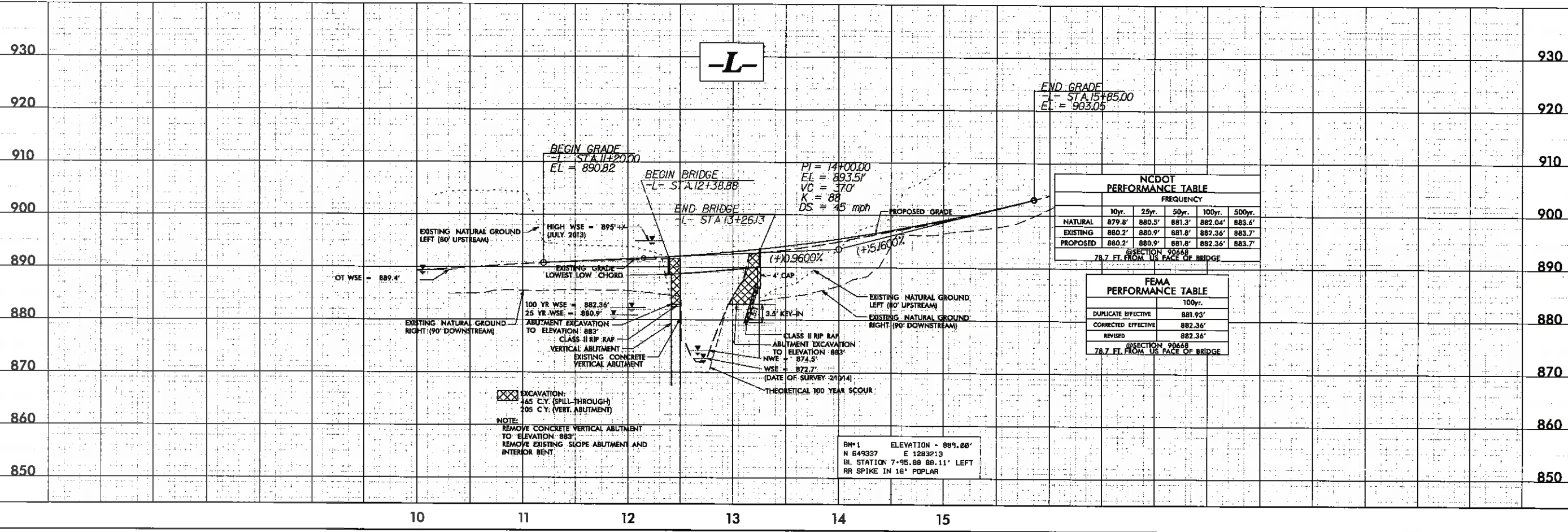


CURVE DATA FOR LINE -L-

PI Sta 11+12.72
 $\Delta = 6^\circ 27' 05.3\" (LT)$
 $D = 2^\circ 51' 53.2\"$
 $L = 225.20'$
 $T = 112.72'$
 $R = 2,000.00'$
 $SE = 0.04$
 $RUNOFF = 92'$
 $DS = 60 \text{ mph}$

BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	BL-1	64°233.4187	1282921.8261	889.29	10+63.55	15.19 RT
2	BL-2	64°247.1382	1283183.2337	892.42	13+24.24	12.83 RT
3	BL-3	64°269.9774	1283428.1788	901.15	15+69.44	16.13 RT

BM#1 ELEVATION = 889.88'
 N 649337 E 1283213
 BL STATION 7+95.88 88.11' LEFT
 RR SPIKE IN 16' POPLAR



NC DOT PERFORMANCE TABLE

	FREQUENCY				
	10yr.	25yr.	50yr.	100yr.	500yr.
NATURAL	879.8'	880.5'	881.3'	882.04'	883.4'
EXISTING	880.2'	880.9'	881.8'	882.36'	883.7'
PROPOSED	880.2'	880.9'	881.8'	882.36'	883.7'

SECTION 90668
 78.7 FT. FROM US FACE OF BRIDGE

FEMA PERFORMANCE TABLE

	100yr.
	DUPLICATE EFFECTIVE
CORRECTED EFFECTIVE	882.36'
REVISED	882.36'

SECTION 90668
 78.7 FT. FROM US FACE OF BRIDGE

EXCAVATION:
 145 C.Y. (SPILL-THROUGH)
 205 C.Y. (VERT. ABUTMENT)

NOTE:
 REMOVE CONCRETE VERTICAL ABUTMENT TO ELEVATION 883'
 REMOVE EXISTING SLOPE ABUTMENT AND INTERIOR BENT

BM#1 ELEVATION = 889.88'
 N 649337 E 1283213
 BL STATION 7+95.88 88.11' LEFT
 RR SPIKE IN 16' POPLAR

PROJECT REFERENCE NO. 17BP.12.R.57	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034367 DODD H. BUCKNER 09/27/2016	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036683 MELANIE NGUYEN 07/2016
Michael Baker Engineering, Inc. 1900 S. Salisbury Blvd. Charlotte, NC 28203-1704 Tel: 704.366.1000 Fax: 704.366.1001	M Engineering, Pllc 1011 South Oaks Raleigh, NC 27605-3756 Tel: 919.877.1000 Fax: 919.877.1001
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

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 USER: todd.buckner

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	⊙
Property Corner	⊗
Property Monument	⊠
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	-o-o-o-
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	-XX- ☠
Potential Soil Contamination: Area or Site	-XX- ☠

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or UG Tank Cap	○
Sign	⊙
Well	⊙
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	_____
False Sump	_____

RAILROADS:

Standard Gauge	_____
RR Signal Milepost	_____
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	_____
Proposed Right of Way Line with Iron Pin and Cap Marker	_____
Proposed Right of Way Line with Concrete or Granite RW Marker	_____
Proposed Control of Access Line with Concrete C/A Marker	_____
Existing Control of Access	_____
Proposed Control of Access	_____
Existing Easement Line	_____
Proposed Temporary Construction Easement	_____
Proposed Temporary Drainage Easement	_____
Proposed Permanent Drainage Easement	_____
Proposed Permanent Drainage / Utility Easement	_____
Proposed Permanent Utility Easement	_____
Proposed Temporary Utility Easement	_____
Proposed Aerial Utility Easement	_____
Proposed Permanent Easement with Iron Pin and Cap Marker	_____

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____
Existing Curb	_____
Proposed Slope Stakes Cut	_____
Proposed Slope Stakes Fill	_____
Proposed Curb Ramp	_____
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	_____

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	_____
Bridge Wing Wall, Head Wall and End Wall	_____
MINOR:	
Head and End Wall	_____
Pipe Culvert	_____
Footbridge	_____
Drainage Box: Catch Basin, DI or JB	_____
Paved Ditch Gutter	_____
Storm Sewer Manhole	_____
Storm Sewer	_____

UTILITIES:

POWER:	
Existing Power Pole	_____
Proposed Power Pole	_____
Existing Joint Use Pole	_____
Proposed Joint Use Pole	_____
Power Manhole	_____
Power Line Tower	_____
Power Transformer	_____
UG Power Cable Hand Hole	_____
H-Frame Pole	_____
Recorded UG Power Line	_____
Designated UG Power Line (S.U.E.*)	_____

TELEPHONE:

Existing Telephone Pole	_____
Proposed Telephone Pole	_____
Telephone Manhole	_____
Telephone Booth	_____
Telephone Pedestal	_____
Telephone Cell Tower	_____
UG Telephone Cable Hand Hole	_____
Recorded UG Telephone Cable	_____
Designated UG Telephone Cable (S.U.E.*)	_____
Recorded UG Telephone Conduit	_____
Designated UG Telephone Conduit (S.U.E.*)	_____
Recorded UG Fiber Optics Cable	_____
Designated UG Fiber Optics Cable (S.U.E.*)	_____

WATER:

Water Manhole	_____
Water Meter	_____
Water Valve	_____
Water Hydrant	_____
Recorded UG Water Line	_____
Designated UG Water Line (S.U.E.*)	_____
Above Ground Water Line	_____

TV:

TV Satellite Dish	_____
TV Pedestal	_____
TV Tower	_____
UG TV Cable Hand Hole	_____
Recorded UG TV Cable	_____
Designated UG TV Cable (S.U.E.*)	_____
Recorded UG Fiber Optic Cable	_____
Designated UG Fiber Optic Cable (S.U.E.*)	_____

GAS:

Gas Valve	_____
Gas Meter	_____
Recorded UG Gas Line	_____
Designated UG Gas Line (S.U.E.*)	_____
Above Ground Gas Line	_____

SANITARY SEWER:

Sanitary Sewer Manhole	_____
Sanitary Sewer Cleanout	_____
UG Sanitary Sewer Line	_____
Above Ground Sanitary Sewer	_____
Recorded SS Forced Main Line	_____
Designated SS Forced Main Line (S.U.E.*)	_____

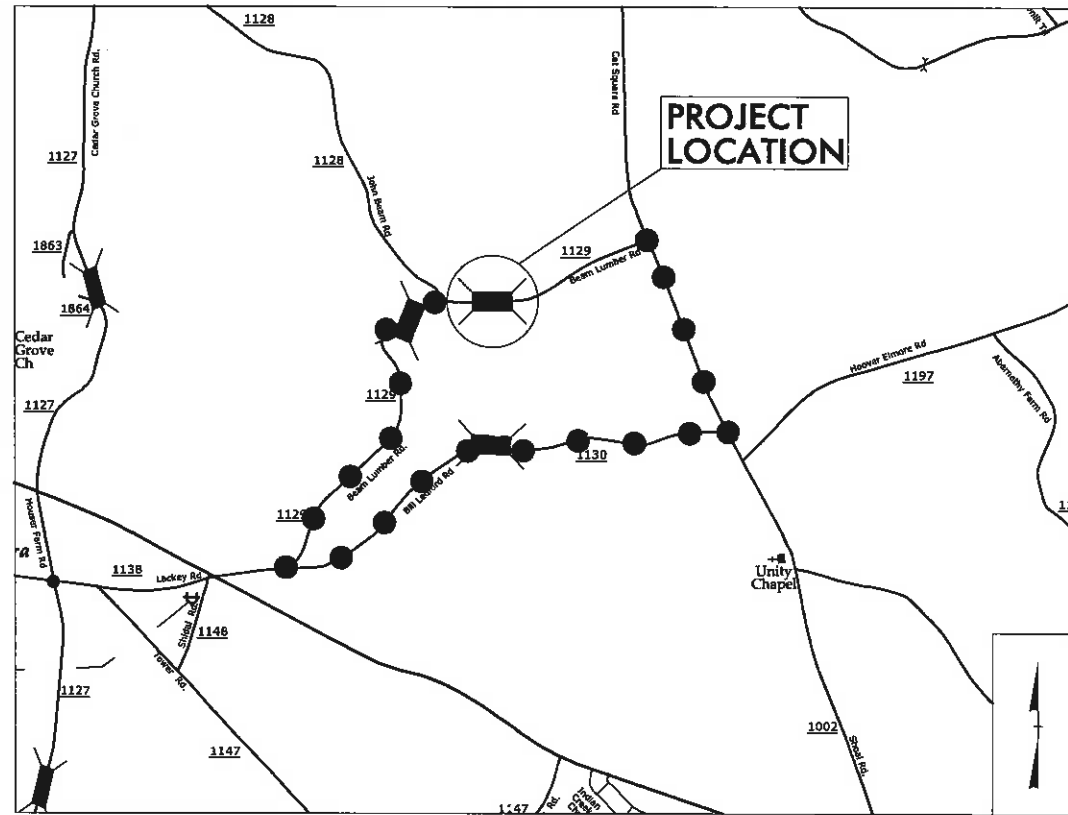
MISCELLANEOUS:

Utility Pole	_____
Utility Pole with Base	_____
Utility Located Object	_____
Utility Traffic Signal Box	_____
Utility Unknown UG Line	_____
UG Tank; Water, Gas, Oil	_____
Underground Storage Tank, Approx. Loc.	_____
AG Tank; Water, Gas, Oil	_____
Geoenvironmental Boring	_____
UG Test Hole (S.U.E.*)	_____
Abandoned According to Utility Records	_____
End of Information	_____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

LINCOLN COUNTY



VICINITY MAP
(NOT TO SCALE)

●●●●●
DETOUR ROUTE

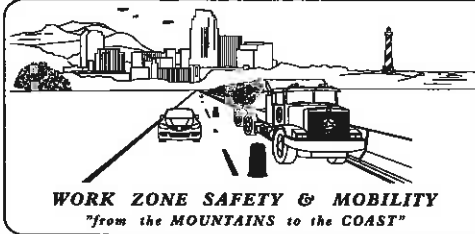
INDEX OF SHEETS	
SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	GENERAL NOTES AND PHASING
TMP-2	OFFSITE DETOUR PLAN - BEAM LUMBER ROAD (SR 1129)
TMP-3	BEAM LUMBER ROAD SIGN DESIGN

SHEET NO.
TMP-1

17BP.12.R.57

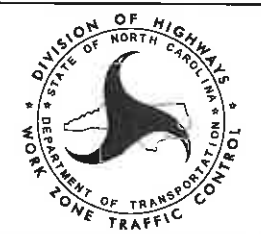
TIP PROJECT:

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



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
BYRON ENGLE, PE DIVISION TRAFFIC ENGINEER
TODD H. BUCKNER, PE TRAFFIC CONTROL PROJECT ENGINEER



Michael Baker Engineering, Inc.
Michael Baker
INTERNATIONAL
8000 Regency Pkwy
Suite 600
Cary, NC 27518
NC License: F-1084

APPROVED: _____
DATE: 4/27/2016

SEAL

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USER: todd.buckner

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

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
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
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

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APPROVED: _____ DATE: 4/27/2016 10670118778433... 		<h2 style="margin: 0;">ROADWAY STANDARD DRAWINGS & LEGEND</h2>
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 Suite 600
 Cary, NC 27518
 INTERNATIONAL NC License: F-1084

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

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

- D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION. COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

G) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS, INSTALL 2 APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL SURFACE, ACCORDING TO RSD 1205.01, 1205.02 AND 1205.12.

PHASING NOTES

TRAFFIC CONTROL PHASING

NOTES: COORDINATE WITH THE ENGINEER FOR INSTALLATION AND REMOVAL OF ALL SIGNING AND TRAFFIC CONTROL DEVICES.

STEP 1: USING RSD 1101.01, SHEET 3 OF 3, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON BEAM LUMBER ROAD (SR 1129).

STEP 2: USING RSD 1101.03, SHEET 1 OF 9 AND SHEET TMP-2, INSTALL DETOUR SIGNS AND BARRICADES AND CLOSE BEAM LUMBER ROAD (SR 1129).

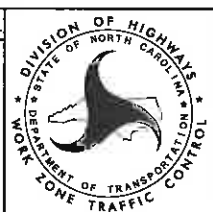
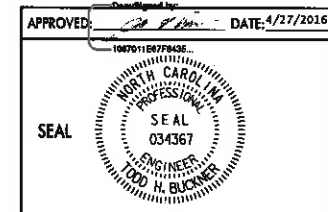
STEP 3: REMOVE EXISTING BRIDGE NO. 87 AND CONSTRUCT PROPOSED BRIDGE AND ROADWAY, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE FINAL PAVEMENT MARKINGS ON BEAM LUMBER ROAD (SR 1129) FROM STA. 10+45.00 TO STA. 15+00.00.

STEP 4: REMOVE ALL ADVANCE WORK ZONE DETOUR SIGNS AND TRAFFIC CONTROL DEVICES AND OPEN BEAM LUMBER ROAD (SR 1129) TO TRAFFIC.

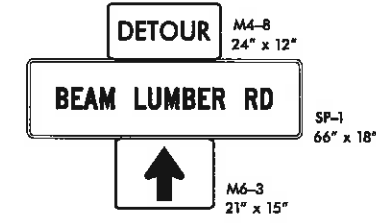
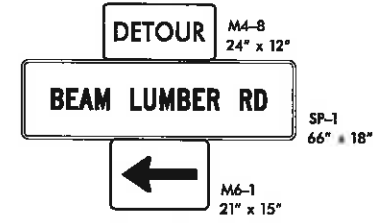
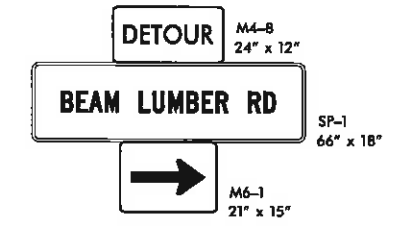
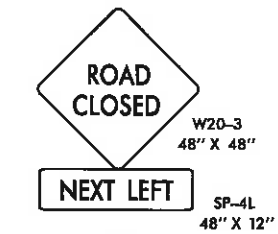
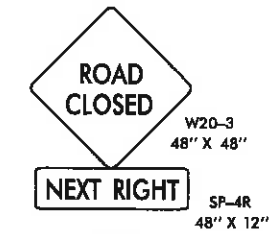
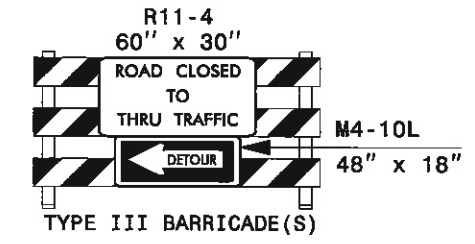
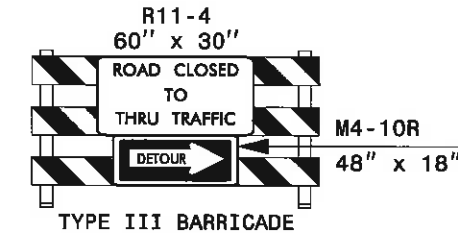
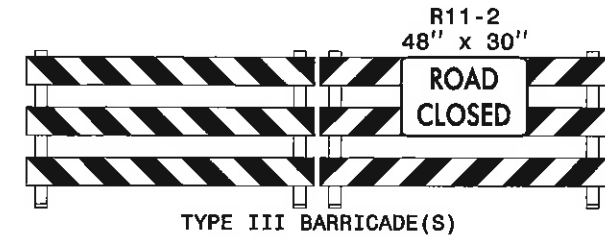
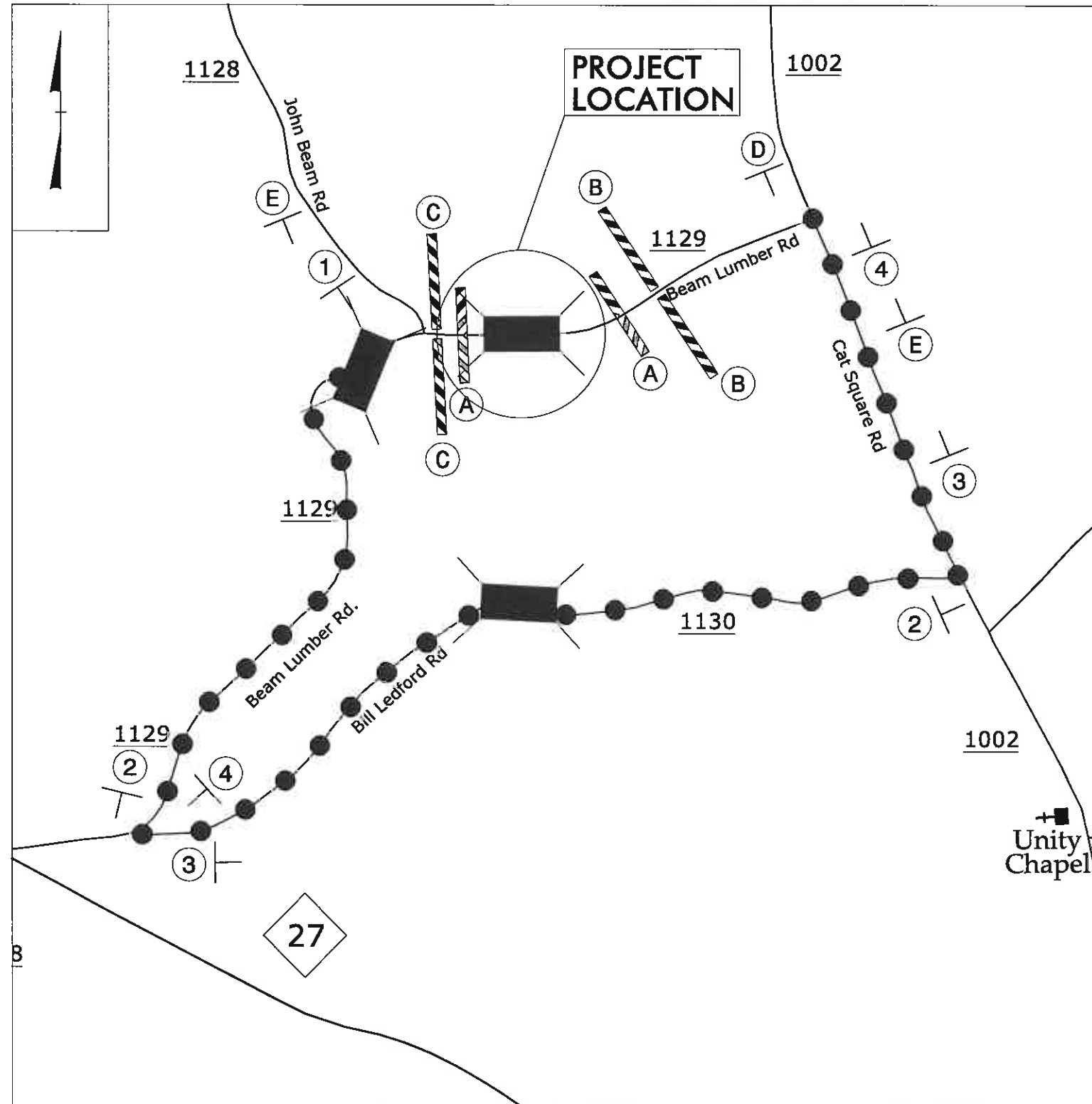
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 USER: TODDLBUCKNER

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 NC License: F-1084



GENERAL NOTES
AND PHASING



●●●●●
DETOUR ROUTE

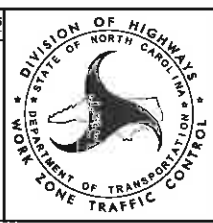
REFER TO RSD 1101.03, SHEET 1 OF 9, FOR
ADDITIONAL SIGN AND BARRICADE PLACEMENT

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USER: todd.buckner

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APPROVED: [Signature] DATE: 4/27/2016
108701123778426
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
034367
TODD H. BUCKNER



OFFSITE DETOUR PLAN
BEAM LUMBER ROAD
(SR 1129)

SIGN NUMBER: DET-1 BACKG COLOR: Fluorescent Orange DESIGN BY: _____ CHECKED BY: _____ DATE: Sept 9, 2014
 TYPE: STATIONARY COPY COLOR: Black PROJECT ID: 17BP.12.R.57 DIV: 12

QUANTITY: SEE PLANS
 SIGN WIDTH: 6'-6"
 HEIGHT: 1'-6"
 TOTAL AREA: 9.8 Sq.Ft.

BORDER TYPE: FLUSH
 RECESS: 0"
 WIDTH: 0.63"
 RADII: 1.5"

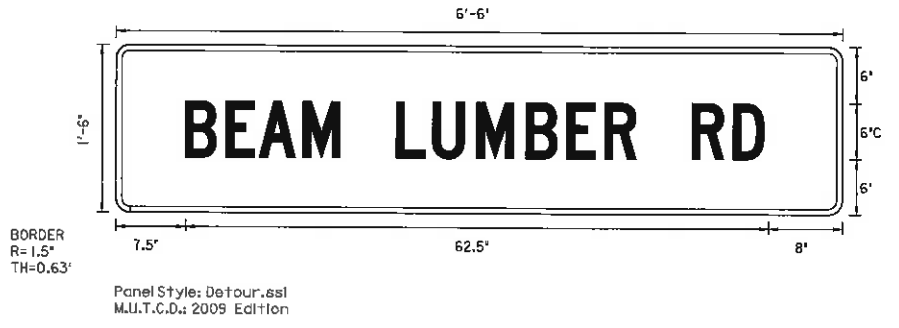
NO. Z BARS: _____
 LENGTH: _____

SYMBOL	X	Y	WID	HT

MAT'L: 1.6 mm ALUMINUM

USE NOTES: 1,2

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



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter														Series/Size	
B	E	A	M	L	U	M	B	E	R	R	D				Text Length
7.5	11.9	15.5	20.1	24.1	30.1	34	38.7	44	48.3	52.4	55.8	61.8	66.2		C 2000 62.5

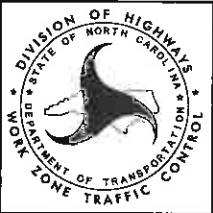
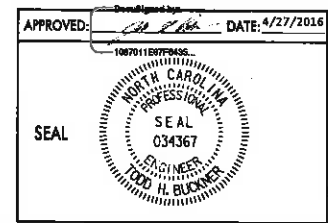
FILENAME: BD-5112AA_tc_sign

NORTH CAROLINA D.O.T. SIGN DETAIL

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 USER: TODD.BUCKNER

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 Michael Baker
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 6000 Regency Pkwy
 Suite 600
 Cary, NC 27518
 NC License: F-1084



SPECIAL SIGN DESIGN
 BEAM LUMBER RD

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

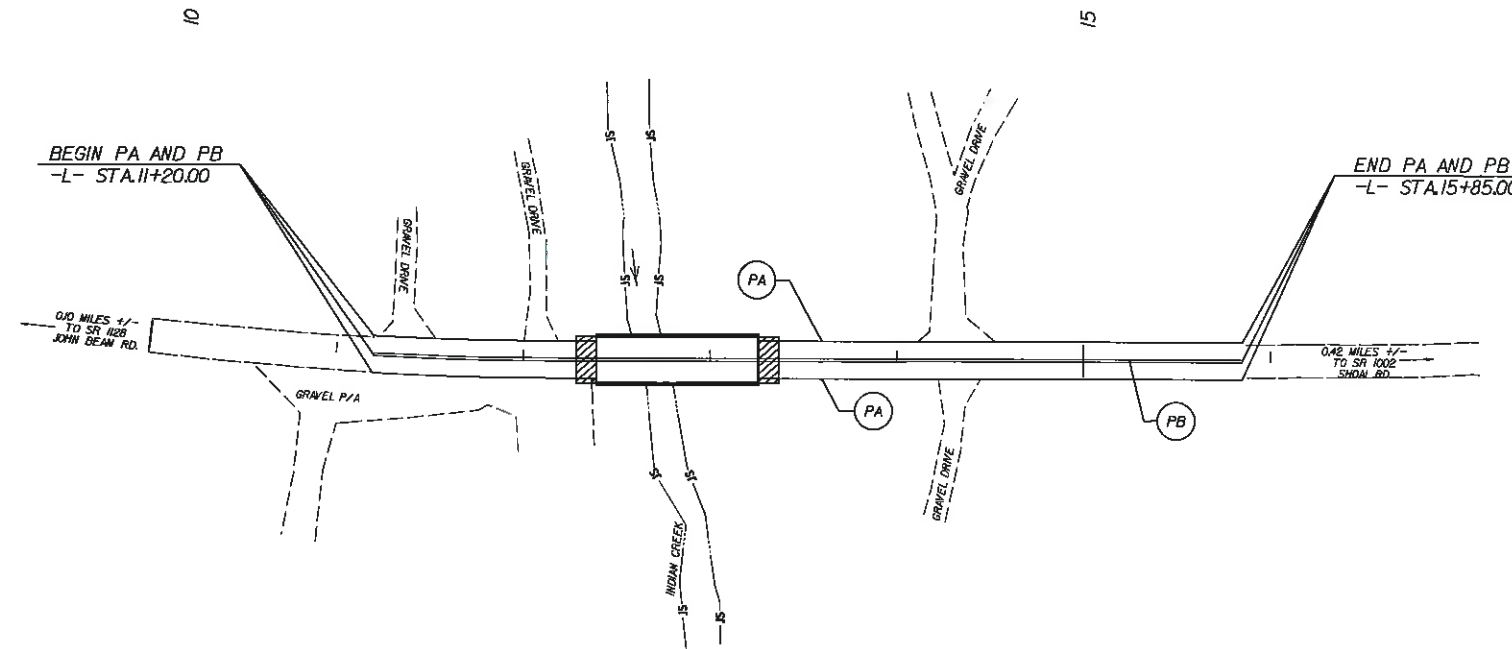
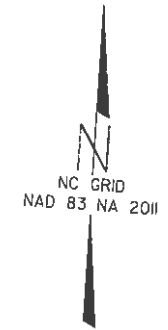
PAVEMENT MARKING PLAN

LINCOLN COUNTY

**PAVEMENT MARKING
SCHEDULE**

SYMBOL	DESCRIPTION (PAINT - 4")
PA	WHITE EDGELINE
PB	YELLOW DOUBLE CENTER

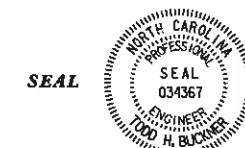
NOTE: FINAL PAINT TO BE A DOUBLE COAT.



NOTE: NOT TO SCALE

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APPROVED: [Signature]
DATE: 4/27/2016



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USER: TODBUCK\T

SHEET NO.

