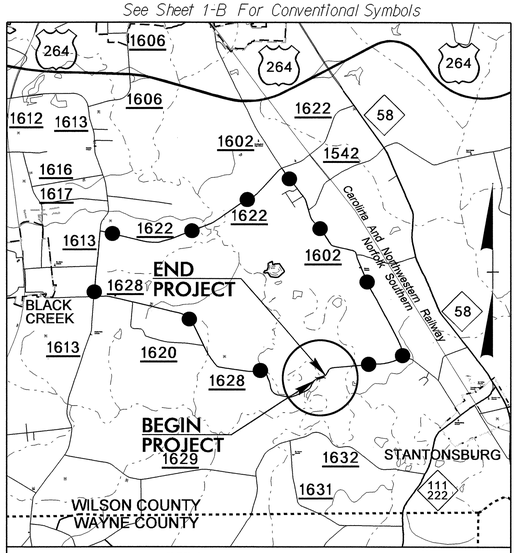
09/08/99

TIP PROJECT: B–4992

CONTRACT:

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



VICINITY MAP

OFF–SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILSON COUNTY

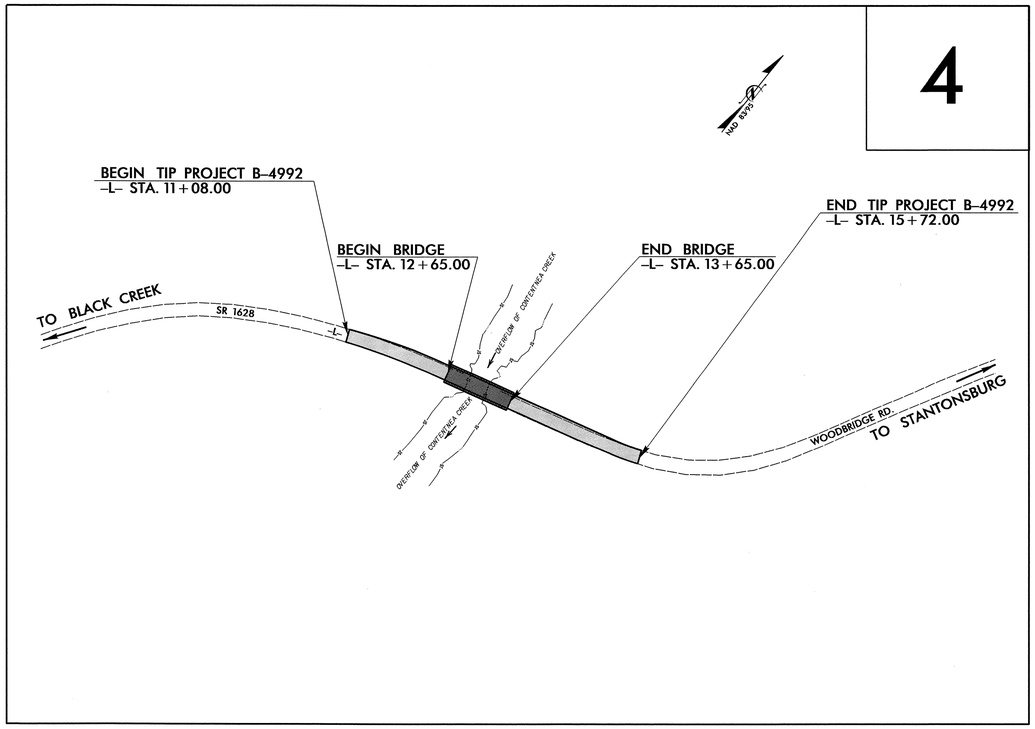
LOCATION: BRIDGE NO. 1 ON SR 1628 (WOODBRIDGE ROAD) OVER THE OVERFLOW CHANNEL OF CONTENTNEA

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4992	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
41537.1.1	BRSTP–1628(2)	PE
41537.2.1	BRSTP–1628(2)	R/W, UTIL.
41537.3.1	BRSTP–1628(2)	CONST.

4



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2010 = 580 VPD
ADT 2030 = 800 VPD
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH

* TTST 1% DUAL 2%
FUNC. CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4992	=	0.069 MI
LENGTH STRUCTURE TIP PROJECT B–4992	=	0.019 MI
TOTAL LENGTH TIP PROJECT B–4992	=	0.088 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 17, 2008

LETTING DATE:
JUNE 15, 2010

JAMES A. SPEER, PE
PROJECT ENGINEER

NYA K. BOAYUE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
LARRY D. ROBINSON, JR. SEAL 026480 ENGINEER
3-26-10
SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER
NYA K. BOAYUE SEAL 29114 ENGINEER
3/25/10
SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

24-MAR-2010 16:19
R:\Roadway\Proj\b4992_rdy_tsh.dgn
$$$$USERNAME$$$$

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4992	1-C
Location and Surveys	

SURVEY CONTROL SHEET B4992

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	GPS "B4682-2"	678408.4170	2336239.9660	85.92	OUTSIDE PROJECT LIMITS	
101	-BL- 101	678602.5980	2336836.7510	67.44	OUTSIDE PROJECT LIMITS	
102	-BL- 102	678902.1004	2337471.0775	69.11	OUTSIDE PROJECT LIMITS	
103	-BL- 103	679129.9980	2337824.8550	66.25	OUTSIDE PROJECT LIMITS	
104	-BL- 104	679679.4820	2338108.9110	64.49	OUTSIDE PROJECT LIMITS	
105	-BL- 105	679860.8930	2338602.5040	65.61	13+52.92	16.92 RT
106	-BL- 106	680037.1730	2338964.6750	66.59	OUTSIDE PROJECT LIMITS	
107	-BL- 107	680520.1080	2339224.9460	66.64	OUTSIDE PROJECT LIMITS	
108	-BL- 108	680580.9120	2339648.0570	66.65	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

