

09/08/99

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

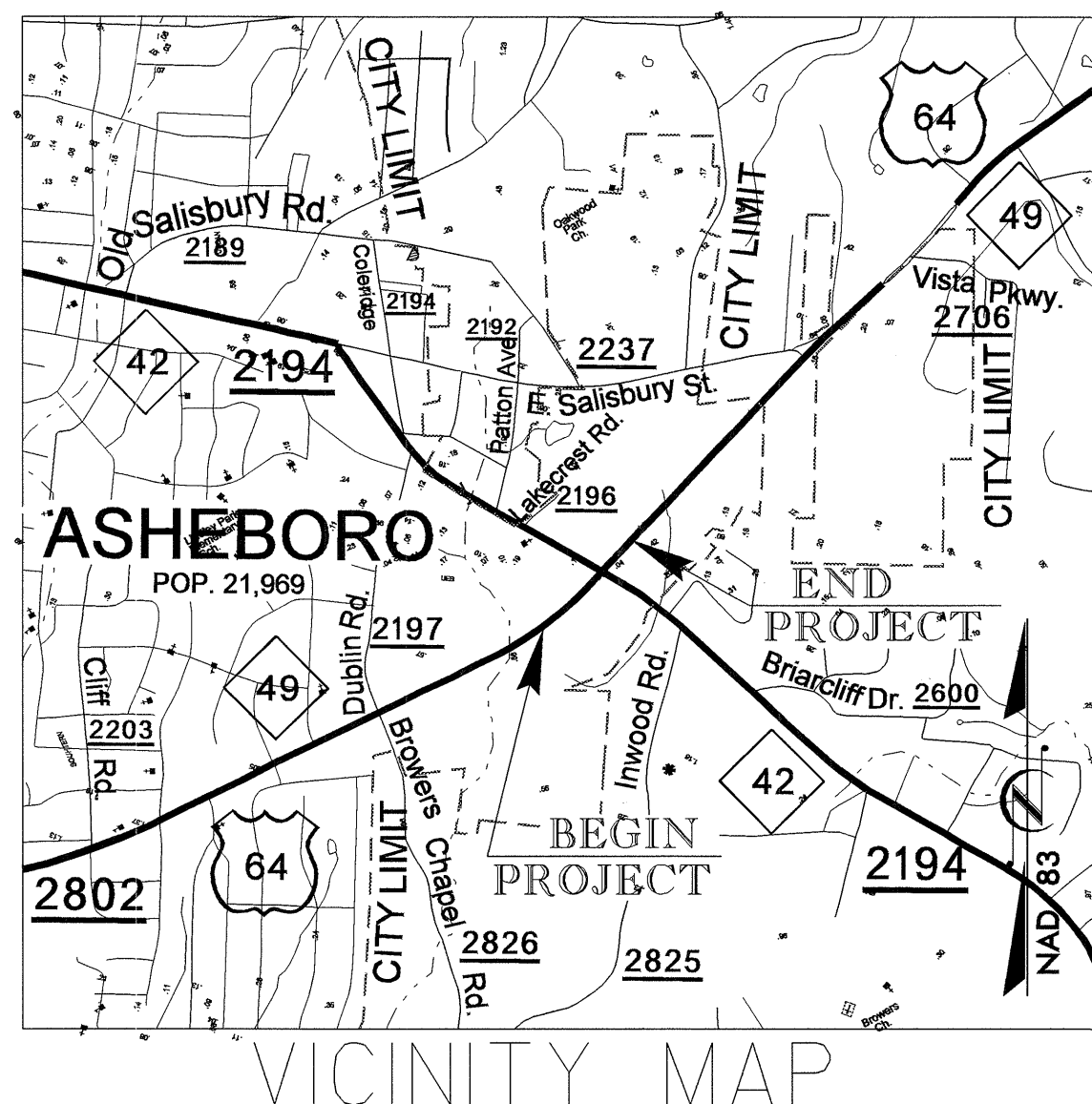
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3401	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34935.1.1	NHF-64(58)	PE	
34935.2.1	NHF-64(58)	R/W, UTILITIES	
34935.3.1	NHS-64(98)	CONSTRUCTION	

## RANDOLPH COUNTY

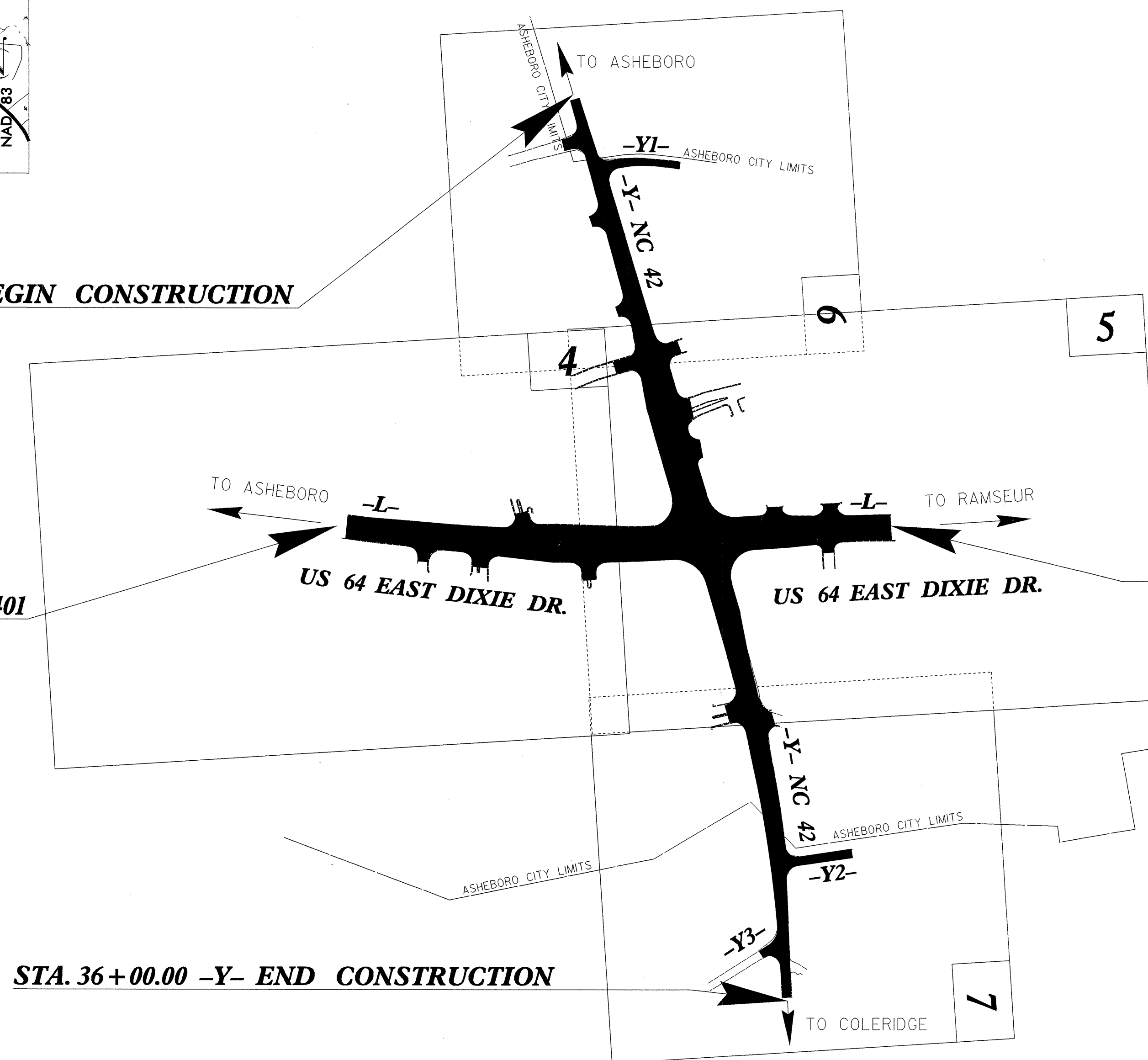
**LOCATION: INTERSECTION AT US 64/NC 49  
AND NC 42 IN ASHEBORO**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS,  
CULVERT, AND RETAINING WALLS**



