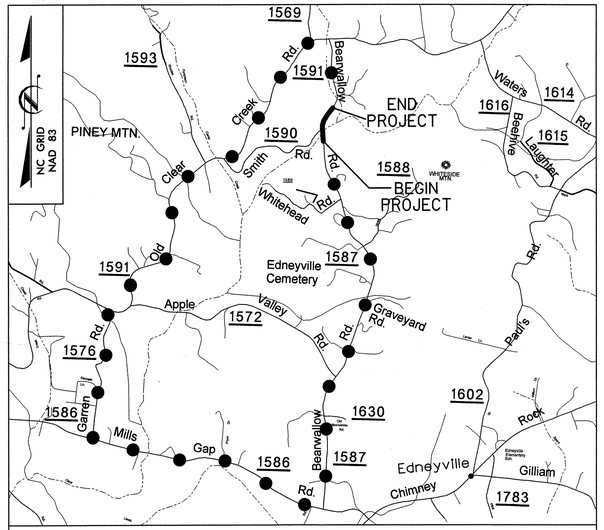
09/08/99

TIP PROJECT: B-4149

CONTRACT: C202020

See Sheet 1-A For Index of Sheets



VICINITY MAP (NTS)

Proposed Detour

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4149	1	

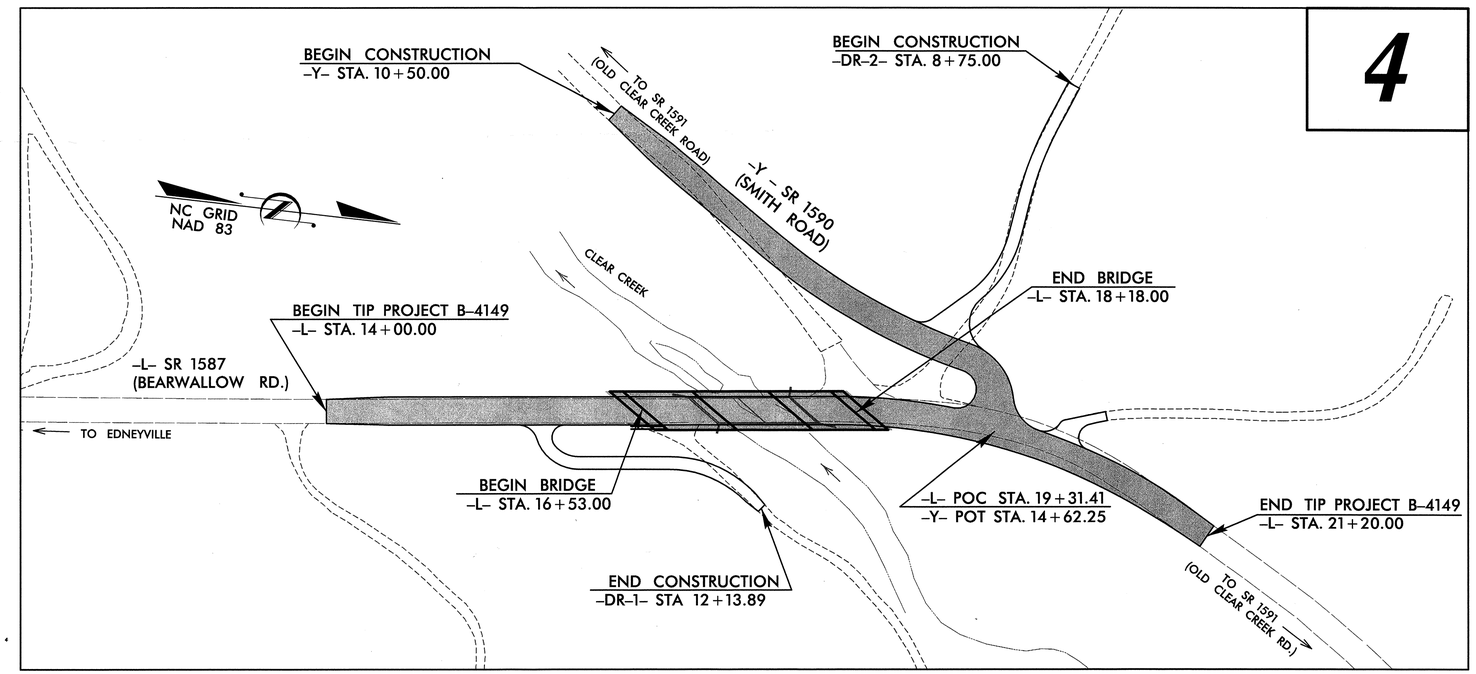
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33498.1.1	BRZ-1587(2)	P.E.
33498.2.1	BRZ-1587(2)	R/W, UTILITY
33498.3.1	BRZ-1587(2)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

LOCATION: BRIDGE No. 34 OVER CLEAR CREEK ON SR 1587 (BEARWALLOW ROAD)

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



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 700
ADT 2030 = 1,143
DHV = 10%
D = 60%
T = 3% (1% TTST + 2% DUALS)
V = 55 MPH
FUNCT. CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4149 = 0.105 MI
LENGTH STRUCTURE TIP PROJECT B-4149 = 0.031 MI
TOTAL LENGTH OF TIP PROJECT B-4149 = 0.136 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 18, 2008

LETTING DATE:
JANUARY 20, 2009

REECE SCHULER, PE
PROJECT ENGINEER

AARON CARVER, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
DOUG TAYLOR, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS III
10/27/08 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
10/24/08
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
art McMillan P.E.
STATE HIGHWAY DESIGN ENGINEER

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4149	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REBECCA SCHULLER

10/24/08

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	SUB-REGIONAL APPROACH FILL DETAIL
2-B	ANCHORAGE FOR FRAMES DETAIL
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3B	EARTHWORK SUMMARY
4	PLAN SHEET
5 AND 6	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-0	CROSS-SECTION SUMMARY
X-1 THRU X-10	CROSS-SECTIONS
S-1 THRU S-35	STRUCTURE PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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 POWER AND AT&T

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 OTHERS.