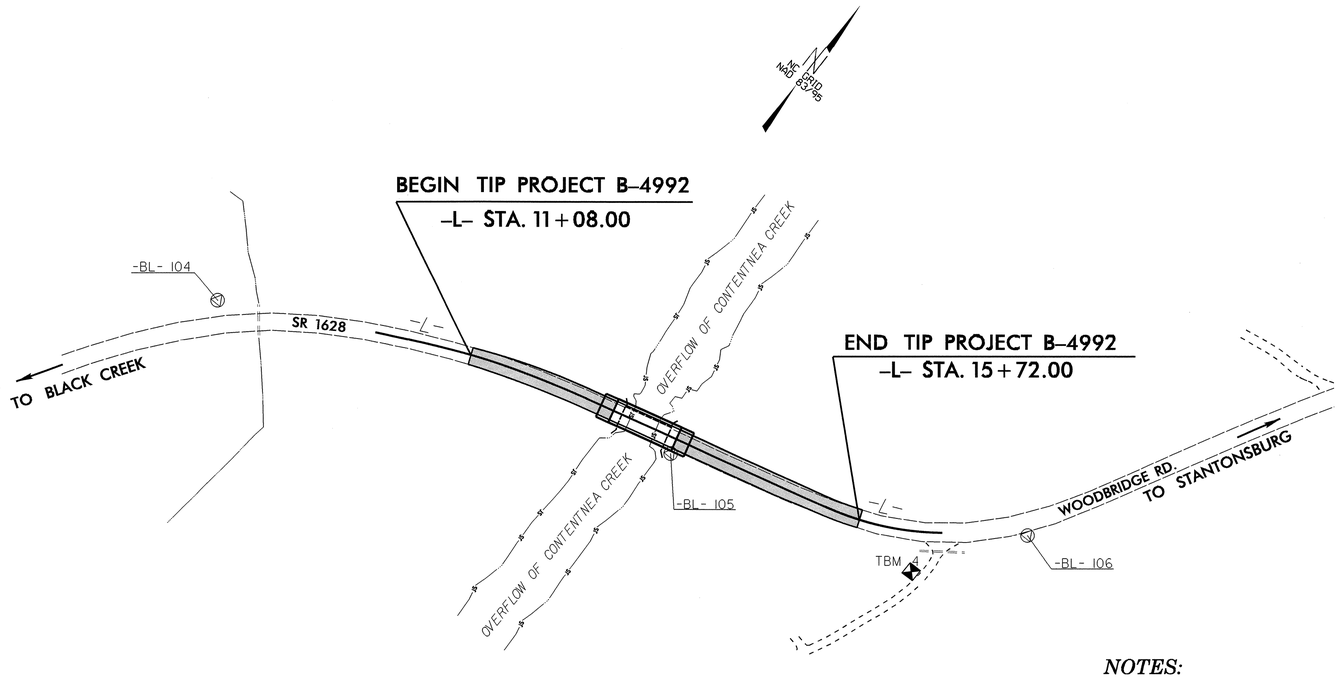
```
**********************************************
802       ELEVATION = 84.28
N 678472      E 2336310
L STATION 10+00
S 56° 37' 17.2" W  DIST   2342.37
TBM 1  RAILROAD SPIKE IN BASE OF 30" PINE
**********************************************

**********************************************
834       ELEVATION = 69.71
N 678836      E 2337207
L STATION 10+00
S 48° 51' 52.6" W  DIST   1406.87
TBM 2  RAILROAD SPIKE IN BASE OF 36" PIN OAK
**********************************************

**********************************************
1251       ELEVATION = 68.58
N 679340      E 2337959
L STATION 10+00
S 36° 05' 47.5" W  DIST    521.64
TBM 3  RAILROAD SPIKE IN BASE OF 36" PIN OAK
**********************************************

**********************************************
586       ELEVATION = 67.65
N 679926      E 2338890
L STATION 16+35 45 RIGHT
TBM 4  RAILROAD SPIKE IN BASE OF 30" TWIN PINE
**********************************************

**********************************************
1677       ELEVATION = 65.96
N 680615      E 2339446
L STATION 16+65
N 41° 13' 12.5" E  DIST    844.02
TBM 5  RAILROAD SPIKE IN BASE OF 24" GUM
**********************************************
```



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS "B4682-2"" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 678408.417(ft) EASTING: 2336239.966(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989348 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS "B4682-2"" TO -L- STATION 11+08.00 IS N 56°38'08.8" E 2543.06' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

REVISED 05/19/2008
REVISED 09/02/2008

NOTE: DRAWING NOT TO SCALE

NOTES:

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

   THE FILES TO BE FOUND ARE AS FOLLOWS: B4992_LS_CONTROL_080118.TXT

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

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

24-FEB-2010 08:11
F:\roadway\proj\b4992_ls_lc_080902.dgn
$$$$USERNAME$$$$

10/26/98

PROJECT REFERENCE NO.	SHEET NO.
B-4992	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20177 ENGINEER ANA K. BOAYE
3/25/10

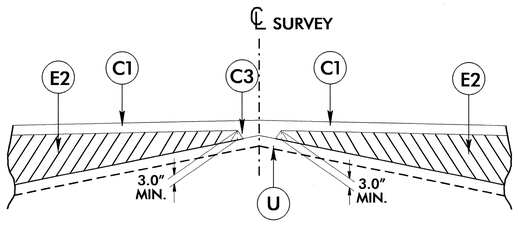
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
3/26/10

