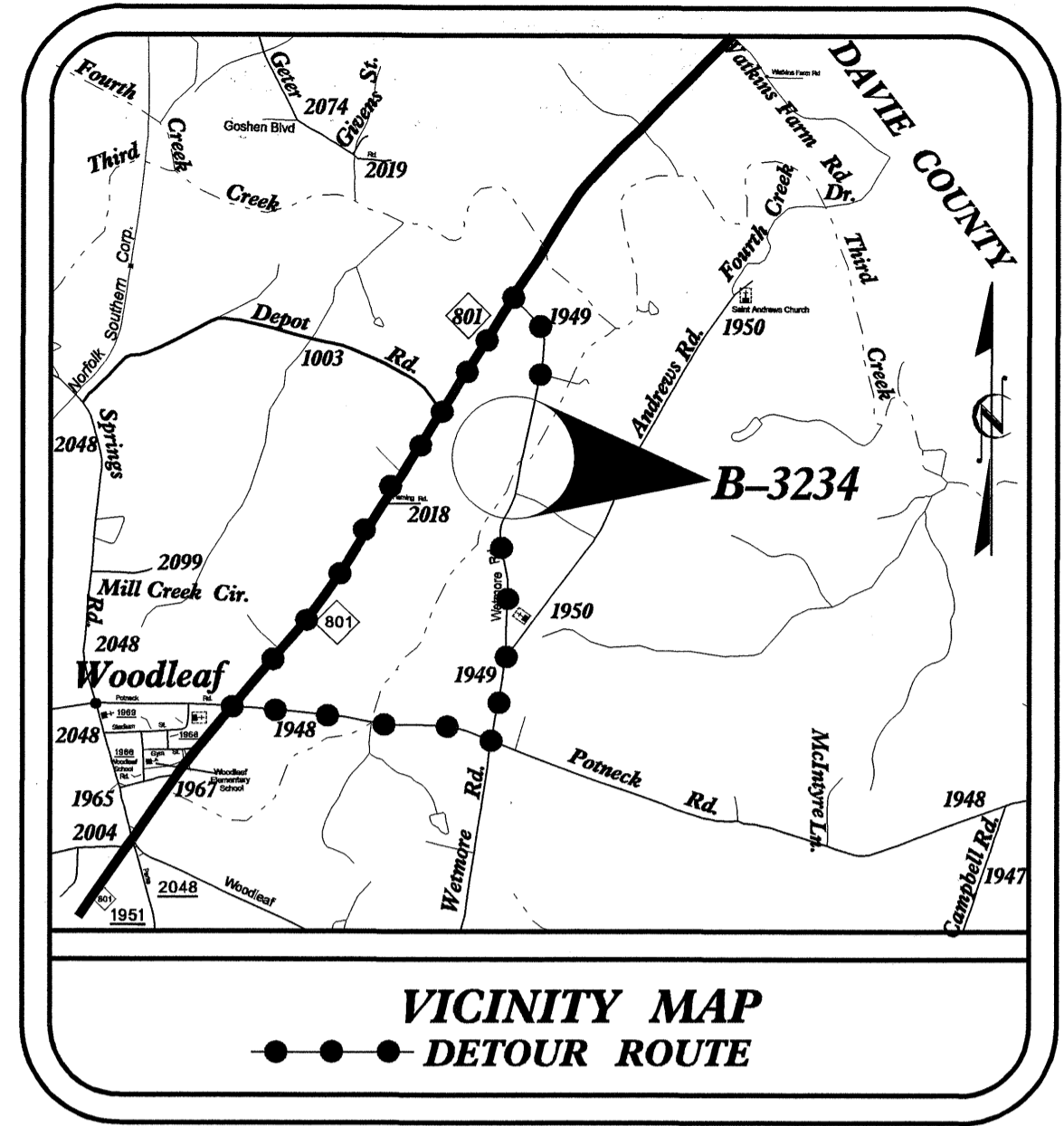


TIP PROJECT: B-3234

CONTRACT: C202152

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



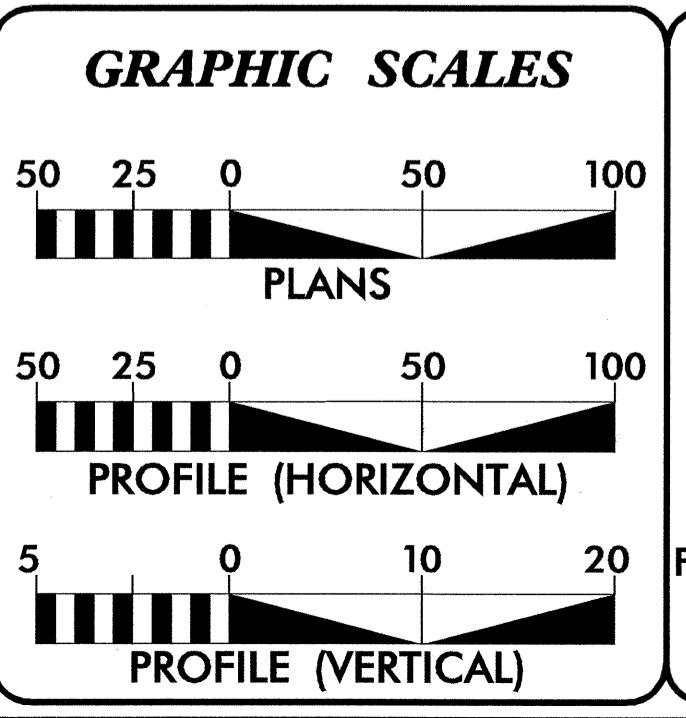
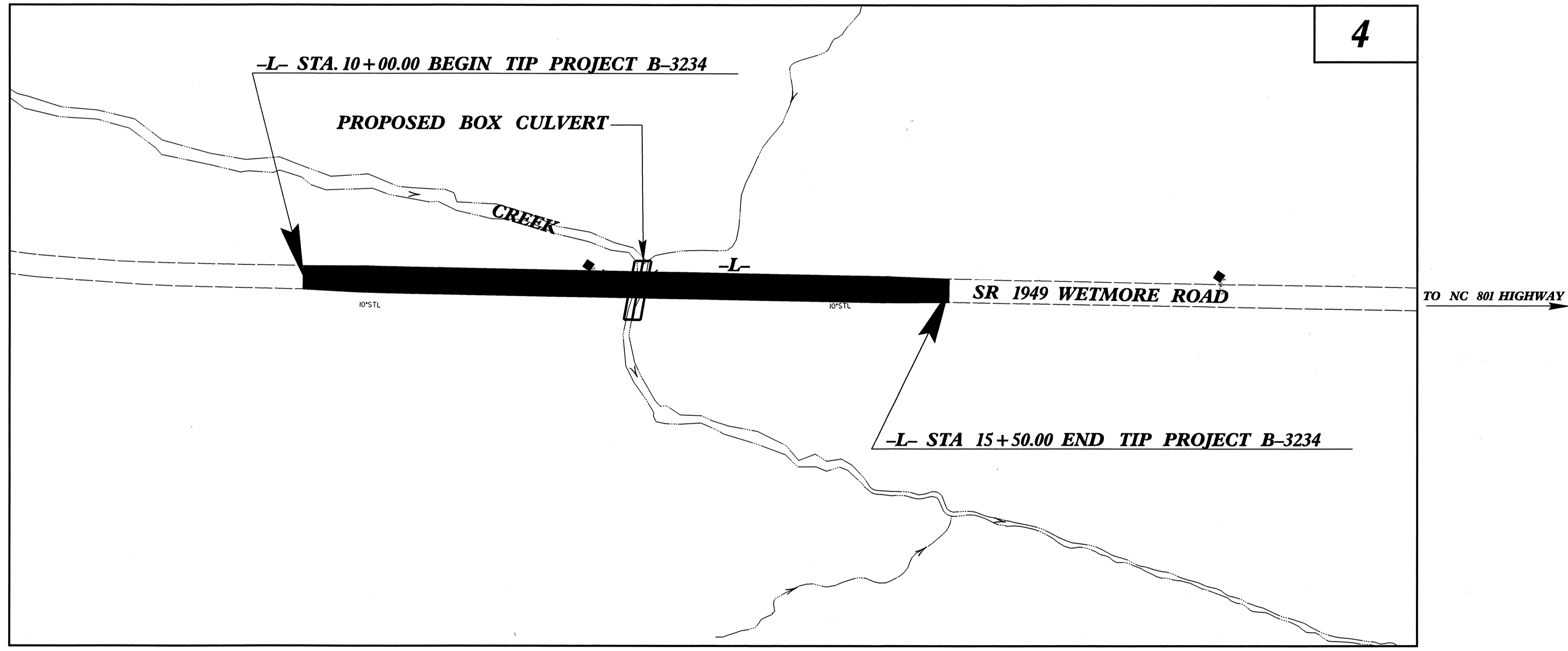
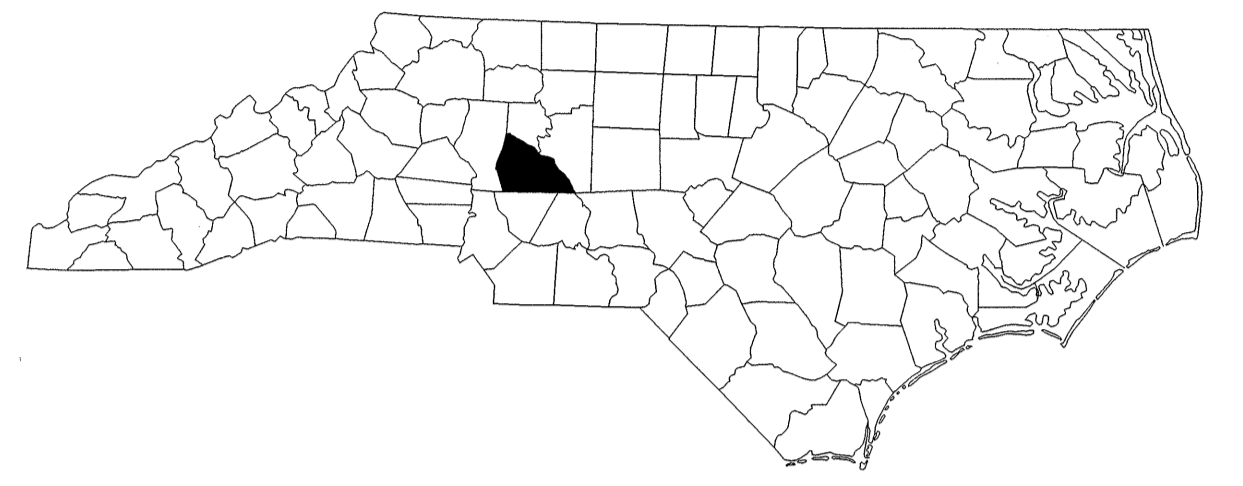
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

ROWAN COUNTY

LOCATION: BRIDGE 78 OVER A CREEK ON SR 1949 (WETMORE ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3234	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32950.1.1	BRZ-1949(1)	P.E.	
32950.2.1	BRZ-1949(1)	RW & UTIL	
32950.3.1	BRZ-1949(1)	CONST.	



DESIGN DATA

ADT 2008 =	1624
ADT 2030 =	2600
DHV =	11 %
D =	40 %
T =	4 % *
V =	40 MPH
FUNC. CLASS =	LOCAL
* TTST 2	DUAL 2

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3234	= .104 mi.
TOTAL LENGTH OF TIP PROJECT B-3234	= .104 mi.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 JULY 18, 2008

LETTING DATE:
 JULY 21, 2009

JIMMY GOODNIGHT, PE
 PROJECT ENGINEER

MARK HUSSEY
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SHICHEN FU