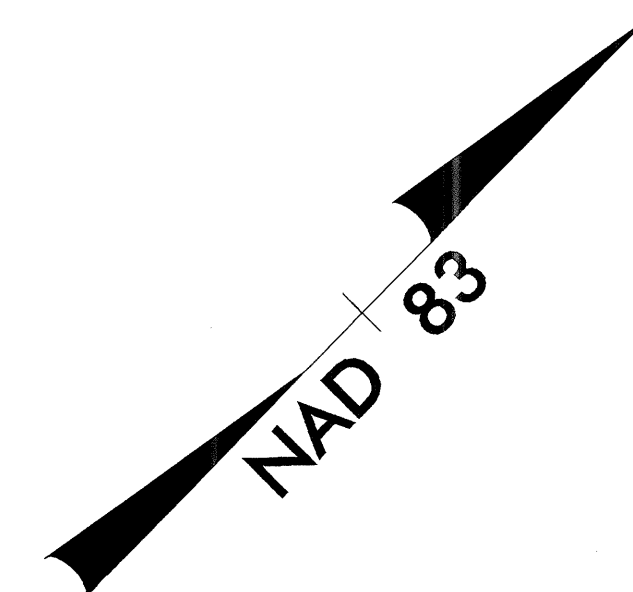
STA. 5+00.00 -Y- BEGIN CONSTRUCTION

STA. 9+00.00 -L- BEGIN TIP PROJECT U-3401



STA. 24+21.00 -L- END TIP PROJECT U-3401

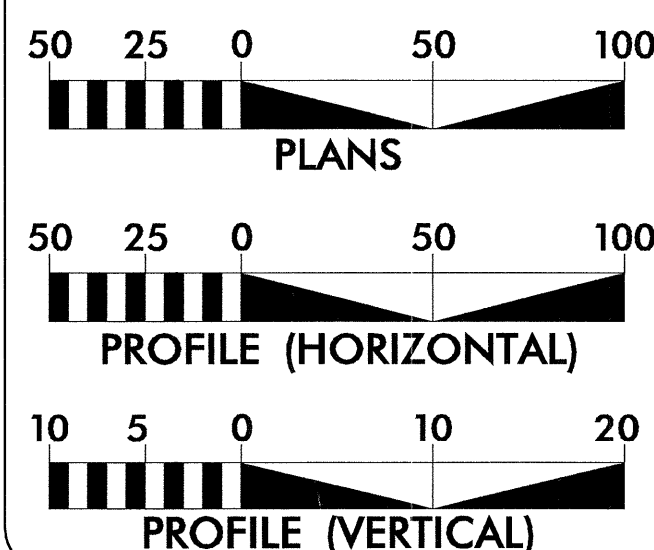
STA. 36+00.00 -Y- END CONSTRUCTION



TIP PROJECT: U-3401

CONTRACT: C201276

### GRAPHIC SCALES



### DESIGN DATA

ADT 2007 = 20,128  
 ADT 2025 = 32,900  
 DHV = 10 %  
 D = 55 %  
 T = 10 % \*  
 V = 45 MPH  
 \* TTST 6% DUAL 4%

### PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3401 = 0.288 MI  
 TOTAL LENGTH ROADWAY TIP PROJECT U-3401 = 0.288 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
 AUGUST 17, 2004

LETTING DATE:  
 MAY 15, 2007

G. E. BREW, PE  
 PROJECT ENGINEER

W. T. BEST  
 PROJECT DESIGN ENGINEER

### HYDRAULICS ENGINEER



SIGNATURE:

ROADWAY DESIGN ENGINEER  
 3-21-07  
 G. E. BREW, PE  
 PROJECT ENGINEER

### DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

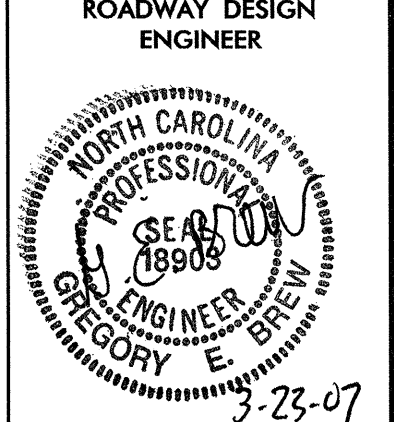
*Art McMillan*  
 P.E.

STATE DESIGN ENGINEER  
 DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED  
 DIVISION ADMINISTRATOR

DATE

12-MAR-2007 11:29  
 F:\p09\p09\proj\3401\rdy-tsh.dgn  
 \$\$\$USERNAME\$\$\$



# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## INDEX OF SHEETS

## GENERAL NOTES

## LIST OF STANDARDS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2-E	PAVEMENT SCHEDULE, TYPICAL SECTIONS, WEDGING DETAILS, AND MISCELLANEOUS DETAILS
2-F	INTERSECTION DETAIL AND DRIVEWAY DIMENSIONS
2-G	DETAIL OF JUNCTION BOX
2-H	DETAIL OF ANCHORAGE FOR FRAMES - BRICK OR CONCRETE
2-I	RIP RAP DETAIL AT CULVERT OUTLET
3 (2 SHEETS)	SUMMARY OF QUANTITIES
3-A THRU 3-E	SUMMARY OF DRAINAGE QUANTITIES
3-F	SUMMARY OF GUARDRAIL SHEET
3-G	SUMMARY OF EARTHWORK, AND SUMMARY OF ASPHALT PAVEMENT REMOVAL
3-H	INDEX OF PARCELS
4 THRU 8	PLAN SHEETS
9 THRU 11	PROFILE SHEETS
TCP-1 THRU TCP-16	TRAFFIC CONTROL PLANS
PM-1 THRU PM-3	PAVEMENT MARKING PLANS
RF-1	REFORESTATION PLANS
EC-1 THRU EC-14	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-8	SIGNING PLANS
SIG-1 THRU SIG-18	SIGNAL PLANS
UC-1 THRU UC-5	UTILITIES CONSTRUCTION PLANS
UD-1 THRU UD-5	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTIONS SUMMARY SHEET
X-1 THRU X-17	CROSS-SECTIONS
C-1 THRU C-4	CULVERT PLANS
W-1 THRU W-3	GRAVITY WALL PLANS
W-4 THRU W-5	MSE WALL PLANS

EFFECTIVE: 07-18-06  
REVISED: 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:**

SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. 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 THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

**DRIVEWAYS:**

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADIUS OR RADIUS AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

**STREET TURNOUT:**

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADIUS NOTED ON PLANS.

**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 SUBSURFACE CONDITIONS.

**UTILITIES:**

UTILITY OWNERS ON THIS PROJECT ARE Embarq, Piedmont Natural Gas, and Randolph EMC, and City of Asheboro

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

**RIGHT-OF-WAY MARKERS:**

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

**WHEELCHAIR RAMPS:**

WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH DETAILS IN PLANS.

EFF. 07-18-06

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
<b>DIVISION 2 - EARTHWORK</b>	
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
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 6 - ASPHALT BASES AND PAVEMENTS</b>	
654.01	Pavement Repairs
<b>DIVISION 8 - INCIDENTALS</b>	
838.39	Reinforced Concrete Endwall - for Single 72" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.69	Reinforced Brick Endwall - for Single 72" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.30	Driveway Drop Inlet
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Wheelchair Ramp - Curb Cut
850.01	Concrete Paved Ditches
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

**BOUNDARIES AND PROPERTY:**

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

**BUILDINGS AND OTHER CULTURE:**

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	□

**HYDROLOGY:**

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

**RAILROADS:**

Standard Gauge	-----
RR Signal Milepost	○
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	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	○
Proposed Control of Access	○
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	-----

**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	○
Storm Sewer	----- S

**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	----- T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	----- T FO

**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	----- TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	----- TV FO

**GAS:**

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

**SANITARY SEWER:**

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

**MISCELLANEOUS:**

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	----- ?
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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3401	1C	
LOCATION AND SURVEYS			

NCDOT GPS STATION U3401-2  
LOCALIZED PROJECT COORDINATES  
N = 711687.04  
E = 1767788.59

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	709368.6851	1765539.8482	773.11	OUTSIDE PROJECT LIMITS	
2	BL-2	709640.7874	1765885.1114	789.51	14+06.87	44.89 RT
3	BL-3	710069.3794	1766311.2078	798.04	20+06.60	51.68 RT
101	U3401-1	710365.9988	1766561.8278	802.05	23+94.67	39.89 RT

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
4	BY-4	710645.4813	1765192.4421	778.42	OUTSIDE PROJECT LIMITS	
5	BY-5	710375.4214	1765588.0828	792.71	14+69.84	25.59 RT
3	BL-3	710069.3794	1766311.2078	798.04	22+50.30	60.13 LT
6	BY-6	709635.9349	1766921.3918	785.61	29+93.29	23.02 LT
7	BY-7	709365.3355	1767222.5322	799.82	33+96.62	19.08 LT

.....  
BM1 ELEVATION = 775.32  
N 709472 E 1765551  
L STATION 10+42 38 LEFT  
RR SPIKE IN BASE OF POWER POLE  
.....

.....  
BM2 ELEVATION = 812.63  
N 710472 E 1766477  
L STATION 24+17 94 LEFT  
RR SPIKE IN BETWEEN PAVEMENT AND CURB  
AND GUTTER IN SOUTHEAST CORNER OF  
WACHOVIA PARKING LOT  
.....

.....  
BM3 ELEVATION = 798.85  
N 710479 E 1765545  
Y STATION 13+82 45 LEFT  
RR SPIKE IN BASE OF TELEPHONE POLE  
.....

