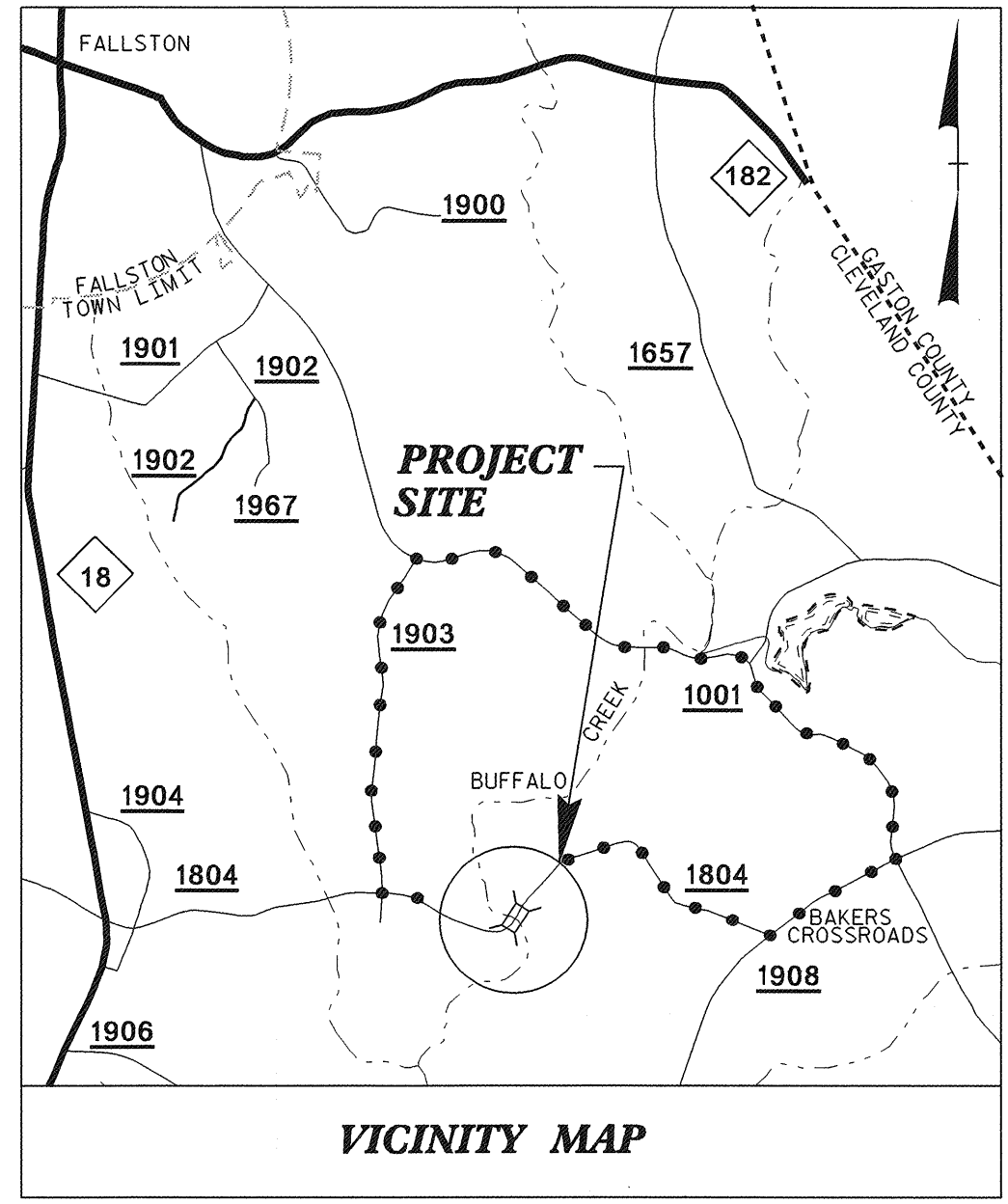


05/08/99

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CLEVELAND COUNTY

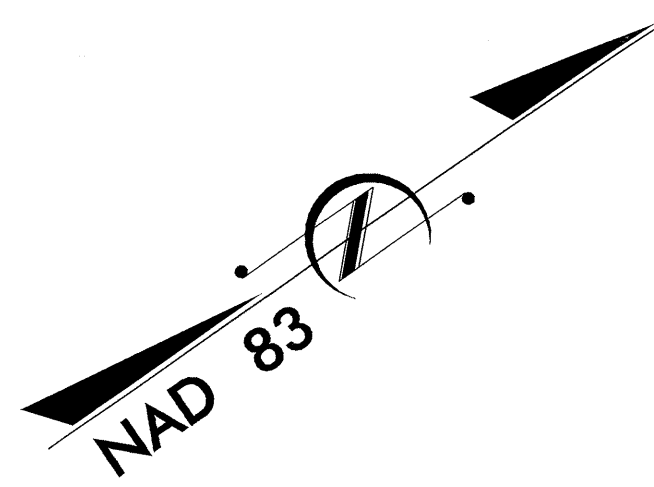
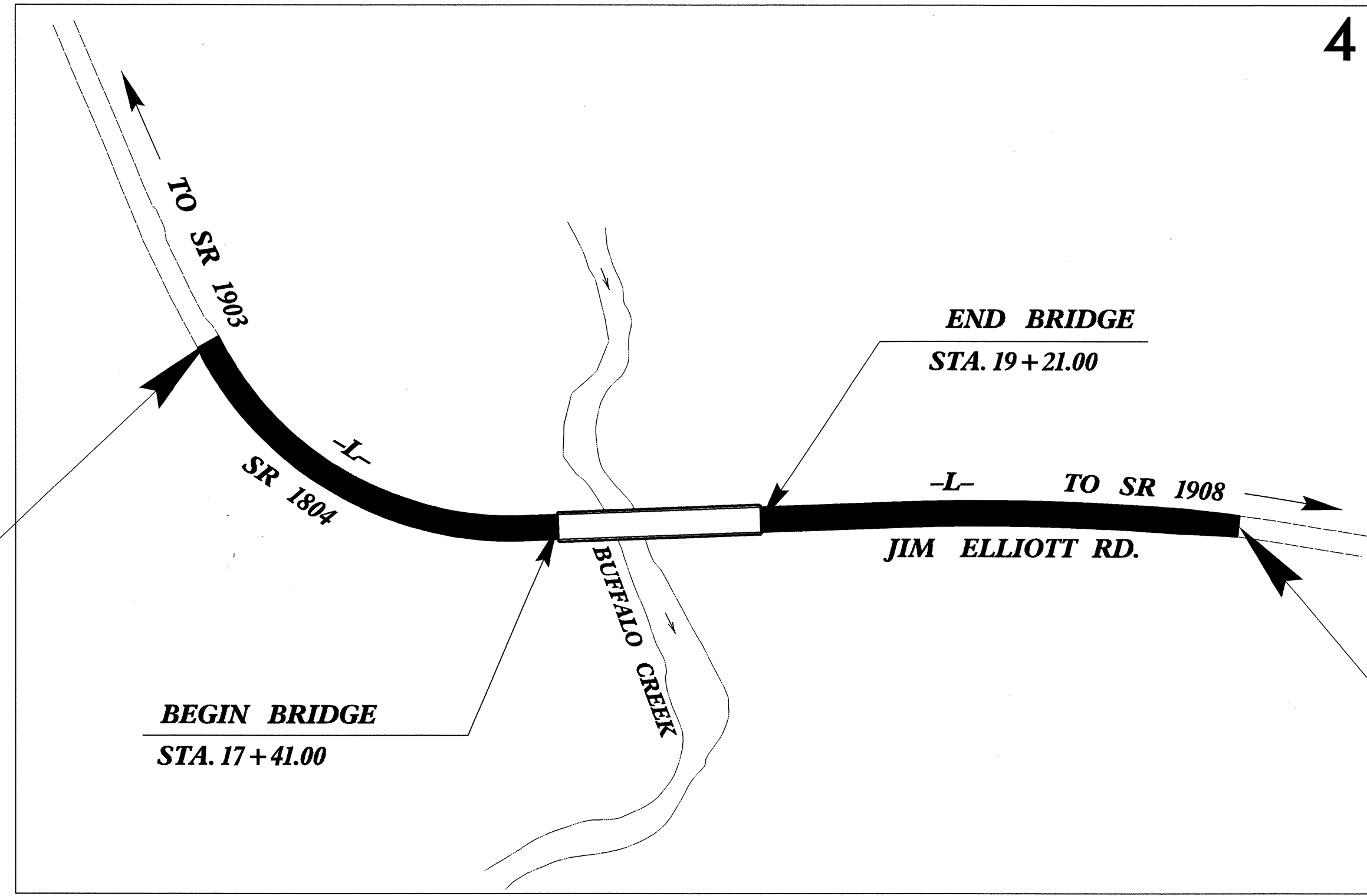
LOCATION: BRIDGE NO. 156 OVER BUFFALO CREEK
ON SR 1804 (JIM ELLIOTT RD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4076	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33438.1.1	BRZ-1804(1)	P.E.	
33438.2.1	BRZ-1804(1)	R/W & UTIL.	
33438.3.1	BRZ-1804(1)	CONST.	

TIP PROJECT: B-4076

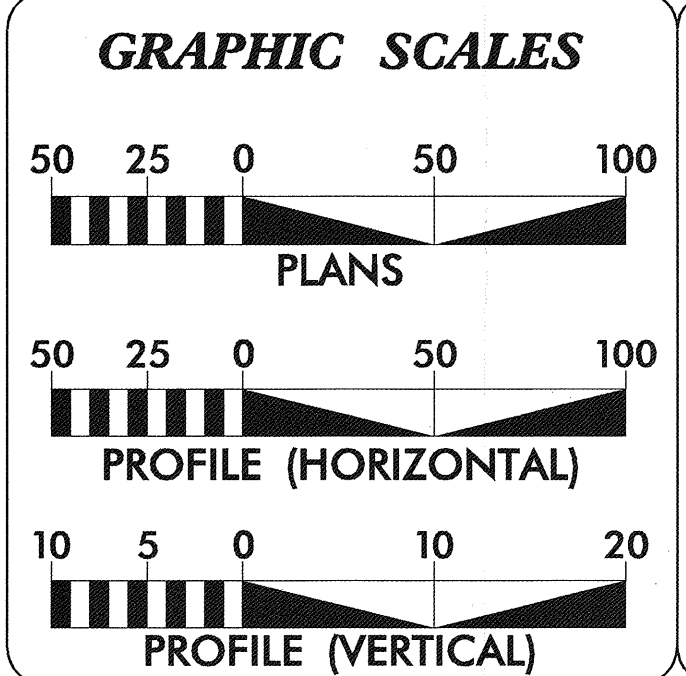
CONTRACT: C201497



STA 14+50.00 -L- BEGIN TIP PROJECT B-4076

STA 23+50.00 -L- END TIP PROJECT B-4076

**DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED (30 MPH) AND HORIZONTAL STOPPING SIGHT DISTANCE



DESIGN DATA

ADT 2007 = 122
ADT 2027 = 209

DHV = 10 %
D = 60 %
T = 3 % *

** V = 60 MPH
* TTST 1% + DUAL 2%

FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4076	=	0.136 MI
LENGTH OF STRUCTURE TIP PROJECT B-4076	=	0.034 MI
TOTAL LENGTH OF TIP PROJECT B-4076	=	0.170 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **BRENDA MOORE, P.E.**
PROJECT ENGINEER
JUNE 17, 2005

LETTING DATE: **ROGER KLUCKMAN, P.E.**
PROJECT DESIGN ENGINEER
APRIL 17, 2007

HYDRAULICS ENGINEER

Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEER, SEAL 20870, 1-11-07

SIGNATURE: *[Signature]* P.E.