 ENGINEER

SIGNATURE: [Signature] 5-01-09

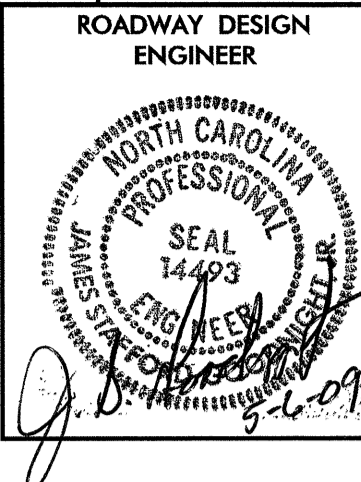
ROADWAY DESIGN ENGINEER

JIMMY GOODNIGHT, PE
 ENGINEER

SIGNATURE: [Signature] 05-01-2009

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

at m. miller
 P.E.
 STATE HIGHWAY DESIGN ENGINEER



INDEX OF SHEETS

1	Title Sheet
1A	Index of sheets, General Notes and List of Standards
1B	Conventional Symbols
1C	Survey Control Data Sheet
2	Pavement Schedule and Typical Sections
3	Summary of Quantities
3A	Drainage, Guardrail, Pavement Removal Pavement Breaking and Earthwork Summaries
4	Plan/Profile Sheet
TCP-1 - TCP-4	Traffic Control Plans
PMP-1 - PMP-2	Pavement Marking Plans
EC-1 - EC-6	Erosion Control Plans
RF-1	Reforestation Plan
SD-1	Special Sign Design
UO-1 - UO-2	Utility by Others Plans
X-1A	Earthwork Volumes Sheet
X-1 - X-9	Cross sections
C-1 - C-4	Culvert Plans

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

EFF. 07-18-06
REV. 01-02-07

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.