.....  
BM4 ELEVATION = 793.80  
N 709833 E 1766699  
Y STATION 27+01 52 LEFT  
RR SPIKE IN BASE OF POWER POLE  
.....

## NOTES

L 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/

FILE: U3401\_LS\_CONTROL\_040108.TXT

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 "U3401-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 710365.900(ft) EASTING: 766561.830(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987140 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3401-1" TO -L- STATION 9+00.00 IS S 47° 23' 56.1" W 1494.30' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

-L- STA. 9+00.00 BEGIN STATE PROJECT 8.1572101  
LOCALIZED PROJECT COORDINATES  
N = 709354.42  
E = 1765461.90

-L- STA. 24+21.00 BEGIN STATE PROJECT 8.1572101  
LOCALIZED PROJECT COORDINATES  
N = 710412.14  
E = 1766549.76

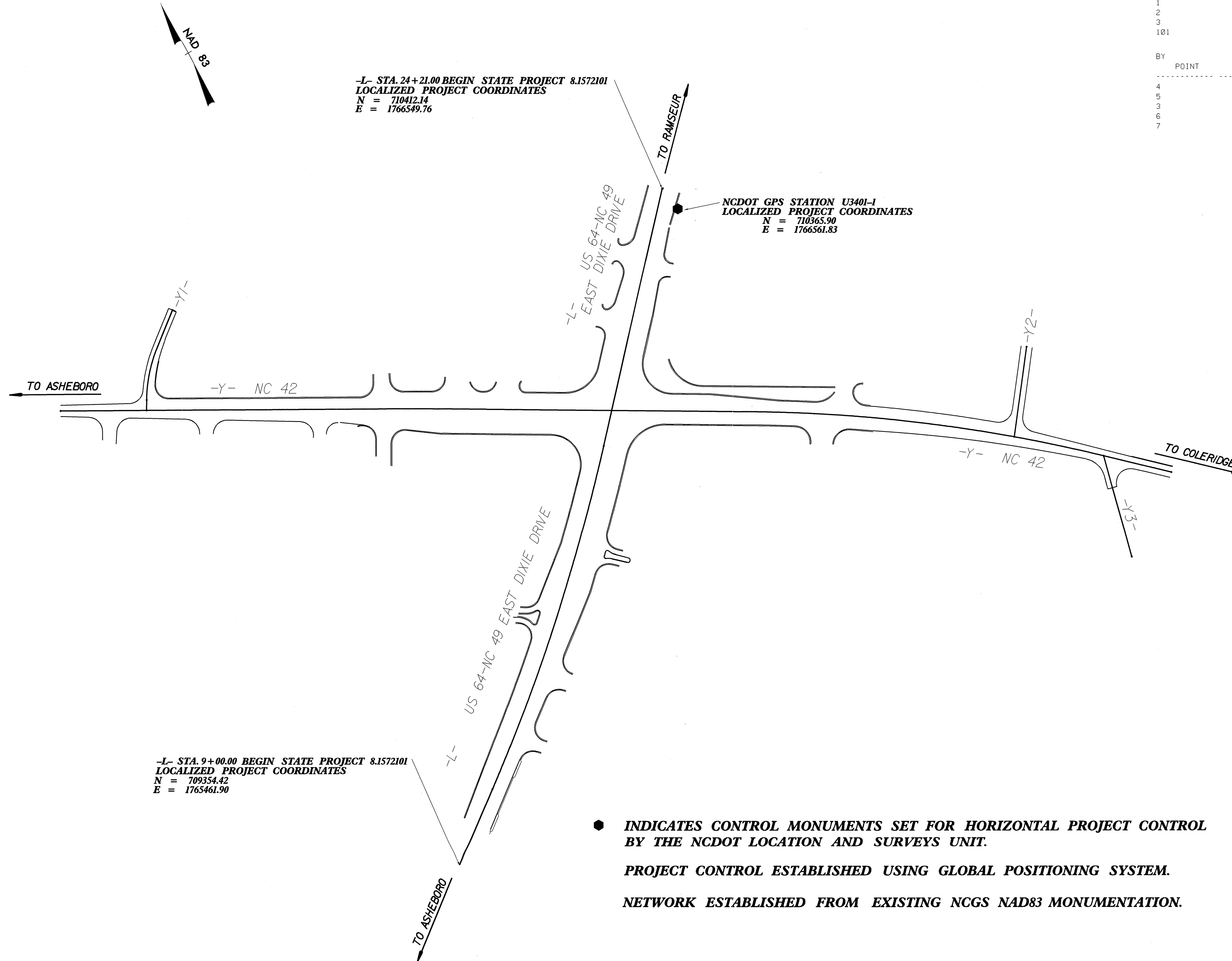
NCDOT GPS STATION U3401-1  
LOCALIZED PROJECT COORDINATES  
N = 710365.90  
E = 1766561.83


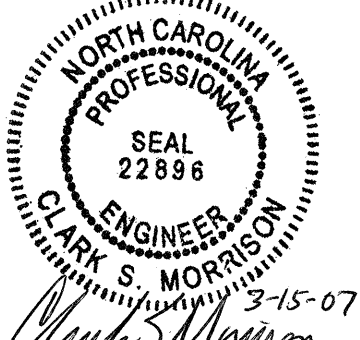
● INDICATES CONTROL MONUMENTS SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING NCGS NAD83 MONUMENTATION.

NOTE: DRAWING NOT TO SCALE

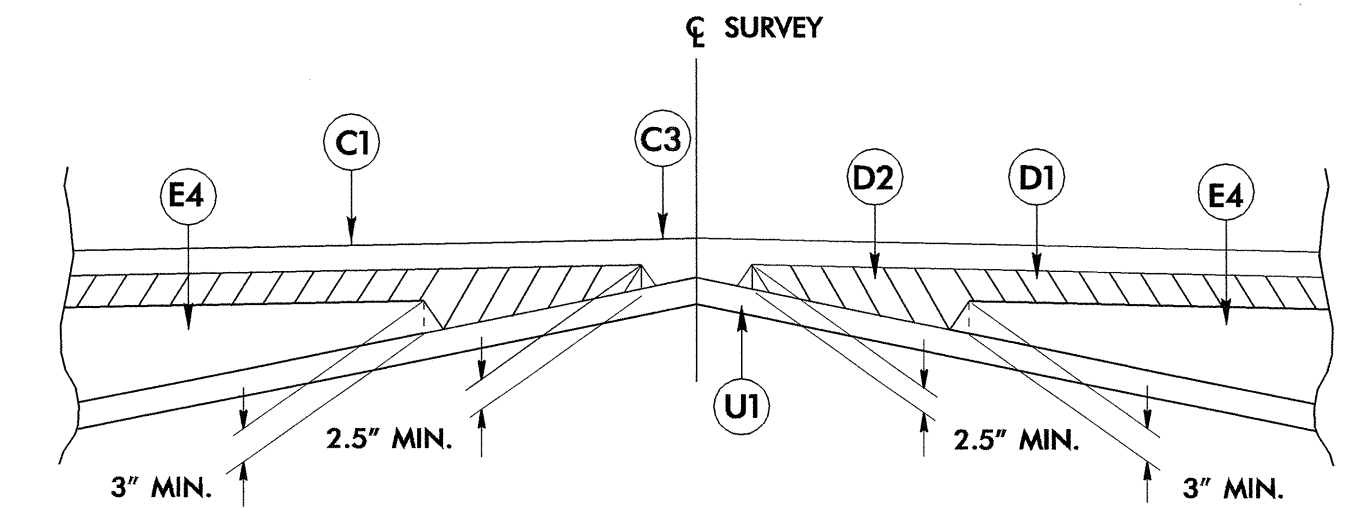


PROJECT REFERENCE NO. U-3401	SHEET NO. 2
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 

