09/08/99

TIP PROJECT: B-4623

CONTRACT: C203283

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4623	1	

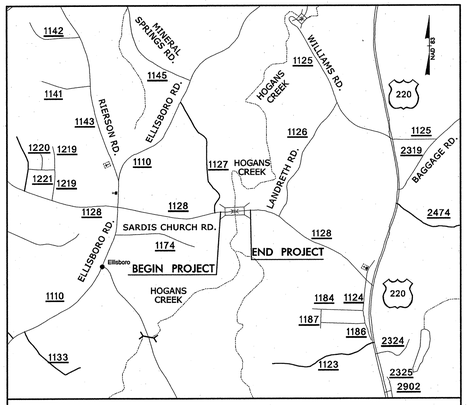
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38440.1.1	BRZ-1128(6)	PE
38440.2.1	BRZ-1128(6)	R/W, UTIL
38440.3.FD1	BRZ-1128(6)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

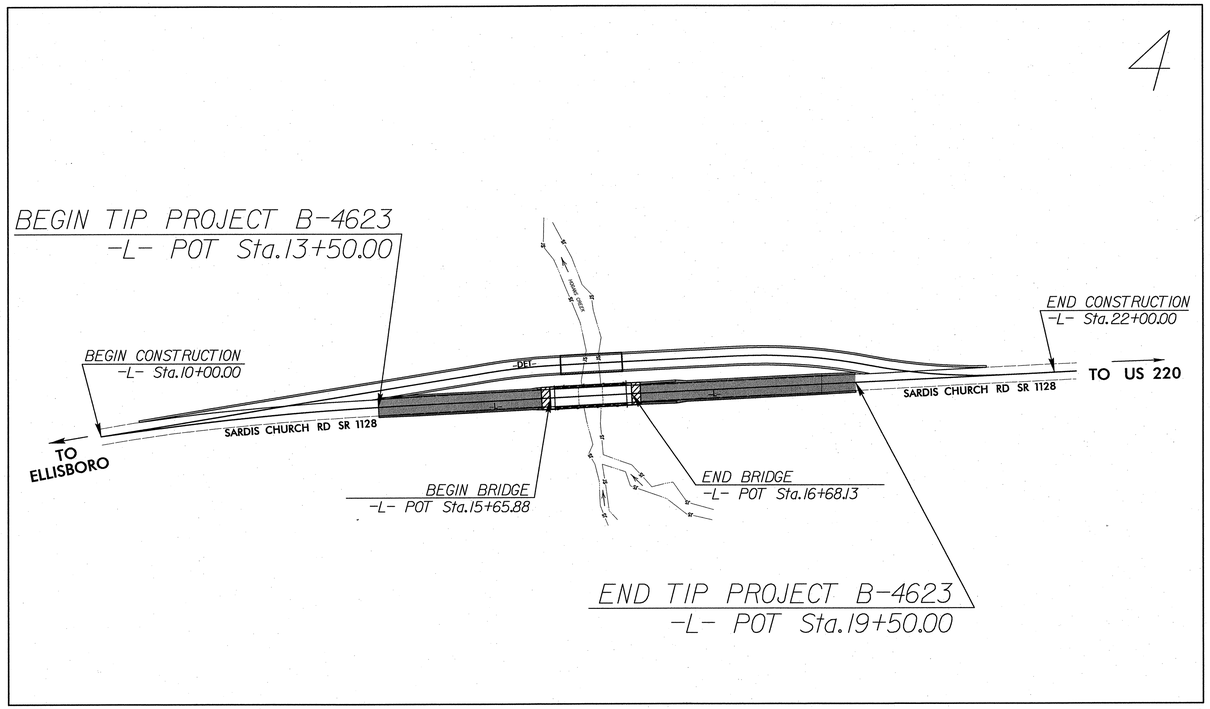
ROCKINGHAM COUNTY

LOCATION: REPLACE BRIDGE No. 47 OVER HOGANS CREEK ON SR 1128 (SARDIS CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



VICINITY MAP



NAD 83

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GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 2300
ADT 2033 = 5000
DHV = 15 %
D = 70 %
T = 6 % *
V = 60 MPH
* (TTST =1% + DUAL =5%)
FUNC CLASS = RURAL LOCAL
SUBREGIONAL TIER DESIGN

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4623 = 0.095 MILES
LENGTH STRUCTURE TIP PROJECT B-4623 = 0.019 MILES
TOTAL LENGTH TIP PROJECT B-4623 = 0.114 MILES

Prepared in the Office of:
RS&H
ARCHITECTS-ENGINEERS-PLANNERS, INC.
1520 SOUTH BLVD., SUITE 200
CHARLOTTE, NC 28203
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 20, 2012

LETTING DATE:
DECEMBER 17, 2013

KENNETH HERRING, PE
PROJECT ENGINEER

JASON TALLEY, PE
PROJECT DESIGN ENGINEER

BRENDA L. MOORE, PE
NCDOT CONTACT

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER JR.
SIGNATURE: 9-18-13 P.E.
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY
SIGNATURE: 9-18-13 P.E.
ROADWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

9/17/2013
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PROJECT REFERENCE NO.	SHEET NO.
B-4623	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029 ENGINEER JOHN M. MACKEY

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND DETAILS
2-A	DETOUR TYPICAL SECTIONS AND DETAILS
2-B	DETOUR PLAN SHEET
2-C	GUARDRAIL ANCHOR UNIT TYING TO GUARDRAIL ON BRIDGE
2-D	STRUCTURE ANCHOR UNITS DETAIL
2-E	STANDARD TEMPORARY SHORING DETAIL
3	SUMMARY OF QUANTITIES
3-A	EARTHWORK SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY, SHOULDER BERM GUTTER SUMMARY, DRAINAGE SUMMARY, GUARDRAIL SUMMARY AND TEMPORARY GUARDRAIL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
SIGN-1	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-0	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-19	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS

GENERAL NOTES:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

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".

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

ENERGY UNITED

CENTURY LINK

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.

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
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
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Details in Lieu of Standard Drawing as March 2013 Letting)
876.01	Rip Rap in Channels
876.03	Drainage Ditches with Class 'A' Rip Rap

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12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-4623	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
- 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:

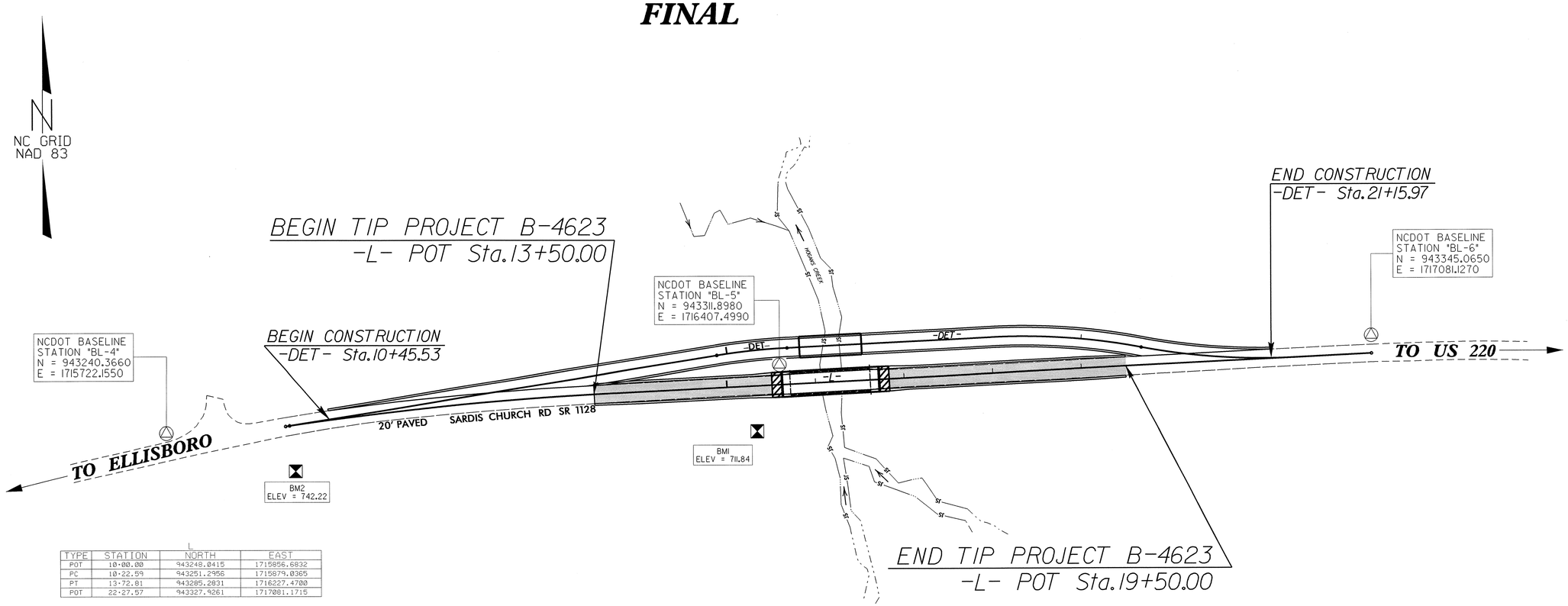
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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.

PROJECT REFERENCE NO.	SHEET NO.
B-4623	1C
Location and Surveys	

B-4623 SURVEY CONTROL SHEET FINAL



L

TYPE	STATION	NORTH	EAST
POT	10+00.00	943248.0415	1715856.6832
PC	10+22.59	943251.2956	1715879.0365
PT	13+72.81	943285.2831	1716227.4700
POT	22+27.57	943327.9261	1717081.1715

FINAL NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+00.00	30.00	943261.6659	1716356.0014
L	15+00.00	40.00	943261.6784	1716356.5003
L	15+85.00	30.00	943265.9064	1716440.8955
L	15+85.00	40.00	943255.9189	1716441.3944

FINAL PERMANENT UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+78.00	-24.91	943309.1684	1716130.5949
L	13+18.00	-24.87	943311.9484	1716170.8219
L	12+78.00	-65.00	943344.1554	1716127.9471
L	13+18.00	-65.00	943347.0075	1716168.5496
L	19+25.00	-30.00	943342.7938	1716777.4788
L	19+25.00	-40.00	943352.7814	1716776.9800
L	20+65.00	-40.00	943359.7658	1716916.8056
L	20+65.00	-30.00	943349.7782	1716917.3045

FINAL PERMANENT DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+96.00	30.00	943256.4775	1716252.1309
L	14+86.00	80.00	943211.0297	1716344.5132
L	17+86.00	80.00	943225.9963	1716644.1397
L	18+81.00	30.00	943280.6735	1716736.5269

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4623-1	943157.0960	1713884.8890	818.61	OUTSIDE PROJECT LIMITS	
2	B4623-2	943031.1420	1714659.4450	811.56	OUTSIDE PROJECT LIMITS	
3	3	943086.3750	1715064.4560	792.29	OUTSIDE PROJECT LIMITS	
4	4	943240.3660	1715722.1550	747.89	OUTSIDE PROJECT LIMITS	
5	5	943311.8980	1716407.4990	716.40	15+53.94	17.60 LT
6	6	943345.0650	1717081.1270	732.73	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4623-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 943031.1420(ft) EASTING: 1714659.4450(ft)
ELEVATION: 811.56'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999815699
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"B4623-2" TO -L- STATION 13+50.00 IS
N80°42'14.47"E 1,565.81'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

BM1 ELEVATION = 711.84
N 943242 E 1716388
BL STATION 30+32.00 67 RIGHT
BM #1 - RR SPIKE IN 24" POPLAR

BM2 ELEVATION = 742.22
N 943198 E 1715868
BL STATION 25+10.00 57 RIGHT
BM #2 - RR SPIKE IN 13" HICKORY

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:
b4623_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)

NOTE: DRAWING NOT TO SCALE

12/01/2005

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PROJECT REFERENCE NO.	SHEET NO.
B-4623	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029475 ENGINEER MARK M. TALLEY 9-26-13

NORTH CAROLINA PROFESSIONAL SEAL 22886 ENGINEER CLARK S. MORRISON 9/27/13

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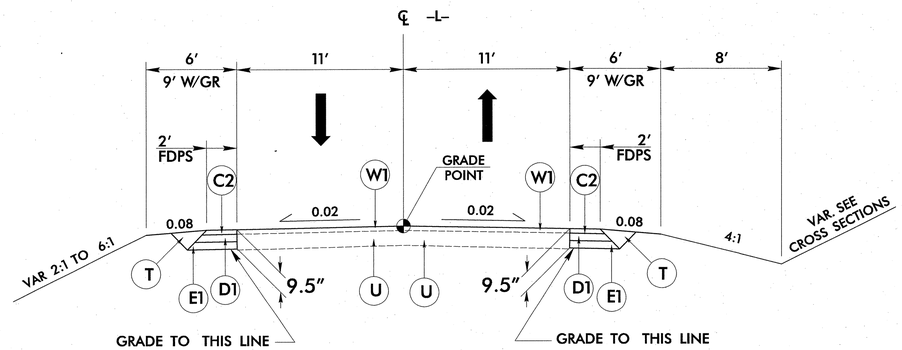
PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	8" AGGREGATE BASE COURSE
P	PRIME COAT 0.35 GAL/SY
R1	SHOULDER BERM GUTTER
R2	SPECIAL SHOULDER BERM CURB
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

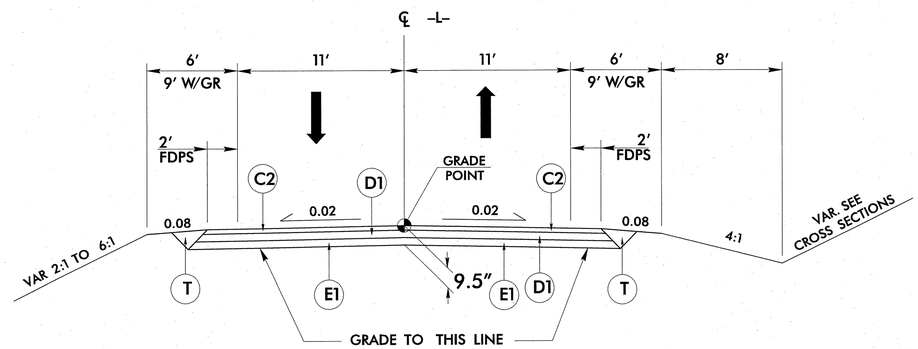


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 13+50.00 TO -L- STA. 14+00.00
-L- STA. 18+25.00 TO -L- STA. 19+50.00

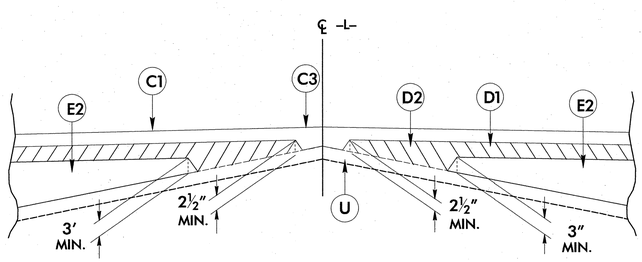
NOTE: OVERLAY EXISTING PAVEMENT WITH C1 FOR THE FOLLOWING LIMITS:
-L- STA. 10+00.00 TO -L- STA. 13+50.00
-L- STA. 19+50.00 TO -L- STA. 22+00.00



TYPICAL SECTION NO. 2

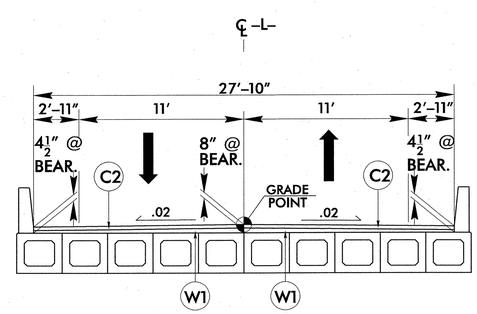
USE TYPICAL SECTION NO. 2

-L- STA. 14+00.00 TO -L- STA. 15+65.88 (BEGIN BRIDGE)
-L- STA. 16+68.13 (END BRIDGE) TO -L- STA. 18+25.00



Detail Showing Method of Wedging

STANDARD WEDGING DETAIL 1



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-L- STA. 15+65.88 TO -L- STA. 16+68.13

6/2/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4623	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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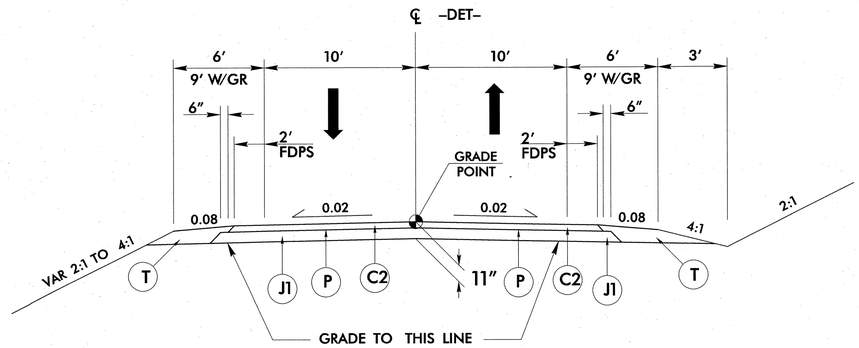


TYPICAL SECTION NO. 4

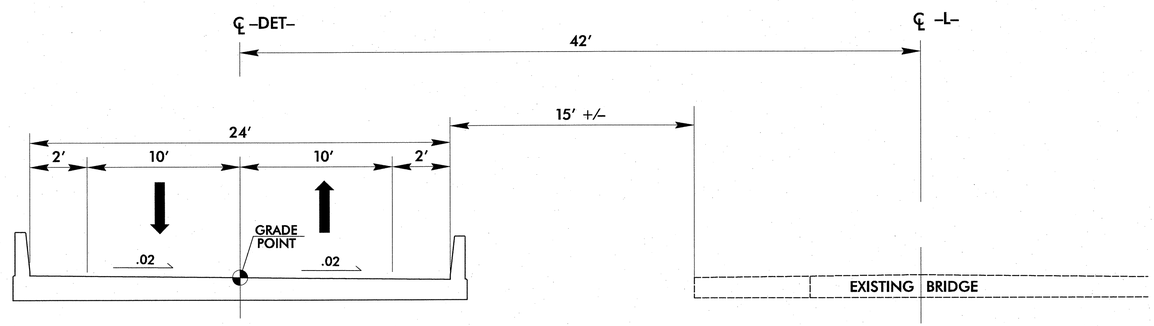
USE TYPICAL SECTION NO. 4

–DET– STA. 12+31.88 TO –DET– STA. 15+79.08 (BEGIN BRIDGE)

–DET– STA. 16+56.33 (END BRIDGE) TO –DET– STA. 20+18.66

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5″ IN DEPTH.
D1	PROP. APPROX. 2½″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.
J1	8″ AGGREGATE BASE COURSE
P	PRIME COAT 0.35 GAL/SY
R1	SHOULDER BERM GUTTER
R2	SPECIAL SHOULDER BERM CURB
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

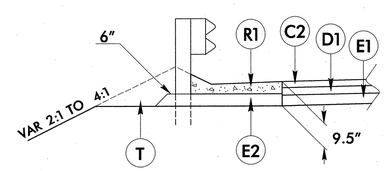


DETOUR BRIDGE TO BE DESIGNED BY OTHERS

TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

–DET– STA. 15+79.08 TO –DET– STA. 16+56.33

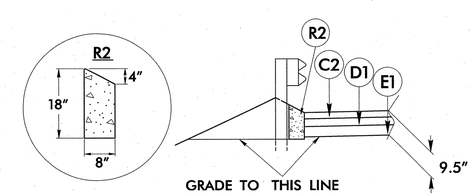


DETAIL SHOWING PAVED SHOULDER IN RELATION TO GUARDRAIL

USE SHOULDER BERM GUTTER FOR THE FOLLOWING:

–L– STA. 15+49.88 TO –L– STA. 15+54.88 LT & RT

–L– STA. 16+79.13 TO –L– STA. 17+23.88 LT & RT



DETAIL SHOWING SPECIAL SHOULDER BERM CURB (SBC) ON TOP OF SUBGRADE

–L– STA. 15+49.88 TO –L– STA. 15+54.88 (BEGIN APPROACH SLAB) (LT & RT)

6/2/99

9/18/2013 10:52:39 AM B4623\Project Production\Roadway\Proj\B4623_Rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4623	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029791 ENGINEER JASON M. THOMAS

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER, JR. 8-18-13

RS&H IMPROVING YOUR WORLD
RS&H Architects-Engineers-Planners, Inc.

DETOUR

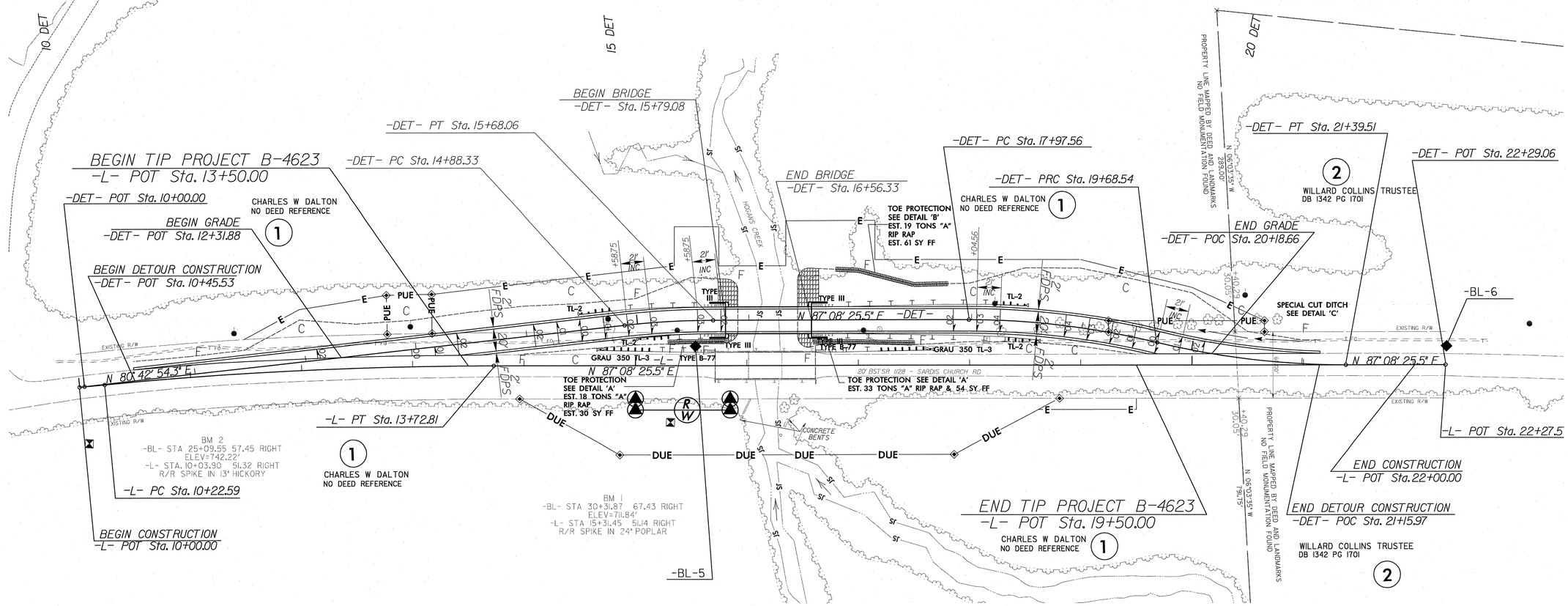
NAD 83

-L- CURVE DATA

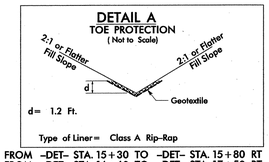
PI Sta 11+97.83
△ = 5° 25' 23.7" (RT)
D = 1° 32' 54.7"
L = 350.22'
T = 175.24'
R = 3,700.00'

-DET- CURVE DATA

PI Sta 15+28.24	PI Sta 18+83.47	PI Sta 20+54.44
△ = 6° 25' 31.2" (RT)	△ = 13° 46' 40.8" (RT)	△ = 13° 46' 40.8" (LT)
D = 8° 03' 30.5"	D = 8° 03' 30.5"	D = 8° 03' 30.5"
L = 79.73'	L = 170.98'	L = 170.98'
T = 39.91'	T = 85.90'	T = 85.90'
R = 711.00'	R = 711.00'	R = 711.00'
SE = .04	SE = .04	SE = .04
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

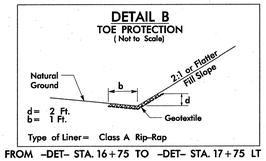


DETAIL A
TOE PROTECTION
(Not to Scale)



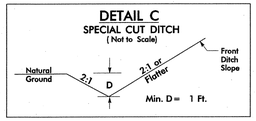
d= 1.2 Ft.
Type of Liner= Class A Rip-Rap
FROM -DET- STA. 15+30 TO -DET- STA. 15+80 RT
FROM -DET- STA. 16+60 TO -DET- STA. 17+50 RT

DETAIL B
TOE PROTECTION
(Not to Scale)



d= 2 Ft.
b= 1 Ft.
Type of Liner= Class A Rip-Rap
FROM -DET- STA. 16+75 TO -DET- STA. 17+75 LT

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.
FROM -DET- STA. 20+00 TO -DET- STA. 21+00 LT

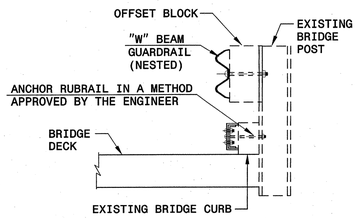
FOR -L-, SEE SHEET NO. 4
FOR -DET- PROFILE, SEE SHEET NO. 5

