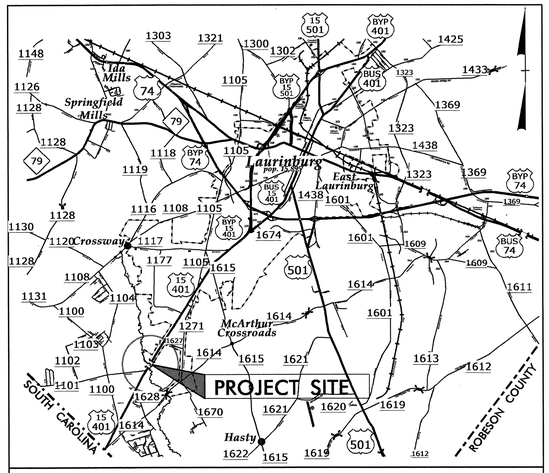
09/08/99

TIP PROJECT: B-4639

CONTRACT: C203408

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SCOTLAND COUNTY

LOCATION: BRIDGE NO. 17 OVER GUM SWAMP ON US 15–US 401

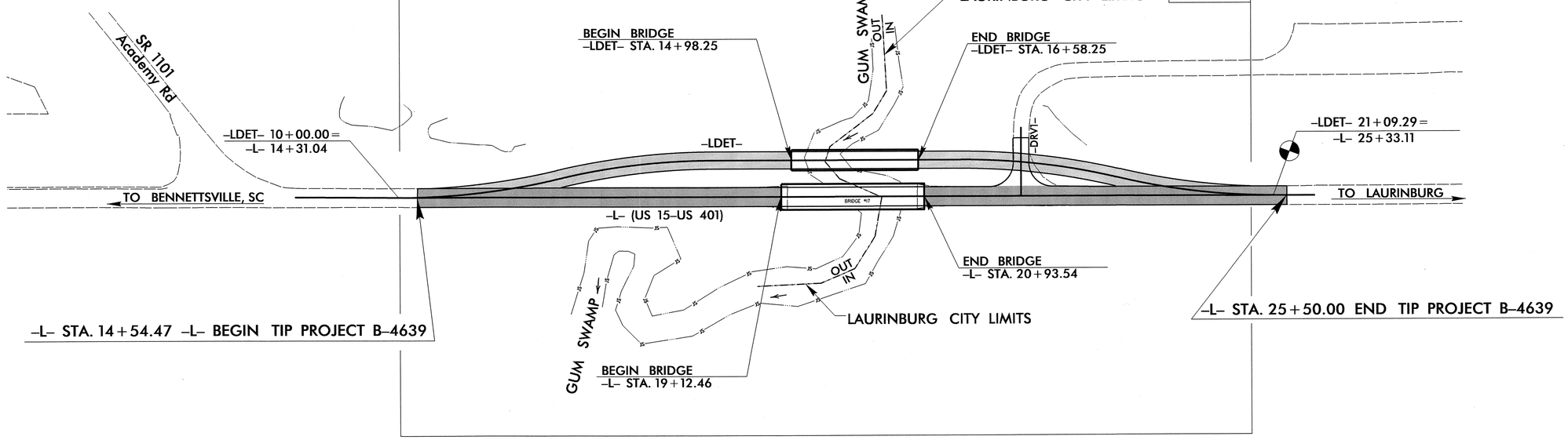
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4639	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38449.1.1	BRSTP–15(18)	PE
38449.2.1	BRSTP–15(18)	R/W
38449.2.U1	BRSTP–15(18)	UTILITIES
38449.3.FR1	BRSTP–15(18)	CONSTRUCTION

NAD 83/CORS 96

4



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 2014 = 9,600
ADT 2035 = 16,800
K = 10 %
D = 60 %
T = 6 % *
V = 60 MPH
* TTST = 4% DUAL 2%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4639 = 0.173 MILES

LENGTH STRUCTURE TIP PROJECT B–4639 = 0.034 MILES

TOTAL LENGTH OF TIP PROJECT B–4639 = 0.207 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 17, 2013

LETTING DATE:
JULY 15, 2014

G. E. BREW, PE
PROJECT ENGINEER

I.T. YOUNIS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032721 ENGINEER JOHN F. OGLESBY

SIGNATURE: John F. Oglesby P.E. 4/21/14

ROADWAY DESIGN ENGINEER

4-21-14

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW

SIGNATURE: Gregory E. Brew P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4639	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19506 ENGINEER GREGORY E. BREW 4-21-14

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

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, SHOULDER BERM GUTTER DETAIL, AND WEDGING DETAIL
2-B	STANDARD TEMPORARY SHORING DETAIL
2-C	STRUCTURE ANCHOR UNIT DETAIL
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3-C	SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION
4 THRU 4-A	PLAN SHEETS
5	PROFILE SHEET
TMP-1 THRU TMP-6	TRANSPORTATION MANAGEMENT PLANS
PM-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-9	CROSS-SECTIONS
S-1 THRU S-23	STRUCTURE PLANS

GENERAL NOTES

REVISED: 07/30/12
EFFECTIVE: 01-17-12

GENERAL NOTES: 2012 SPECIFICATIONS

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

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

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

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

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

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY-PROGRESS, LUMBEE RIVER EMC, AT&T, AND CITY OF LAURINBURG.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

LIST OF STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
300.01	Method of Pipe Installation
422.10	Reinforced Bridge Approach Fills
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-4639	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-4639	1 - C
Location and Surveys	

SURVEY CONTROL SHEET B-4639
FINAL

NC GRID
NAD 83/CORS 96

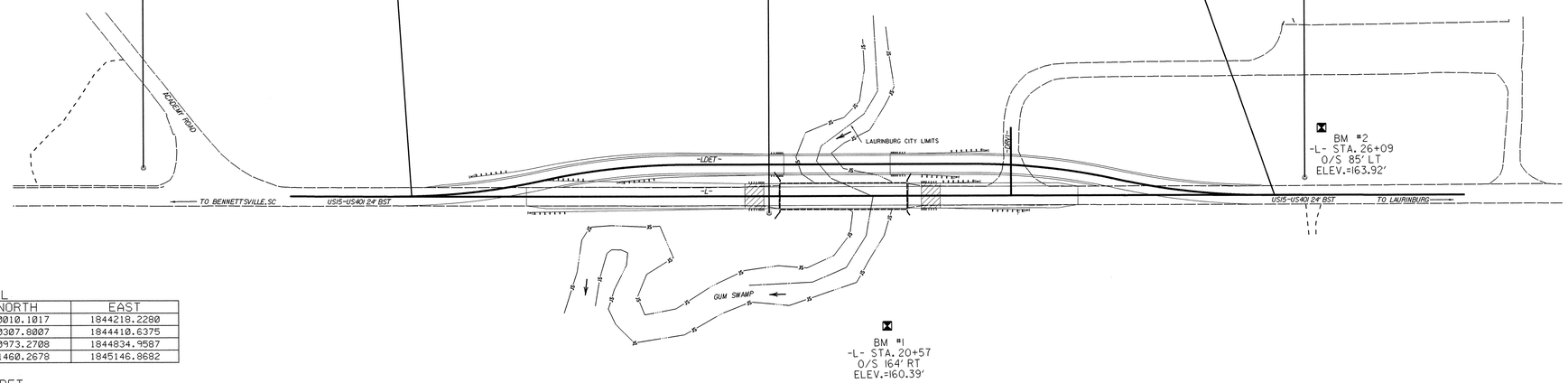
LOCALIZED PROJECT COORDINATES
-L- STA. 14+54.47 BEGIN TIP PROJECT B-4639
N = 350307.8007
E = 1844410.6375

LOCALIZED PROJECT COORDINATES
-L- STA. 25+50.00 END TIP PROJECT B-4639
N = 351231.1983
E = 1845000.1548

NCDOT BASELINE STATION "B4639-1"
LOCALIZED PROJECT COORDINATES
N = 350040.5920
E = 1844196.0590

NCDOT BASELINE STATION "BL-101"
LOCALIZED PROJECT COORDINATES
N = 350678.4910
E = 1844672.7130

NCDOT BASELINE STATION "BL-102"
LOCALIZED PROJECT COORDINATES
N = 351275.1810
E = 1845002.1420



L

TYPE	STATION	NORTH	EAST
POT	11+00.00	350010.1017	1844218.2280
POT	14+54.47	350307.8007	1844410.6375
POT	22+43.71	350973.2708	1844834.9587
POT	28+22.03	351460.2678	1845146.8682

LDET

TYPE	STATION	NORTH	EAST
PC	10+00.00	350288.1257	1844397.9211
PRC	12+03.14	350470.2302	1844486.8531
PT	14+01.05	350647.9298	1844572.9573
PC	17+12.10	350910.2017	1844740.1888
PRC	19+11.55	351064.3134	1844866.0803
PT	21+09.29	351216.9762	1844991.0460

DRV1

TYPE	STATION	NORTH	EAST
POT	10+00.00	350949.2865	1844819.6657
POT	10+86.83	350995.9666	1844746.4565
POT	11+73.65	351042.6467	1844673.2472

ROW MARKER CONCRETE

ALIGN	STATION	OFFSET	NORTH	EAST
L	25+50.00	-104.00	351287.2862	1844912.5767
L	25+50.00	50.00	351204.2321	1845042.2610
L	22+43.71	50.00	350946.3930	1844877.1201
L	14+54.47	50.00	350280.6594	1844452.6309
L	14+54.47	-104.02	350364.2700	1844323.2747
L	22+43.71	-104.00	351029.1871	1844747.2726

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4639-1	350040.5920	1844196.0590	160.32	11+13.57	35.17 LT
101	BL-101	350678.4910	1844672.7130	162.78	19+07.92	21.68 RT
102	BL-102	351275.1810	1845002.1420	164.82	25+88.11	22.05 LT

```
*************************************
BM1       ELEVATION = 160.39
N 350727      E 1844873
L STATION 20+57.00 164 RIGHT
RR SPIKE IN BASE OF 20" PINE
*************************************
*************************************
BM2       ELEVATION = 163.92
N 351327      E 1844960
L STATION 26+09.00 85 LEFT
RR SPIKE IN BASE OF 15" OAK
*************************************
```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4639-2"
WITH NAD 83/CORS 96 STATE PLANE GRID COORDINATES OF
NORTHING: 351720.6280(ft) EASTING: 1845347.0080(ft)
ELEVATION: 169.160(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990686
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4639-2" TO -L- STATION 14+54.47 IS
S 33° 32' 05.9" W 1,694.954'
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.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B4639_LS_CONTROL.TXT

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

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

NOTE: DRAWING NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
B-4639	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

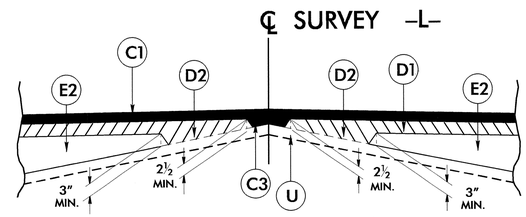
NORTH CAROLINA PROFESSIONAL SEAL 18907 ENGINEER GREGORY E. BREWER 4-21-14

NORTH CAROLINA PROFESSIONAL SEAL 19868 ENGINEER LAURA M. PAYNE 4-21-2014

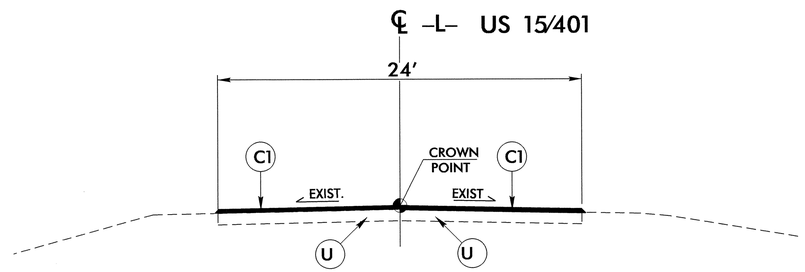
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

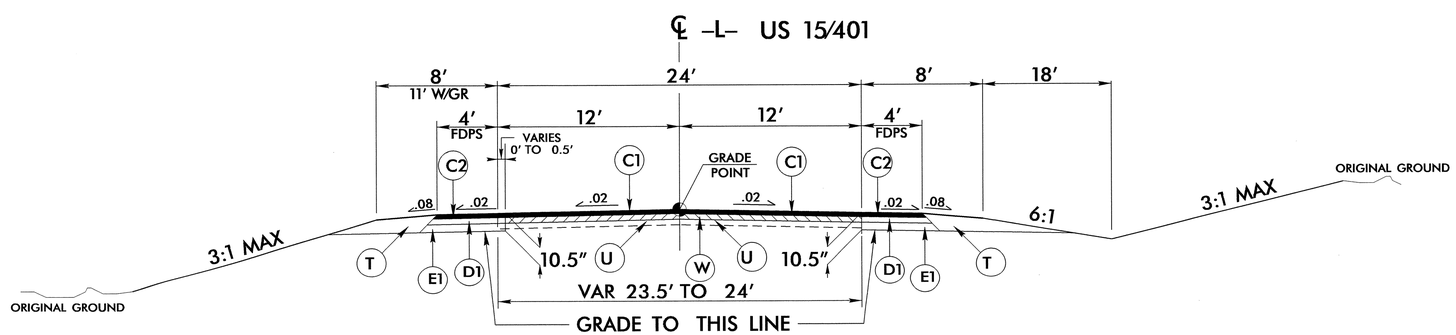


Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

-L- STA. 14+54.47 TO STA. 16+00.00
-L- STA. 23+00.00 TO STA. 25+50.00



TYPICAL SECTION NO. 2

-L- STA. 16+00.00 TO STA. 18+25.00
-L- STA. 22+00.00 TO STA. 23+00.00

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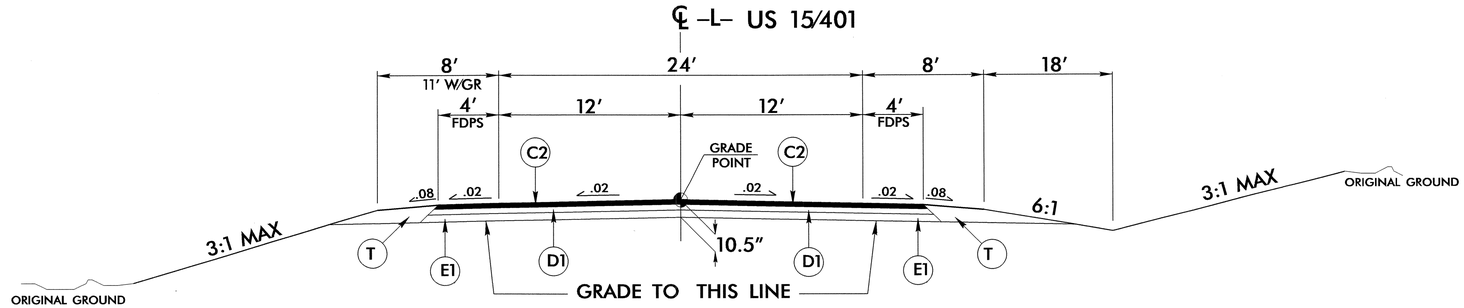
PROJECT REFERENCE NO.	SHEET NO.
B-4639	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18203 ENGINEER GREGORY E. BREW
4-21-14

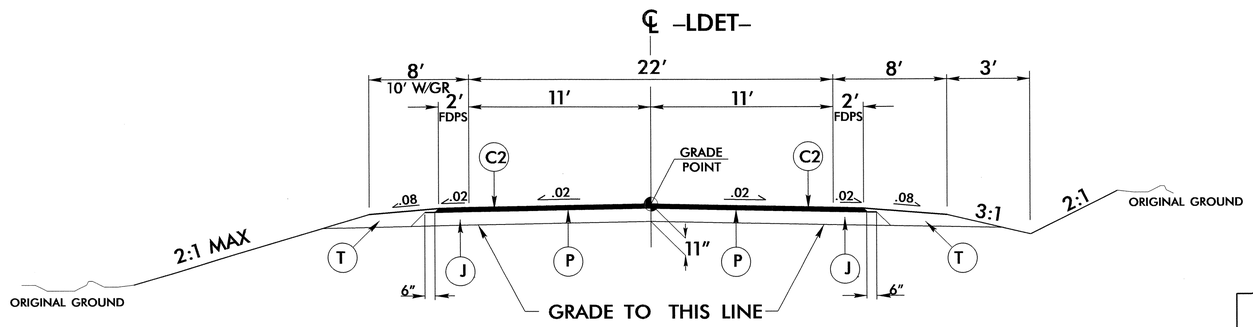
NORTH CAROLINA PROFESSIONAL SEAL 019 ENGINEER JAMES T. HEDWARD
10-4-2014

FINAL PAVEMENT DESIGN	
C1	1.5" S9.5B
C2	3.0" S9.5B
D1	2.5" I19.0B
E1	5.0" B25.0B
E2	VAR. B25.0B
J	8" ABC
P	PRIME COAT
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL



TYPICAL SECTION NO. 3

-L- STA. 18+25.00 TO STA. 19+12.46 (BEGIN BRIDGE)
-L- STA. 20+93.54 (END BRIDGE) TO STA. 22+00.00

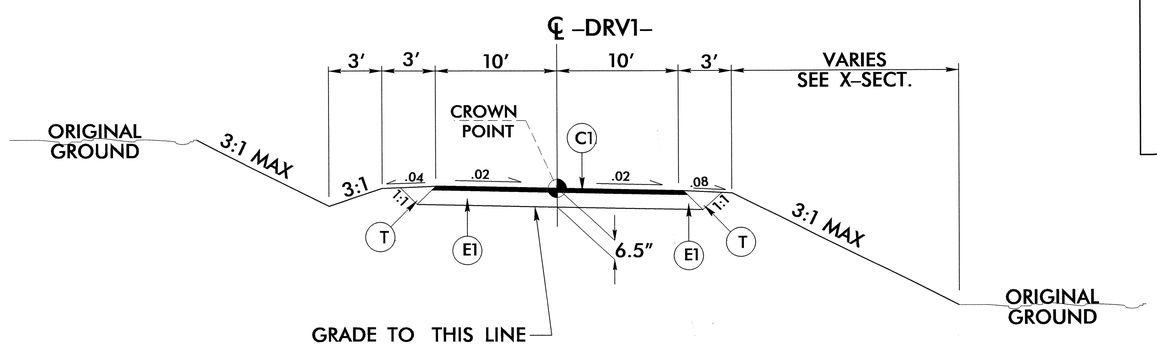


TYPICAL SECTION NO. 4

-LDET- STA. 10+00.00 TO STA. 11+94.82
TRANSITION FROM EXISTING TO TYPICAL SECTION 4

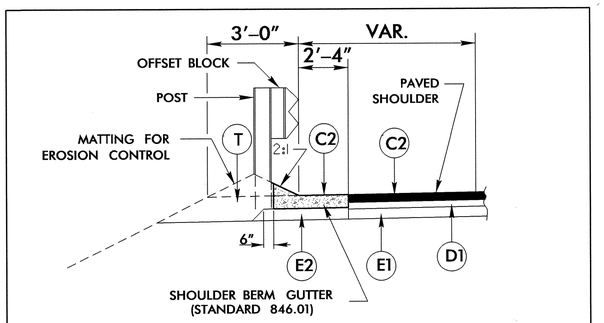
-LDET- STA. 11+94.82 TO STA. 14+98.25 (BEGIN BRIDGE)
-LDET- STA. 16+58.25 (END BRIDGE) TO STA. 18+34.61

NOTE: TRANSITION FROM TYPICAL SECTION 4 TO EXISTING
-LDET- STA. 18+34.61 TO STA. 20+30.93



TYPICAL SECTION NO. 5

-DRV1- STA. 10+41.98 TO STA. 10+73.00



DETAIL SHOWING SHOULDER BERM GUTTER

USE WITH TYPICAL SECTION NO. 3
-L- STA. 18+73.00 TO 18+88.29 LT & RT
-L- STA. 21+17.71 TO 21+33.00 LT & RT

6/2/99

10-APR-2014 14:33
R:\Roadway\Proj\b4639_rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET
B-4639	2-B

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 7/22/13

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

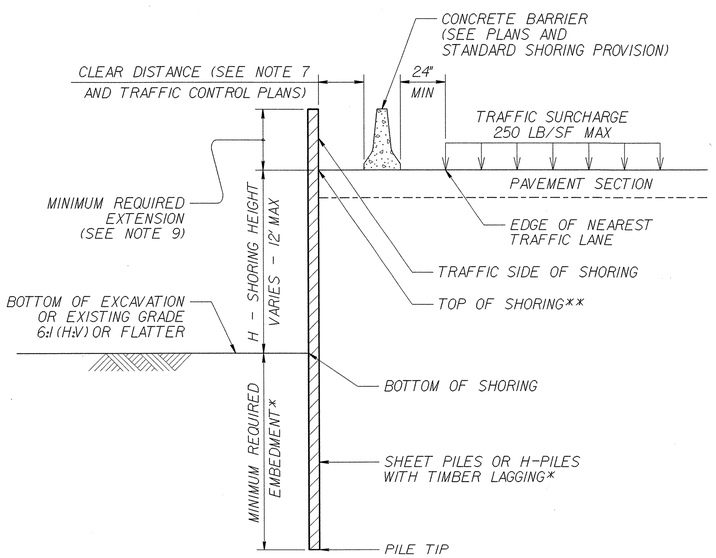
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION 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 "--".**

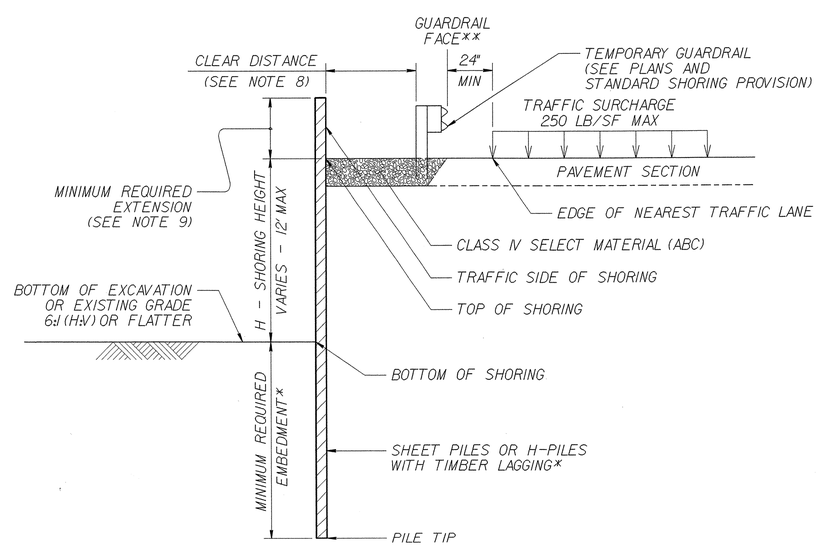
NOTES:

