09/08/99

# TIP PROJECT: BD-5113K

# CONTRACT: DM00076

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | BD-5113K | 1 | |

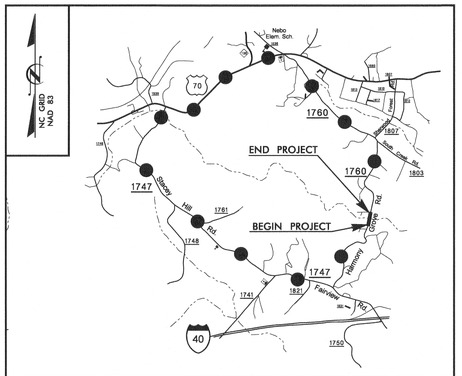
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 45359.1.11 | BRZ-1760(6) | PE |
| 45359.2.11 | BRZ-1760(6) | R/W |
| 45359.3.11 | BRZ-1760(6) | CONST. |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# McDOWELL COUNTY

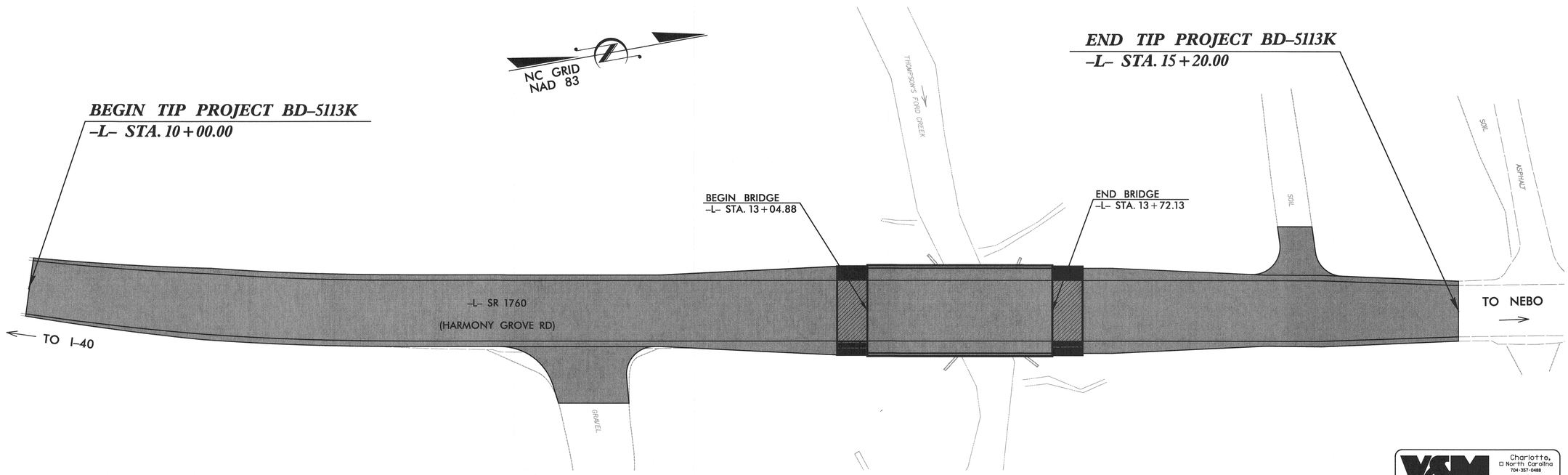
***LOCATION: BRIDGE NO. 64 OVER THOMPSON'S FORD CREEK ON SR 1760 (HARMONY GROVE ROAD)***

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




VICINITY MAP

DETOUR ROUTE





V&M
Vaughn & Melton
Consulting Engineers
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Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-5600
Spartanburg, South Carolina 864-574-4775

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## GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

## DESIGN DATA

ADT 2008 = 2400
ADT 2025 = 4800
T = 6%
V = 40 MPH

FUNCT. CLASS = LOCAL
SUB-REGIONAL TIER

## PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BD-5113K = 0.085 MI
LENGTH STRUCTURE TIP PROJECT BD-5113K = 0.013 MI
TOTAL LENGTH OF TIP PROJECT BD-5113K = 0.098 MI

Prepared In the Office of:
**VAUGHN & MELTON**
1318-F PATTON AVE.
ASHEVILLE NC, 28806
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**
FEBRUARY 25, 2013

**LETTING DATE:**
NOVEMBER 20, 2013

REECE SCHULER, PE
PROJECT ENGINEER

DENNIS BOUTON, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
PAUL SPROUSE, PE
PROJECT ENGINEER - BRIDGE MANAGEMENT

**HYDRAULICS ENGINEER**
NORTH CAROLINA PROFESSIONAL SEAL 31977 ENGINEER KEVIN B. ALFORD
SIGNATURE: K.B. Alford P.E. 10/17/13

**ROADWAY DESIGN ENGINEER**
10/17/13
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER
SIGNATURE: P.E.

**DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA**
STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 1-A |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

10/17/13

## INDEX OF SHEETS


| SHEET NUMBER | SHEET |
|---|---|
| 1 | TITLE SHEET |
| 1-A | INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS |
| 1-B | CONVENTIONAL SYMBOLS |
| 1-C | SURVEY CONTROL SHEET |
| 2 | PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS |
| 2-A | STRUCTURE ANCHOR UNIT DETAILS |
| 2-B | GRAVITY WALL DETAIL |
| 3 | SUMMARY OF QUANTITIES |
| 3-A | SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARY |
| 3-B | EARTHWORK SUMMARY |
| 4 | PLAN AND PROFILE SHEET |
| TMP-1 THRU TMP-2 | TRAFFIC MANAGEMENT PLANS |
| EC-1 THRU EC-3A | EROSION CONTROL PLANS |
| UO-1 THRU UO-2 | UTILITIES BY OTHERS PLANS |
| X-0 | CROSS-SECTION SUMMARY |
| X-1 THRU X-7 | CROSS-SECTIONS |
| S-1 THRU S-16 | STRUCTURE PLANS |


## GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12

GRADE LINE:
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 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC 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: DUKE ENERGY, FRONTIER COMMUNICATIONS, MORRIS BROADBAND CABLE AND McDOWELL COUNTY WATER DEPARTMENT NEBO DISTRICT.

RIGHT-OF-WAY MARKERS:

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

## 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 17, 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 - Method 'A' |
| DIVISION 4 - MAJOR STRUCTURES | |
| 422.11 | Bridge Approach Fills |
| DIVISION 5 - SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction - High Side of Superelevated Curve - Method I |
| DIVISION 8 - INCIDENTALS | |
| 815.03 | Pipe Underdrain and Blind Drain |
| 840.25 | Anchorage for Frames |
| 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 |

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

3/15/06

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 1-B |

***Note: Not to Scale***

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

## *BOUNDARIES AND PROPERTY:*

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

## *BUILDINGS AND OTHER CULTURE:*

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

## *HYDROLOGY:*

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

## *RAILROADS:*

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

## *RIGHT OF WAY:*

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

## *ROADS AND RELATED FEATURES:*

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

## *VEGETATION:*

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

## *EXISTING STRUCTURES:*

MAJOR:

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

MINOR:

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

## *UTILITIES:*

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 1C |
| Location and Surveys | |

# SURVEY CONTROL SHEET BD-5113K

BL

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 1 | BL-1 | 720397.7338 | 1134837.1937 | 1139.90 | 10+34.43 | 12.54 LT |
| 2 | BL-2 | 720668.8900 | 1134927.8143 | 1130.71 | 13+19.72 | 16.52 RT |
| 3 | BL-3 | 721009.1880 | 1134966.0320 | 1137.52 | OUTSIDE PROJECT LIMITS | |

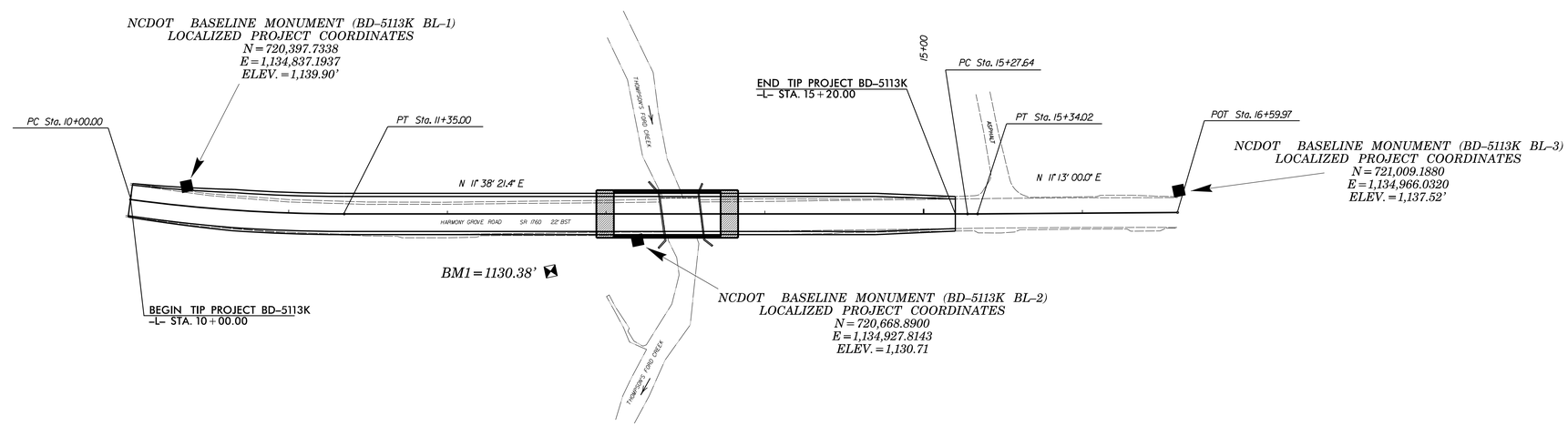
**********
BM1 ELEVATION = 1130.38
N 720611 E 1134936
BL STATION 7+34.00 26 RIGHT
RR SPIKE SET IN BASE OF 12" CHERRY
**********

ROW MARKER CONCRETE OR GRANITE-E

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| L | 10+00.00 | -35.00 | 720372.9239 | 1134805.2832 |
| L | 10+00.00 | -17.47 | 720367.1082 | 1134821.8213 |
| L | 10+00.00 | 17.54 | 720355.4935 | 1134854.8501 |
| L | 10+00.00 | 35.00 | 720349.7021 | 1134871.3191 |
| L | 11+35.00 | -35.00 | 720484.2429 | 1134908.6480 |
| L | 11+35.00 | 35.00 | 720498.3654 | 1134840.0874 |
| L | 15+20.00 | -35.00 | 720875.4445 | 1134917.7600 |
| L | 15+20.00 | -17.40 | 720871.8935 | 1134934.9992 |
| L | 15+20.00 | 17.60 | 720864.8319 | 1134969.2813 |
| L | 15+20.00 | 35.00 | 720861.3221 | 1134986.3206 |

FINAL -L-

| TYPE | STATION | NORTH | EAST |
|---|---|---|---|
| PC | 10+00.00 | 720361.3130 | 1134838.3012 |
| PT | 11+35.00 | 720491.3041 | 1134874.3677 |
| PC | 15+27.64 | 720875.8700 | 1134953.5824 |
| PT | 15+34.02 | 720882.1236 | 1134954.8466 |
| POT | 16+59.97 | 721005.6672 | 1134979.3462 |




## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "580064 BL-3" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 721009.1880(ft) EASTING: 1134966.0320(ft) ELEVATION: 1137.52(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987374
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "580064 BL-3" TO -L- STATION 10+00.00 IS S 11°09'11" W 660.35'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

*GEOIDAL MODEL — G09NC*
*NOTE: DRAWING NOT TO SCALE*

*NOTES:*

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

*THE FILES TO BE FOUND ARE AS FOLLOWS:*
*BD-5113K_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.*

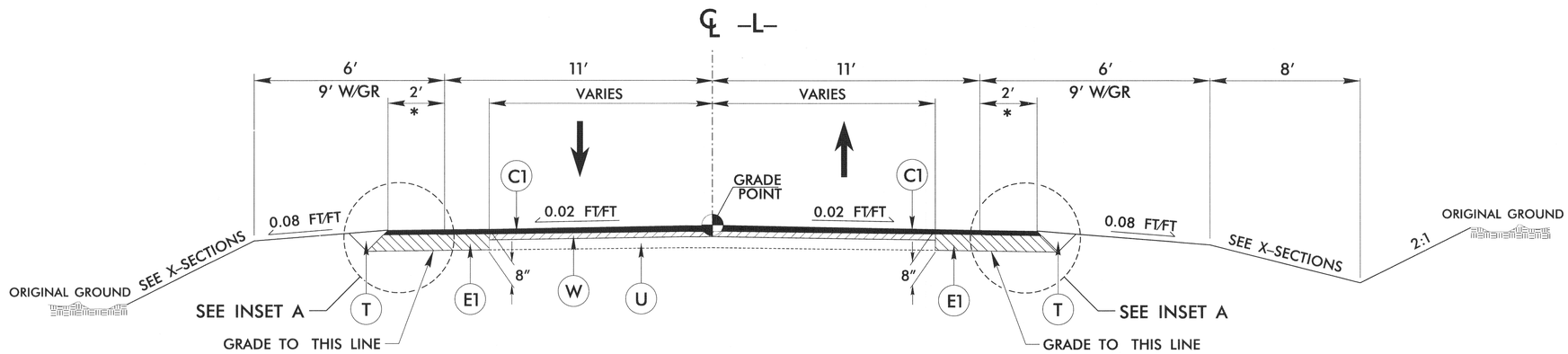
6/2/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 2 |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 25920 ENGINEER PIECE M. SCHULER 10/17/13

NORTH CAROLINA PROFESSIONAL SEAL 20134 ENGINEER ROBERT M. CRAIG 10/18/13

* FULL DEPTH PAVED SHOULDER WIDTH VARIES FROM -L- STA. 12+29.87 TO -L- STA. 12+93.87 LT. & RT. AND FROM -L- STA. 13+94.00 TO -L- STA. 14+50.00 LT. & RT.

