CONTRACT: C203247

TIP PROJECT: B-4621

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

**VICINITY MAP**
**(ONSITE DETOUR)**

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4621 | 1 | |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 38439.1.1 | BRNHS-220B(4) | PE |
| 38439.2.1 | BRNHS-220B(4) | ROW |
| 38439.3.FS1 | BRNHS-220B(4) | CONSTRUCTION |

# ROCKINGHAM COUNTY

***LOCATION: BRIDGE NO. 150 OVER US 220 BUSINESS ON US 220 NBL***

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

NAD 83/2001

NCDOT CONTACT: BRENDA L. MOORE, P.E. , ENGINEERING COORDINATION PROJECT ENGINEER, ROADWAY DESIGN UNIT.
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

**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 = 16,870
ADT 2033 = 26,670
DHV = 11 %
D = 55 %
T = 23 % *
V = 65 MPH
* TTST 14% DUAL 9%
FUNC CLASS = FREEWAY
STATEWIDE TIER

**PROJECT LENGTH**

| | | |
|---|---|---|
| LENGTH ROADWAY TIP PROJECT B-4621 | = | 0.296 MILES |
| LENGTH STRUCTURE OF TIP PROJECT B-4621 | = | 0.047 MILES |
| TOTAL LENGTH OF TIP PROJECT B-4621 | = | 0.343 MILES |

Prepared In the Office of:
**RAMEY KEMP & ASSOCIATES, INC.**
5808 Faringdon Pl. Suite 100, Raleigh, NC 27609
For North Carolina Department of Transportation

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 19, 2012

LETTING DATE:
OCTOBER 15, 2013

MERRICK "TRE" DUGAL, III, P.E.
PROJECT ENGINEER

BRET PALIS
PROJECT DESIGNER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
SIGNATURE: 7/17/13 P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL, III
7/16/13
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 1-A |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 ENGINEER MERRICK A DUGAL III

7/16/13

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# INDEX OF SHEETS, GENERAL NOTES AND 2012 ROADWAY ENGLISH STANDARD DRAWINGS

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 THRU 2-A | PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS |
| 2-B THRU 2-C | DETOUR PLAN SHEETS |
| 2-D | DETAIL OF TEMPORARY SHORING |
| 2-E | TEMPORARY SHORING GUARDRAIL DETAIL |
| 2-F | DETAIL OF CONVERT DI TO JUNCTION BOX |
| 2-G | DETAIL OF STRUCTURE ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER |
| 3 | SUMMARY OF QUANTITIES |
| 3A | SUMMARY OF DRAINAGE QUANTITIES |
| 3B | SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, SHOULDER BERM GUTTER SUMMARY, SUMMARY OF SUBSURFACE DRAINAGE AND ASPHALT PAVEMENT REMOVAL SUMMARY |
| 4 THRU 5 | PLAN SHEETS |
| 6 THRU 7 | PROFILE SHEETS |
| TMP-1 THRU TMP- 18 | TRAFFIC CONTROL PLANS |
| PMP-1 THRU PMP-2 | PAVEMENT MARKING PLANS |
| EC-1 THRU EC-11 | EROSION CONTROL PLANS |
| SIGN-1 THRU SIGN-4 | SIGNING PLANS |
| UO-1 THRU UO-2 | UTILITY BY OTHERS PLANS |
| X-1A THRU X-15 | CROSS-SECTIONS |
| S-1 THRU S- 42 | STRUCTURE PLANS |


GENERAL NOTES:

THE CONTRACTOR IS TO FURNISH ALL TEMPORARY AND PERMANENT MATERIALS AND EQUIPMENT FOR USE IN THIS PROJECT AND WILL RETAIN ALL MATERIALS AND EQUIPMENT UPON COMPLETION OF THE PROJECT.

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 OF 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. 225.05 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 AND 560.02.

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE AND 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: CENTURYLINK TELEPHONE

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

2012 ROADWAY ENGLISH STANDARD DRAWINGS
THE FOLLOWING ROADWAY STANDARDS ARE 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: (PARTIAL LIST, ADDITIONAL DETAILS AS INDICATED ON OTHER SHEETS)

| STD. NO. | TITLE |
|---|---|
| 200.02 | METHOD OF CLEARING - METHOD II |
| 225.01 | GUIDE FOR GRADING SUBGRADE - INTERSTATE AND FREEWAY |
| 225.05 | METHOD OF OBTAINING SUPERELEVATION - DIVIDED HIGHWAYS |
| 225.09 | GUIDE FOR SHOULDER AND DITCH TRANSITIONS A GRADE SEPARATIONS |
| 300.01 | METHOD OF PIPE INSTALLATON |
| 422.10 | REINFORCED BRIDGE APPROACH FILLS |
| 560.01 | METHOD OF SHOULDER CONSTRUCTRTION HIGH SIDE OF SUPERELEVATED CURVE METHOD I |
| 560.02 | METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATION CURVE - METHOD II |
| 665.01 | ASPHALT SHOULDERS MILLED RUMBLE STRIPS |
| 815.03 | PIPE UNDERDRAIN AND BLIND DRAIN |
| 840.00 | CONCRETE BASE PADE FOR DRAINAGE STRUCTURES |
| 840.22 | FRAMES AND WIDE SLOT SAG GRATES |
| 840.25 | ANCHORAGE FOR FRAMES |
| 840.27 | BRICK GRATED DROP INLET TYPE 'B' -12" THRU 36" PIPE |
| 840.31 | CONCRETE JUNCTION BOX |
| 840.32 | BRICK JUNCTION BOX |
| 840.45 | PRECAST DRAINAGE STRUCTURE |
| 840.54 | MANHOLE FRAME AND COVER |
| 840.66 | DRAINAGE STRUCTURE STEPS |
| 846.01 | CONCRETE CURB, GUTTER AND CURB & GUTTER |
| 846.04 | DROP INLET INSTALLATION IN SHOULDER BERM GUTTER |
| 850.01 | CONCRETE PAVED DITCHES |
| 862.01 | GUARDRAIL PLACEMENT |
| 862.02 | GUARDRAIL INSTALLATION |
| 862.03 | STRUCTURE ANCHOR UNITS |
| 862.04 | ANCHORING END OF GUARDRIAL - B-77 AND B-83 ANCHOR UNITS |

7/19/2013
I:\Roadway\Proj\b4621_rdy1A.dgn
jharrington

04/16/11

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 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 — 23
- 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

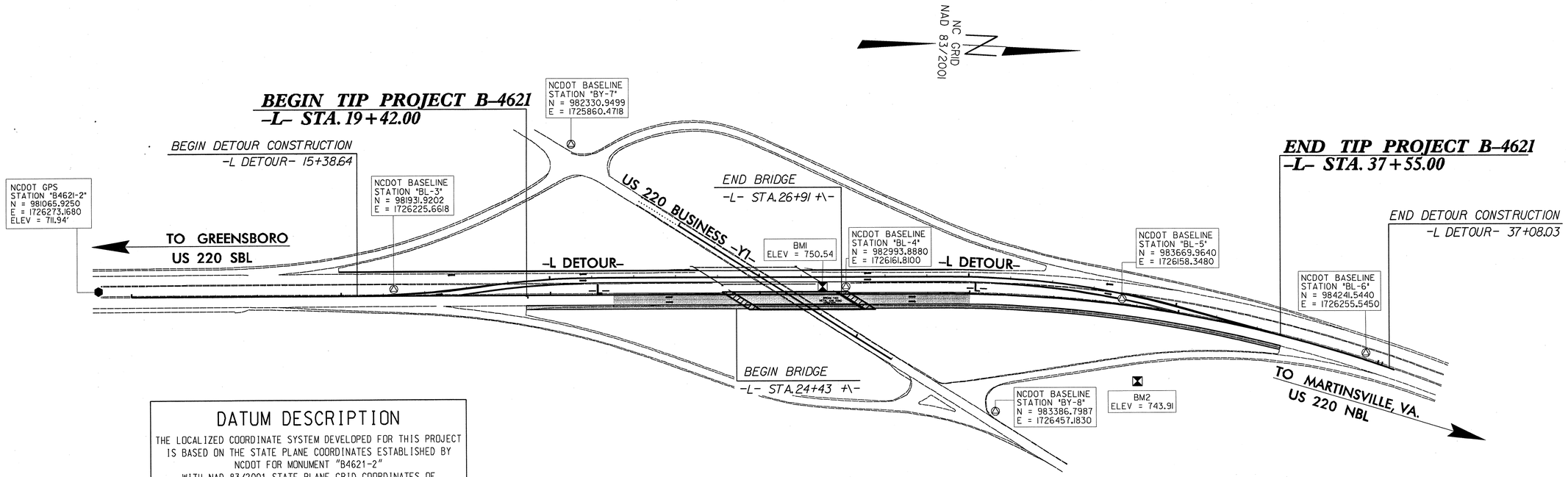
MISCELLANEOUS:

- 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-4621 | 1C |
| Location and Surveys | |

# B-4621 SURVEY CONTROL SHEET




## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4621-2"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
NORTHING: 981,065.925(ft) EASTING: 1,726,273.168(ft)
ELEVATION: 711.94'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000596193
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"B4621-2" TO -L- STATION 19+42.00 IS
N2°29'47.92"W 1,184.12'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

## NOTES

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

*THE FILES TO BE FOUND ARE AS FOLLOWS:*
*B4621_LS_CONTROL.TXT*

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

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

*PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.*

*NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)*

## BASELINE DATA

BL

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 1 | B4621-1 | 979845.6240 | 1726235.7640 | 710.44 | OUTSIDE PROJECT LIMITS | |
| 2 | B4621-2 | 981065.9250 | 1726273.1680 | 711.94 | OUTSIDE PROJECT LIMITS | |
| 3 | BL-3 | 981931.9202 | 1726225.6618 | 730.39 | 16+25.20 | 12.14 LT |
| 4 | BL-4 | 982993.8880 | 1726161.8100 | 750.21 | 26+89.04 | 21.60 LT |
| 5 | BL-5 | 983669.9640 | 1726158.3480 | 760.41 | 33+63.32 | 17.42 LT |
| 6 | BL-6 | 984241.5440 | 1726255.5450 | 760.63 | 39+40.70 | 17.89 LT |

BY

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 7 | BY-7 | 982330.9499 | 1725860.4718 | 714.90 | 20+42.38 | 356.45 LT |
| A40 | | 982876.6282 | 1726168.8610 | UNKNOWN | 25+71.58 | 20.56 LT |
| 8 | BY-8 | 983386.7987 | 1726457.1830 | 738.32 | 30+78.08 | 291.13 RT |

## BENCHMARK DATA

```
**************************************
BM1        ELEVATION = 750.54
N 982971       E 1726162
BL STATION 36+30.00 1 LEFT
CHISELED SQUARE ON NW CORNER OF WW OF S
BOUND BRIDGE
**************************************
**************************************
BM2        ELEVATION = 743.91
N 983692       E 1726352
BL STATION 43+83.00 187 RIGHT
RR SPIKE IN BASE OF 8" SWEET GUM
**************************************
```

L

| TYPE | STATION | NORTH | EAST |
|---|---|---|---|
| POT | 10+00.00 | 981308.1578 | 1726269.7559 |
| PC | 29+50.00 | 983255.6067 | 1726170.0422 |
| PT | 40+19.88 | 984313.2121 | 1726294.1343 |
| POT | 40+33.31 | 984326.0974 | 1726297.9060 |

Y1

| TYPE | STATION | NORTH | EAST |
|---|---|---|---|
| POT | 10+00.00 | 982603.5018 | 1726037.2509 |
| POT | 16+00.04 | 983125.8763 | 1726332.4968 |

*NOTE: DRAWING NOT TO SCALE*

7/15/2013
kcadley
i:\roadway\Proj\b4621_ls_1c.dgn

6/2/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 2 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAN III

7/16/13

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22996 ENGINEER CLARK S. MORRISON

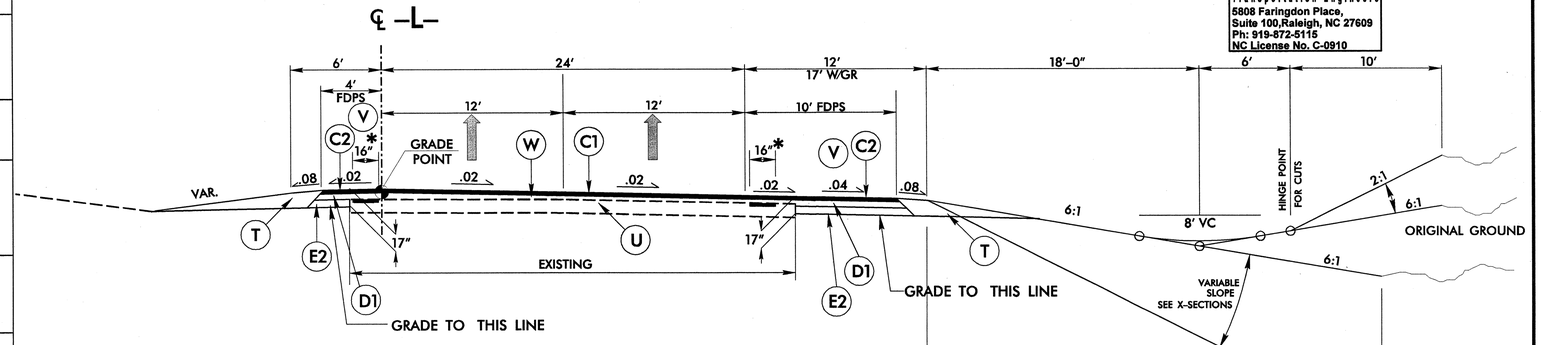
7/17/13

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910

## PAVEMENT SCHEDULE

| | |
|---|---|
| C1 | PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| C2 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C3 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH. |
| D1 | PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| D2 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" DEPTH. |
| E1 | PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B250C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| E2 | PROP. APPROX. 10" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AN AN AVERAGE RATE OF 570 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| E3 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT GREATER THAN 5½" IN DEPTH OR LESS THAN 4" IN DEPTH. |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| V | RUMBLE STRIP |
| W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS THIS SHEET) |

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

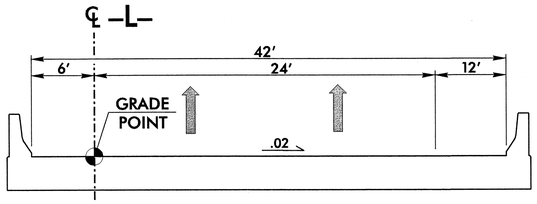



## TYPICAL SECTION NO. 1

–L– STA. 21+50.00 TO –L– STA. 24+44.66 (BEGIN BRIDGE)
–L– STA. 26+92.66 +/– (END BRIDGE) TO –L– STA. 30+00

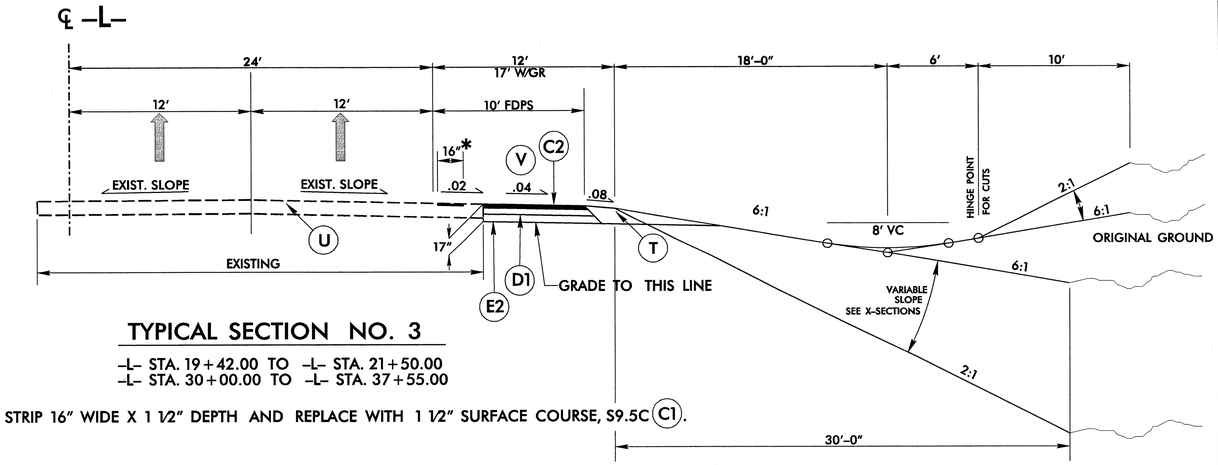
*REMOVE RUMBLE STRIP 16" WIDE X 1 1/2" DEPTH AND REPLACE WITH 1 1/2" SURFACE COURSE, S9.5C (C1).

1.5" OVERLAY LIMITS SB –L DETOUR– STA. 15+70.00 TO STA. 23+80.35
SB –L DETOUR– STA. 26+28.33 TO STA. 34+94.00
NB –L– STA. 10+80.00 TO STA. 21+50.00
NB –L– STA. 30+00.00 TO STA. 37+50.00




## TYPICAL SECTION NO. 2

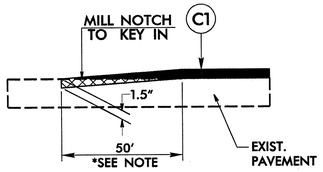
–L– STA. 24+44.66 (BEGIN BRIDGE) TO –L– STA. 26+92.66 (END BRIDGE)



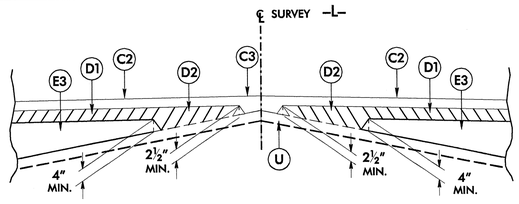

## TYPICAL SECTION NO. 3

–L– STA. 19+42.00 TO –L– STA. 21+50.00
–L– STA. 30+00.00 TO –L– STA. 37+55.00

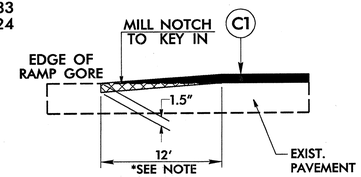
*REMOVE RUMBLE STRIP 16" WIDE X 1 1/2" DEPTH AND REPLACE WITH 1 1/2" SURFACE COURSE, S9.5C (C1).




INCIDENTAL MILLING
–L DETOUR– STA. 15+70.00
–L DETOUR– STA. 23+80.35
–L DETOUR– STA. 26+28.33
–L DETOUR– STA. 33+35.24




DETAIL SHOWING METHOD OF WEDGING




PROFILE MILLING DETAIL

PROFILE MILL 12′ INTO TRAVEL WAY
–L– STA. 13+55.00 TO STA. 19+42.00 (NB EXIT RAMP)
–L– STA. 31+73.00 TO STA. 34+94.00 (SB EXIT RAMP)

7/15/2013
J:\Projects\Proj\b4621_rdy_typ.dgn
jlewis

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 2A |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

7/16/13

PAVEMENT DESIGN ENGINEER

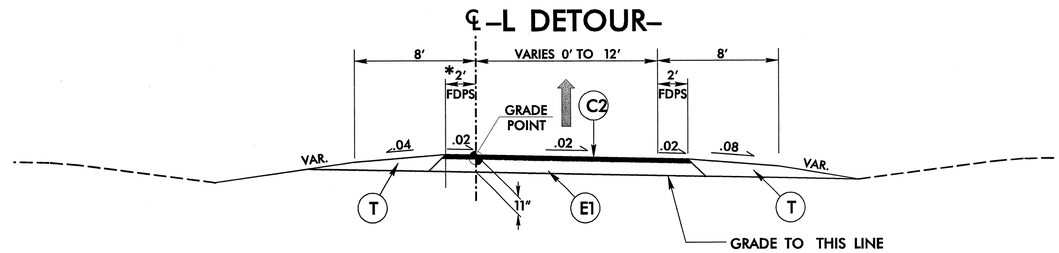
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON

7/17/13

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910

| PAVEMENT SCHEDULE | |
|---|---|
| C | PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. |
| C1 | PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| C2 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C3 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH. |
| D1 | PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| D2 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" DEPTH. |
| E1 | PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| E2 | PROP. APPROX. 10" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AN AN AVERAGE RATE OF 570 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| E3 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT GREATER THAN 5½" IN DEPTH OR LESS THAN 4" IN DEPTH. |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| V | RUMBLE STRIP |
| W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS THIS SHEET) |

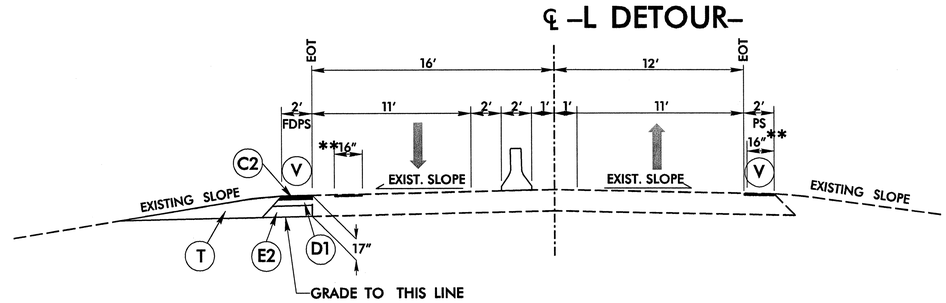
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.




## TYPICAL SECTION NO.4

**-L DETOUR- STA. 15+38.64 TO -L DETOUR- STA. 21+24.57
**-L DETOUR- STA. 29+52.01 TO -L DETOUR- STA. 38+09.27

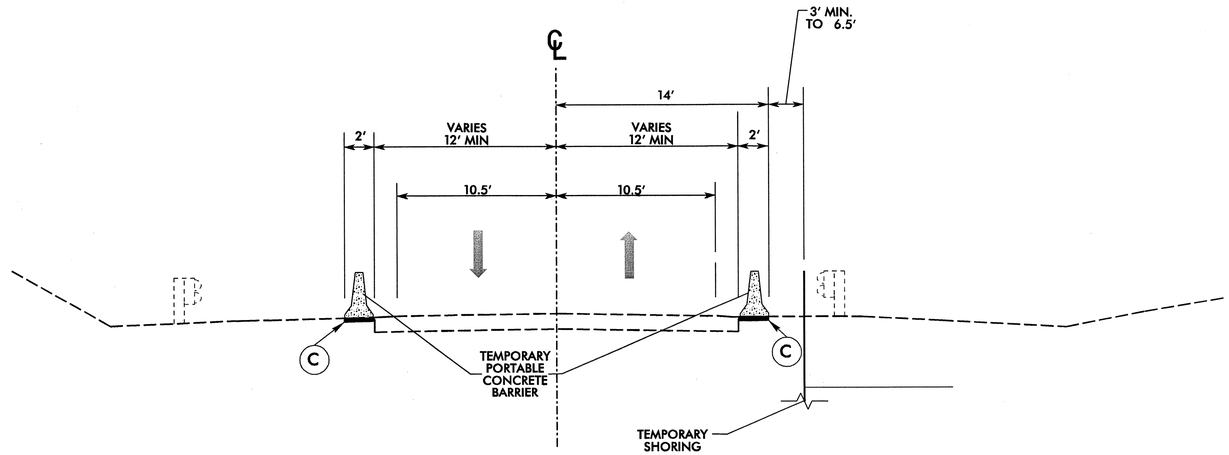
*ADD ADDITION 2' FDPS FOR PCB FROM STA. 34+16.86 TO STA. 37+30.66 LT.




## TYPICAL SECTION NO. 5

**-L DETOUR- STA. 21+24.57 TO -L DETOUR- STA. 23+53.74 (BEGIN BRIDGE)
**-L DETOUR- STA. 25+98.30 (END BRIDGE) TO -L DETOUR- STA. 29+52.01

**REMOVE RUMBLE STRIP 16" WIDE X 1 1/2" DEPTH AND REPLACE WITH 1 1/2" SURFACE COURSE, S9.5C (C1).




US 220 BUS

## TYPICAL SECTION NO. 6

-Y1- STA. 12+22.38 TO 15+59.83 LT
-Y1- STA. 11+76.69 TO 14+50.65 RT
NOTE: SEE TMP-12A

6/2/99

7/16/2013
...\Roadway\Proj\b4621_rdy_typ.dgn

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 2B |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III — 7/11/13

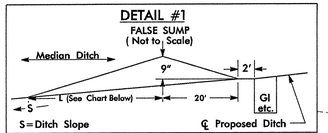
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. — 7/22/13


RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910


# -L DETOUR- PLAN SHEET

NAD 83/2001

**DETAIL #1**
FALSE SUMP
( Not to Scale)




| Ditch Grade | L | Ditch Grade | L |
|---|---|---|---|
| 0.0% To 2.0% | 20' | Over 4.0% To 6.0% | 40' |
| Over 2.0% To 4.0% | 30' | Over 6.0% | 50' |

STA. 20+35 -L DETOUR- RT

-L DETOUR-
PI Sta 16+85.38
Δ = 8°13' 41.6" (LT)
D = 2°48' 31.0"
L = 292.96'
T = 146.73'
R = 2,040.00'
SE = RC
RO = 50'

PI Sta 19+78.34
Δ = 8°13' 41.6" (RT)
D = 2°48' 31.0"
L = 292.96'
T = 146.73'
R = 2,040.00'
SE = RC
RO = 50'

15+00 (-L DETOUR-)
-L DETOUR- PC Sta.15+38.64
-L- STA.15+38.64
20+00 (-L DETOUR-)
-L DETOUR- PRC Sta.18+31.61
25+00 (-L DETOUR-)
POT Sta.10+00.00

TATUM,MARY M.
DB 883 PG 902

PORTABLE CONCRETE BARRIER (TEMPORARY)
(SEE TRAFFIC CONTROL PLANS)

REMOVE & RESET
EX.GUARDRAIL (SOUTHBOUND)
-L DETOUR- STA.15+75.00LT
TO 21+50.00 LT
(SEE TRAFFIC CONTROL PLANS)

MILL EXIST.RUMBLE STRIPS
AND REPAVE
-L DETOUR- STA.14+94.28 LT TO BRIDGE
-L DETOUR- STA.18+63.99 RT
TO STA.20+80.89 RT

END WIDENING
-L DETOUR- STA.22+83.39

BEGIN WIDENING
-L DETOUR- STA.26+43.65

-L DETOUR-
N 2° 55' 52.0" W
N 29° 28' 30.4" E

US 220 SBL
US 220 NBL
US220 TO GREENSBORO
TO MAYODAN
TO STONEVILLE
PEKTILE PLANT RD. SR 2213

MILL EXIST.
RUMBLE STRIPS
AND REPAVE
-L DETOUR- STA.16+09.12
TO STA.18+04.65

REMOVE & RESET
EX.GUARDRAIL
-L DETOUR- STA 15+87.50 RT
TO STA.21+50.00 RT
(SEE TRAFFIC CONTROL PLANS)

**BEGIN DETOUR CONSTRUCTION**
**-L DETOUR- STA 14+94.28**

-L DETOUR- PT Sta. 21+24.57

PORTABLE CONCRETE BARRIER (TEMPORARY)
(SEE TRAFFIC CONTROL PLANS)

REMOVE
RETAIN

BM
BL STATION 26+30.00
1' LEF
ELEV=750.54'

BRIDGE #150
METAL AND CONC

MCDEVITT, P. M.
DB 889 PG 677

SCALES,STERLING AND ERNA L.
DB 604 PG 337

STONE, EVELYN H.
DB 95E PG 316

MATCH LINE -L DETOUR- STA 28+00
SEE SHEET 2C

SEE SHEET 7 FOR -L DETOUR- PROFILE

7/6/2013
N:\Projects\b4621_rdy_detpsh_s02b.dgn
User:pdolls

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 2C |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 ENGINEER MERRICK A. DUGAL, III

7/16/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 ENGINEER W. HENRY WELLS JR.

7/22/13


RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910


# -L DETOUR- PLAN SHEET

NAD 83/2001

-L DETOUR-

| PI Sta 32+25.78 | PI Sta 39+19.36 |
|---|---|
| Δ = 15° 17' 13.7" (RT) | Δ = 3° 57' 33.4" (RT) |
| D = 2° 48' 31.0" | D = 1° 47' 56.1" |
| L = 544.29' | L = 220.09' |
| T = 273.77' | T = 110.09' |
| R = 2,040.00' | R = 3,185.00' |
| SE = .05 | SE = .05 |
| RO = EXISTING | RO = EXISTING |

MATCH LINE STA -L DETOUR- STA 28+00
SEE SHEET 2B

30+00 (-L DETOUR-)

35+00 (-L DETOUR-)

40+00 (-L DETOUR-)

ROMA REALTY LLC
DB 934 PG 863

PORTABLE CONCRETE BARRIER (TEMPORARY)
(SEE TRAFFIC CONTROL PLANS)

MILL EXIST.RUMBLE STRIPS AND REPAVE BRIDGE TO -L DETOUR- STA.32+00.00 LT -L DETOUR- STA.30+35.60 RT TO STA.34+16.86 RT

RETAIN

GRAU350 (TEMP)

REMOVE & RESET EX.GUARDRAIL STA 31+50.00 TO -L DETOUR- STA 37+87.50 (SEE TRAFFFIC CONTROL PLANS)

REMOVE & RESET EX.GUARDRAIL (SOUTHBOUND) -L DETOUR- STA 30+00 TO STA 35+50

-L DETOUR- PC Sta. 29+52.01

-L DETOUR- PT Sta. 34+96.31

-L DETOUR- PVC Sta. 38+09.27 = -L- STA. 37+99.77

-L DETOUR- PT Sta. 40+29.36

END DETOUR CONSTRUCTION
-L DETOUR- STA 38+09.27

POT Sta. 16+00.04

STA 37+87.50 +/-

8:1 TAPER

-RAMP D-

-RAMP B-

-RAMP C-

-RAMP A-

-BY-8

-EL-

-L-

BM #2
BL STATION 43+83.00
187' RIGHT
ELEV=743.91'

KNIGHT, FRANK C.
DB 971PG 198

STONE, EVELYN H.
DB 95E PG 316

ROMA REALTY LLC
DB 934 PG 863

TO STONEVILLE

TO MARTINSVILLE

US220 TO MARTINSVILLE

N 12° 21' 21.7" E

S 11° 21' 40.5" E

N 46°04'49" E 186.15'

N 51°08'40" E 148.47'

SEE SHEET 7 FOR -L DETOUR- PROFILE

148.04'

7/16/2013
...\Proj\B4621_rdy_detpsh_s02c.dgn
...\serbpolis

| PROJECT REFERENCE NO. | SHEET |
|---|---|
| B-4621 | 2-D |

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A HIDDEN

Scott A. Hidden 8/10/12
SIGNATURE DATE

ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022809 ENGINEER MERRICK A DUCAL III

7/16/13
SIGNATURE DATE

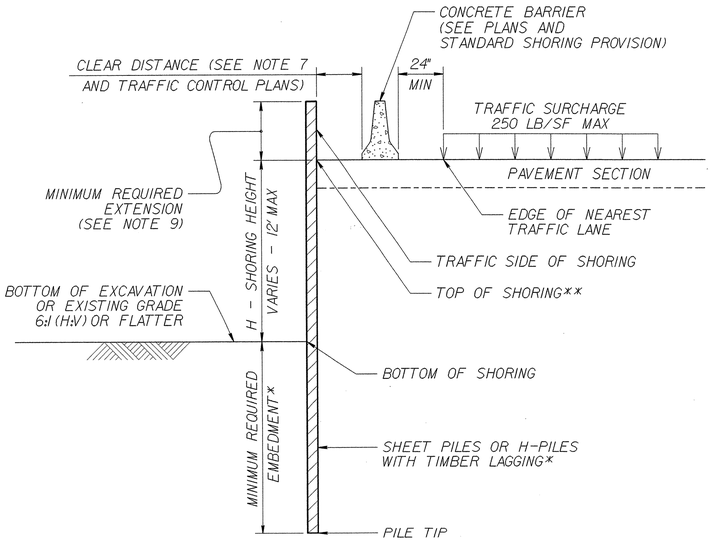
| GROUNDWATER CONDITION (SEE NOTE 6) | H SHORING HEIGHT (FT) | SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT | | | | | SURCHARGE CASE WITH TRAFFIC IMPACT | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SHEET PILES | | H-PILES WITH TIMBER LAGGING | | | SHEET PILES | | H-PILES WITH TIMBER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

## MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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

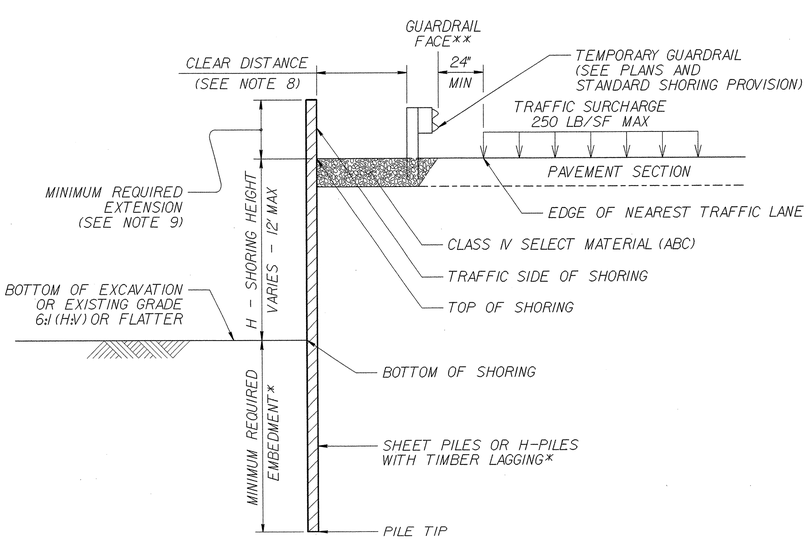
## NOTES:

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



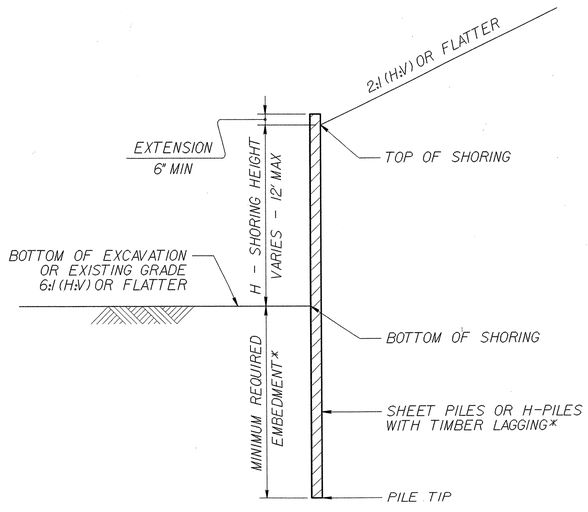

**CONCRETE BARRIER**

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




**TEMPORARY GUARDRAIL**

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




**STANDARD TEMPORARY SHORING**

**(SLOPE CASE)**

***SEE TABLE ABOVE.**

**STANDARD TEMPORARY SHORING**

**(SURCHARGE CASE)**

***SEE TABLE ABOVE.**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

***GEOTECHNICAL ENGINEERING UNIT***

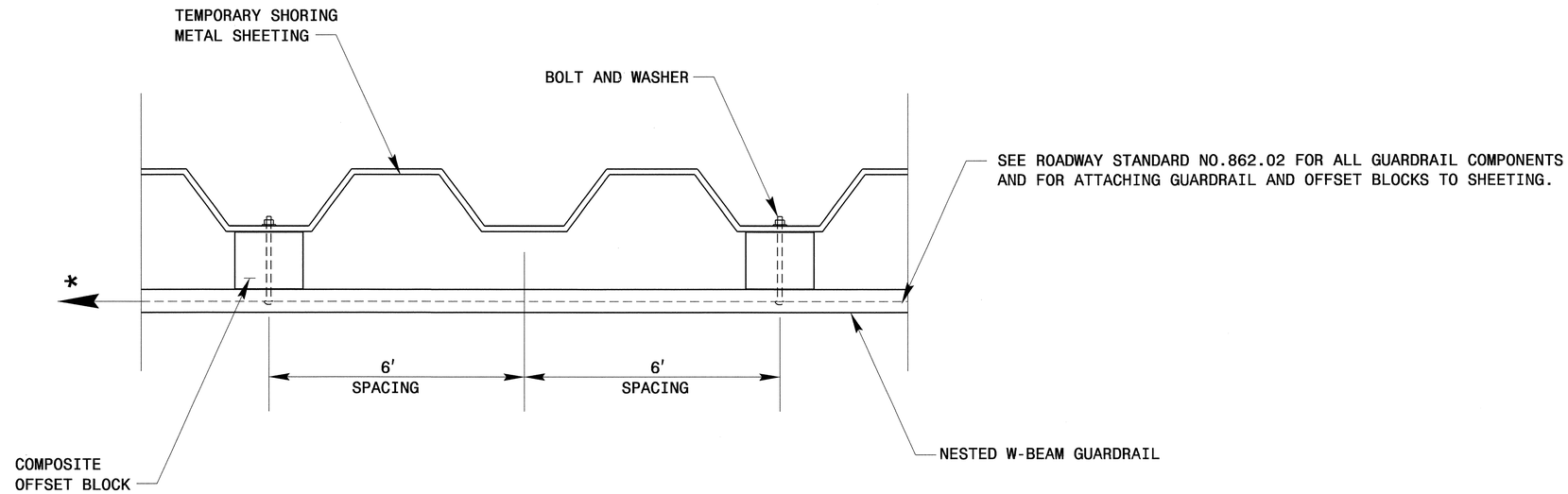
***STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH***

***STANDARD DRAWING NO. 1801.01***

STANDARD TEMPORARY SHORING

DATE: 11-20-12

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 2-E |

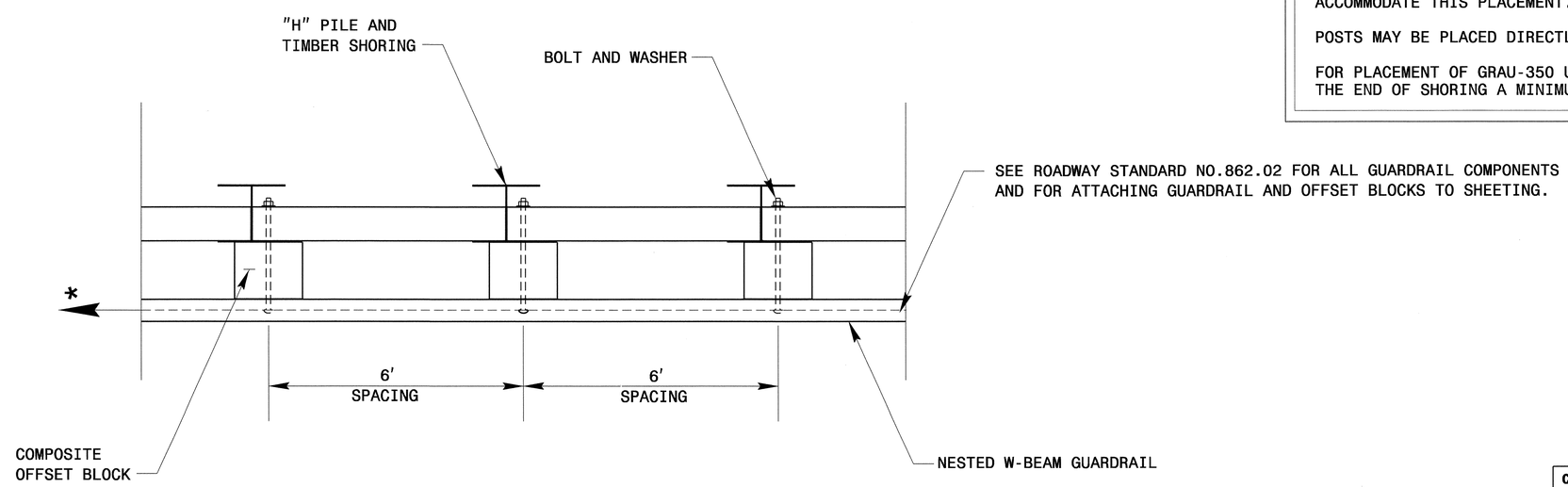



POST INSTALLATION OPTION

PLACE GUARDRAIL POSTS DIRECTLY IN FRONT OF OUTWARD CORRUGATION. POSTS SPACING MAY BE MODIFIED TO ACCOMMODATE THIS PLACEMENT.