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



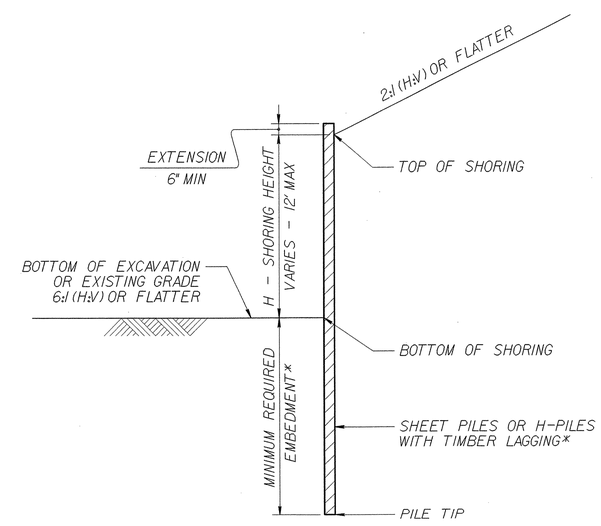
CONCRETE BARRIER

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



TEMPORARY GUARDRAIL

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



STANDARD TEMPORARY SHORING

(SLOPE CASE)

***SEE TABLE ABOVE.**

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

***SEE TABLE ABOVE.**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

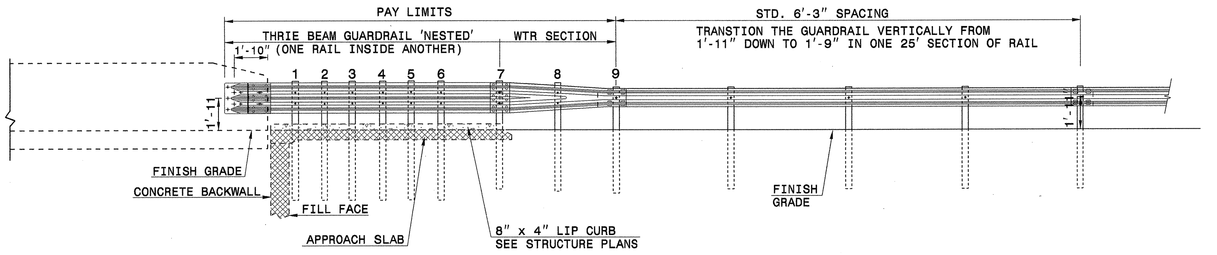
DATE: 11-19-13

$$$$$CYCTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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

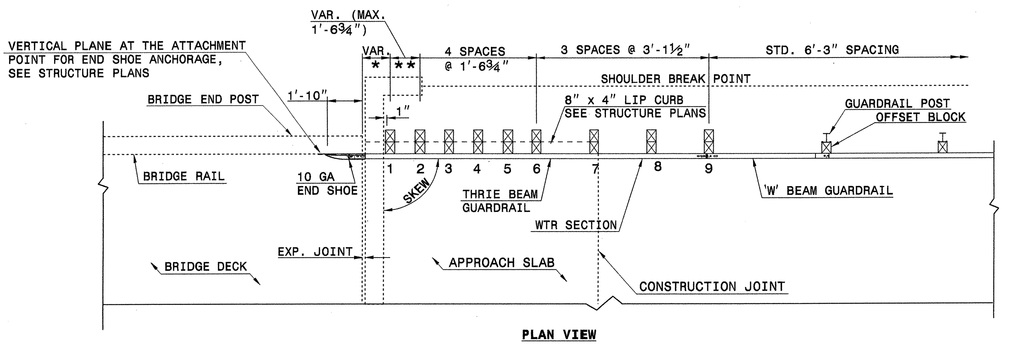
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

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



PLAN VIEW

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

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

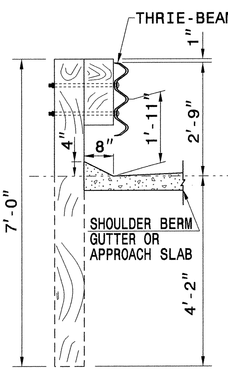
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

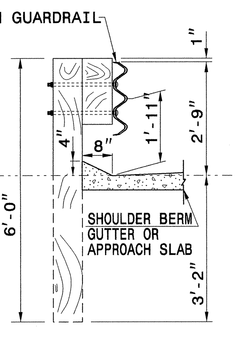
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

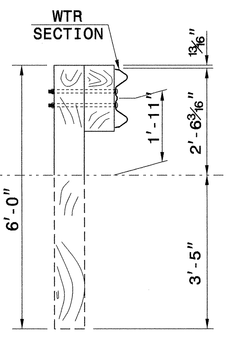
SHEET 3 OF 7
862d03



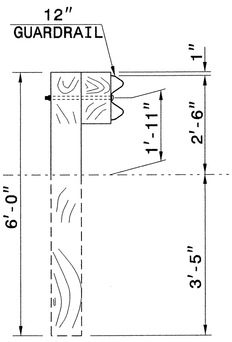
SECTION OF THRIE BEAM POSTS 1 THRU 6



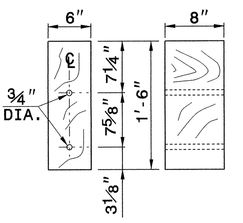
SECTION OF THRIE BEAM POST 7



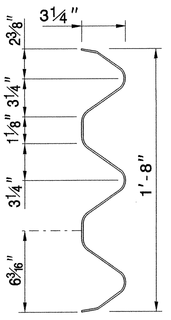
SECTION OF WTR BEAM POST 8



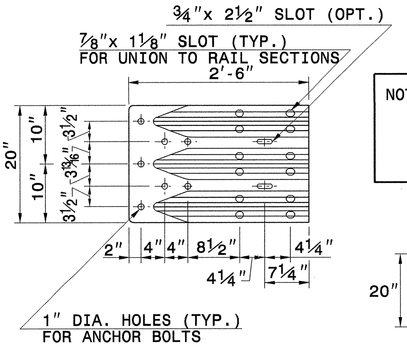
SECTION OF 'W' BEAM POST 9



THRIE BEAM OFFSET BLOCK

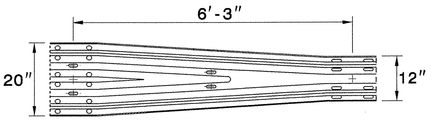


THRIE-BEAM SECTION

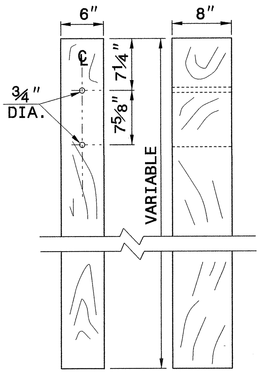


END SHOE

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



WTR SECTION
ELEVATION VIEW



THRIE BEAM LINE POST

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

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

SHEET 3 OF 7
862d03

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

SEE TITLE BLOCK

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
4/20/14

PROJECT REFERENCE NO.	SHEET NO.
B-4639	2-C

COMPUTED BY: TRH DATE: 3/4/2014

CHECKED BY: IY DATE: 3/6/2014

RD248621

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
B-4639	3-A

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	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
18+78.00	LT	0401		164.67															
		0401	0402		158.00	157.80													
18+78.00	RT	0402		164.67															
		0402	0403		157.60	157.00			24										
21+28.00	RT	0404		164.75															
		0404	0405		161.00	160.00													
21+28.00	LT	0405		164.75															
		0405	0406		160.00	159.00			28										
TOTAL									52										
SHEET TOTALS								52											

STATION	FROM	TO	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
18+78.00	0401																									
	0401	0402										28														
18+78.00	0402																									
	0402	0403																								
21+28.00	0404																									
	0404	0405										28														
21+28.00	0405																									
	0405	0406																								
TOTAL												56														
SHEET TOTALS												56														

STATION	FROM	TO	** " 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. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	T.B.D.I. STD. 840.35	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRAINAGE PIPE ELBOWS NO. & SIZE	SIDE DRAIN PIPE 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
18+78.00	0401									1	1.67								1	1						
	0401	0402																								
18+78.00	0402									1	2.07								1	1						
	0402	0403																								OUTLET
21+28.00	0404									1									1	1						
	0404	0405																								
21+28.00	0405									1									1	1						
	0405	0406																								OUTLET
TOTAL										4	3.74								4	4						
SHEET TOTALS										4	3.74								4	4						

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

*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')

COMPUTED BY: KDA	DATE: 7/10/2014
CHECKED BY: GEB	DATE: 7/10/2014

PROJECT NO.	SHEET NO.
B-4639	3-B

RD266185

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

CUBIC YARDS

Station to Station	Uncl. Exc. C.Y.	Embank. +% C.Y.	Borrow C.Y.	Waste C.Y.
SUMMARY NO. 1				
PHASE 1 (DETOUR)				
-L- 14+75.00 TO 19+25.72	67	4,588	4,521	
-L- 20+85.72 TO 25+50.00	62	1,860	1,798	
SUMMARY NO. 1 TOTALS	129	6,448	6,319	
SUMMARY NO. 2				
PHASE II				
-L- 16+00.00 TO 19+12.46	61	60		1
-L- 20+93.54 TO 23+00.00	107	6		101
SUMMARY NO. 2 TOTALS	168	66		102
SUMMARY NO. 3				
DETOUR REMOVAL				
-L- 14+75.00 TO 19+25.72	3,587			3,587
-L- 20+85.72 TO 24+50.00	1,753			1,753
SUMMARY NO. 3 TOTALS	5,340			5,340
PROJECT SUB TOTAL	5,637	6,514	6,319	5,442
Select Granular Material in Lieu of Borrow		-4,000	-4,000	
Etimated Shoulder Material		560	560	
Loss due to Clearing&Grubbing	-75		75	
Est 5% To Replace Topsoil at Borrow Pit			348	
GRAND TOTALS	5,562		3,302	5,442
SAY	6,000		3,350	

ESTIMATED UNDERCUT = 200 CY

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

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

SUMMARY OF ASPHALT PAVEMENT REMOVAL

LINE	Station to Station	LOC LT/RT/CL	Asphalt Removal SQ. YDS.
-L-	18+25.00 TO 19+20.70	CL	262.38
-L-	20+84.38 TO 22+00.00	CL	318.66
-LDET-	10+39.09 TO 14+98.25	CL	1041.05
-LDET-	16+58.25 TO 20+99.19	CL	926.01
-DRV1-	10+11.72 TO 10+73.00	CL	215.96
		PROJECT TOTAL	2,764.06
		SAY	2,770.00

GUARDRAIL SUMMARY

"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

LINE	BEG. STA.	END STA.	LOC.	LENGTH (FT.) STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPR. END	TRAIL. END	"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH APPR. END	TRAIL. END	W (FT.) APPR. END	TRAIL. END	ANCHORS (EA.) GRAU 350	TYPE B-77	TYPE III					IMP. ATTEN. TYPE 350 EA	G	NG	REMOVE EXISTING GUARDRAIL	REMARKS
-L-	17+74.96	19+12.46	LT	137.50				19+12.46	8'	11'		118.75'		2.38'	1	1										
-L-	16+12.46	19+12.46	RT	300.00			16+12.46		8'	11'	281.25'		5'		1	1										
-L-	20+93.54	21+93.54	LT	100.00			20+93.54		8'	11'	81.25'		1.63'		1	1										GUARDRAIL SHORTENED DUE TO -DRV1-
-L-	20+93.54	22+31.04	RT	137.50				20+93.54	8'	11'		118.75'		2.38'	1	1										
-L-	16+02.96	19+21.50	LT																						318.61'	
-L-	16+02.63	19+21.55	RT																						318.96'	
-L-	20+83.03	21+77.25	LT																						94.21'	
-L-	20+83.05	22+39.58	RT																						156.60'	
	SUB TOTALS			675.00											4	4									888.38'	SUB TOTALS
	LESS DEDUCTIONS FOR ANCHORS																									
	4 GRAU 350 @ 50'			-200.00																						
	4 TYPE B-77 @ 18.75'			-75.00																						
	TOTAL			400.00											4	4									888.38'	TOTAL
																									890.00	SAY

TEMPORARY GUARDRAIL SUMMARY

-LDET-	10+98.25	14+98.25	LT	400				11+98.25	8'	10'		300.00'		6'	1		1									TEMPORARY GUARDRAIL
-LDET-	13+10.75	14+98.25	RT	187.50			14+98.25		8'	10'	168.75'		3.38'				1					1		X		TEMPORARY GUARDRAIL
-LDET-	16+58.25	17+58.25	LT	100.00			16+58.25		8'	10'	81.25'		1.63'		1		1									TEMPORARY GUARDRAIL
-LDET-	16+58.25	17+45.75	RT	87.50				16+58.25	8'	10'		68.75'		1.38'	1		1									TEMPORARY GUARDRAIL
	SUB TOTALS			775											3		4					1				SUB TOTALS
	LESS DEDUCTIONS FOR ANCHORS																									
	3 GRAU 350 @ 50'			-150																						
	4 TYPE III @ 18.75'			-75																						
	TOTAL			550											3		4					1				TOTAL
																										SAY
	ADDITIONAL GUARDRAIL POST = 10 EA																									

COMPUTED BY:	TRH	DATE:	3/31/2014
CHECKED BY:	IY	DATE:	4/3/2014

PROJECT NO.	SHEET NO.
B-4639	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-LDET-	11+35.00	19+60.00					1,900		
CONTINGENCY							100		
ROADSIDE ENVIRONMENTAL							100		
			TOTAL CY/TONS/SY:				2,100		

*ASU = Aggregate Subgrade

*AST = Aggregate Stabilization

PROJECT REFERENCE NO.	SHEET NO.
B-4639	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
4-21-14	4-21-14

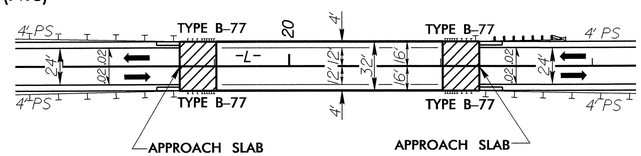
SEE SHEET 4-A FOR TEMPORARY ON-SITE DETOUR

SEE SHEET 5 FOR -L- PROFILE

TEMPORARY SHORING (SEE TMP PLANS)

SEE SHEETS S-1 THRU S-23 FOR STRUCTURE PLANS

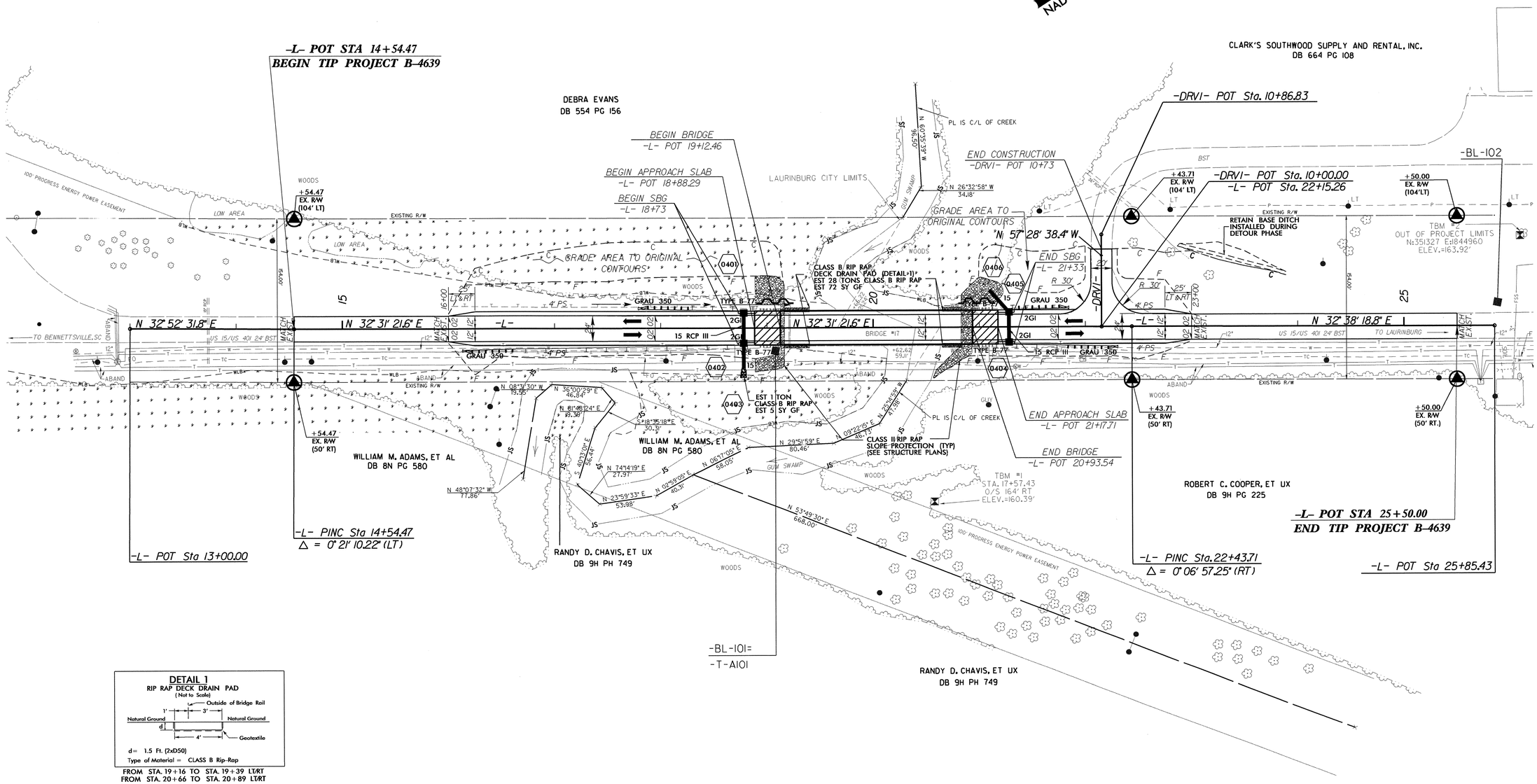
(NTS)



SKETCH SHOWING BRIDGE / ROADWAY RELATIONSHIP

'SBG': DENOTES SHOULDER BERM GUTTER

NAD 83/CORS 96



DETAIL 1
RIP RAP DECK DRAIN PAD
(Not to Scale)

d= 1.5 Ft. (2xD50)

Type of Material = CLASS B Rip-Rap

FROM STA. 19+16 TO STA. 19+39 LT/RT
FROM STA. 20+66 TO STA. 20+89 LT/RT

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4639	4-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19903 ENGINEER GREGORY E. BREE 4-21-14

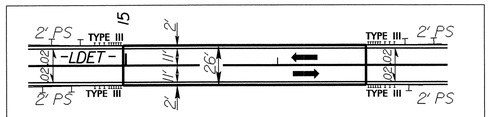
NORTH CAROLINA PROFESSIONAL SEAL 18322 ENGINEER JOHN F. OGLES 4/21/14

SEE SHEET 4 FOR -L- PLAN

USE THIS SHEET FOR TEMPORARY DETOUR CONSTRUCTION ONLY

SEE SHEET 5 FOR -LDET- PROFILE

TEMPORARY SHORING (SEE TMP PLANS)



SKETCH SHOWING TEMP. BRIDGE /ROADWAY RELATIONSHIP

-LDET-

PI Sta 11+02.06	PI Sta 13+02.55	PI Sta 18+12.29	PI Sta 20+10.87
Δ = 13° 41' 35.5" (LT)	Δ = 13° 20' 25.3" (RT)	Δ = 13° 26' 40.0" (RT)	Δ = 13° 19' 42.8" (LT)
D = 6° 44' 26.4"	D = 6° 44' 26.4"	D = 6° 44' 26.4"	D = 6° 44' 26.4"
L = 203.14'	L = 197.91'	L = 199.45'	L = 197.73'
T = 102.06'	T = 99.40'	T = 100.19'	T = 99.31'
R = 850.00'	R = 850.00'	R = 850.00'	R = 850.00'
e = SEE PLANS	e = SEE PLANS	e = SEE PLANS	e = SEE PLANS

NAD 83/CORS 96

-L- POT STA 14+54.47
BEGIN TIP PROJECT B-4639

-LDET- PRC 12+03.14

-LDET- PT 14+01.05

-LDET- PC 17+12.10

CLARK'S SOUTHWOOD SUPPLY AND RENTAL, INC.
DB 664 PG 108

DEBRA EVANS
DB 554 PG 156

BEGIN BRIDGE
-LDET- POT 14+98.25+/-

PL IS C/L OF CREEK

-LDET- PRC 19+11.55

-BL-102

-LDET- PC 10+00.00 =
-L- POT 14+31.04

100' PROGRESS ENERGY POWER EASEMENT

LOW AREA

WOODS

+54.47
EX. R/W
(104' LT)

EXISTING R/W

SPECIAL CUT DITCH
SEE DETAIL 1

LAURINBURG CITY LIMITS

GUM SWAMP

N 26°32'58" W
34.18'

N 69°35'39" W
56.30'

CLASS II RIP RAP
SLOPE PROTECTION (TYP)
(SEE STRUCTURE PLANS)

TYPE III

GRAU 350

-LDET-

N 32° 31' 21.6" E

+43.71
EX. R/W
(104' LT)

3.0' LATERAL BASE DITCH
SEE DETAIL 2

+50.00
EX. R/W
(104'LT)

TBM #2
OUT OF PROJECT LIMITS
N:351327 E:1844960
ELEV.=163.92'

IAU-350
ATTENUATOR

REMOVE

-L-

N 32° 52' 31.8" E

N 32° 31' 21.6" E

N 32° 38' 18.8" E

N 32° 38' 18.8" E

TO BENNETTSVILLE, SC

US 15/US 401 24' BST

BRIDGE #17

TO LAURINBURG

ABAND

EXISTING R/W

END BRIDGE
-LDET- POT 16+58.25+/-

PL IS C/L OF CREEK

+54.47
EX. R/W
(50' RT)

WILLIAM M. ADAMS, ET AL
DB 8N PG 580

N 36°00'29" E
46.84'

N 61°48'24" E
19.30'

S 18°35'18" E
30.31'

WILLIAM M. ADAMS, ET AL
DB 8N PG 580

N 08°31'30" W
19.55'

N 48°07'32" W
17.86'

N 74°14'19" E
27.97'

N 23°59'33" E
53.98'

N 02°59'06" E
40.31'

S 40°23'01" E
56.47'

N 29°51'59" E
80.46'

N 09°22'16" E
46.73'

N 26°34'55" W
41.38'

N 05°17'09" E
58.05'

N 53°49'30" E
668.00'

+43.71
EX. R/W
(50' RT)

-LDET- PT 21+09.29 L.B. =
-L- POT 25+33.11 L.A.