REVISIONS

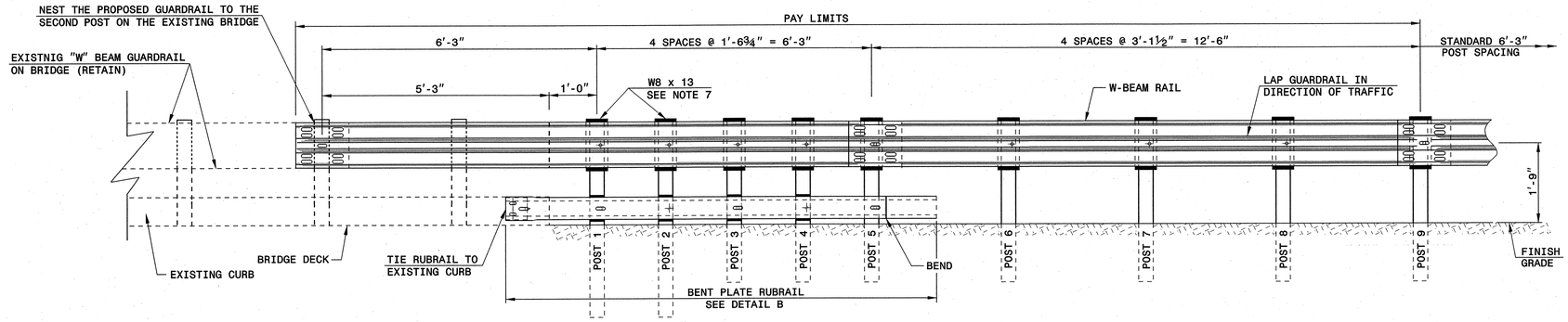
8/17/99

9/17/2013
10:01:13 PM
B4623\Project Production\Roadway\Proj\B4623_Rdy_psh_DET.dgn

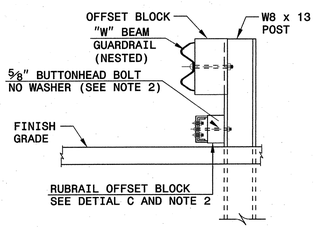
PROJECT REFERENCE NO.	SHEET NO.
B-4623	2-C



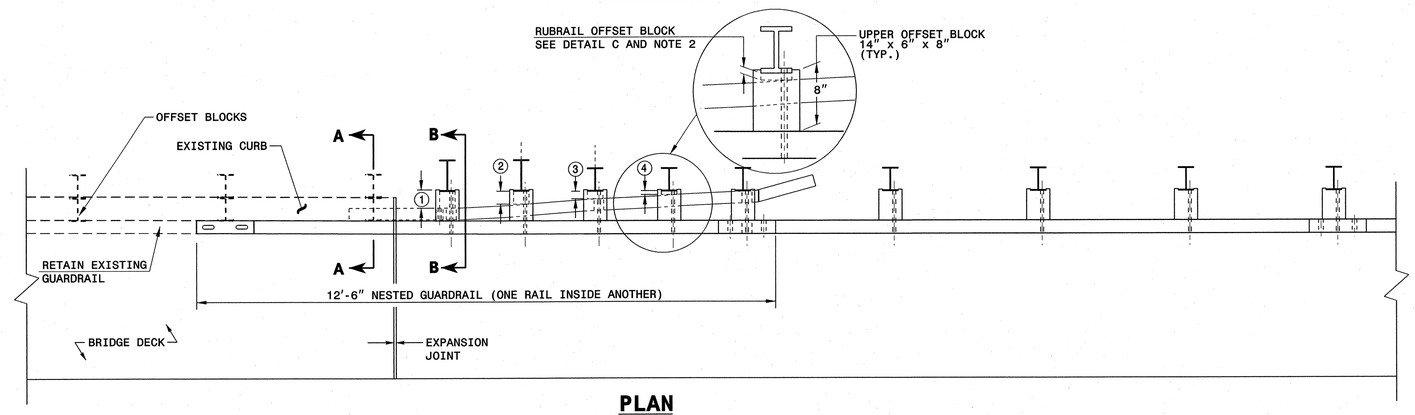
SECTION A-A



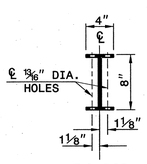
ELEVATION



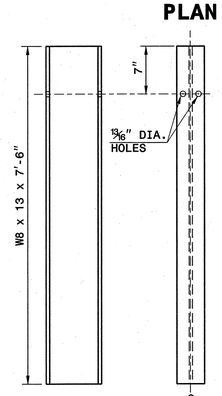
SECTION B-B



PLAN



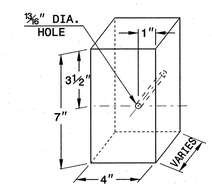
PLAN



SIDE FRONT

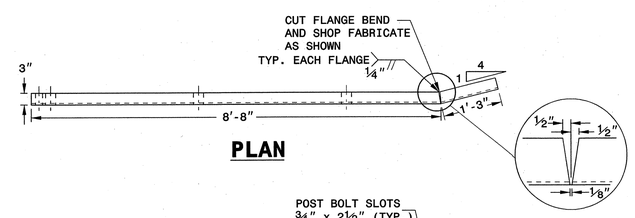
DETAIL C
"W8 X 13 X 7'-6" STEEL POST

GENERAL NOTES:
1) POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4½" BUTTONHEAD BOLT.
3) SHOP FABRICATE THE BENT PLATE RUBRAIL END TO BE CONSISTENT WITH THE SLOPE AND SHAPE OF THE BRIDGE CURB AND ATTACH FLUSH.
4) ANCHORAGE:
   (a) AT EXISTING BRIDGE RAIL, RUBRAIL SHALL BE ANCHORED USING THREE 5/8" ANCHORED BOLTS WITH WASHERS IN A METHOD APPROVED BY THE ENGINEER..
5) POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5, 6'-0" LONG.
6) REMOVE EXISTING TERMINAL END SECTION AND/OR GUARDRAIL POST BEYOND END OF BRIDGE.

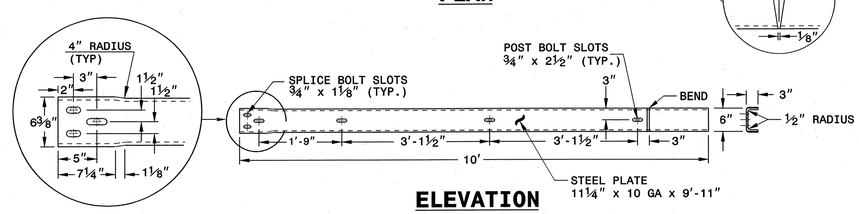


RUBRAIL BLOCKS 7" HIGH x 4" WIDE		
POST	THICKNESS	BOLT LENGTH
1	4¼"	9"
2	3¼"	5" *
3	2"	6"
4	1"	3" *
* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.		

DETAIL B
RUBRAIL BLOCKOUT

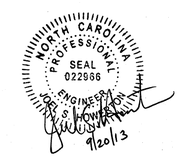


PLAN



ELEVATION

DETAIL A
BENT PLATE RUBRAIL



CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

GUARDRAIL ANCHOR UNIT (B-77 VARIANT) TYING TO GUARDRAIL ON BRIDGE

ORIGINAL BY: E.E. WARD DATE: 07-21-04
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/862stds/anc.dgn

5/14/99
$$$$$SYSTIME$$$$$
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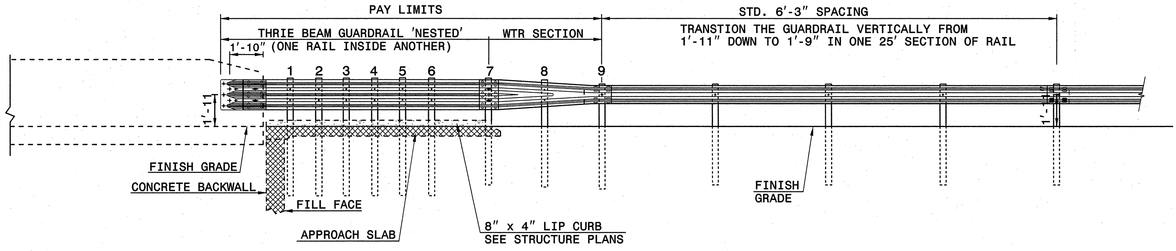
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

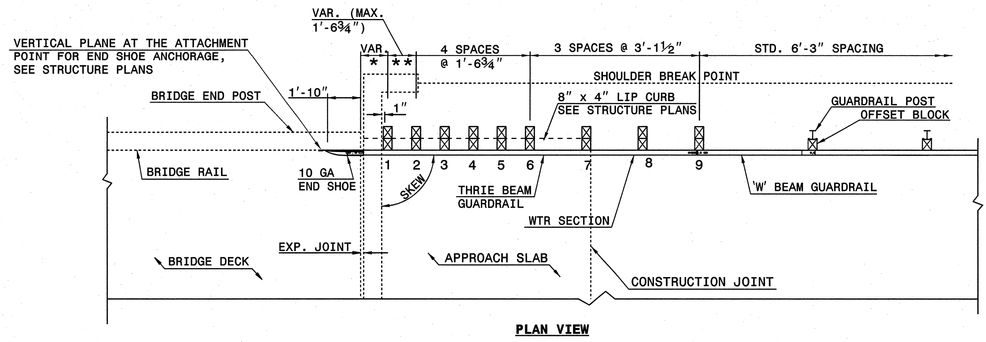
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

NOTE:
- *POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

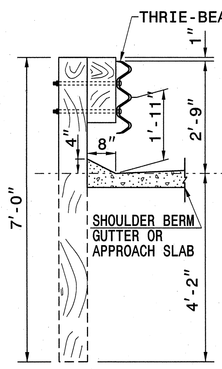
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

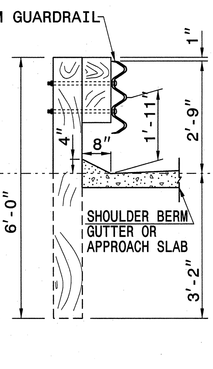
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

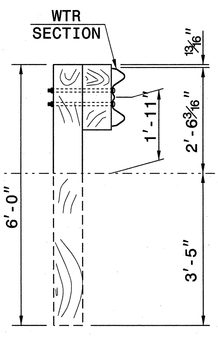
SHEET 3 OF 7
862d03



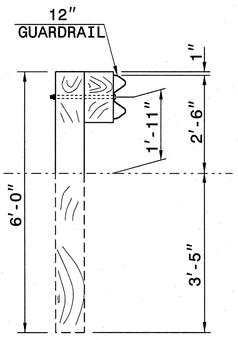
SECTION OF THRIE BEAM POSTS 1 THRU 6



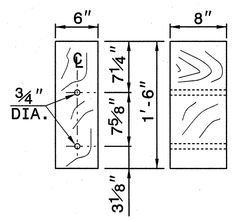
SECTION OF THRIE BEAM POST 7



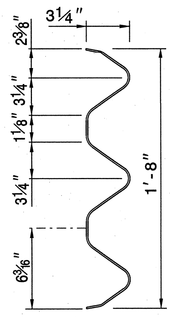
SECTION OF WTR BEAM POST 8



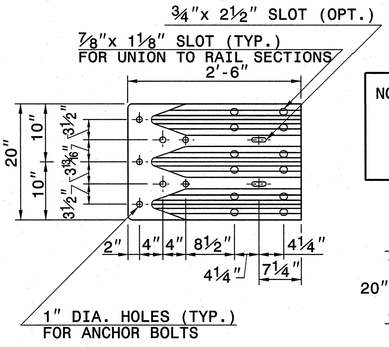
SECTION OF 'W' BEAM POST 9



THRIE BEAM OFFSET BLOCK

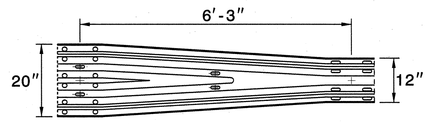


THRIE-BEAM SECTION

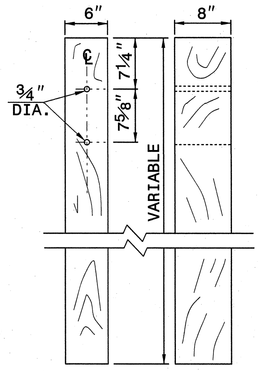


END SHOE

NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.



WTR SECTION
ELEVATION VIEW



THRIE BEAM LINE POST

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7
862d03

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOMERTON DATE: 06-22-12
MODIFIED BY:
CHECKED BY: DATE:
FILE SPEC.:

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
4/26/13

PROJECT REFERENCE NO. B-4623
SHEET NO. 2-D

PROJECT REFERENCE NO.	SHEET
B-4623	2-E

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 7/22/13

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

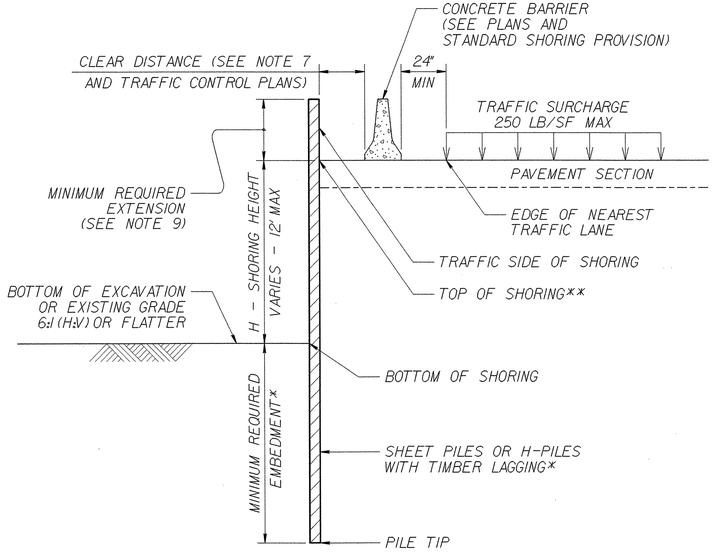
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (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 "--".**

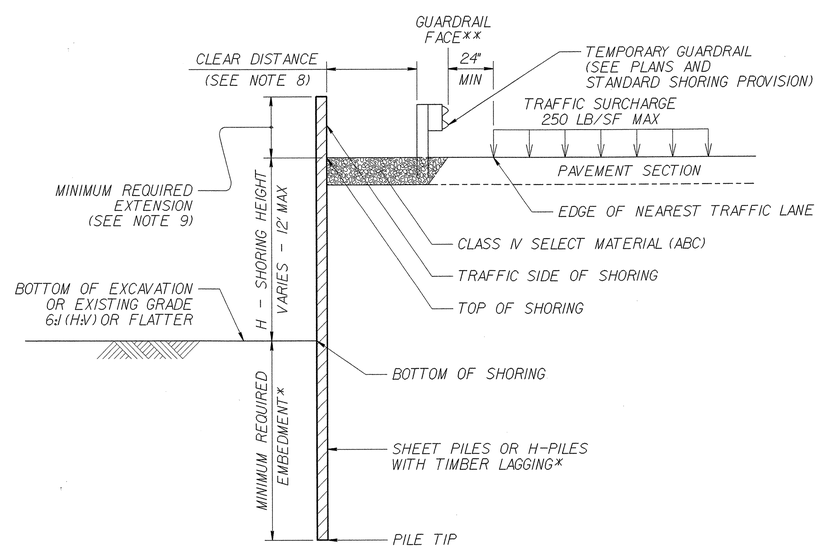
NOTES:

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.



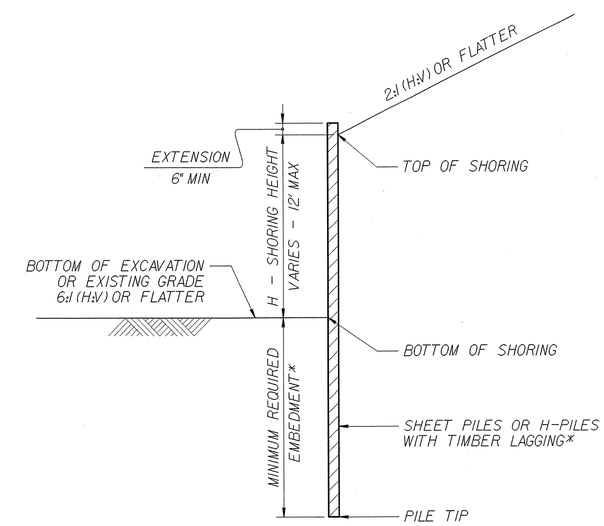
CONCRETE BARRIER

****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.**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-4623	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

5/28/99
2/27/2013
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203283

SUMMARY OF QUANTITIES - B-4623

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0022000000-E	225	5,300	CY	UNCLASSIFIED EXCAVATION
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (16+17.01)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	200	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0194000000-E	SP	650	CY	SELECT GRANULAR MATERIAL, CLASS III
0196000000-E	270	750	SY	GEOTEXTILE FOR SOIL STABILIZA-TION
0199000000-E	SP	728	SF	TEMPORARY SHORING
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRUCTURES
0320000000-E	300	20	SY	FOUNDATION CONDITIONING GEO-TEXTILE
0366000000-E	310	24	LF	15" RC PIPE CULVERTS, CLASS III
0582000000-E	310	30	LF	15" CS PIPE CULVERTS, 0.064" THICK
0636000000-E	310	2	EA	** CS PIPE ELBOWS, ***** THICK (15", 0.064")
1121000000-E	520	1,050	TON	AGGREGATE BASE COURSE
1275000000-E	600	810	GAL	PRIME COAT
1330000000-E	607	100	SY	INCIDENTAL MILLING
1489000000-E	610	250	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	180	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1525000000-E	610	770	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	75	TON	ASPHALT BINDER FOR PLANT MIX
2000000000-N	806	4	EA	RIGHT OF WAY MARKERS
2022000000-E	815	56	CY	SUBDRAIN EXCAVATION
2033000000-E	815	42	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	250	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	95	LF	SHOULDER BERM GUTTER
2752000000-E	SP	10	LF	GENERIC PAVING ITEM SPECIAL SHOULDER BERM CURB
3030000000-E	862	250	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3380000000-E	862	525	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	2	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (B-77)
3387000000-N	862	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (III)
3389000000-N	SP	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (350,TL-2)
3389100000-N	SP	2	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350
3436000000-N	862	5	EA	GENERIC GUARDRAIL ITEM ADDITIONAL GUARDRAIL POSTS (TEMPORARY)
3635000000-E	876	60	TON	RIP RAP, CLASS II
3642000000-E	876	70	TON	RIP RAP, CLASS A
3649000000-E	876	28	TON	RIP RAP, CLASS B
3656000000-E	876	721	SY	GEOTEXTILE FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4072000000-E	903	65	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4400000000-E	1110	144	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	112	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	56	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	70	EA	DRUMS
4445000000-E	1145	48	LF	BARRICADES (TYPE III)
4455000000-N	1150	180	DAY	FLAGGER
4650000000-N	1251	104	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	17,880	LF	PAINT PAVEMENT MARKING LINES (4")
4850000000-E	1205	4,800	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
6000000000-E	1605	1,155	LF	TEMPORARY SILT FENCE
6006000000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	190	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	80	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	200	LF	SAFETY FENCE
6030000000-E	1630	450	CY	SILT EXCAVATION
6036000000-E	1631	4,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	200	SY	COIR FIBER MAT
6042000000-E	1632	240	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	240	LF	WATTLE
6071020000-E	SP	70	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	150	LF	COIR FIBER BAFFLE
6071050000-E	SP	1	EA	** SKIMMER (1-1/2")
6084000000-E	1660	2.5	ACR	SEEDING & MULCHING
6087000000-E	1660	1.3	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1.5	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	1	ACR	REFORESTATION

COMPUTED BY: J.TALLEY	DATE: 09/2013
CHECKED BY: R. DeCOLA	DATE: 09/2013

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4623	3-A

SUMMARY OF EARTHWORK

	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE I DETOUR CONSTRUCTION				
-L- STA 10+49.95 TO -L- STA 15+83.80 (BR)	1161	1021		140
-L- STA 16+58.13 (BR) TO -L- STA 21+14.48	2906	2743		163
SUBTOTAL	4067	3764		303
PHASE II L CONSTRUCTION				
-L- STA 13+50.00 TO -L- STA 15+65.88 (BR)	44	103	59	
-L- STA 16+68.13 (BR) TO -L- STA 19+50.00	17	367	350	
SUBTOTAL	61	470	409	
PHASE III DETOUR REMOVAL AND L SHOULDER WORK				
-L- STA 14+02.52 TO -L- STA 15+83.80 (BR)	378	5		373
-L- STA 16+58.13 (BR) TO -L- STA 19+99.40	1124	966		158
SUBTOTAL	1502	971		531
PROJECT TOTALS	5630	5205	409	834
EST. FOR -DET- SHOULDER MATERIAL		246	246	
LOSS DUE TO CLEARING AND GRUBBING	-350		350	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT			50	
GRAND TOTALS:	5280	5451	1055	834
SAY:	5300		1075	

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

EST. DDE = 0 CY
EST UNDERCUT = 200 CY (CONTINGENCY)
EST SELECT GRANULAR MATERIAL, CLASS III = 650 CY (CONTINGENCY)
EST GEOTEXTILE FOR SOIL STABILIZATION = 650 CY (CONTINGENCY)

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	14+00.00	15+71.53	CL	381.18
-L-	16+61.55	18+25.00	CL	363.22
-DET-	10+45.53	12+31.88	CL	144.94
-DET-	12+31.88	13+37.75	CL	211.74
-DET-	13+37.75	15+79.08	CL	643.55
-DET-	16+56.33	19+71.16	CL	839.55
-DET-	19+71.16	20+18.66	CL	95.00
-DET-	20+18.66	21+15.97	CL	75.69
			TOTAL:	2754.86
			SAY:	2760

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

SUMMARY OF SUBSURFACE DRAINAGE

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE* UD/BD/SD	LF
		CONTINGENCY		UD	250
				TOTAL:	250

*UD = UNDERDRAIN
*BD = BLIND DRAIN
*SD = SUBSURFACE DRAIN

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-, RT	16+79.13	17+23.88	44.75
-L-, LT	16+79.13	17+23.88	44.75
		TOTAL:	89.50
		SAY:	95

SHOULDER BERM CURB SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-, RT	15+49.88	15+54.88	5.00
-L-, LT	15+49.88	15+54.88	5.00
		TOTAL:	10.00
		SAY:	10

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	C.S. PIPE (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	T.B.D.I. STD. 840.35			G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	CORR. STEEL ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- STA 16+92	LT.	0401		718.63																																							1													1			1				
		0401	0402	715.00	714.50																									24																																	
-L- STA 16+92	RT.	0402		718.63																																							1													1			1				
		0402	0403	714.00	705.50												30																																											2 @ 15"			OUTLET INTO PREFORMED SCOUR HOLE
TOTALS																	30													24													2													2			2	2 @ 15"			

ABBREVIATIONS

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

"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 -L-

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	ANCHORS TL-3	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	14+84.63	15+65.88 (BR)	RT.	81.25				15+65.88 (BR)	3.67	6.67	37.5		.75		1	1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-L-	14+84.63	15+65.88 (BR)	LT.	81.25			15+65.88 (BR)		3.67	6.67		37.5		.75	1	1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-L-	16+68.13 (BR)	19+24.38	RT.	256.25			18+00.00	16+68.13 (BR)	6	9	154.17		3.08		1	1							
-L-	16+68.13 (BR)	17+49.38	LT.	81.25			16+68.13 (BR)		3.67	6.67		37.5		.75	1	1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
			SUBTOTALS	500.00																			
			ANCHOR DEDUCTION	-275.00																			
			TOTAL	225.00																			
			SAY	250.00																			

ANCHOR DEDUCTION
TYPE III: 4 @ 18.75' = 75'
TYPE TL-3: 4 @ 50' = 200'
GRAND TOTAL = 275'
ADDITIONAL GUARDRAIL POSTS = 5

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	ANCHORS TL-2	ANCHORS B-77	ANCHORS TL-3	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	14+65.28	15+71.53 (BR)	LT.	106.25				15+71.53 (BR)									1	1							PLACE GUARDRAIL ON EXISTING BRIDGE PRIOR TO DET CONST.
-L-	16+61.49 (BR)	17+67.74	LT.	106.25			16+61.49 (BR)										1	1							PLACE GUARDRAIL ON EXISTING BRIDGE PRIOR TO DET CONST.
-DET-	14+97.83	15+79.08 (BR)	RT.	81.25				15+79.08 (BR)							1	1									GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-DET-	14+47.83	15+79.08 (BR)	LT.	131.25			15+79.08 (BR)	14+60.50							1	1									
-DET-	16+56.33 (BR)	18+62.58	RT.	206.25				16+56.33 (BR)							1	1									GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-DET-	16+56.33 (BR)	18+50.08	LT.	193.75			16+56.33 (BR)	17+48.20							1	1									
			SUBTOTALS	825.00																					
			ANCHOR DEDUCTION	-312.50																					
			TOTAL	512.50																					
			SAY	525.00																					

ANCHOR DEDUCTION
TYPE III: 4 @ 18.75' = 75'
TYPE B-77: 2 @ 18.75' = 37.5'
TYPE TL-2: 4 @ 25' = 100'
TYPE TL-3: 2 @ 50' = 100'
GRAND TOTAL = 312.5'
ADDITIONAL GUARDRAIL POSTS = 5

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PROJECT REFERENCE NO.	SHEET NO.
B-4623	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON W. TALLEY 9-26-13

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER, JR. 9-26-13

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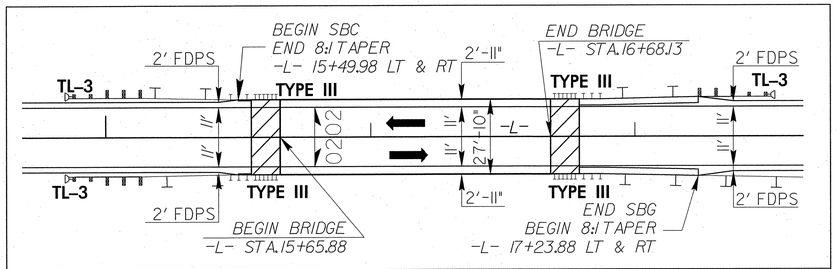
NAD 83



