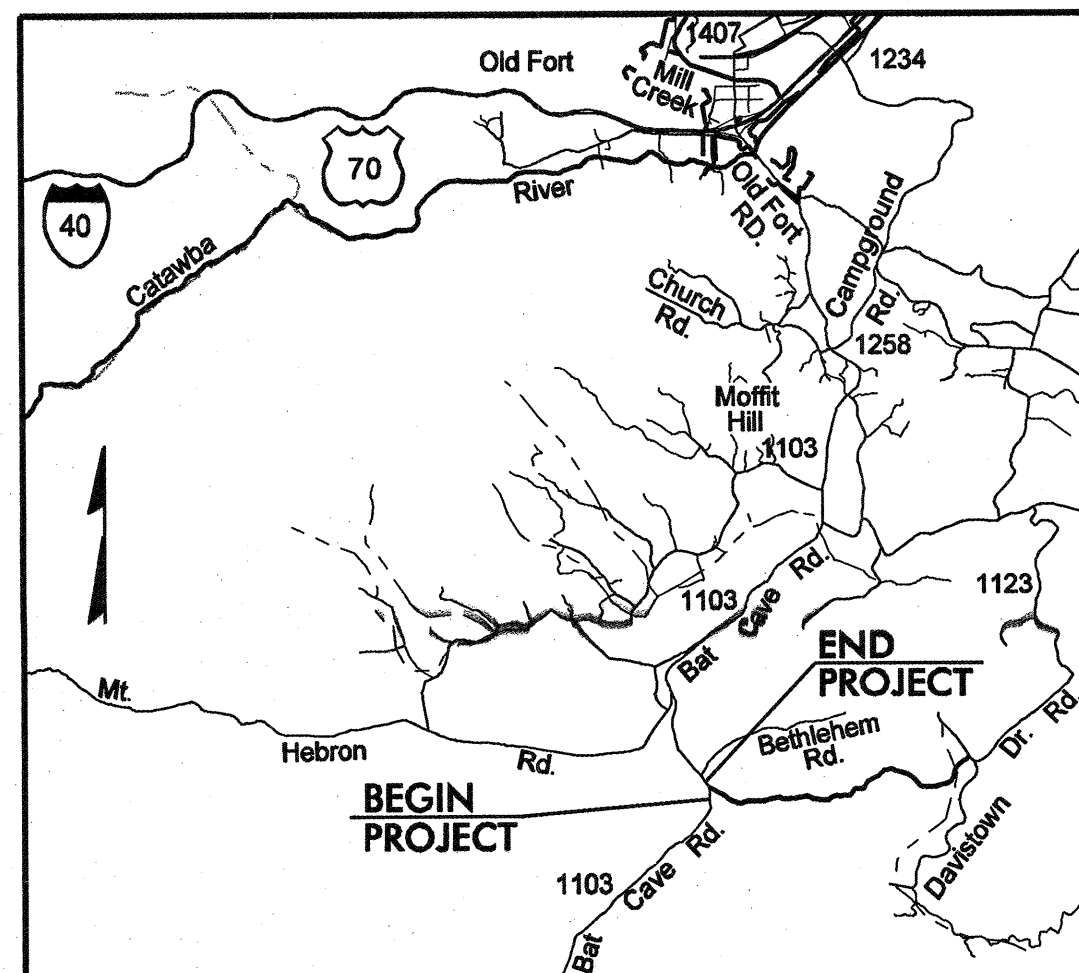
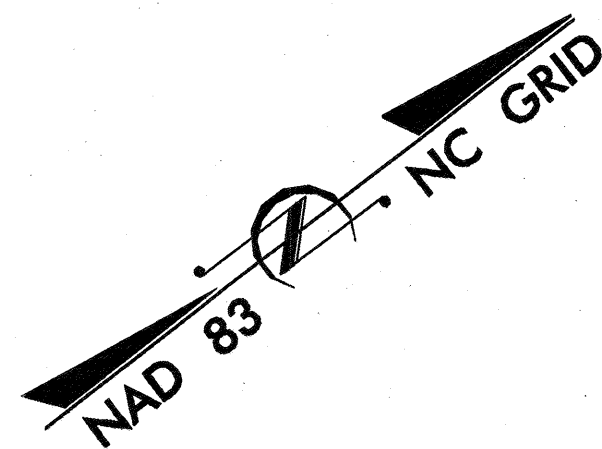


CONTRACT: C201502 TIP PROJECT: B-4192

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



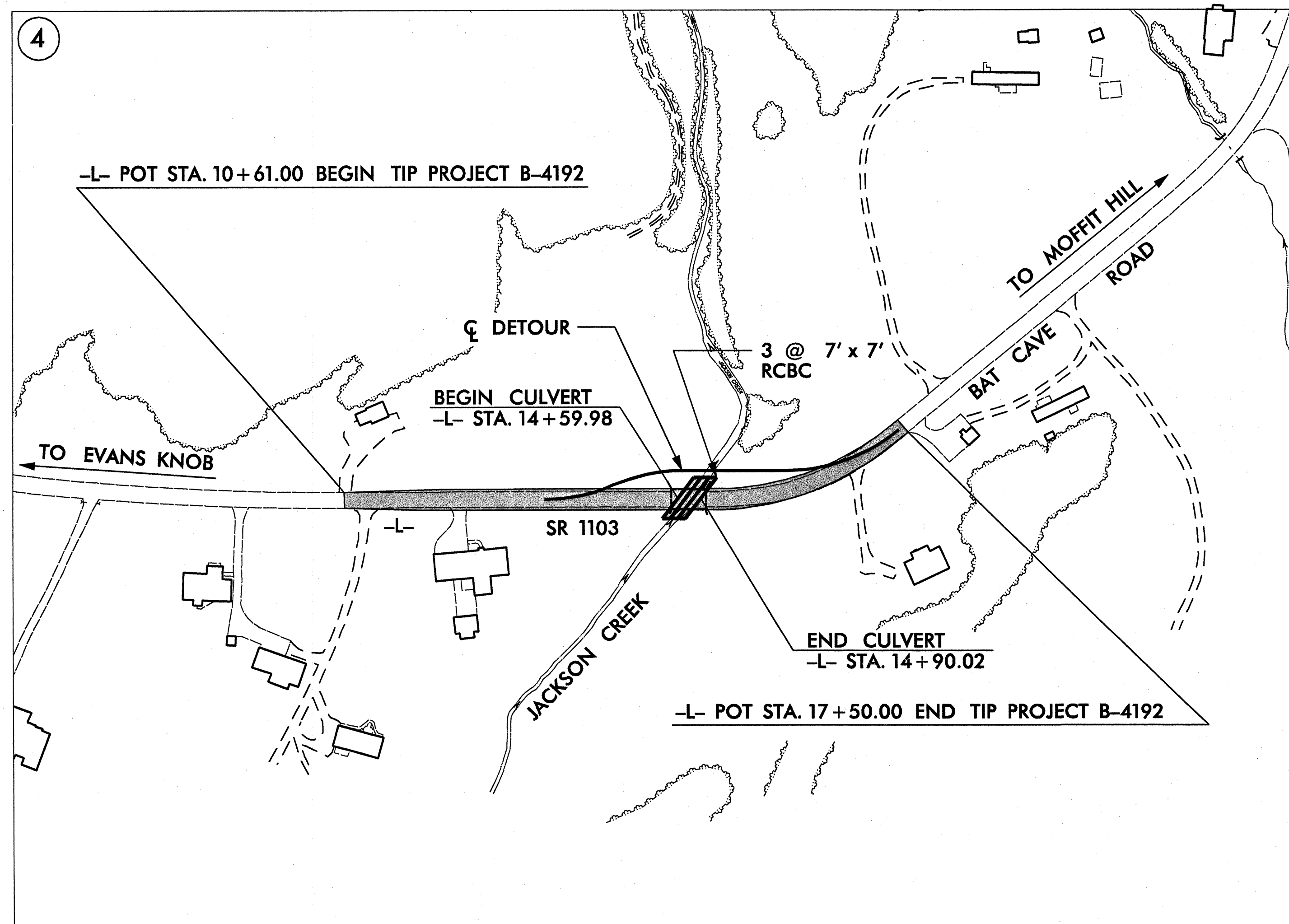
VICINITY MAP



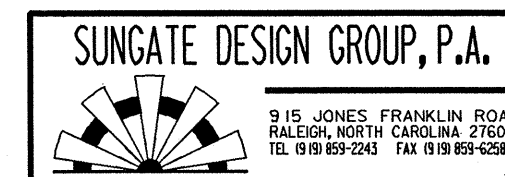
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

McDOWELL COUNTY

LOCATION: BRIDGE NO. 264 ON SR 1103 (BAT CAVE ROAD) OVER JACKSON CREEK
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE AND SIGNALS

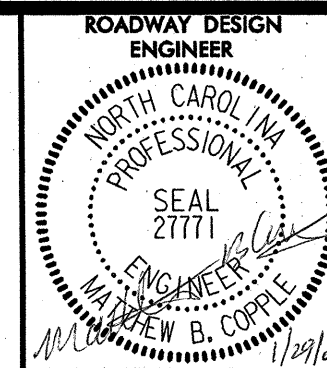


** DESIGN EXCEPTION FOR HORIZONTAL ALIGNMENT



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4192	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33539.1.1	BRZ-1103(12)	P.E.	
33539.2.1	BRZ-1103(12)	RW & UTIL.	
33539.3.1	BRZ-1103(12)	CONST.	