+50.00
EX. R/W
(50' RT.)

ROBERT C. COOPER, ET UX
DB 9H PG 225

TBM #1
STA. 17+57.43
O/S 164' RT
ELEV.=160.39'

-L- POT STA 25+50.00
END TIP PROJECT B-4639

-L- POT Sta 13+00.00

-L- PINC Sta 14+54.47

RANDY D. CHAVIS, ET UX
DB 9H PH 749

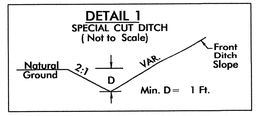
-L- PINC Sta.22+43.71

-L- POT Sta 25+85.43

-BL-101=
-T-A101

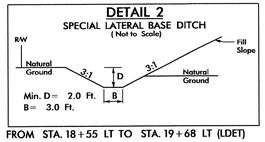
RANDY D. CHAVIS, ET UX
DB 9H PH 749

DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 13+05 RT TO STA. 14+98 RT (LDET)

DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 18+55 LT TO STA. 19+68 LT (LDET)

DETOUR DESIGN SPEED= 45 MPH

NOTE: USE THIS SHEET FOR TEMPORARY TRAFFIC MAINTENANCE DURING CONSTRUCTION.

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4639	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12908 ENGINEER GREGORY E. BRELL 4-21-14

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032422 ENGINEER JOHN F. OGLESBY 4/21/14

5/28/99

-L-

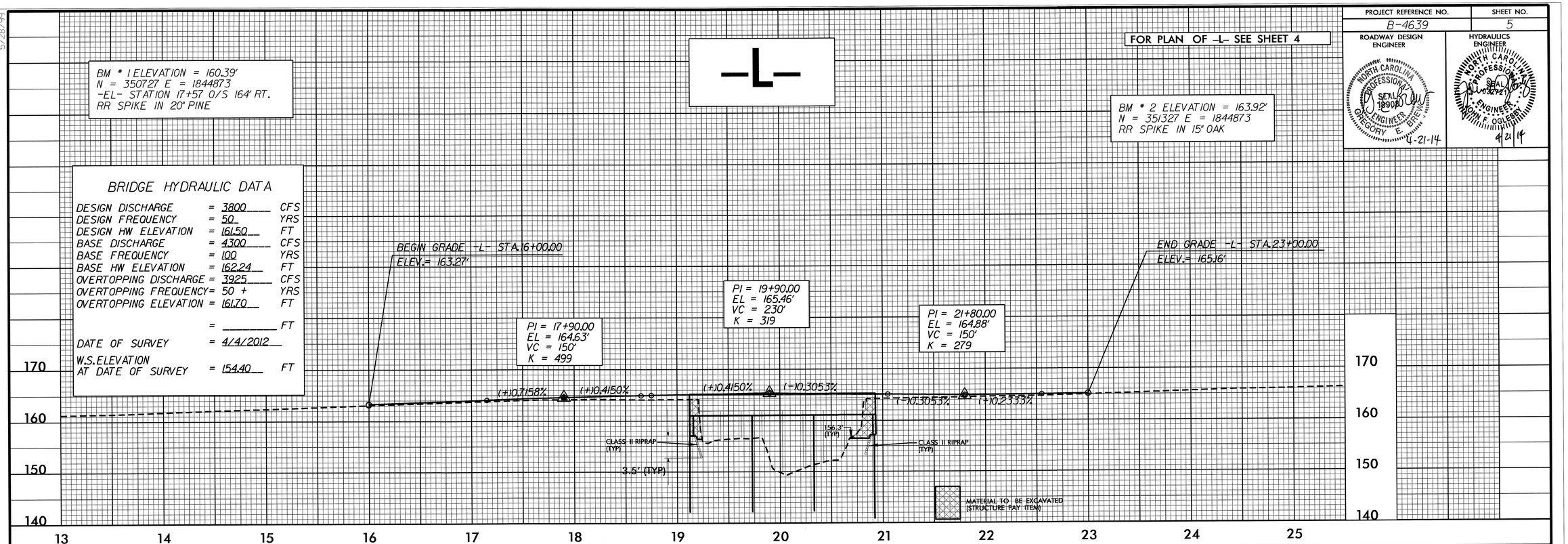
FOR PLAN OF -L- SEE SHEET 4

BM * 1 ELEVATION = 160.39'
N = 350727 E = 1844873
-EL- STATION 17+57 O/S 164' RT.
RR SPIKE IN 20" PINE

BM * 2 ELEVATION = 163.92'
N = 351327 E = 1844873
RR SPIKE IN 15" OAK

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	3800	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	161.50	FT
BASE DISCHARGE	=	4300	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	162.24	FT
OVERTOPPING DISCHARGE	=	3925	CFS
OVERTOPPING FREQUENCY	=	50 +	YRS
OVERTOPPING ELEVATION	=	161.70	FT
	=		FT
DATE OF SURVEY	=	4/4/2012	
W.S. ELEVATION AT DATE OF SURVEY	=	154.40	FT



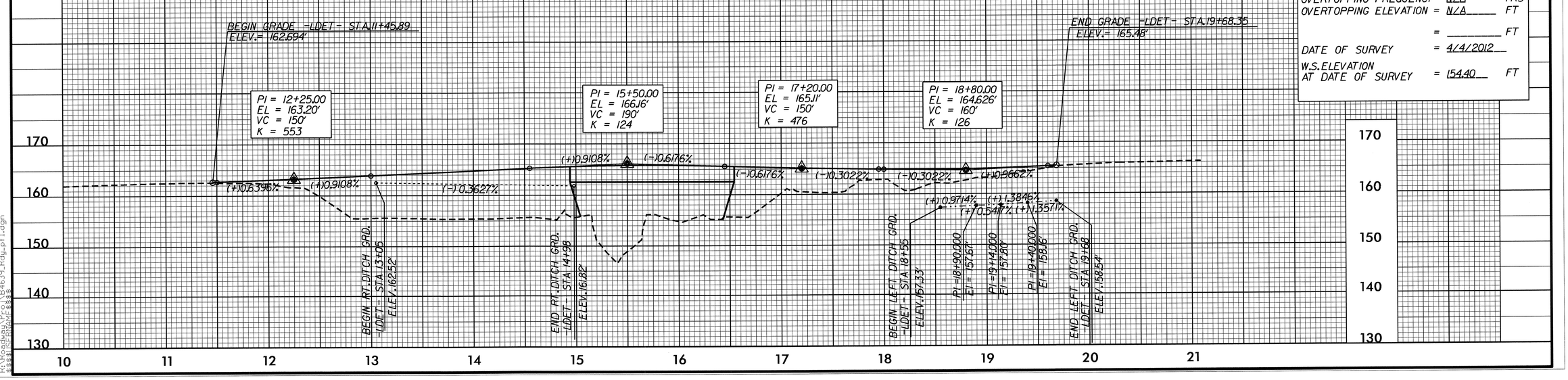
-LDET-

FOR PLAN OF -LDET- SEE SHEET 4-A

DITCH LEGEND	
LEFT DITCH	-·-·-·-
RIGHT DITCH	----------

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1800	CFS
DESIGN FREQUENCY	=	5	YRS
DESIGN HW ELEVATION	=	159.60	FT
BASE DISCHARGE	=	N/A	CFS
BASE FREQUENCY	=	N/A	YRS
BASE HW ELEVATION	=	N/A	FT
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING FREQUENCY	=	N/A	YRS
OVERTOPPING ELEVATION	=	N/A	FT
	=		FT
DATE OF SURVEY	=	4/4/2012	
W.S. ELEVATION AT DATE OF SURVEY	=	154.40	FT



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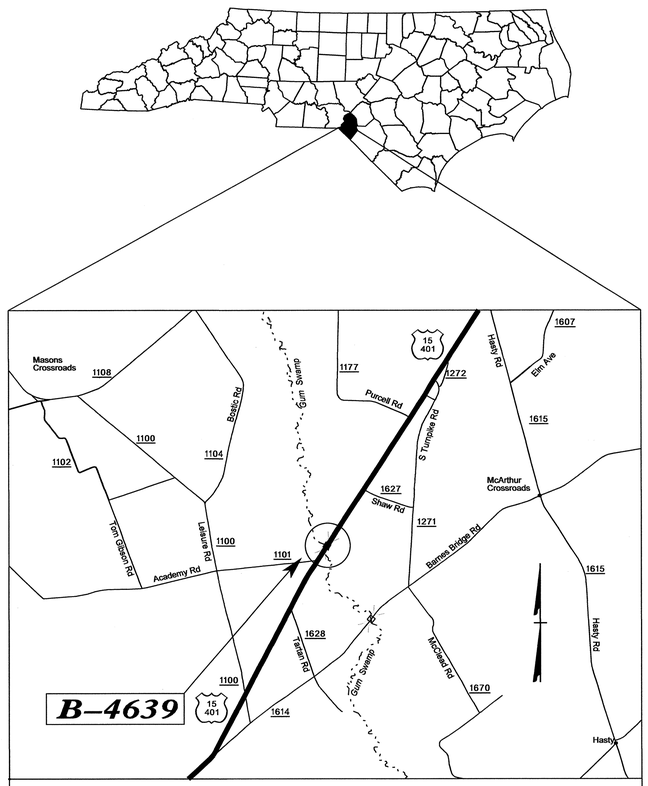
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

SCOTLAND COUNTY



VICINITY MAP

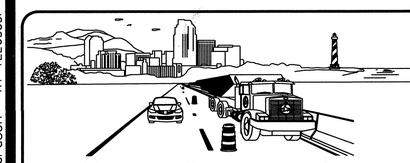
INDEX OF SHEETS

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

SHEET NO.
TMP-1

B-4639

TIP PROJECT:



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

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

S. BOURNE, PE — *STATE TRAFFIC MANAGEMENT ENGINEER*
J. ISHAK, PE — *TRAFFIC CONTROL PROJECT ENGINEER*
----- — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
D. RICHARDSON — *TRAFFIC CONTROL DESIGN ENGINEER*

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

APPROVED: _____
DATE: 2/26/2014

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

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derichardson AT TE265831

PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-1A

TRAFFIC MANAGEMENT STRATEGIES

- DURING THE REPLACEMENT OF THE EXISTING BRIDGE NO 17 OVER GUM SWAMP, US 15-401 WILL BE MAINTAINED TO ALL TRAFFIC USING AN ON SITE DETOUR.
- ACCESS TO LOCAL RESIDENCES AND BUSINESSES MUST BE PROVIDED AT ALL TIMES WITHIN THE PROJECT LIMITS.

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW

EXIST. PVMT.

NORTH ARROW

PROPOSED PVMT.

TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

CONE

DRUM

TEMPORARY SHORING

TEMPORARY SIGNING

PORTABLE SIGN

STATIONARY SIGN

TEMPORARY PAVEMENT MARKING

4" PAINT

PA WHITE EDGELINE
PI YELLOW DOUBLE CENTERLINE

4" COLD APPLIED (TYPE IV)

CA WHITE EDGELINE
CI YELLOW DOUBLE CENTERLINE

TEMPORARY PAVEMENT MARKERS

MH YELLOW/YELLOW

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
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

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

2-26-2014

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

PHASING,
ROADWAY STANDARD
DRAWINGS & LEGEND

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dsrichardson AT T26583

PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-1B

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
US 15/401	MONDAY THRU FRIDAY 7AM TO 9AM & 4PM TO 6PM

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) 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.

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

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

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

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

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

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

I) 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.

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

TRAFFIC CONTROL DEVICES

K) 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.

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

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
US 15/401	PAINT (2 APPLICATIONS)	TEMP RAISED
CONCRETE BRIDGES	COLD APPLIED (TYPE IV)	TEMP RAISED

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

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

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

9/19/2011

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

TRANSPORTATION OPERATIONS PLAN

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derichardson AT TE26583

PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-1C

PHASING

PHASE I

STEP 1
- INSTALL WORK ZONE ADVANCE WARNING SIGNS. SEE RSD 1101.01.

STEP 2
- AWAY FROM TRAFFIC, BEGIN PROPOSED BRIDGE CONSTRUCTION AND GRADING.

STEP 3
- USING RSD 1101.02, SHEET 1 OF 15 AND/OR WORKING AWAY FROM TRAFFIC, CONSTRUCT PROPOSED DETOUR BRIDGE AND APPROACHES INCLUDING REMOVAL OF EXISTING GUARDRAIL (-L- STA 16+00+/- TO 17+23+/-) AND TIE IN TO TEMPORARY GUARDRAIL. SEE TMP-3 AND TMP-4.

STEP 4
- PLACE TEMPORARY PHASE II PAVEMENT MARKINGS/MARKERS AS MUCH AS POSSIBLE WITHOUT INTERFERING WITH THE EXISTING TRAFFIC PATTERN.

PHASE II

NOTE - INSURE ALL DETOUR BRIDGE AND GUARDRAIL DELINEATIONS ARE IN PLACE PRIOR TO SHIFT

STEP 1
- WORKING IN A CONTINUOUS MANNER TO COMPLETE IN A SINGLE WORK PERIOD, SHIFT US 15-401 TRAFFIC IN THE FOLLOWING SEQUENCE:

A) USING FLAGGERS, PLACE ALL TRAFFIC IN A 1L/2W PATTERN IN THE EXISTING NB LANE.

B) WITH ALL TRAFFIC IN THE EXISTING NB LANE, TIE IN THE PROPOSED SB LANE OF THE DETOUR AND INSTALL A DOUBLE YELLOW CENTERLINE.

C) HAVE FLAGGERS DIRECT TRAFFIC TO NEWLY CONSTRUCTED DETOUR IN A 1L/2W PATTERN IN THE PROPOSED SB LANE.

D) WITH ALL TRAFFIC IN SB LANE, TIE IN PROPOSED NB LANE OF THE DETOUR AND TIE IN THE DOUBLE YELLOW CENTERLINE.

E) ENSURE ALL TRAFFIC CONTROL DEVICES ON US 15-401 ARE CORRECT AND OPEN LANES TO 2L/2W TRAFFIC PATTERN.

STEP 2
- BEHIND GUARDRAIL, INSTALL TEMPORARY SHORING IN THE FOLLOWING LOCATIONS:

-L- STA 18+90+/- TO 19+25+/- (25 FT LT) (SEE TMP-5)
-L- STA 20+80+/- TO 21+15+/- (25 FT LT) (SEE TMP-6)

STEP 3
- AWAY FROM TRAFFIC, CONDUCT EXISTING PAVEMENT REMOVAL, AND EXISTING BRIDGE DEMOLITION AND CONSTRUCT NEW PAVEMENT, NEW BRIDGE AND AS MUCH PROPOSED GUARDRAIL AS POSSIBLE.

PHASE III

NOTE - INSURE ALL PROPOSED BRIDGE AND GUARDRAIL DELINEATION IS IN PLACE PRIOR TO SHIFT

STEP 1
- WORKING IN A CONTINUOUS MANNER TO COMPLETE IN A SINGLE WORK PERIOD, SHIFT US 15-401 TRAFFIC IN THE FOLLOWING SEQUENCE:

A) USING FLAGGERS, PLACE ALL TRAFFIC IN A 1L/2W PATTERN IN THE DETOUR SB LANE.

B) WITH ALL TRAFFIC IN THE DETOUR SB LANE, TIE IN THE PROPOSED NB LANE OF THE -L- AND INSTALL THE DOUBLE YELLOW CENTERLINE.

C) HAVE FLAGGERS DIRECT TRAFFIC TO NEWLY CONSTRUCTED -L- IN A 1L/2W PATTERN IN THE PROPOSED NB LANE.

D) WITH ALL TRAFFIC IN THE PROPOSED NB LANE, TIE IN PROPOSED SB LANE OF -L- AND TIE IN THE DOUBLE YELLOW CENTERLINE.

E) ENSURE ALL TRAFFIC CONTROL DEVICES ON US 15-401 ARE CORRECT AND OPEN LANES TO 2L/2W TRAFFIC PATTERN.

STEP 2
- USING FLAGGERS WHERE NECESSARY, REMOVE ALL DETOUR PAVEMENT, GUARDRAIL AND BRIDGE.
- USING FLAGGERS WHERE NECESSARY, COMPLETE PROPOSED GUARDRAIL INSTALLATION.

STEP 3
- USING FLAGGERS, PLACE FINAL LAYER OF SURFACE COURSE.

STEP 4
- USING FLAGGERS, PLACE FINAL PAVEMENT MARKINGS AND MARKERS.

STEP 5
- REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

2-20-2014

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

PHASING

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gerichardson AT TE26531

PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-2

TEMPORARY SHORING LOC 1

ESTIMATED QUANTITY = 248.5 SF

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

DESIGN TEMPORARY SHORING FROM STATION 18+90 -L-, TO STATION 19+25 -L-, 25 FT LT. FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 156 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 18+90 -L-, TO STATION 19+25 -L-, 25 FT LT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION 18+90 -L-, TO STATION 19+25 -L-, 25 FT LT.

AT THE CONTRACTORS OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM 18+90 -L-, TO STATION 19+25 -L-, 25 FT LT. SEE STANDARD DRAWING 1801.01 FOR STANDARD TEMPORARY SHORING.

TEMPORARY SHORING LOC 2

ESTIMATED QUANTITY = 248.5 SF

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

DESIGN TEMPORARY SHORING FROM STATION 20+80 -L-, TO STATION 21+15 -L-, 25 FT LT. FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 154 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 20+80 -L-, TO STATION 21+15 -L-, 25 FT LT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION 20+80 -L-, TO STATION 21+15 -L-, 25 FT LT.

AT THE CONTRACTORS OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM 20+80 -L-, TO STATION 21+15 -L-, 25 FT LT. SEE STANDARD DRAWING 1801.01 FOR STANDARD TEMPORARY SHORING.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON DECEMBER 2, 2013 AND SEALED BY A PROFESSIONAL ENGINEER, DAVID L. TEAGUE, PE, LICENSE # 027869.

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

4/9/2014

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

TEMPORARY SHORING NOTES

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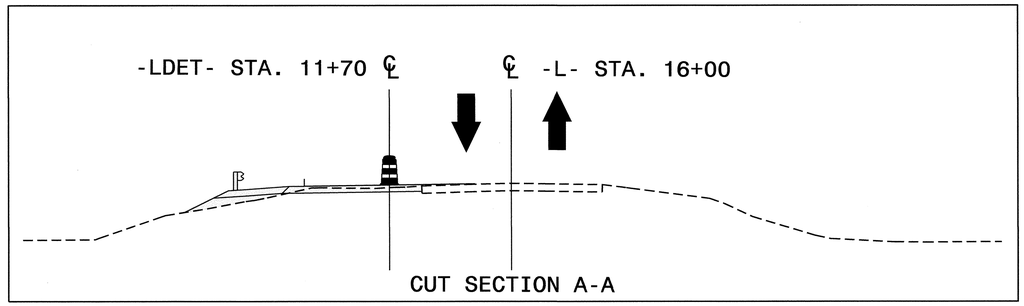
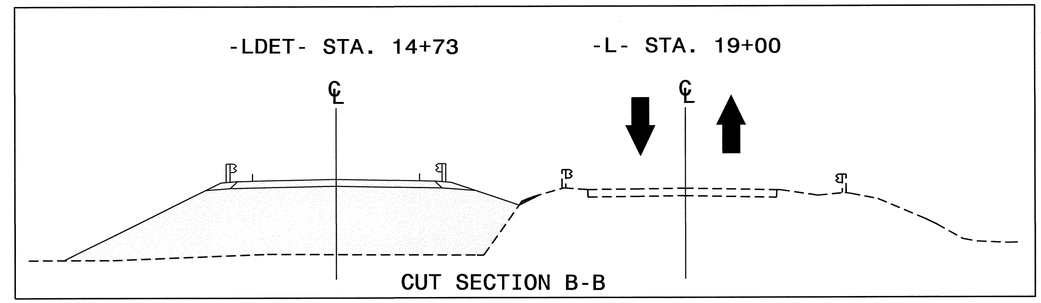
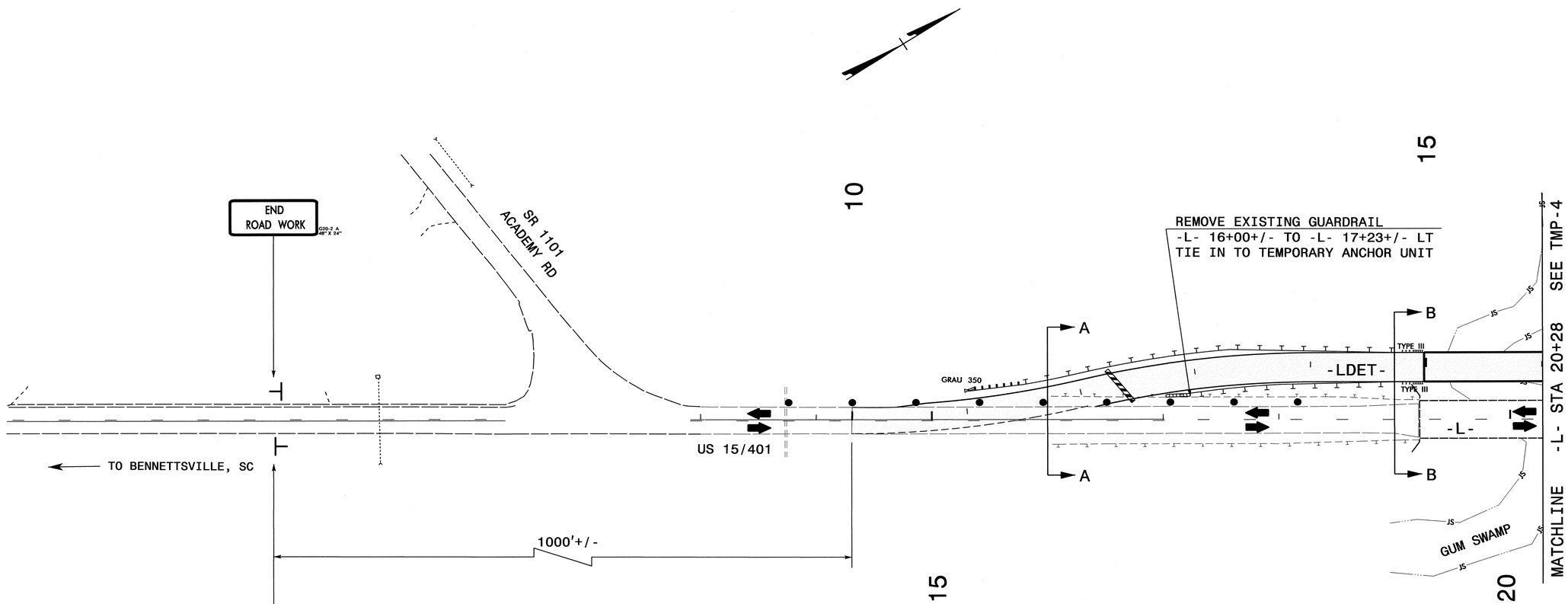
PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-3







APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

2-26-2014

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

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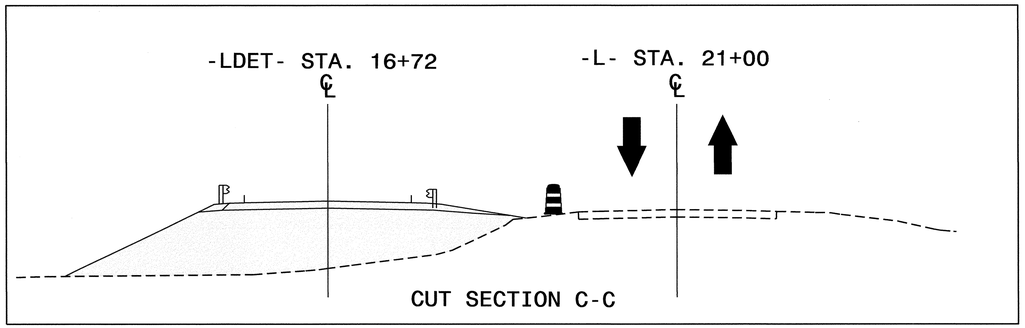
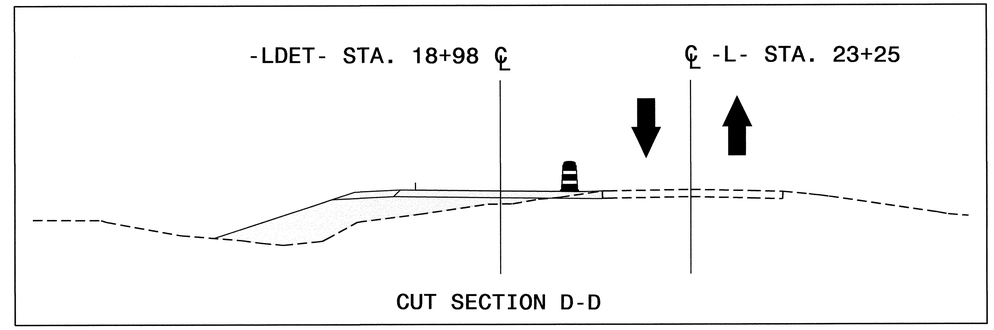
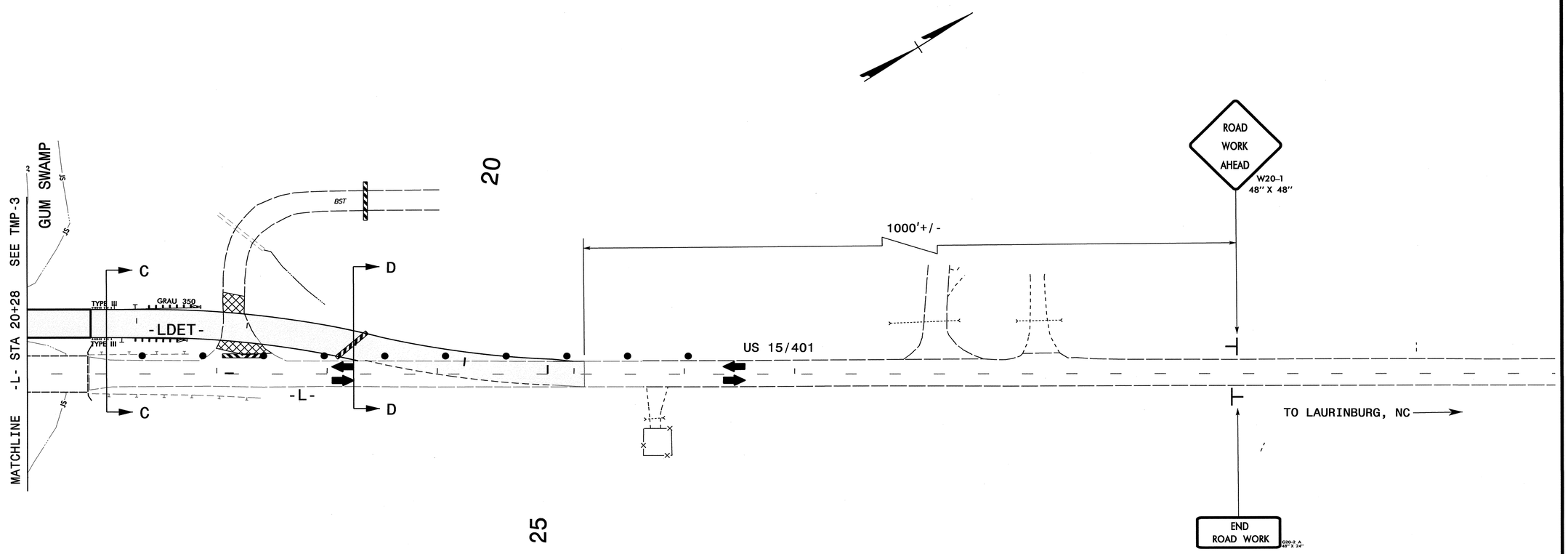
dsrichardson AT TE26583J

PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-4







APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHIA

2-26-2014

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

PHASE I

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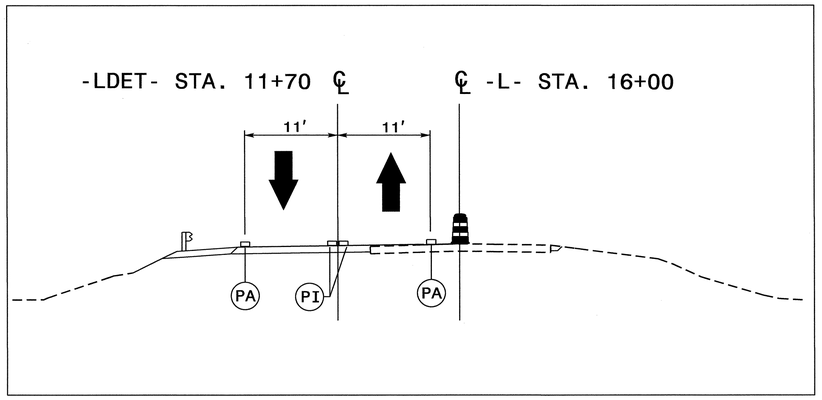
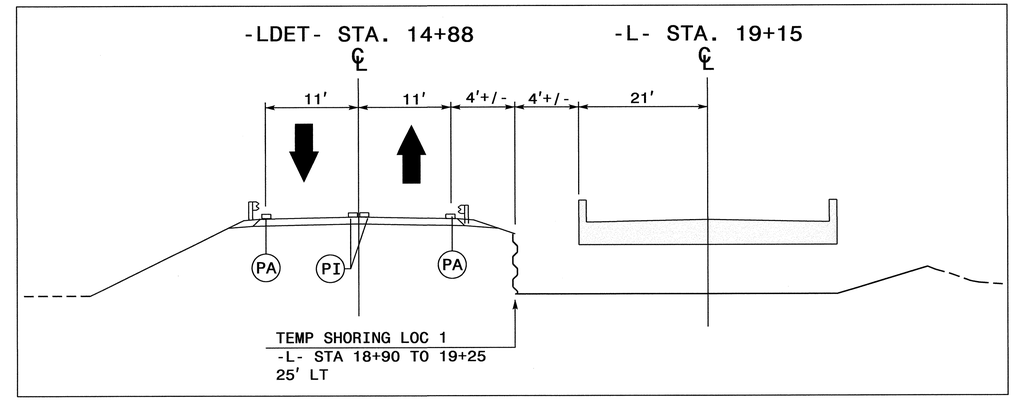
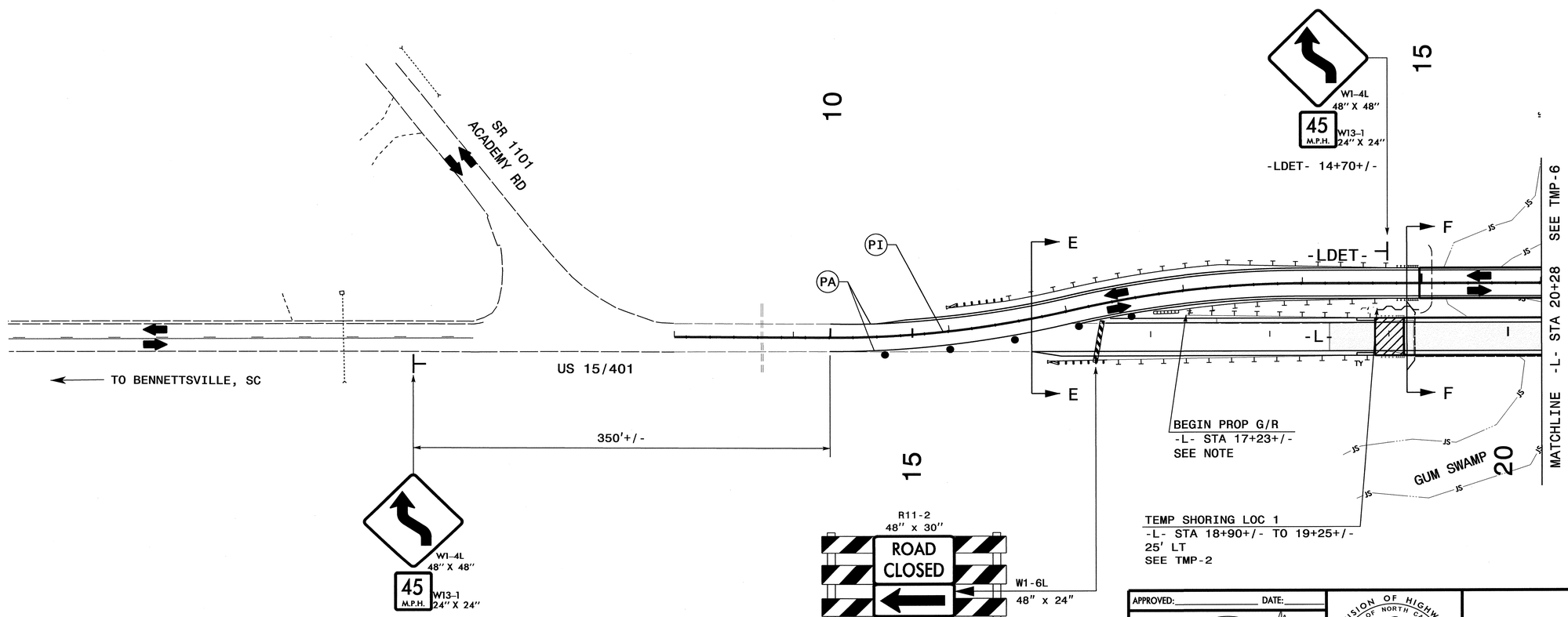
derichardson AT TE26953

PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-5





PROPOSED GUARDRAIL NOTE
INSTALL LT SIDE PROPOSED GUARDRAIL FROM -L- 17+23+/- TO PROPOSED BRIDGE.
COMPLETE INSTALLATION OF PROP G/R IN PHASE 3, ONCE TRAFFIC IS SHIFTED, DETOUR G/R IS REMOVED AND PRIOR TO FINAL GRADING.



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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

8-28-2014

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

PHASE II

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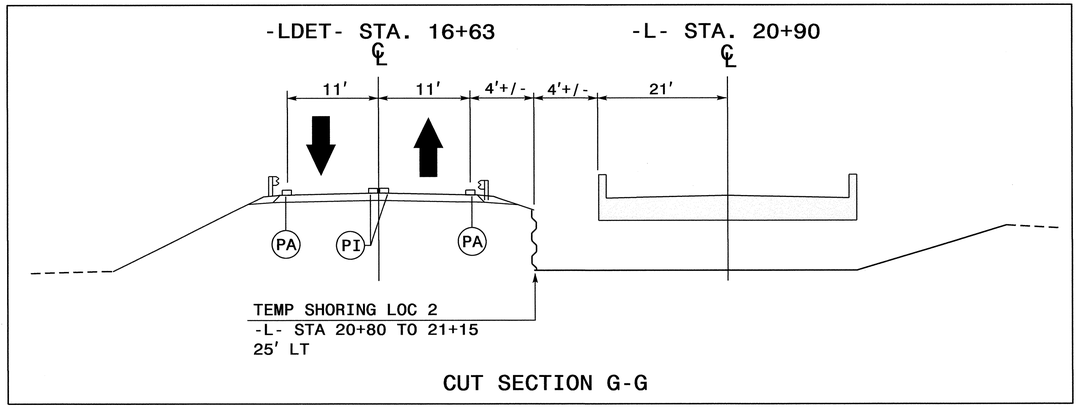
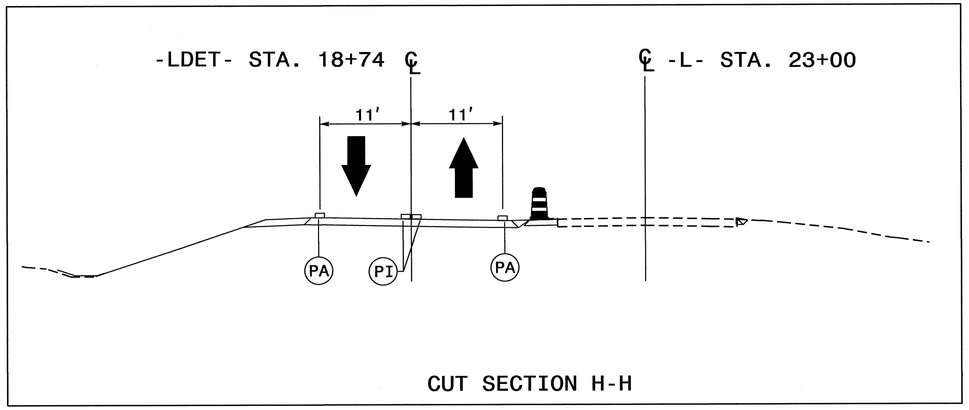
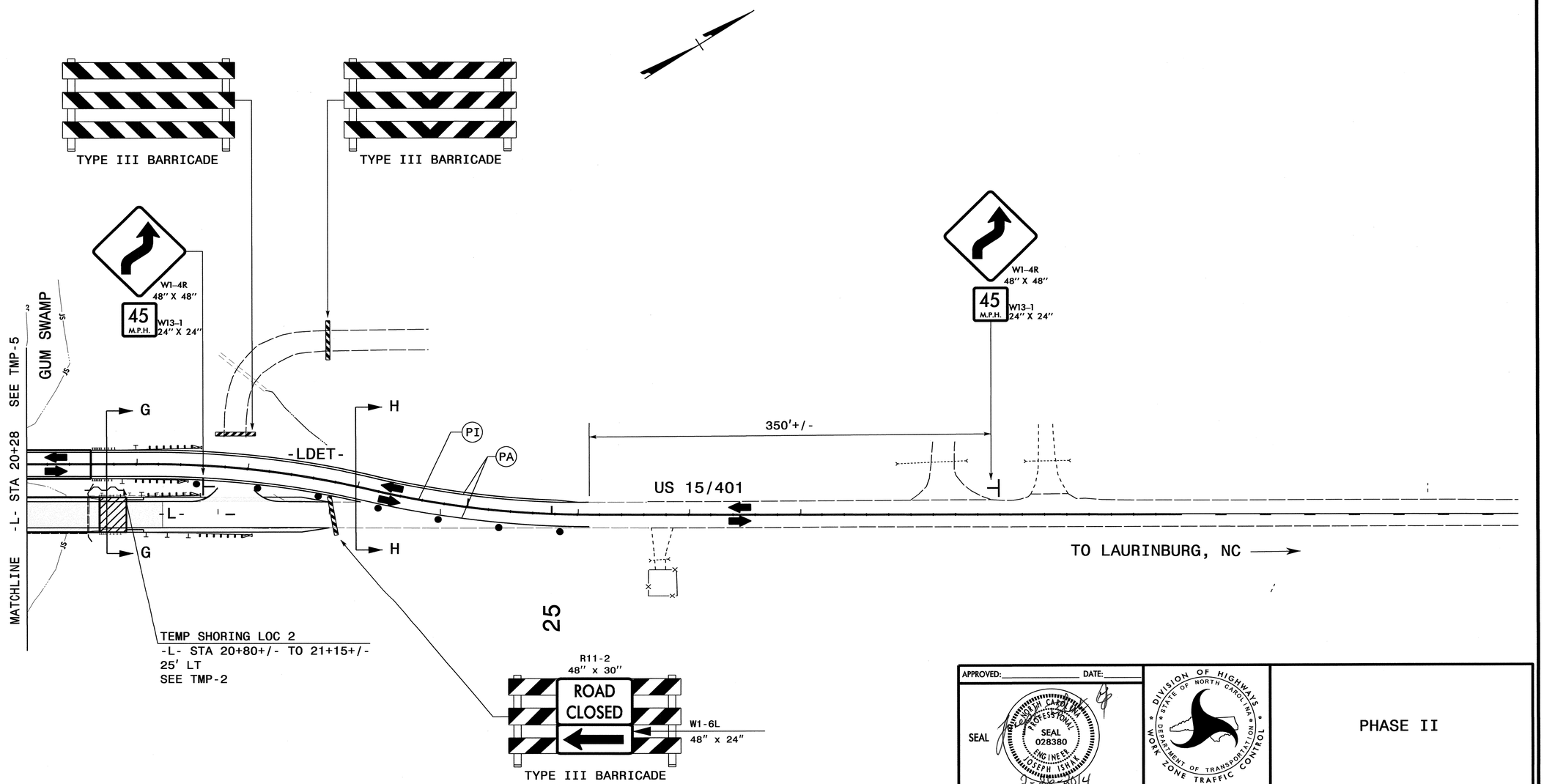
PROJ. REFERENCE NO.	SHEET NO.
B-4639	TMP-6



CUT SECTION G-G



CUT SECTION H-H



APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

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

PHASE II

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T.I.P.: B-4639

CONTRACT: C203408

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
B-4639	PMP-1

APPROVED: RWK
DATE: 4/1/14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

PAVEMENT MARKING PLAN
SCOTLAND COUNTY

LOCATION: BRIDGE NO. 17 OVER GUM SWAMP ON US 15-US 401

PAVEMENT MARKING SCHEDULE

SYMBOL DESCRIPTION

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

CA WHITE EDGELINE
CI YELLOW DOUBLE CENTER

THERMOPLASTIC(4", 90 MILS)

TA WHITE EDGELINE

THERMOPLASTIC(4", 120 MILS)

TI YELLOW DOUBLE CENTER

MARKERS

PERMANENT RAISED

MA YELLOW & YELLOW

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
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

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 15/US 401	THERMOPLASTIC	RAISED
BRIDGE DECK	COLD APPLIED PLASTIC (TYPE II OR TYPE III)	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.

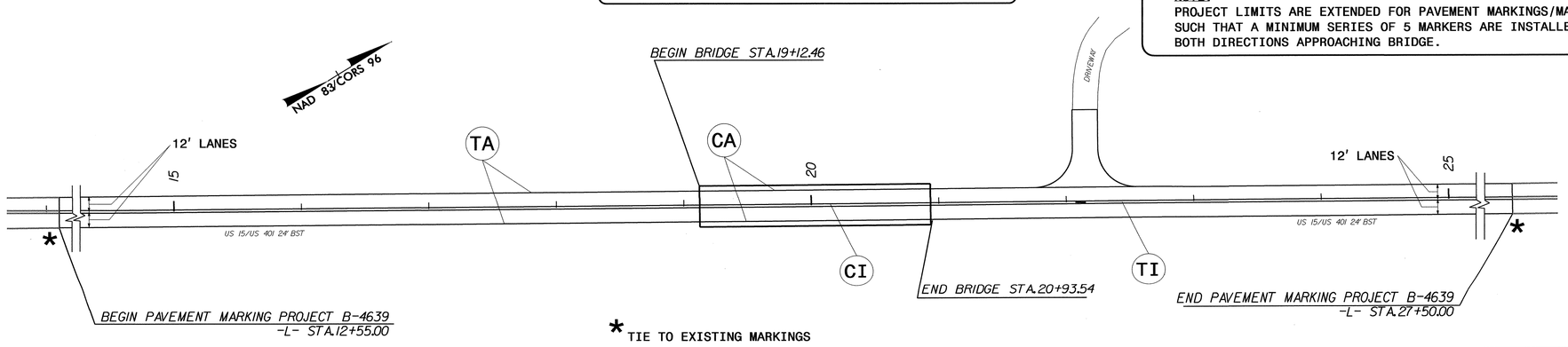
F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING (COLD APPLIED PLASTIC) PAVEMENT MARKING MATERIAL.

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.

H) SEE ROADWAY PLAN FOR MILLING AND MARKING DETAIL TO TIE TO EXISTING.

PAVEMENT MARKING DETAIL

NOTE:
PROJECT LIMITS ARE EXTENDED FOR PAVEMENT MARKINGS/MARKERS SUCH THAT A MINIMUM SERIES OF 5 MARKERS ARE INSTALLED IN BOTH DIRECTIONS APPROACHING BRIDGE.