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE
DUKE POWER, FRONTIER ENERGY, A T and T

RIGHT-OF-WAY MARKERS:

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	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	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

3/15/06

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⋈
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	□
Church	⊕
Dam	⋈

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⋈
Proposed Lateral, Tail, Head Ditch	---FLM---
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○ R W
Proposed Right of Way Line with Iron Pin and Cap Marker	○ R W ▲
Proposed Right of Way Line with Concrete or Granite Marker	○ R W ▲
Existing Control of Access	○ C A
Proposed Control of Access	○ C A
Existing Easement Line	---E---
Proposed Temporary Construction Easement	---E---
Proposed Temporary Drainage Easement	---TDE---
Proposed Permanent Drainage Easement	---PDE---
Proposed Permanent Utility Easement	---PUE---

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	-----

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊕
U/G TV Cable Hand Hole	⊕
Recorded U/G TV Cable	---TV---
Designated U/G TV Cable (S.U.E.*)	---TV---
Recorded U/G Fiber Optic Cable	---TFO---
Designated U/G Fiber Optic Cable (S.U.E.*)	---TFO---

GAS:

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

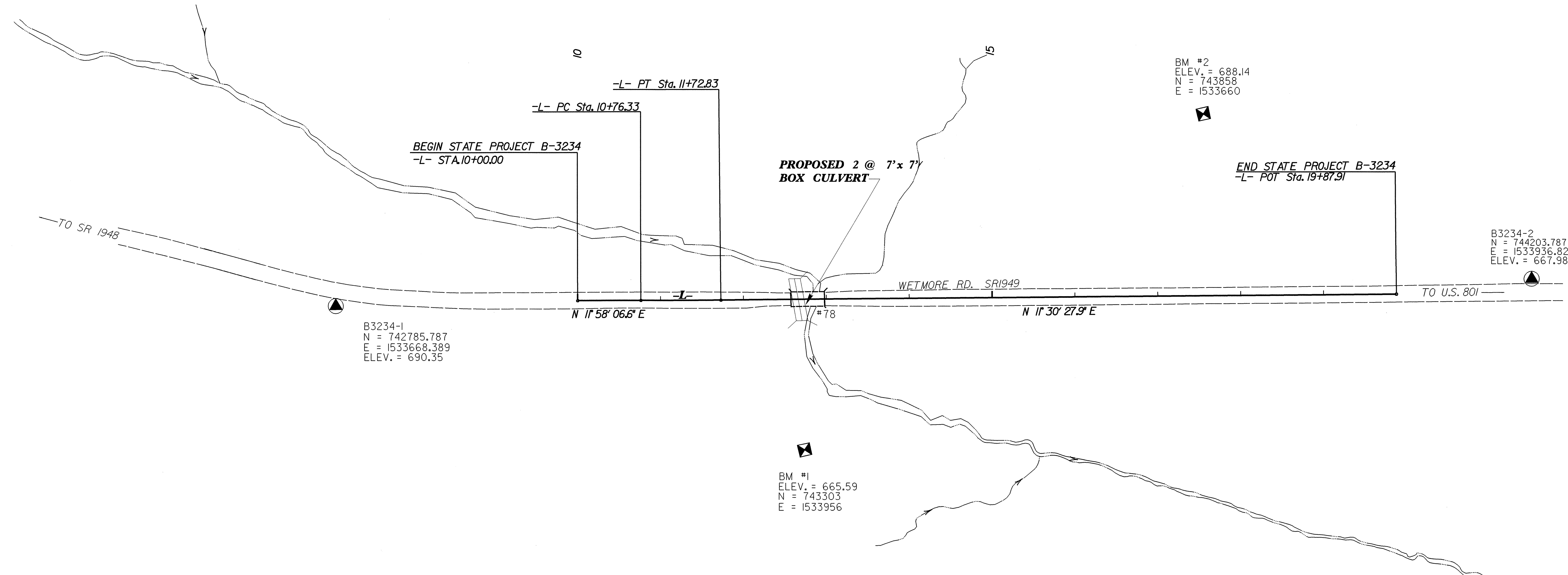
SANITARY SEWER:

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

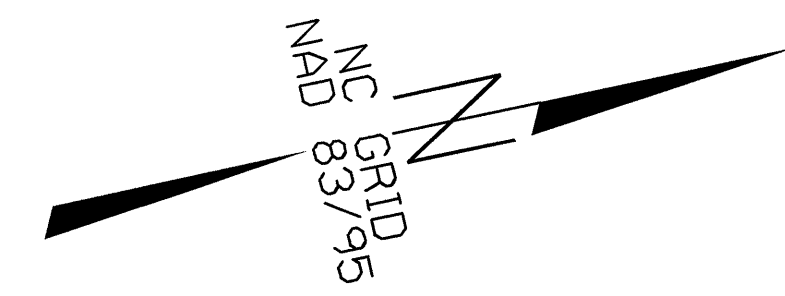
MISCELLANEOUS:

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

SURVEY CONTROL SHEET B-3234



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
B3234-1	GPS-1	742785.7870	1533668.3890	690.35	OUTSIDE PROJECT LIMITS	
BL-3	BL-3	743313.1232	1533756.7604	660.16	12+42.37	15.95 LT
BL-4	BL-4	743839.7115	1533863.2627	664.29	17+79.62	16.65 LT



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3234-2"

WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 744203.787(±) EASTING: 1533936.824(±)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
 (GROUND TO GRID) IS: 0.99988884

THE N.C. LAMBERT GRID BEARING AND
 LOCALIZED HORIZONTAL GROUND DISTANCE FROM
 "B3234-2" TO -L- STATION 10+00.00 IS
 S 10° 42' 06" W 1,151.1585'

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

```

*****
BM#1      ELEVATION = 665.59
N 743303      E 1533956
L STATION 12+72 181' RIGHT
8" SPIKE IN ROOT OF 14" BEECH TREE
*****

*****
BM#2      ELEVATION = 688.14
N 743858      E 1533660
-L- STATION 17+57 219' LEFT
8" SPIKE SET IN BASE OF POWER POLE
*****
    
```