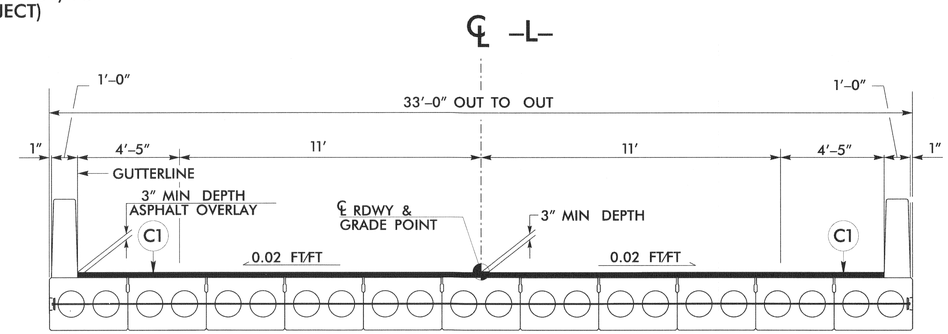


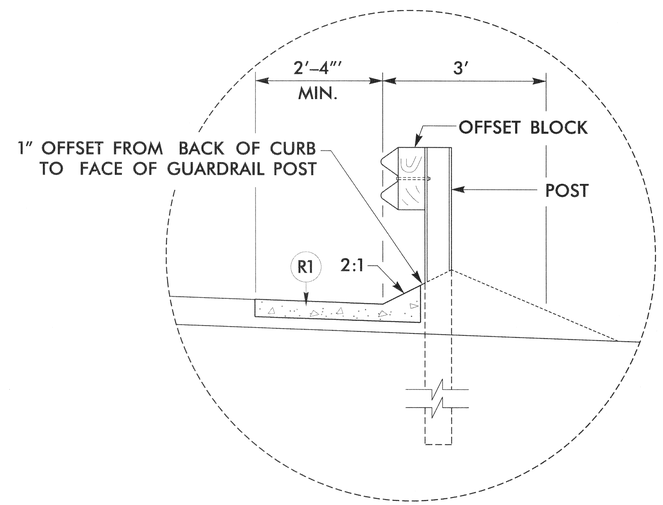

## TYPICAL SECTION NO. 1

## USE TYPICAL SECTION NO. 1

-L- STA. 10+00.00 (BEGIN PROJECT) TO STA. 13+04.87 (BEGIN BRIDGE)

-L- STA. 13+72.12 (END BRIDGE) TO STA. 15+20.00 (END PROJECT)



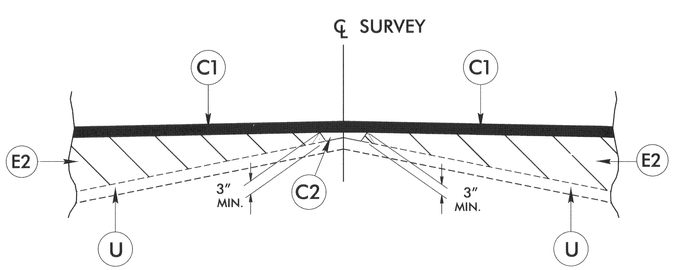

## INSET A

SBG END APPROACH SLAB TO -L- STA. 13+94 LT & RT

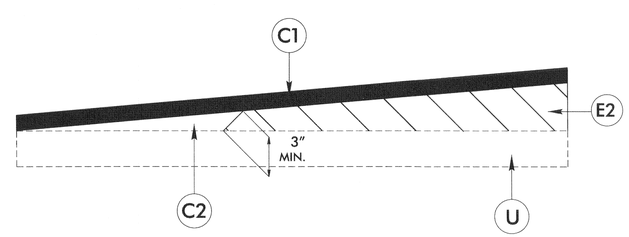
## USE TYPICAL SECTION NO. 2

-L- STA. 13+04.87 (BEGIN BRIDGE) TO
-L- STA. 13+72.12 (END BRIDGE)

## TYPICAL SECTION NO. 2




Detail Showing Method of Wedging




Wedging Detail

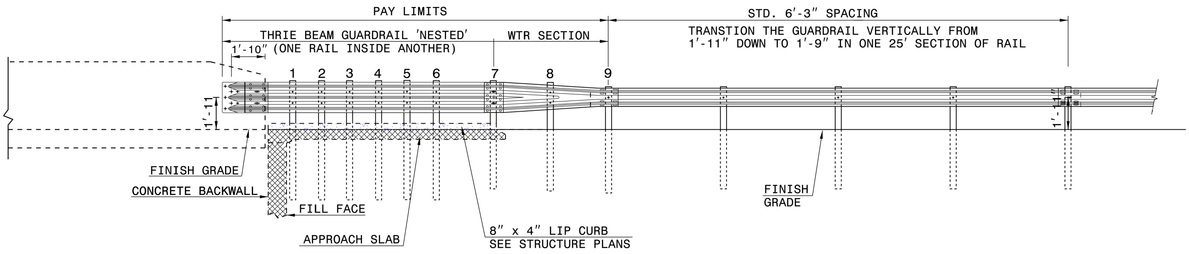
| | PAVEMENT SCHEDULE |
|---|---|
| C1 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C2 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH. |
| E1 | PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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. |
| R1 | SHOULDER BERM GUTTER (SEE NCDOT STANDARD DRAWING NO. 846.01) |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| W | PROPOSED WEDGING (SEE APPROPRIATE DETAILS) |

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

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

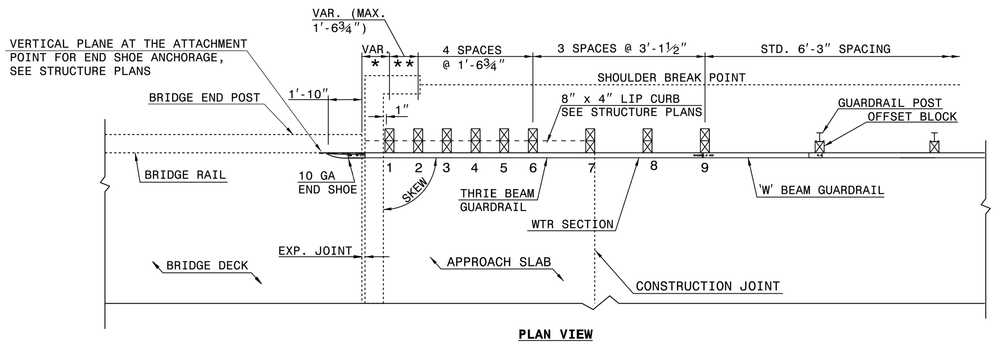
ENGLISH DETAIL DRAWING FOR
**STRUCTURE ANCHOR UNITS**
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
**862d03**




**ELEVATION**

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




**PLAN VIEW**

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


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

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

SHEET 2 OF 7
862d03


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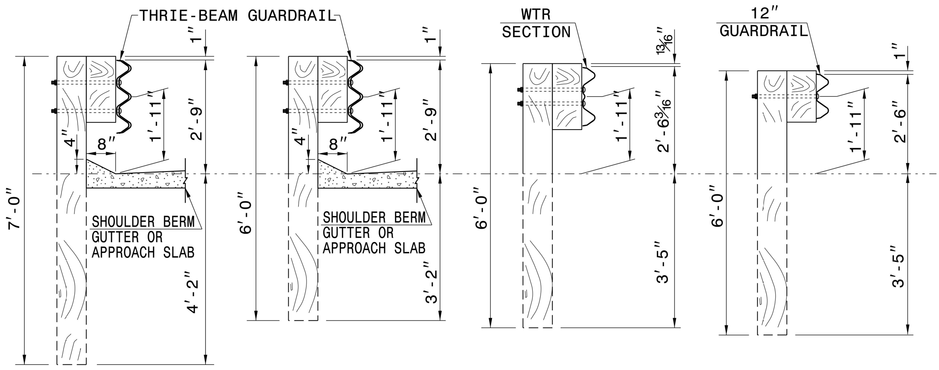
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

SHEET 3 OF 7
**862d03**

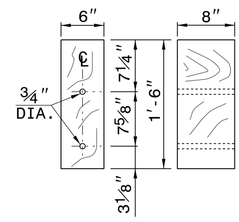



**SECTION OF THRIE BEAM POSTS 1 THRU 6**

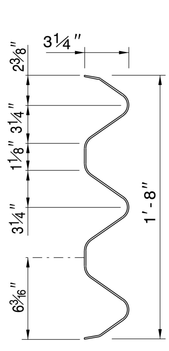
**SECTION OF THRIE BEAM POST 7**

**SECTION OF WTR BEAM POST 8**

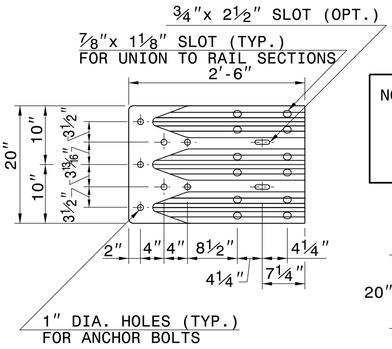
**SECTION OF 'W' BEAM POST 9**




**THRIE BEAM OFFSET BLOCK**

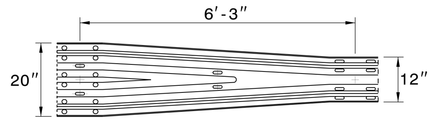



**THRIE-BEAM SECTION**

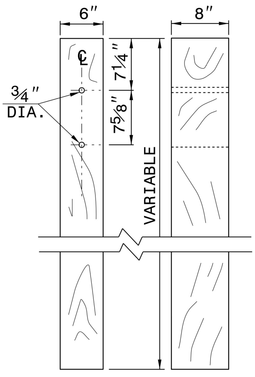



**END SHOE**

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




**WTR SECTION**
ELEVATION VIEW




**THRIE BEAM LINE POST**


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

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

SHEET 3 OF 7
862d03



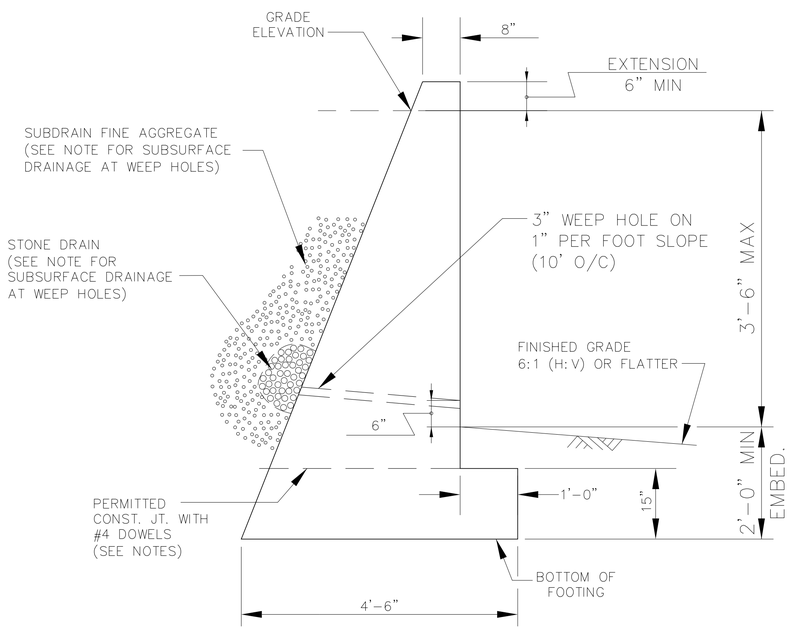
**CONTRACT STANDARDS AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119


**SEE TITLE BLOCK**

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

PROJECT REFERENCE NO. BD-5713K
SHEET NO. 2-A

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 2-B |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |




NOTES:
SEE PLAN VIEW FOR WALL LOCATIONS

CONCRETE SHALL BE CLASS 'A' CONCRETE

GRAVITY RETAINING WALL DESIGN IS BASED ON THE FOLLOWING ASSUMED MINIMUM SOIL PARAMETERS:
UNIT WEIGHT, gamma = 120 PCF
FRICTION ANGLE. phi = 30 DEGREES
(GROUNDWATER WITHIN 5'-0" BELOW BOTTOM OF FOOTING)
COHESION. c = 0 PSF

DO NOT USE STANDARD GRAVITY RETAINING WALLS IF THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF FOOTING.

DO NOT USE STANDARD GRAVITY RETAINING WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW WALLS.

WHEN A CONSTRUCTION JOINT IS LOCATED AT THE BASE OF THE WALL, IN SECTION PROVIDE A MINIMUM OF 3 #4 DOWELS AT AN EQUAL SPACING. SPACE ALL DOWELS AT 1'-6" ALONG THE LENGTH OF THE WALL.

FOR SUBSURFACE DRAINAGE AT WEEP HOLES, PLACE A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC AT EACH WEEP HOLE. PLACE SUBDRAIN FINE AGGREGATE BENEATH, AROUND, AND OVER THE STONE DRAIN SO THAT THE STONE DRAIN IS COVERED BY A LAYER OF SUBDRAIN FINE AGGREGATE AT LEAST 1 FOOT THICK. CONNECT ALL DRAINS WITH A HORIZONTAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST 1 FOOT SQUARE IN CROSS SECTION. IN THE CASE OF ABUTMENTS AND RETAINING WALLS, IN addition TO THE ABOVE REQUIREMENTS, PLACE A VERTICAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST 1 FOOT SQUARE IN CROSS SECTION AT EACH WEEP HOLE TO AN ELEVATION 2 FEET BELOW THE SUBGRADE OR SURFACE OF THE EMBANKMENT.

INSTALL 1/2" EXPANSION JOINT EVERY 25' (MAX.).

