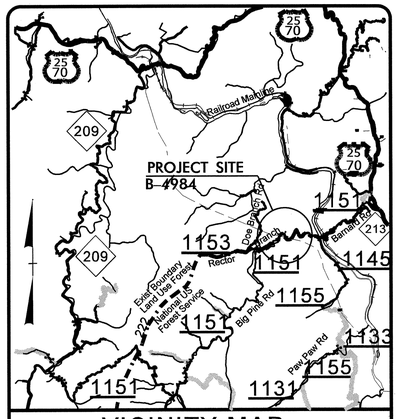
09/08/99

TIP PROJECT: B-4984

CONTRACT: C203351

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



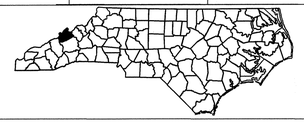
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MADISON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4984	1	

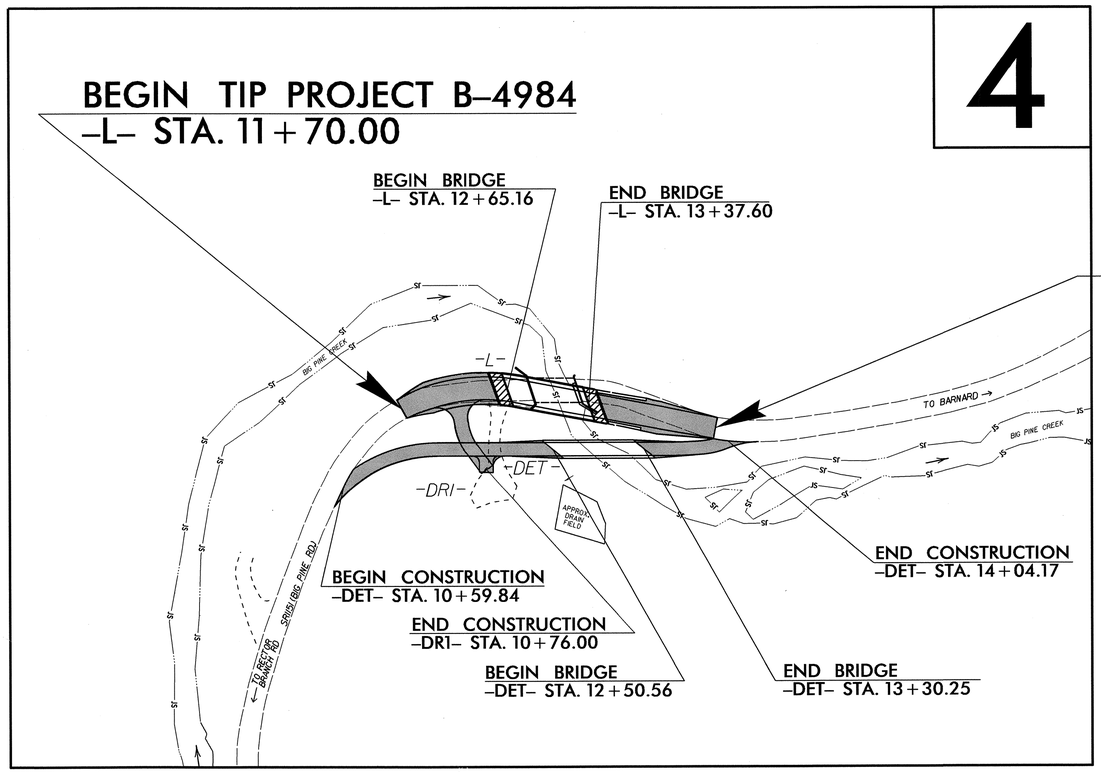
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40165.1.1	BRSTP-1151(6)	PE
40165.2.1	BRSTP-1151(6)	ROW, UTIL.
40165.3.FD1	BRSTP-1151(6)	CONST.



LOCATION: ***BRIDGE NO. 138 OVER BIG PINE CREEK ON SR 1151 (BIG PINE RD.)***

TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, AND STRUCTURES***

4



GRAPHIC SCALES

PLANS: 40 20 0 40 80

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2014 = 650
ADT 2033 = 785
K = 12 %
D = 60 %
T = 3 % *
V = 20 MPH
*(TTST 1% + DUAL 2%)
FUNC CLASS. = RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4984	=	0.039
LENGTH STRUCTURE TIP PROJECT B-4984	=	0.014
TOTAL LENGTH TIP PROJECT B-4984	=	0.053

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 24, 2012

LETTING DATE: FEBRUARY 18, 2014

G. E. BREW, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDS P.E.

11.21.13
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN

11/22/13 P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4984	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN

11/22/13

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-D	SURVEY CONTROL SHEETS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A THRU 2-C	STANDARD TEMPORARY WALL DETAIL
2-D	STANDARD TEMPORARY SHORING DETAIL
~~3~~	~~SUMMARY OF QUANTITIES~~
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF: GUARDRAIL, EARTHWORK, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
4-A	DETOUR PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-5	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLANS
RF-1	REFORESTATION PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
UO-1 THRU UO-3	UTILITIES PLANS
X-1A	CROSS-SECTIONS SUMMARY
X-1 THRU X-13	CROSS-SECTIONS
S-1 THRU S-22	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

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
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 560.01.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION 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 FRONTIER COMMUNICATIONS AND FRENCH BROAD EMC

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.

ROCK

ROCK IS ANTICIPATED BETWEEN -L- STA. 13+75 TO -L- STA. 15+00. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Details in Lieu of Standard Drawing as March 2013 Letting)
876.02	Guide for Rip Rap at Pipe Outlets

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4984	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

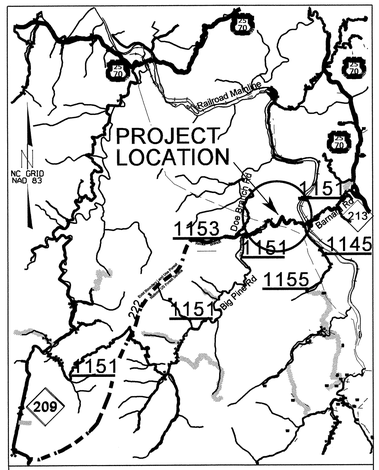
MISCELLANEOUS:

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

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-4984	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-4984



VICINITY MAP

****

BM1 ELEVATION = 1677.67
N 781468 E 882150
BL STATION 13+68.00 25 LEFT
RAILROAD SPIKE IN TELEPHONE POLE

****

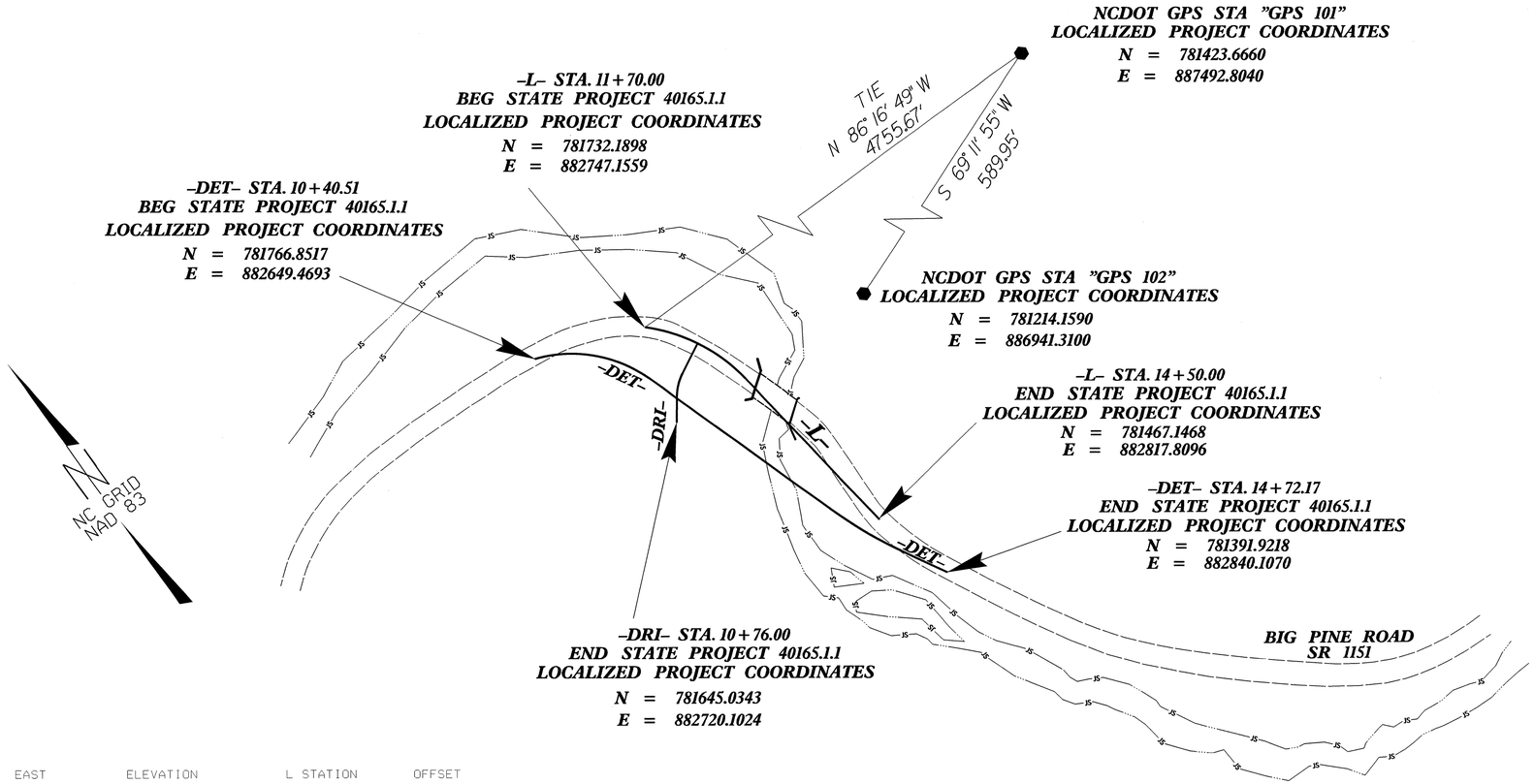
****

BM3 ELEVATION = 1661.20
N 781751 E 882747
BL STATION 21+04.00 53 LEFT
RAILROAD SPIKE IN POWER POLE

****

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
4	BL-4	781337.0860	882127.3620	1681.32	14+57.25	702.41 RT
5	BL-5	781602.3130	882227.1970	1671.37	OUTSIDE PROJECT LIMITS	
6	BL-6	781784.3240	882445.4160	1667.23	OUTSIDE PROJECT LIMITS	
7	BL-7	781681.1610	882795.8680	1658.26	12+37.49	12.02 LT
8	BL-8	781366.7090	882843.7080	1649.32	15+52.56	10.66 RT
9	BL-9	781076.8080	883083.5440	1636.28	OUTSIDE PROJECT LIMITS	



NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B4984_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

● *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

BL-1 THROUGH BL-3 ARE NOT SHOWN AS THEY ARE NOT WITHIN THE PROJECT LIMITS.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-101" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 781423.6660 (ft) EASTING: 887492.8040 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998572246
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-101" TO -L- STATION 11+70.00 IS N 86° 16' 49" W 4755.67'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
WBS# 40165.1.1	1-D
Location and Surveys	

SURVEY CONTROL SHEET B-4984

FINAL

(DESIGN ALIGNMENTS)

DET

TYPE	STATION	NORTH	EAST
POT	10+00.00	781773.7821	882609.7427
PC	10+03.73	781773.6567	882613.4734
PT	11+49.43	781691.8221	882723.2333
PC	13+51.30	781500.3911	882787.3247
PCC	13+79.38	781474.1008	882797.1655
PT	14+17.87	781444.2684	882820.7122
POT	14+20.56	781442.6885	882822.8896

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	781692.6170	882777.3570
PC	10+30.59	781678.2321	882750.3580
PT	10+53.41	781663.3553	882733.3178
POT	11+00.00	781625.5697	882706.0620

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	781774.5637	882586.4919
PC	10+34.68	781773.3986	882621.1511
PCC	11+18.67	781758.4194	882703.4895
PCC	11+70.56	781731.8064	882747.5610
PT	12+74.46	781641.0700	882794.0241
PC	14+50.00	781467.1468	882817.8096
PCC	14+98.66	781420.3869	882830.7498
PT	16+25.00	781307.6751	882887.6334

(ROW MARKERS)

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+70.00	20.00	781717.6318	882733.4423
L	11+70.00	11.00	781724.1829	882739.6134
L	11+70.00	-11.00	781740.1967	882754.6984
L	11+70.00	-25.00	781750.3873	882764.2980
L	11+95.00	-30.00	781731.8322	882787.7146
L	12+70.00	-45.00	781652.8627	882837.7460
L	13+00.00	30.00	781611.6985	882767.7616
L	13+20.00	-29.93	781600.0030	882829.8468
L	14+50.00	30.00	781463.0818	882788.0863
L	14+50.00	11.00	781465.6563	882806.9111
L	14+50.00	-11.00	781468.6372	882828.7082
L	14+50.00	-30.00	781471.2117	882847.5329

(PERMANENT EASEMENTS)

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+55.00	-29.95	781565.3284	882834.6084
L	13+55.00	-50.00	781568.0455	882854.4762

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
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  PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
  NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

  BL-1 THROUGH BL-6 ARE NOT SHOWN AS THEY ARE NOT WITHIN THE PROJECT LIMITS.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-101" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 781423.6660 (ft) EASTING: 887492.8040 (ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998572246 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-101" TO -L- STATION 11+70.00 IS N 86° 16' 49" W 4755.67'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
B-4984	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN 11/22/13

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22885 ENGINEER CLARK S. MORRISON 11/22/13

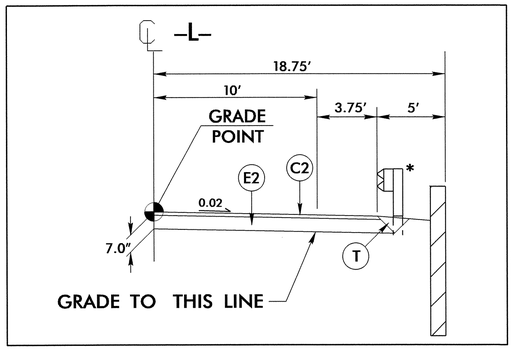
PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	E3	PROP. APPROX. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER INCH
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	CONCRETE SHOULDER BERM GUTTER.
C3	PROP. APPROX. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER INCH	T	EARTH MATERIAL.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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

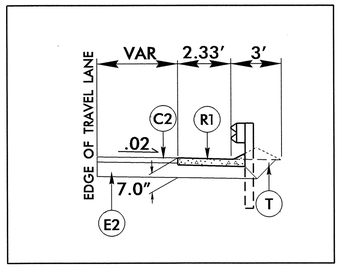
RETAINING WALL DETAIL



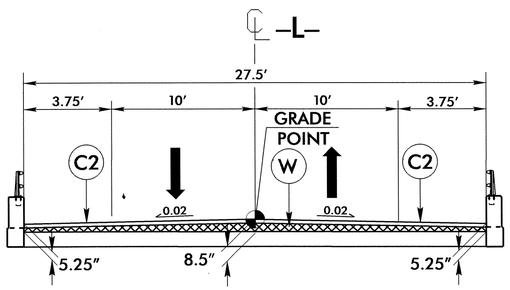
*USE 3'–1.5" GUARDRAIL POST SPACING

–L– STA. 13+37.60 (END BRIDGE) TO STA. 13+80.00 RT
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1

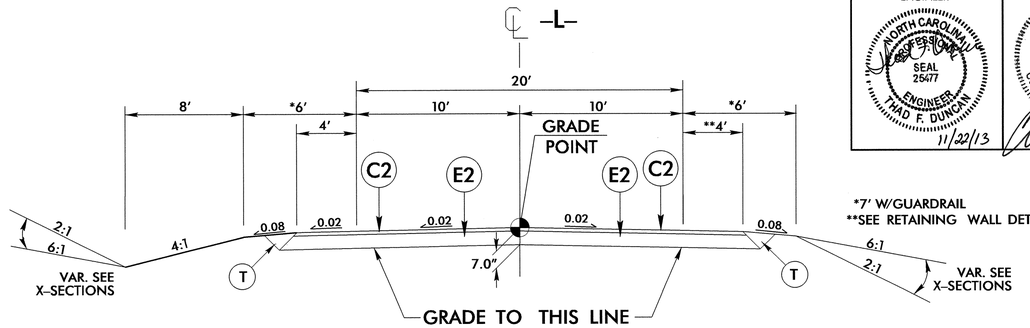
SHOULDER BERM GUTTER DETAIL



–L– STA 13+29.66 (END BRIDGE) TO –L– STA 13+54.00 LT
–L– STA 13+45.54 (END BRIDGE) TO –L– STA 13+62.00 RT

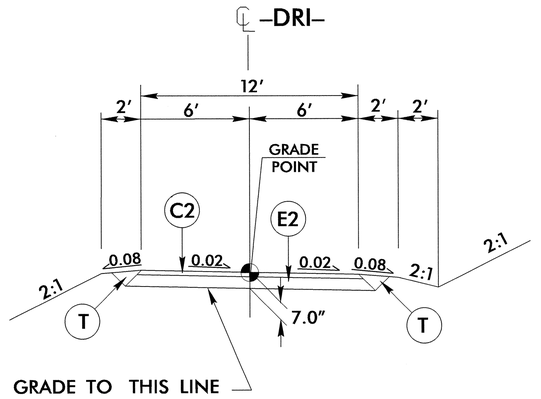


USE BRIDGE TYPICAL SECTION NO. 1
–L– STA. 12+65.16 TO STA. 13+37.60



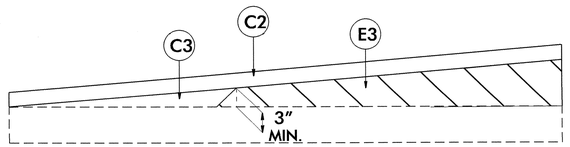
*7' W/GUARDRAIL
**SEE RETAINING WALL DETAIL

USE TYPICAL SECTION NO. 1
–L– STA. 11+70.00 TO STA. 12+65.16 (BEGIN BRIDGE)
–L– STA. 13+37.60 (END BRIDGE) TO STA. 14+50.00

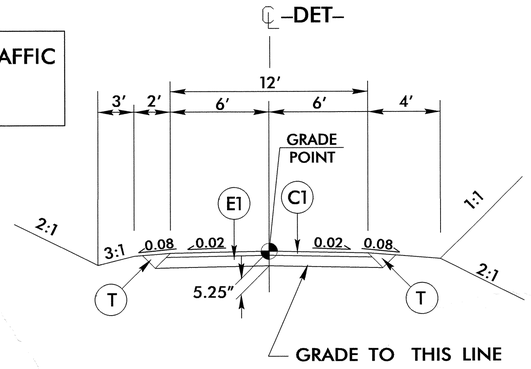


USE TYPICAL SECTION NO. 2
–DRI– STA. 10+10.00 to Sta. 10+76.00

NOTE: ONE LANE TWO WAY TRAFFIC TO BE MAINTAINED UTILIZING TEMPORARY TRAFFIC SIGNAL.