2006 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 July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.29	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
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

$$$$$$$$$$SYSTIME$$$$$$$$$$
$$$$$$$$$$FILENAME$$$$$$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
B-4149	1-B

3/15/06

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
33498.1.1	1C
Location and Surveys	

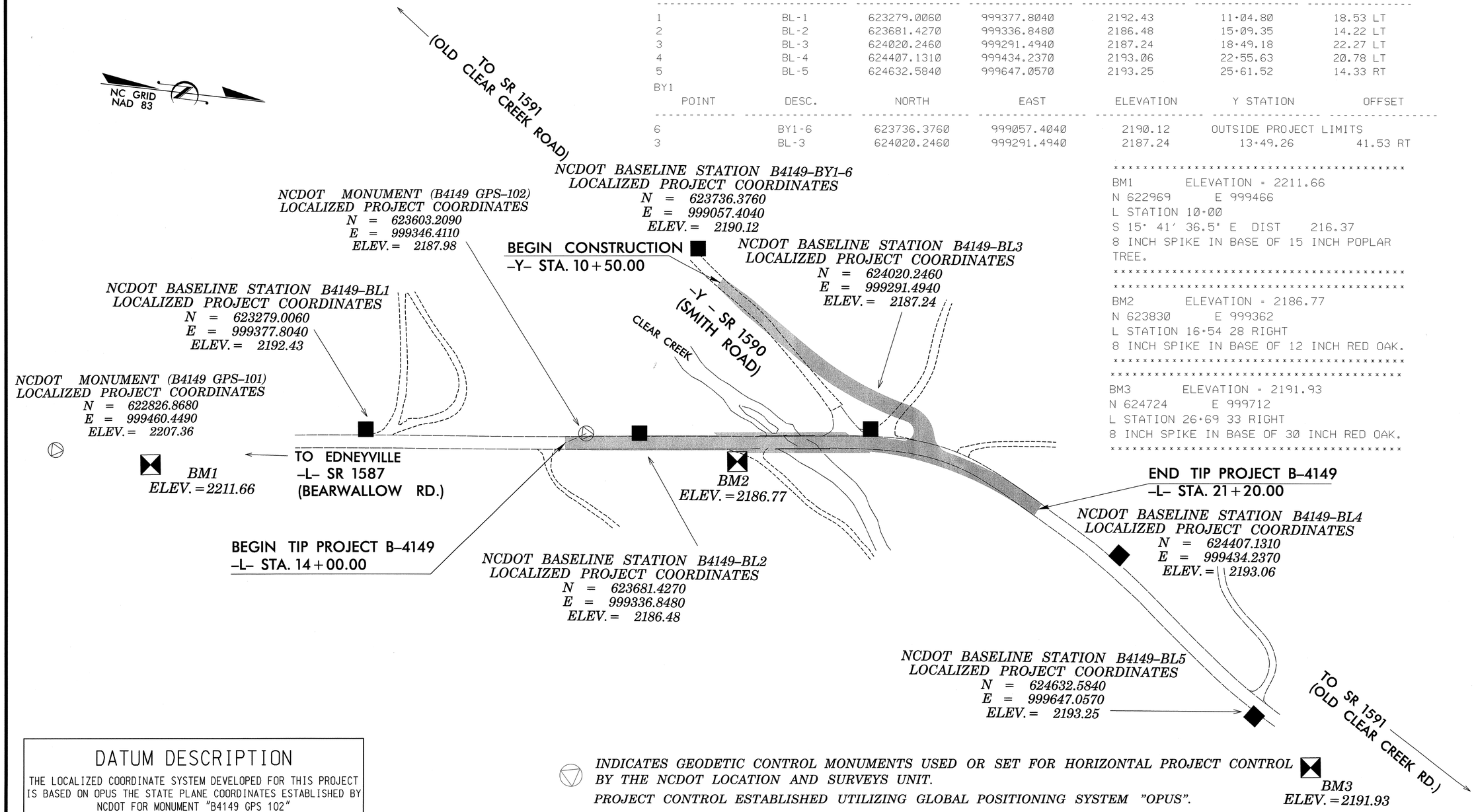
SURVEY CONTROL SHEET B-4149

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	623279.0060	999377.8040	2192.43	11+04.80	18.53 LT
2	BL-2	623681.4270	999336.8480	2186.48	15+09.35	14.22 LT
3	BL-3	624020.2460	999291.4940	2187.24	18+49.18	22.27 LT
4	BL-4	624407.1310	999434.2370	2193.06	22+55.63	20.78 LT
5	BL-5	624632.5840	999647.0570	2193.25	25+61.52	14.33 RT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
6	BY1-6	623736.3760	999057.4040	2190.12	OUTSIDE PROJECT LIMITS	
3	BL-3	624020.2460	999291.4940	2187.24	13+49.26	41.53 RT




```
*****************************************
BM1       ELEVATION = 2211.66
N 622969      E 999466
L STATION 10+00
S 15° 41' 36.5" E  DIST    216.37
8 INCH SPIKE IN BASE OF 15 INCH POPLAR
TREE.
*****************************************
*****************************************
BM2       ELEVATION = 2186.77
N 623830      E 999362
L STATION 16+54 28 RIGHT
8 INCH SPIKE IN BASE OF 12 INCH RED OAK.
*****************************************
*****************************************
BM3       ELEVATION = 2191.93
N 624724      E 999712
L STATION 26+69 33 RIGHT
8 INCH SPIKE IN BASE OF 30 INCH RED OAK.
*****************************************
```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON OPUS THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4149 GPS 102"
WITH NAD 83 STATE PLANE COORDINATES OF
NORTHING: 623603.2090(ft) EASTING: 999346.4110(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 99977158
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS 102" TO -L- STATION 14+00.00 IS
S 30°50'04"E 33.50
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM "OPUS".