<p>GRAPHIC SCALES</p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>5 2.5 0 5 10 PROFILE (VERTICAL)</p>	<p>DESIGN DATA</p> <p>ADT 2007 = 1,151 ADT 2027 = 1,983 DHV = 12% D = 65% T = 3% * ** V = 60 MPH * TTST 1% DUAL 2%</p>	<p>PROJECT LENGTH</p> <p>LENGTH ROADWAY TIP PROJECT B-4192 = 0.125 mi LENGTH STRUCTURE TIP PROJECT B-4192 = 0.005 mi TOTAL LENGTH TIP PROJECT B-4192 = 0.130 mi</p>	<p>Plans prepared in the office of:</p> <p>RAMEY KEMP & ASSOCIATES, INC. TRANSPORTATION ENGINEERS 3808 Fairlane Place Raleigh, North Carolina 27609 919-872-3110 FAX: 919-872-3415</p> <p>for the North Carolina Department of Transportation</p> <p>2006 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: JULY 21, 2005</p> <p>LETTING DATE: APRIL 17, 2007</p> <p>N.C.D.O.T. CONTACT: CATHY S. HOUSER, PE PROJECT ENGINEER ROADWAY DESIGN</p>	<p>HYDRAULICS ENGINEER</p> <p>W. HENRY WELLS, JR. P.E.</p> <p>ROADWAY DESIGN</p> <p>MATTHEW B. COPPLE P.E.</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</p> <p><i>Art McMillan</i> P.E.</p> <p>STATE DESIGN ENGINEER DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION</p> <p>APPROVED DIVISION ADMINISTRATOR</p> <p>DATE</p>
--	---	--	---	--	--



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 6 - ASPHALT BASES AND PAVEMENTS

- 654.01 Pavement Repairs

DIVISION 8 - INCIDENTALS

- 806.01 Concrete Right-of-Way Marker
- 806.02 Granite Right-of-Way Marker
- 862.01 Guardrail Placement
- 862.02 Guardrail Installation
- 876.04 Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

<u>SHEET NUMBER</u>	<u>SHEET</u>
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-D	SURVEY CONTROL SHEET
2 THRU 2-A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND METHOD OF WEDGING DETAIL
2-B	SHORING DETAIL
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF EARTHWORK, GUARDRAIL PAVEMENT REMOVAL & DRAINAGE
4	PLAN SHEET
5	DETOUR PLAN SHEET
6	PROFILE SHEET
TCP-1 THRU TCP-6	TRAFFIC CONTROL PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
SIG-1 THRU SIG-3	SIGNAL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHER PLANS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-6	CROSS-SECTIONS
C-1 THRU C-11	CULVERT PLANS

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS 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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE VERIZON TELEPHONE AND DUKE POWER. 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.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

BUILDINGS & OTHER CULTURE

*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	⊙
Prop. Control of Access Line	⊙
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	-RBB-
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	⊞
U/G Telephone Cable Hand Hold	⊞
Cable TV Pedestal	⊞
U/G TV Cable Hand Hold	⊞
U/G 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-W-
Designated Water Line (S.U.E.*)	-W-W-
Sanitary Sewer	-SS-SS-
Recorded Sanitary Sewer Force Main	-FSS-FSS-
Designated Sanitary Sewer Force Main(S.U.E.*)	-FSS-FSS-
Recorded Gas Line	-G-G-
Designated Gas Line (S.U.E.*)	-G-G-
Storm Sewer	-S-S-
Recorded Power Line	-P-P-
Designated Power Line (S.U.E.*)	-P-P-
Recorded Telephone Cable	-T-T-
Designated Telephone Cable (S.U.E.*)	-T-T-
Recorded U/G Telephone Conduit	-TC-TC-
Designated U/G Telephone Conduit (S.U.E.*)	-TC-TC-
Unknown Utility (S.U.E.*)	-?UTL-?UTL-
Recorded Television Cable	-TV-TV-
Designated Television Cable (S.U.E.*)	-TV-TV-
Recorded Fiber Optics Cable	-FO-FO-
Designated Fiber Optics Cable (S.U.E.*)	-FO-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	-X-X-
Existing Wetland Boundaries	-WLB-
High Quality Wetland Boundary	-HQ WLB-
Medium Quality Wetland Boundaries	-MQ WLB-
Low Quality Wetland Boundaries	-LQ WLB-
Proposed Wetland Boundaries	-WLB-
Existing Endangered Animal Boundaries	-EAB-
Existing Endangered Plant Boundaries	-EPB-

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	⊞
Paved Walk	---
Bridge	---
Box Culvert or Tunnel	---
Ferry	---
Culvert	---
Footbridge	---
Trail, Footpath	---
Light House	⊞

VEGETATION

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

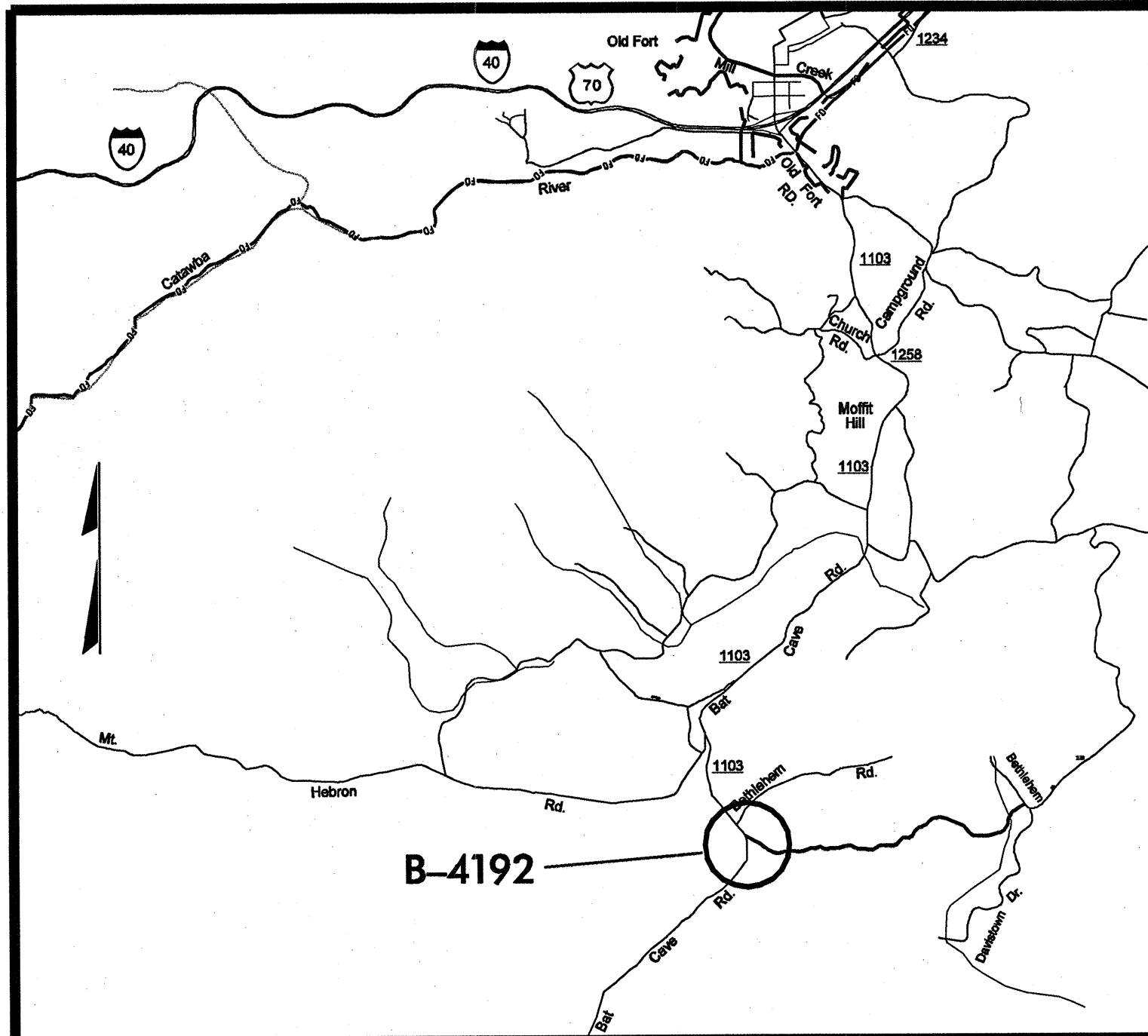
RAILROADS

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

Ramey Kemp & Associates, Inc.
Transportation Consulting Engineers
4328-A Windy Hill Drive Raleigh, North Carolina 27609
1919 812-515 Fax 1919 818-546

5/28/99

SURVEY CONTROL SHEET B-4192



VICINITY MAP

NOTE: DRAWING NOT TO SCALE

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)

B4192_LS_CONTROL_050303.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)

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.