ROADWAY DESIGN ENGINEER

Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEER, SEAL 22942, 1-11-07

SIGNATURE: *[Signature]* P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEER, SEAL 22942, 1-11-07

SIGNATURE: *[Signature]* P.E.

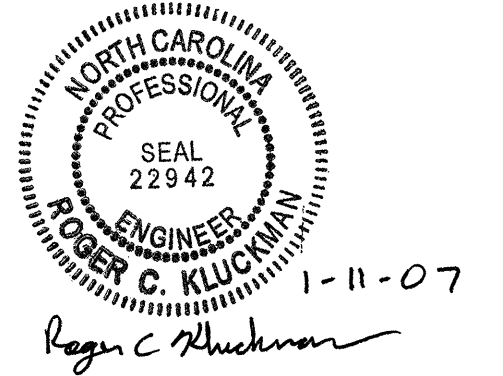
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED DIVISION ADMINISTRATOR DATE

04-JAN-2007 07:45
r:\ogdway\proj\14076_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
INDEX OF SHEETS



EFF. 07-18-06

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-E	SURVEY CONTROL SHEETS
2	TYPICAL SECTIONS AND PAVEMENT SCHEDULE
2-A	ANCHORAGE FOR FRAMES DETAIL (840D25)
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT BREAK-UP/REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-4	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITY PLANS BY OTHERS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-4	CROSS-SECTIONS
S-1 THRU S-22	STRUCTURE PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED:

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE RUTHERFORD ELECTRIC MEMBERSHIP CORP. 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 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	
200.03	Method of Clearing - Method III
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 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
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
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

*S.U.E = SUBSURFACE UTILITY ENGINEER

ROADS & RELATED ITEMS

Edge of Pavement	-----
Curb	-----
Prop. Slope Stakes Cut	--- C ---
Prop. Slope Stakes Fill	--- F ---
Prop. Woven Wire Fence	○-----○
Prop. Chain Link Fence	□-----□
Prop. Barbed Wire Fence	◇-----◇
Prop. Wheelchair Ramp	WCR
Curb Cut for Future Wheelchair Ramp	CCFR
Exist. Guardrail	-----
Prop. Guardrail	-----
Equality Symbol	⊕
Pavement Removal	⊗

RIGHT OF WAY

Baseline Control Point	◆
Existing Right of Way Marker	△
Exist. Right of Way Line w/Marker	-----△
Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)	-----▲
Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker	-----▲
Exist. Control of Access Line	○ C A
Prop. Control of Access Line	○ C A
Exist. Easement Line	-----E
Prop. Temp. Construction Easement Line	-----E
Prop. Temp. Drainage Easement Line	-----TDE
Prop. Perm. Drainage Easement Line	-----PDE

HYDROLOGY

Stream or Body of Water	-----
River Basin Buffer	-----BZ
Flow Arrow	----->
Disappearing Stream	-----
Spring	-----
Swamp Marsh	-----
Shoreline	-----
Falls, Rapids	-----
Prop Lateral, Tail, Head Ditches	-----

STRUCTURES

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

MINOR	
Head & End Wall	-----CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Boxes	-----CB
Paved Ditch Gutter	-----

UTILITIES

Exist. Pole	•
Exist. Power Pole	•
Prop. Power Pole	○
Exist. Telephone Pole	•
Prop. Telephone Pole	○
Exist. Joint Use Pole	•
Prop. Joint Use Pole	○
Telephone Pedestal	⊕
UG Telephone Cable Hand Hold	⊕
Cable TV Pedestal	⊕
UG TV Cable Hand Hold	⊕
UG Power Cable Hand Hold	⊕
Hydrant	⊕
Satellite Dish	⊕
Exist. Water Valve	⊕
Sewer Clean Out	⊕
Power Manhole	⊕
Telephone Booth	⊕
Cellular Telephone Tower	⊕
Water Manhole	⊕
Light Pole	⊕
H-Frame Pole	⊕
Power Line Tower	⊕
Pole with Base	⊕
Gas Valve	⊕
Gas Meter	⊕
Telephone Manhole	⊕
Power Transformer	⊕
Sanitary Sewer Manhole	⊕
Storm Sewer Manhole	⊕
Tank; Water, Gas, Oil	⊕
Water Tank With Legs	⊕
Traffic Signal Junction Box	⊕
Fiber Optic Splice Box	⊕
Television or Radio Tower	⊕
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement	-----TS

Recorded Water Line	-----W
Designated Water Line (S.U.E.*)	-----W
Sanitary Sewer	-----SS
Recorded Sanitary Sewer Force Main	-----FSS
Designated Sanitary Sewer Force Main(S.U.E.*)	-----FSS
Recorded Gas Line	-----G
Designated Gas Line (S.U.E.*)	-----G
Storm Sewer	-----S
Recorded Power Line	-----P
Designated Power Line (S.U.E.*)	-----P
Recorded Telephone Cable	-----T
Designated Telephone Cable (S.U.E.*)	-----T
Recorded U/G Telephone Conduit	-----TC
Designated U/G Telephone Conduit (S.U.E.*)	-----TC
Unknown Utility (S.U.E.*)	-----UTL
Recorded Television Cable	-----TV
Designated Television Cable (S.U.E.*)	-----TV
Recorded Fiber Optics Cable	-----FO
Designated Fiber Optics Cable (S.U.E.*)	-----FO
Exist. Water Meter	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to U/G Record	ATTUR
End of Information	E.O.I.

BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	⊕
Exist. Iron Pin	⊕
Property Corner	⊕
Property Monument	⊕
Property Number	⊕
Parcel Number	⊕
Fence Line	-----
Existing Wetland Boundaries	-----WW & ISBW
High Quality Wetland Boundary	-----HO WLB
Medium Quality Wetland Boundaries	-----MO WLB
Low Quality Wetland Boundaries	-----LO WLB
Proposed Wetland Boundaries	-----WLB
Existing Endangered Animal Boundaries	-----EAB
Existing Endangered Plant Boundaries	-----EPB

BUILDINGS & OTHER CULTURE

Buildings	-----
Foundations	-----
Area Outline	-----
Gate	-----
Gas Pump Vent or U/G Tank Cap	-----
Church	-----
School	-----
Park	-----
Cemetery	-----
Dam	-----
Sign	-----
Well	-----
Small Mine	-----
Swimming Pool	-----

TOPOGRAPHY

Loose Surface	-----
Hard Surface	-----
Change in Road Surface	-----
Curb	-----
Right of Way Symbol	R/W
Guard Post	⊕ GP
Paved Walk	-----
Bridge	-----
Box Culvert or Tunnel	-----
Ferry	-----
Culvert	-----
Footbridge	-----
Trail, Footpath	-----
Light House	-----

VEGETATION

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

RAILROADS

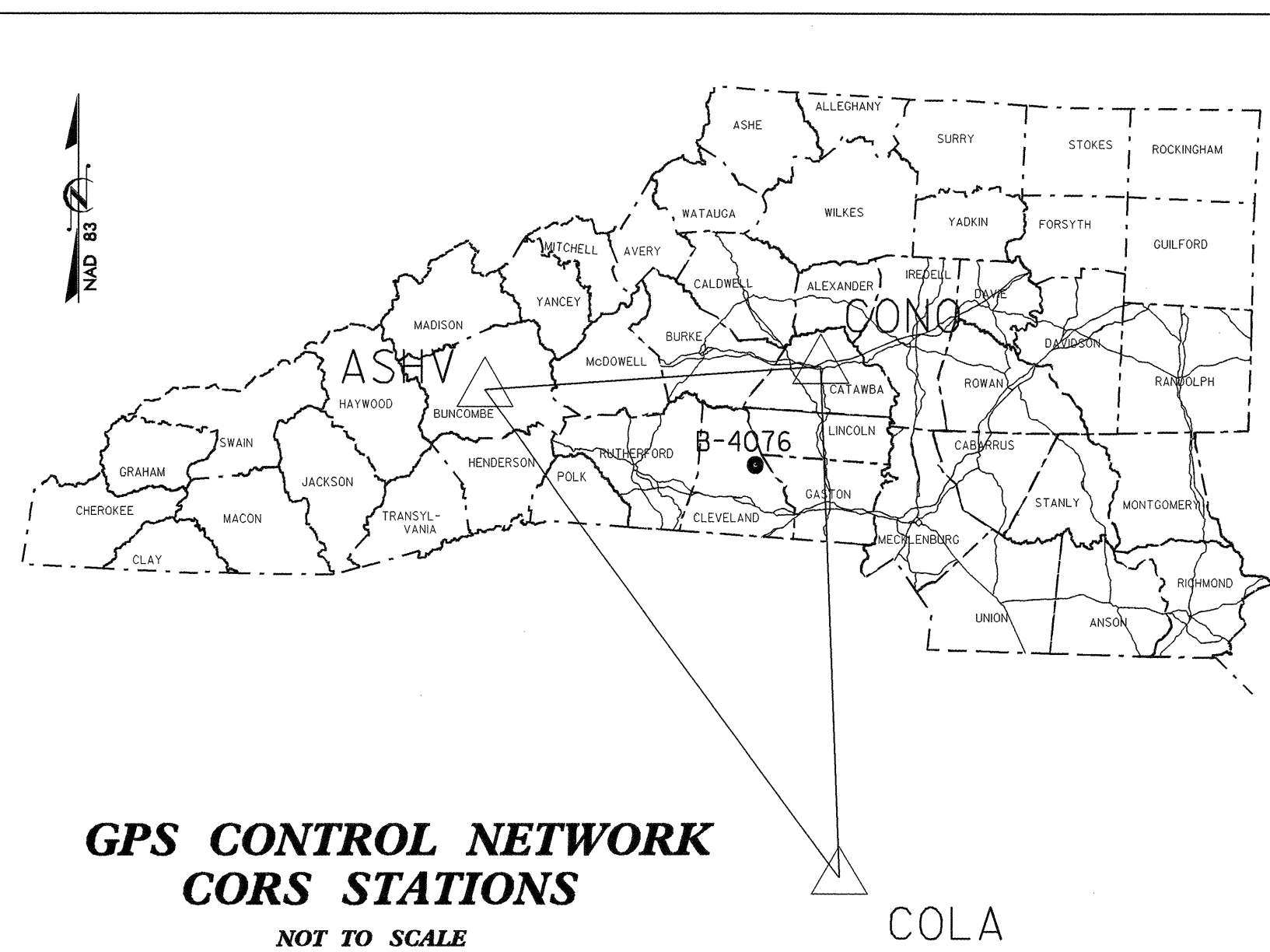
Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----