DETAIL SHOWING -L- PAVEMENT - BRIDGE RELATIONSHIP

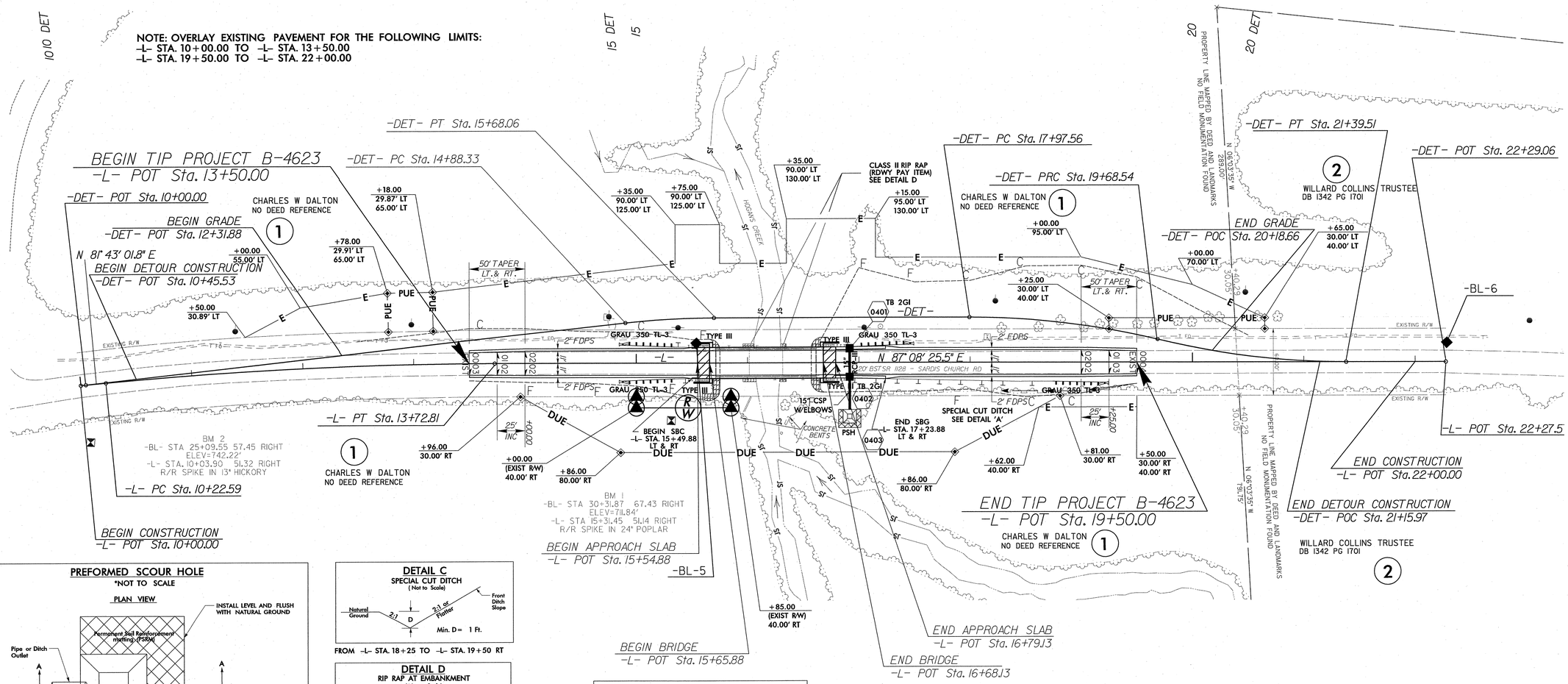
-L- CURVE DATA

PI Sta 11+97.83
Δ = 5° 25' 23.7" (RT)
D = 1° 32' 54.7"
L = 350.22'
T = 175.24'
R = 3,700.00'

-DET- CURVE DATA

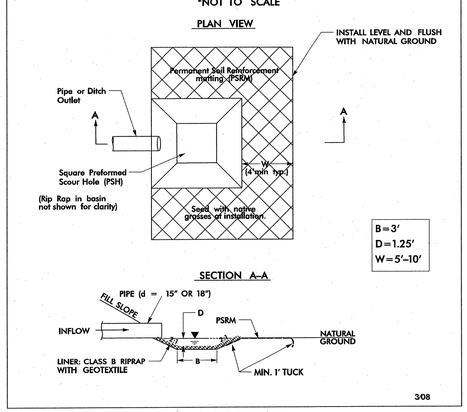
PI Sta 15+28.24	PI Sta 18+83.47	PI Sta 20+54.44
Δ = 6° 25' 31.2" (RT)	Δ = 13° 46' 40.8" (RT)	Δ = 13° 46' 40.8" (LT)
D = 8° 03' 30.5"	D = 8° 03' 30.5"	D = 8° 03' 30.5"
L = 79.73'	L = 170.98'	L = 170.98'
T = 39.91'	T = 85.90'	T = 85.90'
R = 711.00'	R = 711.00'	R = 711.00'
SE = .04	SE = .04	SE = .04
R0 = SEE PLANS	R0 = SEE PLANS	R0 = SEE PLANS

NOTE: OVERLAY EXISTING PAVEMENT FOR THE FOLLOWING LIMITS:
-L- STA. 10+00.00 TO -L- STA. 13+50.00
-L- STA. 19+50.00 TO -L- STA. 22+00.00



PREFORMED SCOUR HOLE

*NOT TO SCALE



-L- STA. 16+92 LT

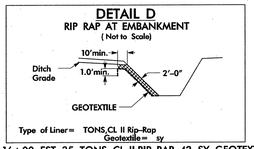
DETAIL C

SPECIAL CUT DITCH
(Not to Scale)

FROM -L- STA. 18+25 TO -L- STA. 19+50 RT

DETAIL D

RIP RAP AT EMBANKMENT
(Not to Scale)

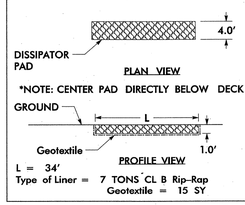


STA. 16+00 EST. 35 TONS, CL II RIP RAP, 42 SY GEOTEXTILE
STA. 16+30 EST 25 TONS, CL II RIP RAP, 24 SY GEOTEXTILE

STABILIZE LEFT AND RIGHT STREAM BANKS WITH CLASS II RIP RAP. EXTEND LIMITS OF RIP RAP 3' ON EACH SIDE OF PROPOSED STRUCTURE.

DETAIL E

DECK DRAIN DISSIPATOR PAD
(Not to Scale)



FROM STA. 15+71 TO STA. 16+01 LT. & RT.
FROM STA. 16+33 TO STA. 16+63 LT. & RT.

BRIDGE APPROACH SLAB	
FOR -DET-, SEE SHEET NO. 2-B	
FOR -L- PROFILE, SEE SHEET NO. 5	
FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-16	

REVISIONS

8/17/99

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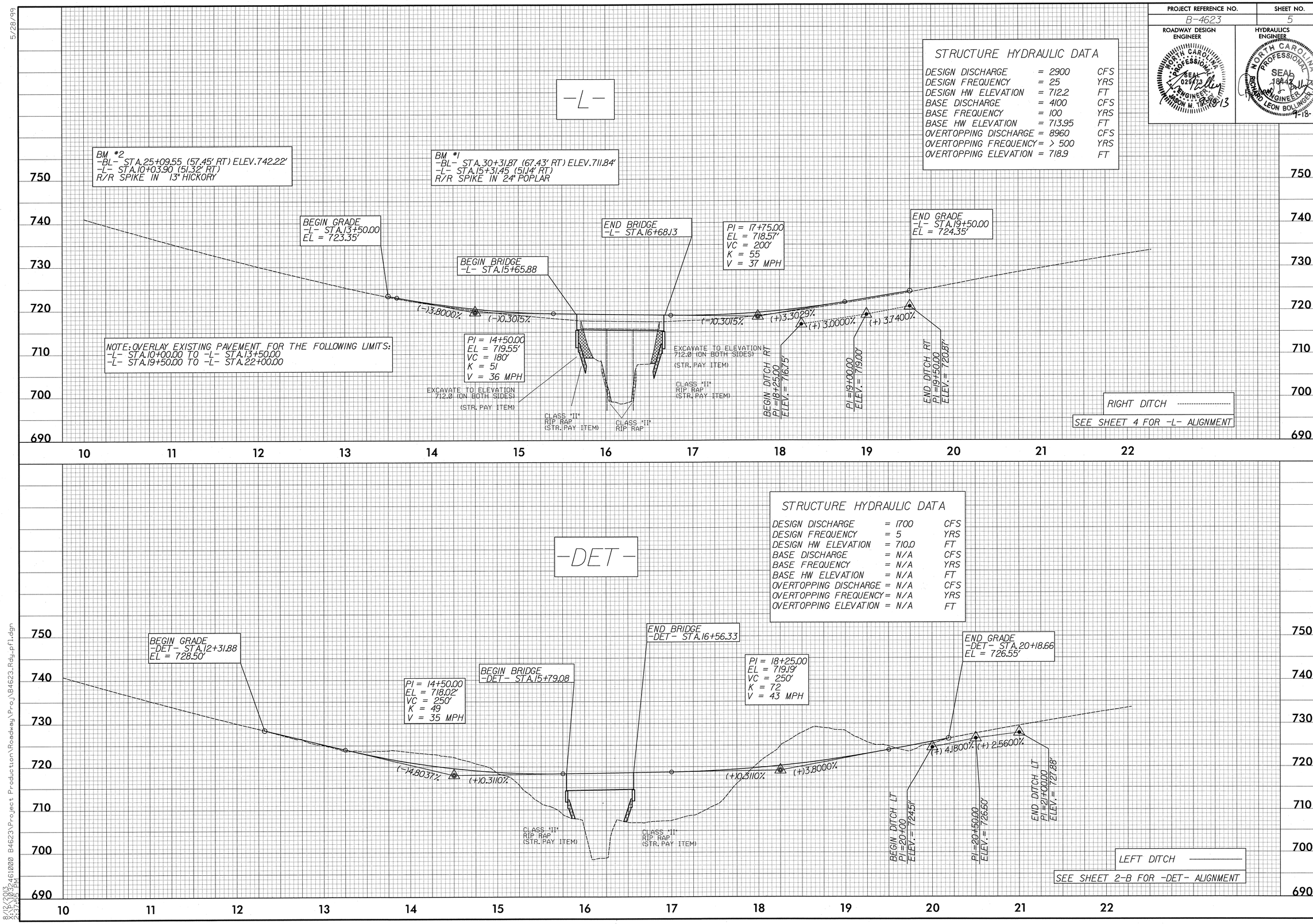
PROJECT REFERENCE NO.	SHEET NO.
B-4623	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER



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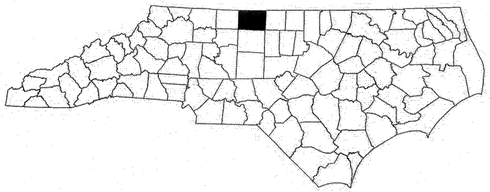
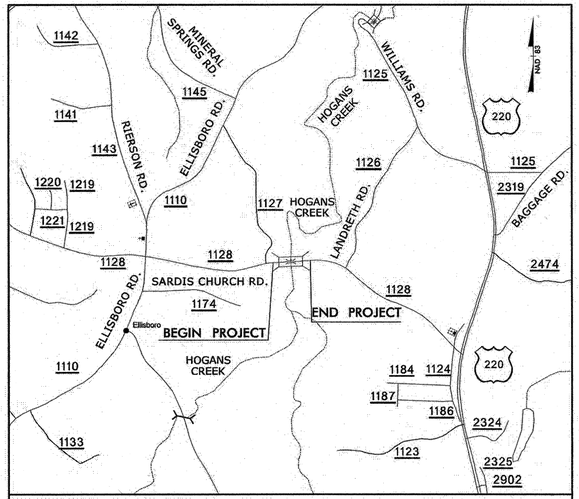
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ROCKINGHAM COUNTY





VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND MANAGEMENT STRATEGIES
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES)
TMP-2	TEMPORARY SHORING NOTES
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-6	TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

SHEET NO.
TMP-1

B-4623

TIP PROJECT:

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1520 SOUTH BLVD, SUITE 200
CHARLOTTE, NC 28203

KENNETH HERRING, PE — TRAFFIC CONTROL PROJECT ENGINEER
JASON TALLEY, PE — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
EDITH PETERS, PE — TRAFFIC CONTROL DESIGN ENGINEER

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

APPROVED:
DATE:

NORTH CAROLINA PROFESSIONAL SEAL 039144 ENGINEER EDITH GRAHAM PETERS
8/5/13

8/5/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-4623	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 JANUARY 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
1101.04	TEMPORARY SHOULDER 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
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
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

MANAGEMENT STRATEGIES

- DURING CONSTRUCTION, SR 1128 TRAFFIC WILL BE PLACED IN A TWO-LANE, TWO-WAY PATTERN ON THE TEMPORARY ONSITE DETOUR.
- THE TIE-IN CONSTRUCTION, TRAFFIC SHIFTS, PLACEMENT OF FINAL SURFACE COURSE AND PAVEMENT MARKINGS WILL BE PERFORMED USING FLAGGER OPERATIONS.

LEGEND

GENERAL

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

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TEMPORARY PAVEMENT MARKING

PA	WHITE EDGELINE (2X)
PI	DOUBLE YELLOW CENTERLINE (2X)

TEMPORARY RAISED MARKERS

MH	YELLOW/YELLOW

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

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

APPROVED:_____ DATE:_____

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ROADWAY STANDARD DRAWINGS, LEGEND, AND MANAGEMENT STRATEGIES

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PROJ. REFERENCE NO.	SHEET NO.
B-4623	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.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1128	MONDAY THRU FRIDAY 7:00AM TO 8:30AM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

SR 1128

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) 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.

E) 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.

F) 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.

G) 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.

H) 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.

I) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) 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.

K) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

M) 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.

O) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

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

Q) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 ft IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

R) 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.

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

T) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
SR 1128	PAINT	TEMPORARY RAISED

V) 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.

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

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

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL SEAL 039144 ENGINEER EDITH GRAHAM PETERS

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TRANSPORTATION OPERATIONS PLAN

8/1/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-4623	TMP-2

TEMPORARY SHORING

TEMPORARY SHORING #1

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

DESIGN TEMPORARY SHORING FROM STATION 15+40 -L-, 20 FT. LT, TO STATION 15+90 -L-, 20 FT LT. 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 = 695 FT

AT THE CONTRACTOR*S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 15+40 -L-, 20 FT. LT, TO STATION 15+90 -L-, 20 FT LT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 15+40 -L-, 20.0 FT. LT, TO STATION 15+90 -L-, 20.0 FT LT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION 15+40 -L-, 20.0 FT. LT, TO STATION 15+90 -L-, 20.0 FT LT.

TEMPORARY SHORING #2

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

DESIGN TEMPORARY SHORING FROM STATION 16+50 -L-, 20.0 FT. LT, TO STATION 16+91 -L-, 20.0 FT. LT. 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 = 699 FT

AT THE CONTRACTOR*S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 16+50 -L-, 20.0 FT. LT, TO STATION 16+91 -L-, 20.0 FT. LT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 16+50 -L-, 20.0 FT. LT, TO STATION 16+91 -L-, 20.0 FT. LT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION 16+50 -L-, 20.0 FT. LT, TO STATION 16+91 -L-, 20.0 FT. LT.

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL SEAL 022564 ENGINEER CHARLES BOEHMER
9-13

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TEMPORARY SHORING NOTES

8/8/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-4623	TMP-3

PHASING

NOTE: IN THE PHASING SHOWN BELOW, FLAGGER IS DEFINED AS RSD 1101.02, SHEET 1 OF 15.

PHASE I

NOTE: PRIOR TO CONSTRUCTION, INSTALL ADVANCE WORK ZONE WARNING SIGNS ALONG EXISTING SR 1128 AS SHOWN ON RSD 1101.01, SHEET 3 OF 3.

STEP 1: AWAY FROM TRAFFIC AND USING FLAGGERS AS NECESSARY, COMPLETE THE FOLLOWING, AS SHOWN ON TMP-4:

- INSTALL TEMPORARY GUARDRAIL ALONG -L- LEFT FROM STA. 14+65 +/- TO STA. 15+66 +/- AND FROM STA. 16+68 +/- TO STA. 17+68 +/- AS SHOWN ON TMP-4.

STEP 2: PRIOR TO CONSTRUCTION OF THE TEMPORARY DETOUR BRIDGE, THE TEMPORARY SHORING MAY BE INSTALLED IF THE CONTRACTOR OR ENGINEER DEEMS IT NECESSARY FOR THE CONSTRUCTION OF THE TEMPORARY DETOUR BRIDGE, AS SHOWN ON TMP-2 AND TMP-5. AWAY FROM TRAFFIC AND USING FLAGGERS AS NECESSARY, COMPLETE THE FOLLOWING AS SHOWN ON TMP-4:

- CONSTRUCT THE TEMPORARY DETOUR BRIDGE ALONG -DET- FROM STA. 15+79 +/- TO STA. 16+56 +/-.
- CONSTRUCT -DET- FROM STA. 10+45/- TO STA. 15+79+/- AND FROM STA. 16+56+/- TO STA. 21+15 +/-, TO TIE INTO THE EDGE AND ELEVATION OF SR 1128.
- INSTALL TEMPORARY GUARDRAIL ALONG -DET- LEFT FROM STA. 14+48 +/- TO STA. 15+79+/- AND FROM STA. 16+56 +/- TO STA. 18+50 +/- AND ALSO -DET- RIGHT FROM STA. 14+98 +/- TO STA. 15+79 +/- AND FROM STA. 16+56 +/- TO STA. 18+63 +/- AS SHOWN ON CONSTRUCTION PLAN SHEET 2-B, 3-A AND TMP-4. ATTACH TEMPORARY GUARDRAIL TO TEMPORARY DETOUR BRIDGE RAIL TO PROVIDE SAFE AND SECURE CONNECTION, AS DIRECTED BY THE ENGINEER.
- INSTALL AND COVER TRAFFIC CONTROL DEVICES REQUIRED FOR PHASE II TRAFFIC PATTERN, AS SHOWN ON TMP-5 AND RSD 1101.03, SHEET 3 OF 9.

STEP 3: USING FLAGGERS AND RSD 1101.03, SHEET 3 OF 9, REMOVE ANY EXISTING PAVEMENT MARKINGS IN CONFLICT WITH -DET-, UNCOVER TRAFFIC CONTROL DEVICES, PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS SHOWN ON TMP-5, AND SHIFT SR 1128 TRAFFIC ONTO -DET- IN A TWO-WAY, TWO-LANE PATTERN.

PHASE II

STEP 1: AWAY FROM TRAFFIC AND USING FLAGGERS AS NECESSARY, COMPLETE THE FOLLOWING, AS SHOWN ON TMP-5:

- IF NOT PREVIOUSLY INSTALLED, THE TEMPORARY SHORING FROM -L- STA. 15+40 +/- TO STA. 15+90 +/- AND FROM -L- STA. 16+50 +/- TO STA. 16+91 +/- AS SHOWN ON TMP-2 AND TMP-5 MUST BE INSTALLED PRIOR TO THE CONSTRUCTION OF THE WING WALLS AND END BENTS OF THE PROPOSED BRIDGE ALONG -L-.
- REMOVE THE EXISTING SR 1128 BRIDGE.
- CONSTRUCT THE NEW BRIDGE AND APPROACH SLABS ALONG -L- FROM STA. 15+54 +/- TO 16+79 +/- UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE.
- REMOVE AND REPLACE TEMPORARY GUARDRAIL ALONG -L- LEFT AND INSTALL PERMANENT GUARDRAIL ALONG BOTH SIDES OF -L- AS SHOWN ON CONSTRUCTION PLAN SHEET 3-A, 4 AND TMP-5.
- CONSTRUCT -L- FROM STA. 13+72 +/- TO STA. 15+54 +/- AND FROM STA. 16+79 +/- TO STA. 19+50 +/-, UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE.
- CONSTRUCT -L- FROM STA. 13+50 +/- TO STA. 13+72 +/- AS MUCH AS POSSIBLE, UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE.

STEP 2: USING FLAGGERS, COMPLETE THE FOLLOWING, AS SHOWN ON TMP-5 AND TMP-6:

- COMPLETE CONSTRUCTION OF -L- FROM STA. 13+50 +/- TO 13+72 +/- UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE. INSTALL TEMPORARY PAVEMENT MARKINGS AND MARKERS IN THE FINAL PATTERN ALONG -L- (SEE FINAL PAVEMENT MARKING PLAN). SHIFT TRAFFIC TO -L- IN A TWO-WAY, TWO-LANE PATTERN AND CLOSE -DET- TO TRAFFIC. COVER OR REMOVE -DET- TRAFFIC CONTROL DEVICES PLACED IN PHASE I, STEP 2.

PHASE III

STEP 1: AWAY FROM TRAFFIC AND USING FLAGGERS AS NECESSARY, COMPLETE THE FOLLOWING, AS SHOWN ON TMP-6:

- REMOVE -DET- AND TEMPORARY DETOUR BRIDGE AND ASSOCIATED TRAFFIC CONTROL DEVICES, MARKINGS, AND MARKERS.

STEP 2: USING FLAGGERS, COMPLETE THE FOLLOWING AS SHOWN ON TMP-6:

- OVERLAY PAVEMENT FOR DETOUR TIE-INS ALONG -L- FROM STA. 10+00 +/- TO 13+50 +/- AND FROM STA. 19+50 +/- TO STA. 22+00 +/-.
- PLACE THE FINAL LAYER OF SURFACE COURSE ALONG -L- STA. 13+50 +/- TO 19+50 +/-.
- PLACE FINAL PAVEMENT MARKINGS ALONG -L- AS SHOWN ON FINAL PAVEMENT MARKING PLANS.

STEP 3: USING FLAGGERS AS NECESSARY, REMOVE ALL REMAINING WORK ZONE TRAFFIC CONTROL DEVICES AND OPEN TO FINAL PATTERN.

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL SEAL 039144 ENGINEER SEAN G. GRAHAM PETERS 8/9/13

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TEMPORARY TRAFFIC CONTROL PHASING

8/9/2013
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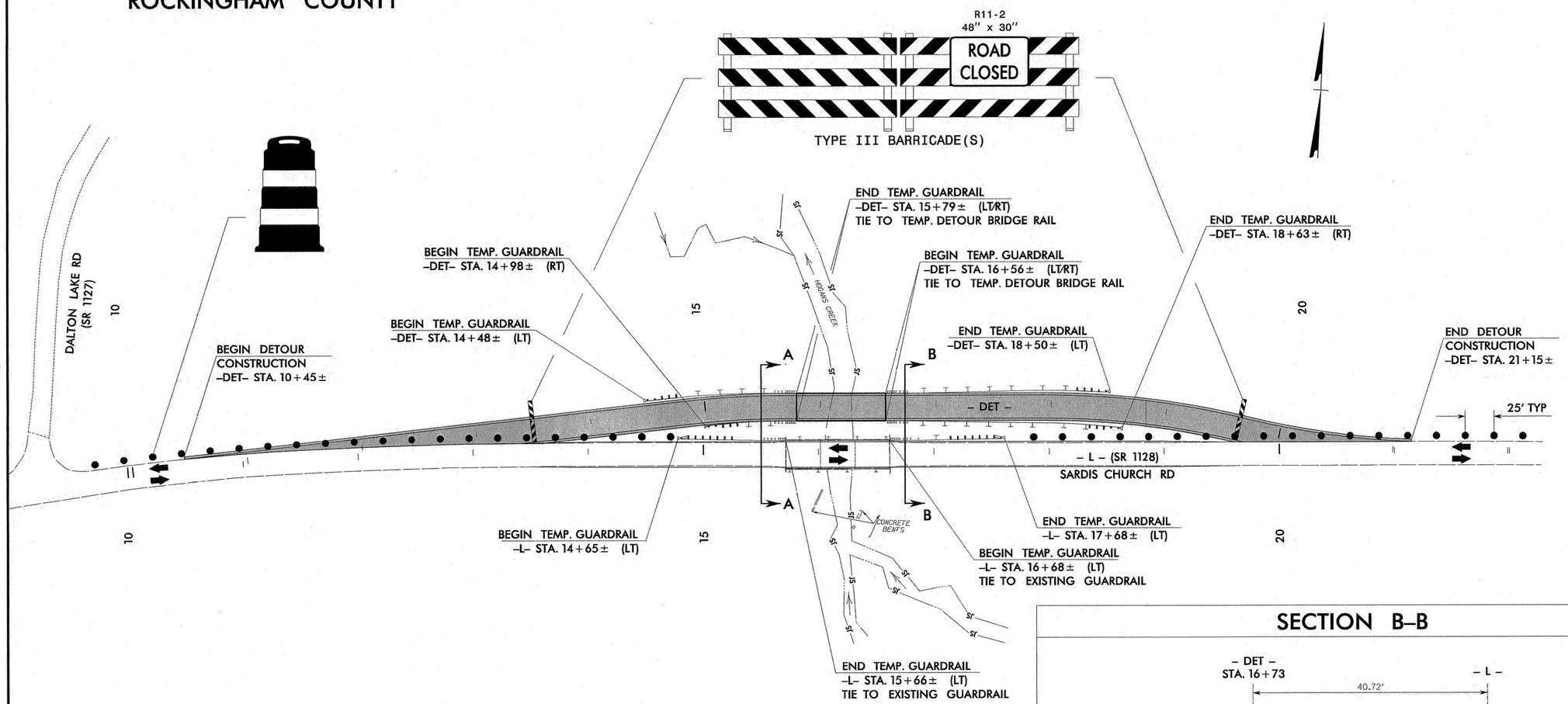
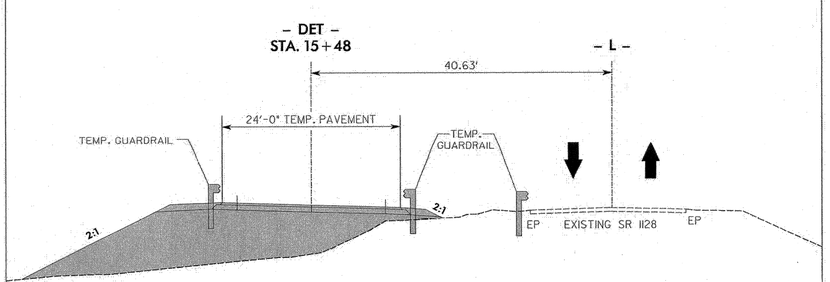
PROJ. REFERENCE NO.	SHEET NO.
B-4623	TMP-4

ROCKINGHAM COUNTY

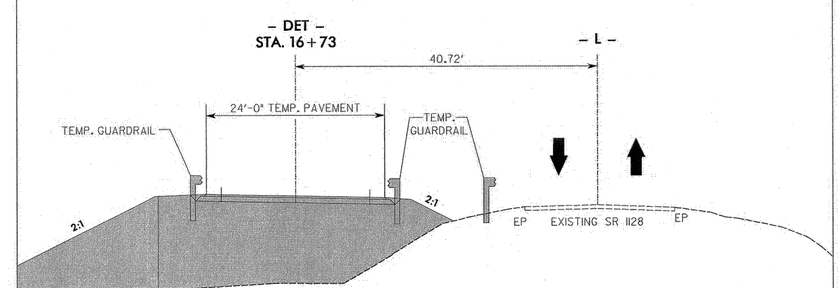


SECTION A-A



- L - STA. 15+50

SECTION B-B



- L - STA. 16+75

APPROVED: _____ DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 039144 ENGINEER EDITH GRAHAM PETERS

RS&H
IMPROVING YOUR WORLD
RS&H Architects-Engineers-Planners, Inc.