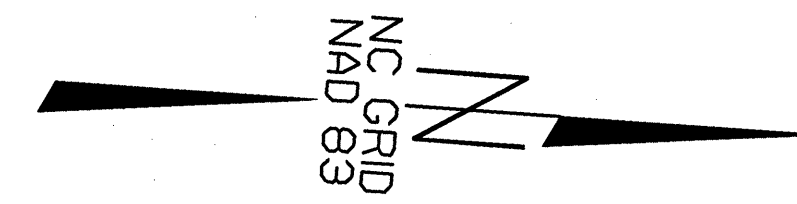
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4192-1"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 675409.1900(E) EASTING: 1053895.6400(E)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999823455
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4192-1" TO -L- STATION 10+00.00 IS
 S 17°49'50" W 1226.22
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

**-L- STA 10+00.00 BEGIN STATE PROJECT 33539.1.1
 LOCALIZED PROJECT COORDINATES**

N = 674241.8708
 E = 1053520.1693



**NCDOT GPS STA "B4192-2"
 LOCALIZED PROJECT COORDINATES**

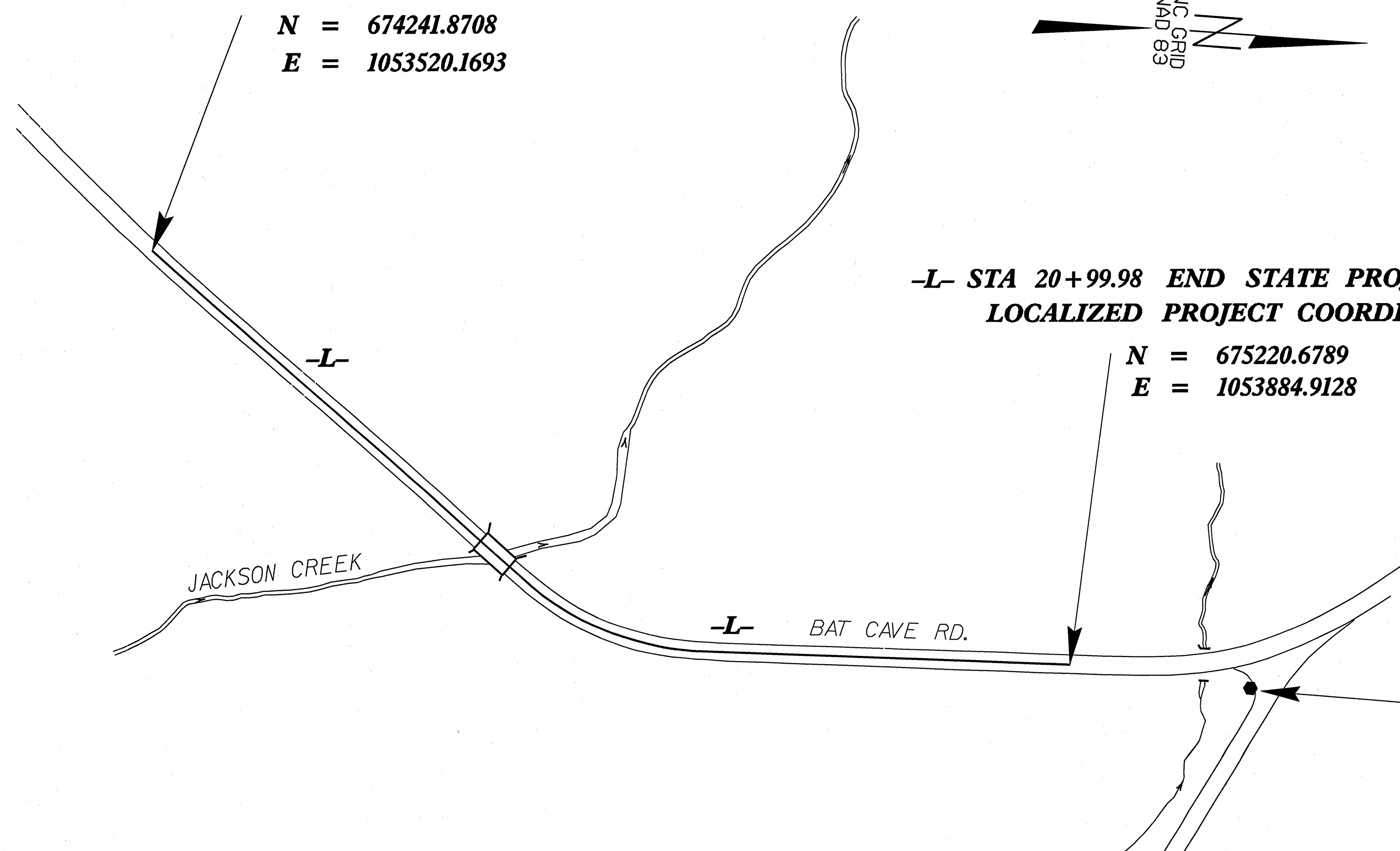
N = 676336.4550
 E = 1053118.1760

**-L- STA 20+99.98 END STATE PROJECT 33539.1.1
 LOCALIZED PROJECT COORDINATES**

N = 675220.6789
 E = 1053884.9128

**NCDOT GPS STA "B4192-1"
 LOCALIZED PROJECT COORDINATES**

N = 675409.1900
 E = 1053895.6400



SURVEY CONTROL SHEET B-4192

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
 IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
 NCDOT FOR MONUMENT "B4192-1"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 675409.1900(FI) EASTING: 1053895.6400(FI)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
 (GROUND TO GRID) IS: 0.999823455
 THE N.C. LAMBERT GRID BEARING AND
 LOCALIZED HORIZONTAL GROUND DISTANCE FROM
 "B4192-1" TO "L" STATION 10+00.00 IS
 S 17°49'50" W 1226.22
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		BL-1	673684.5728	1052920.1205	1570.90	OUTSIDE PROJECT LIMITS	
2		BL-2	674074.1247	1053400.1505	1553.57	OUTSIDE PROJECT LIMITS	
3		BL-3	674673.5622	1053864.6070	1528.60	15+50.90	11.46 RT
GPS1		B4192-1	675409.1900	1053895.6400	1513.14	OUTSIDE PROJECT LIMITS	
5		BL-5	675829.4372	1053586.5240	1517.20	OUTSIDE PROJECT LIMITS	
GPS2		B4192-2	676336.4555	1053118.1765	1521.74	OUTSIDE PROJECT LIMITS	

 BM1 ELEVATION = 1573.02
 N 673805 E 1053052
 L STATION 10+00
 S 46° 59' 54.0" W DIST 640.11
 NAIL IN BASE OF 12' LOCUST

 BM2 ELEVATION = 1513.30
 N 675354 E 1053860
 L STATION 21+00
 N 10° 28' 11.3" W DIST 135.86
 CHISELED 'X' ON HEADWALL OF BOX CULVERT

 BM3 ELEVATION = 1529.30
 N 676244 E 1053270
 L STATION 21+00
 N 31° 00' 05.1" W DIST 1194.27
 NAIL IN BASE OF 20' POPLAR

 BM4 ELEVATION = 1527.17
 N 674491 E 1053768
 L STATION 13+49 45 RIGHT
 CHISELED SQUARE WITH PUNCH HOLE

NOTES:

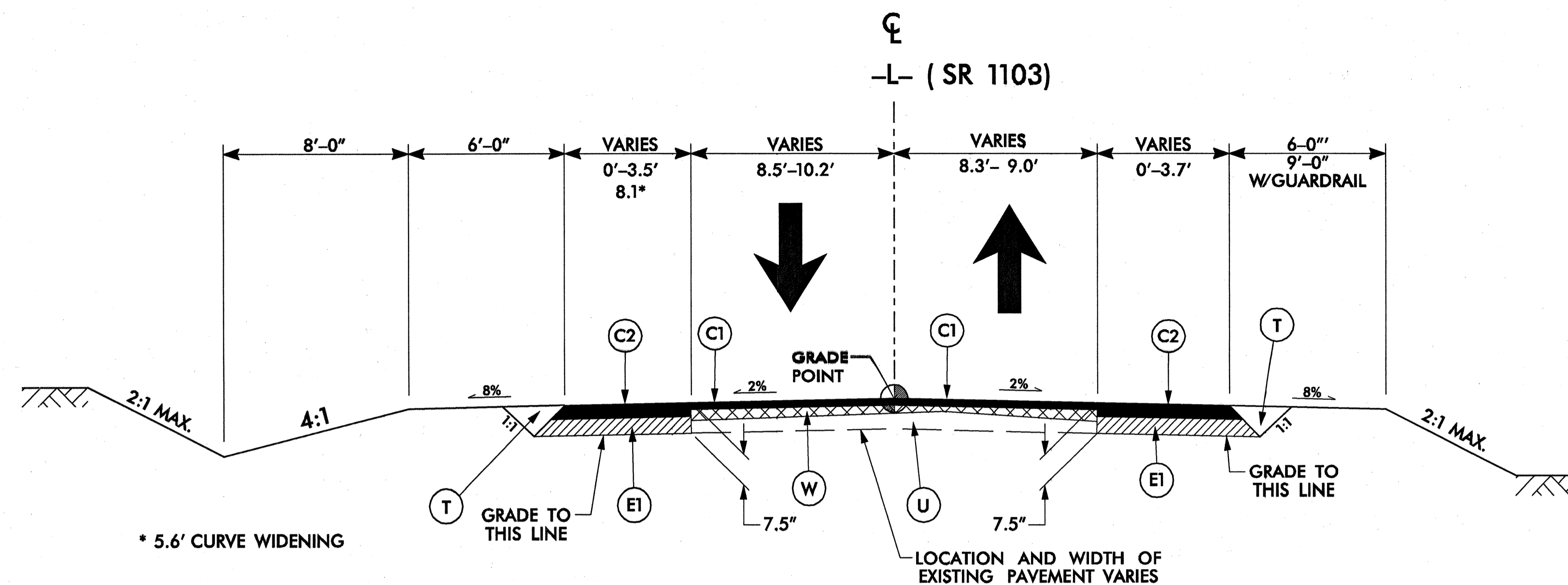
THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING
 PROJECT CONTROL DATA AT:
[HTTP://WWW.DO.H.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project)