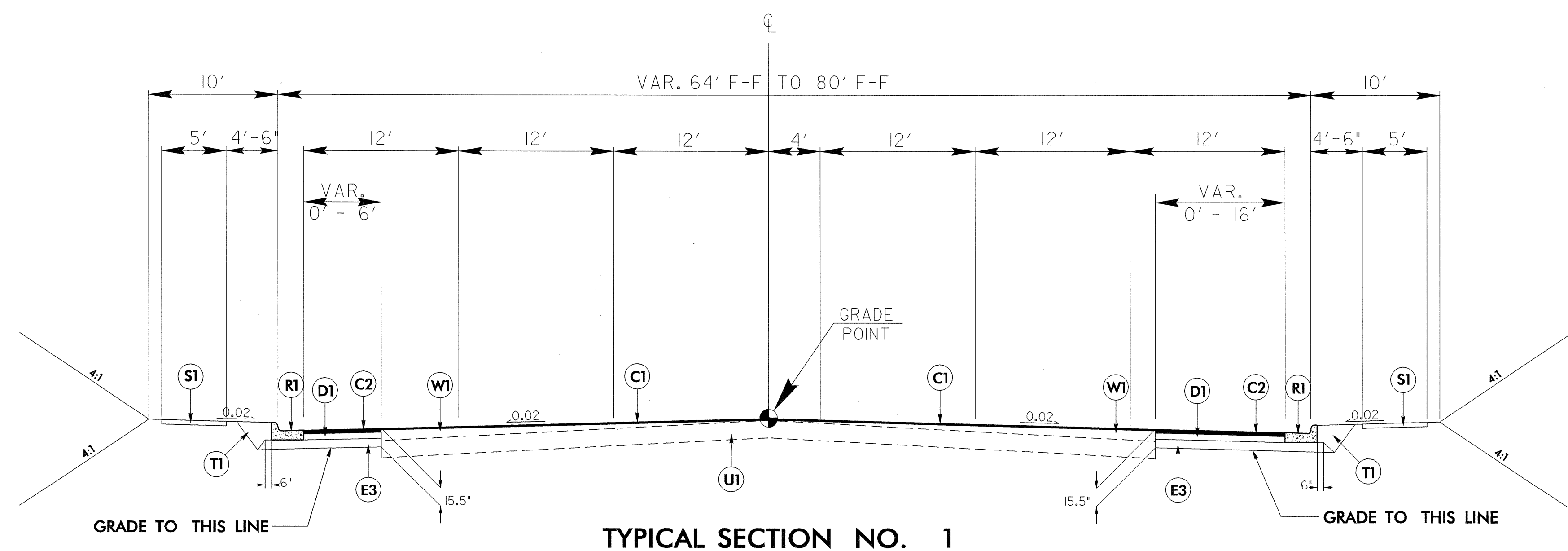
# FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	2'-6" CONCRETE CURB AND GUTTER
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	R2	5" MONOLITHIC CONCRETE ISLAND
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S1	4" CONCRETE SIDEWALK
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T1	EARTH MATERIAL
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U1	EXISTING PAVEMENT
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	W1	VARIABLE DEPTH ASPHALT PAVEMENT
E3	PROP. APPROX. 8.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 484.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS		

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



Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

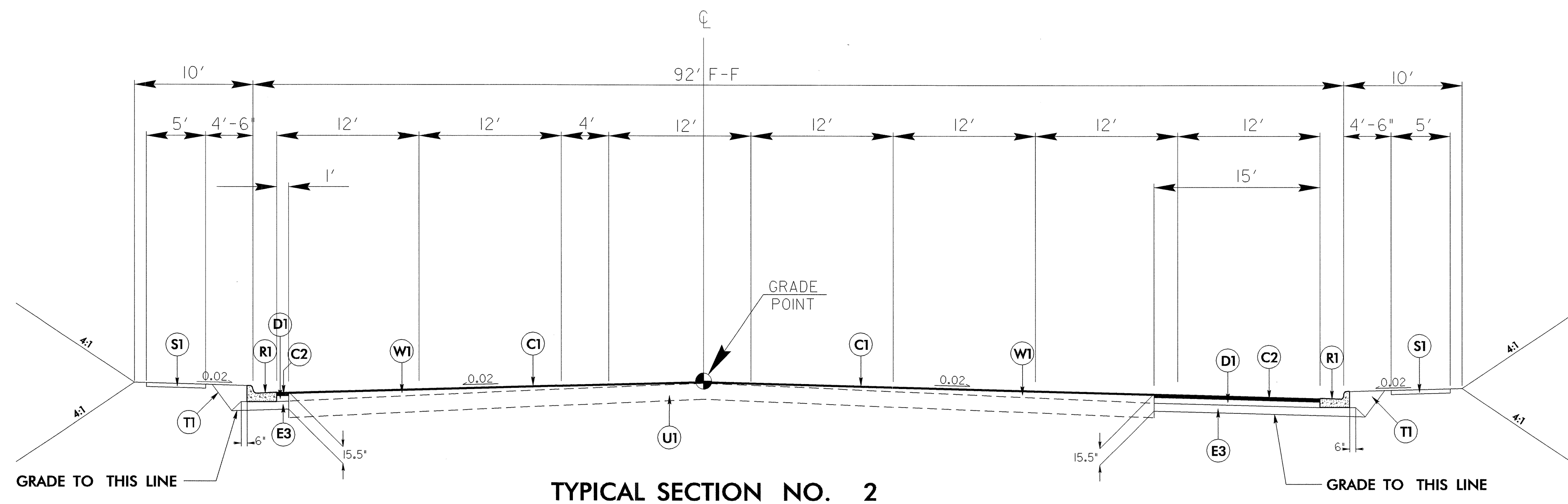
USE TYPICAL SECTION NO. 1  
 -L- FROM STA. 10+00.00 TO 14+00.00, TRANSITION FROM EXISTING TO TYP. SECT. NO. 1

6/2/99

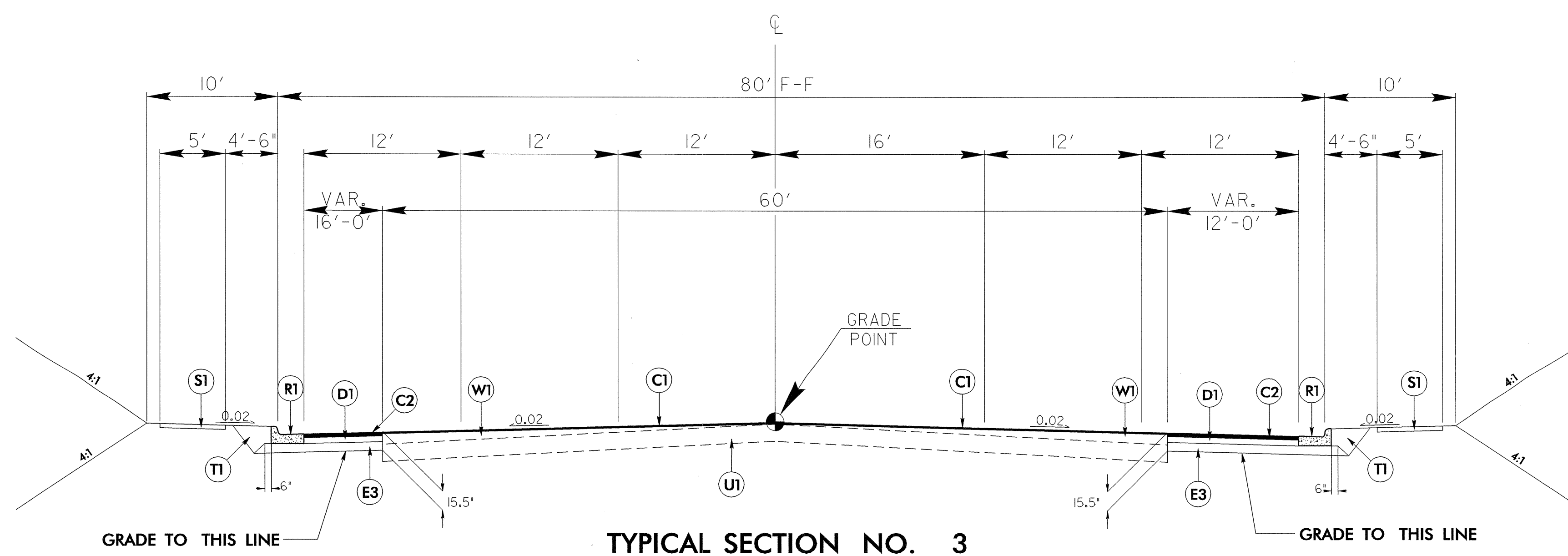
FINAL PAVEMENT SCHEDULE			
C1	1½" TYPE S9.5C	R1	2'-6" CONC. CURB AND GUTTER
C2	3" TYPE S9.5C	S1	4" CONCRETE SIDEWALK
D1	4" TYPE I19.0C	T1	EARTH MATERIAL
E3	8.5" TYPE B25.0C	U1	EXISTING PAVEMENT
E4	VAR. DEPTH TYPE B25.0C	W1	VAR. DEPTH ASPHALT PAVEMENT

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

PROJECT REFERENCE NO. U-3401	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER GREGORY E. BIRN SEAL 48903 NORTH CAROLINA PROFESSIONAL ENGINEER	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON SEAL 22896 NORTH CAROLINA PROFESSIONAL ENGINEER 3-15-07

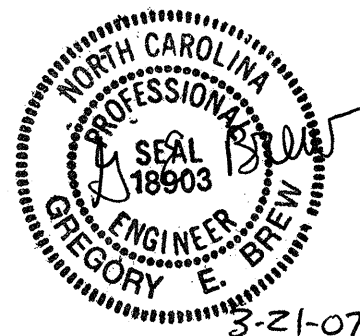



USE TYPICAL SECTION NO. 2  
 -L- FROM STA. 14+00.00 TO 15+50.00, TRANSITION FROM TYP. SECT. NO. 1 TO TYP. SECT. NO. 2  
 -L- FROM STA. 15+50.00 TO 18+40.36