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

SUSAN B. KUNZ — SIGNING & DELINEATION REGIONAL ENGINEER

STACEY W. JOHNS — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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TIP PROJECT: B-4639

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4639	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

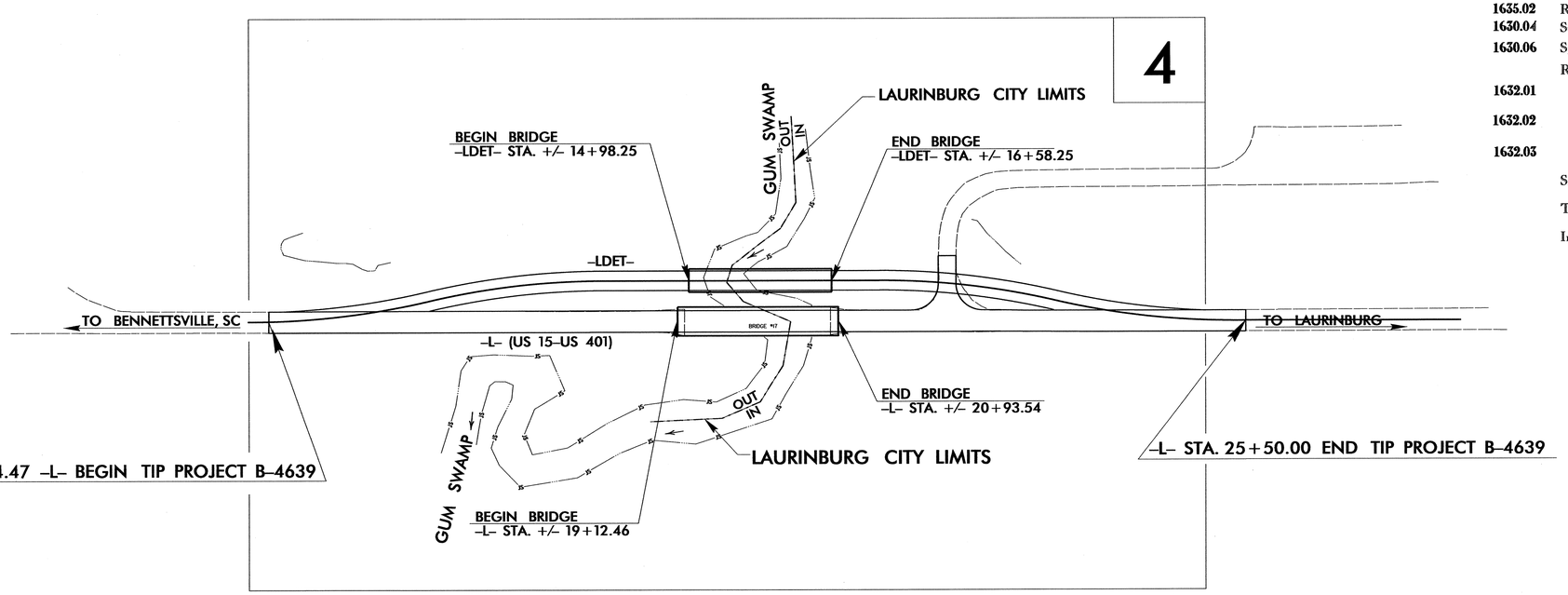
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

SCOTLAND COUNTY

LOCATION: BRIDGE NO. 17 OVER GUM SWAMP ON US 15–US 401

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

NAD 83/96



EROSION AND SEDIMENT CONTROL MEASURES

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

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

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

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

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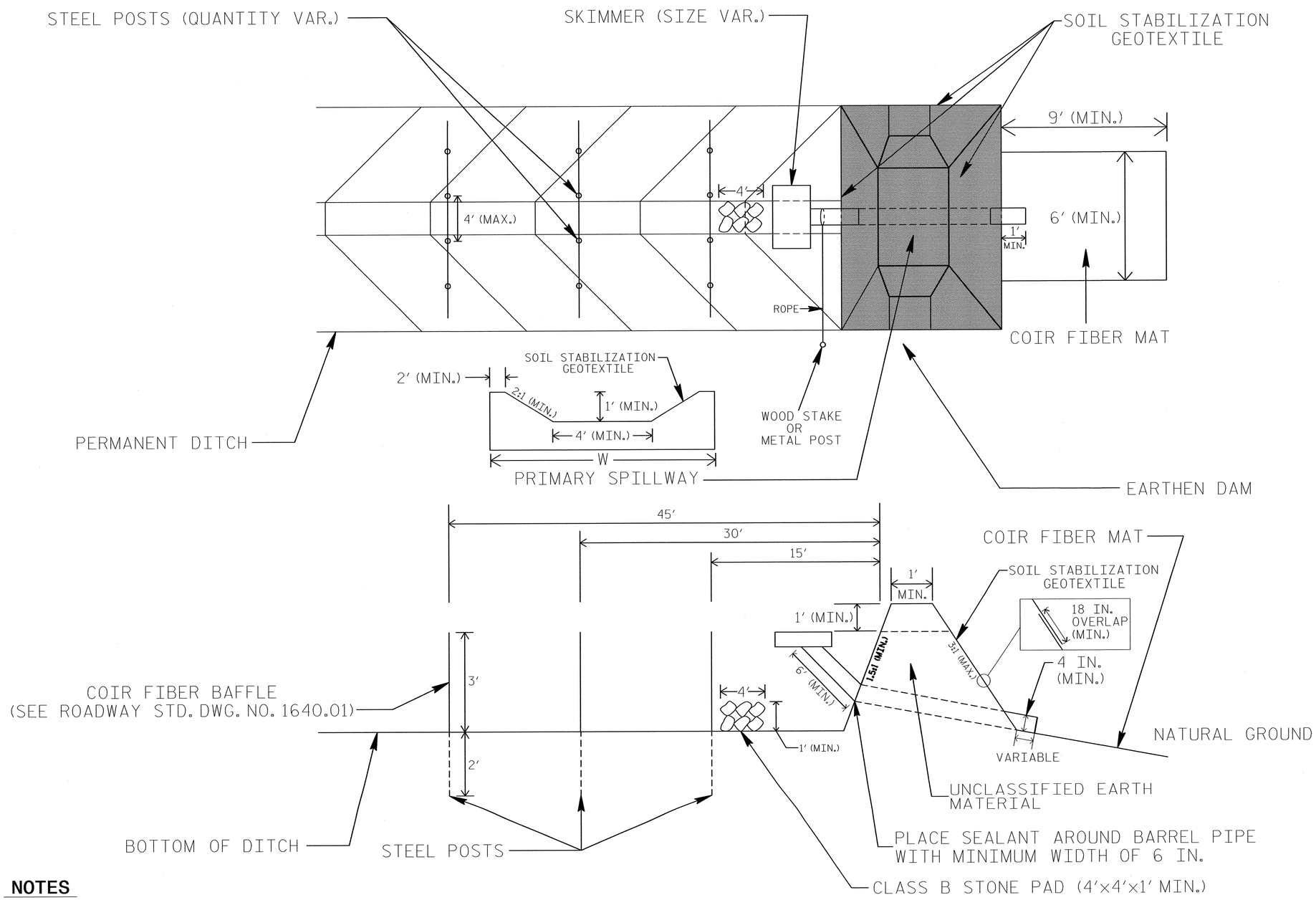
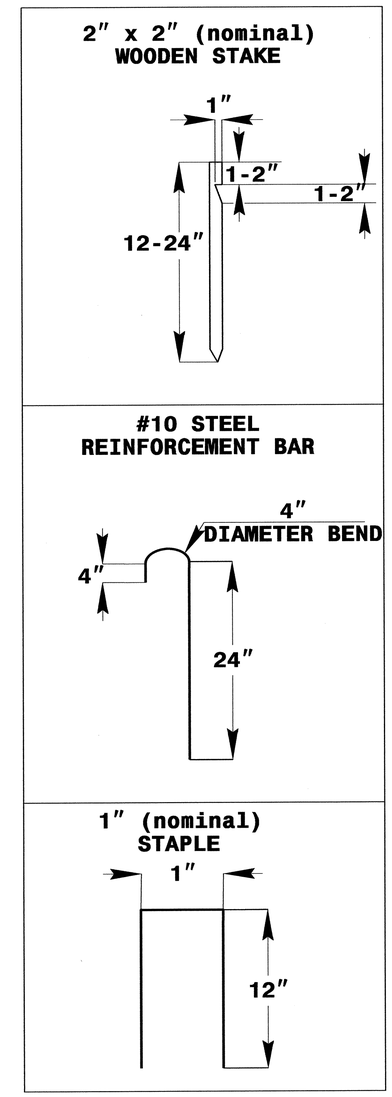
PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EARTHEN DAM WITH SKIMMER





COIR FIBER MAT ANCHOR OPTIONS

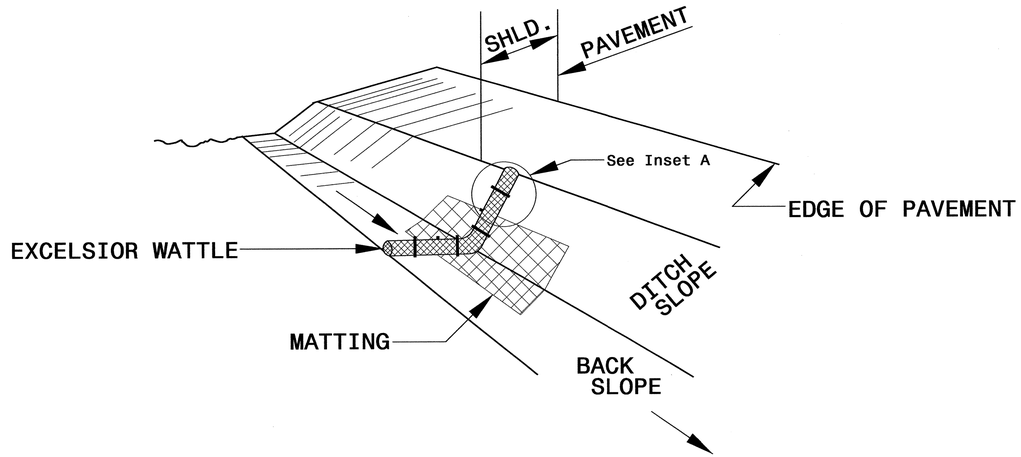
NOTES

1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING Q/0.4, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

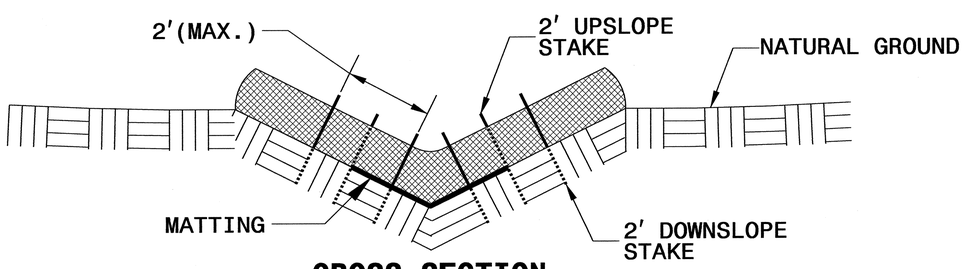
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

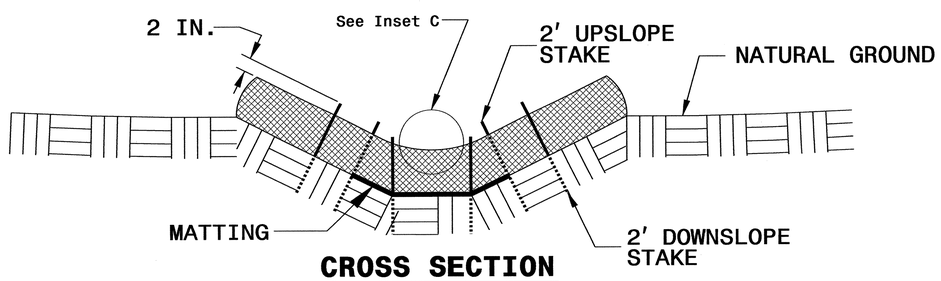
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

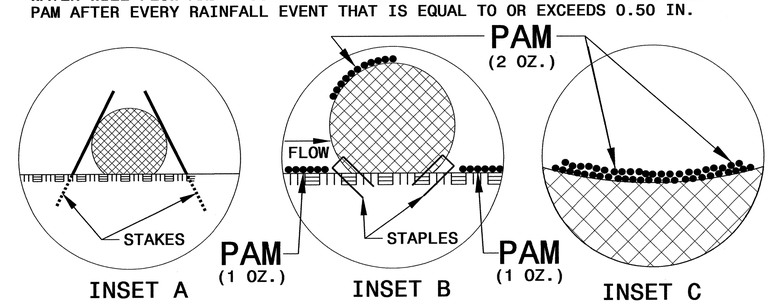
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

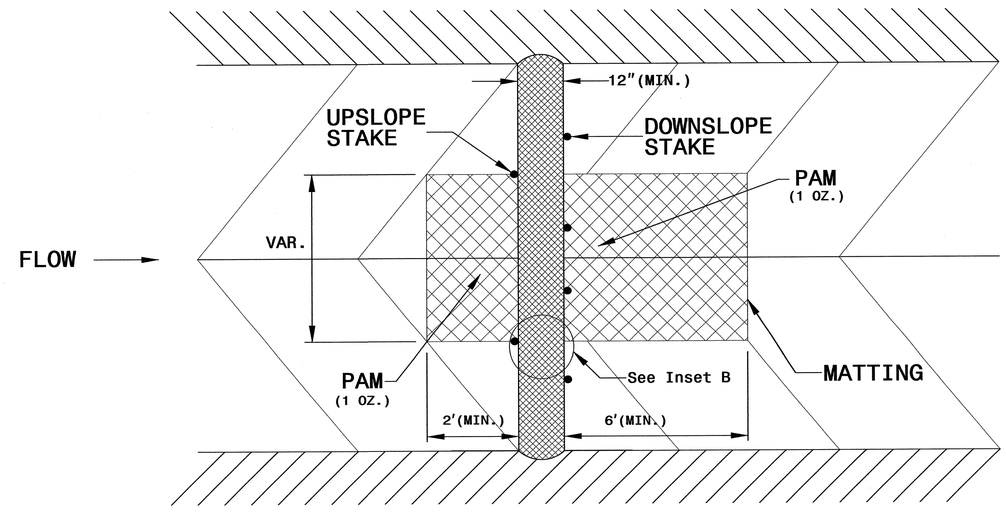
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

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





TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4-A	-LDET-	18+73	19+50	L	185
			SUBTOTAL		185
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					4950
			TOTAL		5135
			SAY		5200

MATTING FOR EROSION CONTROL

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

PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

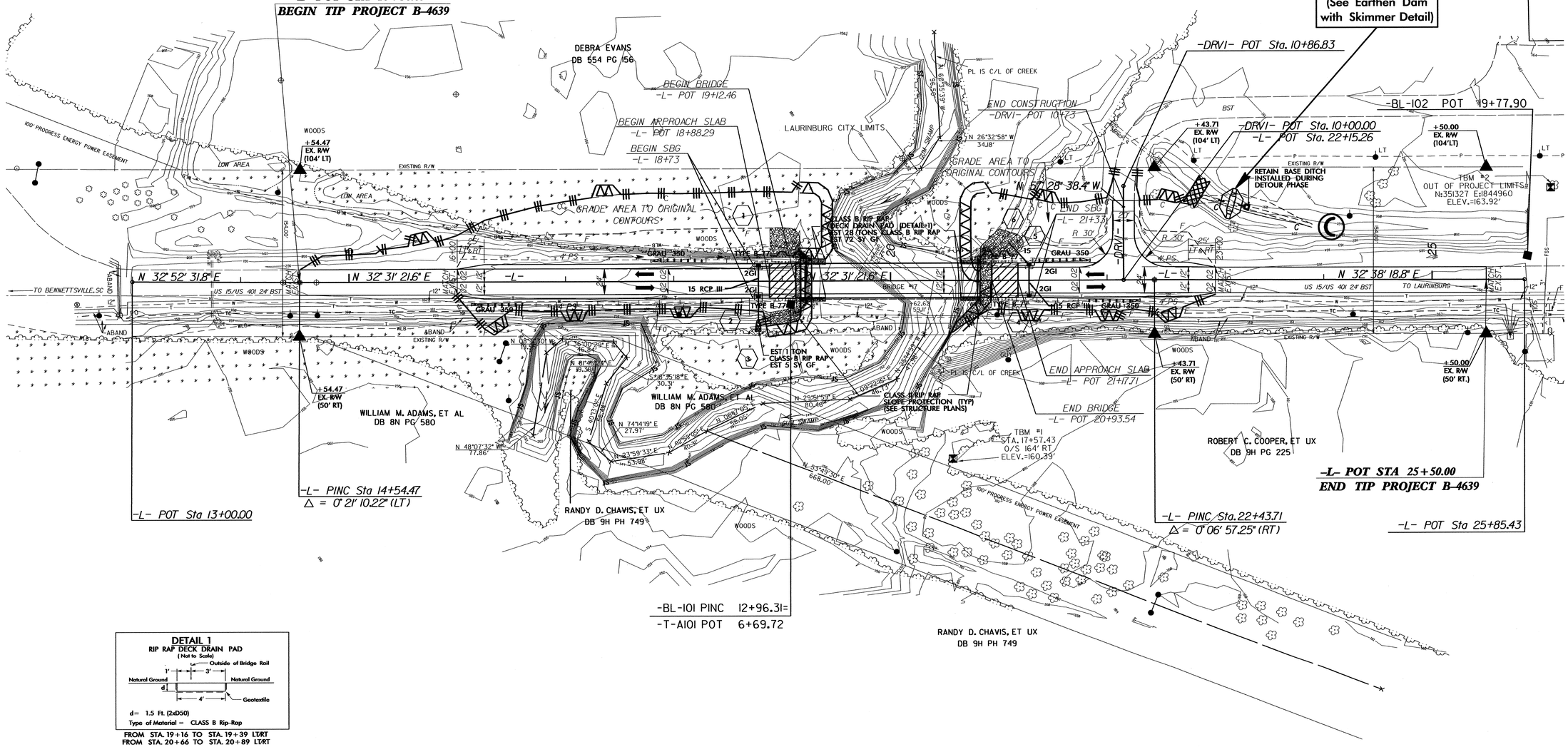
NOTE:
UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

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

NAD 83/96

1.5 inch Skimmer with 0.250 inch Orifice Diameter 4 ft. weir with 2 ft. weir height ID 4.1 (See Earthen Dam with Skimmer Detail)



DETAIL 1
RIP RAP DECK DRAIN PAD
(Not to Scale)

d = 1.5 Ft. (2xD50)
Type of Material = CLASS B Rip-Rap
FROM STA. 19+16 TO STA. 19+39 LT/RT
FROM STA. 20+66 TO STA. 20+89 LT/RT

26-MAR-2014 11:03
R:\Hydro\Projects\B4639_EC_psh04.dgn
PLOT SCALE = 50.000 ' / IN.
PLOT DATE = 3/26/2014

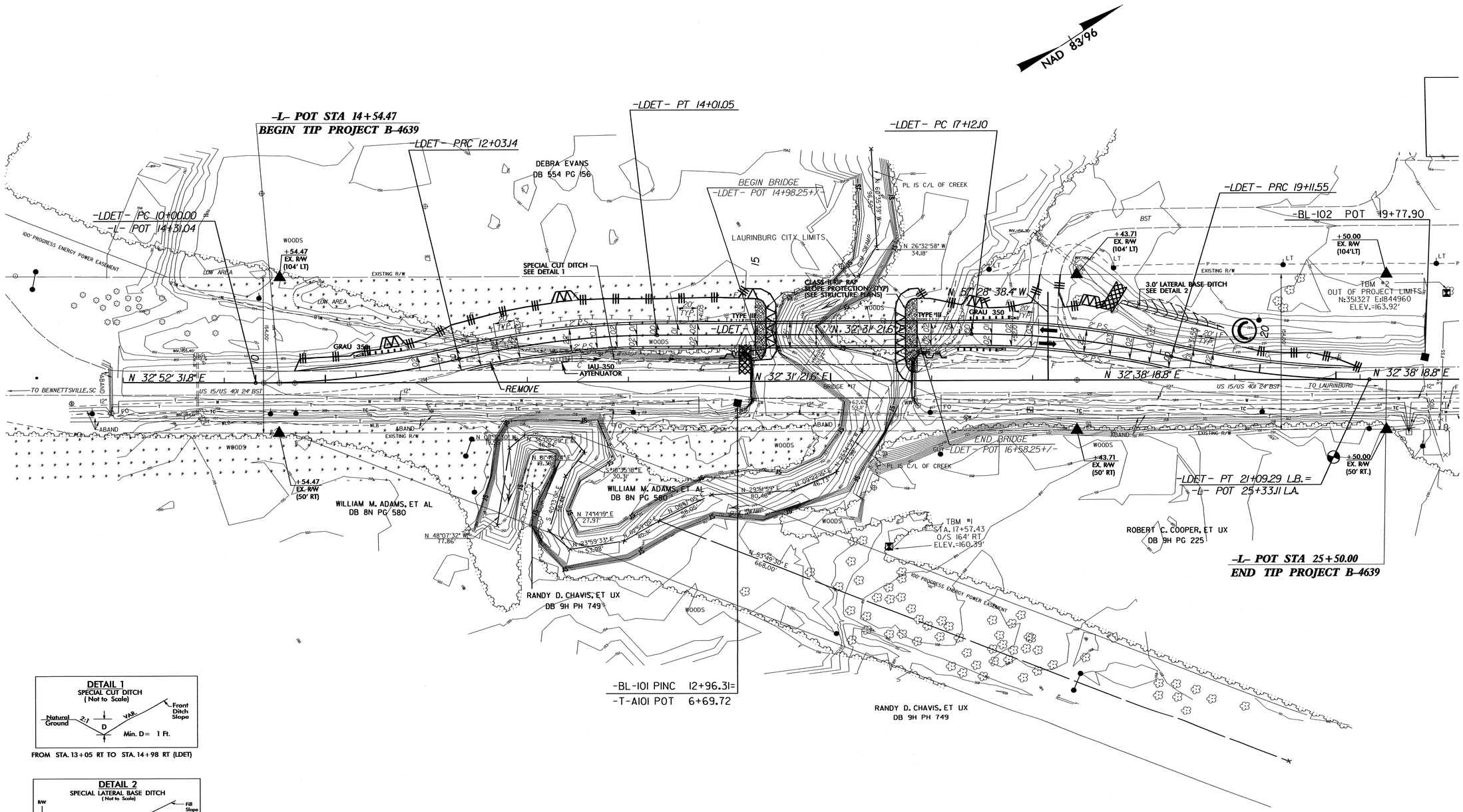
8/17/99

NOTE:
UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4-A

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

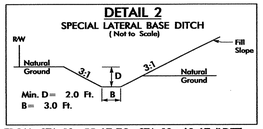
PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-5/CONST.4-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 13+05 RT TO STA. 14+98 RT (LDET)

DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)

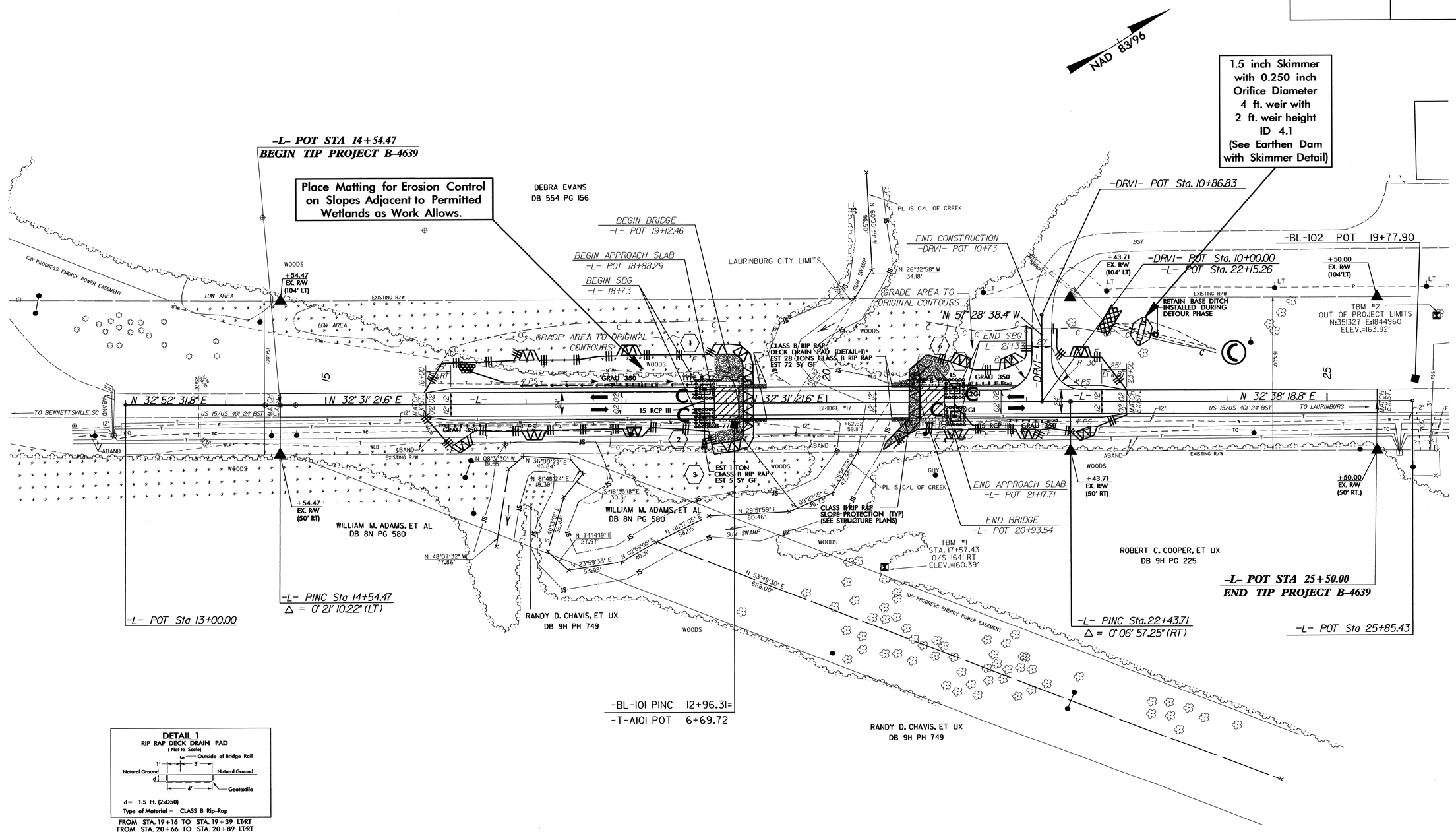


FROM STA. 18+55 LT TO STA. 19+68 LT (LDET)

26-MAR-2014 11:18
R:\Hydro\Proj\B4639_EC_psh04e.dgn
DELDOT 4.7 (BRIDGE)

PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.



DETAIL 1
RIP RAP DECK DRAIN PAD
(Not to Scale)

d = 1.5 Ft. (2xD50)
Type of Material = CLASS B Rip-Rap
FROM STA. 19+16 TO STA. 19+39 LT/RT
FROM STA. 20+66 TO STA. 20+89 LT/RT

8/17/99

26-MAR-2014 11:03
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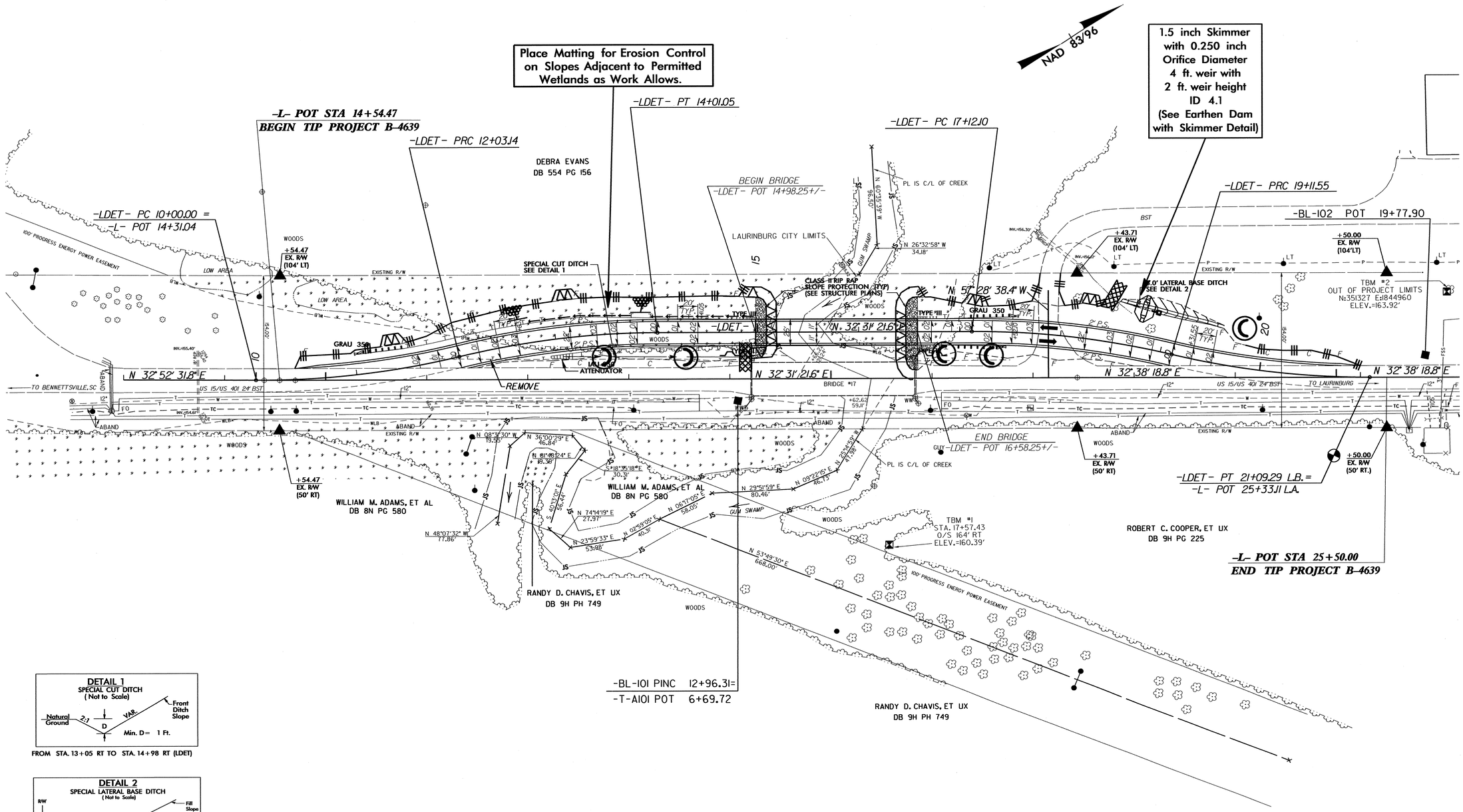
$$$$USER$$$$
$$$$DATE$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4639	EC-7/CONST.4-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

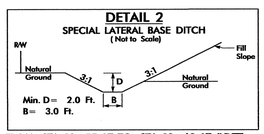
NOTE:
UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.



DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 13+05 RT TO STA. 14+98 RT (LDET)

DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 18+55 LT TO STA. 19+68 LT (LDET)

8/17/09

26-MAR-2014 11:18
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pcrisp at TENV26348

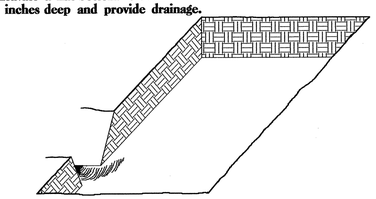
PROJECT REFERENCE NO.	SHEET NO.
B-4639	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

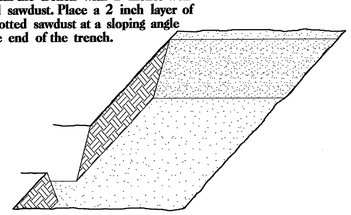
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

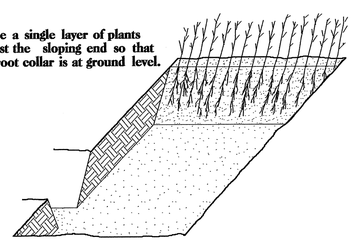
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



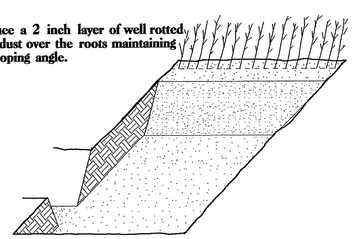
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

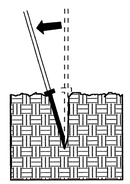


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

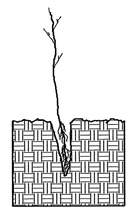


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

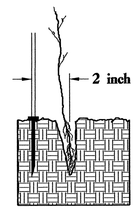
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



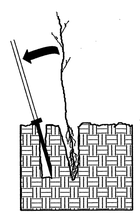
1. Insert planting bar as shown and pull handle toward planter.



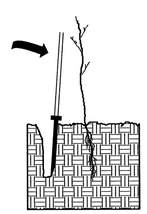
2. Remove planting bar and place seedling at correct depth.



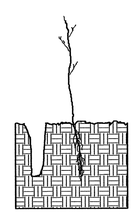
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

WETLAND REFORESTATION

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

WETLAND REFORESTATION

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

25% TAXODIUM DISTICHUM	BALD CYPRESS	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25% NYSSA SYLVATICA VAR. SYLVATICA	BLACK GUM	12 in - 18 in BR

WETLAND REFORESTATION DETAIL SHEET

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

T.I.P.: B-4639

CONTRACT: C203408

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
B-4639	SIGN-1

APPROVED: RWK
DATE: 3/27/14

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGNING PLAN
SCOTLAND COUNTY

LOCATION: BRIDGE NO. 17 OVER GUM SWAMP ON US 15-US 401

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- SIGNING PLANS DO NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING. SEE TRAFFIC CONTROL PLANS
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	77	L.F.
4096000000	904	SIGN ERECTION, TYPE D	2	EA.
4102000000	904	SIGN ERECTION, RELOCATE SIGN TYPE E	1	EA.
4116100000	904	SIGN ERECTION, RELOCATE SIGN TYPE D	1	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	2	EA.
4192000000	907	DISPOSAL OF SUPPORT, U-CHANNEL	1	EA.

SIGN NUMBER: 301,302
TYPE: D
QUANTITY: 2
SIGN WIDTH: 3'-6"
HEIGHT: 2'-0"
TOTAL AREA: 7.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

BACKG COLOR: Green
COPY COLOR: White

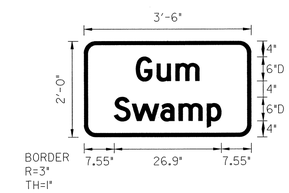
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES: 1,2

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

DESIGN BY: S.JOHNS
PROJECT ID: B-4639
CHECKED BY: S.KUNZ
DIV: 8
DATE: Mar 19, 2014



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

Text	Spacings	Series/Size Text Length
G u m	13.1 5.2 4.7 5.9 13.1	D 2000 15.9
S w a m p	7.5 4.5 7.2 4.6 7.1 3.6 7.5	D 2000 26.9

FILENAME: SignDesign
NORTH CAROLINA D.O.T. SIGN DETAIL

"E" SIGNS

401 QUANTITY REQ'D 1

36 X 36
S4-5

YELLOW/GREEN REFLECTIVE SHEETING

ONE "U" POST PER SIGN

PAY ITEM NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	SIGN ERECTION, RELOCATE SIGN TYPE D
3	DISPOSAL OF SUPPORT, U-CHANNEL

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET & NOTES
SIGN-2	SIGN DETAIL SHEET

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

SUSAN B. KUNZ — SIGNING & DELINEATION REGIONAL ENGINEER

STACEY W. JOHNS — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

27-MAR-2014 07:24
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sjohns HT TE:274911

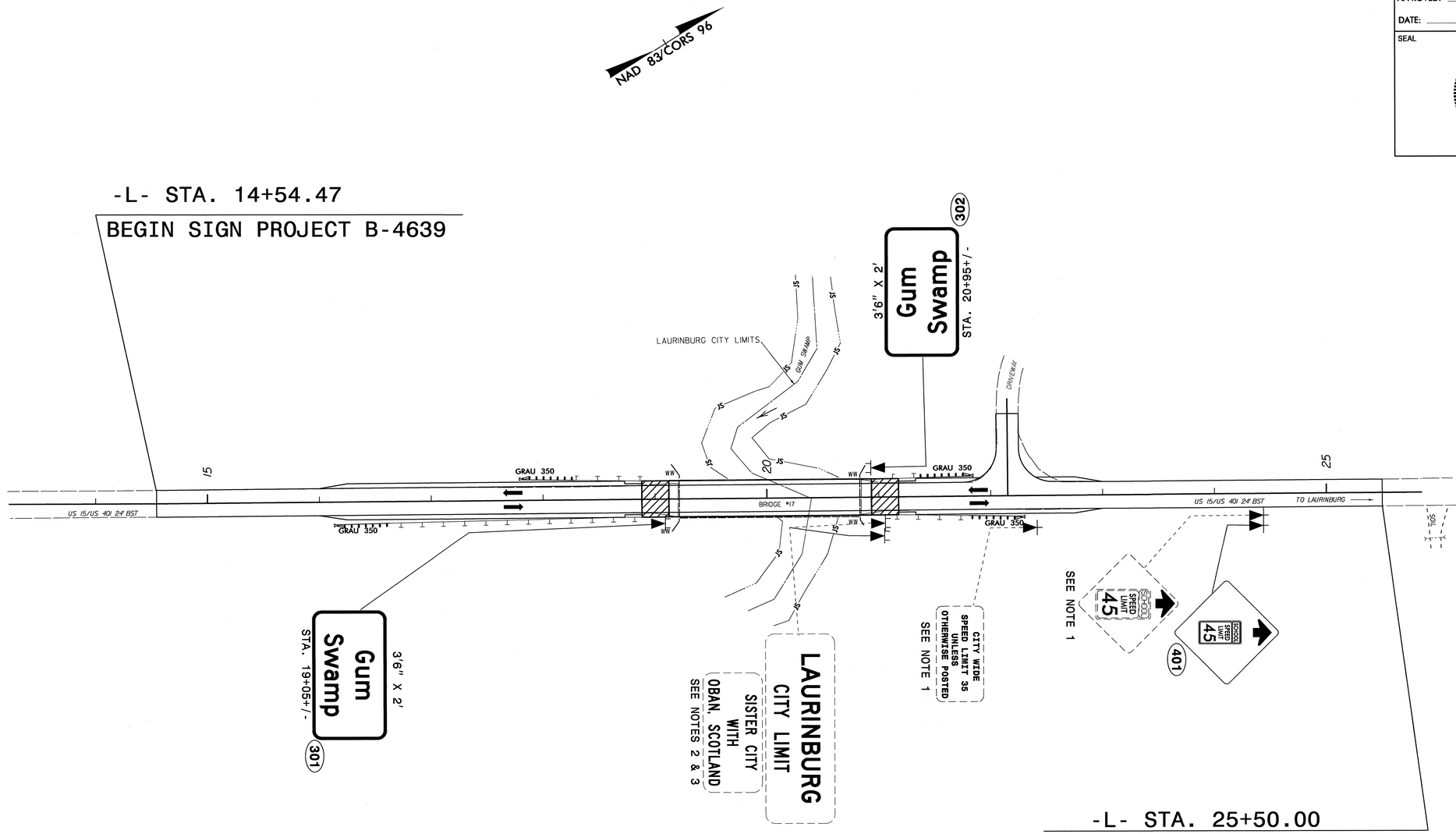
TIP NO.	SHEET NO.
B-4639	SIGN-2

APPROVED: RLWZ 3/27/14

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING



PAY ITEM NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	SIGN ERECTION, RELOCATE SIGN TYPE D
3	DISPOSAL OF SUPPORT, U-CHANNEL

SIGN DETAIL SHEET

27-MAR-2014 07:25
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s_johns AT TE2749II

09/08/99

TIP PROJECT: B-4639

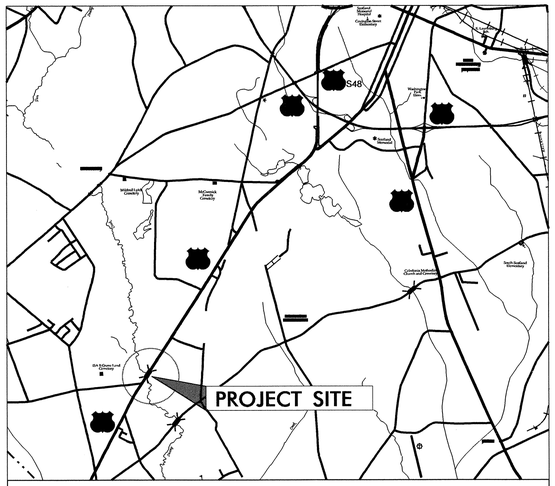
T.I.P. NO.	SHEET NO.
B-4639	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
SCOTLAND COUNTY

LOCATION: BRIDGE NO. 17 ON US 15-US 401 OVER GUM SWAMP

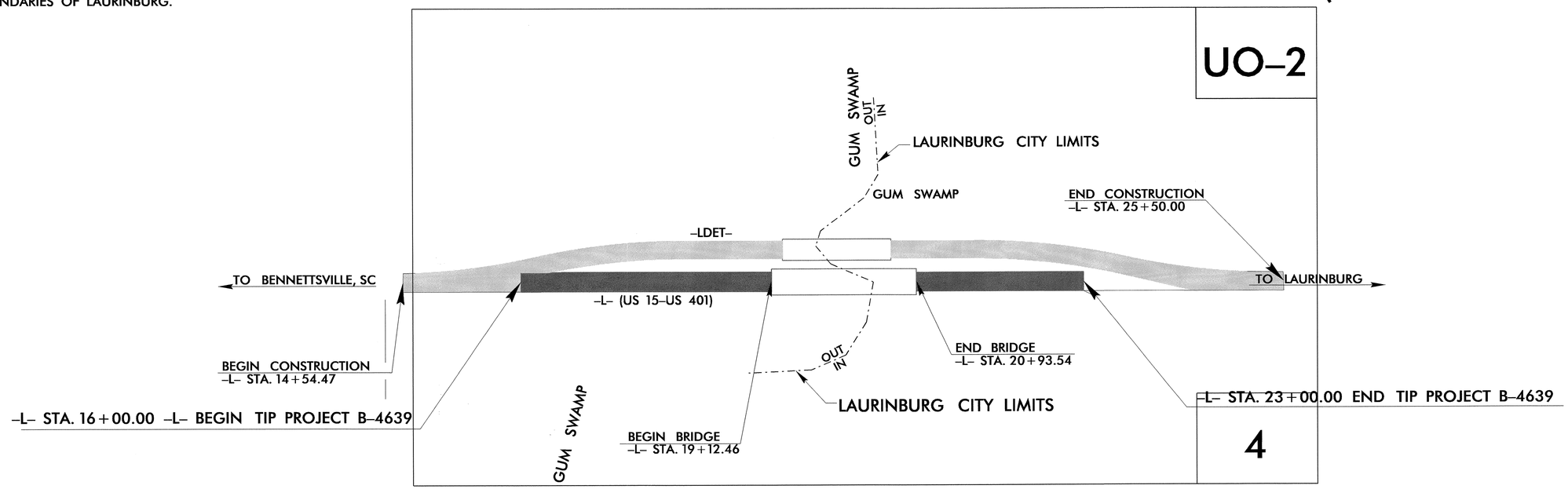
TYPE OF WORK: RELOCATE POWER, TELEPHONE AND WATER LINES



VICINITY MAP

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF LAURINBURG.