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/ THE FILES TO BE FOUND ARE AS FOLLOWS: B4149_LS_CONTROL_070329.TXT

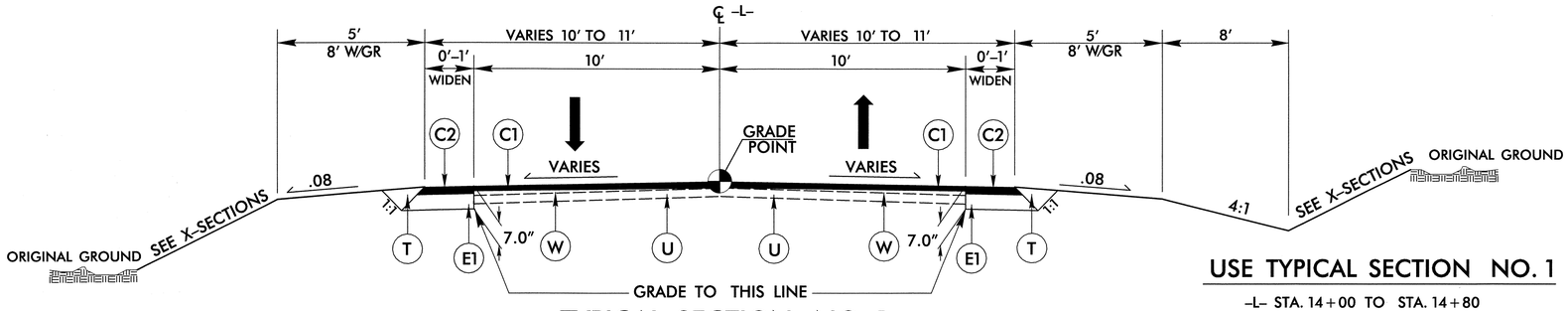
NOTE: DRAWING NOT TO SCALE

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4149	2

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. MITCHELLER
10/24/08

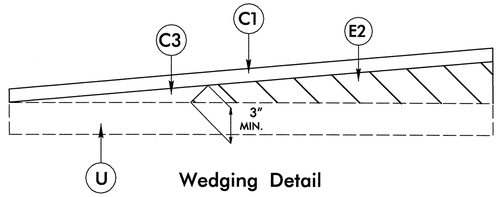
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
10/28/08



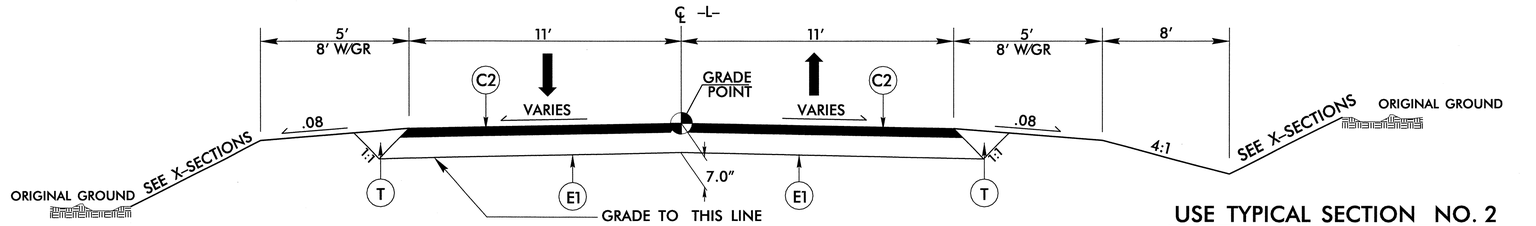
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 14+00 TO STA. 14+80
-L- STA. 20+50 TO STA. 21+20



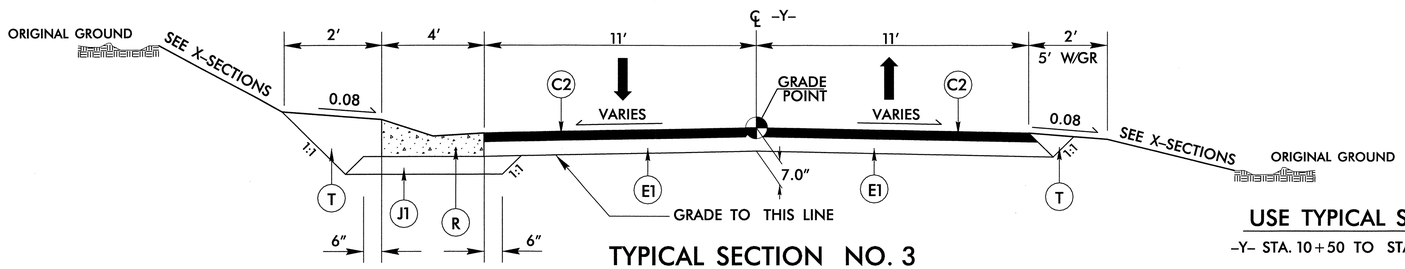
Wedging Detail



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

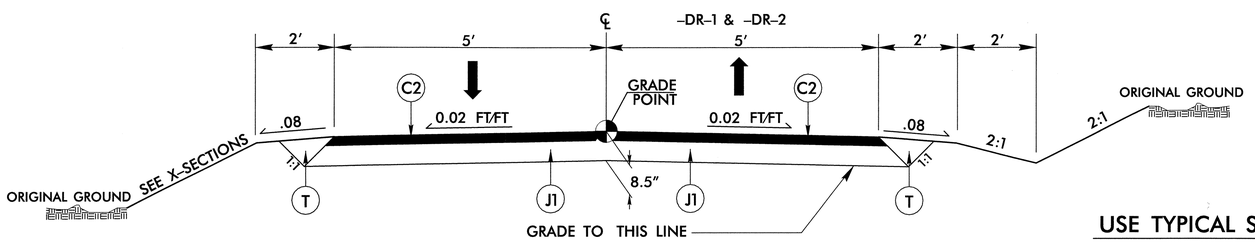
-L- STA. 14+80 TO STA. 16+53.00 (BEGIN BRIDGE)
-L- STA. 18+18.00 (END BRIDGE) TO STA. 20+50