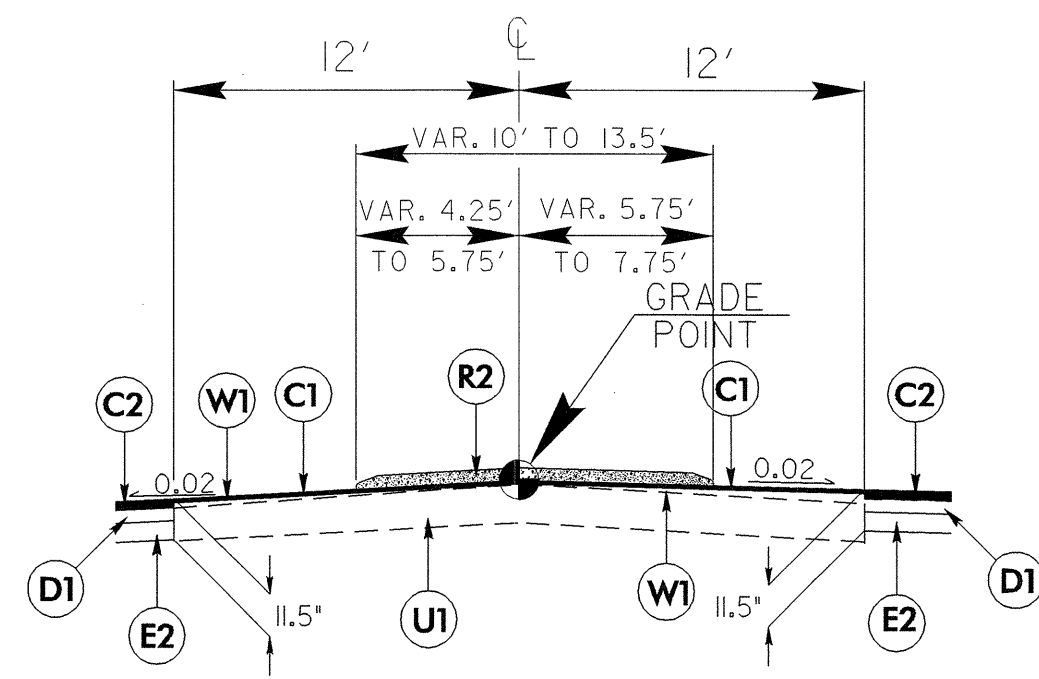


USE TYPICAL SECTION NO. 3  
 -L-Rt. FROM STA. 18+40.36 TO 21+48.87  
 -L-Rt. FROM STA. 21+48.87 TO STA. 24+21.00, TRANSITION FROM TYP. SECT. NO. 3 TO EXISTING  
 -L-Lt. FROM STA. 18+40.36 TO STA. 22+71.00  
 -L-Lt. FROM STA. 22+71.00 TO STA. 24+21.00, TRANSITION FROM TYP. SECT. NO. 3 TO EXISTING

12-MAR-2007 11:29  
 r:\projects\p01\3401\rdj-typ.dgn  
 3401-PAVEMENT

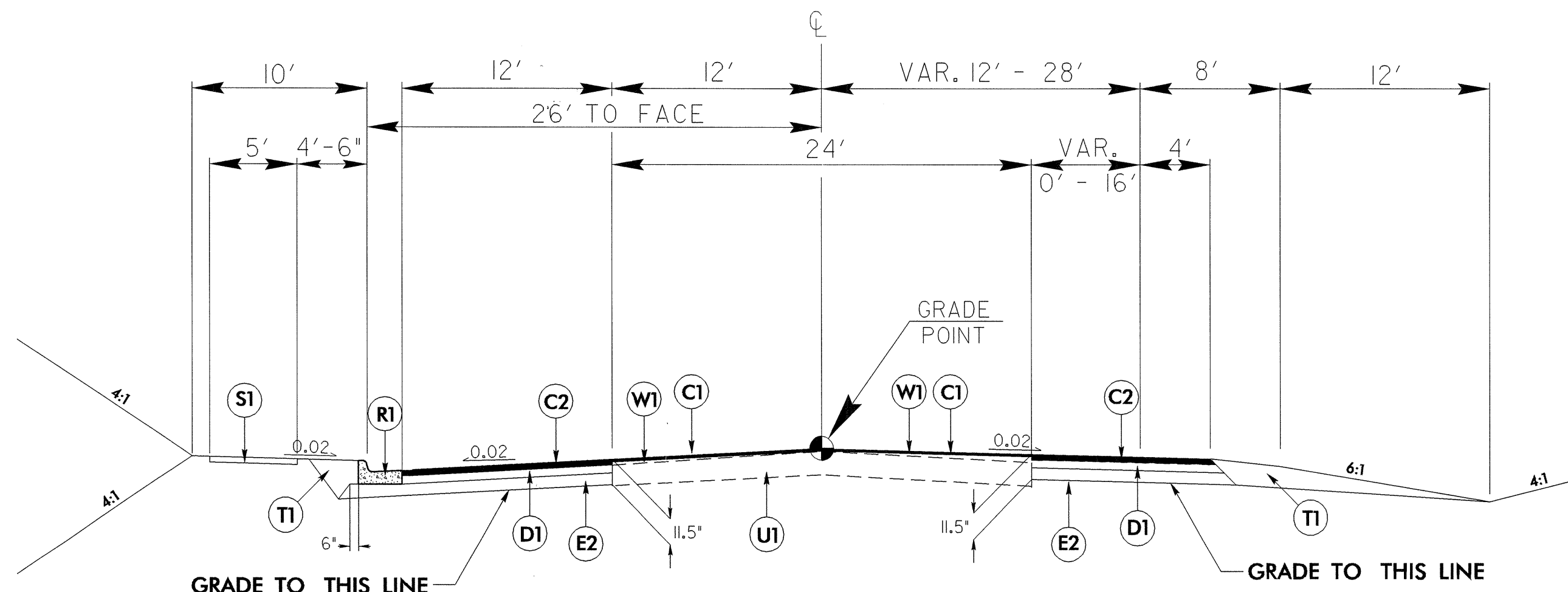
PROJECT REFERENCE NO. U-3401	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 

FINAL PAVEMENT SCHEDULE			
C1	1 1/2" TYPE S9.5C	R2	5" MONOLITHIC CONCRETE ISLAND
C2	3" TYPE S9.5C	S1	4" CONCRETE SIDEWALK
D1	4" TYPE I19.0C	T1	EARTH MATERIAL
E2	4.5" TYPE B25.0C	U1	EXISTING PAVEMENT
E4	VAR. DEPTH, TYPE B25.0C	W1	VAR. DEPTH ASPHALT PAVEMENT
R1	2'-6" CONC. CURB AND GUTTER		



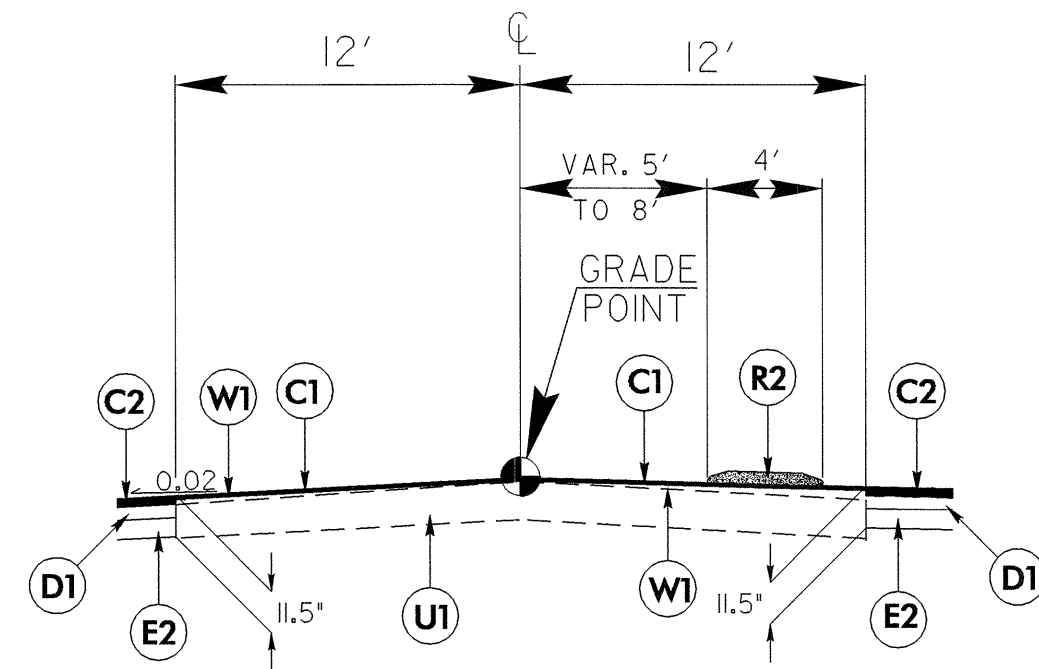
**INSERT 'A'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 4  
 -Y- FROM STA. 12+09.34 TO STA. 12+92.70  
 \*SEE PLAN SHEET FOR LOCATION