NAD 83/96



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	PLAN SHEET

UTILITY OWNERS ON PROJECT

(1) POWER - DUKE ENERGY, LUMBEE RIVER EMC

(2) TELEPHONE - AT&T

(3) WATER - CITY OF LAURINBURG

UTILITY DESIGN BY:
MA Engineering CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919 297 0220 Fax: 919 297 0221

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

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

05-MAY-2014 14:21
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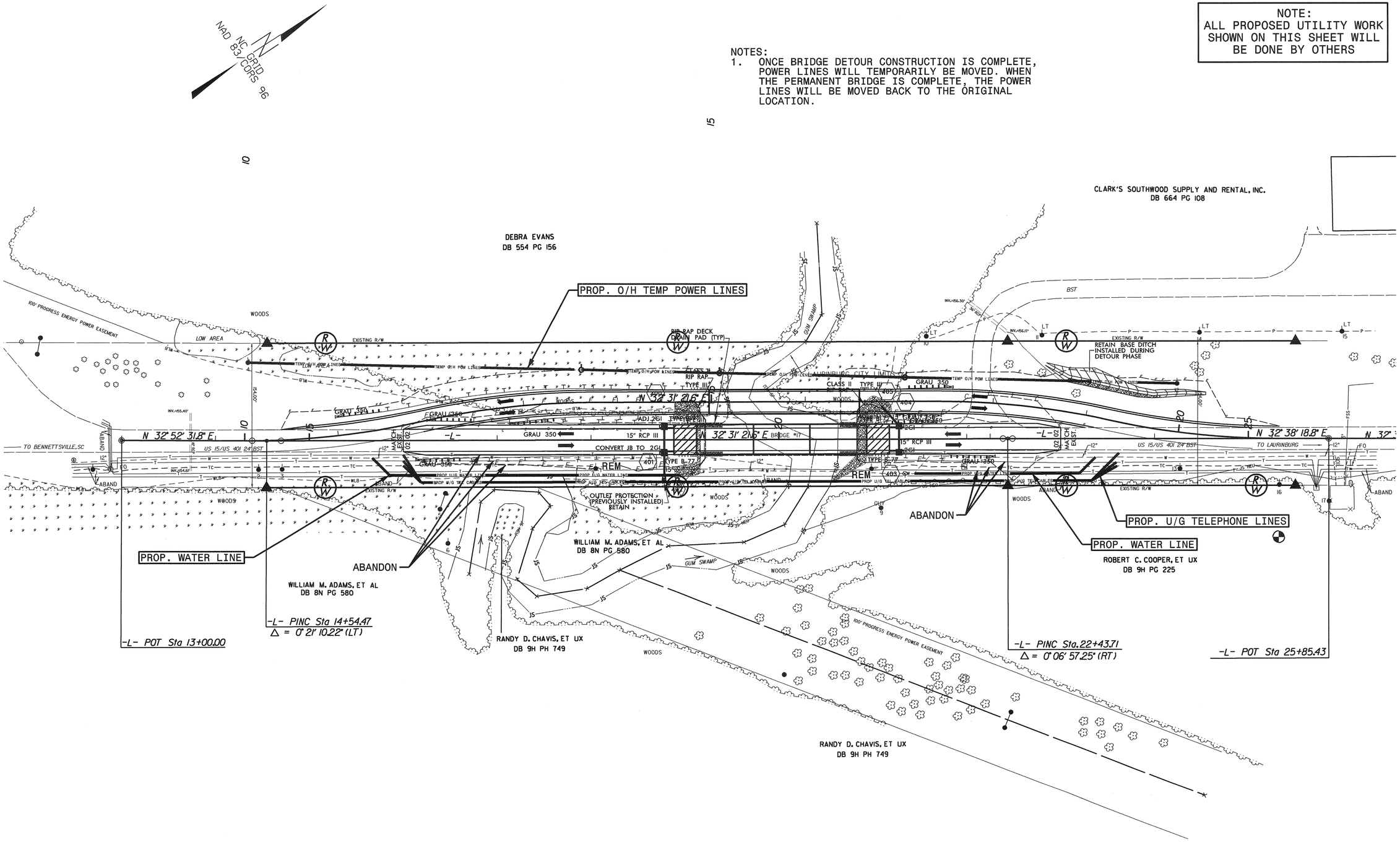
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4639	UO-2

UTILITIES BY OTHERS

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

NOTES:
1. ONCE BRIDGE DETOUR CONSTRUCTION IS COMPLETE, POWER LINES WILL TEMPORARILY BE MOVED. WHEN THE PERMANENT BRIDGE IS COMPLETE, THE POWER LINES WILL BE MOVED BACK TO THE ORIGINAL LOCATION.



MA Engineering CONSULTANTS, INC.
598 E. Chatham Street, Suite 137
Cary, N. C. 27511

5/14/99

PROJ. REFERENCE NO.	SHEET NO.
B-4639	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station L(DETOUR)	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+75.00	0	0
15+00.00	8	0
15+25.00	8	1
15+50.00	9	0
15+75.00	8	0
16+00.00	8	5
16+25.00	7	34
16+50.00	6	95
16+75.00	5	160
17+00.00	2	218
17+25.00	1	260
17+50.00	1	293
17+75.00	1	322
18+00.00	0	345
18+25.00	0	363
18+50.00	1	381
18+75.00	1	395
19+00.00	1	400
19+25.00	1	412
19+25.72	1	139

Station L(DETOUR)	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
20+85.72	0	96
21+00.00	0	193
21+25.00	0	252
21+50.00	0	146
21+75.00	0	131
22+00.00	2	108
22+15.26	2	40
22+25.00	2	20
22+50.00	2	89
22+75.00	0	110
23+00.00	1	96
23+25.00	10	100
23+50.00	14	85
23+75.00	8	58
24+00.00	4	24
24+25.00	3	2
24+50.00	4	0
24+75.00	5	0
25+00.00	4	0

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
16+00.00	0	0
16+25.00	4	5
16+50.00	6	5
16+75.00	6	0
17+00.00	7	1
17+25.00	6	1

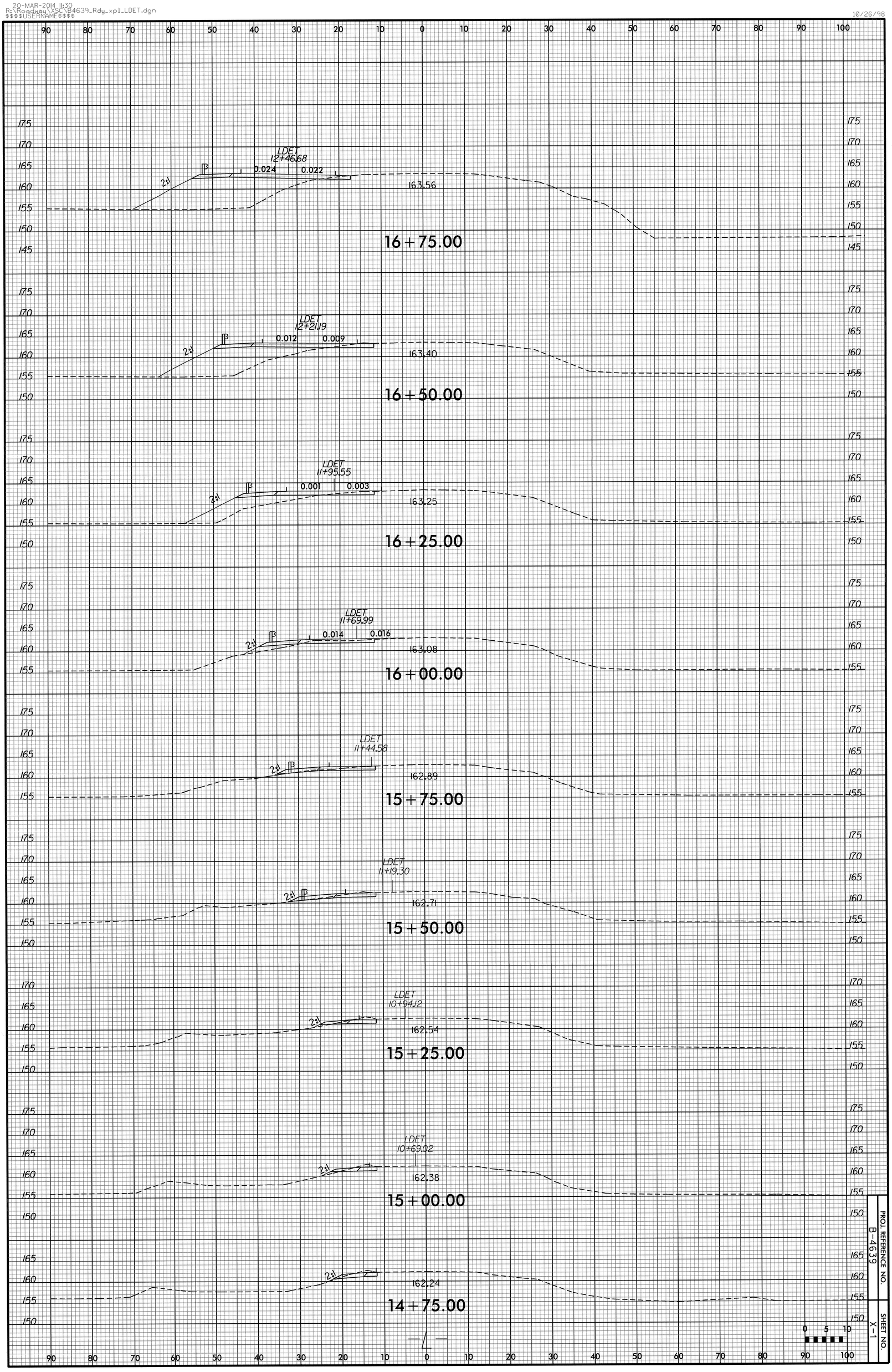
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
17+50.00	6	1
17+75.00	8	1
18+00.00	6	2
18+25.00	4	3
18+50.00	4	5
18+75.00	3	10
19+00.00	1	11
19+12.46	0	5

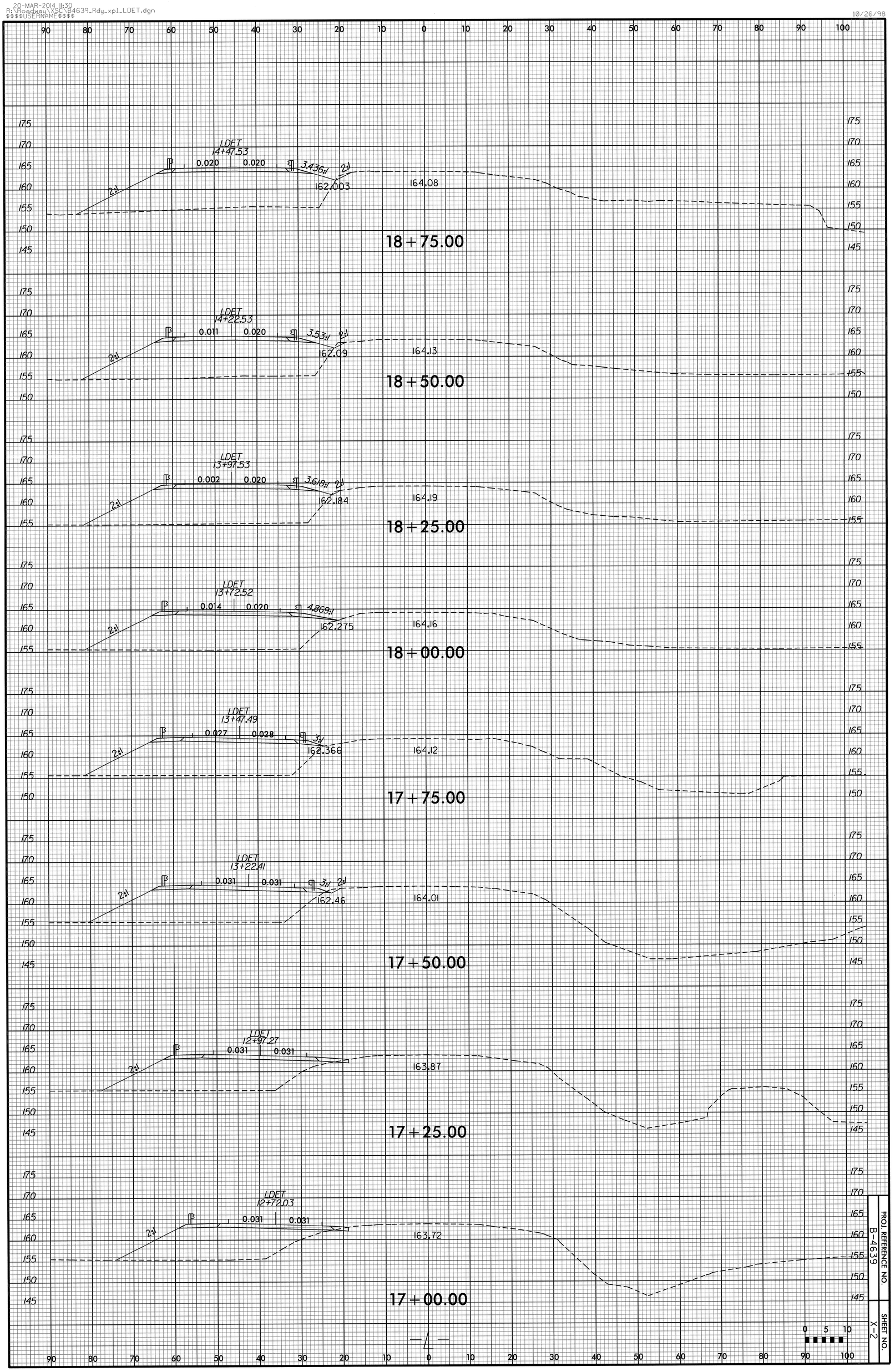
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
20+93.54	0	0
21+00.00	0	1
21+25.00	6	2
21+50.00	15	0
21+75.00	20	0
22+00.00	15	1
22+15.26	7	1
22+25.00	5	0
22+50.00	15	0
22+75.00	15	0
23+00.00	9	0

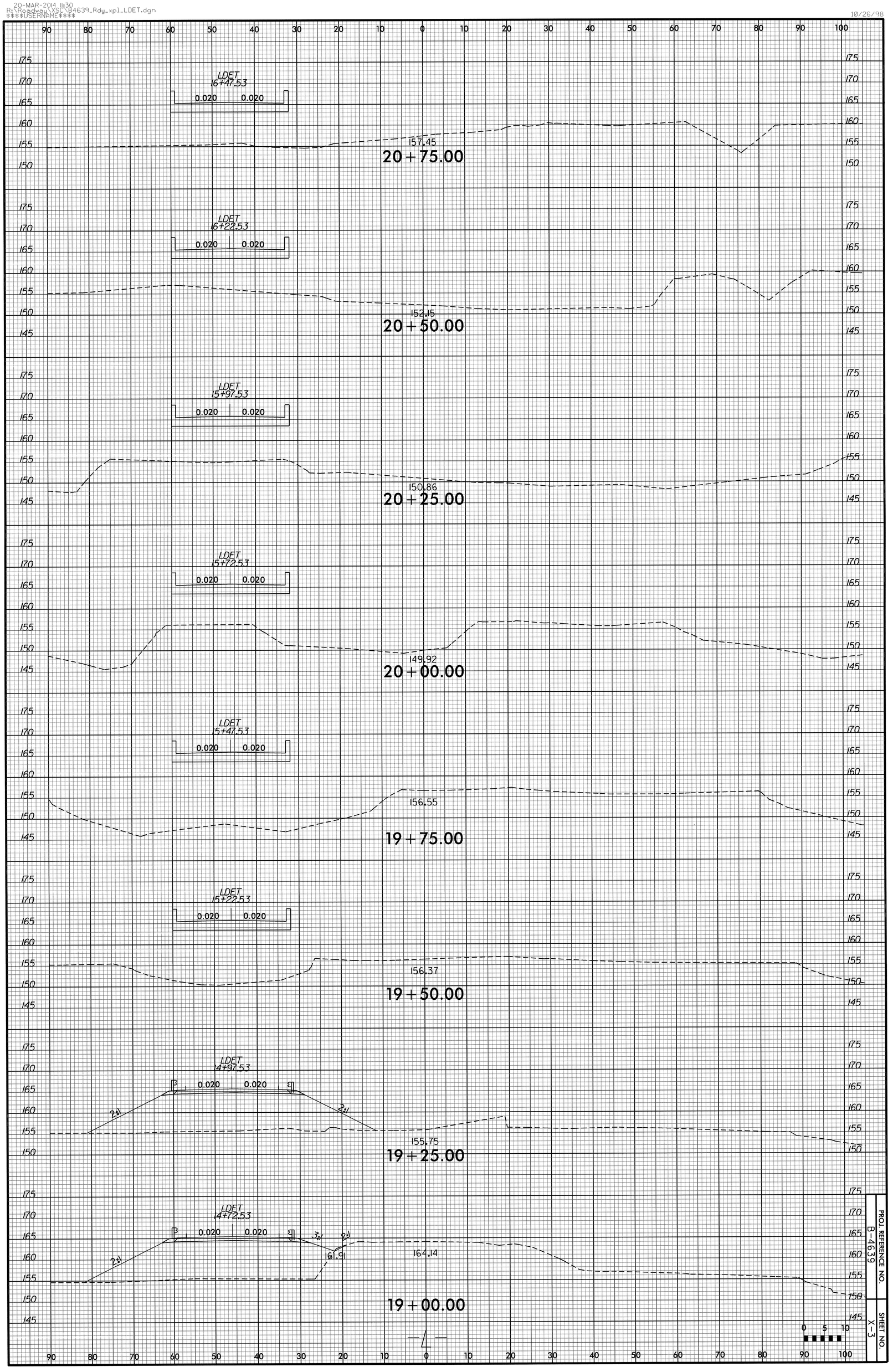
Station L(DET REMOVAL)	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+00.00	0	0
15+25.00	1	0
15+50.00	1	0
15+75.00	1	0
16+00.00	2	0
16+25.00	68	0
16+50.00	158	0
16+75.00	205	0
17+00.00	247	0
17+25.00	278	0
17+50.00	301	0
17+75.00	312	0
18+00.00	311	0
18+25.00	315	0
18+50.00	321	0
18+75.00	328	0
19+00.00	330	0
19+25.00	395	0
19+25.72	13	0

Station L(DET REMOVAL)	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
20+85.72	0	0
21+00.00	182	0
21+25.00	277	0

Station L(DET REMOVAL)	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
21+50.00	194	0
21+75.00	157	0
22+00.00	148	0
22+15.26	75	0
22+25.00	40	0
22+50.00	125	0
22+75.00	144	0
23+00.00	124	0
23+25.00	101	0
23+50.00	79	0
23+75.00	63	0
24+00.00	35	0
24+25.00	8	0
24+50.00	1	0

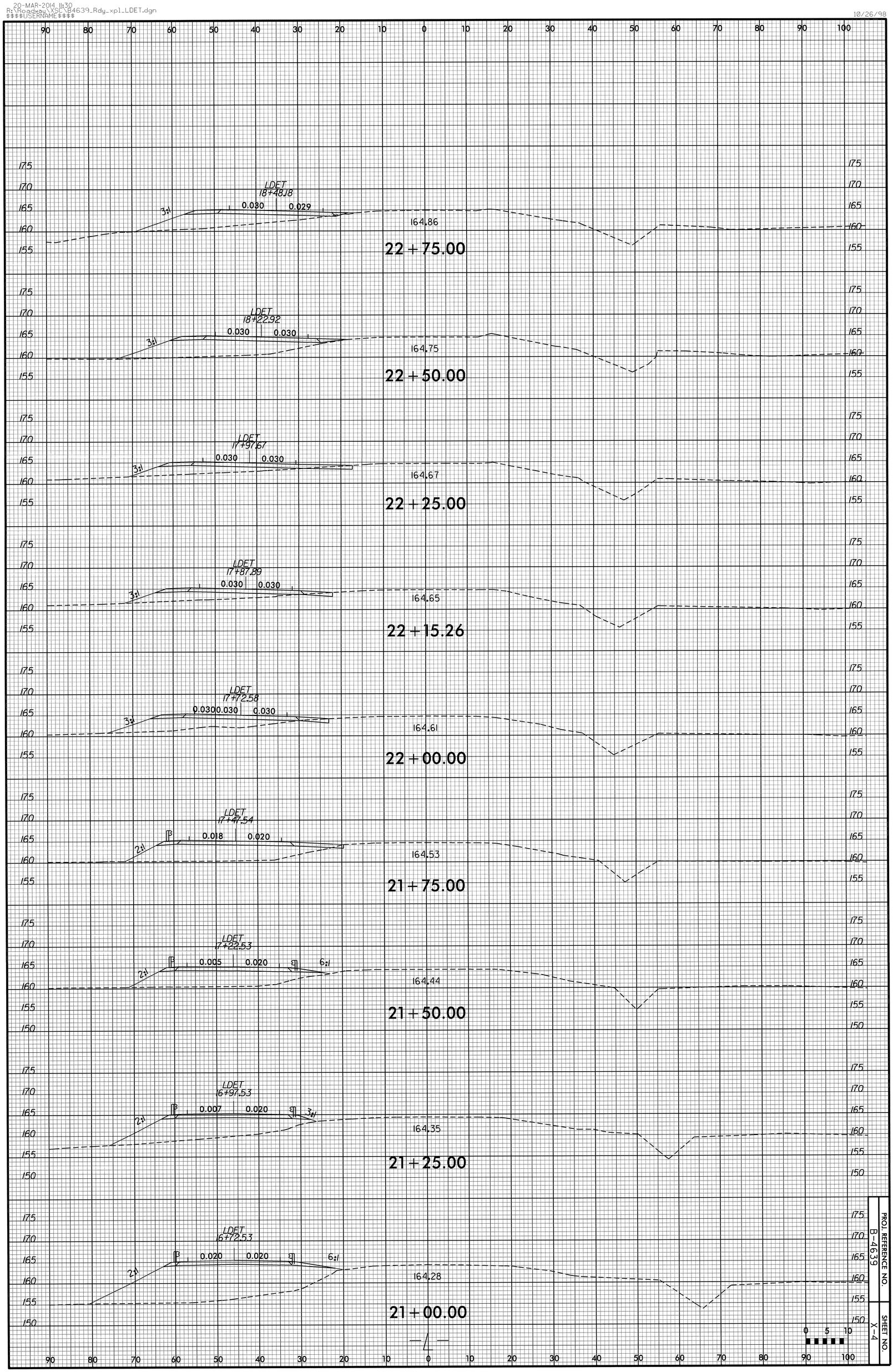

LDET
12+46.68
0.024
0.022
163.56
16+75.00
LDET
12+21.19
0.012
0.009
163.40
16+50.00
LDET
11+95.55
0.001
0.003
163.25
16+25.00
LDET
11+69.99
0.014
0.016
163.08
16+00.00
LDET
11+44.58
162.89
15+75.00
LDET
11+19.30
162.71
15+50.00
LDET
10+94.12
162.54
15+25.00
LDET
10+69.02
162.38
15+00.00
162.24
14+75.00
2:1
PROJ. REFERENCE NO.
B-4639
SHEET NO.
X-1

