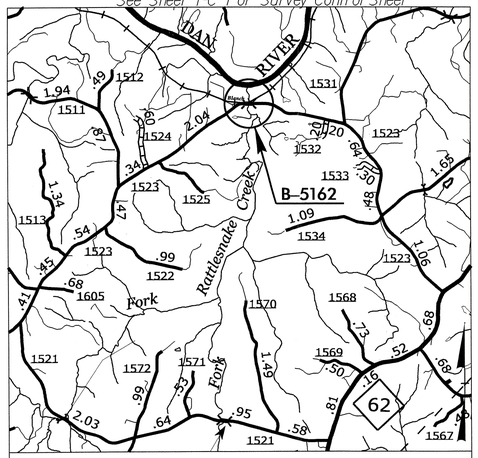
09/08/99

TIP PROJECT: B-5162

CONTRACT: C203252

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CASWELL COUNTY

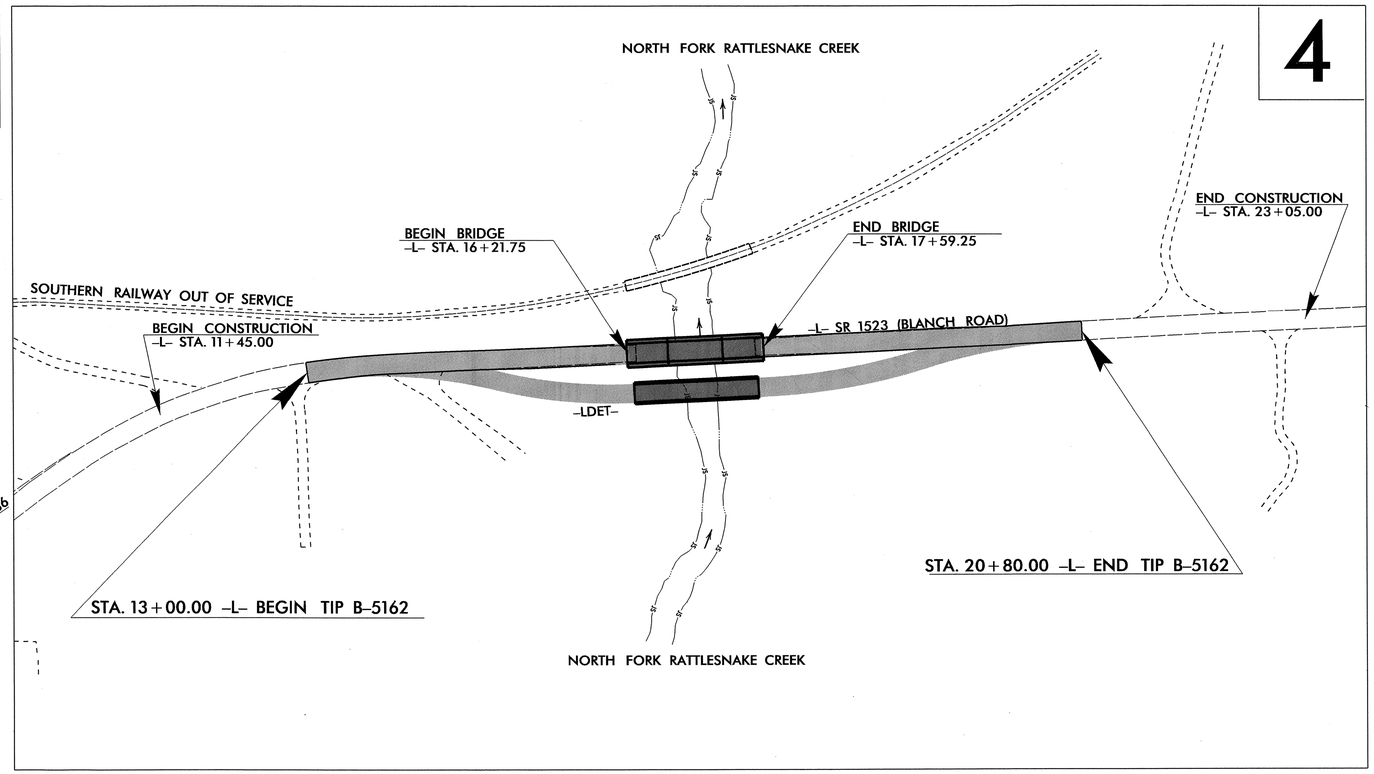
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5162	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42337.1.1	BRZ-1523(7)	PE
42337.2.1	BRZ-1523(7)	R/W & UTILITIES
42337.3.FD1	BRZ-1523(7)	CONST.

LOCATION: BRIDGE NO. 35 OVER NORTH FORK RATTLESNAKE CREEK ON SR 1523 (BLANCH ROAD)

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

NAD 83/
NSRS 2007



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 325
ADT 2035 = 500
DHV = 10 %
D = 60 %
T = 5 %*
V = 55 MPH
V_{DET} = 35 MPH
*TTST = 2% DUAL = 3%

FUNC CLASS =
RURAL COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5162 = 0.122 MILES

LENGTH STRUCTURE TIP PROJECT B-5162 = 0.026 MILES

TOTAL LENGTH OF TIP PROJECT B-5162 = 0.148 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 22, 2012

LETTING DATE:
OCTOBER 15, 2013

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 036821 ENGINEER ELENI M. RIGGS P.E.
SIGNATURE: 7/30/13

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER JR. P.E.
SIGNATURE: 7-26-13

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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PROJECT REFERENCE NO.	SHEET NO.
B-5162	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER

7-26-13

Daniel W. Gardner

8/17/99

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL PLAN SHEET SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2-A	PAVEMENT SCHEDULE, WEDGING DETAIL, AND TYPICAL SECTIONS
2-B	STRUCTURE ANCHOR UNITS DETAIL
3	SUMMARY OF QUANTITIES
3-A	DRAINAGE SUMMARY AND GUARDRAIL SUMMARY
3-B	EARTHWORK SUMMARY, PAVEMENT REMOVAL SUMMARY, AND SHOULDER BERM GUTTER SUMMARY
4	PLAN SHEET
5	DETOUR PLAN SHEET
6	PROFILE SHEET
TMP-1 THRU TMP-8	TRANSPORTATION MANAGEMENT PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-2	SIGNING PLANS
PMP-1	PAVEMENT MARKING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-18	CROSS-SECTIONS
S-1 THRU S-22	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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

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

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

Progress Energy Carolinas, Inc. - (Power Distribution)

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
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
876.02	Guide for Rip Rap at Pipe Outlets

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-5162	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

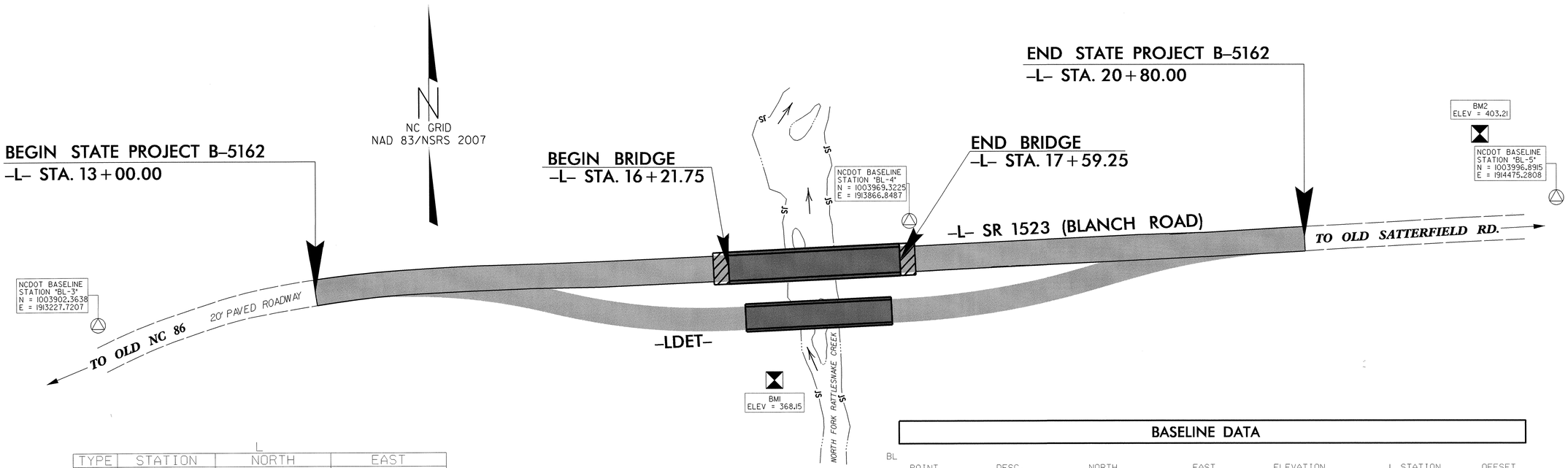
MISCELLANEOUS:

- 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.

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
B-5162	1-C
Location and Surveys	

SURVEY CONTROL SHEET



L

TYPE	STATION	NORTH	EAST
PC	10+00.00	1003809.7367	1913127.0694
PT	13+60.31	1003934.1085	1913459.0647
PC	17+86.84	1003954.3189	1913885.1172
PT	22+09.28	1003975.9922	1914306.9977
PC	22+28.85	1003977.0731	1914326.5409
PT	23+85.00	1003983.8233	1914482.5438

FINAL NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+90.00	29.64	1003915.3853	1913689.9028
L	15+90.00	60.00	1003885.0594	1913691.3414
L	15+90.00	-30.36	1003975.3183	1913687.0598
L	15+90.00	-50.00	1003994.9359	1913686.1292
L	17+86.84	60.00	1003894.3863	1913887.9602
L	17+86.84	30.00	1003924.3526	1913886.5387
L	17+86.84	-60.00	1004014.2516	1913882.2743
L	17+86.84	-30.00	1003984.2853	1913883.6957

FINAL PERMANENT AERIAL UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+58.00	-57.16	1003942.5071	1913240.6385
L	11+45.00	-39.00	1003920.2491	1913234.9200
L	11+57.00	-30.00	1003917.0448	1913250.1641
L	11+66.00	30.00	1003864.9936	1913281.3323
L	11+98.00	30.00	1003875.5462	1913309.7767
L	11+88.00	115.00	1003792.4230	1913329.5637
L	12+18.38	-30.00	1003938.8938	1913310.8802
L	12+39.00	103.00	1003816.1384	1913365.5409
L	12+29.00	73.00	1003842.8613	1913349.4867
L	12+12.00	76.00	1003835.7674	1913336.1415
L	13+00.00	30.00	1003898.4664	1913403.6099
L	14+45.00	60.00	1003878.1889	1913546.5043
L	14+75.00	50.00	1003889.5991	1913575.9967
L	17+86.84	50.00	1003904.3751	1913887.4865
L	20+37.00	50.00	1003916.8211	1914137.5693
L	22+09.28	50.00	1003926.0685	1914309.7590
L	22+28.85	50.00	1003927.1494	1914329.3022
L	23+05.00	50.00	1003930.8805	1914404.7730
L	23+05.00	30.00	1003950.8615	1914403.9025

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	B-5162-2	1003404.6340	1912680.7610	439.23	OUTSIDE PROJECT LIMITS	
3	BL-3	1003902.3638	1913227.7207	387.50	11+31.73	25.75 LT
4	BL-4	1003969.3225	1913866.8487	380.39	17+69.30	15.85 LT
5	BL-5	1003996.8915	1914475.2808	407.64	23+78.17	13.29 LT

FINAL PERMANENT DRAINAGE UTILITY EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+40.00	28.88	1003909.0332	1913540.0355
L	14+40.00	50.00	1003887.9407	1913541.0360
L	15+50.00	73.00	1003870.1787	1913652.0023
L	16+40.00	70.00	1003877.4398	1913741.7591
L	16+40.00	60.00	1003887.4286	1913741.2852
L	14+75.00	50.00	1003889.5991	1913575.9967

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5162-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 1003404.634(ft) EASTING: 1912680.761(ft) ELEVATION: 439.23'(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999034608 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5162-2" TO -L- STATION 13+00.00 IS N 53°54'59" E 888.83' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

```
**********************************************
BM1       ELEVATION = 368.15
N 1003858       E 1913760
L STATION 16+58.00 90 RIGHT
R/R SPIKE IN 18" BIRCH
**********************************************
**********************************************
BM2       ELEVATION = 403.21
N 1004051       E 1914316
L STATION 22+23.00 74 LEFT
R/R SPIKE IN 15" OAK
**********************************************
```

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING NCDOT PROJECT CONTROL DATA AT:

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX

   THE FILE TO BE FOUND IS AS FOLLOWS:

   B5162_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 FROM EXISTING NCGS MONUMENTATION.

NOTE: DRAWING NOT TO SCALE

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6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5162	2

ROADWAY DESIGN ENGINEER

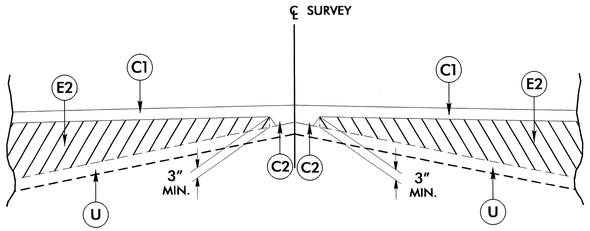
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER

7-26-13

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039819 ENGINEER

July 26th 2013

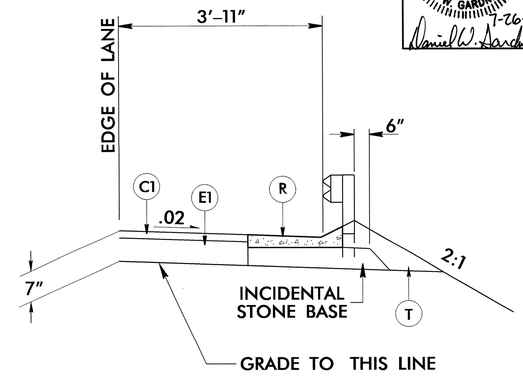


Detail Showing Method of Wedging

PAVEMENT SCHEDULE

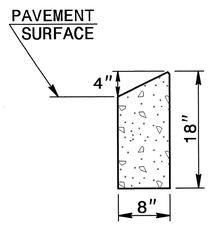
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 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.
J	6" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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

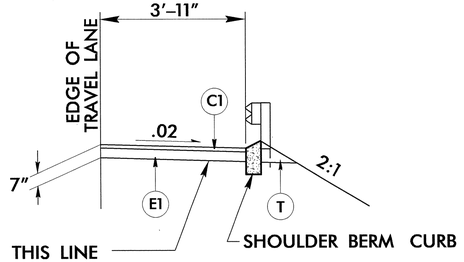


USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1

-L- STA 16+00.00 TO BEGIN APPROACH SLAB LT.
-L- STA 16+00.00 TO BEGIN APPROACH SLAB RT.

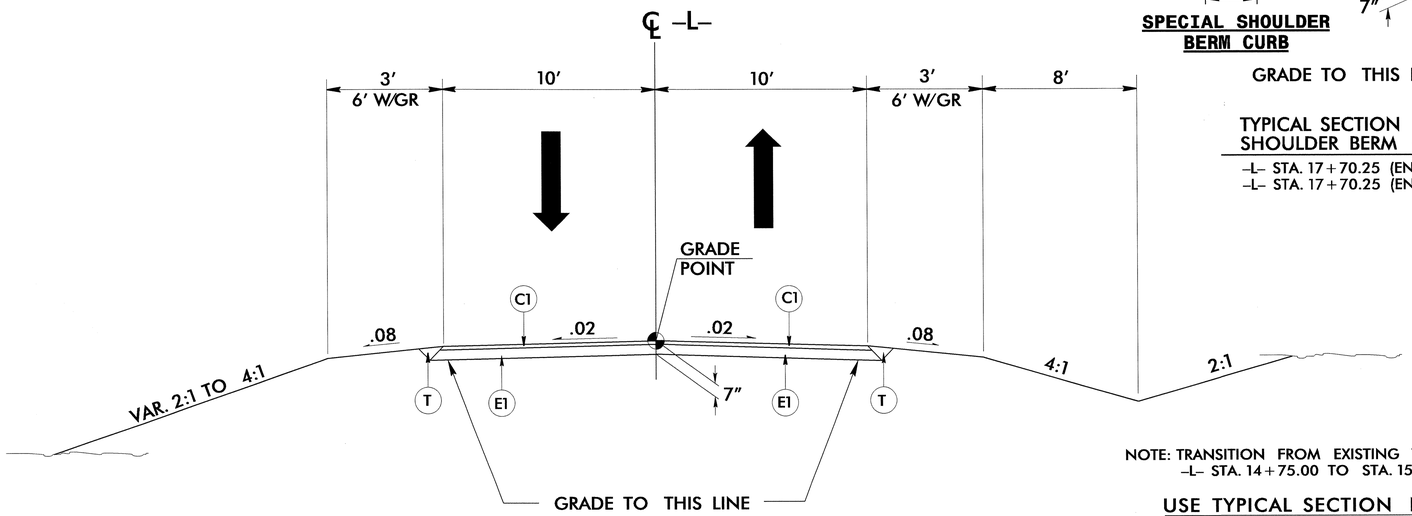


SPECIAL SHOULDER BERM CURB



TYPICAL SECTION OF PAVED SHOULDER AND SPECIAL SHOULDER BERM CURB UNDER TYPE III ANCHORS

-L- STA. 17+70.25 (END APPROACH SLAB) TO STA 17+71.75 LT.
-L- STA. 17+70.25 (END APPROACH SLAB) TO STA 17+71.75 RT.



TYPICAL SECTION NO. 1

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 14+75.00 TO STA. 15+25.00

USE TYPICAL SECTION NO. 1 AS FOLLOWS

-L- STA 15+25.00 TO STA 16+21.75 (BEGIN BRIDGE)
-L- STA 17+59.25 (END BRIDGE) TO STA 19+50.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO TYPICAL SECTION NO. 3
-L- STA. 19+50.00 TO STA. 20+00.00

NOTE: MAINTAIN EXISTING PAVEMENT – RESURFACE AND WEDGE TO GRADE
-L- STA. 19+50.00 TO STA. 20+00.00

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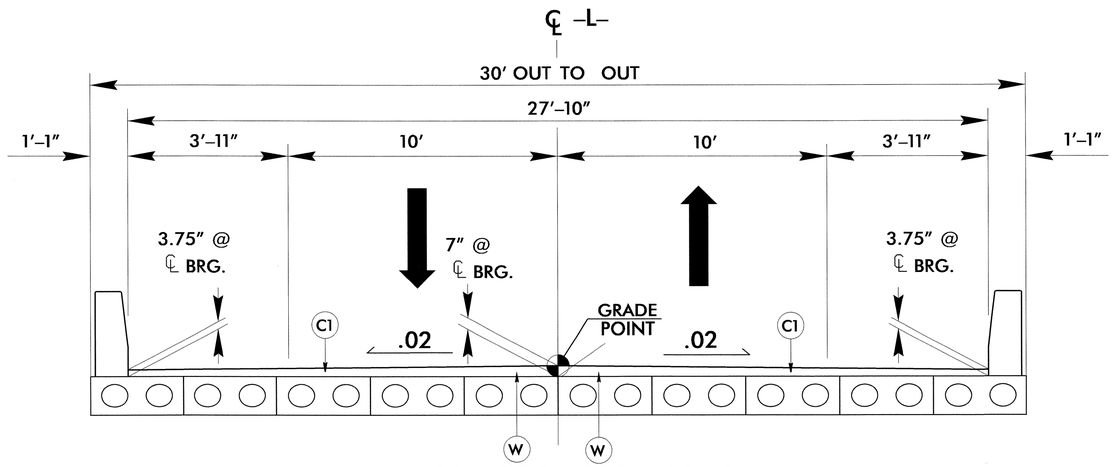
PROJECT REFERENCE NO.	SHEET NO.
B-5162	2-A

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 7-26-13 Daniel W. Gardner	NORTH CAROLINA PROFESSIONAL SEAL 039819 ENGINEER LATONA A. HEXWARD JULY 26th 2013

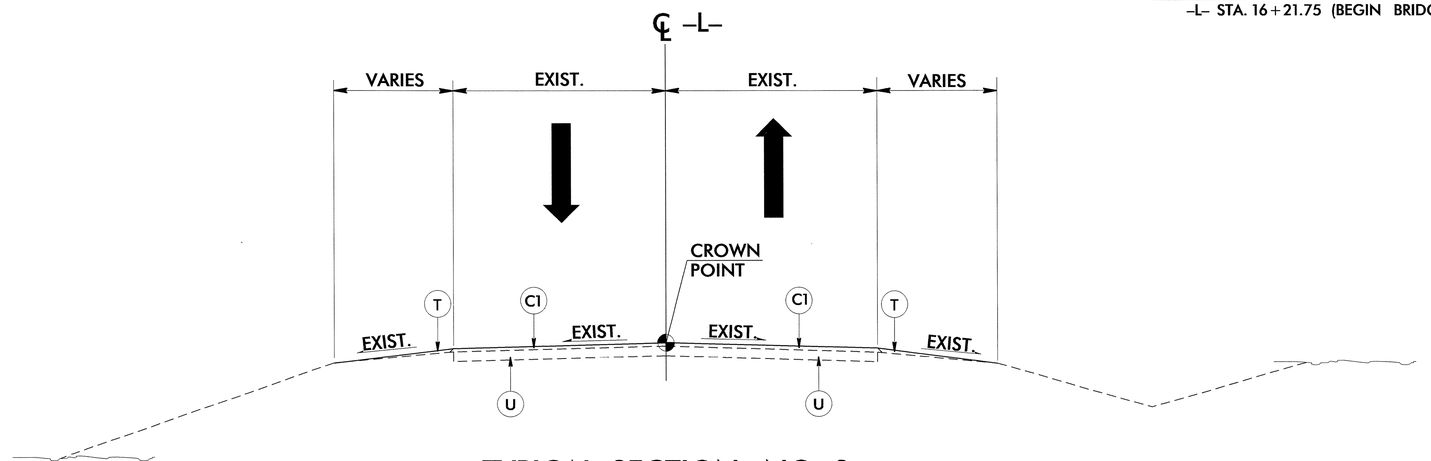
C1	2½" TYPE SF9.5A
C2	VAR. DEPTH TYPE SF9.5A,
E1	4½" TYPE B25.0B
E2	VAR. DEPTH TYPE B25.0B
J	6" ABC
P	PRIME COAT
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH PAVEMENT



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS

-L- STA. 16+21.75 (BEGIN BRIDGE) TO STA. 17+59.25 (END BRIDGE)

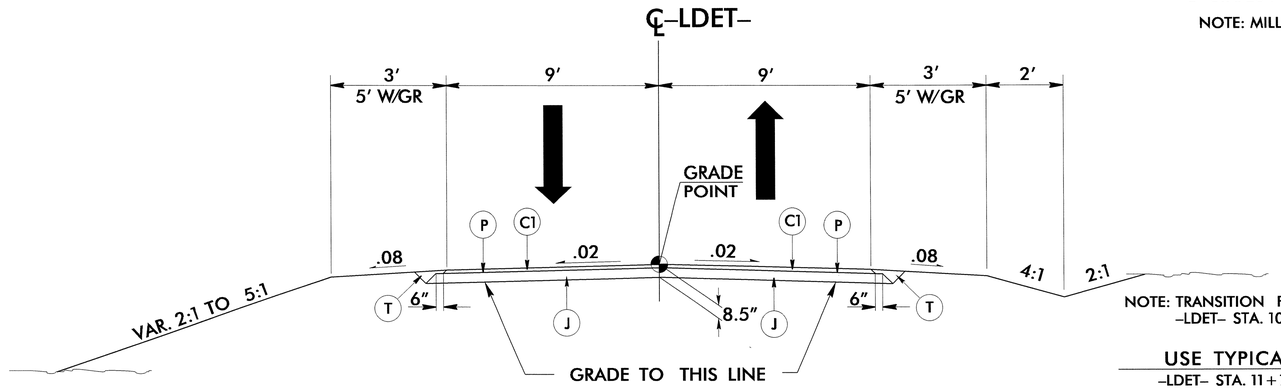


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS

-L- STA. 13+00.00 TO STA. 14+75.00
-L- STA. 20+00.00 TO STA. 20+80.00

NOTE: MILL PAVEMENT AT TIE-INS.