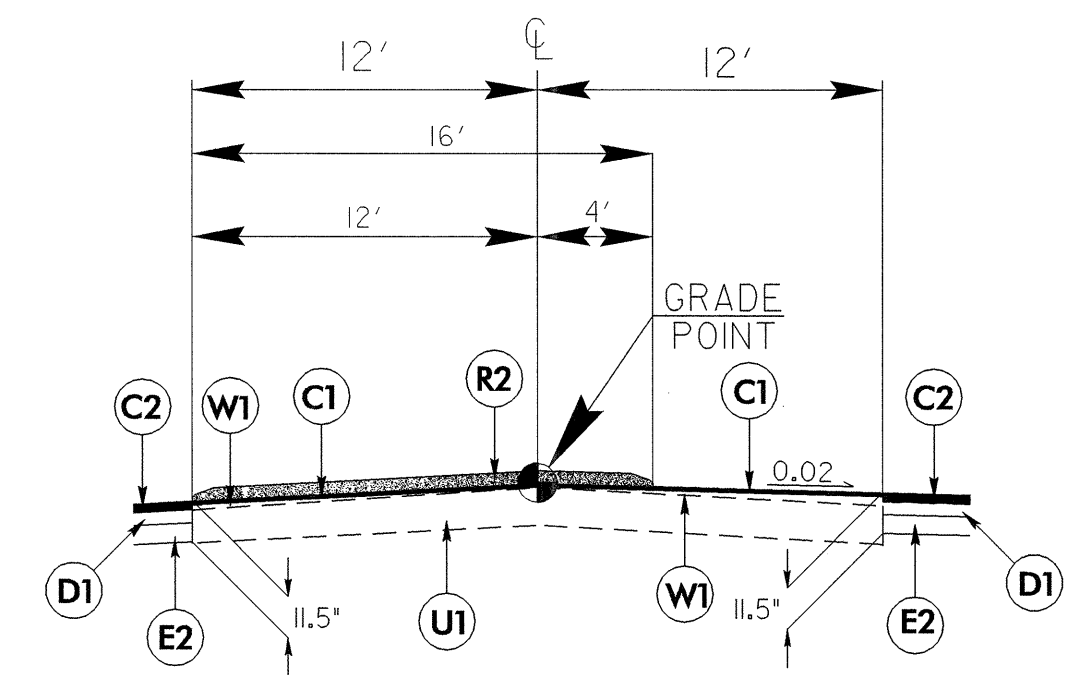
**TYPICAL SECTION NO. 4**

USE TYPICAL SECTION NO. 4  
 -Y-Lt. FROM STA. 10+00.00 TO STA. 12+32.74, TRANSITION FROM EXISTING TO TYP. SECT. NO. 4  
 -Y-Lt. FROM STA. 12+32.74 TO STA. 15+13.02  
 -Y-Rt. FROM STA. 10+00.00 TO STA. 15+13.02, TRANSITION FROM EXISTING TO TYP. SECT. NO. 4



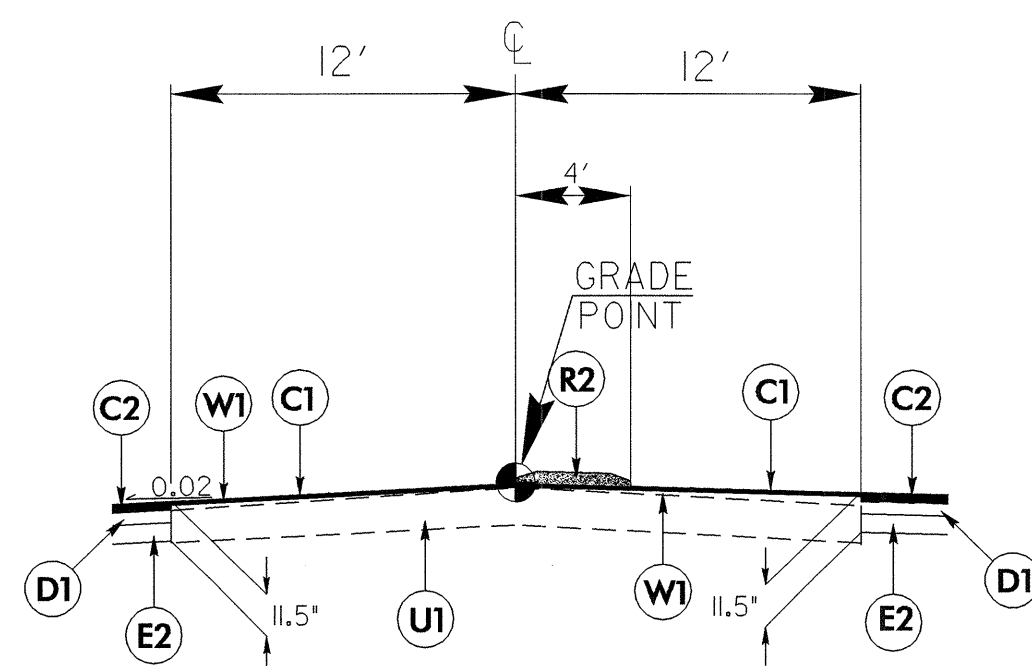
**INSERT 'B'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 4  
 -Y- FROM STA. 13+42.60 TO STA. 14+42.62  
 -Y- FROM STA. 14+42.60 TO STA. 15+93.28, TRANSITION FROM INSERT 'B' TO INSERT 'C'



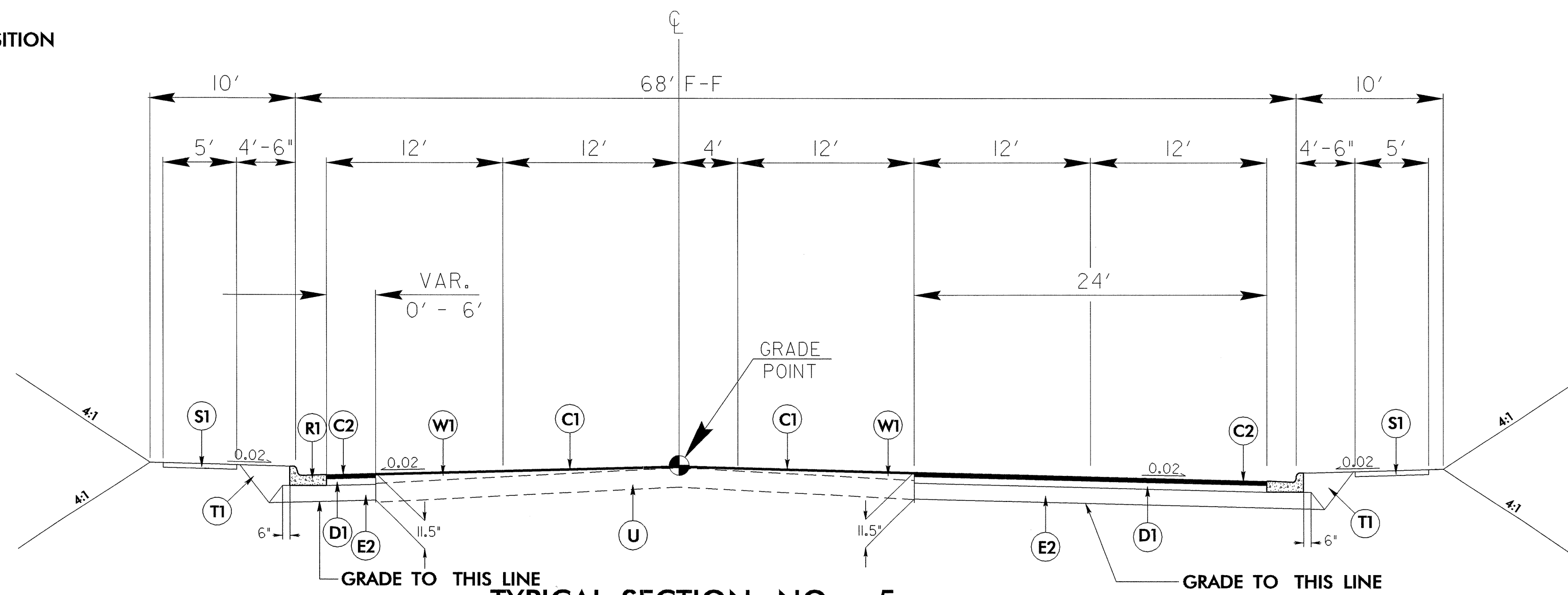
**INSERT 'C'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 5  
 -Y- FROM STA. 15+93.28 TO STA. 16+61.12  
 -Y- FROM STA. 19+03.99 TO STA. 19+57.99, TRANSITION FROM INSERT 'C' TO INSERT 'E'