TEMPORARY TRAFFIC CONTROL PHASE I DETAIL

8/5/2013
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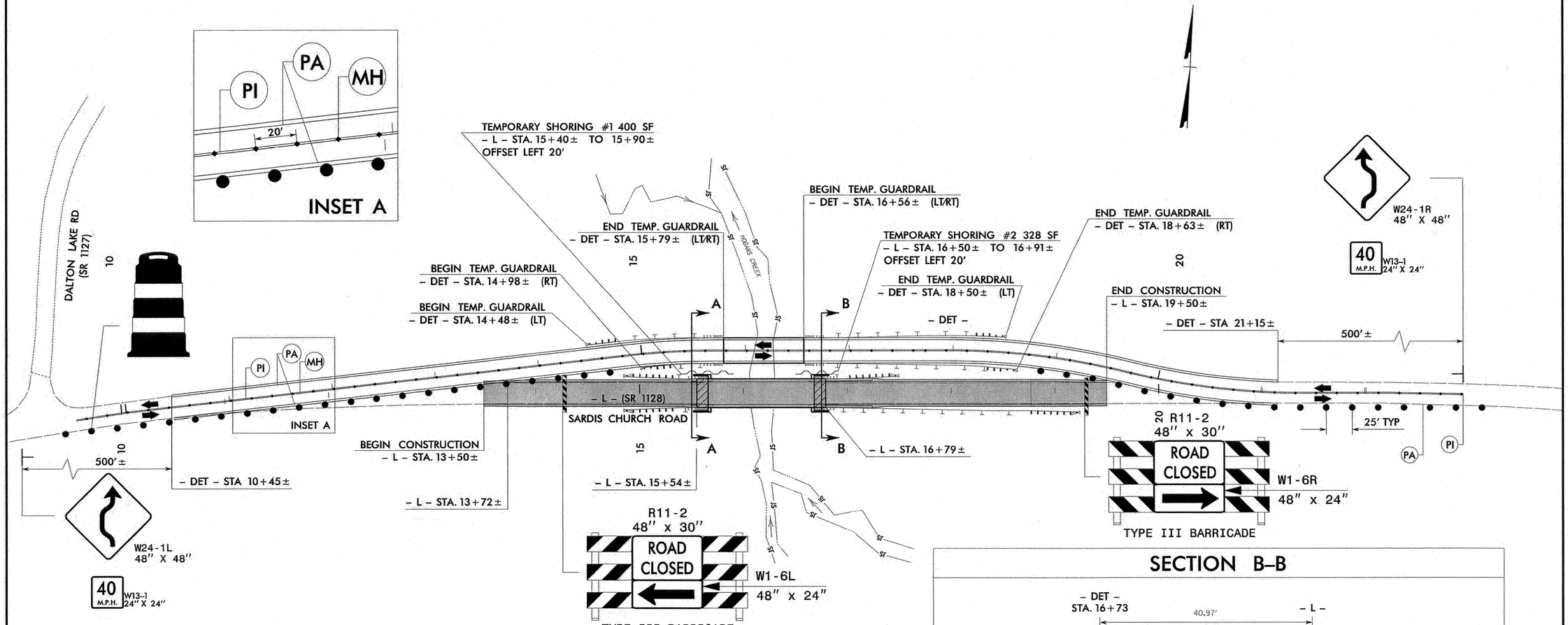
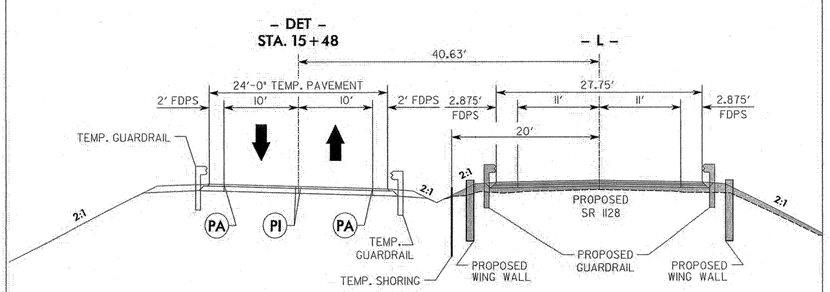
PROJ. REFERENCE NO.	SHEET NO.
B-4623	TMP-5

ROCKINGHAM COUNTY

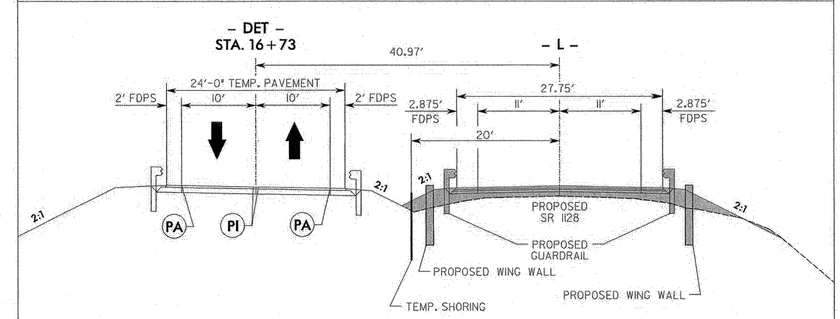


SECTION A–A



– L – STA. 15+50

SECTION B–B



– L – STA. 16+75

APPROVED: _____ DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 039144 ENGINEER EDITH GRAHAM PETERS

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RS&H Architects-Engineers-Planners, Inc.

TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

8/5/2013
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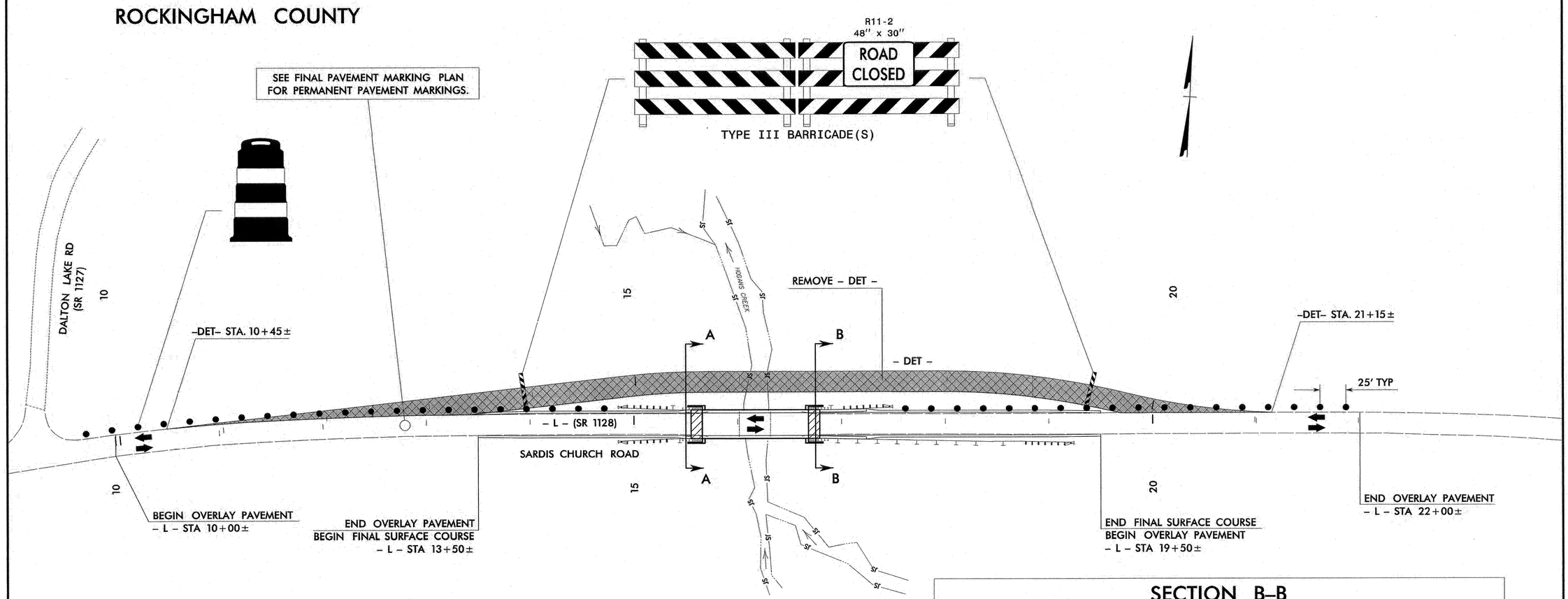
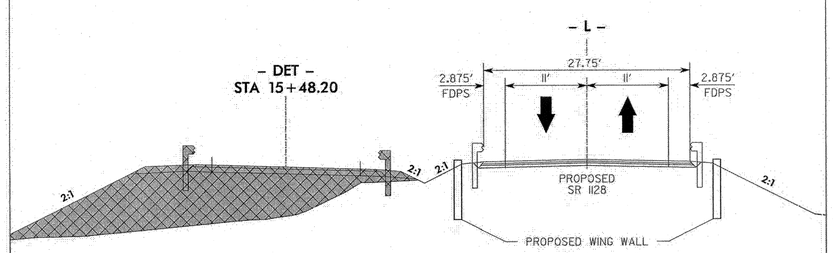
PROJ. REFERENCE NO.	SHEET NO.
B-4623	TMP-6

ROCKINGHAM COUNTY

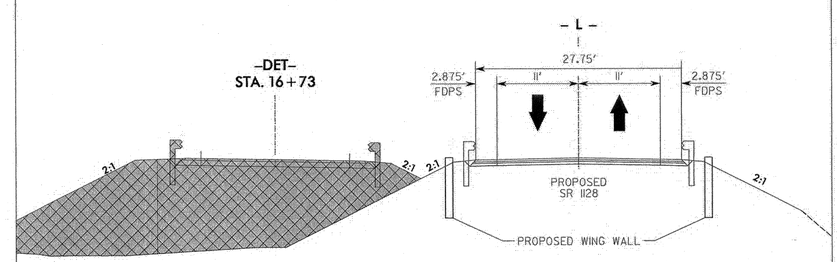


SECTION A-A



- L - STA. 15+50

SECTION B-B



- L - STA. 16+75

APPROVED: _____ DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 039144 ENGINEER KEITH GRAHAM PETERS 8/26/13

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RS&H Architects-Engineers-Planners, Inc.

TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

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TIP NO.	SHEET NO.
B-4623	PMP-1

APPROVED: [signature]
DATE: 8/28/13

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
ROCKINGHAM COUNTY

LOCATION: REPLACE BRIDGE No. 47 OVER HOGANS CREEK ON SR 1128 (SARDIS CHURCH ROAD)

T.I.P.: B-4623

CONTRACT: 203283

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

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT (4")	
PA	WHITE EDGELINE (2X)
PA	YELLOW DOUBLE CENTER(2X)

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:

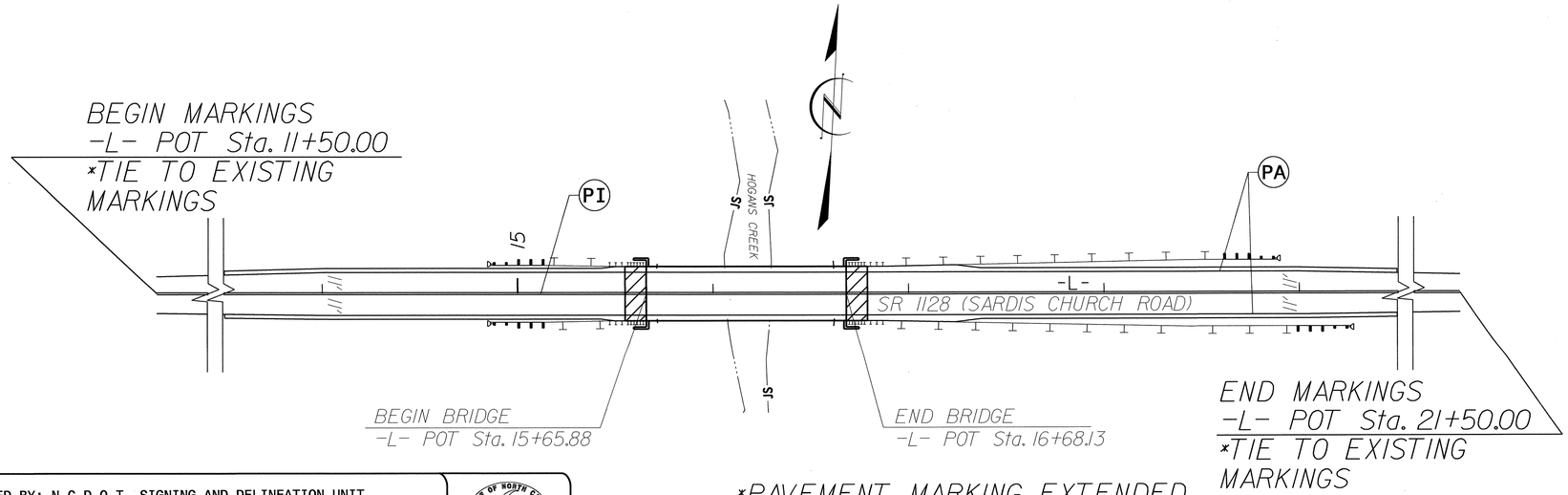
ROAD NAME	MARKING	MARKER
SR 1128	PAINT	NONE

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 EXTENDED BEYOND CONSTRUCTION LIMITS TO REPLACE DAMAGED MARKINGS

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

SUSAN KUNZ — SIGNING & DELINEATION REGIONAL ENGINEER
SAMUEL COLEMAN — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

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TIP PROJECT: B-4623

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4623	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

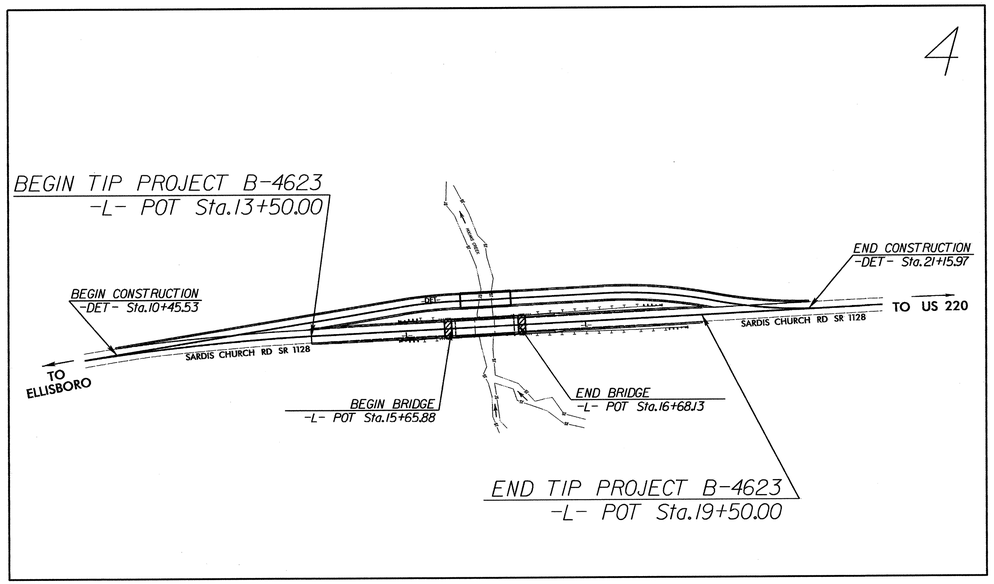
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ROCKINGHAM COUNTY

NAD 83

LOCATION: REPLACE BRIDGE No. 47 OVER HOGANS CREEK ON SR 1128 (SARDIS CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



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

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

GRAPHIC SCALE

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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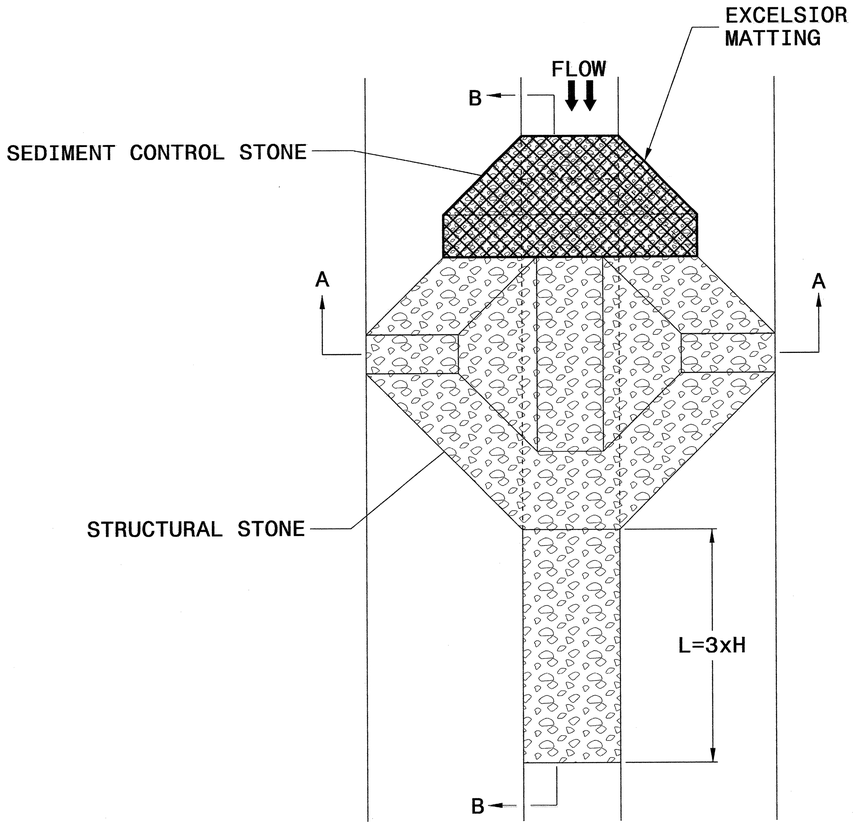
PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



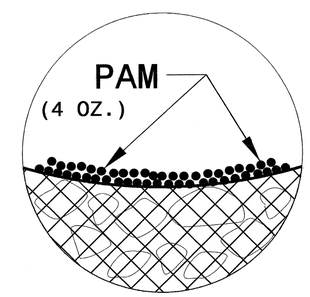
PLAN

NOTES

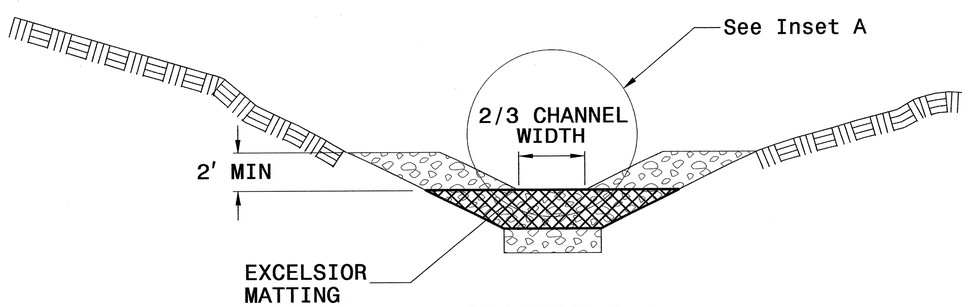
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

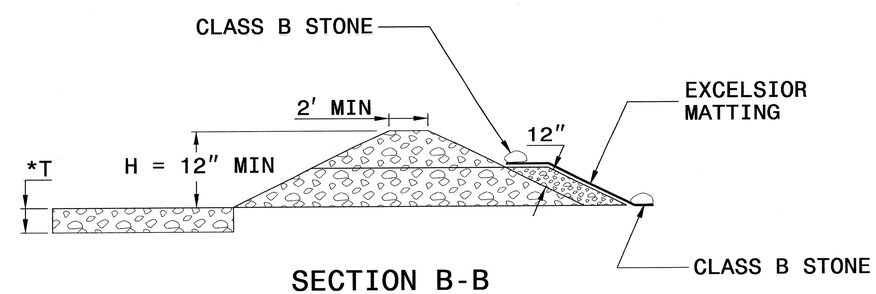
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



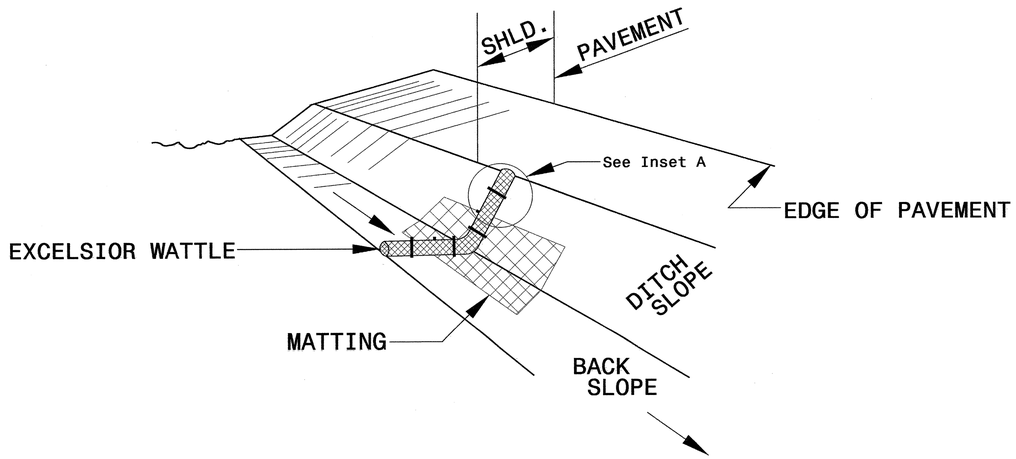
SECTION B-B

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

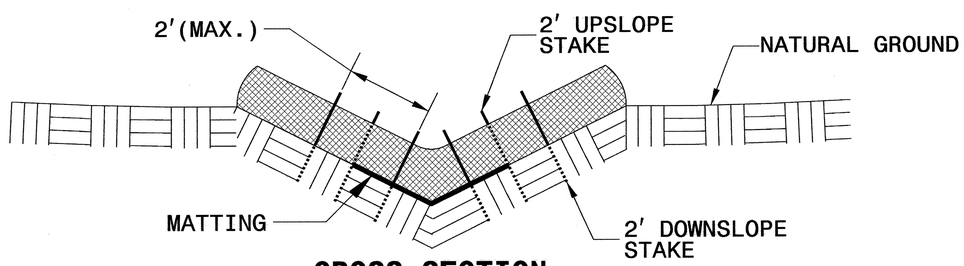
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

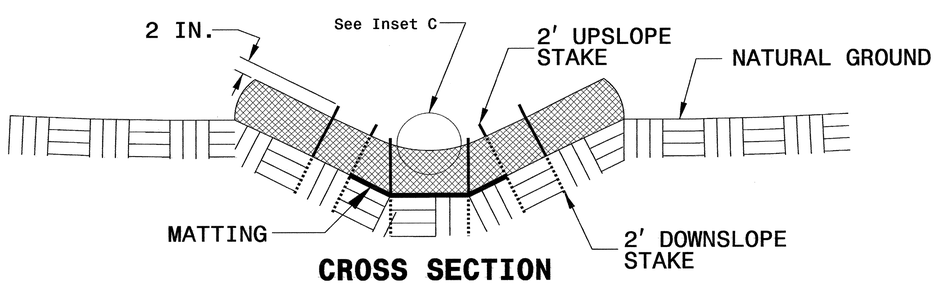
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

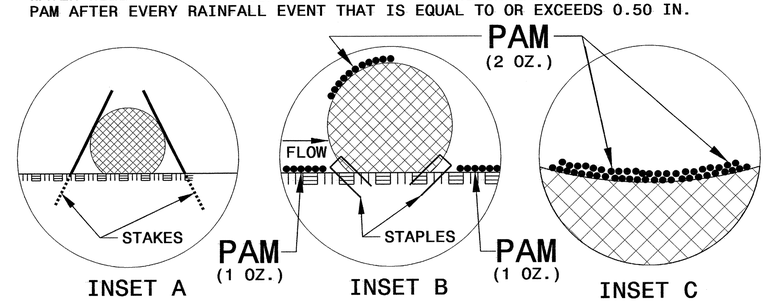
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

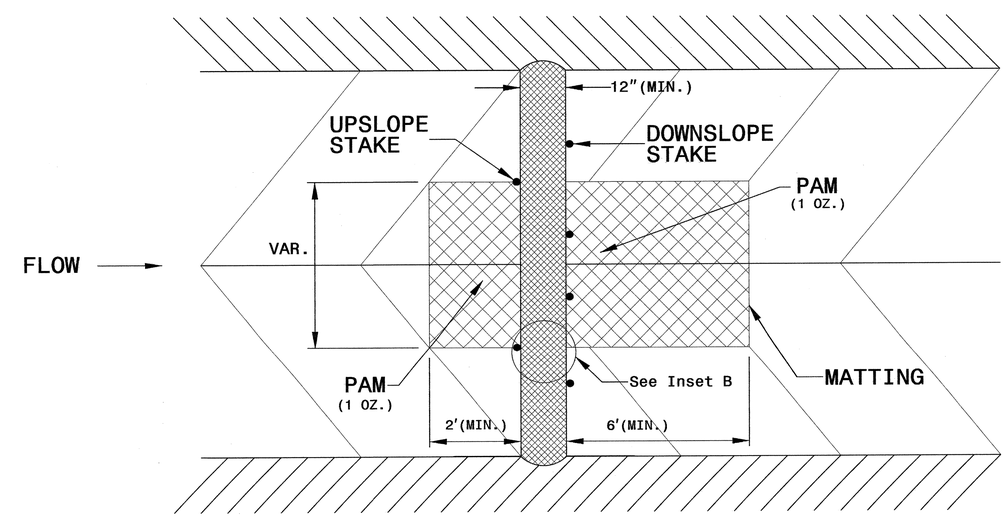
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