# GRAVITY WALL DETAIL

NOT TO SCALE

6/2/99
SYTUFF$$$
LEGEND$$$
LEGRADE$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# *SUMMARY OF QUANTITIES*

| Line Item | Sec No. | Quantity | Unit | Description |
|---|---|---|---|---|
| 0000100000-N | 800 | 1 | LS | Mobilization |
| 0000400000-N | 801 | 1 | LS | Construction Surveying |
| 0030000000-N | SP | 1 | LS | Bridge Approach Fill - Sub Regional Tier at Station 13+38.50 |
| 0043000000-N | 226 | 1 | LS | Grading |
| 0057000000-E | 226 | 50 | CY | Undercut Excavation |
| 0134000000-E | 240 | 181 | CY | Drainage Ditch Excavation |
| 0195000000-E | 265 | 50 | CY | Select Granular Material |
| 0196000000-E | 270 | 250 | SY | Geotextile for Soil Stabilization |
| 0318000000-E | 300 | 5 | Tons | Foundation Conditioning Material, Minor Strs |
| 0320000000-E | 300 | 15 | SY | Foundation Conditioning Geotextile |
| 0343000000-E | 310 | 24 | LF | 15" Side Drain Pipe |
| 0344000000-E | 310 | 52 | LF | 18" Side Drain Pipe |
| 0448200000-E | 310 | 24 | LF | 15" RC Pipe Class IV |
| 0582000000-E | 310 | 16 | LF | 15" CS Pipe Culvert, 0.064" Thick |
| 0636000000-E | 310 | 2 | EA | 15" CS Pipe Elbows 0.064" Thick |
| 0995000000-E | 340 | 72 | LF | Pipe Removal |
| 1099700000-E | 505 | 50 | Tons | Class IV Subgrade Stabilization |
| 1121000000-E | 520 | 35 | Tons | Aggregate Base Course |
| 1220000000-E | 545 | 50 | Tons | Incidental Stone Base |
| 1297000000-E | 607 | 230 | SY | Milling Asphalt Pavement, 2" Depth |
| 1489000000-E | 610 | 130 | Tons | Asphalt Conc Base Course Type B25.0B |
| 1519000000-E | 610 | 240 | Tons | Asphalt Conc Surface Course Type S9.5B |
| 1575000000-E | 620 | 20 | Tons | Asphalt Binder for Plant Mix |
| 2000000000-N | 806 | 10 | EA | Right of Way Markers |
| 2286000000-N | 840 | 2 | EA | Masonry Drainage Structures |
| 2367000000-N | 840 | 2 | EA | Steel Frame with Two Grates, STD 840.29 |
| 2556000000-E | 846 | 25 | LF | Shoulder Berm Gutter |
| 3030000000-E | 862 | 112.5 | LF | Steel BM Guardrail |
| 3045000000-E | 862 | 25 | LF | Steel BM Guardrail (Shop Curved) |
| 3150000000-N | 862 | 5 | EA | Additional Guardrail Posts |
| 3195000000-N | 862 | 2 | EA | Guardrail Anchor Units, AT-1 |
| 3215000000-N | 862 | 4 | EA | Guardrail Anchor Units, TYPE III |
| 3270000000-N | SP | 2 | EA | Guardrail Anchor Units, Type 350 |
| 3569000000-E | 867 | 85 | LF | Barbed Wire Fence Reset |
| 3628000000-E | 876 | 105 | Tons | Rip Rap, Class I |
| 3649000000-E | 876 | 135 | Tons | Rip Rap, Class B |
| 3656000000-E | 876 | 315 | SY | Geotextile for Drainage |
| 4400000000-E | 1110 | 222 | SF | Work Zone Signs (Stationary) |
| 4410000000-E | 1110 | 94 | SF | Work Zone Signs (Barricade Mounted) |
| 4445000000-E | 1145 | 64 | LF | Barricades (Type III) |
| 4810000000-E | 1205 | 4,160 | LF | Paint Pavement Marking Lines (4") |
| 6000000000-E | 1605 | 725 | LF | Temporary Silt Fence |
| 6009000000-E | 1610 | 160 | Tons | Stone For Erosion Control, Class B |
| 6012000000-E | 1610 | 65 | Tons | Sediment Control Stone |
| 6024000000-E | 1622 | 100 | LF | Temporary Slope Drains |
| 6029000000-E | SP | 300 | LF | Safety Fence |
| 6030000000-E | 1630 | 260 | CY | Silt Excavation |
| 6036000000-E | 1631 | 1,700 | SY | Matting For Erosion Control |
| 6038000000-E | SP | 300 | SY | Permanent Soil Reinforcing Matting |
| 6042000000-E | 1632 | 60 | LF | 1/4" Hardware Cloth |
| 6071010000-E | SP | 135 | LF | Wattle |
| 6071020000-E | SP | 15 | Lbs | Polyacrylamide (PAM) |
| 6071030000-E | 1640 | 185 | LF | Coir Fiber Baffle |
| 6084000000-E | 1660 | 0.4 | Acre | Seeding & Mulching |
| 6117000000-N | SP | 25 | EA | Response For Erosion Control |
| | | | | **STRUCTURAL ITEMS** |
| 8035000000-N | 402 | 1 | LS | Removal Of Existing Structure at Station 13+38.50 |
| 8121000000-N | 412 | 1 | LS | Unclassified Structure Excavation at Station 13+38.50 |
| 8182000000-E | 420 | 44.5 | CY | Class A Concrete (Bridge) |
| 8210000000-N | 422 | 1 | LS | Bridge Approach Slabs at Station 13+38.50 |
| 8217000000-E | 425 | 5,305 | LBS | Reinforcing Steel (Bridge) |
| 8364000000-E | 450 | 500 | LF | HP 12X53 Steel Piles |
| 8391000000-N | 450 | 7 | EA | Steel Pile Points |
| 8505000000-E | 460 | 130.25 | LF | Vertical Conc. Barrier Rail |
| 8608000000-E | 876 | 91 | TONS | Rip Rap Class II (2'-0" Thick) |
| 8622000000-E | 876 | 101 | SY | Geotextile For Drainage |
| 8657000000-N | 430 | 1 | LS | Elastomeric Bearings |
| 8763000000-E | 430 | 715 | LF | 3'-0" X 2'-0" Prestressed Conc. Cored Slabs |
| 8847000000-E | SP | 160 | SF | Cast in Place (CIP) Retaining Wall |
| 8892000000-E | SP | 1,259 | SF | 18" Steel Sheet Piles |

5/28/99
DATE=$date$ TIME=$time$ DGN=$dgn$ USER=$user$

6/21/00

| COMPUTED BY: DAB | DATE: 01-09-13 |
|---|---|
| CHECKED BY: RMS | DATE: 01-09-13 |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 3-A |

## RIGHT OF WAY AREA DATA

| PARCEL NO. | PROPERTY OWNERS NAMES | TOTAL ACREAGE | AREA TAKEN (sf) | AREA REMAINING RT. (Acre) | AREA REMAINING LT. (Acre) | CONST. EASE. (sf) | PERM. UTILITY EASE. (sf) | TEMP. DRAIN. EASE. (sf) |
|---|---|---|---|---|---|---|---|---|
| 1 | HERMAN V. ELLIOTT | 0.293 | 2151.424 | | 0.243 | 699.045 | | |
| 2 | CYRUS HENSLEY | 0.635 | 3474.420 | 0.555 | | 874.227 | | |
| 3 | NAN ELLIOT HOLLIFIELD | 1.106 | 4669.002 | | 0.999 | 139.465 | 5614.255 | |
| 4 | DOUGLAS R. HENSLEY | 0.535 | 1782.236 | 0.494 | | 0.028 | | |
| 5 | IRIS QUEEN BOWMAN | 0.985 | 3063.427 | | 0.915 | | 3070.634 | |
| 6 | JACK LEE REYNOLDS, III | 1.122 | 2624.509 | 1.062 | | | | |

## PAVEMENT REMOVAL SUMMARY

| IN SQUARE YARDS | | | | | |
|---|---|---|---|---|---|
| LINE | LOCATION | ASPHALT REMOVAL | ASPHALT BREAK-UP | CONCRETE REMOVAL | CONCRETE REMOVAL |
| -L- | 12+94 TO 13+35 | 105 | | | |
| -L- | 13+60 TO 13+83 | 58 | | | |
| | TOTAL | 162 | | | |
| | SAY | 170 | | | |

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

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

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | 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- 11+75 | RT | | | 1131.50 | 1130.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -L- 13+91 | CL | 0401 | 0402 | 1131.52 | 1127.86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 1127.86 | 1127.38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 24 | | | | | | |
| -L- 13+91 | LT | 0402 | 0403 | 1131.52 | 1127.38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 1127.38 | 1125.42 | | | | | | | | | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | |
| -L- 14+52.62 | LT | | | 1127.20 | 1128.11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL | | | | | | | | | | | | | | | | | | | | 16 | | | | | | | | | | | | | | | 24 | | | | | | |

| STATION / SIZE / THICKNESS OR GAUGE | *** R.C. PIPE (CLASS V) | *** R.C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE | *** 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") PER EACH (0' THRU 5.0') | LIN. "FT." A: 5.0' THRU 10.0' | B: 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | MODIFIED CONCRETE FLUME | T.B.D.I. STD. 840.35 | T.B.D.I. FRAME WITH TWO GRATES STD. 840.29 | | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -L- 11+75 | | | | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | 50 | REMOVE EXIST. 18" RCP |
| -L- 13+91 | | | | | | | | | 1 | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -L- 13+91 | | | | | | | | | 1 | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 2@15" | | | | | | | | |
| -L- 14+52.62 | | | | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | 22 | REMOVE EXIST. 15" RCP |
| TOTAL | | | | | | 24 | 52 | | 2 | | | | | | | | | | 2 | 2 | | | | | | 2@15" | | | | | | | 72 | |

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 XI MOD | XI | GRAU 350 | M-350 | TYPE III | CAT-1 | B-77 | BIC | AT-1 | IMPACT ATTENUATOR TYPE 350 EA | G | NG | SINGLE FACED GUARDRAIL | REMOVE EXISTING GUARDRAIL | REMOVE AND STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -L- | 12+20.16 | 13+04.88 | RT | 75 | 12.5 | | 13+04.88 | | 3 | 9 | 50 | | 1 | | | | | | 1 | | | | 1 | | | | | | | |
| -L- | 12+23.63 | 13+04.88 | LT | 81.25 | | | | 13+04.88 | 3 | 9 | | 50 | | 1 | | | 1 | | 1 | | | | | | | | | | | |
| -L- | 13+72.13 | 14+53.37 | RT | 81.25 | | | | 13+72.13 | 3 | 9 | | 50 | | 1 | | | 1 | | 1 | | | | | | | | | | | |
| -L- | 13+72.13 | 14+44.34 | LT | 62.5 | 12.5 | | 13+72.13 | | 3 | 9 | 50 | | 1 | | | | | | 1 | | | | 1 | | | | | | | |
| | | | SUBTOTAL | 300 | 25 | | | | | | | | | | | | 2 | | 4 | | | | 2 | | | | | | | |
| | | | LESS DEDUCTIONS FOR ANCHORS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | GRAU-350 2 @ 50'= | -100 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | TYPE III 4 @ 18.75'= | -75 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | AT-1 2 @ 6.25'= | 12.5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | PROJECT TOTALS: | 112.5 | 25 | | | | | | | | | | | | 2 | | 4 | | | | 2 | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ADDITIONAL GUARDRAIL POSTS=5 EA. | | | | | | | | | | | | | | | | | | | | | | | | | | | |

$$$$ SYSTIME $$$$
$$$$ SDNAME $$$$

| COMPUTED BY: ACC | DATE: 12-20-12 |
|---|---|
| CHECKED BY: DAB | DATE: 12-20-12 |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 3-B |

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

# SUMMARY OF EARTHWORK

## IN CUBIC YARDS

| LOCATION | UNCLASSIFIED EXCAVATION | UNDERCUT | EMBT+% | BORROW | WASTE |
|---|---|---|---|---|---|
| SUMMARY NO.1 | | | | | |
| -L- STA. 10+00.00 TO STA. 13+04.88 (BEG. BRIDGE) | 132 | | 503 | 371 | |
| SUBTOTAL SUMMARY NO.1 | 132 | | 503 | 371 | |
| | | | | | |
| SUMMARY NO.2 | | | | | |
| -L- STA. 13+72.13 (END BRIDGE) TO STA. 15+20.00 | 72 | | 173 | 101 | |
| SUBTOTAL SUMMARY NO.2 | 72 | | 173 | 101 | |
| | | | | | |
| PROJECT SUBTOTAL | 204 | | 676 | 472 | |
| EST.5% FOR REPLACING TOP SOIL ON BORROW PITS | | | | 24 | |
| | | | | | |
| GRAND TOTAL | 204 | | 676 | 496 | |
| SAY | 205 | | | 500 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| EST DDE = 181 CY | | | | | |
| | | | | | |

CONTINGENCY ITEMS:

INCIDENTAL STONE = 50 TONS

UNDERCUT EXCAVATION = 50 CY

SELECT GRANULAR MATERIAL = 50 CY

CLASS IV SUBGRADE STABILIZATION = 50 TONS

GEOTEXTILE FOR SOIL STABILIZATION = 50 SY

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".