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

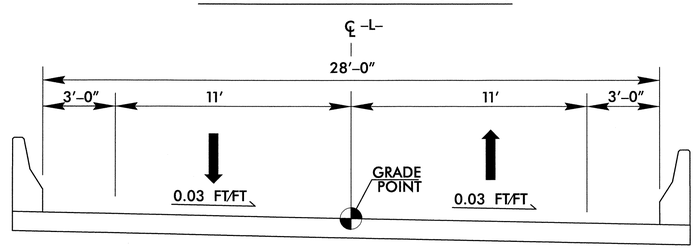
-Y- STA. 10+50 TO STA. 14+51.25



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

-DR-1- STA. 10+11 TO STA. 12+13.88
-DR-2- STA. 8+75 TO STA. 11+05



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

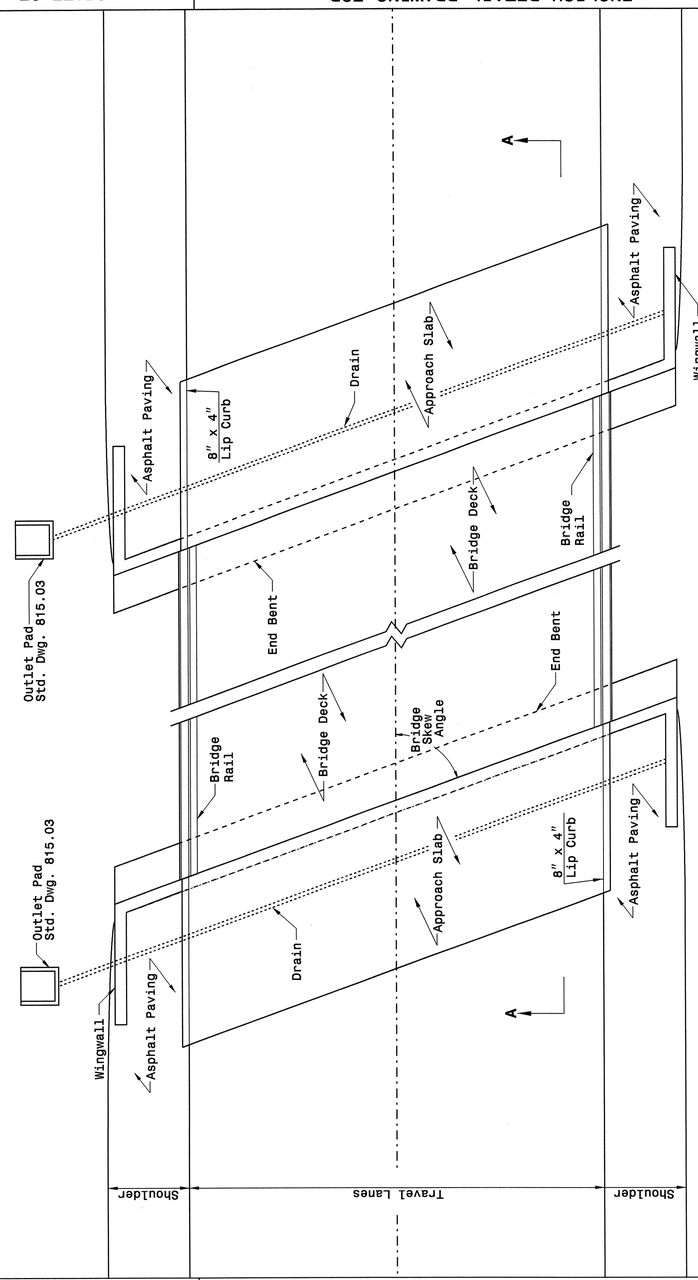
-L- STA. 16+53.00 (BEGIN BRIDGE) TO
-L- STA. 18+18.00 (END BRIDGE)

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	6" AGGREGATE BASE COURSE.
R	4' EXPRESSWAY GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL FOR RESURFACING).