Wedging Detail For Resurfacing



USE TYPICAL SECTION NO. 3
–DET– STA. 10+59.84 TO STA. 12+50.56 (BEGIN BRIDGE)
–DET– STA. 13+30.25 (END BRIDGE) TO STA. 14+04.17

18-NOV-2013 10:52
B-4984_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET
B-4984	2-A

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 7/22/13
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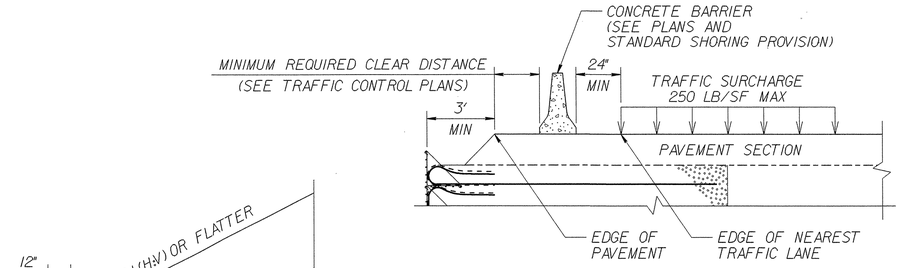
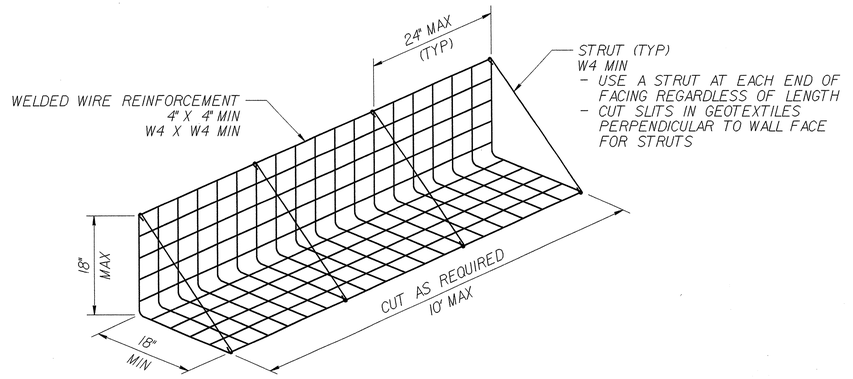
ENGINEER

SIGNATURE DATE

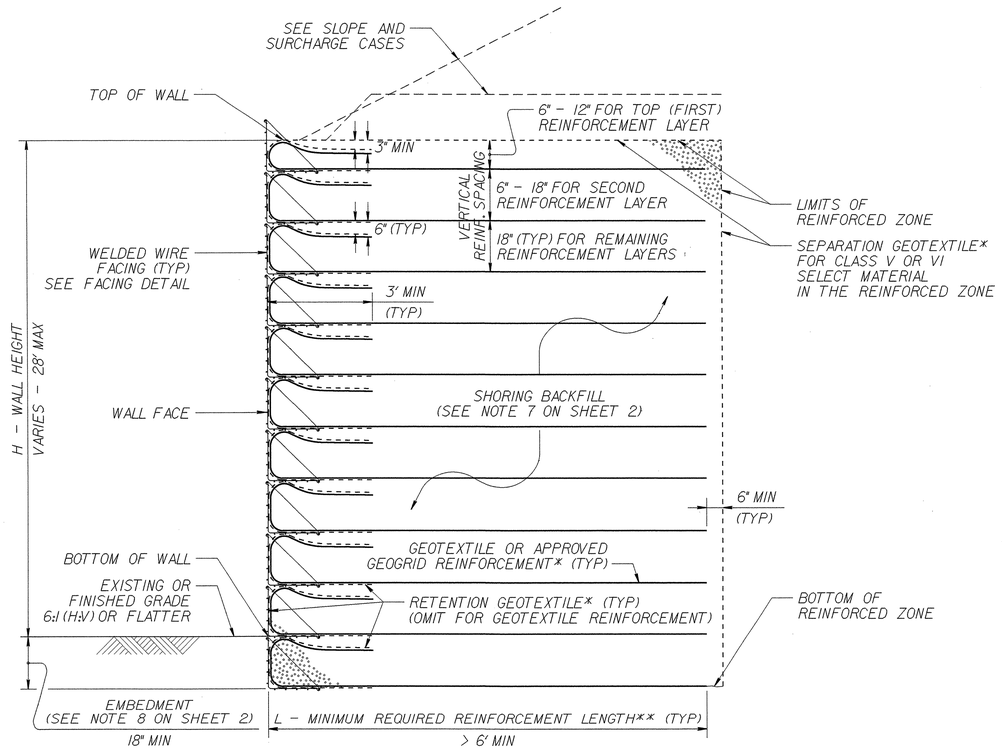


SURCHARGE CASE

SLOPE CASE

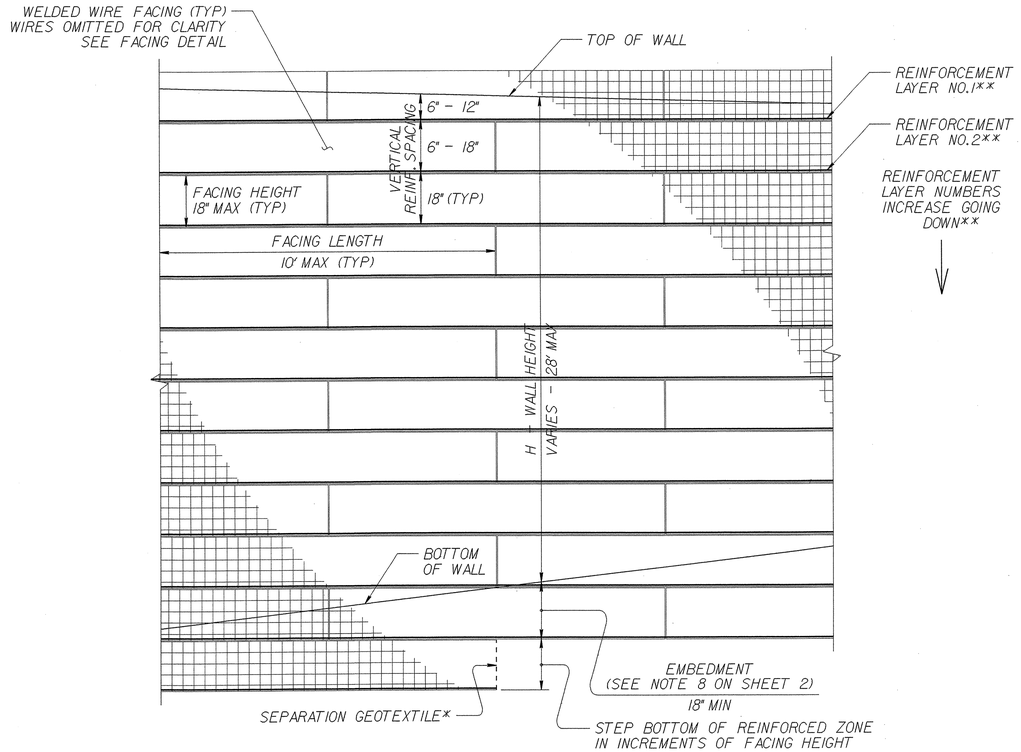


FACING DETAIL



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD
TEMPORARY WALL
Sheet 1 of 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET
B-4984	2-B

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

SIGNATURE scotta.hidden 7/22/13 DATE

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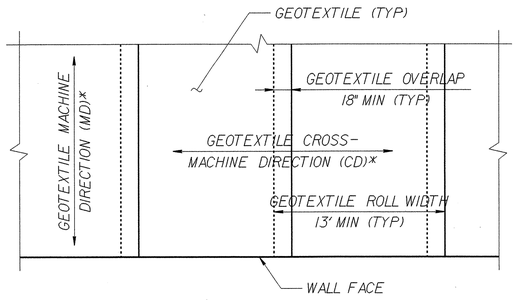
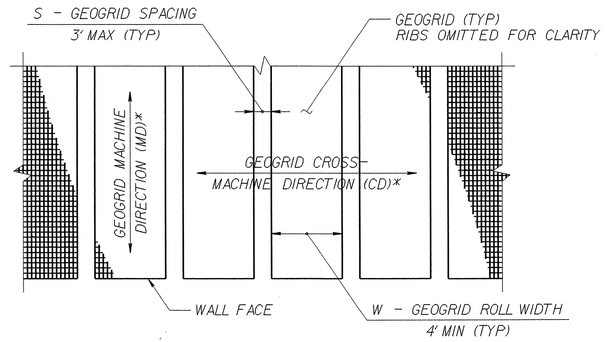
SIGNATURE DATE



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

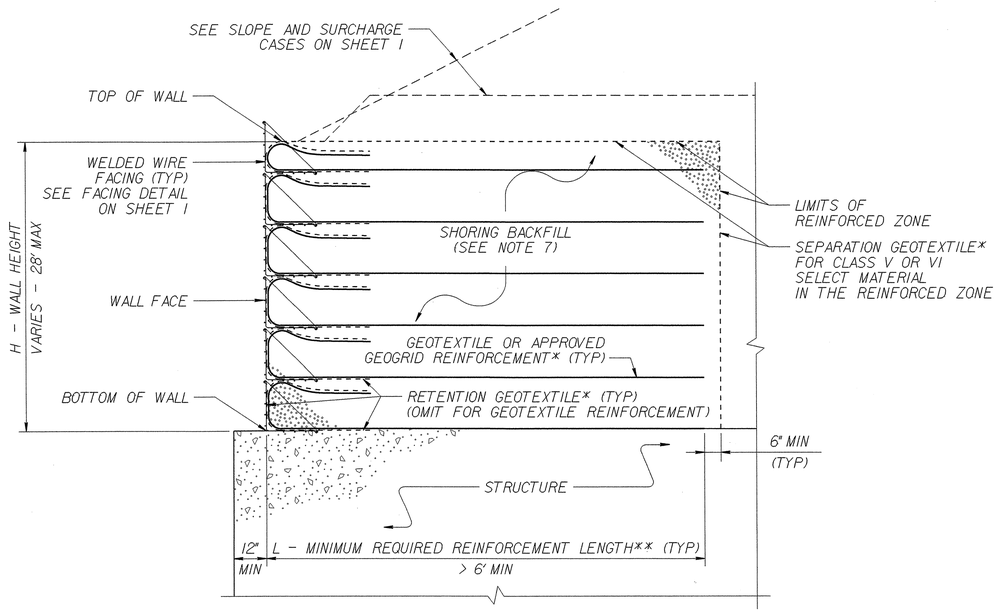


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT – $\frac{W}{W+S}$ x 100 ≥ 80%, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
***SEE NOTE 12.**



TEMPORARY WALL ON STRUCTURE DETAIL

***SEE GEOSYNTHETIC PLACEMENT DETAILS.**
****SEE REINFORCEMENT TABLES ON SHEET 3.**

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:
    connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

    IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) ≥ (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD ≥ MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
    connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
Sheet 2 of 3

DATE: 11-19-13

GEC25500 7/22/2013 Std Dr... No. 1801.02_12-11-19_Standard Temporary Wall_sna shidden GEC Geo860.34bond

PROJECT REFERENCE NO.	SHEET
B-4984	2-C

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 7/22/13
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II,TYPE I, CLASS III,CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II,TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

***BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.**

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
***SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
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RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD
TEMPORARY WALL
Sheet 3 of 3

DATE: 11-19-13

SEC355000 7/22/2013 Std Dwg No. 1801.02_13_11_19_Standard Temporary Wall.dgn hidden GEC Oct860 24board

PROJECT REFERENCE NO.	SHEET
B-4984	2-D

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A HIDDEN

Scott A. Hidden 1/22/13

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

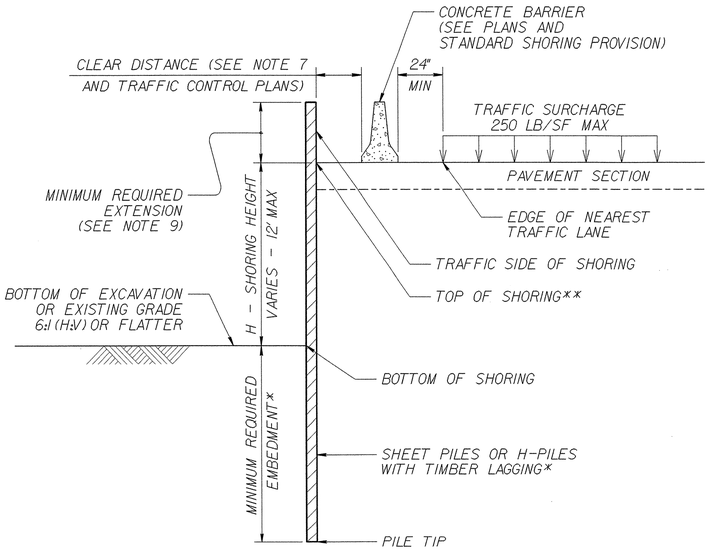
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

***DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

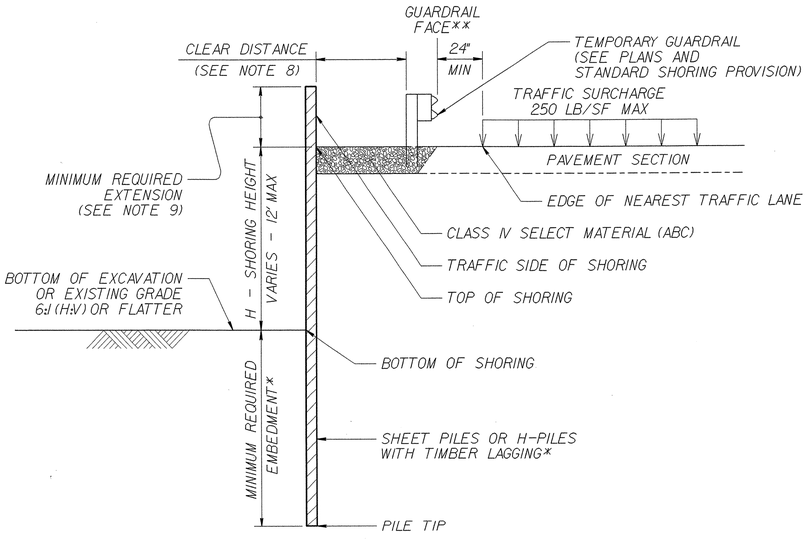
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



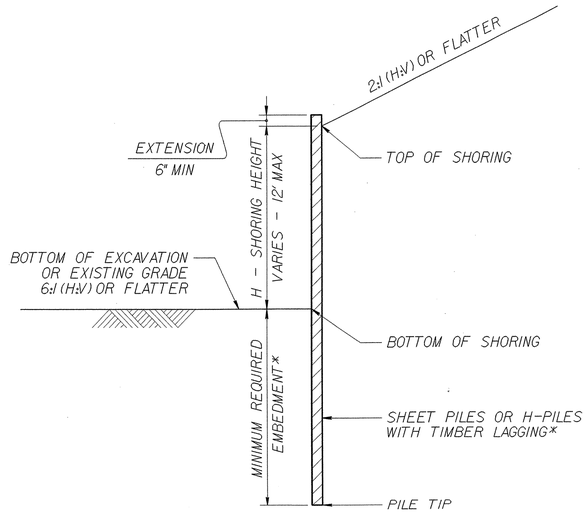
CONCRETE BARRIER

****TOP OF SHORING = EDGE OF PAVEMENT**



TEMPORARY GUARDRAIL

****GUARDRAIL FACE = EDGE OF PAVEMENT**



STANDARD TEMPORARY SHORING

(SLOPE CASE)

***SEE TABLE ABOVE.**

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

***SEE TABLE ABOVE.**

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

COMPUTED BY: A J FOSTER DATE: 9/13/2012

CHECKED BY: TFD DATE: 9/17/2012

PROJECT NO.	SHEET NO.
B-4984	3-A

RD248776

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC)	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE	12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE												
-L- 12+03	RT	401		1658.0'	1655.0'															
-L- 12+03	RT	401	402		1655.0'	1652.8'														
-L- 12+75	RT	402		1657.0'	1652.8'															
-L- 12+75	RT	402	406		1646.0'	1645.5'														
-L- 13+54	LT	403		1655.2'	1652.4'															
-L- 13+54	CL	403	404		1652.4'	1652.1'														
-L- 13+62	RT	404		1655.2'	1647.9'															
-L- 13+62	RT	404	405		1647.9'	1647.5'														
-DR1- 10+70	CL	407																		
SHEET TOTALS											28.0'									

STATION	C.S. PIPE SIZE	12"	15"	18"	24"	30"	36"	42"	48"
	C.S. PIPE THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.079	.109	.109
-L- 12+03									
-L- 12+03									
-L- 12+75									
-L- 12+75									
-L- 13+54									
-L- 13+54									
-L- 13+62									
-L- 13+62									
-DR1- 10+70				28.0'					
SHEET TOTALS				28.0'					

STATION	R.C. PIPE CLASS III SIZE	12"	15"	18"	24"	30"	36"	42"	48"
	R.C. PIPE CLASS III THICKNESS OR GAUGE								
-L- 12+03									
-L- 12+03				64.0'					
-L- 12+75									
-L- 12+75				52.0'					
-L- 13+54									
-L- 13+54			28.0'						
-L- 13+62									
-L- 13+62			8.0'						
-DR1- 10+70									
SHEET TOTALS			36.0'	116.0'					

STATION	R.C. PIPE CLASS IV SIZE	12"	15"	18"	24"	30"	36"	42"	48"
	R.C. PIPE CLASS IV THICKNESS OR GAUGE								
-L- 12+03									
-L- 12+03									
-L- 12+75									
-L- 12+75									
-L- 13+54									
-L- 13+54									
-L- 13+62									
-L- 13+62									
-DR1- 10+70									
SHEET TOTALS									

STATION	** " R.C. PIPE (CLASS V)	**** RC PIPE CULVERTS, CONTRACTOR DESIGN	***** RC PIPE CULVERTS, CONTRACTOR DESIGN	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	ENDWALLS CU. YARDS C.S.P.
-L- 12+03					
-L- 12+03					
-L- 12+75					
-L- 12+75					
-L- 13+54					
-L- 13+54					
-L- 13+62					
-L- 13+62					
-DR1- 10+70					
SHEET TOTALS					

STATION	QUANTITIES FOR DRAINAGE STRUCTURES "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL."B") LIN. FT. PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02
-L- 12+03	1			
-L- 12+03				
-L- 12+75	1			
-L- 12+75				
-L- 13+54	1			
-L- 13+54				
-L- 13+62	1	2.3		
-L- 13+62				
-DR1- 10+70				
SHEET TOTALS	4	2.3		

STATION	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
-L- 12+03					
-L- 12+03					
-L- 12+75					
-L- 12+75					
-L- 13+54					
-L- 13+54					
-L- 13+62					
-L- 13+62					
-DR1- 10+70					
SHEET TOTALS				1	1

STATION	G.D.I. TYPE "B" STD. 840.18 OR 840.27	FRAME W/ NAR SLOT SAG GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	M.H. FRAME & COVER STD. 840.54	TBDI STD. 840.35	FRAME W/ NAR SLOT FLAT GRATES STD. 840.29	PREFORMED SCOUR HOLE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-L- 12+03	1	1								42.0'	REMOVE EXIST. 15" CMP
-L- 12+03											
-L- 12+75			1	1							
-L- 12+75							1				
-L- 13+54					1	1					
-L- 13+54											
-L- 13+62					1	1					
-L- 13+62							1				
-DR1- 10+70										28.0'	REMOVE EXIST. 18" TEMP. CSP
SHEET TOTALS	1	1	1	1	2	2	2			70	

ABBREVIATIONS

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

CSD265813,11/19/2013,S:\Records\Plot_Rooms\Plotter_room_A\Print_Jobs\11-19-13\AFoster\combopsh.xls

COMPUTED BY:	AJF	DATE:	9/13/2012
CHECKED BY:	TFD	DATE:	9/17/2012

PROJECT NO.	SHEET NO.
B-4984	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- STA 11+70	-L- STA 12+65.16	95	43		52
-L- STA 13+37.60	-L- STA 14+50	65	260	195	
-DR1- STA 10+10	-DR1- STA 10+76	90			90
SUBTOTAL:		**250**	**303**	**195**	**142**
-DET- STA 10+40.51	-DET- STA 12+50.56	554	47		507
-DET- STA 13+30.25	-DET- STA 14+72.17		700	700	
SUBTOTAL:		**554**	**747**	**700**	**507**
TOTAL:		**804**	**1,050**	**895**	**649**
LOSS DUE TO CLEAR & GRUB		-5		5	
WASTE IN LIEU OF BORROW				-649	-649
PROJECT TOTALS		**799**	**1,050**	**251**	
DETOUR REMOVAL		700	637		63
EST. 5% TO REPLACE TOP SOIL				13	
GRAND TOTAL:		1,499		264	63
SAY:		**1,550 CY**		**300 CY**	

UNDERCUT: 100 CY PER GEOTECH

SUMMARY OF EXISTING PAVEMENT REMOVAL/BREAKING

IN SQUARE YARDS

LINE	STATION	STATION	LOC LT/RT/CL	AREA SY
REMOVAL OF EXISTING PAVEMENT				
-L-	11+70.00	12+89.43	CL	233
-L-	13+21.44	14+50.00	LT	262
-DET-	10+59.84	12+50.56	CL	254
-DET-	13+30.25	14+04.17	CL	99
-DET-	11+95.54	12+50.56	PVD SH	10
-DET-	13+30.25	13+73.60	PVD SH	8
			TOTAL:	866
			SAY:	**900 SY**

SUMMARY OF SUBSURFACE DRAINAGE

TYPE	LINE	STATION	STATION	LOCATION	DRAIN SIZE	LF
UD		CONTINGENCY				100
					TOTAL	**100**

UD = Underdrain

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

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

LINE	BEG. STA.		END STA.	LOC.	LENGTH STRAIGHT	LENGTH TEMP STRAIGHT	LENGTH SHOP CURVED	LENGTH TEMP SHOP CURVED	WARRANT POINT APPR. END	WARRANT POINT TRAIL. END	"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH APPR. END	FLARE LENGTH TRAIL. END	W APPR. END	W TRAIL. END	ANCHORS TYPE III	ANCHORS GRAU-350 (TL-2)	ANCHORS TEMP TYPE III	ANCHORS AT-1	TEMP GRAU-350 TL-2	ADDITIONAL GUARDRAIL POSTS	REMARKS
-L-	12+02.67		12+58.92	LT	56.25				12+58.92		3.75	7					1	1					
-L-	12+41.80		12+72.80	RT	18.75'		43.75'			12+72.80	3.75	7					1			1			
-L-	13+29.66		13+85.91	LT	56.25'					13+29.66	3.75	7					1	1					
-L-	13+45.54		14+01.79	RT	56.25'				13+45.54		3.75	7					1	1					
-DET-	11+85.26		12+41.51	LT		56.25'				12+41.51	2	5							1		1		
-DET-	12+03.77		12+60.02	RT		56.25'			12+60.02		2	5							1		1		
-DET-	13+20.79		13+77.04	LT		56.25'			13+20.79		2	5							1		1		
-DET-	13+39.71		13+95.96	RT		56.25'				13+39.71	2	5							1		1		
SUBTOTAL:					187.50'	225.00'	43.75'										4	3	4	1	4	10	
LESS ANCHORS DEDUCTIONS:																							
TYPE III	4	@	18.75'		75.00'																		
GRAU-350 (TL-2)	3	@	25.00'		75.00'																		
TEMP TYPE III	4	@	18.75'			75.00'																	
AT-1	1	@	6.25'				6.25'																
ANCHOR TOTALS:					150.00'	75.00'	6.25'																
GRAND TOTAL:					37.50'	150.00'	37.50'										4	3	4	1	4	10	
SAY:					**50.00'**	**175.00'**	**50.00'**																

PROJECT REFERENCE NO.	SHEET NO.
B-4984	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN 11/22/13

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR 11-21-13

NAD 83

40 20 0 40 80

REVISIONS 8/17/99

BEGIN TIP PROJECT B-4984
POC STA. 11+70.00 -L-

BM-4
RR SPIKE SET IN POWER POLE
ELEV.=1661.20'
-BL- STA. 21+04.06 53' LT.
-L- STA. 11+58.82 14.16' LT.