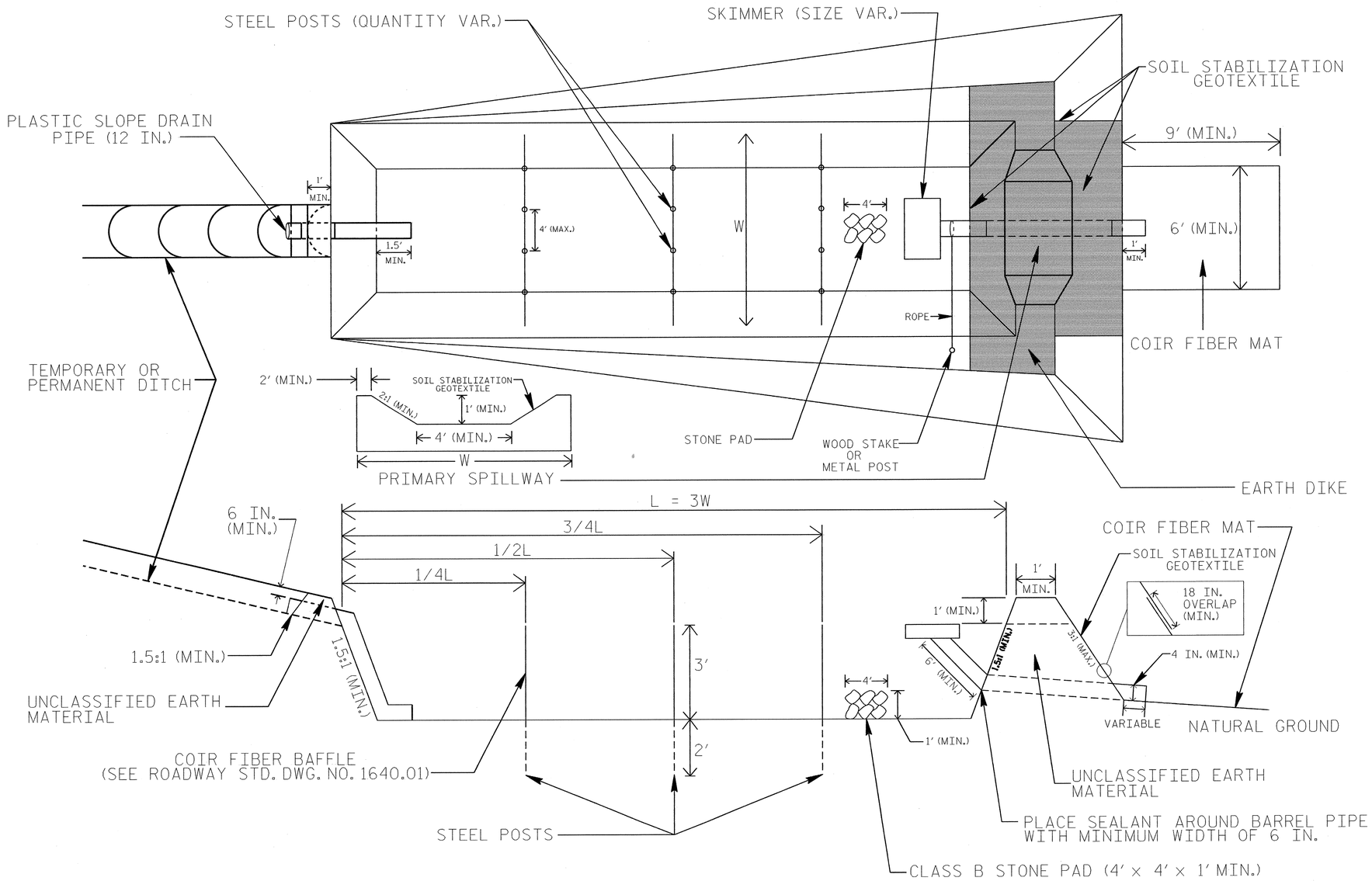


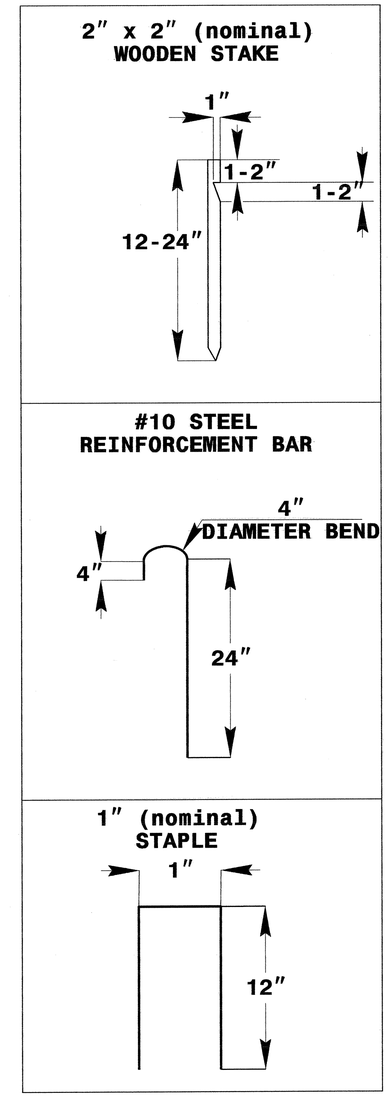


TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

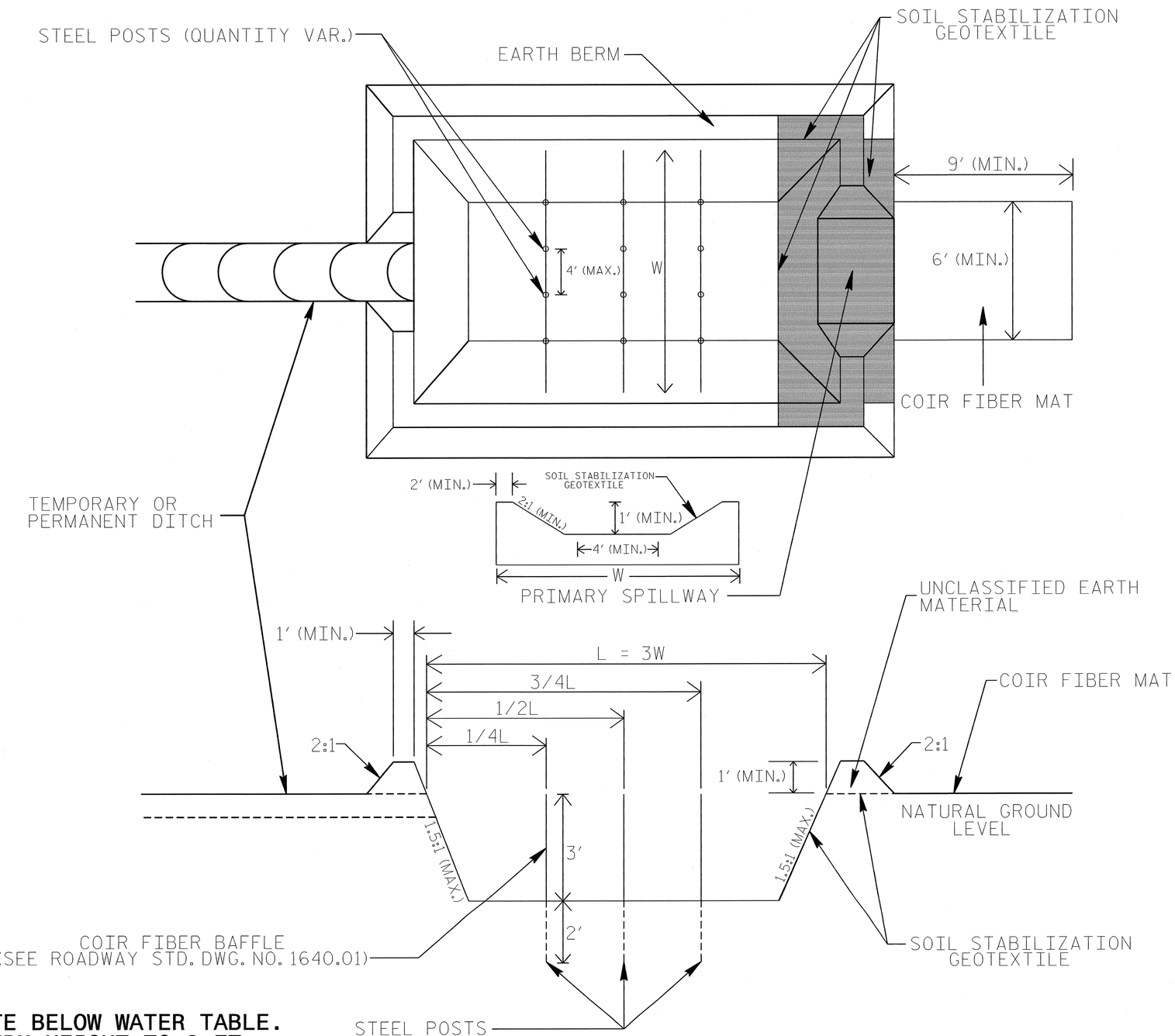
NOTES

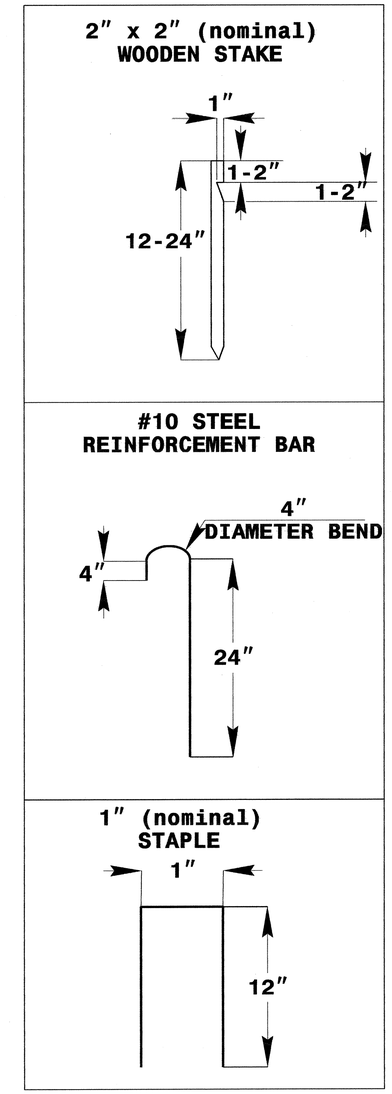
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING Q/0.4, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INFILTRATION BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. DO NOT EXCAVATE BELOW WATER TABLE.
2. LIMIT EARTH BERM HEIGHT TO 3 FT.
3. AVOID COMPACTING BOTTOM OF BASIN.
4. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
5. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING Q/0.4, WHERE Q IS FLOW RATE (CFS) INTO BASIN.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-3
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)
2-B	-DET-	11+95.9	14+47.78	RT	175
2-B	-DET-	16+98.2	17+98.2	RT	50
2-B	-DET-	17+98.2	20+51.26	LT	150
4	-L-	13+00	15+00	LT	140
4	-L-	18+00	20+00	LT	165
4	-L-	18+50	19+00	RT	25
			SUBTOTAL		705
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					3,200
			TOTAL		3,905
			SAY		4,000

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

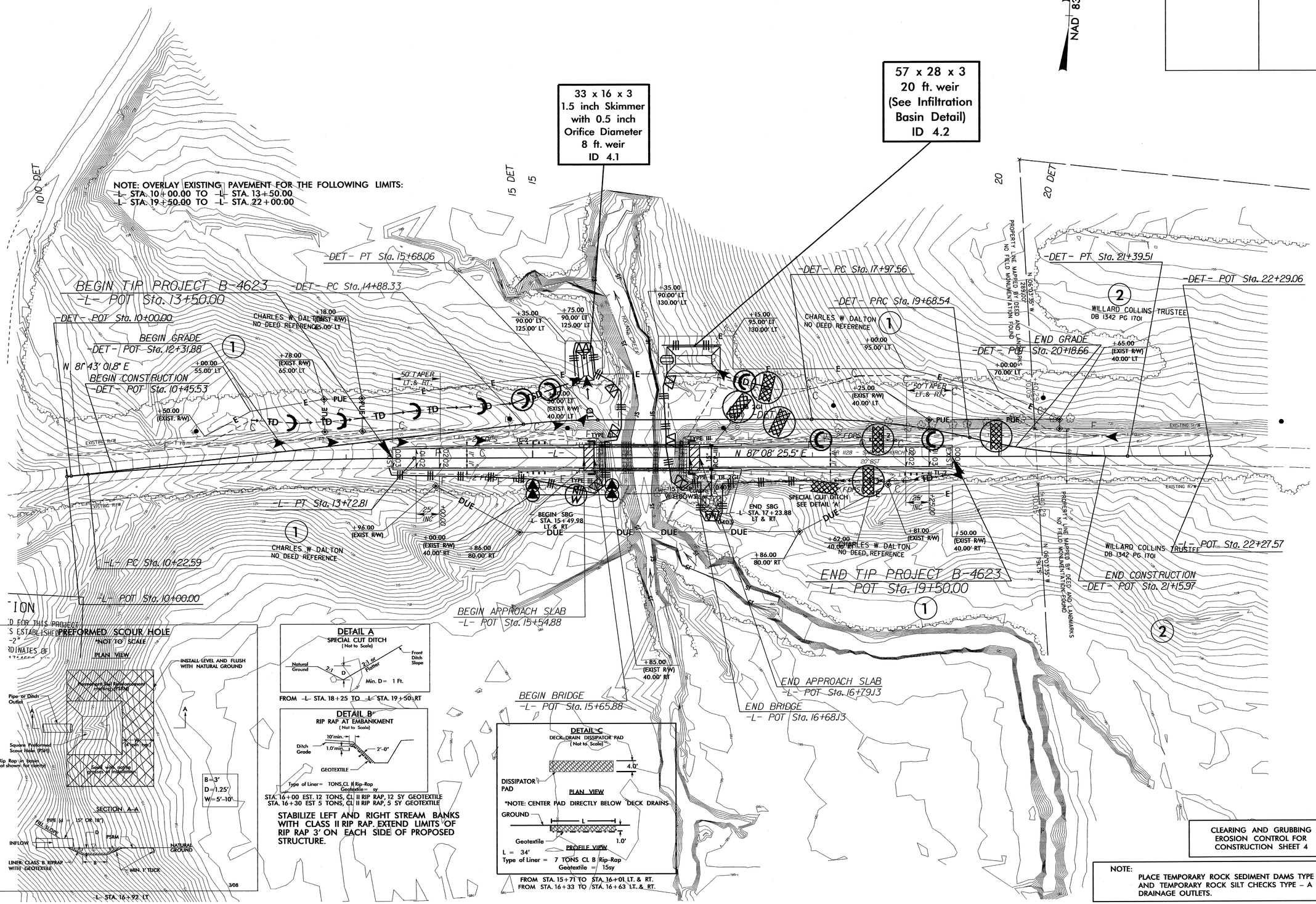
PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-4623	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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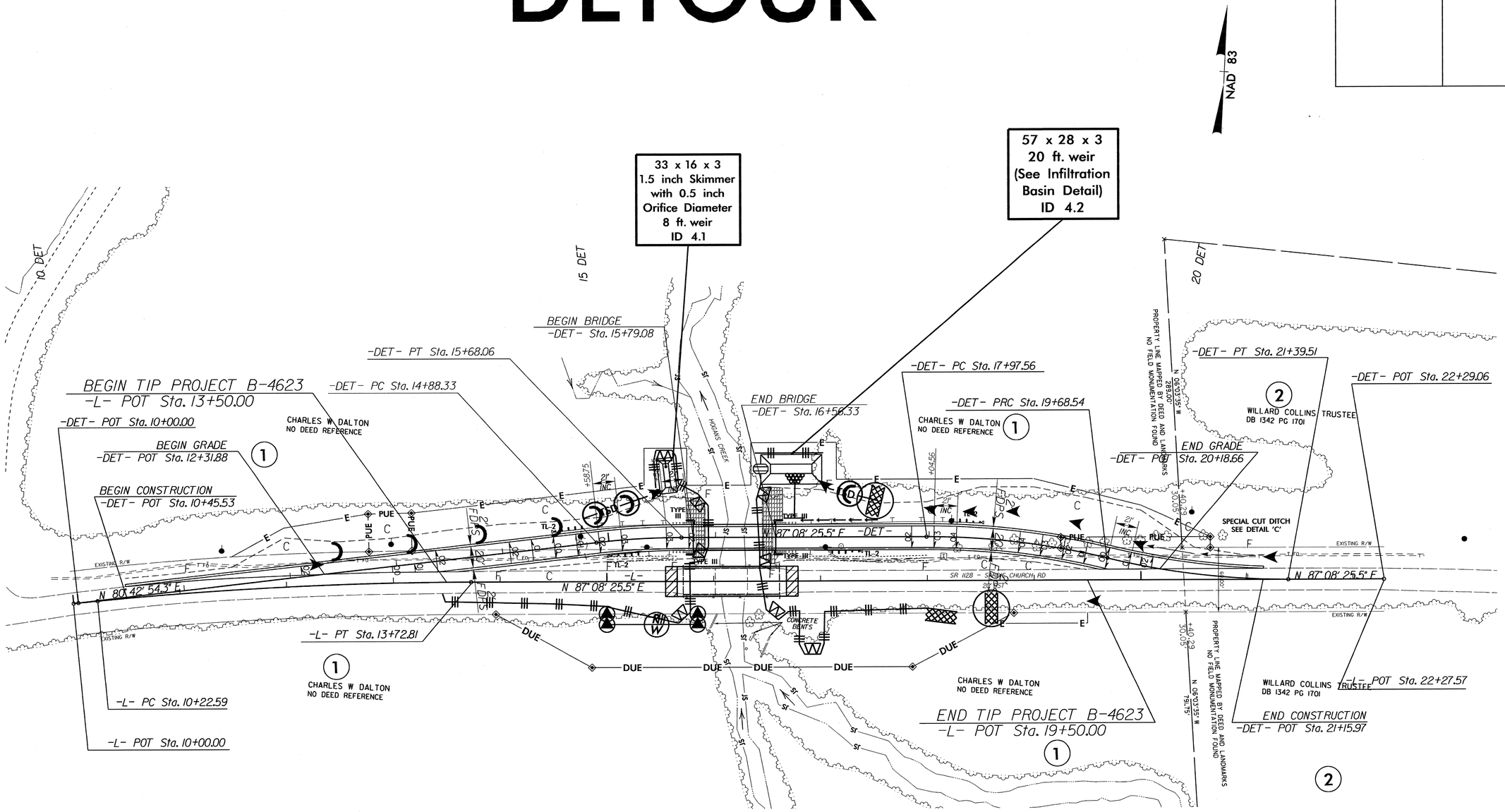
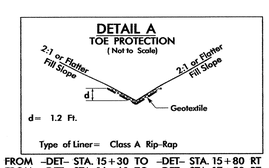
PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-5/CONST.2-B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETOUR





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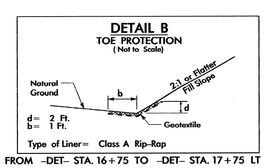
FROM -DET- STA. 16+60 TO -DET- STA. 17+50 RT



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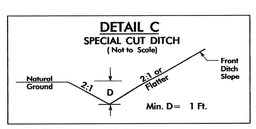

FROM -DET- STA. 20+00 TO -DET- STA. 21+00 LT

8/17/99

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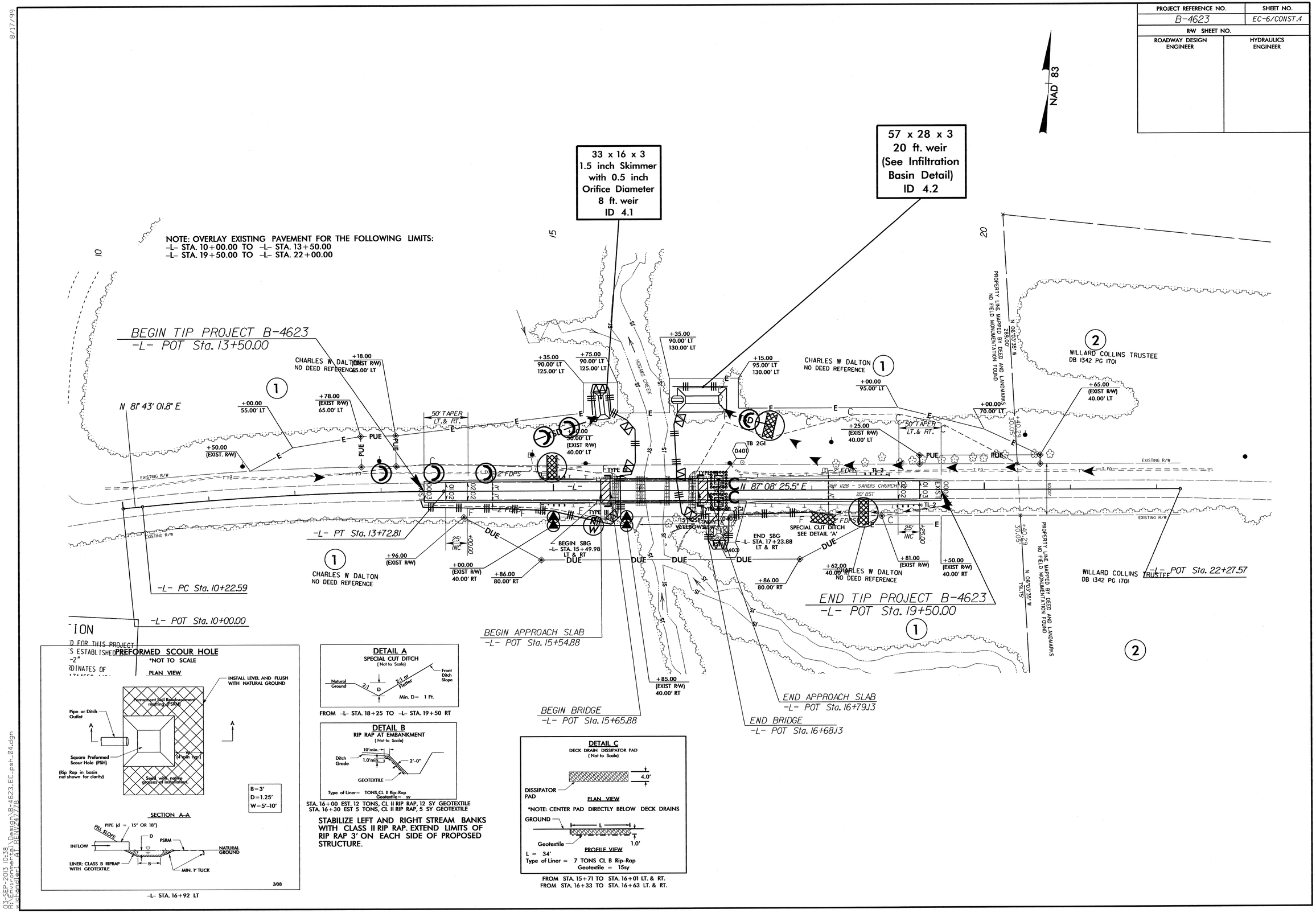
PROJECT REFERENCE NO.	SHEET NO.
B-4623	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



8/17/99

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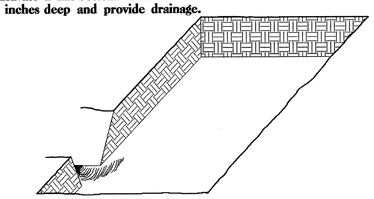
PROJECT REFERENCE NO.	SHEET NO.
B-4623	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

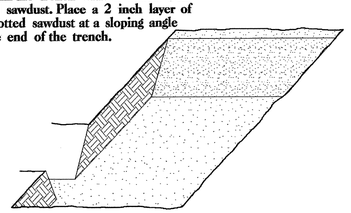
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

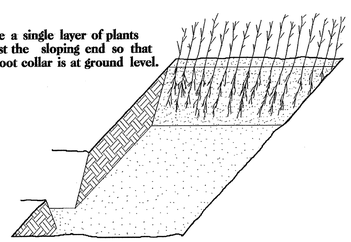
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



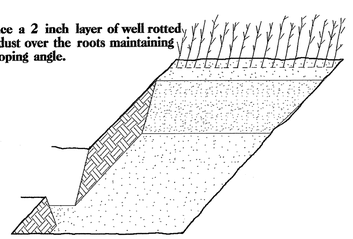
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

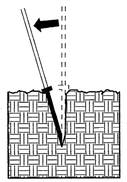


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

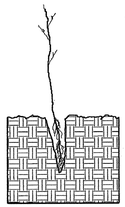


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

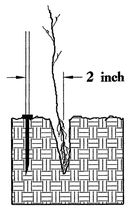
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



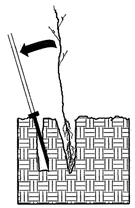
1. Insert planting bar as shown and pull handle toward planter.



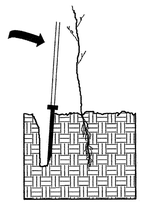
2. Remove planting bar and place seedling at correct depth.



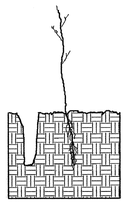
3. Insert planting bar 2 inches toward planter from seedling.