PMP-1

WBS ELEMENT: 17BP.12.R.57

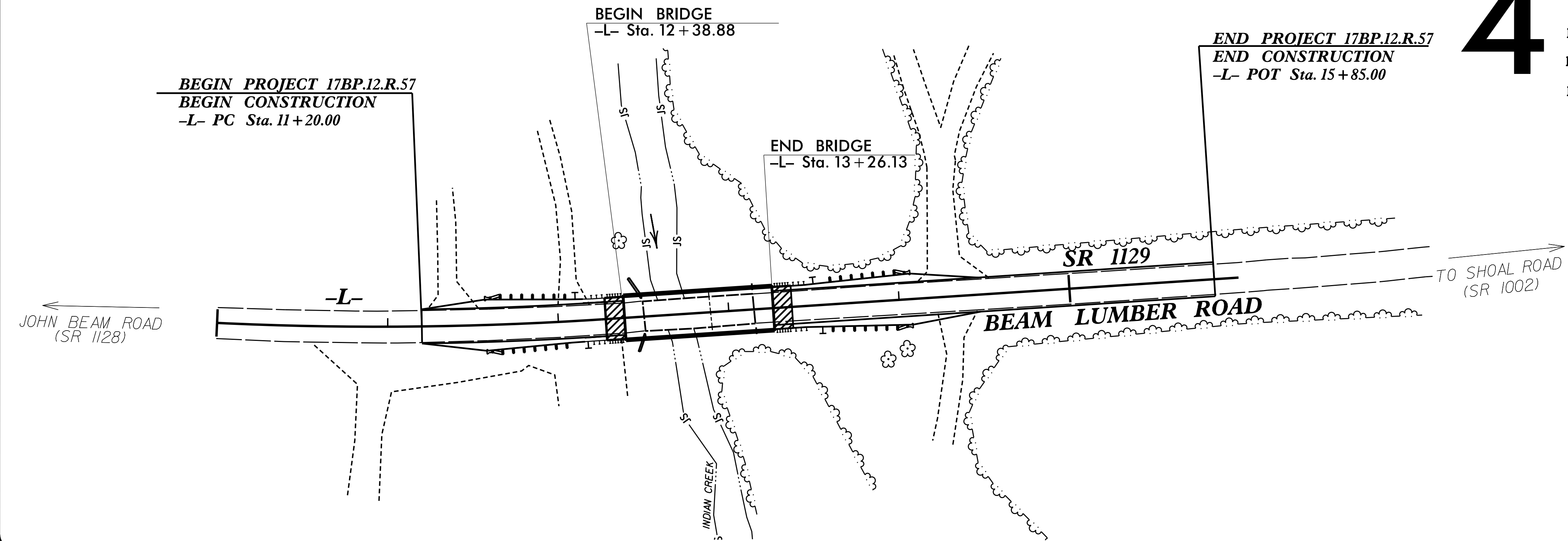
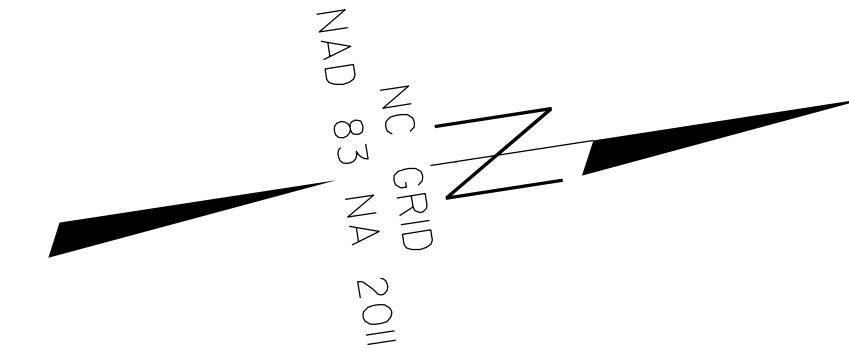
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N.C.	17BP.12.R.57	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

TIP PROJECT: 17BP.12.R.57

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

**LOCATION: STRUCTURE NO. 115 OVER INDIAN CREEK
ON SR 1129**

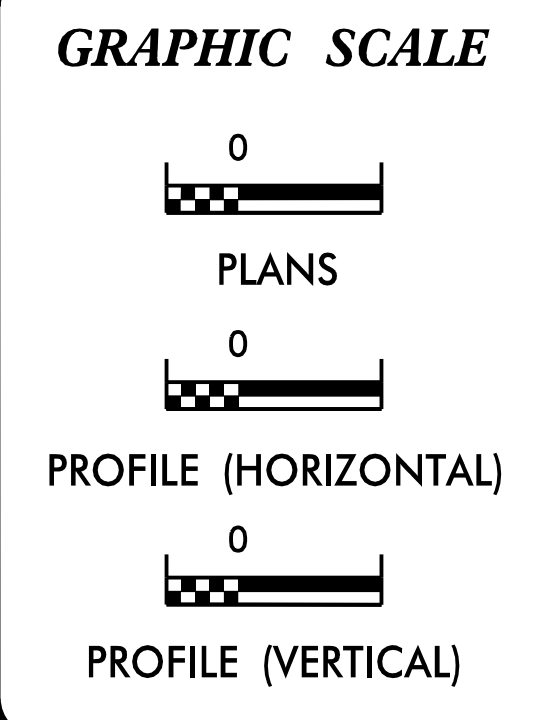
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	— m —
1630.05	Temporary Diversion	— m —
1605.01	Temporary Silt Fence	— III — III — III —
1606.01	Special Sediment Control Fence	— X X X X X X X X —
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	— [Symbol] —
1633.01	Temporary Rock Silt Check Type-A	— [Symbol] —
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	— [Symbol] —
1633.02	Temporary Rock Silt Check Type-B	— [Symbol] —
	Wattle / Coir Fiber Wattle	— [Symbol] —
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	— [Symbol] —
1634.01	Temporary Rock Sediment Dam Type-A	— [Symbol] —
1634.02	Temporary Rock Sediment Dam Type-B	— [Symbol] —
1635.01	Rock Pipe Inlet Sediment Trap Type-A	— [Symbol] —
1635.02	Rock Pipe Inlet Sediment Trap Type-B	— [Symbol] —
1630.04	Stilling Basin	— [Symbol] —
1630.06	Special Stilling Basin	— [Symbol] —
	Rock Inlet Sediment Trap:	
1632.01	Type A	— [Symbol] —
1632.02	Type B	— [Symbol] —
1632.03	Type C	— [Symbol] —
	Skimmer Basin	— [Symbol] —
	Tiered Skimmer Basin	— [Symbol] —
	Infiltration Basin	— [Symbol] —

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



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

Prepared In the Office of:
MI-ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606

Designed by:
MELANIE NGUYEN 3223
NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

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 revision 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	

PROJECT REFERENCE NO. 17BPJ2.R.57	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

NOTES:

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

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

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

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

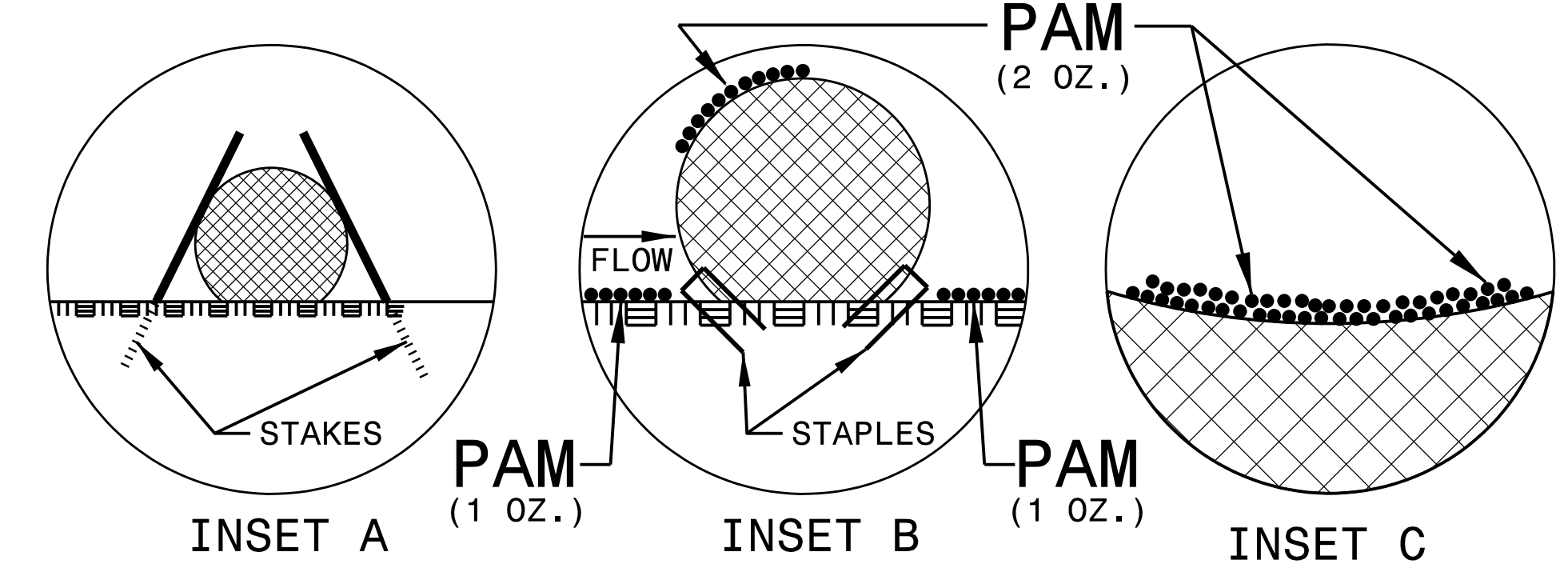
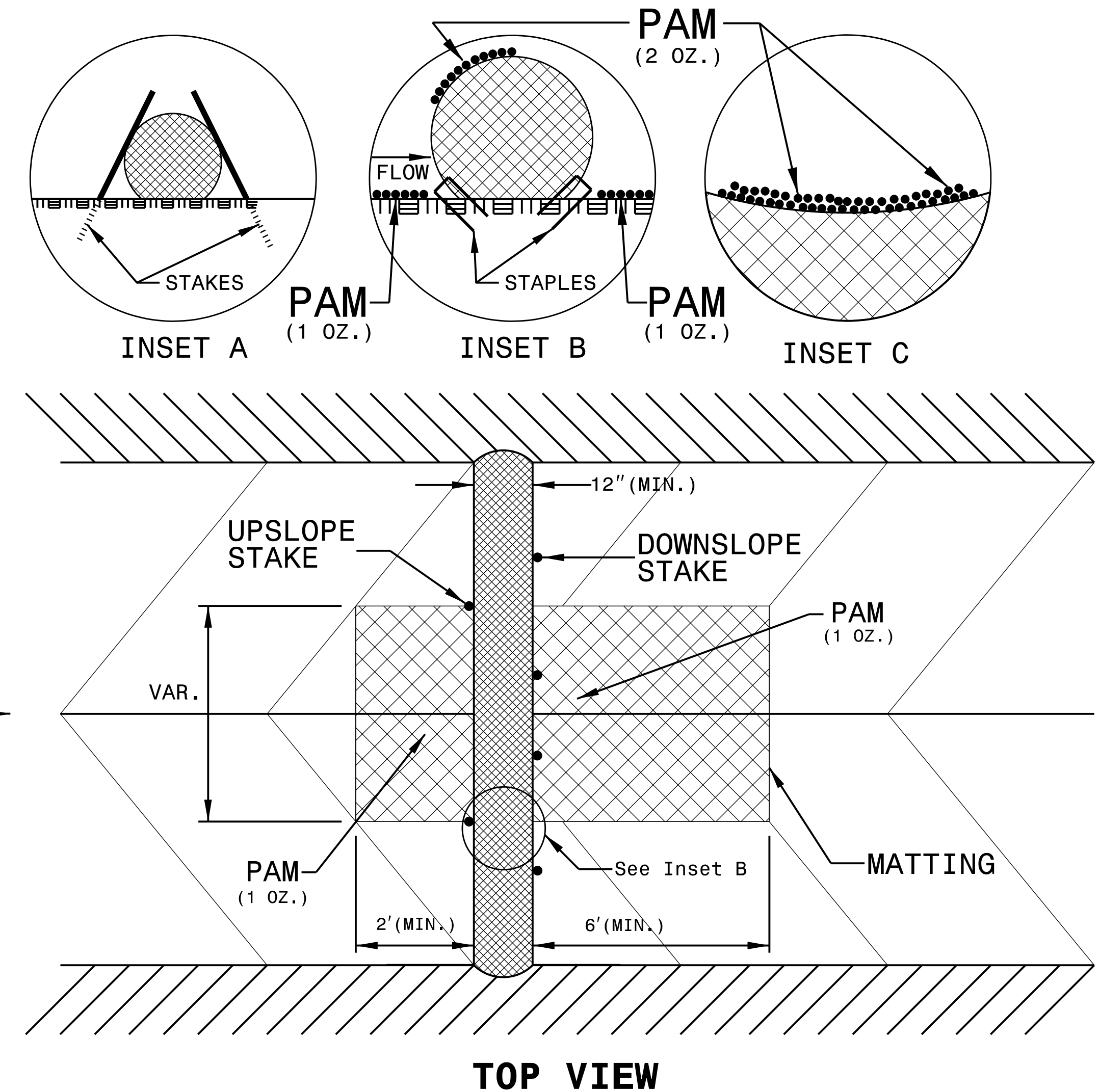
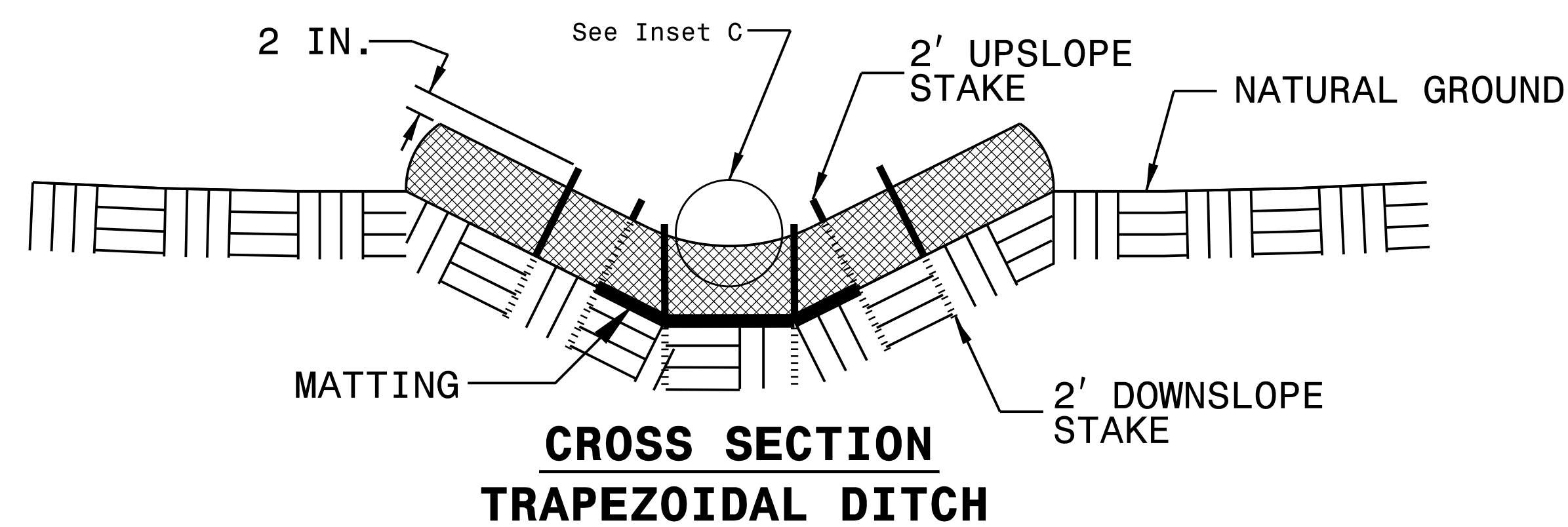
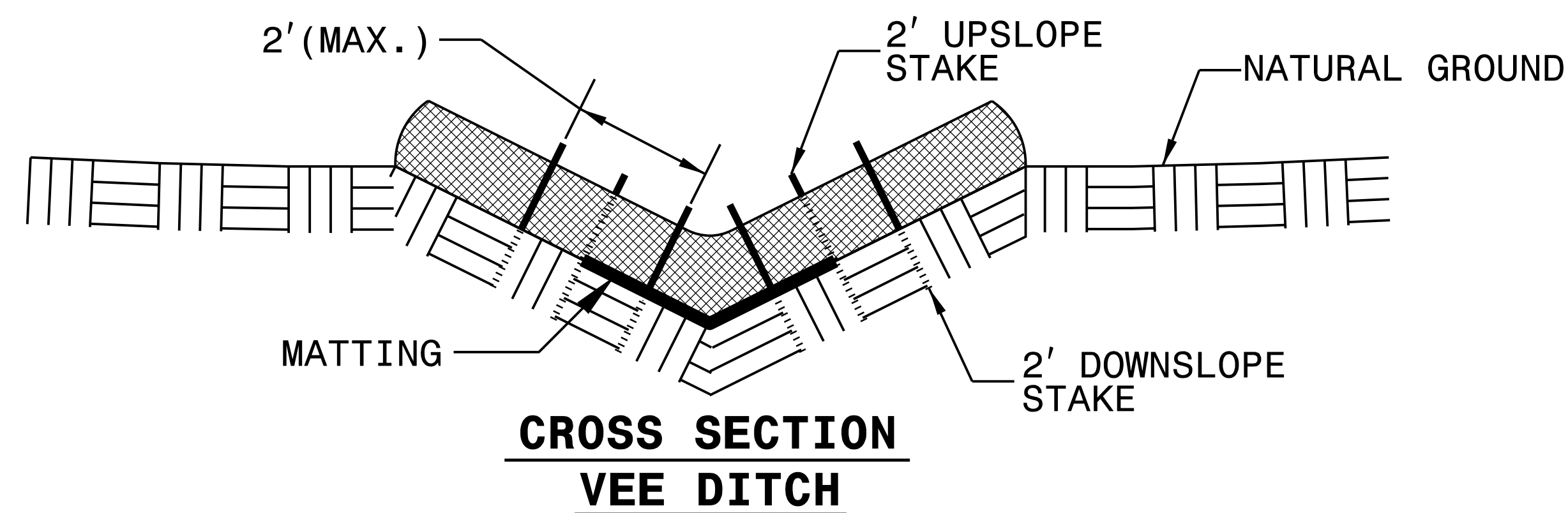
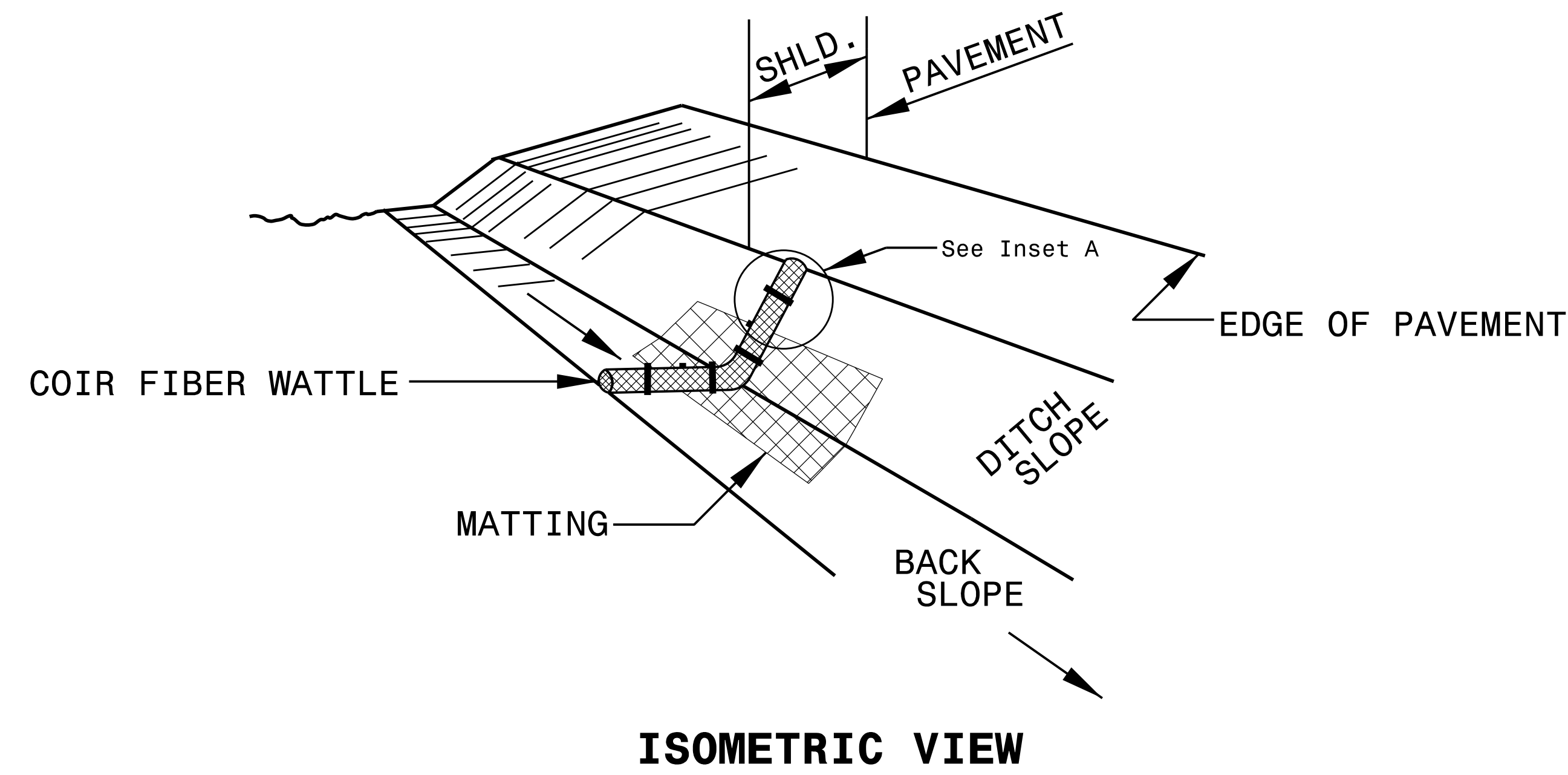
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

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

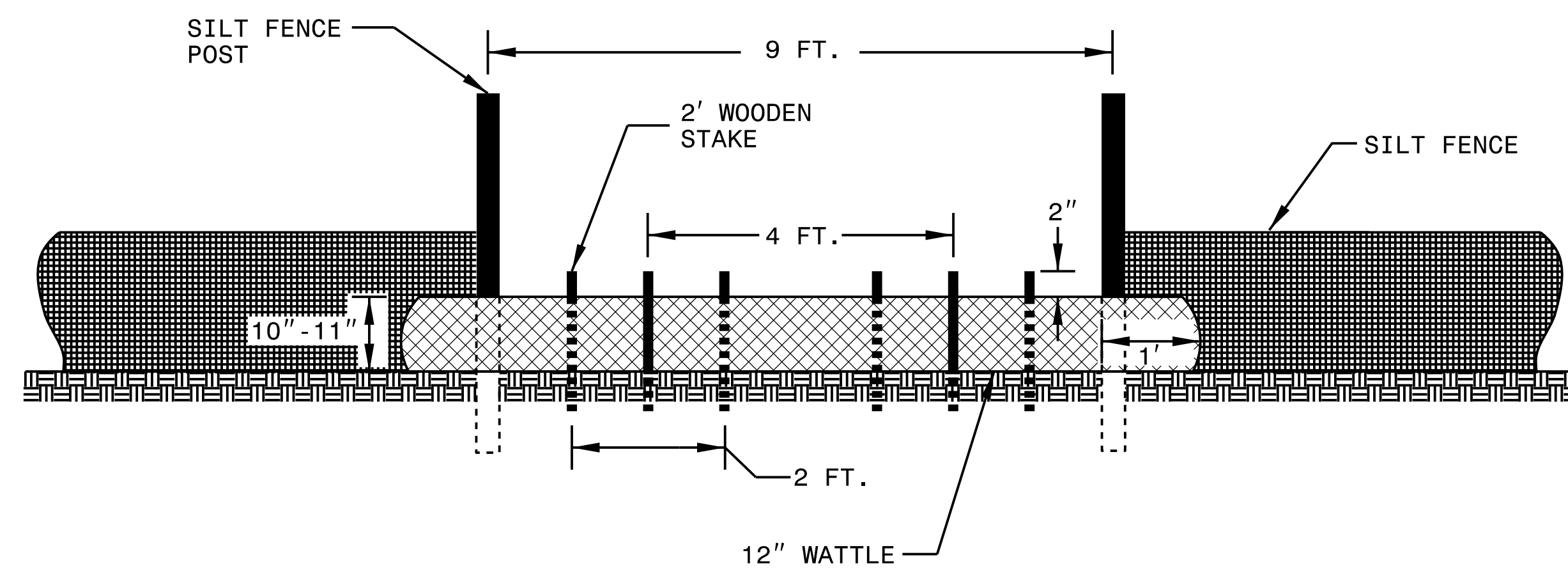
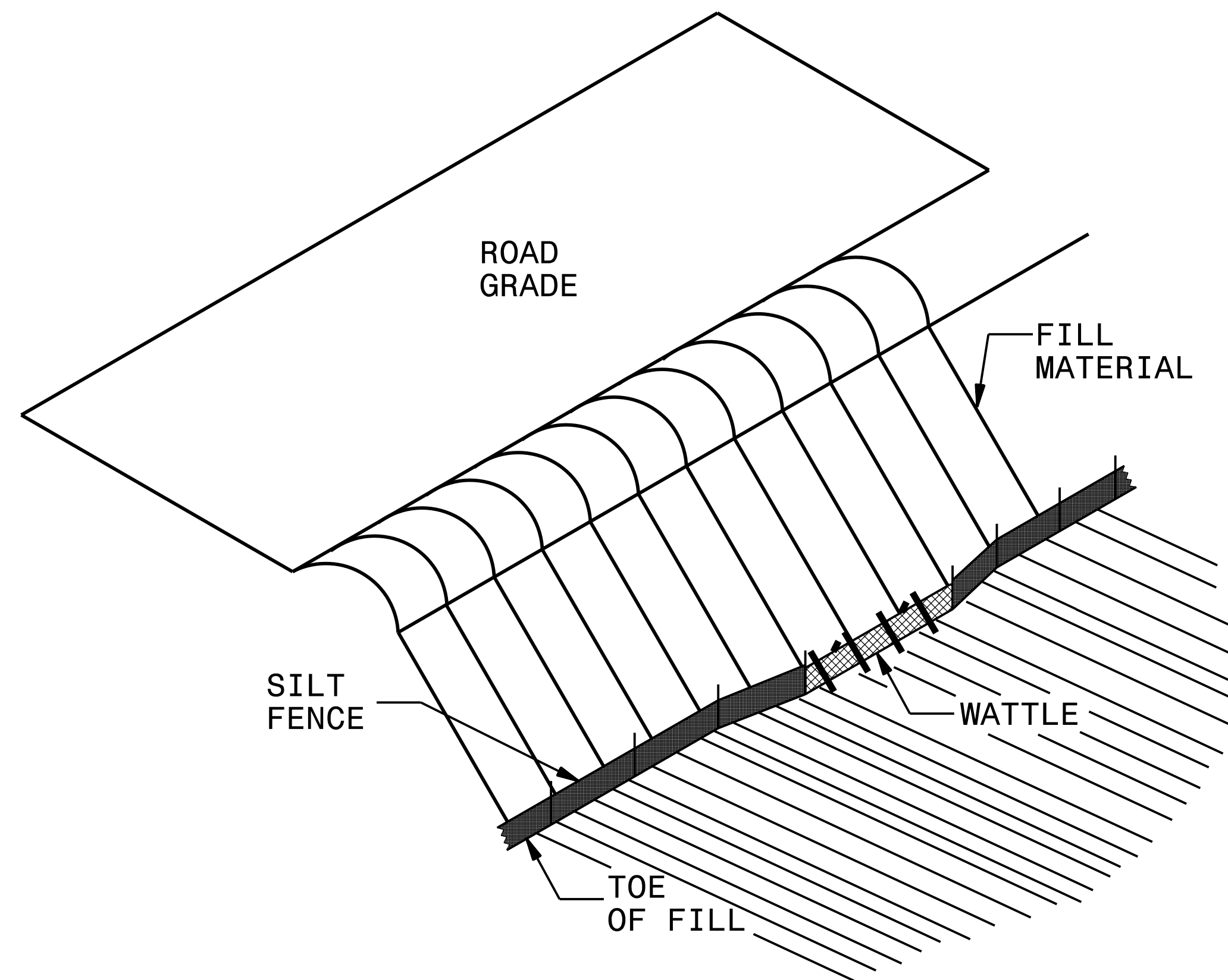
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