PCC Sta. 11+70.56 -L-

+70 -L-
11' LT & 25' LT

BEGIN BRIDGE
POT STA. 12+65.16 -L-

+70 -L-
45' LT

BEGIN APPROACH SLAB
POT STA. 12+54.82 -L-

POC STA. 12+20.00 -L-
POT STA. 10+00.00 -DRI-
BRG AH = S 61° 57' 05.4" W

PT Sta. 12+74.46 -L-
BRG AH = S 7° 47' 14.6" E

END BRIDGE
POT STA. 13+37.60 -L-

END APPROACH SLAB
POT STA. 13+48.45 -L-

JERRY ANDERSON
DB 132 PG 210
DB 107 PG 126
1

END TIP PROJECT B-4984
PC Sta. 14+50.00 -L-

PT Sta. 16+25.00 -L-

FOR -L- PROFILE SEE SHEET 5
FOR -DRI- PROFILE SEE SHEET 5
FOR -DET- PLAN VIEW SEE SHEET 2-A
FOR -DET- PROFILE SEE SHEET 5
FOR STRUCTURE SEE SHEET S1 THRU S22

PCC Sta. 11+18.67 -L-

BEGIN CONSTRUCTION
POC STA. 10+59.84 -DET-

PC Sta. 10+34.68 -L-

POT Sta. 10+00.00 -L-
BRG AH = S 88° 04' 28.4" E

+41 -DET-
6.90' RT & 14' RT

+70 -L-
11' RT & 20' RT

+05 -DET-
17' RT

PT Sta. 11+49.43 -DET-
PC Sta. 10+30.59 -DRI-
BRG AH = S 18° 30' 38.3" E

PT Sta. 10+53.41 -DRI-
BRG AH = S 35° 48' 14.3" W

PC Sta. 10+03.73 -DET-

BM-3
RR SPIKE SET IN GUY POLE
ELEV.=1666.75'
-BL- STA. 18+28.42 15' LT.

POT Sta. 10+00.00 -DET-
BRG AH = S 88° 04' 28.4" E

+95 -L-
30' LT

REMOVE EXIST BRIDGE AND ABUTMENTS

+20 -L-
29.93' LT

+50 -L-
11' LT & 30' LT

SBG -L- END BRIDGE TO 13+54 LT AND 13+62 RT

+55 -L-
29.95' LT
50' LT

PCC Sta. 14+98.66 -L-

-BL- 8

+20.56 -DET-
13.79' RT

POT Sta. 14+20.56 -DET-

PT Sta. 14+17.87 -DET-
BRG AH = S 54° 02' 08.7" E

END CONSTRUCTION
PC Sta. 14+04.17 -DET-

+00 -DET-
30' RT

+50 -L-
11' RT & 30' RT

PCC Sta. 13+79.38 -DET-

+05 -DET-
22' RT

FFE = -L-
1661.0 +00
30' RT

-DET-
+52
28' RT

-DET-
+68
28' RT

POT STA. 11+00.00 USE 3'-1.5' GR RETAINING WALL #1
POST SPACING

END CONSTRUCTION -DRI-
-DRI- STA. 10+76.00

-DET-
+33
44' RT

PC Sta. 13+51.30 -DET-

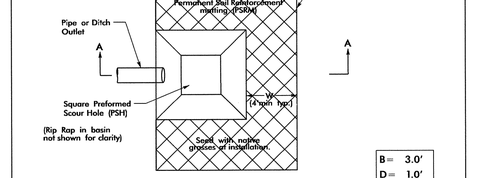
JERRY ANDERSON
DB 132 PG 210
DB 107 PG 126
1

TRENCH, BROAD EMC 20' RIGHT OF WAY EASEMENT PER D.B. 289 PG. 381

WOODS
NOTE: BM-2 IS DESTROYED

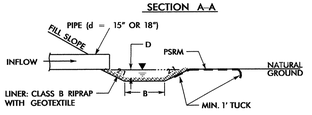
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



B = 3.0'
D = 1.0'
W = 4.0'

SECTION A-A



308

STA. 13+10 RT
STA. 13+61 RT

-L-

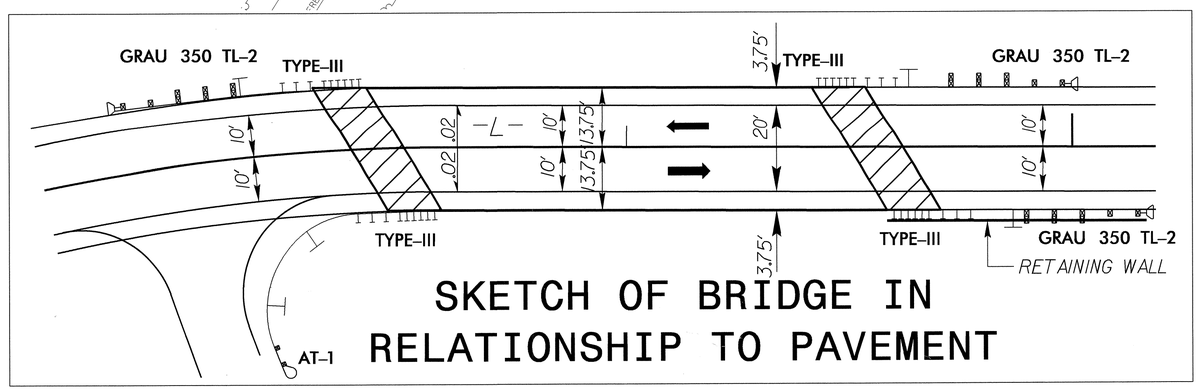
PI Sta 10+76.98	PI Sta 11+45.03	PI Sta 12+24.57	PI Sta 14+74.48	PI Sta 15+61.92
Δ = 16° 46' 13.0" (RT)	Δ = 24° 51' 38.8" (RT)	Δ = 38° 39' 22.0" (RT)	Δ = 15° 21' 45.3" (LT)	Δ = 7° 15' 31.0" (LT)
D = 19° 58' 01.7"	D = 47° 54' 39.4"	D = 37° 12' 18.2"	D = 31° 34' 09.6"	D = 5° 44' 43.5"
L = 83.99'	L = 51.89'	L = 103.90'	L = 48.66'	L = 126.34'
T = 42.30'	T = 26.36'	T = 54.01'	T = 24.48'	T = 63.25'
R = 286.95'	R = 119.59'	R = 154.00'	R = 181.49'	R = 997.24'
SE = EXIST.	SE = EXIST.	SE = SEE PLANS RO = SEE PLANS	SE = EXIST.	SE = EXIST.

-DRI-

PI Sta 10+42.20
Δ = 26° 08' 51.2" (LT)
D = 114° 35' 29.6"
L = 22.82'
T = 11.61'
R = 50.00'
SE = SEE PLANS

-DET-

PI Sta 10+87.08	PI Sta 13+65.35	PI Sta 13+99.12
Δ = 69° 33' 50.1" (RT)	Δ = 4° 01' 18.5" (LT)	Δ = 31° 30' 12.0" (LT)
D = 47° 44' 47.3"	D = 14° 19' 26.2"	D = 81° 51' 04.0"
L = 145.69'	L = 28.08'	L = 38.49'
T = 83.35'	T = 14.04'	T = 19.74'
R = 120.00'	R = 400.00'	R = 70.00'
SE = 04	SE = SEE PLANS	SE = SEE PLANS
RO = 64'		



SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT

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$$USERNAME$$

PROJECT REFERENCE NO.	SHEET NO.
B-4984	4-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN 11/22/13

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDER 11-21-13

40 20 0 40 80

JERR
DB
DB

(1)

NAD 83

FOR -DET- PROFILE SEE SHEET 5
FOR -L- & -DRI- PLAN VIEW SEE SHEET 4

USE THIS SHEET FOR DETOUR CONSTRUCTION ONLY

PCC Sta. 11+70.56 -L-

+70 -L-
11' LT &
25' LT

PT Sta. 12+74.46 -L-

+70 -L-
45' LT

PCC Sta. 14+98.66 -L-

PC Sta. 14+50.00 -L-

BEGIN BRIDGE
POT STA. 12+50.56 -DET-

BM-4
RR SPIKE SET IN POWER POLE
ELEV.=1661.20'
-BL- STA. 21+04.06 53' LT.
-L- STA. 11+58.82 14.16' LT.

PT Sta. 10+53.41 -DRI-

PC Sta. 10+30.59 -DRI-

POT STA. 10+00.00 -DRI-

+95 -L-
30' LT

LOW CHORD ON THE BRIDGE TO BE NO LOWER THAN ELEV. = 1653'.

+50 -L-
11' LT &
30' LT

END BRIDGE
POT STA. 13+30.25 -DET-

+20 -L-
29.93' LT

+55 -L-
29.95' LT
50' LT

PUE

BRIDGE #38
CONC./ STEEL, TIMBER

PT Sta. 16+25.00 -L-

PCC Sta. 11+18.67 -L-

BEGIN CONSTRUCTION
POC STA. 10+59.84 -DET-

+70 -L-
11' RT &
20' RT

+41 -DET-
6.90' RT &
14' RT

PC Sta. 10+34.68 -L-

POT Sta. 10+00.00 -L-

+05 -DET-
17' RT

PT Sta. 11+49.43 -DET-

BRG AH = S 18° 30' 38.3" E

POT STA. 11+00.00 -DRI-

+00
30' RT
-DET-

+05
22' RT

-DET
+68
28' RT

+52
22' RT

-DET-
+33
44' RT

CL II RIPRAP
TO EL. 1652.0

+20.56 -DET-
13.79' RT

POT Sta. 14+20.56 -DET-

PT Sta. 14+17.87 -DET-

BRG AH = S 54° 02' 08.7" E

END CONSTRUCTION
PC Sta. 14+04.17 -DET-

+00 -DET-
30' RT

+50 -L-
11' RT &
30' RT

PCC Sta. 13+79.38 -DET-

PC Sta. 10+03.73 -DET-

POT Sta. 10+00.00 -DET-

BRG AH = S 88° 04' 28.4" E

BM-3
RR SPIKE SET IN GUY POLE
ELEV.=1666.75'
-BL- STA. 18+28.42 15' LT.

JERRY ANDERSON
DB 132 PG 210
DB 107 PG 126

(1)

PC Sta. 13+51.30 -DET-

NOTE: BM-2 IS DE

NOTE: ONE LANE TWO WAY TRAFFIC TO BE MAINTAINED UTILIZING TEMPORARY TRAFFIC SIGNALS.

-L-

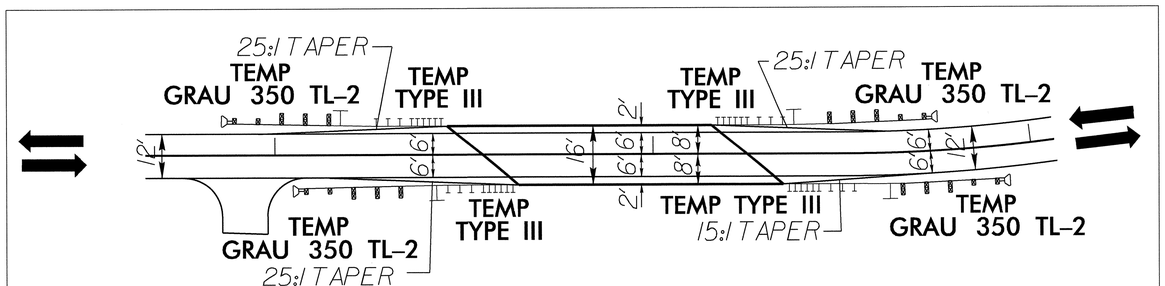
PI Sta 10+76.98	PI Sta 11+45.03	PI Sta 12+24.57	PI Sta 14+74.48	PI Sta 15+61.92
Δ = 16° 46' 13.0" (RT)	Δ = 24° 51' 38.8" (RT)	Δ = 38° 39' 22.0" (RT)	Δ = 15° 21' 45.3" (LT)	Δ = 7° 15' 31.0" (LT)
D = 19° 58' 01.7"	D = 47° 54' 39.4"	D = 37° 12' 18.2"	D = 31° 34' 09.6"	D = 5° 44' 43.5"
L = 83.99'	L = 51.89'	L = 103.90'	L = 48.66'	L = 126.34'
T = 42.30'	T = 26.36'	T = 54.01'	T = 24.48'	T = 63.25'
R = 286.95'	R = 119.59'	R = 154.00'	R = 181.49'	R = 997.24'
SE = EXIST.	SE = EXIST.	SE = SEE PLANS	SE = EXIST.	SE = EXIST.
		RO = SEE PLANS		

-DRI-

PI Sta 10+42.20
Δ = 26° 08' 51.2" (LT)
D = 114° 35' 29.6"
L = 22.82'
T = 11.61'
R = 50.00'
SE = SEE PLANS

-DET-

PI Sta 10+87.08	PI Sta 13+65.35	PI Sta 13+99.12
Δ = 69° 33' 50.1" (RT)	Δ = 4° 01' 18.5" (LT)	Δ = 31° 30' 12.0" (LT)
D = 47° 44' 47.3"	D = 14° 19' 26.2"	D = 81° 51' 04.0"
L = 145.69'	L = 28.08'	L = 38.49'
T = 83.35'	T = 14.04'	T = 19.74'
R = 120.00'	R = 400.00'	R = 70.00'
SE = 02	SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS		



SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4984	5

ROADWAY DESIGN ENGINEER

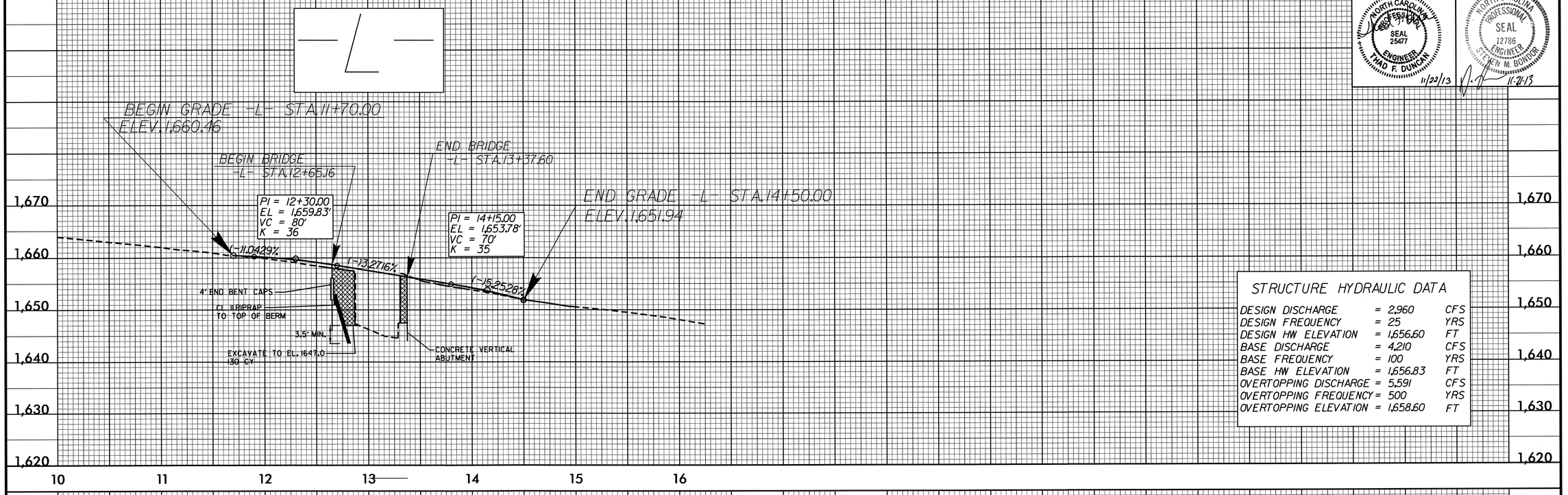
NORTH CAROLINA PROFESSIONAL SEAL 25477 ENGINEER THAD F. DUNCAN

11/22/13

HYDRAULICS ENGINEER

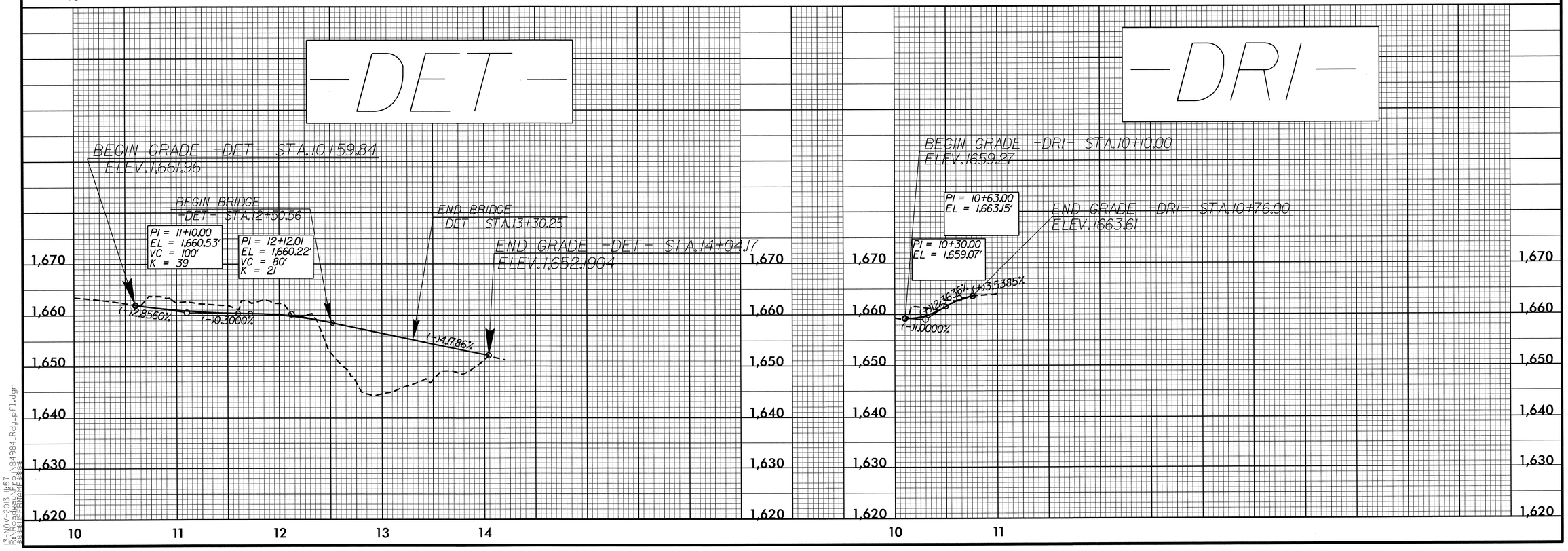
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR

11-21-13



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2,960	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1,656.60	FT
BASE DISCHARGE	= 4,210	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1,656.83	FT
OVERTOPPING DISCHARGE	= 5,591	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 1,658.60	FT



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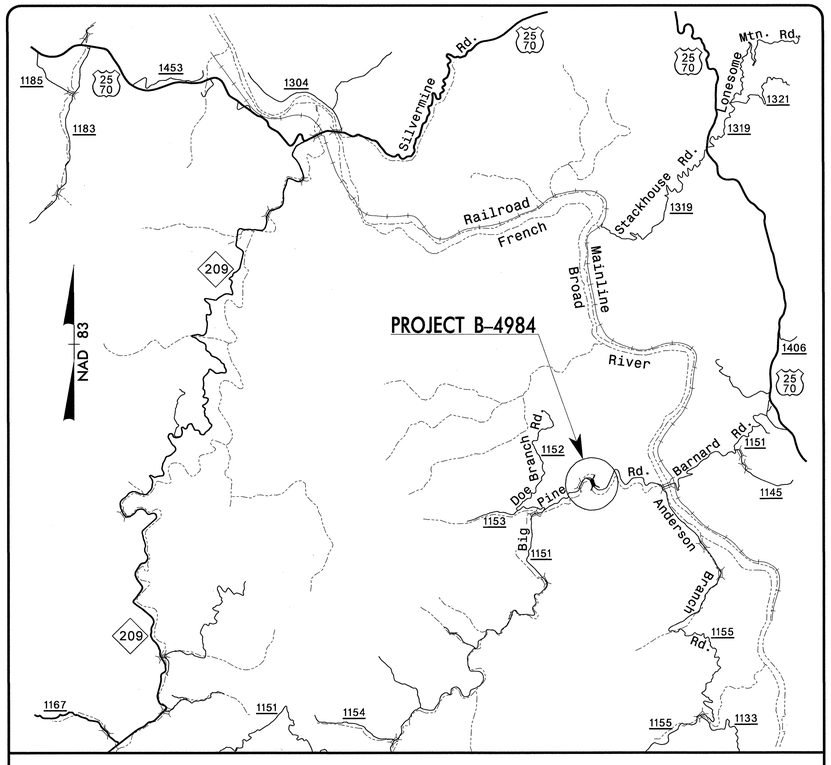
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MADISON COUNTY



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKINGS
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (TRANSPORTATION OPERATIONS AND GENERAL NOTES)
TMP-2	TEMPORARY SHORING DATA
TMP-3	PHASING AND PHASE I DETAILS
TMP-4	PHASE II DETAILS
TMP-5	PHASE III DETAILS

SHEET NO.
TMP-1

B-4984

TIP PROJECT:

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

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

J. S. BOURNE, P.E. — *STATE TRAFFIC MANAGEMENT ENGINEER*
G. L. GETTIER, P.E. — *TRAFFIC CONTROL PROJECT ENGINEER*
J. W. WOOLARD, P.E. — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
S. B. COATS — *TRAFFIC CONTROL DESIGN ENGINEER*

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

APPROVED:
DATE: 10/21/13

SEAL
J. W. WOOLARD, JR.
NORTH CAROLINA
PROFESSIONAL
SEAL
19862
ENGINEER

10/10/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-4984	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER 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 BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKINGS

CA - 4" WHITE EDGELINE (COLD APPLIED PLASTIC - TYPE 4)
CD - 4" 3 FT. WHITE MINISKIP (COLD APPLIED PLASTIC - TYPE 4)
C2 - 24" WHITE STOP BAR (COLD APPLIED PLASTIC - TYPE 4)
PA - 4" WHITE EDGELINE (PAINT)
PI - 4" YELLOW DOUBLE CENTER (PAINT)

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J.W. WOOLARD JR.