POSTS MAY BE PLACED DIRECTLY AGAINST THE SHORING.

FOR PLACEMENT OF GRAU-350 UNITS, EXTEND GUARDRAIL PAST THE END OF SHORING A MINIMUM OF 25 FEET.



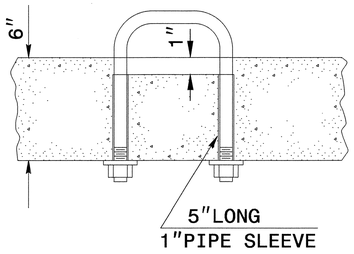

* AT THE END OF THE SHORING CONTINUE WITH STANDARD GUARDRAIL INSTALLATION AND TERMINATE WITH A GRAU-350 UNIT.

**CONTRACT STANDARDS & DEVELOPMENT UNIT**
**STANDARDS AND SPECIAL DESIGN**
Office 919-707-6900 FAX 919-250-4119

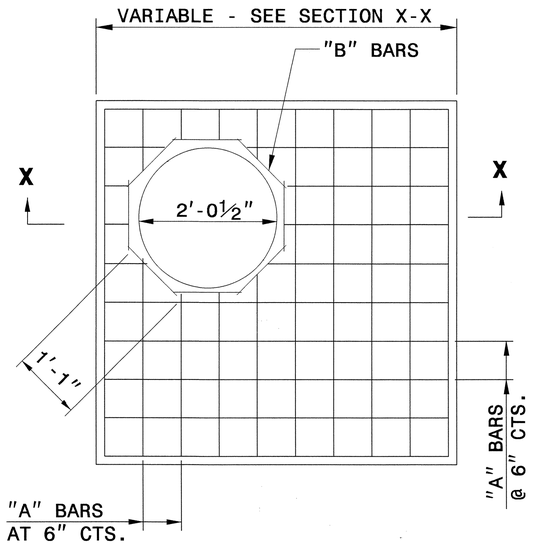
# TEMPORY SHORING GUARDRAIL DETAIL

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 6-17-13
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/hydro/temp shoring gr detail.dgn

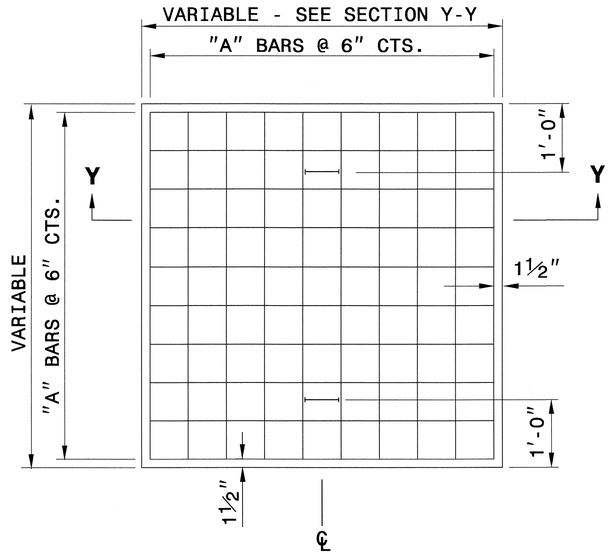
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 2-F |




**PARTIAL SECTION**




**PLAN**




**PLAN**

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

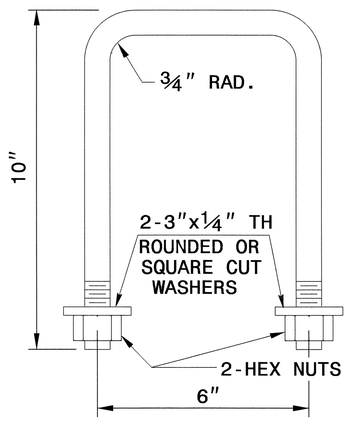
## BILL OF MATERIALS

REINFORCING STEEL

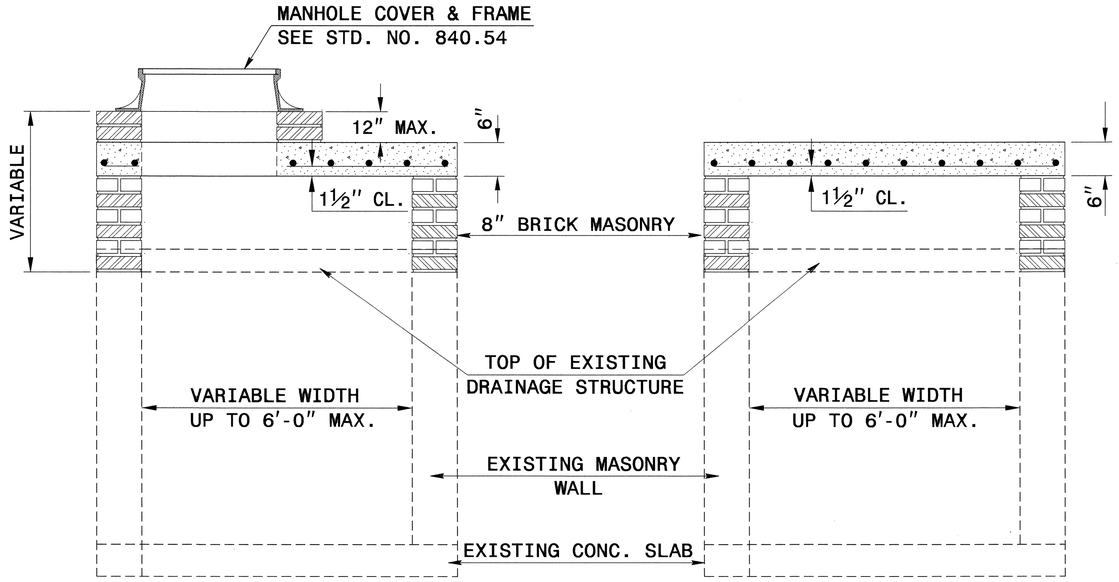
| CODE | SIZE | QTY. | LENGTH | REINF. STEEL LBS. |
|---|---|---|---|---|
| A | #4 | 20 | 4'-6" | 60.12 |
| B | #4 | 8 | 1'-1" | 5.79 |
| TOTAL | | | | 65.91 * |

| MASONRY | CU YDS |
|---|---|
| TOP SLAB CONCRETE CLASS "B" | .4326 * |
| BRICK MASONRY PER FT HT (MIN) | .4111 |

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.




**DETAIL OF HANDLE**




**SECTION X-X**




**SECTION Y-Y**

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
7/22/13

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

**DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)**

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 2-G |

## ELEVATION

GENERAL NOTES:
1) POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4½" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1¼" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
5) SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
6) ANCHORAGE:
   (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS ½".
   (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04). A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01). INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
   (c) AT NEW BRIDGE RAIL, ANCHOR THE W-BEAM END SHOE AND RUBRAIL AS DETAILED ON THE STRUCTURE PLANS.
7) POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

## PLAN

## GUARDRAIL ANCHOR UNIT TYPE B-77

ENGLISH DETAIL DRAWING FOR
**GUARDRAIL ANCHOR UNIT**
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

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

SHEET 4 OF 7
**862D03**

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

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

SHEET 4 OF 7
862D03

**SECTION A-A** **SECTION B-B** **SECTION C-C**

**DETAIL E**
**LAG BOLT**

| RUBRAIL BLOCKS 7" HIGH x 4" WIDE | | |
|---|---|---|
| POST | THICKNESS | BOLT LENGTH |
| (1) | 4¼" | 9" |
| (2) | 3¼" | 5" * |
| (3) | 2" | 6" |
| (4) | 1" | 3" * |

* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

FRONT SIDE

**DETAIL D**
**SLOPED RUBRAIL BLOCKOUT**

SIDE FRONT

**DETAIL F STEEL POST**
**"W8 X 13 X 7'-6"**

**PLAN**

**DETAIL C**
**RUBRAIL BLOCKOUT**

**PLAN**

**ELEVATION**
**DETAIL A**
**C6 x 8.2 RUBRAIL**

**ELEVATION**
**DETAIL B**
**BENT PLATE RUBRAIL**

## GUARDRAIL ANCHOR UNIT TYPE B-77

ENGLISH DETAIL DRAWING FOR
**STRUCTURE ANCHOR UNIT**
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

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

SHEET 5 OF 7
**862D03**

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

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

SHEET 5 OF 7
862D03

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON 7/22/13

**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: [signature] DATE: 11/13/12
FILE SPEC.:

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

**STATE OF NORTH CAROLINA**
**DIVISION OF HIGHWAYS**
**ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203247**

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 0000100000-N | 800 | Lump Sum | | MOBILIZATION |
| 0000400000-N | 801 | Lump Sum | | CONSTRUCTION SURVEYING |
| 0029000000-N | SP | Lump Sum | | REINFORCED BRIDGE APPROACH FILL, STATION ********** (25+44.36) |
| 0043000000-N | 226 | Lump Sum | | GRADING |
| 0050000000-E | 226 | 1 | ACR | SUPPLEMENTARY CLEARING & GRUBBING |
| 0057000000-E | 226 | 200 | CY | UNDERCUT EXCAVATION |
| 0195000000-E | 265 | 200 | CY | SELECT GRANULAR MATERIAL |
| 0196000000-E | 270 | 500 | SY | GEOTEXTILE FOR SOIL STABILIZATION |
| 0199000000-E | SP | 1,150 | SF | TEMPORARY SHORING |
| 0318000000-E | 300 | 70 | TON | FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES |
| 0320000000-E | 300 | 210 | SY | FOUNDATION CONDITIONING GEOTEXTILE |
| 0366000000-E | 310 | 416 | LF | 15" RC PIPE CULVERTS, CLASS III |
| 0582000000-E | 310 | 200 | LF | 15" CS PIPE CULVERTS, 0.064" THICK |
| 0636000000-E | 310 | 2 | EA | **" CS PIPE ELBOWS, *****" THICK (15", 0.064") |
| 0995000000-E | 340 | 86 | LF | PIPE REMOVAL |
| 1099500000-E | 505 | 100 | CY | SHALLOW UNDERCUT |
| 1099700000-E | 505 | 200 | TON | CLASS IV SUBGRADE STABILIZATION |
| 1220000000-E | 545 | 500 | TON | INCIDENTAL STONE BASE |
| 1297000000-E | 607 | 380 | SY | MILLING ASPHALT PAVEMENT, ***" DEPTH (1-1/2") |
| 1308000000-E | 607 | 1,220 | SY | MILLING ASPHALT PAVEMENT, ***" TO ******* (0" TO 1-1/2") |
| 1330000000-E | 607 | 1,530 | SY | INCIDENTAL MILLING |
| 1491000000-E | 610 | 2,500 | TON | ASPHALT CONC BASE COURSE, TYPE B25.0C |

# SUMMARY OF QUANTITIES - B-4621

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 1503000000-E | 610 | 980 | TON | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C |
| 1523000000-E | 610 | 1,780 | TON | ASPHALT CONC SURFACE COURSE, TYPE S9.5C |
| 1525000000-E | 610 | 10 | TON | ASPHALT CONC SURFACE COURSE, TYPE SF9.5A |
| 1575000000-E | 620 | 265 | TON | ASPHALT BINDER FOR PLANT MIX |
| 1693000000-E | 654 | 500 | TON | ASPHALT PLANT MIX, PAVEMENT REPAIR |
| 1840000000-E | 665 | 7,350 | LF | MILLED RUMBLE STRIPS (ASPHALT CONCRETE) |
| 2022000000-E | 815 | 11.2 | CY | SUBDRAIN EXCAVATION |
| 2033000000-E | 815 | 8.4 | CY | SUBDRAIN FINE AGGREGATE |
| 2044000000-E | 815 | 50 | LF | 6" PERFORATED SUBDRAIN PIPE |
| 2070000000-N | 815 | 1 | EA | SUBDRAIN PIPE OUTLET |
| 2077000000-E | 815 | 6 | LF | 6" OUTLET PIPE |
| 2286000000-N | 840 | 4 | EA | MASONRY DRAINAGE STRUCTURES |
| 2308000000-E | 840 | 9.4 | LF | MASONRY DRAINAGE STRUCTURES |
| 2354000000-N | 840 | 1 | EA | FRAME WITH GRATE, STD 840.22 |
| 2365000000-N | 840 | 4 | EA | FRAME WITH TWO GRATES, STD 840.22 |
| 2396000000-N | 840 | 1 | EA | FRAME WITH COVER, STD 840.54 |
| 2556000000-E | 846 | 43 | LF | SHOULDER BERM GUTTER |
| 2619000000-E | 850 | 40 | SY | 4" CONCRETE PAVED DITCH |
| 2938000000-N | 859 | 1 | EA | CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE |
| 3030000000-E | 862 | 237.5 | LF | STEEL BM GUARDRAIL |
| 3150000000-N | 862 | 10 | EA | ADDITIONAL GUARDRAIL POSTS |
| 3270000000-N | SP | 1 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 |
| 3317000000-N | 862 | 3 | EA | GUARDRAIL ANCHOR UNITS, TYPE B-77 |
| 3345000000-E | 864 | 2,787.5 | LF | REMOVE & RESET EXISTING GUARDRAIL |
| 3360000000-E | 863 | 380 | LF | REMOVE EXISTING GUARDRAIL |

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 3387000000-N | 862 | 2 | EA | TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (B-77) |
| 3387000000-N | 862 | 1 | EA | TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (CAT-1) |
| 3389100000-N | SP | 7 | EA | TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350 |
| 3595000000-E | 869 | 1,200 | LF | RELAPPING GUARDRAIL |
| 3656000000-E | 876 | 730 | SY | GEOTEXTILE FOR DRAINAGE |
| 4048000000-E | 902 | 3 | CY | REINFORCED CONCRETE SIGN FOUNDATIONS |
| 4054000000-E | 902 | 1 | CY | PLAIN CONCRETE SIGN FOUNDATIONS |
| 4060000000-E | 903 | 2,416 | LB | SUPPORTS, BREAKAWAY STEEL BEAM |
| 4072000000-E | 903 | 208 | LF | SUPPORTS, 3-LB STEEL U-CHANNEL |
| 4096000000-N | 904 | 2 | EA | SIGN ERECTION, TYPE D |
| 4102000000-N | 904 | 13 | EA | SIGN ERECTION, TYPE E |
| 4108000000-N | 904 | 3 | EA | SIGN ERECTION, TYPE F |
| 4110000000-N | 904 | 8 | EA | SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A) |
| 4152000000-N | 907 | 1 | EA | DISPOSAL OF SIGN SYSTEM, STEEL BEAM |
| 4155000000-N | 907 | 13 | EA | DISPOSAL OF SIGN SYSTEM, U-CHANNEL |
| 4236000000-N | 907 | 5 | EA | DISPOSAL OF SIGN, A, B OR C (GROUND MOUNTED) |
| 4238000000-N | 907 | 1 | EA | DISPOSAL OF SIGN, D, E OR F |
| 4400000000-E | 1110 | 1,700 | SF | WORK ZONE SIGNS (STATIONARY) |
| 4405000000-E | 1110 | 848 | SF | WORK ZONE SIGNS (PORTABLE) |
| 4410000000-E | 1110 | 56 | SF | WORK ZONE SIGNS (BARRICADE MOUNTED) |
| 4415000000-N | 1115 | 4 | EA | FLASHING ARROW BOARD |
| 4420000000-N | 1120 | 2 | EA | PORTABLE CHANGEABLE MESSAGE SIGN |
| 4430000000-N | 1130 | 250 | EA | DRUMS |

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 4435000000-N | 1135 | 100 | EA | CONES |
| 4445000000-E | 1145 | 200 | LF | BARRICADES (TYPE III) |
| 4455000000-N | 1150 | 100 | DAY | FLAGGER |
| 4465000000-N | 1160 | 2 | EA | TEMPORARY CRASH CUSHIONS |
| 4480000000-N | 1165 | 2 | EA | TMA |
| 4485000000-E | 1170 | 2,830 | LF | PORTABLE CONCRETE BARRIER |
| 4650000000-N | 1251 | 700 | EA | TEMPORARY RAISED PAVEMENT MARKERS |
| 4685000000-E | 1205 | 11,076 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) |
| 4686000000-E | 1205 | 1,533 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) |
| 4695000000-E | 1205 | 1,305 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) |
| 4770000000-E | 1205 | 1,116 | LF | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II) |
| 4770000000-E | 1205 | 11,000 | LF | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV) |
| 4810000000-E | 1205 | 34,000 | LF | PAINT PAVEMENT MARKING LINES (4") |
| 4820000000-E | 1205 | 2,000 | LF | PAINT PAVEMENT MARKING LINES (8") |
| 4850000000-E | 1205 | 13,450 | LF | REMOVAL OF PAVEMENT MARKING LINES (4") |
| 4860000000-E | 1205 | 1,500 | LF | REMOVAL OF PAVEMENT MARKING LINES (8") |
| 4900000000-N | 1251 | 6 | EA | PERMANENT RAISED PAVEMENT MARKERS |
| 4905000000-N | 1253 | 53 | EA | SNOWPLOWABLE PAVEMENT MARKERS |
| 6000000000-E | 1605 | 4,100 | LF | TEMPORARY SILT FENCE |
| 6006000000-E | 1610 | 255 | TON | STONE FOR EROSION CONTROL, CLASS A |
| 6009000000-E | 1610 | 190 | TON | STONE FOR EROSION CONTROL, CLASS B |
| 6012000000-E | 1610 | 270 | TON | SEDIMENT CONTROL STONE |
| 6015000000-E | 1615 | 4 | ACR | TEMPORARY MULCHING |

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 6018000000-E | 1620 | 150 | LB | SEED FOR TEMPORARY SEEDING |
| 6021000000-E | 1620 | 0.5 | TON | FERTILIZER FOR TEMPORARY SEEDING |
| 6024000000-E | 1622 | 200 | LF | TEMPORARY SLOPE DRAINS |
| 6029000000-E | SP | 100 | LF | SAFETY FENCE |
| 6030000000-E | 1630 | 190 | CY | SILT EXCAVATION |
| 6036000000-E | 1631 | 7,565 | SY | MATTING FOR EROSION CONTROL |
| 6038000000-E | SP | 115 | SY | PERMANENT SOIL REINFORCEMENT MAT |
| 6042000000-E | 1632 | 975 | LF | 1/4" HARDWARE CLOTH |
| 6071010000-E | SP | 100 | LF | WATTLE |
| 6071020000-E | SP | 65 | LB | POLYACRYLAMIDE (PAM) |
| 6084000000-E | 1660 | 6.1 | 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 |
| 6102000000-E | 1664 | 910 | SY | SODDING |
| 6108000000-E | 1665 | 2.5 | TON | FERTILIZER TOPDRESSING |
| 6114500000-N | 1667 | 10 | MHR | SPECIALIZED HAND MOWING |
| 6117000000-N | SP | 18 | EA | RESPONSE FOR EROSION CONTROL |

TDUGAL_PC

COMPUTED BY: LH DATE: 4/19/2013

CHECKED BY: TD DATE: 5/2/2013

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| B-4621 | 3A |

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

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

| STATION | LOCATION (LT, RT, OR CL)* | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | SIDE DRAIN PIPE (CSP) SIZE | SIDE DRAIN PIPE (CSP) THICKNESS OR GAUGE | C.S. PIPE SIZE | C.S. PIPE THICKNESS OR GAUGE | R.C. PIPE CLASS III SIZE | R.C. PIPE CLASS IV SIZE | * R.C. PIPE (CLASS V) | ** RC PIPE CULVERTS, CONTRACTOR DESIGN | *** RC PIPE CULVERTS, CONTRACTOR DESIGN | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS 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 | LIN. FT. B | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE m | F | G | CONCRETE TRANSITIONAL SECTION DROP INLET | CATCH BASIN | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.19 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH SINGLE GRATE STD. 840.22 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24 | ANGLED VANE GRATES AND FRAMES STD. 840.33 | J.B. STD. 840.31 OR 840.32 | CROSS PIPE END SECTION STD. 310.03 | CONVERT EXISTING DI TO JB W/ MH | MANHOLE FRAME &COVER STD.840.54 | CORR. STEEL ELBOWS NO. & SIZE | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24+60 | RT | 401 | | 746.88 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | RT | 401 | 402 | | 744.13 | 714.86 | | | | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 86 | REMOVE 8" CMP |
| 25+80 | RT | 402 | | 718.86 | 706.61 | 709.79 | | | | | | | | | | | | | | | 1 | 5 | 3.07 | | | | | | | | | | | | | | | 2 - 15" | | | | REPAIR EXISTING DITCH |
| 27+25 | LT | 403 | | 749.90 | | | | | | | | | | | | | | | | | 1 | 0.4 | | | | | | | | | | | | | | | | | | | | |
| | LT | 403 | 404 | | EX. | EX. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | GRADE TO DRAIN |
| 27+00 | LT | 404 | | 750.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | |
| -L DETOUR- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+50 | RT | 201 | | 737.10 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | RT | 201 | 202 | | 734.35 | 726.65 | | | | | | 416 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | RETAIN EX. DI |
| 16+35 | LT | 202 | | EX. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | | | 200 | | 416 | | | | | | | | | 4 | 5.4 | 3.07 | | | | | | | | | | | | | | 1 | 1 | 2 - 15" | | | 86 | |

**ABBREVIATIONS**

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

12/06/07

COMPUTED BY: BBP DATE: 6-12-13
CHECKED BY: MAD DATE: 6-12-13

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 3B |

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910

## SUMMARY OF EARTHWORK

| STATION | STATION | UNCL. EXCAV. | EMBANK. +% | BORROW | WASTE |
|---|---|---|---|---|---|
| -L- 19+42.00 | -L- 24+43 | 233 | 411 | 178 | 0 |
| | (BEGIN BRIDGE) | | | | |
| -L- 26+91.00 | -L- 37+55 | 421 | 483 | 62 | 0 |
| (END BRIDGE) | | | | | |
| | | | | | |
| | | | | | |
| SUBTOTALS: | | 654 | 894 | 240 | 0 |
| -L DETOUR- | | | | | |
| 15+30.64 | 21+24.57 | 52 | 36 | 0 | 16 |
| 29+52.01 | 38+09.27 | 51 | 83 | 32 | 0 |
| | | | | | |
| | | | | | |
| SUBTOTALS: | | 103 | 119 | 32 | 16 |
| DETOUR REMOVAL | | | | | |
| -L DETOUR- | | | | | |
| 15+30.64 | 21+24.57 | 36 | 62 | 26 | 0 |
| 29+52.01 | 38+09.27 | 83 | 61 | 0 | 22 |
| | | | | | |
| SUBTOTALS: | | 119 | 123 | 26 | 22 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| PROJECT SUBTOTALS | | 876 | 1136 | 298 | 38 |
| WASTE IN LIEU OF BORROW | | | | -16 | -16 |
| | | | | | |
| | | | | | |
| SHOULDER CONSTRUCTION | | | 194 | 194 | |
| | | | | | |
| PROJECT TOTALS: | | 876 | 1330 | 476 | 22 |
| 5% REPLACE TOP SOIL ON BORROW | | | | 24 | |
| | | | | | |
| GRAND TOTALS: | | 876 | | 500 | |
| | | | | | |
| SAY: | | 880 | | 500 | |

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.

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

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

## PAVEMENT REMOVAL SUMMARY

| SURVEY LINE | STATION | STATION | LOCATION LT/RT/CL | $YD^2$ |
|---|---|---|---|---|
| -L DETOUR- | 15+38.64 | 20+80.89 | CL | 395 |
| -L DETOUR- | 30+60.77 | 37+44.96 | CL | 655 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | TOTAL: | 1050 |
| | | | | |
| | | | SAY: | 1050 |

## SUMMARY OF SUBSURFACE DRAINAGE

| LINE | STATION | STATION | LOCATION RT /LT /CL | DRAIN TYPE UD /BD /SD | LF |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| CONTINGENCY | | | | | |
| | | | | | |
| | | | | TOTAL: | 50' |
| | | | | | |

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

## SHOULDER BERM GUTTER SUMMARY

| SURVEY LINE | STATION | STATION | LENGTH |
|---|---|---|---|
| -L- | 24+55 RT | 24+98 RT | 43' |
| | | | |
| | | | |
| | | | |
| | | TOTAL: | 43' |
| | | | |
| | | SAY: | 43' |

## 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 | XIII | CAT-1 | VI MOD | B-77 | AT-1 | IMPACT ATTENUATOR TYPE 350 EA | G | NG | SINGLE FACED GUARDRAIL | REMOVE EXISTING GUARDRAIL | REMOVE AND STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REMOVE & RESET EXIST. GUARDRAIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NB-L DETOUR- | 15+37.50 | 21+50.00 | RT | 612.50' | | | MEDIAN | MEDIAN | | | | | | | | | 1 TEMP | | | 1 TEMP | | | | | | | | | | REMOVE / RESET EXIST. GUARDRAIL |
| SB-L DETOUR- | 15+75.00 | 21+50.00 | LT | 575.00' | | | MEDIAN | MEDIAN | | | | | | | | | 2 TEMP | | | | | | | | | | | | | REMOVE / RESET EXIST. GUARDRAIL |
| NB-L DETOUR- | 31+50.00 | 37+87.50 | RT | 637.50' | | | MEDIAN | MEDIAN | | | | | | | | | 2 TEMP | | | | | | | | | | | | | REMOVE / RESET EXIST. GUARDRAIL |
| SB-L DETOUR- | 30+00.00 | 35+50.00 | RT | 550.00' | | | MEDIAN | MEDIAN | | | | | | | | | 2 TEMP | | | | | | | | | | | | | REMOVE / RESET EXIST. GUARDRAIL |
| -Y- | 12+06.70 | 14+31.70 | LT | 225.00' | | | BRIDGE | BRIDGE | | | | | | | | | | | | | | 1 TEMP | | | | | | | | REMOVE / RESET EXIST. GUARDRAIL |
| -Y- | 11+55.00 | 13+42.50 | RT | 187.50' | | | BRIDGE | BRIDGE | | | | | | | | | | | | | | 1 TEMP | | | | | | | | REMOVE / RESET EXIST. GUARDRAIL |
| -L- | 14+61.87 | 18+41.87 | RT | | | | | | | | | | | | | | | | | | | | | | | | 380' | | | |
| TOTAL REMOVE & RESET | | | | 2787.50' | | | | | | | | | | | | | 7 TEMP | | | 1 TEMP | | 2 TEMP | | | | | | | | |
| RELAP GUARDRAIL SB MEDIAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -L DETOUR- | 21+50.00 | 24+04.91 (BEGIN BRIDGE) | RT | 256.25' 256.25' | SEE REMARKS | | | | | | | | | | | | | | | | | | | | | | | | | RELAP GUARDRAIL FOR CROSSOVER DETOUR AND RELAP WHEN RESETTING EXISTING GUARDRAIL |
| -L DETOUR- | 26+57.22 (END BRIDGE) | 30+00.00 | RT | 343.75' 343.75' | SEE REMARKS | | | | | | | | | | | | | | | | | | | | | | | | | RELAP GUARDRAIL FOR CROSSOVER DETOUR AND RELAP WHEN RESETTING EXISTING GUARDRAIL |
| | | | SAY | 1,200.00 | | | | | | | | | | | | | | | | | | | | | | | | | | TOTAL RELAP |
| NEW GUARDRAIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -L- | 22+07.52 | 25+07.52 | RT | 300' | | | BRIDGE | | 12' | 17' | | | | | | | 1 | | | | | 1 | | | | | | | | STD. NO. 862.01 SHEET 3 |
| -L- | 24+35.21 | | LT | | | | BRIDGE | | | | | | | | | | | | | | | 1 | | | | | | | | TIE TO EXIST. REMOVE /RESET GUARDRAIL |
| -L- | 26+83.21 | | LT | | | | | BRIDGE | | | | | | | | | | | | | | 1 | | | | | | | | TIE TO EXIST. REMOVE /RESET GUARDRAIL |
| | LESS ANCHOR | DEDUCTIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GRAU-350 | 1 @ 50.00' | = | - 50.00' | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B-77 | 1 @ 18.75' | = | - 18.75' | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL "NEW" GUARDRAIL | | | | 231.25' | | | | | | | | | | | | | 1 | | | | | 3 | | | | | | | | |
| | | | SAY | 237.50' | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (10 ADDITIONAL GUARDRAIL POSTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

18-JUL-2013 07:25
R:\Roadway Projects\b4621_rdy_sum_s03B.dgn
$$$$USERNAME$$$$

8/17/99

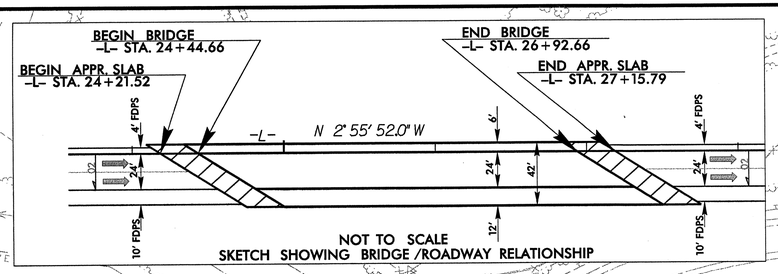
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 4 |
| R/W SHEET NO. | |

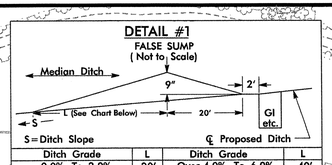
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III — 7/16/13

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS SE — 7/17/13

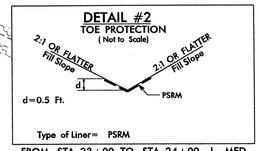

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910


| Ditch Grade | L | Ditch Grade | L |
|---|---|---|---|
| 0.0% To 2.0% | 20' | Over 4.0% To 6.0% | 40' |
| Over 2.0% To 4.0% | 30' | Over 6.0% | 50' |

STA. 20+35 -L DETOUR- RT




FROM STA. 23+00 TO STA. 24+00 -L- MED
FROM STA. 27+25 TO STA. 27+50 -L- MED

-L-
PI Sta 34+90.03
△ = 19° 14' 47.1" (RT)
D = 1° 47' 56.1"
L = 1,069.88'
T = 540.03'
R = 3,185.00'
SE = .05
RO = 250'

NAD 83/2001

TATUM,MARY M.
DB 883 PG 902

ROMA REALTY
DB 934 PG

STONE, EVELYN H.
DB 95E PG 316

**BEGIN PROJECT B-4621**
**-L- STA. 19+42.00**

**END BRIDGE**
**-L- STA. 26+92.66**
**END APPROACH SLAB**
**-L- STA. 27+15.79**

**BEGIN APPROACH SLAB**
**-L- STA. 24+21.52**
**BEGIN BRIDGE**
**-L- STA. 24+44.66**

-L- POT Sta. 25+66.99
-Y- POT Sta. 13+09.68

-Y- POT Sta. 10+00.00

-Y- POT Sta. 16+00.04

-L- PC Sta. 29+50.00

MATCHLINE -L- STA 32+00
SEE SHEET 5

BM #1
BL STATION 36+30.00
1' LEFT
ELEV=750.54'

REMOVE & RESET EX.GUARDRAIL (SEE SHEET 2B)

RETAIN DETOUR DRAINAGE STRUCTURES SEE DETOUR PLAN SHEET 2B

-L DETOUR-

N 2° 55' 52.0" W

US220 TO GREENSBORO

15" RCP-III

FS SEE DETAIL #1

PSRM TOE PROTECTION (SEE DETAIL #2)

SBG FROM STA. 24+55 -L- RT TO BEGIN BRIDGE

BRIDGE #150 METAL AND CONC (REMOVE)

GRADE TO DRAIN

REMOVE

15" W.T. ELBOWS

REPAIR OF PAVED DITCH

RETAIN

CONV. DI TO JB W/MH

50' INC. TYP.

30' INC. TYP.

REMOVE & RESET EX.GUARDRAIL (SEE SHEET 2B & 2C)

US 220 BUS

US 220 SBL

US 220 NBL

US 220 BUSINESS

TO MAYODAN

TO STONEVILLE

N 29° 28' 30.4" E

| 2013 YR. ADT / 2033 YR. | | | |
|---|---|---|---|
| | 3,960 / 4,360 | | |
| 16,870 / 26,670 -L- | 1,720 / 2,520 -Y- US 220 BUS. | 620 / 753 | 14,670 / 23,137 -L- US 220 |
| | 1,720 / 2,520 -Y- | 620 / 753 | |
| YR 2013 / YR 2033 | 3,560 / 3,960 | | |

SEE SHEET NO. 2 FOR OVERLAY LIMITS
SEE SHEET NO. 6 FOR -L- PROFILE
SEE SHEET NO. S-1 TO S-42 FOR STRUCTURE PLANS

7/16/2013
I:\Projects\b4621_rdy_psh_s04.dgn
User:thall

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 5 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

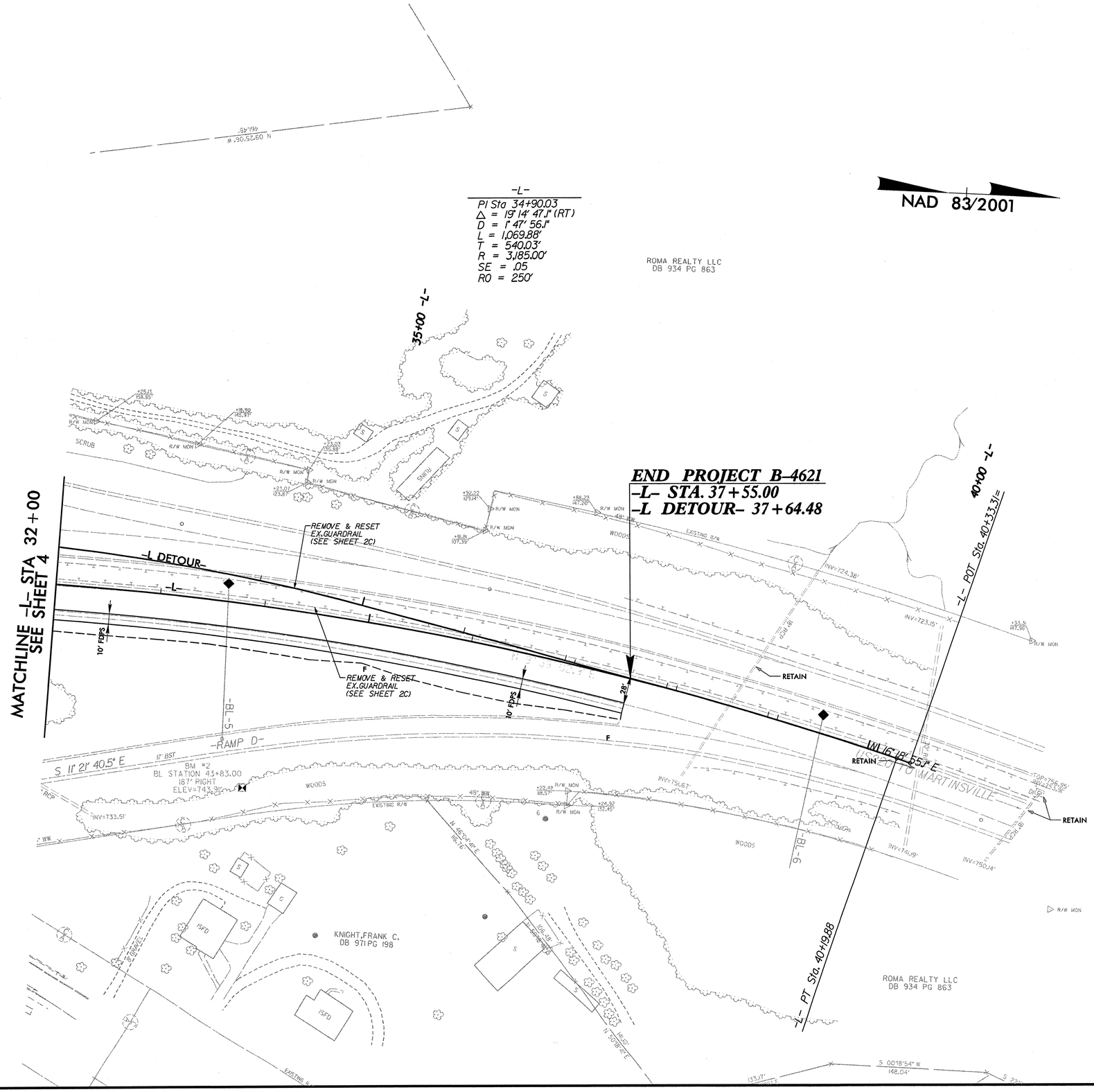
7/16/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

7/17/13

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910




SEE SHEET NO. 2 FOR OVERLAY LIMITS
SEE SHEET NO. 6 FOR -L- PROFILE

8/17/99

7/16/2013
...\Proj\b4621_rdy_psh_s05.dgn
User:bpollis

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 6 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

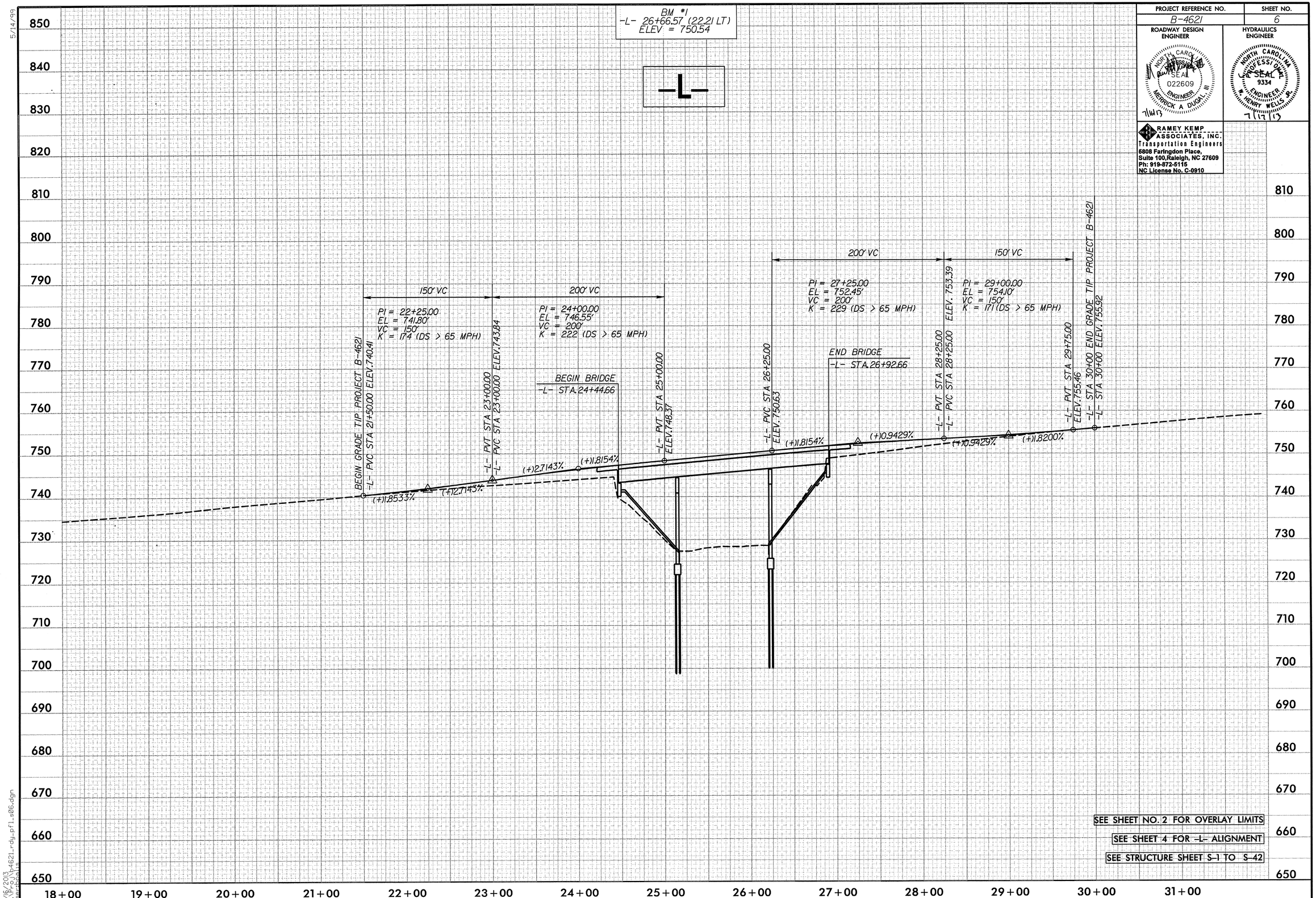
7/16/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