TYPICAL SECTION NO. 4

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 4
-LDET- STA. 10+44.26 TO STA. 11+73.24

USE TYPICAL SECTION NO. 4 AS FOLLOWS

-LDET- STA. 11+73.24 TO STA. 13+24.00+/- (BEGIN BRIDGE)
-LDET- STA. 14+49.00+/- (END BRIDGE) TO STA. 16+23.17

NOTE: TRANSITION FROM TYPICAL SECTION NO. 4 TO EXISTING
-LDET- STA. 16+23.17 TO STA. 17+46.09

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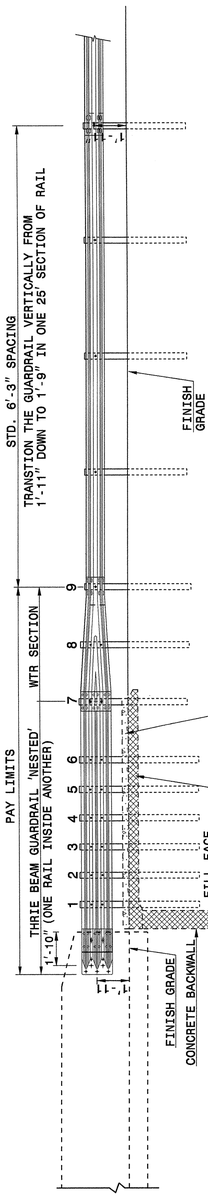
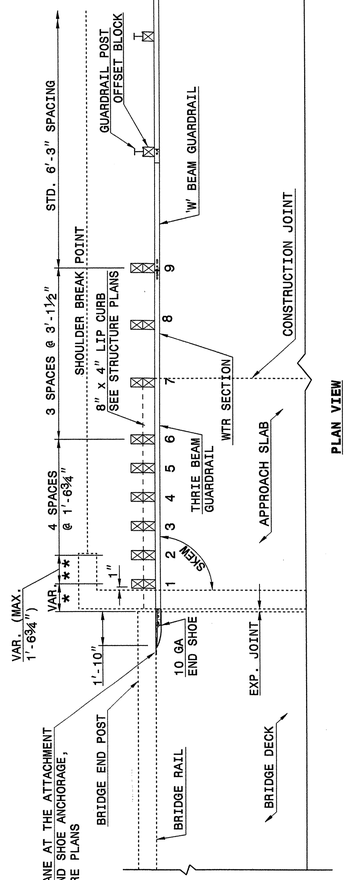
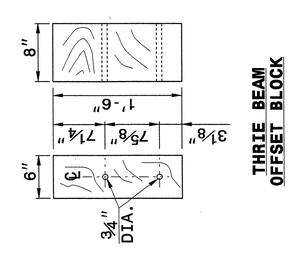
PROJECT REFERENCE NO.	SHEET NO.
B-5162	2-B

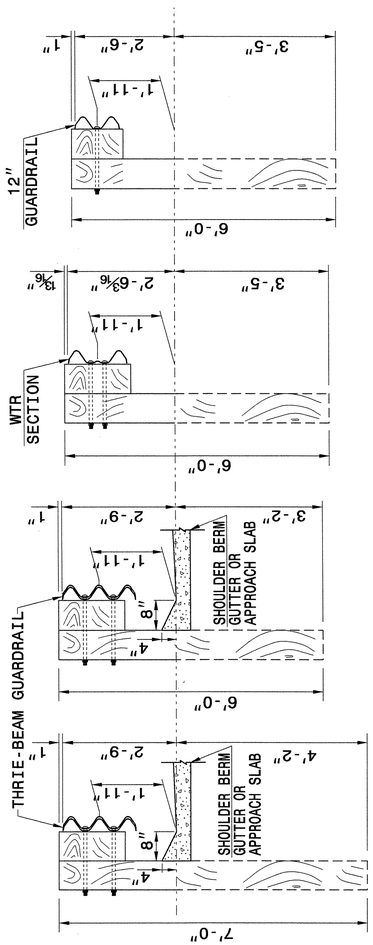


NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 1½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 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.

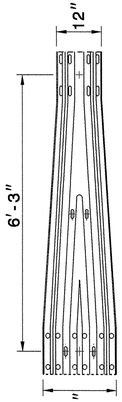


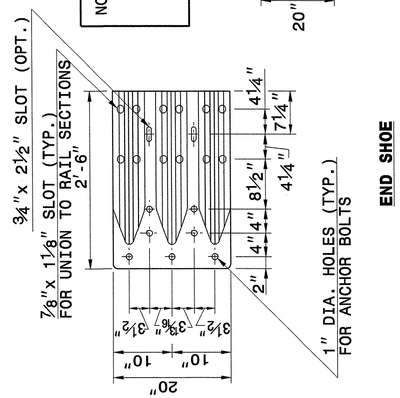
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER





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.





NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOSEPH HOWERTON 7/24/13

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE: 11/13/12
FILE SPEC.:

$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGNNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5162	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203252

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (16+90.50-L-)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	200	CY	UNDERCUT EXCAVATION
0134000000-E	240	141	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	600	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	1,100	SY	GEOTEXTILE FOR SOIL STABILIZATION
0318000000-E	300	20	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	40	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	88	LF	15" DRAINAGE PIPE
0335850000-E	305	4	EA	**" DRAINAGE PIPE ELBOWS (15")
0448200000-E	310	20	LF	15" RC PIPE CULVERTS, CLASS IV
0995000000-E	340	60	LF	PIPE REMOVAL
1099500000-E	505	100	CY	SHALLOW UNDERCUT
1099700000-E	505	200	TON	CLASS IV SUBGRADE STABILIZATION
1121000000-E	520	335	TON	AGGREGATE BASE COURSE
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1275000000-E	600	315	GAL	PRIME COAT
1330000000-E	607	530	SY	INCIDENTAL MILLING
1489000000-E	610	280	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	430	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	45	TON	ASPHALT BINDER FOR PLANT MIX
2000000000-N	806	8	EA	RIGHT OF WAY MARKERS
2286000000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	36	LF	SHOULDER BERM GUTTER
2752000000-E	SP	3	LF	GENERIC PAVING ITEM SPECIAL SHOULDER BERM CURB
3030000000-E	862	75	LF	STEEL BM GUARDRAIL
3150000000-N	862	15	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	350	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (III)
3389100000-N	SP	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350
3635000000-E	876	109	TON	RIP RAP, CLASS II
3649000000-E	876	4	TON	RIP RAP, CLASS B
3656000000-E	876	1,791	SY	GEOTEXTILE FOR DRAINAGE
4072000000-E	903	92	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4102000000-N	904	1	EA	SIGN ERECTION, TYPE E
4155000000-N	907	6	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	104	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	122	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	92	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	53	EA	DRUMS
4435000000-N	1135	68	EA	CONES
4445000000-E	1145	48	LF	BARRICADES (TYPE III)
4455000000-N	1150	48	DAY	FLAGGER
4516000000-N	1180	10	EA	SKINNY DRUM
4650000000-N	1251	38	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	19,752	LF	PAINT PAVEMENT MARKING LINES (4")
4850000000-E	1205	984	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
6000000000-E	1605	2,200	LF	TEMPORARY SILT FENCE
6006000000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	520	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	485	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	4	ACR	TEMPORARY MULCHING
6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	625	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	200	LF	SAFETY FENCE
6030000000-E	1630	1,260	CY	SILT EXCAVATION
6036000000-E	1631	7,500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	350	SY	COIR FIBER MAT
6038000000-E	SP	325	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	250	LF	1/4" HARDWARE CLOTH
6070000000-N	1639	12	EA	SPECIAL STILLING BASINS
6071010000-E	SP	100	LF	WATTLE
6071020000-E	SP	100	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	475	LF	COIR FIBER BAFFLE
6071050000-E	SP	6	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	4	ACR	SEEDING & MULCHING
6087000000-E	1660	2	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	3	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL

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6/21/00

COMPUTED BY: D. W. GARDNER DATE: 01/17/12
CHECKED BY: T. A. HARRIS DATE: 04/03/12

PROJECT REFERENCE NO.	SHEET NO.
B-5162	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

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

STATION	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) SIZE 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- STA. 16+05.00	LT.	0401		381.99	379.13														
		0401	0402		379.13	379.24													
		0401	0403		379.13	370.86			28							X			
-L- STA. 16+05.00	RT.	0402		381.99	379.24														
-LDET- STA. 13+15	LT.	0404		380.53	377.78														
		0404	0405		377.78	364.21			60										
PROJECT TOTALS									88										

STATION	C.S. PIPE 12"	15"	18"	24"	36"	42"	48"	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
	.064	.064	.064	.064	.079	.109	.109															
-L- STA. 16+05.00 LT.															20							
-L- STA. 16+05.00 RT.																						
-LDET- STA. 13+15 LT.																						
PROJECT TOTALS															20							

STATION	*** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	*** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" 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 * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL. B") LIN. *FT. A	B	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET
-L- STA. 16+05.00 LT.							1								
-L- STA. 16+05.00 RT.							1								
-LDET- STA. 13+15 LT.							1								
PROJECT TOTALS							3								

STATION	PER EACH (0' THRU 5.0')	5.0' THRU 10.0'	10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	T.B.D.I. STD. 840.35	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	DRAINAGE PIPE ELBOWS NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
-L- STA. 16+05.00 LT.	1				1	1			
							2 @ 15"		
-L- STA. 16+05.00 RT.	1				1	1			
-LDET- STA. 13+15 LT.	1				1	1			TEMPORARY DETOUR DRAINAGE
							2 @ 15"	60	TEMPORARY DETOUR DRAINAGE
PROJECT TOTALS	3				3	3	4 @ 15"	60	

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

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 GRAU 350	ANCHORS TYPE III	ANCHORS TEMP. GRAU 350	ANCHORS TEMP. TYPE III	IMPACT ATTENUATOR TYPE 350 EA	IMPACT ATTENUATOR TYPE 350 G	IMPACT ATTENUATOR TYPE 350 NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	STA. 15+40.50	STA. 16+21.75	LT.	81.25				STA. 16+21.75	3.917	6		62.5		1.25	1	1									
-L-	STA. 15+40.50	STA. 16+21.75	RT.	81.25			STA. 16+21.75		3.917	6	62.5		1.25		1	1									
-L-	STA. 17+59.25	STA. 18+40.50	LT.	81.25			STA. 17+59.25		3.917	6	62.5		1.25		1	1									
-L-	STA. 17+59.25	STA. 18+40.50	RT.	81.25				STA. 17+59.25	3.917	6		62.5		1.25	1	1									
			SUB-TOTAL	325											4	4									
	LESS DEDUCTIONS FOR ANCHORS		GRAU-350 4@50 =	-200																					
			TYPE III 4@18.75 =	-75																					
			PROJECT TOTAL	50											4	4									
ADDITIONAL GUARDRAIL POSTS = 5 EA.			SAY	75																					
TEMPORARY GUARDRAIL																									
-LDET-	STA. 12+49.00	STA. 13+24.00	LT.	75				STA. 13+24.00	2	5		56.25		1.125			1	1							TEMPORARY GUARDRAIL
-LDET-	STA. 11+49.00	STA. 13+24.00	RT.	175			STA. 11+99.00		2	5	50		1				1	1							TEMPORARY GUARDRAIL
-LDET-	STA. 14+49.00	STA. 15+24.00	LT.	75			STA. 14+49.00		2	5	56.25		1.125				1	1							TEMPORARY GUARDRAIL
-LDET-	STA. 14+49.00	STA. 17+11.50	RT.	262.50				STA. 16+61.50	2	5		50		1			1	1							TEMPORARY GUARDRAIL
			SUB-TOTAL	587.50													4	4							
	LESS DEDUCTIONS FOR ANCHORS		GRAU-350 4@50 =	-200																					
			TYPE III 4@18.75 =	-75																					
			PROJECT TOTAL	312.50													4	4							
ADDITIONAL GUARDRAIL POSTS = 10 EA.			SAY	350																					

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6/21/00

COMPUTED BY: D. W. GARDNER DATE: 01/17/12
CHECKED BY: T. A. HARRIS DATE: 04/03/12

PROJECT REFERENCE NO.	SHEET NO.
B-5162	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE NO. I (DETOUR)				
–LDET– STA. 10+44.26 TO STA. 13+24.00	4	2947	2943	
–LDET– STA. 14+49.00 TO STA. 17+46.09	4	4397	4393	
PHASE NO. I TOTALS	8	7344	7336	
PHASE NO. II (–L–)				
–L– STA. 14+75.00 TO STA. 16+21.75	10	330	320	
–L– STA. 17+59.25 TO STA. 20+00.00	6	527	521	
PHASE NO. II TOTALS	16	857	841	
PHASE NO. III (DETOUR REMOVAL/FILL –LDET– DDE)				
–L– STA. 13+51.54 TO STA. 16+27.63	2301	8		2293
–LDET– STA. 17+52.63 TO STA. 20+46.73	3339	18		3321
–LDET– STA. 11+95.00 TO STA. 13+60.00		82		–82
PHASE NO. III TOTALS	5640	108		5532
PHASE TOTALS	5664	8309	8177	5532
PROJECT TOTALS	5664	8309	8177	5532
5% TO REPLACE TOPSOIL ON BORROW PIT			409	
PROJECT GRAND TOTALS	5664	8309	8586	5532
SAY	5700		8700	
DRAINAGE DITCH EXCAVATION = 141 CY				
EST. SHALLOW UNDERCUT CONTINGENCY = 100 CY				
EST. UNDERCUT CONTINGENCY = 200 CY				
GEOTEXTILE FOR SOIL STABILIZATION = 900 SY				
CLASS IV SUBGRADE STABILIZATION = 200 TONS				
SELECT GRANULAR MATERIAL = 600 CY				

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQUARE YARDS
–L–	14+75.00	16+30.91	LT/RT	317.07
–L–	17+51.47	20+00.00	LT/RT	514.75
–LDET–	10+44.26	11+73.24	LT/RT	91.23
–LDET–	11+73.24	13+24.00	LT/RT	301.52
–LDET–	14+49.00	16+23.17	LT/RT	348.34
–LDET–	16+23.17	17+46.09	LT/RT	92.30
			TOTAL:	1665.21
			SAY:	1700

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH
–L–	16+00.00	16+10.75	LT	10.75
–L–	16+00.00	16+10.75	RT	10.75
–LDET–	13+10.00	13+24.00	LT	14.0
			TOTAL:	35.5
			SAY:	36

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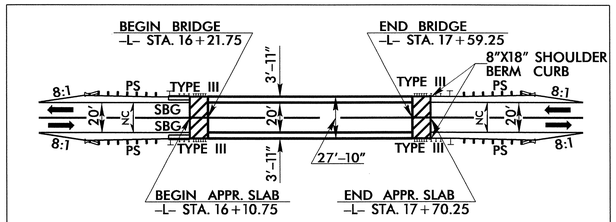
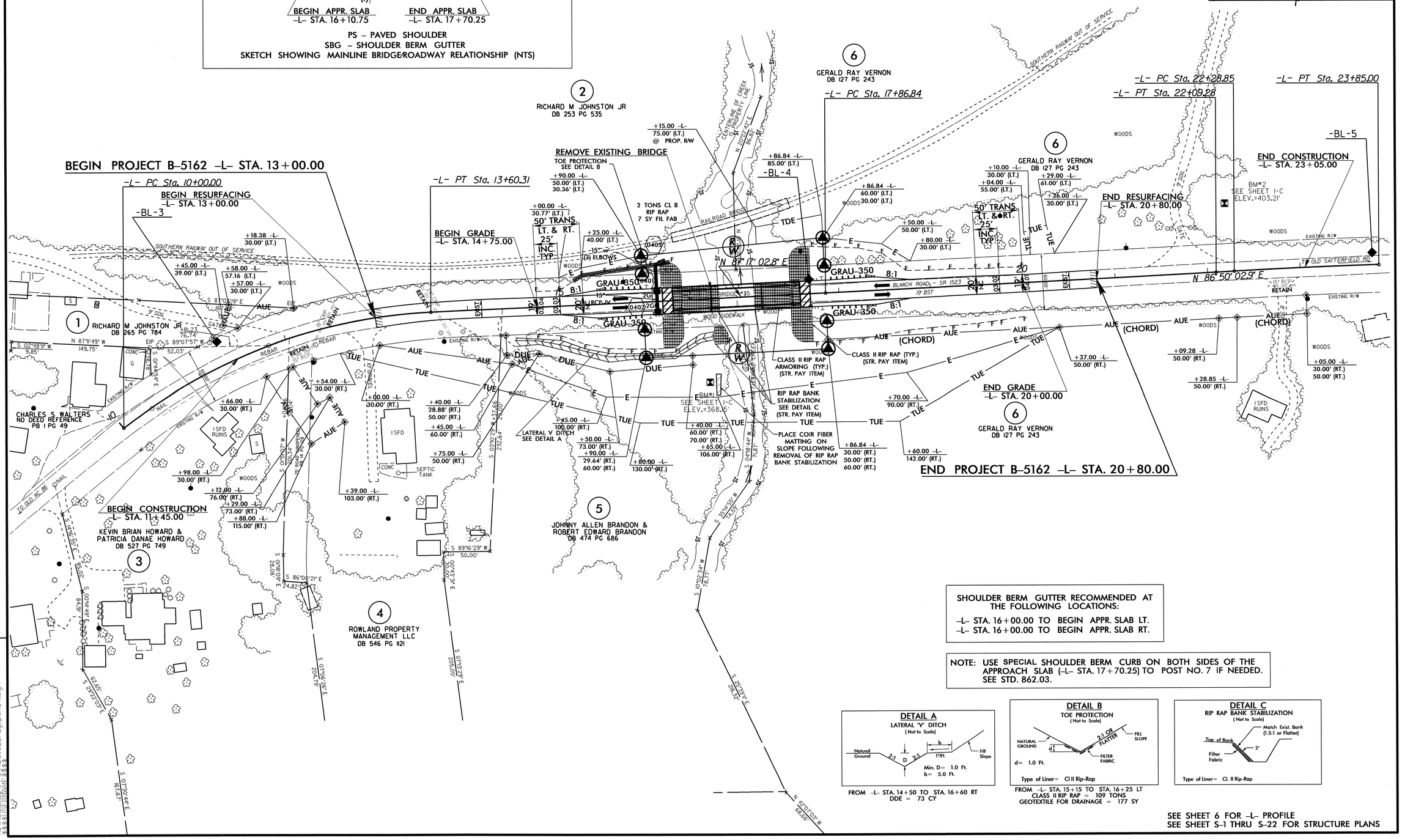
PROJECT REFERENCE NO.	SHEET NO.
B-5162	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 7-26-13	NORTH CAROLINA PROFESSIONAL SEAL 036821 ENGINEER ELENI M. RIGGS 7/30/13

NAD 83/NSRS 2007



PS – PAVED SHOULDER
SBG – SHOULDER BERM GUTTER
SKETCH SHOWING MAINLINE BRIDGE/ROADWAY RELATIONSHIP (NTS)

-L-		
PI Sta 11+86.20	PI Sta 19+98.06	PI Sta 23+06.93
Δ = 35° 38' 31.5" (RT)	Δ = 0° 26' 59.9" (LT)	Δ = 1° 22' 35.2" (RT)
D = 9° 53' 31.6"	D = 0° 06' 23.5"	D = 0° 52' 53.3"
L = 360.31'	L = 422.44'	L = 156.15'
T = 186.20'	T = 211.22'	T = 78.08'
R = 579.21'	R = 53,789.13'	R = 6,500.00'
	SE SEE PLANS	



SHOULDER BERM GUTTER RECOMMENDED AT THE FOLLOWING LOCATIONS:
-L- STA. 16+00.00 TO BEGIN APPR. SLAB LT.
-L- STA. 16+00.00 TO BEGIN APPR. SLAB RT.

NOTE: USE SPECIAL SHOULDER BERM CURB ON BOTH SIDES OF THE APPROACH SLAB (-L- STA. 17+70.25) TO POST NO. 7 IF NEEDED. SEE STD. 862.03.

FROM -L- STA. 14+50 TO STA. 16+60 RT
DDE = 73 CY

FROM -L- STA. 15+15 TO STA. 16+25 LT
CLASS II RIP RAP = 109 TONS
GEOTEXTILE FOR DRAINAGE = 177 SY

SEE SHEET 6 FOR -L- PROFILE
SEE SHEET S-1 THRU S-22 FOR STRUCTURE PLANS

REVISIONS

8/17/99

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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5162	5
R/W SHEET NO.	