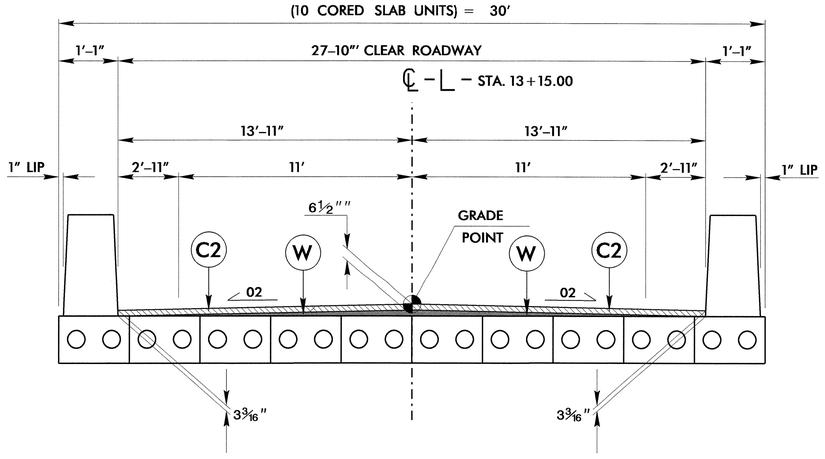
PAVEMENT SCHEDULE

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 1.5" IN DEPTH
E1	PROP. APPROX. 4.0" 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 5½" IN DEPTH.
U	EXISTING PAVEMENT.
T	EARTH MATERIAL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL 1)

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

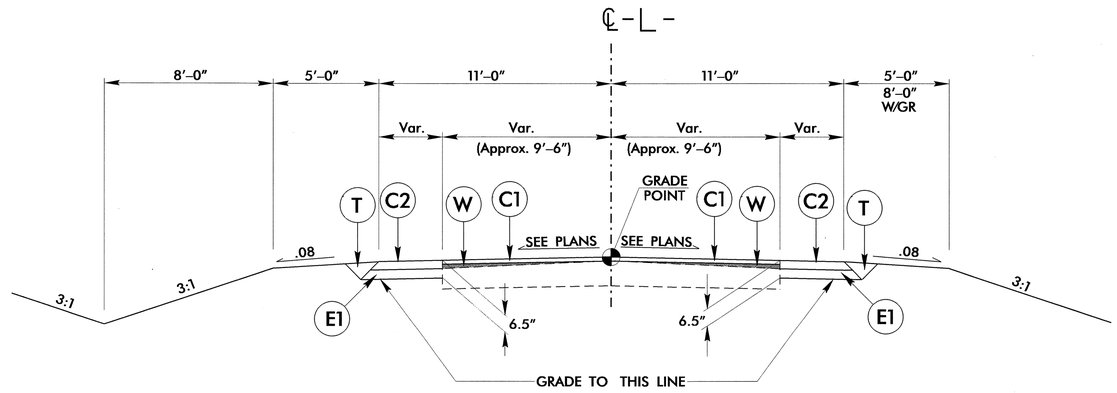


Detail Showing Method of Wedging
DETAIL 1



TYPICAL SECTION ON STRUCTURE

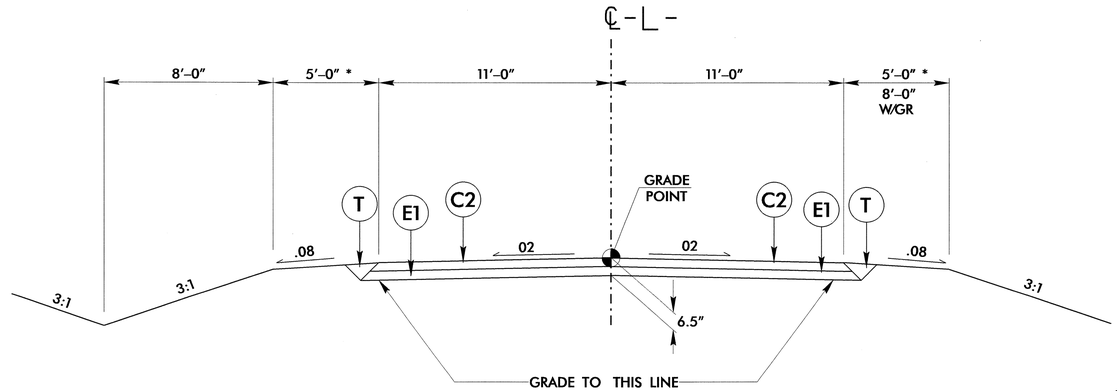
BEGIN BRIDGE -L- STA. 12+65.00 TO END BRIDGE -L- STA. 13+65.00



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 11+08.00 to -L- STA. 12+25.00
-L- STA. 14+00.00 to -L- STA. 15+72.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 12+25.00 to -L- STA. 12+65.00 (BEG. BRIDGE)
-L- STA. 13+65.00 (END BRIDGE) to -L- STA. 14+00.00

* INSTALL SHOULDER BERM GUTTER AS FOLLOWS:
STA. 12+37.00 TO STA. 12+54.00 LT
STA. 12+37.00 TO STA. 12+54.00 RT
SEE ROADWAY STD. DRWG. No. 846.03