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | 4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEERING MICHAEL M. SCHULER 10/17/13

NORTH CAROLINA PROFESSIONAL SEAL 31977 ENGINEER KEVIN B. ALFORD 10-17-13


Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

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MINIMUM DISTANCE MEASURED BETWEEN PROPOSED EOP & FACE OF BRIDGE BARRIER CORNERS:

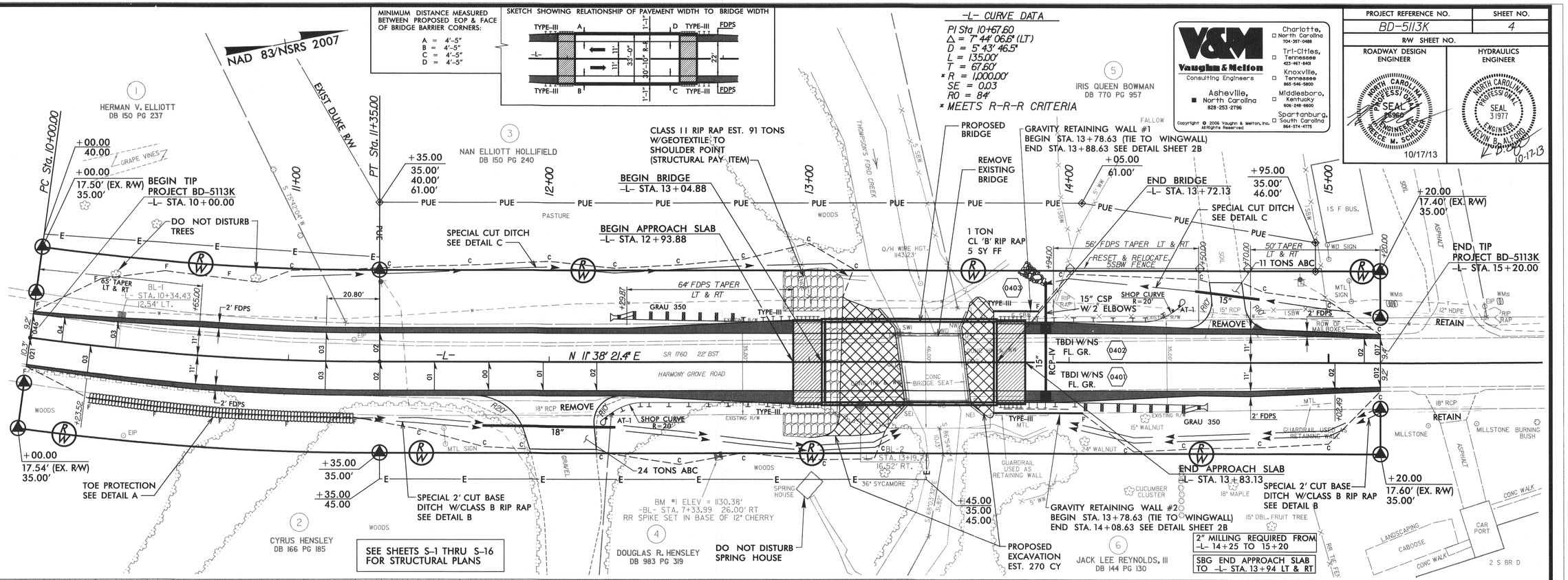
A = 4'-5"
B = 4'-5"
C = 4'-5"
D = 4'-5"

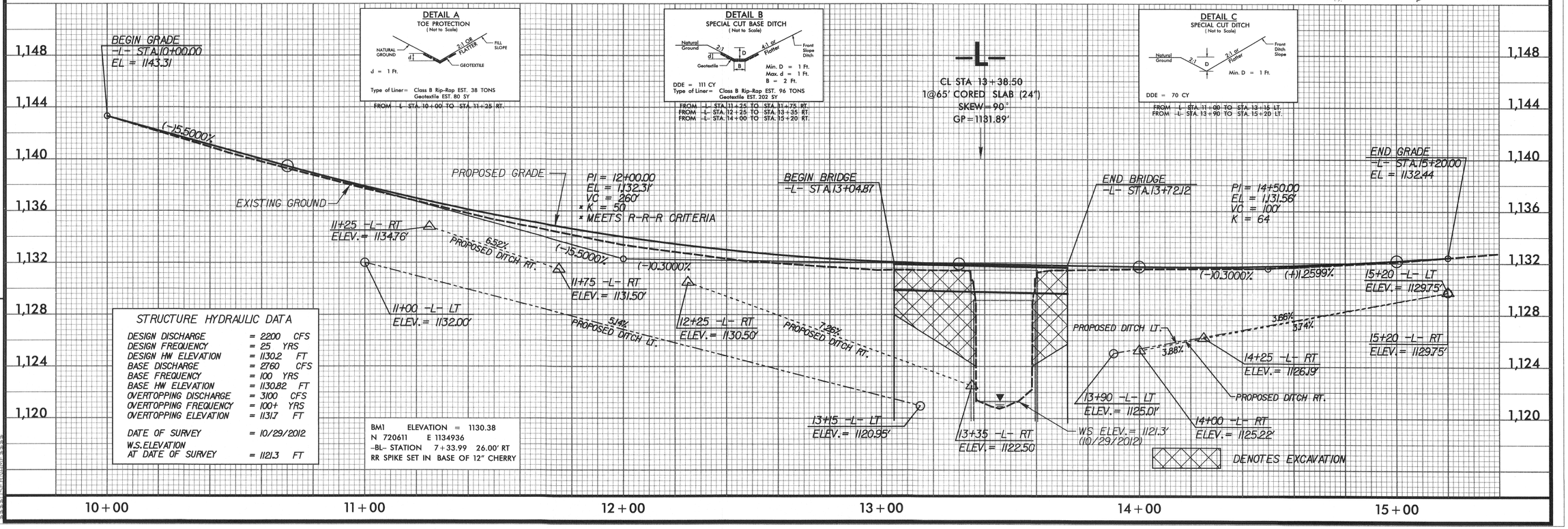
SKETCH SHOWING RELATIONSHIP OF PAVEMENT WIDTH TO BRIDGE WIDTH




-L- CURVE DATA

PI Sta 10+67.60
Δ = 7° 44' 06.6" (LT)
D = 5° 43' 46.5"
L = 135.00'
T = 67.60'
* R = 1,000.00'
SE = 0.03
RO = 84'
* MEETS R-R-R CRITERIA




STRUCTURE HYDRAULIC DATA

| | | |
|---|---|---|
| DESIGN DISCHARGE | = 2200 | CFS |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN HW ELEVATION | = 1130.2 | FT |
| BASE DISCHARGE | = 2760 | CFS |
| BASE FREQUENCY | = 100 | YRS |
| BASE HW ELEVATION | = 1130.82 | FT |
| OVERTOPPING DISCHARGE | = 3100 | CFS |
| OVERTOPPING FREQUENCY | = 100+ | YRS |
| OVERTOPPING ELEVATION | = 1131.7 | FT |
| DATE OF SURVEY | = 10/29/2012 | |
| W.S. ELEVATION AT DATE OF SURVEY | = 1121.3 | FT |

BM1 ELEVATION = 1130.38
N 720611 E 1134936
-BL- STATION 7+33.99 26.00' RT
RR SPIKE SET IN BASE OF 12" CHERRY

REVISIONS

8/17/99

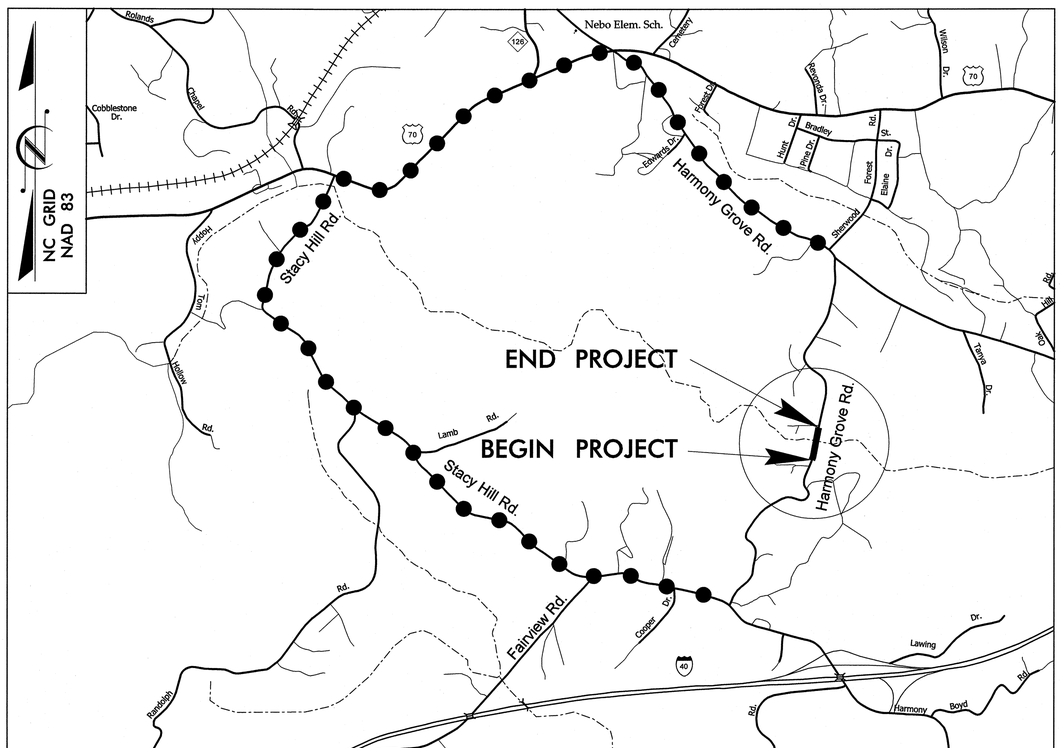
$$SYSTIME$$
$$SYSDATE$$
$$USERNAME$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

## MCDOWELL COUNTY

### DIVISION 13




VICINITY MAP

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

_____ TRAFFIC CONTROL PROJECT ENGINEER

_____ TRAFFIC CONTROL PROJECT DESIGN ENGINEER

_____ TRAFFIC CONTROL DESIGN ENGINEER

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

## INDEX OF SHEETS


| SHEET NO. | TITLE |
|---|---|
| TMP-1 | TITLE SHEET AND INDEX OF SHEETS |
| TMP-1A | ROADWAY STANDARD DRAWINGS AND LEGEND |
| TMP-1B | GENERAL NOTES AND PHASING NOTES |
| TMP-2 | OFFSITE DETOUR SIGNING AND ROAD CLOSURE |



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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT ENGINEER JOHN JOHNSON, PE
DESIGN ENGINEER RICHARD ODYNSKI, PE


APPROVED: _____
DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 030787 ENGINEER RICHARD A. ODYNSKI
4-8-13

SHEET NO.
TMP-1

TIP PROJECT: BD-5113K

4/8/2013
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odynskra

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | TMP-1A |

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NC License Number F-0991

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

| STD.NO. | TITLE |
|---|---|
| 1101.03 | TEMPORARY ROAD CLOSURES |
| 1101.05 | WORK ZONE VEHICLE ACCESSES |
| 1101.11 | TRAFFIC CONTROL DESIGN TABLES |
| 1110.01 | STATIONARY WORK ZONE SIGNS |
| 1110.02 | PORTABLE WORK ZONE SIGNS |
| 1145.01 | BARRICADES |

# 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

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 027487 ENGINEER RICHARD A. GOUGH

4-8-13

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

ROADWAY STANDARD DRAWINGS & LEGEND

4/8/2013
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odynskra

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | TMP-1B |

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# GENERAL NOTES

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

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

TIME RESTRICTIONS

A) DO NOT CLOSE SR 1760 (HARMONY GROVE RD.) DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

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

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 9:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 9:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 9:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 9:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 P.M. THE FOLLOWING MONDAY AFTER THE WEEK OF CHRISTMAS.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

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

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

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

G) COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

# PHASING NOTES

STEP 1: USING RSD 1101.03 SHEET 1 OF 9, AND TMP-2, INSTALL DETOUR SIGNS AND PLACE TYPE III BARRICADES TO CLOSE SR 1760 (HARMONY GROVE RD.) TO THRU TRAFFIC AND DETOUR ONTO PROPOSED DETOUR.

STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

REMOVE EXISTING STRUCTURE AND CONSTRUCT PROPOSED STRUCTURE. SEE ROADWAY AND STRUCTURE PLANS.

CONSTRUCT PROPOSED -L- UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE.

STEP 3: PLACE FINAL LAYER OF SURFACE COURSE

STEP 4: PLACE FINAL PAVEMENT MARKINGS AND TIE TO EXISTING MARKINGS (SEE PAVEMENT MARKING PLAN).

STEP 5: REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING AND DETOUR ROUTE SIGNING.

OPEN SR 1760 (HARMONY GROVE RD.) TO FINAL TRAFFIC PATTERN.

# LOCAL NOTES

1. NOTIFY MCDOWELL COUNTY EMERGENCY SERVICES AND PUBLIC SCHOOLS AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036192 ENGINEER

4-8-13

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

GENERAL NOTES AND PHASING NOTES

4/8/2013
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| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | TMP-2 |


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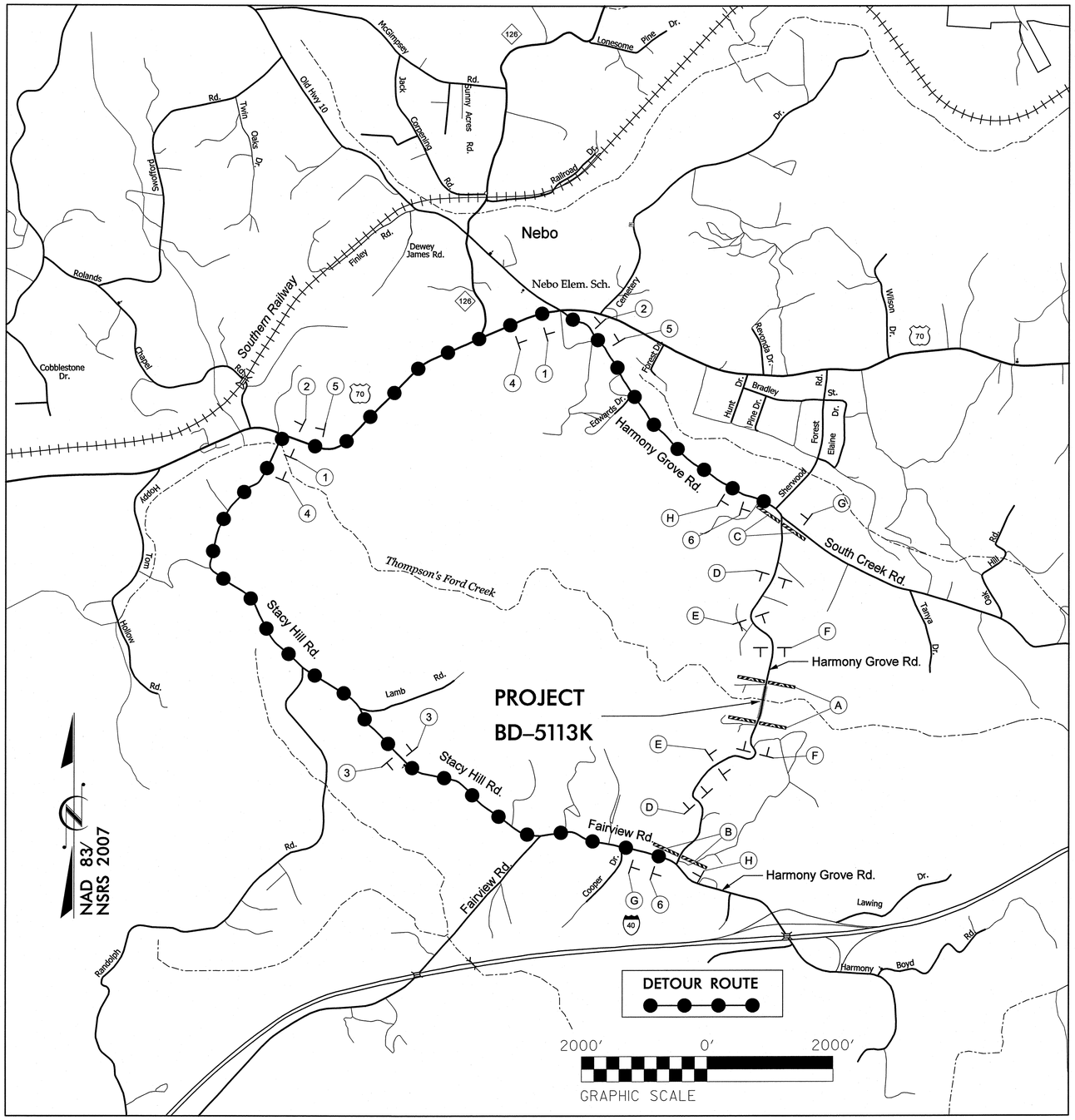
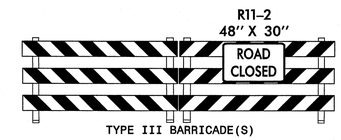
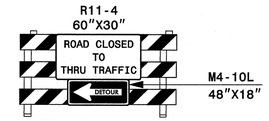


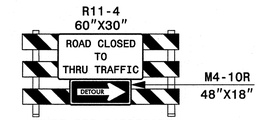

TYPE III BARRICADE(S)

Ⓐ




TYPE III BARRICADE

Ⓑ




TYPE III BARRICADE

Ⓒ

Ⓓ

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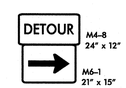
Ⓗ

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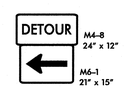


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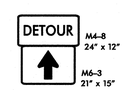


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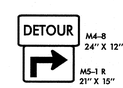



④

⑤

⑥

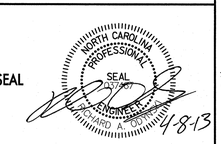
NOTES:

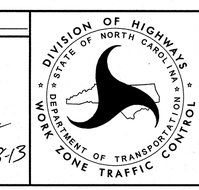
TRAFFIC CONTROL DEVICES Ⓐ THRU Ⓗ SHALL BE INSTALLED ACCORDING TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9.