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

6/2/98
$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4149	2-A

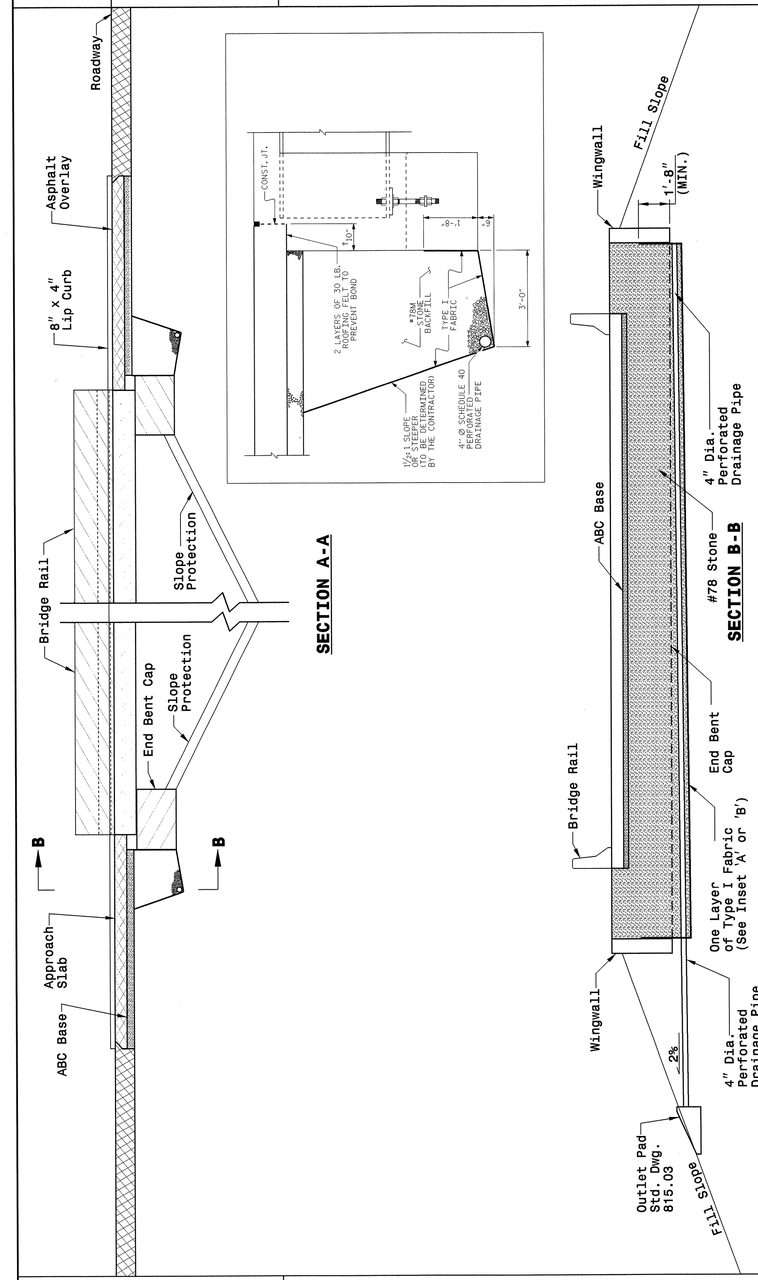


PLAN VIEW
12' APPROACH SLAB

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
SUB REGIONAL TIER

SHEET 1 OF 2
422D11



SECTION A-A

SECTION B-B

12' APPROACH SLAB

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
SUB REGIONAL TIER

SHEET 2 OF 2
422D11

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

BRIDGE APPROACH FILLS

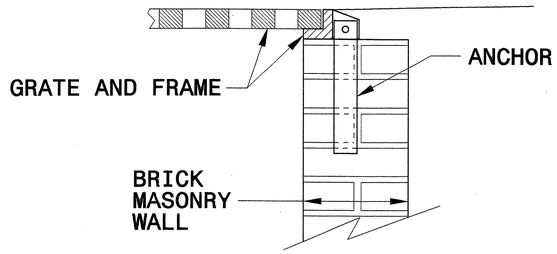
SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: kkempf\english\bridge approach fills.dgn

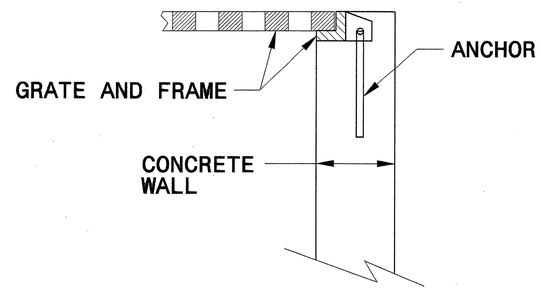
$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4149	2-B

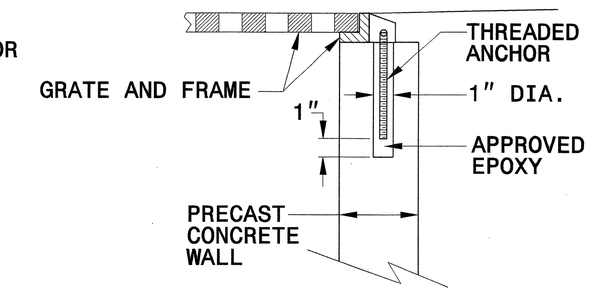
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.



BRICK MASONRY CONSTRUCTION



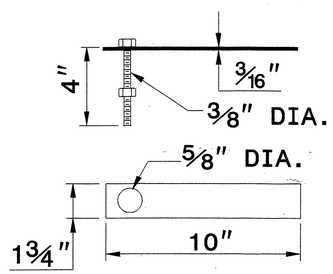
CONCRETE CONSTRUCTION



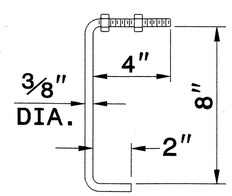
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

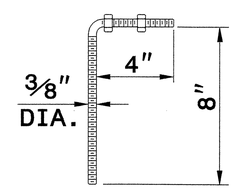
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



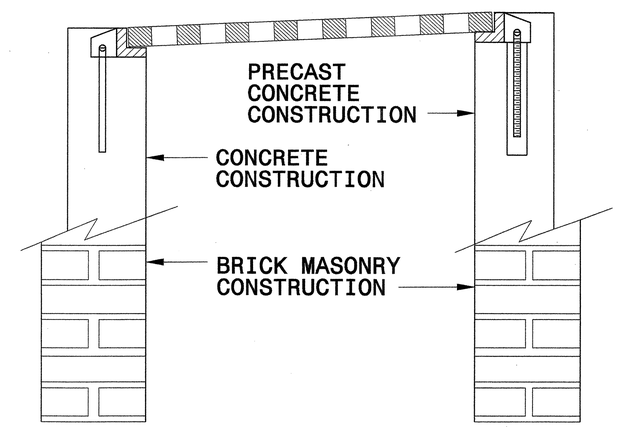
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

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

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL R. HOWERTON
11/6/08

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.F. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

$$$$$$$$SYSTIME$$$$
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PROJECT REFERENCE NO.	SHEET NO.
B-4149	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202020