B4192_LS_CONTROL_050303.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)
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.
- IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

 USTING

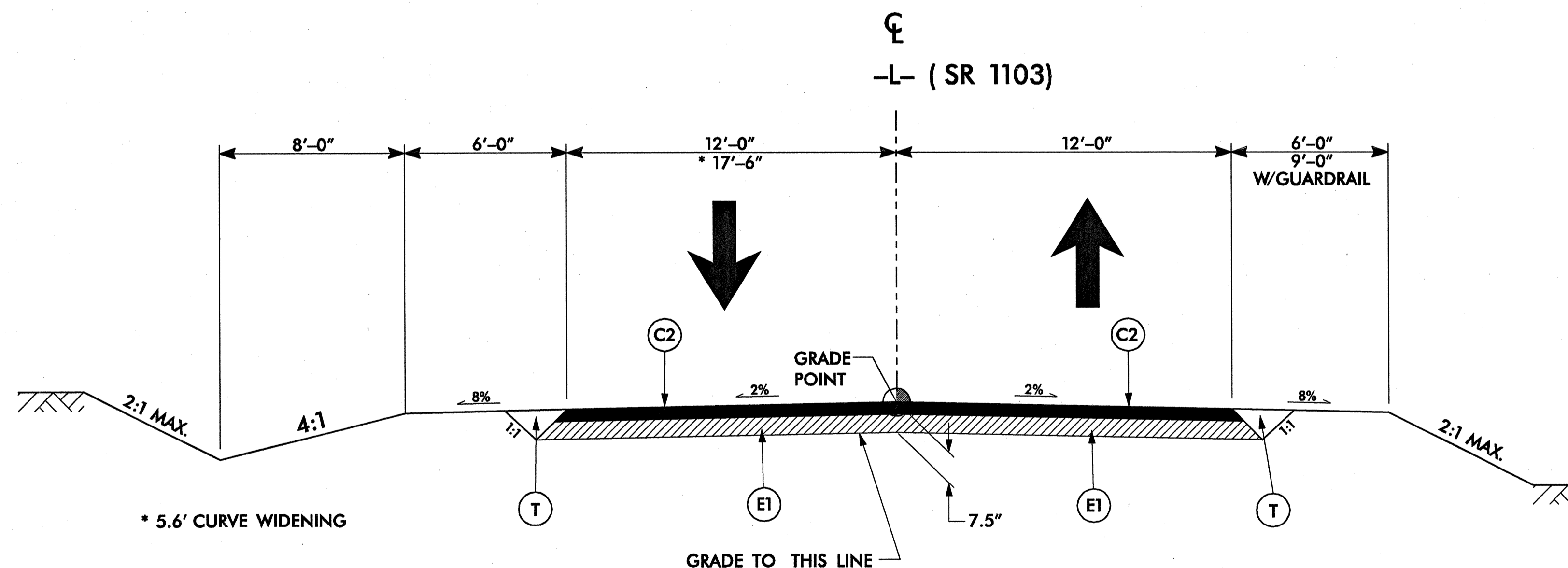


USE TYPICAL SECTION NO. 1

-L- STA. 11+00.00 TO STA. 13+95.00
-L- STA. 16+10.00 TO STA. 17+25.00

NOTE:
FEATHER TO EXISTING PAVEMENT FROM
-L- STA. 10+61.00 TO STA. 11+00.00 AND
FROM -L- STA. 17+25.00 TO STA. 17+50.00

TYPICAL SECTION NO. 1



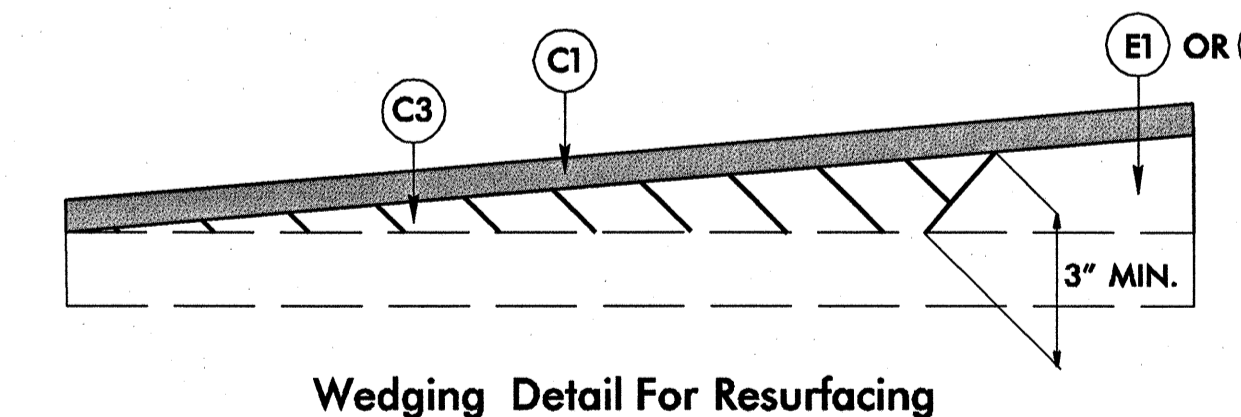
USE TYPICAL SECTION NO. 2

-L- STA. 13+95.00 TO STA. 16+10.00

TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" 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 PLACED IN LAYERS NOT TO EXCEED 1 1/2" 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 PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROPOSED 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL THIS SHEET)

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



NOTES

FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE SPECIAL PROVISIONS.

SELECT THE APPROPRIATE STANDARD SHORING DESIGN FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC IN LIEU OF SUBMITTING CONTRACTOR SHORING DESIGN. USE STANDARD SHORING DESIGN ONLY WHEN ALL OF THE FOLLOWING CRITERIA ARE MET:

- MAXIMUM HEIGHT OF SHORING EXCAVATION IS 11 FEET
- GROUNDWATER TABLE IS NOT ABOVE BOTTOM OF THE EXCAVATION
- BACKFILL SLOPE IS 2:1 OR FLATTER
- TRAFFIC SURCHARGE EQUAL TO 240 PSF
- SOLDIER PILE SPACING OF 6 FEET
- TIMBER LAGGING SHALL HAVE A MINIMUM THICKNESS OF 3 INCHES

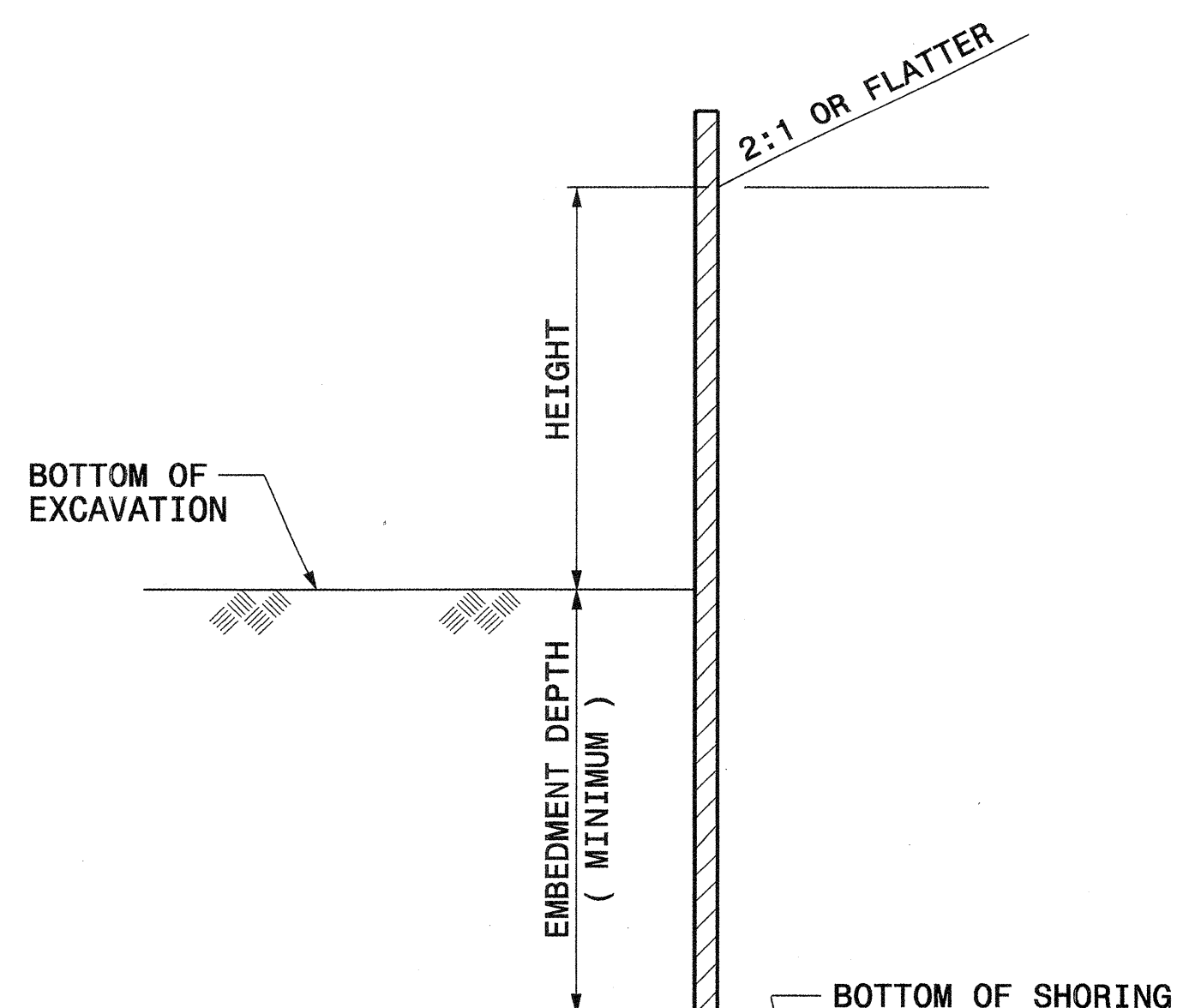
SUBMIT "STANDARD SHORING SELECTION" FORM TO ENGINEER PRIOR TO CONSTRUCTION OF SHORING.