10/21/13

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

ROADWAY STANDARD DRAWINGS & LEGEND

10/10/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-4984	TMP-1B

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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

H) 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.

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

TRAFFIC CONTROL DEVICES

J) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

PAVEMENT MARKINGS AND MARKERS

L) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1151	PAINT	N/A
-DET-	PAINT/ COLD APPLIED PLASTIC	N/A

M) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

TRANSPORTATION OPERATIONS

CONSTRUCTION

CONSTRUCT ON-SITE DETOUR AND NEW BRIDGE REPLACEMENT ON SR 1151 (BIG PINE RD.) INCLUDING ROADWAY APPROACHES AND DRIVES AS SHOWN IN THE CONSTRUCTION PLANS. OBLITERATE DETOUR BRIDGE AND TEMPORARY PAVEMENT AS SHOWN IN THE CONSTRUCTION PLANS.

TMP DESIGN PARAMETERS

UTILIZE FLAGGERS, TEMPORARY SIGNAGE, TEMPORARY SIGNALS, AND TRAFFIC CONTROL DEVICES TO CONSTRUCT ON-SITE DETOUR AND BRIDGE REPLACEMENT ON SR 1151 (BIG PINE RD.)(SEE SHEET TMP-3 THRU TMP-5).

APPROVED: DATE: 10/21/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD JR.

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

TRANSPORTATION OPERATIONS PLAN

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SHORING LOCATION NO.	BEGIN STATION AND OFFSET	END STATION AND OFFSET	ESTIMATED AVERAGE HEIGHT	ESTIMATED MAXIMUM HEIGHT	SHORING LOCATION TYPE
NO. 1	STA. 13+11 -DET- 12.0 FT. LT.	STA. 13+25 -DET- 12.0 FT. LT.	7.2 FT.	7.2 FT.	ROADWAY

TEMPORARY SHORING NOTES

SHORING LOCATION NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 13+11 -DET-, 12.0 FT. LEFT, TO STATION 13+25 -DET-, 12.0 FT. LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 1643 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 13+11 -DET-, 12.0 FT. LEFT, TO STATION 13+25 -DET-, 12.0 FT. LEFT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 13+11 -DET-, 12.0 FT. LEFT, TO STATION 13+25 -DET-, 12.0 FT. LEFT WILL NOT PENETRATE BELOW ELEVATION 1641 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM STATION 13+11 -DET-, 12.0 FT. LEFT, TO STATION 13+25 -DET-, 12.0 FT. LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING AND 1801.02 FOR STANDARD TEMPORARY WALLS.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON 09-13-2013 AND SEALED BY A PROFESSIONAL ENGINEER, SHANE C. CLARK, LICENSE #029869.

APPROVED: J. W. Woolard DATE: 10/21/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD

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

TEMPORARY SHORING DATA

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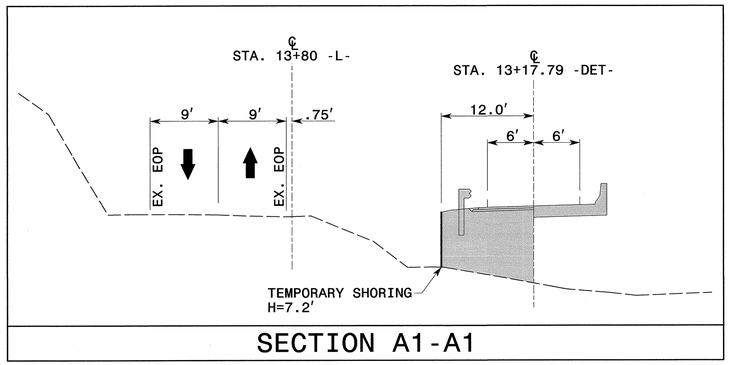
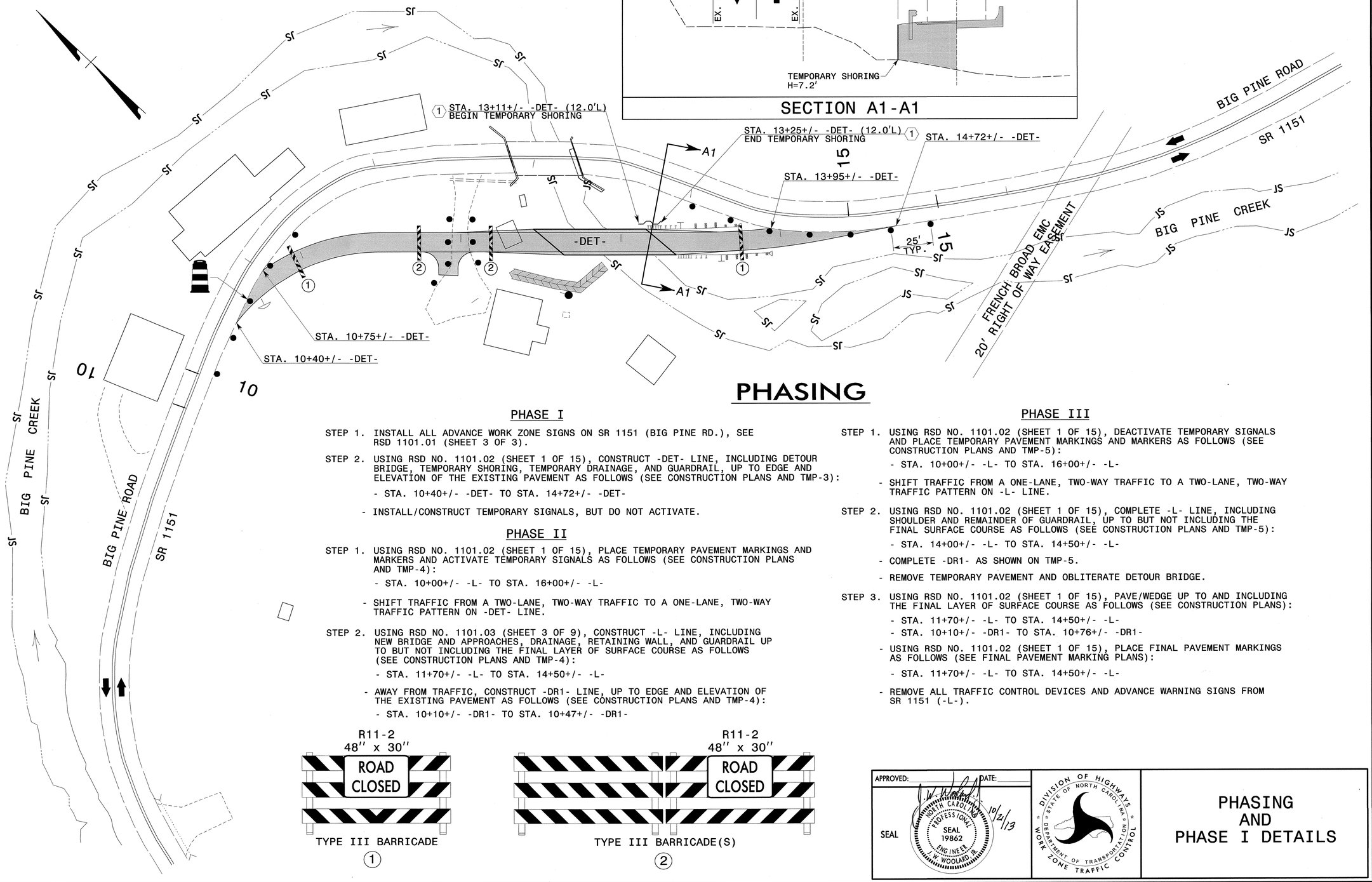
PROJ. REFERENCE NO.	SHEET NO.
B-4984	TMP-3

Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
①	7.2 FT.	101 SQ. FT.



SECTION A1-A1



PHASING

PHASE I

STEP 1. INSTALL ALL ADVANCE WORK ZONE SIGNS ON SR 1151 (BIG PINE RD.), SEE RSD 1101.01 (SHEET 3 OF 3).

STEP 2. USING RSD NO. 1101.02 (SHEET 1 OF 15), CONSTRUCT -DET- LINE, INCLUDING DETOUR BRIDGE, TEMPORARY SHORING, TEMPORARY DRAINAGE, AND GUARDRAIL, UP TO EDGE AND ELEVATION OF THE EXISTING PAVEMENT AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-3):

- STA. 10+40+/- -DET- TO STA. 14+72+/- -DET-

- INSTALL/CONSTRUCT TEMPORARY SIGNALS, BUT DO NOT ACTIVATE.

PHASE II

STEP 1. USING RSD NO. 1101.02 (SHEET 1 OF 15), PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AND ACTIVATE TEMPORARY SIGNALS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):

- STA. 10+00+/- -L- TO STA. 16+00+/- -L-

- SHIFT TRAFFIC FROM A TWO-LANE, TWO-WAY TRAFFIC TO A ONE-LANE, TWO-WAY TRAFFIC PATTERN ON -DET- LINE.

STEP 2. USING RSD NO. 1101.03 (SHEET 3 OF 9), CONSTRUCT -L- LINE, INCLUDING NEW BRIDGE AND APPROACHES, DRAINAGE, RETAINING WALL, AND GUARDRAIL UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):

- STA. 11+70+/- -L- TO STA. 14+50+/- -L-

- AWAY FROM TRAFFIC, CONSTRUCT -DR1- LINE, UP TO EDGE AND ELEVATION OF THE EXISTING PAVEMENT AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):

- STA. 10+10+/- -DR1- TO STA. 10+47+/- -DR1-

PHASE III

STEP 1. USING RSD NO. 1101.02 (SHEET 1 OF 15), DEACTIVATE TEMPORARY SIGNALS AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-5):

- STA. 10+00+/- -L- TO STA. 16+00+/- -L-

- SHIFT TRAFFIC FROM A ONE-LANE, TWO-WAY TRAFFIC TO A TWO-LANE, TWO-WAY TRAFFIC PATTERN ON -L- LINE.

STEP 2. USING RSD NO. 1101.02 (SHEET 1 OF 15), COMPLETE -L- LINE, INCLUDING SHOULDER AND REMAINDER OF GUARDRAIL, UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-5):

- STA. 14+00+/- -L- TO STA. 14+50+/- -L-

- COMPLETE -DR1- AS SHOWN ON TMP-5.

- REMOVE TEMPORARY PAVEMENT AND OBLITERATE DETOUR BRIDGE.

STEP 3. USING RSD NO. 1101.02 (SHEET 1 OF 15), PAVE/WEDGE UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS):

- STA. 11+70+/- -L- TO STA. 14+50+/- -L-
- STA. 10+10+/- -DR1- TO STA. 10+76+/- -DR1-

- USING RSD NO. 1101.02 (SHEET 1 OF 15), PLACE FINAL PAVEMENT MARKINGS AS FOLLOWS (SEE FINAL PAVEMENT MARKING PLANS):

- STA. 11+70+/- -L- TO STA. 14+50+/- -L-

- REMOVE ALL TRAFFIC CONTROL DEVICES AND ADVANCE WARNING SIGNS FROM SR 1151 (-L-).

TYPE III BARRICADE
①

TYPE III BARRICADE(S)
②

APPROVED: DATE:

SEAL

10/2/13

PHASING AND PHASE I DETAILS

10/10/2013
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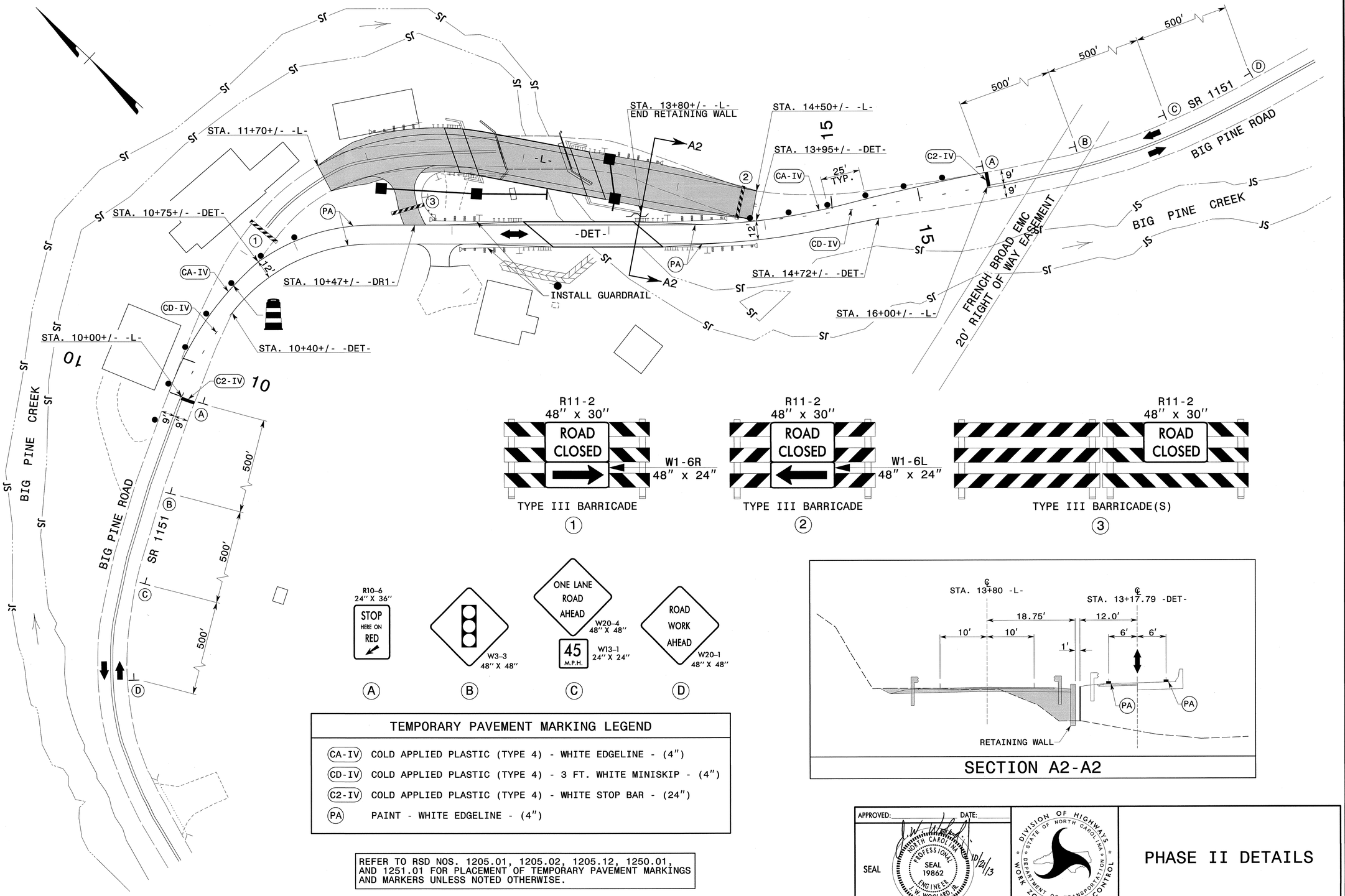
PROJ. REFERENCE NO.	SHEET NO.
B-4984	TMP-4



TEMPORARY PAVEMENT MARKING LEGEND

CA-IV	COLD APPLIED PLASTIC (TYPE 4) - WHITE EDGELINE - (4")
CD-IV	COLD APPLIED PLASTIC (TYPE 4) - 3 FT. WHITE MINISKIP - (4")
C2-IV	COLD APPLIED PLASTIC (TYPE 4) - WHITE STOP BAR - (24")
PA	PAINT - WHITE EDGELINE - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

SECTION A2-A2

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER W. WOOLARD JR. 10/21/13

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

PHASE II DETAILS

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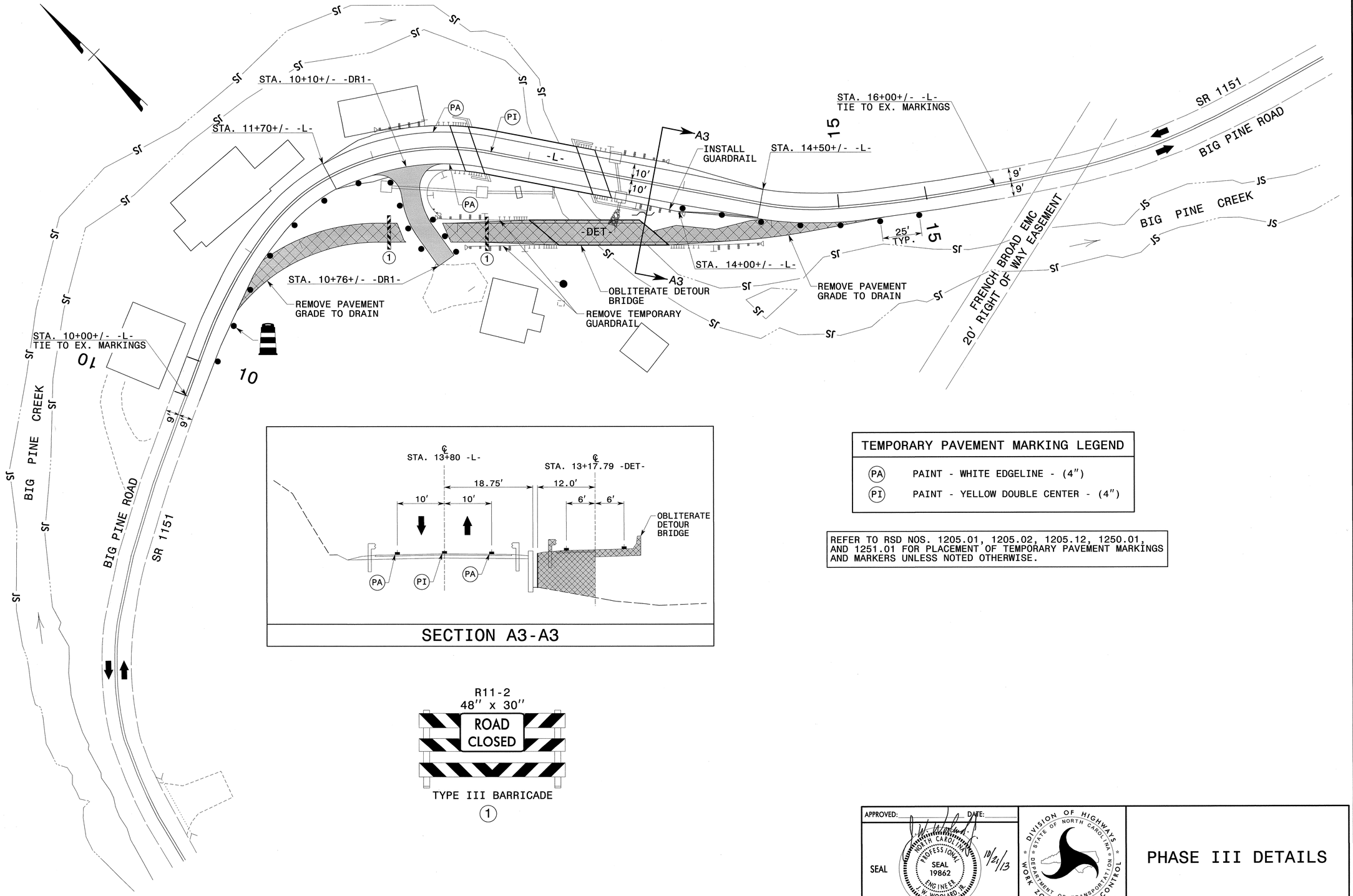
PROJ. REFERENCE NO.	SHEET NO.
B-4984	TMP-5



SECTION A3-A3

TEMPORARY PAVEMENT MARKING LEGEND	
(PA)	PAINT - WHITE EDGELINE - (4")
(PI)	PAINT - YELLOW DOUBLE CENTER - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

R11-2
48" x 30"

TYPE III BARRICADE

①

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER W. WOOLARD

10/21/13

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

PHASE III DETAILS

10/10/2013
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T.I.P.: B-4984

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
MADISON COUNTY
LOCATION: BRIDGE No. 138 OVER BIG PINE CREEK ON SR 1151 (BIG PINE RD.)

TIP NO.	SHEET NO.
B-4984	PMP-1

APPROVED: _____ DATE: 10/24/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR 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:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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.