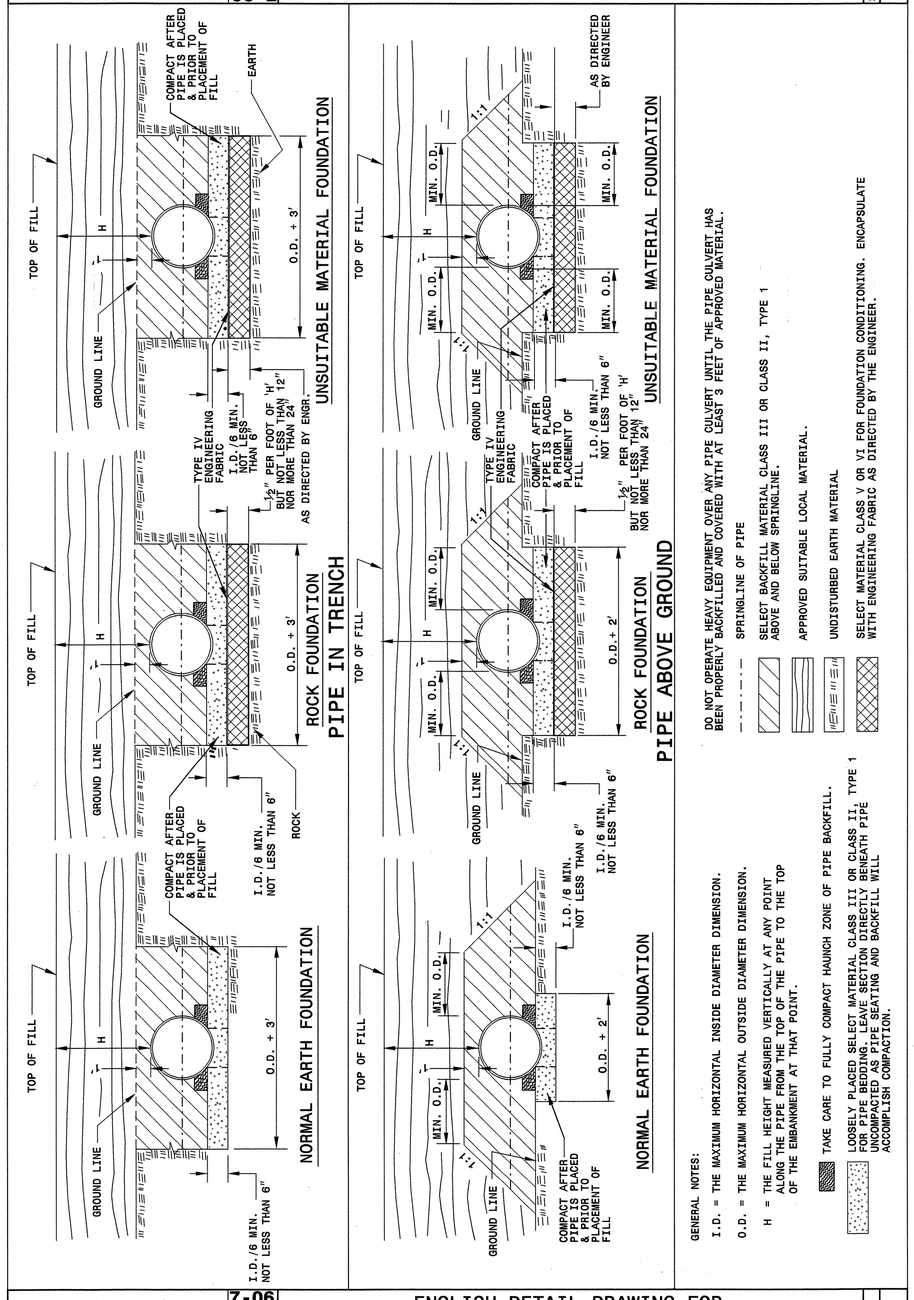
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4992	2-A