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



SILT FENCE COIR FIBER WATTLE BREAK DETAIL

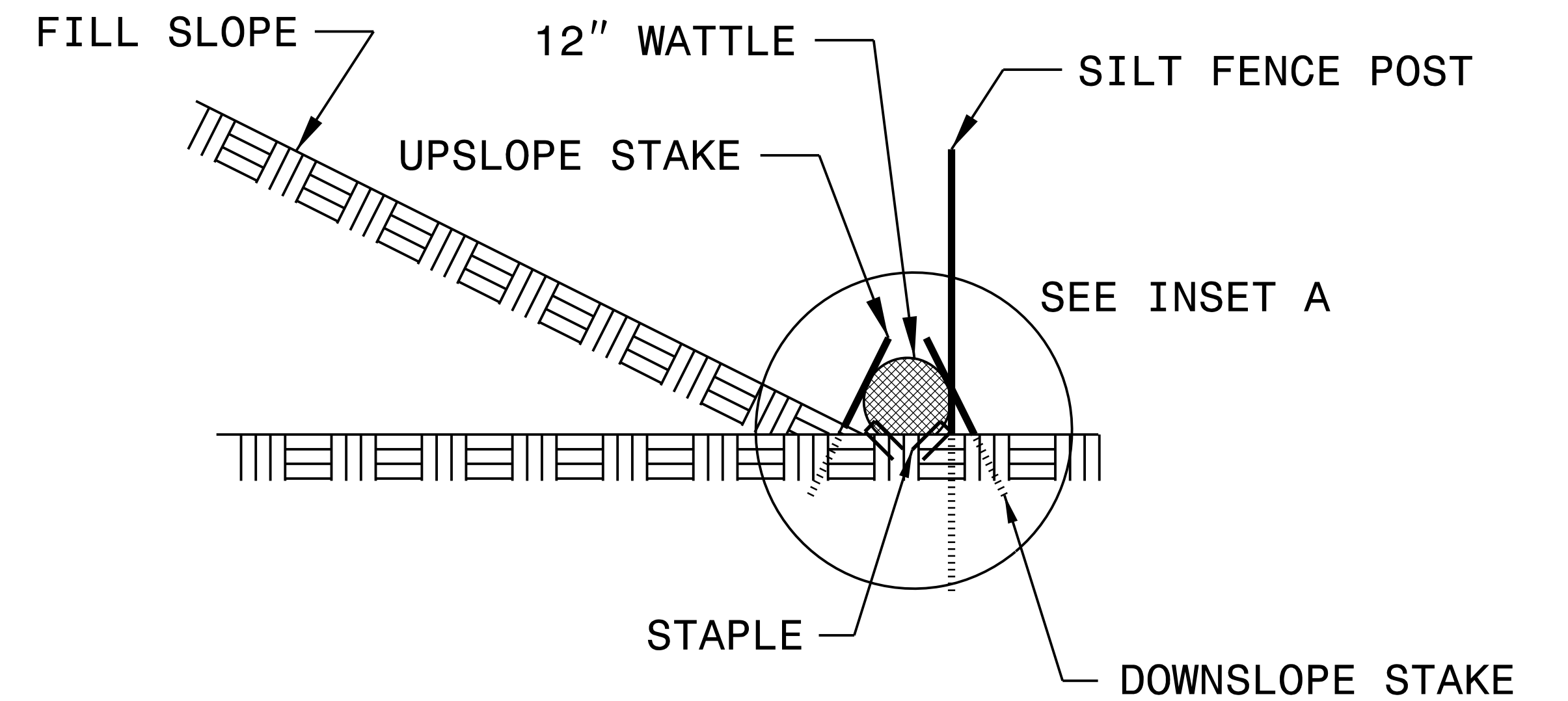
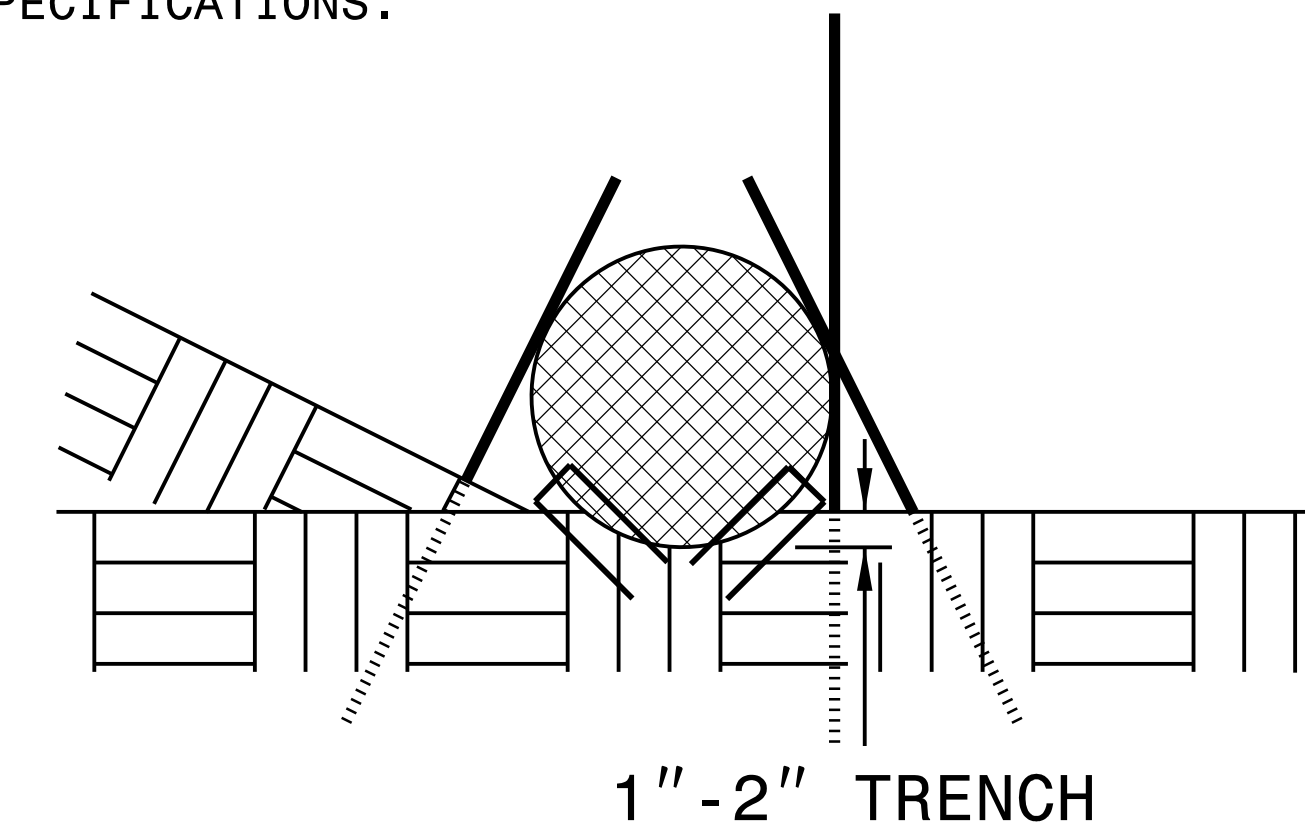
PROJECT REFERENCE NO. 17BPJ2R.57	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BPJ2R.57	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

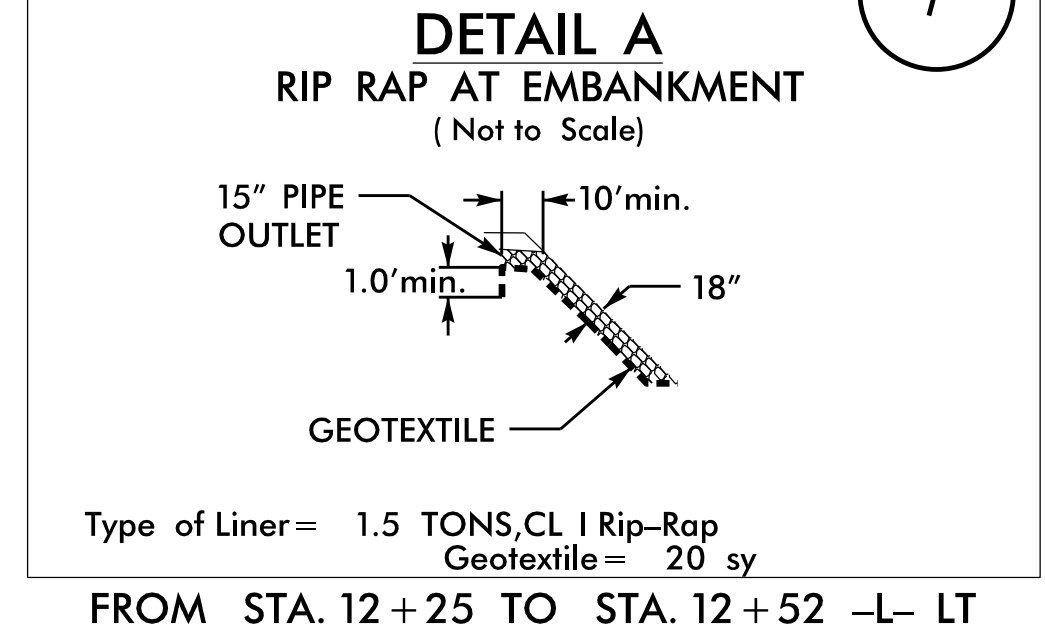
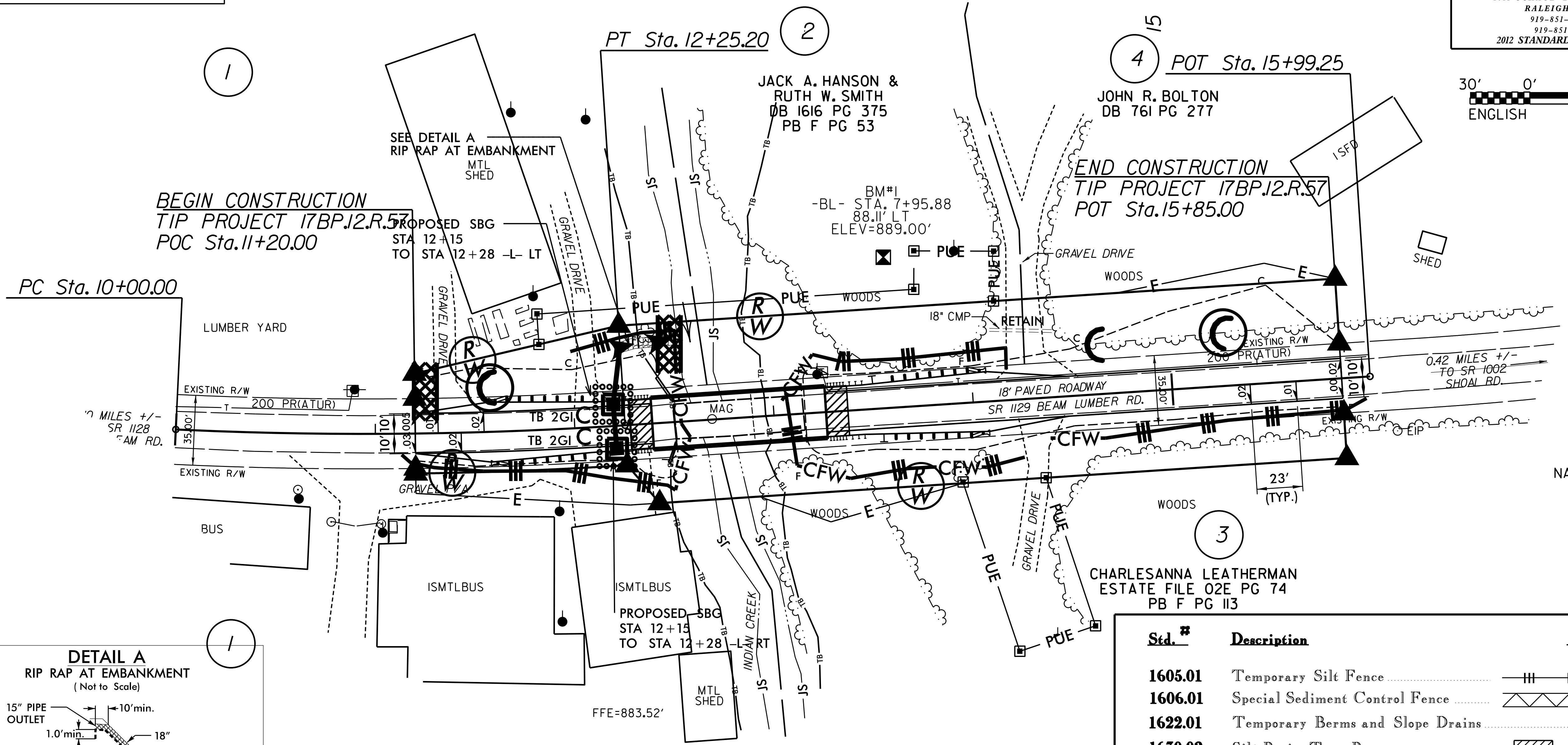
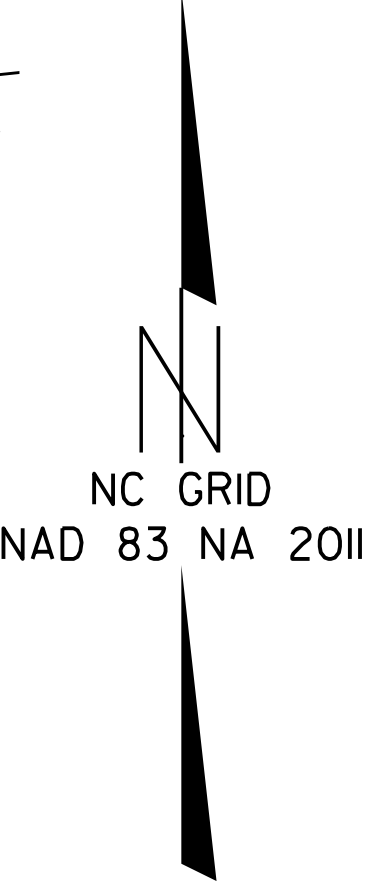
SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
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

PROJECT REFERENCE NO. 17BP.12.R.57 SHEET NO. EC-04/CONST.04
 Prepared by: **MI ENGINEERING, PLLC**
 Design by: Melanie Nguyen, PE
 Level III: Designer of Erosion and Sediment Control Plans
 Certification Number: 3223
 1011 SCHAU DRIVE, SUITE 100
 RALEIGH, NC 27606
 919-851-6606 (PH)
 919-851-6645 (F)
 2012 STANDARD SPECIFICATIONS

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.
 ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.



Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▤ ▤ ▤ ▤ ▤ ▤ ▤ ▤ ▤ ▤
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	▨
1630.03	Temporary Silt Ditch	— TD —
1630.05	Temporary Diversion	— TD —
1630.06	Special Stilling Basin	—
1632.03	Rock Inlet Sediment Trap Type C	□
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	⤿
	Wattle with Polyacrylamide (PAM)	⤿
1634.02	Temporary Rock Sediment Dam Type-B	▣
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⤿

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKS, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) 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 HOW ZONES.

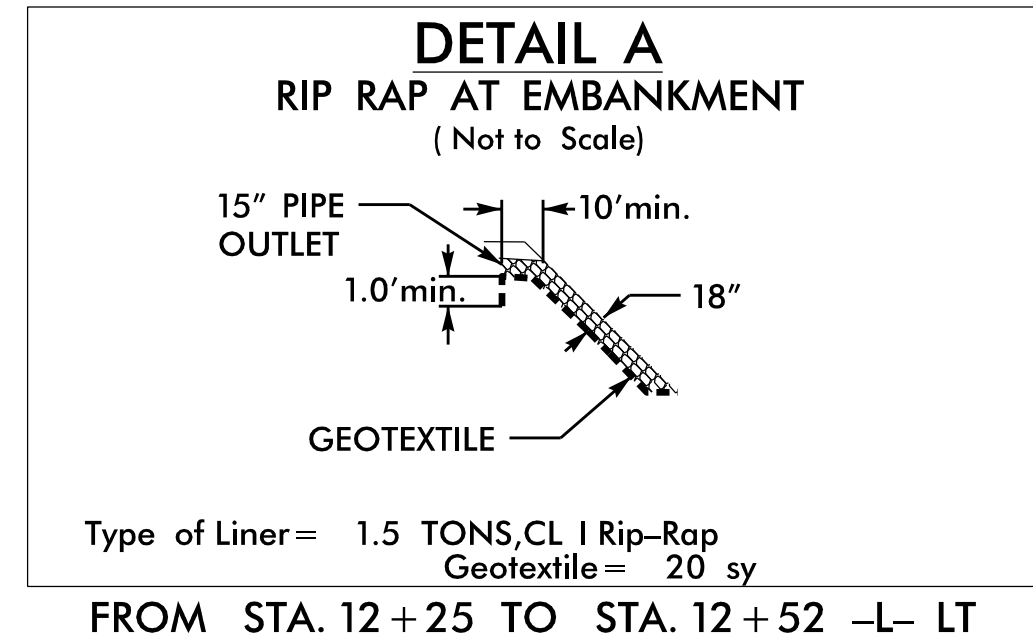
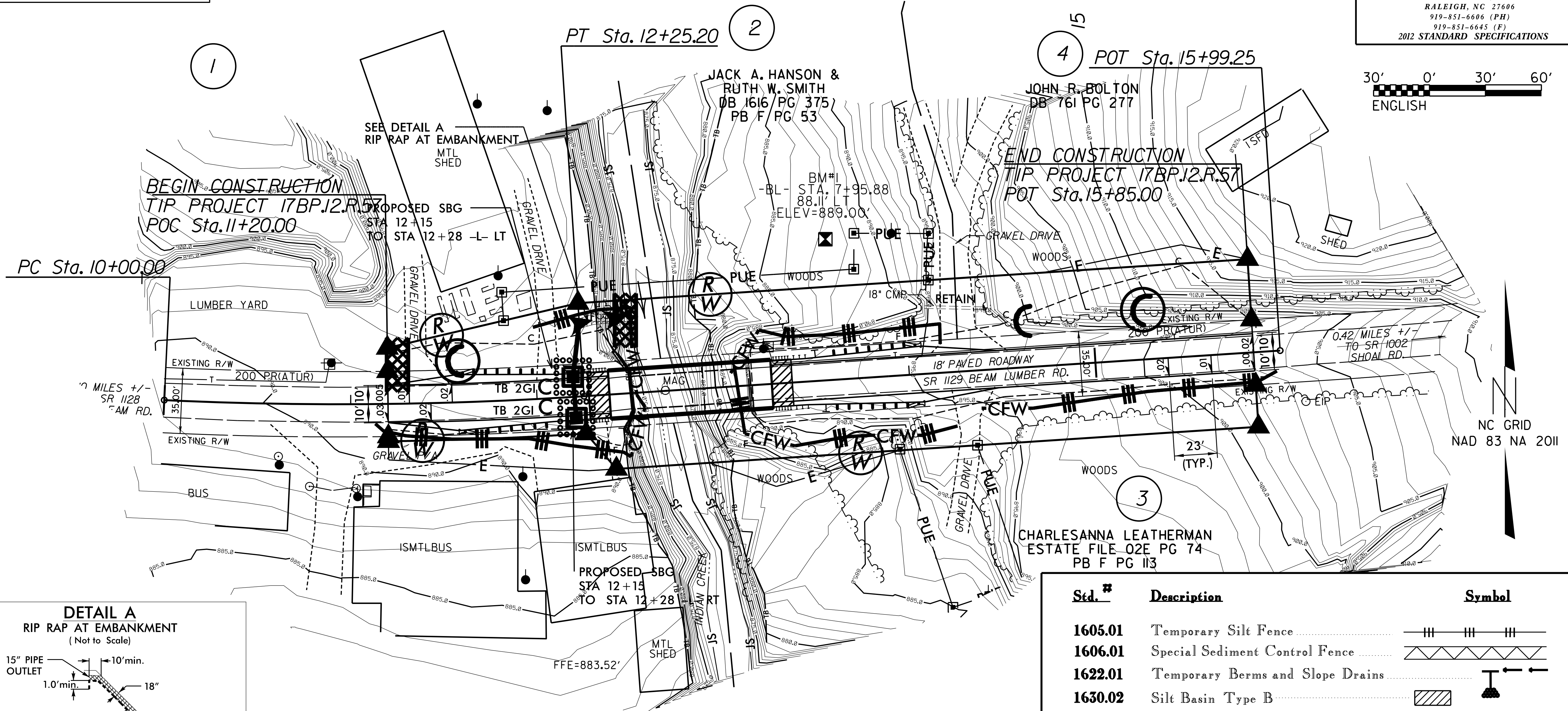
REVISIONS

8.17.99
 17BP.12.R.57-EC-04/CONST.04

EROSION CONTROL PLAN

PROJECT REFERENCE NO. **17BPJ2.R.57** SHEET NO. **EC-05/CONST.04**
 Prepared by:
MI ENGINEERING, PLLC
 Design by: Melanie Nguyen, PE
 Level III: Designer of Erosion and Sediment Control Plans
 Certification Number: 3223
 1011 SCHAU DRIVE, SUITE 100
 RALEIGH, NC 27606
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 ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.



Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▤ ▤ ▤ ▤ ▤
1622.01	Temporary Berms and Slope Drains	— TSD —
1630.02	Silt Basin Type B	▨
1630.03	Temporary Silt Ditch	— TD —
1630.05	Temporary Diversion	→ TD →
1630.06	Special Stilling Basin	—
1632.03	Rock Inlet Sediment Trap Type C	□
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	⤿
	Wattle with Polyacrylamide (PAM)	⤿
1634.02	Temporary Rock Sediment Dam Type-B	▤ ▤ ▤ ▤ ▤
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⤿

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKS, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) 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 HOW ZONES.

REVISIONS

8.17.99
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WBS ELEMENT: 17BP.12.R.57

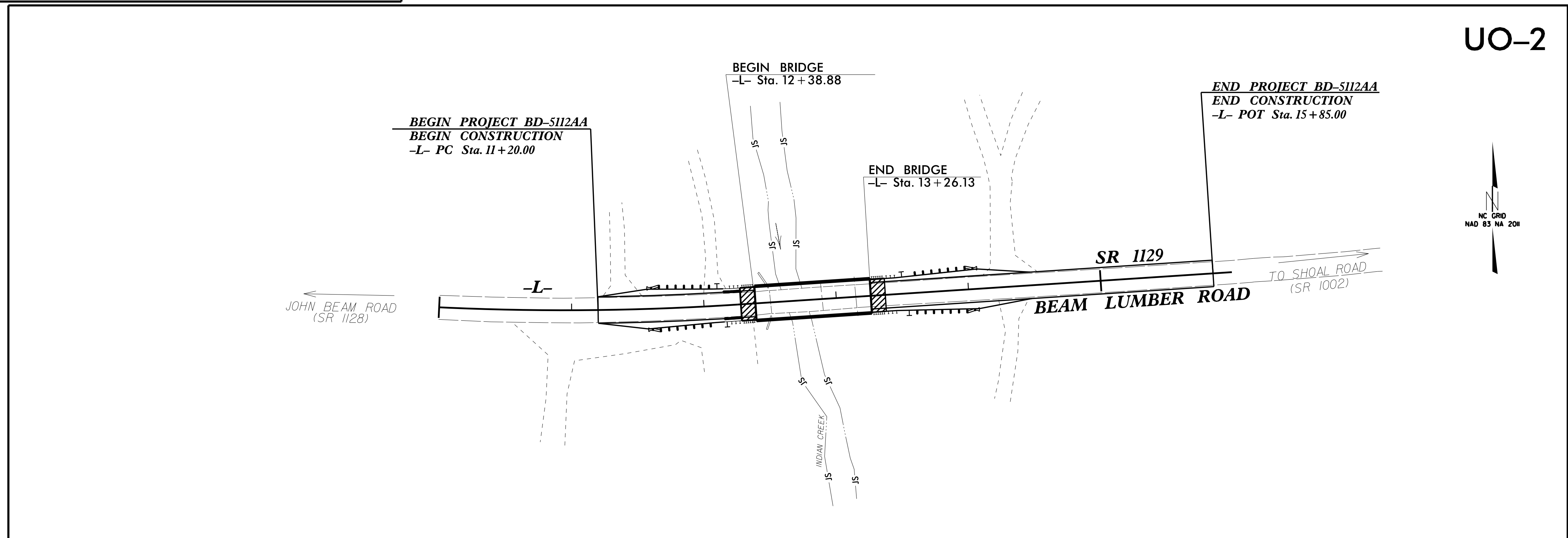
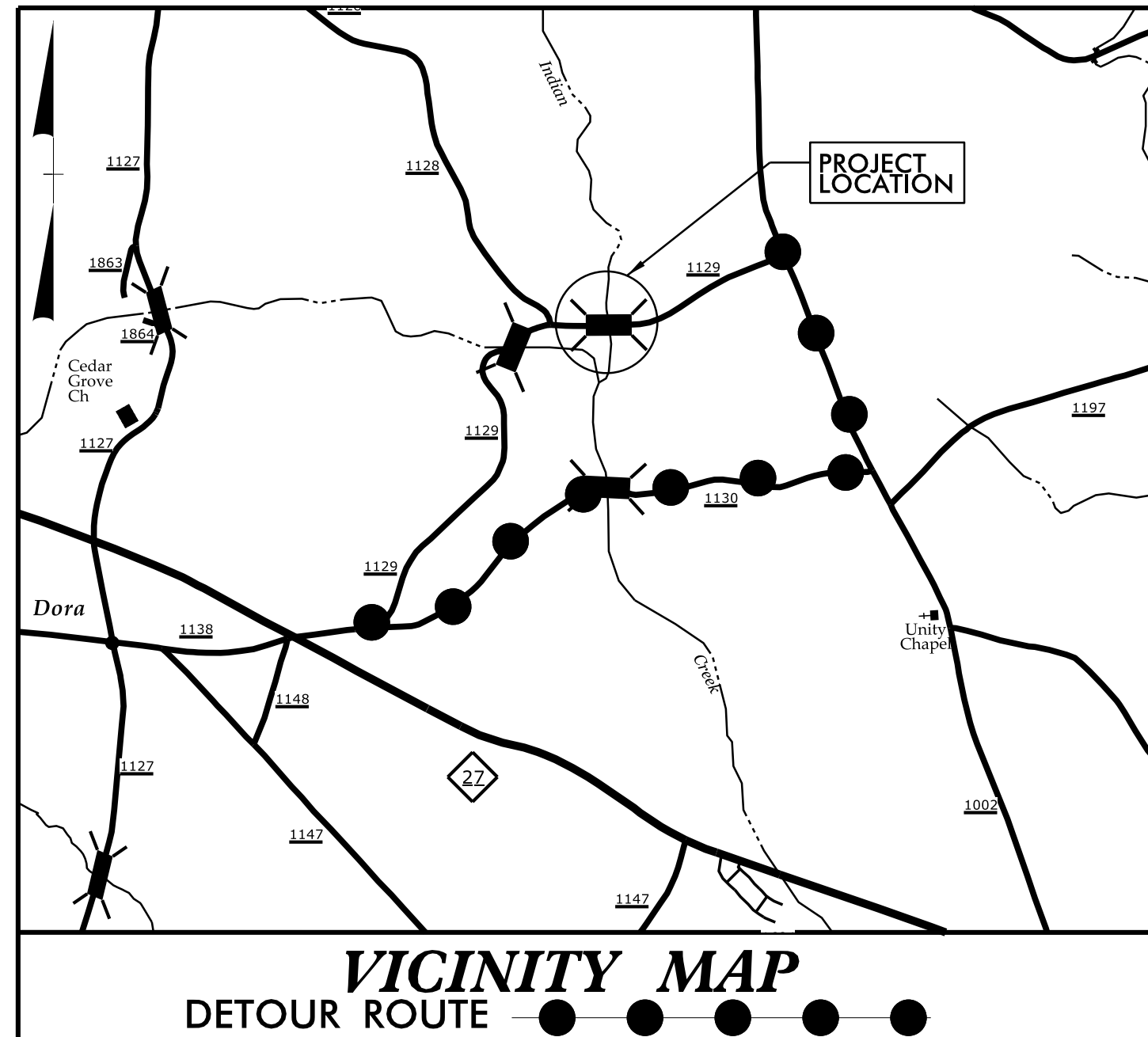
STATE PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.57	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLAN LINCOLN COUNTY

LOCATION: STRUCTURE NO. 115 OVER INDIAN CREEK
ON SR 1129

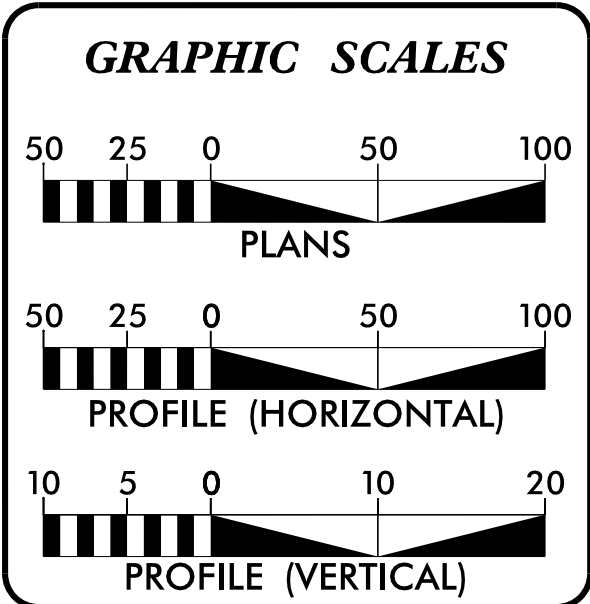
TYPE OF WORK: POWER DISTRIBUTION AND TELEPHONE RELOCATION



UO-2

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

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEET

UTILITY OWNERS ON PROJECT

(A) RUTHERFORD EMC (POWER DISTRIBUTION)
(B) AT&T (COMMUNICATIONS)