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOHPRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOHPRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B3234_LS_CONTROL_DATA.HTML

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

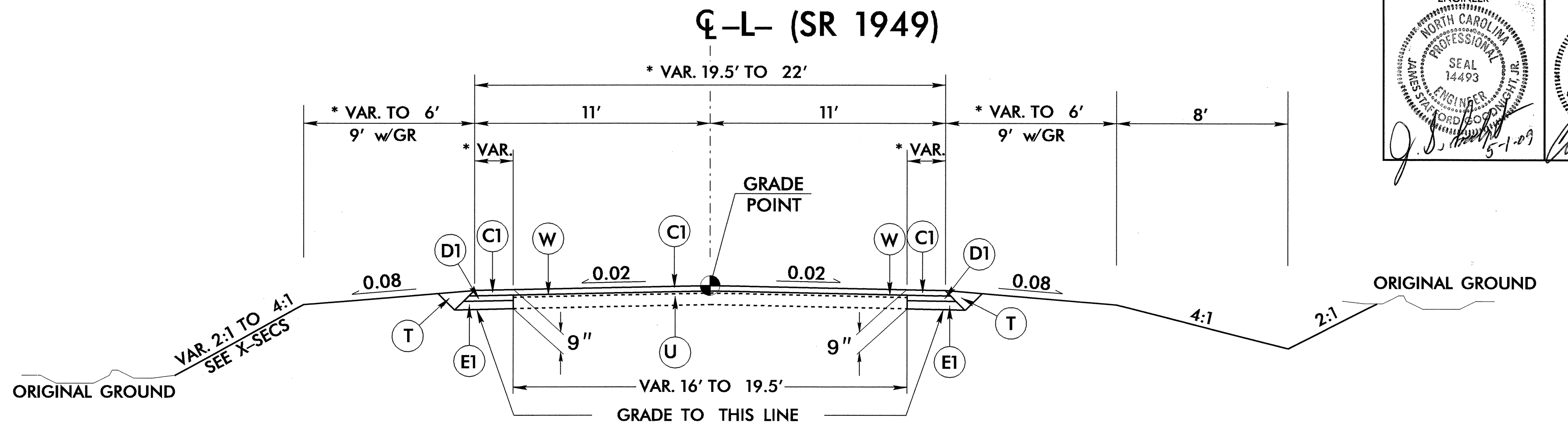
INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

6/2/99
 29-JAN-2009 08:07
 P:\PROJECTS\B3234\1c_080430.dgn
 \$\$\$USERID\$\$\$

PAVEMENT SCHEDULE	
C1	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.
C2	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.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" 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.
J	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

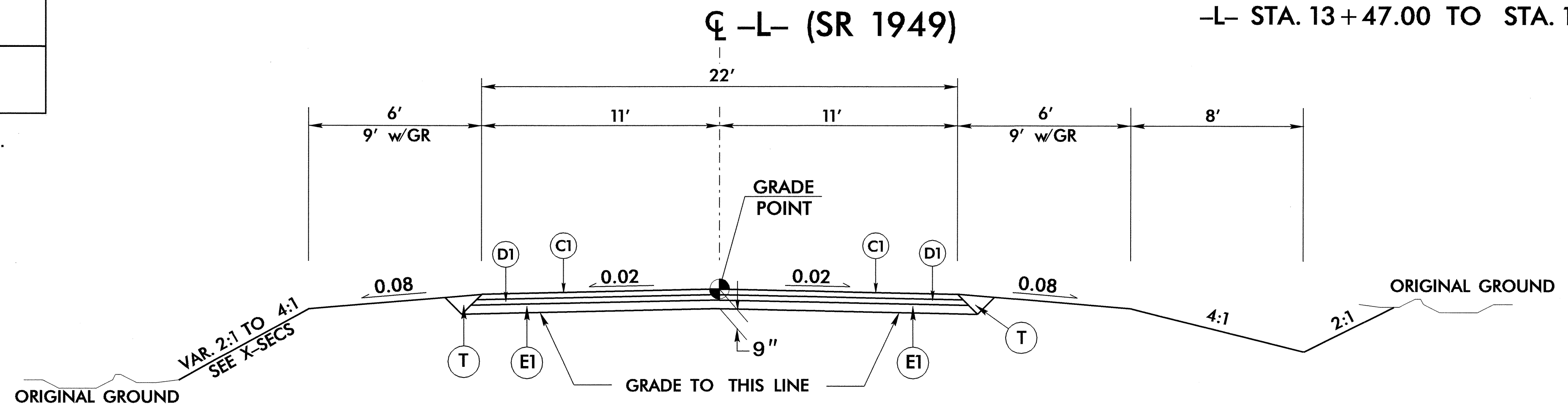
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS

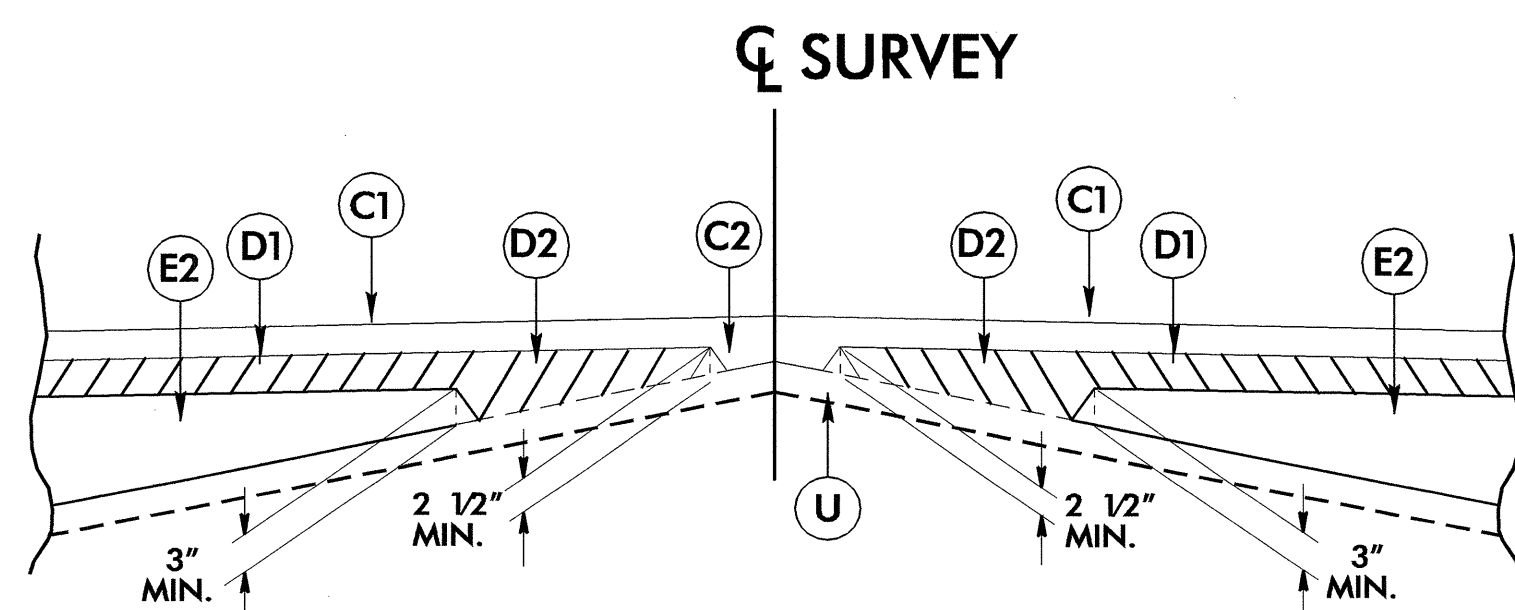
- * -L- STA. 10+00.00 TO STA. 10+50.00
- * -L- STA. 15+00.00 TO STA. 15+50.00
- L- STA. 10+50.00 TO STA. 11+00.00
- L- STA. 13+47.00 TO STA. 15+00.00