7/17/13

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910




SEE SHEET NO. 2 FOR OVERLAY LIMITS

SEE SHEET 4 FOR -L- ALIGNMENT

SEE STRUCTURE SHEET S-1 TO S-42

5/14/99

7/16/2013
...\Proj\b4621_rdy_pfl_s06.dgn

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 7 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

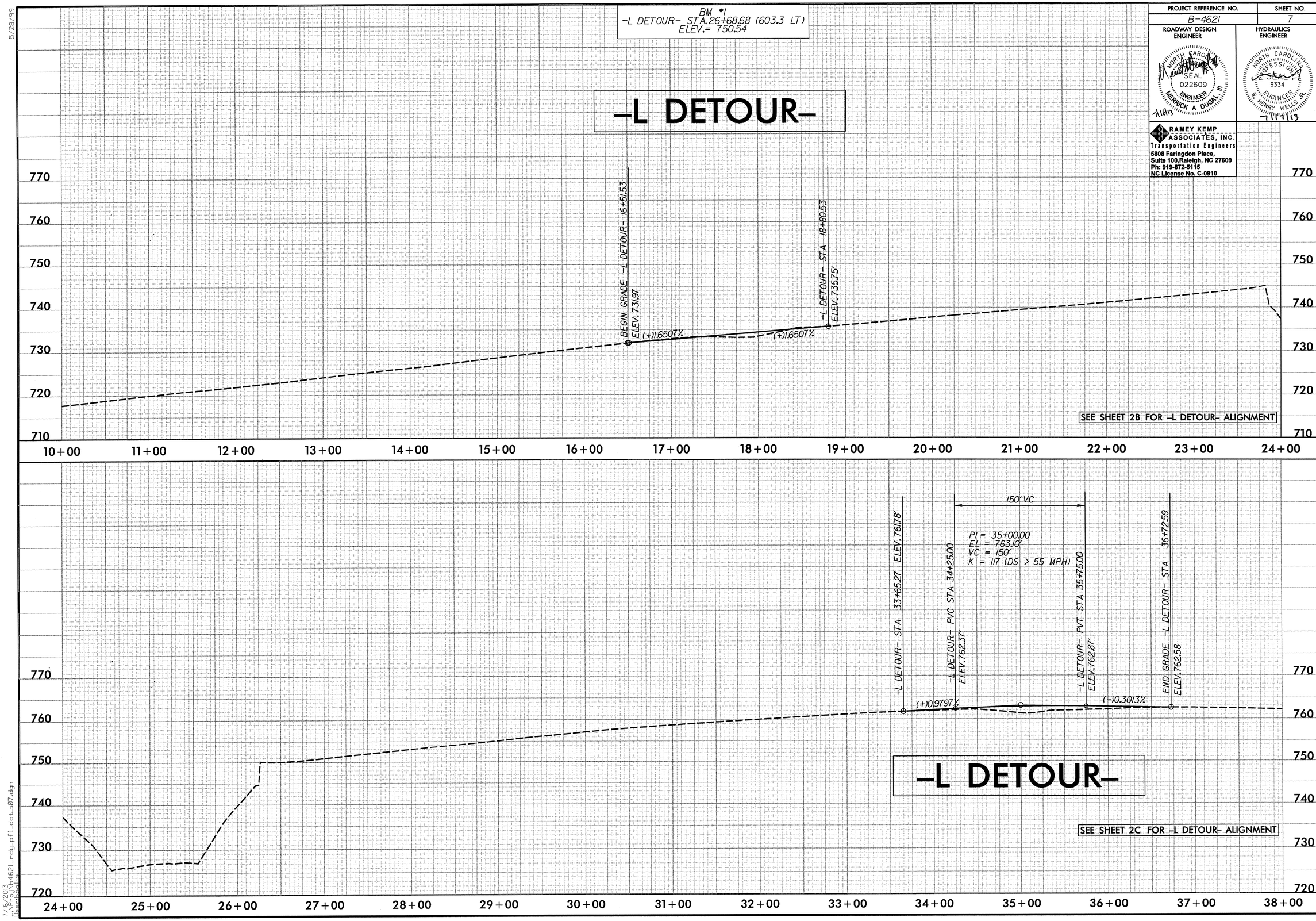
7/16/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

7/17/13

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place,
Suite 100,Raleigh, NC 27609
Ph: 919-872-5115
NC License No. C-0910



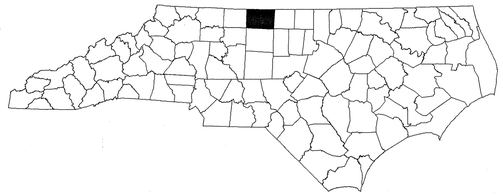

5/28/99

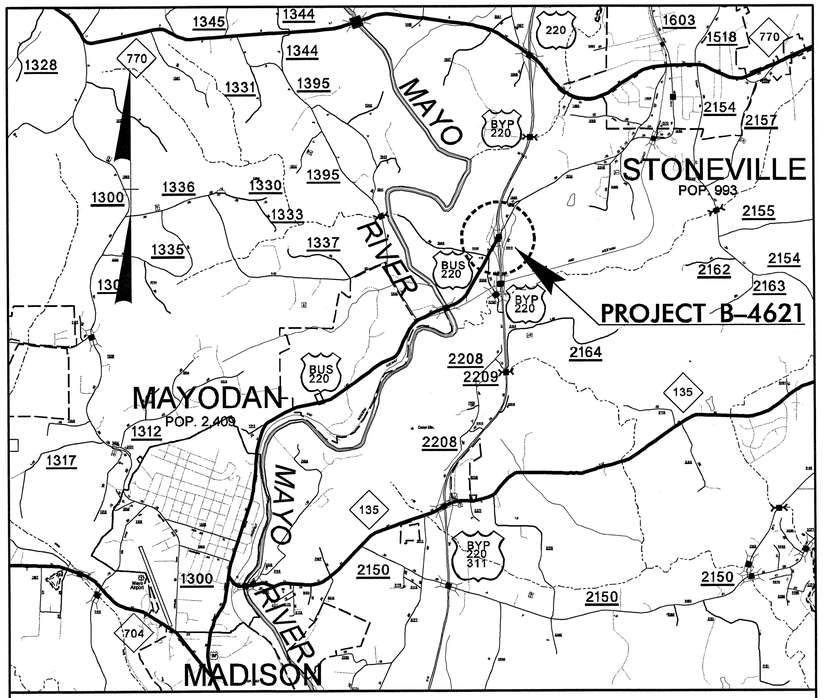
7/16/2013
...\Proj\b4621_rdy_pfl_det_s07.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

# ROCKINGHAM COUNTY






## VICINITY MAP
### (ONSITE DETOUR)

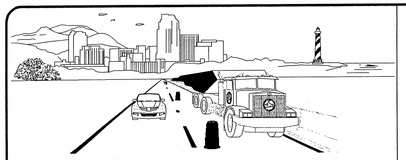
## INDEX OF SHEETS


| 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: (GENERAL NOTES AND LOCAL NOTES) |
| TMP-1C | TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES CONTINUED) |
| TMP-1D | TRANSPORTATION OPERATIONS PLAN: (PHASING NOTES) |
| TMP-2A | PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS |
| TMP-2B | "WORK ZONE" SPEED LIMIT REDUCTION |
| TMP-3 | TEMPORARY TRAFFIC CONTROL PHASE 1 DETAIL |
| TMP-4 | TEMPORARY TRAFFIC CONTROL PHASE 1 DETAIL |
| TMP-5 | TEMPORARY TRAFFIC CONTROL PHASE 1 DETAIL |
| TMP-6 | TEMPORARY TRAFFIC CONTROL PHASE 1 DETAIL |
| TMP-7 | TEMPORARY TRAFFIC CONTROL PHASE 2 DETAIL |
| TMP-8 | TEMPORARY TRAFFIC CONTROL PHASE 2 DETAIL |
| TMP-9 | TEMPORARY TRAFFIC CONTROL PHASE 2 DETAIL |
| TMP-10 | TEMPORARY TRAFFIC CONTROL PHASE 2 DETAIL |
| TMP-11 | TEMPORARY TRAFFIC CONTROL PHASE 3 DETAIL |
| TMP-12 | TEMPORARY TRAFFIC CONTROL PHASE 3 DETAIL |
| TMP-12A | TEMPORARY TRAFFIC CONTROL PHASE 3 DETAIL |
| TMP-13 | TEMPORARY TRAFFIC CONTROL PHASE 3 DETAIL |
| TMP-14 | TEMPORARY TRAFFIC CONTROL PHASE 3 DETAIL |
| TMP-14A | TEMPORARY TRAFFIC CONTROL PHASE 3 OFF-SITE DETOUR |
| TMP-15 | TEMPORARY TRAFFIC CONTROL PHASE 4 DETAIL |
| TMP-16 | TEMPORARY TRAFFIC CONTROL PHASE 4 DETAIL |
| TMP- 17 | TEMPORARY TRAFFIC CONTROL PHASE 4 DETAIL |
| TMP- 18 | TEMPORARY TRAFFIC CONTROL PHASE 4 DETAIL |


SHEET NO.
TMP-1

**B-4621**

**TIP PROJECT:**



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


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

MERRICK A. DUGAL, III, P.E. *TRAFFIC CONTROL PROJECT ENGINEER*
BRET PALIS *PROJECT DESIGNER*


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

*APPROVED:* _____
*DATE:* _____

*SEAL*

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A DUGAL, III
7/16/13

7/15/2013
N:\B4621\TCP_TMP_01.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | 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 |
| 1101.05 | WORK ZONE VEHICLE ACCESSES |
| 1101.06 | WARNING SIGNS FOR BLASTING ZONES |
| 1101.11 | TRAFFIC CONTROL DESIGN TABLES |
| 1110.01 | STATIONARY WORK ZONE SIGNS |
| 1110.02 | PORTABLE WORK ZONE SIGNS |
| 1115.01 | FLASHING ARROW BOARDS |
| 1130.01 | DRUMS |
| 1135.01 | CONES |
| 1145.01 | BARRICADES |
| 1150.01 | FLAGGING DEVICES |
| 1165.01 | WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION |
| 1170.01 | PORTABLE CONCRETE BARRIER |
| 1180.01 | SKINNY - DRUM |
| 1205.01 | PAVEMENT MARKINGS - LINE TYPES AND OFFSETS |
| 1205.02 | PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS |
| 1205.03 | PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS |
| 1205.04 | PAVEMENT MARKINGS - INTERSECTIONS |
| 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 |
| 1264.01 | OBJECT MARKERS - TYPES |
| 1264.02 | OBJECT MARKERS - INSTALLATION |

# LEGEND

## GENERAL

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

## TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## PAVEMENT MARKERS

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

## PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

## TEMPORARY PAVEMENT MARKING

| SYMBOL | DESCRIPTION |
|---|---|
| COLD APPLIED PLASTIC (4") TYPE 4 - REMOVABLE TAPE | |
| CA | WHITE EDGE LINE |
| CB | YELLOW EDGE LINE |
| PAINT (4") | |
| PC | 10 FT. WHITE SKIP |
| PAINT (4") | |
| PA | WHITE EDGELINE |
| PB | YELLOW EDGELINE |
| PD | WHITE LANE MINI SKIP LINE |
| PAINT (8") | |
| PN | WHITE GORELINE |
| MARKERS TEMPORARY RAISED PAVEMENT MARKERS | |
| MA | YELLOW |
| MB | CRYSTAL & RED |

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

7/16/13

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

ROADWAY STANDARD DRAWINGS & LEGEND

7/16/2013
...\B4621_TCP_TMP_01A.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-1B |

# LOCAL NOTES

OVERSIZED/OVERWEIGHT VEHICLES

1) CONTRACTOR SHOULD CONTACT DIVISION TO COORDINATE WITH THE OVERSIZE/OVERWEIGHT PERMIT UNIT 21 DAYS PRIOR TO INSTALLING PORTABLE CONCRETE BARRIER ON SOUTHBOUND US 220 BYP TO COORDINATE OVERSISED/OVERWEIGHT VEHICLE DETOUR ROUTE FOR NORTHBOUND AND SOUTHBOUND TRAFFIC.

# MANAGEMENT STRATEGIES

THE RECOMMENDED MANAGEMENT STRATEGIES RELATIVE TO THIS TMP ARE AS FOLLOWS:

- FOUR-LANE DIVIDED TWO-WAY TRAFFIC PATTERN.
  TRAFFIC TO BE MAINTAINED ON BOTH DIRECTIONS OF US 220 BYP. WHEN POSSIBLE.
- TWO-LANE TWO-WAY TRAFFIC PATTERN.
  TRAFFIC TO BE MAINTAINED ON BOTH DIRECTIONS OF US 220 BUS. WHEN POSSIBLE.
- TWO-LANE TWO-WAY TRAFFIC PATTERN.
  TRAFFIC TO BE MAINTAINED ON BOTH DIRECTIONS OF US 220 BYP. UTILIZING CROSSOVERS AS NECESSARY.
- ONE-LANE TWO-WAY TRAFFIC PATTERN.
  TRAFFIC TO BE MAINTAINED ON US 220 BUS. UTILIZING FLAGGERS AS NECESSARY.
- FULL ROAD CLOSURE.
  TRAFFIC TO BE MAINTAINED ON THE FOLLOWING OFF-SITE DETOUR DURING THE REMOVAL AND REPACEMENT OF GIRDERS OVER US 220 BUS.
  US 220 BYP. TO NC 770 EXIT.
  US 220 BYP. TO NC 135 EXIT.

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

# GENERAL NOTES

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

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

TIME RESTRICTIONS

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

| ROAD NAME | DAY AND TIME RESTRICTIONS |
|---|---|
| US 220 BUS | MONDAY - FRIDAY<br>7:00 A.M. - 8:30 A.M.<br>4:30 P.M. - 6:00 P.M. |

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

ROAD NAME

US 220 BUS

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31st TO 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
9. FOR RACE WEEKEND AT MARTINSVILLE, BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY OF THE WEEK OF THE RACE AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE RACE.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

| ROAD NAME | DAY AND TIME RESTRICTIONS | DURATION AND OPERATION |
|---|---|---|
| US 220 BYP<br>US 220 BUS | MONDAY - FRIDAY<br>7:00 A.M. - 8:30 A.M.<br>4:30 P.M. - 6:00 P.M. | TRAFFIC SHIFTS AND ROLLING ROADBLOCKS, 15 MINUTES. |

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

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

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

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

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

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

I) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 220 BYP/ BUS.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

L) 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.

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUCAT III

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

LOCAL AND GENERAL NOTES

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-1C |

# GENERAL NOTES (CONTINUED)

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

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

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

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

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

P) 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 BARRIER

Q) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

R) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

| POSTED SPEED LIMIT | MINIMUM OFFSET |
|---|---|
| 40 OR LESS | 15 FT |
| 45 - 50 | 20 FT |
| 55 | 25 FT |
| 60 MPH or HIGHER | 30 FT |

TRAFFIC CONTROL DEVICES

S) 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.

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

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

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

| ROAD NAME | MARKING | MARKER |
|---|---|---|
| US 220 BYP | PAINT<br>COLD-APPLIED PLASTIC | TEMPORARY RAISED |

W) 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.

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

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

MISCELLANEOUS

Z) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

AA) 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) 500 FT AND 1000 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 ENGINEER PATRICK A DUGAL II
7/16/13

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

GENERAL NOTES (CONTINUED)

7/15/2013
...\B4621_TCP_TMP_01c.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-1D |

# *PHASING NOTES*

PHASE 1 (SEE SHEETS TMP-3 TO TMP-6)

1. INSTALL ADVANCED WORK ZONE WARNING SIGNS ACCORDING TO ROADWAY STANDARD DRAWINGS 1101.01, SHEET 1 AND 3 OF 3 AND SHEET TMP-2B. INSTALL ALL SIGNS AND COVER AS NOTED ON SHEET TMP-2B.

2. USING SHEETS TMP-3 THRU TMP-6 AND ROADWAY STANDARD DRAWING 1101.02, SHEETS 4, 5, 9 AND 10 OF 15, CLOSE RIGHT LANE ON US 220 BYP. SOUTHBOUND. BEHIND LANE CLOSURE, CONSTRUCT PAVEMENT WIDENING ALONG OUTSIDE SHOULDER OF SOUTHBOUND US 220 BYP. FROM -L DETOUR- STA. 14+94.28 TO STA. 22+83.39 AND -L DETOUR- STA. 26+43.65 TO STA. 30+78.59. SEE ROADWAY PLAN SHEETS 2B AND 2C.

PHASE 2 (SEE SHEETS TMP-7 TO TMP-10)

1. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 4, 5, 9 AND 10 OF 15 AND ROADWAY STANDARD DRAWING 1101.03, SHEET 9 OF 9 AS REQUIRED, CONSTRUCT TEMPORARY PAVEMENT MARKINGS AS SHOWN ON SHEETS TMP-7 THRU TMP-10 TO PLACE TRAFFIC IN THE EXISTING OUTSIDE LANE IN BOTH DIRECTIONS.

2. BEHIND LANE CLOSURE, CONSTRUCT DRAINAGE AND -L DETOUR- CROSSOVERS IN MEDIAN UP THROUGH THE FINAL LAYER OF SURFACE COURSE AS SHOWN ON TMP-8 AND TMP-9. PLACE TEMPORARY PAVEMENT MARKINGS AS SHOWN ON TMP-11 THRU TMP-14 AS MUCH AS POSSIBLE WITHOUT INTERFERING WITH EXISTING TRAFFIC PATTERN.

   REMOVE MEDIAN GUARDRAIL ON US 220 BYP. AS FOLLOWS: NORTHBOUND -L DETOUR- STA. 15+87.50 TO STA. 21+50.00 AND STA. 31+50.00 TO STA. 37+87.50 AND SOUTHBOUND -L DETOUR- STA. 15+75.00 TO STA. 21+50.00 AND STA. 30+00.00 TO STA. 35+50.00 AS SHOWN ON TMP-8 AND TMP-9. CONSTRUCT TEMPORARY GUARDRAIL END UNITS AS SHOWN ON DETOUR SHEETS AS MUCH AS POSSIBLE AWAY FROM TRAFFIC. RELAP EXISTING GUARDRAIL AS SHOWN ON SHEETS TMP-8 AND TMP-9.

PHASE 3 (SEE SHEETS TMP-11 TO TMP-14A)

1. INSTALL AND COVER SIGNS ASSOCIATED WITH RSD 1101.03, SHEET 4 OF 9 AND THE TEMPORARY SPEED REDUCTION ON TMP-2B. NOTE: THE SIGNS SHOWN ON SHEET TMP-2B (INSTALLED AND COVERED IN PHASE I) WILL BE USED DURING THE CROSSOVER PATTERN. ONLY INSTALL AND COVER REMAINING SIGNS BETWEEN THE BEGINNING OF THE MERGE TAPERS AS SHOWN IN ROADWAY STANDARD DRAWING 1101.03, SHEET 4 OF 9 AND TMP-11 THROUGH TMP-14.

   MAY BEGIN INSTALLATION OF ROAD CLOSURE AND OFF SITE DETOUR SIGNING FOR US 220 BUS, SEE SHEET TMP-14A. COVER SIGNS.

2. USE LANE CLOSURES (RSD 1101.02, SHEET 4 OF 9) AND/OR ROLLING ROAD BLOCK (RSD 1101.03, SHEET 9 OF 9) TO INSTALL TEMPORARY MARKINGS AND ADJUST TRAFFIC CONTROL DEVICES ON SB US 220 BYP. TO SWITCH SB US 220 BYP. TRAFFIC TO THE OUTSIDE SHOULDER ON THE TEMPORARY PAVEMENT. REMOVE CONFLICTING PAVEMENT MARKINGS. SWITCH SB US 220 BYP. TRAFFIC TO A 1-LANE PATTERN ON THE OUTSIDE SHOULDER. UNCOVER LANE CLOSURE SIGNS FOR SOUTHBOUND US 220 BYP. AS SHOWN ON TMP-2B.

3. USING RSD 1101.03, SHEET 9 OF 9, AS NEEDED, INSTALL PCB ON US 220 BYP. AS SHOWN IN THE DRAWINGS.

   USING RSD 1101.02, SHEET 1 OF 15, MAY BEGIN INSTALLATION OF PCB ON US 220 BUS. AS SHOWN ON SHEET TMP-12A. ATTACH TO EXISTING GUARDRAIL, SEE ROADWAY PLANS.

4. USE LANE CLOSURES (RSD 1101.02, SHEET 4 OF 9) AND/OR ROLLING ROAD BLOCK (RSD 1101.03, SHEET 9 OF 9) TO COMPLETE INSTALLATION OF TEMPORARY PAVEMENT MARKINGS AND ADJUST TRAFFIC CONTROL DEVICES ON US 220 BYP. FOR THE PHASE III TEMPORARY CROSSOVER PATTERN. REMOVE CONFLICTING PAVEMENT MARKINGS. UNCOVER SIGNS ASSOCIATED WITH RSD 1101.03, SHEET 4 OF 9 AND THE TEMPORARY SPEED LIMIT REDUCTION, AND SWITCH 1-LANE OF NB US 220 BYP. TRAFFIC ONTO THE TEMPORARY CROSSOVERS AS SHOWN ON DRAWINGS.

5. ON US 220 BUS., INSTALL ROAD CLOSURE SIGNS, DETOUR SIGNS, AND TEMPORARY BARRIER IF NOT COMPLETED EARLIER.

6. INSTALL TEMPORARY SHORING ALONG US 220 BUS. REMOVE CONFLICTING EXISTING GUARDRAIL ALONG US 220 BUS. AS NEEDED THAT MAY INTERFERE WITH REMOVAL OF EXISTING PIERS AND CONSTRUCTION OF PROPOSED FOOTINGS.

WORKING IN CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK OF PHASE III, STEPS 7 THROUGH 9 FROM A FRIDAY AT 7:00 P.M. TO THE FOLLOWING MONDAY AT 6:00 A.M. REPEAT INTERMEDIATE CONTRACT TIME AS NEEDED TO COMPLETE REMOVAL OF EXISTING GIRDERS. (SEE CONTRACT TIME AND LIQUIDATED DAMAGES).

7. UNCOVER ROAD CLOSURE AND DETOUR SIGNS. CLOSE US 220 BUS. AND DETOUR TRAFFIC DURING WEEKEND ICT. SEE SHEET TMP-14A.

8. AWAY FROM TRAFFIC, REMOVE EXISTING GIRDERS FOR NB US 220 BYP. BRIDGE.

9. OPEN US 220 BUS. AND COVER ROAD CLOSURE AND DETOUR SIGNING.

10. USING RSD 1101.02, SHEET 1 OF 15, AS NEEDED, COMPLETE REMOVAL OF EXISTING BRIDGE.

11. USING RSD 1101.02, SHEET 1 OF 15, AS NEEDED, CONSTRUCT PROPOSED FOOTINGS ADJACENT TO US 220 BUS.

    INSTALL TEMPORARY SHORING ON US 220 BYP. CONSTRUCT PROPOSED END BENTS, INTERIOR BENTS, AND WING WALLS.

WORKING IN CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK OF PHASE III, STEPS 12 THROUGH 14 FROM A FRIDAY AT 7:00 P.M. TO THE FOLLOWING MONDAY AT 6:00 A.M. REPEAT INTERMEDIATE CONTRACT TIME AS NEEDED TO COMPLETE INSTALLATION OF PROPOSED GIRDERS. (SEE CONTRACT TIME AND LIQUIDATED DAMAGES).

12. UNCOVER ROAD CLOSURE AND DETOUR SIGNS. CLOSE US 220 BUS. AND DETOUR TRAFFIC DURING WEEKEND ICT.

13. AWAY FROM TRAFFIC, INSTALL PROPOSED GIRDERS FOR NB US 220 BYP. BRIDGE.

14. OPEN US 220 BUS. AND COVER ROAD CLOSURE AND DETOUR SIGNING.

15. AWAY FROM TRAFFIC, COMPLETE CONSTRUCTION OF NB US 220 BYP. PROPOSED BRIDGE AND CONSTRUCT PROPOSED NB US 220 BYP. ROADWAY APPROACHES, INCLUDING PROPOSED GUARDRAIL, UP TO BUT NOT INCLUDING THE FINAL LAYER. USING RSD 1101.02, SHEET 4 OF 15, PLACE TEMPORARY MARKINGS IN FINAL PATTERN AS MUCH AS POSSIBLE ON NB US 220 BYP. WITHOUT INTERFERING WITH EXISTING TRAFFIC.

    ON US 220 BUS., RESET EXISTING GUARDRAIL TYING TO EXISTING GUARDRAIL ALREADY IN PLACE AND REMOVE PCB.

PHASE 4 (SEE SHEETS TMP-15 TO TMP-18)

1. USE LANE CLOSURES (RSD 1101.02, SHEET 4 OF 9) AND/OR ROLLING ROAD BLOCK (RSD 1101.03, SHEET 9 OF 9) TO CLOSE MEDIAN CROSSOVERS AND ADJUST PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES TO PLACE NB US 220 BYP. TRAFFIC IN THE OUTSIDE LANE. SEE SHEETS TMP-15 THRU TMP-18. REMOVE SIGNS *W1-4*, *W13-1*, AND *W6-3* ASSOCIATED WITH ROADWAY STANDARD DRAWING 1101.03, SHEET 4 OF 9. ON NORTHBOUND US 220 BYP., COVER/REMOVE ALL STATIONARY LANE CLOSURE AND TEMPORARY SPEED REDUCTION/$250 PENALTY SIGNS ASSOCIATED WITH SHEET TMP-2B. ON SOUTHBOUND US 220 BYP., MAINTAIN STATIONARY LANE CLOSURE SIGNS AND COVER/REMOVE TEMPORARY SPEED REDUCTION/$250 PENALTY SIGNS ASSOCIATED WITH TMP-2B.

2. USE LANE CLOSURES (RSD 1101.02, SHEET 4 OF 15) AND/OR ROLLING ROAD BLOCK (RSD 1101.03, SHEET 9 OF 9) TO REMOVE PCB ON US 220 BYP. AND MEDIAN CROSSOVER. REPLACE PCB WITH DRUMS ADJACENT TO SB US 220 BYP. TRAFFIC.

3. BEHIND LANE CLOSURE, REMOVE TEMPORARY MEDIAN CROSSOVERS AND RESET EXISTING GUARDRAIL ON US 220 BYP. ACCORDING TO THE ROADWAY PLANS. RELAP EXISTING GUARDRAIL AS SHOWN ON TMP-16 AND TMP-17 AND LISTED IN PHASE 2, STEP 2.

4. USE LANE CLOSURES (RSD 1101.02, SHEET 4 OF 9) AND/OR ROLLING ROAD BLOCK (RSD 1101.03, SHEET 9 OF 9) TO INSTALL TEMPORARY PAVEMENT MARKINGS TO PLACE NB AND SB US 220 BYP. TRAFFIC IN THE PROPOSED 4-LANE, 2-WAY TRAFFIC PATTERN. REMOVE CONFLICTING PAVEMENT MARKINGS.

5. USING LANE CLOSURE, PLACE OVERLAY AND FINAL LAYER OF SURFACE COURSE ON US 220 BYP. PLACE FINAL PAVEMENT MARKINGS ON US 220 BYP. ACCORDING TO THE FINAL PAVEMENT MARKING PLANS.

6. REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

APPROVED:_____ DATE:_____

SEAL

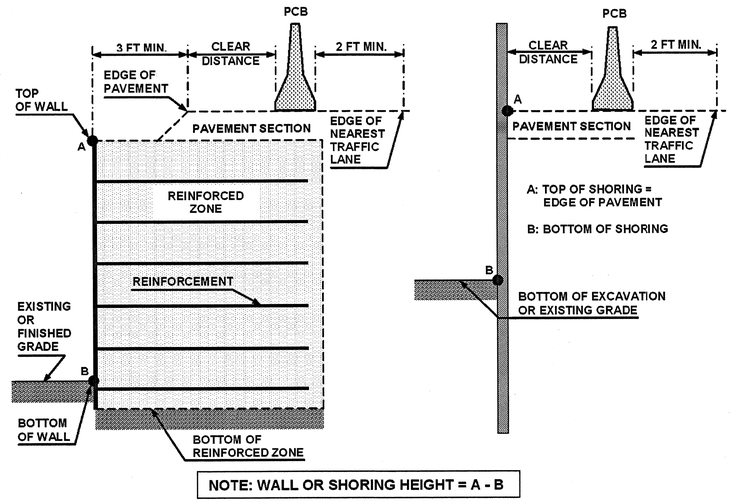
NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER PATRICK A DUGAN III

7/14/13

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

PHASING NOTES

7/15/2013
...\B4621_TCP_TMP_OID.dgn
User:bpalls




NOTE: WALL OR SHORING HEIGHT = A - B

# FIGURE A

## NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.

9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

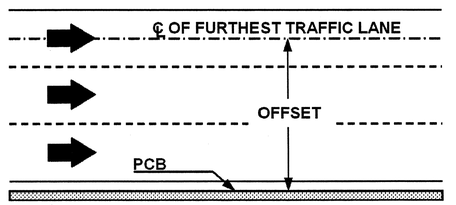
10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-2A |

**MINIMUM REQUIRED CLEAR DISTANCE, inches**

| Barrier Type | Pavement Type | Offset * ft | Design Speed, mph | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | <30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 |
| Unanchored PCB | Asphalt | <8 | 24 | 26 | 29 | 32 | 36 | 40 |
| | | 8-14 | 26 | 28 | 31 | 35 | 38 | 42 |
| | | 14-20 | 27 | 29 | 34 | 36 | 39 | 43 |
| | | 20-26 | 28 | 31 | 35 | 38 | 40 | 44 |
| | | 26-32 | 29 | 32 | 36 | 39 | 42 | 45 |
| | | 32-38 | 30 | 34 | 38 | 41 | 43 | 46 |
| | | 38-44 | 31 | 34 | 41 | 43 | 45 | 48 |
| | | 44-50 | 31 | 35 | 41 | 43 | 46 | 49 |
| | | 50-56 | 32 | 36 | 42 | 44 | 47 | 50 |
| | | >56 | 32 | 36 | 42 | 45 | 47 | 51 |
| | Concrete | <8 | 17 | 18 | 21 | 22 | 25 | 26 |
| | | 8-14 | 19 | 20 | 23 | 25 | 26 | 29 |
| | | 14-20 | 22 | 22 | 24 | 26 | 28 | 31 |
| | | 20-26 | 23 | 24 | 26 | 27 | 30 | 34 |
| | | 26-32 | 24 | 25 | 27 | 28 | 32 | 35 |
| | | 32-38 | 24 | 26 | 27 | 30 | 33 | 36 |
| | | 38-44 | 25 | 26 | 28 | 30 | 34 | 37 |
| | | 44-50 | 26 | 26 | 28 | 32 | 35 | 37 |
| | | 50-56 | 26 | 26 | 28 | 32 | 35 | 38 |
| | | >56 | 26 | 27 | 29 | 32 | 36 | 38 |
| Anchored PCB | Asphalt | All Offsets | 24 for All Design Speeds | | | | | |
| Anchored PCB | Concrete (including bridge approach slabs) | All Offsets | 12 for All Design Speeds | | | | | |

* See Figure Below




# FIGURE B

APPROVED:_____ DATE:_____

SEAL

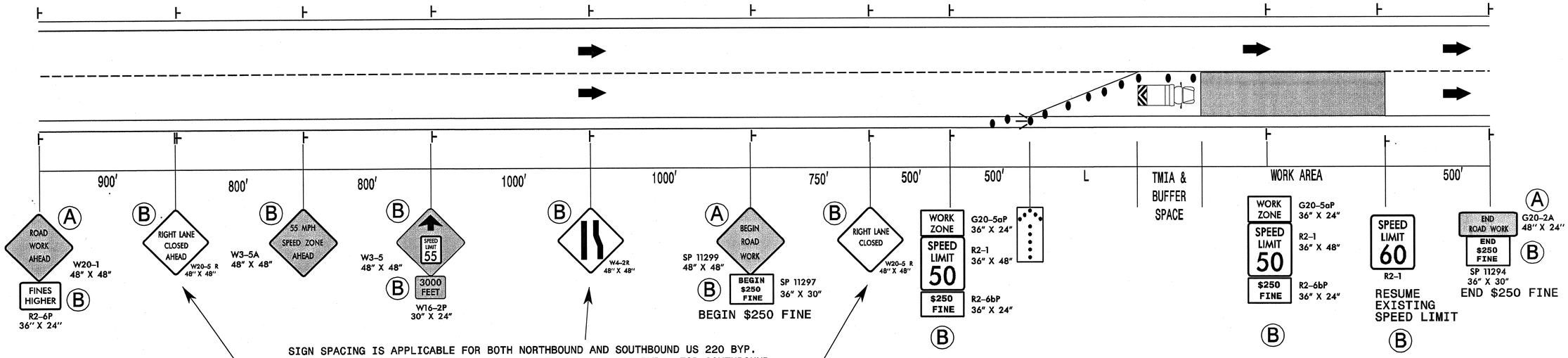
NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL, III

7/16/07

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

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-2B |




SIGN SPACING IS APPLICABLE FOR BOTH NORTHBOUND AND SOUTHBOUND US 220 BYP. THE LANE CLOSURE SIGNS SHOWN ARE FOR NORTHBOUND US 220 BYP. FOR SOUTHBOUND US 220 BYP., SWAP THE RIGHT LANE CLOSURE SIGNS FOR LEFT LANE CLOSURE SIGNS.

(A) SIGN TO REMIAN IN USE FOR ENTIRE PROJECT SEE RSD 1101.01

(B) USE ONLY WHEN CROSSOVER IS IN EFFECT. SEE PHASING NOTES. COVER WHEN NOT IN USE.

## NOTES

1) THE WORK ZONE SPEED LIMIT WILL BE ESTABLISHED IN COLLABORATION BETWEEN THE REGIONAL TRAFFIC ENGINEER, THE DIVISION AND THE WORK ZONE TRAFFIC CONTROL SECTION. THIS DRAWING SHOWS THE TYPICAL APPLICATION OF REDUCING THE "WORK ZONE SPEED LIMIT" TO 55 MPH.

2) IF THE "WORK ZONE SPEED LIMIT" ONLY APPLIES TO A SPECIFIC PORTION AND NOT THE ENTIRE PROJECT, THE EXISTING SPEED LIMIT IS TO BE REESTABLISHED INSIDE THE PROJECT LIMITS. THE EXISTING SPEED LIMIT SIGNS AND THE "END $250 FINE" SIGNS ARE TO BE INSTALLED AT THE LOCATION WHERE THE EXISTING SPEED LIMIT IS TO RESUME. (SEE GUIDELINE- D)

3) THE WORK ZONE SPEED LIMIT SIGNS ARE TO BE MOUNTED FROM 7′ ABOVE EDGE OF PAVEMENT ELEVATION.

4) THIS DRAWING SHALL APPLY ON STATIONARY WORK ZONES WHEN TEMPORARY LANE CLOSURES ARE INSTALLED AT THE BEGINNING OF THE PROJECT LIMITS.

5) THE NEED AND LOCATION OF ADDITIONAL POSTED "WORK ZONE SPEED LIMIT" SIGNS WITHIN THE WORK AREA IS TO BE DETERMINED BY THE REGIONAL TRAFFIC ENGINEER.

6) A CHANGEABLE MESSAGE SIGN (CMS) SHALL BE PLACED AHEAD OF THE LANE CLOSURE PER ROADWAY STANDARD DRAWING 1101.02.

## GUIDELINES

A) THIS DRAWING IS FOR USE ONLY AFTER AN ENGINEERING INVESTIGATION AND CRITERIA REVIEW HAS BEEN PERFORMED BY THE REGIONAL TRAFFIC ENGINEER AND THE WORK ZONE TRAFFIC CONTROL SECTION. THE WORK ZONE SPEED LIMIT REDUCTION IS INTENDED FOR USE ON FREEWAYS WITH SPEED LIMITS 65 MPH OR GREATER. SEE WORK ZONE SPEED LIMIT GUIDELINES FOR CRITERIA.

B) THE STATE TRAFFIC ENGINEER HAS TO ORDINANCE THE SPEED LIMIT REDUCTION IN ORDER FOR THE REDUCTION TO BE VALID AND ENFORCEABLE. NO SPEED LIMIT SIGNS SHALL BE INSTALLED PRIOR TO RECEIVING A SIGNED ORDINANCE. IN ADDITION, THE $250 SPEEDING FINE ALSO REQUIRES A SEPARATE SIGNED ORDINANCE BY THE STATE TRAFFIC ENGINEER.

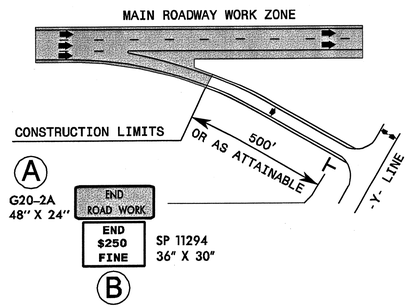
C) EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "WORK ZONE" SPEED LIMIT REDUCTION. THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.

D) FOR PROJECTS THAT EXCEED 2 MILES IN LENGTH, AN EVALUATION IS TO BE MADE TO DETERMINE IF THE "WORK ZONE" SPEED LIMIT REDUCTION APPLIES TO THE ENTIRE PROJECT LENGTH OR IF ONLY A PORTION OF THE PROJECT LENGTH. THE "WORK ZONE" SPEED LIMIT REDUCTION MAY TERMINATE BEFORE THE END OF THE PROJECT LIMITS. THE DRAWING IS TO BE MODIFIED AS NEEDED TO REFLECT THESE CONDITIONS.

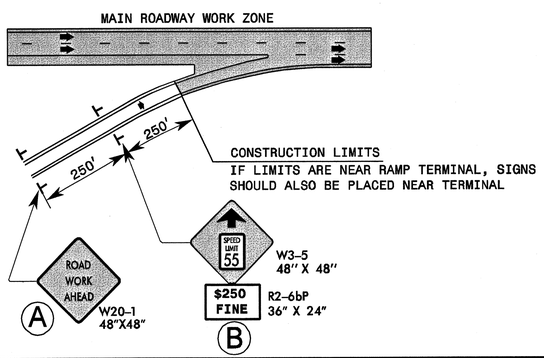
E) THE $250 SPEEDING FINE APPLIES FOR ALL PROJECTS THAT QUALIFY FOR A "WORK ZONE" SPEED LIMIT REDUCTION.

F) ALL "WORK ZONE" SPEED LIMIT REDUCTION SIGNAGE SHALL BE REMOVED WHEN THE CONDITION/S THAT WARRANTED THE REDUCTION AND FINE IS REMOVED. THE REGIONAL TRAFFIC ENGINEER WILL BE NOTIFIED BY THE RESIDENT ENGINEER AT THIS TIME TO RESCIND THE ORDINANCES AND RETURN THE EXISTING POSTED SPEED LIMIT. THIS SHOULD TAKE PLACE BEFORE THE PROJECT IS 100% COMPLETE AND ACCEPTED FOR MAINTENANCE.