DO NOT USE THE STANDARD SHORING DESIGNS WHEN VERY SOFT SOIL OR MUCK IS PRESENT WITHIN THE SHORING EMBEDMENT ZONE.

CONTRACTOR MUST VERIFY LOCATION OF GROUNDWATER TABLE PRIOR TO CONSTRUCTION OF SHORING.

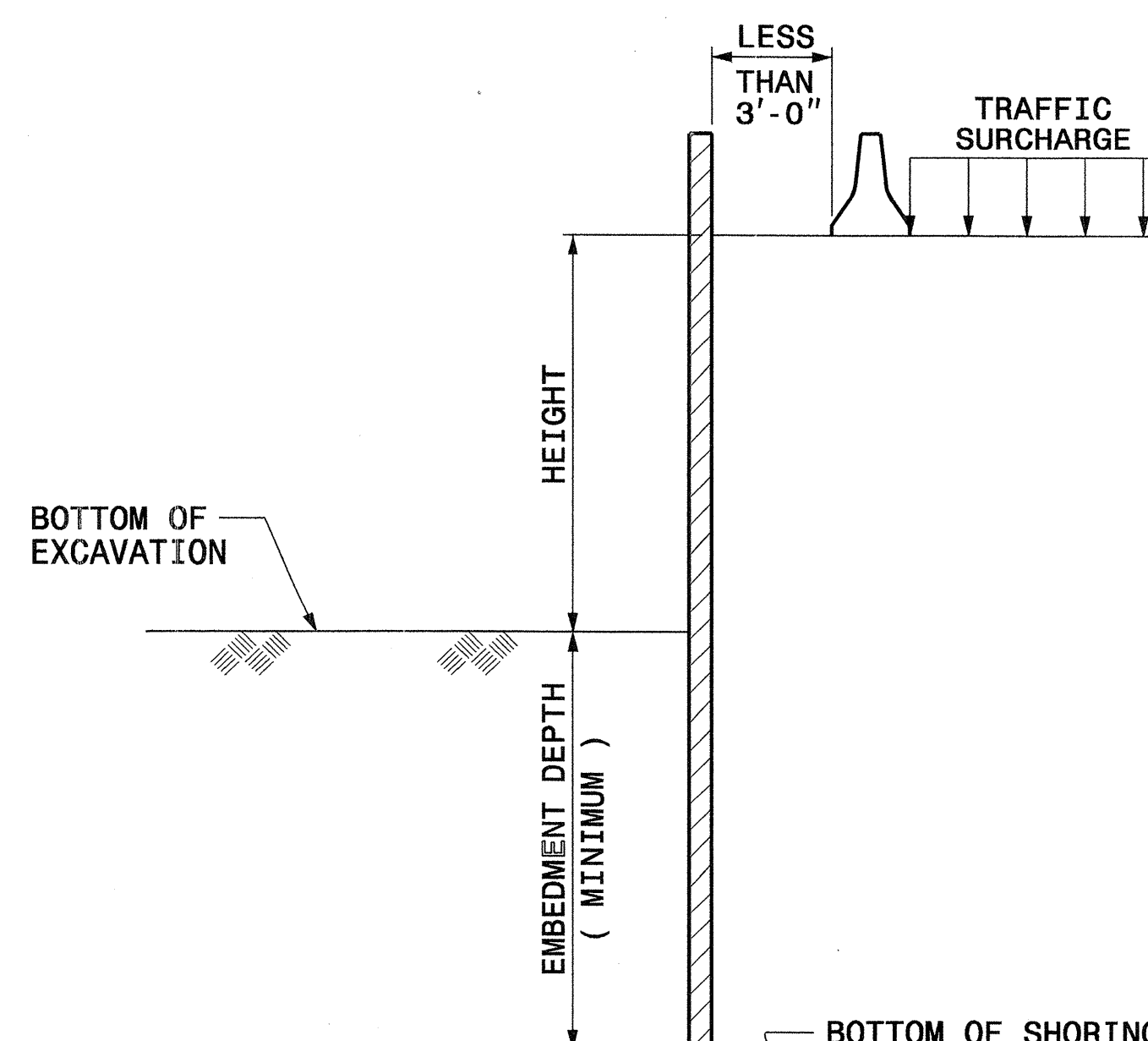
THE CONTRACTOR HAS THE OPTION OF USING SOLDIER PILES SET IN DRILLED HOLES WITH A SHORTENED LENGTH EQUAL TO 75% OF THE EMBEDMENT DEPTHS SHOWN IN THE TABLE. FOR DRILLING REQUIREMENTS, SEE TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

IF DESIGN EMBEDMENT DEPTH IS NOT ACHIEVED, THEN NOTIFY THE ENGINEER IMMEDIATELY.



TEMPORARY SHORING

(SLOPING OR LEVEL WITH TRAFFIC SURCHARGE, NO BARRIER IMPACT)



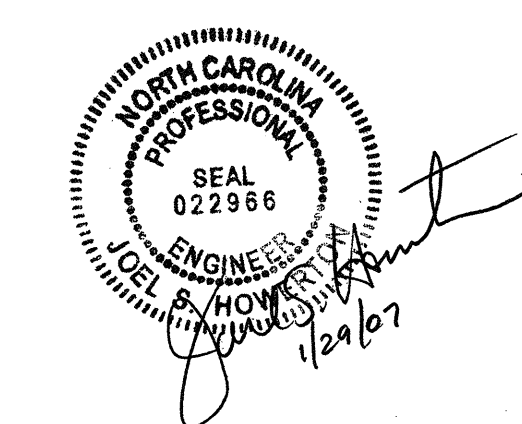
TEMPORARY SHORING - BARRIER SUPPORTED

(LEVEL WITH TRAFFIC SURCHARGE, WITH BARRIER IMPACT)

GROUNDWATER TABLE CONDITIONS

- 1) WHEN WATER TABLE IS ABOVE THE BOTTOM OF EXCAVATION, SUBMIT CONTRACTOR SHORING DESIGN TO THE ENGINEER FOR APPROVAL.
- 2) WHEN WATER TABLE IS BELOW THE BOTTOM OF EXCAVATION AND ABOVE THE BOTTOM OF SHORING, USE "WATER TABLE" CASE.
- 3) WHEN WATER TABLE IS BELOW BOTTOM OF SHORING, USE "NO WATER TABLE" CASE.

CASE	HEIGHT (FT)	TEMPORARY SHORING					TEMPORARY SHORING - BARRIER SUPPORTED				
		CANTILEVER SHEETING		DRIVEN SOLDIER PILE			CANTILEVER SHEETING		DRIVEN SOLDIER PILE		
		MINIMUM EMBEDMENT DEPTH (FT)	MINIMUM SECTION MODULUS (IN ³ / FT OF WALL)	MINIMUM EMBEDMENT DEPTH (FT)			MINIMUM EMBEDMENT DEPTH (FT)	MINIMUM SECTION MODULUS (IN ³ / FT OF WALL)	MINIMUM EMBEDMENT DEPTH (FT)		
			HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73	
"NO WATER TABLE"	< 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
"WATER TABLE"	< 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



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

STANDARD TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC

ORIGINAL BY: SOILS & FOUNDATIONS DATE: 10-2001
MODIFIED BY: DATE:
CHECKED BY: DATE: 10/25/04
FILE SPEC.: erward/usr/details/stand/shoring_detail.dgn