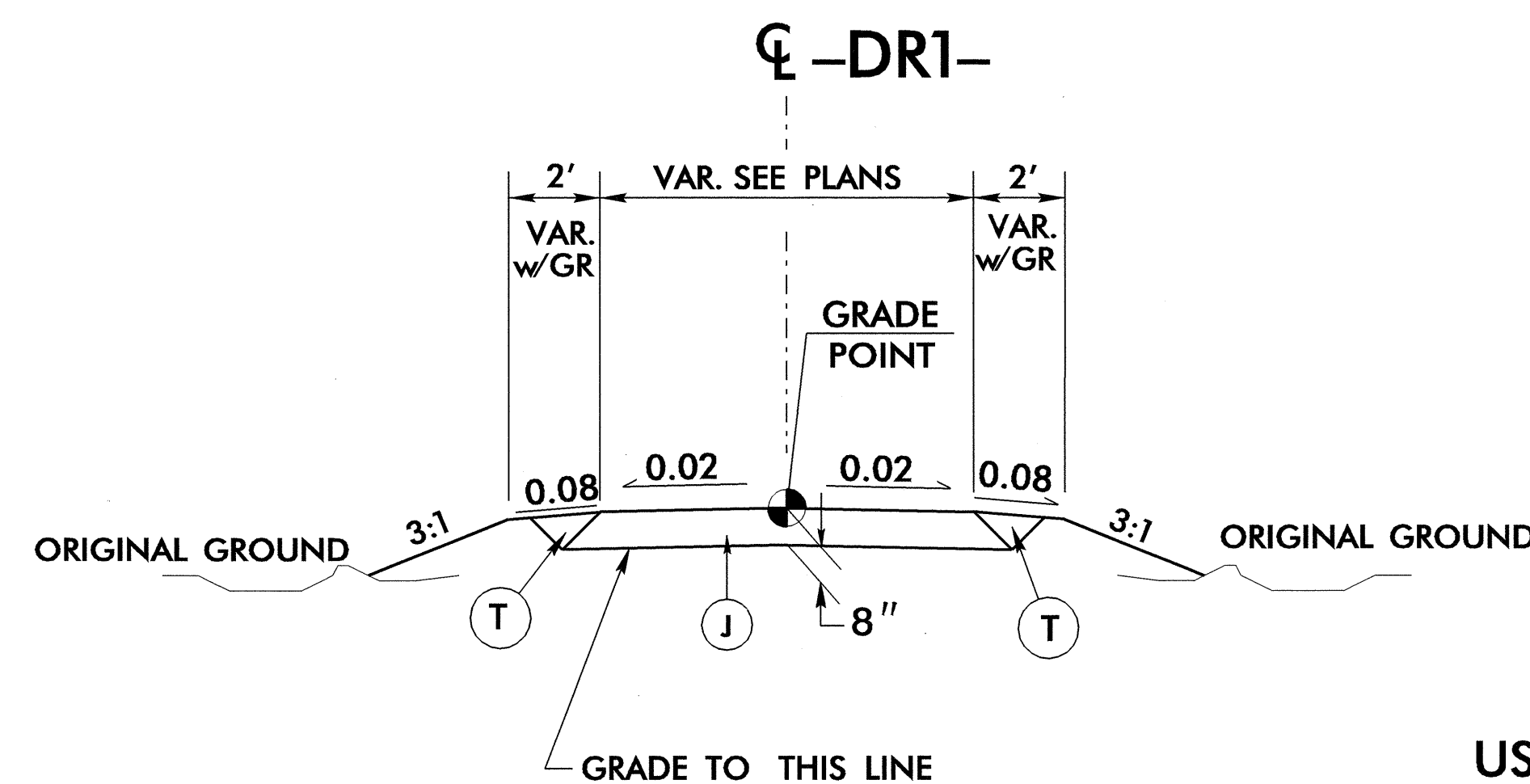
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS

- L- STA. 11+00.00 TO STA. 13+47.00



Detail Showing Method of Wedging

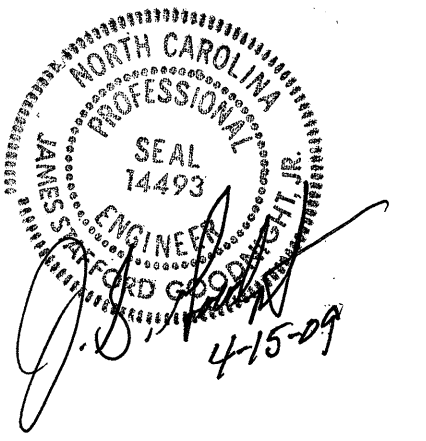


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS

- DR1- STA. 10+11.35 TO STA. 10+60.00

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS SUMMARY OF QUANTITIES



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202152

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	275	CY	UNDERCUT EXCAVATION
0080000000-E	SP	350	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	30	CY	DRAINAGE DITCH EXCAVATION
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	44	LF	15" SIDE DRAIN PIPE
0995000000-E	340	42	LF	PIPE REMOVAL
1011000000-N	500	Lump Sum		FINE GRADING
1121000000-E	520	41	TON	AGGREGATE BASE COURSE
1220000000-E	545	500	TON	INCIDENTAL STONE BASE
1489000000-E	610	240	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	170	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1525000000-E	610	200	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	32	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	8	EA	RIGHT OF WAY MARKERS
2022000000-E	815	112	CY	SUBDRAIN EXCAVATION
2033000000-E	815	84	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)