## EXIT RAMPS




## ENTRANCE RAMPS




APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAN III

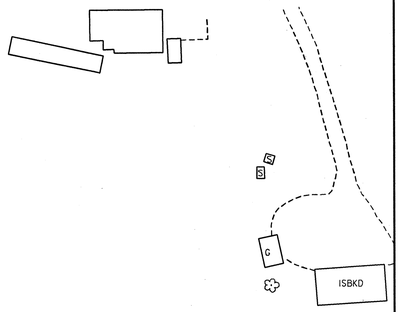
7/16/13

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

# "WORK ZONE" SPEED LIMIT REDUCTION

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-3 |

NAD 83/2001



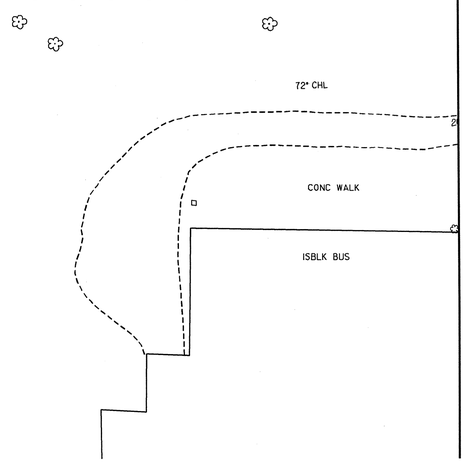

–L– STA. 90+50 +/–

300'

US 220 BYP. SB

US220 TO GREENSBORO

US 220 BYP. NB




MATCHLINE –L– STA. 11+70.00
SEE SHEET TMP-4

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA
SEAL
022609
ENGINEER
HERRICK A DUGAL III

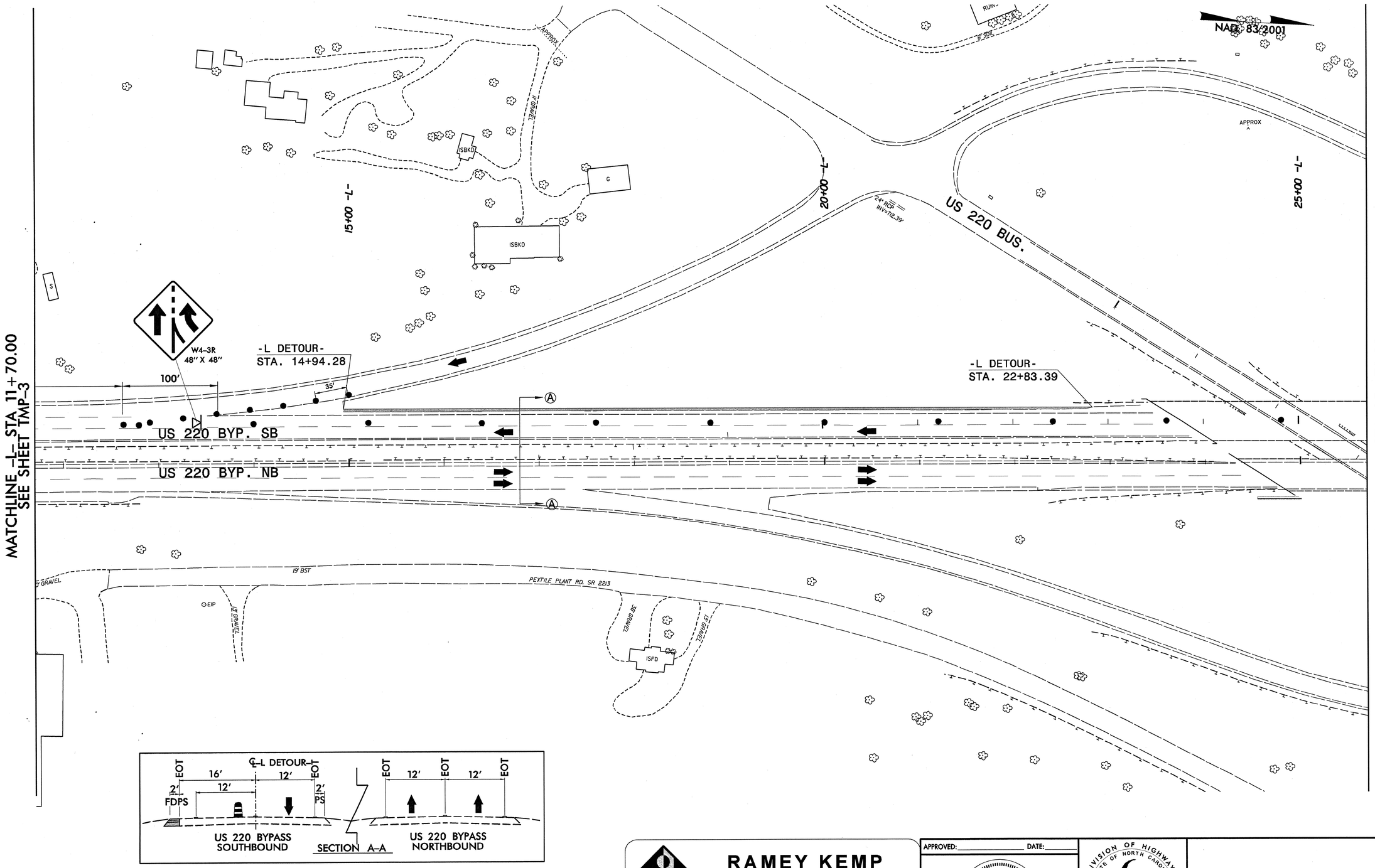
7/16/13

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

# PHASE 1 DETAIL

7/15/2013
...\TMP03_PHASE1.dgn
User:bpolis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-4 |




RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

7/4/13

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

# PHASE 1 DETAIL

7/15/2013
...\TMP04_PHASE1.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-5 |

NAD 83/2001

MATCHLINE -L- STA. 25+70.00
SEE SHEET TMP-4

-L DETOUR-
STA. 26+43.65

-L- STA. 30+20 +/-

-L DETOUR-
STA. 30+78.52

30+00 -L-

35+00 -L-

EXIT

E5-1
48" X 42"

48" WW

APPROX -L-

SCRUB

SHRUBS

-L- STA. 35+55 +/-

-L- STA. 39+00

345'
100'

BRIDGE #150
METAL AND CONC

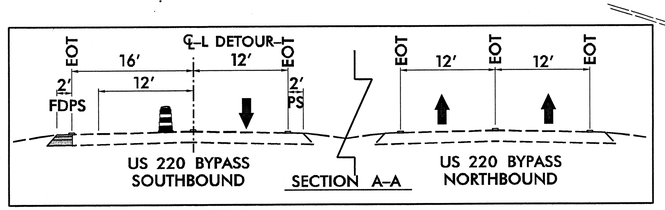
-Y-

US 220 BYP. SB

US 220 BYP. NB

US 220 BUS.

MATCHLINE -L- STA. 39+75.00
SEE SHEET TMP-6





RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A DUGAL III

7/16/13

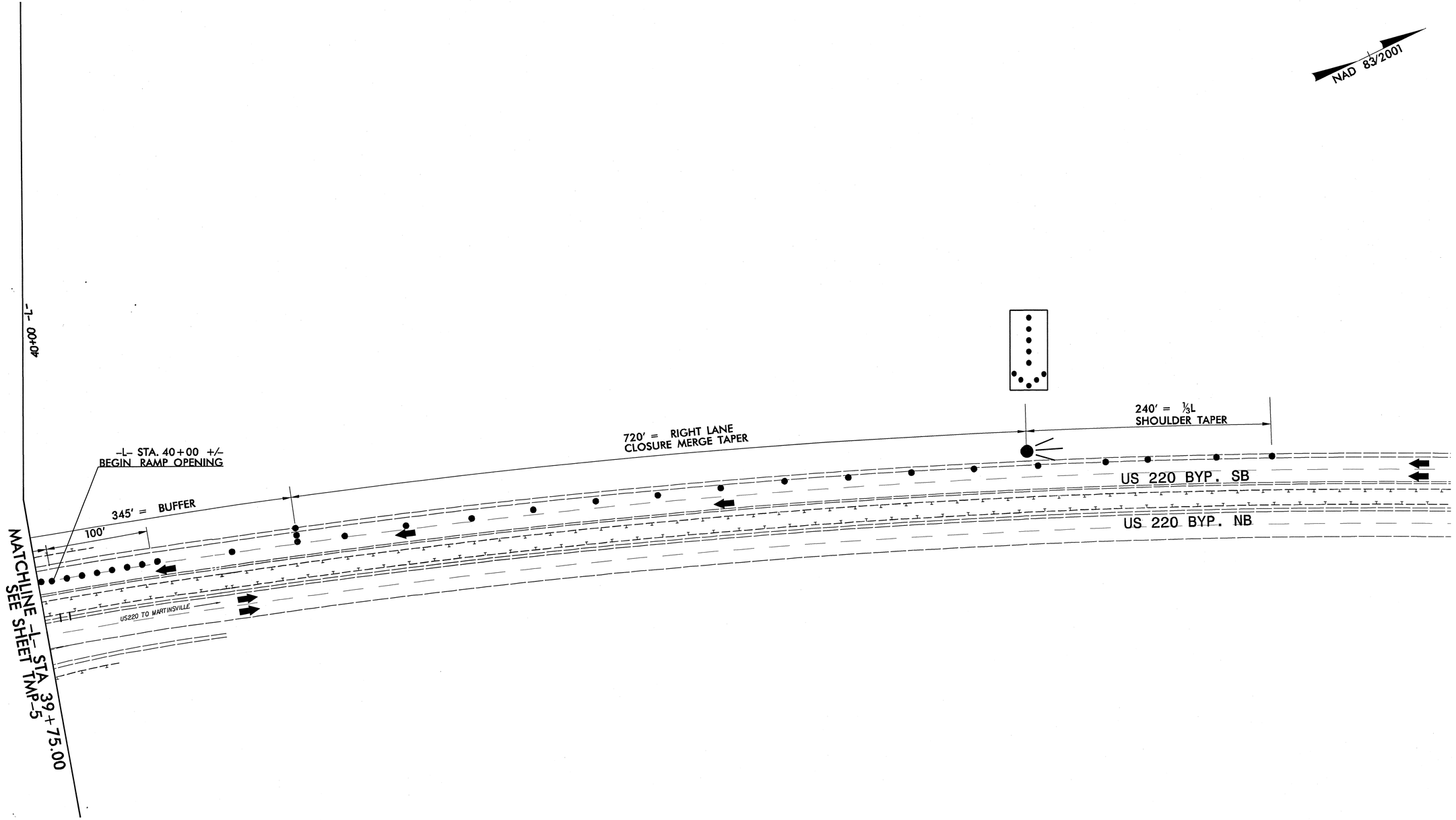
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

# PHASE 1 DETAIL

7/15/2013
...\TMP05_PHASE1.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP- 6 |

NAD 83/2001





RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUCAT III

7/16/13

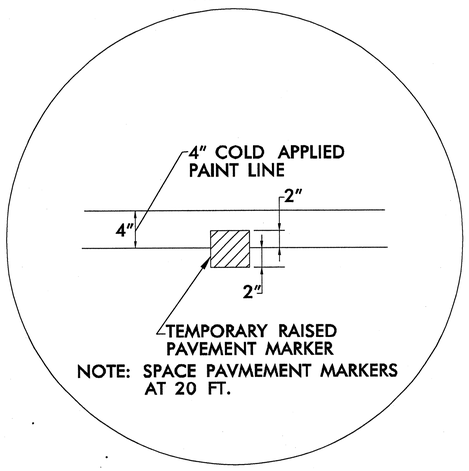
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

# PHASE 1 DETAIL

7/15/2013
...\TMP06_PHASE1.dgn
User:bpalis

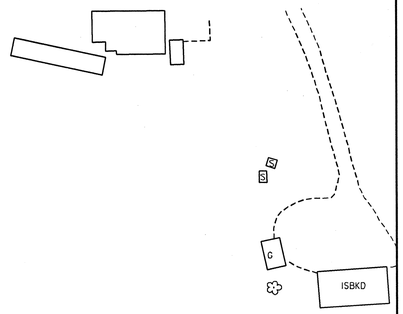
| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-7 |

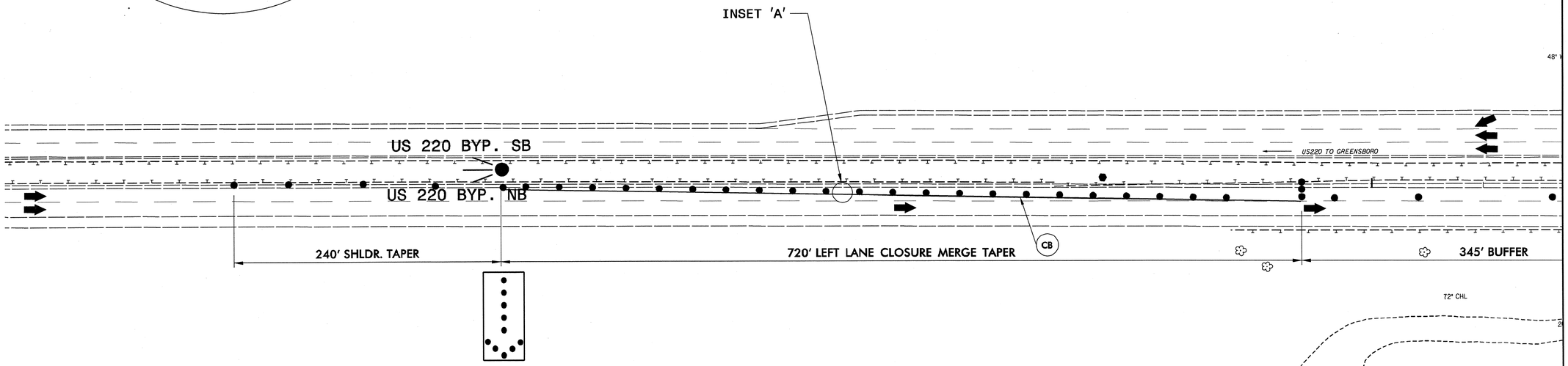
INSET 'A'

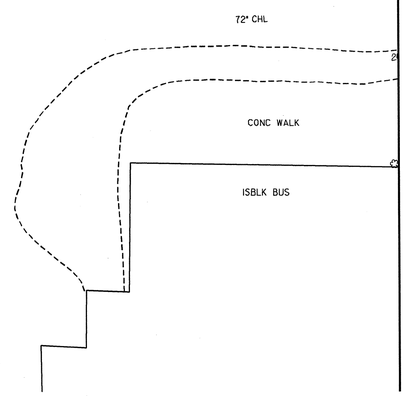



NOTE: SPACE PAVMEMENT MARKERS AT 20 FT.

NAD 83/2001




USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER WERRICK A DUCAL III

7/16/13

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

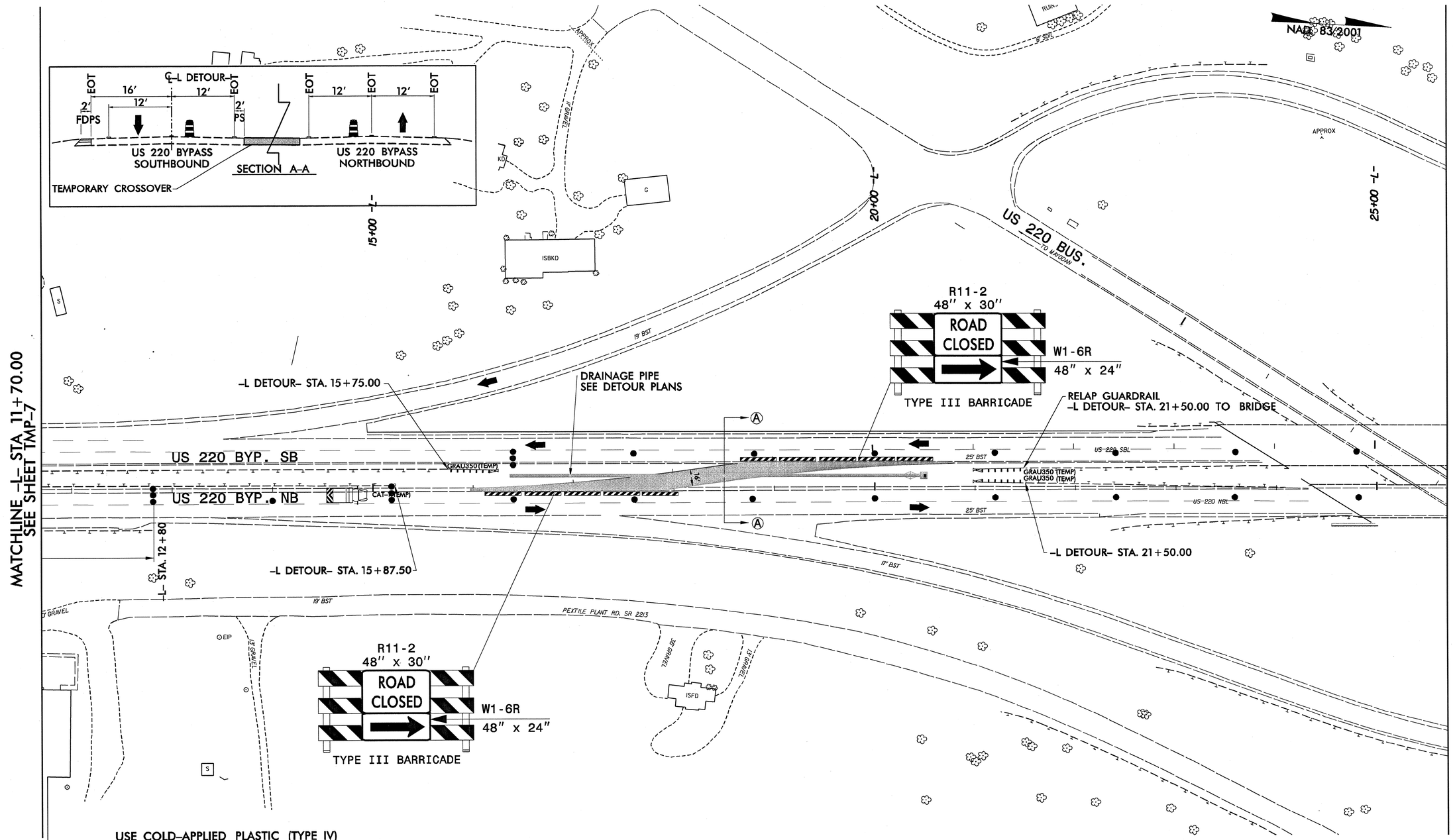
# PHASE 2 DETAIL

7/15/2013
...\TMP07_PHASE2.dgn
User:bpolis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP- 8 |

NAD 83/2001




USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESURFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 MERRICK A. DUGAN, III

7/16/13

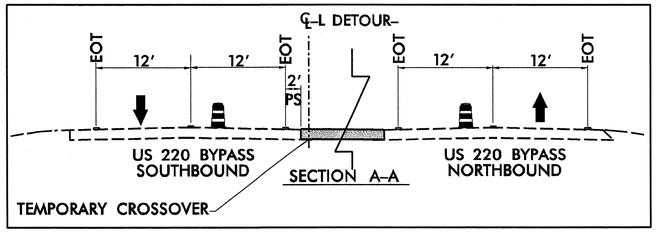
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

# PHASE 2 DETAIL

7/15/2013
...\TMP08_PHASE2.dgn
User:bdavis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-9 |

NAD 83/2001




MATCHLINE –L– STA. 25+70.00
SEE SHEET TMP–8

30+00 –L–

35+00 –L–

APPROX

17' BST

SCRUB

RELAP GUARDRAIL
BRIDGE TO –L DETOUR STA. 30+00

–L DETOUR– STA. 30+00.00

GRAU350 (TEMP)

25' BST

BRIDGE #150
METAL AND CONC

–L DETOUR– STA. 31+50.00

US 220 BUSINESS

21' BST

–L DETOUR– STA. 35+50.00

Ⓐ

36'

GRAU350 (TEMP)

US 220 BYP. SB

US 220 BYP. NB

–L– STA. 38+90

345'

–L DETOUR– STA. 37+87.50

11' BST

MATCHLINE –L– STA. 39+75.00
SEE SHEET TMP–10

ISFD

6" GRAVEL

TO STONEVILLE

USE COLD–APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP–7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAN III

7/16/13

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

# PHASE 2 DETAIL

7/15/2013
...\TMP09_PHASE2.dgn
User:bpdits

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-10 |

NAD 83/2001

40+00 -L-

720' = RIGHT LANE CLOSURE MERGE TAPER

240' = ½L SHOULDER TAPER

CB

345' = BUFFER

US 220 BYP. SB

US 220 BYP. NB

US220 TO MARTINSVILLE

MATCHLINE -L- STA 39+75.00
SEE SHEET TMP-9

USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 MERRICK A DUGAL III

7/16/13

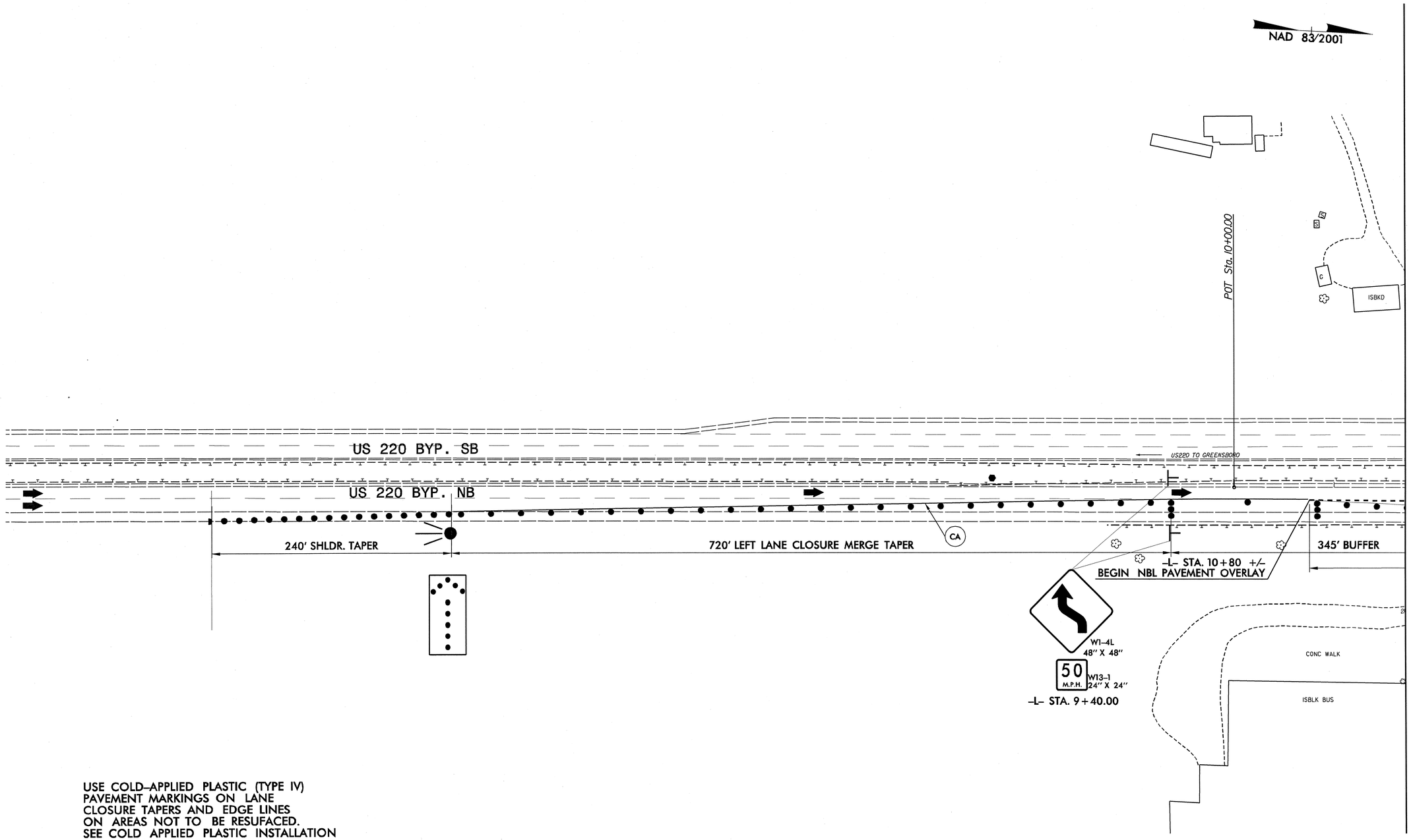
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

# PHASE 2 DETAIL

7/15/2013
...\TMP10_PHASE2.dgn
User:bpalls

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-11 |

NAD 83/2001




USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA SEAL 022609 ENGINEER WERRICK A DUGAN III

7/16/13

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

# PHASE 3 DETAIL

7/15/2013
::\TMP1_PHASE3.dgn
User:bpalls

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-12 |

NAD 83/2001

MATCHLINE –L– STA. 11+70.00
SEE SHEET TMP-11

MATCHLINE –L– STA. 25+70.00
SEE SHEET TMP-13

R11-2
48" x 30"
ROAD CLOSED
W1-6L
48" x 24"
TYPE III BARRICADE

R11-2
48" x 30"
ROAD CLOSED
W1-6L
48" x 24"
TYPE III BARRICADE
–L DETOUR– STA. 18+59

–L DETOUR– STA. 15+70 +/–
BEGIN LANE SHIFT 4' IN 240'
BEGIN PCB
BEGIN SBL PAVEMENT OVERLAY
BEGIN PAINT STRIPING

–L– STA. 13+30 +/–
END LANE SHIFT

TIE TO EXIST PAVEMENT LINE

US 220 BYP. SB

US 220 BYP. NB

285' RAMP OPENING

–L– STA. 13+65

–L– STA. 12+80

END
–L DETOUR– STA. 17+88.81

–L– STA. 19+42.56

–L– STA. 19+36.86

PEXTILE PLANT RD. SR 2213

US 220 BUS.
TO MARYDAL

–L– STA. 21+50.00

RELAP GUARDRAIL

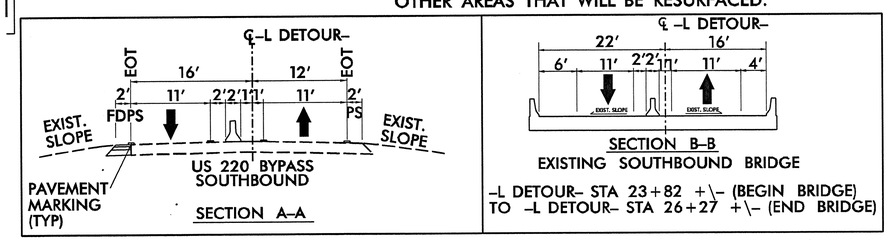
EXIT
E5-1
48" X 42"
–L DETOUR– STA. 16+95

W6-3
48" X 48"

50 M.P.H.
W13-1
24" X 24"
–L DETOUR– STA. 21+14

USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESURFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.




SECTION A–A




SECTION B–B
EXISTING SOUTHBOUND BRIDGE

–L DETOUR– STA 23+82 +\– (BEGIN BRIDGE)
TO –L DETOUR– STA 26+27 +\– (END BRIDGE)


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER PATRICK A DUGAN
7/14/13

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

# PHASE 3 DETAIL

7/15/2013
...\TMP12_PHASE3.dgn
User:bpalls

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-12A |

**TEMPORARY SHORING NO.1**

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

DESIGN TEMPORARY SHORING FROM STATION 12+44.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-, TO STATION 13+42.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (ɣ) = 120 LB/CF
FRICTION ANGLE (F) = 30 DEGREES
COHESION (C) = 0 LB/SF
GROUNDWATER ELEVATION = 715 FT

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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 12+44.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-, TO STATION 13+42.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION 12+44.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-, TO STATION 13+42.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 12+44.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-, TO STATION 13+42.50 -Y EBL-, 17.0 FT. TO 21.0 FT. RT OF -Y-. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

**TEMPORARY SHORING NO.2**

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

DESIGN TEMPORARY SHORING FROM STATION 13+32.52 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-, TO STATION 14+31.70 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (ɣ) = 120 LB/CF
FRICTION ANGLE (F) = 30 DEGREES
COHESION (C) = 0 LB/SF
GROUNDWATER ELEVATION = 715 FT

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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 13+32.52 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-, TO STATION 14+31.70 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

**TEMPORARY SHORING NO.2 (CONT.)**

DO NOT USE A TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION 13+32.52 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-, TO STATION 14+31.70 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 13+32.52 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-, TO STATION 14+31.70 -Y WBL-, 17.0 FT. TO 21.0 FT. LT OF -Y-. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

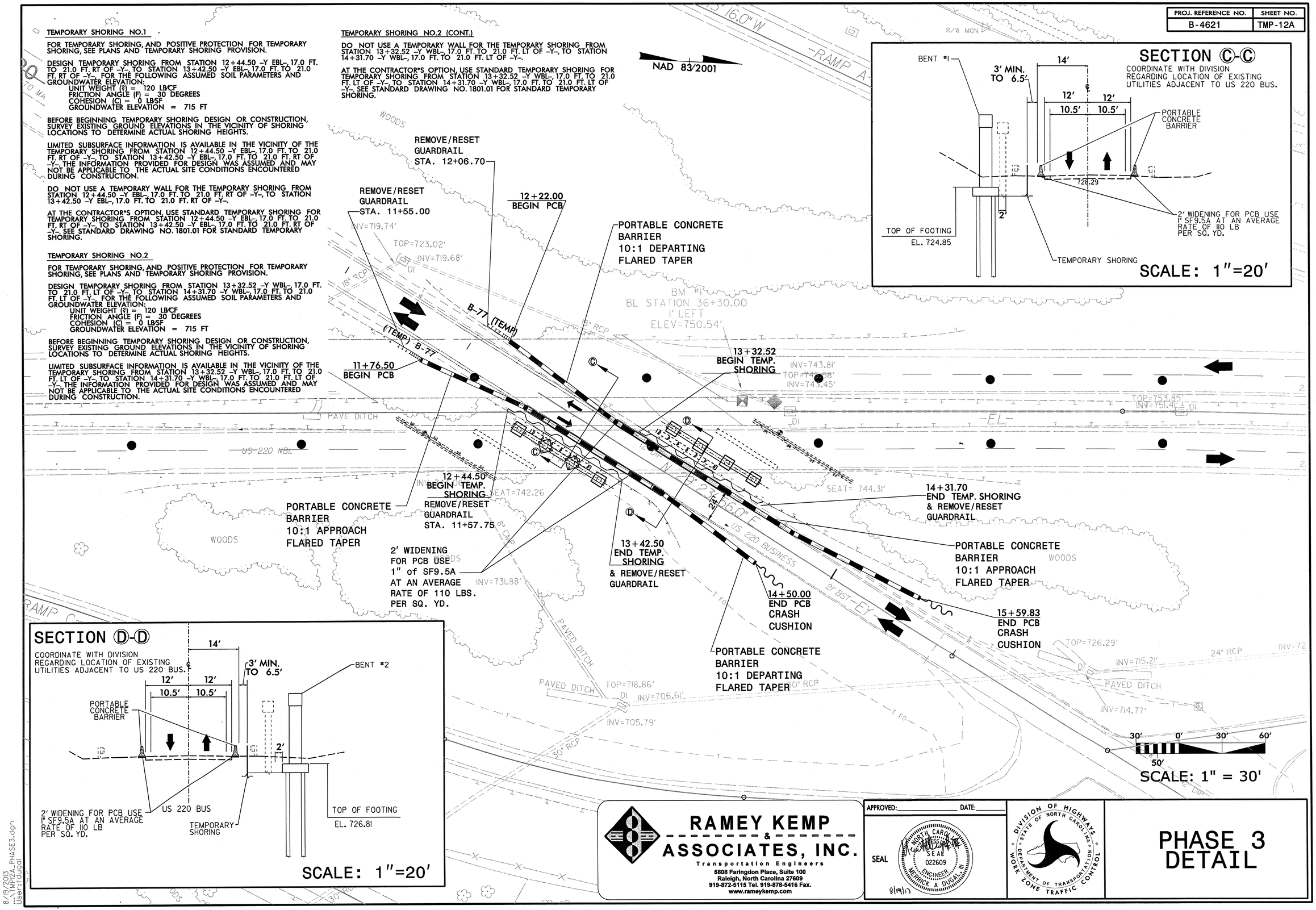
NAD 83/2001

## SECTION Ⓒ-Ⓒ

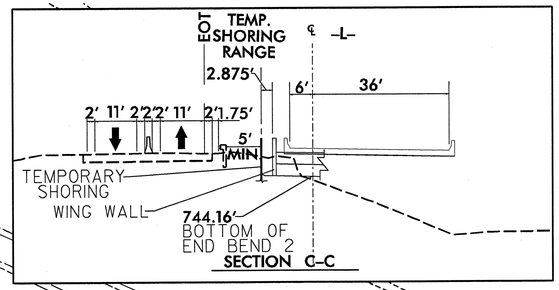
COORDINATE WITH DIVISION REGARDING LOCATION OF EXISTING UTILITIES ADJACENT TO US 220 BUS.




SCALE: 1"=20'


REMOVE/RESET GUARDRAIL STA. 12+06.70
REMOVE/RESET GUARDRAIL STA. 11+55.00
12+22.00 BEGIN PCB
PORTABLE CONCRETE BARRIER 10:1 DEPARTING FLARED TAPER
BM #1 BL STATION 36+30.00 1' LEFT ELEV=750.54'
11+76.50 BEGIN PCB
13+32.52 BEGIN TEMP. SHORING
12+44.50 BEGIN TEMP. SHORING REMOVE/RESET GUARDRAIL STA. 11+57.75
PORTABLE CONCRETE BARRIER 10:1 APPROACH FLARED TAPER
2' WIDENING FOR PCB USE 1" of SF9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
13+42.50 END TEMP. SHORING & REMOVE/RESET GUARDRAIL
14+31.70 END TEMP. SHORING & REMOVE/RESET GUARDRAIL
14+50.00 END PCB CRASH CUSHION
15+59.83 END PCB CRASH CUSHION
PORTABLE CONCRETE BARRIER 10:1 APPROACH FLARED TAPER
PORTABLE CONCRETE BARRIER 10:1 DEPARTING FLARED TAPER
B-77 (TEMP)
(TEMP) B-77
US 220 NBL
US 220 BUSINESS
PAVE DITCH
PAVED DITCH
WOODS
RAMP A
RAMP C
-EL-
-Y1-
-Y2-
-Y3-
-Y4-
-Y5-
-Y6-
-Y7-
-Y8-
-Y9-
-Y10-
-Y11-
-Y12-
-Y13-
-Y14-
-Y15-
-Y16-
-Y17-
-Y18-
-Y19-
-Y20-
-Y21-
-Y22-
-Y23-
-Y24-
-Y25-
-Y26-
-Y27-
-Y28-
-Y29-
-Y30-
-Y31-
-Y32-
-Y33-
-Y34-
-Y35-
-Y36-
-Y37-
-Y38-
-Y39-
-Y40-

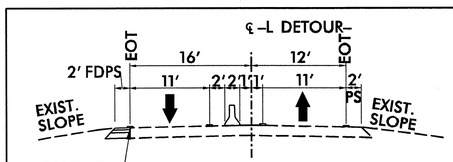
| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-13 |



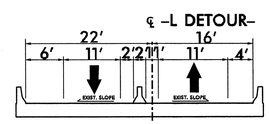
SECTION C–C

USE COLD–APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP–7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.



SECTION A–A



SECTION B–B

EXISTING SOUTHBOUND BRIDGE
–L DETOUR– STA 23+82 +\– (BEGIN BRIDGE)
TO –L DETOUR– STA 26+27 +\– (END BRIDGE)

NAD 83/2001

MATCHLINE –L– STA. 25+70.00
SEE SHEET TMP–12

30+00 –L–

35+00 –L–

–L DETOUR– STA. 34+99.06
END SOUTHBOUND LANE PAVEMENT OVERLAY
END PAINT STRIPING /BEGIN COLD APPLIED PLASTIC

W6–3
48" X 48"

50 M.P.H. W13–1 24" X 24"

–L DETOUR– STA.31+21

–L DETOUR– STA.27+45

W1–4R
48" X 48"

50 M.P.H. W13–1 24" X 24"

–L– STA. 30+75 +/–
END LANE SHIFT

–L DETOUR– STA. 32+90 +/–
BEGIN LANE SHIFT
3.5' IN 210'

SCRUB

GRAU350 (TEMP)

GRAU350 (TEMP)

GRAU350 (TEMP)

–L– STA. 30+00.00

RELAP GUARDRAIL

TEMPORARY SHORING

–L– STA. 38+90

345'

US 220 BYP. SB

US 220 BYP. NB

BEGIN PA
–L DETOUR– STA. 35+04.31

–L DETOUR– STA. 37+30 +/–
END PCB

–L– STA. 37+50.00

US 220 BUS.