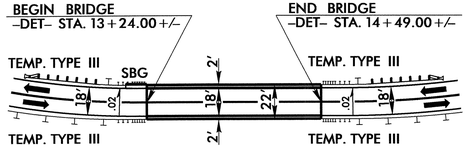
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER — 7-26-13

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 036821 ENGINEER ELENI M. RIGGS — 7/30/13

NAD 83/NSRS 2007

BEGIN BRIDGE –DET– STA. 13+24.00 +/–

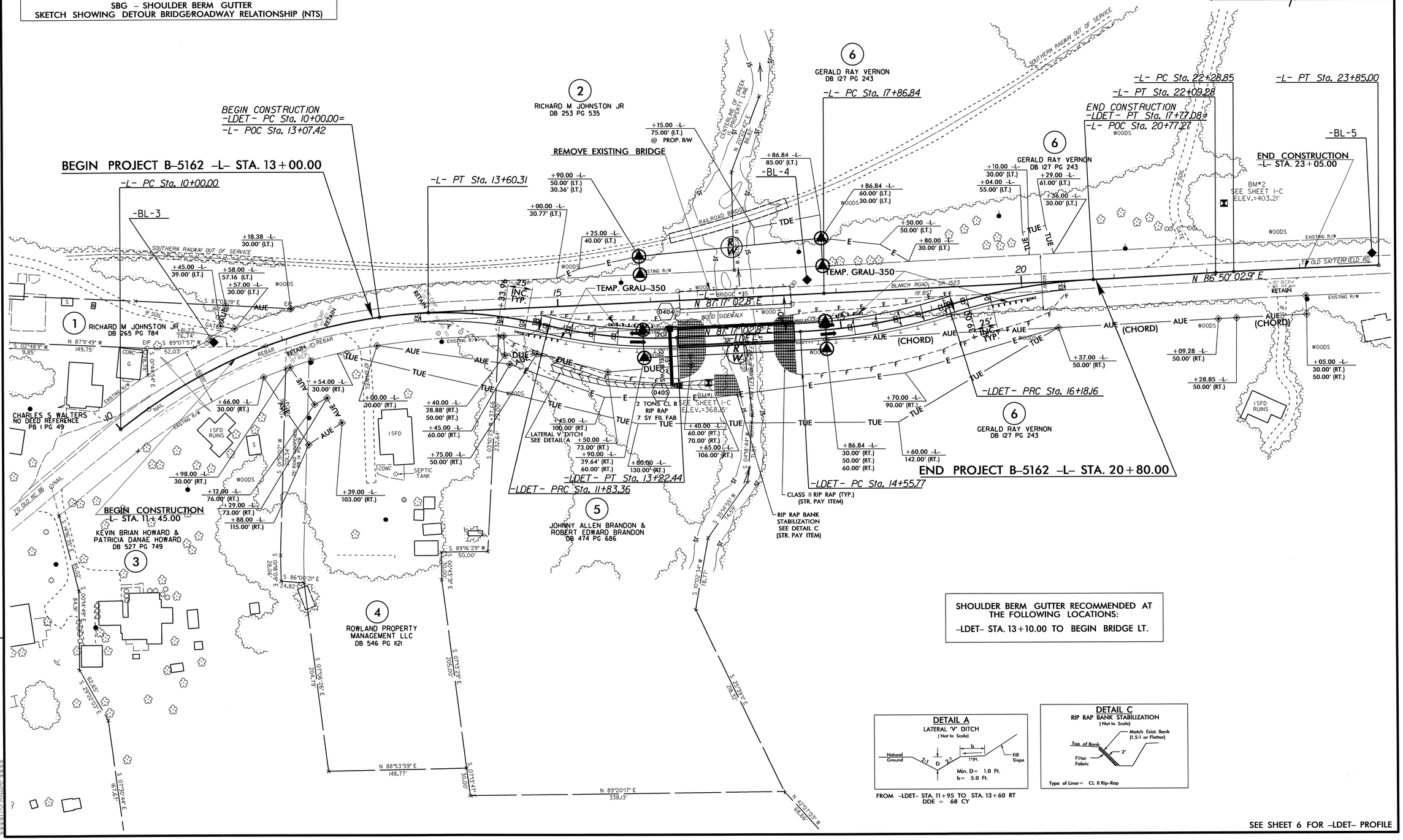
END BRIDGE –DET– STA. 14+49.00 +/–



SBG – SHOULDER BERM GUTTER
SKETCH SHOWING DETOUR BRIDGE/ROADWAY RELATIONSHIP (NTS)

–L–			–LDET–			
PI Sta 11+86.20	PI Sta 19+98.06	PI Sta 23+06.93	PI Sta 10+92.79	PI Sta 12+53.38	PI Sta 15+37.40	PI Sta 16+98.03
Δ = 35° 38' 31.5" (RT)	Δ = 0° 26' 59.9" (LT)	Δ = 1° 22' 35.2" (RT)	Δ = 21° 39' 42.9" (RT)	Δ = 16° 25' 46.9" (LT)	Δ = 14° 28' 12.9" (LT)	Δ = 14° 09' 39.2" (RT)
D = 9° 53' 31.6"	D = 0° 06' 23.5"	D = 0° 52' 53.3"	D = 11° 48' 48.8"	D = 11° 48' 48.8"	D = 8° 54' 38.5"	D = 8° 54' 38.5"
L = 360.31'	L = 422.44'	L = 156.15'	L = 183.36'	L = 139.07'	L = 162.39'	L = 158.92'
T = 186.20'	T = 211.22'	T = 78.08'	T = 92.79'	T = 70.02'	T = 81.63'	T = 79.87'
R = 579.21'	R = 53,789.13'	R = 6,500.00'	R = 485.00'	R = 485.00'	R = 643.00'	R = 643.00'
	SE SEE PLANS		SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

V_{DESIGN} = 35 MPH



DETAIL A
LATERAL 'V' DITCH
(Not to Scale)

FROM –LDET– STA. 11+95 TO STA. 13+60 RT
DDE = 68 CY

DETAIL C
RIP RAP BANK STABILIZATION
(Not to Scale)

Type of Liner = CL II Rip-Rap

SEE SHEET 6 FOR –LDET– PROFILE

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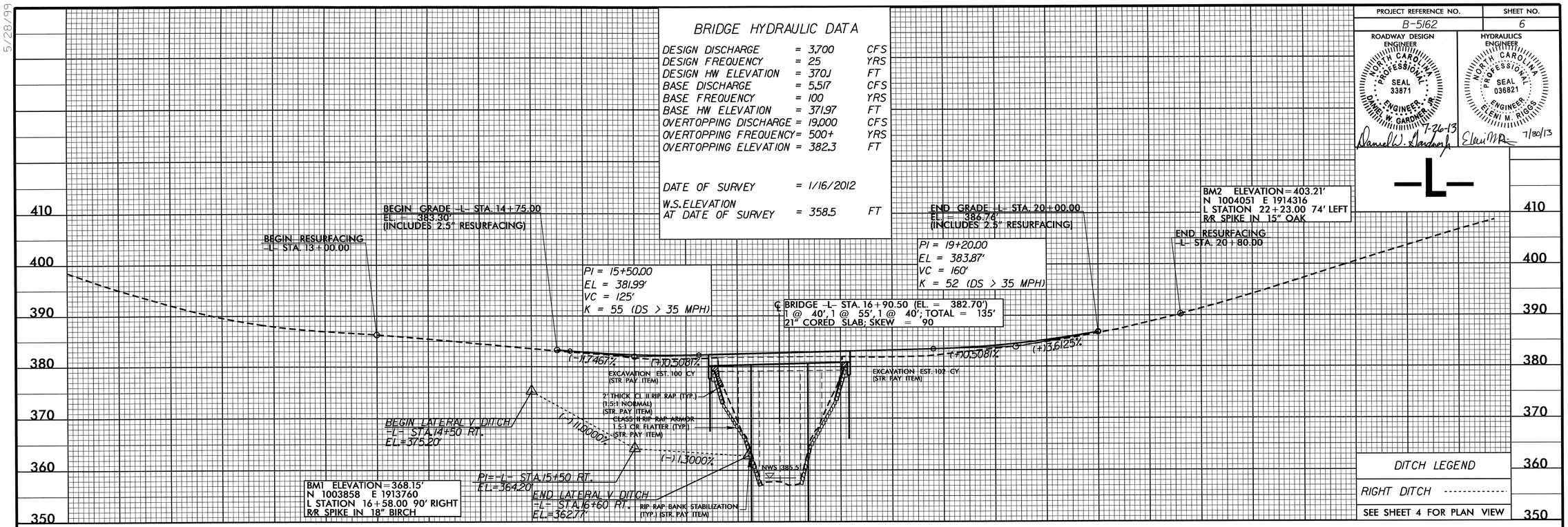
PROJECT REFERENCE NO.	SHEET NO.
B-5162	6

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER JR. — 7-26-13

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 036821 ENGINEER ELENI M. RIGGS — 7/30/13

-L-



BRIDGE HYDRAULIC DATA

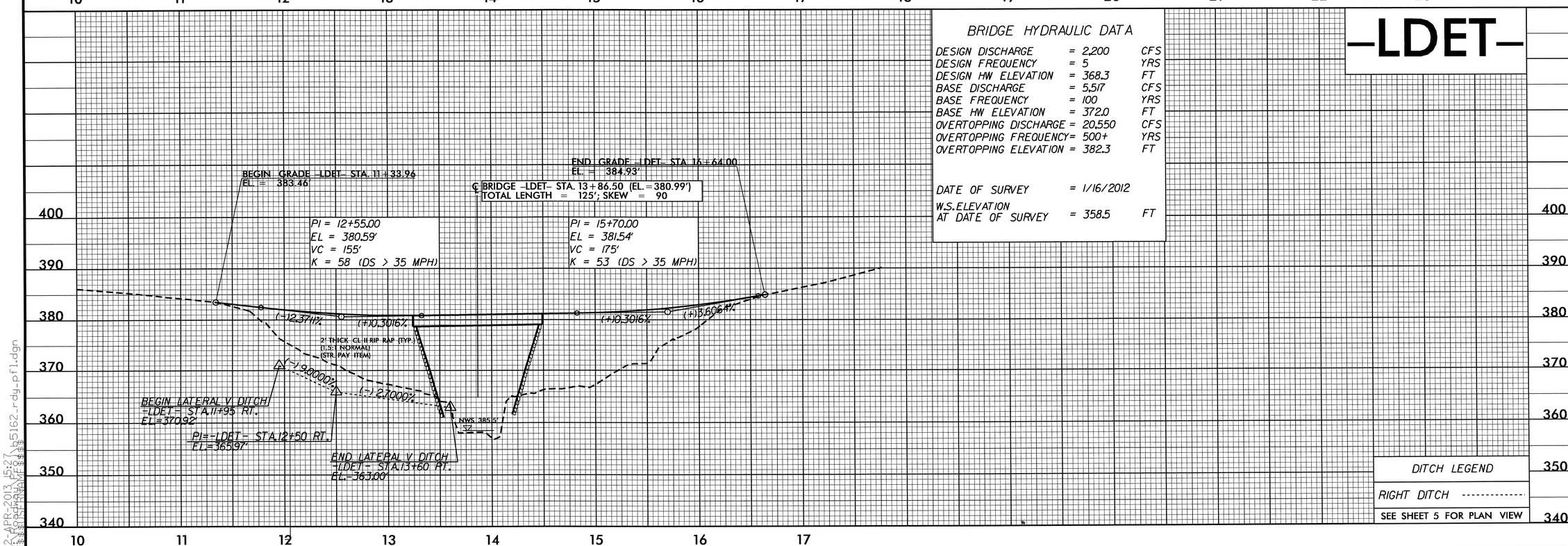
DESIGN DISCHARGE	= 3,700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 370.1	FT
BASE DISCHARGE	= 5,517	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 371.97	FT
OVERTOPPING DISCHARGE	= 19,000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 382.3	FT
DATE OF SURVEY	= 1/16/2012	
W.S. ELEVATION AT DATE OF SURVEY	= 358.5	FT

DITCH LEGEND

RIGHT DITCH ----------

SEE SHEET 4 FOR PLAN VIEW

-LDET-



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2,200	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 368.3	FT
BASE DISCHARGE	= 5,517	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 372.0	FT
OVERTOPPING DISCHARGE	= 20,550	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 382.3	FT
DATE OF SURVEY	= 1/16/2012	
W.S. ELEVATION AT DATE OF SURVEY	= 358.5	FT

DITCH LEGEND

RIGHT DITCH ----------

SEE SHEET 5 FOR PLAN VIEW

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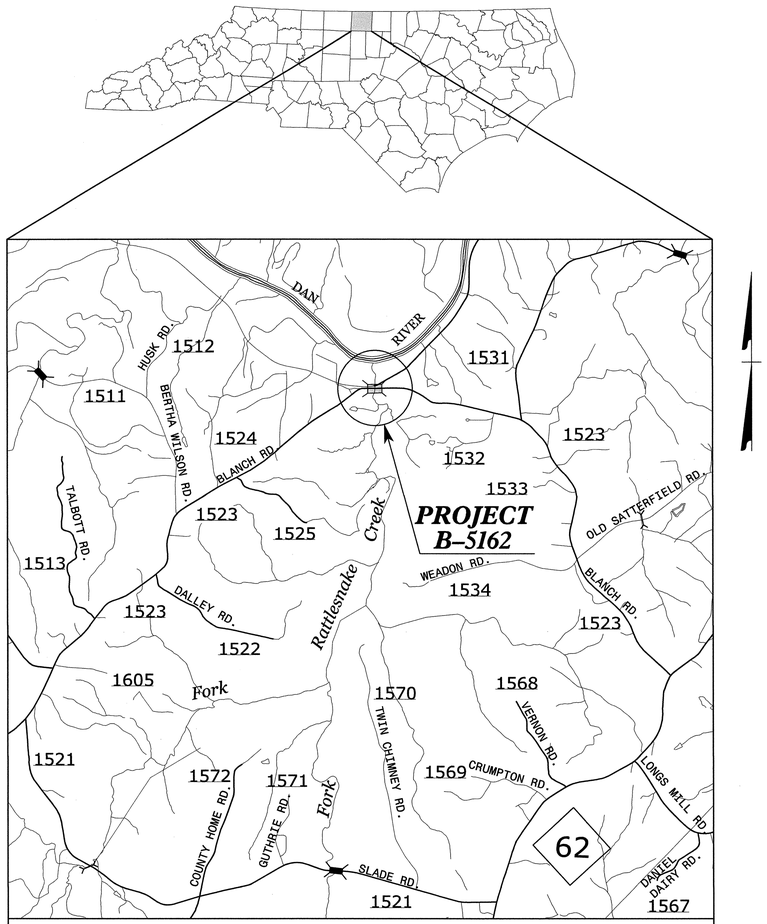
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CASWELL COUNTY



VICINITY MAP

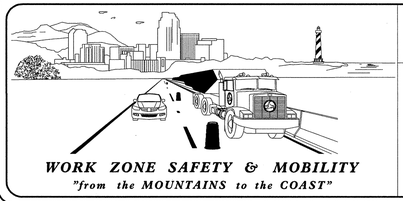
INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING
TMP-1B	TRANSPORTATION OPERATIONS PLAN: MANAGEMENT STRATEGIES AND GENERAL NOTES
TMP-2	PHASING
TMP-3	PHASE I DETAIL
TMP-4	PHASE II DETAIL
TMP-5	PHASE III DETAIL
TMP-6	PHASE IV DETAIL
TMP-7	CUT SECTIONS
TMP-8	CUT SECTIONS

SHEET NO.
TMP-1

B-5162

TIP PROJECT:



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

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

J. S. BOURNE, P.E. — *STATE TRAFFIC MANAGEMENT ENGINEER*
J. ISHAK, P.E. — *TRAFFIC CONTROL PROJECT ENGINEER*
B. SCHOENBAUER, P.E. — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
S. HASSAN — *TRAFFIC CONTROL DESIGN ENGINEER*

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

APPROVED: Ben Schoenbauer
DATE: June 27, 2013

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35496 BENJAMIN PAUL SCHOENBAUER

6/27/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

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

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM ◉ SKINNY DRUM ◎ TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

PAINT (4")

PA	WHITE EDGELINE
PI	YELLOW DOUBLE CENTER

APPROVED: Ben Schonbauer DATE: 6/10/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN PAUL SCHOENBAUER

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

ROADWAY STANDARD DRAWINGS & LEGEND

5/22/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-1B

MANAGEMENT STRATEGIES

- DURING CONSTRUCTION, SR 1523 TRAFFIC WILL BE PLACED ON A TEMPORARY ONSITE DETOUR IN A TWO-LANE, TWO-WAY PATTERN INCLUDING A TEMPORARY STRUCTURE.

- THE TIE IN CONSTRUCTION, TRAFFIC SHIFTS, PLACEMENT OF FINAL SURFACE COURSE AND PAVEMENT MARKINGS WILL BE PERFORMED BY USING FLAGGER OPERATIONS.

PROJECT NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

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

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

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

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

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

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) 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.

H) 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) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

J) 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.

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

L) 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

M) 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.

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
-L- (SR 1523 BLANCH RD.)	PAINT	NONE

P) 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.

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

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

MISCELLANEOUS

S) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

T) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

APPROVED: Ben Schoenbaum DATE: 6/10/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN PAUL SCHOENBAUM

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

TRANSPORTATION OPERATION PLAN

5/22/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-2

PHASING

PHASE I

STEP 1: USING ROADWAY STANDARD DRAWING (RSD) 1101.01, SHEET 3 OF 3, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON SR 1523 (BLANCH RD).

STEP 2: AWAY FROM TRAFFIC AND USING RSD 1101.04, SHEET 1 OF 1; AND RSD 1101.02, SHEET 1 OF 15, AS NECESSARY; CONSTRUCT TEMPORARY ROADWAY AND STRUCTURES FROM -LDET- STA. 10+40± TO -LDET- STA. 17+77± UP TO AND INCLUDING FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS AND SHEET TMP-3). AWAY FROM TRAFFIC, PLACE TEMPORARY PAVEMENT MARKINGS FROM -LDET- STA. 11+75± TO -LDET- STA. 16+23± AS SHOWN ON TMP-4.

PHASE II

STEP 1: IN A CONTINUOUS MANNER:
- A) USING RSD 1101.02, SHEET 1 OF 15, TIE IN -LDET- TO -L- AT BOTH APPROACHES OF EXISTING STRUCTURES NO. 35.
- B) USING RSD 1101.03, SHEET 3 OF 9, CLOSE -L- FROM STA. 14+80± TO STA. 19+23±, AND SHIFT TRAFFIC ONTO -LDET-.
- C) COMPLETE TEMPORARY PAVEMENT MARKINGS ON -LDET- AS SHOWN ON TMP-4.

STEP 2: AWAY FROM TRAFFIC AND USING RSD 1101.02, SHEET 1 OF 15, AS NECESSARY, REMOVE EXISTING STRUCTURE NO. 35. CONSTRUCT PROPOSED STRUCTURE NO. 35, APPROACHES, AND PROPOSED SHOULDER UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE. CONSTRUCT GUARDRAIL FROM -L- STA. 14+75±, LT., TO -L- STA. 19+50±, LT. (SEE ROADWAY PLANS, STRUCTURES PLANS, AND SHEET TMP-4).

PHASE III

STEP 1: IN A CONTINUOUS MANNER USING RSD 1101.02, SHEET 1 OF 15, MAINTAINING TRAFFIC ON -LDET-:
- A) WEDGE FULL-WIDTH LANE OF -L- FROM STA. 19+50±, LT. TO STA. 20+00±, LT. UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE (SEE TMP-5 AND ROADWAY PLANS). TIE IN NEWLY CONSTRUCTED BRIDGE APPROACHES TO EXISTING EXISTING -L-. COMPLETE PAVEMENT MARKINGS AS SHOWN ON TMP-5.
- B) SHIFT WESTBOUND TRAFFIC ONTO -L- WHILE USING RSD 1101.03, SHEET 3 OF 9, TO MAINTAIN EASTBOUND TRAFFIC ON -LDET- (SEE SHEET TMP-5).

STEP 2: AWAY FROM TRAFFIC, CONSTRUCT PROPOSED SHOULDER AND GUARDRAIL FROM -L- STA. 15+00± TO STA. 18+78± (SEE ROADWAY PLANS AND SHEET TMP-5).

PHASE IV

STEP 1: IN A CONTINUOUS MANNER USING RSD 1101.02, SHEET 1 OF 15, MAINTAINING TRAFFIC ON -L-:
- A) WEDGE FULL-WIDTH LANE AND SHOULDER OF -L- FROM STA. 19+50±, RT. TO STA. 20+00±, RT. UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE (SEE TMP-6 AND ROADWAY PLANS). TIE IN NEWLY CONSTRUCTED BRIDGE APPROACH TO EXISTING EXISTING -L-.
- B) PLACE TEMPORARY PAVEMENT MARKINGS AS SHOWN ON FINAL PAVEMENT MARKING PLANS.
- C) USING RSD 1101.03, SHEET 3 OF 9, CLOSE -LDET- FROM STA. 11+75± TO STA. 16+23±, AND SHIFT EASTBOUND TRAFFIC ONTO -L-.

STEP 2: AWAY FROM TRAFFIC AND USING RSD 1101.04, SHEET 1 OF 1; AND USING RSD 1101.02, SHEET 1 OF 15, AS NECESSARY; REMOVE -LDET- ROADWAY AND STRUCTURES. FINISH SHOULDERS AND SLOPES (SEE ROADWAY PLANS AND SHEET TMP-6).

STEP 3: USING RSD 1101.02, SHEET 1 OF 15, PLACE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS). PLACE FINAL PAVEMENT MARKING AND MARKERS AS SHOWN ON FINAL PAVEMENT MARKING PLANS.

STEP 4: REMOVE ALL WORK ZONE SIGNS AND TEMPORARY TRAFFIC CONTROL DEVICES.

APPROVED: [signature] DATE: 6/10/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN RAUL SCHORNHORST

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

PHASING

6/10/2013
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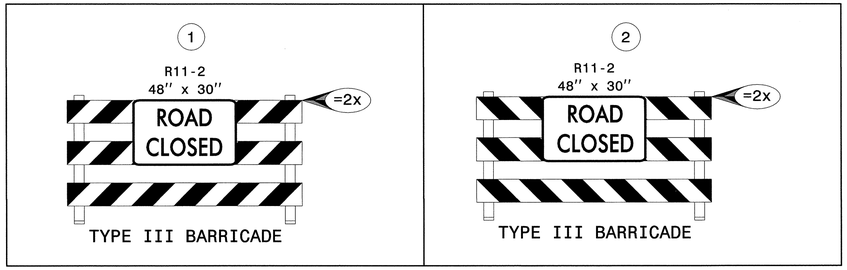
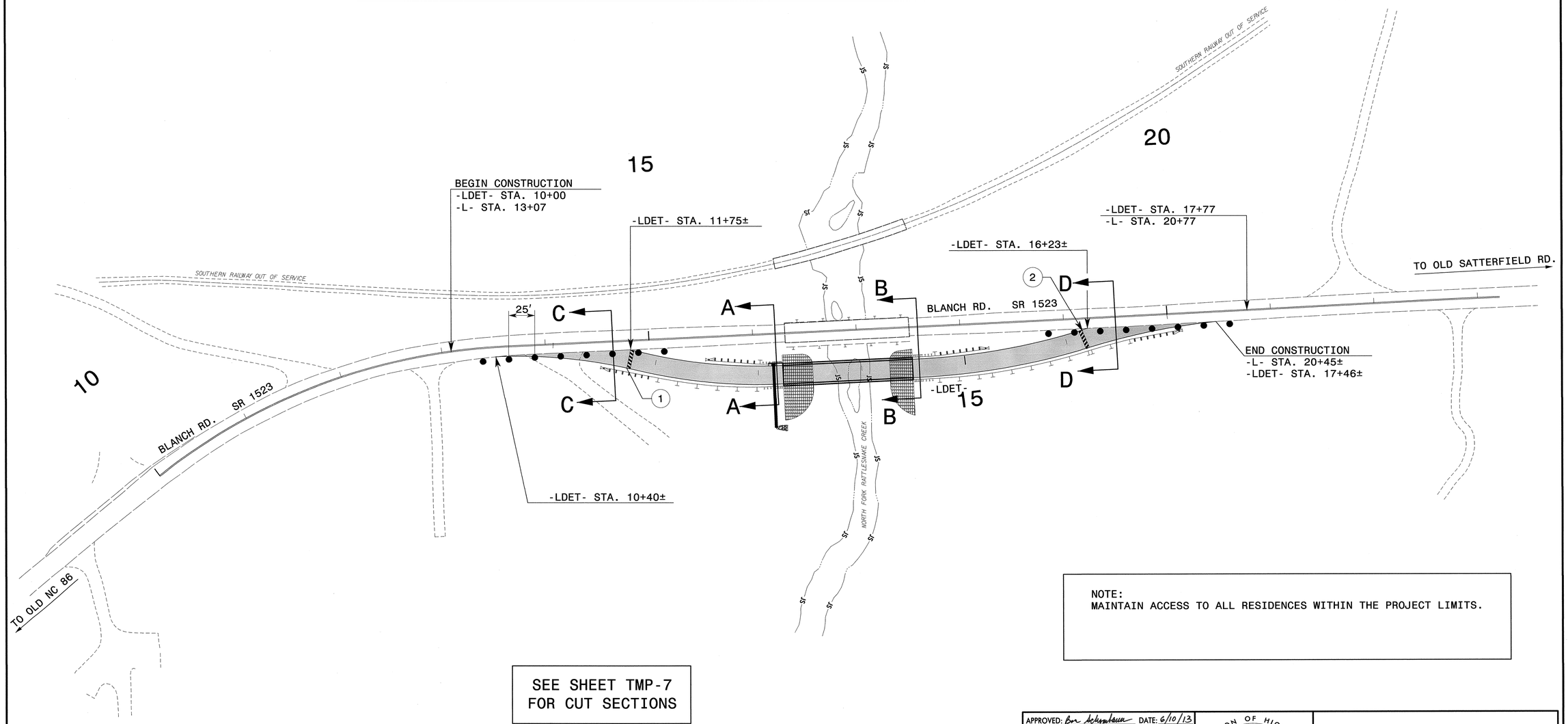
PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-3





NOTE:
MAINTAIN ACCESS TO ALL RESIDENCES WITHIN THE PROJECT LIMITS.