5/28/99

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5:58:01 PM

PROJECT REFERENCE NO.	SHEET NO.
B-4076	1 C
Location and Surveys	

SURVEY CONTROL SHEET B-4076



NOTES:

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](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project)

THE FILES TO BE FOUND ARE AS FOLLOWS:

- B4076_LS_BASELINE_050204.TXT
- B4076_LS_GPSCALIB_050204.TXT
- B4076_LS_WGS84_050204.TXT
- B4076_LS_LOCAL_050204.TXT

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

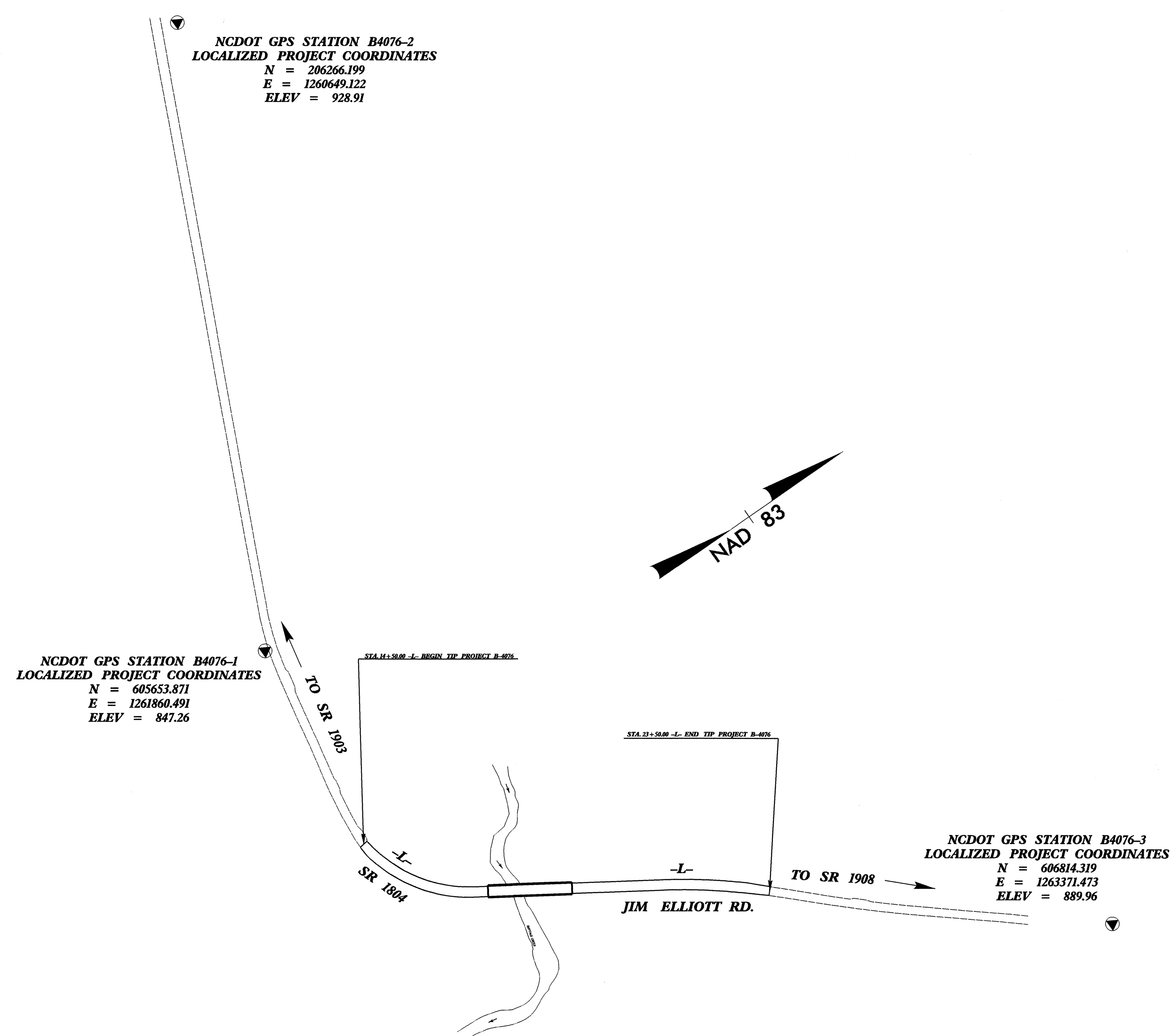
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USERS GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

NOTE: DRAWING NOT TO SCALE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4076-1"

WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 605653.871 (ft) EASTING: 1261860.491 (ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998350

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4076-1" TO -L- STATION 10+00.00 IS
N 49°59'50.2" E 20.391

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

6/2/99
04-JAN-2007 07:45 4076-1s-1c-050204.dgn

SURVEY CONTROL SHEET B-4076

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	B4076-2	606266.1990	1260649.1220	928.91	OUTSIDE PROJECT LIMITS	
1	B4076-1	605653.8710	1261860.4910	847.26	OUTSIDE PROJECT LIMITS	
10	BL-10	605572.4810	1262298.2230	838.04	14+28.68	18.67 RT
11	BL-11	605754.3890	1262565.0470	821.52	17+52.32	10.23 RT
12	BL-12	606070.5290	1262769.9630	821.78	21+29.19	12.31 RT
13	BL-13	606505.2030	1263145.0480	866.92	OUTSIDE PROJECT LIMITS	
3	B4076-3	606814.3190	1263371.4730	889.96	OUTSIDE PROJECT LIMITS	

TL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
15	T-15	605843.9940	1262420.4260	810.52	17+49.83	159.88 LT
E011		605754.3890	1262565.0470	821.52	17+52.32	10.23 RT
16	T-16	605713.6060	1262729.6660	806.22	18+06.72	170.87 RT
17	T-17	605621.5510	1262757.3410	808.31	17+44.11	243.80 RT

```

*****
BM1 ELEVATION = 847.32
N 605648 E 1261842
L STATION 10+00
S 71° 14' 29.2" W DIST 610.92
RR SPIKE IN POWER POLE
*****
BM2 ELEVATION = 824.76
N 605666 E 1262525
L STATION 11+70 97 LEFT
RR SPIKE IN POWER POLE
*****
BM3 ELEVATION = 880.15
N 606593 E 1263152
L STATION 13+40 975 RIGHT
RR SPIKE IN POWER POLE
*****

```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4076-1"

WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 605653.8711 EASTING: 1261860.4911

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998350

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4076-1" TO L- STATION 10+00.00 IS
 N 49°59'50.2" E 20.391

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTES:

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](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project)

THE FILES TO BE FOUND ARE AS FOLLOWS:

- B4076_LS_BASELINE_050204.TXT
- B4076_LS_GPSCALIB_050204.TXT
- B4076_LS_WGS84_050204.TXT
- B4076_LS_LOCAL_050204.TXT

⊗ 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 USER SERVICE (OPUS)

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USERS GPS EQUIPMENT.

IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET B-4076

GPS CALIBRATION REPORT
GPS CALIBRATION REPORT
PROJECT : B4076-S

TIP NUMBER: B-4076
USER NAME: ADMIN DATE & TIME: 1/19 PM 2/4/2005
COORDINATE SYSTEM: STATE PLANE 1983 (AT GROUND) ZONE: NORTH CAROLINA 3200
HORIZONTAL DATUM: CALIBRATION
VERTICAL DATUM: NAVD-88 GEOID MODEL: GEOID99 (CONUS)
COORDINATE UNITS: SURVEY FEET
DISTANCE UNITS: SURVEY FEET
HEIGHT UNITS: SURVEY FEET

LOCAL SITE INFORMATION
LOCALIZED AROUND: B4076-1
LATITUDE: 35°23'19.82217"N
LONGITUDE: 81°28'36.83732"W
SITE SCALE FACTOR: 1.0001650272
HEIGHT: 742.6215FT

DATUM TRANSFORMATION PARAMETERS

METHOD THREE PARAMETER
TRANSLATION ALONG X AXIS: 12.6515FT
TRANSLATION ALONG Y AXIS: -84.3335FT
TRANSLATION ALONG Z AXIS: 60.5785FT

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER: 606206.7215FT
EASTING COORDINATE OF ROTATION CENTER: 1262569.1575FT
ROTATION ABOUT THE CENTER POINT: 0°00'00"
TRANSLATION NORTH: 0.0005FT
TRANSLATION EAST: 0.0005FT
SCALE FACTOR: 1.00000316

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT: 606266.2005FT
EASTING COORDINATE OF ORIGIN POINT: 1260649.1195FT
VERTICAL SEPARATION AT ORIGIN: 0.0135FT
SLOPE NORTH: 7.068PPM
SLOPE EAST: -4.508PPM

GEOID MODEL DEFINITION

GEOID99 (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

MAXIMUM ERROR ROOT MEAN SQUARE ERROR POINT
HORIZONTAL: 0.0125FT 0.002B4076-1 GPS
VERTICAL: 0.0055FT 0.001P6 GPS
THREE-DIMENSIONAL: 0.0125FT 0.002B4076-1 GPS

POINT RESIDUALS

WGS84 COORDINATES CALCULATED POINT
FOR DISPLAY ONLY LOCAL COORDINATES
POINT B4076-2 GPS
LATITUDE: 35°23'25.57695"N
LONGITUDE: 81°28'51.64734"W
HEIGHT: 824.2775FT
NORTHING: 606266.2005FT
EASTING: 1260649.1195FT
ELEVATION: 928.9075FT
HORZ ERROR: 0.0045FT
VERT ERROR: 0.0025FT
3D ERROR: 0.0055FT
POINT B4076-2
NORTHING: 606266.1985FT
EASTING: 1260649.1235FT
ELEVATION: 928.9095FT
UTILIZED HORZ AND VERT
QUALITY CONTROL QUALITY