Michael Baker
INTERNATIONAL

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
919-463-5488

BRANDY CREECH
UTILITIES COORDINATION
CONSULTANT

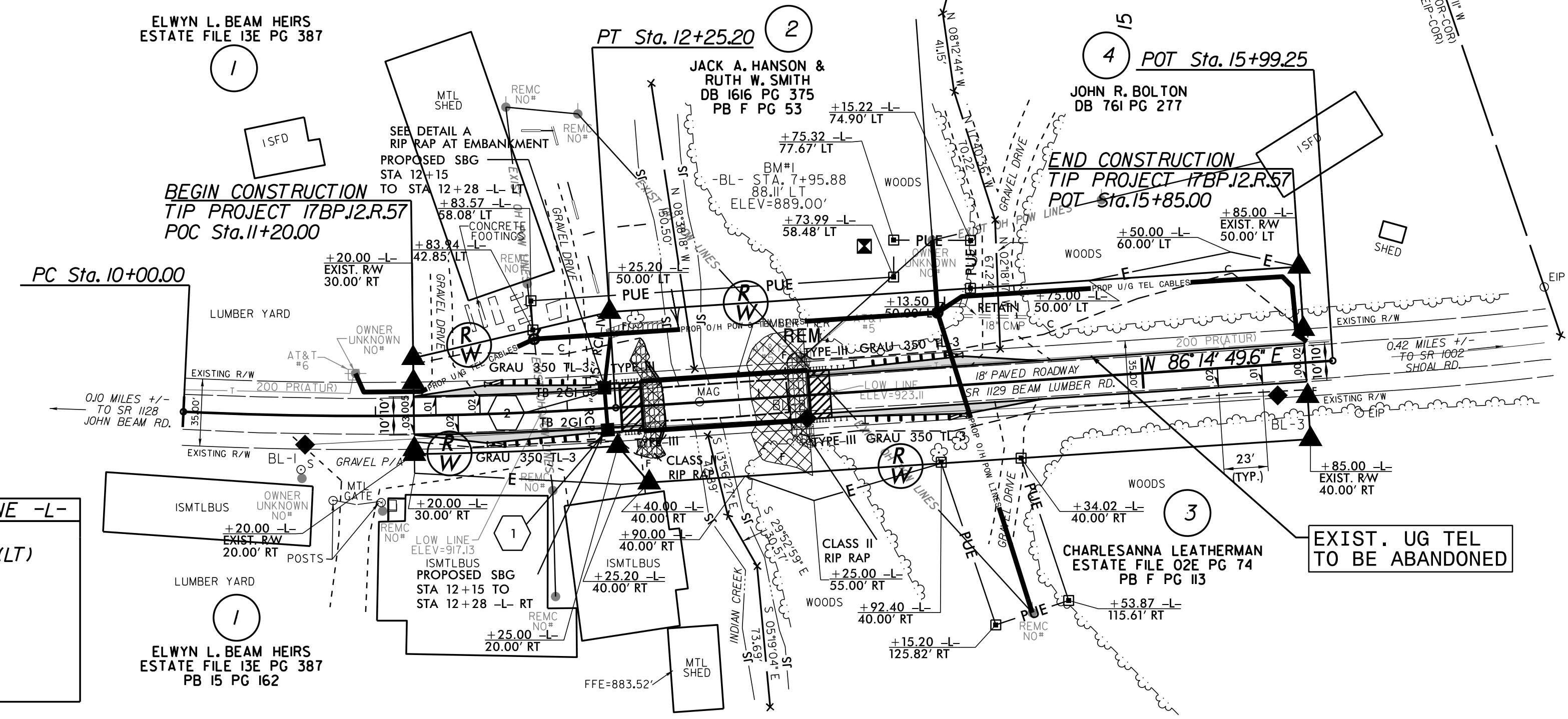
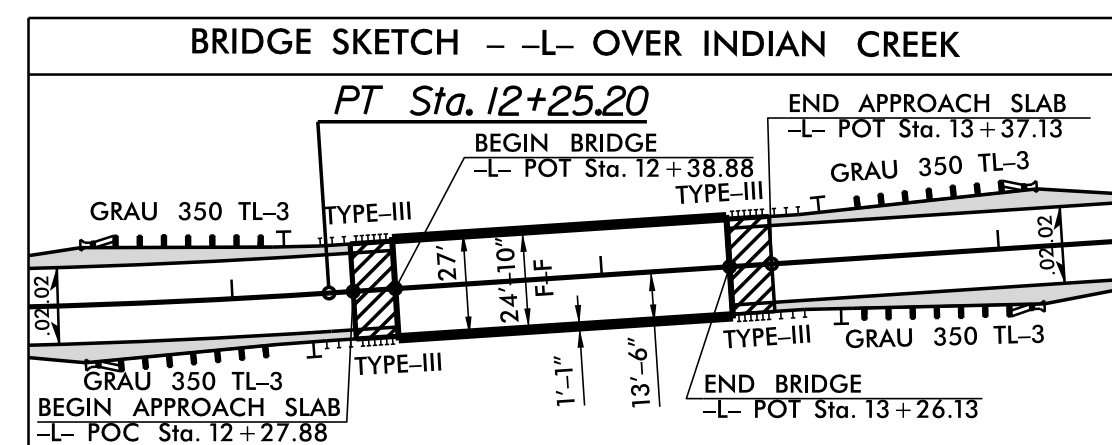
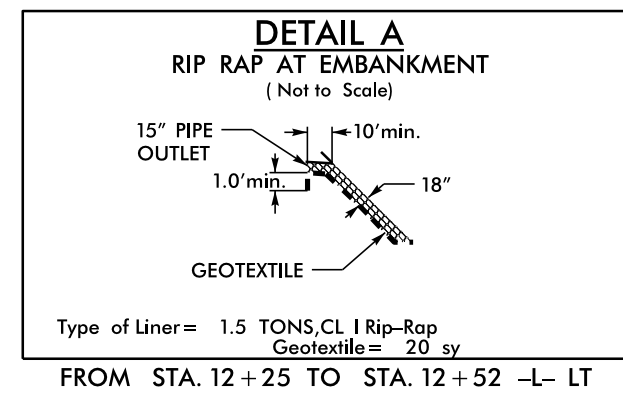
NC DOT CONTACTS: STEVE RACKLEY, P.E.
DIVISION 12 BRIDGE MANAGER

CHAD DREWERY
DIVISION 12 UTILITY COORDINATOR

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UTILITIES BY OTHERS

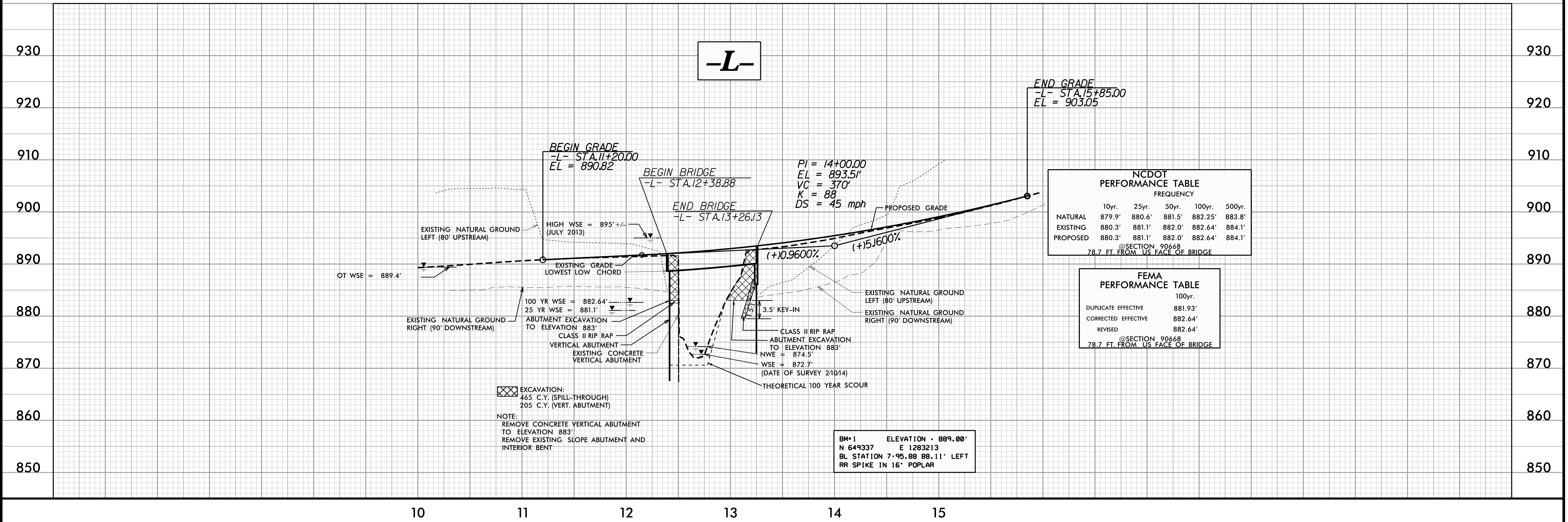
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS



CURVE DATA FOR LINE -L-

PI Sta 11+12.72
$\Delta = 6' 27'' 05.3''$ (LT)
$D = 2' 51'' 53.2''$
$L = 225.20'$
$T = 112.72'$
$R = 2,000.00'$
$SE = 0.04$
$RUNOFF = 92'$
$DS = 60$ mph

Michael Baker
INTERNATIONAL
Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
919-463-5488



NCDOT PERFORMANCE TABLE

FREQUENCY					
	10yr.	25yr.	50yr.	100yr.	500yr.
NATURAL	879.9'	880.6'	881.5'	882.25'	883.8'
EXISTING	880.3'	881.1'	882.0'	882.64'	884.1'
PROPOSED	880.3'	881.1'	882.0'	882.64'	884.1'

@SECTION 90668
78.7 FT. FROM US FACE OF BRIDGE

FEMA PERFORMANCE TABLE

100yr.	
DUPLICATE EFFECTIVE	881.93'
CORRECTED EFFECTIVE	882.64'
REVISED	882.64'

@SECTION 90668
78.7 FT. FROM US FACE OF BRIDGE

EXCAVATION:
465 C.Y. (SPILL-THROUGH)
205 C.Y. (VERT. ABUTMENT)

NOTE:
REMOVE CONCRETE VERTICAL ABUTMENT TO ELEVATION 883'
REMOVE EXISTING SLOPE ABUTMENT AND INTERIOR BENT

BM#1 ELEVATION = 889.00'
N 649337 E 1283213
BL STATION 7+95.88 88.11' LEFT
RR SPIKE IN 16' POPLAR

REVISIONS

8/17/99
21-MAR-2016 16:33
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C:\Program Files\NC DOT\AutoCAD\12.dwg
C:\Program Files\NC DOT\AutoCAD\12.dwg

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LINCOLN COUNTY
17BP.12.R.57

INDEX OF SHEETS

DESCRIPTION	SHEET NO.
INDEX OF SHEETS & CROSS-SECTION SUMMARY	X-1
-L-	X-2 TO X-5

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

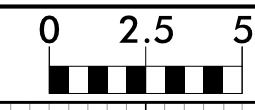
Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
11+20.00	0	0
11+50.00	41	0
12+00.00	68	0
12+38.88	48	0
13+26.13	0	0
13+50.00	11	4
14+00.00	6	15
14+50.00	16	6
15+00.00	78	0
15+50.00	176	0
15+85.00	80	0

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

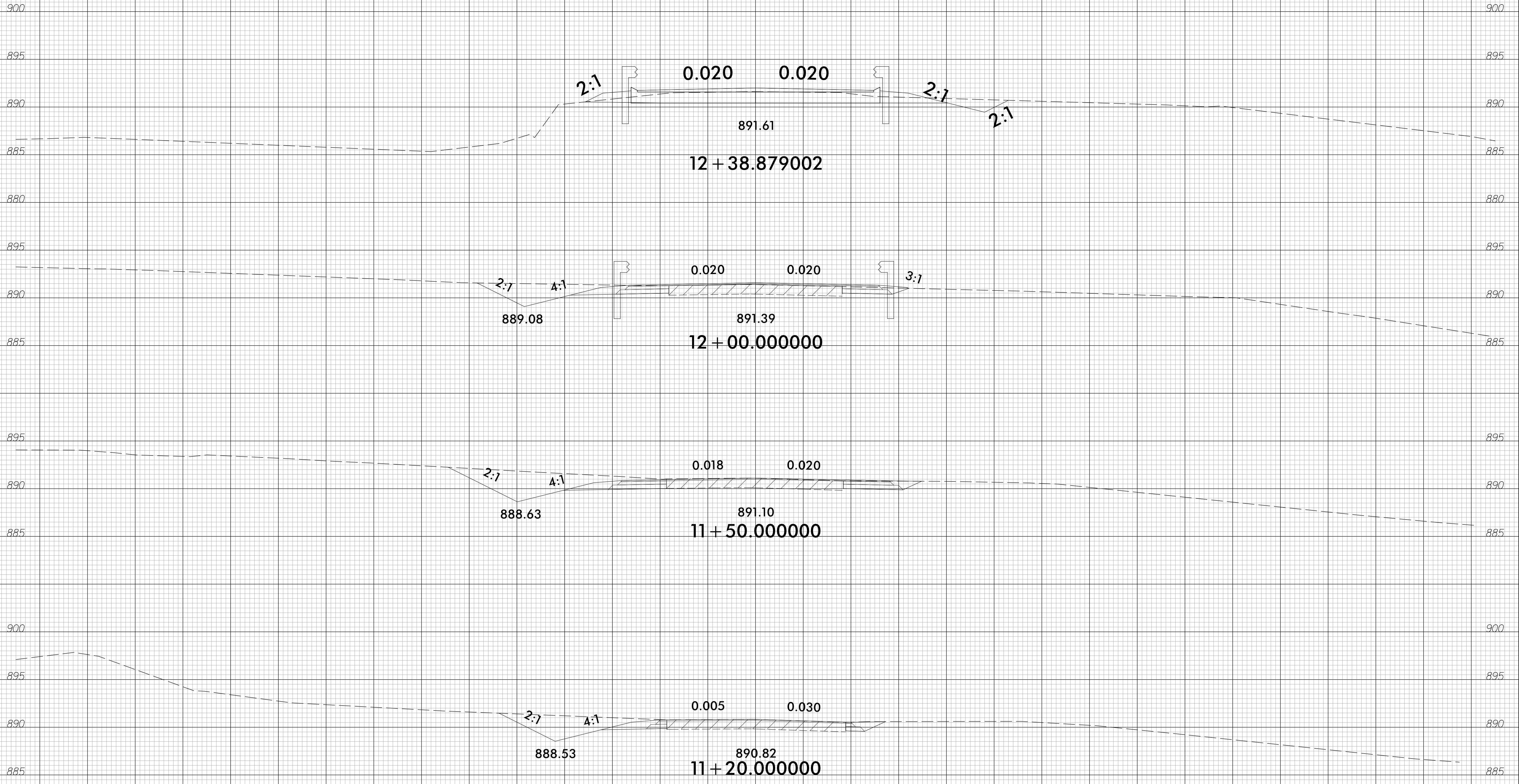
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USER: todd.buckner

REVISIONS

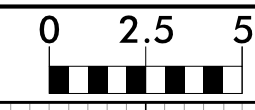
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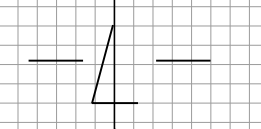
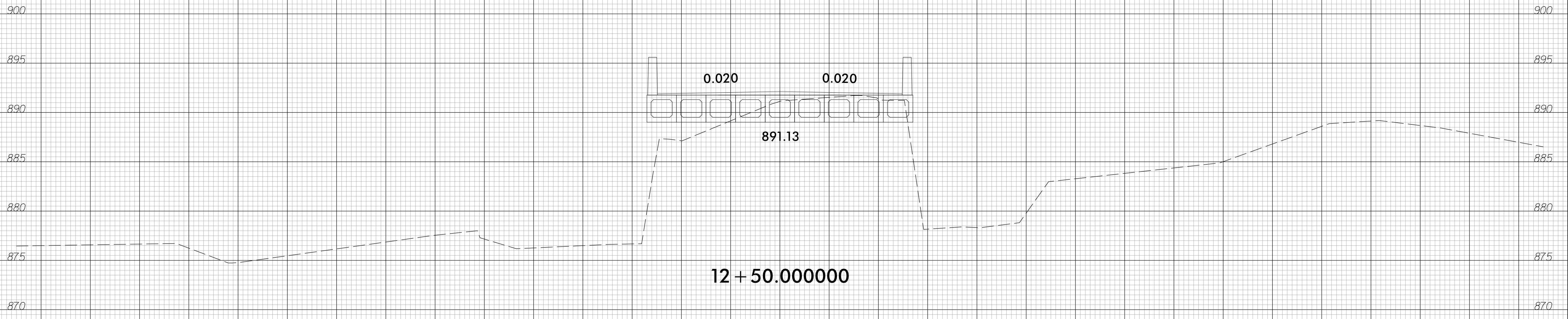
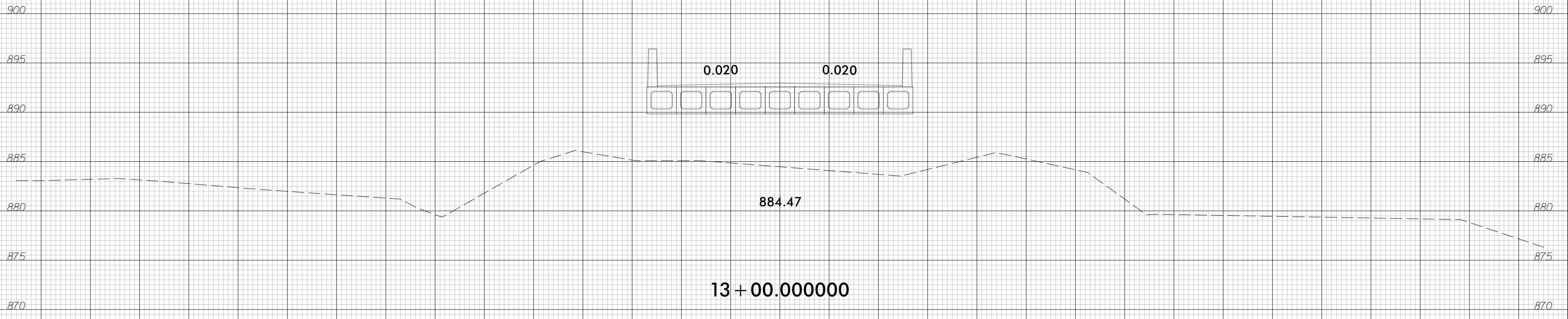
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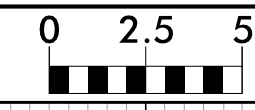


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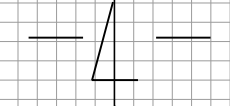
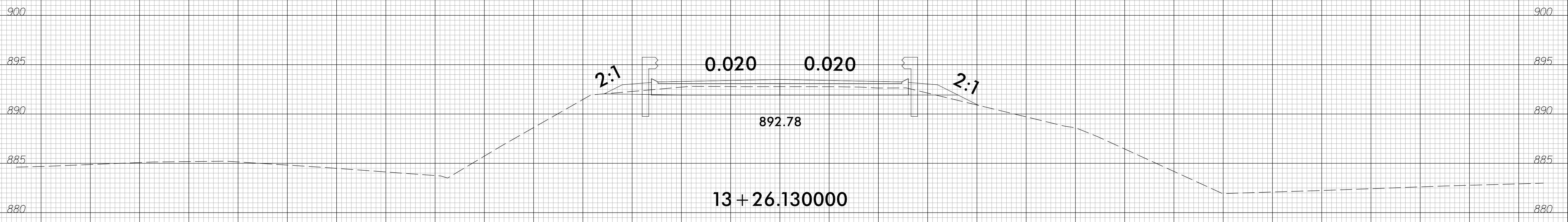
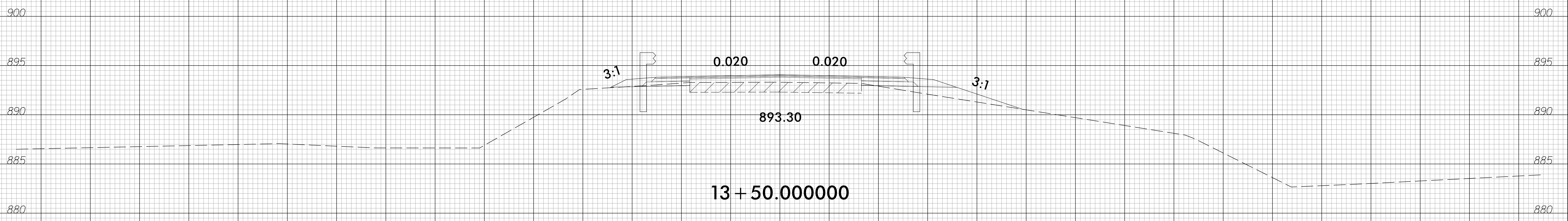
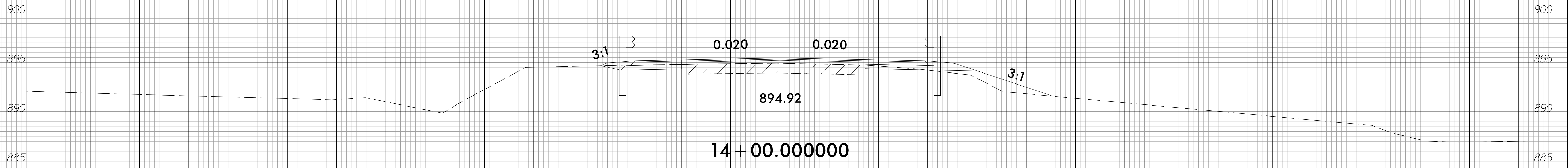


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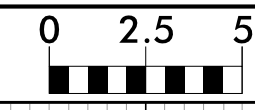




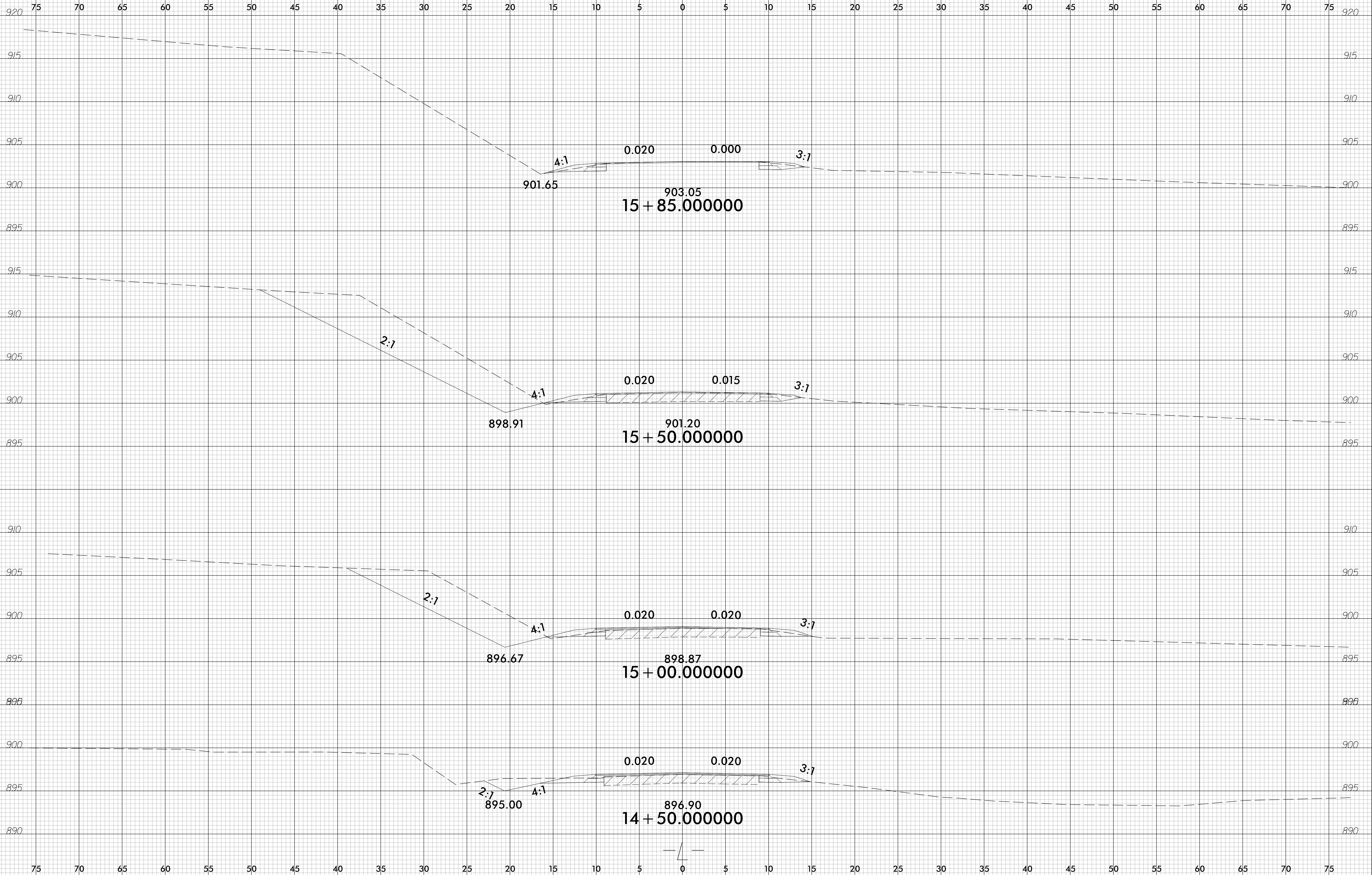
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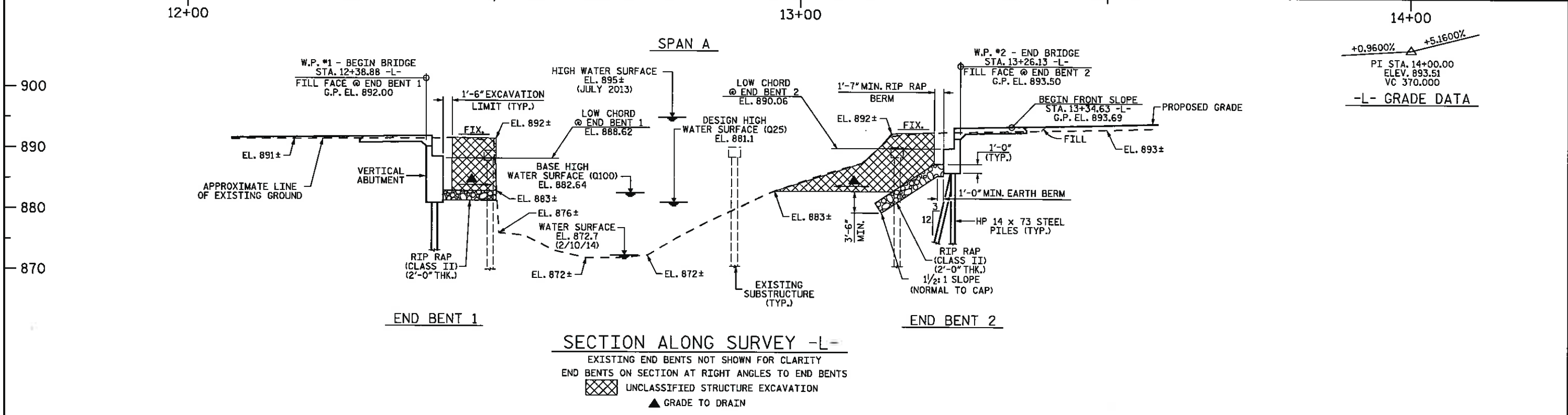
8/23/99



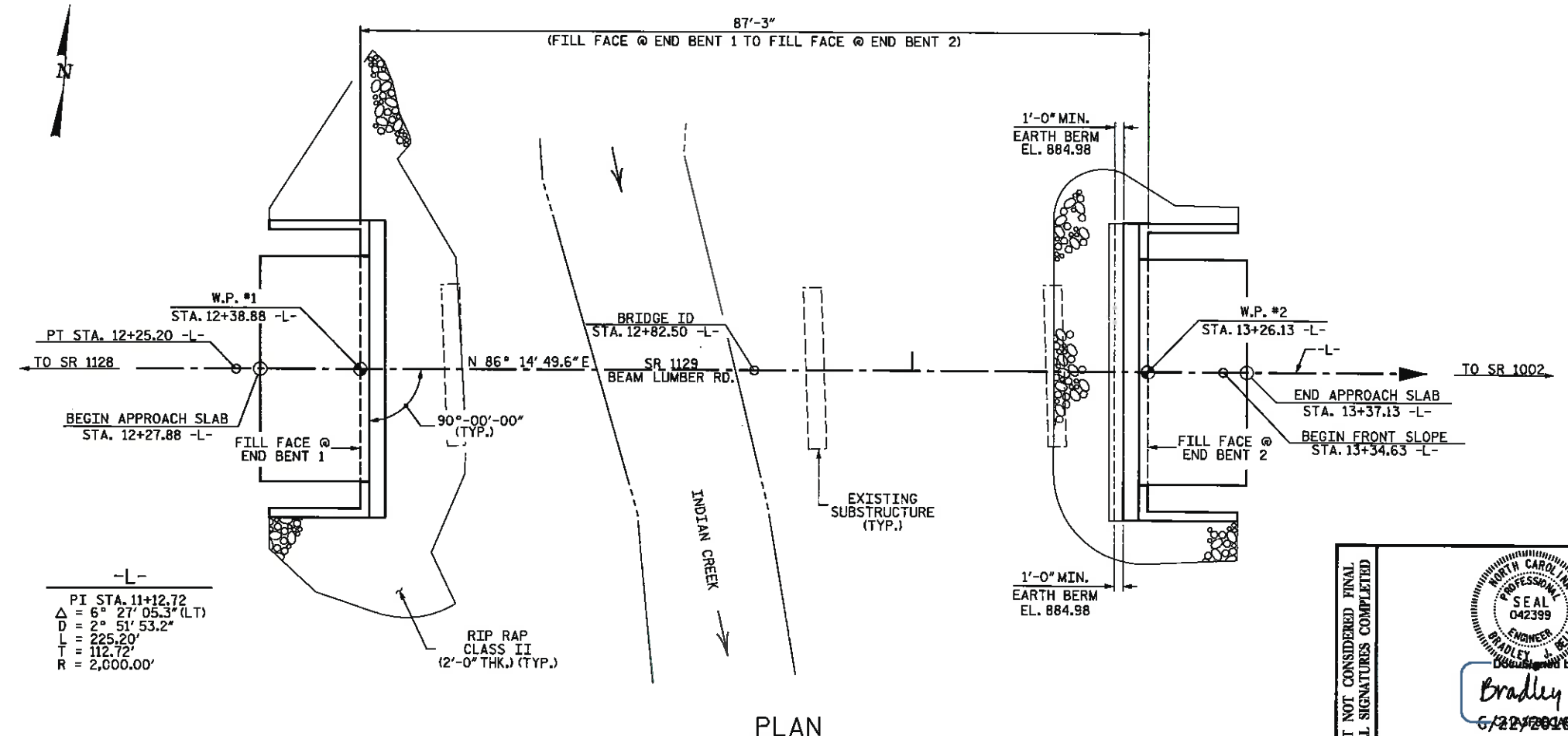
PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.57	X-5