ISFD

MATCHLINE –L– STA. 39+75.00
SEE SHEET TMP–14

TEMPORARY SHORING NO.3

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

DESIGN TEMPORARY SHORING FROM STATION 26+58.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L– TO STATION 27+02.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L– FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (ℽ) = 120 LBCF
FRICTION ANGLE (F) = 30 DEGREES
COHESION (C) = 0 LBSF
GROUNDWATER ELEVATION = 715 FT

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

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 26+58.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L–, TO STATION 27+02.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

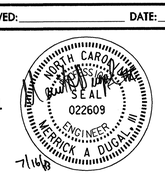
DO NOT USE A TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION 26+58.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L–, TO STATION 27+02.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L–

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 26+58.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L– TO STATION 27+02.00 –L NBL–, 13.5 FT. TO 19.0 FT. LT OF –L SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL



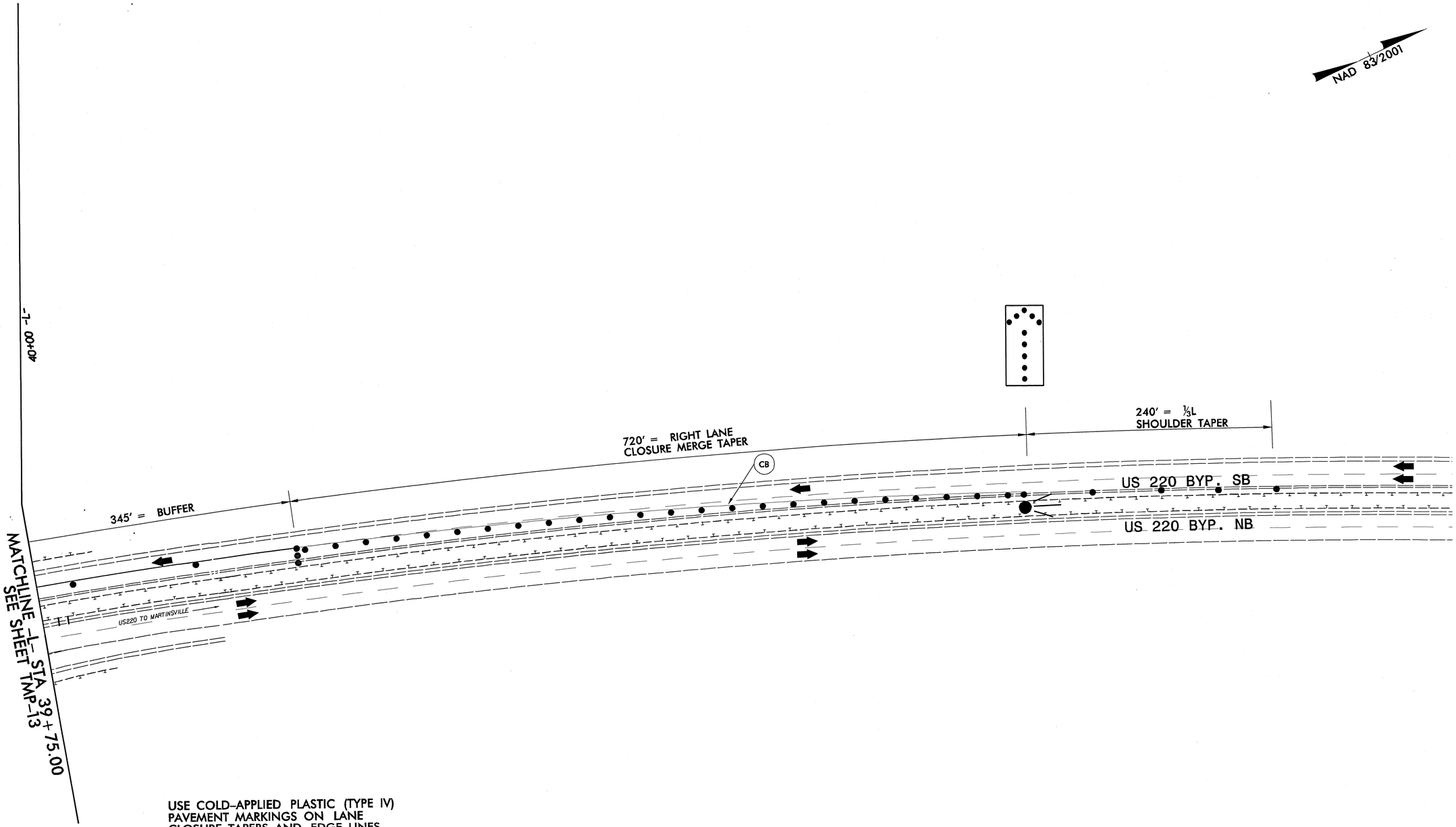

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

# PHASE 3 DETAIL

7/15/2013
...\TMP13_PHASE3.dgn
User:bpalls

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-14 |

NAD 83/2001




USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-6416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

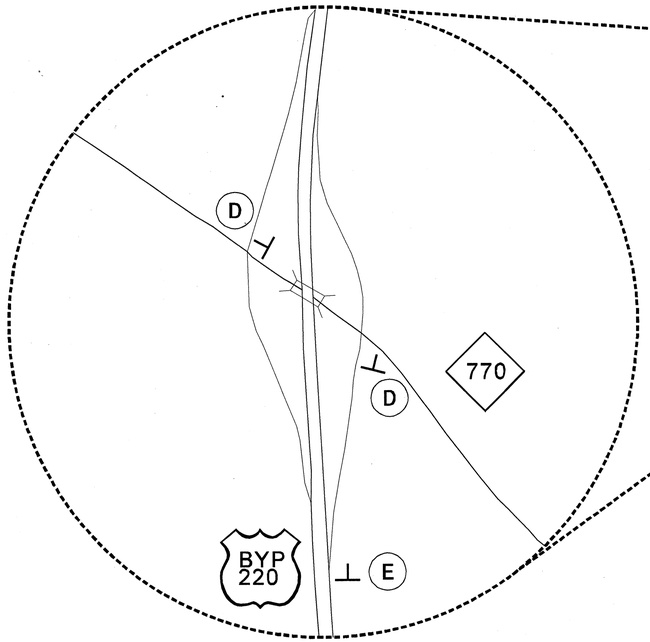
NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MATTHEW A DUGAL III
7/16/13

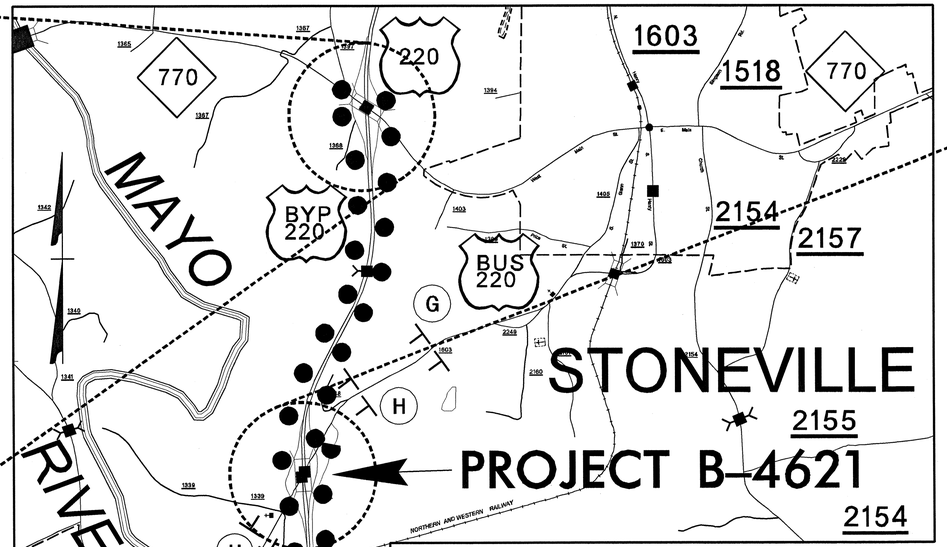
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

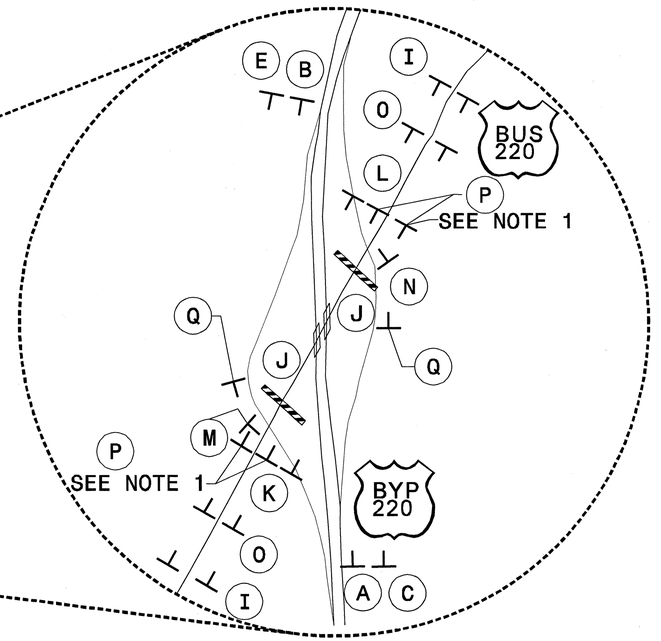
# PHASE 3 DETAIL

7/15/2013
...\TMP14_PHASE3.dgn
User:bpalis

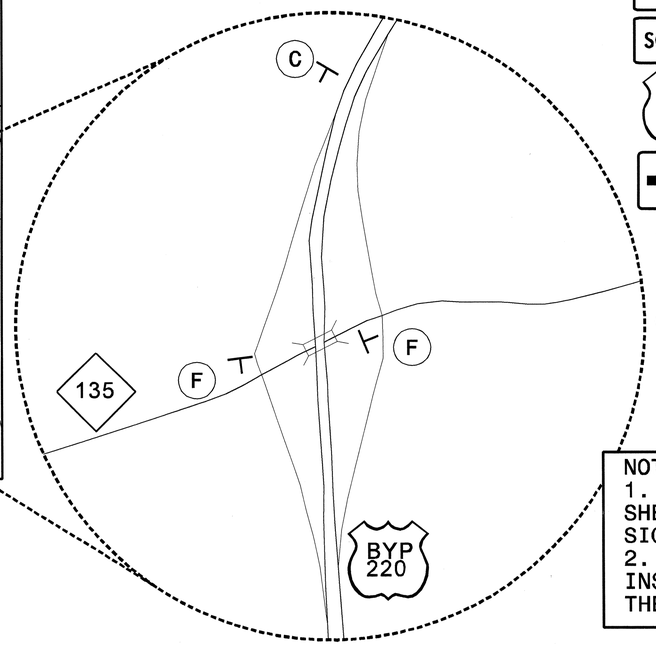
| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-14A |

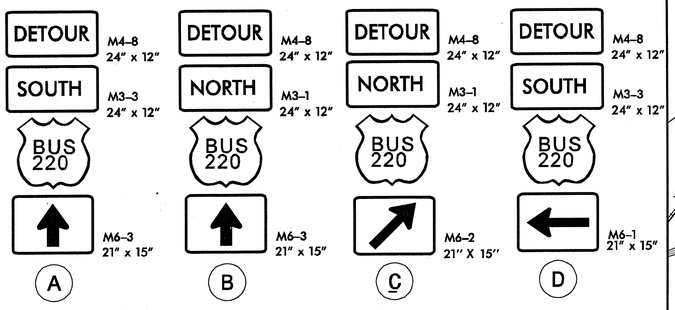


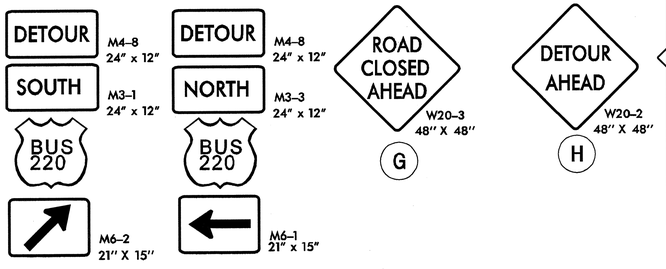



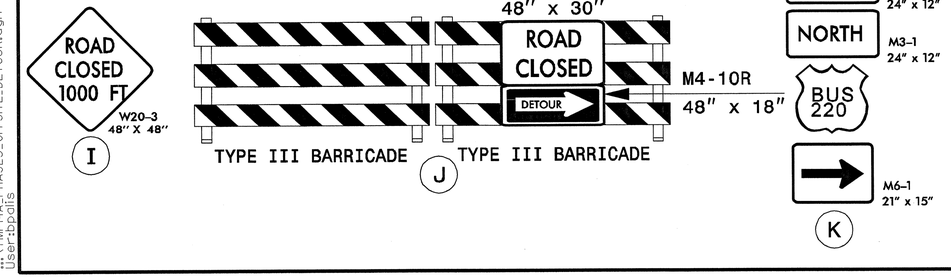



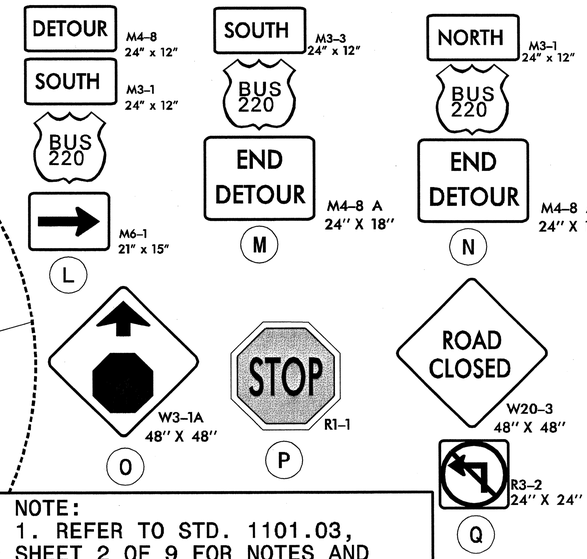

OFF-SITE DETOUR ROUTE




NOTE:
1. REFER TO STD. 1101.03, SHEET 2 OF 9 FOR NOTES AND SIGNING.
2. DETOUR SIGNS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-6416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A. DUGHI, III

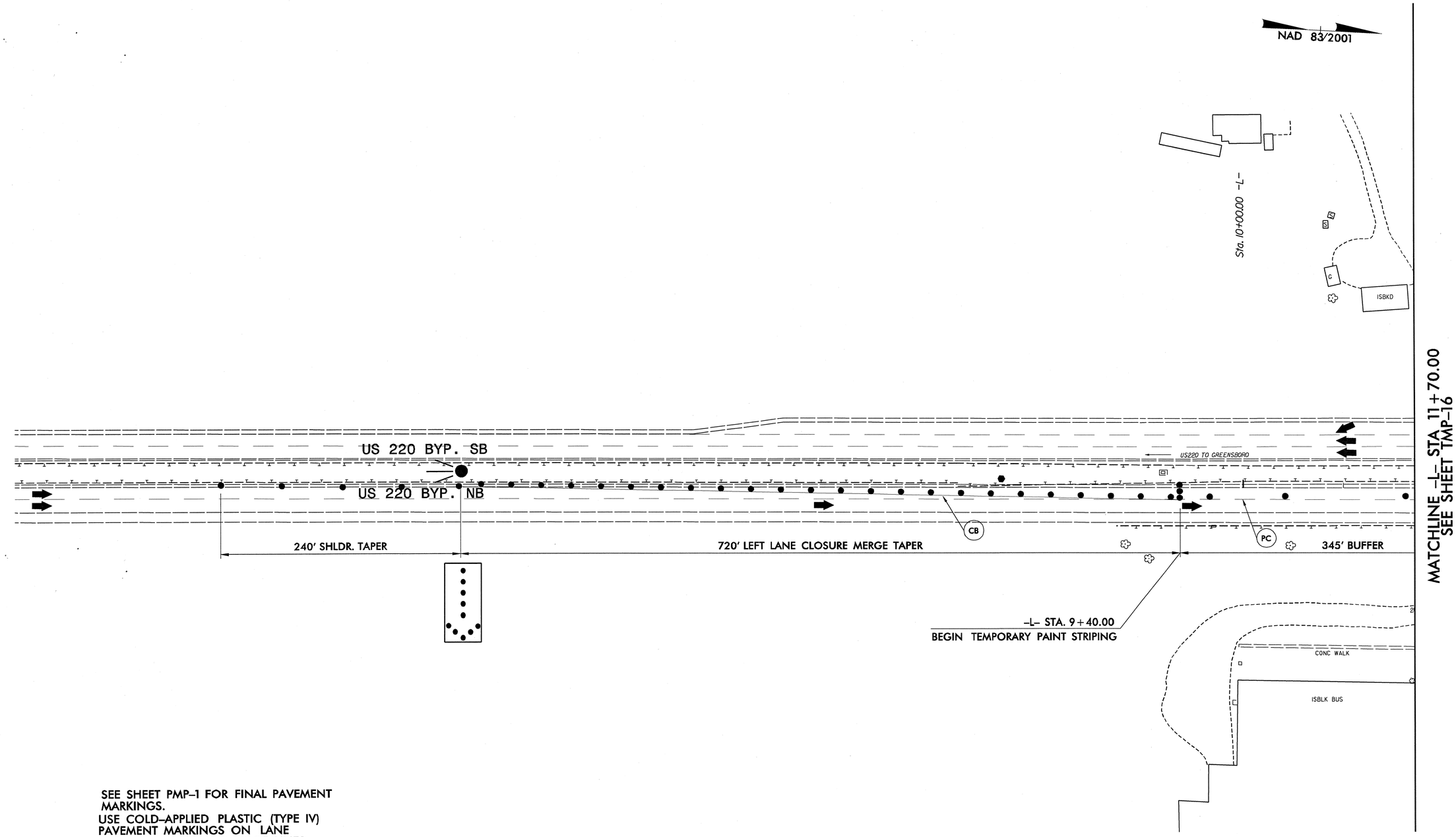
7/16/13

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

# PHASE 3 OFF-SITE DETOUR

7/15/2013
\\STIPP4_PHASE3_OFFSITE_DETOUR.dgn
User:bpolis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-15 |




SEE SHEET PMP-1 FOR FINAL PAVEMENT MARKINGS.
USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED.
SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

7/16/13

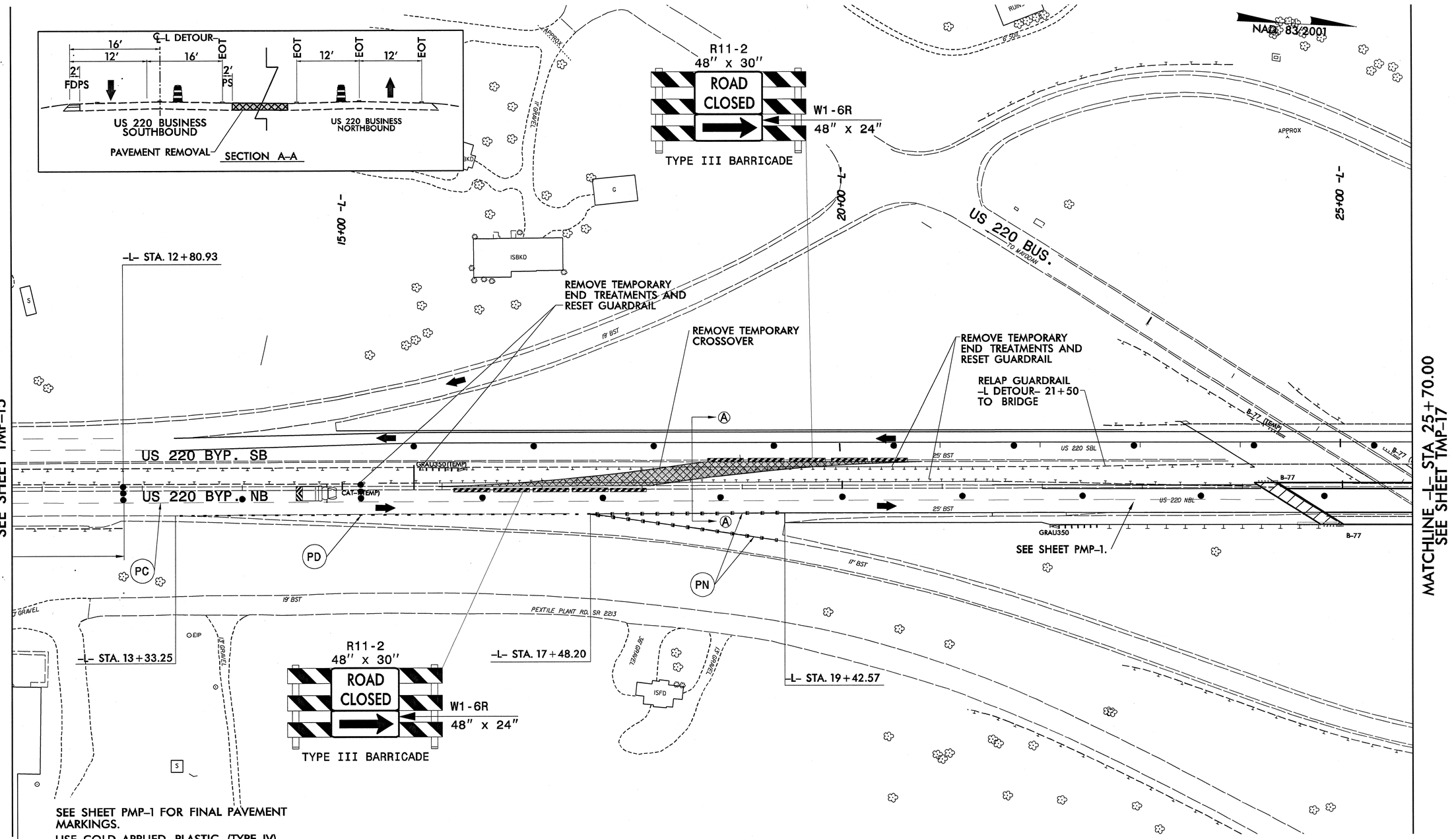
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

# PHASE 4 DETAIL

7/15/2013
...\TMP15_PHASE4.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-16 |




SEE SHEET PMP–1 FOR FINAL PAVEMENT MARKINGS.

USE COLD–APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP–7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 ENGINEER MERRICK A DUGAN III

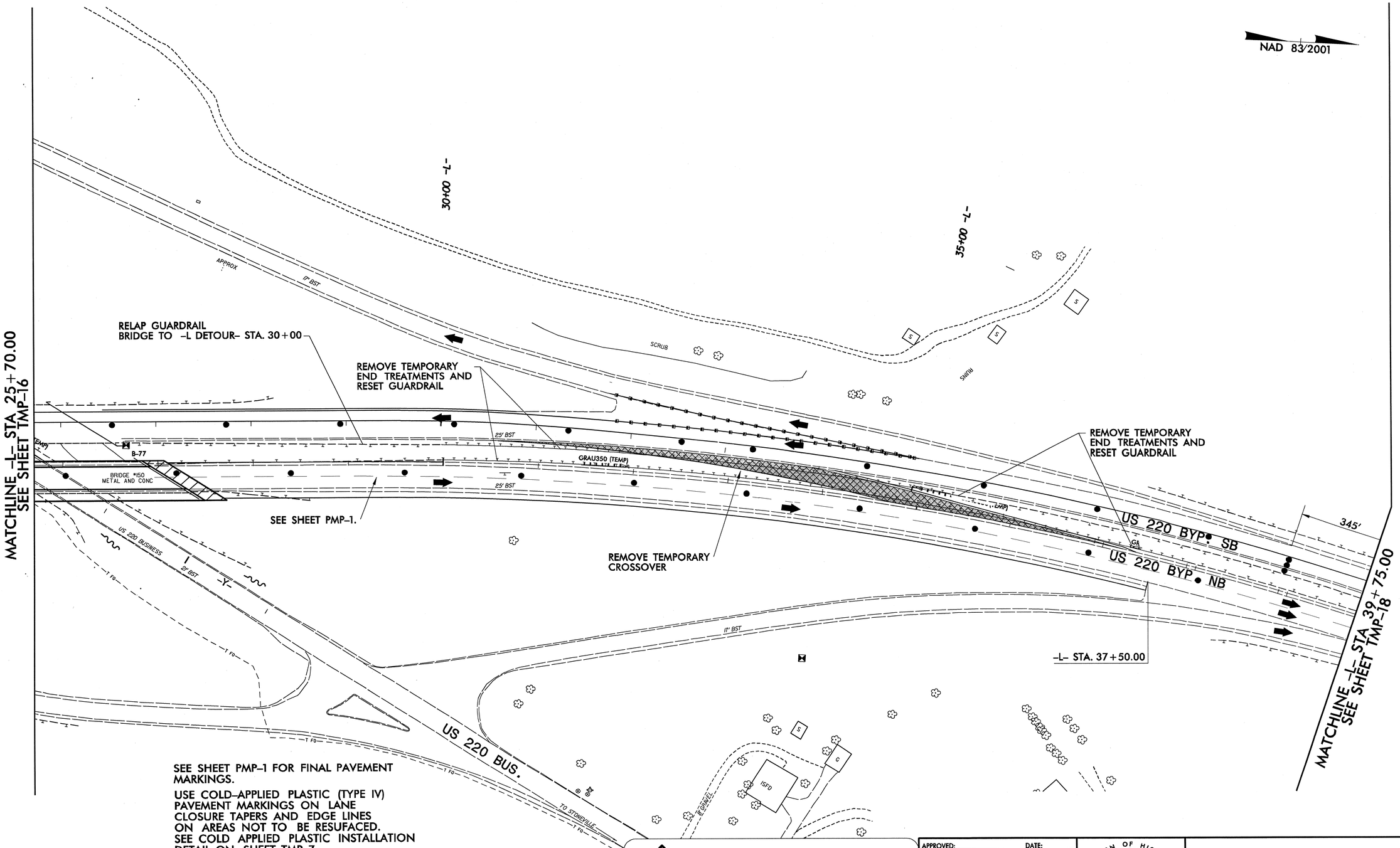
7/16/13

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

# PHASE 4 DETAIL

7/15/2013
...\TMP16_PHASE4.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-17 |




SEE SHEET PMP-1 FOR FINAL PAVEMENT MARKINGS.

USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A DUGAL III

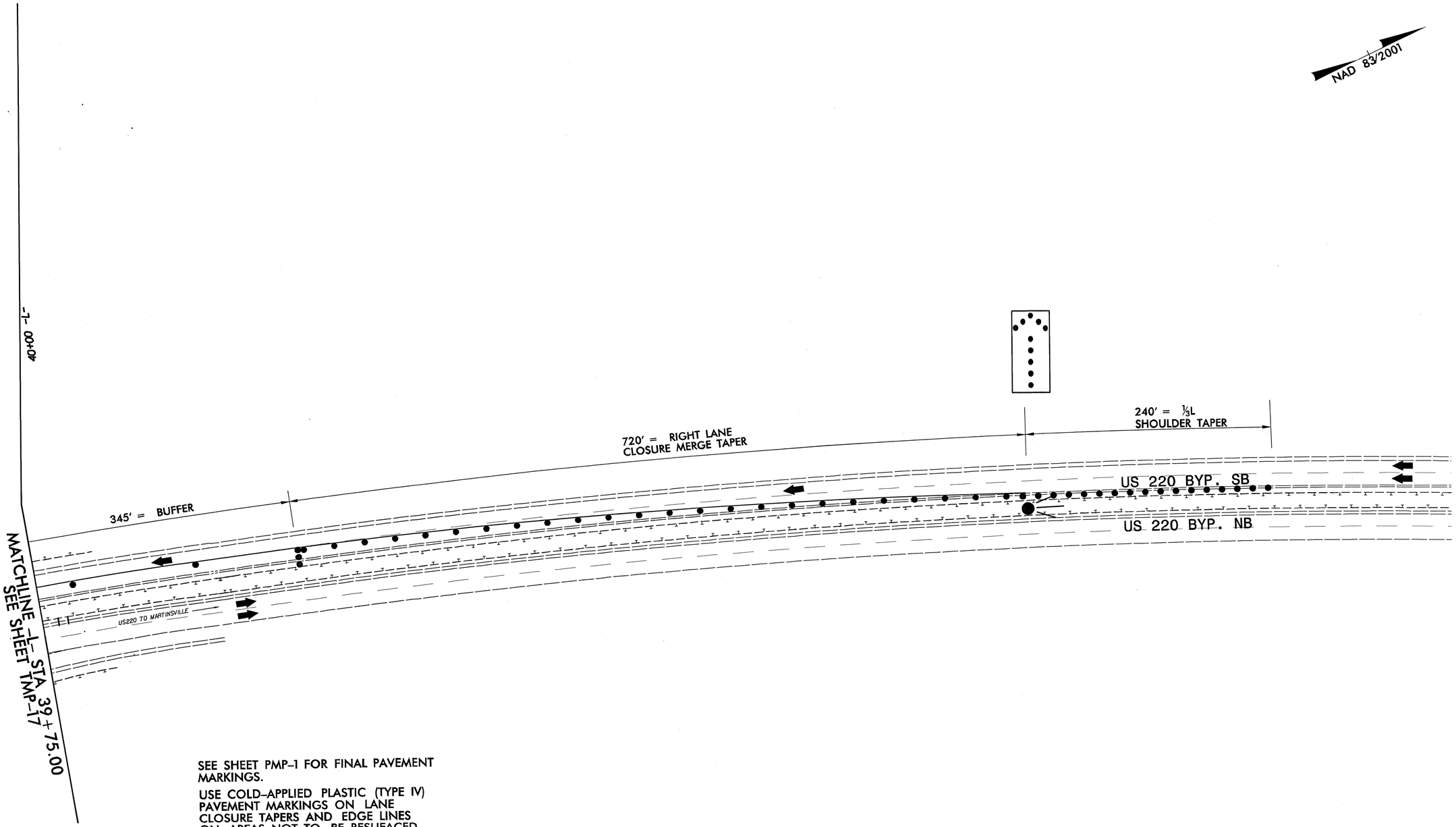
7/16/13

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

# PHASE 4 DETAIL

7/15/2013
...\TMP17_PHASE4.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | TMP-18 |




SEE SHEET PMP-1 FOR FINAL PAVEMENT MARKINGS.

USE COLD-APPLIED PLASTIC (TYPE IV) PAVEMENT MARKINGS ON LANE CLOSURE TAPERS AND EDGE LINES ON AREAS NOT TO BE RESUFACED. SEE COLD APPLIED PLASTIC INSTALLATION DETAIL ON SHEET TMP-7.

USE PAINT PAVEMENT MARKINGS ON ALL OTHER AREAS THAT WILL BE RESURFACED.


RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com


APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUCAL JR
7/16/13

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

# PHASE 4 DETAIL

7/15/2013
...\TMP18_PHASE4.dgn
User:bpalls

T.I.P.: B-4621

CONTRACT: C203247

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | PMP-1 |

APPROVED: [signature] 7/2/13

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

# STATE OF NORTH CAROLINA
# DEPARTMENT OF TRANSPORTATION

# PAVEMENT MARKING PLAN
## ROCKINGHAM COUNTY
### LOCATION: BRIDGE NO. 150 OVER US 220 BUSINESS ON US 220 NBL

## ROADWAY STANDARD DRAWING

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

| STD. NO. | TITLE |
|---|---|
| 1205.01 | PAVEMENT MARKINGS - LINE TYPES AND OFFSETS |
| 1205.02 | PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS |
| 1205.03 | PAVEMENT MARKINGS - EXIT AND ENTRANCE RAMPS |
| 1205.12 | PAVEMENT MARKINGS - BRIDGES |
| 1250.01 | RAISED PAVEMENT MARKERS - INSTALLATION SPACING |
| 1251.01 | RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY |
| 1253.01 | RAISED PAVEMENT MARKERS - SNOWPLOWABLE |
| 1261.01 | GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING |
| 1261.02 | GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING |
| 1262.01 | GUARDRAIL END DELINEATION |
| 1264.01 | OBJECT MARKERS - TYPES |
| 1264.02 | OBJECT MARKERS - INSTALLATION |
| 1267.01 | FLEXIBLE DELINEATORS - INSTALLATION |
| 1267.02 | FLEXIBLE DELINEATORS - SPACING TABLES |
| 1267.03 | FLEXIBLE DELINEATORS - INTERCHANGE PLACEMENT |

## 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 |
|---|---|---|
| US 220 BRIDGE DECK | THERMOPLASTIC COLD APPLIED PLASTIC (TYPE I OR TYPE II) | SNOWPLOWABLE RAISED |

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

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

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

E) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING (insert marking material) PAVEMENT MARKING MATERIAL.

G) TYPE III COLD APPLIED PLASTIC MAY BE USED IN LIEU OF TYPE II COLD APPLIED PLASTIC. IF TYPE III COLD APPLIED PLASTIC IS USED, IT SHALL BE PAID FOR USING THE TYPE II COLD APPLIED PLASTIC PAY ITEM.

## PAVEMENT MARKING SCHEDULE

SYMBOL DESCRIPTION

COLD APPLIED PLASTIC (4")
Type2 - Permanent High Performance

| | |
|---|---|
| CA | WHITE EDGELINE |
| CB | YELLOW EDGELINE |
| CC | 10 FT. WHITE SKIP |

THERMOPLASTIC(4", 120 MILS)

| | |
|---|---|
| TA | WHITE EDGELINE |
| TB | YELLOW EDGELINE |
| TC | 10 FT. WHITE SKIP |
| TD | WHITE MINI SKIPS |

THERMOPLASTIC(8', 90 MILS)

| | |
|---|---|
| TN | WHITE GORELINE |

MARKERS

SNOWPLOWABLE

| | |
|---|---|
| MA | YELLOW & YELLOW |

PERMANENT RAISED

| | |
|---|---|
| ME | YELLOW & YELLOW |

## INDEX


| SHEET NO. | DESCRIPTION |
|---|---|
| PMP-1 | PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET |
| PMP-2 | PAVEMENT MARKING PLAN |



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


02-JUL-2013 12:40
P:\TIP\B-4621\Traffic\Signing\CADD\Signing Layout Plans\B-4621_Sgn_PMP.dgn
sjohns

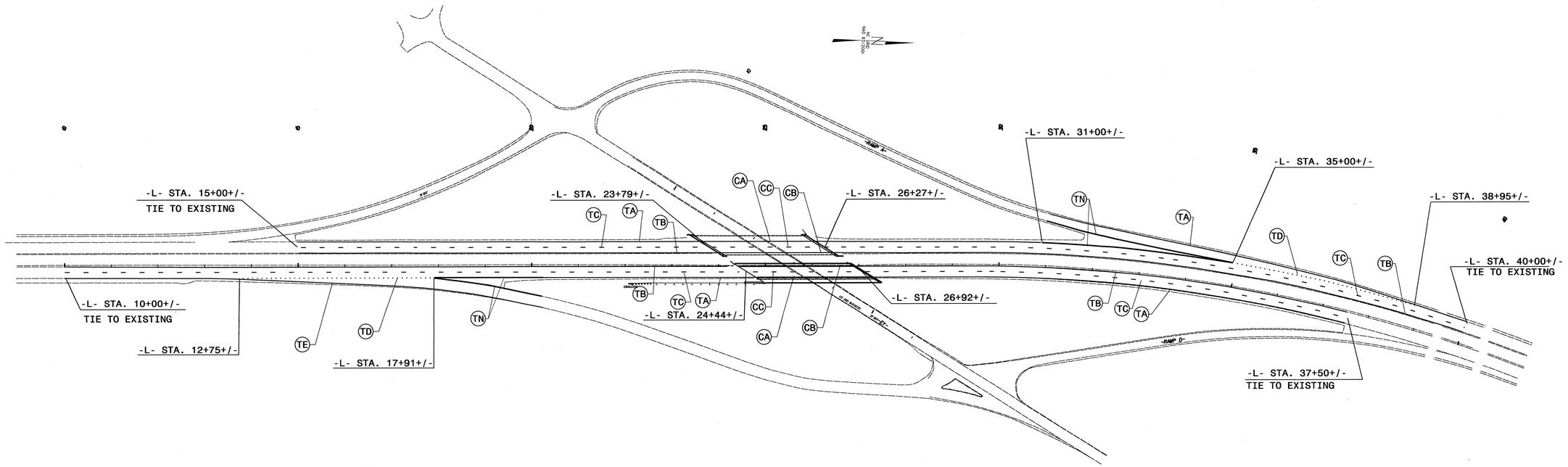
| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | PMP-2 |

APPROVED: _____

DATE: 7/2/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING




# PAVEMENT MARKING DETAIL

02-JUL-2013 11:37
Z:\TIPProjects\B4621\Traffic\Signing\CADD\Signing Layout Plans\B-4621_Sgn_PMP_StripMap.dgn
sjohns
41.7E24957

PROJECT: B-4621

TIP #

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4621 | EC-1 | |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

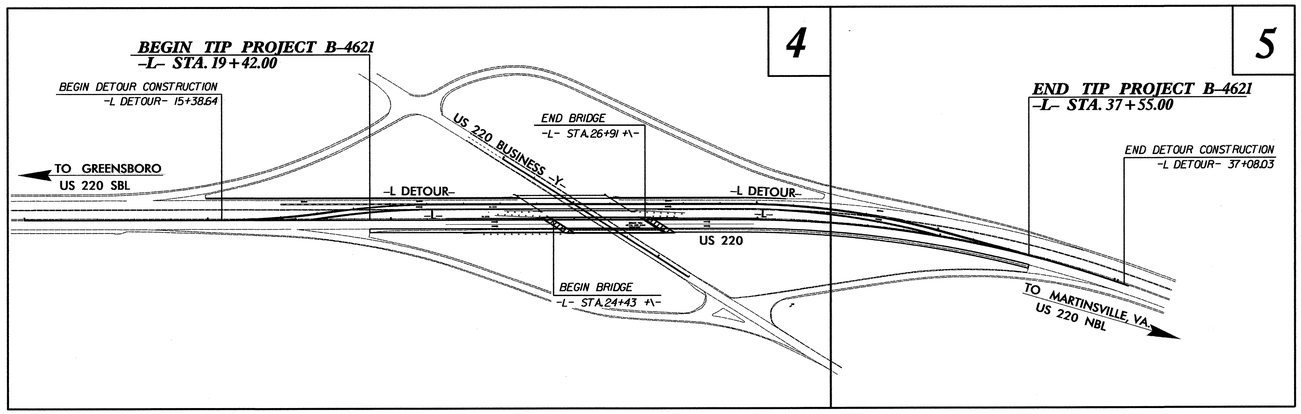
## PLAN FOR PROPOSED
## HIGHWAY EROSION CONTROL

NAD 83/2001

# *ROCKINGHAM COUNTY*

***LOCATION: BRIDGE NO. 150 OVER US 220 BUSINESS ON US 220 NBL***

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




## EROSION AND SEDIMENT CONTROL MEASURES

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

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

***GRAPHIC SCALE***

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

***ROADSIDE ENVIRONMENTAL UNIT***
***DIVISION OF HIGHWAYS***
***STATE OF NORTH CAROLINA***

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

*Prepared In the Office of:*

***ROADSIDE ENVIRONMENTAL UNIT***

*1 South Wilmington St.*
*Raleigh, NC 27611*

***2012 STANDARD SPECIFICATIONS***

**Roadway Standard Drawings**

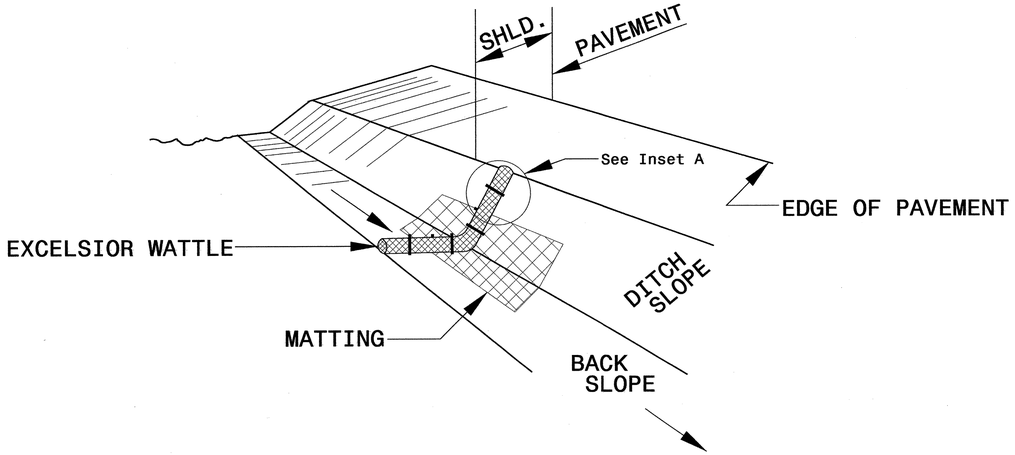
**The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.**

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

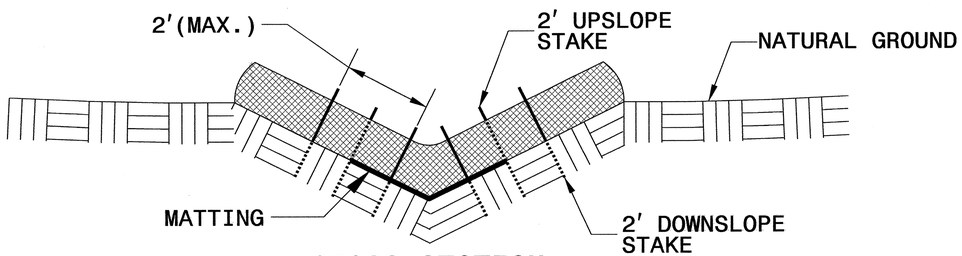
26-JUN-2013 11:38
R:\Environmental\Hydraulics\Design\b4621_EC_tsh.dgn
mrings
ATT REF(S):

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-2 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

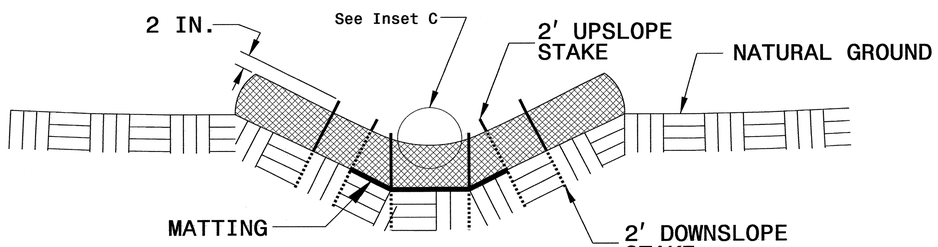
# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL




**ISOMETRIC VIEW**




**CROSS SECTION VEE DITCH**




**CROSS SECTION TRAPEZOIDAL DITCH**

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

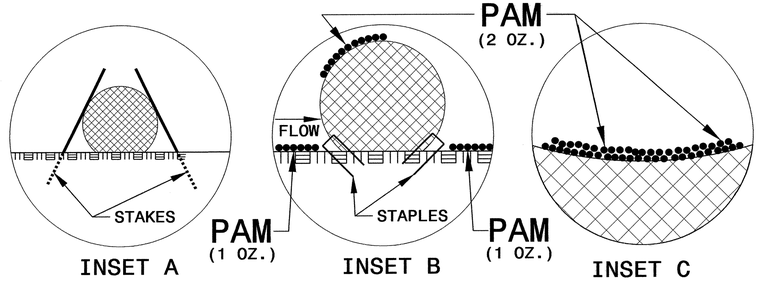
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