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

ROAD NAME	MARKING	MARKER
BIG PINE RD.	PAINT	NONE

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

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

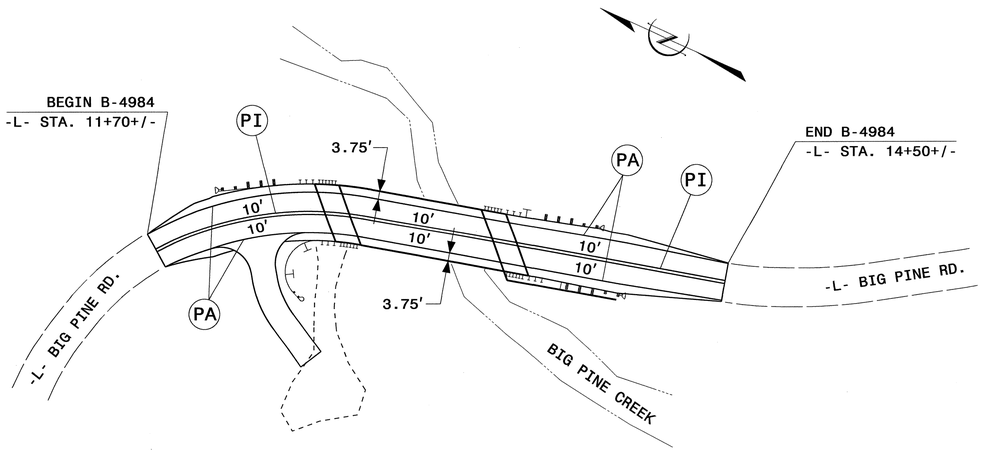
D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PAVEMENT MARKING SCHEDULE

SYMB	DESCRIPTION
	FINAL PAVEMENT MARKINGS
	PAINT (4")
PA	WHITE EDGELINE
PI	YELLOW DOUBLE CENTER

PAVEMENT MARKING DETAIL



PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

KELVIN L. JORDAN	SIGNING & DELINEATION REGIONAL ENGINEER
DERRICK H. BEARD	SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

24-OCT-2013 13:55
\\Dot\dfs-root01\Prg\TIPProjects-B\B4984\Traffic\Signing\CADD\PMP\B-4984_PMP-1.dgn
dhbeard AT TE265832

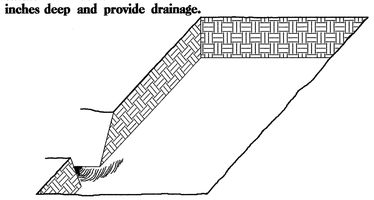
PROJECT REFERENCE NO.	SHEET NO.
B-4984	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

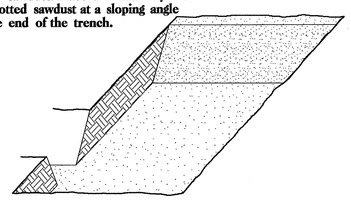
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

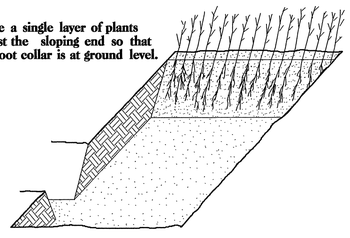
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



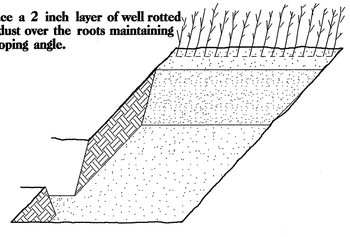
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

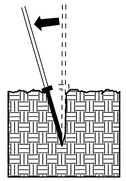


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

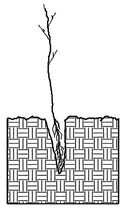


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

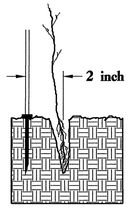
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



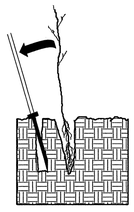
1. Insert planting bar as shown and pull handle toward planter.



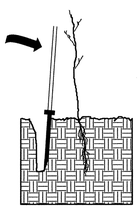
2. Remove planting bar and place seedling at correct depth.



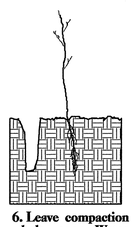
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

REFORESTATION

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

REFORESTATION

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

33% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
33% LIRIODENDRON TULIPIFERA	YELLOW POPLAR	12 in - 18 in BR
34% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

TIP PROJECT: B-4984

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4984	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

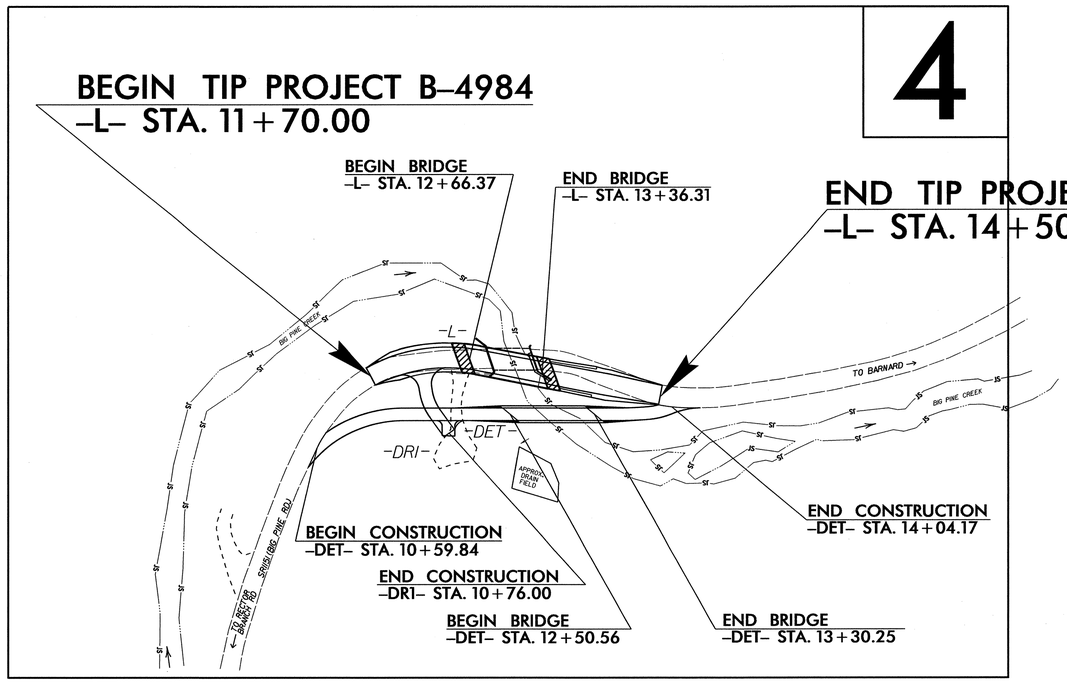
MADISON COUNTY

LOCATION: ***BRIDGE No. 138 OVER BIG PINE CREEK ON SR 1151 (BIG PINE RD.)***

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

NAD 83

4



EROSION AND SEDIMENT CONTROL MEASURES

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

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

303(d) IMPAIRED WATER(S) EXIST ON THIS PROJECT

303(d) Impaired Water Zone(s) Exist
From Sta. Begin
to Sta. End
Refer To E. C. Special Provisions for Special Considerations.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALE

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

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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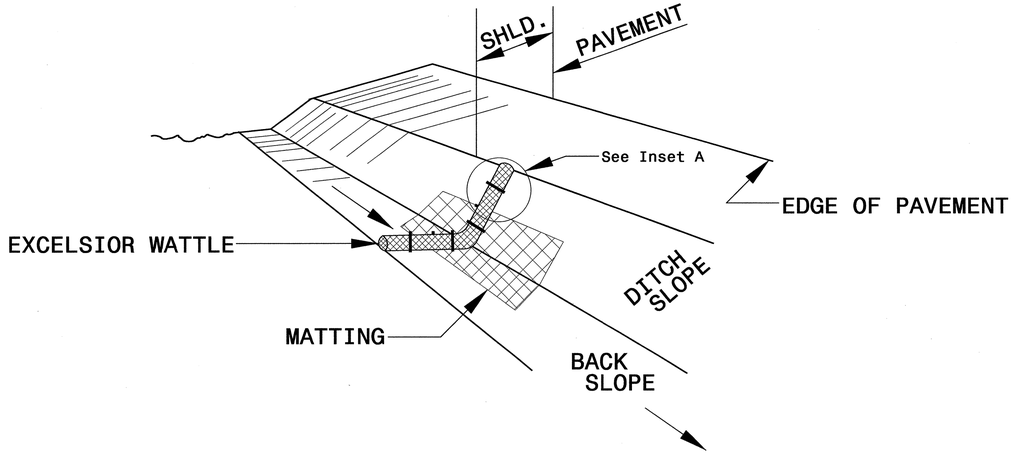
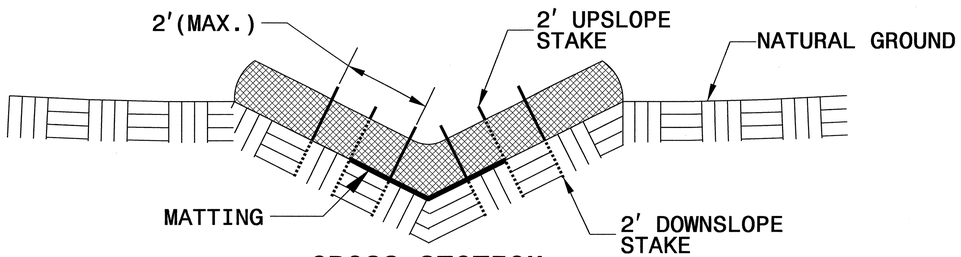
PROJECT REFERENCE NO.	SHEET NO.
B-4984	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

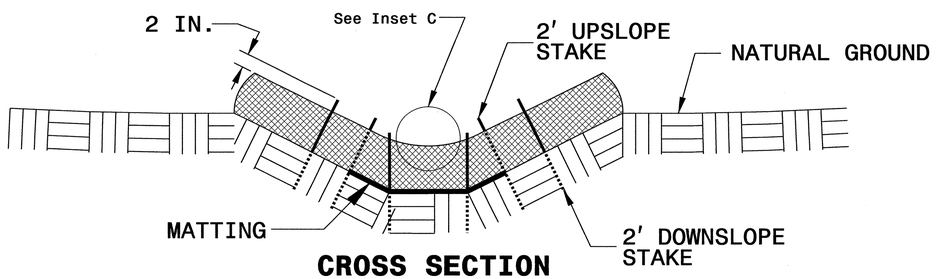
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR 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.

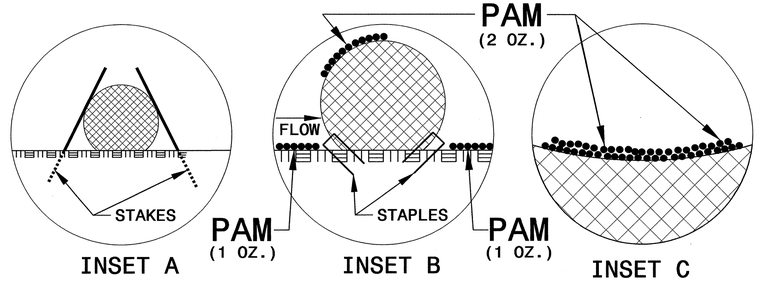
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

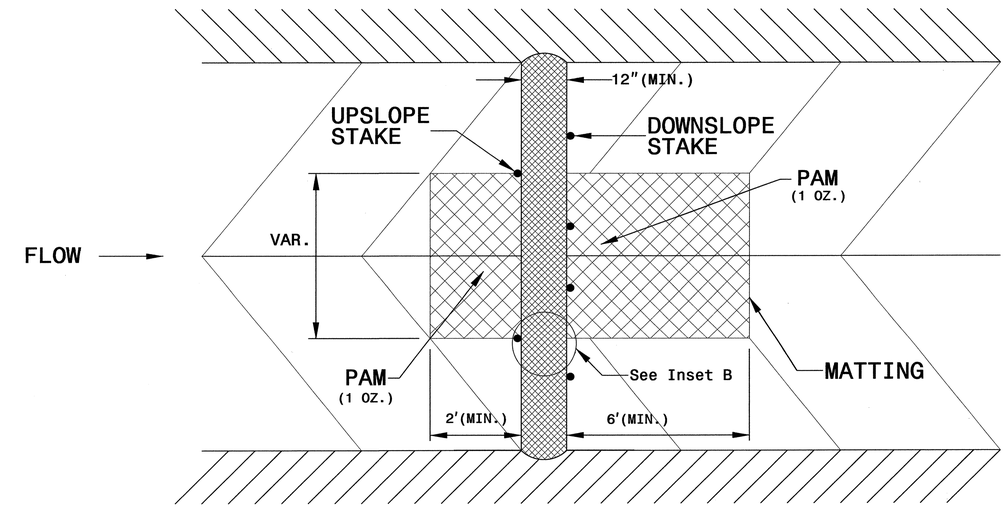
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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 MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

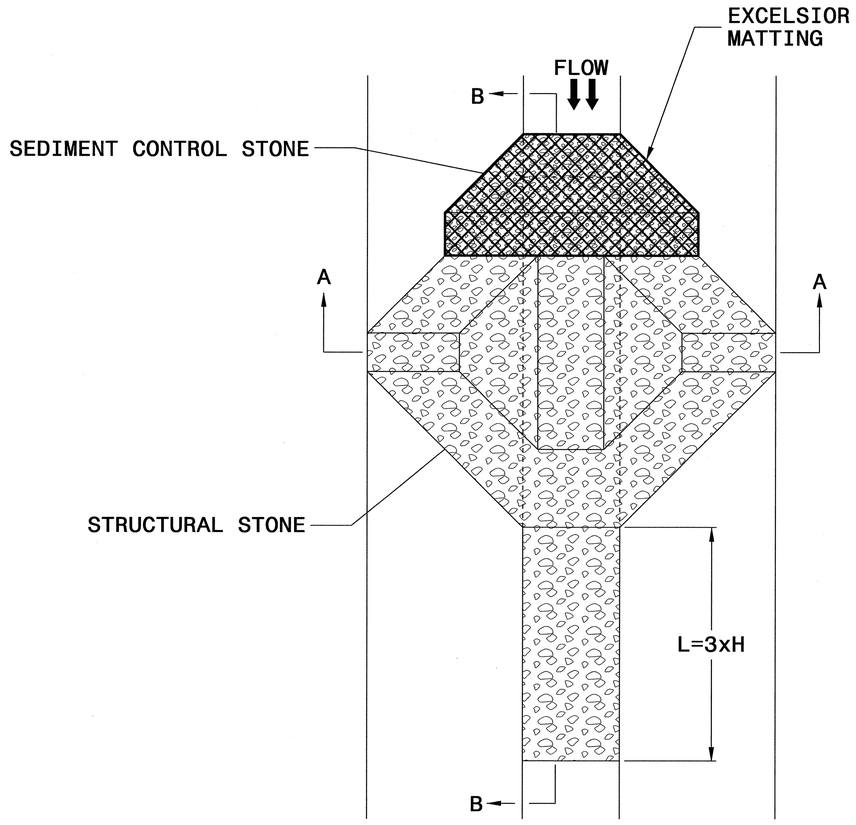




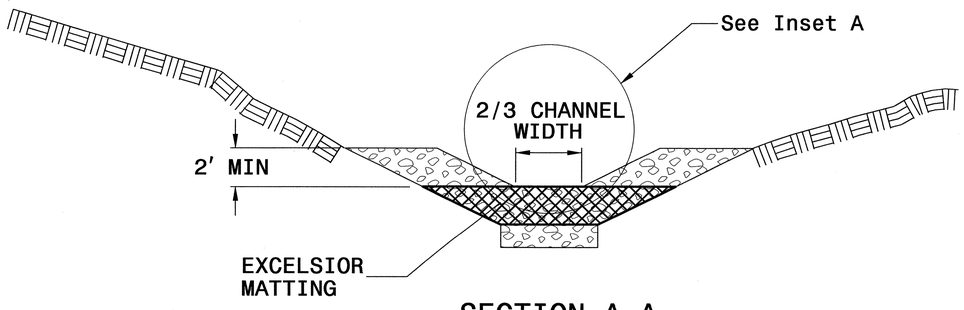
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4984	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



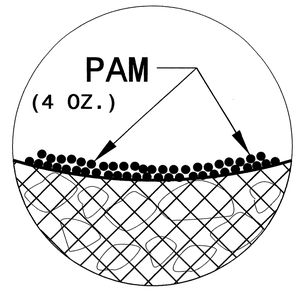
SECTION A-A

NOTES

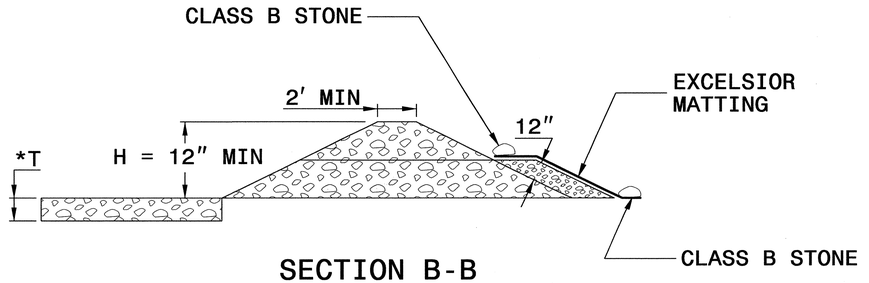
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4984	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
B-4984	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4A	-DET-	11+02	11+94	LT	90
4	-L-	12+00	12+50	RT	25
4	-L-	13+50	14+00	RT	45
				SUBTOTAL	160
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					2300
				TOTAL	2460
				SAY	2500

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-DR1-	10+25	10+50	LT	35
4	-DR1-	10+25	10+50	RT	35
			SUBTOTAL		70
		ADDITIONAL PSRM TO BE INSTALLED			0
				TOTAL	70
				SAY	75

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4984	EC-4/CONST.4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

JERRY ANDERSON
DB 132 PG 210
DB 107 PG 126
(1)

NAD 83

PCC Sta. 11+70.56 -L-

+70 -L-
11' LT &
25' LT

PT Sta. 12+74.46 -L-

+70 -L-
45' LT

PCC Sta. 14+98.66 -L-

PC Sta. 14+50.00 -L-

BEGIN BRIDGE
POT STA. 12+50.56 -DET-

LOW CHORD ON THE BRIDGE TO BE NO LOWER THAN ELEV. 1653'

+50 -L-
11' LT &
30' LT

USE THIS SHEET FOR DETOUR CONSTRUCTION ONLY

PT Sta. 10+53.41 -DRI-

PC Sta. 10+30.59 -DRI-

POT STA. 10+00.00 -DRI-

+95 -L-
30' LT

END BRIDGE
POT STA. 13+30.25 DET

+20 -L-
29.93' LT

+55 -L-
29.95' LT
50' LT

PT Sta. 16+25.00 -L-

PCC Sta. 11+18.67 -L-

BEGIN CONSTRUCTION
POC STA. 10+59.84 -DET-

+70 -L-
11' RT &
20' RT

BL-8

SR 1151, BIG PINE ROAD

TO BARNARD

BIG PINE CREEK

+20.56 -DET-
13.79' RT

PC Sta. 10+34.68 -L-

+41 -DET-
6.90' RT &
14' RT

POT Sta. 10+00.00 -L-

PT Sta. 11+49.43 -DET-

+05 -DET-
17' RT

BRG AH = S 18° 30' 38.3" E

POT STA. 11+00.00 -DRI-

+00 -L-
-DET- 30' RT

+05 -DET-
22' RT

+52 -DET-
22' RT

+68 -DET-
28' RT

+33 -DET-
44' RT

POT Sta. 14+20.56 -DET-

NOTE: BM-2 IS DESTROYED

PT Sta. 14+17.87 -DET-
BRG AH = S 54° 02' 08.7" E

END CONSTRUCTION
PC Sta. 14+04.17 -DET-

+00 -DET-
30' RT

+50 -L-
11' RT &
30' RT

PCC Sta. 13+79.38 -DET-

PC Sta. 10+03.73 -DET-

POT Sta. 10+00.00 -DET-
BRG AH = S 88° 04' 28.4" E

CL II RIPRAP
TO EL. 1652.0

JERRY ANDERSON
DB 132 PG 210
DB 107 PG 126
(1)

PC Sta. 13+51.30 -DET-

INSTALL DRIVEWAY PIPE DURING CLEARING & GRUBBING PHASE

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NOTE:
UTILIZE SPECIAL STILLING BASIN(S) WHERE APPLICABLE.

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4A

NOTE: ONE LANE TWO WAY TRAFFIC TO BE MAINTAINED UTILIZING TEMPORARY TRAFFIC SIGNALS.