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 User: todd.suckner



SECTION ALONG SURVEY -L-
 EXISTING END BENTS NOT SHOWN FOR CLARITY
 END BENTS ON SECTION AT RIGHT ANGLES TO END BENTS
 [Hatched Box] UNCLASSIFIED STRUCTURE EXCAVATION
 [Triangle] GRADE TO DRAIN



PLAN
 PILES NOT SHOWN IN PLAN VIEW FOR CLARITY
 EXISTING END BENTS NOT SHOWN FOR CLARITY

+0.9600% +5.1600%
 PI STA. 14+00.00
 ELEV. 893.51
 VC 370.000
 -L- GRADE DATA

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
 STATION: 12+82.50 -L-
 SHEET 1 OF 2 REPLACES BRIDGE NO. 115

-L-
 PI STA. 11+12.72
 Δ = 6° 27' 05.3" (LT)
 D = 2° 51' 53.2"
 L = 225.20'
 T = 112.72'
 R = 2,000.00'

Michael Baker Engineering
 8000 Regency Parkway, Suite 600
 Cary, North Carolina 27518
 NC License No.: F-1084

Michael Baker INTERNATIONAL

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1129
 OVER INDIAN CREEK
 BETWEEN SR 1002 & SR 1128

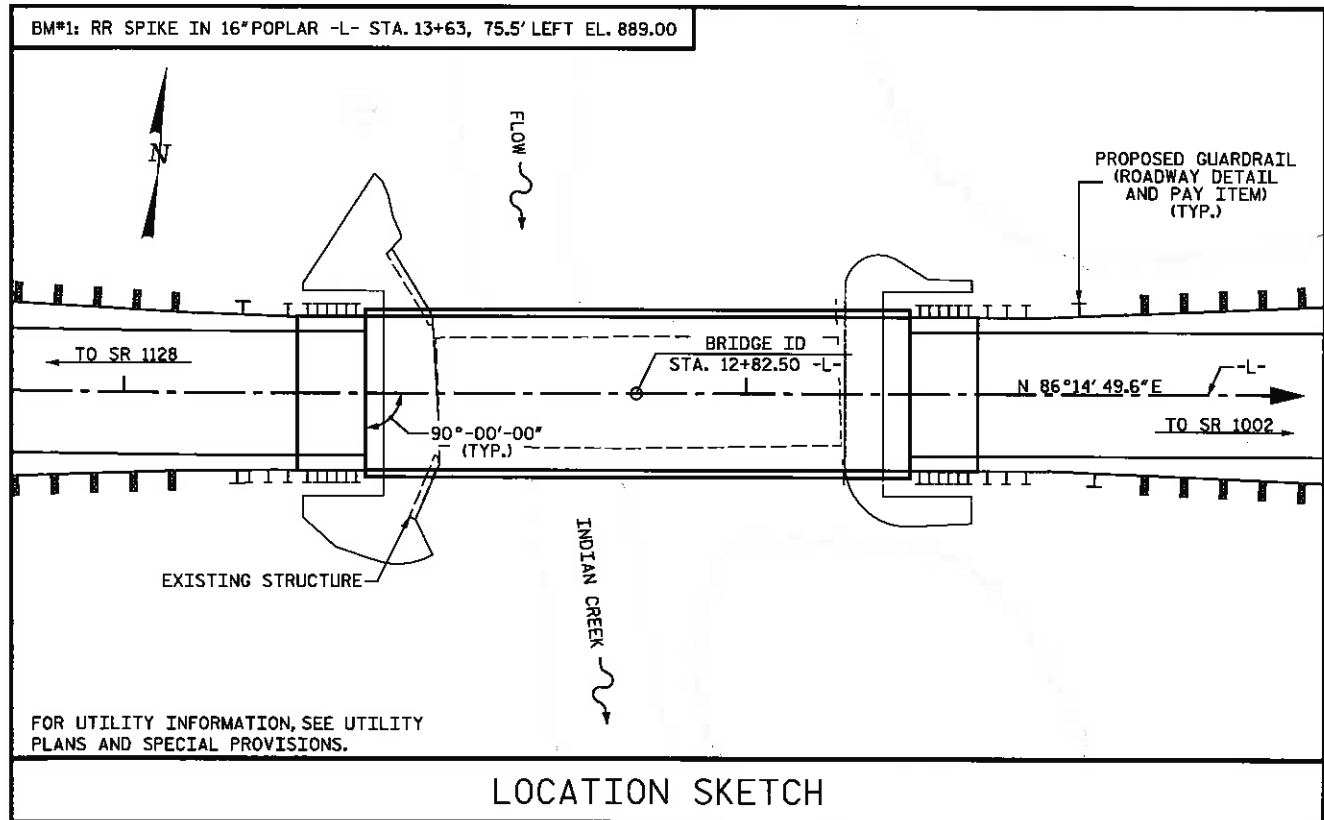
REVISIONS

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

SHEET NO. S-1
 TOTAL SHEETS 15

#USER# #DATE# #TIME#
 #DATE# #TIME# #FILE#

DRAWN BY : CEM/NBS DATE : 8-12-14
 CHECKED BY : A.L. PHILLIPS DATE : 8-28-14



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 1500 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR
DESIGN HIGH WATER ELEVATION	= 881.1
DRAINAGE AREA	= 5.7 SQ. MI.
BASE DISCHARGE (Q100)	= 2211 CFS
BASE HIGH WATER ELEVATION	= 882.64

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 3000+ CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YR
OVERTOPPING FLOOD ELEVATION	= 889.4

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.
 PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 195 TONS PER PILE.
 STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO. 1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 871 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 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 ON SHEET 1 OF 2 IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 42 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.
 THE EXISTING STRUCTURE CONSISTING OF ONE 40'-0" SIMPLE SPAN AND ONE 26'-0" SIMPLE SPAN WITH A CLEAR ROADWAY WIDTH OF 20'-0" AND TIMBER DECK ON STEEL I-BEAMS SUPPORTED BY MASONRY AT END BENT 1 AND TIMBER CAPS AND PILES AT BENT 1 AND END BENT 2 (WITH CONCRETE ENCASEMENT AT BENT 1) LOCATED AT THE PROPOSED SITE SHALL BE REMOVED.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 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".
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE @ STA. 12+82.50 -L-".
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 12+82.50 -L-	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION @ STA. 12+82.50 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 14 X 73 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-9" PRESTRESSED CONCRETE BOX BEAMS		ASBESTOS ASSESSMENT
	LUMP SUM	LIN. FT.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EA.	LIN. FT.	TONS	SY	LUMP SUM	NO.	LIN. FT.	LUMP SUM
SUPERSTRUCTURE					LUMP SUM					170.00			LUMP SUM	9	765	
END BENT 1		70	LUMP SUM	31.9		4,762	6	90			87	96				
END BENT 2			LUMP SUM	22.6		3,171	5	75	5		77	86				
TOTAL	LUMP SUM	70	LUMP SUM	54.5	LUMP SUM	7,933	11	165	5	170.00	164	182	LUMP SUM	9	765	LUMP SUM

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
 STATION: 12+82.50 -L-

SHEET 2 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1129
 OVER INDIAN CREEK
 BETWEEN SR 1002 & SR 1128

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

DRAWN BY: N. B. SPEAKS DATE: 8-12-14
 CHECKED BY: A. L. PHILLIPS DATE: 8-28-14

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

LOAD FACTORS:

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inn)	N/A	①	1.401	--	1.75	0.273	1.73	A	EL	41.75	0.497	1.54	A	EL	8.35	0.80	0.273	1.40	A	EL	41.75		
	HL-93(Out)	N/A	--	1.994	--	1.35	0.273	2.25	A	EL	41.75	0.497	1.99	A	EL	8.35	N/A	--	--	--	--	--		
	HS-20(Inn)	36.000	②	1.882	67.762	1.75	0.273	2.33	A	EL	41.75	0.497	1.99	A	EL	8.35	0.80	0.273	1.88	A	EL	41.75		
	HS-20(Out)	36.000	--	2.584	93.027	1.35	0.273	3.02	A	EL	41.75	0.497	2.58	A	EL	8.35	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	4.355	58.789	1.40	0.273	6.74	A	EL	41.75	0.497	6.03	A	EL	8.35	0.80	0.273	4.35	A	EL	41.75	
		SNGARBS2	20.000	--	3.199	63.989	1.40	0.273	4.95	A	EL	41.75	0.497	4.26	A	EL	8.35	0.80	0.273	3.20	A	EL	41.75	
		SNAGRIS2	22.000	--	3.011	66.245	1.40	0.273	4.66	A	EL	41.75	0.497	3.94	A	EL	8.35	0.80	0.273	3.01	A	EL	41.75	
		SNCOTTS3	27.250	--	2.166	59.016	1.40	0.273	3.35	A	EL	41.75	0.497	3.01	A	EL	8.35	0.80	0.273	2.17	A	EL	41.75	
		SNAGGRS4	34.925	--	1.792	62.595	1.40	0.273	2.77	A	EL	41.75	0.497	2.47	A	EL	8.35	0.80	0.273	1.79	A	EL	41.75	
		SNS5A	35.550	--	1.754	62.349	1.40	0.273	2.71	A	EL	41.75	0.497	2.49	A	EL	8.35	0.80	0.273	1.75	A	EL	41.75	
		SNS6A	39.950	--	1.602	63.995	1.40	0.273	2.48	A	EL	41.75	0.497	2.27	A	EL	8.35	0.80	0.273	1.60	A	EL	41.75	
		SNS7B	42.000	--	1.525	64.059	1.40	0.273	2.36	A	EL	41.75	0.497	2.22	A	EL	8.35	0.80	0.273	1.53	A	EL	41.75	
	TTST	TNAGRIT3	33.000	--	1.951	64.392	1.40	0.273	3.02	A	EL	41.75	0.497	2.70	A	EL	8.35	0.80	0.273	1.95	A	EL	41.75	
		TNT4A	33.075	--	1.958	64.758	1.40	0.273	3.03	A	EL	41.75	0.497	2.64	A	EL	8.35	0.80	0.273	1.96	A	EL	41.75	
		TNT6A	41.600	--	1.594	66.309	1.40	0.273	2.47	A	EL	41.75	0.497	2.34	A	EL	8.35	0.80	0.273	1.59	A	EL	41.75	
		TNT7A	42.000	--	1.598	67.128	1.40	0.273	2.47	A	EL	41.75	0.497	2.3	A	EL	8.35	0.80	0.273	1.60	A	EL	41.75	
		TNT7B	42.000	--	1.645	69.070	1.40	0.273	2.54	A	EL	41.75	0.497	2.17	A	EL	8.35	0.80	0.273	1.64	A	EL	41.75	
		TNAGRIT4	43.000	--	1.571	67.556	1.40	0.273	2.43	A	EL	41.75	0.497	2.11	A	EL	8.35	0.80	0.273	1.57	A	EL	41.75	
		TNAGT5A	45.000	--	1.484	66.800	1.40	0.273	2.30	A	EL	41.75	0.497	2.08	A	EL	8.35	0.80	0.273	1.48	A	EL	41.75	
		TNAGT5B	45.000	③	1.469	66.118	1.40	0.273	2.27	A	EL	41.75	0.497	2.00	A	EL	8.35	0.80	0.273	1.47	A	EL	41.75	

NOTES:

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

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

⊛ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

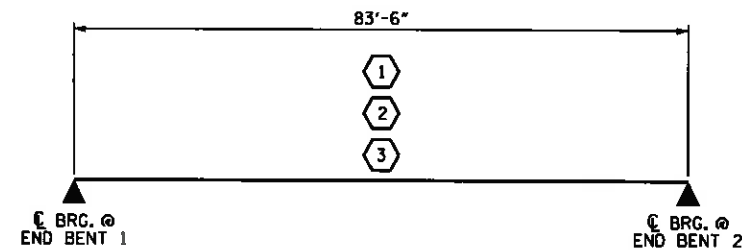
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
 STATION: 12+82.50 -L-



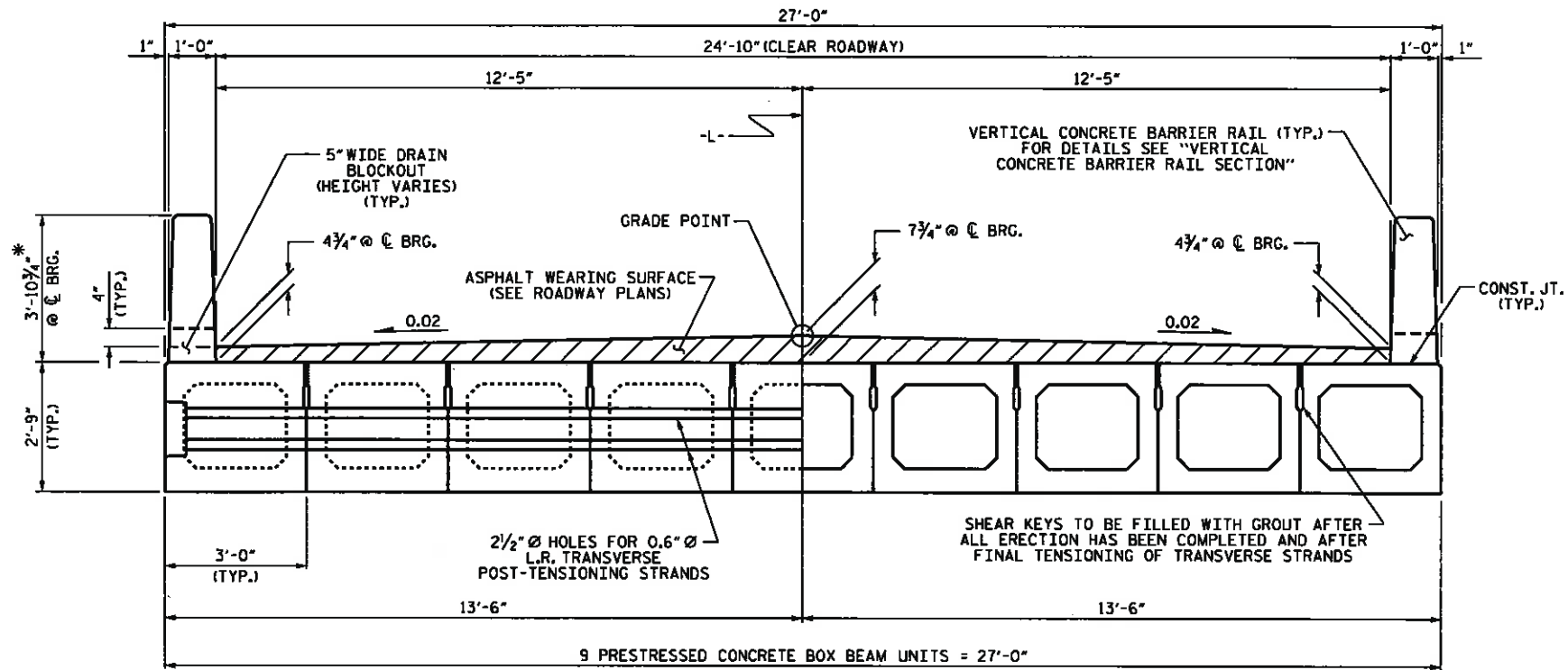
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD LRFR SUMMARY FOR 85' BOX BEAM UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY: A. A. IGHWAIR DATE: 9-24-14
 CHECKED BY: R. P. PATEL DATE: 12-3-14
 DRAWN BY: TMG R/B
 CHECKED BY: AAC R/B

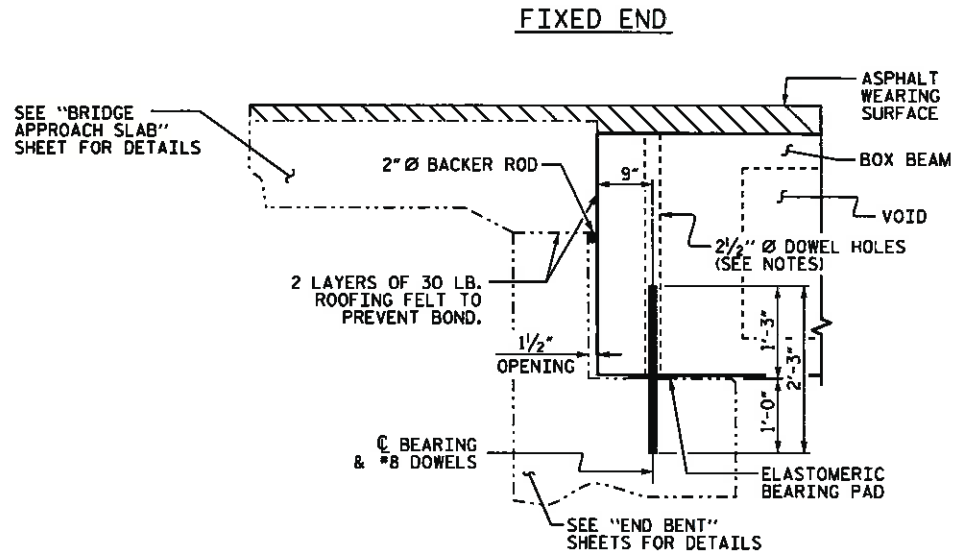
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



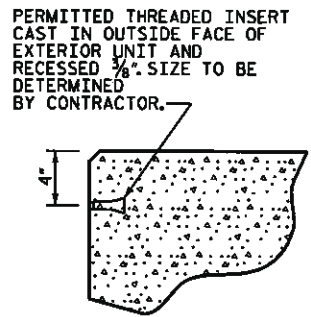
HALF SECTION AT INTERMEDIATE DIAPHRAGMS HALF SECTION THROUGH VOIDS

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.



SECTION AT END BENT



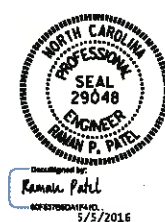
THREADED INSERT DETAIL

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.
- FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.
- RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.
- THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM 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.
- 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, 1/2" 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.
- THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.
- THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.
- THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.
- THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.
- THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 5" X 4". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE BOX BEAM UNIT TO THE TOP OF THE DRAIN OPENING.
- APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR BOX BEAM UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
 STATION: 12+82.50 -L-

SHEET 1 OF 5

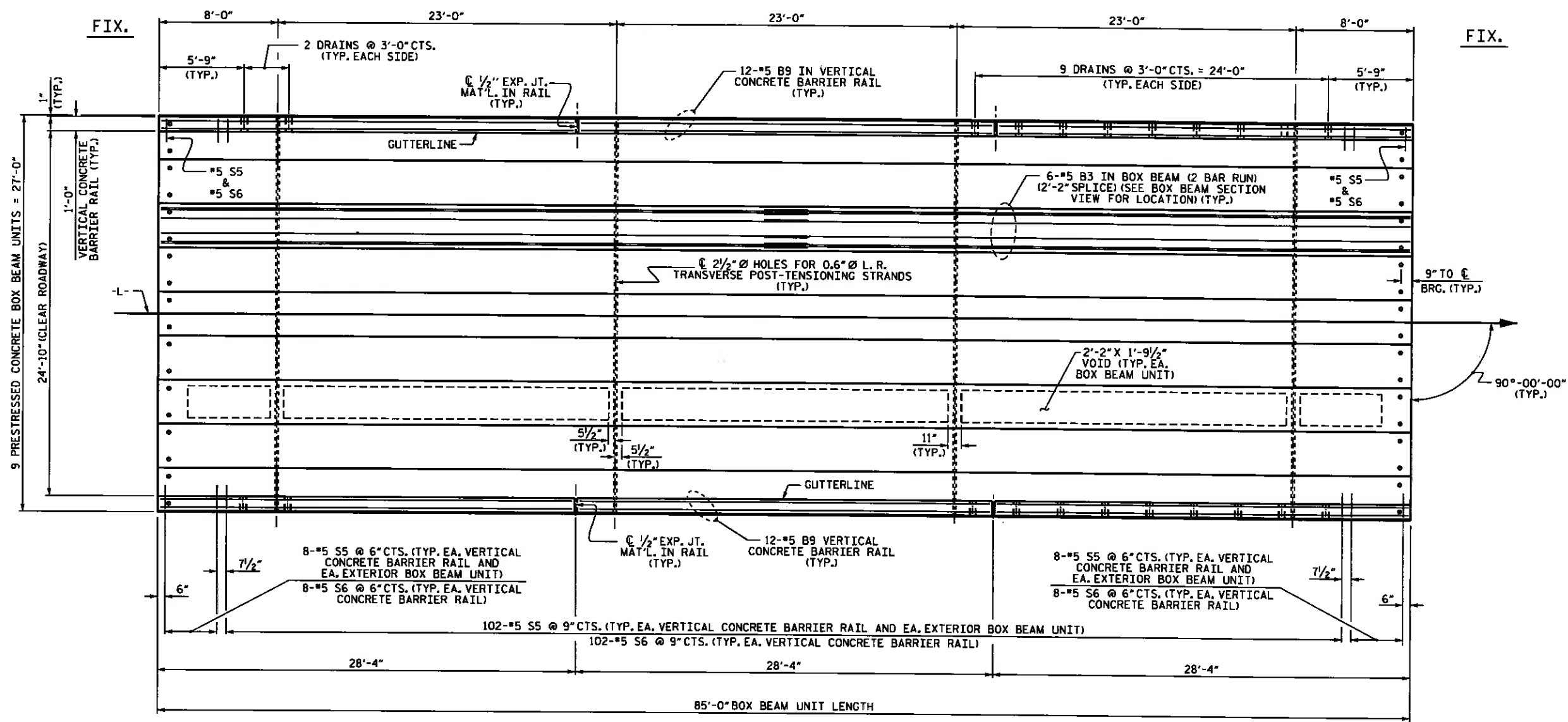


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 90° SKEW

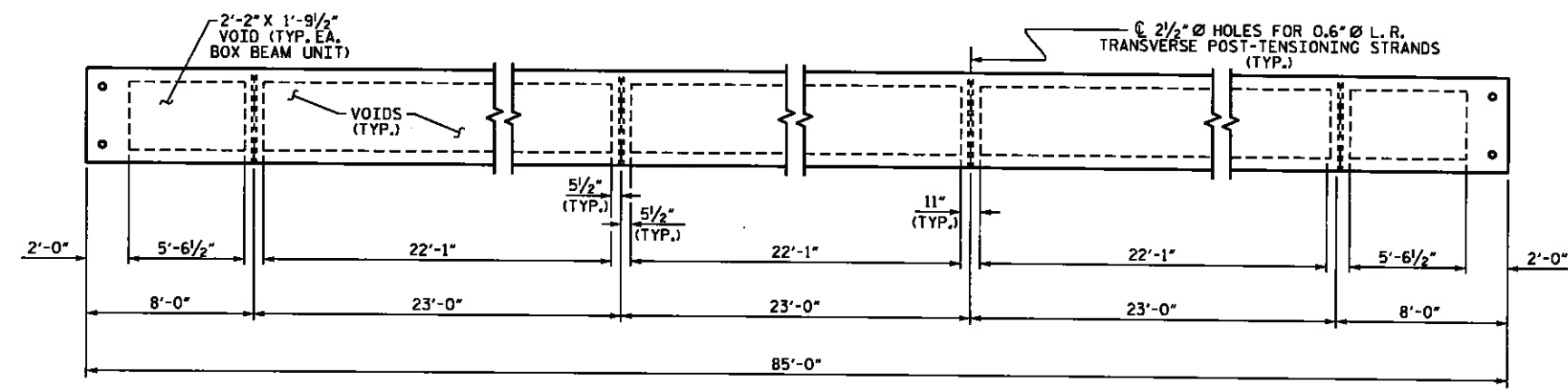
ASSEMBLED BY : A. A. IGHWAIR	DATE : 9-24-14
CHECKED BY : R. P. PATEL	DATE : 12-3-14
DRAWN BY : DGE 8/11	REV. 8/14 MAA/TMG
CHECKED BY : TMG 11/11	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



PLAN OF UNIT

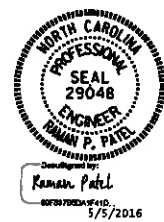


DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.12.R.57
 LINCOLN COUNTY
 STATION: 12+82.50 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 PLAN OF 85' UNIT
 24'-10" CLEAR ROADWAY
 90° SKEW

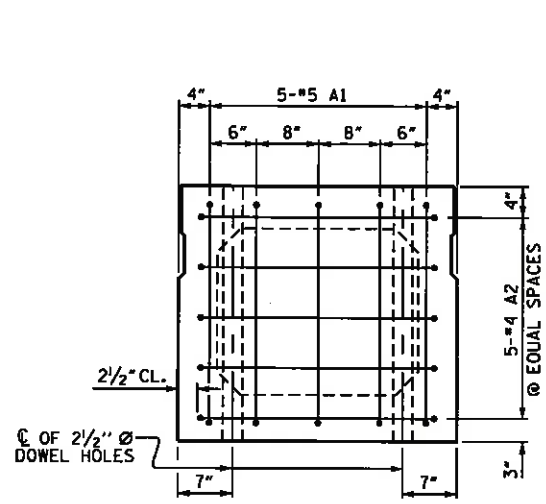


ASSEMBLED BY : A. A. ICHWAIR DATE : 9-24-14
 CHECKED BY : R. P. PATEL DATE : 12-3-14
 DRAWN BY : DGE 8/11 REV. 8/14 MAA/TMG
 CHECKED BY : TMC 1/11

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

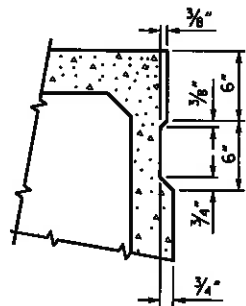
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-5	
1			3			TOTAL	15
2			4			SHEETS	

STD.NO.33PCBB_27_90S_85L



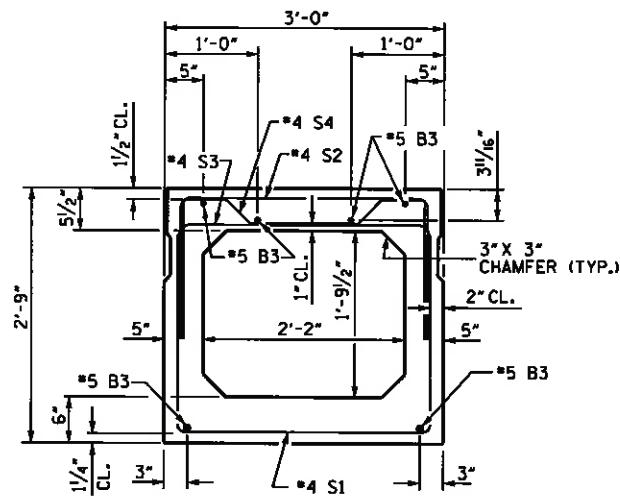
END ELEVATION

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.)



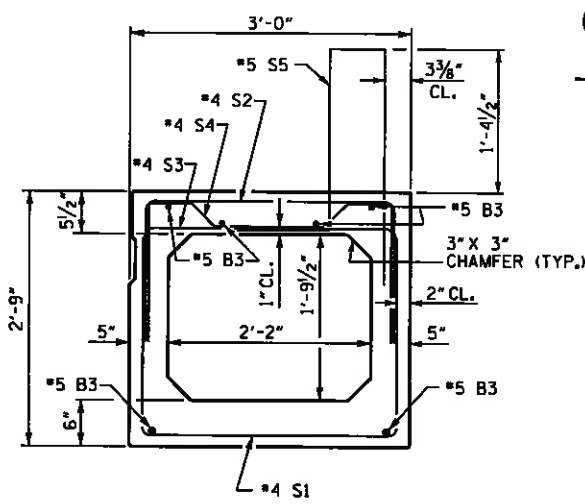
SHEAR KEY DETAIL

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



INTERIOR BOX BEAM SECTION

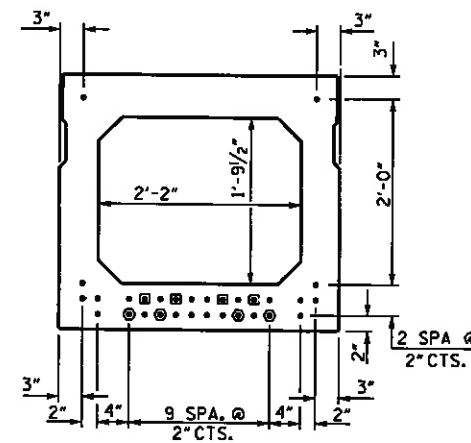
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(30 STRANDS REQUIRED)

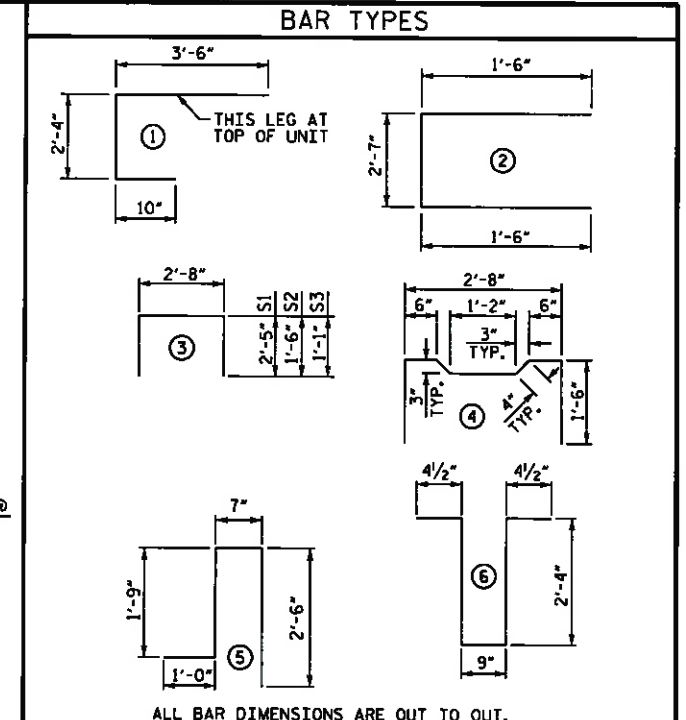
DEBONDING LEGEND

- 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.