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:

30% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
30% QUERCUS RUBRA	NORTHERN RED OAK	12 in - 18 in BR
40% QUERCUS FALCATA	SOUTHERN RED OAK	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

TIP NO.	SHEET NO.
B-4623	SIGN-1

APPROVED: [signature]
DATE: 8/28/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
ROCKINGHAM COUNTY

LOCATION: REPLACE BRIDGE No. 47 OVER HOGANS CREEK ON SR 1128 (SARDIS CHURCH ROAD)

T.I.P.: B-4623

CONTRACT: 203283

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

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
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	65	LF
4096000000	904	SIGN ERECTION, TYPE D	2	EA

SIGN NUMBER: 301, 302
TYPE: D
QUANTITY: 1
SIGN WIDTH: 3'-0"
HEIGHT: 2'-0"
TOTAL AREA: 6.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

BACKG COLOR: Green
COPY COLOR: White

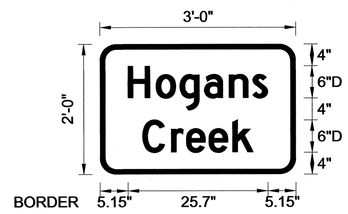
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: S Coleman
PROJECT ID: B-4623
CHECKED BY: S Kunz
DIV: 7
DATE: Jun 17, 2013



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

									Series/Size Text Length
	H	o	g	a	n	s			D 2000
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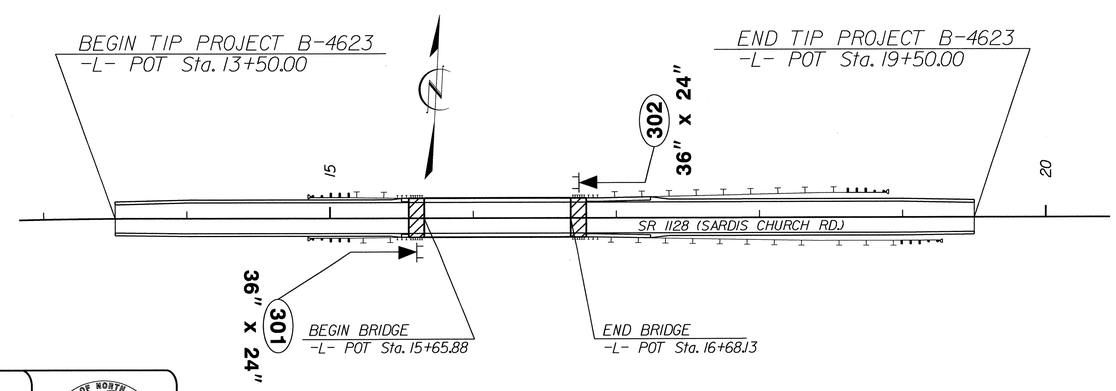
	C	r	e	e	k				D 2000
7.8	5.3	2.8	4.1	4.4	3.8	7.8			20.4

FILENAME: Sign Design

NORTH CAROLINA D.O.T. SIGN DETAIL



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

SUSAN KUNZ — SIGNING & DELINEATION REGIONAL ENGINEER

SAMUEL COLEMAN — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

26-AUG-2013 16:31
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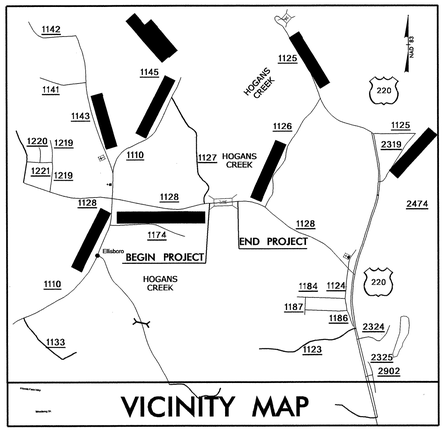
T.I.P. NO.	SHEET NO.
B-4623	UO-1

TIP PROJECT: B-4623



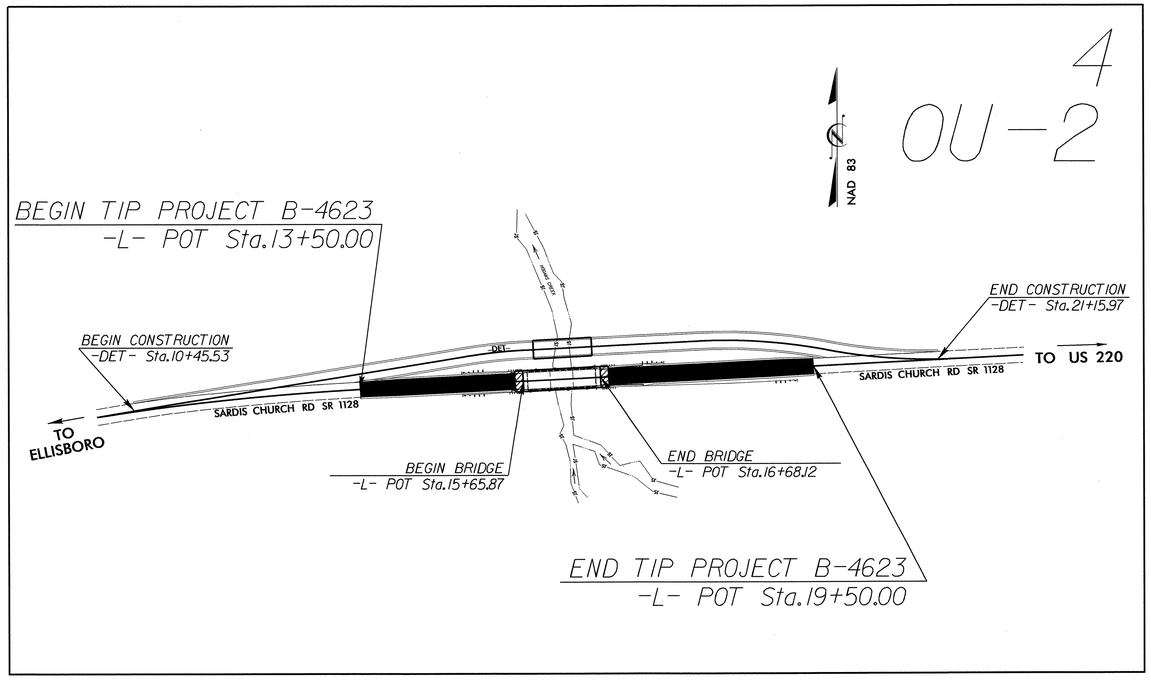
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
ROCKINGHAM COUNTY

LOCATION: REPLACE BRIDGE NO. 47 OVER HOGANS CREEK ON SR 1128 (SARDIS CHURCH ROAD)

TYPE OF WORK: UTILITIES BY OTHERS



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

(A) UNITED ENERGY - POWER (DISTRIBUTION)
(B) CENTURYLINK - TELEPHONE

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Steve McKee, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
John Nigro, P.E. — UTILITIES PROJECT DESIGNER

09/08/99
29-AUG-2013 16:52
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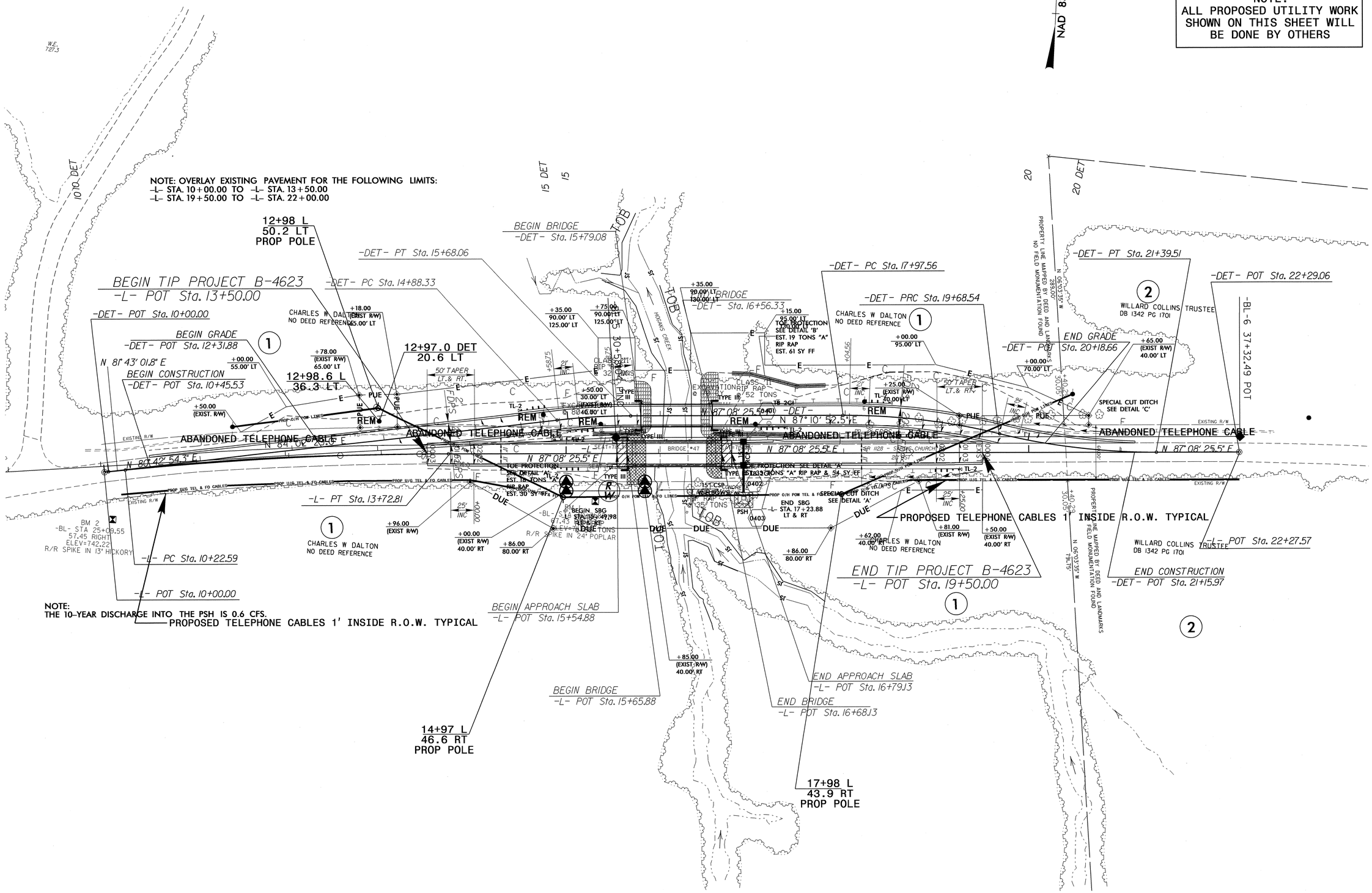
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4623	U0-2

UTILITIES BY OTHERS

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



PROJ. REFERENCE NO.	SHEET NO.
B-4623	X-0

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Approximate quantities only. 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 INCLUDES BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

PHASE 1: DETOUR CONSTRUCTION

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+49.95	0	0
10+50.00	0	0
11+00.00	10	0
11+50.00	11	0
12+00.00	91	0
12+50.00	140	0
13+00.00	121	0
13+50.00	174	0
14+00.00	245	0
14+50.00	238	0
15+00.00	116	4
15+50.00	15	244
15+83.80	0	603

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
16+58.13	0	528
17+00.00	0	784
17+50.00	0	710
18+00.00	96	262
18+50.00	490	1
19+00.00	847	0
19+50.00	785	0
20+00.00	497	0
20+50.00	177	0
21+00.00	13	1
21+14.48	1	0

PHASE 2: L CONSTRUCTION

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+50.00	0	0
14+00.00	4	6
14+50.00	15	8
15+00.00	14	13
15+50.00	8	40
15+65.88	3	19

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
16+68.13	0	0
17+00.00	0	59
17+50.00	0	79
18+00.00	5	52
18+50.00	6	48
19+00.00	4	49
19+50.00	2	19

PHASE 3: DETOUR REMOVAL & L GRADING

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+02.52	0	0
14+50.00	20	0
15+00.00	5	1
15+50.00	164	2
15+83.80	189	1

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
16+58.13	0	0
17+00.00	471	10
17+50.00	440	8
18+00.00	177	73
18+50.00	9	212
19+00.00	6	258
19+50.00	7	179
19+99.40	14	65

INDEX OF SHEETS

LINE	STATIONS	SHEETS
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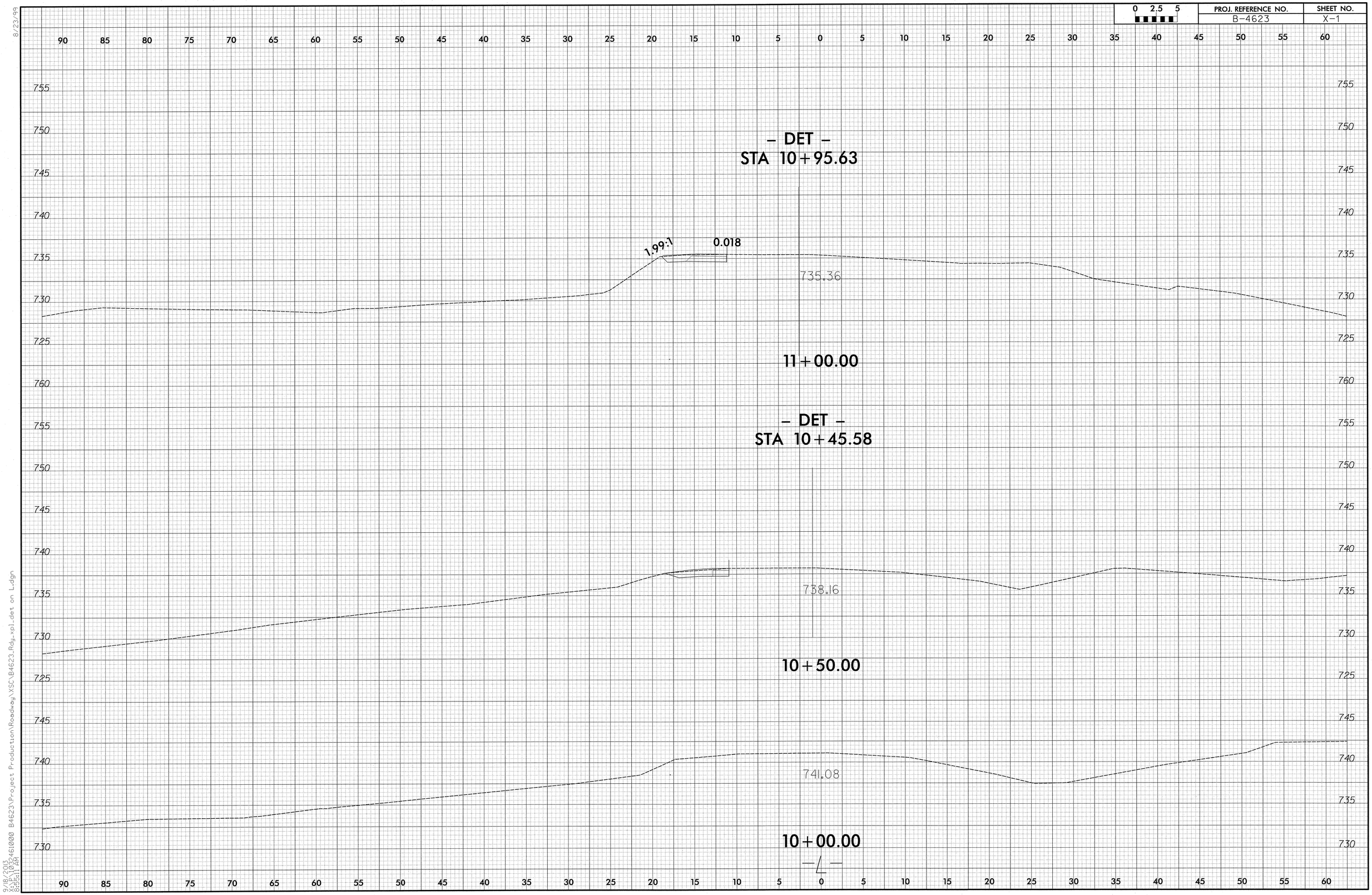
-L-	10+00.00 TO 22+00.00	X-12 THRU X-19



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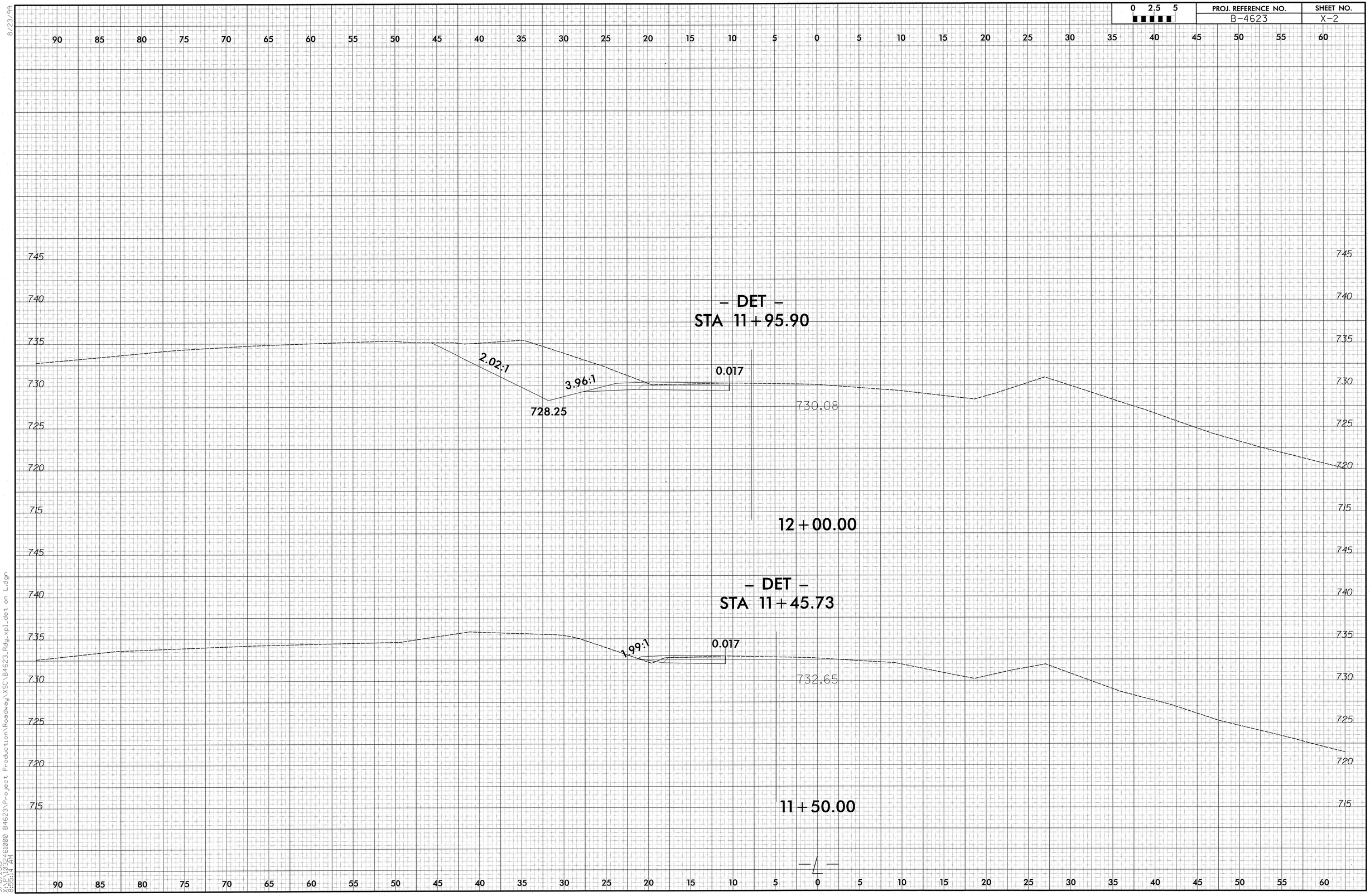

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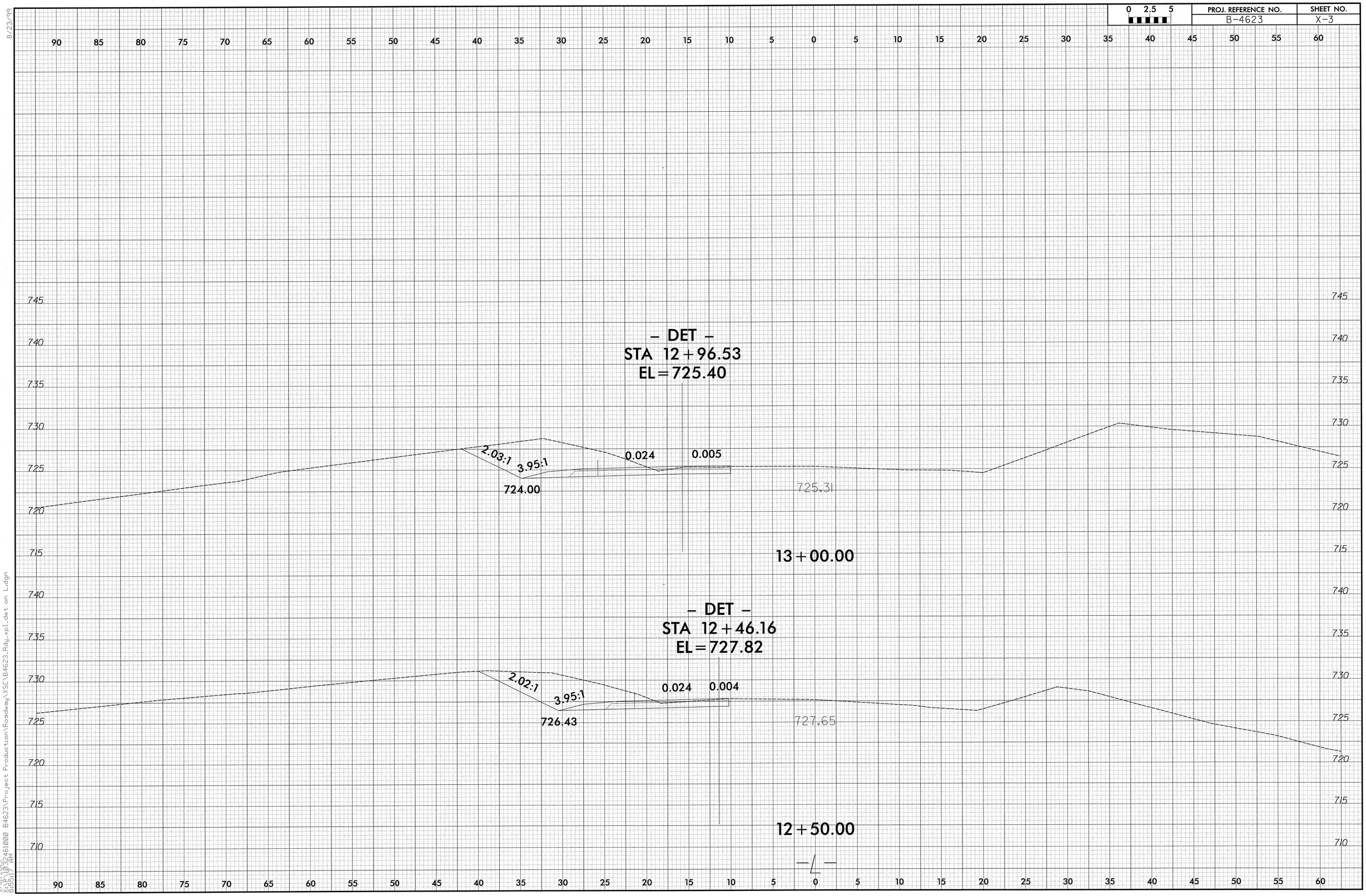

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8/23/99

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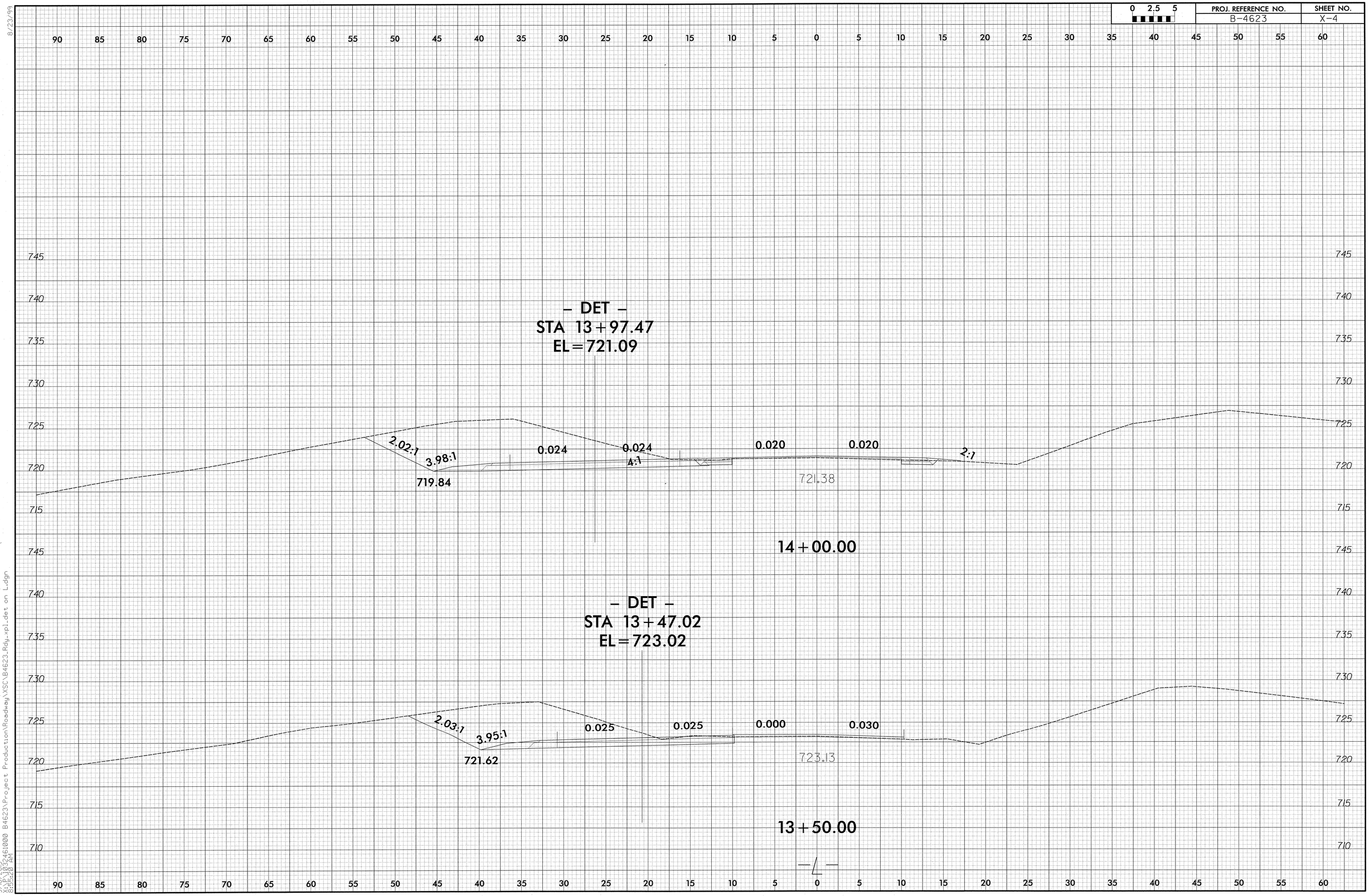