POINT B4076-3 GPS
LATITUDE: 35°23'31.66751"N
LONGITUDE: 81°28'18.94407"W
HEIGHT: 785.3285FT
NORTHING: 606814.3185FT
EASTING: 1263371.4695FT
ELEVATION: 889.9285FT
HORZ ERROR: 0.0045FT
VERT ERROR: 0.0045FT
3D ERROR: 0.0065FT
POINT B4076-3
NORTHING: 606814.3195FT
EASTING: 1263371.4735FT
ELEVATION: 889.9235FT
UTILIZED HORZ AND VERT
QUALITY CONTROL QUALITY

POINT B4076-1 GPS
LATITUDE: 35°23'19.82218"N
LONGITUDE: 81°28'36.83731"W
HEIGHT: 742.6205FT
NORTHING: 605653.8695FT
EASTING: 1261860.5045FT
ELEVATION: 847.2265FT
HORZ ERROR: 0.0125FT
VERT ERROR: 0.0035FT
3D ERROR: 0.0125FT
POINT B4076-1
NORTHING: 605653.8715FT
EASTING: 1261860.4925FT
ELEVATION: 847.2235FT
UTILIZED HORZ AND VERT
QUALITY CONTROL QUALITY

POINT P7 GPS
LATITUDE: 35°23'34.23544"N
LONGITUDE: 81°28'22.82202"W
HEIGHT: 759.1655FT
NORTHING: 607081.8905FT
EASTING: 1263056.9445FT
ELEVATION: 863.7725FT
HORZ ERROR: 0.0025FT
VERT ERROR: 0.0025FT
3D ERROR: 0.0035FT
POINT P7
NORTHING: 607081.8895FT
EASTING: 1263056.9455FT
ELEVATION: 863.7705FT
UTILIZED HORZ AND VERT
QUALITY ADJUSTED QUALITY

POINT P6 GPS
LATITUDE: 35°23'29.33500"N
LONGITUDE: 81°28'15.74025"W
HEIGHT: 785.9635FT
NORTHING: 606571.9365FT
EASTING: 1263630.7905FT
ELEVATION: 890.5555FT
HORZ ERROR: 0.0045FT
VERT ERROR: 0.0055FT
3D ERROR: 0.0075FT
POINT P6
NORTHING: 606571.9375FT
EASTING: 1263630.7865FT
ELEVATION: 890.5615FT
UTILIZED HORZ AND VERT
QUALITY ADJUSTED QUALITY

POINT P2 GPS
LATITUDE: 35°23'15.36960"N
LONGITUDE: 81°28'32.16872"W
HEIGHT: 711.9905FT
NORTHING: 605194.1445FT
EASTING: 1262235.7295FT
ELEVATION: 816.5845FT
HORZ ERROR: 0.0025FT
VERT ERROR: 0.0055FT
3D ERROR: 0.0025FT
POINT P2
NORTHING: 605194.1435FT
EASTING: 1262235.7315FT
ELEVATION: 816.5845FT
UTILIZED HORZ AND VERT
QUALITY ADJUSTED QUALITY

POINT P4 GPS
LATITUDE: 35°23'24.86187"N
LONGITUDE: 81°28'25.64322"W
HEIGHT: 721.2865FT
NORTHING: 606140.1925FT
EASTING: 1262799.8115FT
ELEVATION: 825.8845FT
HORZ ERROR: 0.0035FT
VERT ERROR: 0.0055FT
3D ERROR: 0.0035FT
POINT P4
NORTHING: 606140.1935FT
EASTING: 1262799.8135FT
ELEVATION: 825.8855FT
UTILIZED HORZ AND VERT
QUALITY ADJUSTED QUALITY

POINT P5 GPS
LATITUDE: 35°23'29.05890"N
LONGITUDE: 81°28'21.33696"W
HEIGHT: 766.7445FT
NORTHING: 606555.5635FT
EASTING: 1263166.8325FT
ELEVATION: 871.3435FT
HORZ ERROR: 0.0025FT
VERT ERROR: 0.0025FT
3D ERROR: 0.0035FT
POINT P5
NORTHING: 606555.5635FT
EASTING: 1263166.8305FT
ELEVATION: 871.3445FT
UTILIZED HORZ AND VERT
QUALITY ADJUSTED QUALITY

POINT P3 GPS
LATITUDE: 35°23'19.23643"N
LONGITUDE: 81°28'30.89133"W
HEIGHT: 731.0435FT
NORTHING: 605582.3815FT
EASTING: 1262351.2165FT
ELEVATION: 835.6405FT
HORZ ERROR: 0.0045FT
VERT ERROR: 0.0055FT
3D ERROR: 0.0045FT
POINT P3
NORTHING: 605582.3795FT
EASTING: 1262351.2205FT
ELEVATION: 835.6405FT
UTILIZED HORZ AND VERT
QUALITY ADJUSTED QUALITY

NOTES:

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](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project)

THE FILES TO BE FOUND ARE AS FOLLOWS:

- B4076_LS_BASELINE_050204.TXT**
- B4076_LS_GPSCALIB_050204.TXT**
- B4076_LS_WGS84_050204.TXT**
- B4076_LS_LOCAL_050204.TXT**

⊗ 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 USER SERVICE (OPUS)
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.**

**THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USERS GPS EQUIPMENT.
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.**

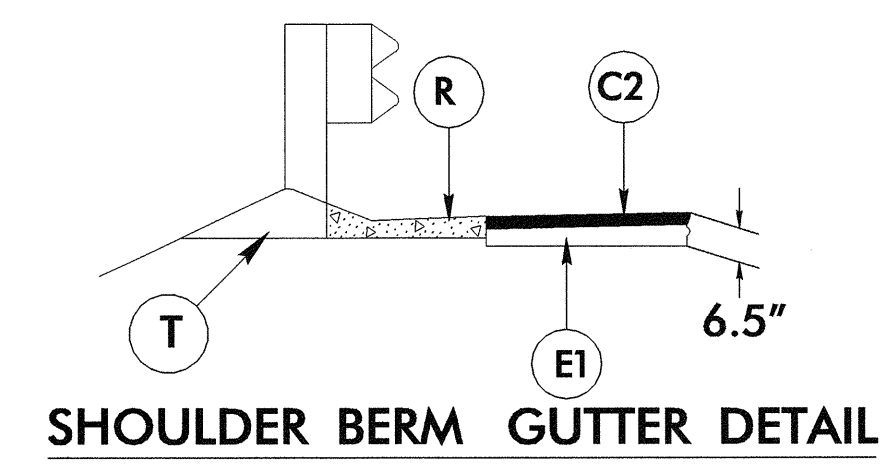
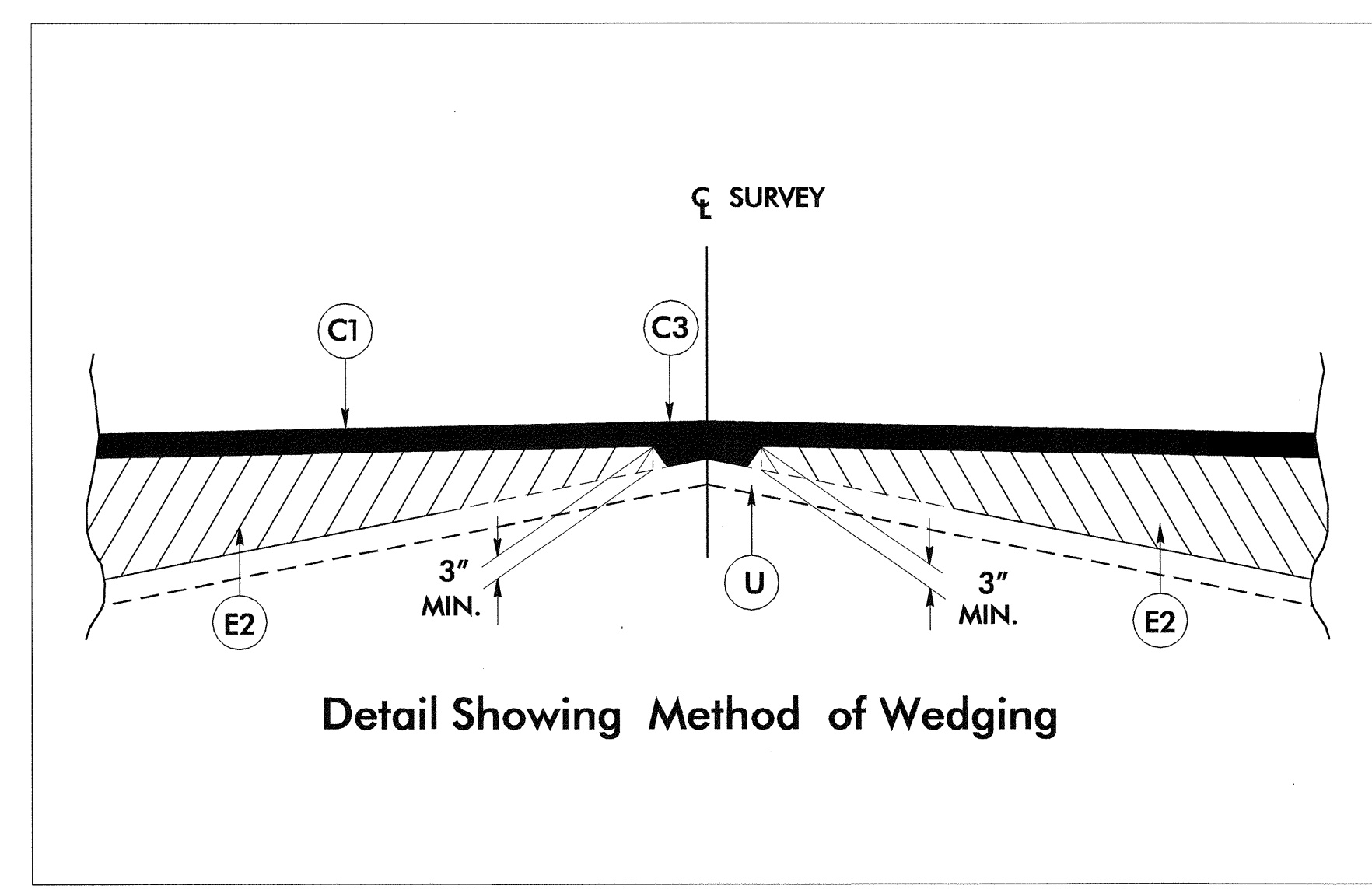
NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