SEE SHEET TMP-7
FOR CUT SECTIONS

APPROVED: Ben Schonbrun DATE: 6/10/13

SEAL

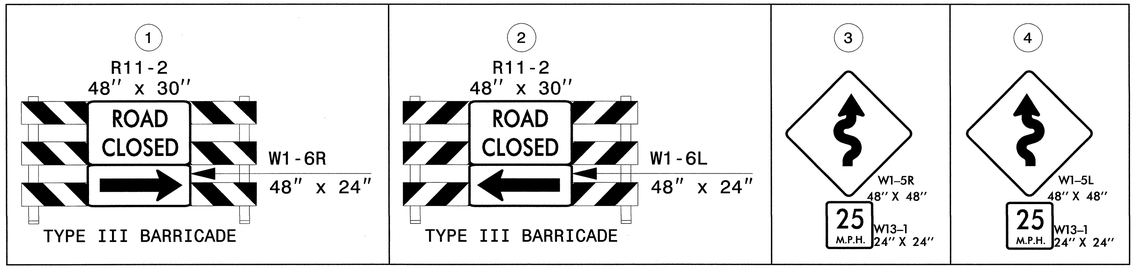
NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN PAUL SCHONBRUN

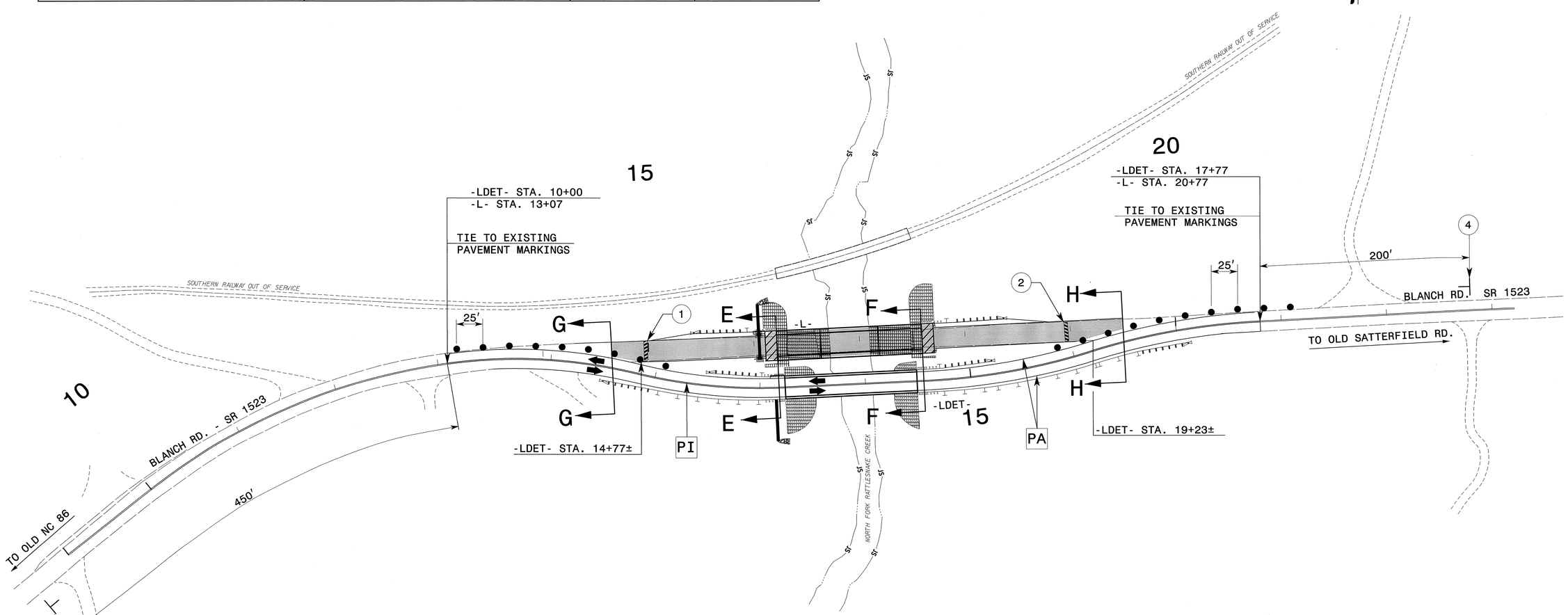
DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

PHASE I DETAIL

5/22/2013
P:\TIP\Projects-B\B5162\Traffic\TrafficControl\TCP\B-5162_TC_TMP_3.dgn
User:rshcson

PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-4





SEE SHEET TMP-7
FOR CUT SECTIONS

NOTES:
1. MAINTAIN ACCESS TO ALL RESIDENCES WITHIN THE PROJECT LIMITS.
2. REFER TO RSD 1101.03, SHEET 3 OF 9, FOR A SIGN W1-5 SPACING AND TYPE III BARRICADE PLACEMENT.

APPROVED: Ben Schoonhaven DATE: 6/10/13

SEAL

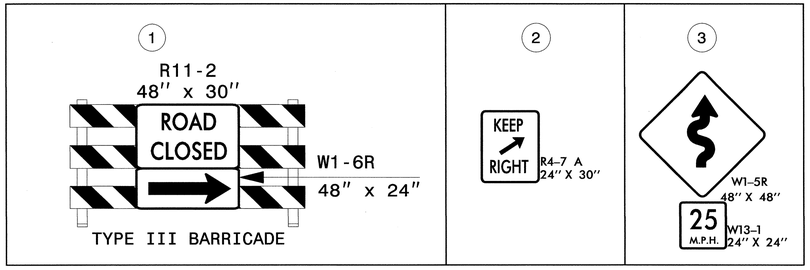
NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN PAUL SCHOONHAVEN

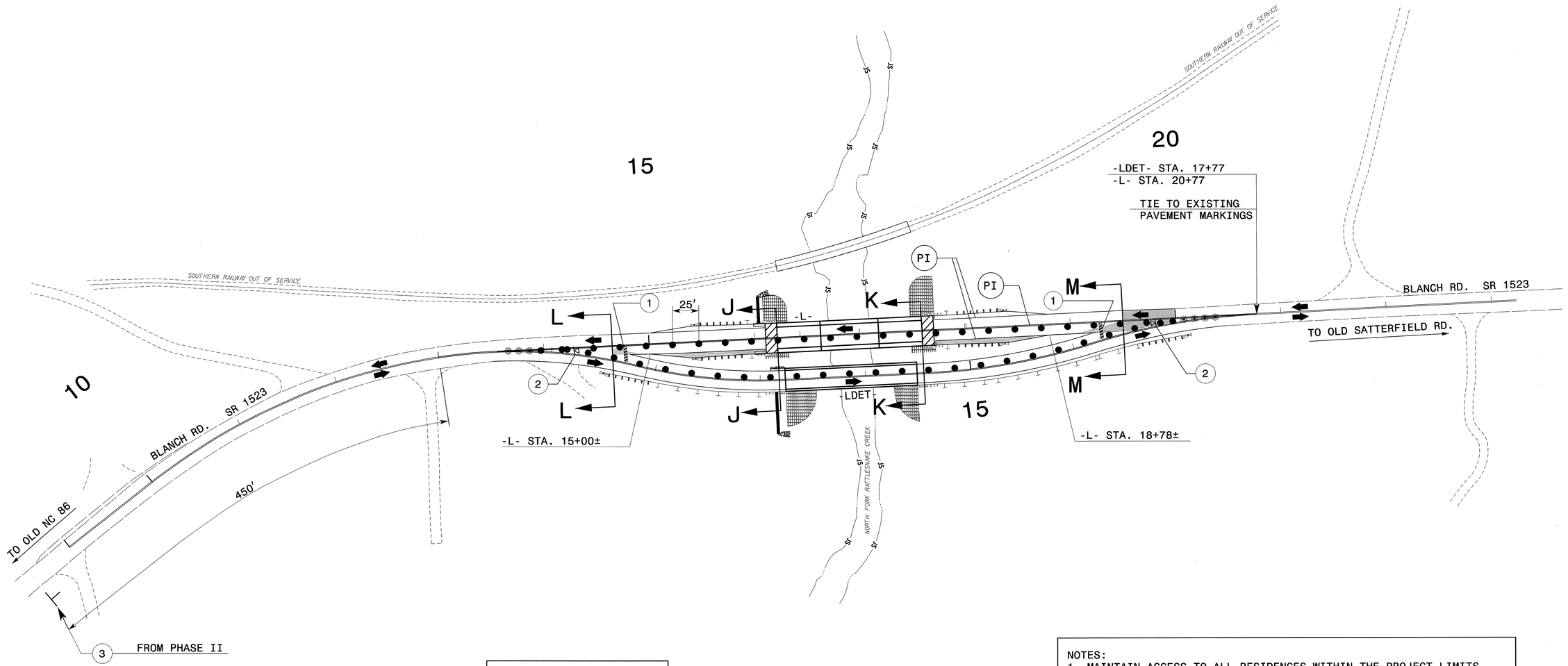
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PHASE II DETAIL

6/6/2013
N:\TPO\Projects-B\B5162\Traffic\TrafficControl\TCP\B-5162_TC_TMP_4.dgn
User:shsson

PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-5





SEE SHEET TMP-8
FOR CUT SECTIONS

NOTES:
1. MAINTAIN ACCESS TO ALL RESIDENCES WITHIN THE PROJECT LIMITS.
2. REFER TO RSD 1101.03, SHEET 3 OF 9, FOR A SIGN W1-5 SPACING AND TYPE III BARRICADE PLACEMENT.

APPROVED: Ben Schonbrun DATE: 6/10/13

SEAL

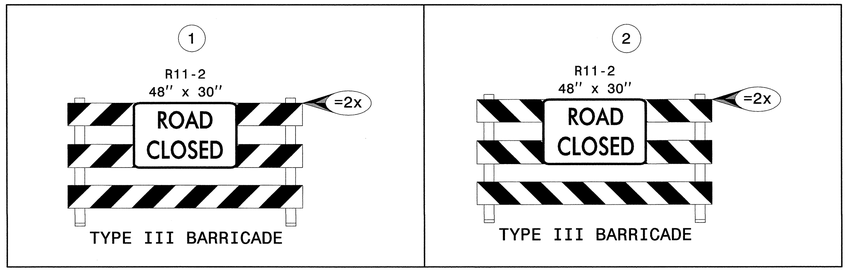
NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN PAUL SCHONBRUN

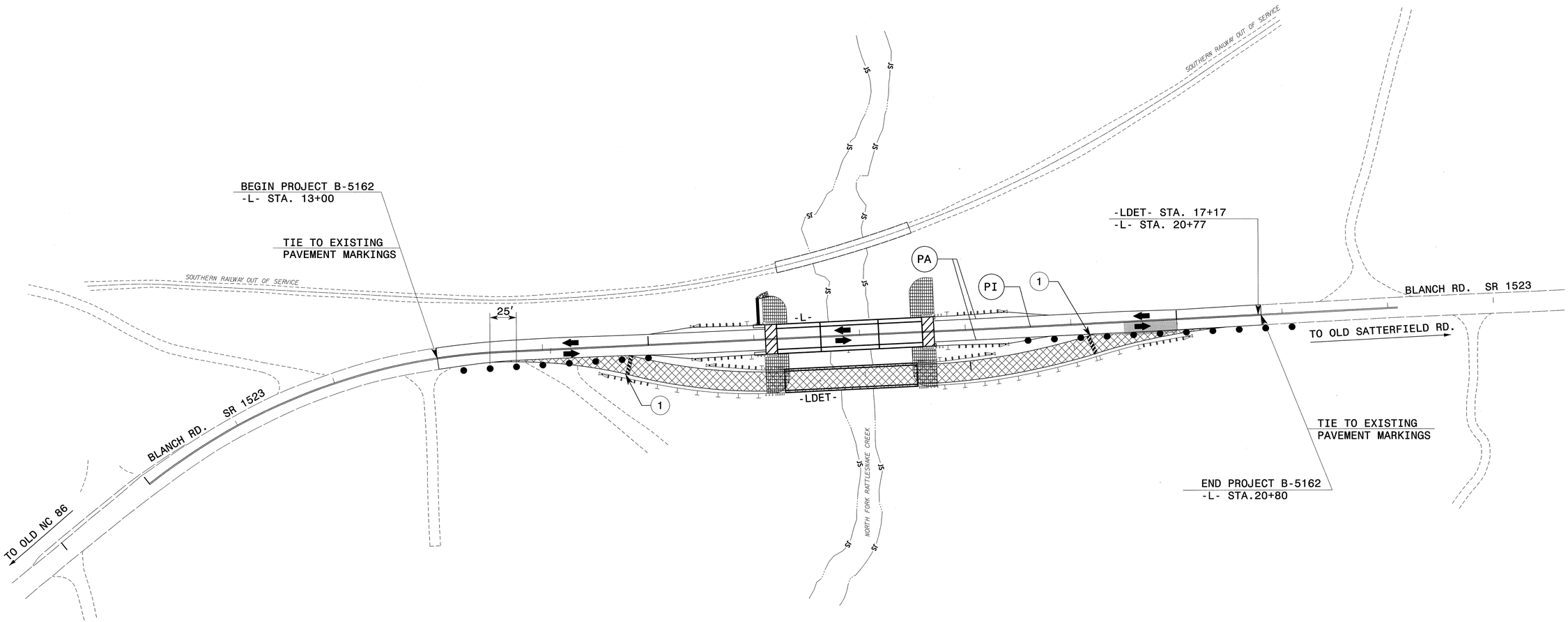
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASE III DETAIL

6/6/2013
P:\TIPProjects-B\B5162\Traffic\TrafficControl\TCP\B-5162_TC_TMP_5.dgn
User:rsansson

PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-6





NOTES:
1. MAINTAIN ACCESS TO ALL RESIDENCES WITHIN THE PROJECT LIMITS.

APPROVED: Ben Schonbrun DATE: 6/10/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN PAUL SCHORBAUER

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

PHASE IV DETAIL

5/22/2013
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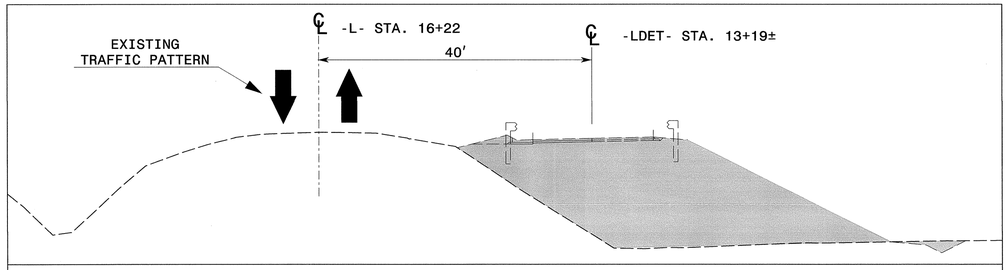
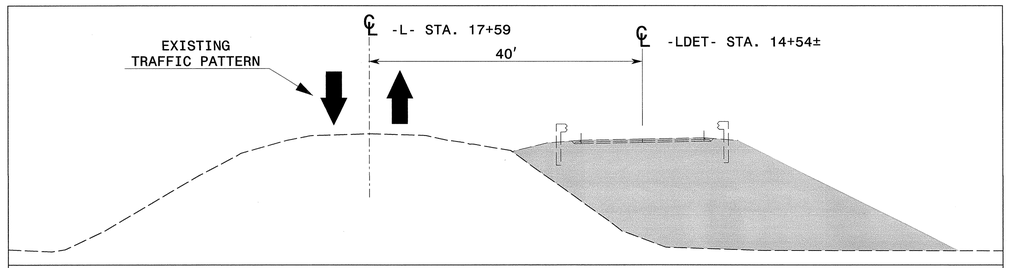
User:shassan

PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-7

TMP-3, PHASE I:

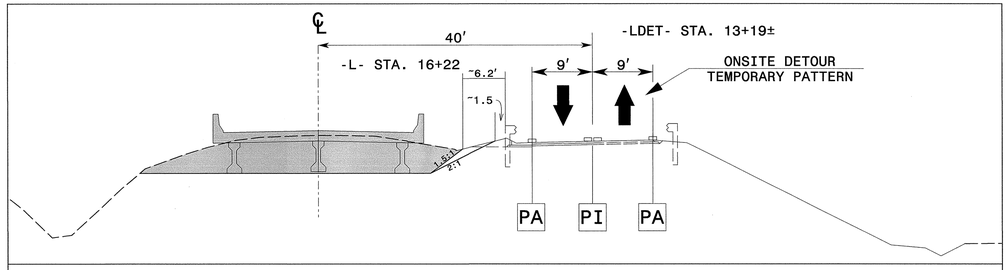


SECTION A-A

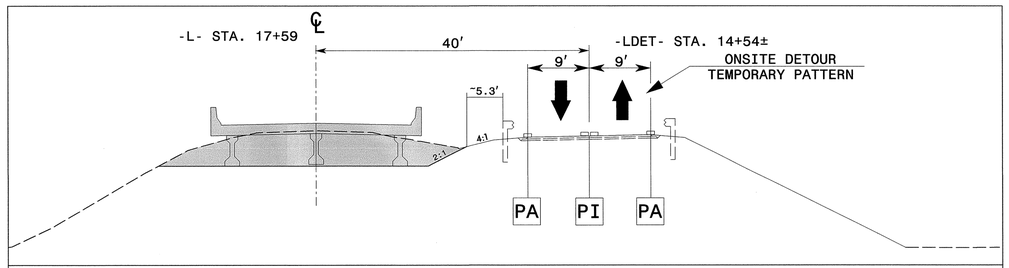


SECTION B-B

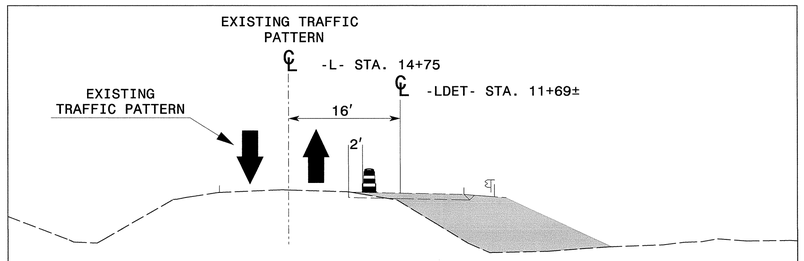
TMP-4, PHASE II:



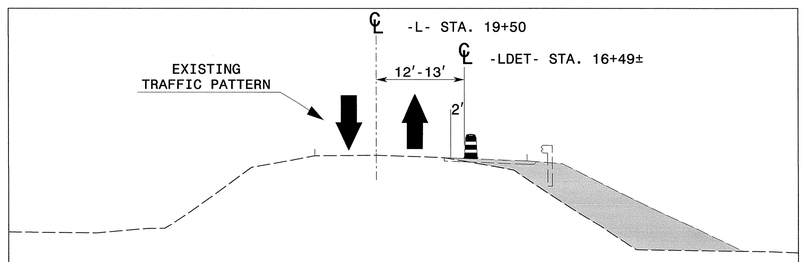
SECTION E-E



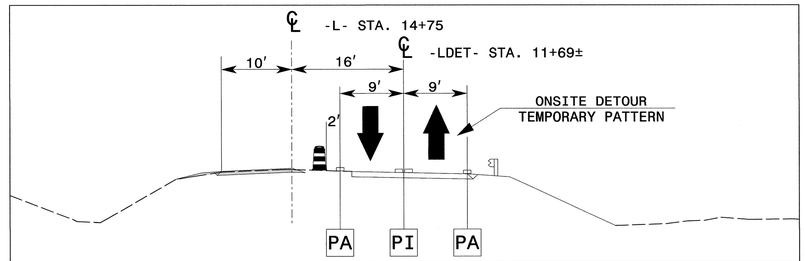
SECTION F-F



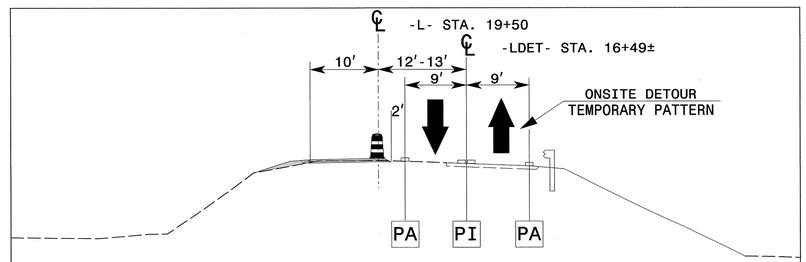
SECTION C-C



SECTION D-D



SECTION G-G



SECTION H-H

REFER TO SHEETS TMP-3 AND TMP-4
FOR PLAN VIEW

APPROVED: Ben Schoonbeck DATE: 6/10/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER PAUL SCHOONBECK

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

CUT SECTIONS

5/22/2013
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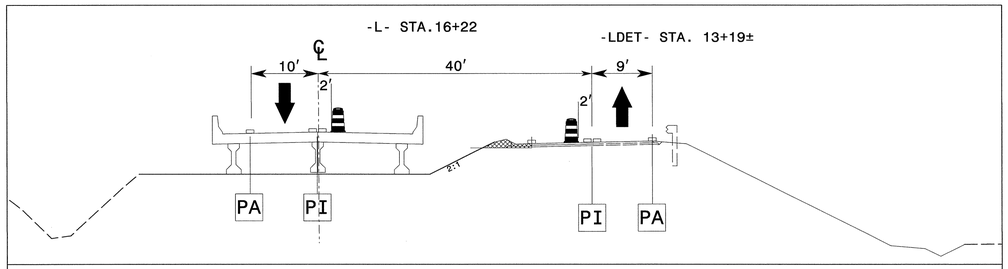
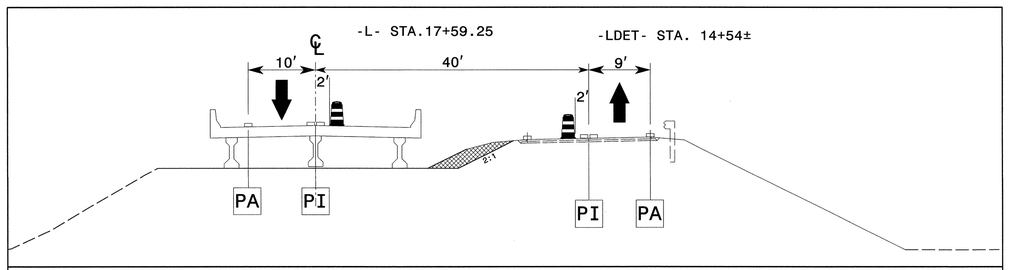
User:shsson