22-OCT-2004 14:43 erward/usr/details/stand/tempshoring.dgn
erward AT 05212260

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201502

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING	2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)	6029000000-E	SP	300	LF	SAFETY FENCE
0057000000-E	226	100	CY	UNDERCUT EXCAVATION	3030000000-E	862	425	LF	STEEL BM GUARDRAIL	6030000000-E	1630	520	CY	SILT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING	3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	6036000000-E	1631	425	SY	MATting FOR EROSION CONTROL
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZATION	3270000000-N	SP	6	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6069000000-E	1638	170	CY	STILLING BASINS
0106000000-E	230	5,230	CY	BORROW EXCAVATION	3360000000-E	863	487.5	LF	REMOVE EXISTING GUARDRAIL	6071030000-E	SP	155	LF	COIR FIBER BAFFLES
0134000000-E	240	60	CY	DRAINAGE DITCH EXCAVATION	3628000000-E	876	70	TON	RIP RAP, CLASS I	6084000000-E	1660	1	ACR	SEEDING & MULCHING
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL	3649000000-E	876	170	TON	RIP RAP, CLASS B	6087000000-E	1660	0.5	ACR	MOWING
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION	3656000000-E	876	610	SY	FILTER FABRIC FOR DRAINAGE	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
0199000000-E	SP	100	SF	TEMPORARY SHORING	4400000000-E	1110	124	SF	WORK ZONE SIGNS (STATIONARY)	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
0318000000-E	300	8	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	4405000000-E	1110	128	SF	WORK ZONE SIGNS (PORTABLE)	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
0343000000-E	310	20	LF	15" SIDE DRAIN PIPE	4410000000-E	1110	20	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
0345000000-E	310	48	LF	24" SIDE DRAIN PIPE	4430000000-N	1130	20	EA	DRUMS	6110000000-E	SP	350	LF	IMPERVIOUS DIKE
0995000000-E	340	40	LF	PIPE REMOVAL	4435000000-N	1135	20	EA	CONES	6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
1121000000-E	520	175	TON	AGGREGATE BASE COURSE	4445000000-E	1145	50	LF	BARRICADES (TYPE III)	6117000000-N	SP	8	EA	RESPONSE FOR EROSION CONTROL
1220000000-E	545	50	TON	INCIDENTAL STONE BASE	4450000000-N	1150	600	HR	FLAGGER	7060000000-E	1705	1,350	LF	SIGNAL CABLE
1489000000-E	610	290	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4465000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS	7108000000-E	1705	2	EA	VEHICLE SIGNAL HEAD (12", 1 SECTION)
1525000000-E	610	255	TON	ASPHALT CONC SURFACE COURSE, TYPE SP9.5A	4485000000-E	1170	70	LF	PORTABLE CONCRETE BARRIER	7120000000-E	1705	4	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
1560000000-E	620	30	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4810000000-E	1205	11,040	LF	PAINT PAVEMENT MARKING LINES (4")	7264000000-E	1710	285	LF	MESSENGER CABLE (3/8")
1693000000-E	654	25	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	4835000000-E	1205	50	LF	PAINT PAVEMENT MARKING LINES (24")	7300000000-E	1715	1,150	LF	UNPAVED TRENCHING (***** (1, 2"))
2000000000-N	806	14	EA	RIGHT OF WAY MARKERS	6000000000-E	1605	1,200	LF	TEMPORARY SILT FENCE	7360000000-N	1720	4	EA	WOOD POLE
2022000000-E	815	224	CY	SUBDRAIN EXCAVATION	6006000000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A	7372000000-N	1721	6	EA	GUY ASSEMBLY
2033000000-E	815	168	CY	SUBDRAIN FINE AGGREGATE	6009000000-E	1610	240	TON	STONE FOR EROSION CONTROL, CLASS B	7408000000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
2044000000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE	6012000000-E	1610	60	TON	SEDIMENT CONTROL STONE	7420000000-E	1722	3	EA	2" RISER WITH WEATHERHEAD
2055000000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	6015000000-E	1615	1	ACR	TEMPORARY MULCHING	7444000000-E	1725	276	LF	INDUCTIVE LOOP SAWCUT
					6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING	7456000000-E	1726	395	LF	LEAD-IN CABLE (***** (18-2))
										7636000000-N	1745	2	EA	SIGN FOR SIGNALS
										7768000000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, POLE MOUNTED)
										7780000000-N	1751	1	EA	DETECTOR CARD (TYPE 2070L)

6/21/00
 COMPUTED BY: D. PETRY DATE: 3-10-05
 CHECKED BY: S. CLARK DATE: 3-11-05

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

PROJECT REFERENCE NO. B-4192 SHEET NO. 3-A

PAVEMENT
 REMOVAL SUMMARY

STATION TO STATION	SQUARE YARDS
-L- STA. 13+95.00 TO -L- STA. 16+10.00	429.82
-DET- STA. 10+61.64 TO -L- STA. 13+37.35	435.34
PROJECT TOTAL	865.16
SAY	870

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

STATION TO STATION	UNCLASSIFIED EXCAVATION (cu. yds)	UNDERCUT (cu. yds)	ROADWAY EMBANKMENT (cu. yds)	BORROW (cu. yds)	WASTE (cu. yds)
SUMMARY #1					
-L- STA. 10+61.00	1,183		3,276	2,093	
-L- STA. 17+50.00					
SUMMARY #2					
-DET- STA. 10+61.64	32		2,908	2,876	
-DET- STA. 13+37.35					
SUBTOTAL (SUMMARIES 1-2)	1,215		6,184	4,969	
EST. LOSS DUE TO CLEARING & GRUBBING	-10			10	
EST. 5% FOR REPLACING TOPSOIL ON BORROW FITS				249	
GRAND TOTAL	1,205		6,184	5,228	
SAY	1,210			5,230	

FABRIC FOR SOIL STABILIZATION = 500 SY
 DRAINAGE DITCH EXCAVATION = 60 CY.
 GRADE POINT UNDERCUT = 100 CY.
 SELECT GRANULAR MATERIAL = 500 CY.

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.

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.

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		*N* DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS							
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-A	VI MOD	BIC	TYPE III													
-L-	12+89.09	15+26.59	RT.	237.50'					2'	9'	187.50'																									
-DET-	10+37.53	13+75.03	LT.	337.50'					3'	6'		287.50'																					337.50'	TEMPORARY GUARDRAIL		
-DET-	11+11.55	12+61.55	RT.	150.00'					3'	6'	100.00'																						150.00'	TEMPORARY GUARDRAIL		
																																		487.50'		
SUBTOTAL				725.00'																																
DEDUCTIONS FOR ANCHOR UNITS:				-300.00'																																
TOTAL				425.00'																																
			SAY	425.00'																																