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

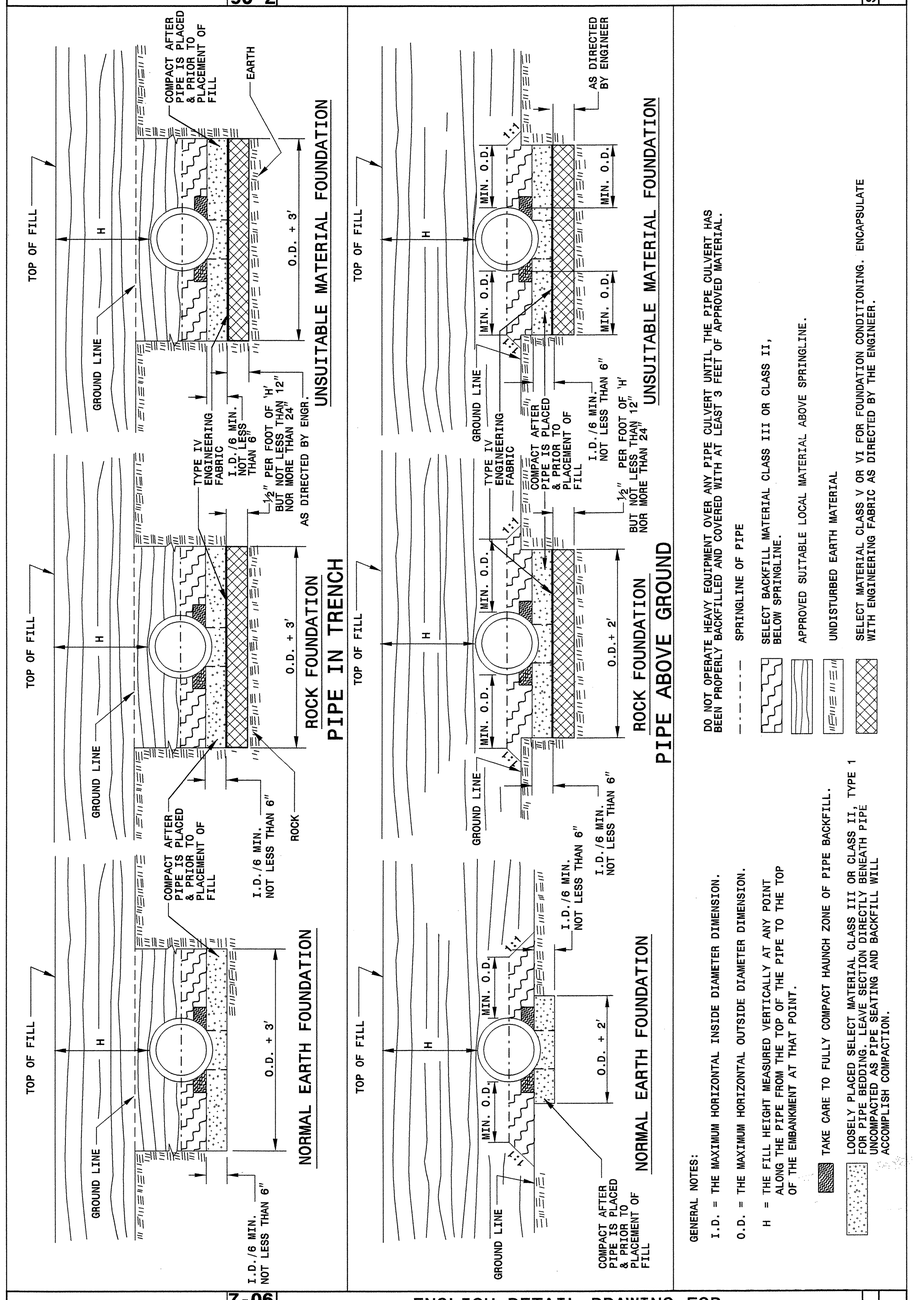
SHEET 1 OF 3
300D01



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 3
300D01



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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC: c:/ericward/stds/stdstodetails/30001/0300d01.dgn

30-JUL-2009 08:48
s:\contracts\contracts\special details\ericward\stds\06\ stds to special details\30001\0300d01.dgn
jhowerton AT PS237501

30-JUL-2009 08:49
s:\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn
.jhowerton AT PS237501

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4992	2-B

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≤ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966
3/31/10

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC: /ericward/stds/stdstodetails/30001/0300d01.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4992	2-C

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

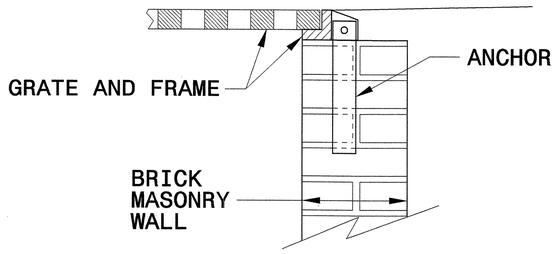
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

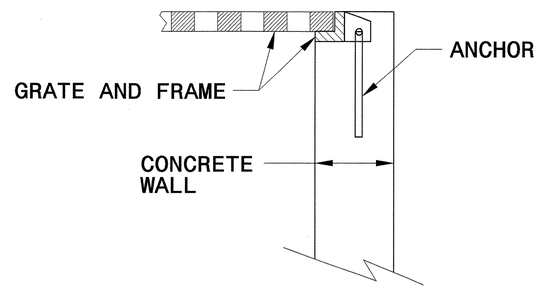
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

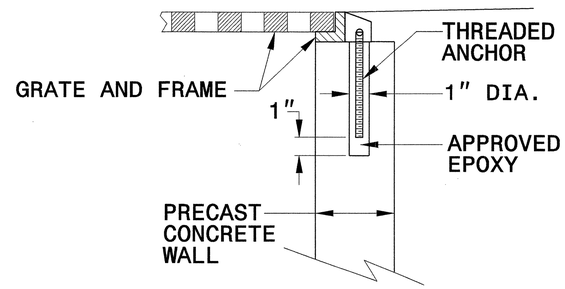
840D25



BRICK MASONRY CONSTRUCTION



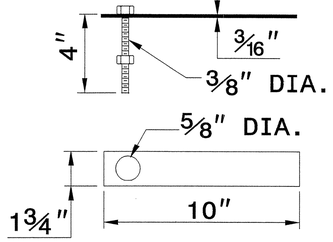
CONCRETE CONSTRUCTION



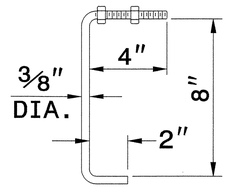
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

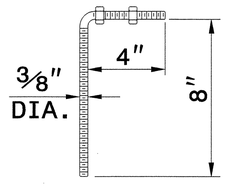
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



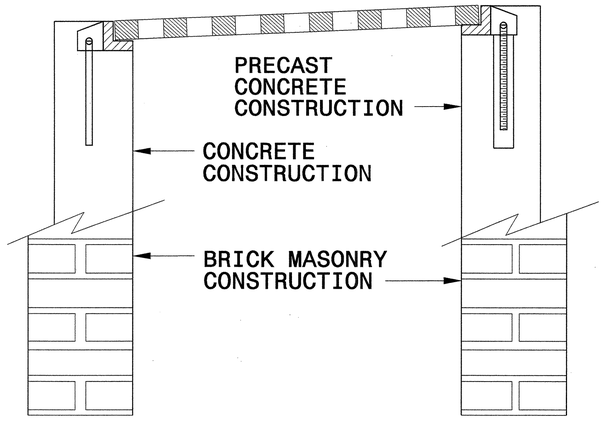
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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

NORTH CAROLINA PROFESSIONAL SEAL 022566 ENGINEER JOEL S. HOWARD
3/1/10

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: DATE: 11/13/06
FILE SPEC.:

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

12/06/07

COMPUTED BY: TO DATE: 2 /19 /10
CHECKED BY: NKB DATE: 2 /19 /10

PROJECT REFERENCE NO.	SHEET NO.
B-4992	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUB-REGIONAL & REGIONAL
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	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE	12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE												
12+37.00	LT	1		65.7	61.7															
12+37.00	RT	1	2		61.7	60.9				24										
12+37.00	RT	2		65.5	60.9															
12+37.00	RT	2	3		60.9	60.24				20										
TOTAL										44										

C.S. PIPE	12"	15"	18"	24"	36"	42"	48"
	.064	.064	.064	.064	.079	.109	.109

R.C. PIPE (CLASS III)	15"	18"	24"	30"	36"	42"	48"

R.C. PIPE (CLASS IV)	12"	15"	18"	24"	30"	36"	42"	48"

*** R.C. PIPE (CLASS V)	*** R.C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	*** R.C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" 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 * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL A + (1.3 X COL B) LIN. FT. PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE
1		
1		
2		

C.B. STD. 840.01 OR STD. 840.02

FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G

CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET

G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	T.B.D.I. STD. 840.35	T.B.D.I. (N.S.) FRAME WITH 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 LIN.FT.	REMARKS
				1	1					
				1	1					
				2	2					

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	12+25.00	12+86.00	CL	128.78
-L-	13+42.00	14+00.00	CL	122.44
			TOTAL:	251.22
			SAY:	252

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

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

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
11+08.00	12+65.00	172	148		24
13+65.00	15+72.00	283	374	91	
SUBTOTALS:		455	522	91	24
WASTE IN LIEU OF BORROW				-24	-24
PROJECT TOTALS:		455	522	67	
5% FOR BORROW PIT				3	
GRAND TOTALS:		455		70	
SAY:		470		75	

UNDERCUT EXCAVATION = 200 CY
SELECT MATERIAL (CLASS II OR III) = 300 CY

"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 SHOULDER WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE 350	ANCHORS TYPE III	ANCHORS AT-1	IMPACT ATTENUATOR TYPE 350 NO.	IMPACT ATTENUATOR TYPE 350 PERMITTED G	IMPACT ATTENUATOR TYPE 350 PERMITTED NG	REMARKS
L	11+84.75	12+66.00	LT	81.25'			11+84.75		2'-11"	5'-0"			1'	1'	1	1					
L	13+64.00	15+07.75	LT	143.75'			15+07.75		2'-11"	5'-0"			1'	1'	1	1					
L	11+22.25	12+66.00	RT	143.75'				11+22.25	2'-11"	5'-0"			1'	1'	1	1					
L	13+64.00	14+45.25	RT	81.25'				14+45.25	2'-11"	5'-0"			1'	1'	1	1					
SUB-TOTAL:				450.00'											4	4					
		LESS ANCHOR DEDUCTIONS:																			
		GRAU-350	4 @ 50 ft	200.00'																	
		TYPE III	4 @ 18.75 ft	75.00'																	
		ANCHOR TOTALS:		275.00'																	
TOTAL				175.00'											4	4					
		ADDITIONAL GUARDRAIL POST = 5 EA																			

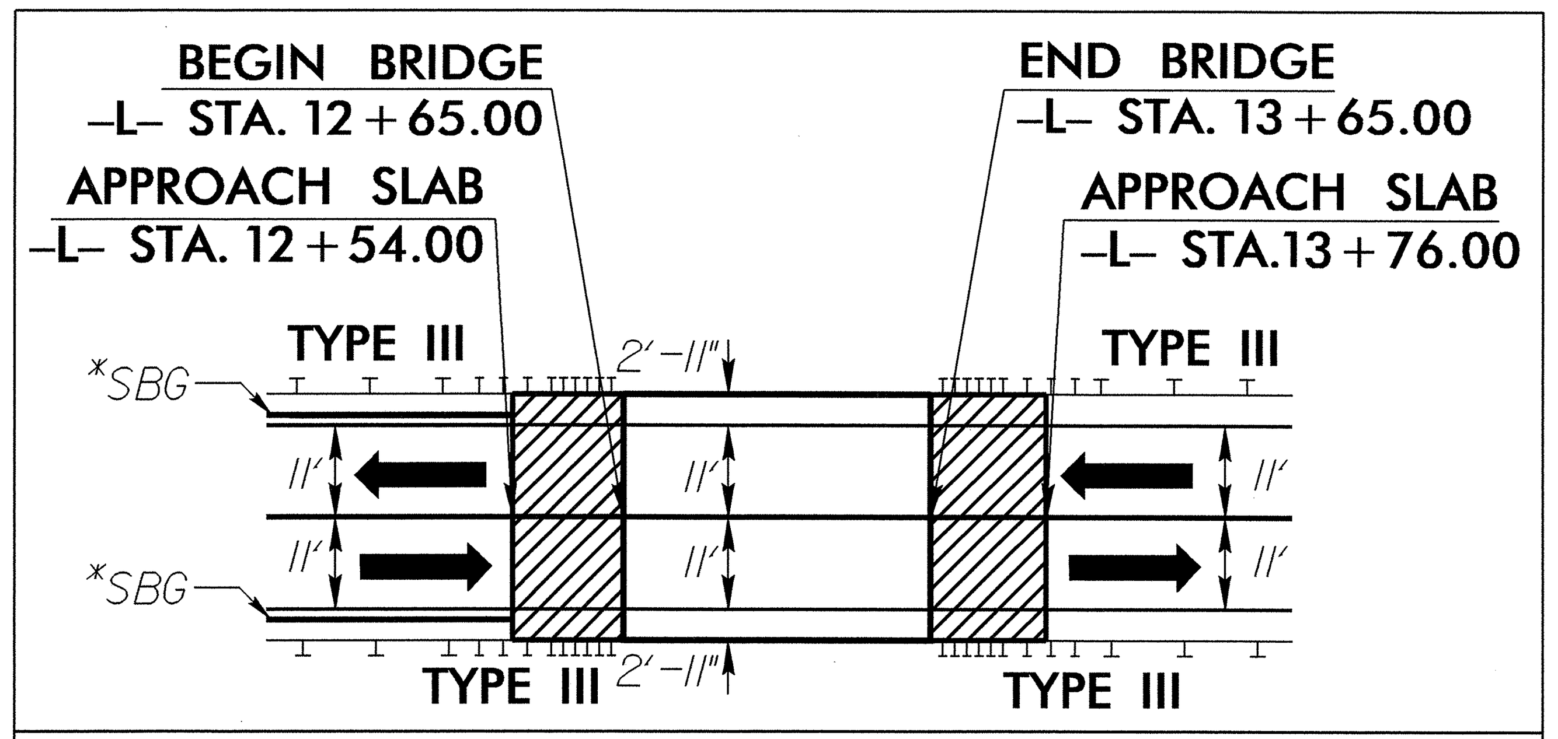
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4992	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20112 ENGINEER KEVIN K. BOAYUE 3/25/10