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	85'-0"	170'-0"
INTERIOR B.B.	7	85'-0"	595'-0"
TOTAL	9		765'-0"

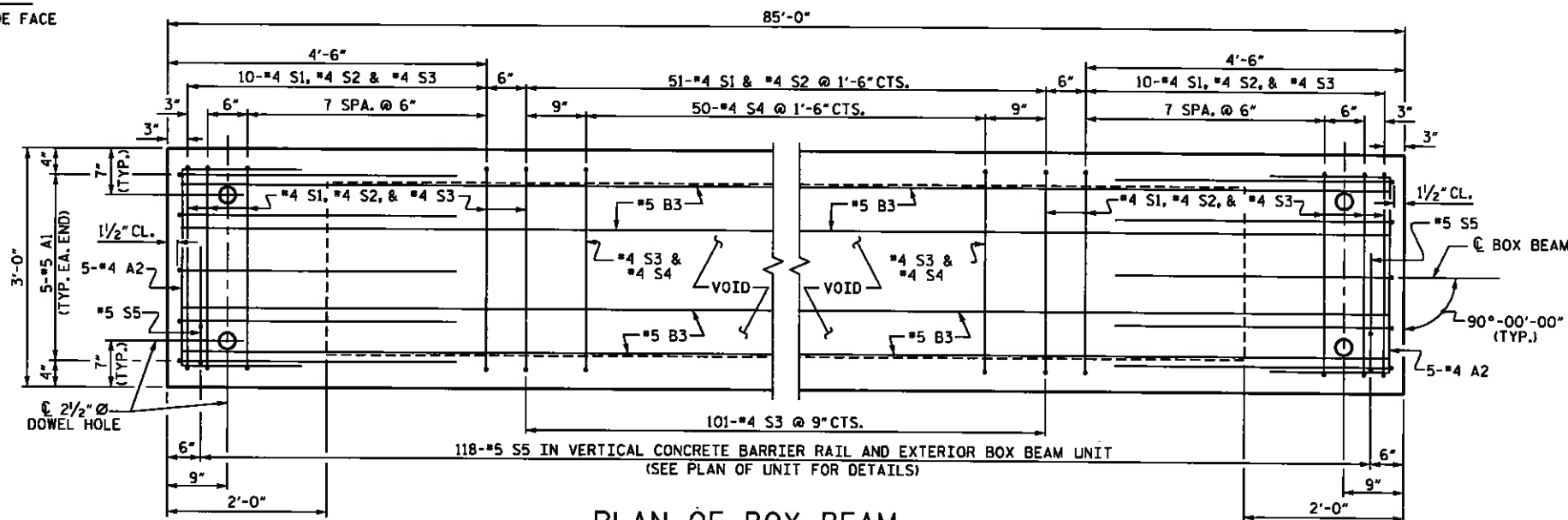
GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
			LENGTH	WEIGHT	LENGTH	WEIGHT
A1	#5	1	6'-8"	70	6'-8"	70
A2	#4	2	5'-7"	127	5'-7"	127
B3	#5	STR	43'-5"	543	43'-5"	543
K1	#4	6	6'-2"	49	6'-2"	49
K2	#4	STR	2'-7"	14	2'-7"	14
S1	#4	3	7'-6"	356	7'-6"	356
S2	#4	3	5'-8"	269	5'-8"	269
S3	#4	3	4'-10"	391	4'-10"	391
S4	#4	4	5'-10"	195	5'-10"	195
*S5	#5	5	5'-10"	718	--	--
REINFORCING STEEL			LBS.	2,014	LBS.	2,014
* EPOXY COATED REINF. STEEL			LBS.	718		
8,000 P.S.I. CONCRETE			C.Y.	15.1	C.Y.	15.0
0.6" Ø L.R. STRANDS			No.	30	No.	30



PLAN OF BOX BEAM

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

ASSEMBLED BY : A. A. ICHWAIR DATE : 9-24-14
 CHECKED BY : R. P. PATEL DATE : 12-3-14
 DRAWN BY : DGE 10/11 REV. 8/14 MAA/TMG
 CHECKED BY : TMG 11/11

03-MAY-2016 11:38
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PROJECT NO. 17BP.12.R.57
 LINCOLN COUNTY
 STATION: 12+82.50 -L-

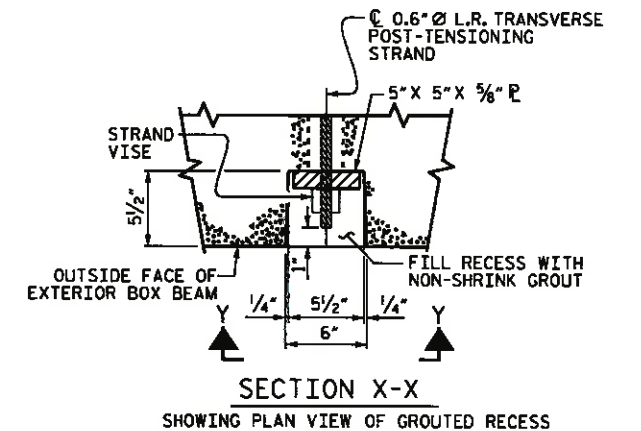
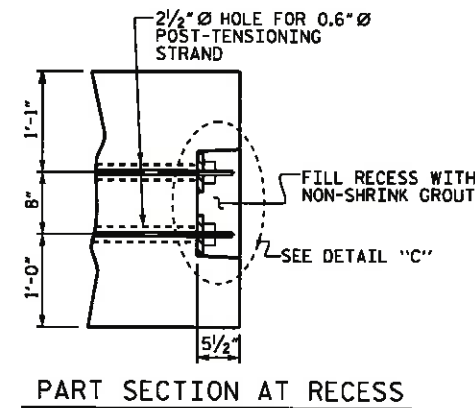
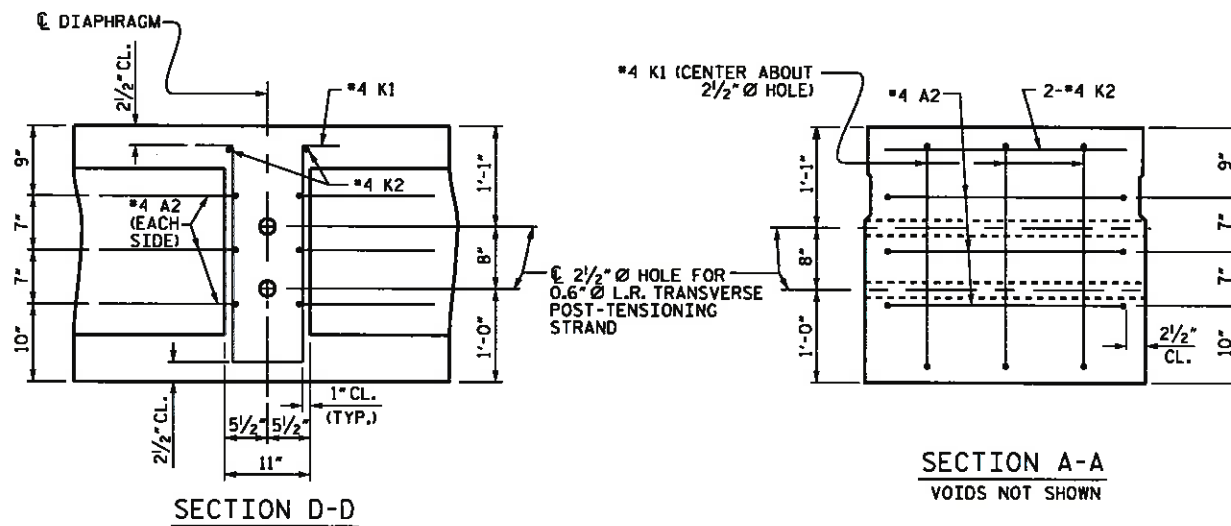
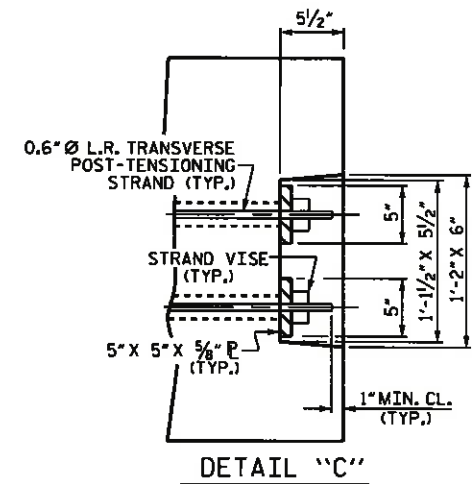
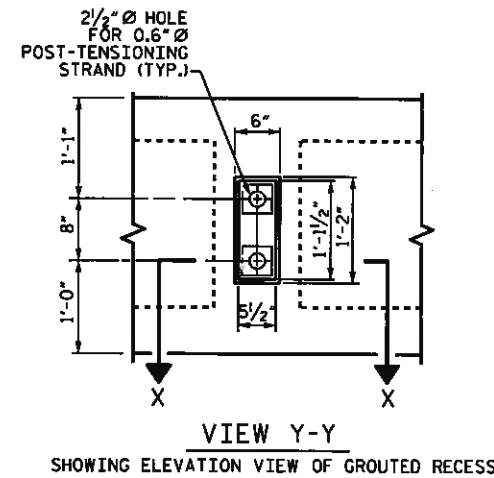
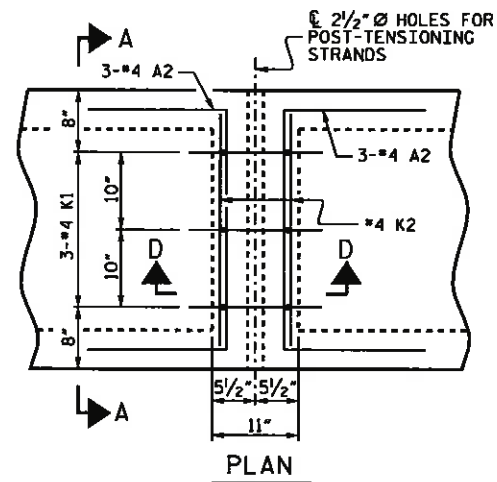
SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 90° SKEW

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	
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2			4		

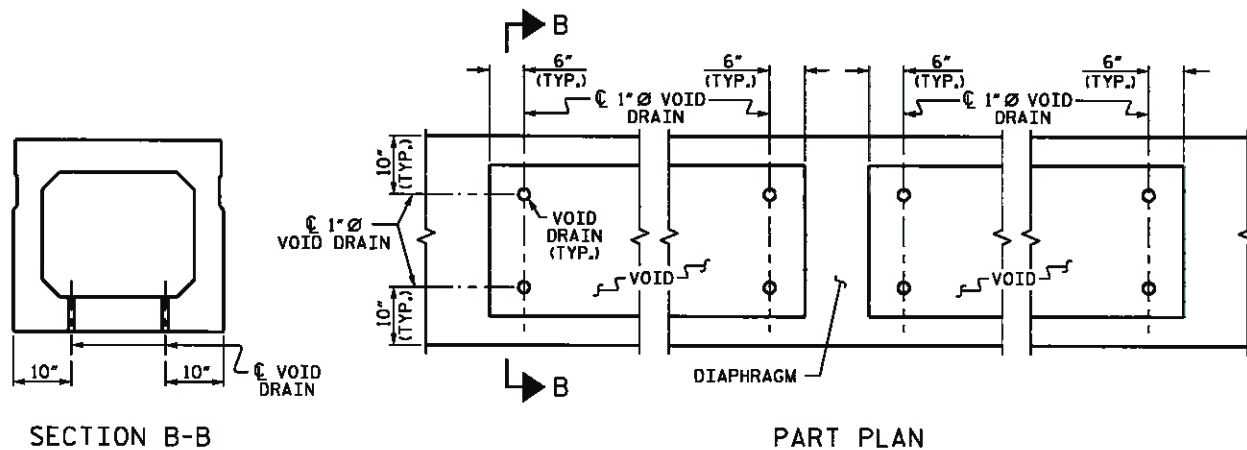
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DOUBLE DIAPHRAGM DETAILS

*4 "S" BARS NOT SHOWN. *4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

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



VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
85' BOX BEAM UNIT (NC)	3'-0" x 2'-9"
CAMBER (SLAB ALONE IN PLACE)	2 3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	2" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.12.R.57
 LINCOLN COUNTY
 STATION: 12+82.50 -L-

SHEET 4 OF 5



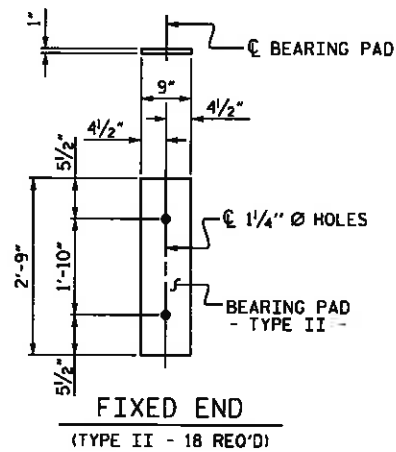
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 90° SKEW

ASSEMBLED BY: A. A. IGHWAIR DATE: 9-24-14
 CHECKED BY: R. P. PATEL DATE: 12-3-14
 DRAWN BY: DGE 10/11 REV. 8/14 MAA/TMG
 CHECKED BY: TMG 11/11

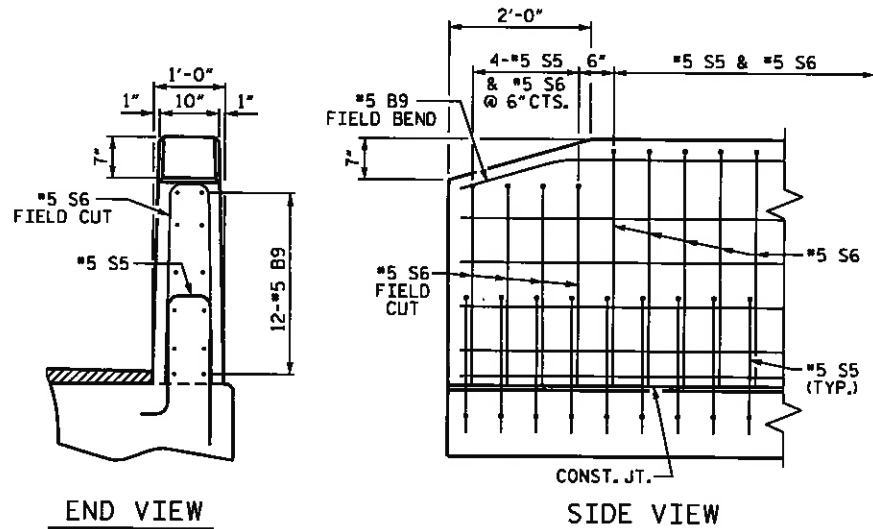
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STD.NO.33PCBB5_90S

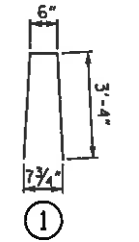


ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



END OF RAIL DETAILS

BAR TYPE

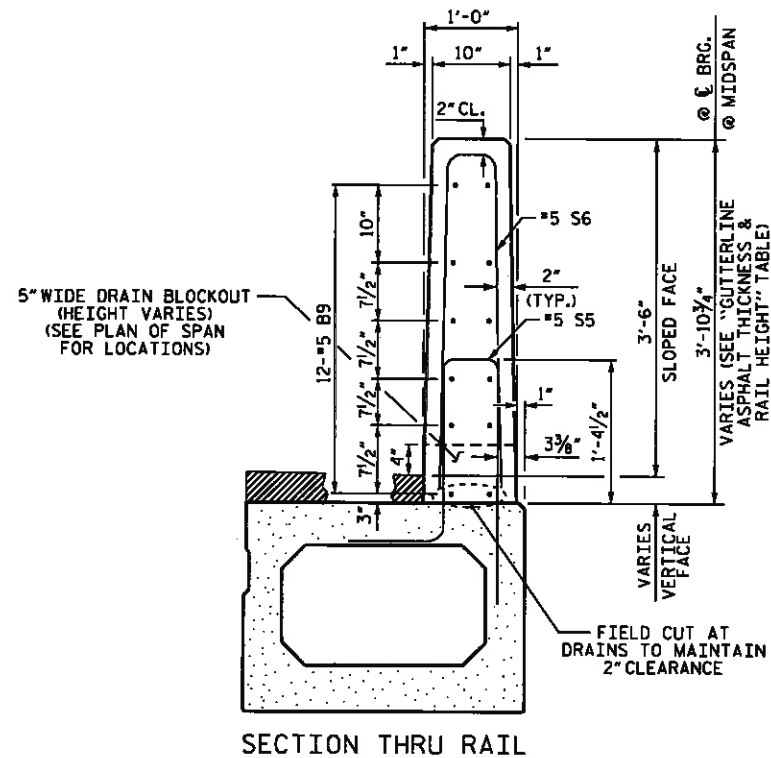


BAR DIMENSIONS ARE OUT TO OUT.

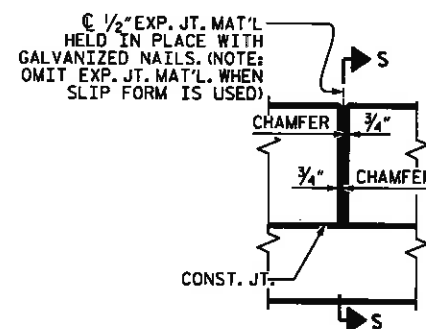
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
85' UNIT					
* B9	72	#5	STR	27'-11"	2096
* S6	236	#5	2	7'-2"	1764
* EPOXY COATED REINFORCING STEEL				LBS.	3,860
CLASS AA CONCRETE				CU.YDS.	22.7
TOTAL VERTICAL CONCRETE BARRIER RAIL				LIN. FT.	170.00

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MIDSPAN	RAIL HEIGHT @ MIDSPAN
85' UNITS	1 1/8" A	3'-7 1/8" A

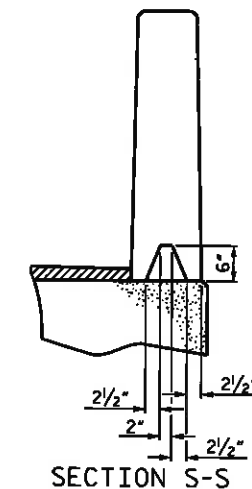
A INCLUDES -1 3/8" VERTICAL CURVE ORDINATE



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS



SECTION S-S

VERTICAL CONCRETE BARRIER RAIL DETAILS

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
STATION: 12+82.50 -L-

SHEET 5 OF 5



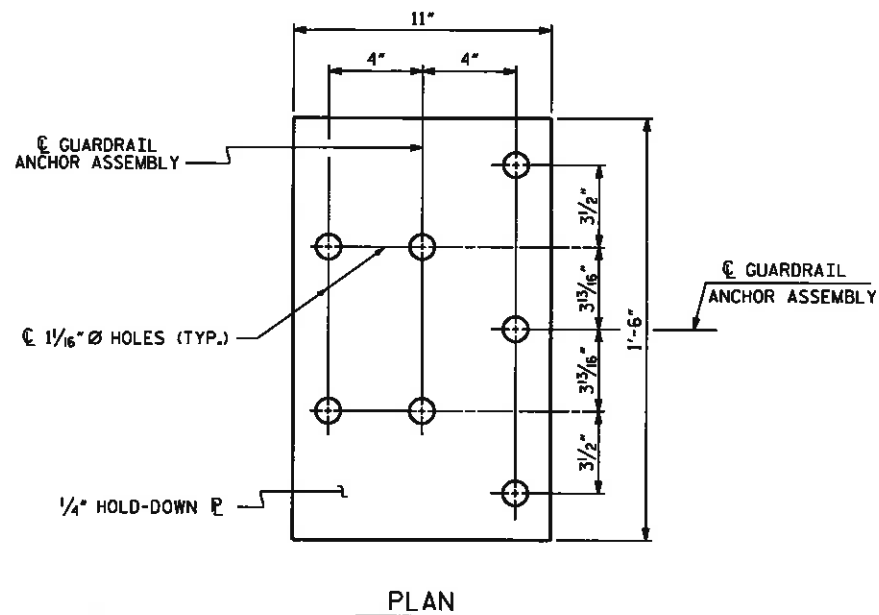
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT
90° SKEW

ASSEMBLED BY: A. A. IGHWAIR	DATE: 9-24-14
CHECKED BY: R. P. PATEL	DATE: 12-3-14
DRAWN BY: DGE 10/11	REV. 8/14
CHECKED BY: TMG 8/11	MAA/TMG

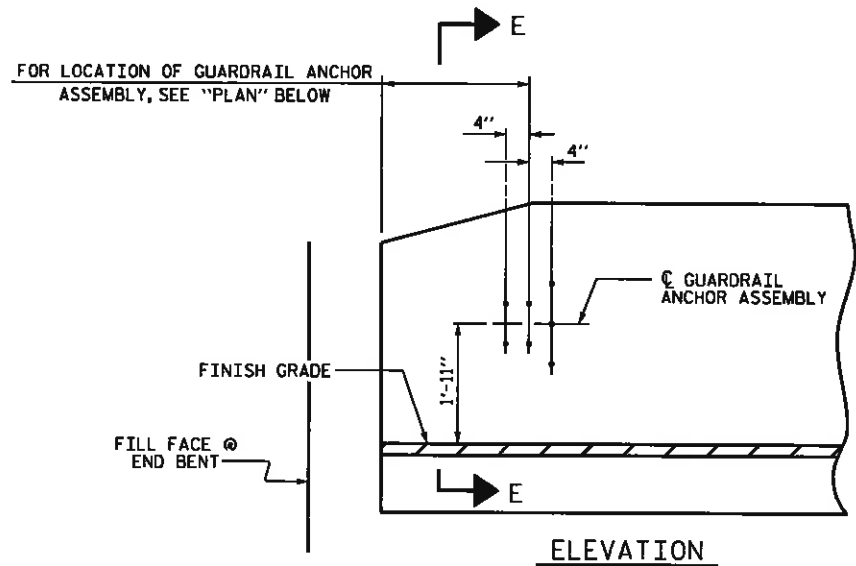
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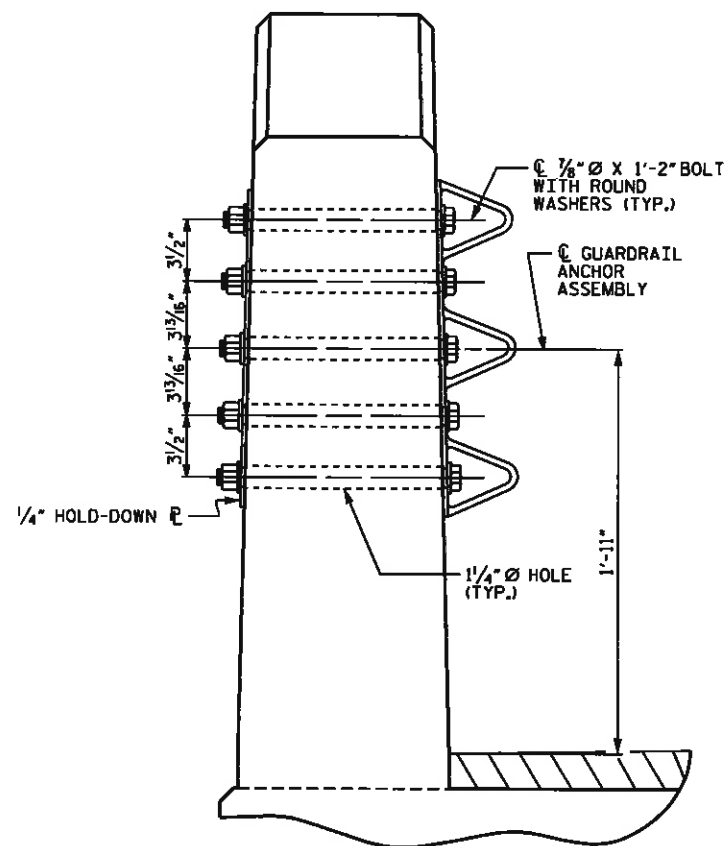
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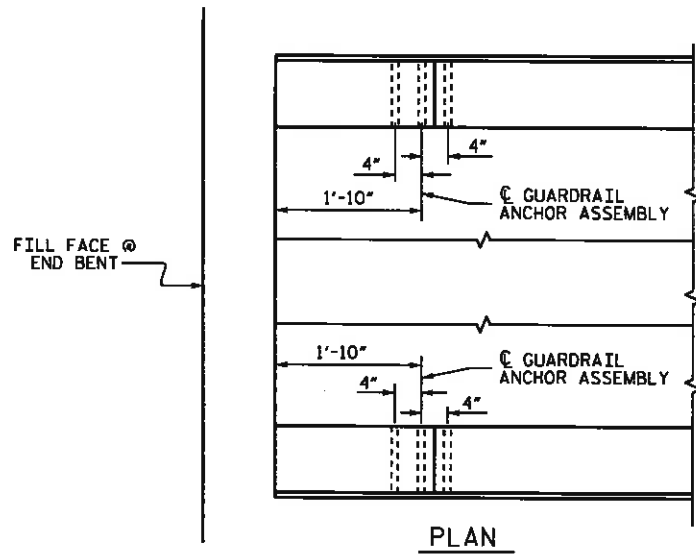
PLAN



ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS

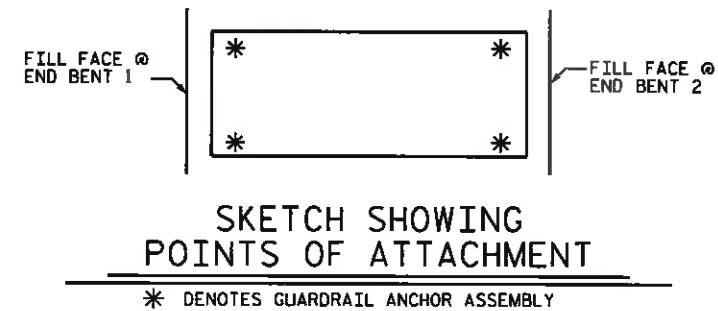


LOCATION OF
ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR

NOTES

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 3/8" 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 3/8" 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 1/16" 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. 17BP.12.R.57
LINCOLN COUNTY
STATION: 12+82.50 -L-