TRAFFIC CONTROL DEVICES ① THRU ⑥ SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.

APPROVED:_____ DATE:_____

SEAL




OFFSITE DETOUR SIGNING AND ROAD CLOSURE

4/8/2013
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adynskra

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | EC-1 |

# EROSION CONTROL PLAN

KEVIN B. ALFORD, PE
LEVEL IIIA NAME

396
LEVEL IIIA CERTIFICATION NO.

*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.*

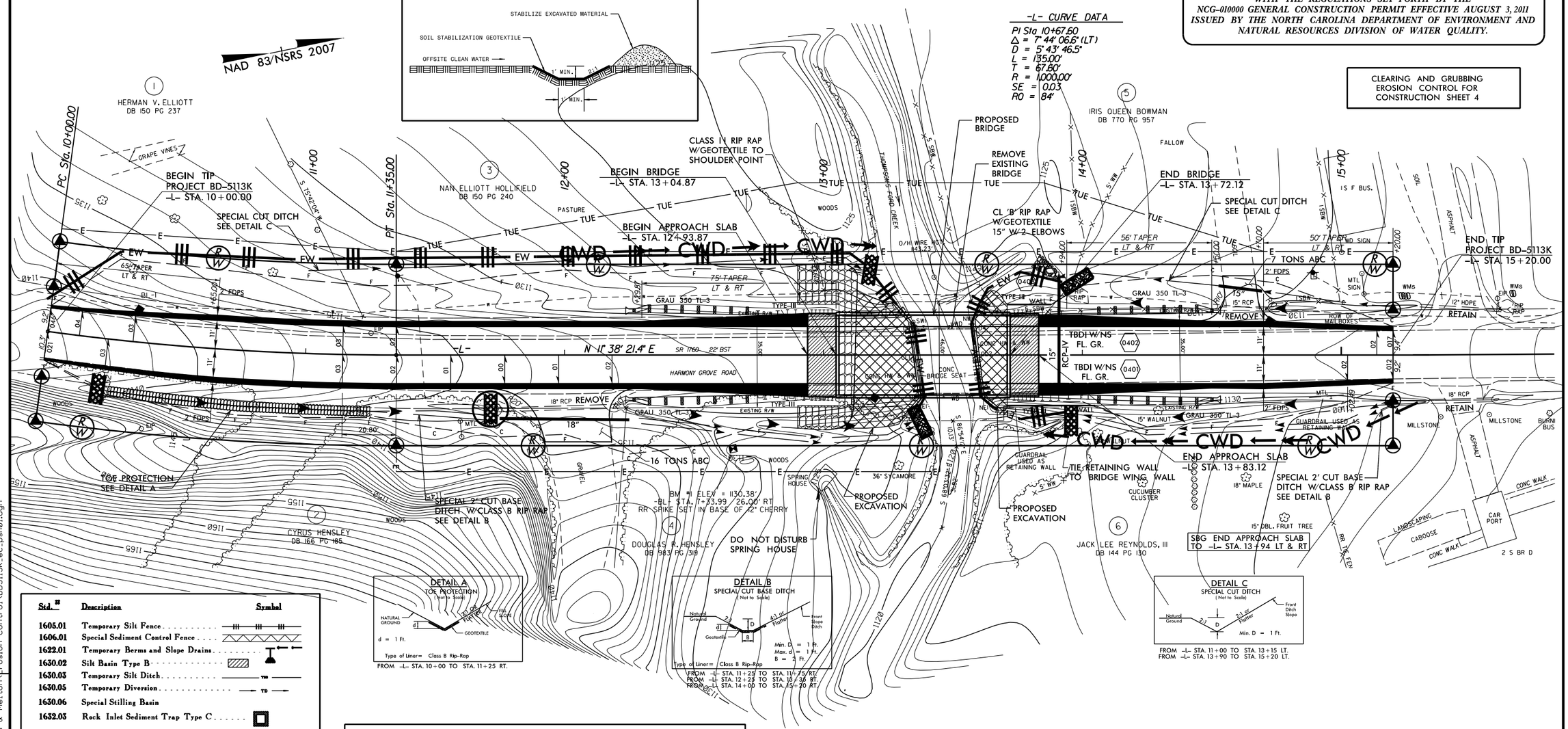
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

## CLEAN WATER DIVERSION

CWD — CWD — CWD — CWD

(Not to Scale)













| Std. # | Description | Symbol |
|---|---|---|
| 1605.01 | Temporary Silt Fence | |
| 1606.01 | Special Sediment Control Fence | |
| 1622.01 | Temporary Berms and Slope Drains | |
| 1630.02 | Silt Basin Type B | |
| 1630.03 | Temporary Silt Ditch | TSD |
| 1630.05 | Temporary Diversion | TD |
| 1630.06 | Special Stilling Basin | |
| 1632.03 | Rock Inlet Sediment Trap Type C | |
| 1633.01 | Temporary Rock Silt Check Type-A | |
| | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | |
| 1633.02 | Temporary Rock Silt Check Type-B | |
| | Silt Fence Excelsior Wattle Break | EW |
| | Wattle with Polyacrylamide (PAM) | |
| 1634.01 | Temporary Rock Sediment Dam Type-A | |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A | |

## 2012 STANDARD DRAWINGS

| | | | |
|---|---|---|---|
| 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 | | |

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

REVISIONS

8/17/99

3:49:17 PM
5/23/2013
Bridge #64_McDowell_Vaughn & Melton\Erosion Control\BD5113K_ec_psh01.dgn

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | EC-1A |

# EROSION CONTROL PLAN

KEVIN B. ALFORD, PE
LEVEL IIIA NAME

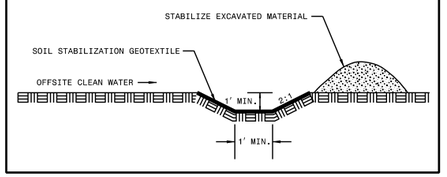
396
LEVEL IIIA CERTIFICATION NO.

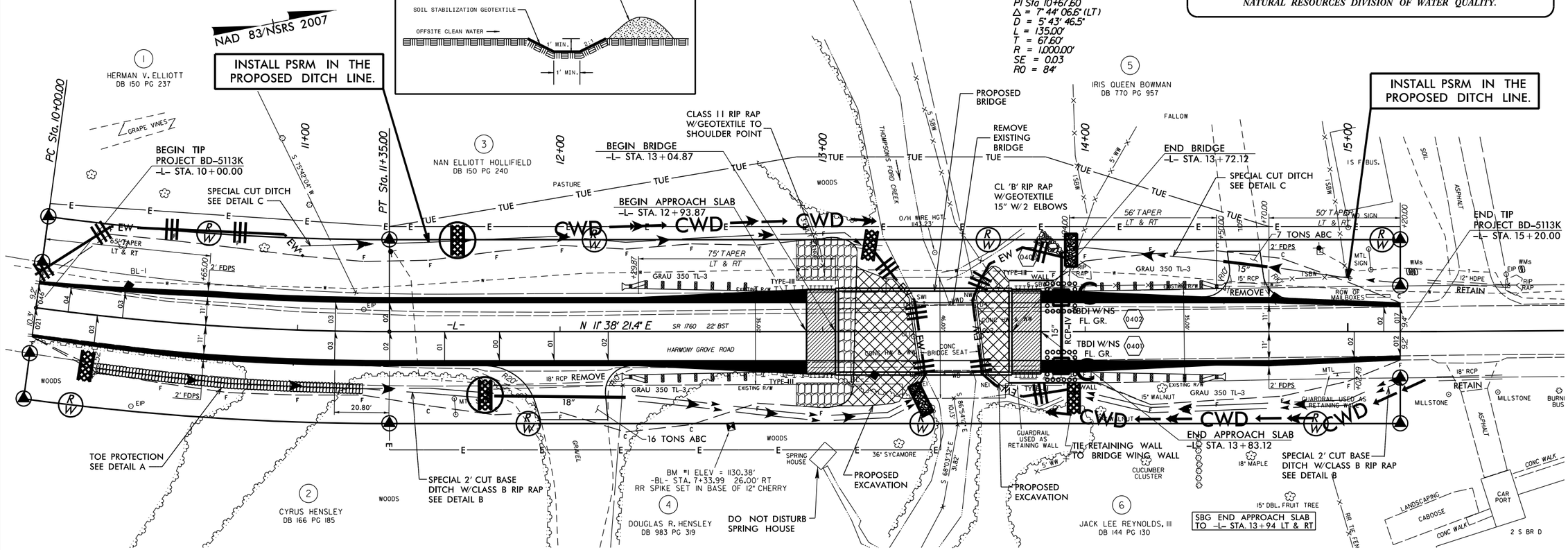
*THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.*

## CLEAN WATER DIVERSION

CWD — CWD — CWD — CWD

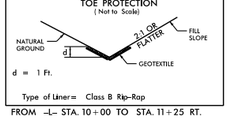
(Not to Scale)



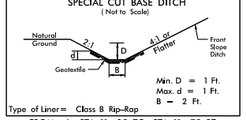

| Std. # | Description | Symbol |
|---|---|---|
| 1605.01 | Temporary Silt Fence | |
| 1606.01 | Special Sediment Control Fence | |
| 1622.01 | Temporary Berms and Slope Drains | |
| 1630.02 | Silt Basin Type B | |
| 1630.03 | Temporary Silt Ditch | TSD |
| 1630.05 | Temporary Diversion | TD |
| 1630.06 | Special Stilling Basin | |
| 1632.03 | Rock Inlet Sediment Trap Type C | |
| 1633.01 | Temporary Rock Silt Check Type-A | |
| | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | |
| 1633.02 | Temporary Rock Silt Check Type-B | |
| | Silt Fence Excelsior Wattle Break | EW |
| | Wattle with Polyacrylamide (PAM) | |
| 1634.01 | Temporary Rock Sediment Dam Type-A | |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A | |

### DETAIL A
TOE PROTECTION
( Not to Scale)




FROM -L- STA. 10+00 TO STA. 11+25 RT.

### DETAIL B
SPECIAL CUT BASE DITCH
( Not to Scale)




FROM -L- STA. 11+25 TO STA. 11+75 RT.
FROM -L- STA. 12+25 TO STA. 13+35 RT.
FROM -L- STA. 14+00 TO STA. 15+20 RT.

### DETAIL C
SPECIAL CUT DITCH
( Not to Scale)

FROM -L- STA. 11+00 TO STA. 13+15 LT.
FROM -L- STA. 13+90 TO STA. 15+20 LT.