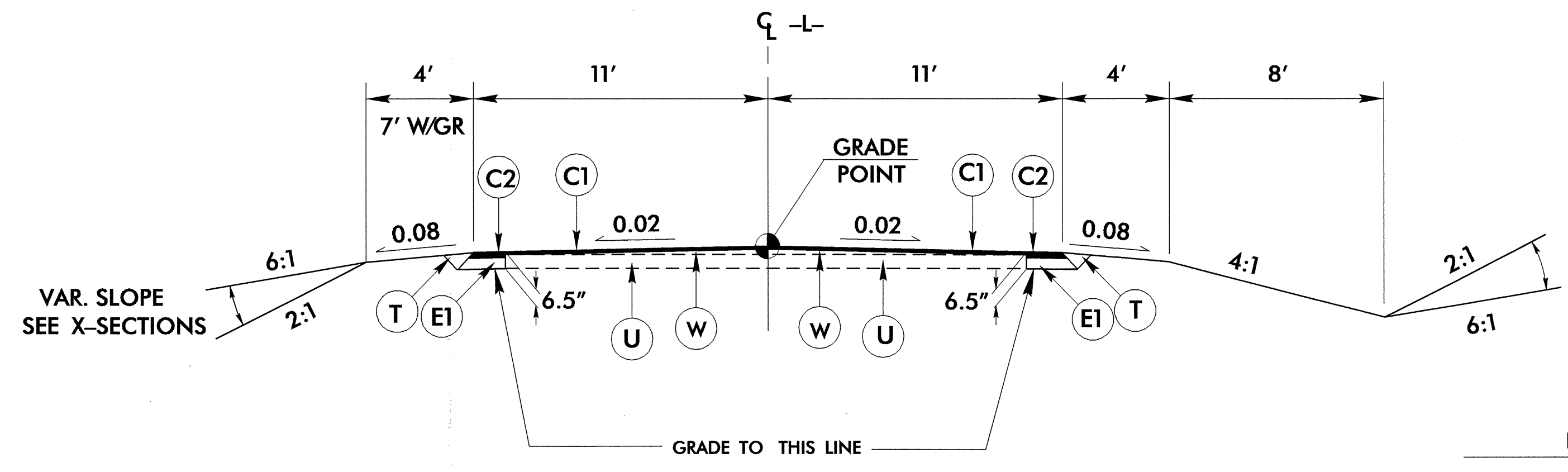
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4076-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 605653.871111 EASTING: 1261860.491111
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998350
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4076-1" TO "L" STATION 10+00.00 IS
N 49°59'50.2" E 20.391
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" 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 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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 5 1/2" IN DEPTH.
R	SHOULDER BERM GUTTER.
U	EXISTING PAVEMENT.
T	EARTH MATERIAL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET).

NOTE : ALL SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

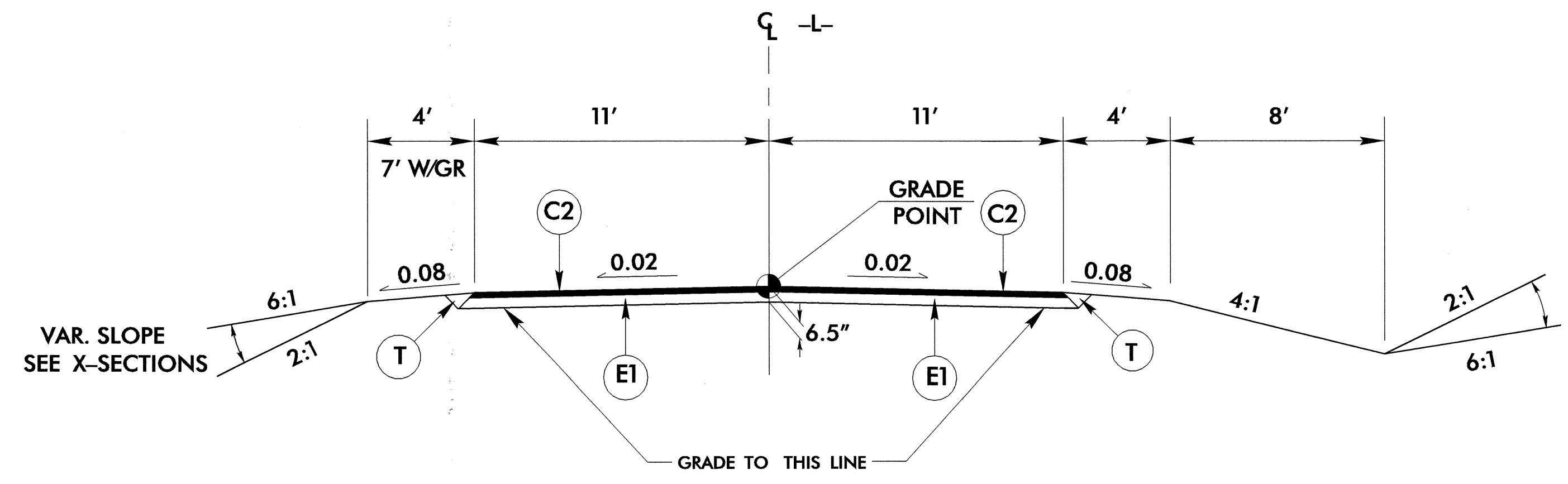


USE SHOULDER BERM GUTTER
 -L- STA. 17+07.00 TO -L- STA. 17+27.00 (LT)
 -L- STA. 19+35.00 TO -L- STA. 20+00.00 (LT)



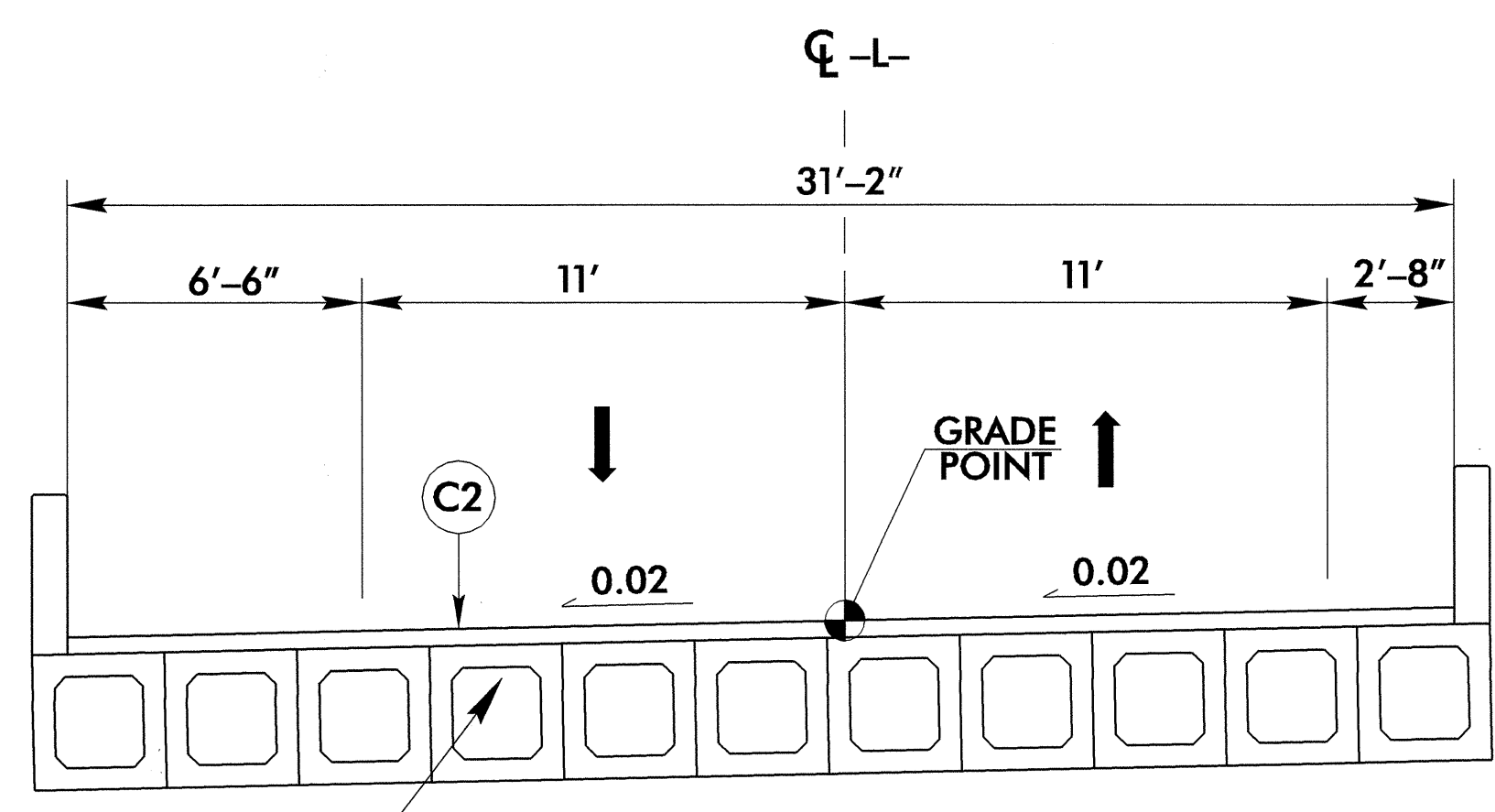
TYPICAL SECTION NO. 1

USE TYPICAL NO. 1
 -L- STA. 14+50.00 TO -L- STA. 15+00.00
 -L- STA. 22+75.00 TO -L- STA. 23+50.00



TYPICAL SECTION NO. 2

USE TYPICAL NO. 2
 -L- STA. 15+00.00 TO -L- STA. 17+41.00 (BR)
 -L- STA. 19+21.00 (BR) TO -L- STA. 22+75.00



TYPICAL SECTION NO. 3

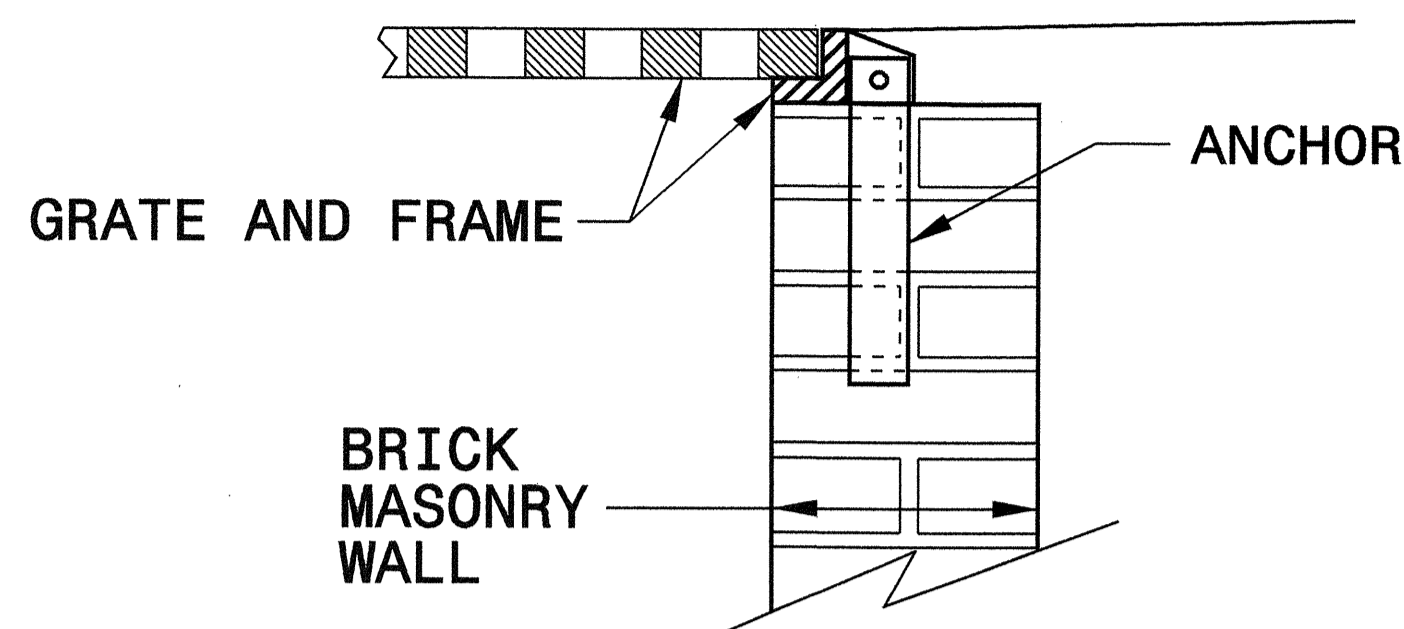
USE TYPICAL NO. 3
 -L- STA. 17+41.00 TO -L- STA. 19+21.00