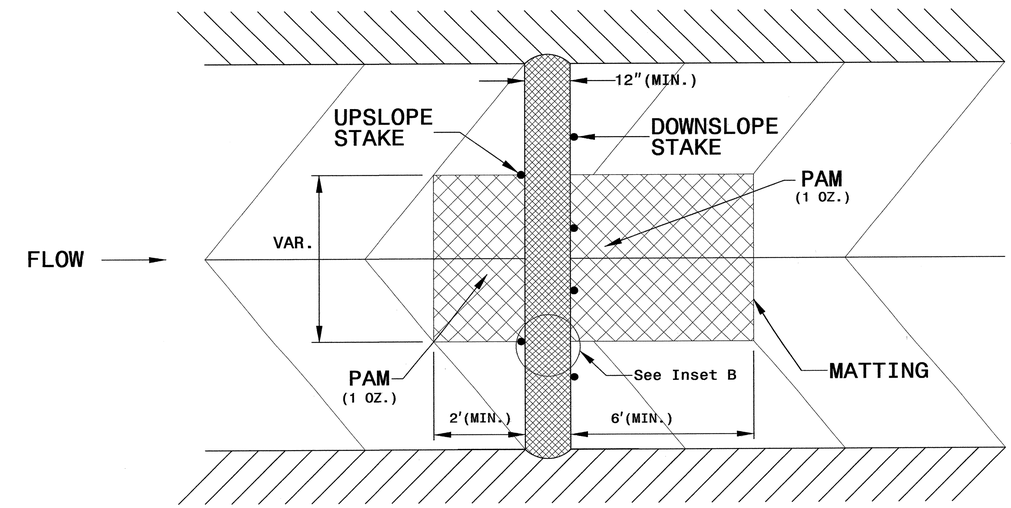
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

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

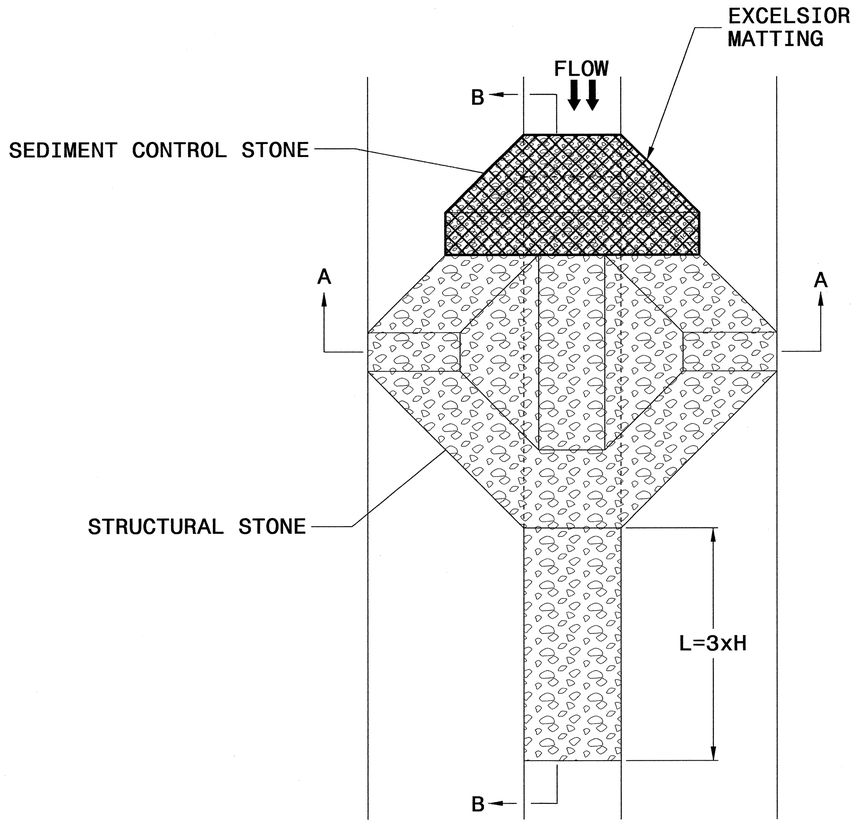


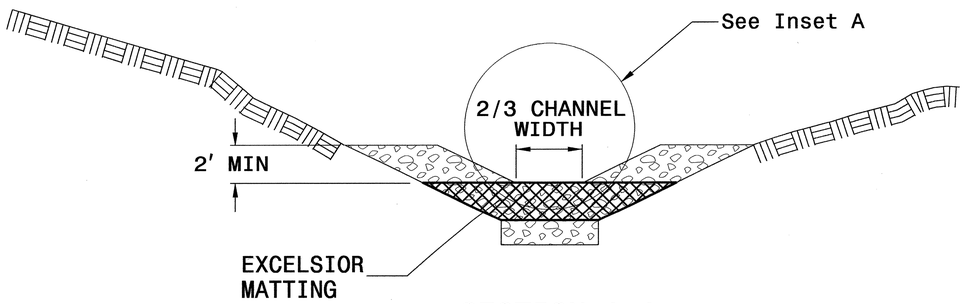

**TOP VIEW**

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-2A |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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




PLAN



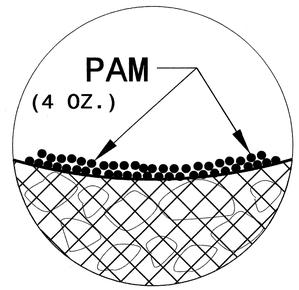

SECTION A-A

NOTES

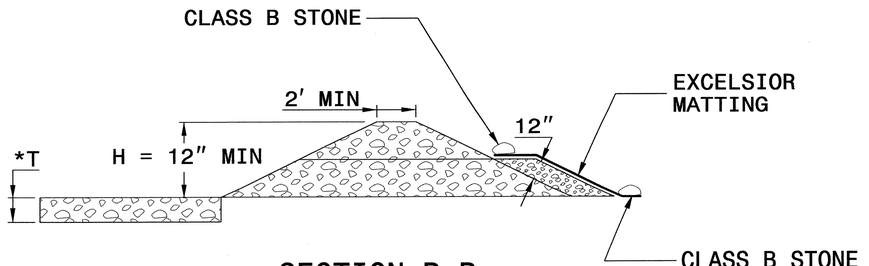
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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-4621 | 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. |

8/17/99

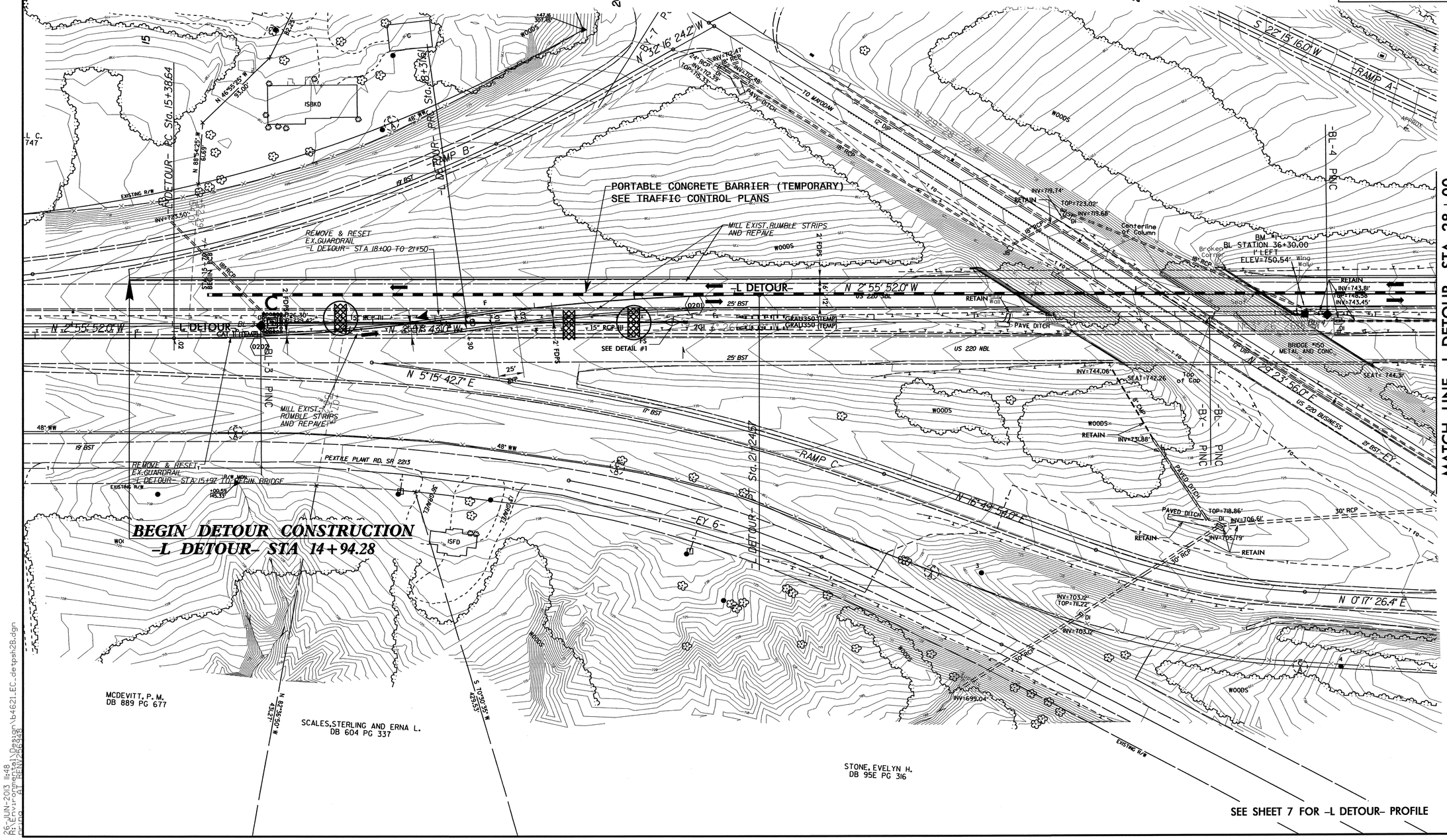
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-4/CONST.2B |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NAD 83/2001

# DETOUR

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 2B



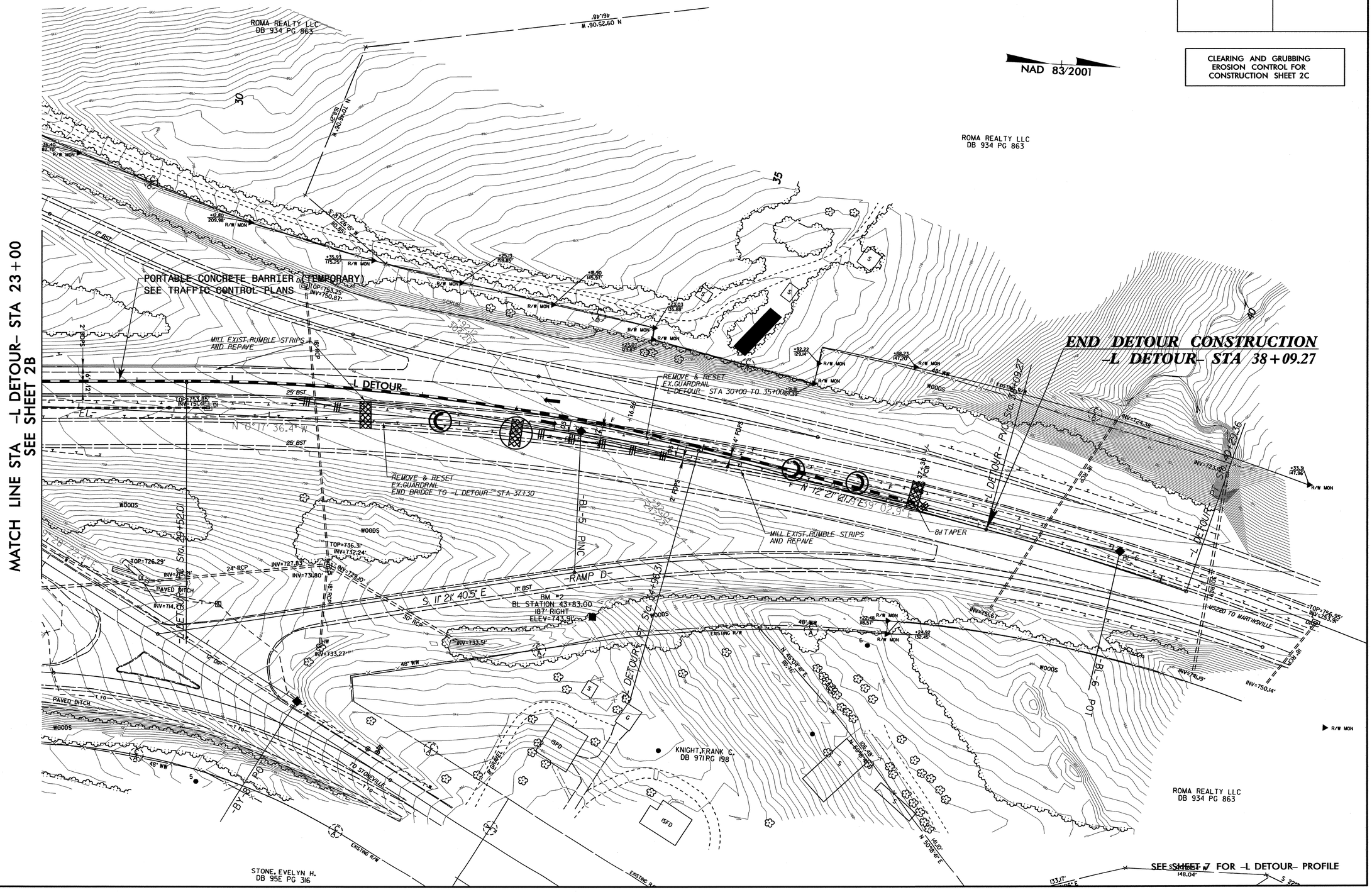

26-JUN-2013 11:48
R:\Projects\B-4621\Design\b4621_EC_detpsh2B.dgn
PLOTTED BY: RENN256328

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-5/CONST.2C |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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

# DETOUR

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 2C




SEE SHEET 7 FOR -L DETOUR- PROFILE

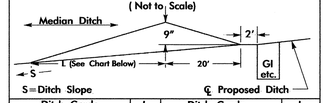
8/17/99

26-JUN-2013 11:54
R:\Environmental\Design\b4621_EC_detpsh2C.dgn
pring AT RENV256948

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-6/CONST.4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**DETAIL #1**
FALSE SUMP
( Not to Scale)

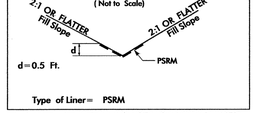



S = Ditch Slope  ℄ Proposed Ditch

| Ditch Grade | L | Ditch Grade | L |
|---|---|---|---|
| 0.0% To 2.0% | 20' | Over 4.0% To 6.0% | 40' |
| Over 2.0% To 4.0% | 30' | Over 6.0% | 50' |

STA. 20+35 -L DETOUR- RT

**DETAIL #2**
TOE PROTECTION
( Not to Scale)




Type of Liner= PSRM

FROM STA. 23+00 TO STA. 24+00 -L- MED
FROM STA. 27+25 TO STA. 27+50 -L- MED

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

CLEARING AND GRUBBING
EROSION CONTROL FOR CONSTRUCTION SHEET 4

NAD 83/2001

-L DETOUR

PI Sta 16+85.38
△ = 8°13'41.6" (LT)
D = 2°48'31.0"
L = 292.96'
T = 146.73'
R = 2,040.00'

PI Sta 19+78.34
△ = 8°13'41.6" (RT)
D = 2°48'31.0"
L = 292.96'
T = 146.73'
R = 2,040.00'

-L DETOUR- PRC Sta. 18+31.61

-Y- POT Sta. 10+00.00

**BEGIN PROJECT B-4621**
**-L- STA. 19+42**

PORTABLE CONCRETE BARRIER (TEMPORARY)
SEE TRAFFIC CONTROL PLANS

RETAIN DETOUR DRAINAGE FEATURES SEE DETOUR PLAN SHEET 2B

MILL EXIST. RUMBLE STRIPS AND REPAVE

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2B

-L DETOUR-

N 2°55'52"W

SBO TOE PROTECTION SEE DETAIL #3

RETAIN

25' BST

GRAU350 (TEMP)

30"

15" RCP

FS

SEE DETAIL #1

2GI

ANGLE VANE GRATES

GRAU350

BEGIN APPROACH SLAB
-L- STA. 24+18+/-

BEGIN BRIDGE
-L- STA. 24+43+/-

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2B

-L DETOUR- PT Sta. 21+24.57

US 220 BUS

TO MAYODAN

-L- POT Sta. 25+66.99
-Y- POT Sta. 13+09.68

RETAIN

REMOVE

SBO FROM STA. 24+65 -L- RT TO BEGIN BRIDGE

15" WEEPHOLES

INV=731.88

PAVED DITCH

TOP=718.86'
INV=706.61'

3GI (0402)

INV=695.79'

RETAIN

REPAIR OF PAVED DITCH INCIDENTAL TO STRUCTURE 0402

30" RCP

INV=703.12'
TOP=711.22'

DI

INV=700.12'

INV=699.04'

END BRIDGE
-L- STA. 26+91+/-

END APPROACH SLAB
-L- STA. 27+16+/-

CONV. 2GI TO JB W/MH

INV=743.81'

INV=741.45'

(0404)

2GI

BRIDGE #350 (REMOVE)

INV=743.81'

GRADE TO DRAIN

PSRM TOE PROTECTION SEE DETAIL #2

PORTABLE CONCRETE BARRIER (TEMPORARY)
SEE TRAFFIC CONTROL PLANS

MILL EXIST. RUMBLE STRIPS AND REPAVE

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2B & 2C

-L DETOUR-

50' INC. TYP.

RETAIN

25' BST

-L- PC Sta. 29+00.00
-Y- POT Sta. 29+52.01

24" RCP

TOP=726.29'
INV=714.

TOP=736.31'
INV=732.24'

INV=727.83'
INV=730.80'

PAVED DITCH

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2B &2C

-Y- POT Sta. 16+00.04

TO STONEVILLE

MATCHLINE -L- STA 32+00
SEE SHEET 5

ISFD

B

26-JUN-2013 11:57
R:\nv1r1\Projects\b4621\Design\b4621_EC_psh4.dgn
nc1co 4 REV 26833

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-7/CONST.5 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

NAD 83/2001

-L DETOUR-
PI Sta 32+25.78
△ = 15° 17' 13.7" (RT)
D = 2° 48' 31.0"
L = 544.29'
T = 273.77'
R = 2,040.00'

PI Sta 39+19.36
△ = 3° 57' 33.4" (RT)
D = 1° 47' 56.1"
L = 220.09'
T = 110.09'
R = 3,185.00'

-L-
PI Sta 34+90.03
△ = 19° 14' 47.1" (RT)
D = 1° 47' 56.1"
L = 1,069.88'
T = 540.03'
R = 3,185.00'

ROMA REALTY LLC
DB 934 PG 863

***END PROJECT B-4621***
***-L- STA. 37+55***

***END DETOUR CONSTRUCTION***
***-L DETOUR- STA 38+09.27***

MATCHLINE -L- STA 32+00
SEE SHEET 4

-RAMP D-

-L DETOUR- STA 32+98.55

-L DETOUR- PVC Sta 40+29.36

-L DETOUR- PT Sta 40+19.88

-L- POT Sta 40+33.27

-L- POT -BL-6

-BL-5 PI

-BL-6

REMOVE & RESET
E.K. GUARDRAIL
SEE SHEET 2C

REMOVE & RESET
E.K. GUARDRAIL
SEE SHEET 2C STA 30+00 TO 35+00

MILL EXIST. PAVEMENT AND REPAVE

8" TAPER

RETAIN

BM #2
BL STATION 43+83.00
187' RIGHT
ELEV=743.91'

KNIGHT, FRANK C.
DB 971 PG 198

ROMA REALTY LLC
DB 934 PG 863

TO MARTINSVILLE

ISFD

WOODS

SCRUB

EXISTING R/W

R/W MON

INV=733.5'

INV=724.38'

INV=723.46'

INV=715.67'

INV=715.19'

INV=750.14'

TOP=726.05'
INV=715.39'

S 11° 21' 40.5" E

N 12° 27' 41.4" E 59.02'

N 18° 09' 49" E
186.76'

N 50° 19' 49" E
141.10'

S 00° 18' 54" W
148.04'

S 22°

133.17'

26-JUN-2013 12:00
R:\Projects\B-4621\Design\b4621_EC_psh5.dgn
PLOTTED AT RENY26618

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-8/CONST.2B |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NAD 83/2001

# DETOUR

**BEGIN DETOUR CONSTRUCTION**
**–L DETOUR– STA 14+94.28**

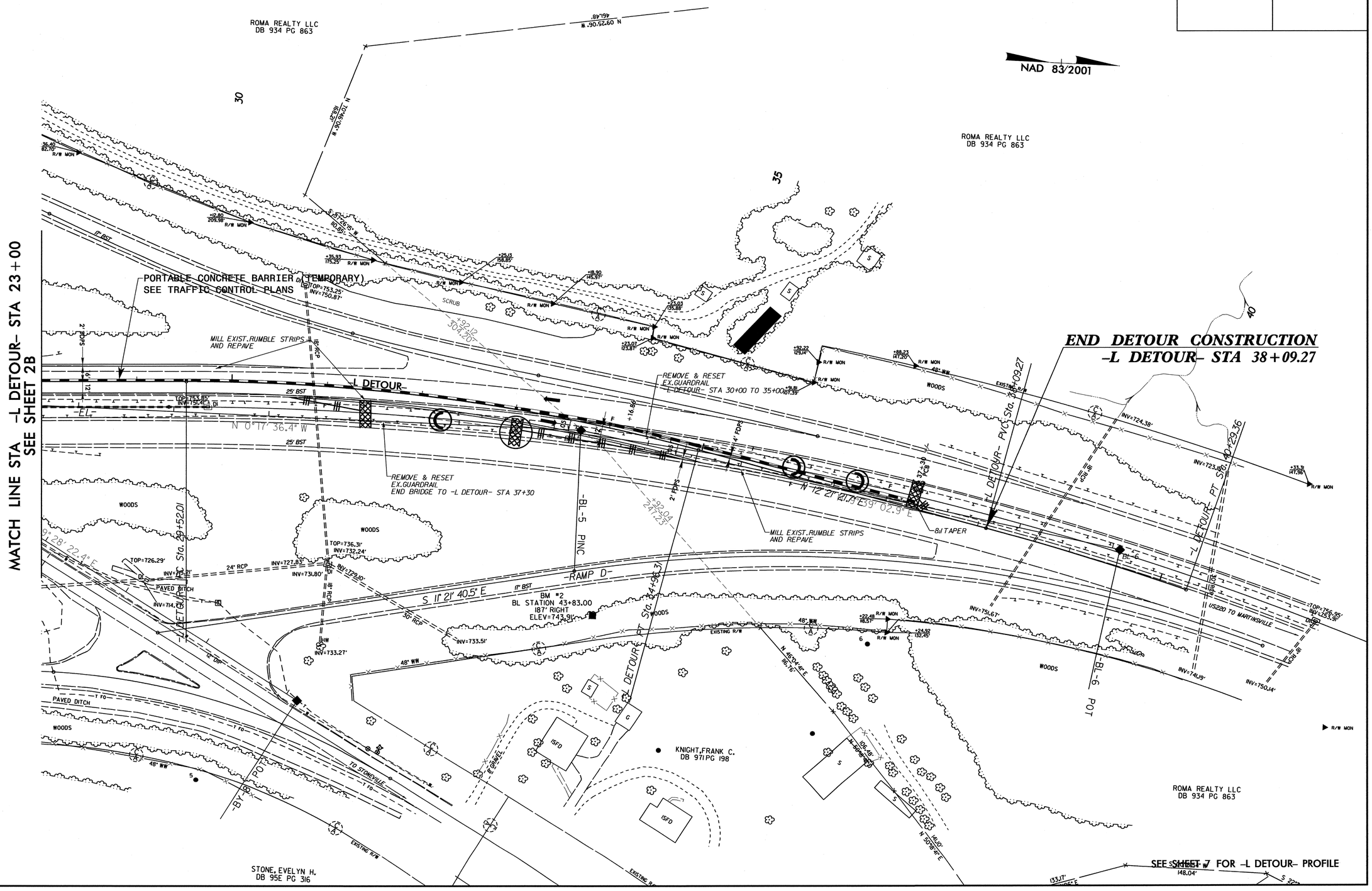
MATCH LINE –L DETOUR– STA 28+00
SEE SHEET 2C

SEE SHEET 7 FOR –L DETOUR– PROFILE

26-JUN-2013 11:48
R:\Projects\...\Design\b4621_EC_detsh2B.dgn
Plotted at FENV26548

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-9/CONST.2C |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

# DETOUR




SEE SHEET 7 FOR -L DETOUR- PROFILE

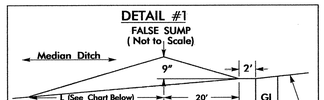
8/17/99

26-JUN-2013 11:55
R:\Environmental\Design\b4621_EC_detpsh2C.dgn
pring AT RENV256948

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-10/CONST.4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**DETAIL #1**
FALSE SUMP
( Not to Scale)

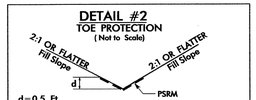



S=Ditch Slope  ℄ Proposed Ditch

| Ditch Grade | L | Ditch Grade | L |
|---|---|---|---|
| 0.0% To 2.0% | 20' | Over 4.0% To 6.0% | 40' |
| Over 2.0% To 4.0% | 30' | Over 6.0% | 50' |

STA. 20+35 -L DETOUR- RT

**DETAIL #2**
TOE PROTECTION
( Not to Scale)




Type of Liner= PSRM

FROM STA. 23+00 TO STA. 24+00 -L- MED
FROM STA. 27+25 TO STA. 27+50 -L- MED

NAD 83/2001

-L DETOUR-

PI Sta 16+85.38
△ = 8° 13' 41.6" (LT)
D = 2° 48' 31.0"
L = 292.96'
T = 146.73'
R = 2,040.00'

PI Sta 19+78.34
△ = 8° 13' 41.6" (RT)
D = 2° 48' 31.0"
L = 292.96'
T = 146.73'
R = 2,040.00'

-Y- POT Sta. 10+00.00

-L DETOUR- PRC Sta. 18+31.61

***BEGIN PROJECT B-4621***
***-L- STA. 19+42***

PORTABLE CONCRETE BARRIER (TEMPORARY)
SEE TRAFFIC CONTROL PLANS

RETAIN DETOUR DRAINAGE STRUCTURES SEE DETOUR PLAN SHEET 2B

MILL EXIST. RUMBLE STRIPS AND REPAVE

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2B

-L- POT Sta. 25+66.99
-Y- POT Sta. 13+09.68

BM #1
BL STATION 36+30.00
1' LEFT
ELEV=750.54'

END BRIDGE
-L- STA. 26+91+/-

END APPROACH SLAB
-L- STA. 27+16+/-

PORTABLE CONCRETE BARRIER (TEMPORARY)
SEE TRAFFIC CONTROL PLANS

MILL EXIST. RUMBLE STRIPS AND REPAVE

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2B & 2C

MATCHLINE -L- STA 32+00
SEE SHEET 5

-L DETOUR-

N 2° 55' 52.0" W

ANGLE VANE GRATES

SBG FROM STA. 21+65 -L- RT TO BEGIN BRIDGE

BRIDGE #150 METAL AND CONC (REMOVE)

PSRM TOE PROTECTION SEE DETAIL #2

GRADE TO DRAIN

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2B

BEGIN APPROACH SLAB
-L- STA. 24+18+/-

BEGIN BRIDGE
-L- STA. 24+43+/-

-L DETOUR- PT Sta. 21+24.57

-L- PC Sta. 29+52.01

-Y- POT Sta. 16+00.04

REMOVE

REPAIR OF PAVED DITCH INCIDENTAL TO STRUCTURE 0402

TO MAYODAN

TO STONEVILLE

US 220 BUS

US 220 BUSINESS

US 220 NBL

Place Matting for Erosion Control on Slope as Work Allows. Sta. 21+00 to Sta. 25+00

Place Matting for Erosion Control on Slope as Work Allows. Sta. 27+00 to Sta. 30+50

26-JUN-2013 11:58
R:\Environmental\Design\b4621_EC_psh4.dgn
mcnamara

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | EC-11/CONST.5 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NAD 83/2001

-L DETOUR-

PI Sta 32+25.78
△ = 15° 17' 13.7" (RT)
D = 2° 48' 31.0"
L = 544.29'
T = 273.77'
R = 2,040.00'

PI Sta 39+19.36
△ = 3° 57' 33.4" (RT)
D = 1° 47' 56.1"
L = 220.09'
T = 110.09'
R = 3,185.00'

-L-

PI Sta 34+90.03
△ = 19° 14' 47.1" (RT)
D = 1° 47' 56.1"
L = 1,069.88'
T = 540.03'
R = 3,185.00'

ROMA REALTY LLC
DB 934 PG 863

**END PROJECT B-4621**
**-L- STA. 37+55 END -L DETOUR CONSTRUCTION**
**-L DETOUR- STA 38+09.27**

MATCHLINE -L- STA 32+00
SEE SHEET 4

-L- STA 30+00 TO 35+00

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2C

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2C

-L DETOUR- PVC Sta. 38+09.27

-L DETOUR- PT Sta. 40+29.36

-L DETOUR- PT Sta. 40+19.88

-L DETOUR- Sta. 34+38.53

-RAMP D-

-BL-5 PINC

-BL-6 POT

RETAIN

WILL EXIST. GUARDRAIL REMAIN AND REPAVE

8" TAPER

REMOVE & RESET EX.GUARDRAIL SEE SHEET 2C

& RESET DRAIL DGE TO -L DETOUR- STA 37+30

S 11° 21' 40.5" E

N 12° 27' 17" E 259.02.9' E

BM #2
BL STATION 43+83.00
187' RIGHT
ELEV=743.91'

KNIGHT, FRANK C.
DB 971 PG 198

ROMA REALTY LLC
DB 934 PG 863

US220 TO MARTINSVILLE

WOODS

SCRUB

EXISTING R/W

48' R/W

R/W MON

INV=733.51'

INV=724.38'

INV=723.86'

INV=751.67'

INV=741.13'

INV=750.14'

TOP=756.85'
INV=753.35'

S 00°18'54" W
148.04'

S 22°

N 85°01'41" E
86.16'

N 50°18'41" E
105.48'

N 50°18'41" E
141.10'

133.11'

26-JUN-2013 12:00
C:\Projects\Design\b4621_EC_psh5.dgn
ATTENTION
RENDERED

T.I.P.: B-4621

CONTRACT: C203247

# STATE OF NORTH CAROLINA
# DEPARTMENT OF TRANSPORTATION

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-1 |

APPROVED: _____

DATE: 7/15/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

# SIGNING PLAN
# ROCKINGHAM COUNTY

## LOCATION: BRIDGE NO. 150 OVER US 220 BUSINESS ON US 220 NBL

## 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 |
|---|---|
| 901.10 | TYPE 'A' SIGNS |
| 901.20 | TYPE 'B' SIGNS |
| 901.50 | ARROWS AND SHIELDS |
| 901.70 | SIGN STRINGERS AND SUPPORT SPACING |
| 901.80 | SIGN MOUNTING DETAILS - FOR TYPE A AND TYPE B SIGNS |
| 903.10 | GROUND MOUNTED SIGN SUPPORTS |
| 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

. RETAIN AND REUSE GROUND MOUNTED STEEL SUPPORTS FOR TYPE A SIGNS UNLESS REPLACEMENT SUPPORTS ARE SPECIFIED IN PLANS.

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

. IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.

. 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.

. WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.

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

. DO NOT BEGIN FABRICATION FOR TYPES A & B SIGNS MOUNTED ON OVERHEAD STRUCTURES OR STEEL SUPPORTS UNTIL "S" DIMENSIONS HAVE BEEN FIELD VERIFIED.

. SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

## SUMMARY OF QUANTITIES

| ITEM NO. DESC. NO. | ITEM NO. SECT. NO. | ITEM DESCRIPTION | QUANTITY | UNIT |
|---|---|---|---|---|
| 4048000000 | 902 | REINFORCED CONCRETE SIGN FOUNDATION | 3 | C.Y. |
| 4054000000 | 902 | PLAIN CONCRETE SIGN FOUNDATION | 1 | C.Y. |
| 4060000000 | 903 | SUPPORTS, BREAKAWAY STEEL BEAM | 2416 | LB. |
| 4072000000 | 903 | SUPPORTS, 3 LB STEEL U-CHANNEL | 208 | L.F. |
| 4096000000 | 904 | SIGN ERECTION, TYPE D | 2 | EA. |
| 4102000000 | 904 | SIGN ERECTION, TYPE E | 13 | EA. |
| 4108000000 | 904 | SIGN ERECTION, TYPE F | 3 | EA. |
| 4110000000 | 904 | SIGN ERECTION, TYPE A (GROUND MOUNTED) | 8 | EA. |
| 4152000000 | 907 | DISPOSAL OF SIGN SYSTEM, STEEL BEAM | 1 | EA. |
| 4155000000 | 907 | DISPOSAL OF SIGN SYSTEM, U-CHANNEL | 13 | EA. |
| 4236000000 | 907 | DISPOSAL OF SIGN, A OR B (GROUND MOUNTED) | 5 | EA. |
| 4238000000 | 907 | DISPOSAL OF SIGN, D, E OR F | 1 | EA. |

## PAY ITEM NOTES

| | |
|---|---|
| 1 | DISPOSAL OF SIGN SYSTEM, U-CHANNEL |
| 2 | DISPOSAL OF SUPPORT, U-CHANNEL |
| 3 | DISPOSAL OF SIGN, A OR B (GROUND MOUNTED) |
| 4 | SIGN ERECTION, TYPE A (GROUND MOUNTED) |
| 5 | DISPOSAL OF SIGN SYSTEM, STEEL BEAM |
| 6 | DISPOSAL OF SIGN, D, E, OR F |

## INDEX


| SHEET NO. | DESCRIPTION |
|---|---|
| SIGN-1 | TITLE SHEET |
| SIGN-2-2A | SUPPORT INFORMATION AND GROUNDMOUNT SHEET |
| SIGN-3-3C | SIGN DESIGNS |
| SIGN-4 | SIGN DETAIL SHEET |



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


I5-UU-2013 13:43
P:\TIPProjects\B4621\Traffic\Signing\CADD\Signing Layout Plans\B-4621_Titlesheet.dgn
sjohns AT TE247957

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-2 |

APPROVED: RWK

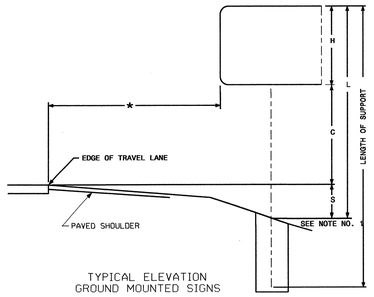
DATE: 9/2/13

SEAL

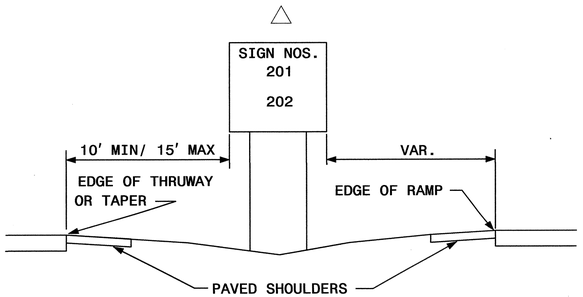
NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

| SIGN NO. | SIGN TYPE | SIGN SIZE (in.) w x h | ROADWAY STATION | NO. OF SUP. | BEAM SECTION | SUPPORT TYPE BA or S | ATTACH METHOD | MOUNTING METHOD | HORIZ CLR. (ft.) | LENGTH (ft) SNS HT H | MTG HT C | EMBED-MENT | LEFT SUPPORT (ft) S | L | TOTAL LENGTH | CENTER SUPPORT (ft) S | L | TOTAL LENGTH | RIGHT SUPPORT (ft) S | L | TOTAL LENGTH | FOOTING DIAMETER (ft.) | FOOTING DEPTH (ft.) | B/A SUPPORT WEIGHTS (lbs.) | SIMPLE SUPPORT WEIGHTS (lbs.) | REINF. FTGS. (c.y.) | PLAIN FTGS. (c.y.) | FIELD VERIFIED SEE NOTE 2 (mm/dd/yy) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | A | 162 X144 | 13+50 -L- | 2 | W10x26 | BA | N/A | N/A | 30.00 | 12.00 | 7.00 | 5.5 | 4.56 | 23.56 | 29.06 | 0.00 | 0.00 | 0.00 | 5.60 | 24.60 | 30.10 | 2.5 | 6 | 1826.30 | 0.00 | 2.18 | 0.00 | |
| 201 | A | 72 X60 | 19+50 -L- | 2 | S4x7.7 | BA | N/A | N/A | △ | 5.00 | 7.00 | 4 | 0.50 | 12.50 | 16.50 | 0.00 | 0.00 | 0.00 | 0.50 | 12.50 | 16.50 | 1 | 4.5 | 294.71 | 0.00 | 0.00 | 0.26 | |
| 202 | A | 72 X60 | 31+20 -L- | 2 | S4x7.7 | BA | N/A | N/A | △ | 5.00 | 7.00 | 4 | 0.50 | 12.50 | 16.50 | 0.00 | 0.00 | 0.00 | 0.50 | 12.50 | 16.50 | 1 | 4.5 | 294.71 | 0.00 | 0.00 | 0.26 | |

| | TOTAL | TOTAL | TOTAL | TOTAL |
|---|---|---|---|---|
| | 2415.72 | 0.00 | 2.18 | 0.52 |
| USE: | 2416 | 0 | 3 | 1 |




TYPICAL ELEVATION
GROUND MOUNTED SIGNS




NOTES

1. DIMENSION "S" REPRESENTS AN INCREASE (+), OR A DECREASE (-) IN POLE LENGTH, RELATIVE TO THE ELEVATION OF THE EDGE OF PAVEMENT.

2. FIELD VERIFICATIONS SHALL BE REQUIRED FOR ALL SUPPORTS, SEE (*) ARTICLE 903-3. FABRICATORS SHALL BE AISC CERTIFIED IN CATEGORY 1, SEE (*) ARTICLE 1072-1. (*) = N.C.D.O.T. STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES

3. PLAN LOCATIONS FOR EXISTING UTILITIES ARE BASED ON THE BEST AVAILABLE INFORMATION AND, THEREFORE MAY NOT BE PRECISELY ACCURATE. THEREFORE, IT IS INCUMBENT UPON THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF UTILITIES BEFORE BEGINNING WORK IN A LOCATION.