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

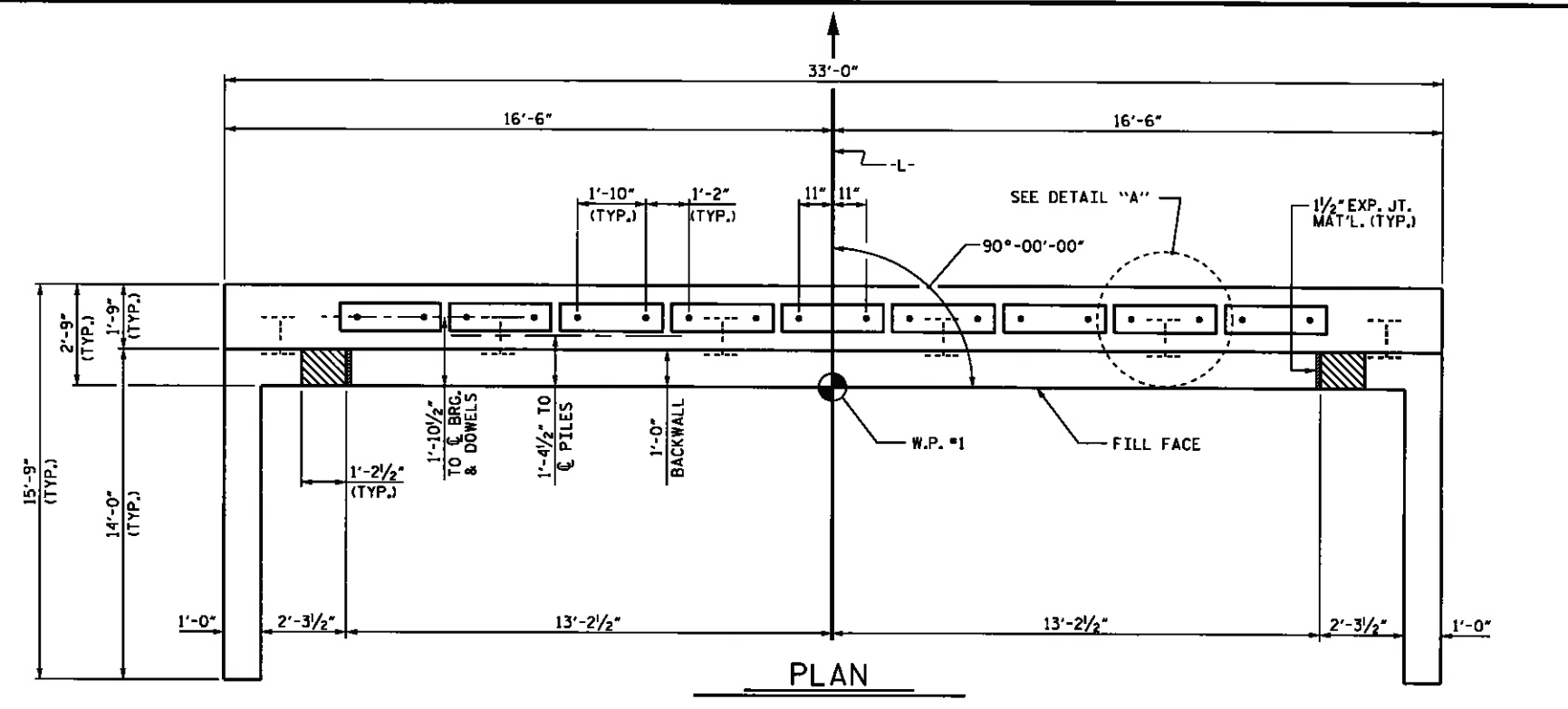
ASSEMBLED BY : A. A. IGHWAIR	DATE : 9-24-14
CHECKED BY : R. P. PATEL	DATE : 12-3-14
DRAWN BY : MAA 5/10	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/10	REV. 12/5/11 MAA/GM
	REV. 6/13 MAA/GM

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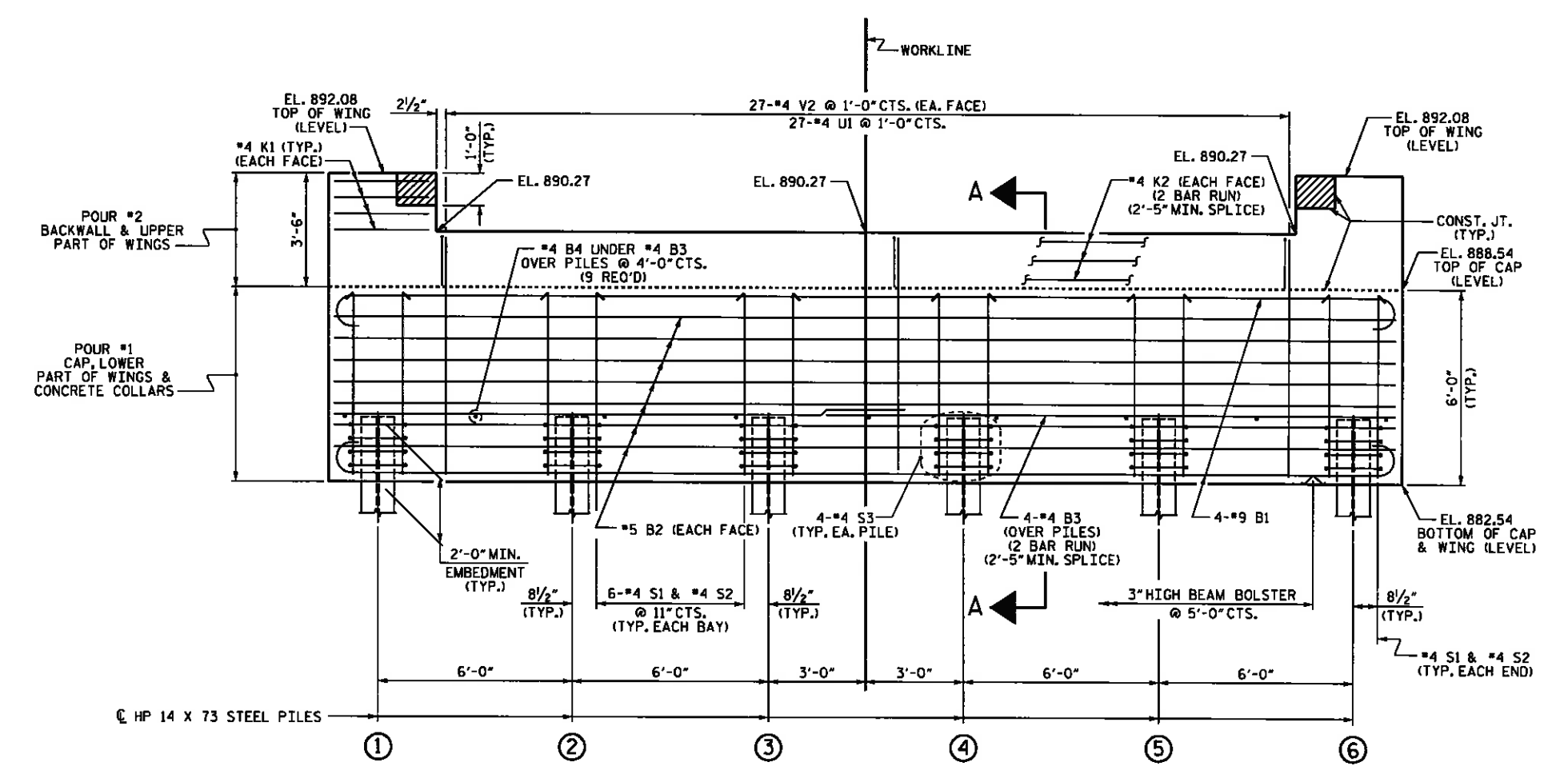
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2			4			TOTAL SHEETS 15

STD. NO. GRA3



PLAN

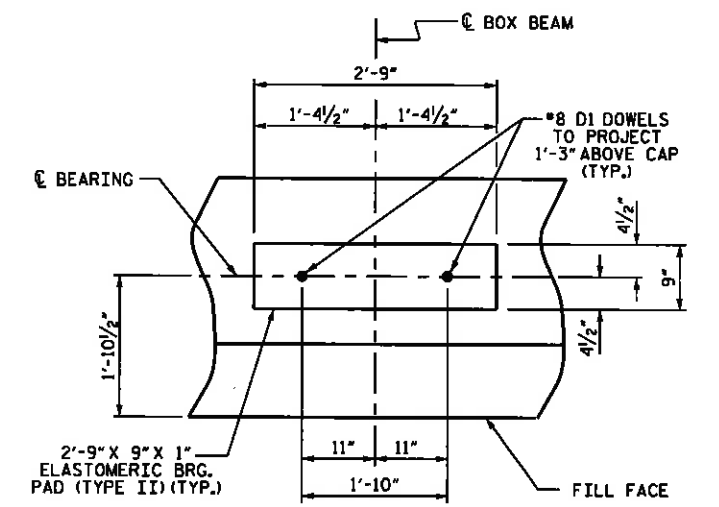


ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 2 OF 2.

NOTES

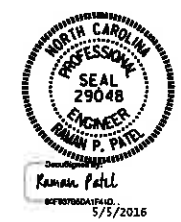
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR WING DETAILS, SEE SHEET 2 OF 2.
- FOR PILE SPLICE DETAILS, SEE END BENT 2 SHEET 3 OF 3.
- FOR TEMPORARY DRAINAGE DETAILS, SEE END BENT 2 SHEET 3 OF 3.



DETAIL "A"

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
STATION: 12+82.50 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

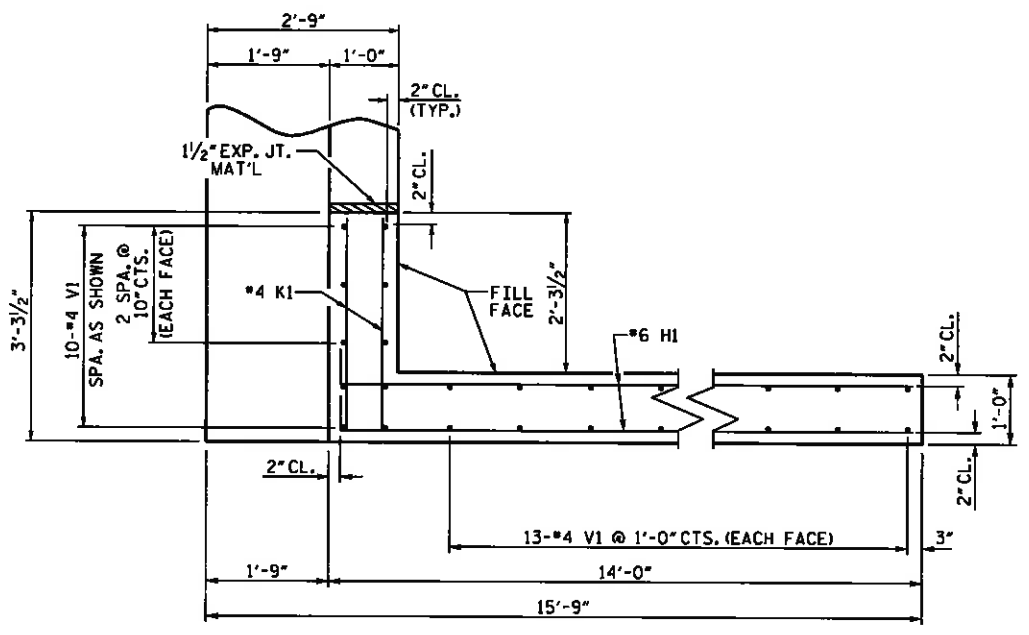
SUBSTRUCTURE
END BENT 1

DRAWN BY : R. P. PATEL	DATE : 12-2-14
CHECKED BY : M. E. GILES	DATE : 12-4-14
DESIGN ENGINEER OF RECORD : R. P. PATEL	DATE : 12-5-14

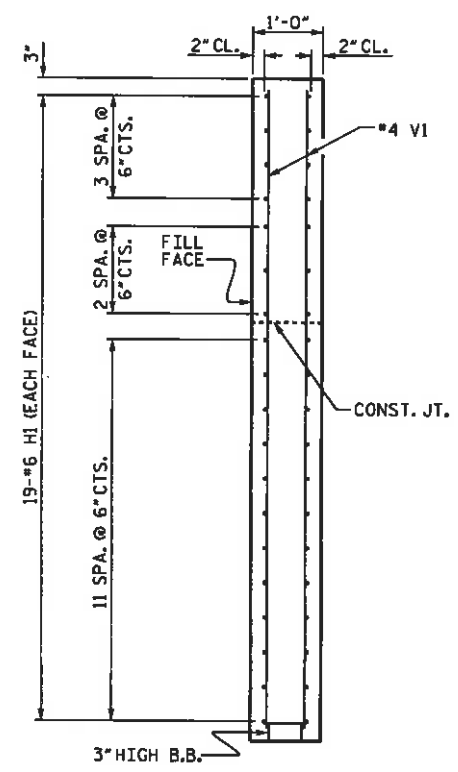
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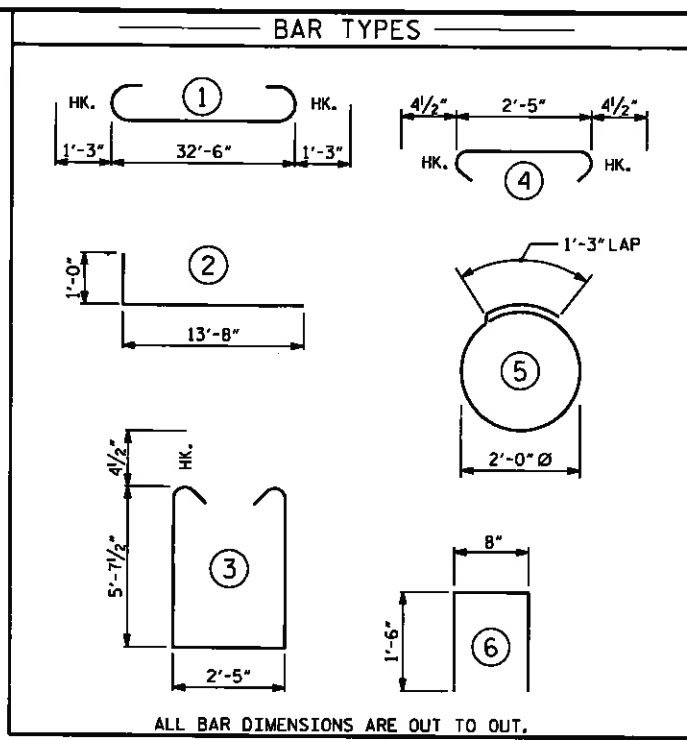
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PLAN OF WING



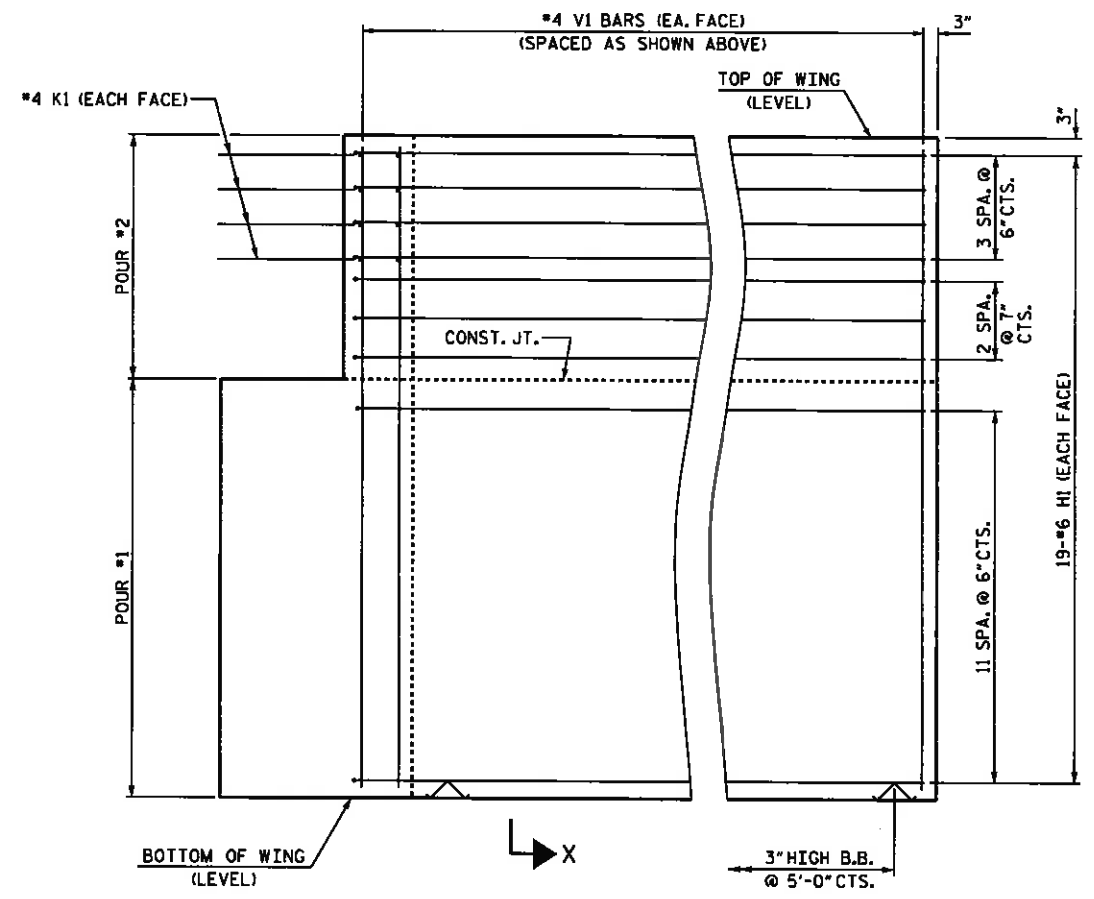
SECTION X-X



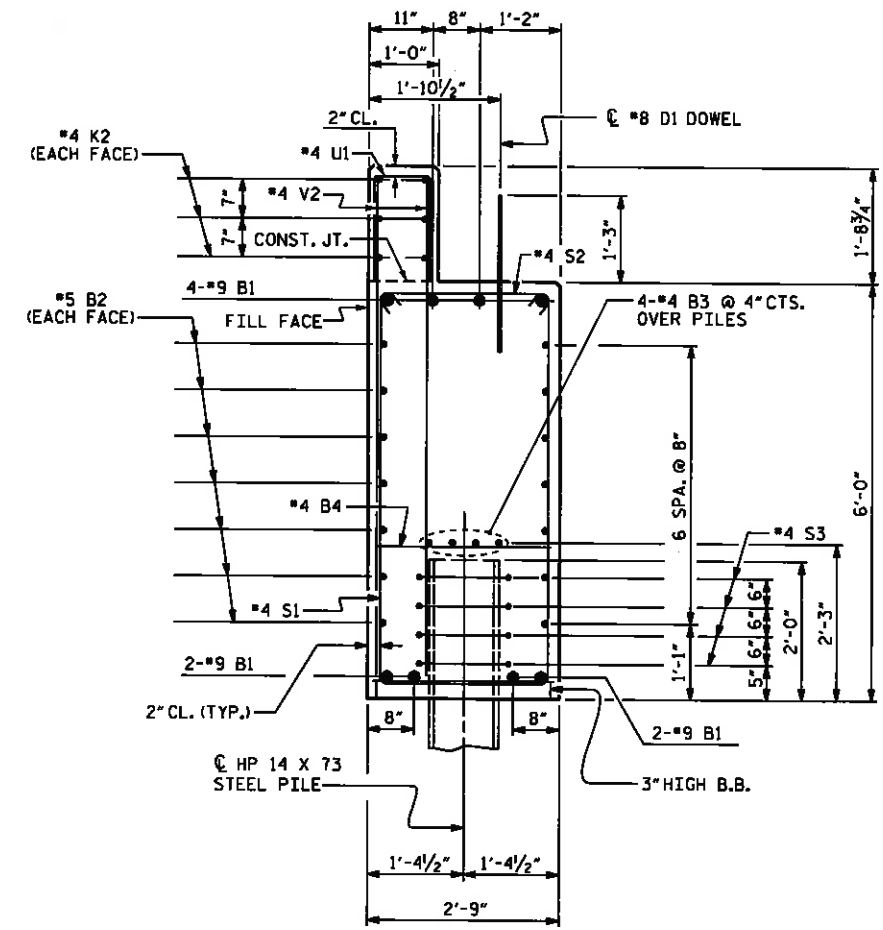
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	35'-0"	952
B2	14	#5	STR	32'-8"	477
B3	8	#4	STR	17'-7"	94
B4	9	#4	STR	2'-5"	15
D1	18	#8	STR	2'-3"	108
H1	76	#6	2	14'-8"	1674
K1	16	#4	STR	2'-11"	31
K2	12	#4	STR	17'-7"	141
S1	32	#4	3	14'-5"	308
S2	32	#4	4	3'-2"	68
S3	24	#4	5	7'-7"	122
U1	27	#4	6	3'-8"	66
V1	72	#4	STR	9'-2"	441
V2	54	#4	STR	7'-4"	265
REINFORCING STEEL					LBS. 4,762
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP & LOWER PART OF WINGS					C.Y. 25.9
POUR #2 BACKWALL & UPPER PART OF WINGS					C.Y. 6.0
TOTAL CLASS A CONCRETE					C.Y. 31.9
HP 14 X 73 STEEL PILES NO. 6					LIN. FT. 90
PILE EXCAVATION NOT IN SOIL					LIN. FT. 70



ELEVATION OF WING



SECTION A-A

PROJECT NO. 17BP.12.R.57
 LINCOLN COUNTY
 STATION: 12+82.50 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

DRAWN BY: R. P. PATEL DATE: 12-3-14
 CHECKED BY: M. E. GILES DATE: 12-4-14
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE: 12-5-14

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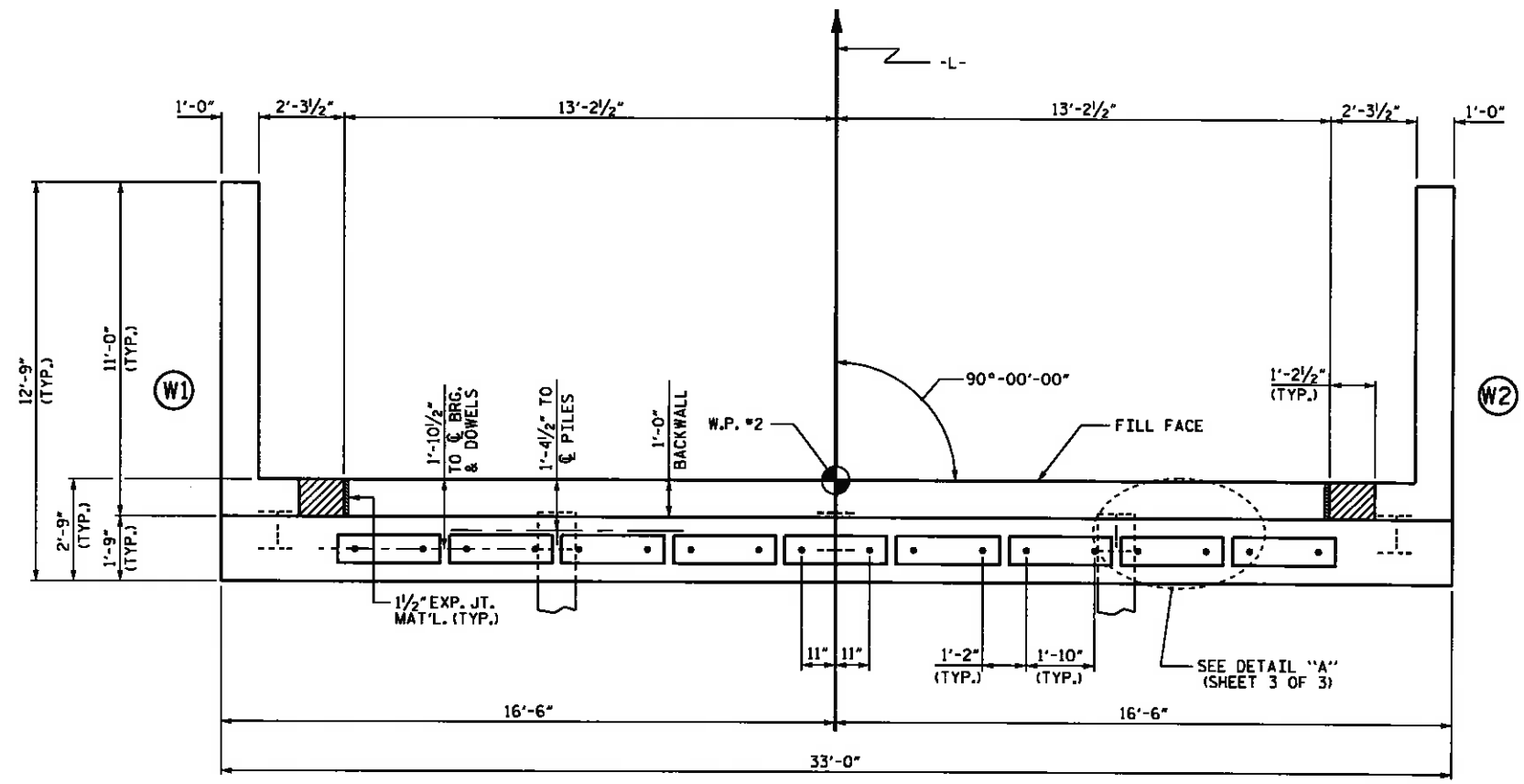
NOTES

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

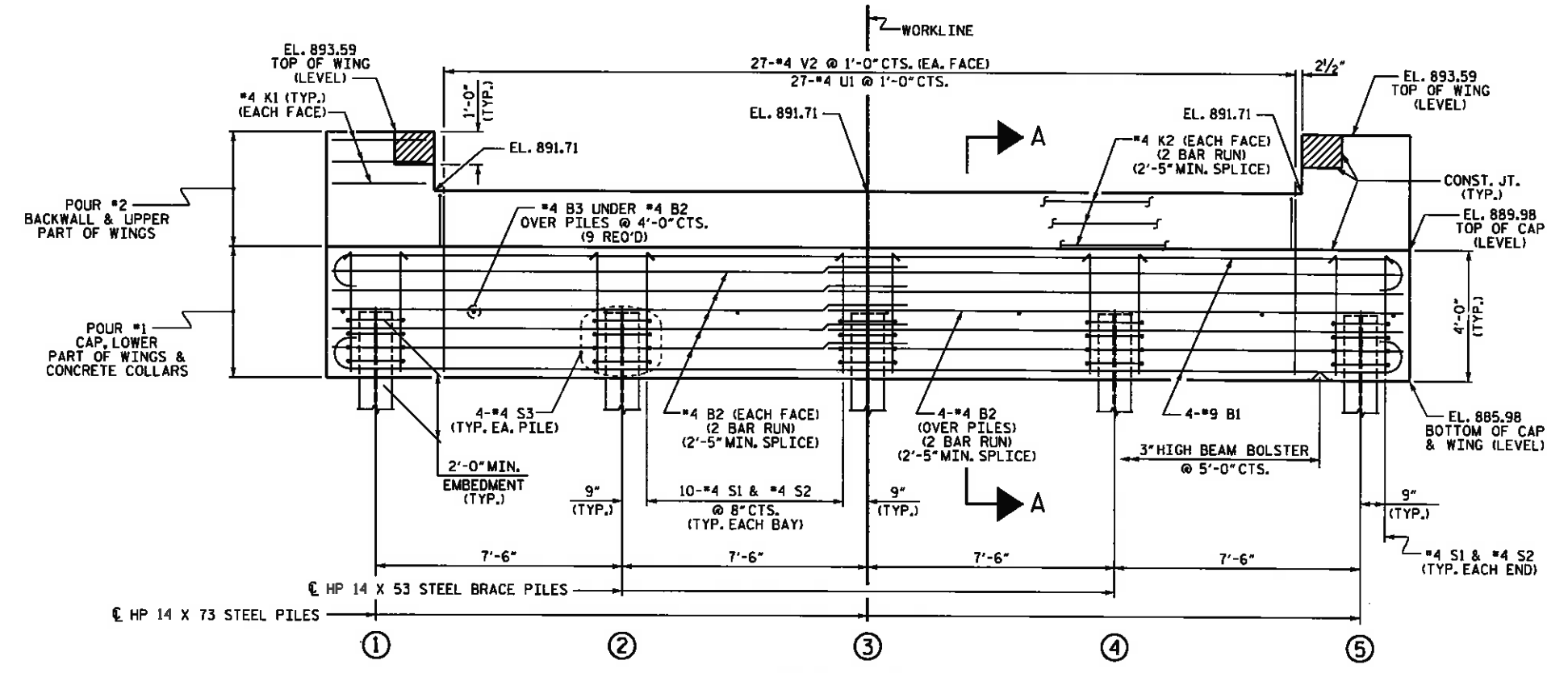
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN

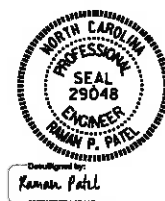


ELEVATION

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

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
STATION: 12+82.50 -L-

SHEET 1 OF 3

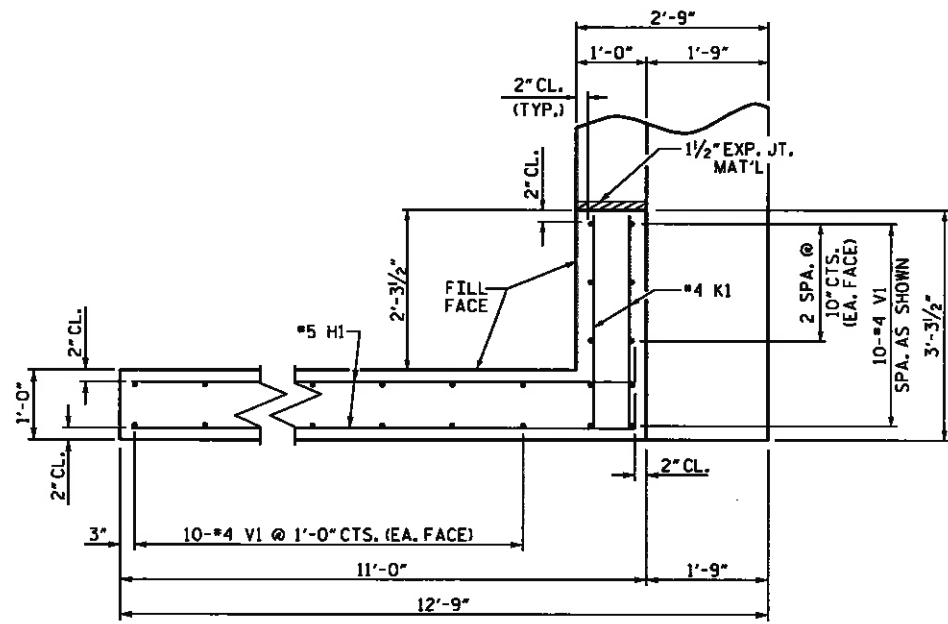


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 2

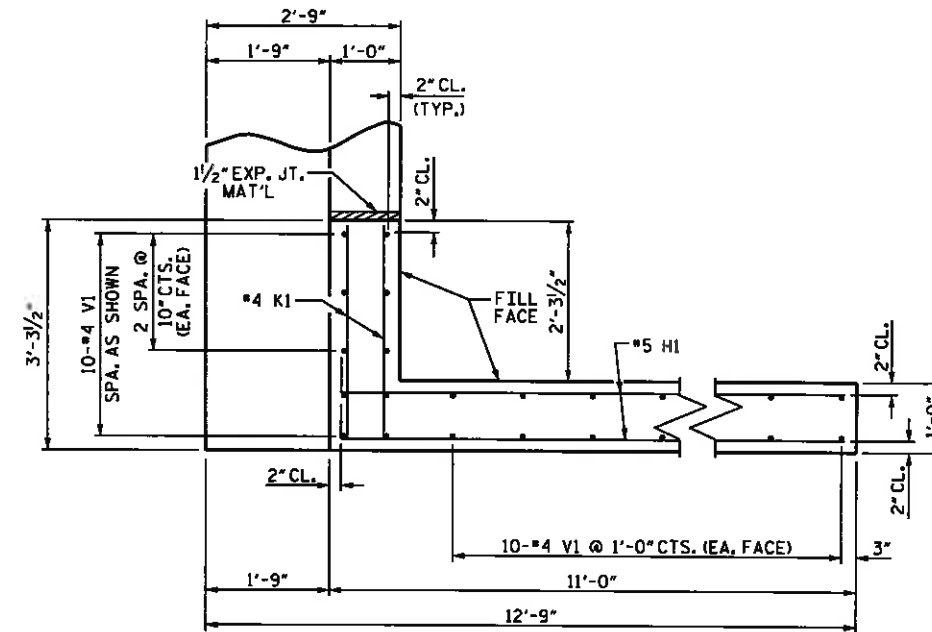
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CHECKED BY : M. E. GILES	DATE : 12-4-14
DRAWN BY : WJH	REV. 8/14
CHECKED BY : AAC	12/11