PROJ. REFERENCE NO.	SHEET NO.
B-5162	TMP-8

TMP-5, PHASE III:



SECTION J-J



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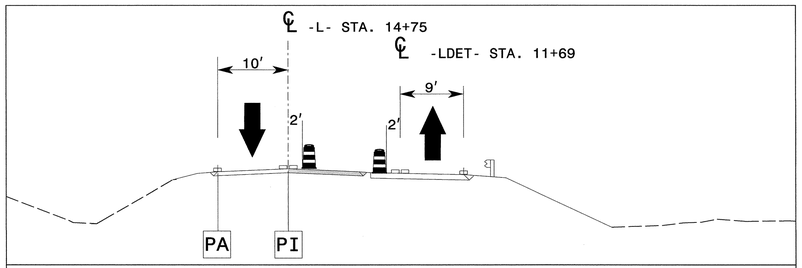
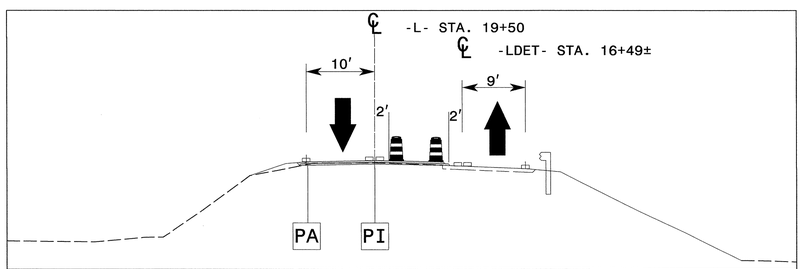


SECTION L-L



SECTION M-M

REFER TO SHEETS TMP-5
FOR PLAN VIEW

APPROVED: Bm Schoenbauer DATE: 6/10/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35496 ENGINEER BENJAMIN PAUL SCHOENBAUER

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

CUT SECTIONS

5/22/2013
P:\TIPProjects-B\B5162\Traffic\TrafficControl\TCP\B-5162_TC_TMP_7-8.dgn
User:shaasan

PROJECT: B-5162

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5162	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

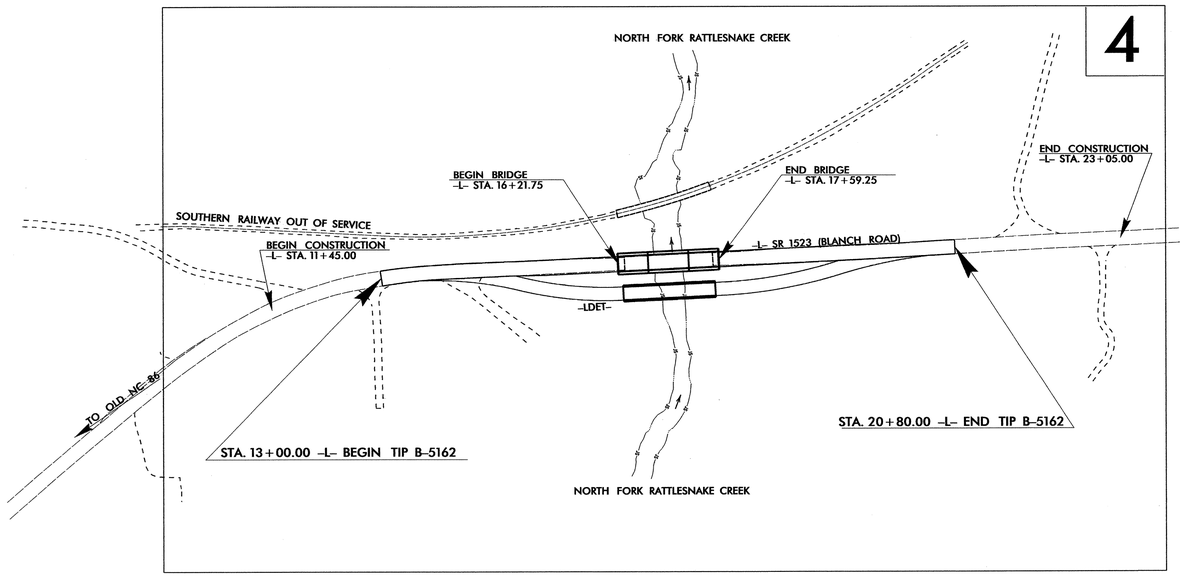
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CASWELL COUNTY

LOCATION: BRIDGE NO. 35 OVER NORTH FORK RATTLESNAKE CREEK ON SR 1523 (BLANCH ROAD)

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

NAD 83/
NSRS 2007



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	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

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

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

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		

TIP P

26-JUN-2013 16:05
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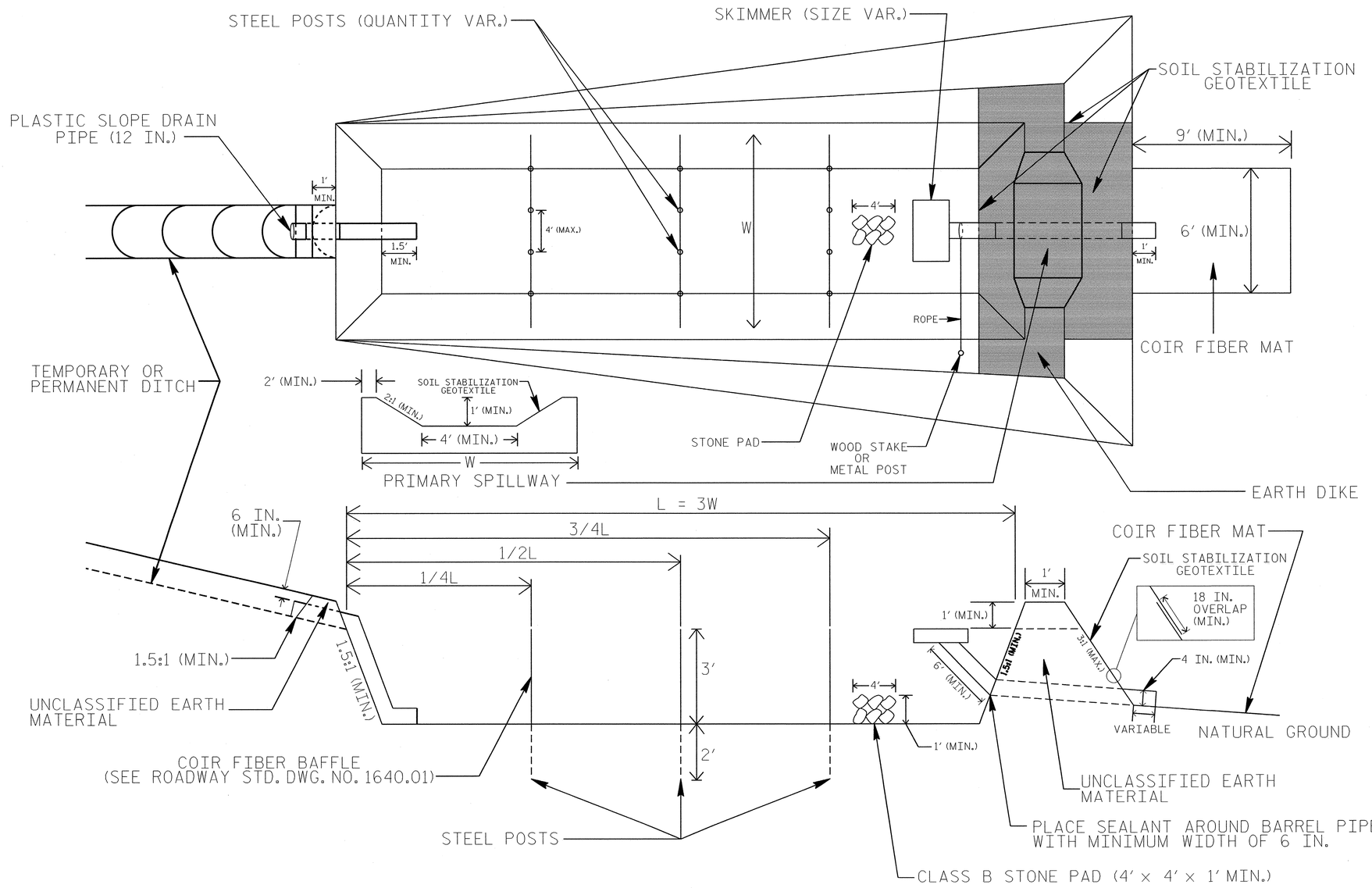
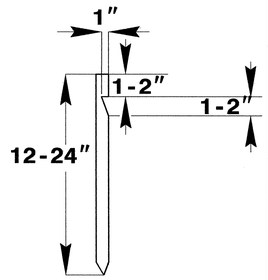
mrling
AT REN2584843

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

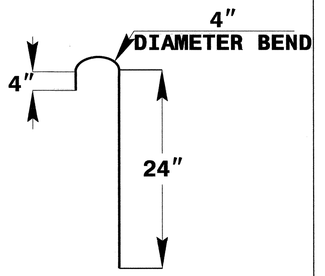
SKIMMER BASIN WITH BAFFLES DETAIL



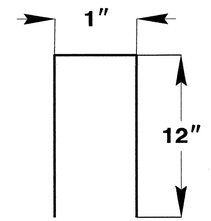
2" x 2" (nominal) WOODEN STAKE



#10 STEEL REINFORCEMENT BAR



1" (nominal) STAPLE



COIR FIBER MAT ANCHOR OPTIONS

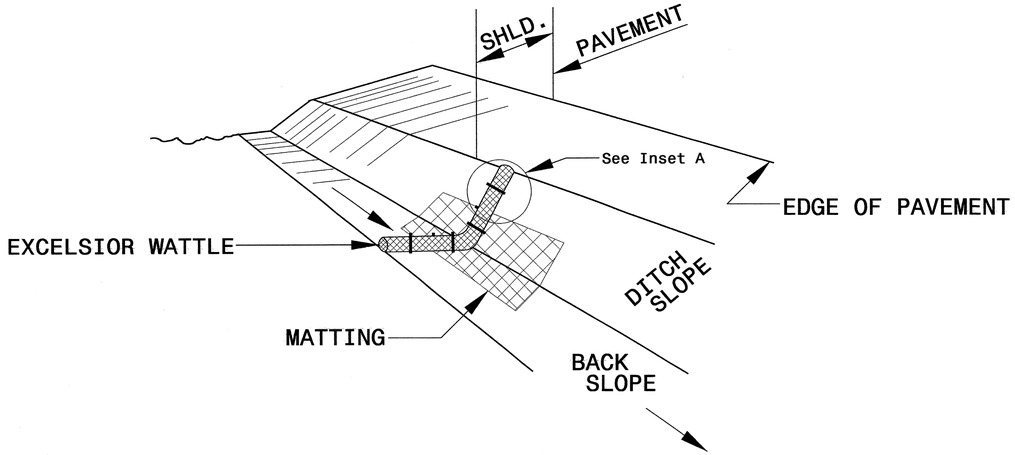
NOTES

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.).

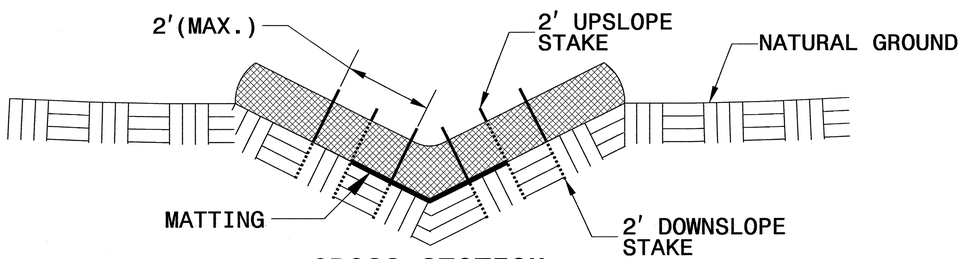
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

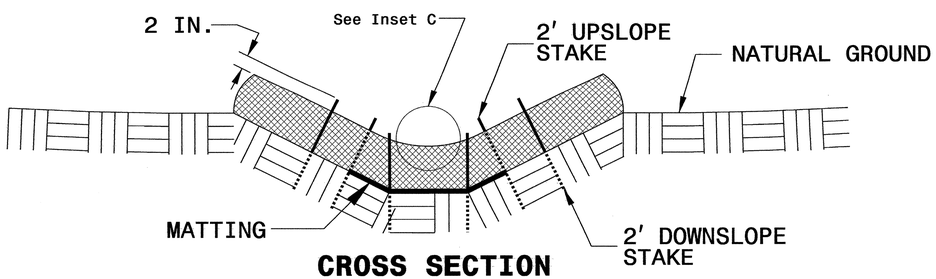
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

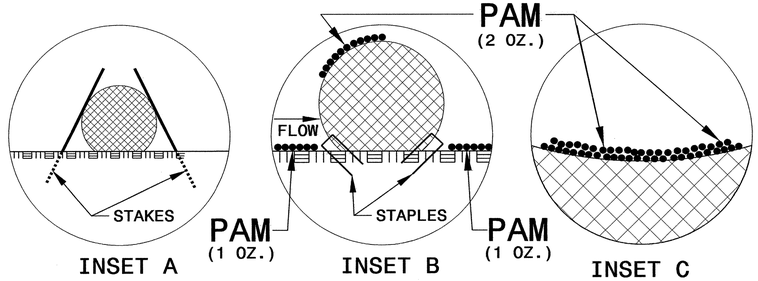
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

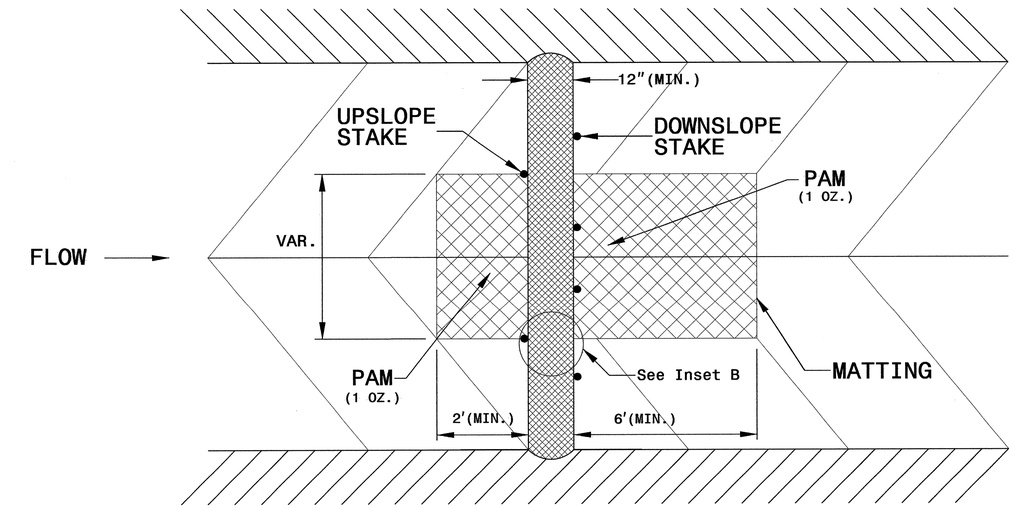
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

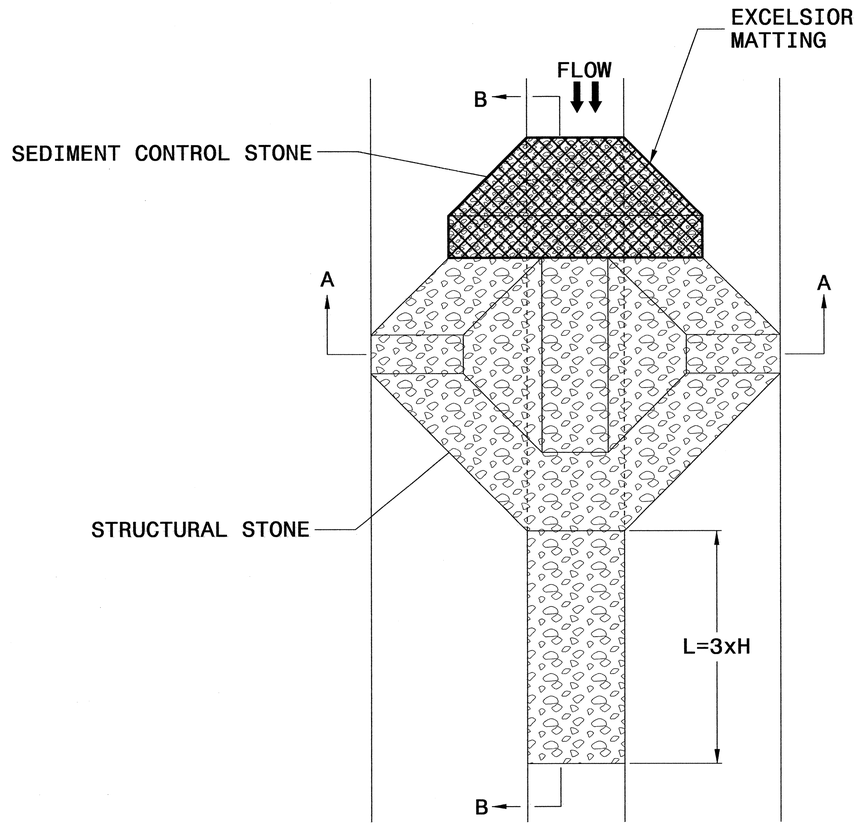




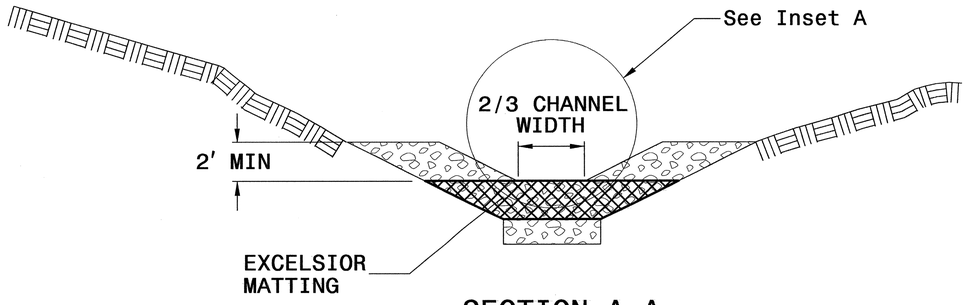
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

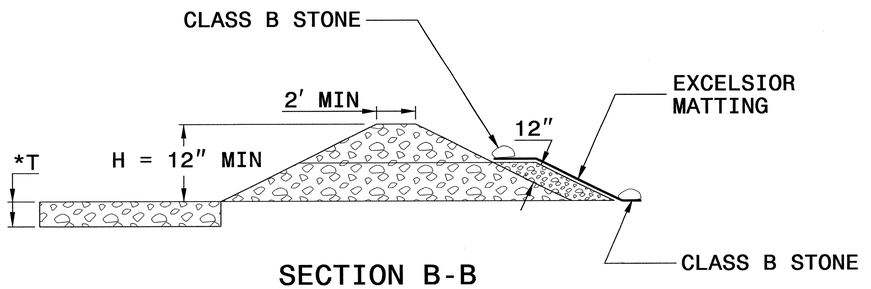
NOTES

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

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

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

INSET A



SECTION B-B

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-3A

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	14+50	16+50	RT	135
5	-LDET-	11+94	13+46	RT	165
				SUBTOTAL	300
	ADDITIONAL PSRM TO BE INSTALLED				0
				TOTAL	300
				SAY	325

PERMANENT SOIL REINFORCEMENT MAT

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

8/17/99

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NSRS 2007

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

(NTS)

24 x 12 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 4.1

34 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
9 ft. weir
ID 4.2

54 x 26 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
18 ft. weir
ID 4.3

40 x 19 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
11 ft. weir
ID 4.4

BEGIN PROJECT B-5162 -L- STA. 13+00.00
-L- PC Sta. 10+00.00
BEGIN RESURFACING
-L- STA. 13+00.00
-L- PT Sta. 13+60.31
BEGIN GRADE
-L- STA. 14+75.00
REMOVE EXISTING BRIDGE
TOE PROTECTION
SEE DETAIL B
-L- PC Sta. 17+86.84
-L- PC Sta. 22+28.85
-L- PT Sta. 22+09.28
-L- PT Sta. 23+85.00
END CONSTRUCTION
-L- STA. 23+05.00
END RESURFACING
-L- STA. 20+80.00
END GRADE
-L- STA. 20+00.00
END PROJECT B-5162 -L- STA. 20+80.00
BEGIN CONSTRUCTION
-L- STA. 11+45.00

1 RICHARD M JOHNSTON JR
DB 265 PG 784
2 RICHARD M JOHNSTON JR
DB 253 PG 535
3 KEVIN BRIAN HOWARD &
PATRICIA DANAE HOWARD
DB 527 PG 749
4 ROWLAND PROPERTY
MANAGEMENT LLC
DB 546 PG 1121
5 JOHNNY ALLEN BRANDON &
ROBERT EDWARD BRANDON
DB 474 PG 686
6 GERALD RAY VERNON
DB 127 PG 243
CHARLES S WALTERS
NO DEED REFERENCE
PB 1 PG 49

-BL-3
-BL-4
-BL-5
50' TRANS. LT. & RT. 25' INC TYP.
2 TONS CL B RIP RAP
7 SY FIL FAB
GRAU-350 8:1
RIP RAP BANK STABILIZATION (TYP.) (STR. PAY ITEM)
CLASS II RIP RAP (TYP.) (STR. PAY ITEM)
PLACE COIR FIBER MATTING ON SLOPE FOLLOWING REMOVAL OF RIP RAP BANK STABILIZATION
LATERAL Y DITCH
SEE DETAIL A
SEE SHEET 4 FOR ELEVATIONS
BLANCH ROAD - SR 1523
OLD SATTERFIELD RD
ISFD RUINS
SEPTIC TANK
WOODS
EXISTING R/W
RETAIN
AUE (CHORD)
TUE
TDE
DDE
DUE

THE
:EDED.

DETAIL A
LATERAL "V" DITCH
(Not to Scale)
Natural Ground
2:1
D
2:1
b
1'-9"
Fill Slope
Min. D= 1.0 Ft.
b= 5.0 Ft.