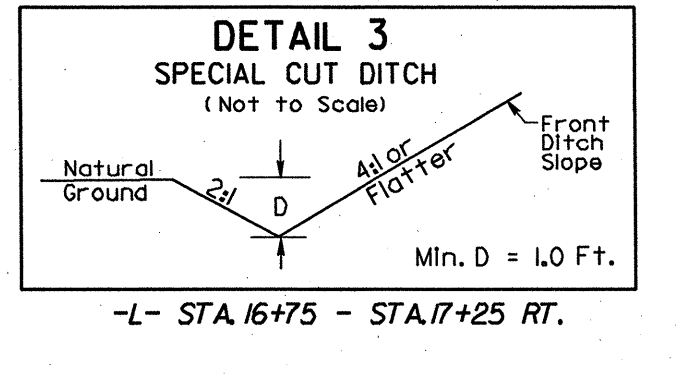
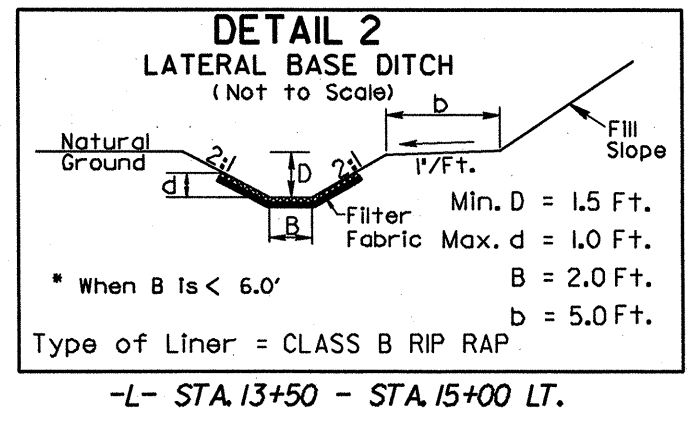
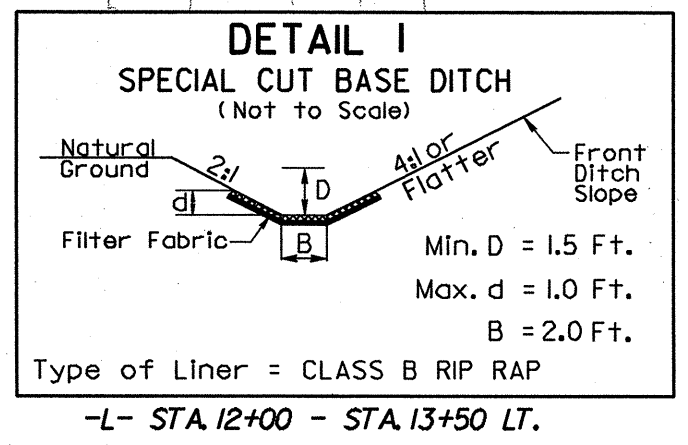
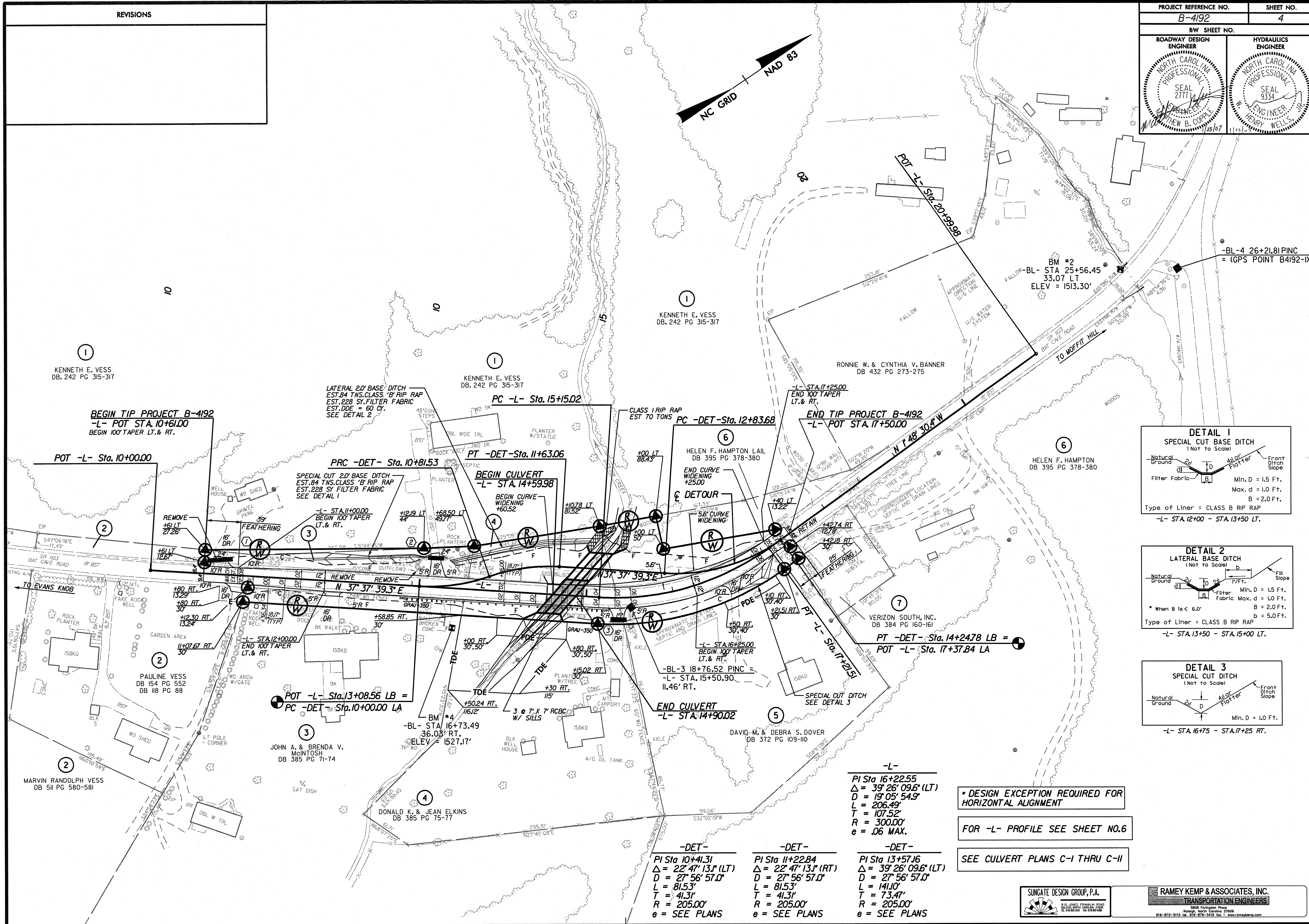
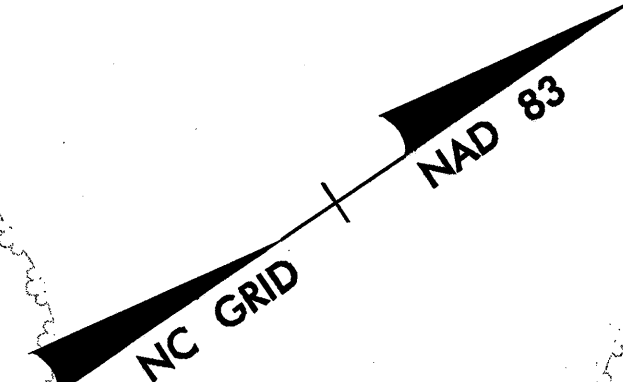
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT, RT, OR CI)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)												BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)						ENDWALLS			QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + [(1.3 X COL. 'B')] * C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03	TYPE OF GRATE	PIPE REMOVAL (LF)	REMARKS										
							12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	15' SIDE DRAIN PIPE	18' SIDE DRAIN PIPE	24' SIDE DRAIN PIPE	STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	C.U. YDS.						R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	5.0' THRU 10.0'	10.0' AND ABOVE	A	B	E	F	G
-L- 10+78	LT.	1																																	20'							
-L- 13+25	LT.	2																																	20'							
-L- 15+40	RT.	3																																								
TOTALS																																				40'						

SECTION CANNOT BE DRAWN TO SCALE

REVISIONS

PROJECT REFERENCE NO. B-4192	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER



-L-
PI Sta 16+22.55
Δ = 39' 26" 09.6" (LT)
D = 19' 05" 54.9"
L = 206.49'
T = 107.52'
R = 300.00'
e = .06 MAX.

* DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT

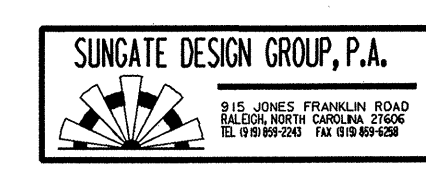
FOR -L- PROFILE SEE SHEET NO.6

SEE CULVERT PLANS C-I THRU C-II

-DET-
PI Sta 10+41.31
Δ = 22' 47" 13.1" (LT)
D = 27' 56" 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS

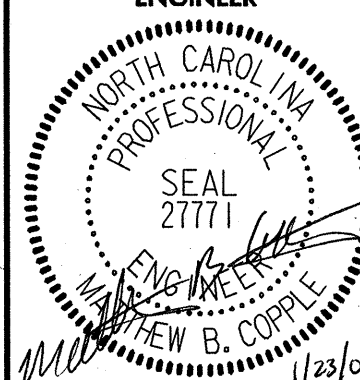

-DET-
PI Sta 11+22.84
Δ = 22' 47" 13.1" (RT)
D = 27' 56" 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS

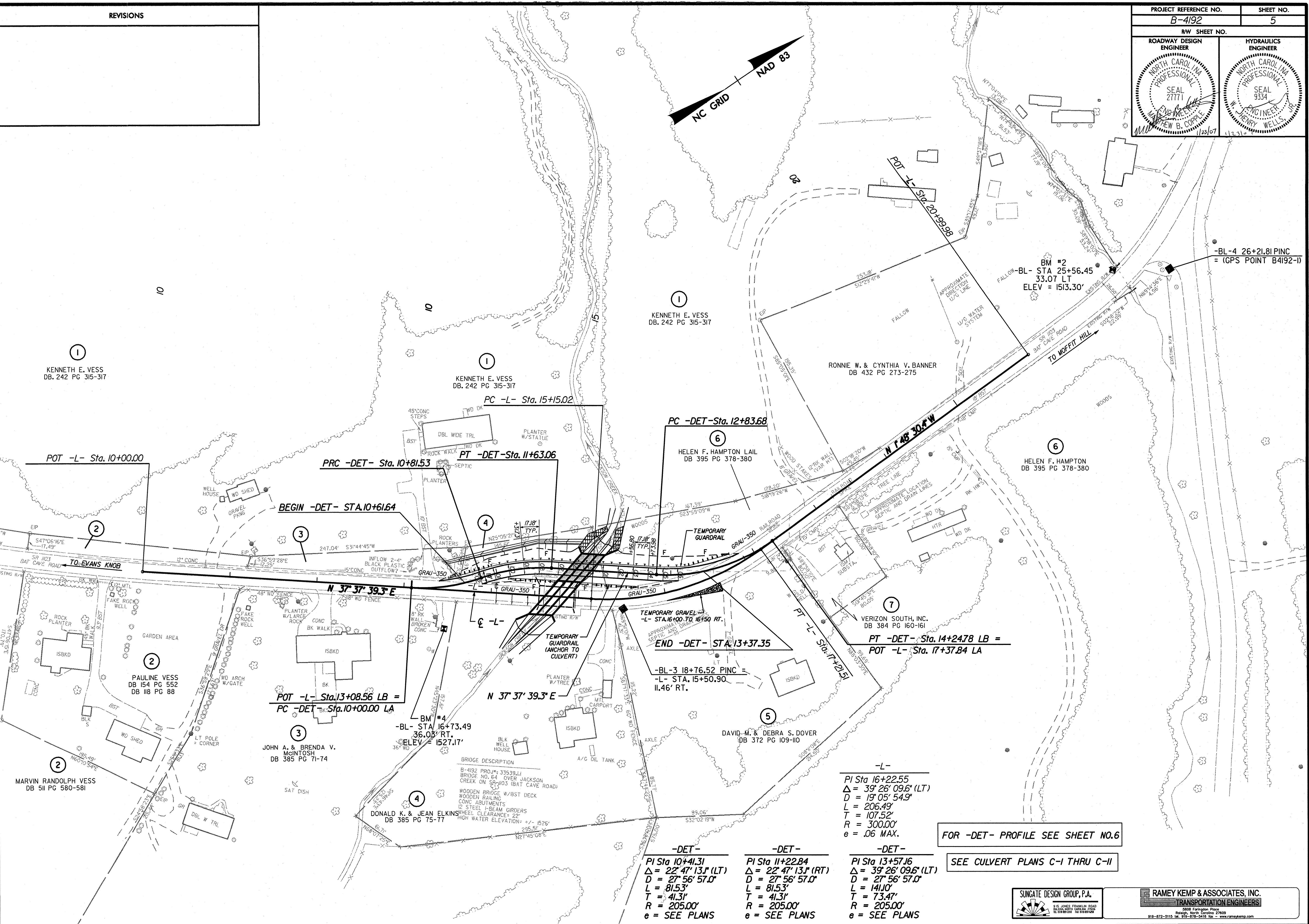
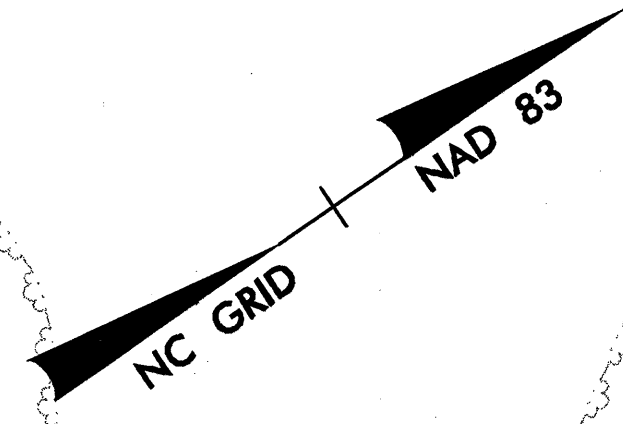
-DET-
PI Sta 13+57.16
Δ = 39' 26" 09.6" (LT)
D = 27' 56" 57.0"
L = 141.10'
T = 73.47'
R = 205.00'
e = SEE PLANS