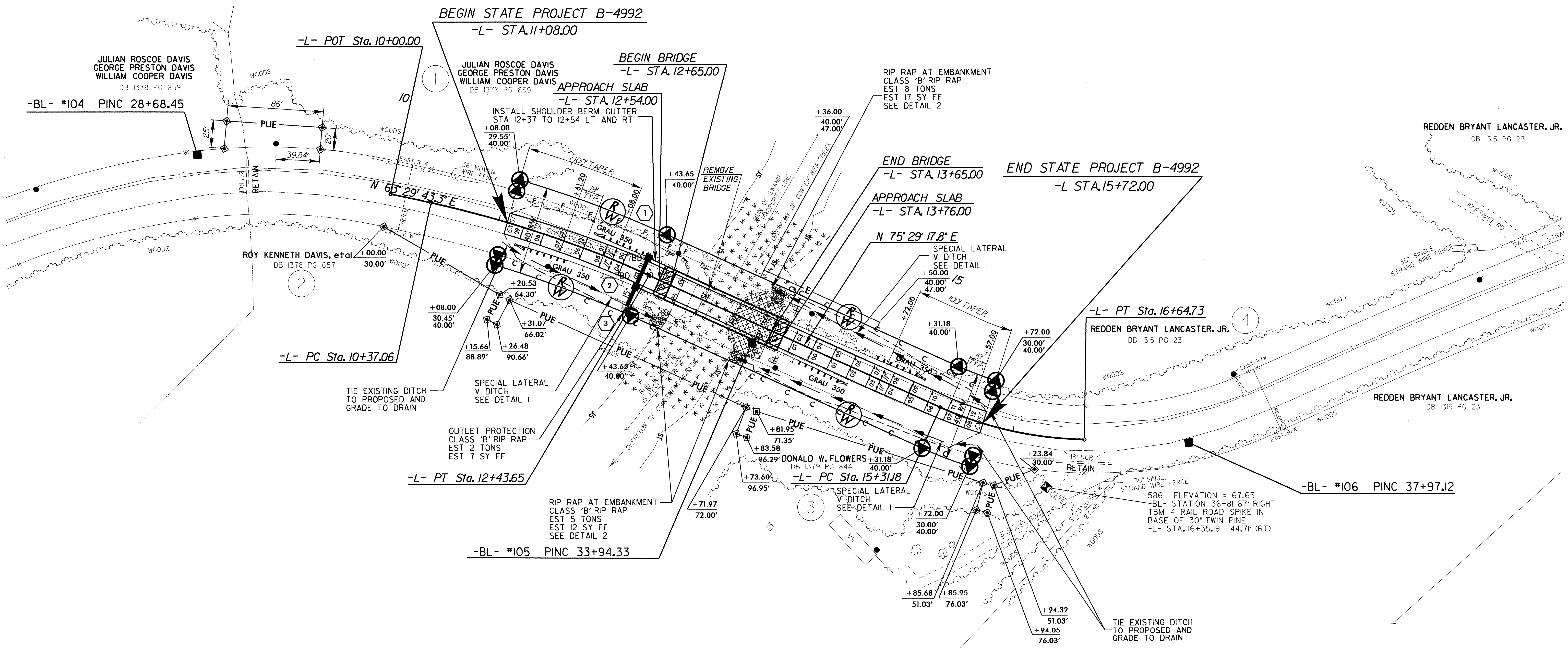
NORTH CAROLINA PROFESSIONAL SEAL 026480 ENGINEER LARRY D. ROBINSON, JR. 3-26-10

REVISIONS



Sketch of Pavement in Relation to Bridge

*SBG DENOTES "SHOULDER BERM GUTTER"

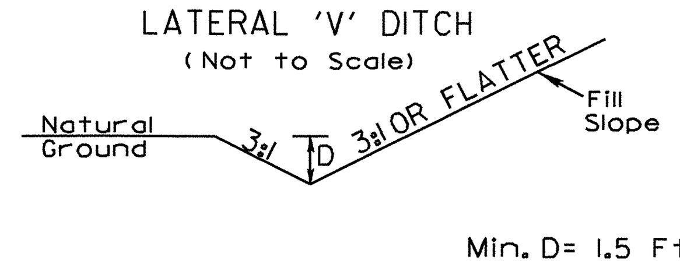


-L-	
PI Sta 11+40.73	PI Sta 15+98.90
Δ = 11° 59' 34.5" (RT)	Δ = 23° 28' 13.5" (LT)
D = 5° 48' 18.2"	D = 17° 34' 26.3"
L = 206.59'	L = 133.55'
T = 103.68'	T = 67.73'
R = 987.00'	R = 326.03'
SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS

DETAIL I

LATERAL 'V' DITCH

(Not to Scale)



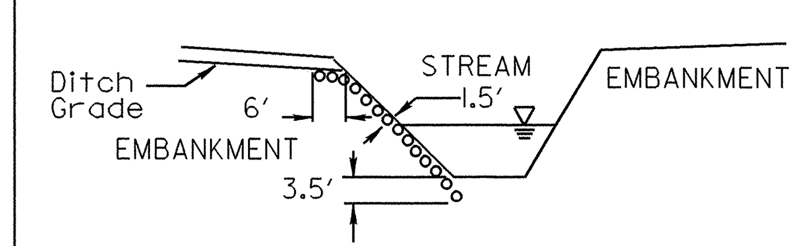
Min. D= 1.5 Ft.