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (17+35.50)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	109	CY	UNDERCUT EXCAVATION
0080000000-E	SP	100	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	295	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	100	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	50	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	32	LF	15" SIDE DRAIN PIPE
0344000000-E	310	36	LF	18" SIDE DRAIN PIPE
0345000000-E	310	32	LF	24" SIDE DRAIN PIPE
0366000000-E	310	196	LF	15" RC PIPE CULVERTS, CLASS III
0708000000-E	310	80	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0720000000-E	310	76	LF	24" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0995000000-E	340	104	LF	PIPE REMOVAL
1121000000-E	520	270	TON	AGGREGATE BASE COURSE
1489000000-E	610	560	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	380	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	50	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2022000000-E	815	112	CY	SUBDRAIN EXCAVATION
2033000000-E	815	84	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	5	EA	MASONRY DRAINAGE STRUCTURES
2355000000-N	840	5	EA	FRAME WITH GRATE, STD 840.29
2556000000-E	846	30	LF	SHOULDER BERM GUTTER
2577000000-E	846	320	LF	CONCRETE EXPRESSWAY GUTTER
3030000000-E	862	500	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	6	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3635000000-E	876	35	TON	RIP RAP, CLASS II
3649000000-E	876	250	TON	RIP RAP, CLASS B
3656000000-E	876	1,705	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	430	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	180	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	30	EA	DRUMS
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
4810000000-E	1205	9,200	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	20	LF	PAINT PAVEMENT MARKING LINES (24")
6000000000-E	1605	1,600	LF	TEMPORARY SILT FENCE
6006000000-E	1610	350	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	180	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	270	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	3	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	160	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	3	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	1,000	LF	SAFETY FENCE
6030000000-E	1630	850	CY	SILT EXCAVATION
6036000000-E	1631	2,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	50	SY	COIR FIBER MAT
6038000000-E	SP	50	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	100	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	8	EA	SPECIAL STILLING BASINS
6071030000-E	SP	480	LF	COIR FIBER BAFFLES
6071050000-E	SP	6	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	15	ACR	SEEDING & MULCHING
6087000000-E	1660	1.5	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1.5	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.25	ACR	REFORESTATION

5/28/99

6/21/00

COMPUTED BY: JRB DATE: 4-16-07
CHECKED BY: ACC DATE: 4-16-07

PROJECT REFERENCE NO.	SHEET NO.
B-4149	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

LINE	LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE REMOVAL
-L-	14+80 TO 15+40	133			
-L-	15+40 TO 16+42.56 (BEGIN APPR. SLAB)		228		
-L-	16+42.56 (BEGIN APPR. SLAB) TO 16+99 (EXIST. BRIDGE)	125			
-L-	17+80 (EXIST. BRIDGE) TO 18+28.43 (END APPR. SLAB)	108			
-L-	18+28.43 (END APPR. SLAB) TO 19+95		370		
-L-	19+95 TO 20+50	122			
-Y-	13+00 RT	66			
	TOTAL	554	598		
	SAY	560	600		

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

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
-L- 15+75	RT	1													
-L- 16+45	RT	2		2188.4	2185.6	2184.2			16						
-L- 19+53	CL	3			2188.3	2179.0									
-L- 19+93	LT	4													
-Y- 11+02	CL	5		2191.5	2188.8	2178.6									
-Y- 11+52	LT	6		2193.0	2190.2	2188.8			52						
-Y- 12+02	LT	7		2194.7	2191.9	2190.2			52						
-Y- 13+40	CL	8		2196.0	2193.3	2186.0			76						
-Y- 13+52	LT	9	8		2195.0	2193.3									
-Y- 13+72	LT	10													
TOTAL									196						

STATION	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR C.S. PIPE, TYPE IR ALUMINIZED OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
-L- 15+75																					
-L- 16+45																					
-L- 19+53				76																	
-L- 19+93																					
-Y- 11+02		60																			
-Y- 11+52																					
-Y- 12+02																					
-Y- 13+40																					
-Y- 13+52		20																			
-Y- 13+72																					
TOTAL		80		76																	

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	T.B.D.I. STD. 840.35	T.B.D.I. FRAME WITH GRATE STD. 840.29	PIPE REMOVAL LIN.FT.	REMARKS
-L- 15+75			32													
-L- 16+45						1							1	1		
-L- 19+53																
-L- 19+93		36													39	
-Y- 11+02						1							1	1		
-Y- 11+52						1							1	1		
-Y- 12+02						1							1	1		
-Y- 13+40						1							1	1	34	
-Y- 13+52																
-Y- 13+72	32														31	
TOTAL	32	36	32			5							5	5	104	

ABBREVIATIONS

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

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	B-77	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	14+60.12	16+35.12	LT	175				15+74	3	8		150		3			1				1									
-L-	15+95.88	16+70.88	RT	75			16+70.88		3	8	62.5		1.25				1				1									
-L-	17+99.90	18+99.9	LT	100			17+99.90		3	8	75		1.5				1				1									
-L-	18+36.58	20+61.58	RT	225				20+00	3	8		150		3			1				1									
-Y-	11+00.00	13+87.50	RT	287.50			11+00	13+85	2	5							2													
			SUBTOTAL	875													6				4									
		LESS DEDUCTIONS FOR ANCHORS																												
		GRAU-350 6 @ 50'=		-300																										
		B-77 4 @ 18.75'=		-75																										
		PROJECT TOTALS:		500																										
		ADDITIONAL GUARDRAIL POSTS=5 EA.																												

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

COMPUTED BY: JHM	DATE: 12/14/06
CHECKED BY: ACC	DATE: 12/14/06

PROJECT REFERENCE NO.	SHEET NO.
B-4149	3-B

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY NO.1					
-L- STA. 14+00 TO STA. 16+53 (BEG. BRIDGE)	1847		765		1082
SUBTOTAL SUMMARY NO.1	1847		765		1082
SUMMARY NO.2					
-L- STA. 18+18 (END BRIDGE) TO STA. 21+20	173		1171	998	
-Y- STA. 10+50 TO STA. 14+51.25	2251		3292	1041	
SUBTOTAL SUMMARY NO.2	2424		4463	2039	
PROJECT SUB-TOTAL	4271		5228	2039	1082
LOSS DUE TO CLEARING & GRUBBING	-650			650	
WASTE IN LIEU OF BORROW				-1082	-1082
PROJECT TOTAL	3621		5228	1607	0
EST. 5% TO REPLACE TOPSOIL AT BORROW PITS				80	
GRAND TOTAL	3621			1687	
SAY	3800			1800	
DDE = 295 CY					

CONTINENCY ITEMS:

UNDERCUT EXCAVATION = 109 CY

SELECT GRANULAR MATERIAL = 100 CY

CLASS IV SUBGRADE STABILIZATION = 100 TONS

FABRIC FOR SOIL STABILIZATION = 100 SY

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.