## 2012 STANDARD DRAWINGS

| | | | |
|---|---|---|---|
| 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 | | |

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

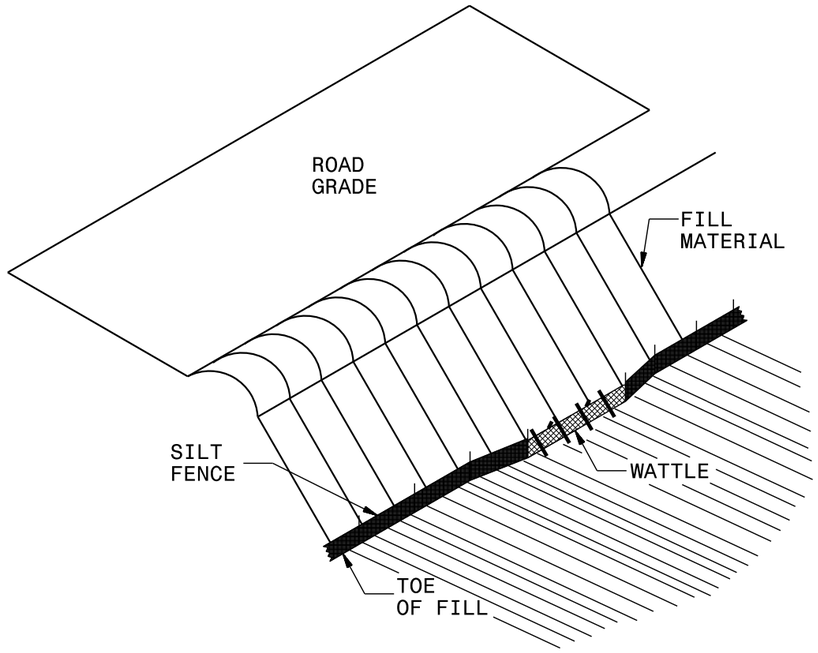
REVISIONS

8/17/99

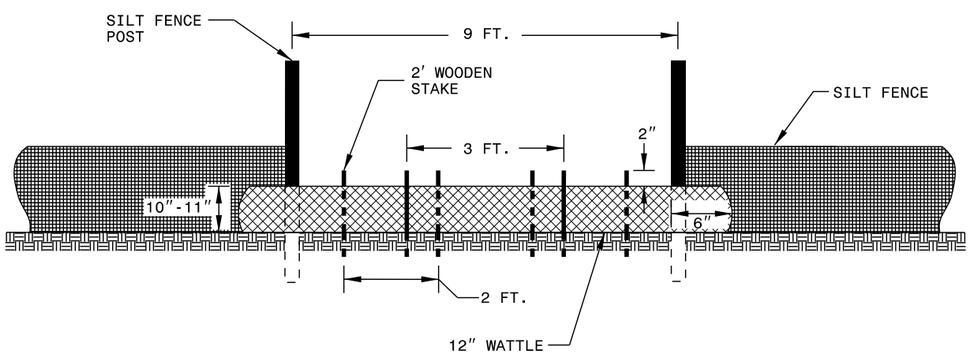
3:15:00 PM
P:\2012_Bridge #64_McDowell_Vaughn & Melton\Erosion Control\BD5113K_ec_psh01A.dgn
6/27/2013

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | EC-2 |

# SILT FENCE WATTLE BREAK DETAIL




**ISOMETRIC VIEW**




**VIEW FROM SLOPE**

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

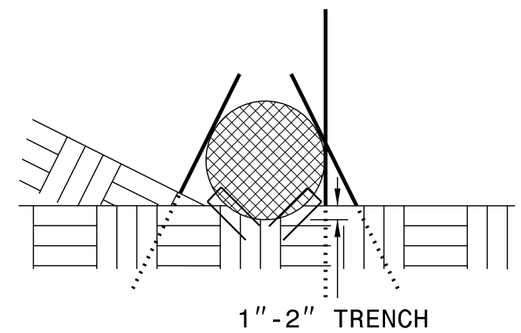
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

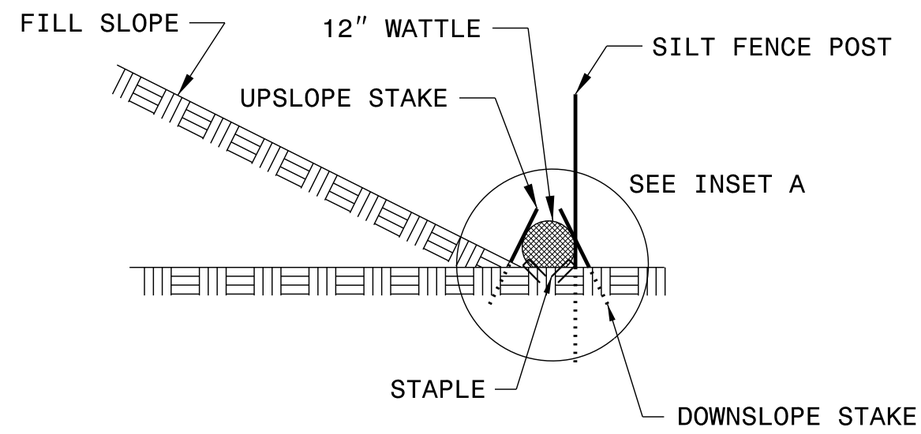
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

INSET A

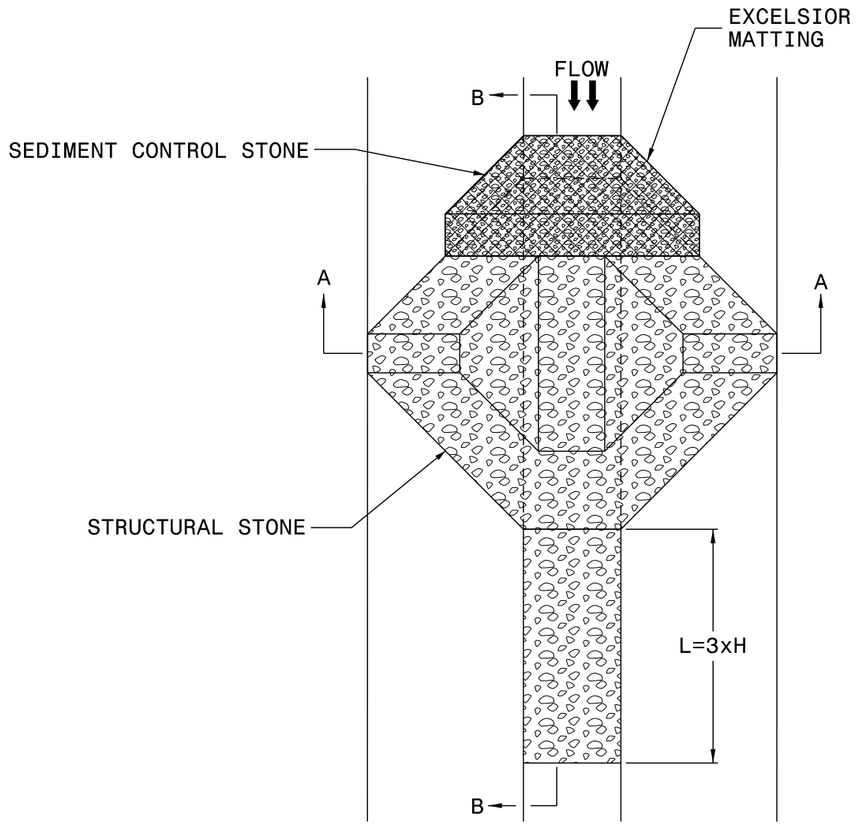



**SIDE VIEW**

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | EC-2A |

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



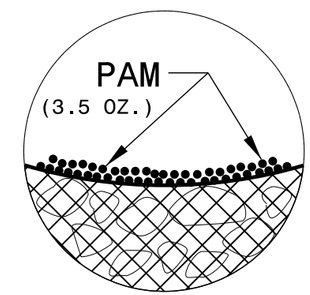

PLAN

NOTES

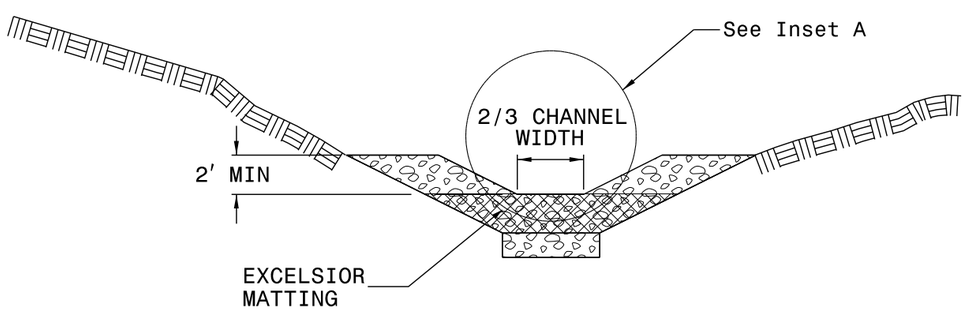
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

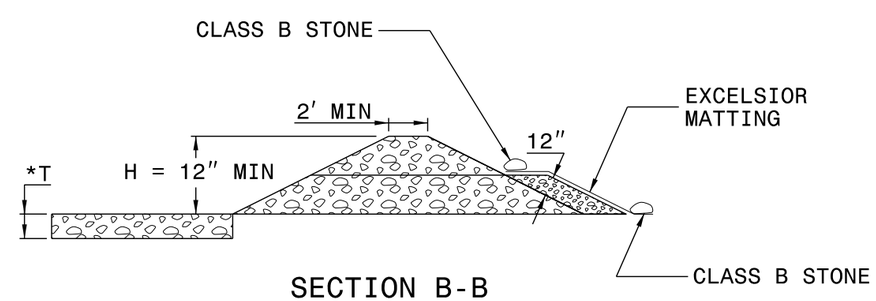
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.




INSET A




SECTION A-A




SECTION B-B

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

NOT TO SCALE

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | EC-3 |

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

# SOIL STABILIZATION SUMMARY SHEET

## MATTING FOR EROSION CONTROL

| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|---|---|---|---|---|---|
| 4 | -L- | 10+00 | 12+90 | LT | 535 |
| 4 | -L- | 13+88 | 15+20 | LT | 230 |
| 4 | -L- | 10+00 | 12+90 | RT | 490 |
| 4 | -L- | 14+05 | 15+20 | RT | 220 |
| | | | | | |
| | | | | | |
| | | | | SUBTOTAL | 1475 |
| MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER | | | | | 150 |
| | | | | TOTAL | 1625 |
| | | | | SAY | 1700 |

## PERMANENT SOIL REINFORCEMENT MAT

| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|---|---|---|---|---|---|
| 4 | -L- | 11+00 | 11+25 | LT | 155 |
| 4 | -L- | 13+90 | 15+20 | LT | 95 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | SUBTOTAL | 250 |
| | | ADDITIONAL PSRM TO BE INSTALLED | | | 25 |
| | | | | TOTAL | 275 |
| | | | | SAY | 300 |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | EC-3A |

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. |

7/31/13

TIP PROJECT: BD-5113K

CONTRACT:

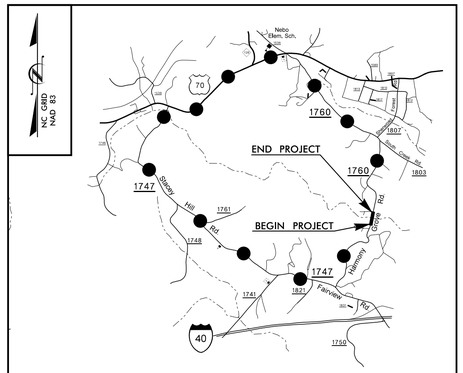
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

| T.I.P. NO. | SHEET NO. |
|---|---|
| BD-5113K | UO-1 |

# UTILITIES BY OTHERS PLANS
# McDOWELL COUNTY

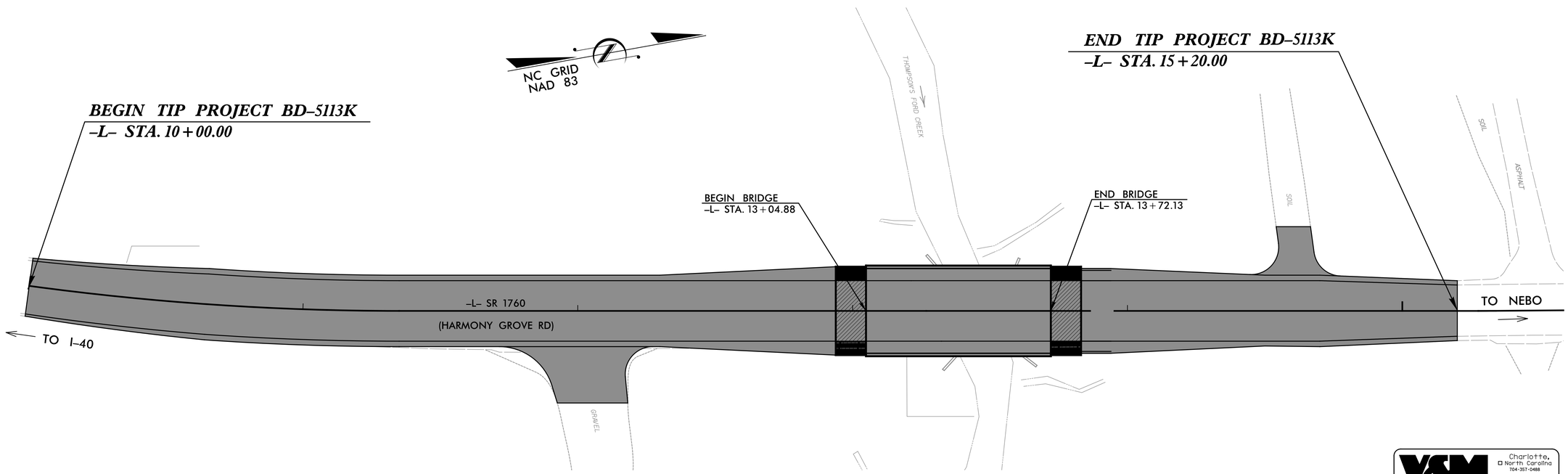
**LOCATION: BRIDGE NO. 64 OVER THOMPSON'S FORD CREEK ON SR 1760 (HARMONY GROVE ROAD)**

**TYPE OF WORK: POWER, TELEPHONE & CABLE**




VICINITY MAP

DETOUR ROUTE





V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-9401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

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## GRAPHIC SCALES

20 10 0 20 40
PLANS

## INDEX OF SHEETS

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

## UTILITY OWNERS ON PROJECT

(1) POWER - DUKE ENERGY
(2) MORRIS BROADBAND - CABLE
(3) FRONTIER - TELEPHONE

SEAL NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER
10/17/13


V&M Vaughn & Melton Consulting Engineers
3089-L Beam Road
Charlotte, NC 28217
704-357-0488



PREPARED FOR THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION

1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

| | |
|---|---|
| Roger Worthington, P.E. | UTILITIES SECTION ENGINEER |
| Xxxxx Xxxxx, P.E. | UTILITIES SQUAD LEADER PROJECT ENGINEER |
| Reece Schuler, PE | UTILITIES PROJECT DESIGNER |


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

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | U0-2 |

# UTILITIES BY OTHERS

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


Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5600
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775
Charlotte, North Carolina 704-357-0488