FROM -L- STA. 14+50 TO STA. 16+60 RT
DDE = 73 CY

DETAIL B
TOE PROTECTION
(Not to Scale)
NATURAL GROUND
d
2:1 OR FLATTER
FILL SLOPE
FILTER FABRIC
d= 1.0 Ft.
Type of Liner= CL II Rip-Rap

FROM -L- STA. 15+15 TO STA. 16+25 LT
CLASS II RIP RAP = 109 TONS
GEOTEXTILE FOR DRAINAGE = 177 SY

DETAIL C
RIP RAP BANK STABILIZATION
(Not to Scale)
Top of Bank
Match Exist. Bank (1.5:1 or Flatter)
2'
Filter Fabric
Type of Liner= CL II Rip-Rap

22-JUL-2013 14:38
R:\Environmental\Design\b5162_EC_psh_4.dgn
pentergrash AT REN726103

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

DETOUR

DESIGN = 35 MPH

NAD 83/NSRS 2007

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

BEGIN CONSTRUCTION
-LDET- PC Sta. 10+00.00=
-L- POC Sta. 13+07.42

BEGIN PROJECT B-5162 -L- STA. 13+00.00
-L- PC Sta. 10+00.00

-L- PT Sta. 13+60.31

REMOVE EXISTING BRIDGE

-L- PC Sta. 22+28.85
-L- PT Sta. 22+09.28

END CONSTRUCTION
-LDET- PT Sta. 17+77.08=
-L- POC Sta. 20+77.27

-L- PT Sta. 23+85.00

END CONSTRUCTION
-L- STA. 23+05.00

-LDET- PRC Sta. 16+18.16

-LDET- PT Sta. 13+22.44

-LDET- PRC Sta. 11+83.36

-LDET- PC Sta. 14+55.77

END PROJECT B-5162 -L- STA. 20+80.00

BEGIN CONSTRUCTION
-L- STA. 11+45.00

1 RICHARD M JOHNSTON JR
DB 265 PG 784

2 RICHARD M JOHNSTON JR
DB 253 PG 535

3 KEVIN BRIAN HOWARD &
PATRICIA DANAE HOWARD
DB 527 PG 749

4 CHARLES S. WALTERS
NO DEED REFERENCE
PB 1 PG 49

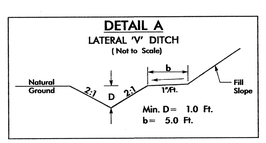
5 JOHNNY ALLEN BRANDON &
ROBERT EDWARD BRANDON
DB 474 PG 686

6 GERALD RAY VERNON
DB 127 PG 243

58 x 20 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
12 ft. weir
ID 5.1Det

40 x 20 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
12 ft. weir
ID 5.2Det

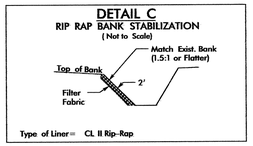
DETAIL A
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.
b= 5.0 Ft.

FROM -LDET- STA. 11+95 TO STA. 13+60 RT
DDE = 68 CY

DETAIL C
RIP RAP BANK STABILIZATION
(Not to Scale)



Type of Liner = CL II Rip-Rap

SEE SHEET 6 FOR -LDET- PROFILE

22-JUL-2013 15:24
R:\Environmental\Design\B5162_EC_psh_5.dgn
jennifer.parrish AT NCDOT.GOV

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

NAD 83/NSRS 2007

(NTS)

24 x 12 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 4.1

34 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
9 ft. weir
ID 4.2

Place Matting for Erosion Control on Slope as Work Allows. Sta. 17+50 to Sta. 18+75

Place Matting for Erosion Control on Slope as Work Allows. Sta. 15+00 to Sta. 16+00

BEGIN PROJECT B-5162 -L- STA. 13+00.00

-L- PC Sta. 10+00.00

BEGIN RESURFACING -L- STA. 13+00.00

-BL-3

-L- PT Sta. 13+60.31

BEGIN GRADE -L- STA. 14+75.00

REMOVE EXISTING BRIDGE

TOE PROTECTION SEE DETAIL B

-L- PC Sta. 17+86.84

-BL-4

-L- PC Sta. 22+28.85

-L- PT Sta. 22+09.28

-L- PT Sta. 23+85.00

-BL-5

END CONSTRUCTION -L- STA. 23+05.00

END RESURFACING -L- STA. 20+80.00

BM#2 SEE SHEET I-C ELEV.=403.21'

END GRADE -L- STA. 20+00.00

END PROJECT B-5162 -L- STA. 20+80.00

BEGIN CONSTRUCTION -L- STA. 11+45.00

1 RICHARD M JOHNSTON JR DB 265 PG 784

2 RICHARD M JOHNSTON JR DB 253 PG 535

3 KEVIN BRIAN HOWARD & PATRICIA DANAE HOWARD DB 527 PG 749

4 ROWLAND PROPERTY MANAGEMENT LLC DB 546 PG 1121

5 JOHNNY ALLEN BRANDON & ROBERT EDWARD BRANDON DB 474 PG 686

6 GERALD RAY VERNON DB 127 PG 243

CHARLES S WALTERS NO DEED REFERENCE PB 1 PG 49

SOUTHERN RAILWAY OUT OF SERVICE

RAILROAD BRIDGE

BRIDGE #5

BLANCH ROAD - SR 1523

OLD SATTERFIELD RD

CENTERLINE OF CREEK & PROPERTY LINE

WOODS

EXISTING R/W

ISFD RUINS

SEPTIC TANK

CONC

2 TONS CL B RIP RAP 7 SY FIL FAB

50' TRANS. LT. & RT. 25' INC. TYP.

GRAU-350

CLASS II RIP RAP (TYP.) (STR. PAY ITEM)

RIP RAP BANK STABILIZATION SEE DETAIL C (STR. PAY ITEM)

PLACE COIR FIBER MATTING ON SLOPE FOLLOWING REMOVAL OF RIP RAP BANK STABILIZATION

LATERAL V DITCH SEE DETAIL A

Place Matting for Erosion Control on Slope as Work Allows. Sta. 17+50 to Sta. 20+00

54 x 26 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
18 ft. weir
ID 4.3

40 x 19 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
11 ft. weir
ID 4.4

THE :EDED.

DETAIL A
LATERAL "V" DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1, b, 1'Ft., Fill Slope

Min. D= 1.0 Ft.
b= 5.0 Ft.

FROM -L- STA. 14+50 TO STA. 16+60 RT
DDE = 73 CY

DETAIL B
TOE PROTECTION
(Not to Scale)

NATURAL GROUND, d, 2:1 OR FLATTER, FILL SLOPE, FILTER FABRIC

d= 1.0 Ft.

Type of Liner= Cl II Rip-Rap

FROM -L- STA. 15+15 TO STA. 16+25 LT
CLASS II RIP RAP = 109 TONS
GEOTEXTILE FOR DRAINAGE = 177 SY

DETAIL C
RIP RAP BANK STABILIZATION
(Not to Scale)

Top of Bank, Filter Fabric, 2', Match Exist. Bank (1.5:1 or Flatter)

Type of Liner= CL II Rip-Rap

22-JUL-2013 14:39
R:\Environmental\Design\b5162_EC_psh_4.dgn
pgrotegarish AT REN\26103

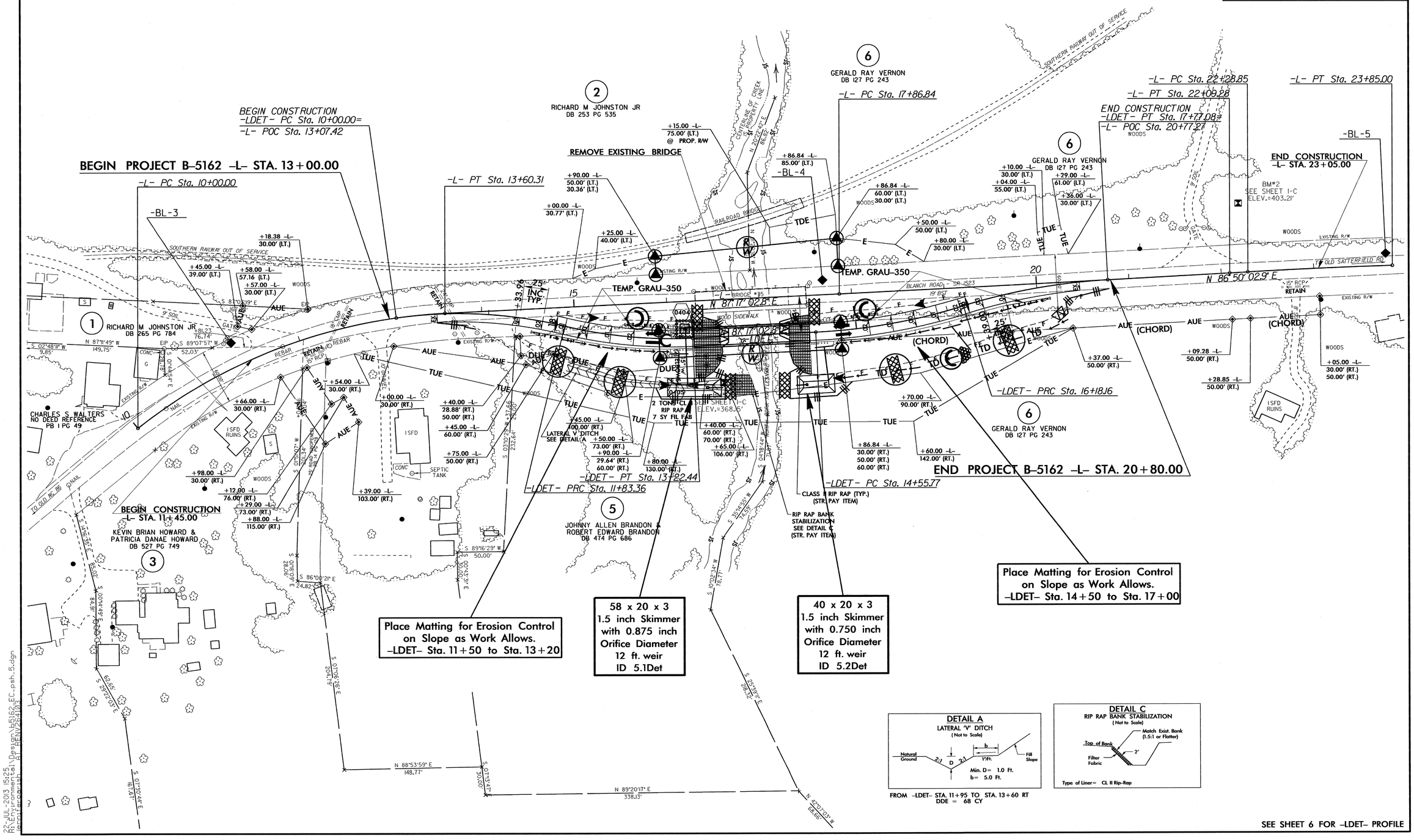
NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

DETOUR

PROJECT REFERENCE NO.	SHEET NO.
B-5162	EC-7/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NSRS 2007

DESIGN = 35 MPH



SEE SHEET 6 FOR -LDET- PROFILE

8/17/99

22-JUL-2013 15:25
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jennifer.parish AT RENV264103

T.I.P.: B-5162

CONTRACT: C203252

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
B-5162	SIGN-1

APPROVED: _____

DATE: 6/27/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGNING PLAN
CASWELL COUNTY

LOCATION: BRIDGE NO. 35 OVER NORTH FORK RATTLESNAKE CREEK ON SR 1523 (BLANCH ROAD).

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	92	L.F.
4096000000	904	SIGN ERECTION, TYPE D	2	EA.
4102000000	904	SIGN ERECTION, TYPE E	1	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6	EA.

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

GENERAL NOTES

. SIGNS FURNISHED BY STATE

. ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.

. SIGNING PLANS DO NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING. SEE TRAFFIC CONTROL PLANS

. WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER

. ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.

. THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

. SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SIGN NUMBER: 301,302
TYPE: D
QUANTITY: 2
SIGN WIDTH: 4'-0"
HEIGHT: 3'-0"
TOTAL AREA: 12.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

BACKG COLOR: Green
COPY COLOR: White

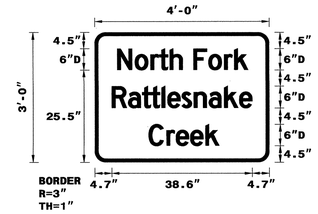
SYMBOL	X	Y	WID	HT

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.JOHNS
PROJECT ID: B-5162
CHECKED BY: S.KUNZ
DIV: 7
DATE: Jun 19, 2013



Spacing Factor is 0.7 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																										Series/Size Text Length
		N	o	r	t	h		F	o	r	k															D 2000
	6.2	4.8	4.3	2.4	2.9	3.5	3	4.1	4.3	2.8	3.8	5.8														36
		R	a	t	t	l	e	s	n	a	k	e														D 2000
	4.7	4.5	3.8	2.5	2.9	1.6	3.9	3.4	4.1	4.2	4.2	3.5	4.7													38.6
		C	r	e	e	k																				D 2000
	14.8	4.9	2.6	4	4.1	3.8	13.7																			19.5

FILENAME: B-5162_Sgn_SGN

NORTH CAROLINA D.O.T. SIGN DETAIL

"E" SIGNS

(401) QUANTITY REQ'D 1

30 X 30
W1-4R

ONE "U" POST PER SIGN

(402) QUANTITY REQ'D 1

18 X 18
W13-1P

MOUNT BELOW SIGN 401
IN 1 INSTALLATIONS

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

SUSAN B. KUNZ — SIGNING & DELINEATION REGIONAL ENGINEER

STACEY JOHNS — SIGNING & DELINEATION DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET,SIGN DESIGNS, E SIGNS, & NOTES
SIGN-2	SIGN DETAIL SHEET

27-JUN-2013 15:13
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sjohns

TIP NO.	SHEET NO.
B-5162	SIGN-2

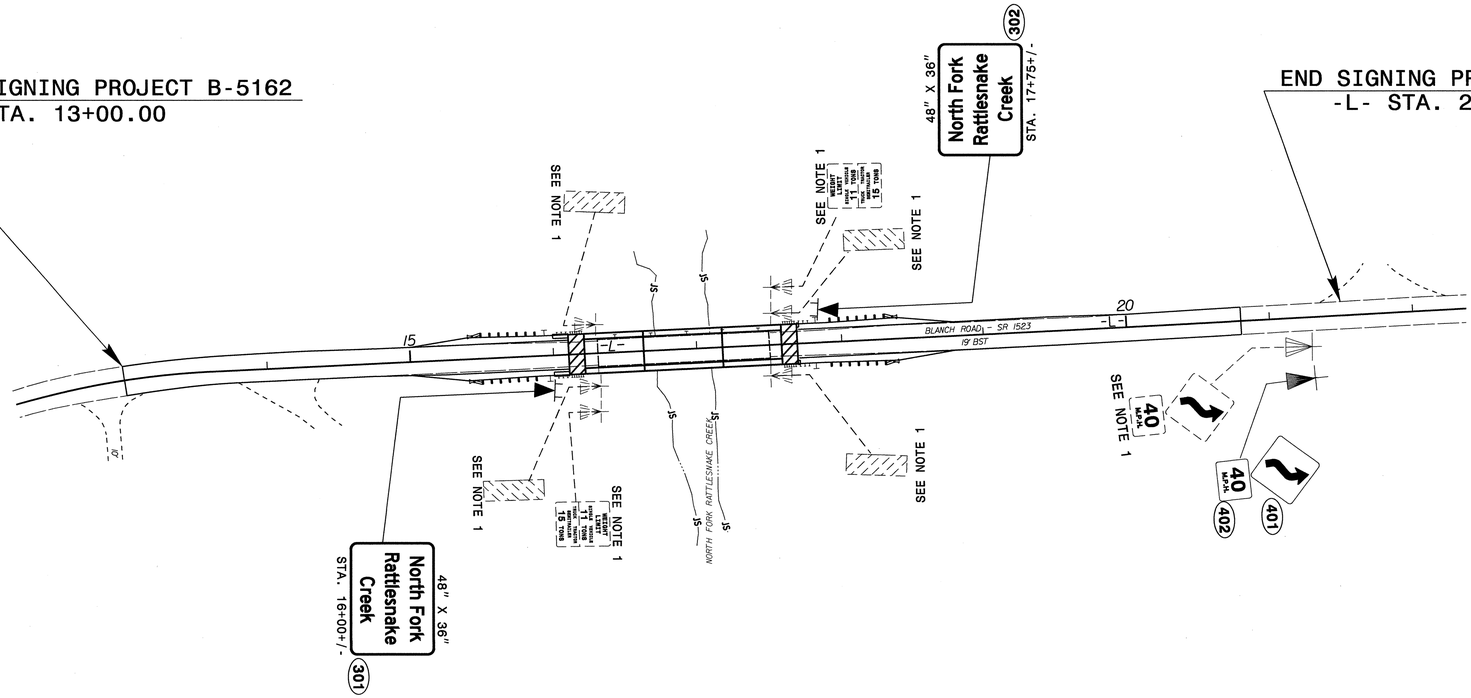
APPROVED:

DATE: 6/27/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

NAD 83/NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL

SIGN DETAIL SHEET

27-JUN-2013 15:14
P:\Projects\B5162\Traffic\Signing\CADD\Signing Layout Plans\B-5162_Sgn_SGN.dgn
sjohns

T.I.P.: B-5162

CONTRACT: C203252

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
CASWELL COUNTY

LOCATION: BRIDGE NO. 35 OVER NORTH FORK RATTLESNAKE CREEK ON SR 1523 (BLANCH ROAD).

TIP NO.	SHEET NO.
B-5162	PMP-1

APPROVED: RWK 6/27/13

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

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

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
ALL	PAINT	NONE

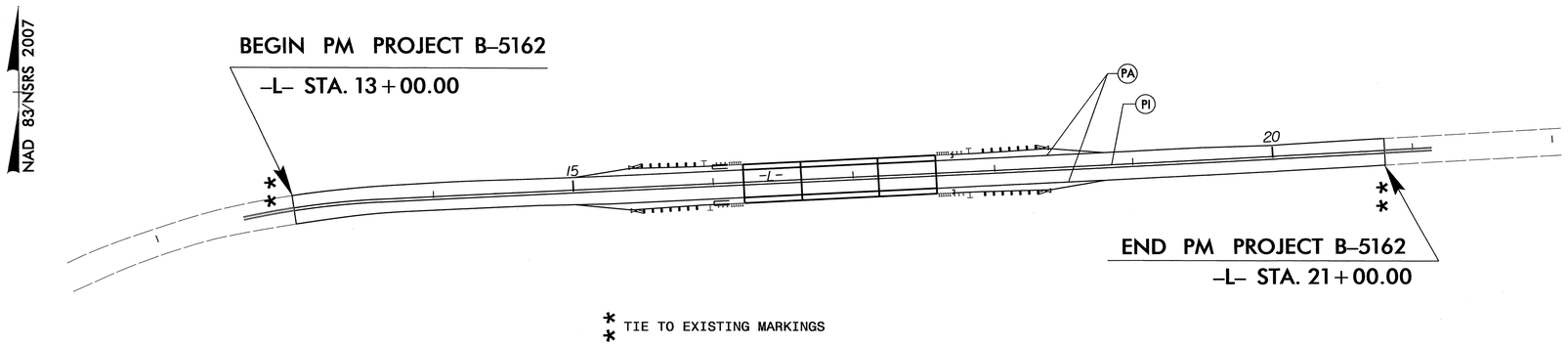
B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

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 DETAIL



** TIE TO EXISTING MARKINGS

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

SUSAN B. KUNZ SIGNING & DELINEATION REGIONAL ENGINEER

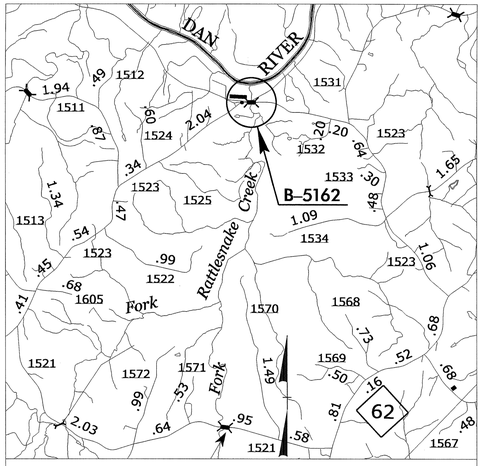
STACEY W. JOHNS SIGNING & DELINEATION DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

21-JUN-2013 14:53
P:\WP-Projects\B5162\Traffic\Signing\CADD\Signing Layout Plans\Pavement Marking\B5162.dgn
sjohns

09/08/95

TIP PROJECT: B-5162



VICINITY MAP

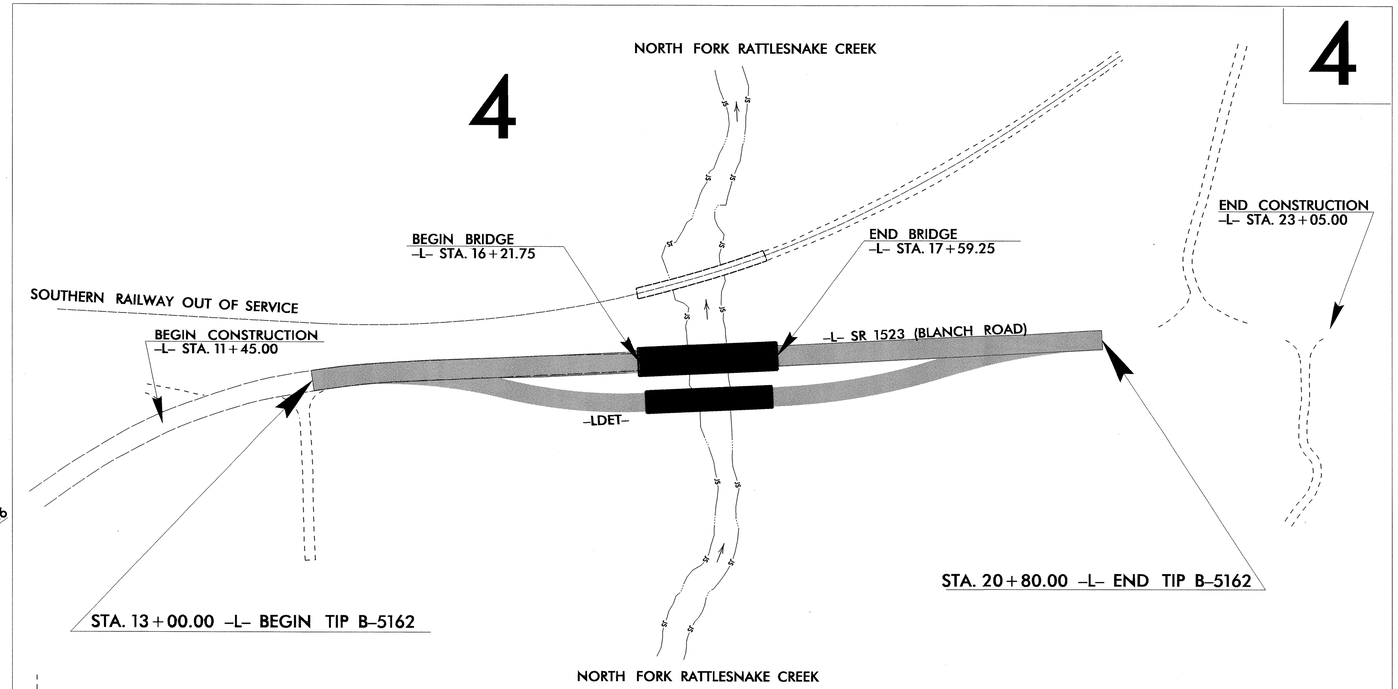
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
B-5162	UO-1

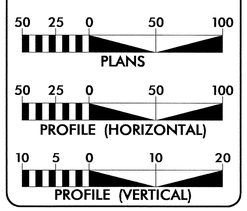
UTILITIES BY OTHERS PLANS
CASWELL COUNTY

LOCATION: BRIDGE NO. 35 OVER NORTH FORK RATTLESNAKE CREEK ON SR 1523 (BLANCH ROAD)

TYPE OF WORK: UTILITY BY OTHERS



GRAPHIC SCALES



INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

(A) PROGRESS ENERGY CAROLINAS, INC. - POWER (DISTRIBUTION)