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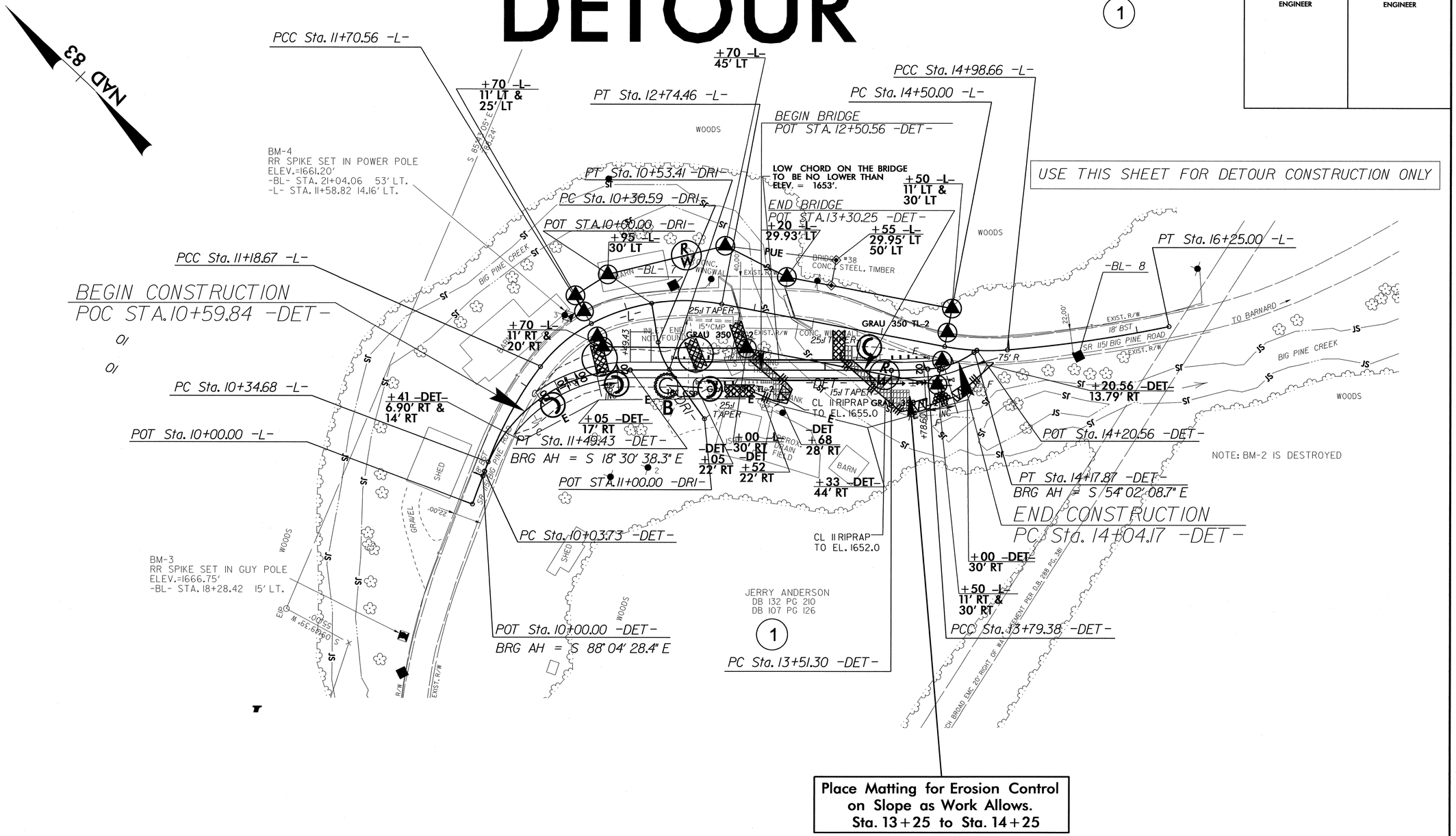
ATTACHED REFNAMES

PROJECT REFERENCE NO.	SHEET NO.
B-4984	EC-5/CONST.4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETOUR



NOTE:
UTILIZE SPECIAL STILLING BASIN(S) WHERE APPLICABLE.

NOTE: ONE LANE TWO WAY TRAFFIC TO BE MAINTAINED UTILIZING TEMPORARY TRAFFIC SIGNALS.

8/17/99

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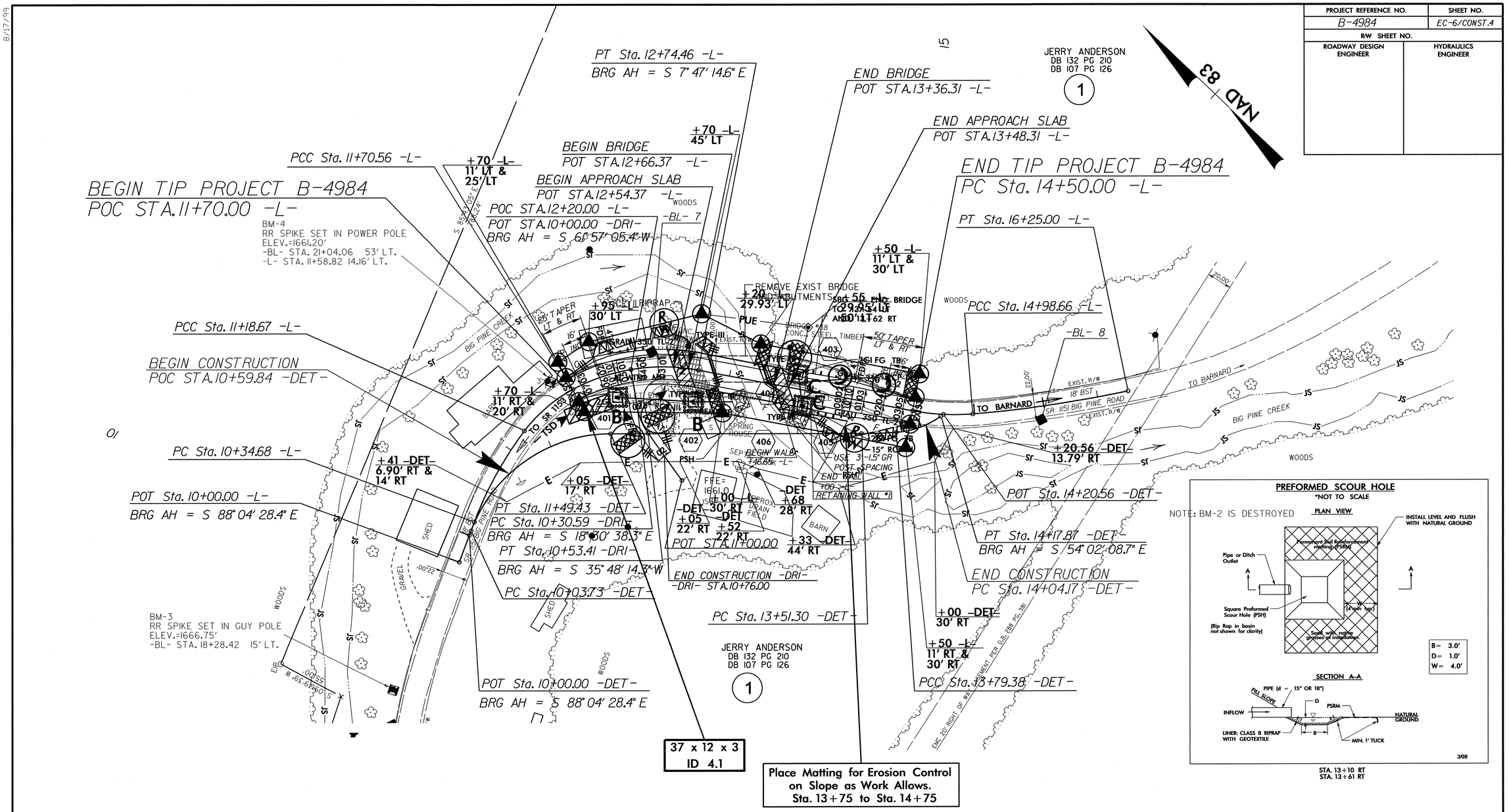
PROJECT REFERENCE NO.	SHEET NO.
B-4984	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NOTE:
UTILIZE SPECIAL STILLING BASIN(S) WHERE APPLICABLE.

REVISIONS

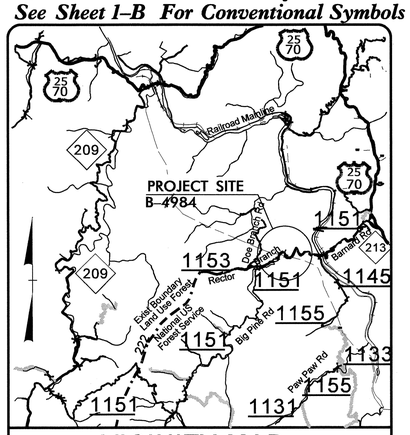
8/17/99

18-OCT-2013 14:20
R:\Environmental\Design\B-4984_EC_psh4.dgn
pring AT RENV256948

09/08/99

TIP PROJECT: B-4984

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

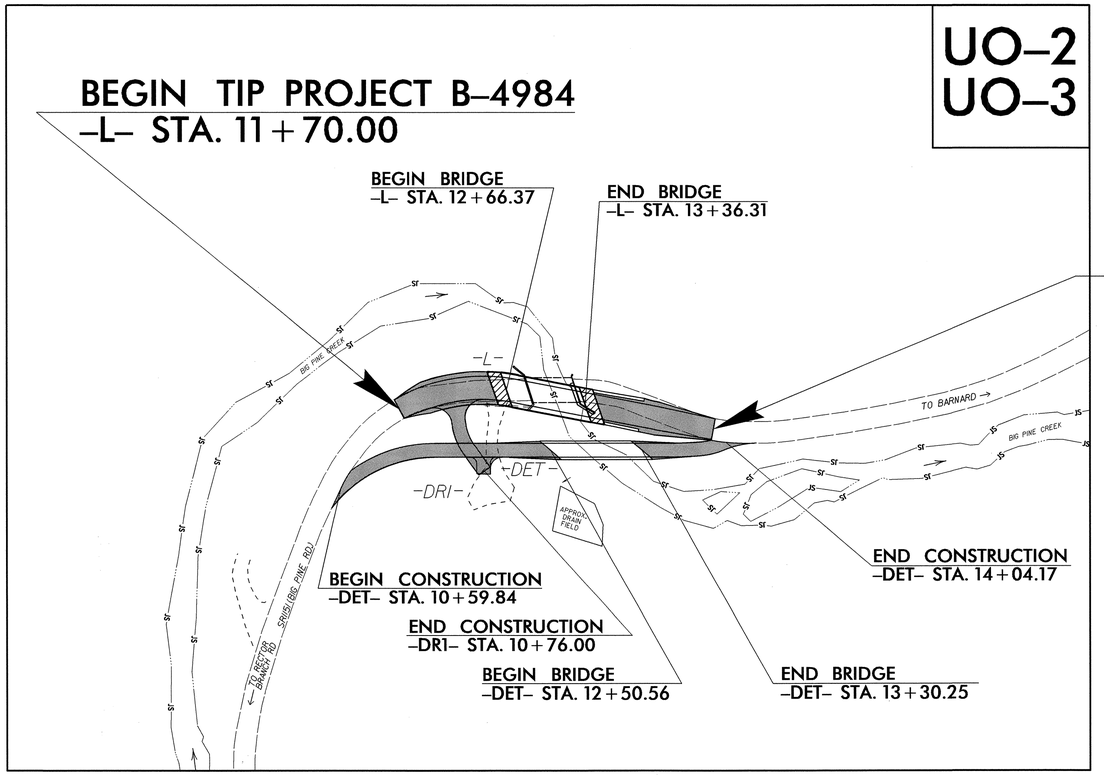
T.I.P. NO.	SHEET NO.
B-4984	UO-1

UTILITIES BY OTHERS PLANS
MADISON COUNTY

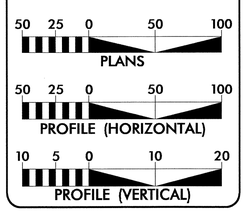
LOCATION: BRIDGE No. 138 OVER BIG PINE CREEK ON SR 1151 (BIG PINE RD.)

TYPE OF WORK: AERIAL POWER AND TELEPHONE

UO-2
UO-3



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UO-1	*TITLE SHEET*
UO-2	*UTILITIES BY OTHERS PLAN SHEET*
UO-3	*UTILITIES BY OTHERS DETOUR PLAN SHEET*

UTILITY OWNERS ON PROJECT

(1) FRONTIER COMMUNICATIONS - TELEPHONE

(2) FRENCH BROAD EMC - POWER DISTRIBUTION

Cardno

CARDNO (NC), INC.
4020 OLD PINEVILLE ROAD
CHARLOTTE NC 28217
PHONE (704) 927-9700
FAX (704) 529-3272

Thomas J. Yocom, P.L.S. *SENIOR PROJECT MANAGER*

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. *UTILITIES SECTION ENGINEER*
Carl A. Barclay, P.E. *UTILITIES SQUAD LEADER PROJECT ENGINEER*
James E. Swinson *UTILITIES PROJECT DESIGNER*

16-OCT-2013 09:45
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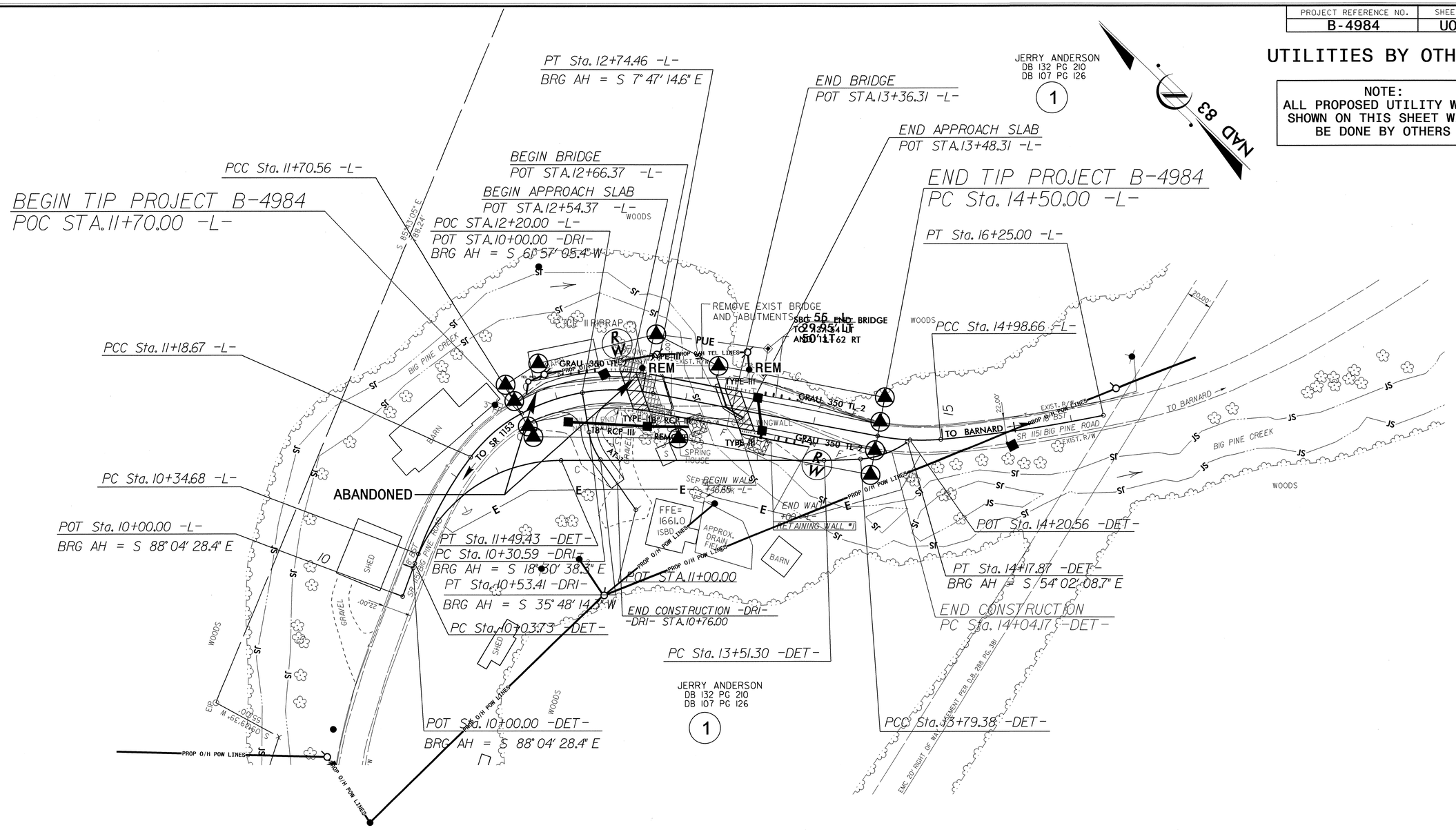
PROJECT REFERENCE NO.	SHEET NO.
B-4984	U0-2

UTILITIES BY OTHERS

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



Cardno
CARDNO (NC), INC.
4020 OLD PINEVILLE ROAD
CHARLOTTE NC 28217
PHONE (704) 927-9700
FAX (704) 529-3272

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16-OCT-2013 12:01
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PROJECT REFERENCE NO.	SHEET NO.
B-4984	U0-3

UTILITIES BY OTHERS

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

JERRY ANDERSON
DB 132 PG 210
DB 107 PG 126
(1)

PCC Sta. 11+70.56 -L-
PT Sta. 12+74.46 -L-
PC Sta. 14+98.66 -L-
PC Sta. 14+50.00 -L-
PT Sta. 10+53.41 -DRI-
PC Sta. 10+30.59 -DRI-
POT STA.10+00.00 -DRI-
PCC Sta. 11+18.67 -L-
PC Sta. 10+34.68 -L-
POT Sta. 10+00.00 -L-
PT Sta. 11+49.43 -DET-
BRG AH = S 18° 30' 38.3" E
POT STA.11+00.00 -DRI-
PC Sta. 10+03.73 -DET-
POT Sta. 10+00.00 -DET-
BRG AH = S 88° 04' 28.4" E
PC Sta. 13+51.30 -DET-
PT Sta. 16+25.00 -L-
POT Sta. 14+20.56 -DET-
PT Sta. 14+17.87 -DET-
BRG AH = S 54° 02' 08.7" E
PCC Sta. 13+79.38 -DET-

LOW CHORD ON THE BRIDGE TO BE NO LOWER THAN ELEV. = 1653'.

+55 -L-
29.95' LT
50' LT

GRAU 350 TL-2
18" CSP
15" CMP
INLET END NOT FOUND
CL II RIPRAP TO EL. 1655.0
CL II RIPRAP TO EL. 1652.0
CONC. WINGWALL
APPROX. DRAIN FIELD
ISBD
SHED
BARN
GRAVEL
WOODS
BIG PINE CREEK
TO BARNARD
SR 1151 BIG PINE ROAD
EXIST. R/W
PROP O/H POW LINES
PROP O/H TEL LINES
EXIST. O/H POW LINES
EXIST. O/H TEL LINES
PUE
REM
22.00'
15'
10'
S 85°43'05" E 86.24'
N 55°39'39" W 55.00'

JERRY ANDERSON
DB 132 PG 210
DB 107 PG 126
(1)

"DU BROAD EMC 20' RIGHT OF WAY EASEMENT PER D.B. 288, PG. 381"

NAD 83

Cardno
CARDNO (NC), INC.
4020 OLD PINEVILLE ROAD
CHARLOTTE NC 28217
PHONE (704) 927-5700
FAX (704) 529-3272

5/14/99
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OSD26813, 11/14/2013,S:\Records\Plot_Rooms\Plotter_room_A\Print_Jobs\11-14-13\Foster\Earthwork XSC Volume Summary.xls

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

PROJ. REFERENCE NO.	SHEET NO.
B-4984	X-1A

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+70.000	0	0
11+75.000	3	0
12+00.000	28	1
12+25.000	33	5
12+50.000	21	16
12+65.160	10	15

Station Dr1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+76.00	0	0

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+37.600	0	0
13+50.000	15	47
13+75.000	24	69
14+00.000	12	58
14+25.000	6	44
14+50.000	8	8

Chain	Beg Sta	End Sta	Sheet No.
L	11+70.00	14+50.00	X-3 TO X-12
L (DET)	10+62.40	15+28.89	X-1 TO X-12
DR1	10+10.00	10+76.00	X-13

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+62.40	0	0
10+75.000	5	0
11+00.000	36	0
11+25.000	59	0
11+50.000	63	0
11+70.000	49	0
11+75.000	13	0
12+00.000	66	0
12+25.000	72	0
12+50.000	79	0
12+75.000	64	1
13+00.000	35	19
13+14.000	13	21

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+92.000	0	0
14+00.000	0	93
14+25.000	0	235
14+50.000	0	135
14+75.000	0	68
15+00.000	0	47
15+25.000	0	30
15+28.890	0	1

Station Dr1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+10.00	0	0
10+25.00	18	0
10+50.00	49	0
10+75.00	23	0

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4984	X-1

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

1675 1670 1665 1660 1655 1650

– DET –
STA 10+77.35
OFFSET=14.89' RT

0.027 0.025 1:1 1:3

1660.98

1661.97

11+00.000

1680 1675 1670 1665 1660 1655

– DET –
STA 10+51.94
OFFSET=9.55' RT

BEGIN DETOUR CONSTRUCTION –DET– STA. 10+59.84 (–L– STA. 10+82.81)