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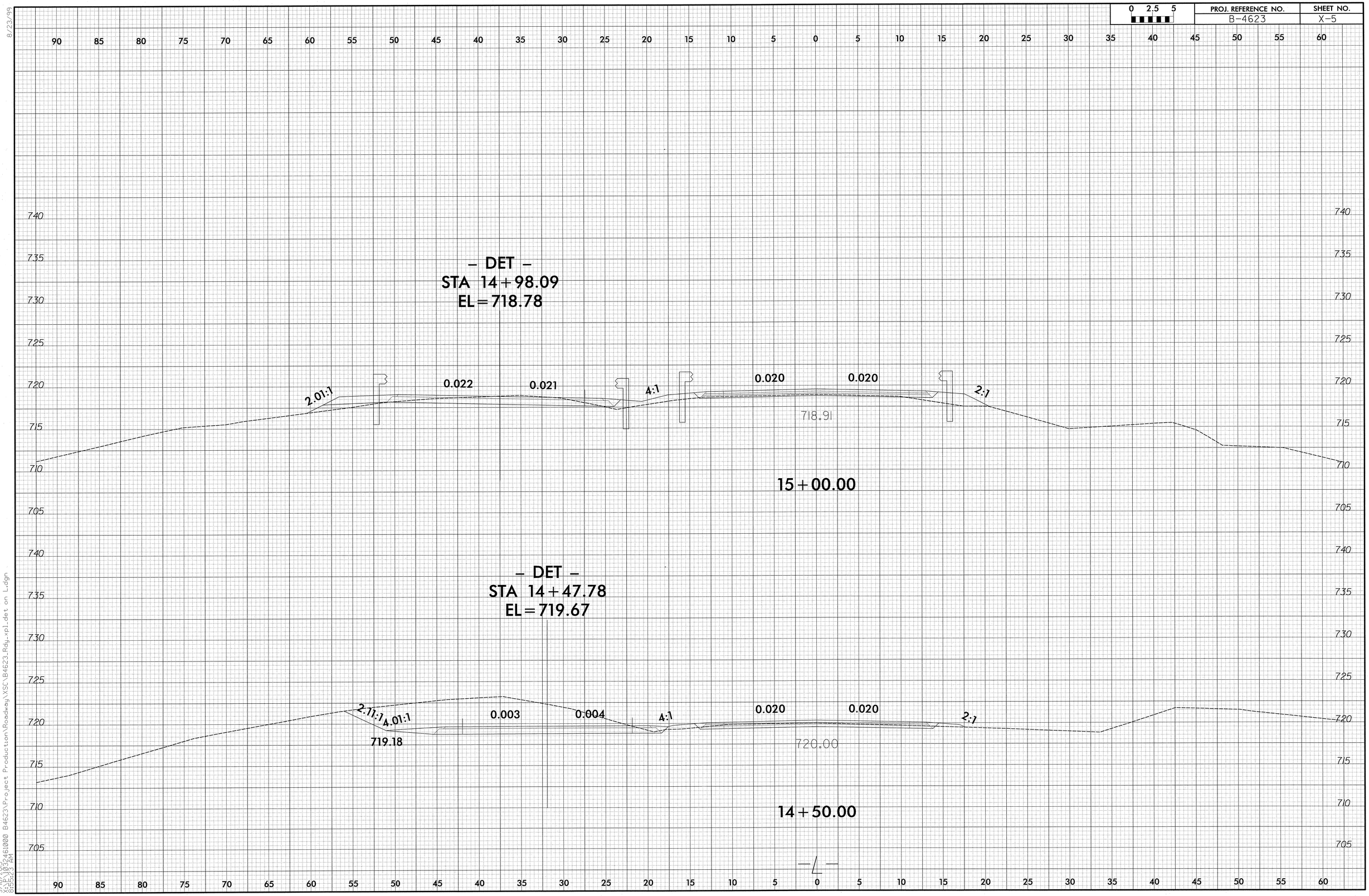

8/23/99

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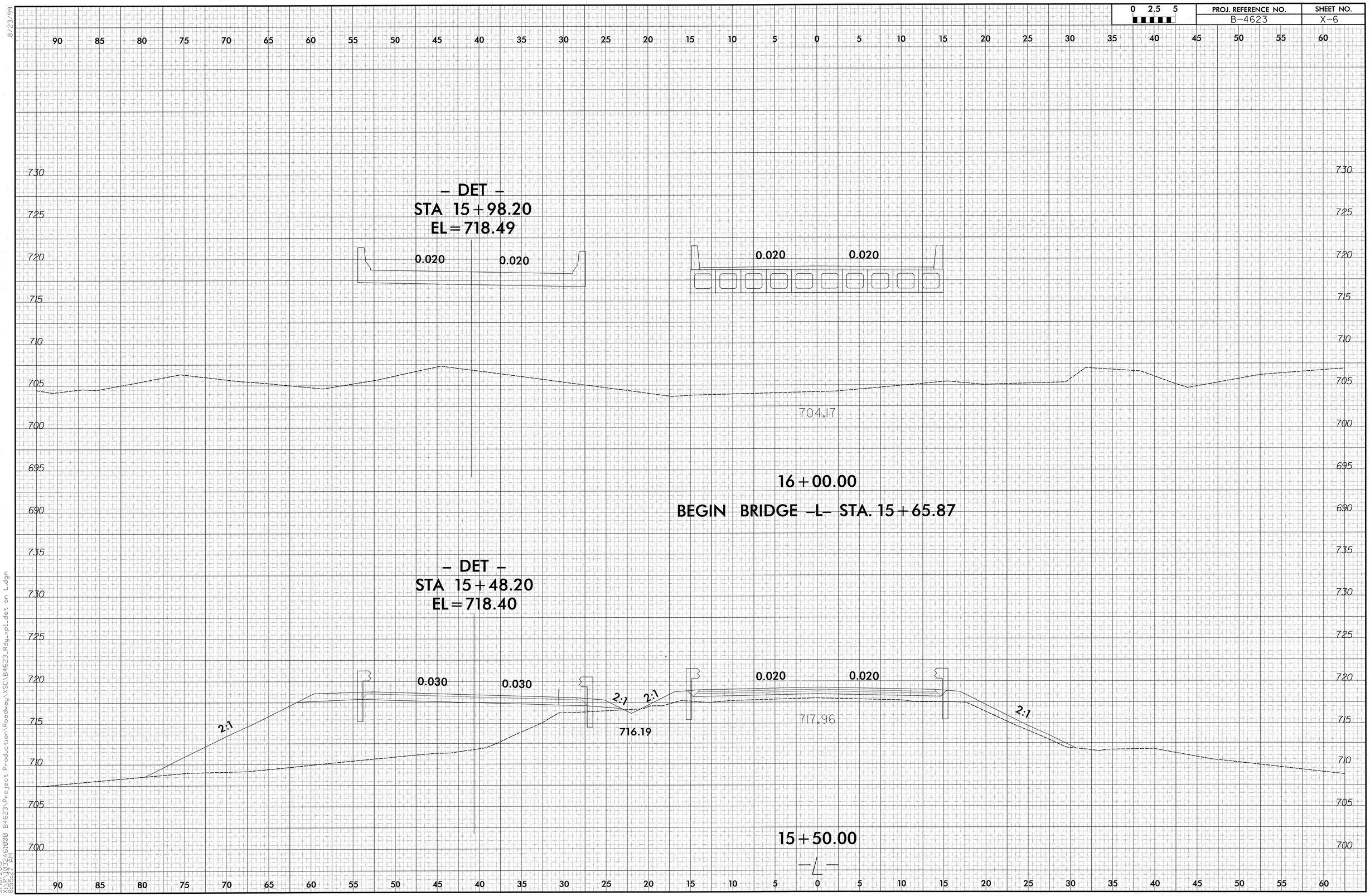

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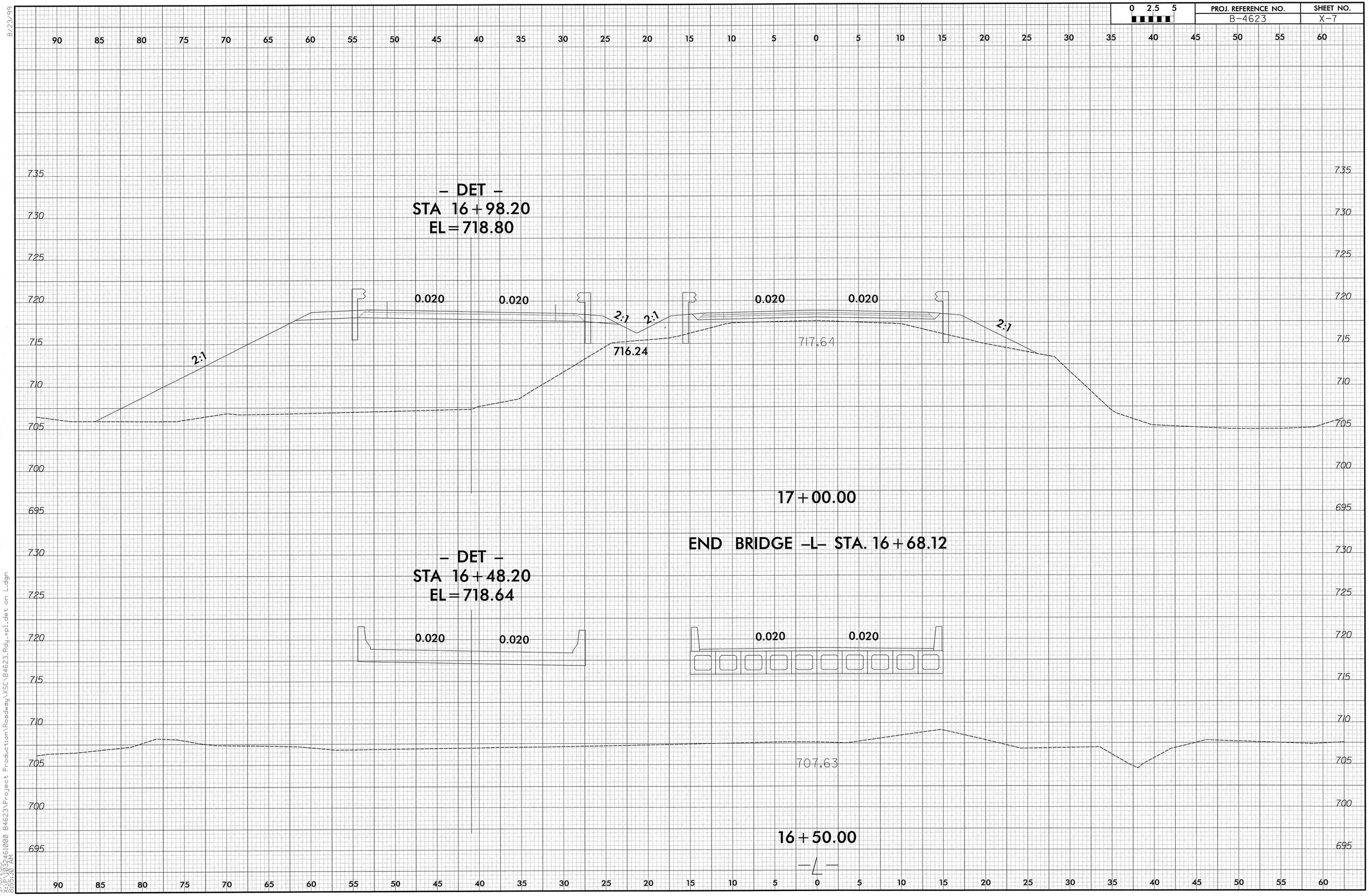

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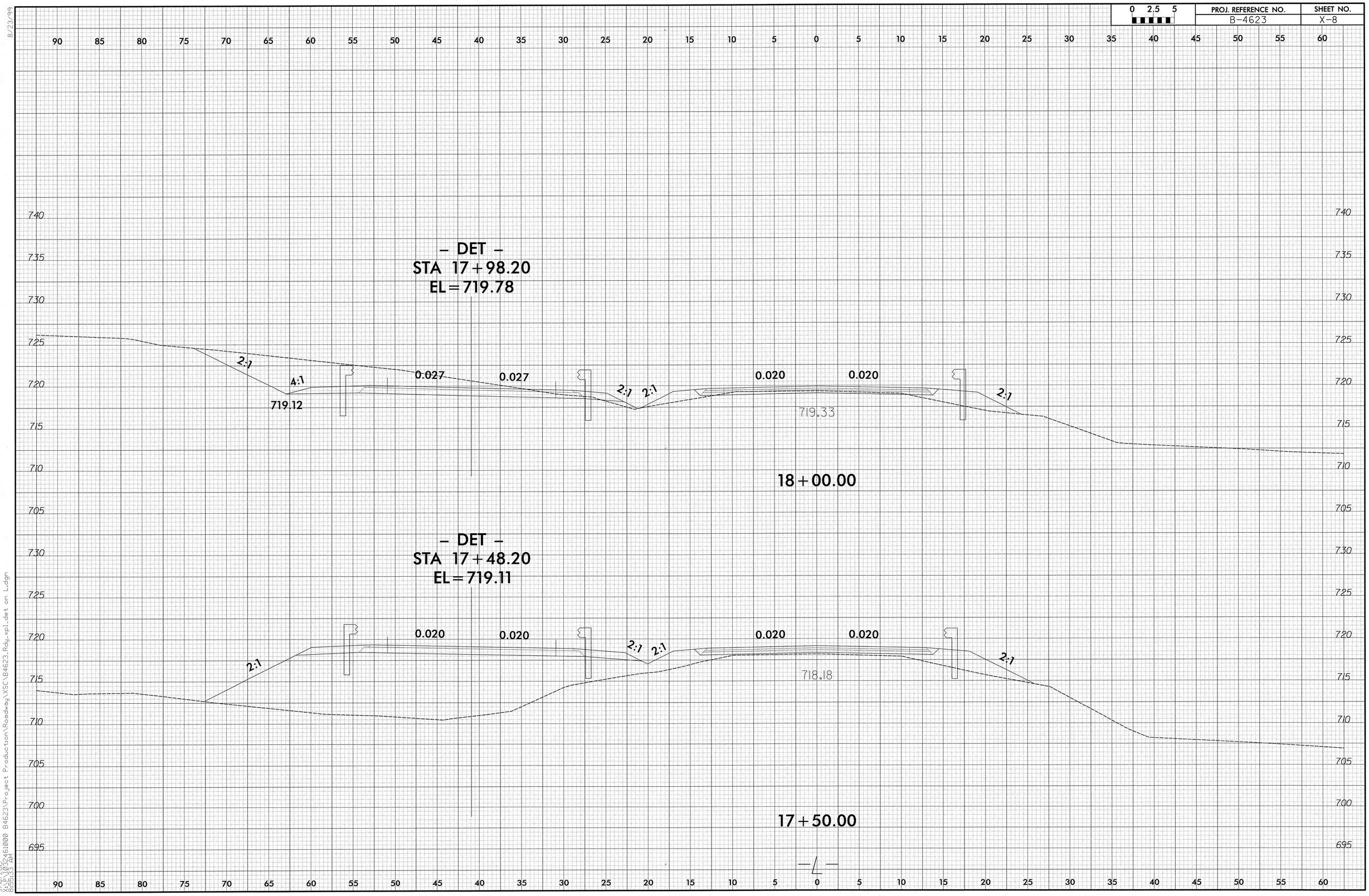

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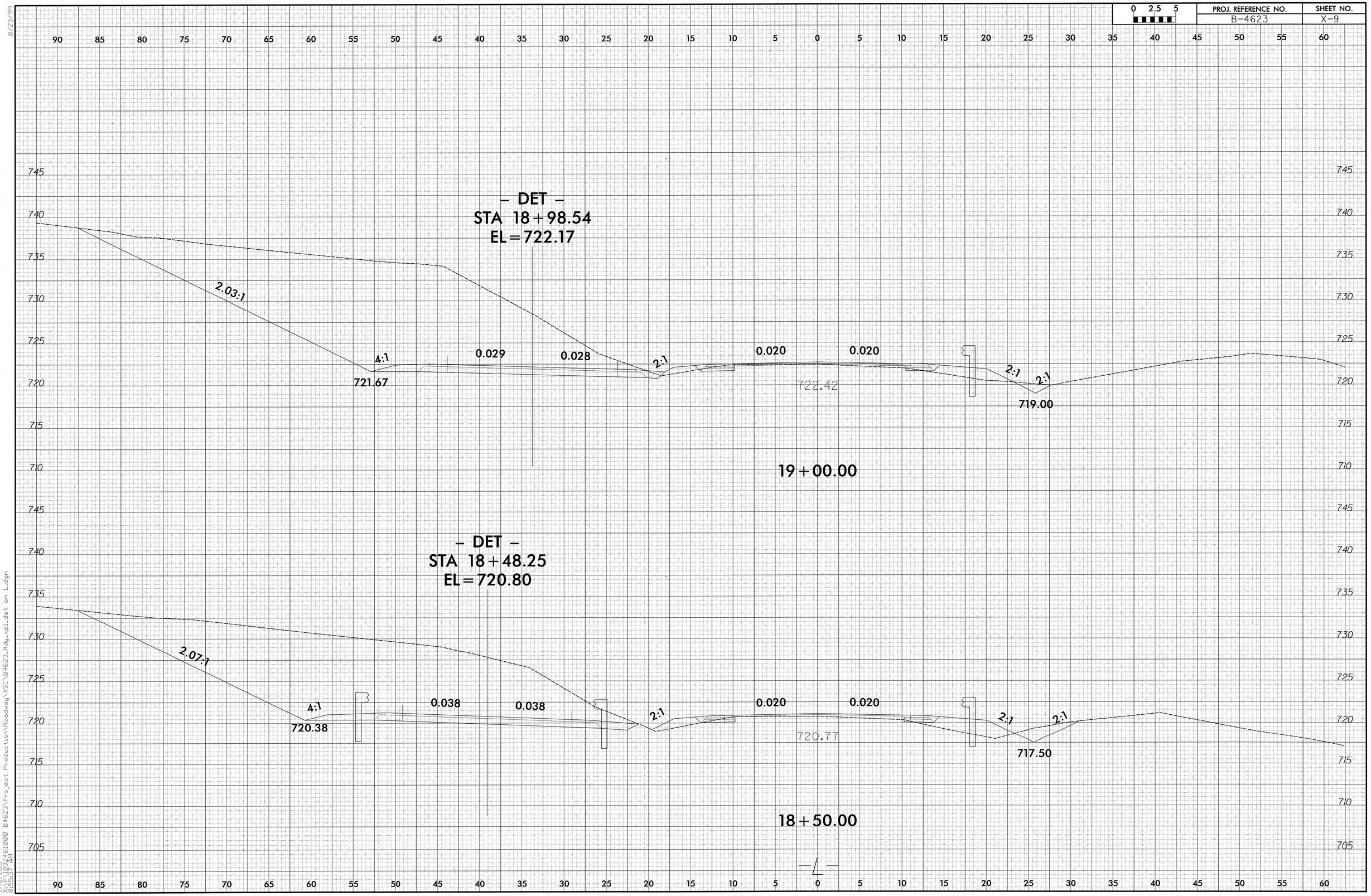

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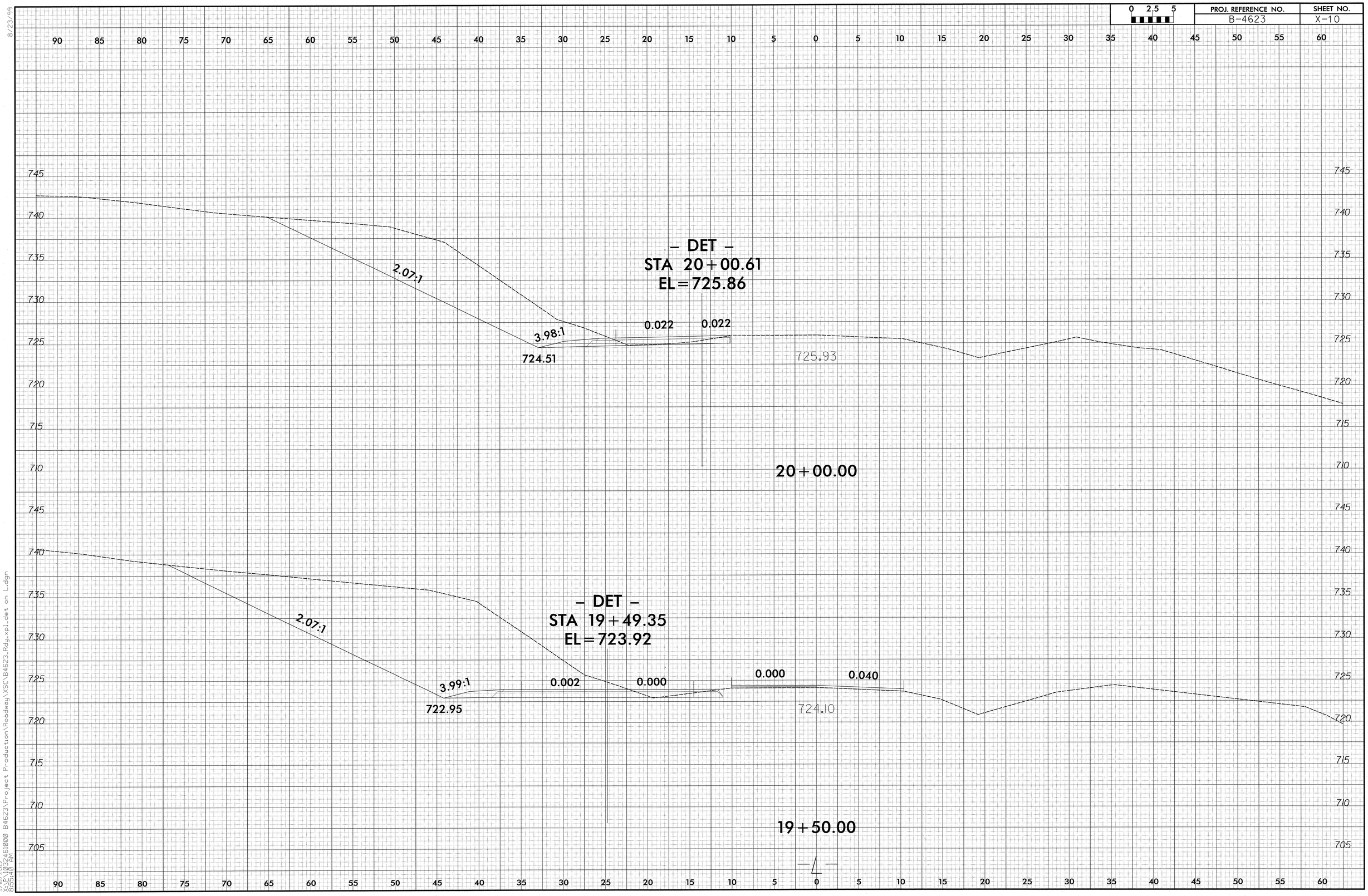

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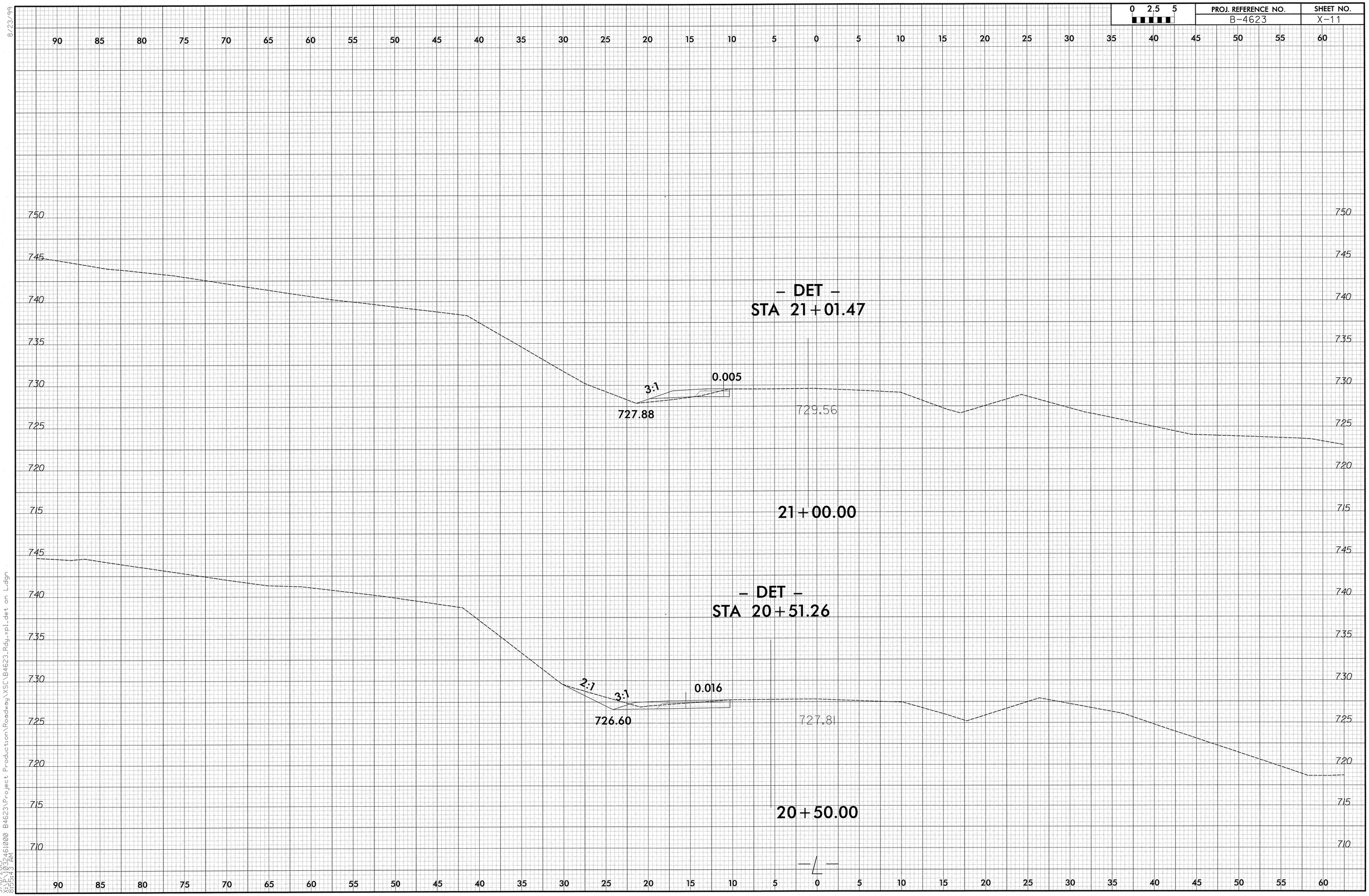