ItemNumber	Sec #	Quantity	Unit	Description
3030000000-E	862	387.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	25	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3628000000-E	876	140	TON	RIP RAP, CLASS I
3649000000-E	876	40	TON	RIP RAP, CLASS B
3656000000-E	876	975	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	253	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
4685000000-E	1205	1,100	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	1,100	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
6000000000-E	1605	1,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	125	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	100	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	35	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	70	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	360	LF	SAFETY FENCE
6030000000-E	1630	330	CY	SILT EXCAVATION
6036000000-E	1631	1,150	SY	MATTING FOR EROSION CONTROL

ItemNumber	Sec #	Quantity	Unit	Description
6037000000-E	SP	25	SY	COIR FIBER MAT
6038000000-E	SP	125	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	60	LF	1/4" HARDWARE CLOTH
6069000000-E	1638	50	CY	STILLING BASINS
6071010000-E	SP	50	LF	WATTLE
6071020000-E	SP	18	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	245	LF	COIR FIBER BAFFLES
6071050000-E	SP	4	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	5	ACR	SEEDING & MULCHING
6087000000-E	1660	1	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	70	LF	IMPERVIOUS DIKE
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6120000000-E	SP	111	CY	CULVERT DIVERSION CHANNEL
6123000000-E	1670	0.15	ACR	REFORESTATION

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)				CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D				15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS	QUANTITIES FOR DRAINAGE STRUCTURES	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 LIFT.	REMARKS																																
						12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	12"	15"	18"	24"											30"	36"	42"	48"	R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	5.0' THRU 10.0'	10.0' AND ABOVE	LI. "FT."	A	B	C.D.I. TYPE "B" STD. 840.18 OR 840.27	C.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	ABBREVIATIONS																	
12+38	RT	1																																									44																			42	REMOVE EXIST 12" CMP
TOTALS																																										44																			42		

"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			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR TYPE 350	REMARKS																									
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE 350	AT-1	TYPE B-77									PERMITTED NO.	G	NG																			
-L-	12+49.00	14+45.50	RT	212.50	25		12+53.33	12+88.00	6.00	9.00																								1	1												15' R ON SHOP CURVED
-L-	11+33.00	14+45.50	LT	312.50			12+77.00	12+54.00	6.00	9.00																								2													
TOTALS				525.00	25																													3	1												
ANCHOR DEDUCTIONS: 3 GRAU 350's @ 50' ea				= 150																																											
GRAND TOTAL				375.00	25																													3	1												
SAY				387.50	25		ADDITIONAL GUARDRAIL POSTS = 5																											3	1												

SUMMARY OF PAVEMENT REMOVAL/BREAKING IN SQUARE YARDS

STATION TO STATION	PAVEMENT REMOVAL			PAVEMENT BREAKING		
	LENGTH	WIDTH	SQUARE YARDS	LENGTH	WIDTH	SQUARE YARDS
-L- STA 11+25 TO 12+57				132'	17.5'	256.67 SY
-L- STA 11+00 TO 11+25	25'	17.5'	48.61			
-L- STA 12+97 TO 13+47	50'	16.8'	93.33			
TOTAL			141.94			256.7 SY
SAY			150			260 SY

SUMMARY OF EARTHWORK IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- STA 10+00 TO STA 15+50	456		1222	766	
-DRI- STA 10+15 TO STA 10+60	10		9		1
SUBTOTAL	466		1231	766	1
USE WASTE IN LIEU OF BORROW				-1	-1
LOSS DUE TO CLEAR.&GRUBB.	-144			144	
PROJECT TOTAL	322			909	
EST. 5% TO REPLACE TOP SOIL				45	
GRAND TOTAL	322			954	
SAY	350			975	

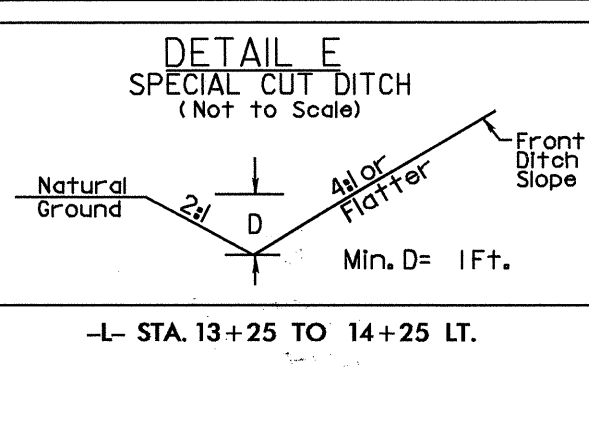
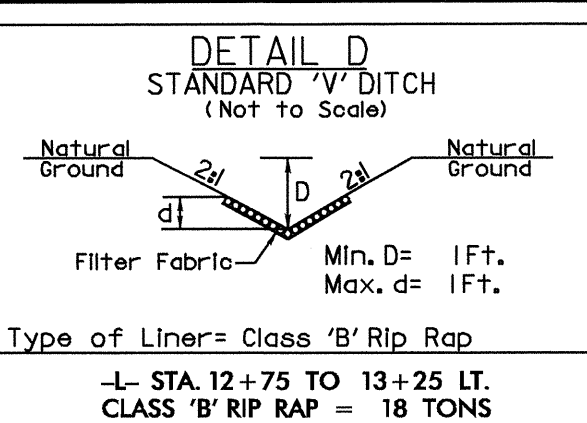
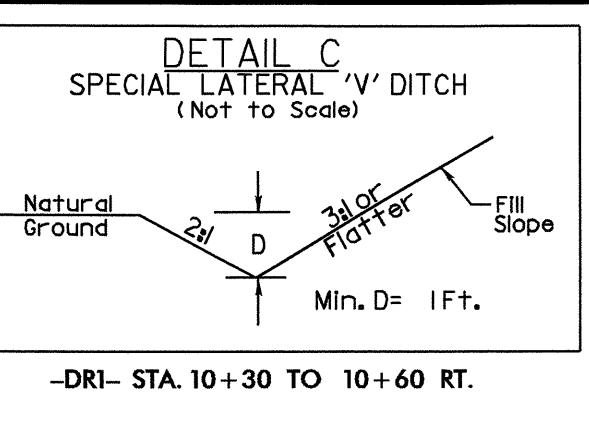
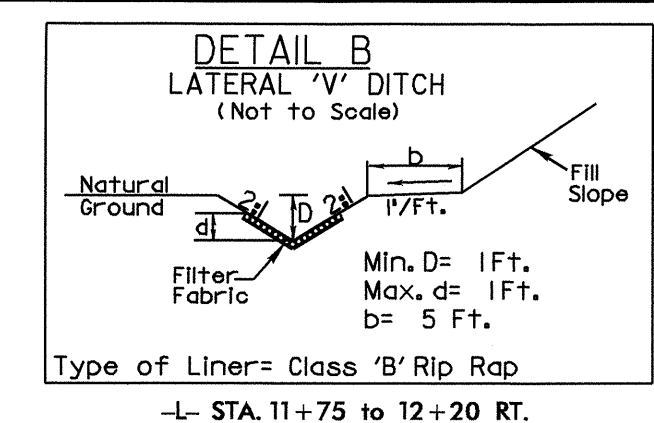
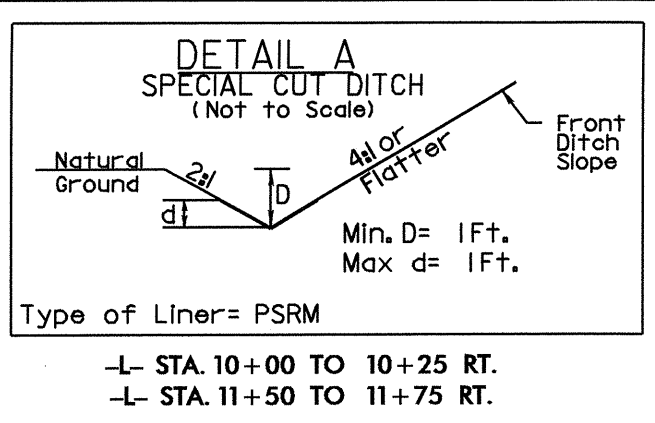
APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE OF GRADING.