10/26/18

REVISIONS

PROJECT REFERENCE NO. B-4192		SHEET NO. 5
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		



PC -L- Sta. 15+15.02

PC -DET- Sta. 12+83.68

POT -L- Sta. 10+00.00

PT -DET- Sta. 11+63.06

BEGIN -DET- STA. 10+61.64

END -DET- STA. 13+37.35

PT -DET- Sta. 14+247.8 LB =

POT -L- Sta. 17+37.84 LA

POT -L- Sta. 13+08.56 LB =

PC -DET- Sta. 10+00.00 LA

BM #4
-BL- STA. 16+73.49
ELEV. = 1527.17'

-L-
PI Sta 16+22.55
Δ = 39' 26' 09.6" (LT)
D = 19' 05' 54.9"
L = 206.49'
T = 107.52'
R = 300.00'
e = .06 MAX.

FOR -DET- PROFILE SEE SHEET NO.6

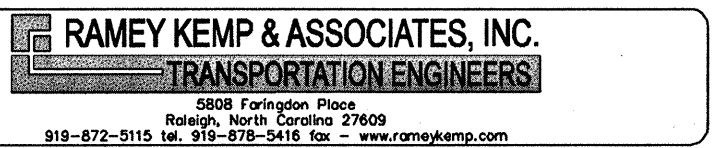
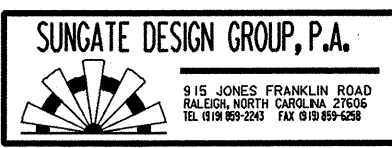
-DET-
PI Sta 10+41.31
Δ = 22' 47' 13.1" (LT)
D = 27' 56' 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS

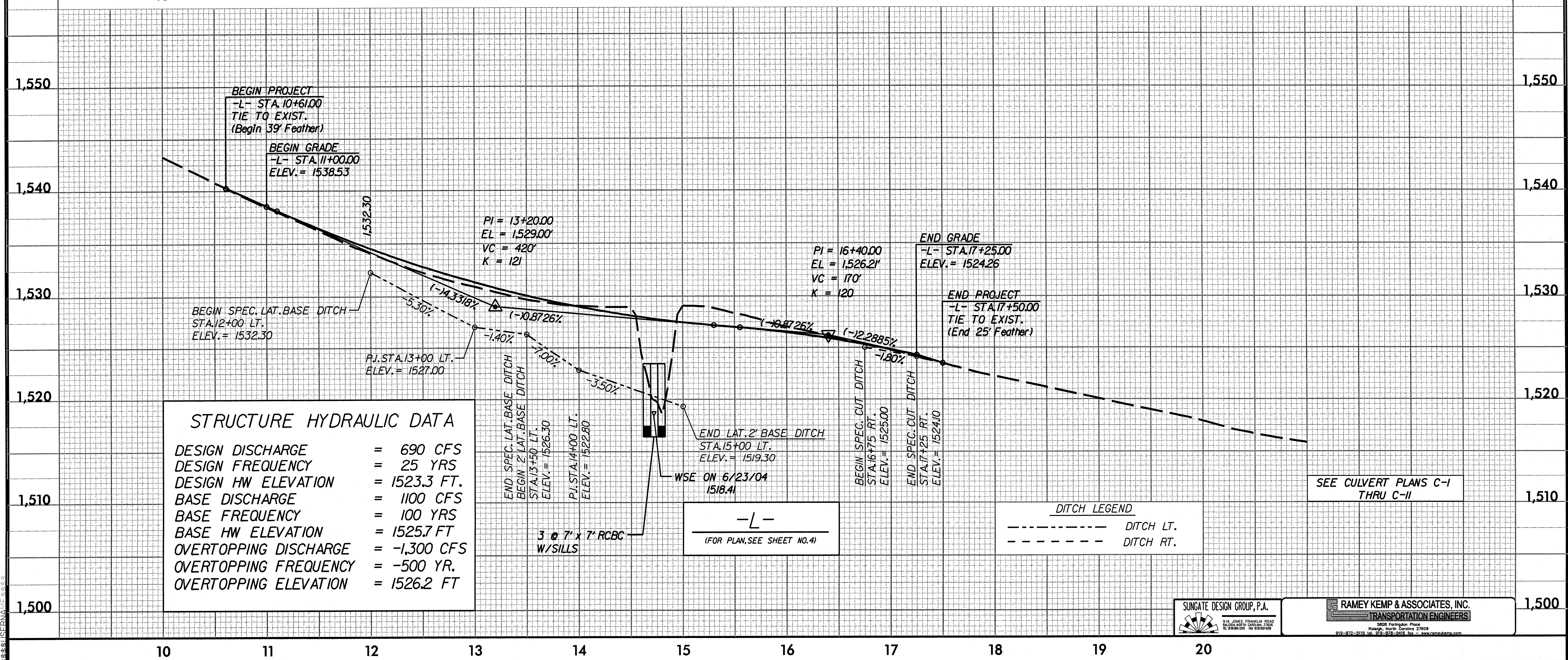
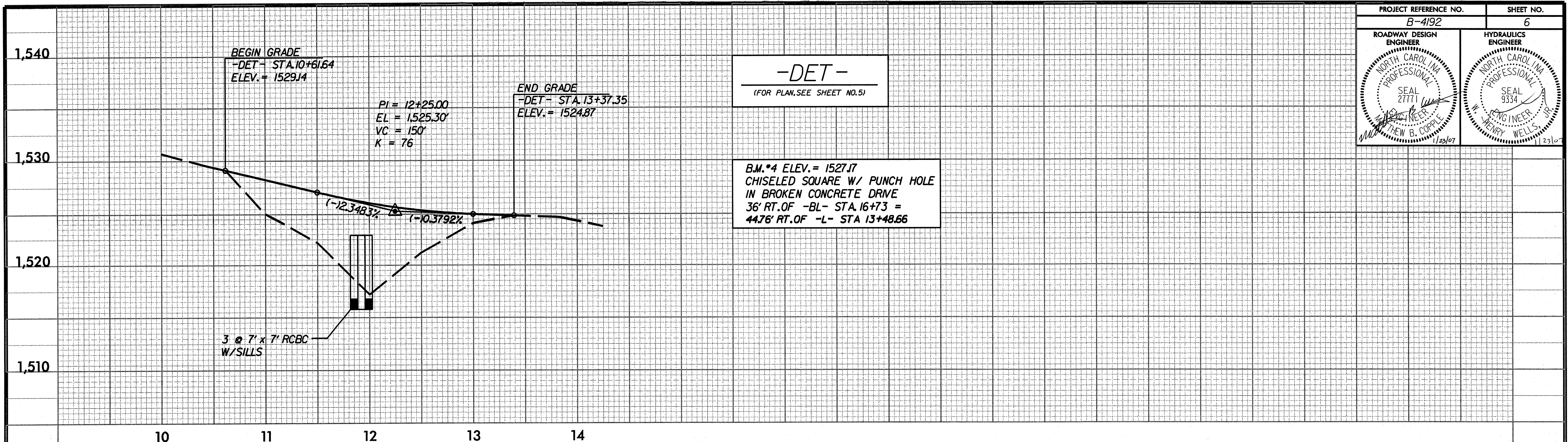
-DET-
PI Sta 11+22.84
Δ = 22' 47' 13.1" (RT)
D = 27' 56' 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS

-DET-
PI Sta 13+57.16
Δ = 39' 26' 09.6" (LT)
D = 27' 56' 57.0"
L = 141.0'
T = 73.47'
R = 205.00'
e = SEE PLANS

SEE CULVERT PLANS C-1 THRU C-11

BRIDGE DESCRIPTION
B-4192 PROJ: 33539.L1
BRIDGE NO. 64 OVER JACKSON
CREEK ON SR 103 (BAT CAVE ROAD)
WOODEN BRIDGE W/ BST DECK
CONC ABUTMENTS
2 STEEL I-BEAM GIRDERS
WHEEL CLEARANCE = 22'
HIGH WATER ELEVATION = 1526'





STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 690 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 1523.3 FT.
BASE DISCHARGE	= 1100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1525.7 FT
OVERTOPPING DISCHARGE	= -1,300 CFS
OVERTOPPING FREQUENCY	= -500 YR.
OVERTOPPING ELEVATION	= 1526.2 FT