PROPOSED BOX BEAM BRIDGE
 (STRUCTURE PAY ITEM)

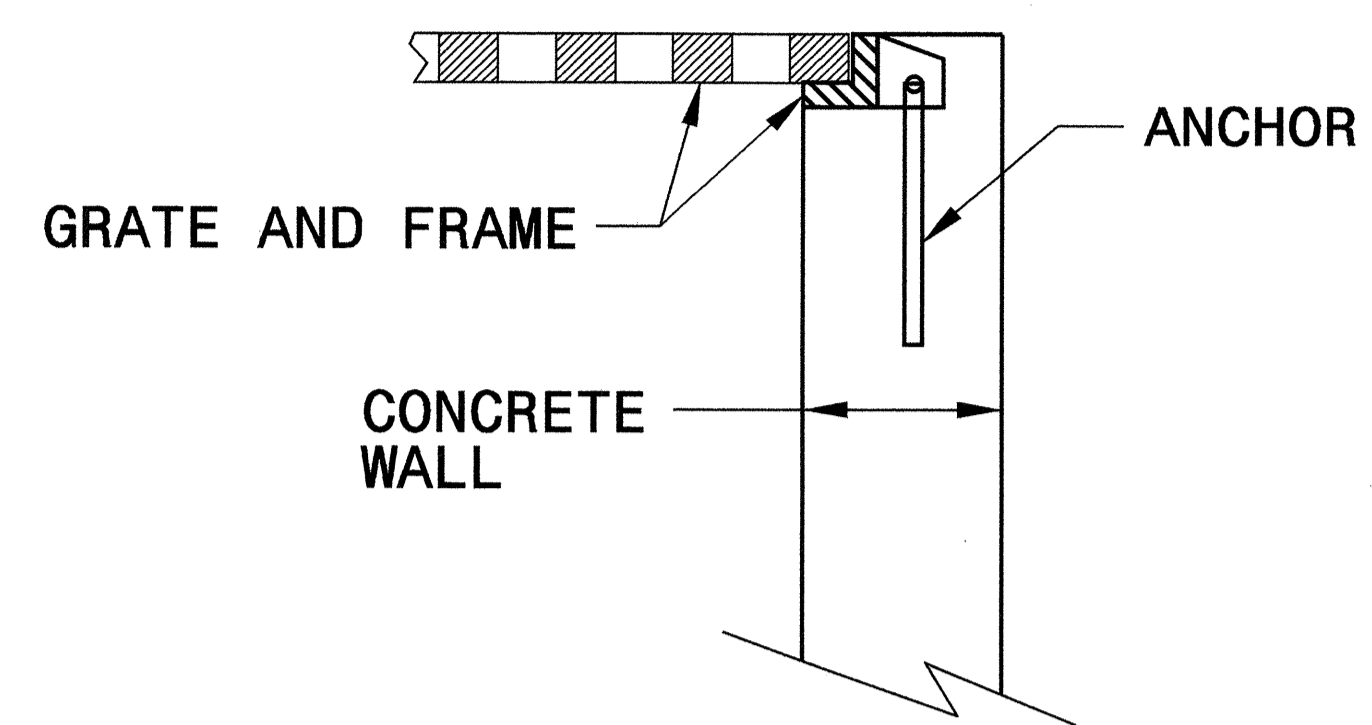
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

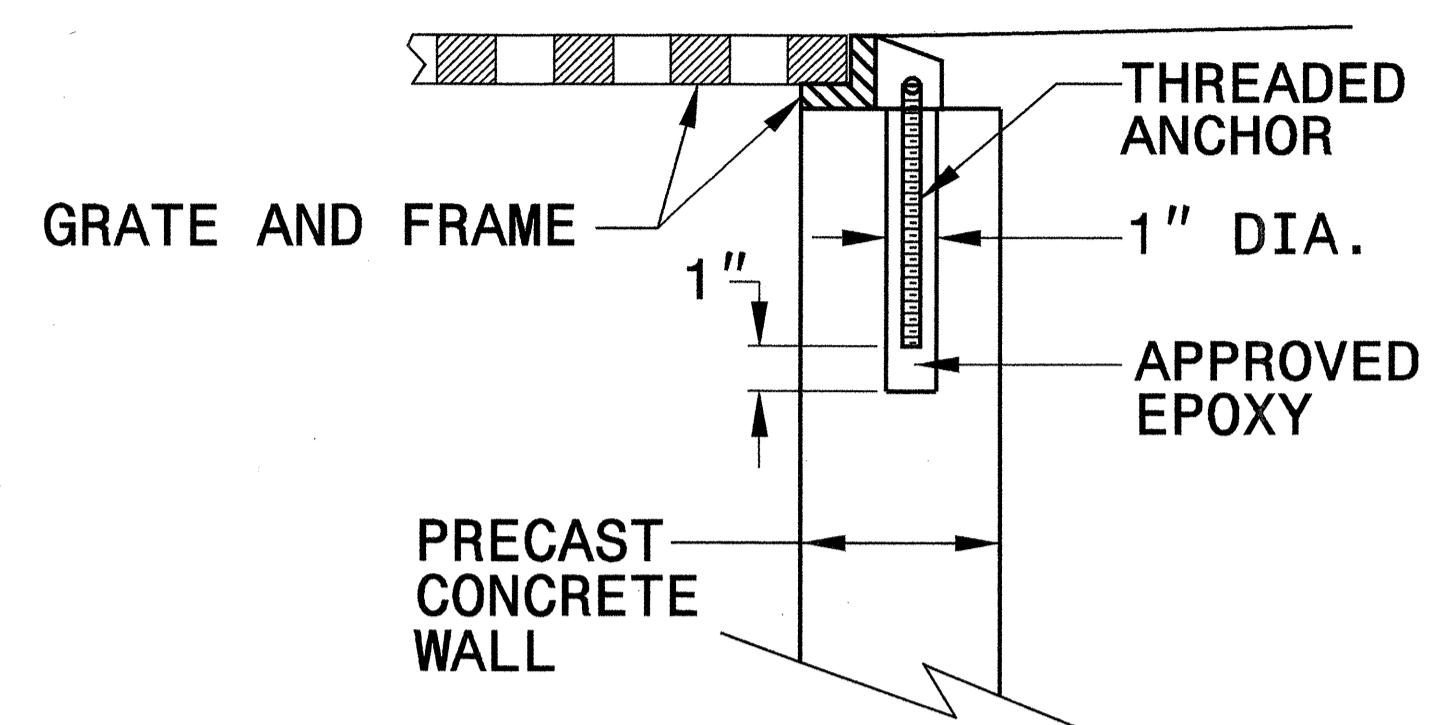
SHEET 1 OF 1
840D25



**BRICK MASONRY
CONSTRUCTION**



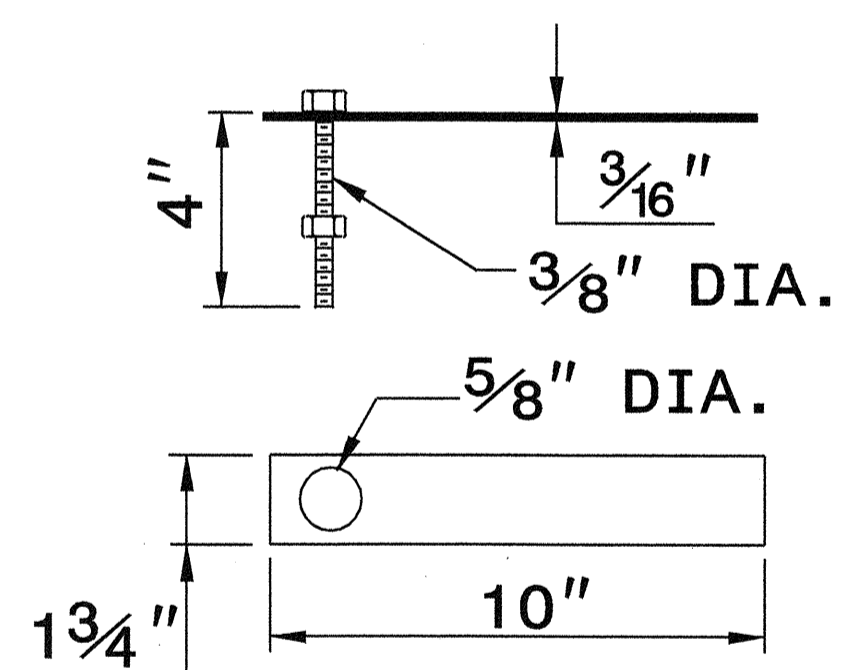
**CONCRETE
CONSTRUCTION**



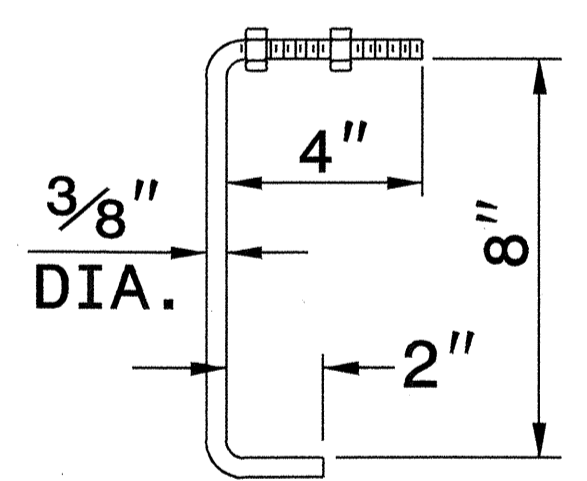
**PRECAST CONCRETE
CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF
FRAME FOR GRATED DROP INLET**