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

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PROJECT REFERENCE NO.	SHEET NO.
B-4149	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE W. SCHULLER — 10/24/08

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLER JR. — 10/27/08

V&M Vaughn & Melton Consulting Engineers
Middlesboro, Kentucky 606-248-6600
Greeneville, Tennessee 423-639-0275
Asheville, North Carolina 828-253-2796

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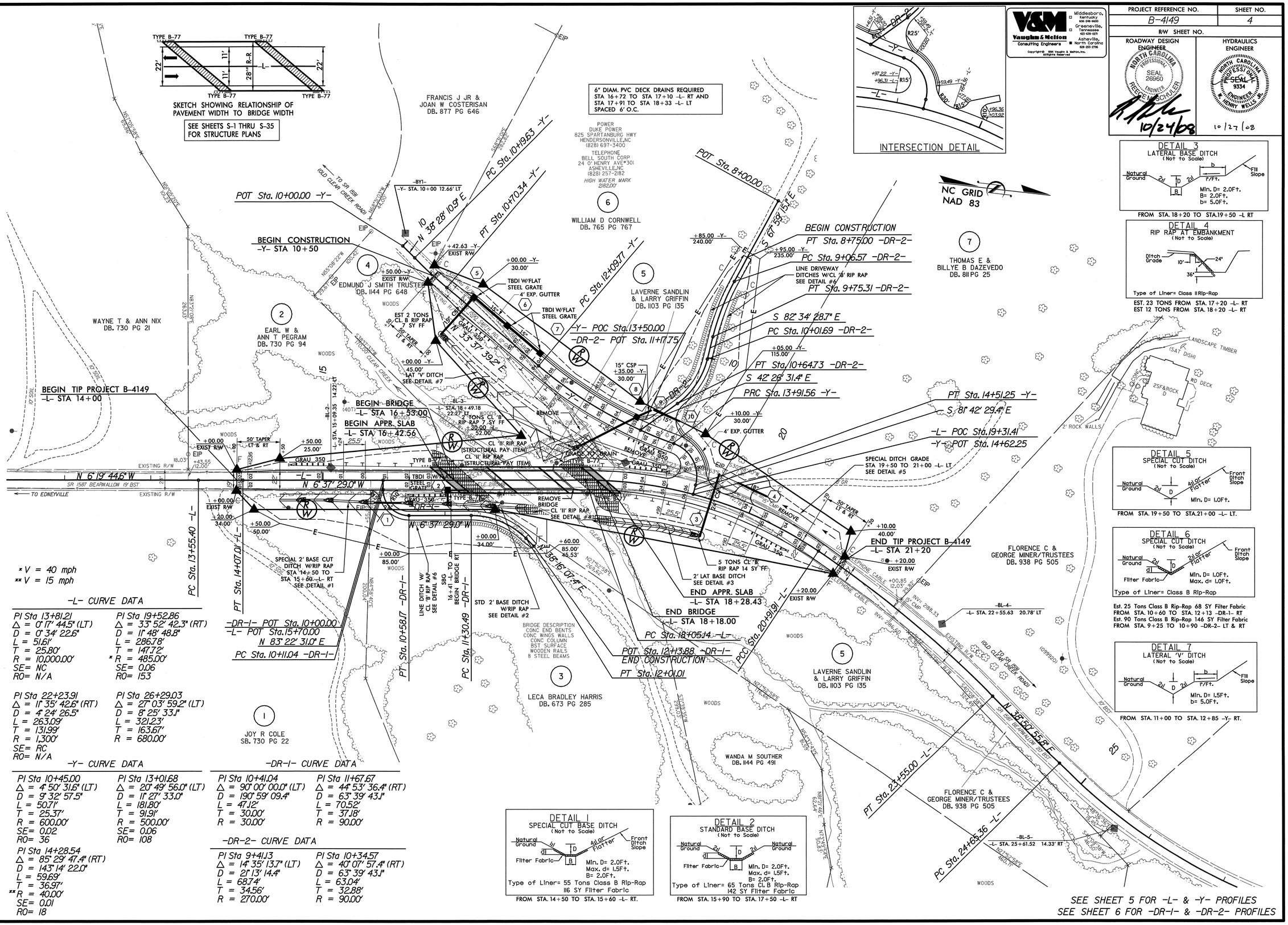
8/17/99