0.028 4.0% 1:1 1:3

1661.14

1662.53
10+75.000

1665 1660 1655

1663.01
10+50.000

1665 1660 1655

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

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

07-NOV-2013 10:24
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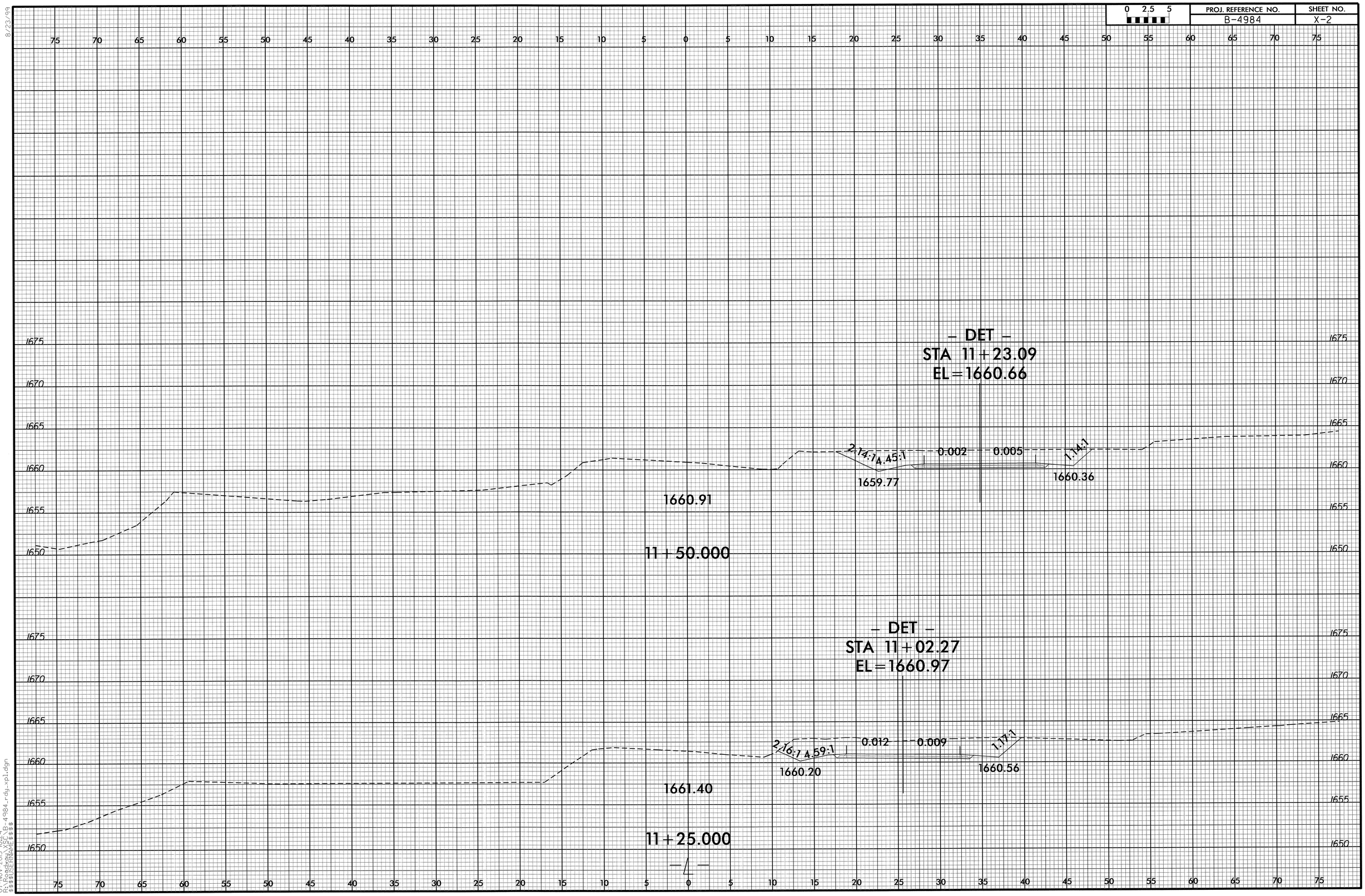

0 2.5 5
PROJ. REFERENCE NO.
B-4984
SHEET NO.
X-2
8/23/99
– DET –
STA 11+23.09
EL=1660.66
2.14:1
4.45:1
0.002
0.005
1.14:1
1659.77
1660.36
1660.91
11+50.000
– DET –
STA 11+02.27
EL=1660.97
2.16:1
4.59:1
0.012
0.009
1.17:1
1660.20
1660.56
1661.40
11+25.000
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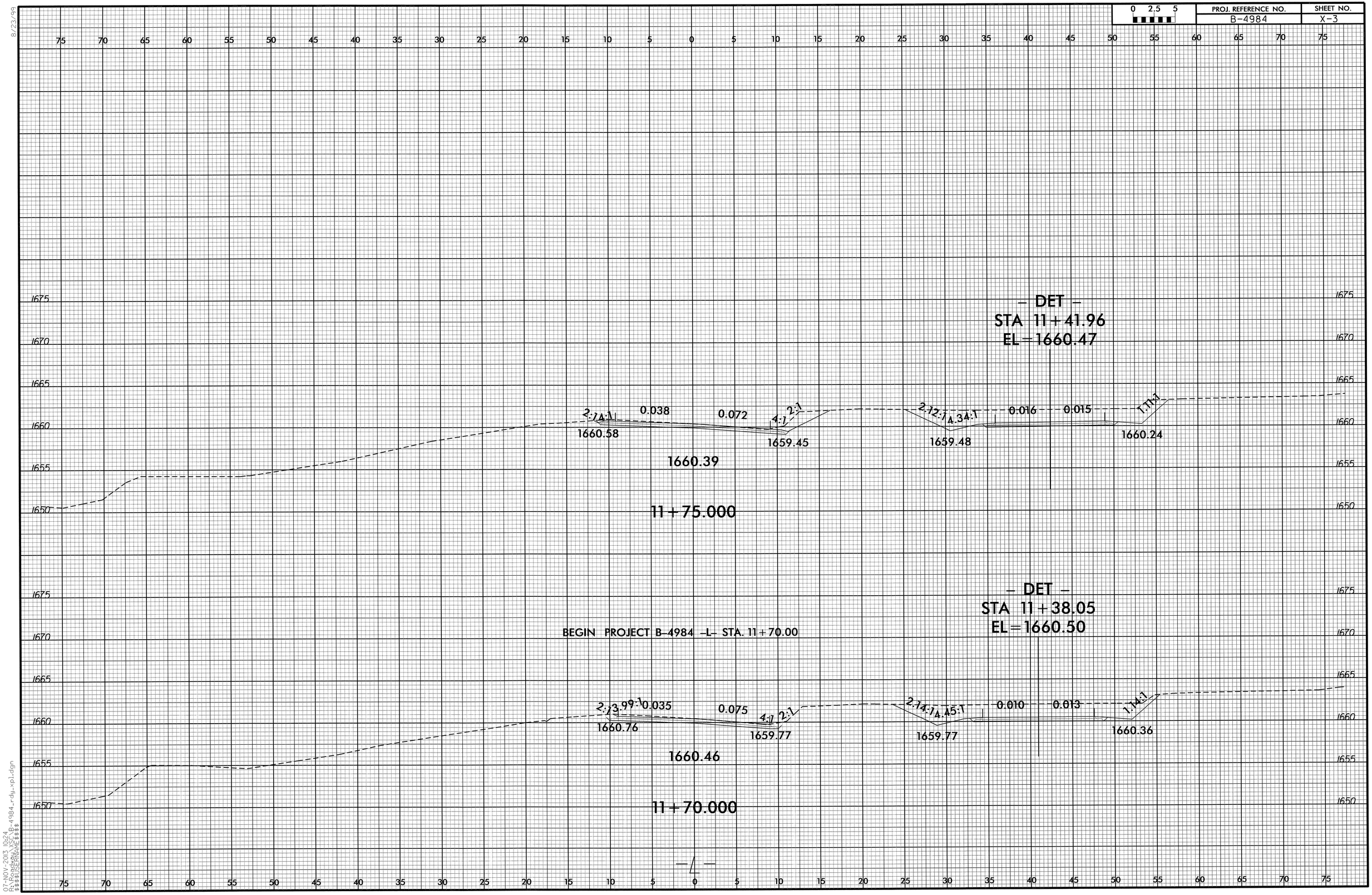

0 2.5 5
PROJ. REFERENCE NO.
B-4984
SHEET NO.
X-3
8/23/99
- DET -
STA 11+41.96
EL=1660.47
2:1
4:1
0.038
0.072
4:1
2:1
2.12:1
4.34:1
0.016
0.015
1.11:1
1660.58
1659.45
1659.48
1660.24
1660.39
11+75.000
- DET -
STA 11+38.05
EL=1660.50
BEGIN PROJECT B-4984 -L- STA. 11+70.00
2:1
3.99:1
0.035
0.075
4:1
2:1
2.14:1
4.45:1
0.010
0.013
1.14:1
1660.76
1659.77
1659.77
1660.36
1660.46
11+70.000
-L-
07-NOV-2013 10:24
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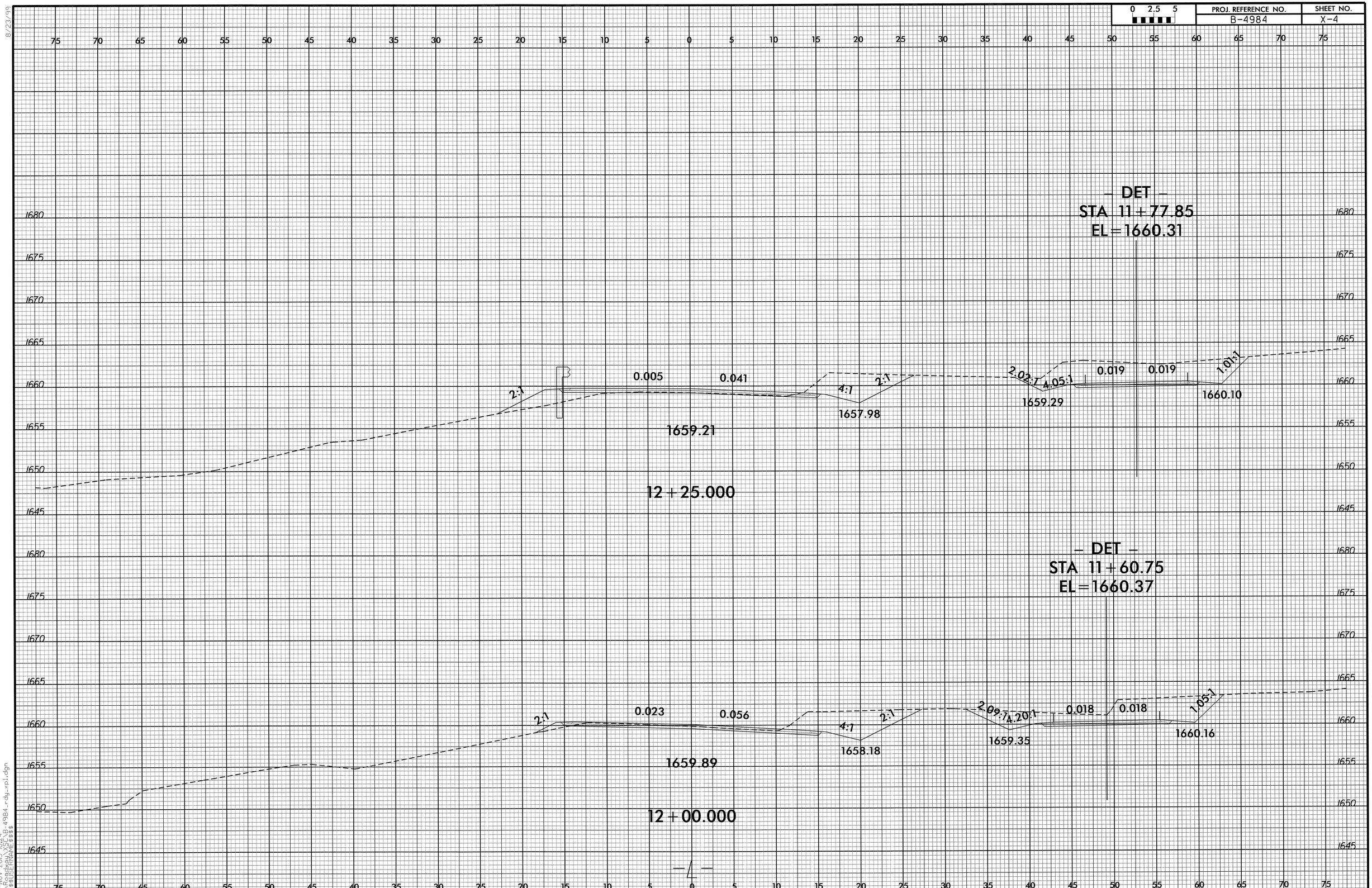

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8/23/99

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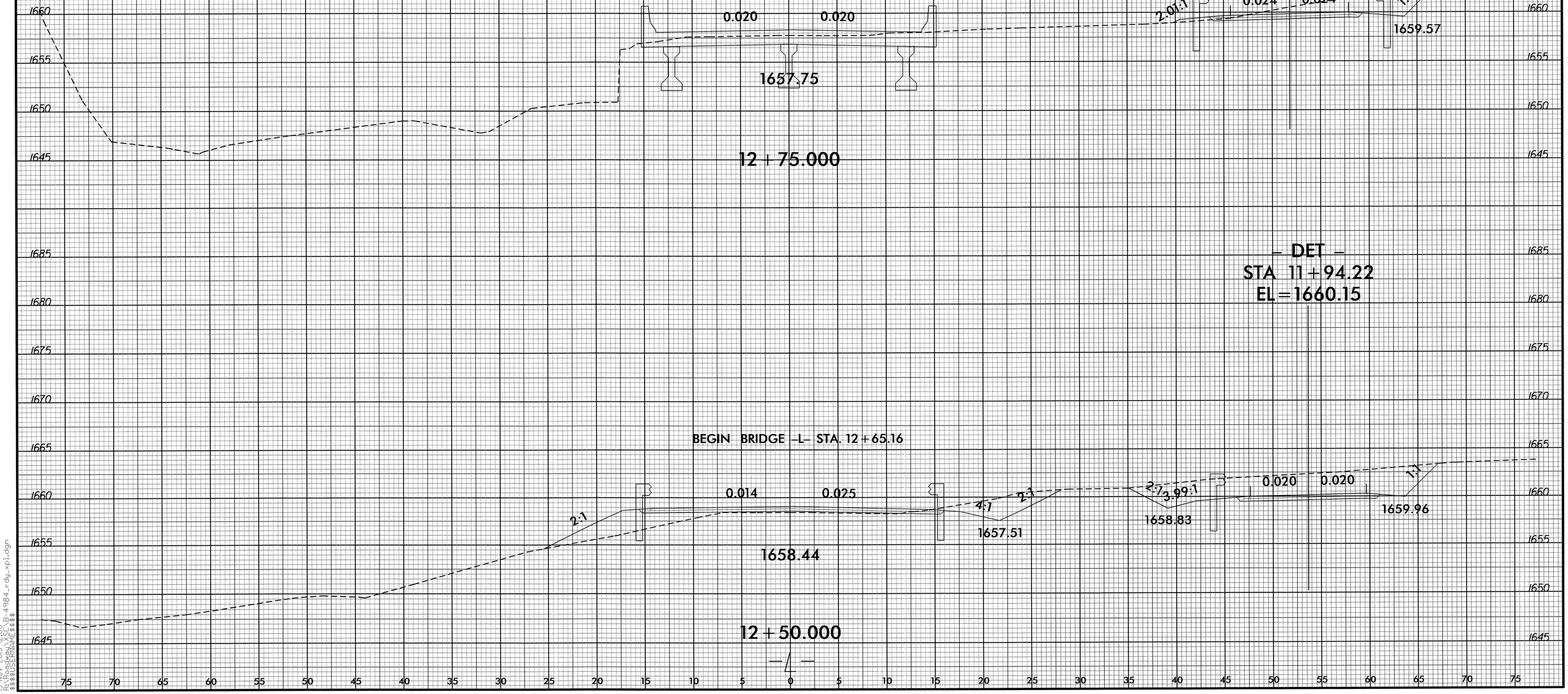
	B-4984	X-5

– DET –
STA 12+10.92
EL=1659.86



– DET –
STA 11+94.22
EL=1660.15

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4984	X-6

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

1695 1690 1685 1680 1675 1670 1665 1660 1655 1650 1645 1640

– DET –
STA 12+36.36
EL=1659.14

0.020 0.020

0.026 0.026

2.01:1

1.02:1

1659.18

1646.48
13+00.000

—/—

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

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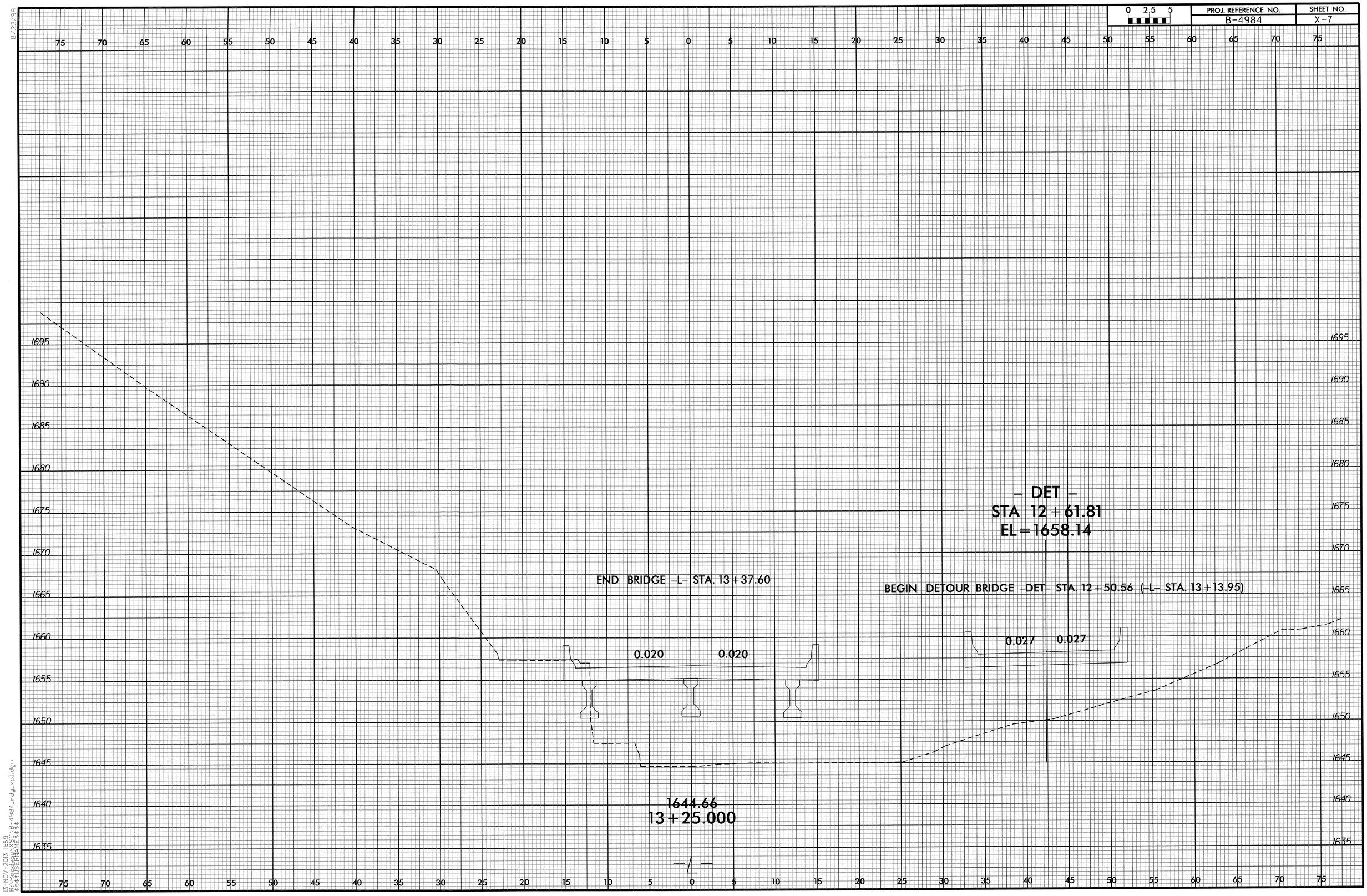

0 2.5 5
PROJ. REFERENCE NO.
B-4984
SHEET NO.
X-7
8/23/99
- DET -
STA 12+61.81
EL=1658.14
END BRIDGE -L- STA. 13+37.60
BEGIN DETOUR BRIDGE -DET- STA. 12+50.56 (-L- STA. 13+13.95)
0.020
0.020
0.027
0.027
1644.66
13+25.000
-L-
1695
1690
1685
1680
1675
1670
1665
1660
1655
1650
1645
1640
1635
13-NOV-2013 11:59
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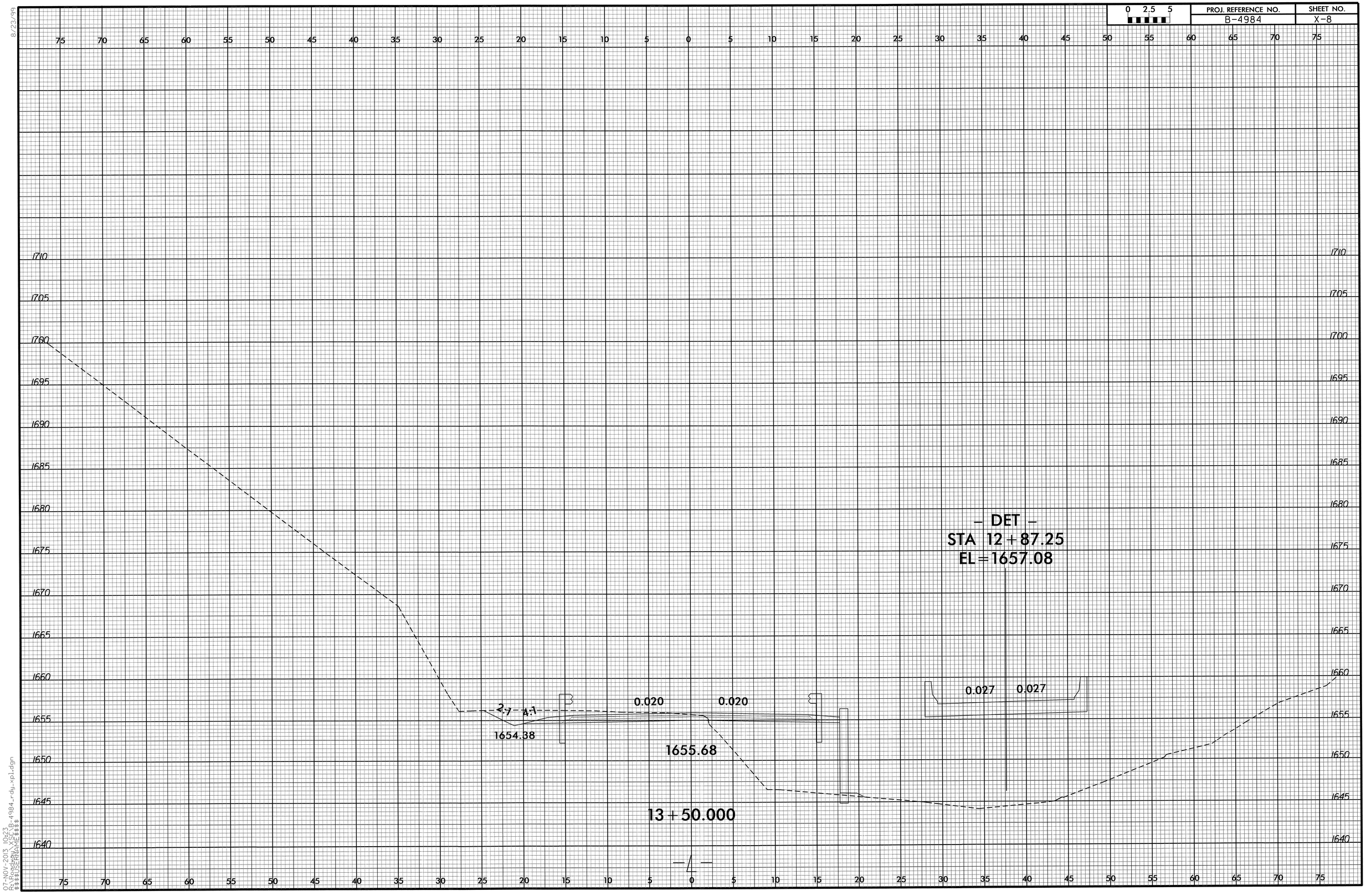