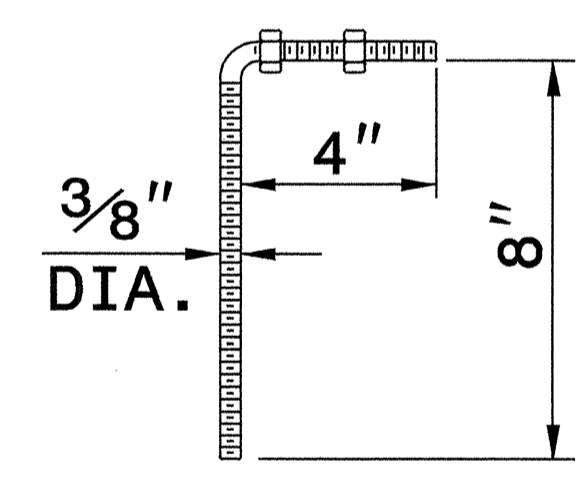
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



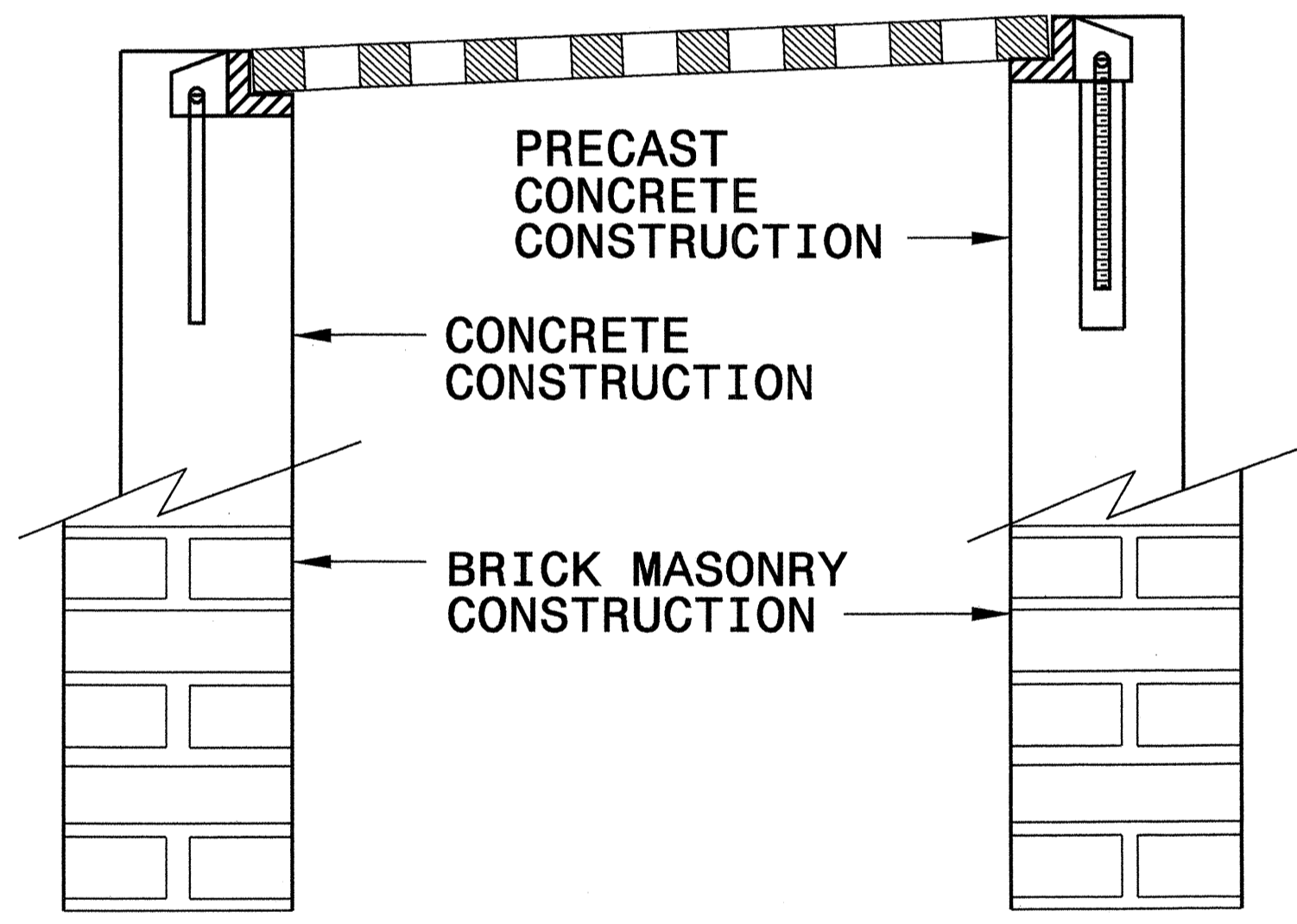
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



**PRECAST
CONCRETE ANCHOR**
3/8" DIA. BENT BAR

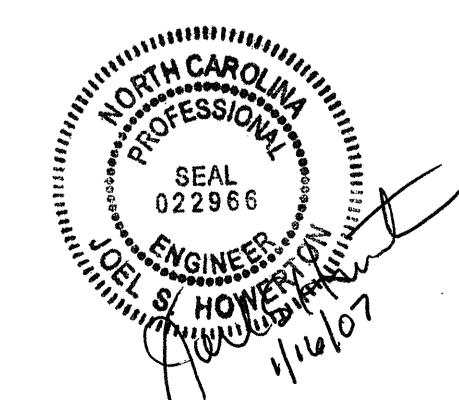


**FRAME AND GRATE INSTALLATION
FOR NORMAL CROWN AND
SUPERELEVATED SECTIONS**

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



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.E. WARD DATE: 9/25/06
CHECKED BY: *[Signature]* DATE: 9/27/06
FILE SPEC: .

27 SEP 2006 09:01 C:\projects\Standards\Standards\06\stds to Special Details\840D25 Anchorage For Frames\0840D25.dgn

6/16/99

COMPUTED BY: RCK DATE: 10/12/06
CHECKED BY: DJS DATE: 10/13/06

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4076
SHEET NO. 3-A

"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

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOULDER WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (GRAU 350, III, AT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), REMARKS.

EARTHWORK SUMMARY (CY)

Table with columns: LOCATION, UNCLASS. EXC., UNDERCUT, EMBANK+%, BORROW, WASTE. Includes rows for STA 14+50 TO STA 17+58.41, STA 19+03.83 TO STA 23+50, PROJECT SUBTOTAL, EST. 5% TO REPL. TOPSOIL ON BORROW PIT, GRAND TOTAL, SAY.

DDE = 88 CY
PAVEMENT STRUCTURE VOLUME = 2 CY
CONTINGENCY UNDERCUT = 350 CY
NOTE: 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 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.

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

Large table with columns: STATION, LOCATION (L, RT, OR CL), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE), CORRUGATED STEEL PIPE, ENDWALLS (STD. 838.01 OR STD. 838.11), QUANTITIES FOR DRAINAGE STRUCTURES, TYPE OF GRATE, D.I. STD. 840.14 OR STD. 840.15, T.B.D.I. STD. 840.35, D.I. (NS) FRAME W/TWO GRATES STD. 840.29, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS CL. "B" C.Y. STD. 840.72, CONC. & BRICK PIPE PLUG C.Y. STD. 840.71, PIPE REMOVAL UN/FT., REMARKS, ABBREVIATIONS (C.B., N.D.I., D.I., M.D.I., M.D.I. (N.S.), J.B., M.H., T.B.D.I., T.B.J.B.).

EXISTING ASPHALT PAVEMENT
BREAK-UP / REMOVAL

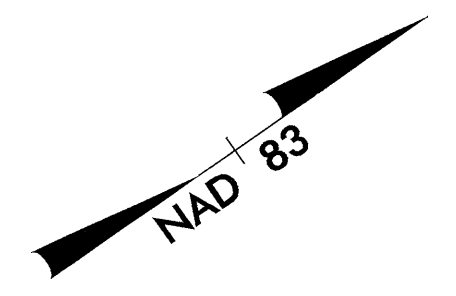
Table with columns: LINE, BEG. STA., END STA., LOCATION, ASPHALT BREAK-UP, ASPHALT REMOVAL. Includes rows for STA 15+00 to STA 22+75 and a TOTAL row.

11-JAN-2007 14:42
r:\proceedings\p10\154076_rdlj_sum.dgn
\$\$\$\$\$SERIALNAME\$\$\$\$\$

8/17/99

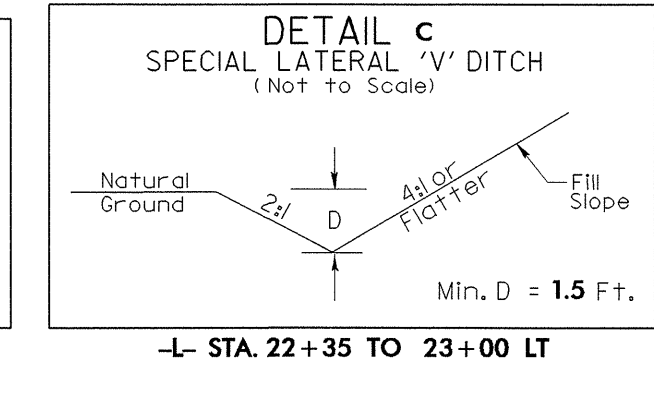
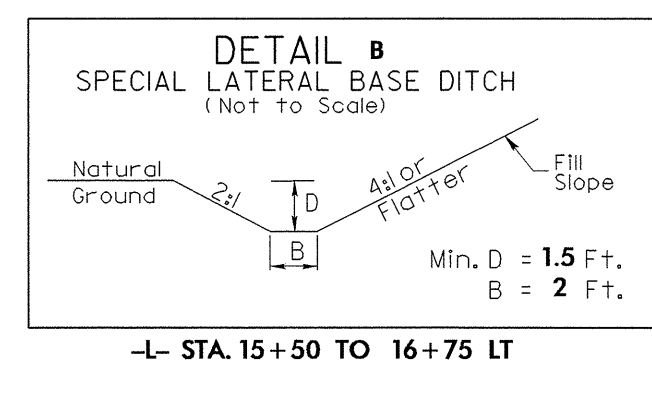
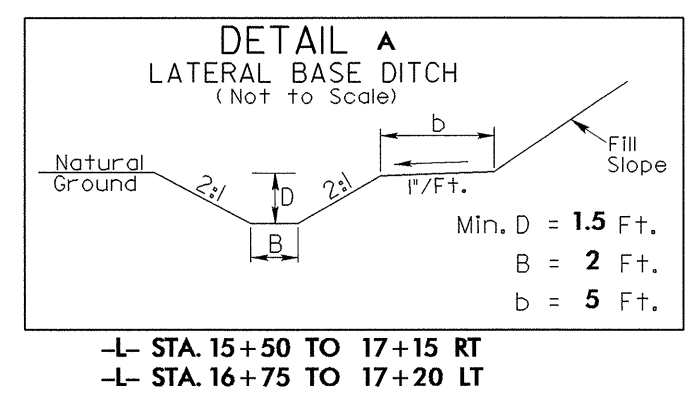
NOTE:
DESIGN EXCEPTION REQUIRED
FOR DESIGN SPEED (30 MPH)
AND HORIZONTAL STOPPING
SIGHT DISTANCE