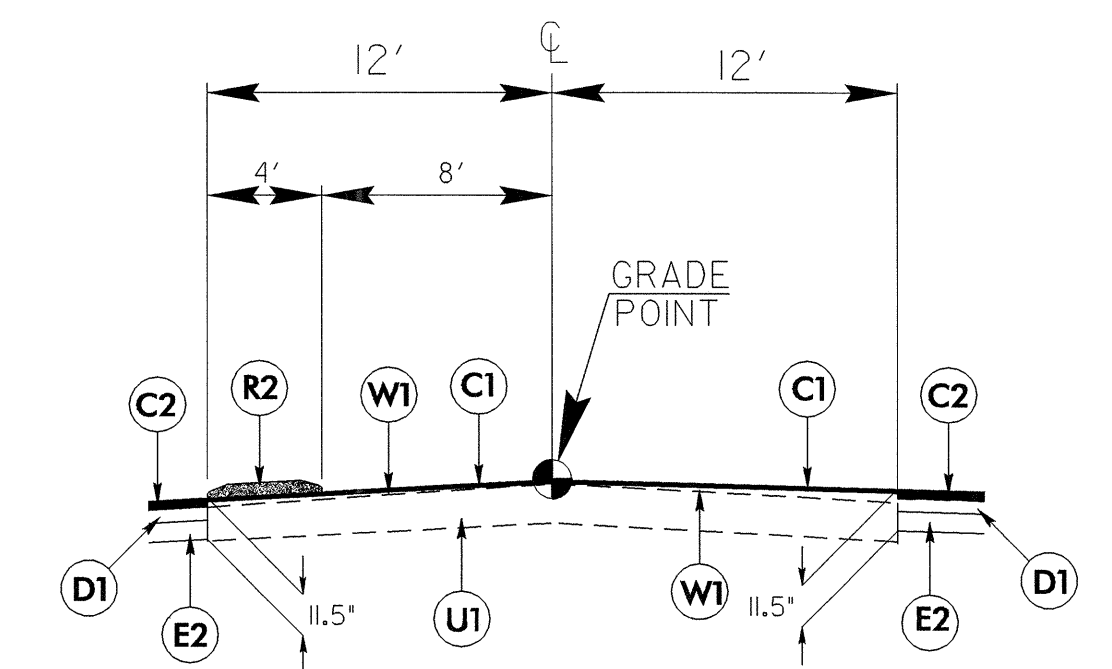
**INSERT 'D'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 5 AND NO. 6  
 -Y- FROM STA. 17+16.74 TO STA. 17+66.74  
 -Y- FROM STA. 17+66.74 TO STA. 18+15.36, TRANSITION FROM INSERT 'D' TO INSERT 'E'



**TYPICAL SECTION NO. 5**

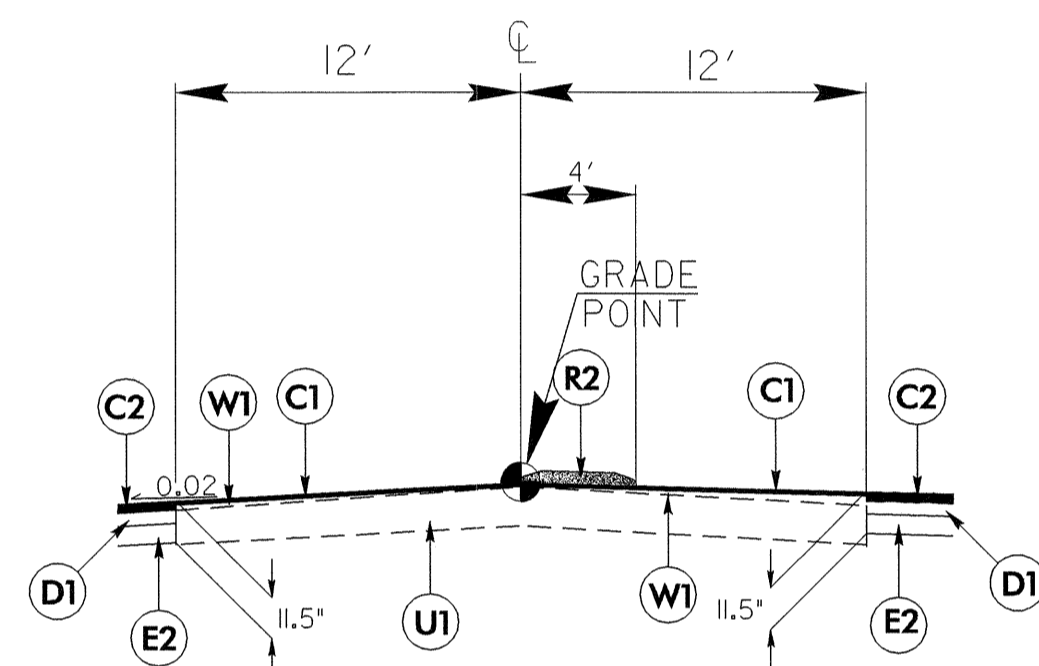
USE TYPICAL SECTION NO. 5  
 -Y-Rt. FROM STA. 15+13.82 TO STA. 20+54.35  
 -Y-Lt. FROM STA. 15+13.82 TO STA. 20+82.64



**INSERT 'E'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 5  
 -Y- FROM STA. 18+15.37 TO STA. 18+66.63  
 -Y- FROM STA. 19+57.99 TO STA. 21+19.95

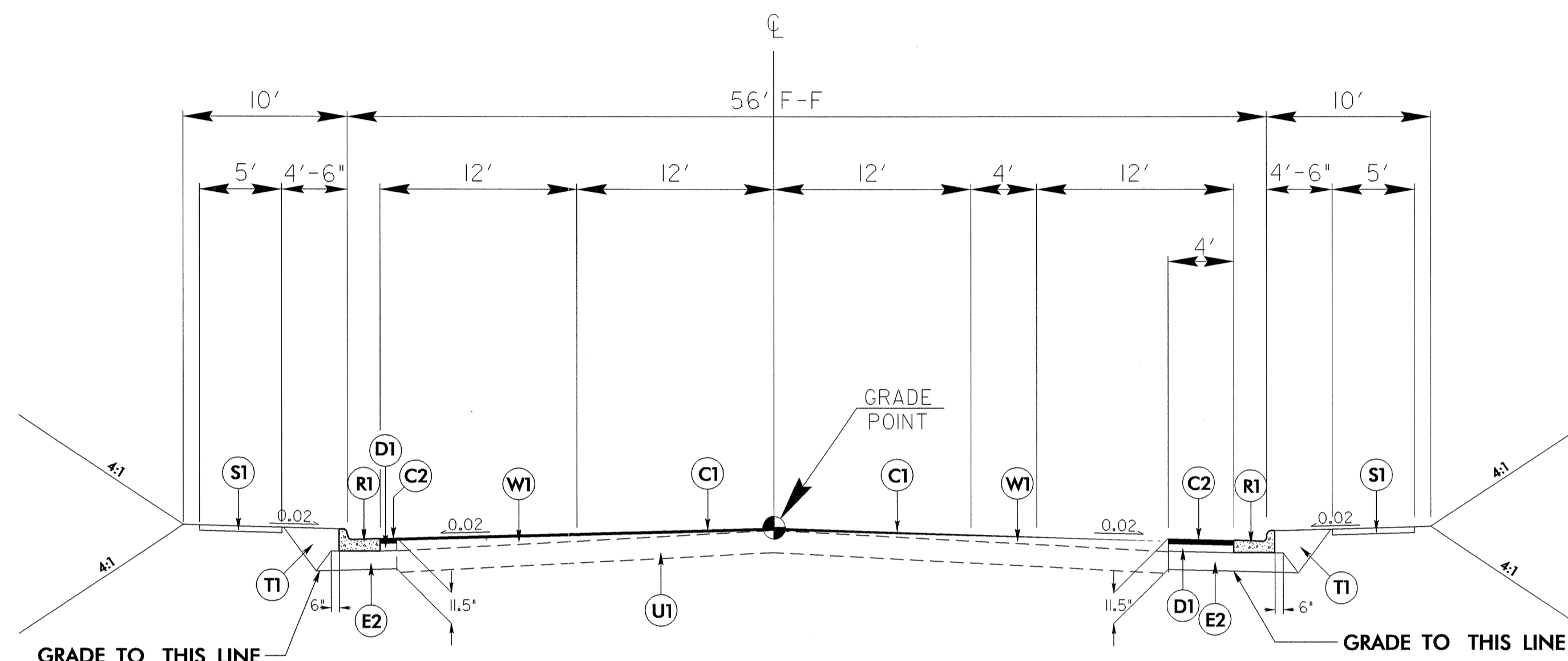
FINAL PAVEMENT SCHEDULE			
C1	1 1/2" TYPE S9.5C	R2	5" MONOLITHIC CONC. ISLAND
C2	3" TYPE S9.5C	S1	4" CONCRETE SIDEWALK
D1	4" TYPE I19.0C	T1	EARTH MATERIAL
E2	4.5" TYPE B25.0C	U1	EXISTING PAVEMENT
E4	VAR. DEPTH, TYPE B25.0C	W1	VAR. DEPTH ASPHALT PAVEMENT
R1	2'-6" CONC. CURB AND GUTTER	NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.	