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*

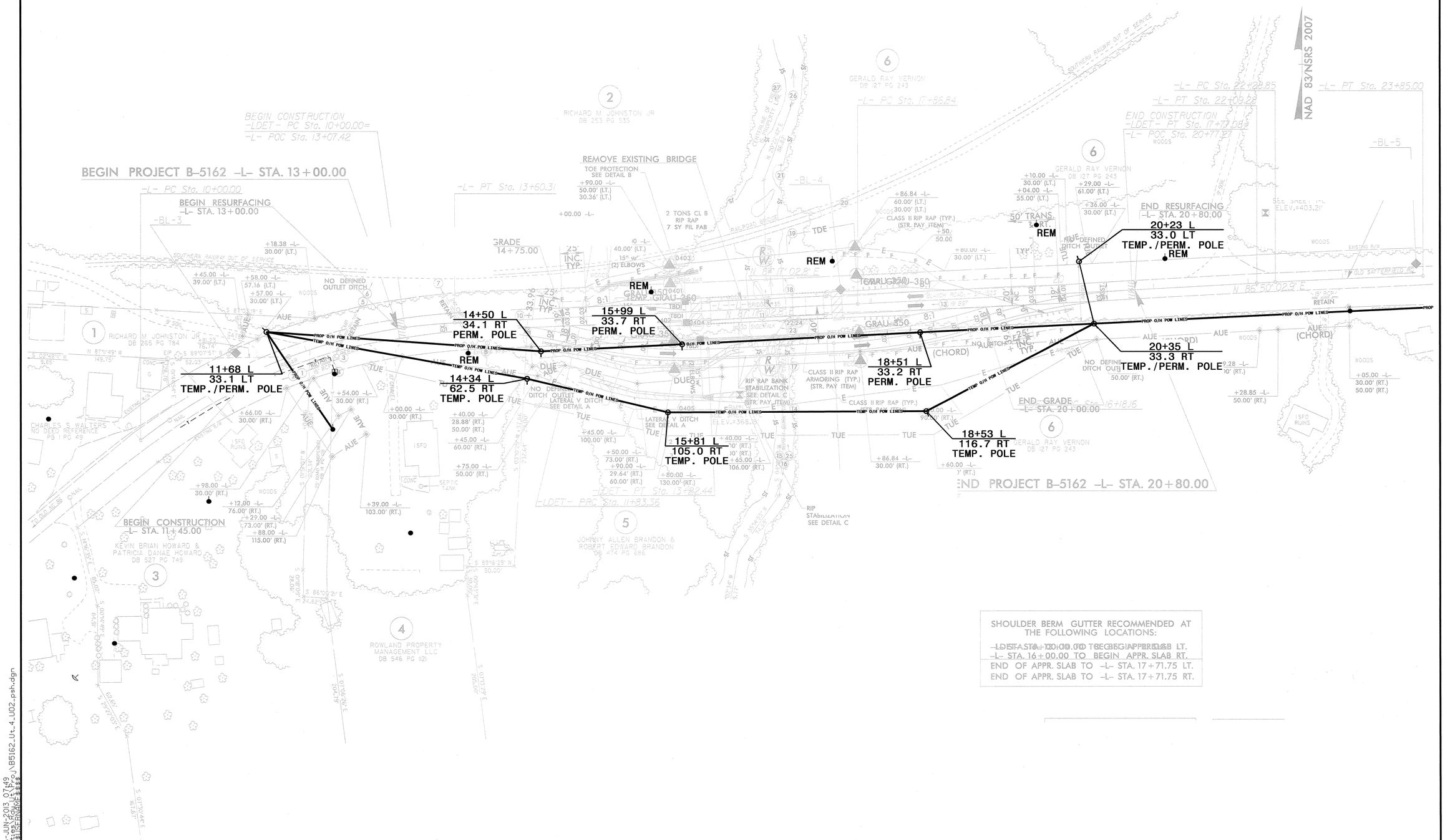
07-JUN-2013 13:45
R:\Utilities\Rdy_Ut\Proj\B5162_Ut_Title_U01_psh.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5162	U0-2

UTILITIES BY OTHERS

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



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RD266194,6/27/2013,R:\Roadway\XSC\xsc_ew_volumes.xls

PROJ. REFERENCE NO.	SHEET NO.
B-5162	X-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

PHASE I Station Ldet	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+44.26	0	0
10+75.00	0	0
11+00.00	1	0
11+25.00	1	2
11+33.96	0	3
11+50.00	1	25
11+73.24	1	93
11+83.36	0	59
12+00.00	0	122
12+25.00	0	270
12+50.00	0	384
12+75.00	0	470
13+00.00	0	512
13+22.44	0	482
13+24.00	0	34

PHASE I Station Ldet	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+49.00	0	0
14+55.77	0	158
14+75.00	0	454
15+00.00	0	576
15+25.00	0	530
15+50.00	0	484
15+75.00	0	418
16+00.00	0	338
16+18.16	0	194
16+23.17	0	45
16+50.00	1	197
16+63.99	1	73
16+75.00	0	48
17+00.00	1	93
17+25.00	1	49
17+46.09	0	7

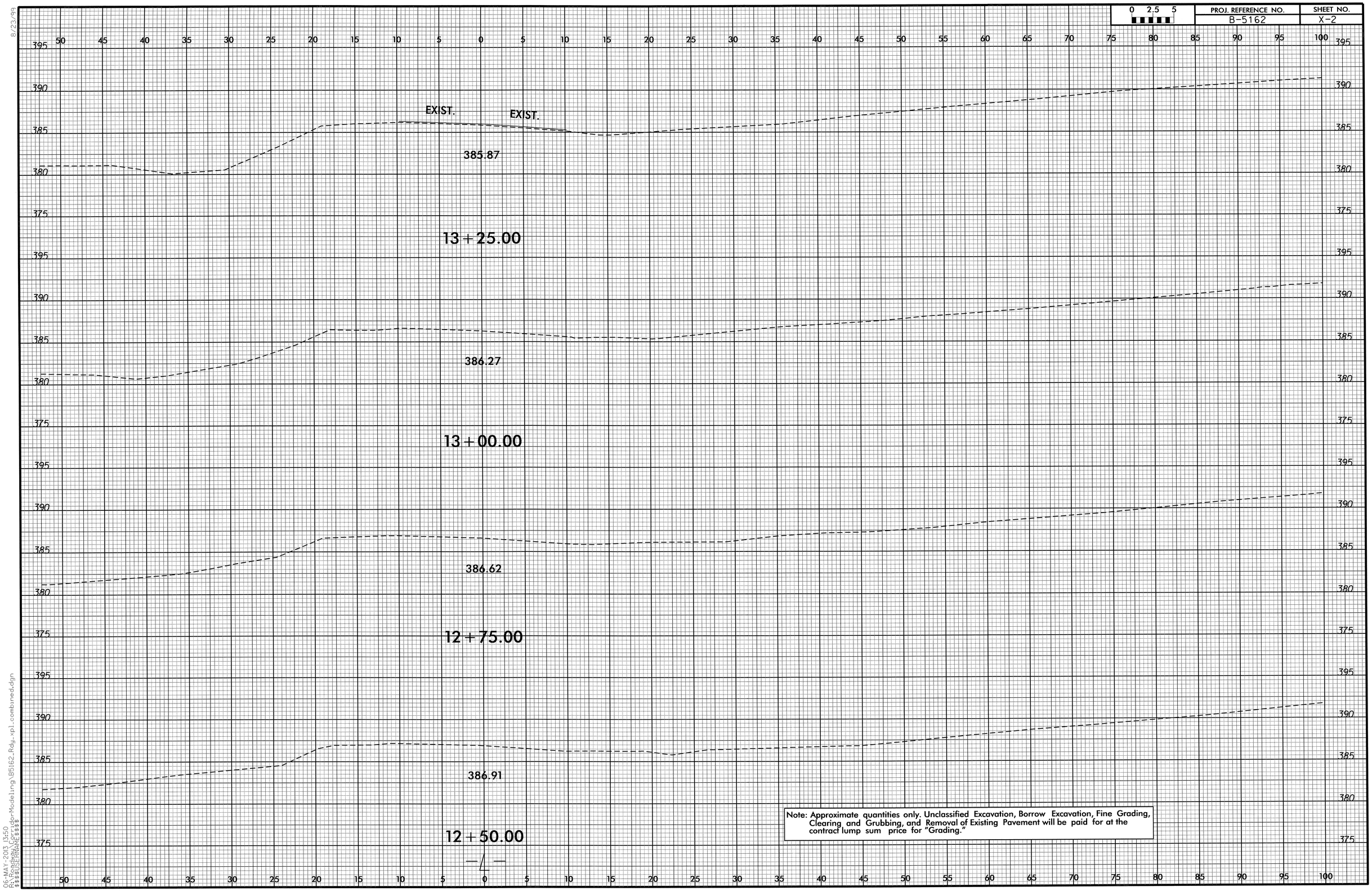
PHASE II Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+75.00	0	0
15+00.00	5	1
15+25.00	4	16
15+50.00	1	44
15+75.00	0	66
16+00.00	0	77
16+21.75	0	71

PHASE II Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
17+59.25	0	0
17+75.00	0	79
17+86.84	0	57
18+00.00	0	60
18+25.00	0	103
18+50.00	0	75
18+75.00	0	38
19+00.00	0	13
19+22.73	0	5
19+50.00	1	3
19+64.79	1	2
19+75.00	1	1
20+00.00	3	3

PHASE III Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+51.54	0	0
13+75.00	0	1
14+00.00	0	1
14+25.00	0	2
14+40.88	8	1
14+50.00	14	0
14+75.00	97	2
15+00.00	176	1
15+25.00	252	0
15+50.00	335	0
15+75.00	407	0
16+00.00	448	0
16+23.00	462	0
16+27.63	101	0

PHASE III Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
17+52.63	0	0
17+58.00	125	0
17+75.00	367	0
17+86.84	232	0
18+00.00	248	0
18+25.00	448	0
18+50.00	419	0
18+75.00	394	0
19+00.00	354	0
19+50.00	479	3
19+64.79	81	2
19+75.00	45	2
20+00.00	82	4
20+25.00	44	3
20+46.73	21	1

PHASE III -LDET- DDE Station Ldet	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+95.00	0	0
12+00.00	0	4
12+25.00	0	17
12+50.00	0	16
12+75.00	0	12
13+00.00	0	8
13+22.44	0	6
13+24.00	0	0
13+50.00	0	12
13+60.00	0	7



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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-3

-LDET-
STA. 10+92.65
OFF 2.80

EXIST. EXIST. 0.049 2:1

384.49

14+00.00

-LDET-
STA. 10+67.58
OFF 0.95

EXIST. EXIST. 0.059 2:1

384.98

13+75.00

-LDET-
STA. 10+44.12
OFF 0.33

EXIST. EXIST.

385.41

13+51.54

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MicroStation V8

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	B-5162	X-4

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

395 390 385 380 375 370

–LDET–
STA. 11+43.26
OFF 10.46

EXIST. EXIST. 0.030

383.54

2:1 2:1 2:1

EL. = 375.20

14+50.00

–LDET–
STA. 11+33.96
OFF 8.66

EXIST. EXIST. 0.033

383.71

2:1

14+40.88

–LDET–
STA. 11+17.85
OFF 5.96

EXIST. EXIST. 0.039

384.02

2:1

14+25.00

–4–

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-5

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

395 390 385 380 375 370 365

-LDET-
STA. 11+94.90
OFF 23.33

3:1 0.030 0.020 0.012 0.010

382.70

2:1 2:1 2:1 2:1 2:1 2:1

EL. = 369.70

EL. = 370.00

15+00.00

-LDET-
STA. 11+68.94
OFF 16.33

3.8:1 0.040 0.030 0.022 0.021

383.09

2:1 2:1 2:1 2:1

EL. = 372.45

14+75.00

-4-

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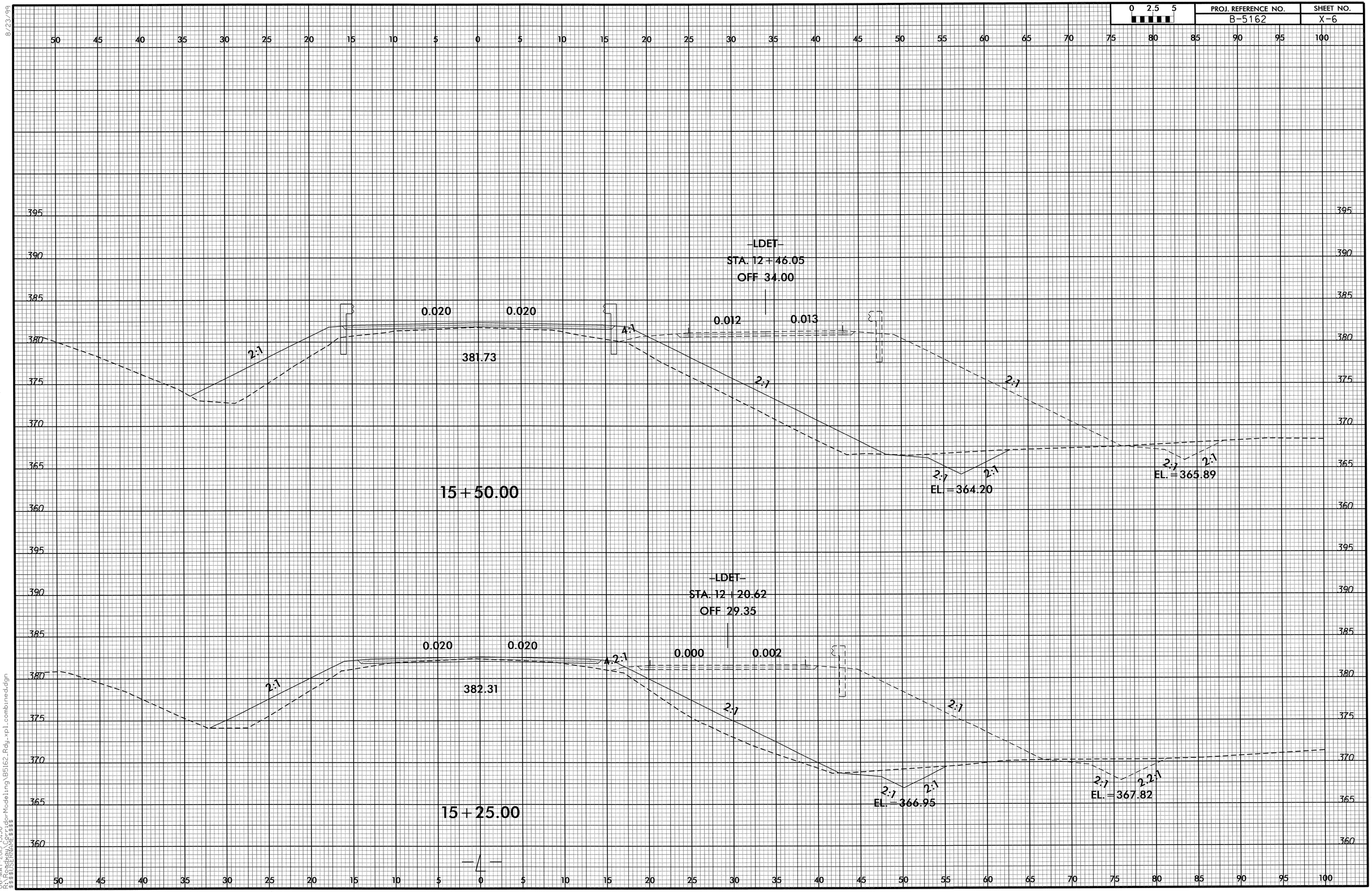

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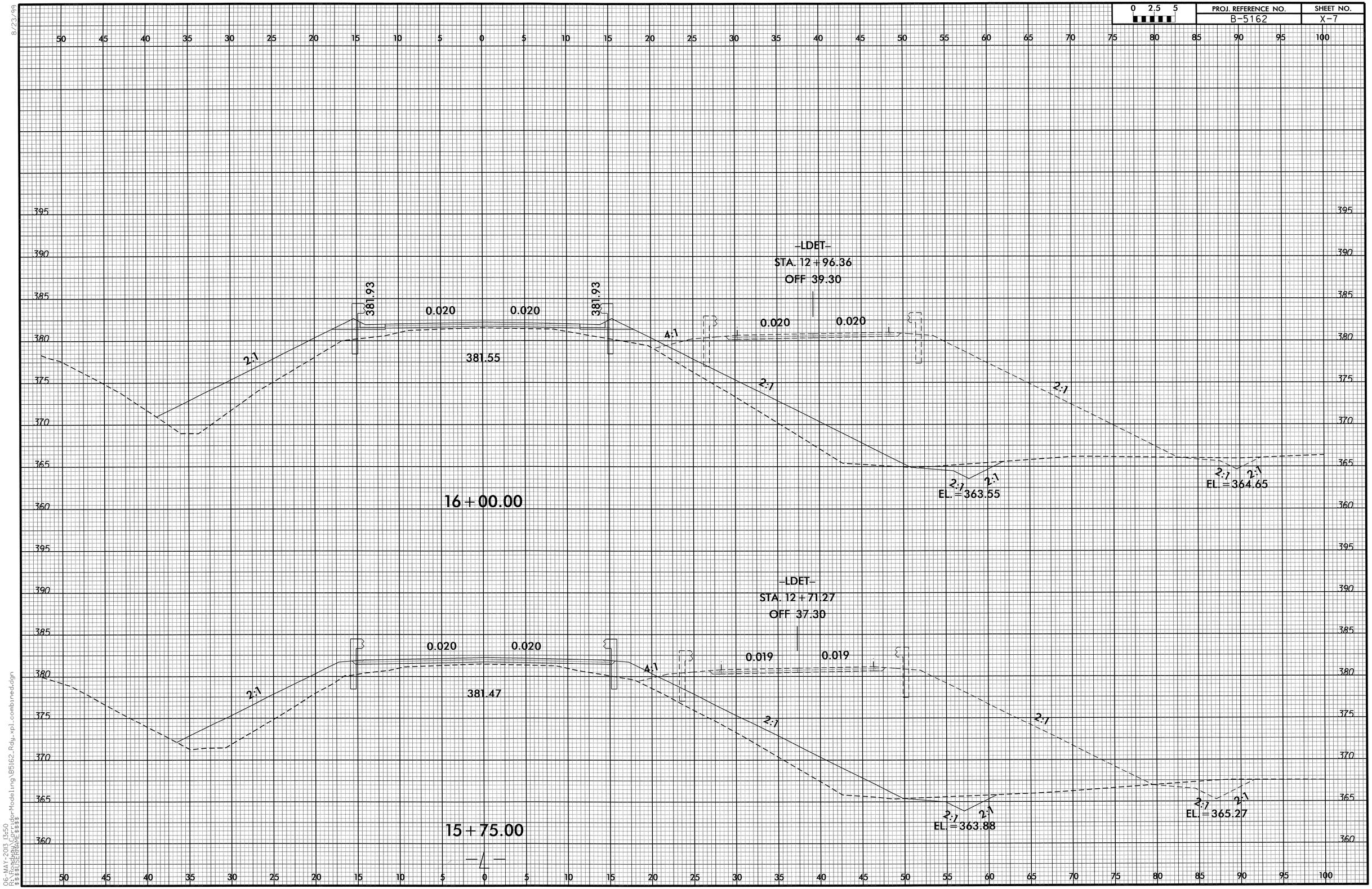

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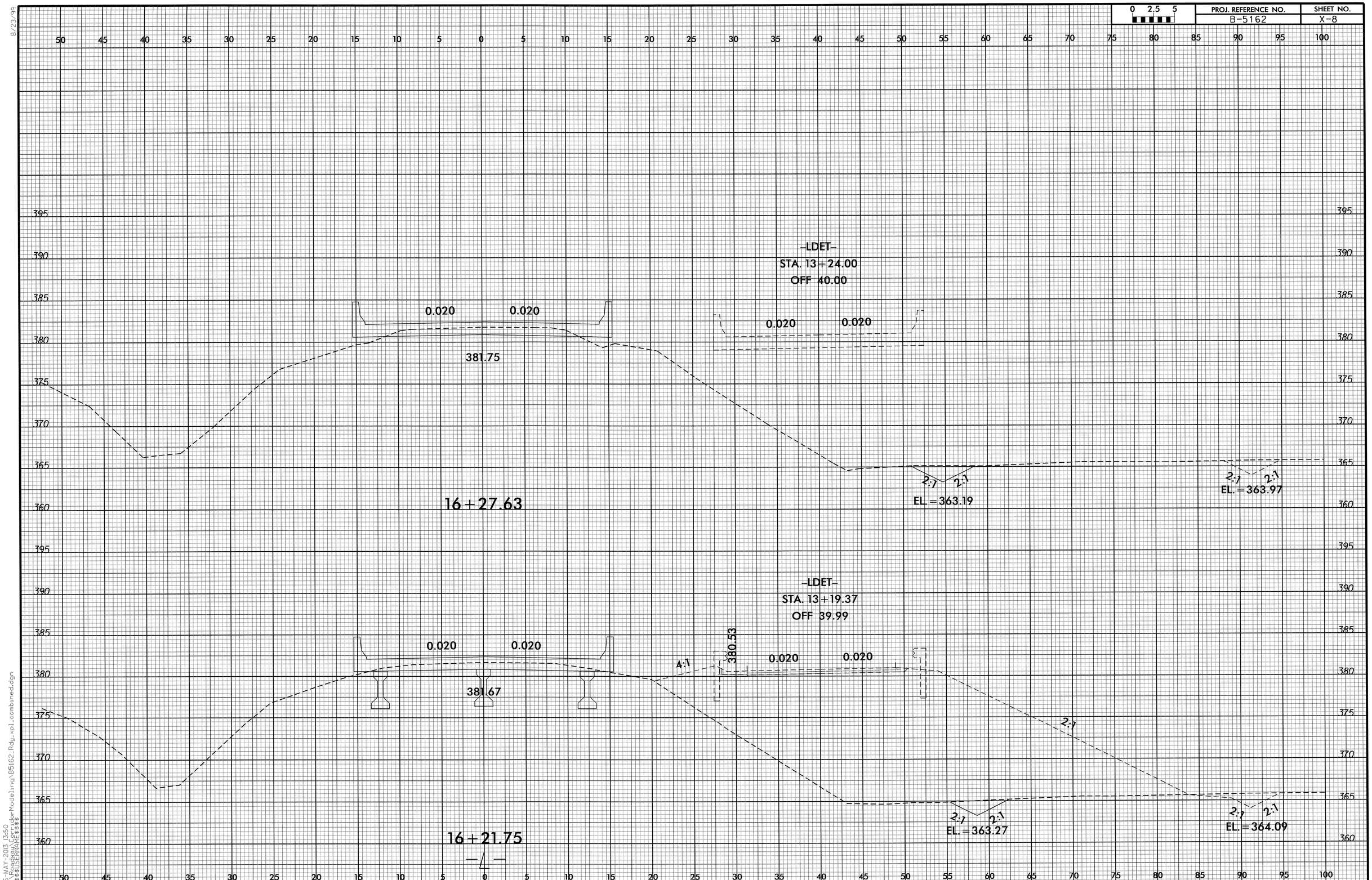