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL UNIT

EST DDE = 30 CY
 GEOTECH REC'S: NOV. 27, 2007
 FABRIC for SOIL STABILIZATION = 500 SY
 UNDERCUT = 275 CY
 CLASS IV SUBGRADE STABILIZATION = 200 CY

4/04/06
 14-APR-2009 14:39
 r:\roadway\proj\B3234_rdu_sum.dgn
 65581151818

8/17/99



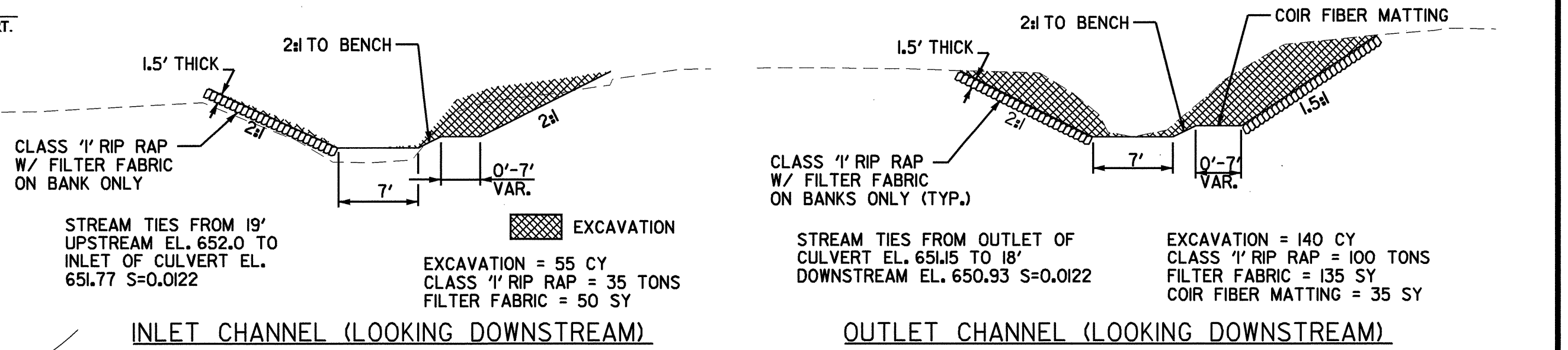
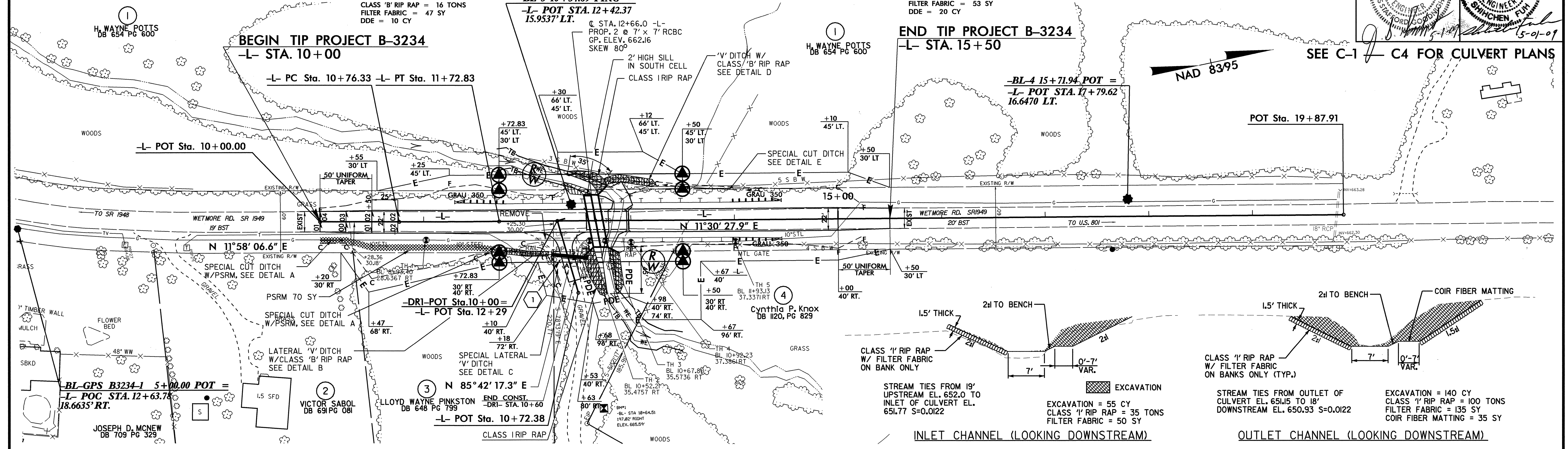
PROJECT REFERENCE NO. B-3234	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Pi Sta 11+24.58
 $\Delta = 0^{\circ} 27' 38.7''$ (LT)
 $D = 0^{\circ} 28' 38.9''$
 $L = 96.50'$
 $T = 48.25'$
 $R = 12,000.00'$
 $SE = NC$
 $RO = \text{SEE PLANS}$

-BL-3 10+34.69 PINC =
-L- POT STA. 12+42.37
15.937' LT.