# TYPE "A" AND TYPE "B" GROUND MOUNTED SIGNS

02-JUL-2013 12:21
P:\TIPProjects-B\B4621\Traffic\Signing\CADD\Sign Designs\B-4621SgnDesigns.dgn
sjohns HT TE247957

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-2A |

APPROVED: 7/2/13

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

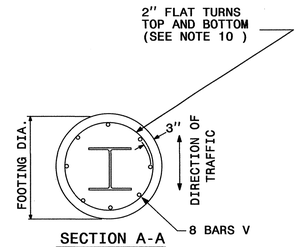
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

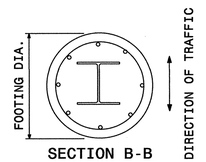
ENGLISH DETAIL DRAWING FOR

# GROUND MOUNTED SIGN SUPPORTS

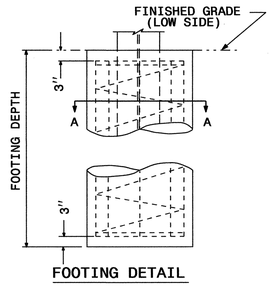
| | SLIP BASE PLATE DATA | | | | | | | | KEEPER PLATE DATA | | | | | | | HINGE CONNECTION DATA | | | | | | | | | | BREAK AWAY SUPPORT WEIGHT CONSTANT LBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BEAM SHAPE | BOLT SIZE | $A_1$ | $B_1$ | $C_1$ | $D_1$ | $E_1$ | $T_1$ | $R_1$ | $A_2$ | $B_2$ | $C_2$ | $D_2$ | $E_2$ | $R_2$ | $T_2$ | BOLT SIZE | F | G | H | I | J | K | L | $R_3$ | $T_3$ | |
| S3X5.7 | ½"DIA.X 3" | 7" | 4" | 1" | ¾" | 2½" | 1" | 9/32" | 7" | 4" | 1" | ¾" | 2½" | 9/32" | 28 GAUGE | ½"DIA.X1¼" | 2¼" | 3½" | 4" | ½" | 1" | ½" | 2" | 9/32" | ⅜" | 18 |
| S4X7.7 | ½"DIA.X 3" | 8" | 4" | 1" | ¾" | 2½" | 1" | 9/32" | 8" | 4" | 1" | ¾" | 2½" | 9/32" | 28 GAUGE | ½"DIA.X1¼" | 2⅝" | 3½" | 4" | ½" | 1" | ½" | 2" | 9/32" | ⅜" | 20 |
| W6X9 | ½"DIA.X 3" | 10" | 5" | 1" | ¾" | 3½" | 1" | 9/32" | 10" | 5" | 1" | ¾" | 3½" | 9/32" | 28 GAUGE | ½"DIA.X1¼" | 4" | 3½" | 4" | ¾" | 1" | ½" | 2" | 9/32" | ⅜" | 32 |
| W6X12 | ⅝"DIA.X3¾" | 11" | 5" | 1¼" | ⅞" | 3¼" | 1¼" | 11/32" | 11" | 5" | 1¼" | ⅞" | 3¼" | 11/32" | 28 GAUGE | ⅝"DIA.X2¼" | 4" | 4" | 4½" | ¾" | 1⅛" | ⅝" | 2¼" | 11/32" | ⅜" | 39 |
| W6X16 | ⅝"DIA.X3¾" | 12" | 6" | 1¼" | ⅞" | 4¼" | 1½" | 11/32" | 12" | 6" | 1¼" | ⅞" | 4¼" | 11/32" | 28 GAUGE | ⅝"DIA.X2½" | 4" | 4" | 4½" | ¾" | 1⅛" | ⅝" | 2¼" | 11/32" | ½" | 47 |
| W8X18 | ⅝"DIA.X 4¼" | 13½" | 6½" | 1¼" | ⅞" | 4¾" | 1½" | 11/32" | 13½" | 6½" | 1¼" | ⅞" | 4¾" | 11/32" | 28 GAUGE | ⅝"DIA.X2½" | 5¼" | 4" | 4½" | 1" | 1⅛" | ⅝" | 2¼" | 11/32" | ½" | 70 |
| W8X21 | ¾"DIA.X 4¼" | 14" | 7" | 1½" | 1" | 5" | 1½" | 13/32" | 14" | 7" | 1½" | 1" | 5" | 13/32" | 28 GAUGE | ¾"DIA.X2¾" | 5¼" | 6" | 7" | 1" | 1¾" | ¾" | 3½" | 13/32" | ½" | 73 |
| W10X22 | ¾"DIA.X 4¼" | 16" | 8" | 1½" | 1" | 6" | 1½" | 13/32" | 16" | 8" | 1½" | 1" | 6" | 13/32" | 28 GAUGE | ¾"DIA.X2¾" | 5¾" | 6" | 7" | 1" | 1¾" | ¾" | 3½" | 13/32" | ½" | 119 |
| W10X26 | ¾"DIA.X4¾" | 16½" | 8" | 1½" | 1" | 6" | 1¾" | 13/32" | 16½" | 8" | 1½" | 1" | 6" | 13/32" | 28 GAUGE | ¾"DIA.X2¾" | 5¾" | 6" | 7" | 1" | 1¾" | ¾" | 3½" | 13/32" | ⅝" | 140 |
| W12X26 | ¾"DIA.X4¾" | 18½" | 9" | 1½" | 1" | 7" | 1¾" | 13/32" | 18½" | 9" | 1½" | 1" | 7" | 13/32" | 28 GAUGE | ¾"DIA.X2¾" | 6½" | 6" | 7" | 1" | 1¾" | ¾" | 3½" | 13/32" | ⅝" | 176 |
| W14X30 | 1"DIA.X 5" | 22" | 9" | 2" | 1½" | 6" | 2" | 17/32" | 22" | 9" | 2" | 1½" | 6" | 17/32" | 28 GAUGE | 1"DIA.X3" | 6¾" | 7" | 8" | 1¼" | 2" | 1" | 4" | 17/32" | ⅝" | 205 |
| W16X31 | 1"DIA.X 5" | 24" | 9" | 2" | 1½" | 6" | 2" | 17/32" | 24" | 9" | 2" | 1½" | 6" | 17/32" | 28 GAUGE | 1"DIA.X3¼" | 5½" | 7" | 8" | 1¼" | 2" | 1" | 4" | 17/32" | ¾" | 223 |
| W18X35 | 1"DIA.X 5" | 25" | 9" | 2" | 1½" | 6" | 2" | 17/32" | 25" | 9" | 2" | 1½" | 6" | 17/32" | 28 GAUGE | 1"DIA.X3¼" | 6" | 7" | 8" | 1¼" | 2" | 1" | 4" | 17/32" | ¾" | 243 |
| W18X40 | 1"DIA.X5½" | 26" | 9" | 2" | 1½" | 6" | 2¼" | 17/32" | 26" | 9" | 2" | 1½" | 6" | 17/32" | 28 GAUGE | 1"DIA.X3¾" | 6" | 7" | 8" | 1¼" | 2" | 1" | 4" | 17/32" | ⅞" | 278 |
| W21X44 | 1"DIA.X5½" | 29" | 9" | 2" | 1½" | 6" | 2½" | 17/32" | 29" | 9" | 2" | 1½" | 6" | 17/32" | 28 GAUGE | 1"DIA.X3¾" | 6½" | 7" | 8" | 1¼" | 2" | 1" | 4" | 17/32" | ⅞" | 310 |



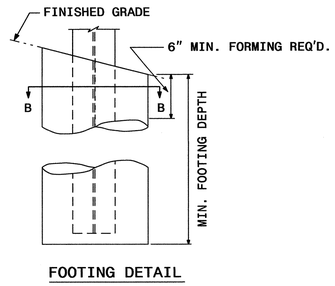

SECTION A-A




SECTION B-B




FOOTING DETAIL




FOOTING DETAIL

| FOUNDATION DATA * | | |
|---|---|---|
| FOOTING DIAMETER | REINFORCEMENT | SPIRAL BAR |
| 1' 6" | 8 # 6 BARS | #3 BAR, 6" PITCH |
| 2' | 8 # 7 BARS | #3 BAR, 6" PITCH |
| 2' 6" | 8 # 9 BARS | #3 BAR, 6" PITCH |
| 3' | 8 # 11 BARS | #3 BAR, 6" PITCH |
| 3' 6" | 8 # 12 BARS | #3 BAR, 6" PITCH |
| 4' | 8 # 14 BARS | #3 BAR, 6" PITCH |

* FOUNDATION DIMENSIONS ARE SHOWN IN PLANS

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

1-12

ENGLISH DETAIL DRAWING FOR

GROUND MOUNTED SIGN SUPPORTS



SHEET 2 OF 3
903D10

**REVISED SIGNING**
**ROADWAY STANDARD DRAWING**

02-JUL-2013 12:22
P:\TIPProjects\B4621\Traffic\Signing\CADD\Sign Designs\B-4621SgnDesigns.dgn
sjoms AT TE24757

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-3 |

APPROVED: _____

DATE: 7/2/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGN NUMBER: 101
TYPE: A
QUANTITY: 1
SIGN WIDTH: 13'-6"
HEIGHT: 12'-0"
TOTAL AREA: 162.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 154.0

BACKG COLOR: Green
COPY COLOR: White

| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| M1_4 | 58.5 | 78.2 | 45 | 36 |
| ARMED | 67.3 | 10.8 | 22.4 | 35.3 |

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

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.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

DESIGN BY: S.JOHNS CHECKED BY: S.KUNZ DATE: Jun 24, 2013
PROJECT ID: B-4621 DIV: 7

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | B | U | S | I | N | E | S | S | | | | | | | | | | | | | | | | | | | | | | | | | | | E 2000 |
| | 37.9 | 12.1 | 12.1 | 12.1 | 5.3 | 12.8 | 10.7 | 11.4 | 9.7 | 37.9 | | | | | | | | | | | | | | | | | | | | | | | | | | 86.3 |
| | | S | t | o | n | e | v | i | l | l | e | | | | | | | | | | | | | | | | | | | | | | | | | | EM 2000 |
| | 16.8 | 16.3 | 12 | 15.8 | 15.5 | 13.8 | 17 | 9.6 | 9.6 | 8.2 | 10.6 | 16.8 | | | | | | | | | | | | | | | | | | | | | | | | | 128.3 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 103
TYPE: A
QUANTITY: 1
SIGN WIDTH: 13'-6"
HEIGHT: 11'-0"
TOTAL AREA: 148.5 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 154.0

BACKG COLOR: Green
COPY COLOR: White

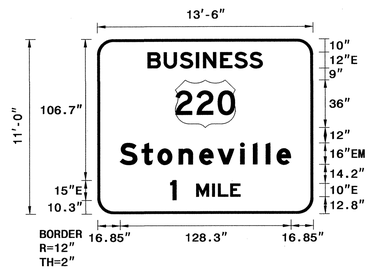
| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| M1_4 | 58.5 | 65 | 45 | 36 |

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

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.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

DESIGN BY: S.JOHNS CHECKED BY: S.KUNZ DATE: Jun 27, 2013
PROJECT ID: B-4621 DIV: 7




Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | B | U | S | I | N | E | S | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | E 2000 |
| | 37.9 | 12.1 | 12.1 | 12.1 | 5.3 | 12.8 | 10.7 | 11.4 | 9.7 | 37.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | 86.3 |
| | | S | t | o | n | e | v | i | l | l | e | | | | | | | | | | | | | | | | | | | | | | | | | | | EM 2000 |
| | 16.8 | 16.3 | 12 | 15.8 | 15.5 | 13.8 | 17 | 9.6 | 9.6 | 8.2 | 10.6 | 16.8 | | | | | | | | | | | | | | | | | | | | | | | | | | 128.3 |
| | | 1 | | M | I | L | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | E 2000 |
| | 54.7 | 4.5 | 15 | 12 | 4.4 | 9.2 | 7.5 | 54.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 52.6 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 102
TYPE: A
QUANTITY: 1
SIGN WIDTH: 13'-6"
HEIGHT: 11'-0"
TOTAL AREA: 148.5 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 154.0

BACKG COLOR: Green
COPY COLOR: White

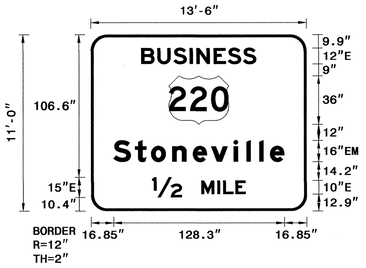
| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| M1_4 | 58.5 | 65.1 | 45 | 36 |

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

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.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

DESIGN BY: S.JOHNS CHECKED BY: S.KUNZ DATE: Jun 27, 2013
PROJECT ID: B-4621 DIV: 7




Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | B | U | S | I | N | E | S | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | E 2000 |
| | 37.9 | 12.1 | 12.1 | 12.1 | 5.3 | 12.8 | 10.7 | 11.4 | 9.7 | 37.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | 86.3 |
| | | S | t | o | n | e | v | i | l | l | e | | | | | | | | | | | | | | | | | | | | | | | | | | | EM 2000 |
| | 16.8 | 16.3 | 12 | 15.8 | 15.5 | 13.8 | 17 | 9.6 | 9.6 | 8.2 | 10.6 | 16.8 | | | | | | | | | | | | | | | | | | | | | | | | | | 128.3 |
| | | 1/2 | | M | I | L | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | E 2000 |
| | 46 | 22 | 15 | 12 | 4.4 | 9.2 | 7.5 | 46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 70.1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 201,202
TYPE: A
QUANTITY: 2
SIGN WIDTH: 6'-0"
HEIGHT: 5'-0"
TOTAL AREA: 30.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1.5"
RADII: 6"
NO. Z BARS: 2
LENGTH: 64.0

BACKG COLOR: Green
COPY COLOR: White

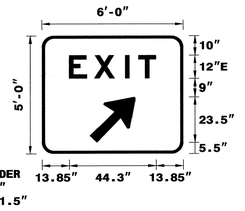
| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| ARMED | 24.4 | 5.8 | 18.3 | 30 |

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

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.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

DESIGN BY: S.JOHNS CHECKED BY: S.KUNZ DATE: Jul 01, 2013
PROJECT ID: B-4621 DIV: 7




Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E | X | I | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | E 2000 |
| | 13.8 | 12.8 | 15.8 | 6.7 | 9 | 13.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44.3 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

# TYPE "A" & "B" SIGNS (GROUNDMOUNTED)

02-JUL-2013 12:25
B4621\Traffic\Signing\CADD\Sign Designs\B-4621SgnDesigns.dgn
Johns
Project TE247967

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-3A |

APPROVED: _____

DATE: 7/15/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

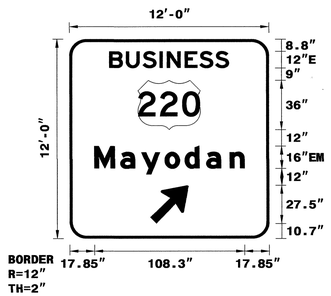
SIGN NUMBER: 104
TYPE: A
QUANTITY: 1
SIGN WIDTH: 12'-0"
HEIGHT: 12'-0"
TOTAL AREA: 144.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 136.0

BACKG COLOR: Green
COPY COLOR: White

| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| M1_4 | 49.5 | 78.2 | 45 | 36 |
| ARMED | 58.3 | 10.8 | 22.4 | 35.3 |

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: S.JOHNS
PROJECT ID: B-4621
CHECKED BY: S.KUNZ
DIV: 7
DATE: Jun 25, 2013




Spacing Factor is 1 unless specified otherwise

USE NOTES:

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.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | U | S | I | N | E | S | S | | | E 2000 |
| 28.9 | 12.1 | 12.1 | 12.1 | 5.3 | 12.8 | 10.7 | 11.4 | 9.7 | 28.9 | | 86.3 |
| | M | a | y | o | d | a | n | | | | EM 2000 |
| 17.8 | 18.9 | 15.2 | 16.8 | 14.4 | 15.5 | 17 | 10.6 | 17.8 | | | 108.3 |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

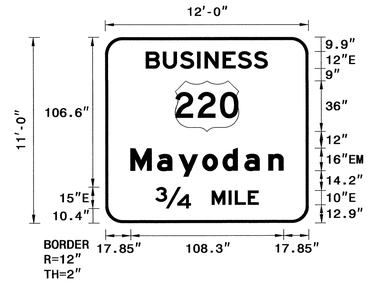
SIGN NUMBER: 106
TYPE: A
QUANTITY: 1
SIGN WIDTH: 12'-0"
HEIGHT: 11'-0"
TOTAL AREA: 132.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 136.0

BACKG COLOR: Green
COPY COLOR: White

| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| M1_4 | 49.5 | 65.1 | 45 | 36 |

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: S.JOHNS
PROJECT ID: B-4621
CHECKED BY: S.KUNZ
DIV: 7
DATE: Jun 27, 2013




Spacing Factor is 1 unless specified otherwise

USE NOTES:

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.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | U | S | I | N | E | S | S | | | E 2000 |
| 28.9 | 12.1 | 12.1 | 12.1 | 5.3 | 12.8 | 10.7 | 11.4 | 9.7 | 28.9 | | 86.3 |
| | M | a | y | o | d | a | n | | | | EM 2000 |
| 17.8 | 18.9 | 15.2 | 16.8 | 14.4 | 15.5 | 17 | 10.6 | 17.8 | | | 108.3 |
| | 3/4 | | M | I | L | E | | | | | E 2000 |
| 35.5 | 25 | 15 | 12 | 4.4 | 9.2 | 7.5 | 35.5 | | | | 73.1 |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

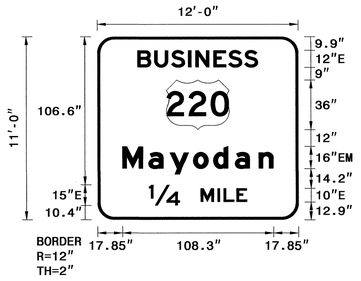
SIGN NUMBER: 105
TYPE: A
QUANTITY: 1
SIGN WIDTH: 12'-0"
HEIGHT: 11'-0"
TOTAL AREA: 132.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 136.0

BACKG COLOR: Green
COPY COLOR: White

| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| M1_4 | 49.5 | 65.1 | 45 | 36 |

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: S.JOHNS
PROJECT ID: B-4621
CHECKED BY: S.KUNZ
DIV: 7
DATE: Jun 27, 2013




Spacing Factor is 1 unless specified otherwise

USE NOTES:

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.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | U | S | I | N | E | S | S | | | E 2000 |
| 28.9 | 12.1 | 12.1 | 12.1 | 5.3 | 12.8 | 10.7 | 11.4 | 9.7 | 28.9 | | 86.3 |
| | M | a | y | o | d | a | n | | | | EM 2000 |
| 17.8 | 18.9 | 15.2 | 16.8 | 14.4 | 15.5 | 17 | 10.6 | 17.8 | | | 108.3 |
| | 1/4 | | M | I | L | E | | | | | E 2000 |
| 37 | 22 | 15 | 12 | 4.4 | 9.2 | 7.5 | 37 | | | | 70.1 |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

# TYPE "A" & "B" SIGNS (GROUNDMOUNTED)


15-JUL-2013 13:53
S:\UP\Projects\B4621\Traffic\Signing\CADD\Sign Designs\B-4621SgnDesigns.dgn
sjohns
AT TE24767

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-3B |

APPROVED: _____

DATE: 7/2/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGN NUMBER: 301
TYPE: D
QUANTITY: 1
SIGN WIDTH: 5'-0"
HEIGHT: 2'-6"
TOTAL AREA: 12.5 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

BACKG COLOR: Green / Green
COPY COLOR: White

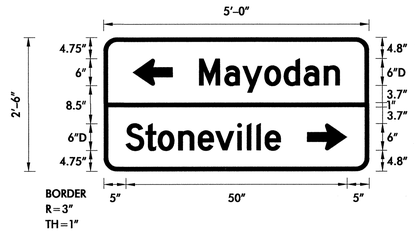
| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| ARUP | 6.6 | 19.3 | 6 | 9 |
| ARUP | 46 | 4.8 | 6 | 9 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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-4621
CHECKED BY: S.KUNZ
DIV: 7
DATE: Jul 01, 2013




Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M | a | y | o | d | a | n | | | | | | | | | | | | | | | | | | | | | D 2000 |
| | 21.6 | 5.7 | 4.1 | 5 | 4.4 | 4.5 | 4.6 | 3.5 | 6.6 | | | | | | | | | | | | | | | | | | | | 31.7 |
| | | S | t | o | n | e | v | i | l | l | e | | | | | | | | | | | | | | | | | | | D 2000 |
| | 5 | 4.4 | 2.8 | 4.6 | 4.4 | 3.9 | 5 | 2.2 | 2.2 | 1.9 | 3.5 | 20 | | | | | | | | | | | | | | | | | | 35 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 302
TYPE: D
QUANTITY: 1
SIGN WIDTH: 5'-0"
HEIGHT: 2'-6"
TOTAL AREA: 12.5 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

BACKG COLOR: Green / Green
COPY COLOR: White

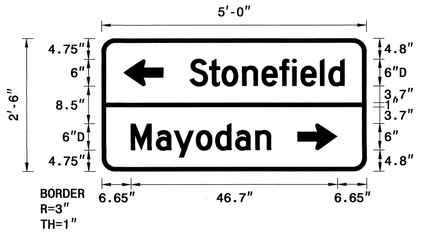
| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| ARUP | 5 | 19.3 | 6 | 9 |
| ARUP | 44.4 | 4.8 | 6 | 9 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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-4621
CHECKED BY: S.KUNZ
DIV: 7
DATE: Jul 01, 2013




Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | S | t | o | n | e | f | i | e | l | d | | | | | | | | | | | | | | | | | | D 2000 |
| | 20 | 4.4 | 2.8 | 4.6 | 4.4 | 4 | 2.9 | 1.9 | 4.4 | 1.9 | 3.6 | 5 | | | | | | | | | | | | | | | | | 35 |
| | | M | a | y | o | d | a | n | | | | | | | | | | | | | | | | | | | | | D 2000 |
| | 6.6 | 5.7 | 4.1 | 5 | 4.4 | 4.5 | 4.6 | 3.5 | 21.6 | | | | | | | | | | | | | | | | | | | | 31.7 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FILENAME: B-4621SgnDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

# TYPE "D" SIGNS


PLOTTED: Jul 02 2013 12:24
P:\UPP-Projects\B4621\Traffic\Signing\CADD\Sign Designs\B-4621SgnDesigns.dgn
sjohns

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-3C |

APPROVED: [signature]

DATE: 7/2/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

(401) QUANTITY REQ'D 2

36 X 36
W4-1 (R)

TWO "U" POSTS PER SIGN

(406) QUANTITY REQ'D 2

54 X 18
R6-1 (L)

BACK TO BACK WITH SIGN 405
IN 2 INSTALLATIONS

(501)

1 - 24 x 12
1 - 30 x 24
1 - 21 x 15

ONE "U" POST PER SIGN

(402) QUANTITY REQ'D 4

36 x 36
R1-1

ONE "U" POST PER SIGN

(407) QUANTITY REQ'D 4

36 X 24
R5-1a

ONE "U" POST PER SIGN

(502)

1 - 24 x 12
1 - 30 x 24
1 - 21 x 15

ONE "U" POST PER SIGN

(403) QUANTITY REQ'D 5

30 x 30
R5-1

BACK TO BACK WITH SIGN 402
IN 4 INSTALLATIONS

BACK TO BACK WITH SIGN 404
IN 1 INSTALLATIONS

(503)

1 - 24 x 12
1 - 24 x 12
1 - 30 x 24

ONE "U" POST PER SIGN

(404) QUANTITY REQ'D 1

36 X 36 X 36
R1-2

ONE "U" POST PER SIGN

(405) QUANTITY REQ'D 2

54 X 18
R6-1 (R)

TWO "U" POSTS PER SIGN

# TYPE "E" AND TYPE "F" SIGNS

02-JUL-2013 12:23
R:\TIPProjects-B\B4621\Traffic\Signing\CADD\Sign Designs\B-4621SgnDesigns.dgn
sjohns AT TE247957

| TIP NO. | SHEET NO. |
|---|---|
| B-4621 | SIGN-4 |

APPROVED: RWK

DATE: 7/2/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

NC GRID NAD 83/2001

PROPOSED SIGNS

## PAY ITEM NOTES

| | |
|---|---|
| 1 | DISPOSAL OF SIGN SYSTEM, U-CHANNEL |
| 2 | DISPOSAL OF SUPPORT, U-CHANNEL |
| 3 | DISPOSAL OF SIGN, A OR B (GROUND MOUNTED) |
| 4 | SIGN ERECTION, TYPE A (GROUND MOUNTED) |
| 5 | DISPOSAL OF SIGN SYSTEM, STEEL BEAM |
| 6 | DISPOSAL OF SIGN, D, E, OR F |

02-JUL-2013 12:11
\\Ntpro\pe\TIP\B4621\Traffic\Signing\CADD\Signing Layout Plans\B-4621_Sgn_SGN.dgn
Johns, Al TE24967

09/08/99

TIP PROJECT: B-4621

| T.I.P. NO. | SHEET NO. |
|---|---|
| B-4621 | UO-1 |

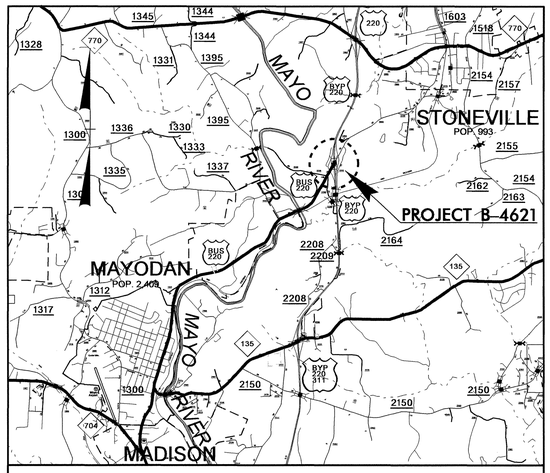
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# UTILITIES BY OTHERS PLANS
# ROCKINGHAM COUNTY

**LOCATION: BRIDGE NO. 150 OVER US 220 BUSINESS ON US NBL**

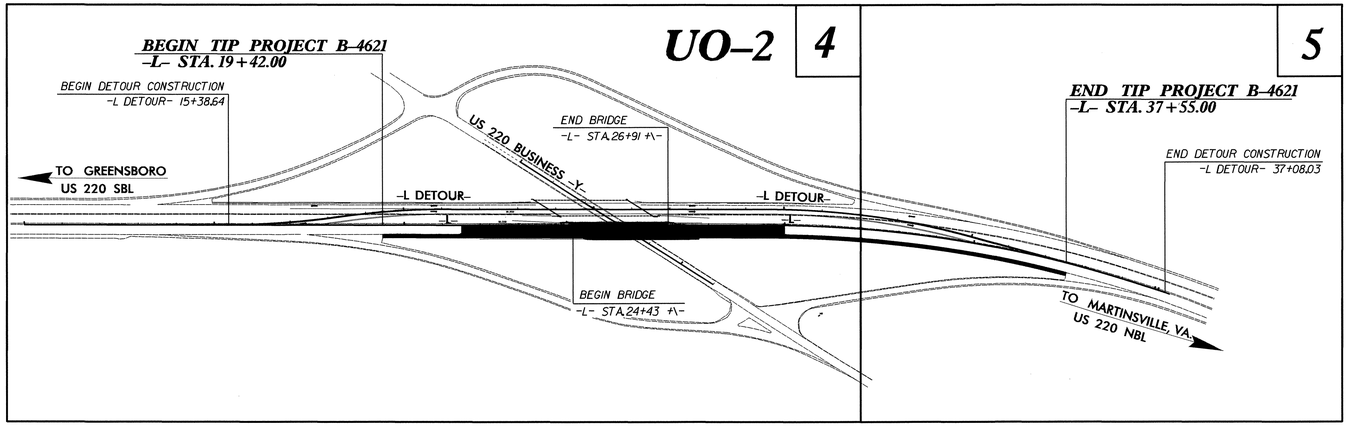
**TYPE OF WORK: UTILITY RELOCATION BY OTHERS**

NAD 83/2001




*VICINITY MAP*
*(ONSITE DETOUR)*

UO-2




**GRAPHIC SCALES**

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

## INDEX OF SHEETS


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


## UTILITY OWNERS ON PROJECT

(A) CENTURYLINK – TELEPHONE


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

Roger Worthington, P.E. – UTILITIES SECTION ENGINEER
STEVE McKEE, P.E. – UTILITIES SQUAD LEADER PROJECT ENGINEER
JOHN NIGRO, P.E. – UTILITIES PROJECT DESIGNER

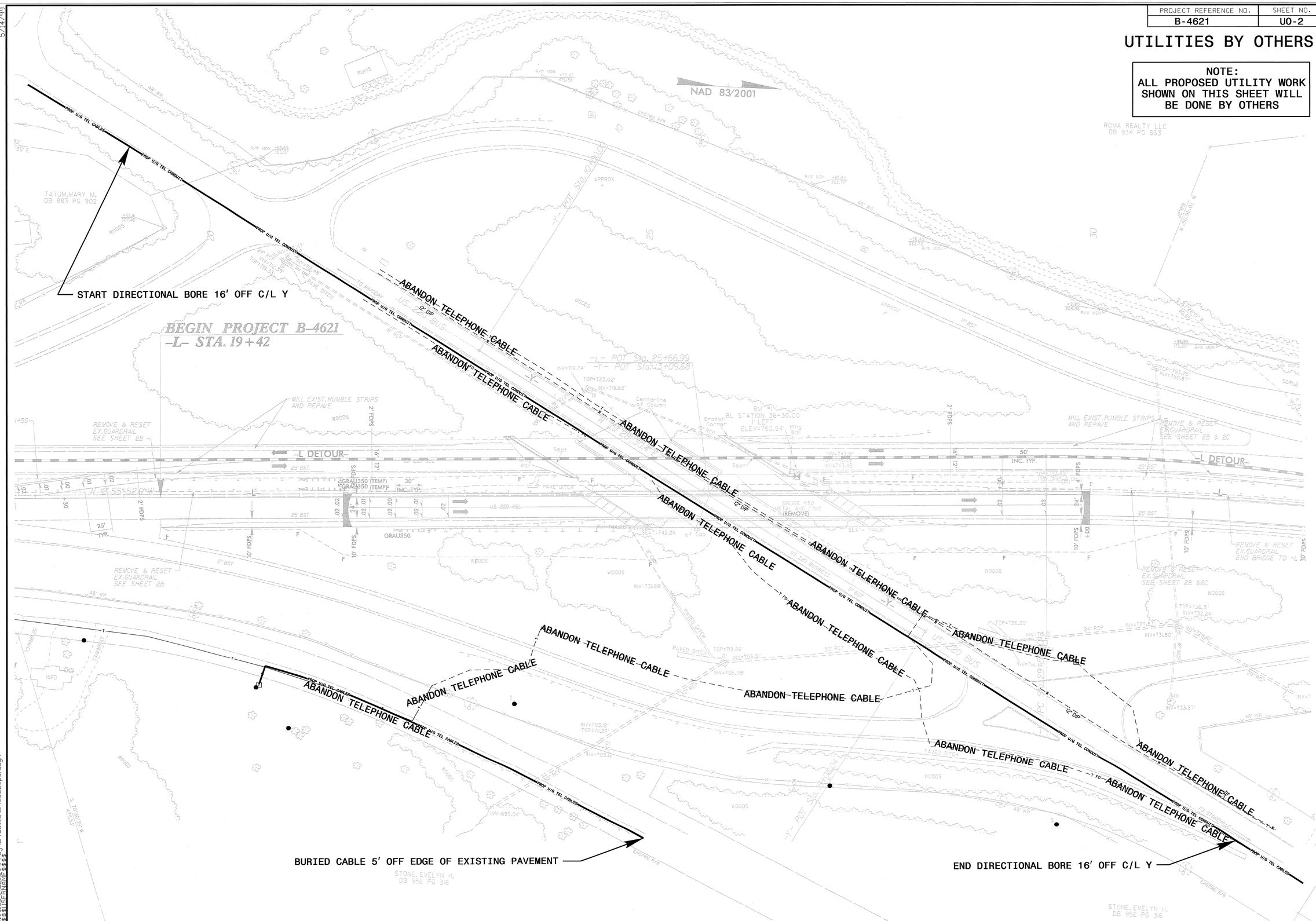


06-JUN-2013 08:31
R:\Utilities\Rdy_Ut\Proj\B4621_Ut_Title_UO1_psh.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | U0-2 |

# UTILITIES BY OTHERS

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




5/14/99

06-JUN-2013 11:05
R:\Utilities\Rdy_Utl\Proj\B4621_Ut_4_U02_psh.dgn
$$$$USERNAME$$$$

5/28/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | X-1A |

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, FineGrading, Clearing and Grubbing and Removal of Existing Pavement will be paid for atthe contract lump sum price for "Grading".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# CROSS-SECTION SUMMARY

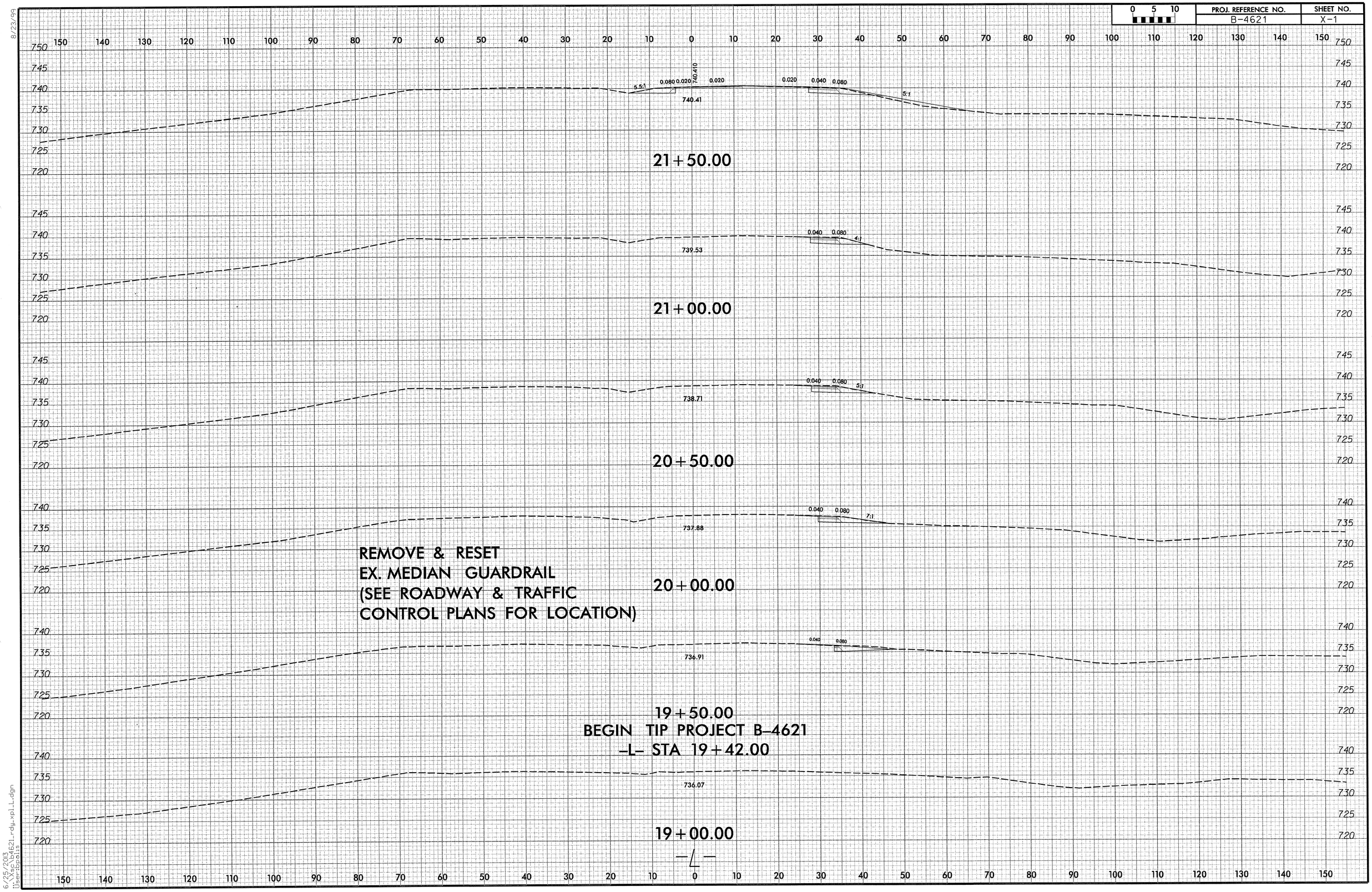
NOTE: Embankment column does not include backfill for undercut.

| STATION | UNCLASSIFIED EXCAVATION AREAS (SQ. FT.) | EMBANKMENT AREAS (SQ. FT.) | UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS) | EMBANKMENT VOLUMES (CU. YARDS) |
|---|---|---|---|---|
| -L- | | | | |
| 19+00 | | | 0 | 0 |
| 19+50 | | | 0 | 0 |
| 20+00 | | | 23 | 1 |
| 20+50 | | | 21 | 0 |
| 21+00 | | | 21 | 0 |
| 21+50 | | | 47 | 13 |
| 22+00 | | | 63 | 13 |
| 22+50 | | | 40 | 12 |
| 23+00 | | | 16 | 48 |
| 23+50 | | | 2 | 105 |
| 24+00 | | | 0 | 150 |
| 24+50 | | | 0 | 0 |
| 25+00 | | | 0 | 0 |
| 25+50 | | | 0 | 0 |
| 26+00 | | | 0 | 0 |
| 26+50 | | | 0 | 0 |
| 27+00 | | | 0 | 0 |
| 27+50 | | | 0 | 0 |
| 28+00 | | | 0 | 277 |
| 28+50 | | | 1 | 73 |
| 29+00 | | | 10 | 30 |
| 29+50 | | | 50 | 10 |
| 30+00 | | | 69 | 1 |
| 30+50 | | | 38 | 1 |
| 31+00 | | | 18 | 0 |
| 31+50 | | | 16 | 1 |
| 32+00 | | | 15 | 1 |
| 32+50 | | | 17 | 0 |
| 33+00 | | | 17 | 1 |
| 33+50 | | | 15 | 1 |
| 34+00 | | | 15 | 1 |
| 34+50 | | | 16 | 1 |
| 35+00 | | | 17 | 2 |
| 35+50 | | | 20 | 1 |
| 36+00 | | | 23 | 0 |
| 36+50 | | | 23 | 1 |
| 37+00 | | | 22 | 0 |
| 37+50 | | | 19 | 0 |
| | | TOTAL | 654 | 743 |
| -L DETOUR- | | | -L DETOUR- | -L DETOUR- |
| 16+00 | | | 0 | 0 |
| 16+50 | | | 0 | 0 |
| 17+00 | | | 6 | 1 |
| 17+50 | | | 6 | 5 |
| 18+00 | | | 7 | 5 |
| 18+50 | | | 9 | 4 |
| 19+00 | | | 9 | 5 |
| 19+50 | | | 8 | 6 |
| 20+00 | | | 7 | 4 |
| 20+50 | | | 0 | 0 |
| 30+50 | | | 0 | 0 |
| 31+00 | | | 0 | 0 |
| 31+50 | | | 4 | 0 |
| 32+00 | | | 5 | 3 |
| 32+50 | | | 7 | 4 |
| 33+00 | | | 9 | 4 |
| 33+50 | | | 10 | 2 |
| 34+00 | | | 7 | 3 |
| 34+50 | | | 2 | 8 |
| 35+00 | | | 1 | 16 |
| 35+50 | | | 2 | 15 |
| 36+00 | | | 2 | 9 |
| 36+50 | | | 2 | 4 |
| 37+00 | | | 0 | 0 |
| | | TOTAL | 103 | 99 |

| STATION | UNCLASSIFIED EXCAVATION AREAS (SQ. FT.) | EMBANKMENT AREAS (SQ. FT.) | UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS) | EMBANKMENT VOLUMES (CU. YARDS) |
|---|---|---|---|---|

| STATION | UNCLASSIFIED EXCAVATION AREAS (SQ. FT.) | EMBANKMENT AREAS (SQ. FT.) | UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS) | EMBANKMENT VOLUMES (CU. YARDS) |
|---|---|---|---|---|

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




8/23/99

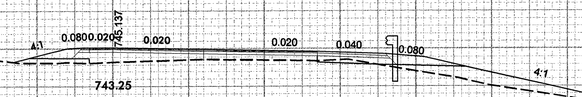
6/25/2013
u:\Xsc\b4621_rdy_xpl_L.dgn
User:bpalis

8/23/99

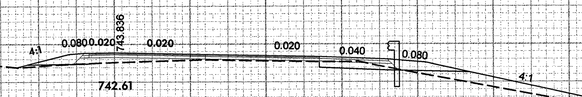
| 0 5 10 | PROJ. REFERENCE NO. | SHEET NO. |
|---|---|---|
| | B-4621 | X-2 |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