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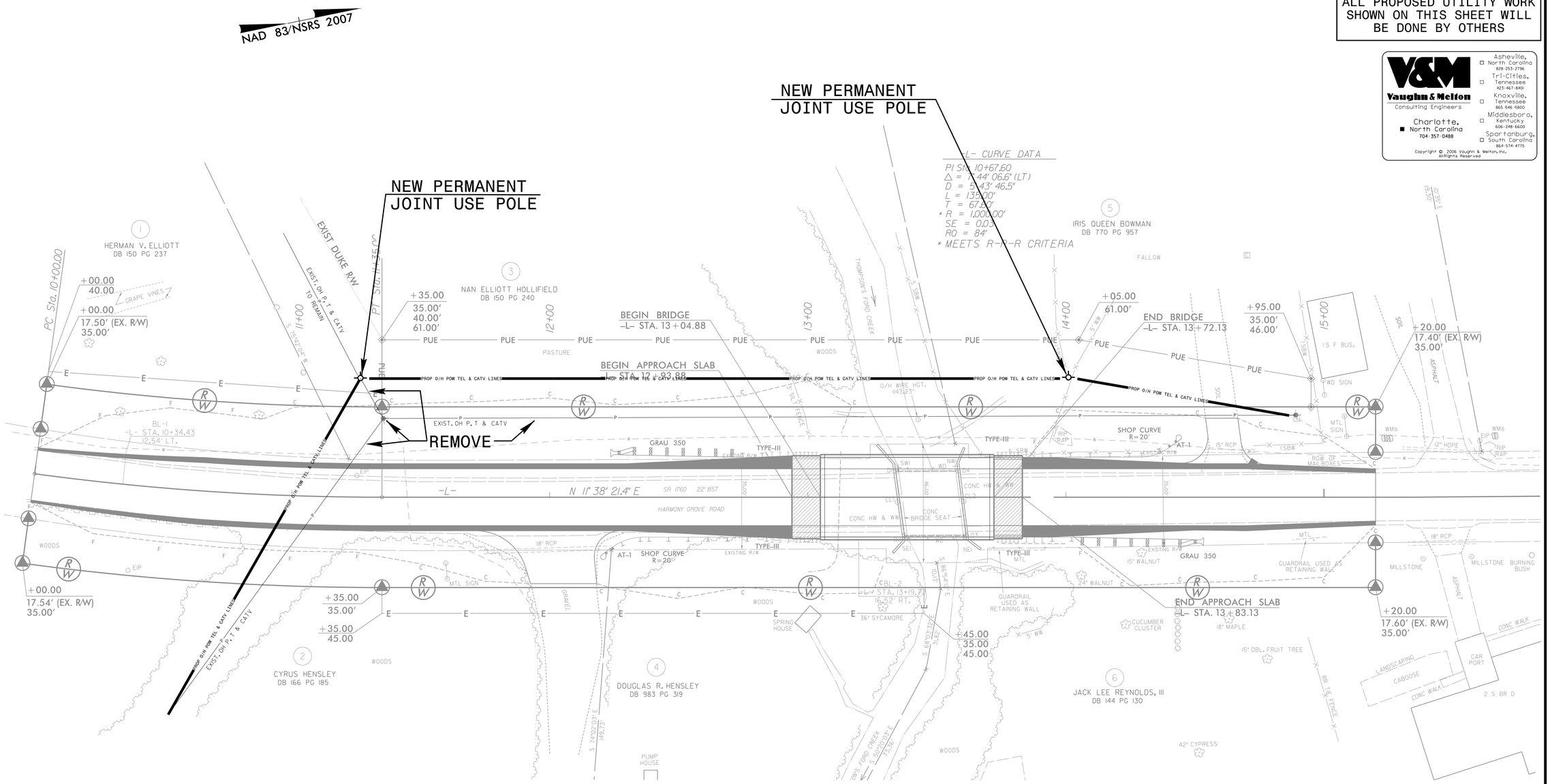



REVISIONS

7/31/13

COMPUTED BY: MAF DATE: 02-09-13
CHECKED BY: ACC DATE: 02-04-13

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| BD-5113K | X-0 |

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER FRECE M. SCHULTZ
10/17/13

# CROSS SECTION SUMMARY

## IN CUBIC YARDS

| -L- LOCATION | UNCLASSIFIED EXCAVATION | EMBT |
|---|---|---|
| 10+00 | 0 | 0 |
| 10+25 | 0 | 12 |
| 10+50 | 0 | 17 |
| 10+75 | 0 | 34 |
| 11+00 | 2 | 30 |
| 11+25 | 5 | 27 |
| 11+50 | 8 | 25 |
| 11+75 | 15 | 25 |
| 12+00 | 12 | 32 |
| 12+25 | 15 | 46 |
| 12+50 | 28 | 55 |
| 12+75 | 22 | 57 |
| 13+00 | 20 | 63 |
| 13+04.87 BEGIN BRIDGE | 5 | 14 |
| 13+72.12 END BRIDGE | 0 | 2 |
| 13+75 | 1 | 20 |
| 14+00 | 4 | 18 |
| 14+25 | 11 | 28 |
| 14+50 | 17 | 32 |
| 14+75 | 18 | 26 |
| 15+00 | 15 | 18 |
| 15+20 | 6 | 6 |
| | | |

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

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".

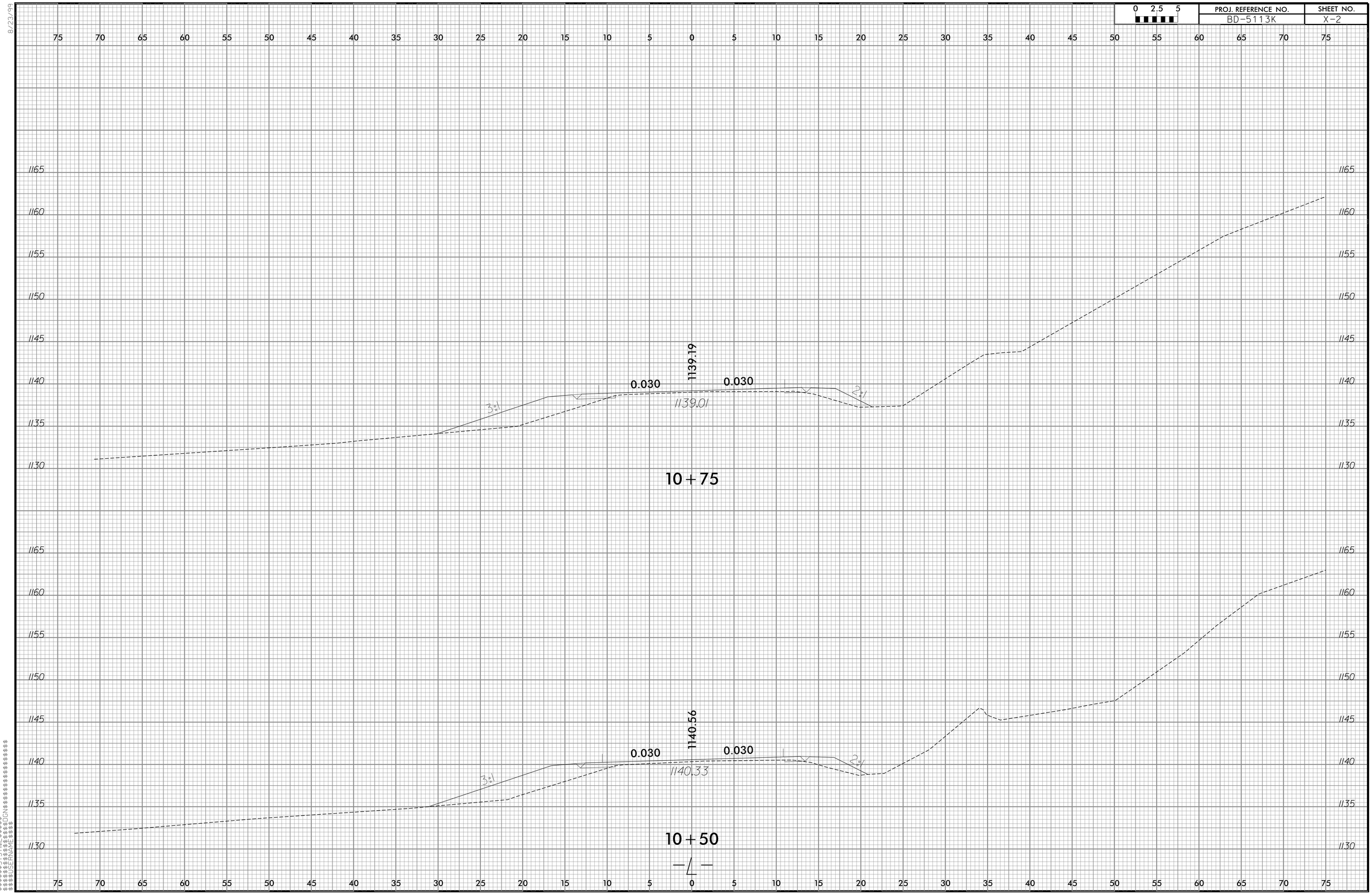
| PROJ. REFERENCE NO. | SHEET NO. |
| --- | --- |
| BD-5113K | X-1 |

8/23/99

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

8/23/99

| 0 2.5 5 | PROJ. REFERENCE NO. | SHEET NO. |
|---|---|---|
| | BD-5113K | X-2 |




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

8/23/99

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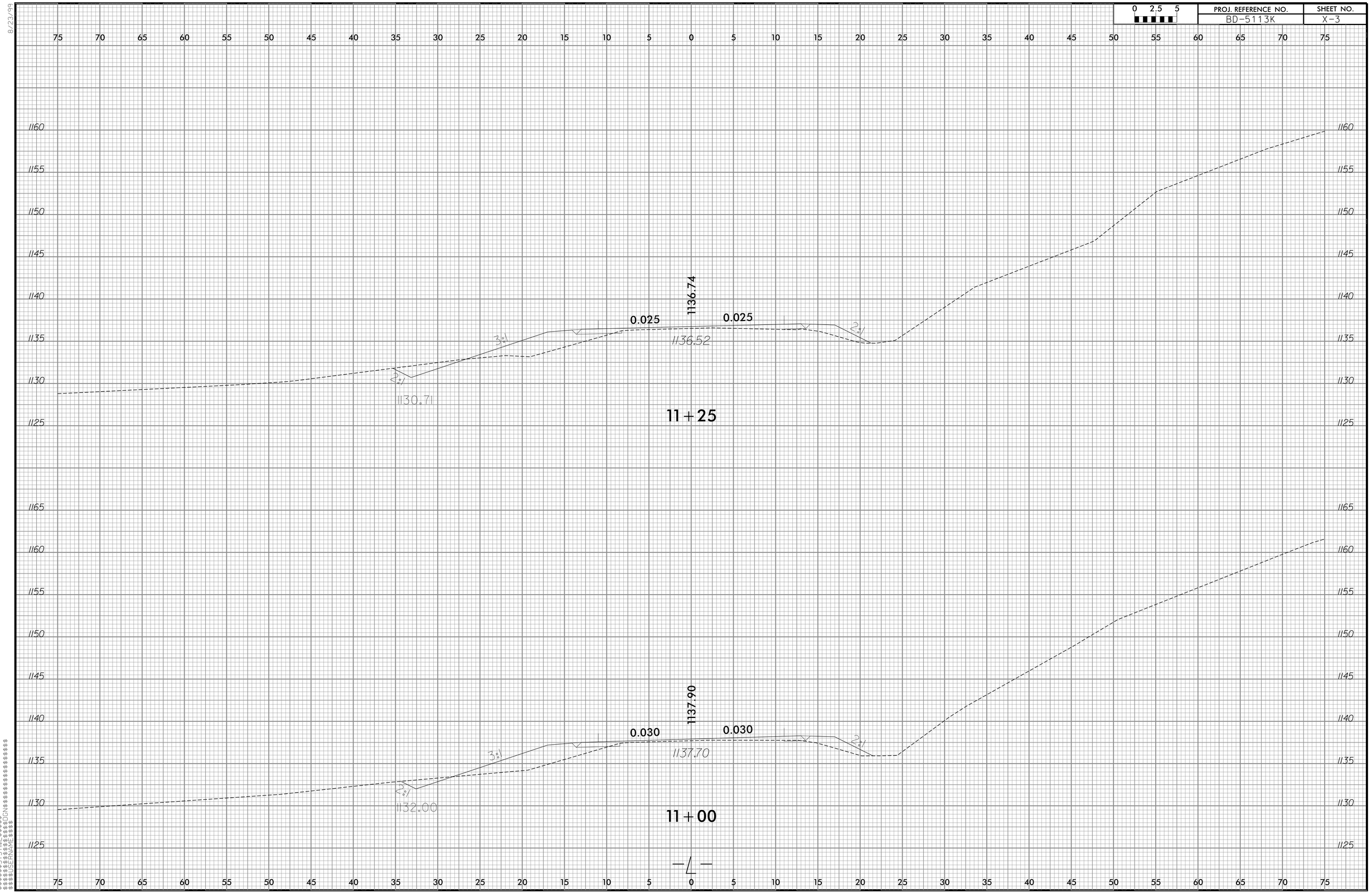
|---|---|---|
| | BD-5113K | X-3 |