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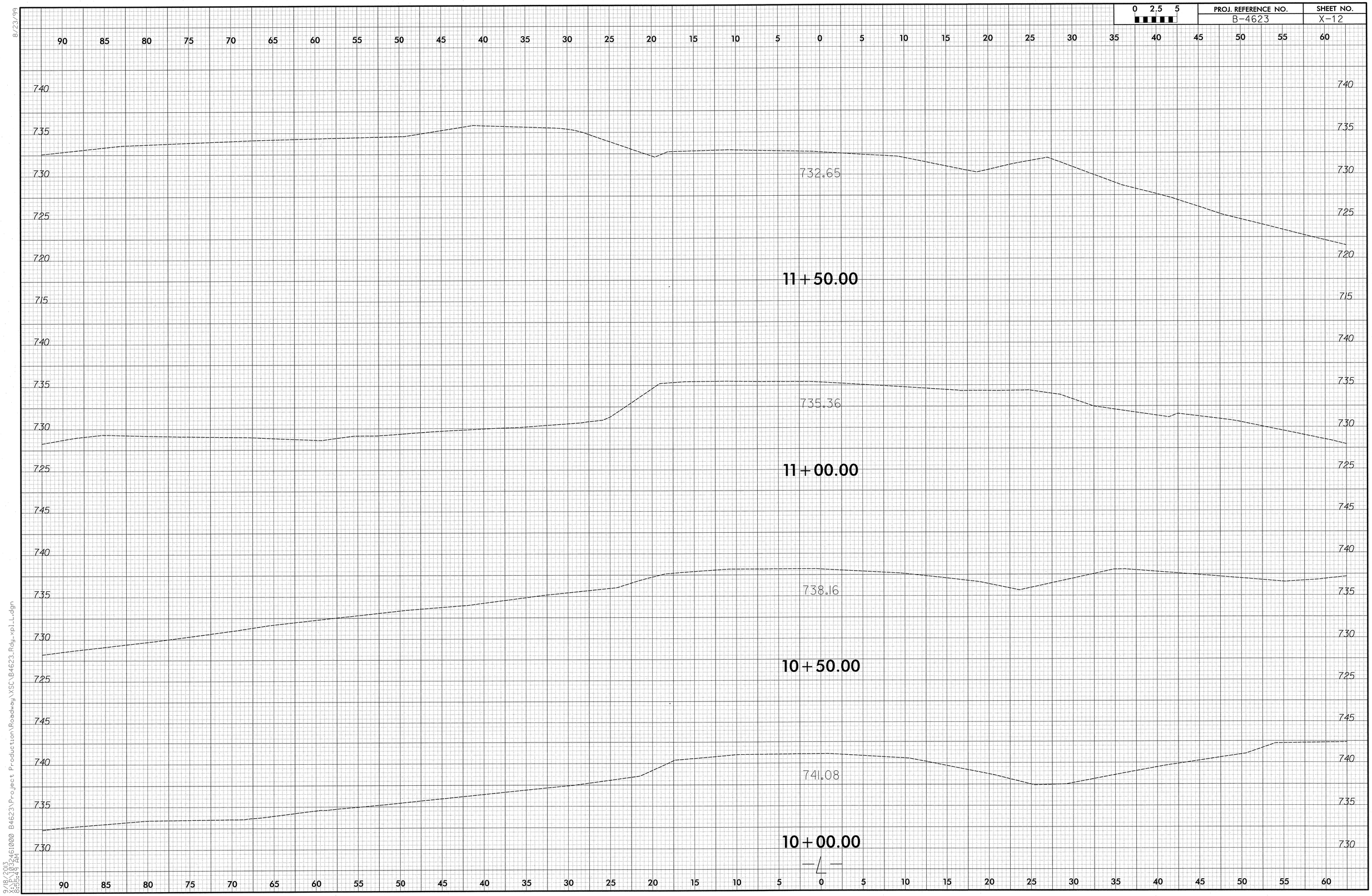

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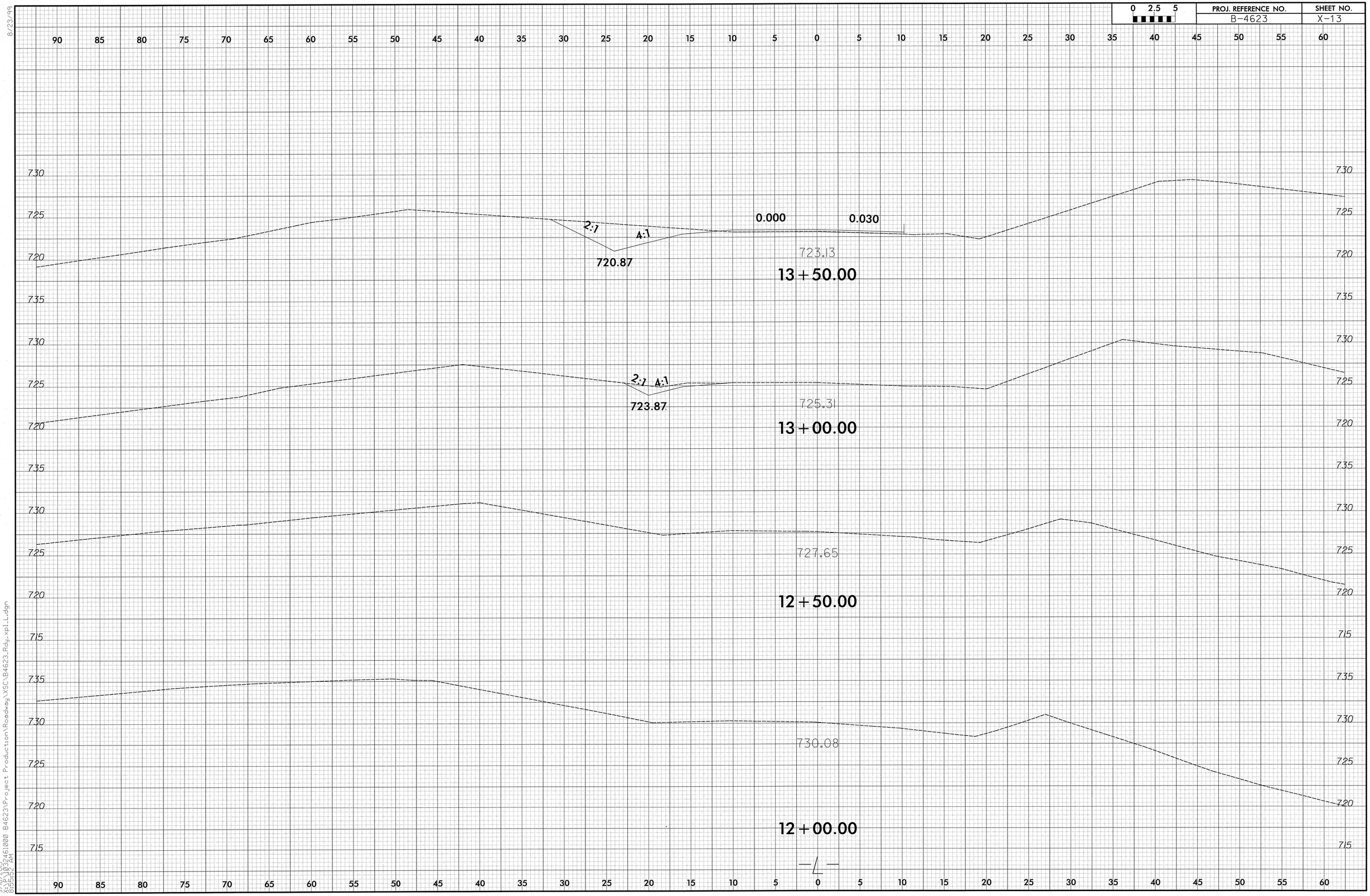

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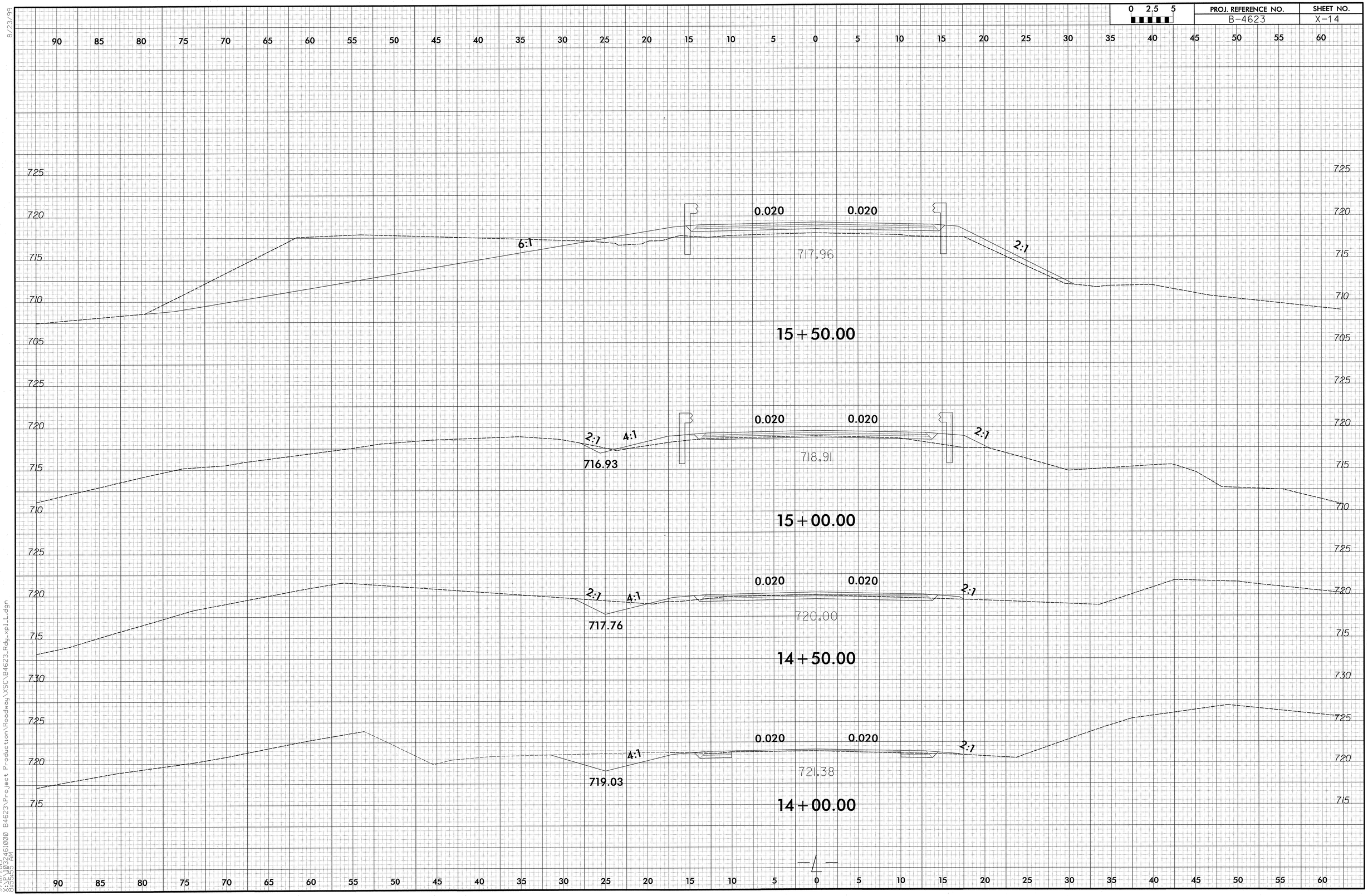

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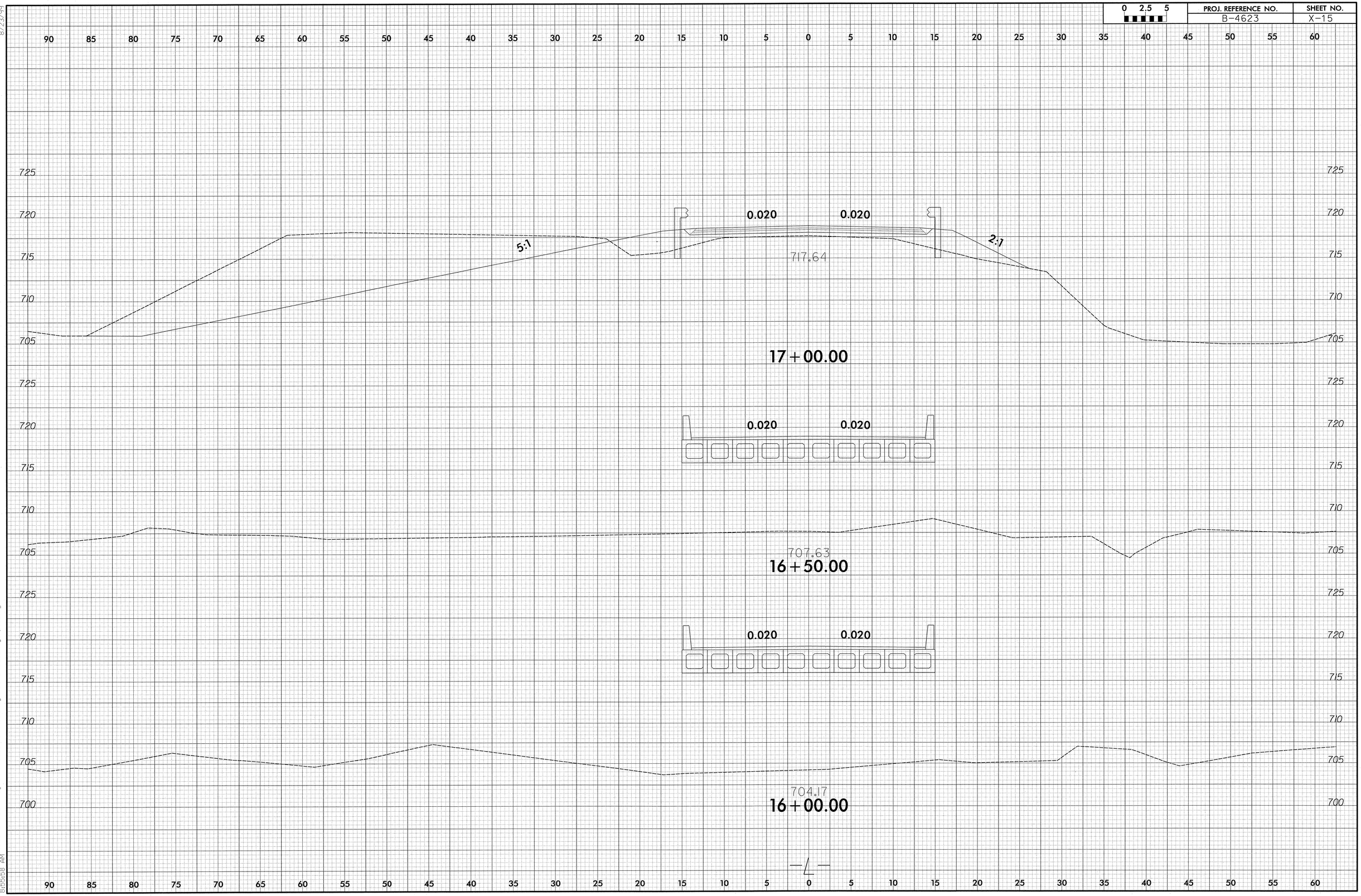

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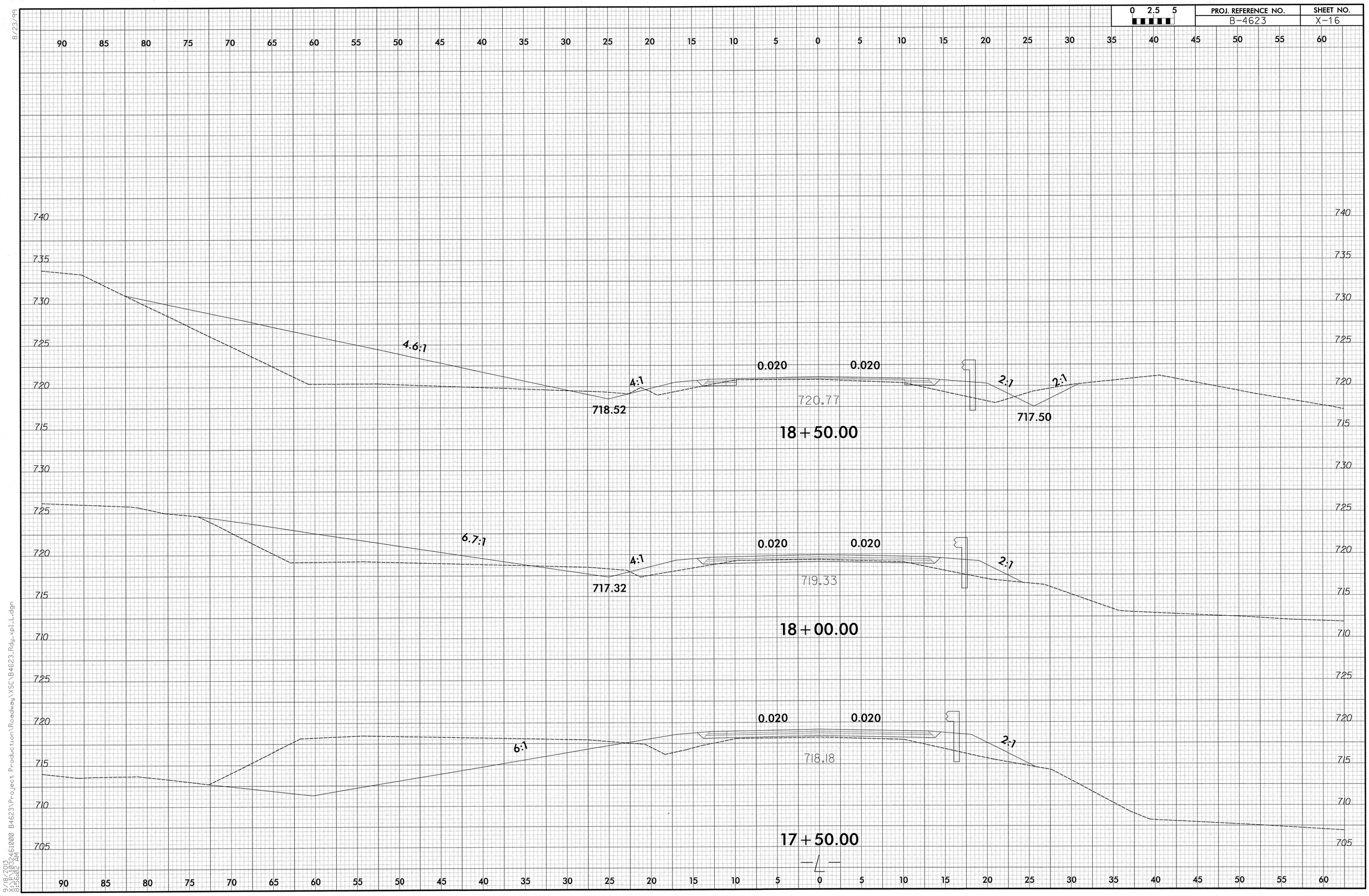

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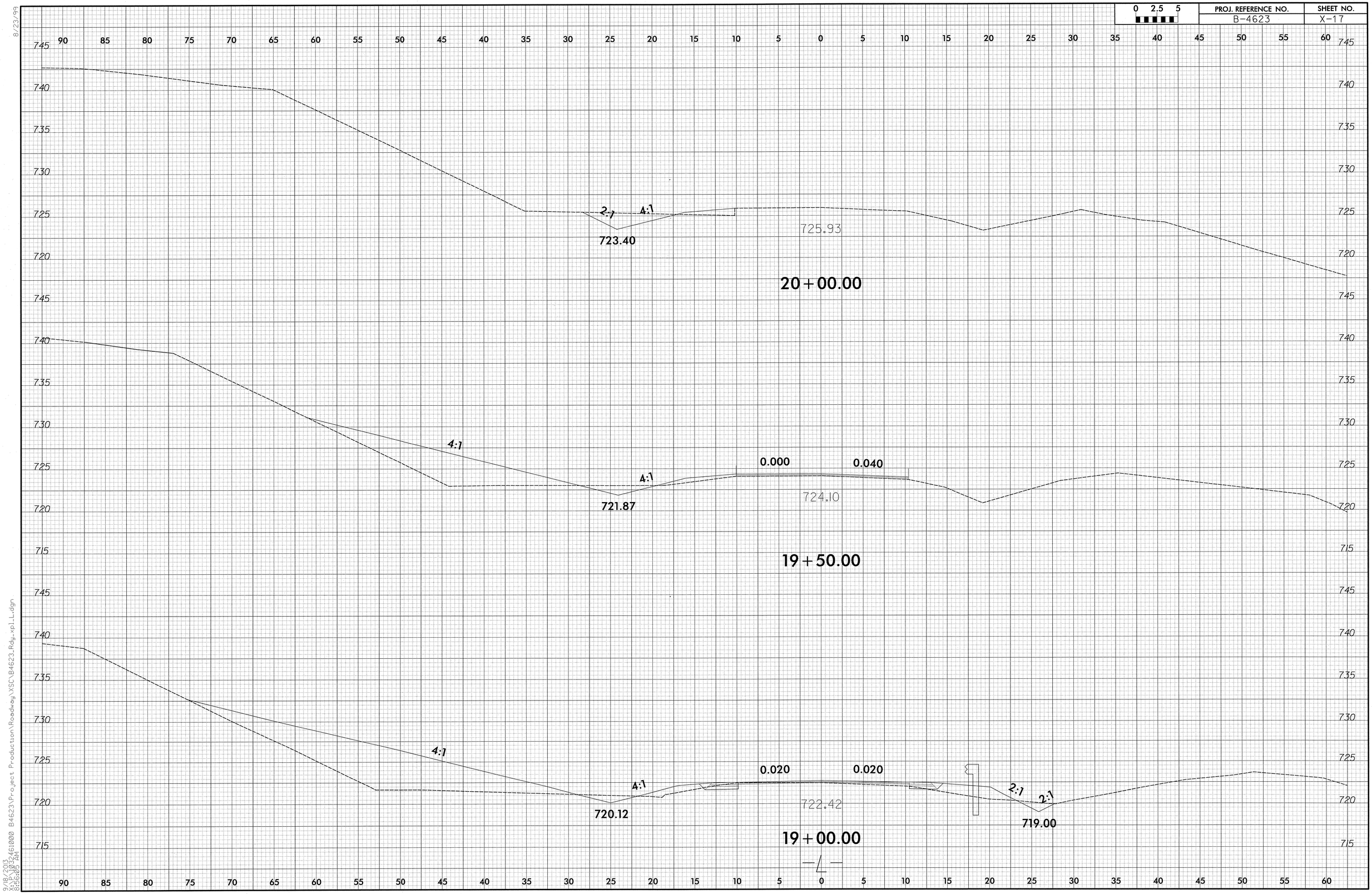

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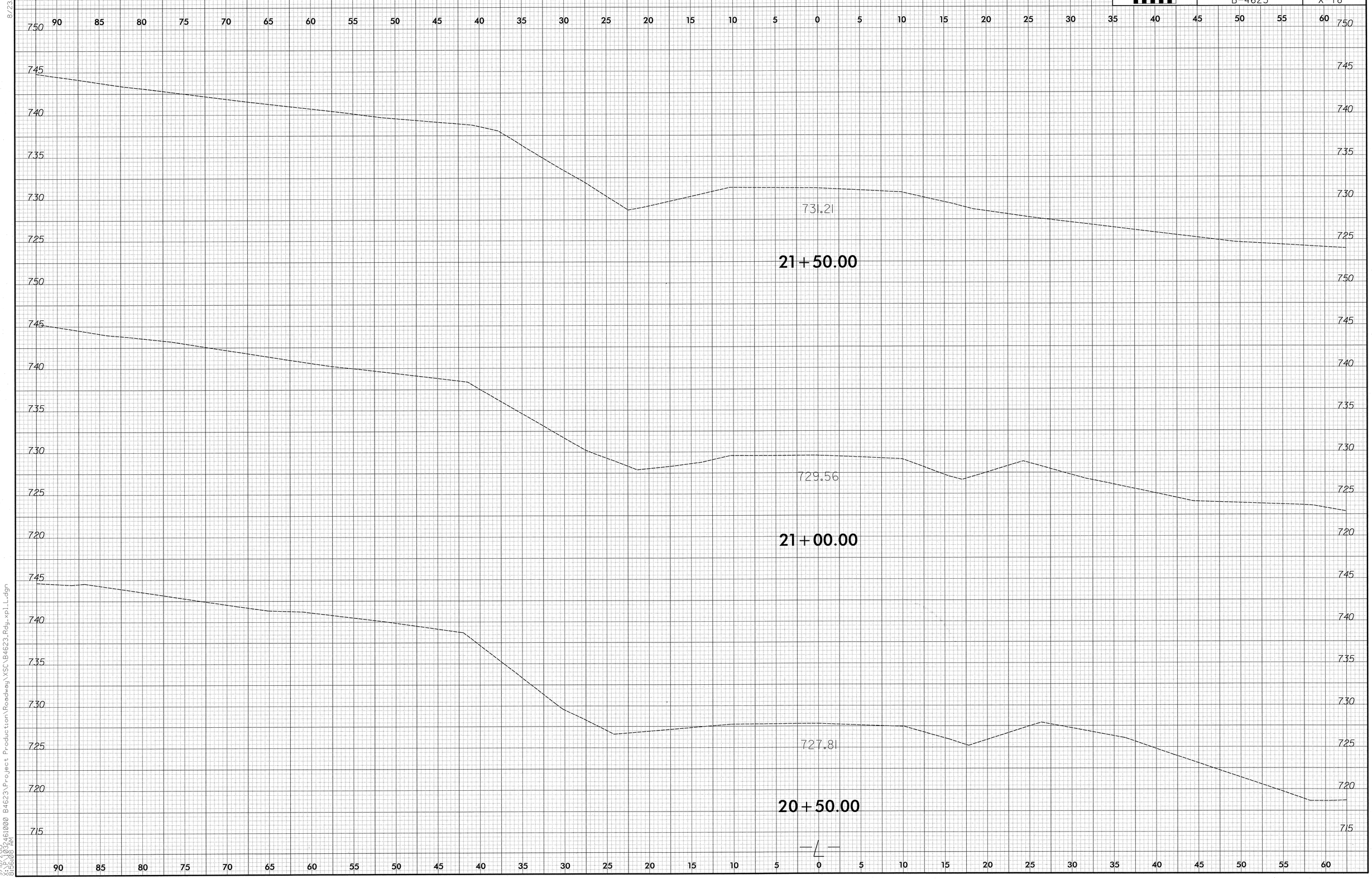

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