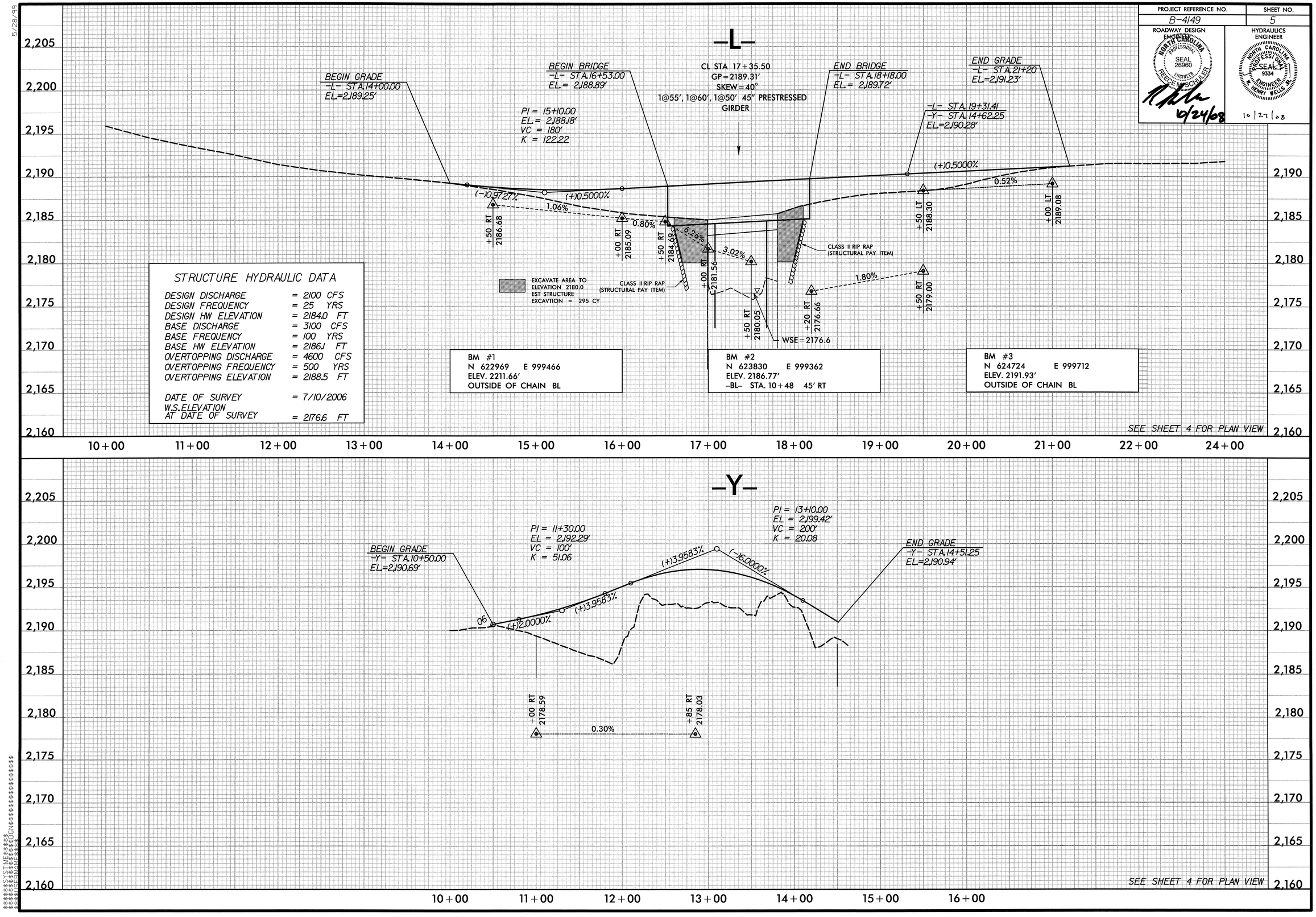
REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
B-4149	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER
6/24/08

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS
10/27/08



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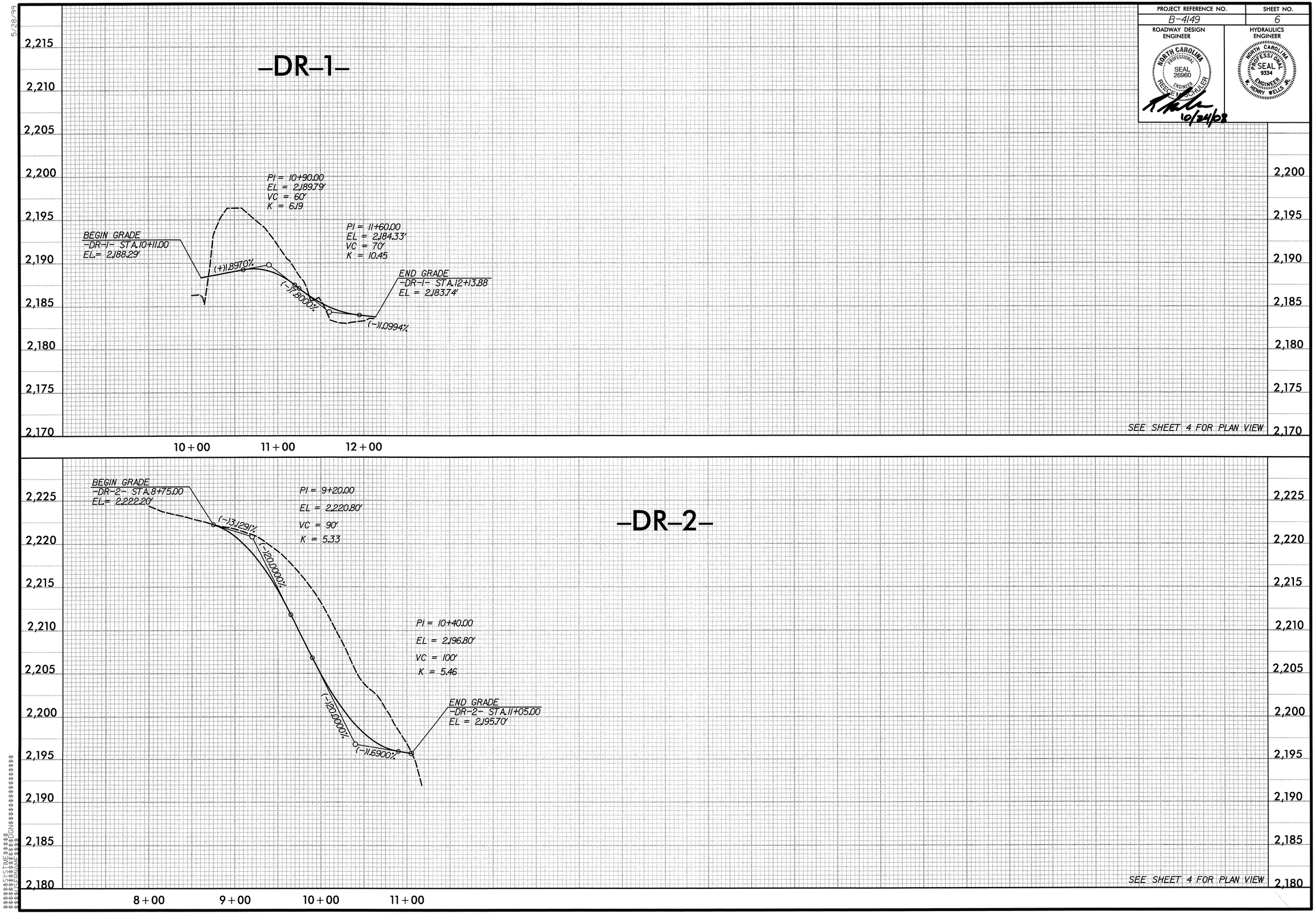
PROJECT REFERENCE NO.	SHEET NO.
B-4149	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE E. MASCHHALER

10/24/08

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.



5/28/99

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