–L– STA 11+08 TO STA 12+70 (RT)
–L– STA 13+45 TO STA 15+72 (RT)
–L– STA 13+50 TO STA 15+72 (LT)

DETAIL 2

RIP RAP AT STREAM EMBANKMENT

(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

–L– STA 12+70 (RT)
–L– STA 13+65 (LT)
–L– STA 13+45 (RT)

NOTE: SEE SHEET NO. 5 FOR -L- PROFILE
SEE SHEET S-23 THRU S-40 FOR STRUCTURE PLANS

24-MAR-2010 16:19
r:\roadway\proj\b4992_rdy_psh.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4992	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20111 ENGINEER NYK. BOAYUE 3/25/10

NORTH CAROLINA PROFESSIONAL SEAL 026480 ENGINEER LARRY D. ROBINSON JR. 3-26-10

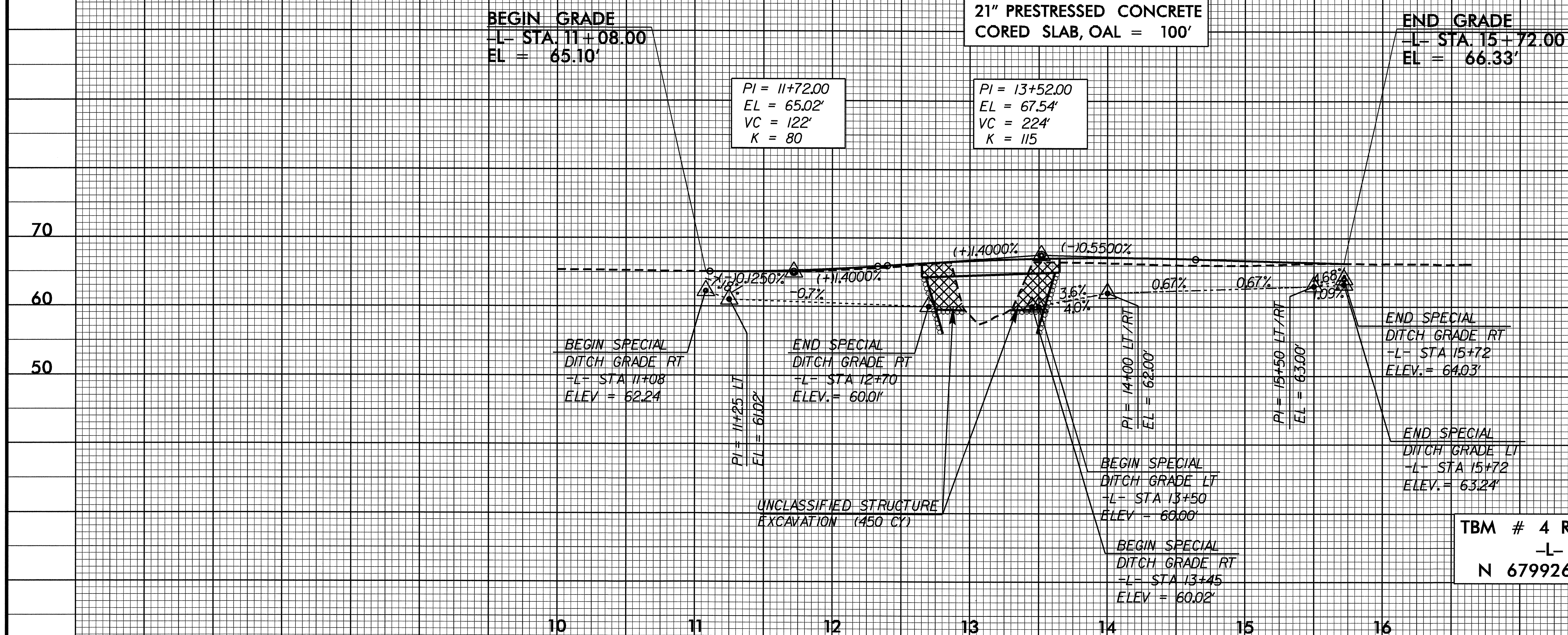
5/14/99

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 7800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 66.2	FT
BASE DISCHARGE	= 11000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 67.4	FT
OVERTOPPING DISCHARGE	= <5900	CFS
OVERTOPPING FREQUENCY	= <10	YRS
OVERTOPPING ELEVATION	= 65.1	FT
NORMAL WATER SURFACE ELEVATION	= NA	FT
DATE OF SURVEY	= 12/06/07	

–L–

BRIDGE ℄ STA 13+15 –L–
ELEV = 66.78'
SKEW = 90°
PROPOSED 2 @ 50'
21" PRESTRESSED CONCRETE
CORED SLAB, OAL = 100'



TBM # 4 RR SPIKE IN BASE OF 30" TWIN PINE
–L– STA. 16+35.19 44.71' RT.
N 679926 E 2338890 ELEV. = 67.65'

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

SEE SHEET 4 FOR –L– DESIGN