$$SYSTIME$ $$$$
$$DWG$ $$$$$$$$$$$$
$$FNAME$ $$$$
$$ENAME$ $$$$

8/23/99

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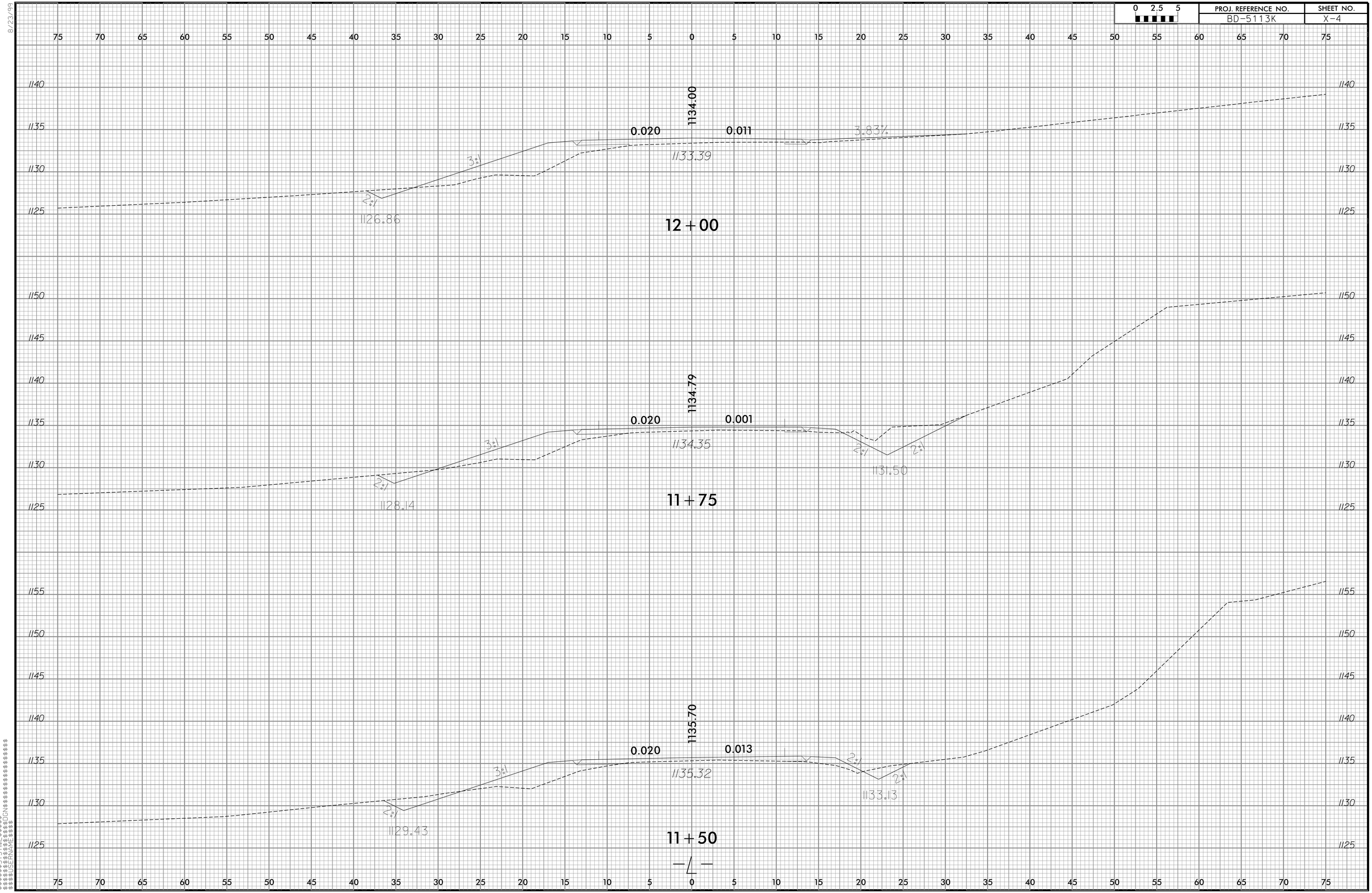
|---|---|---|
| | BD-5113K | X-4 |




$$$$$$SYSTIME$$$$$$
$$$$$$SYSLEN$$$$$$
$$$$$$SYSCHARSIZE$$$$$$

8/23/99

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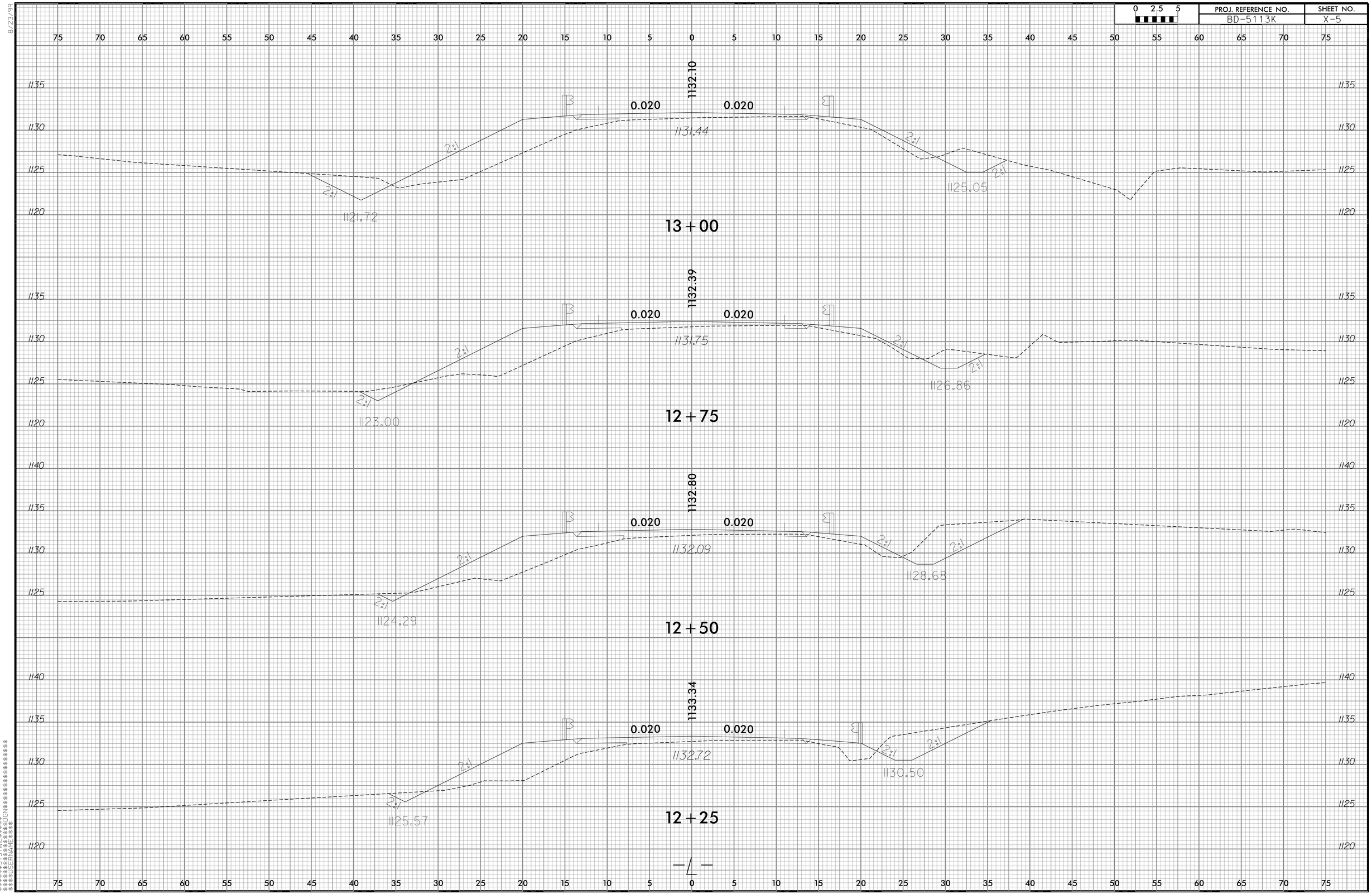
| | BD-5113K | X-5 |




SYSTIME$ $$$$
SYSDUN$ $$$$$$$$$$$$$$$$
ENAME$ $$$$
ENLEN$ $$$$

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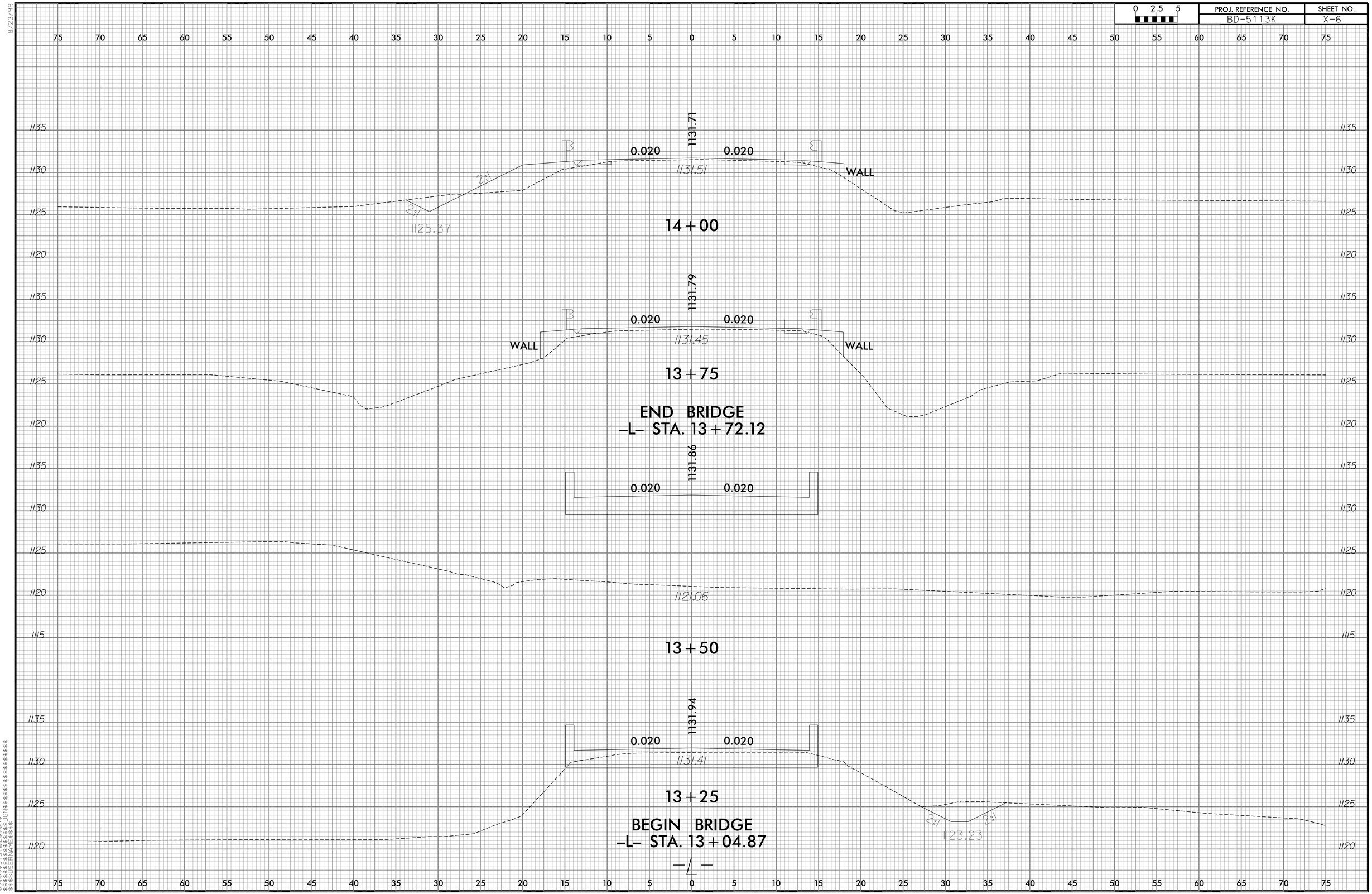
|---|---|---|
| | BD-5113K | X-6 |



8/23/99

| 0 2.5 5 | PROJ. REFERENCE NO. | SHEET NO. |
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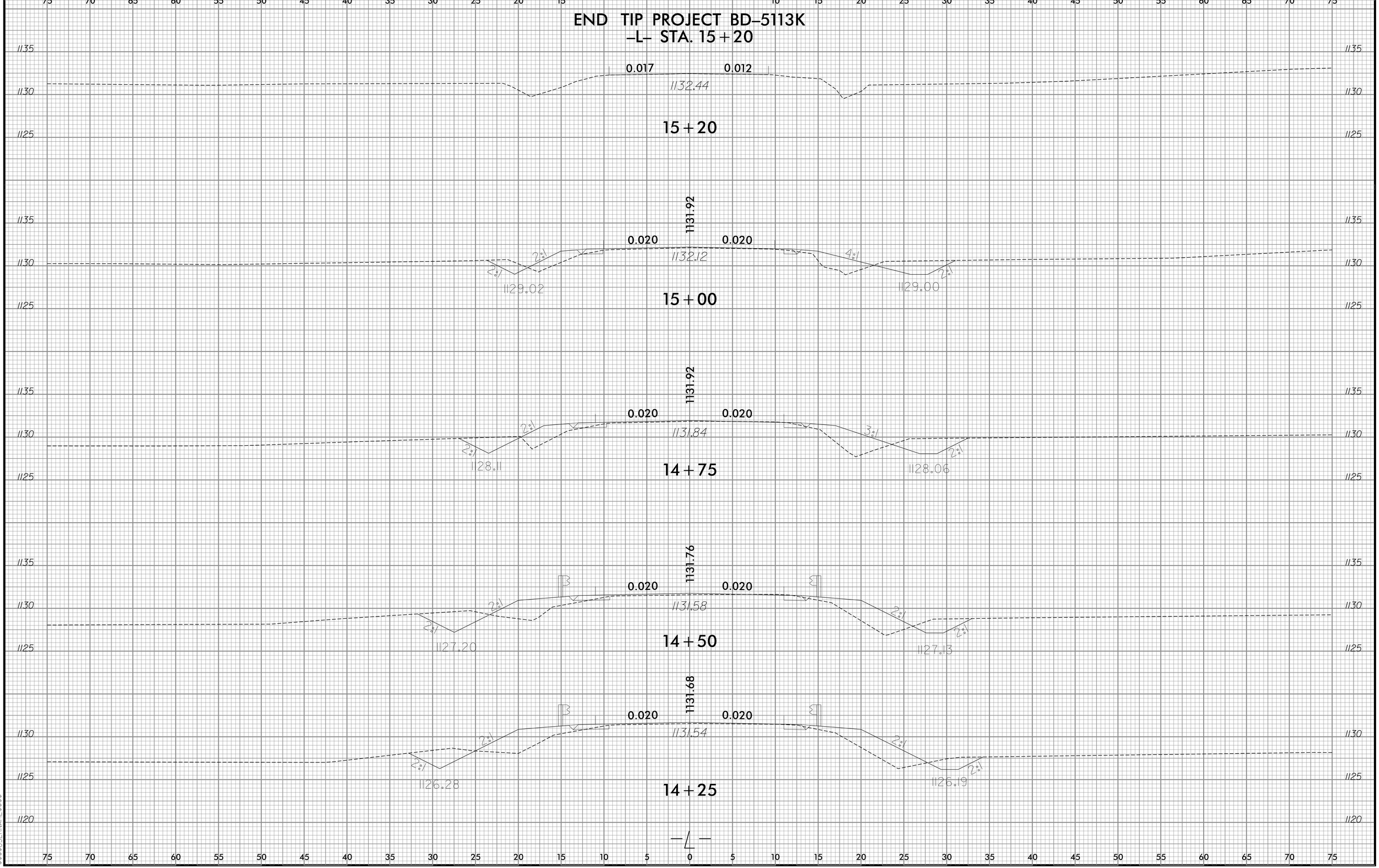
| | BD-5113K | X-7 |

# END TIP PROJECT BD-5113K
## -L- STA. 15+20

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