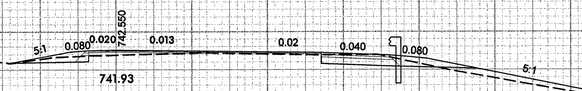
755 750 745 740 735 730 725 720



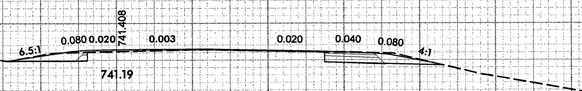

## 23+50.00




## 23+00.00



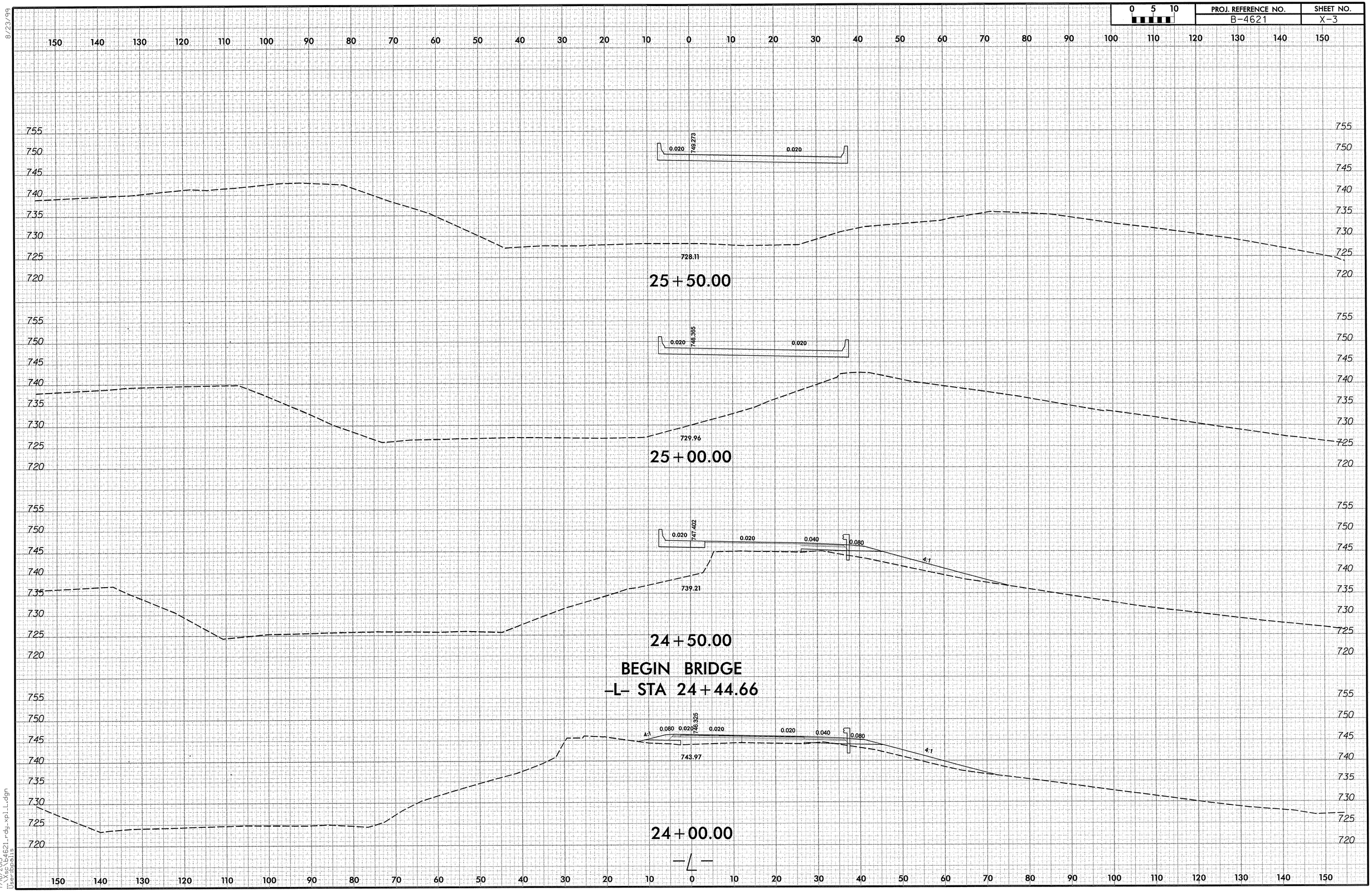

## 22+50.00




## 22+00.00

7/16/2013
\\Xsc\b4621_rdy_xpl.L.dgn
User:bpolis

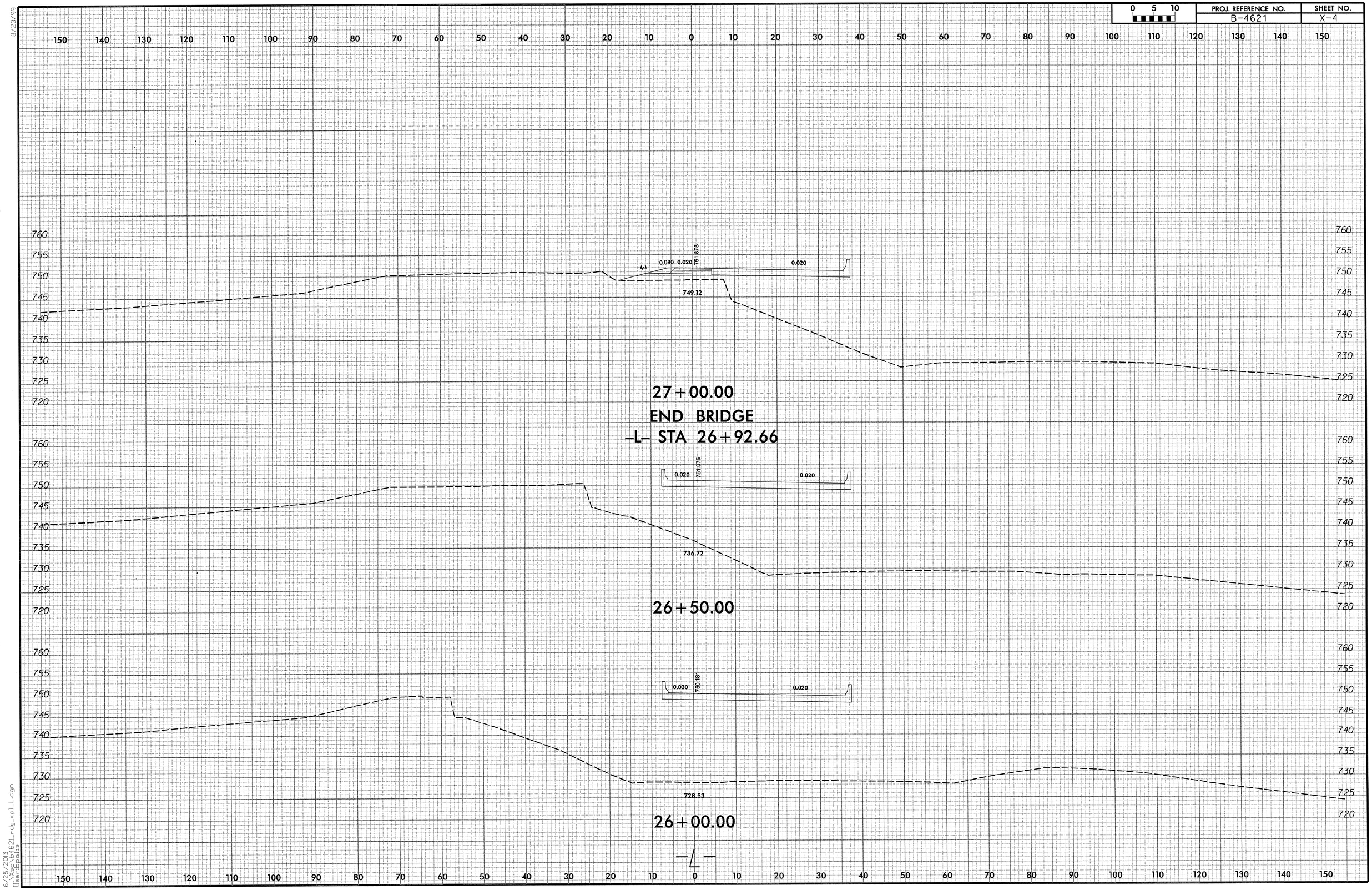
| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | X-3 |




8/23/99

7/16/2013
...\Xsc\b4621_rdy_xpl_L.dgn
User:bpalis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | X-4 |




8/23/99

6/25/2013
...\Xsc\b4621_rdy_xpl_L.dgn
User:bpalis

8/23/99

| 0 5 10 | PROJ. REFERENCE NO. | SHEET NO. |
|---|---|---|
| | B-4621 | X-5 |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

760 755 750 745 740 735 730 725

754.264
0.080 0.020 0.020 0.020 0.040 0.080
753.91
4:1
4:1

**29+00.00**

760 755 750 745 740 735 730 725

4:1 0.080 0.020 753.647 0.020 0.020 0.040 0.080
752.80
4:1

**28+50.00**

760 755 750 745 740 735 730 725

753.144
4:1 0.080 0.020 0.020 0.020 0.040 0.080
751.59
4:1

**28+00.00**

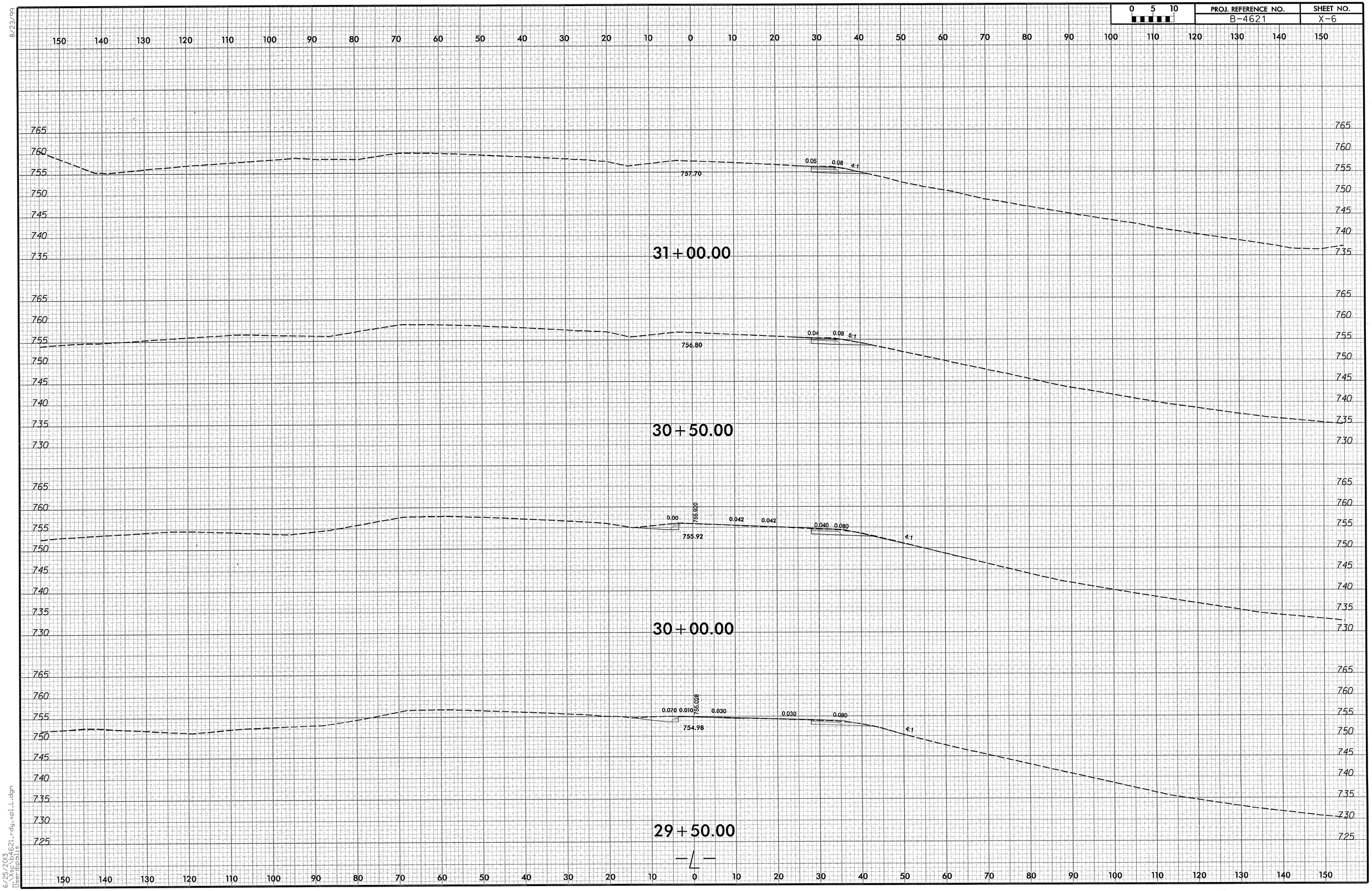
760 755 750 745 740 735 730 725 720

4:1 0.080 0.020 752.563 0.020 0.020 0.040 0.080
750.30
2:1

**27+50.00**

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/25/2003
I:\se\b4621_rdy_xpl_L.dgn
User:ggallis




8/23/99

6/25/2013
ii:\Xsc\b4621_rdy_xpl_L.dgn
User:bpolis

8/23/99

| 0 5 10 | PROJ. REFERENCE NO. | SHEET NO. |
|---|---|---|
| | B-4621 | X-7 |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

775 770 765 760 755 750 745 740 735

760.56

0.05 0.08 6:1

33+00.00

770 765 760 755 750 745 740

759.93

0.05 0.08 6:1

32+50.00

770 765 760 755 750 745 740

759.29

0.05 0.08 5:1

32+00.00

765 760 755 750 745 740 735

758.57

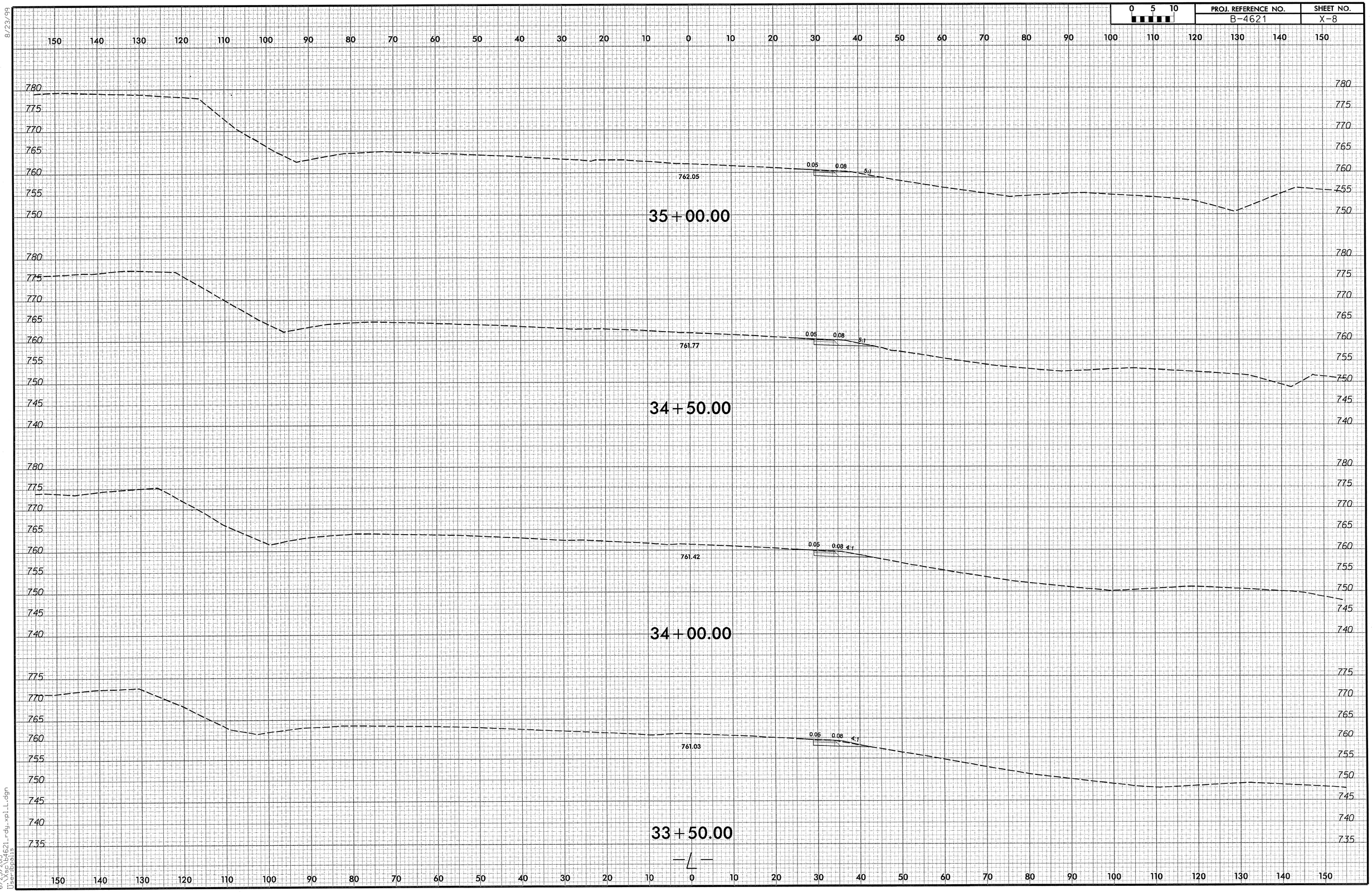
0.05 0.08 5:1

31+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

775 770 765 760 755 750 745 740 735

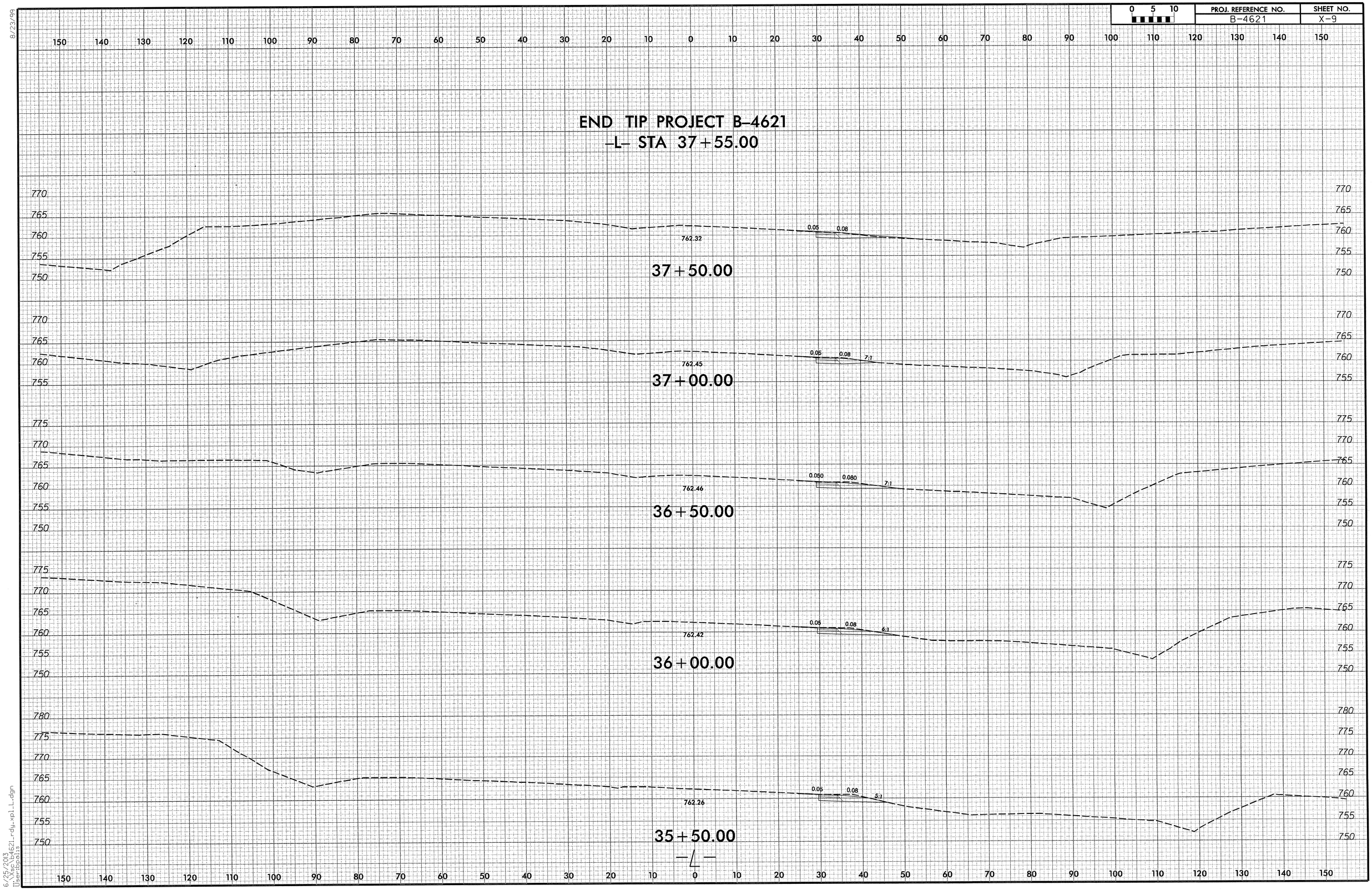
6/25/2013
I:\se\b4621_rdy_xpl_L.dgn
User:cpg13




8/23/99

6/25/2013
::\Xsc\b4621_rdy_xpl_L.dgn
User:bpalis

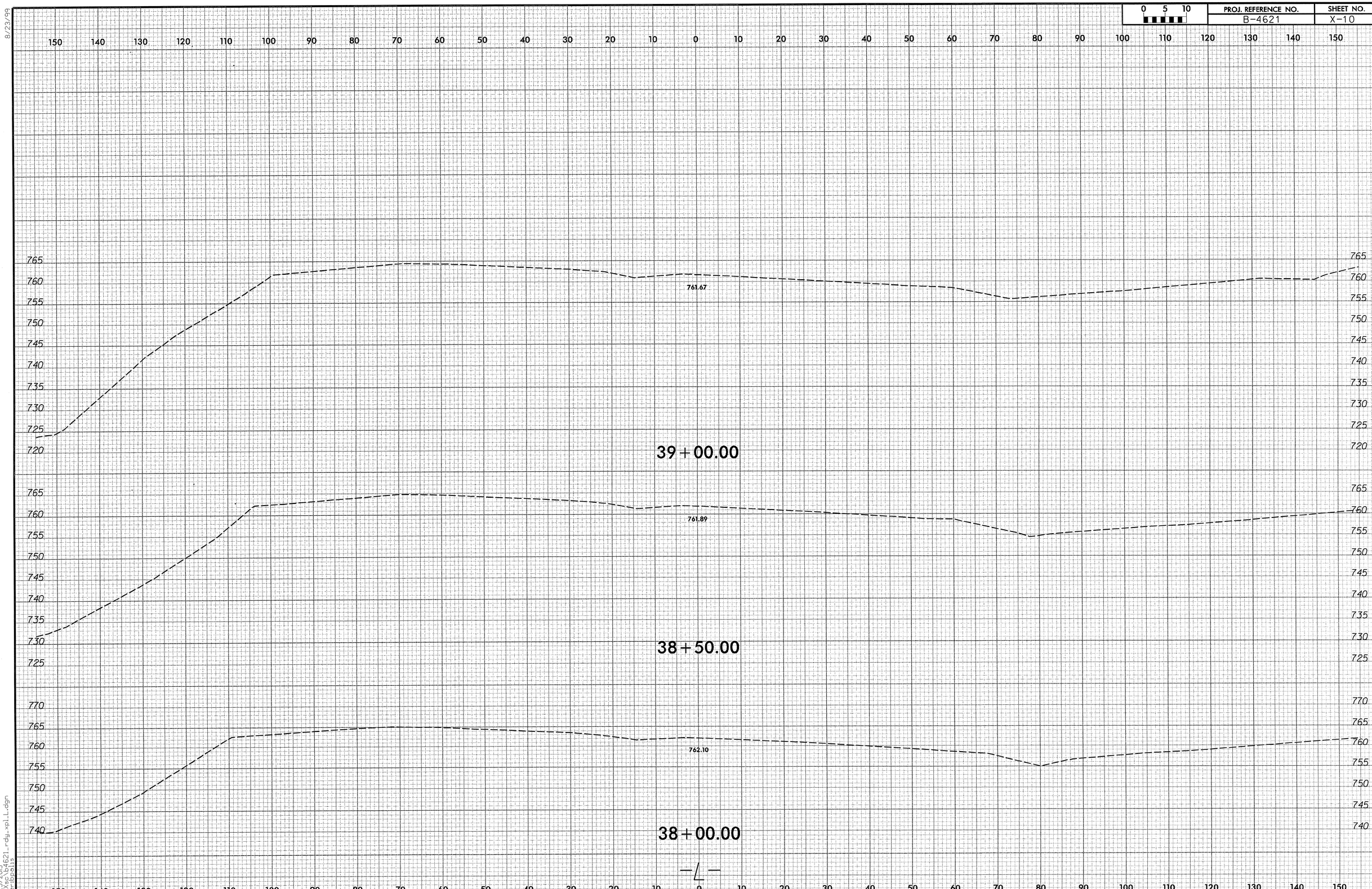
| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | X-9 |




8/23/99

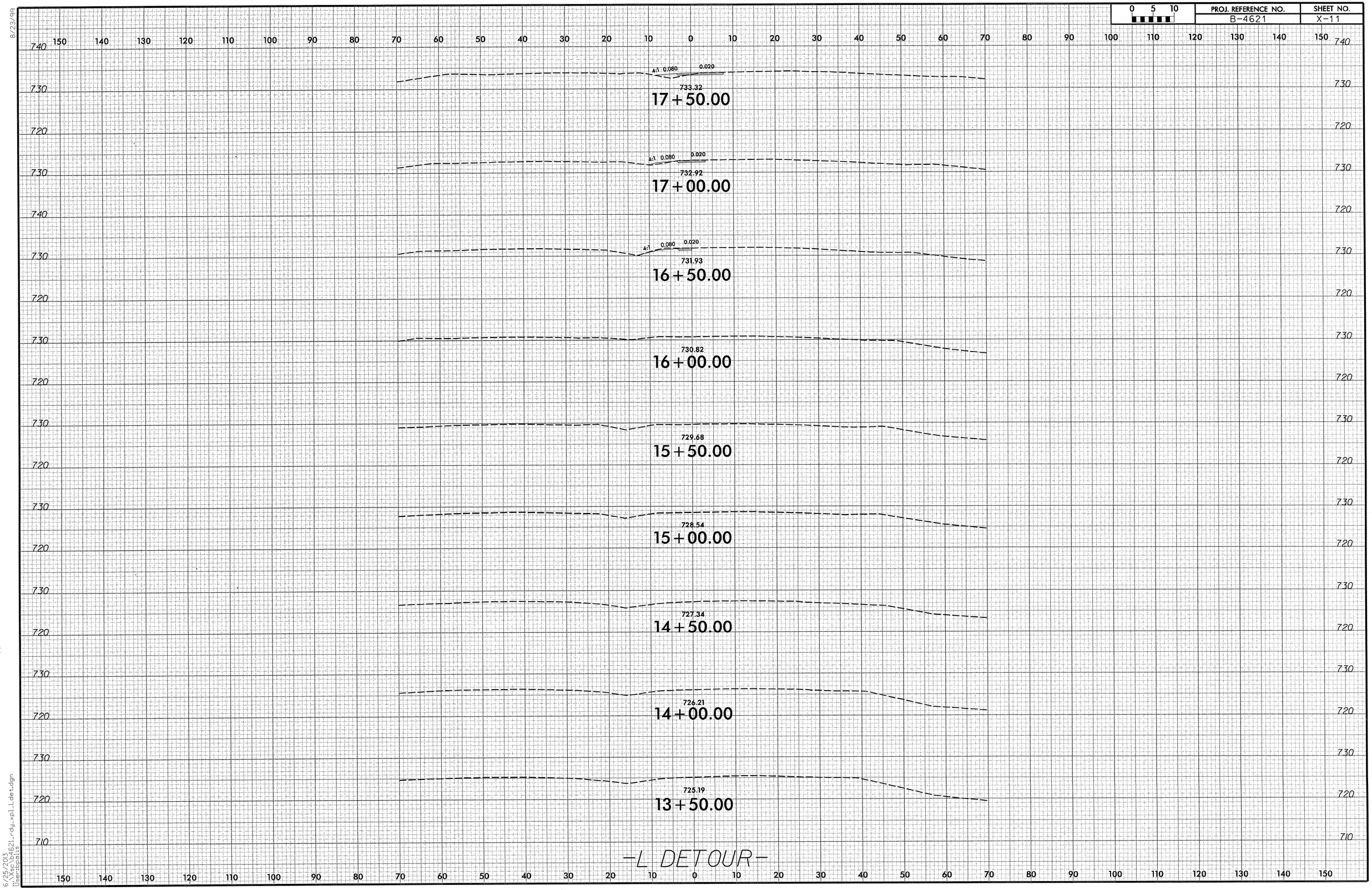
6/25/2013
...\Xsc\b4621_rdy_xpl_L.dgn
User:bpolis

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4621 | X-10 |



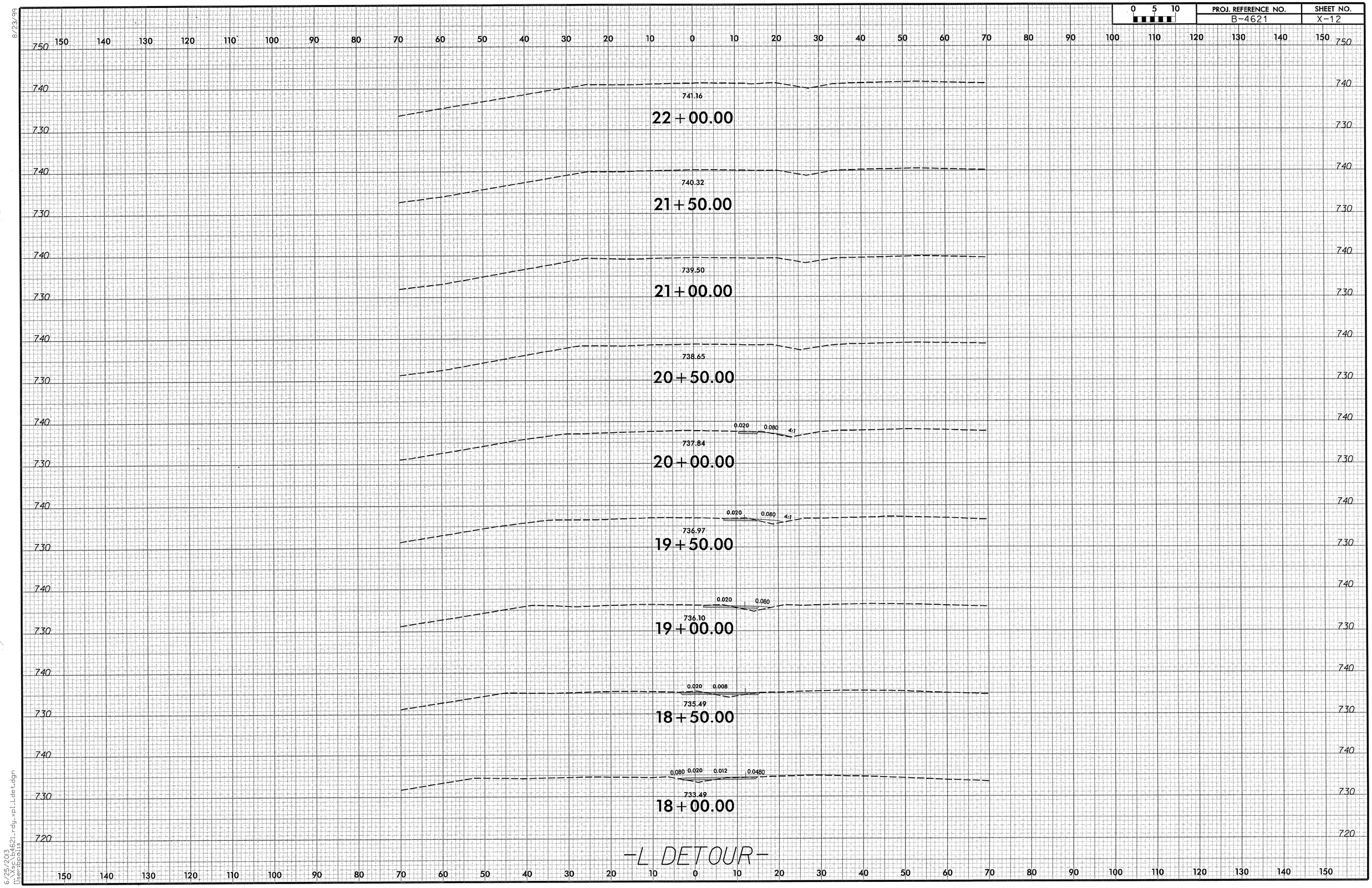

8/23/99

6/25/2013
U:\Xsc\b4621_rdy_xpl_L.dgn
User:bpalis



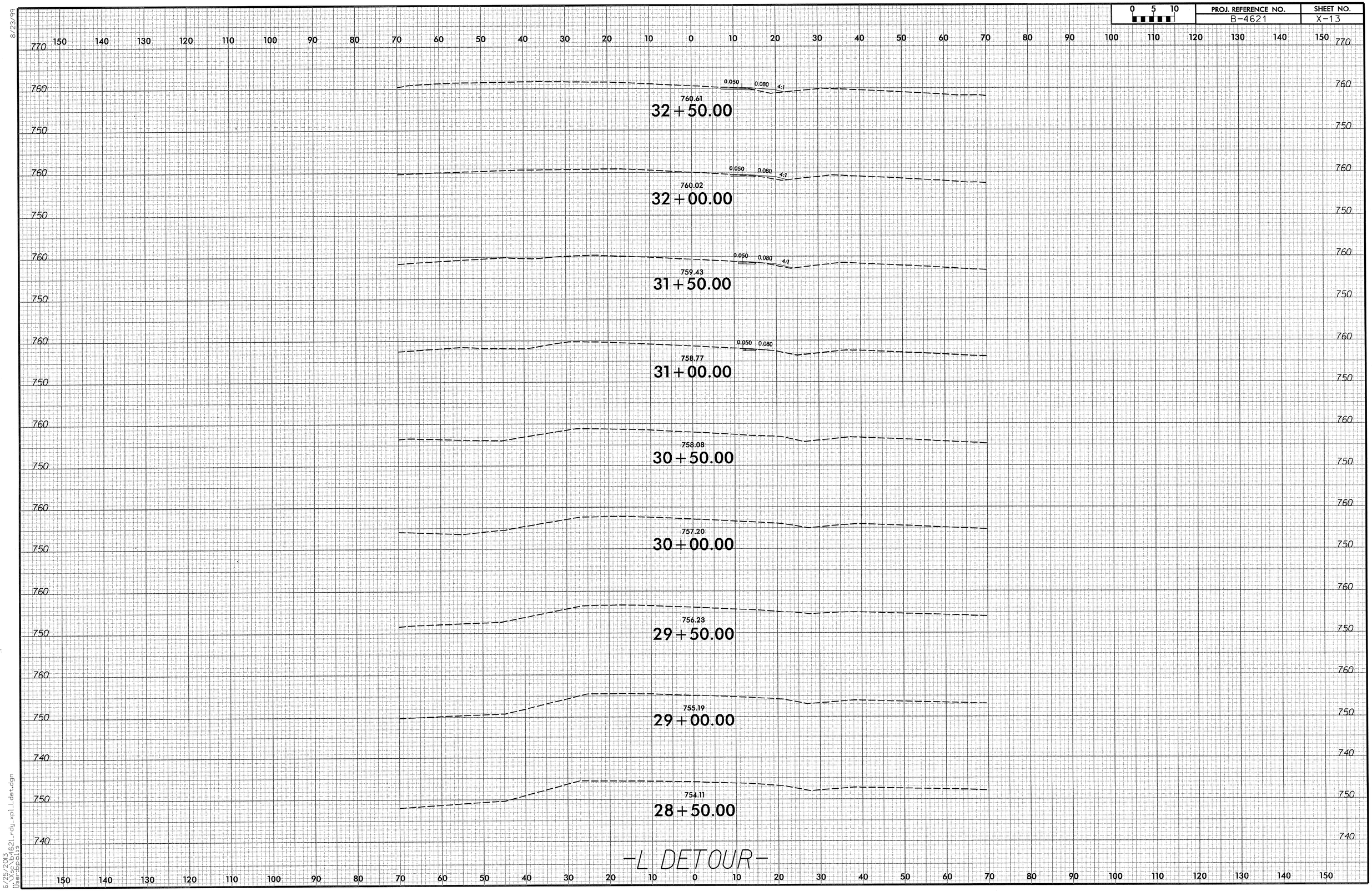

8/23/99

6/25/2013
...\Xsc\b4621_rdy_xpl_L det.dgn
User:bpolis



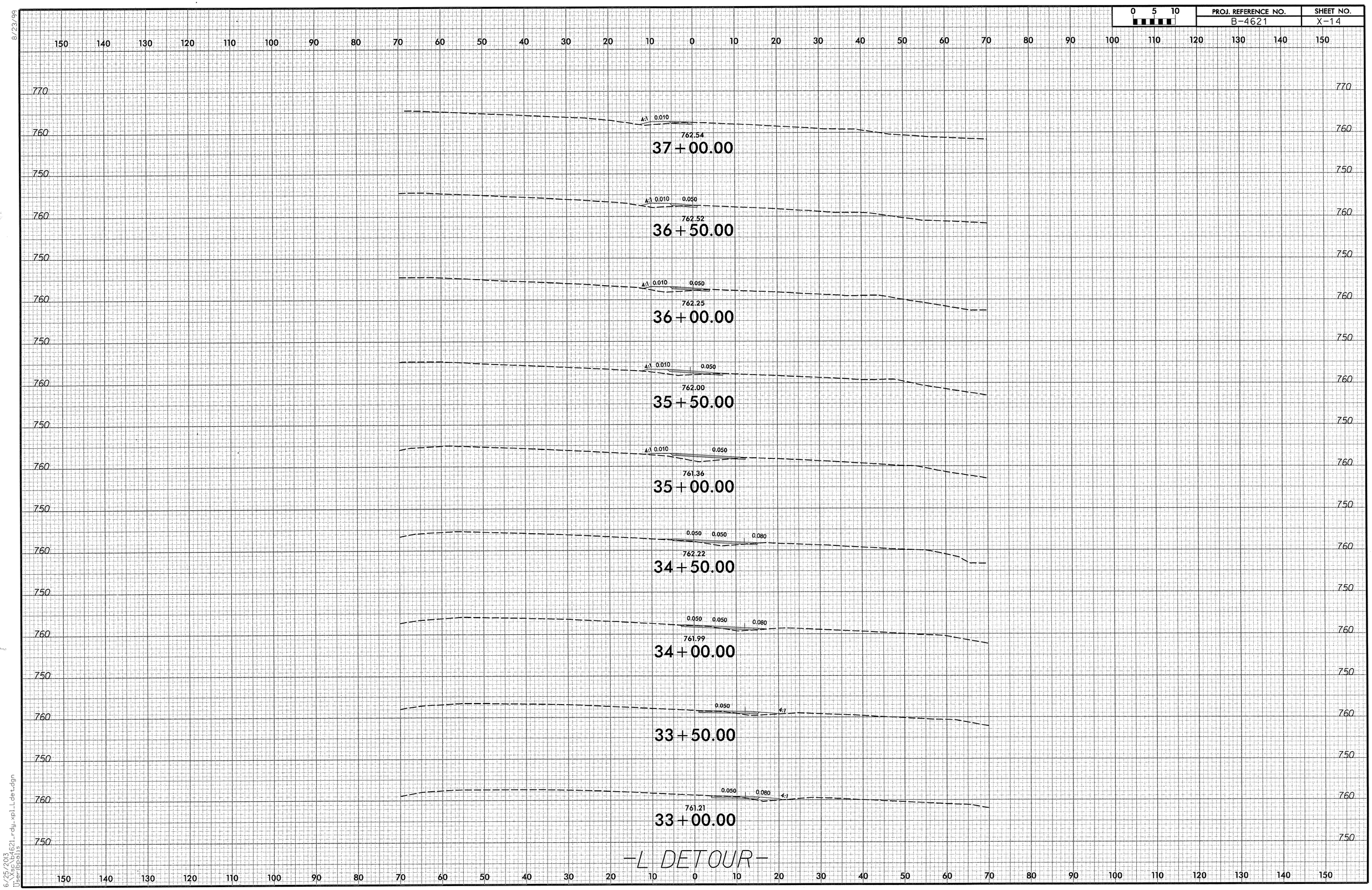

8/23/99

6/25/2013
::\Xsc\b4621_rdy_xpl_Ldet.dgn
User:bpalis




8/23/99

6/25/2013
...\Xsc\b4621_rdy_xpl_Ldet.dgn
User:bpalis




8/23/99

6/25/2013
...\Xsc\b4621_rdy_xpl_Ldet.dgn
User:bpalis

8/23/99

| 0 5 10 | PROJ. REFERENCE NO. | SHEET NO. |
|---|---|---|
| | B-4621 | X-15 |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

770
760
750

760.90
40+00.00

761.38
39+50.00

761.72
39+00.00

761.92
38+50.00

762.15
38+00.00

762.37
37+50.00

-L DETOUR-

6/25/2013
I:\sc\b4621_rdy_xpLL_det.dgn
User:bpolis