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-9

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

395 390 385 380 375 370 365 360 355

0.020 0.020

–LDET–
STA. 13+71.37
OFF 40.00

0.020 0.020

16+75.00
357.36

–LDET–
STA. 13+46.37
OFF 40.00

0.020 0.020

0.020 0.020

369.44

2:1 2:1
EL. = 362.90

2:1 2:1
EL. = 363.37

16+50.00

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-10

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

395 390 385 380 375 370 365 360 355

-LDET-
STA. 14+21.37
OFF 40.00

0.020 0.020

0.020 0.020

367.52
17+25.00

-LDET-
STA. 13+96.37
OFF 40.00

0.020 0.020

0.020 0.020

17+00.00
357.09

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

395 390 385 380 375 370 365 360 355

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-11

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

395 390 385 380 375 370 365 360

-LDET-
STA. 14+54.37
OFF 40.00

0.020 0.020

381.94

4:1

0.020 0.020

2:1

17+59.25

-LDET-
STA. 14+49.00
OFF 40.00

0.020 0.020

381.96

0.020 0.020

17+52.63

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

395 390 385 380 375 370 365 360

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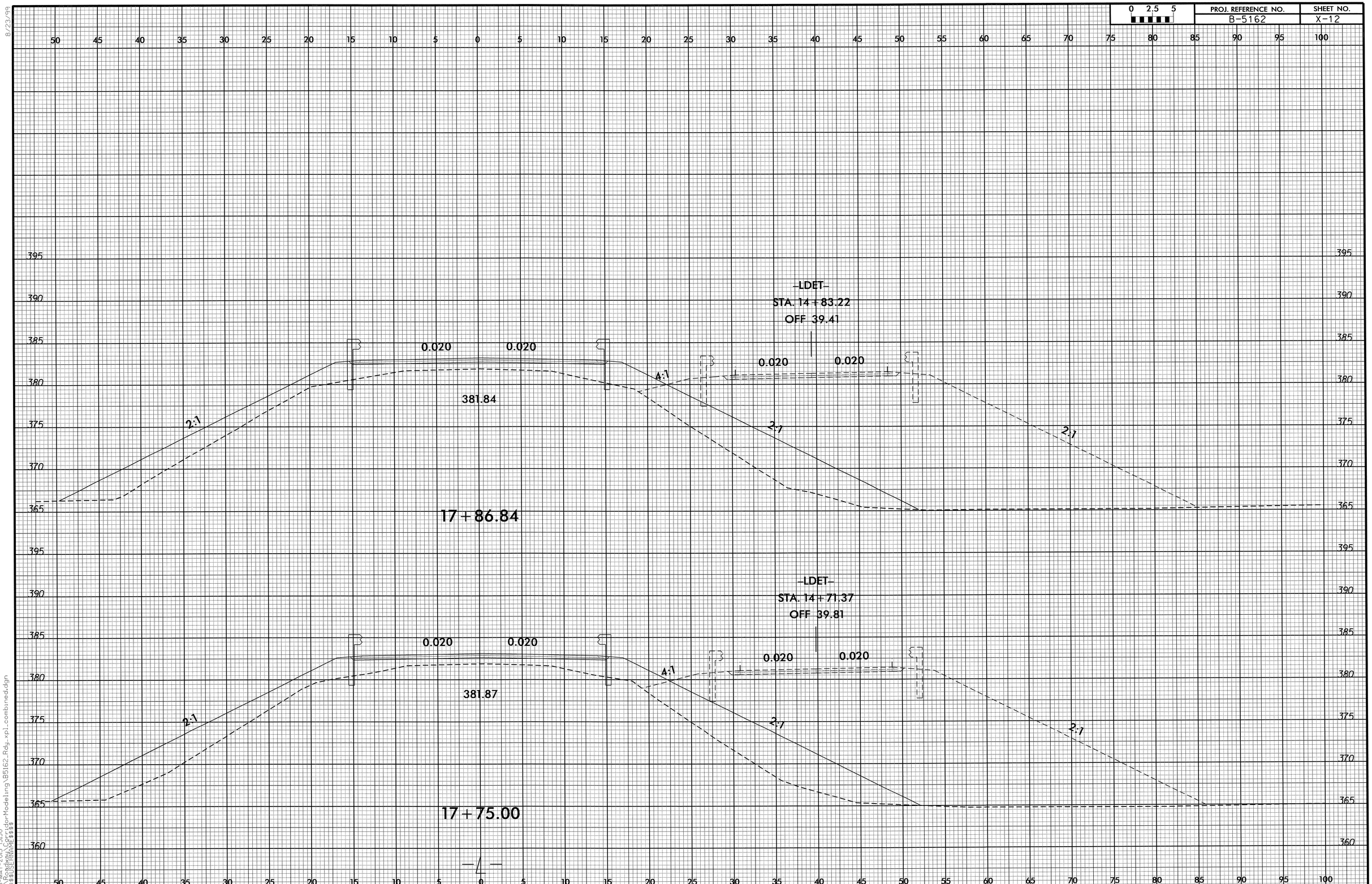

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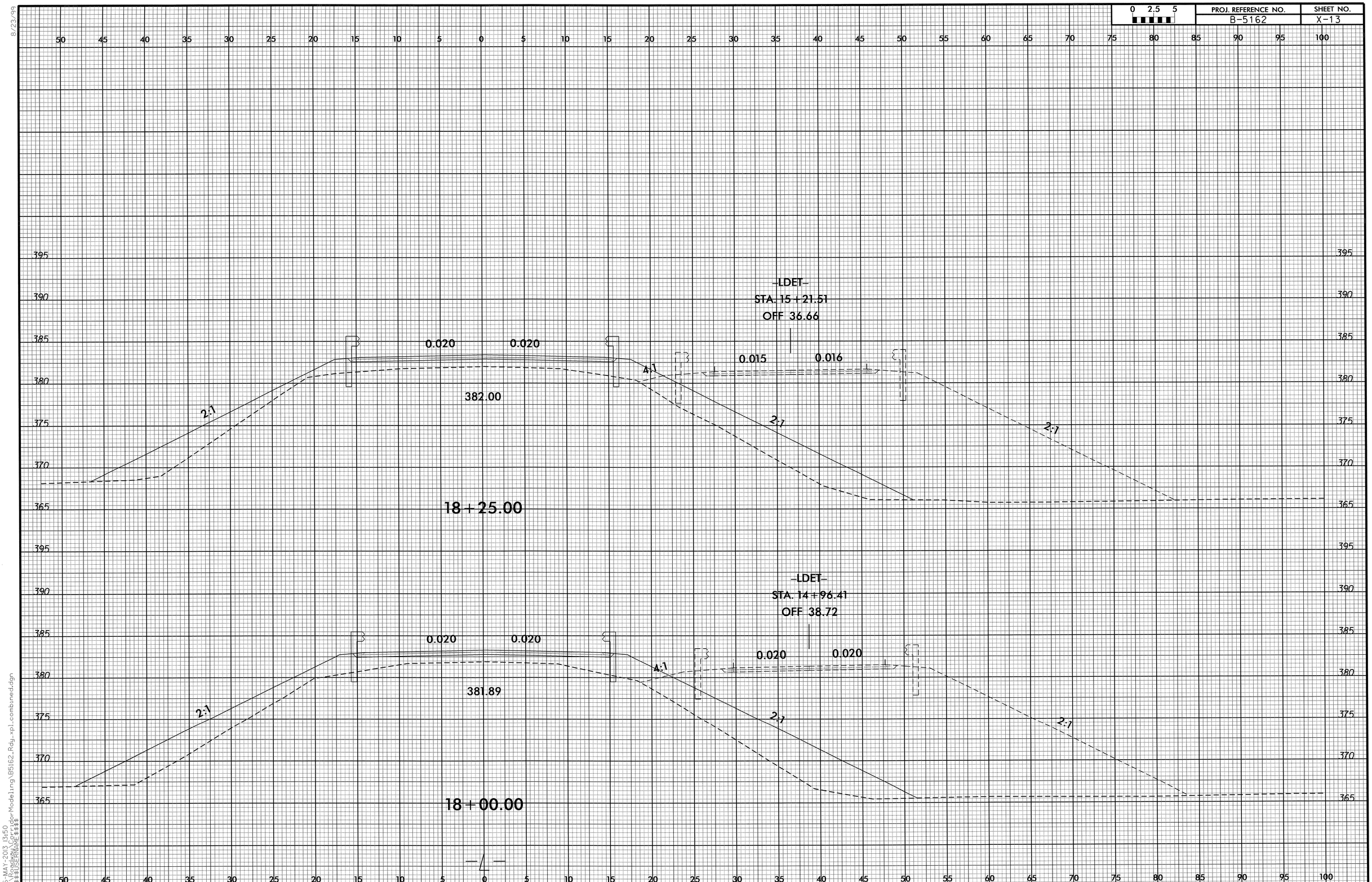

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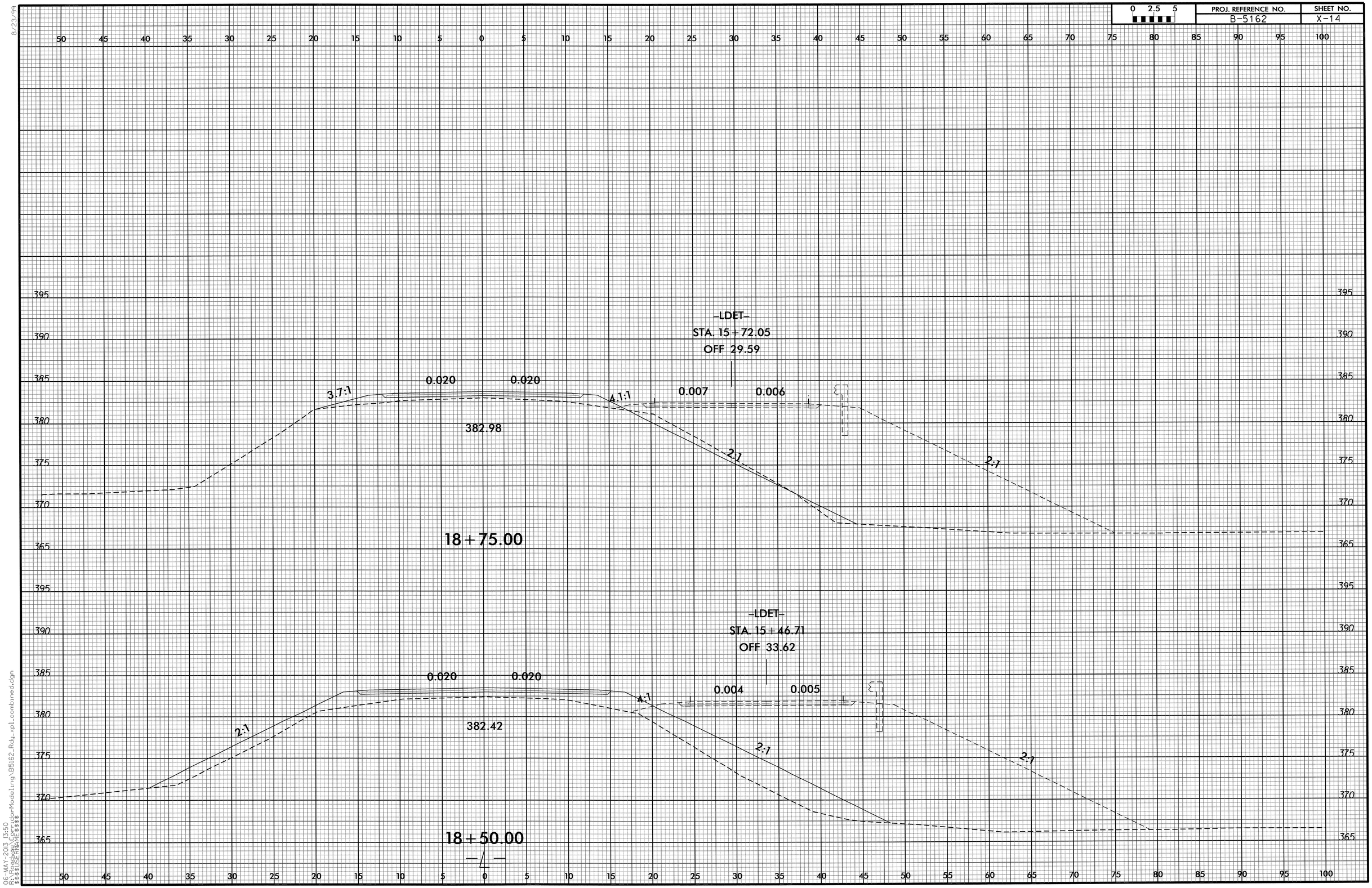
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-14



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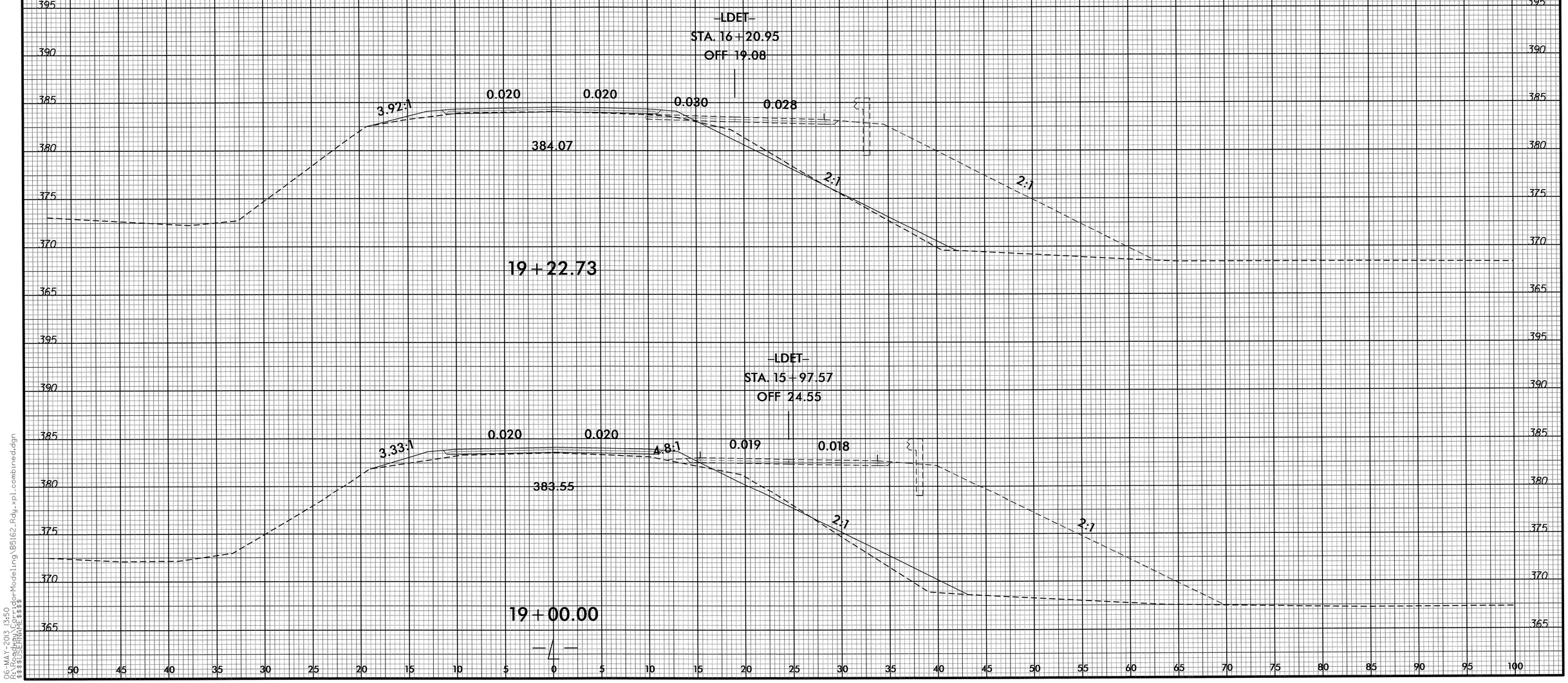
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-15

-LDET-
STA. 16+20.95
OFF 19.08



-LDET-
STA. 15+97.57
OFF 24.55

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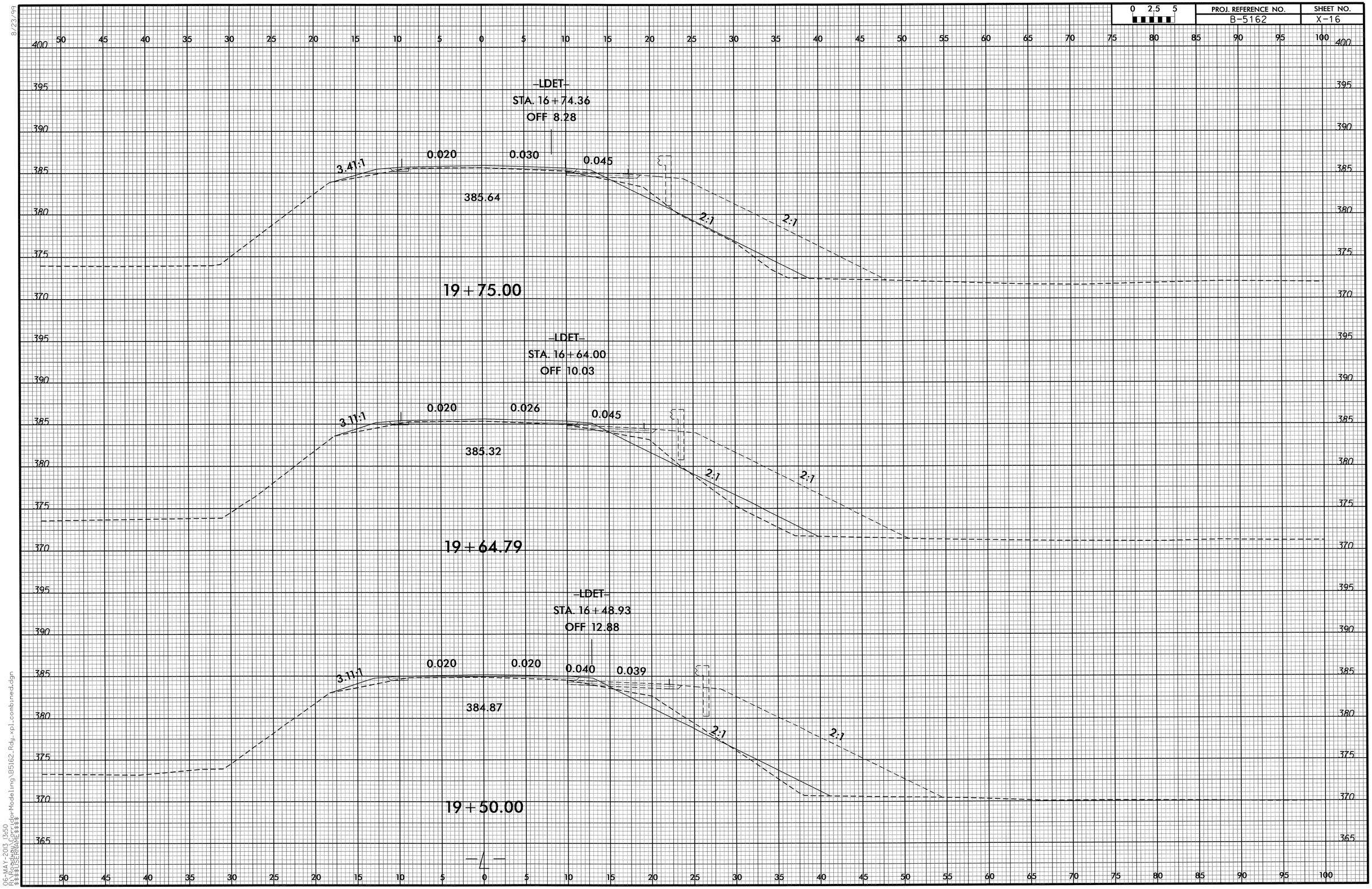

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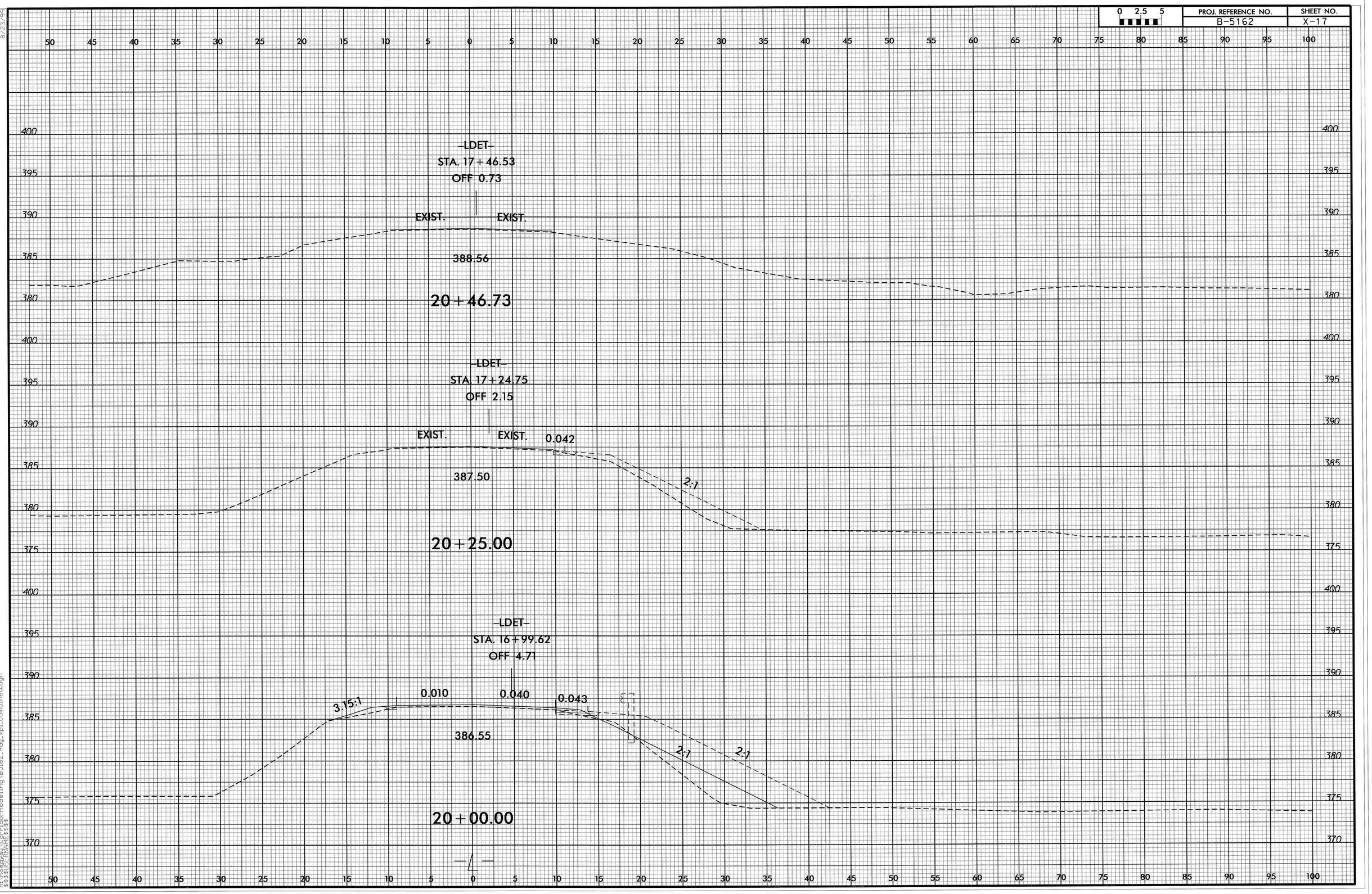

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5162	X-18

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

405
400
395
390
400
395
390
385

21+25.00
392.74

21+00.00
391.33

20+80.00
390.26

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

405
400
395
390
400
395
390
385

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