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PROJ. REFERENCE NO.
B-4984
SHEET NO.
X-8
8/23/99
- DET -
STA 12+87.25
EL=1657.08
0.027
0.027
0.020
0.020
2.7
4.1
1654.38
1655.68
13+50.000
-L-
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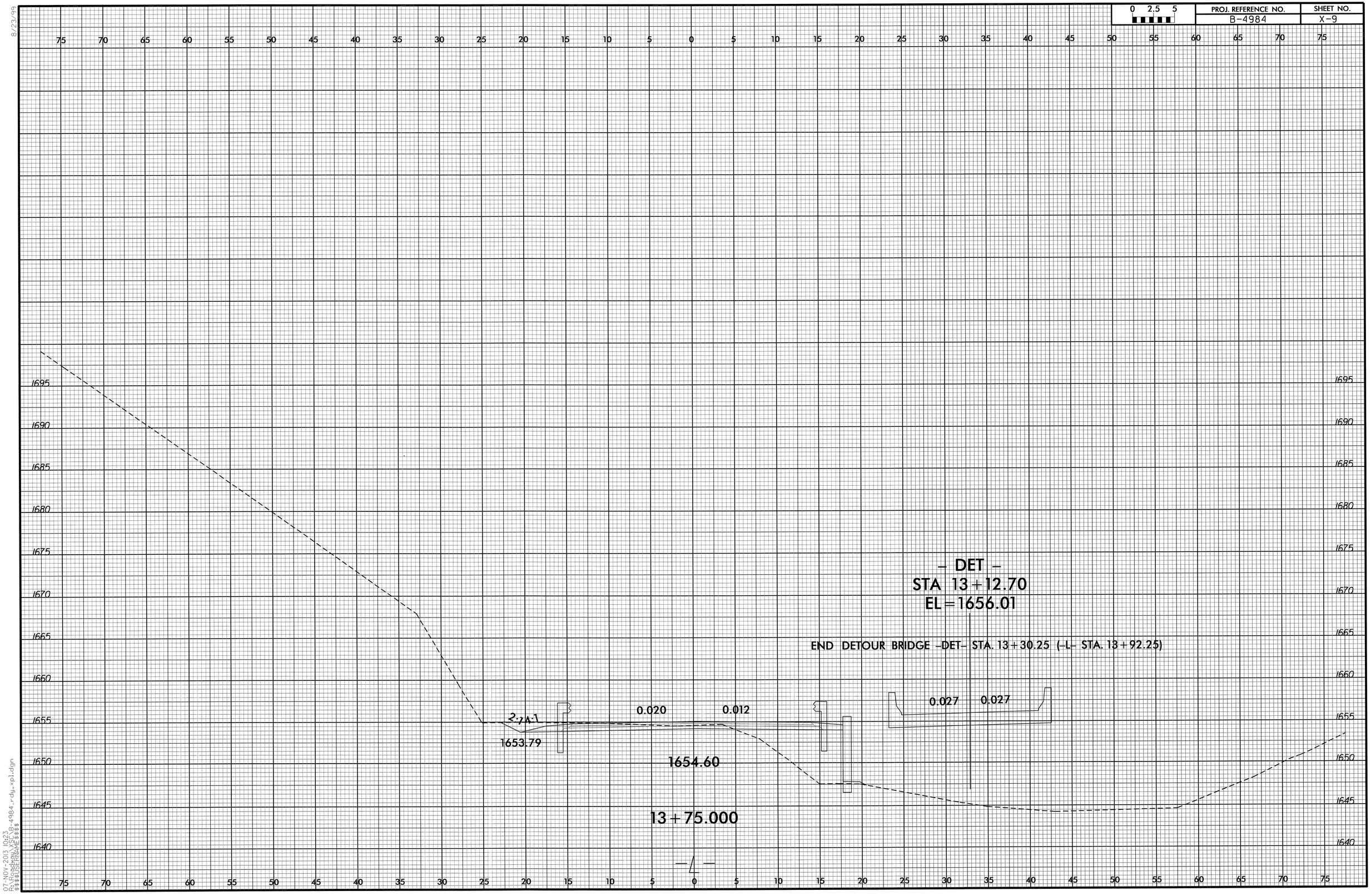
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4984	X-9



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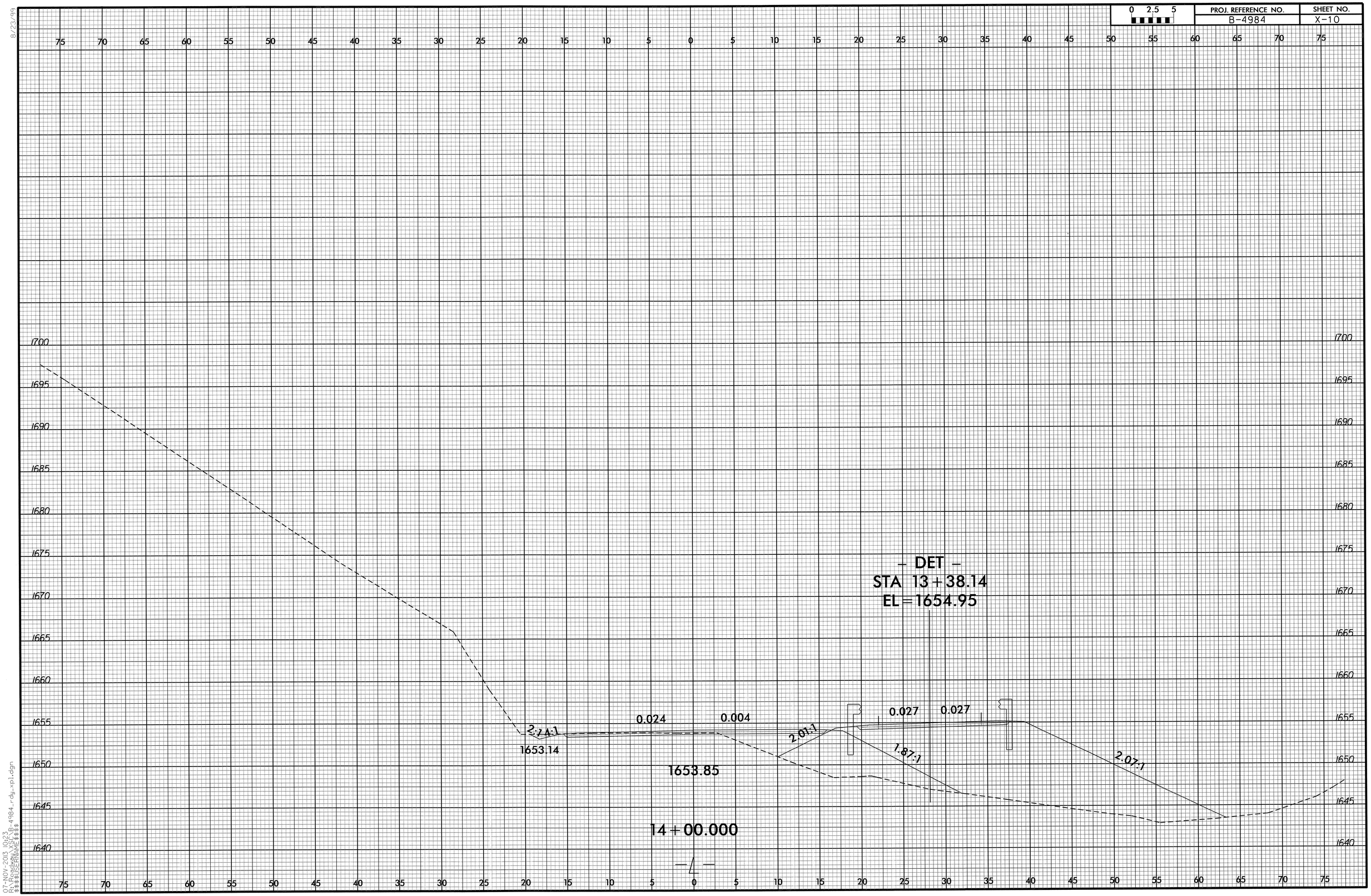

0 2.5 5
PROJ. REFERENCE NO.
B-4984
SHEET NO.
X-10
8/23/99
- DET -
STA 13+38.14
EL=1654.95
0.024
0.004
0.027
0.027
2:14:1
2.01:1
1.87:1
2.07:1
1653.14
1653.85
14+00.000
-L-
07-NOV-2013 10:23
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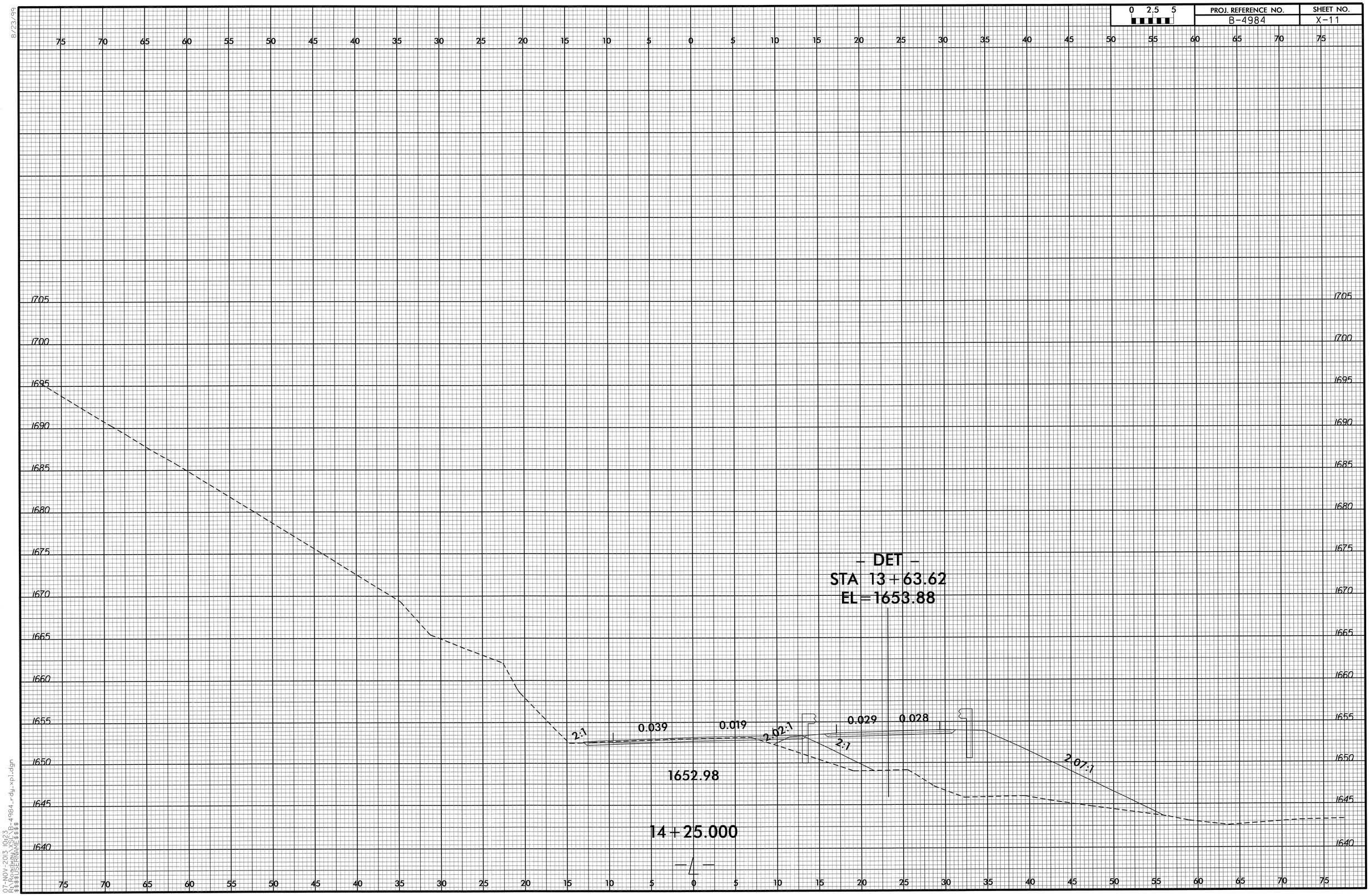

0 2.5 5
PROJ. REFERENCE NO.
B-4984
SHEET NO.
X-11
8/23/99
- DET -
STA 13+63.62
EL=1653.88
2:1
0.039
0.019
2.02:1
0.029
0.028
2:1
2.07:1
1652.98
14+25.000
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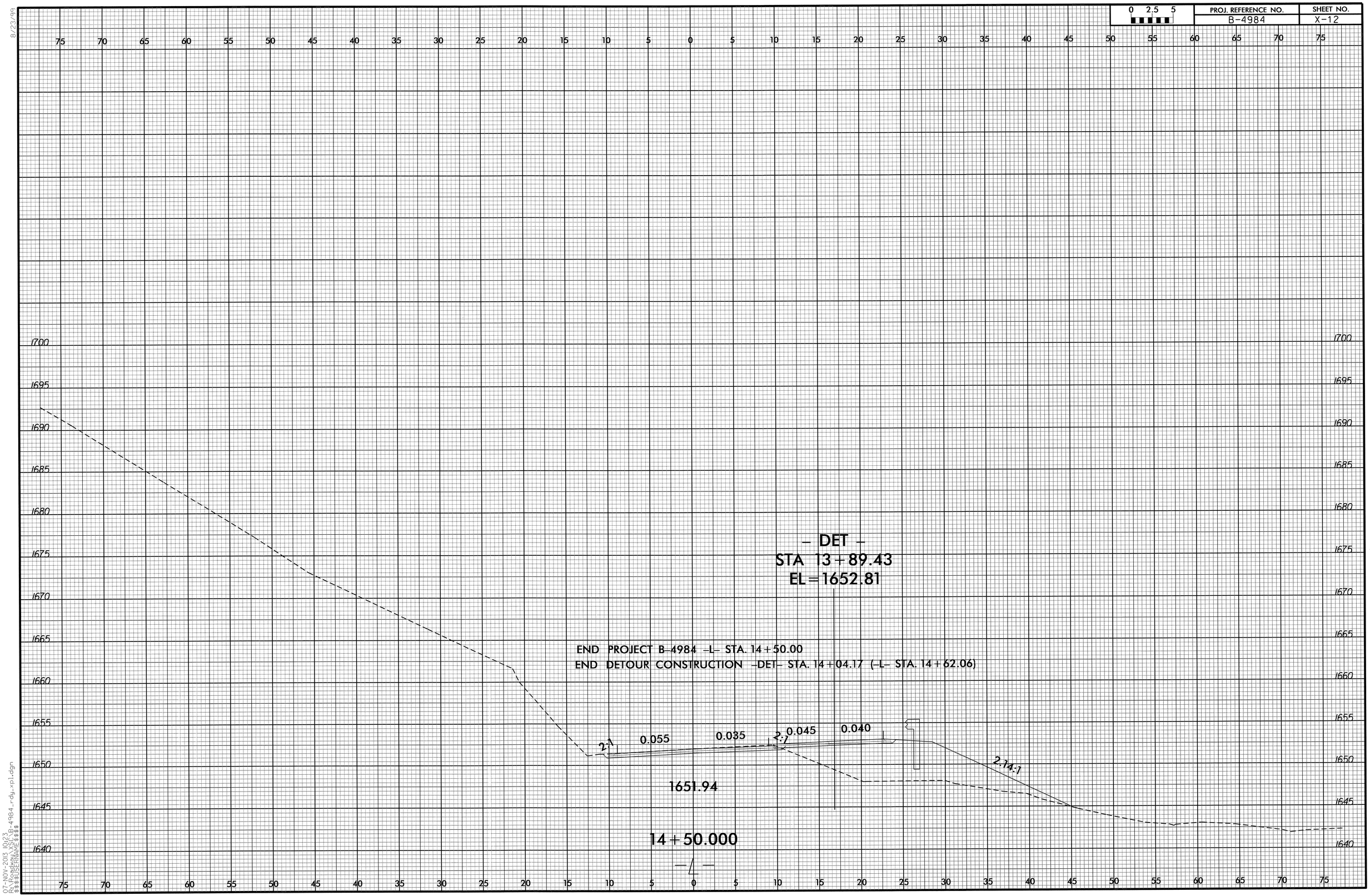

0 2.5 5
PROJ. REFERENCE NO.
B-4984
SHEET NO.
X-12
8/23/99
- DET -
STA 13+89.43
EL=1652.81
END PROJECT B-4984 -L- STA. 14+50.00
END DETOUR CONSTRUCTION -DET- STA. 14+04.17 (-L- STA. 14+62.06)
2:1
0.055
0.035
2:1
0.045
0.040
2.14:1
1651.94
14+50.000
-L-
07-NOV-2013 10:23
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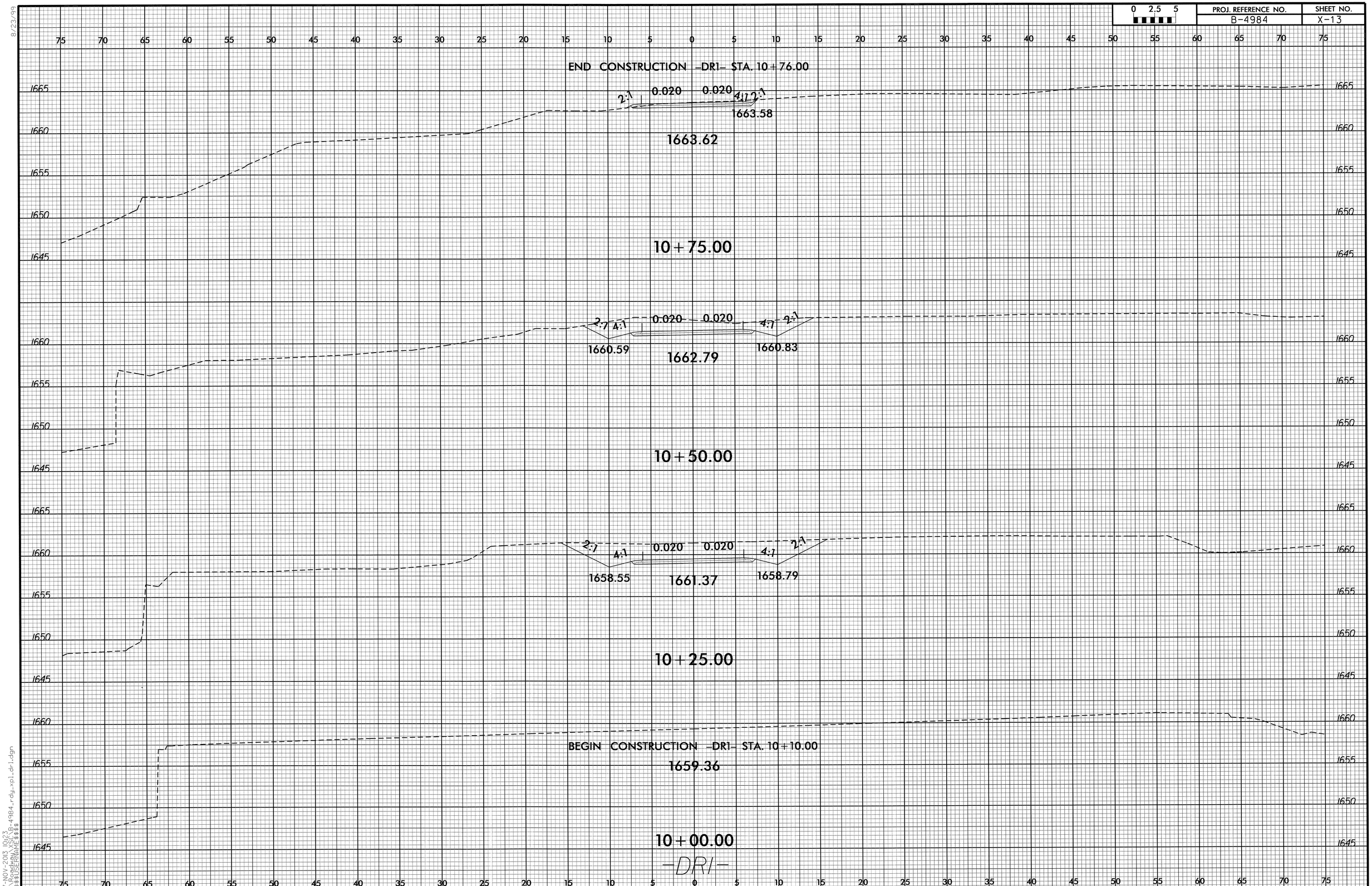

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