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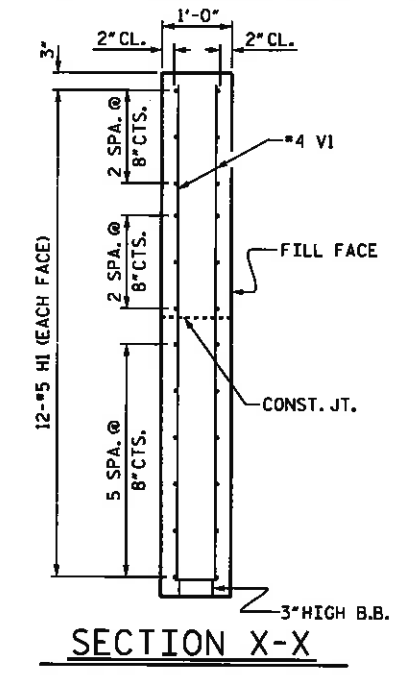
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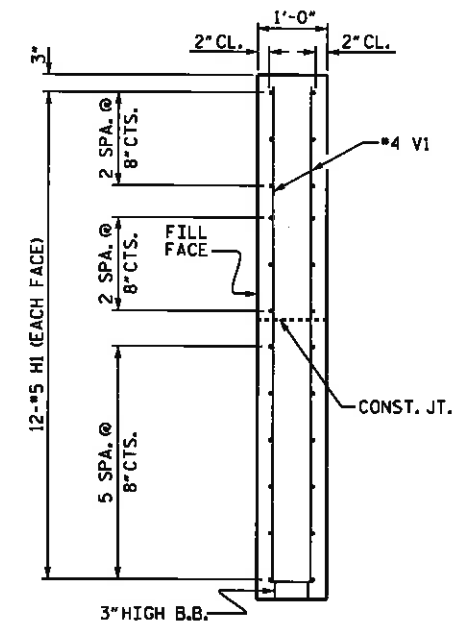
PLAN OF WING W1



PLAN OF WING W2



SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.12.R.57
LINCOLN COUNTY
 STATION: 12+82.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2



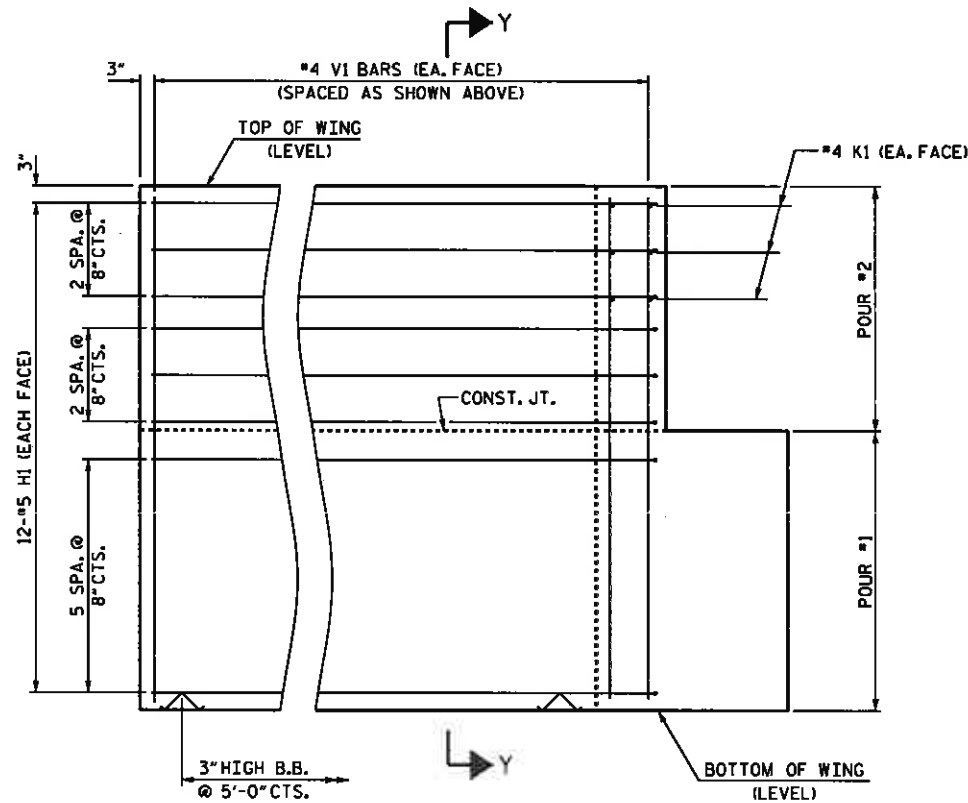
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 Raman Patel
 5/5/2016

REVISIONS

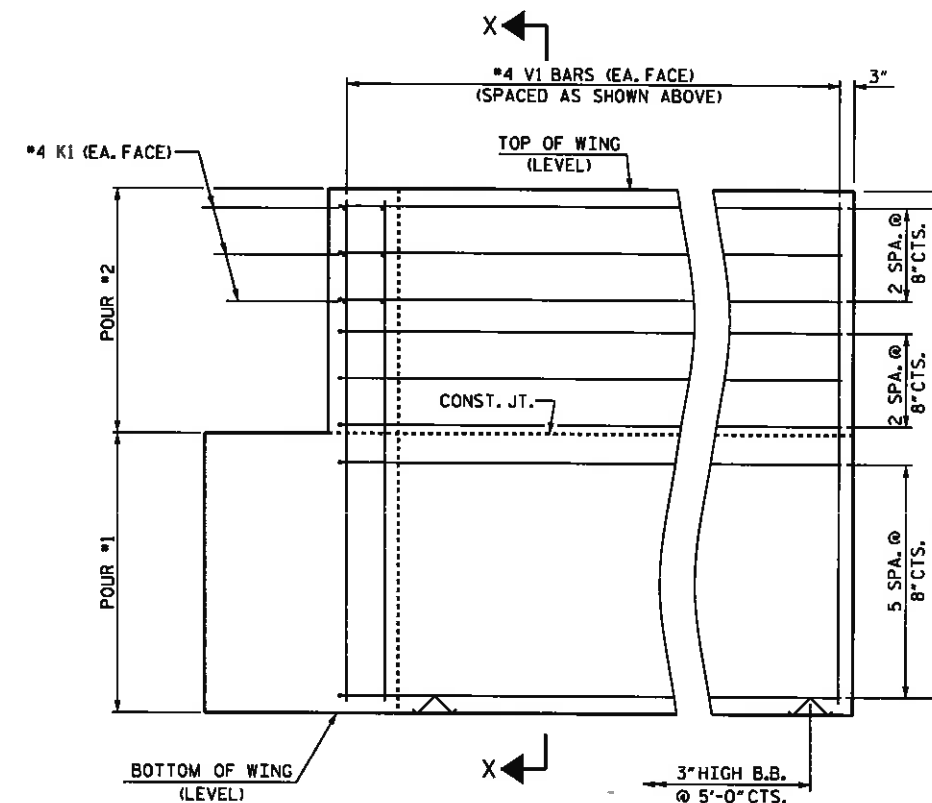
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STD. NO. EB_27_90S4_33BB



ELEVATION OF WING W1

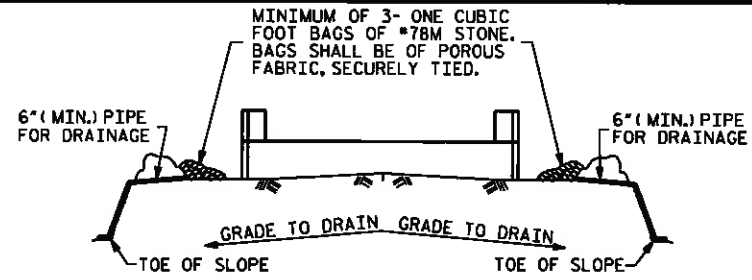


ELEVATION OF WING W2

WING DETAILS

ASSEMBLED BY: R.P. PATEL DATE: 12-3-14
 CHECKED BY: M.E. GILES DATE: 12-4-14
 DRAWN BY: W.JH 12/11 REV. 8/14 MAR/17MG
 CHECKED BY: AAC 12/11

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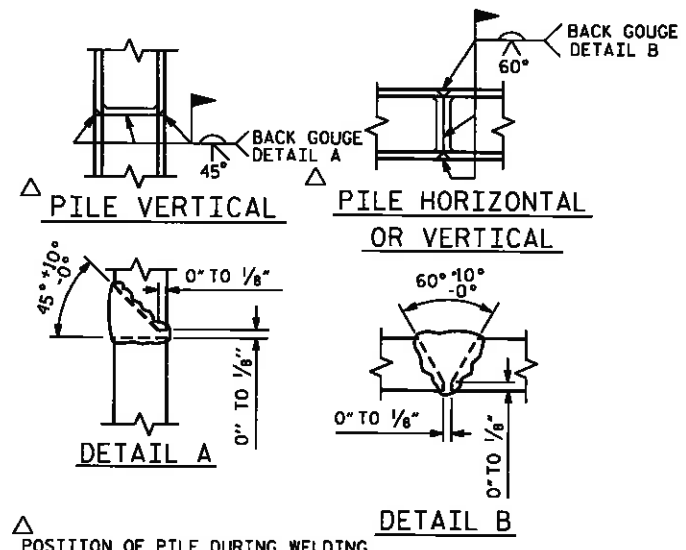


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

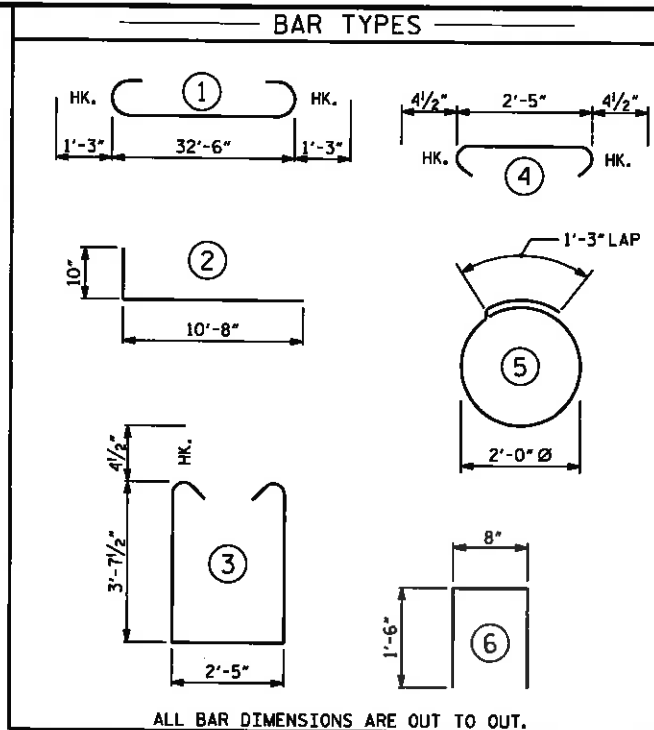
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

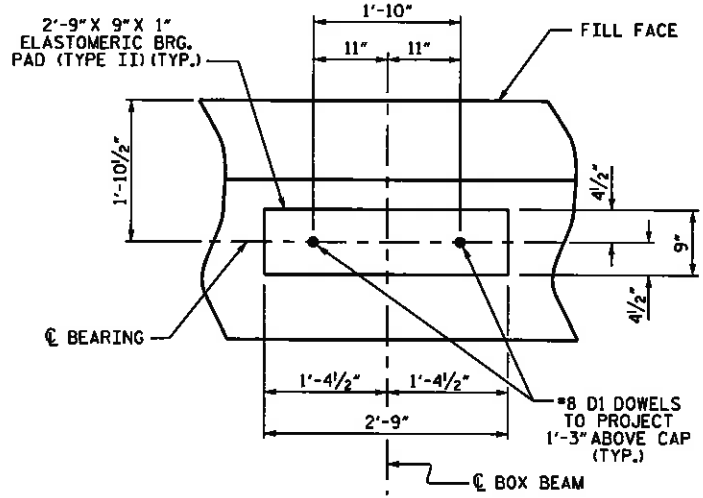
TEMPORARY DRAINAGE AT END BENT



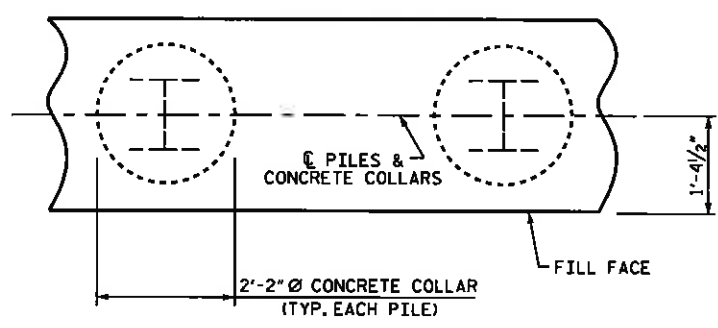
PILE SPLICE DETAILS



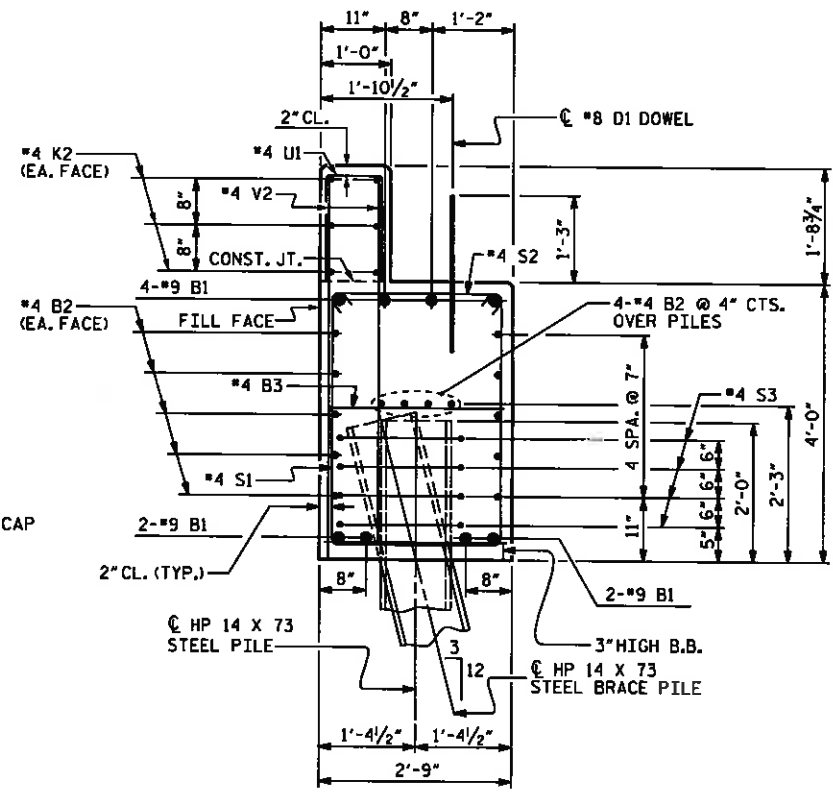
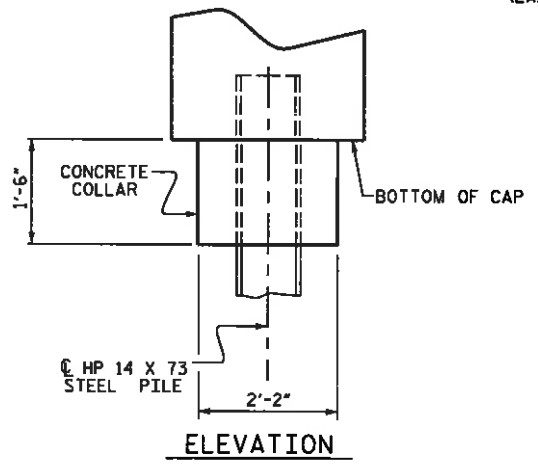
BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	35'-0"	952
B2	28	#4	STR	17'-7"	329
B3	9	#4	STR	2'-5"	15
D1	18	#8	STR	2'-3"	108
H1	48	#5	2	11'-6"	576
K1	12	#4	STR	2'-11"	23
K2	12	#4	STR	17'-7"	141
S1	42	#4	3	10'-5"	292
S2	42	#4	4	3'-2"	89
S3	20	#4	5	7'-7"	101
U1	27	#4	6	3'-8"	66
V1	60	#4	STR	7'-2"	287
V2	54	#4	STR	5'-4"	192
REINFORCING STEEL				LBS.	3,171
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				C.Y.	17.4
POUR #2 BACKWALL & UPPER PART OF WINGS				C.Y.	5.2
TOTAL CLASS A CONCRETE				C.Y.	22.6
HP 14 X 73 STEEL PILES NO. 5				LIN. FT.	75
STEEL PILE POINTS				EA.	5



DETAIL "A"



CORROSION PROTECTION FOR STEEL PILES DETAIL



PROJECT NO. 17BP.12.R.57
 LINCOLN COUNTY
 STATION: 12+82.50 -L-

SHEET 3 OF 3



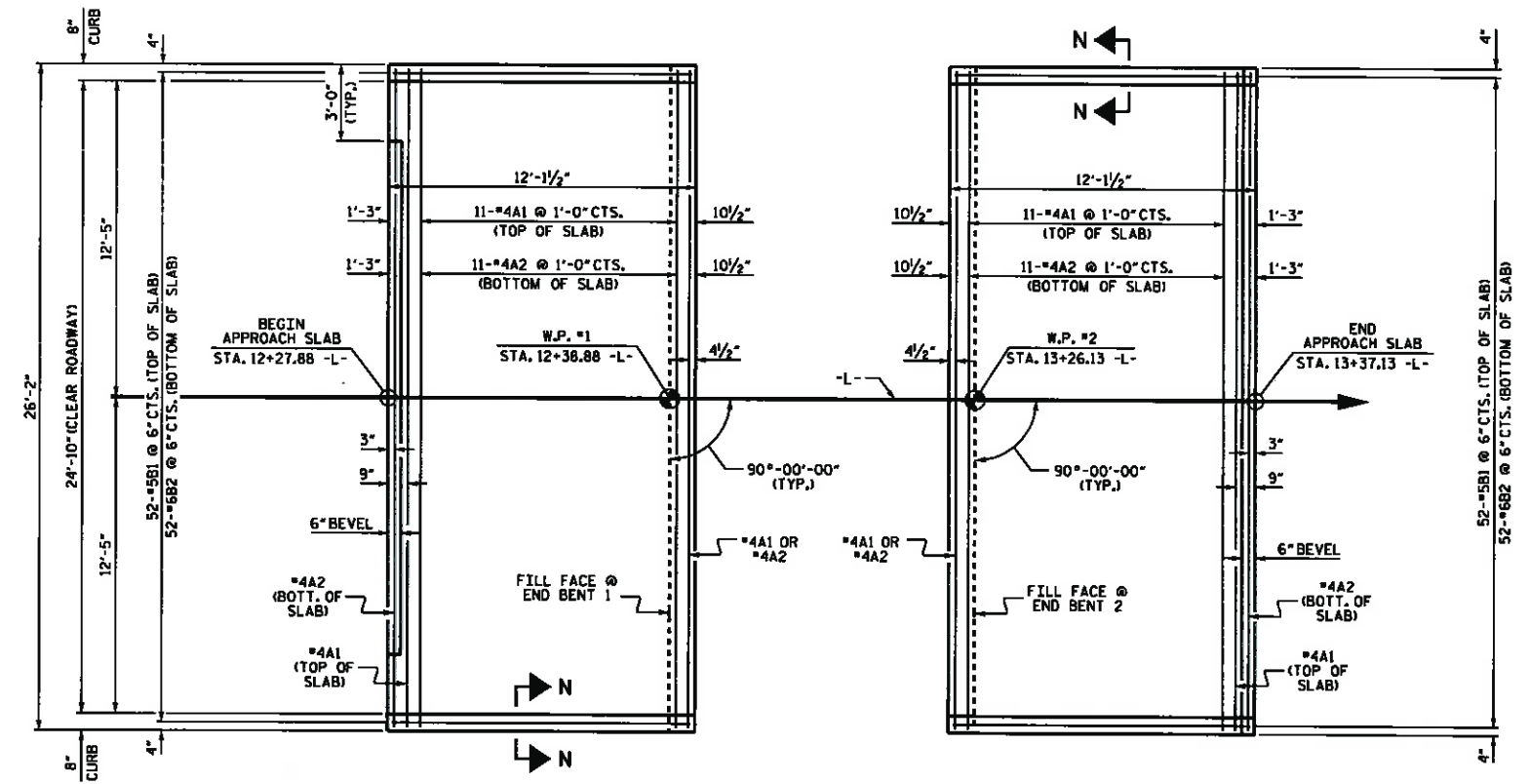
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

ASSEMBLED BY: R. P. PATEL	DATE: 12-3-14
CHECKED BY: M. E. GILES	DATE: 12-4-14
DRAWN BY: W.JH	12/11
CHECKED BY: AAC	12/11
REV. 8/14	MAA/TMG

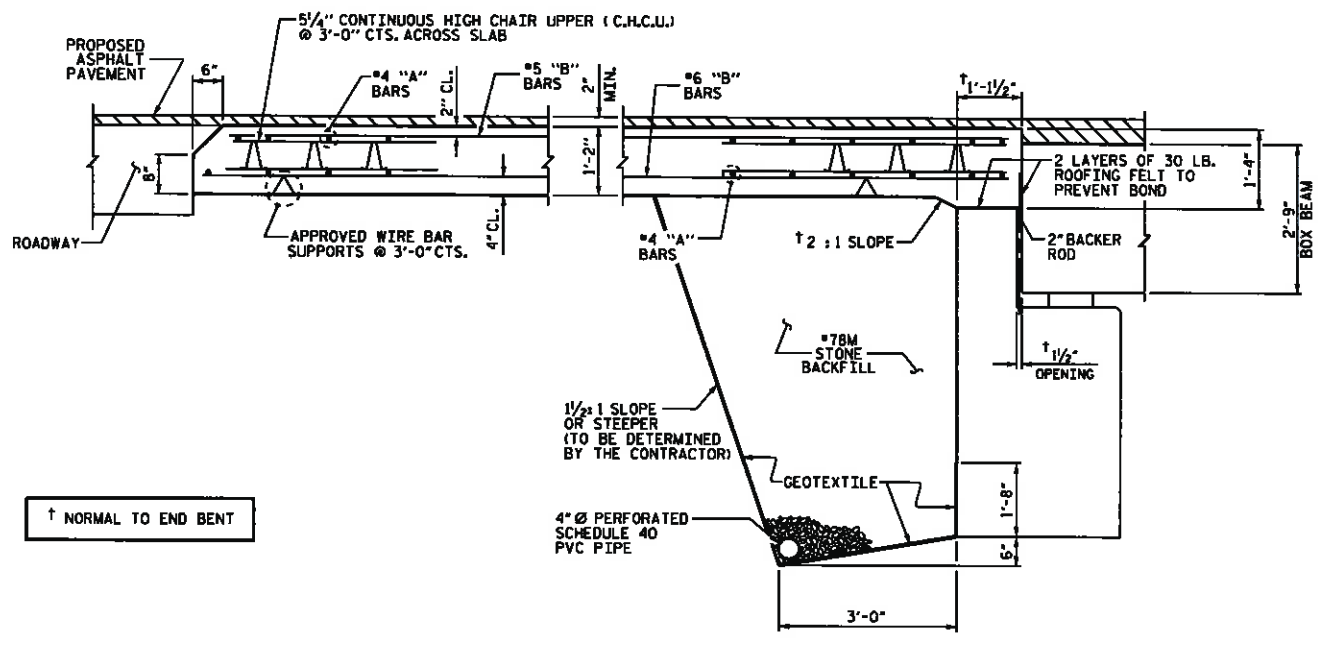
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS 15
2			4			

03-MAY-2016 11:38
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PLAN @ END BENT 1 PLAN @ END BENT 2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



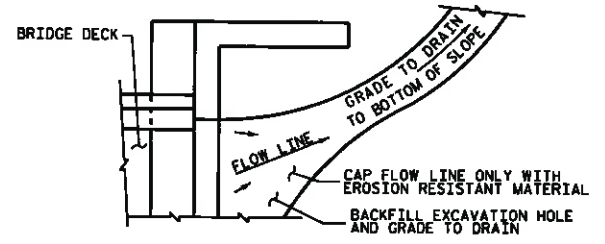
SECTION THRU SLAB

ASSEMBLED BY : A. A. IGHWAIR DATE : 9-24-14
 CHECKED BY : R. P. PATEL DATE : 12-3-14
 DRAWN BY : MAA 11/11
 CHECKED BY : AAC 11/11

03-MAY-2016 11:38
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 jehawk

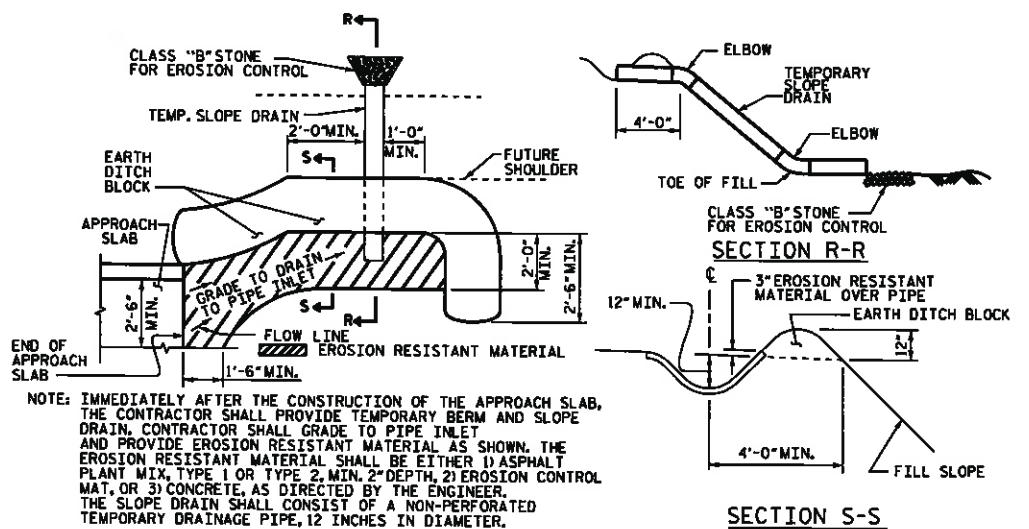
NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.
 GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
 #78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
 #78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
 FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
 APPROACH SLAB GROOVING IS NOT REQUIRED.



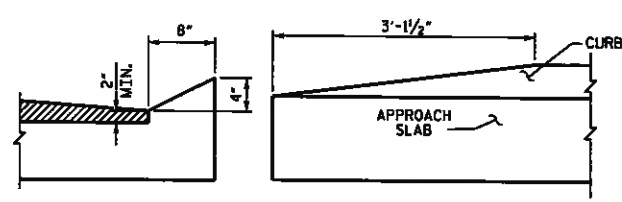
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



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

PLAN VIEW SECTION S-S
 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

BILL OF MATERIAL						
APPROACH SLAB AT EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	25'-10"	224	
A2	13	#4	STR	25'-10"	224	
*B1	52	#5	STR	11'-2"	606	
B2	52	#6	STR	11'-8"	911	
REINFORCING STEEL					LBS.	1,135
* EPOXY COATED REINFORCING STEEL					LBS.	830
CLASS AA CONCRETE					C. Y.	14.0
APPROACH SLAB AT EB 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	25'-10"	224	
A2	13	#4	STR	25'-10"	224	
*B1	52	#5	STR	11'-2"	606	
B2	52	#6	STR	11'-8"	911	
REINFORCING STEEL					LBS.	1,135
* EPOXY COATED REINFORCING STEEL					LBS.	830
CLASS AA CONCRETE					C. Y.	14.0

PROJECT NO. 17BP.12.R.57
 LINCOLN COUNTY
 STATION: 12+82.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM UNIT
 (SUB-REGIONAL TIER)
 90° SKEW

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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. FINIS 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