PROJECT REFERENCE NO. B-4076	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SERIAL 22942 ROGER C. KLUCKNER 1-11-07	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SERIAL 20870 MARC T. SHOWN 1-11-07



STA. 14+50.00 -L- BEGIN TIP PROJECT B-4076

STA. 23+50.00 -L- END TIP PROJECT B-4076



B4076-1
-BL- POT 18+57.33

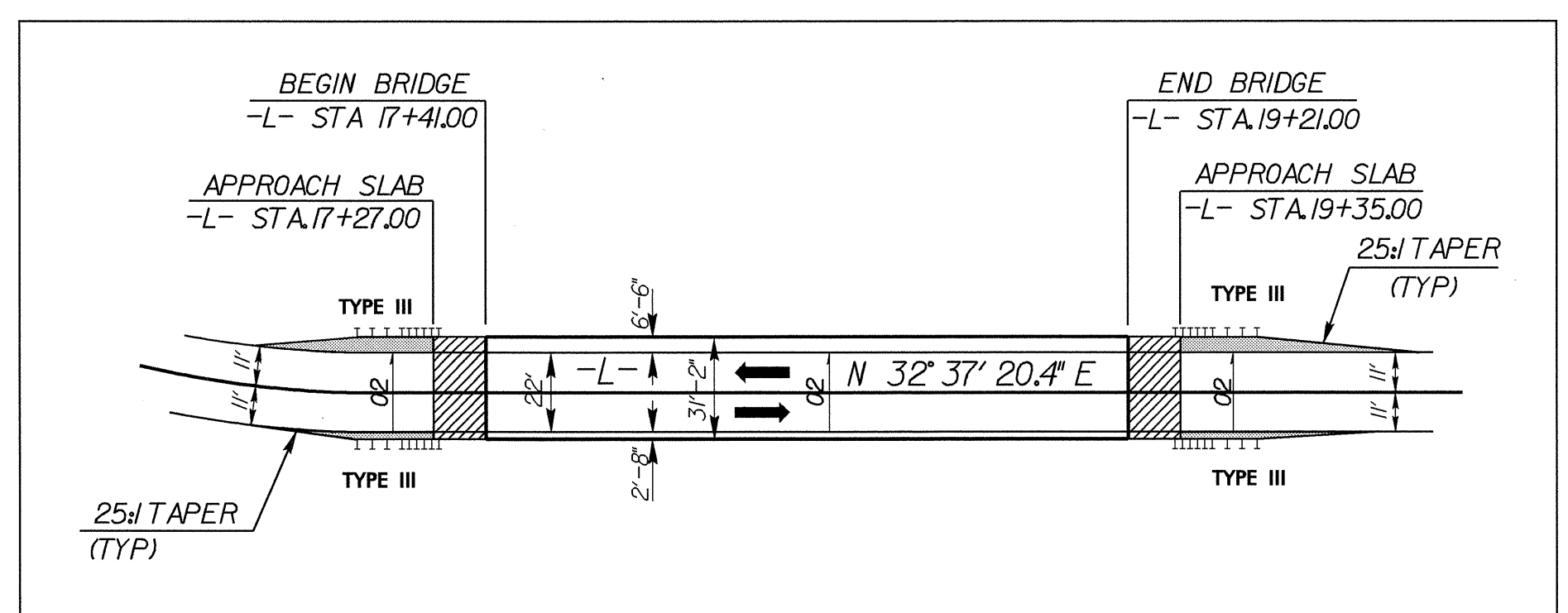
-BL- 10 B-4076
-L- STA 14+28.681
18.67' RT

LDD, INC.
DEED BOOK 1231 PAGE 507

BOBBY G. GLOVER AND WIFE,
CHRISTINE W. GLOVER
DB 19D PAGE 637

BILLY WEBB HOYLE AND WIFE,
JUANITA H. HOYLE
DEED BOOK 1100 PAGE 1172
DEED BOOK 1113 PAGE 1427
DEED BOOK 16R PAGE 263

-BL- 12 B-4076
-L- STA 21+29.19
12.31' RT



PI Sta 11+59.67 $\Delta = 1' 19' 12.4''$ (LT) D = 1' 08' 45.3" L = 115.20' T = 57.60' R = 5,000.00'	PI Sta 15+63.87 $\Delta = 67' 26' 44.7''$ (LT) D = 20' 50' 05.4" L = 323.72' T = 183.56' R = 275.00' SE = SEE PLANS V = 30 MPH	PI Sta 22+47.09 $\Delta = 11' 18' 02.6''$ (RT) D = 4' 16' 32.9" L = 264.29' T = 132.58' R = 1,340.00' SE = SEE PLANS V = 60 MPH	PI Sta 25+36.97 $\Delta = 3' 45' 32.5''$ (LT) D = 1' 36' 50.3" L = 232.91' T = 116.50' R = 3,550.00'
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SEE SHEETS S-1 THRU S-22 FOR STRUCTURE PLANS
SEE SHEET 5 FOR -L- PROFILE

BRIDGE APPROACH SLAB
 PAVED SHOULDERS
SBG SHOULDER BERM GUTTER

04-JAN-2007 07:45
F:\PROJECTS\PROJ\B-4076-rdu_s4psh.dgn

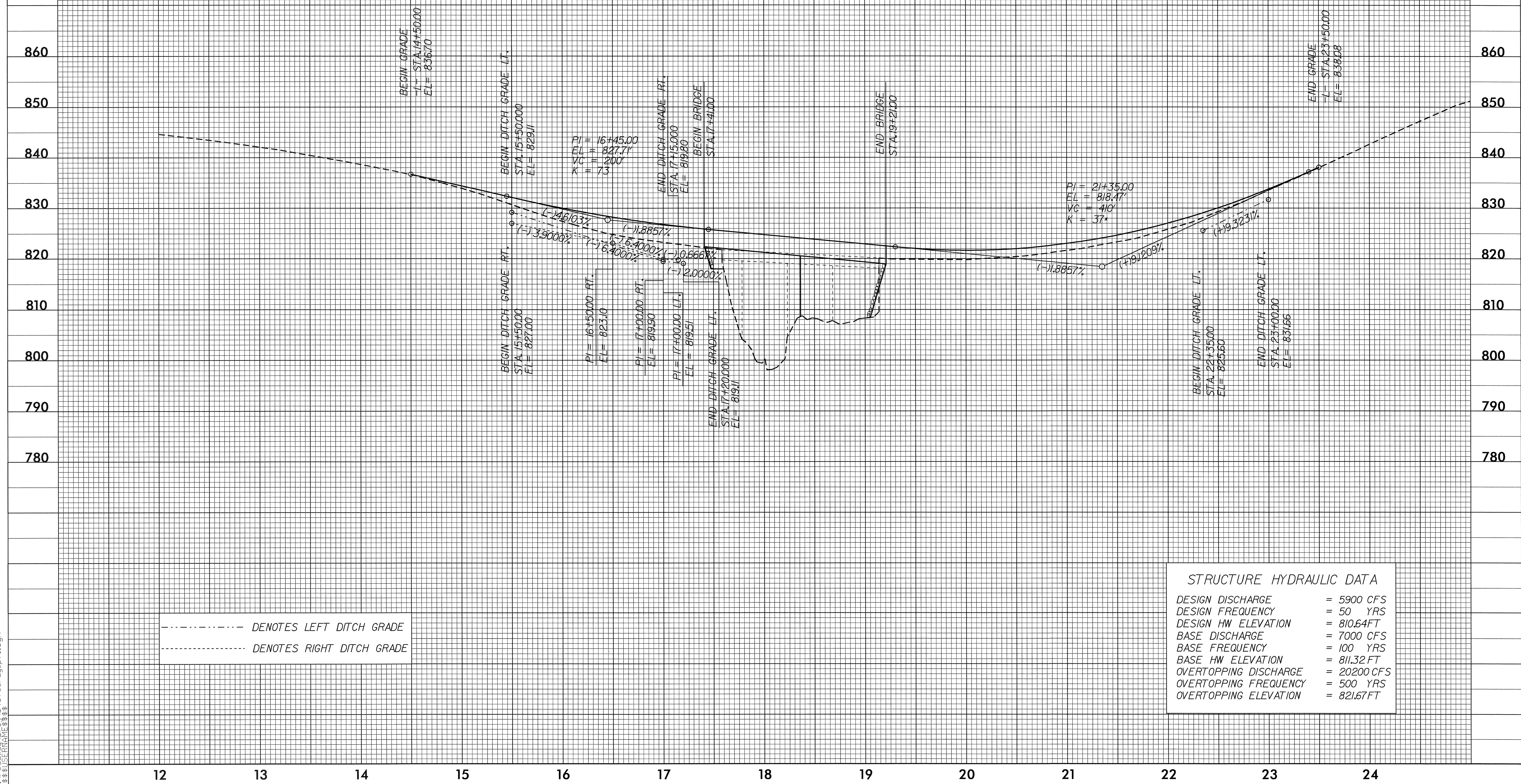
NOTE:
*DESIGN EXCEPTION REQUIRED FOR DESIGN
SPEED (30 MPH) AND HORIZONTAL STOPPING
SIGHT DISTANCE

PROJECT REFERENCE NO. B-4076	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22942 DOER C. KLICKMAN 1-11-07	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 20870 MARC T. SHOWN 1-11-07

BM * 1
RR SPIKE IN BASE OF POWERPOLE
14.1' RT OF -BL- STA.18+43.66 ELEV 847.32

BM * 2
RR SPIKE IN BASE OF POWERPOLE
49.84' RT OF -BL- STA.25+42.46 ELEV 824.76

-L-



----- DENOTES LEFT DITCH GRADE
..... DENOTES RIGHT DITCH GRADE

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 5900 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 810.64FT
BASE DISCHARGE	= 7000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 811.32 FT
OVERTOPPING DISCHARGE	= 20200 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 821.67FT