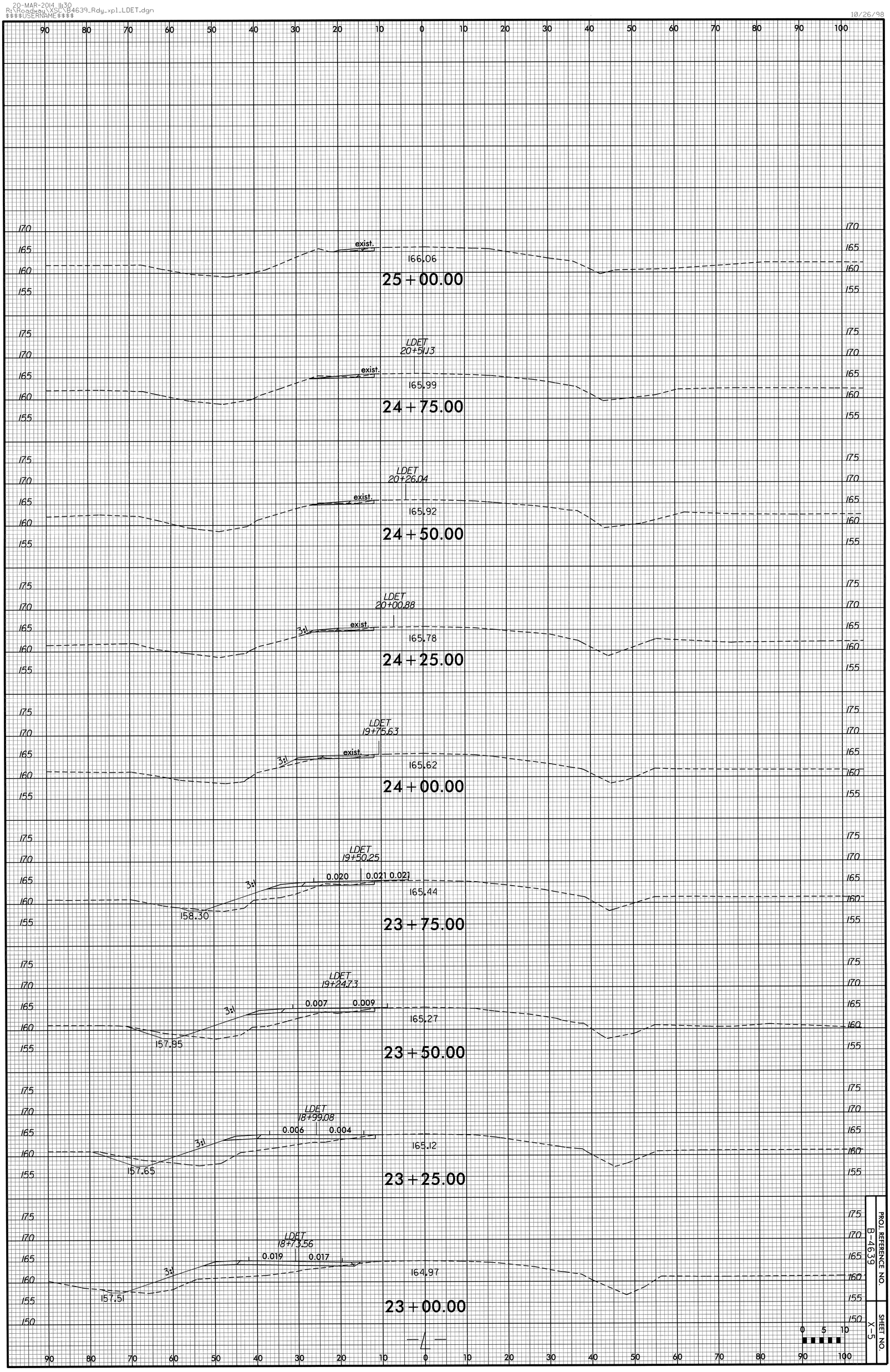

LDET
14+41.53
0.020
0.020
3.436:1
2:1
162.003
164.08
18+75.00
LDET
14+22.53
0.011
0.020
3.53:1
2:1
162.09
164.13
18+50.00
LDET
13+97.53
0.002
0.020
3.618:1
2:1
162.184
164.19
18+25.00
LDET
13+72.52
0.014
0.020
4.869:1
2:1
162.275
164.16
18+00.00
LDET
13+47.49
0.027
0.028
3:1
2:1
162.366
164.12
17+75.00
LDET
13+22.41
0.031
0.031
3:1
2:1
162.46
164.01
17+50.00
LDET
12+97.27
0.031
0.031
2:1
163.87
17+25.00
LDET
12+72.03
0.031
0.031
2:1
163.72
17+00.00
PROJ. REFERENCE NO.
B-4639
SHEET NO.
X-2



PROJ. REFERENCE NO.
B-4639

SHEET NO.
X-3


LDET
18+48.18
0.030
0.029
3:1
164.86
22+75.00
LDET
18+22.92
0.030
0.030
3:1
164.75
22+50.00
LDET
17+97.67
0.030
0.030
3:1
164.67
22+25.00
LDET
17+87.89
0.030
0.030
3:1
164.65
22+15.26
LDET
17+72.58
0.030
0.030
0.030
3:1
164.61
22+00.00
LDET
17+47.54
0.018
0.020
2:1
164.53
21+75.00
LDET
17+22.53
0.005
0.020
2:1
6:1
164.44
21+50.00
LDET
16+97.53
0.007
0.020
2:1
3:1
164.35
21+25.00
LDET
16+72.53
0.020
0.020
2:1
6:1
164.28
21+00.00
PROJ. REFERENCE NO.
B-4639
SHEET NO.
X-4


exist.
166.06
25 + 00.00
LDET
20+51.13
exist.
165.99
24 + 75.00
LDET
20+26.04
exist.
165.92
24 + 50.00
LDET
20+00.88
3:1
exist.
165.78
24 + 25.00
LDET
19+75.63
3:1
exist.
165.62
24 + 00.00
LDET
19+50.25
3:1
0.020
0.021
0.021
165.44
158.30
23 + 75.00
LDET
19+24.73
3:1
0.007
0.009
165.27
157.95
23 + 50.00
LDET
18+99.08
3:1
0.006
0.004
165.12
157.65
23 + 25.00
LDET
18+73.56
3:1
0.019
0.017
164.97
157.51
23 + 00.00
PROJ. REFERENCE NO.
B-4639
SHEET NO.
X-5

20-MAR-2014 11:30
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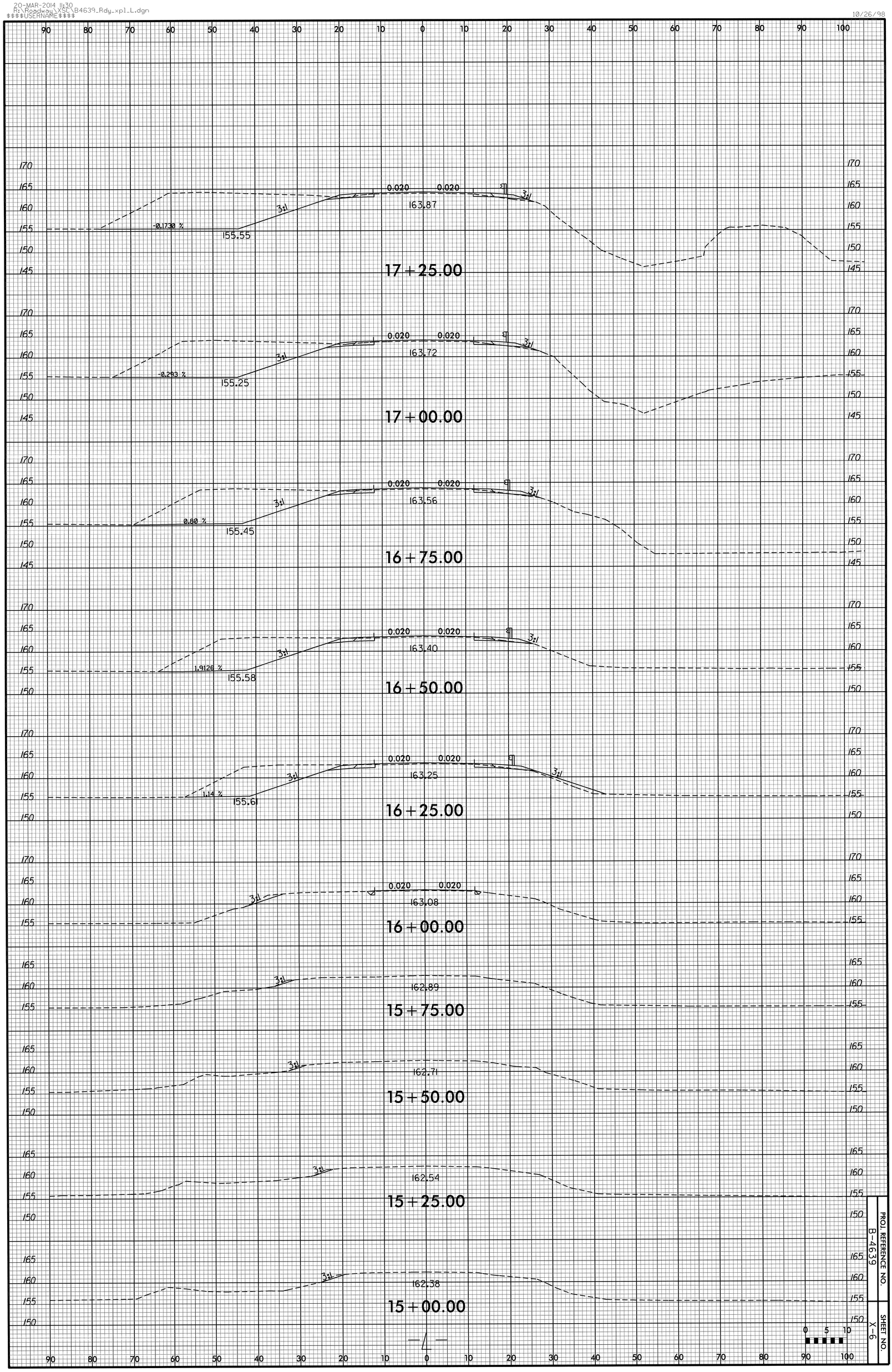
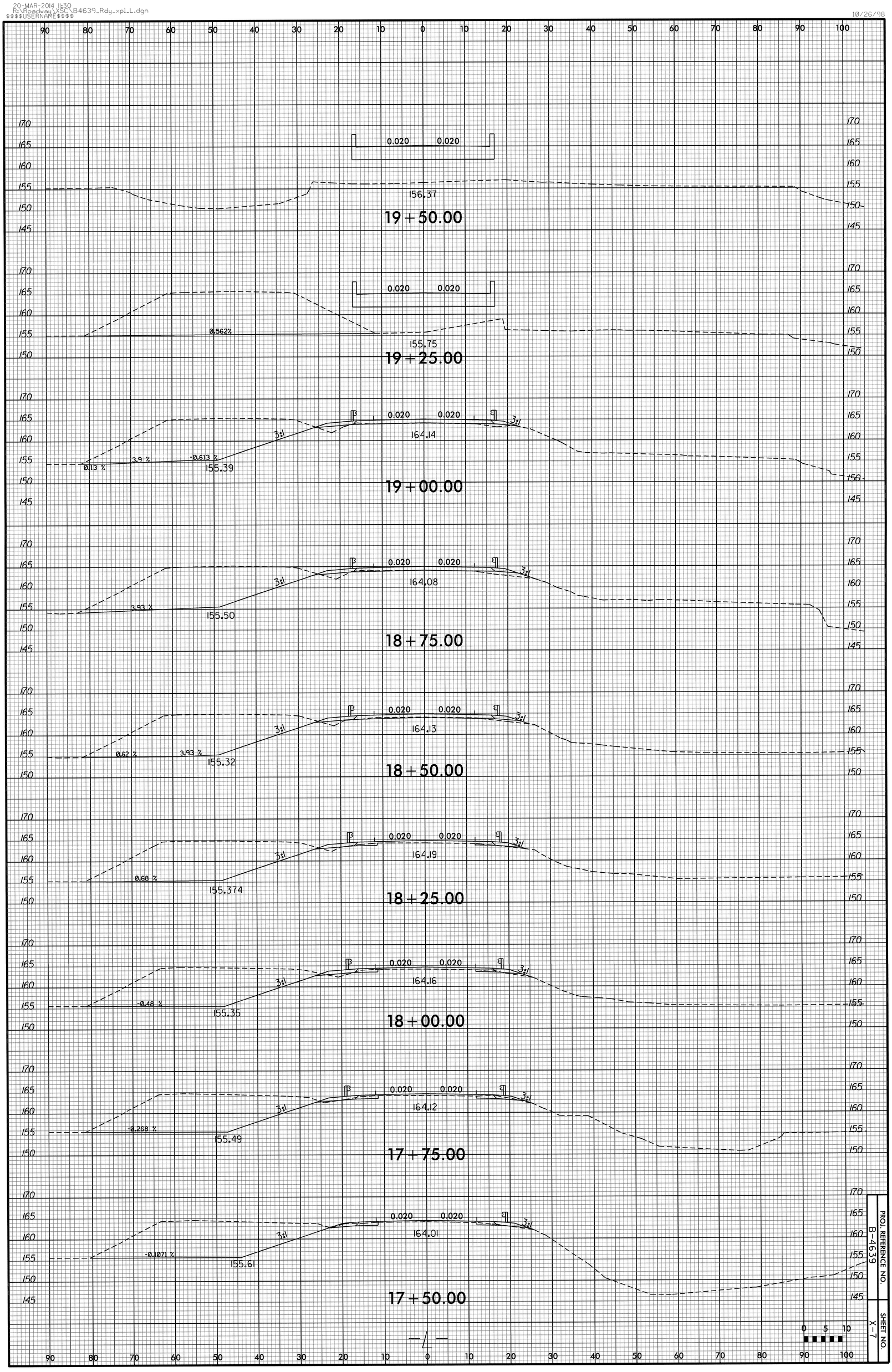
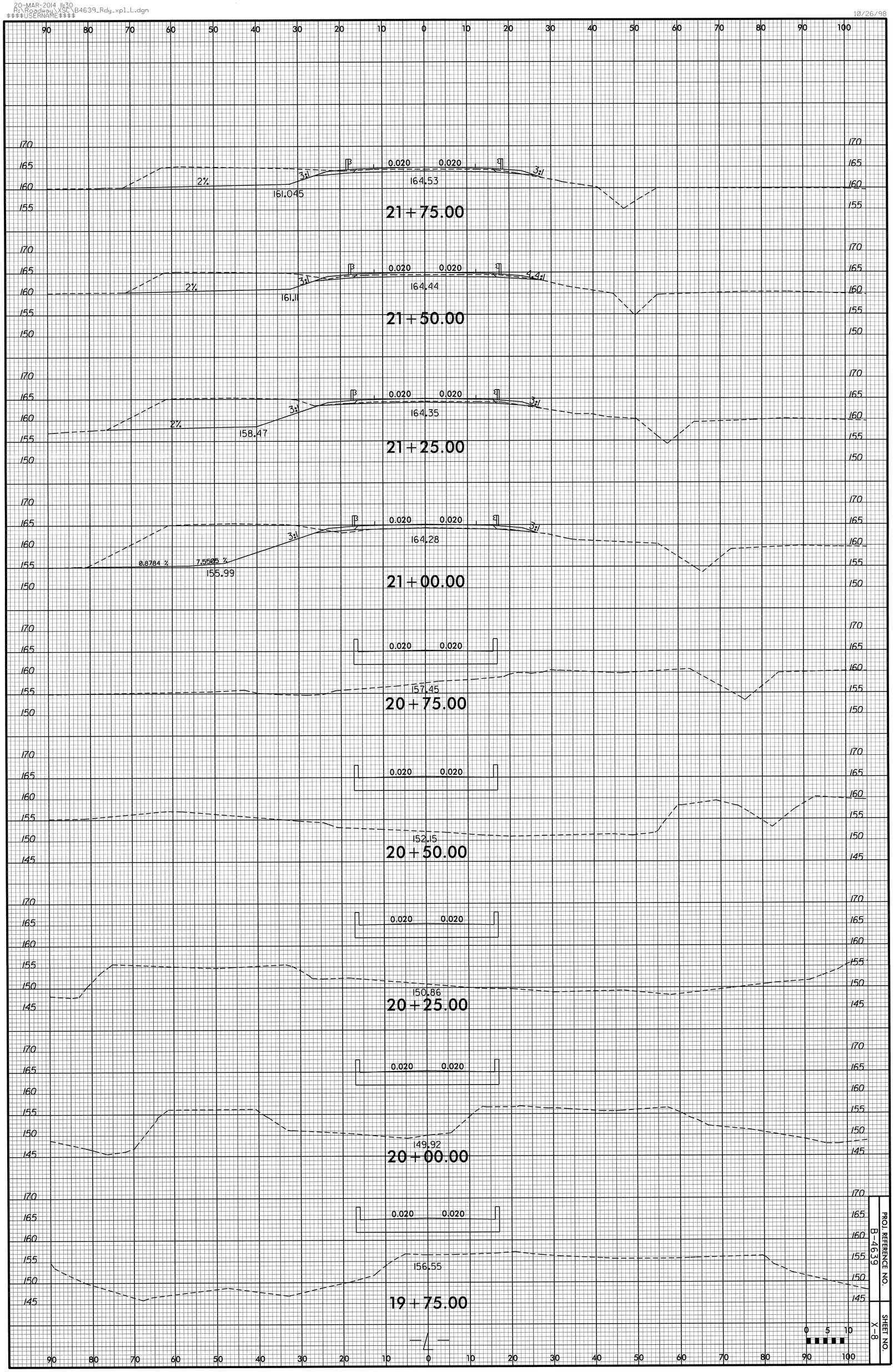



0.020 0.020
156.37
19+50.00
0.020 0.020
0.562%
155.75
19+25.00
0.020 0.020
3:1
164.14
0.13 %
3.9 %
-0.613 %
155.39
19+00.00
0.020 0.020
3:1
164.08
3.93 %
155.50
18+75.00
0.020 0.020
3:1
164.13
0.62 %
3.93 %
155.32
18+50.00
0.020 0.020
3:1
164.19
0.68 %
155.374
18+25.00
0.020 0.020
3:1
164.16
-0.48 %
155.36
18+00.00
0.020 0.020
3:1
164.12
-0.268 %
155.49
17+75.00
0.020 0.020
3:1
164.01
-0.1071 %
155.61
17+50.00
PROJ. REFERENCE NO.
B-4639
SHEET NO.
X-7
0 5 10



PROJ. REFERENCE NO. B-4639

SHEET NO. X-8

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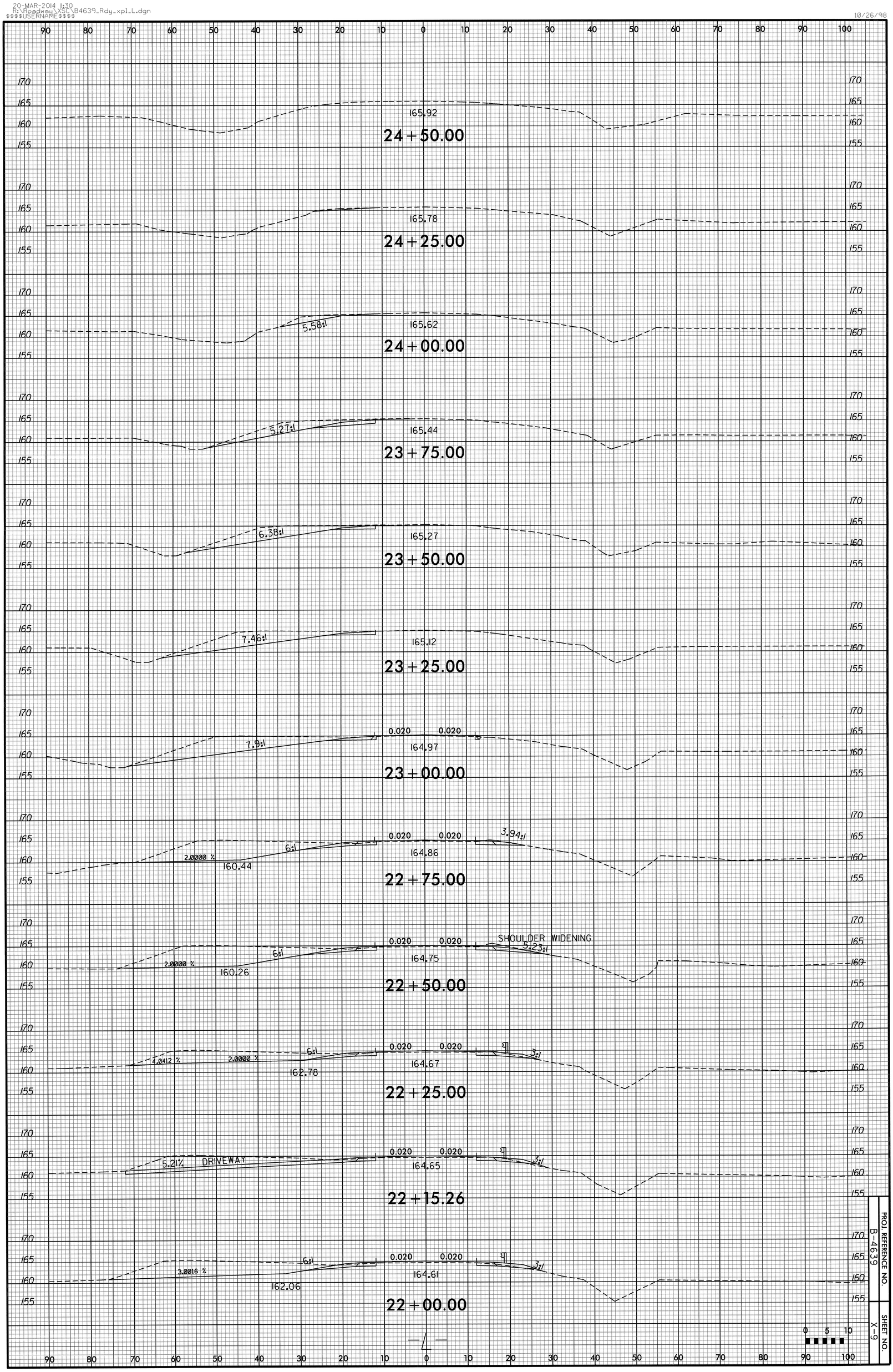
10/26/98



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PROJ. REFERENCE NO. B-4639

SHEET NO. X-9