END TIP PROJECT B-3234
-L- STA. 15+50

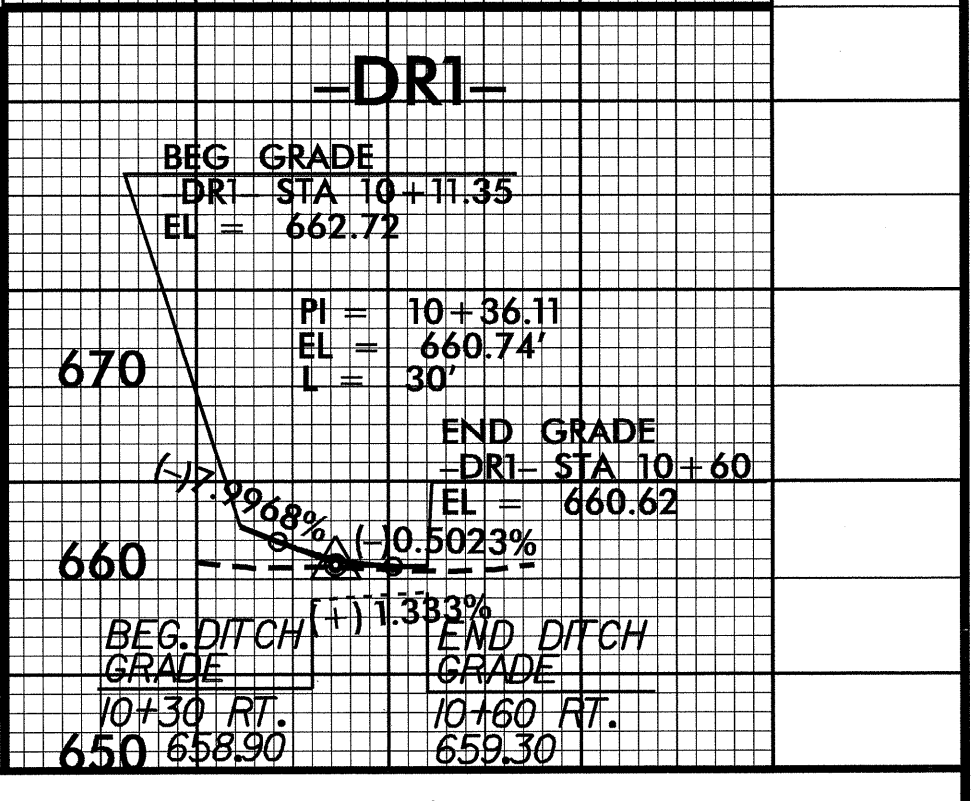
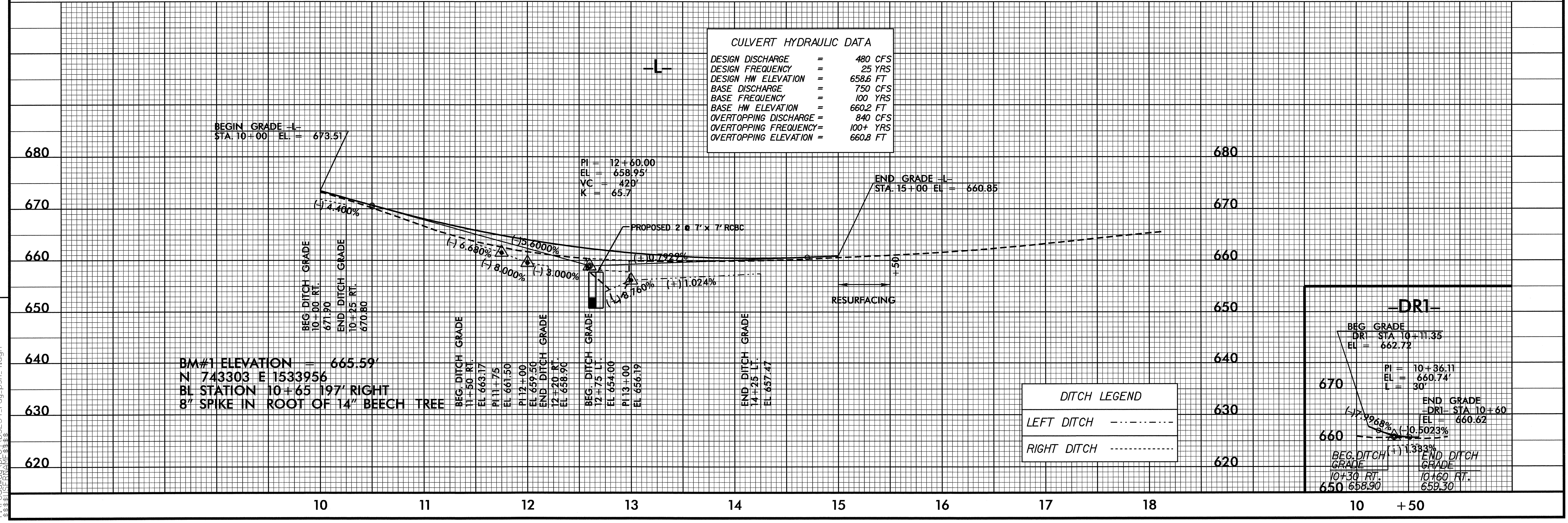
-BL-4 15+71.94 POT =
-L- POT STA. 17+79.62
16.6470 LT.



REVISIONS

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	480 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	658.6 FT
BASE DISCHARGE	=	750 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	660.2 FT
OVERTOPPING DISCHARGE	=	840 CFS
OVERTOPPING FREQUENCY	=	100+ YRS
OVERTOPPING ELEVATION	=	660.8 FT



DITCH LEGEND

LEFT DITCH	-----
RIGHT DITCH	-----

BM#1 ELEVATION = 665.59'
N 743303 E 1533956
BL STATION 10+65 197' RIGHT
8" SPIKE IN ROOT OF 14" BEECH TREE

30-APR-2009 10:44
 P:\Projects\B3234_rdu_psh_4.dgn
 P:\Projects\B3234_rdu_psh_4.dgn