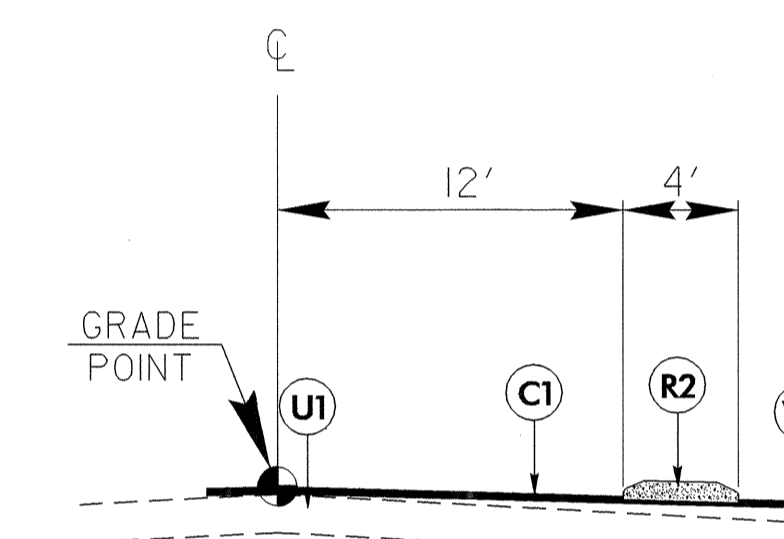
**INSERT 'D'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 5 AND NO. 6

- Y- FROM STA. 17+16.74 TO STA. 17+66.74
- Y- FROM STA. 17+66.74 TO STA. 18+15.36, TRANSITION FROM INSERT 'D' TO INSERT 'E'
- Y- FROM STA. 25+67.94 TO STA. 26+10.69



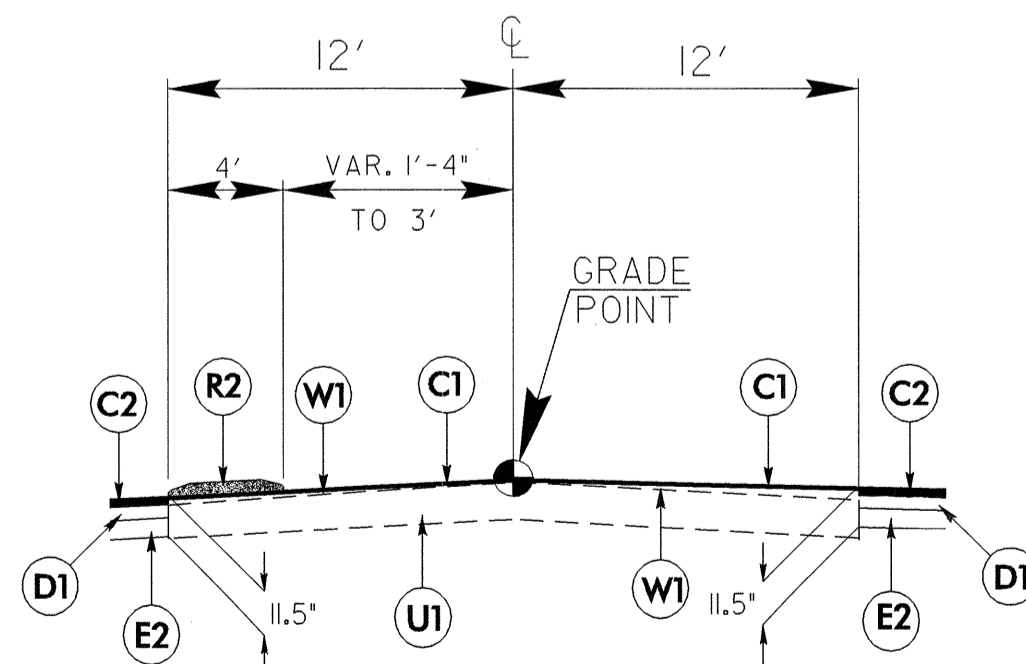
**TYPICAL SECTION NO. 6**



**INSERT 'F'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 6 AND NO. 7

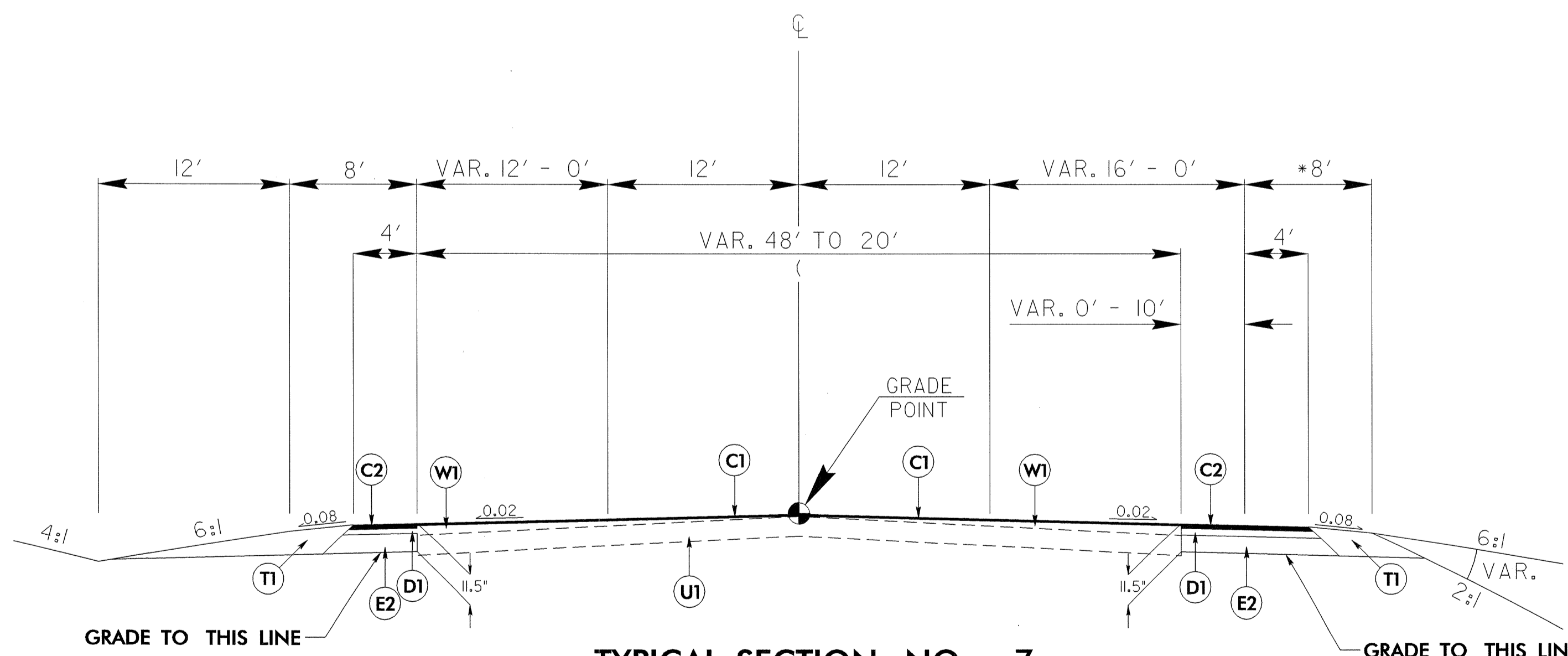
- Y- FROM STA. 22+42.34 TO STA. 24+67.43
- Y- FROM STA. 24+67.43 TO STA. 25+67.94, TRANSITION FROM INSERT 'F' TO INSERT 'D'
- Y- FROM STA. 27+00.32 TO STA. 27+48.30
- Y- FROM STA. 27+48.30 TO STA. 29+48.30 FROM INSERT 'F' TO INSERT 'G'



**INSERT 'G'**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 7

- Y- FROM STA. 29+48.30 TO STA. 30+14.71



**TYPICAL SECTION NO. 7**

\* NOTE: 11' WITH GUARDRAIL

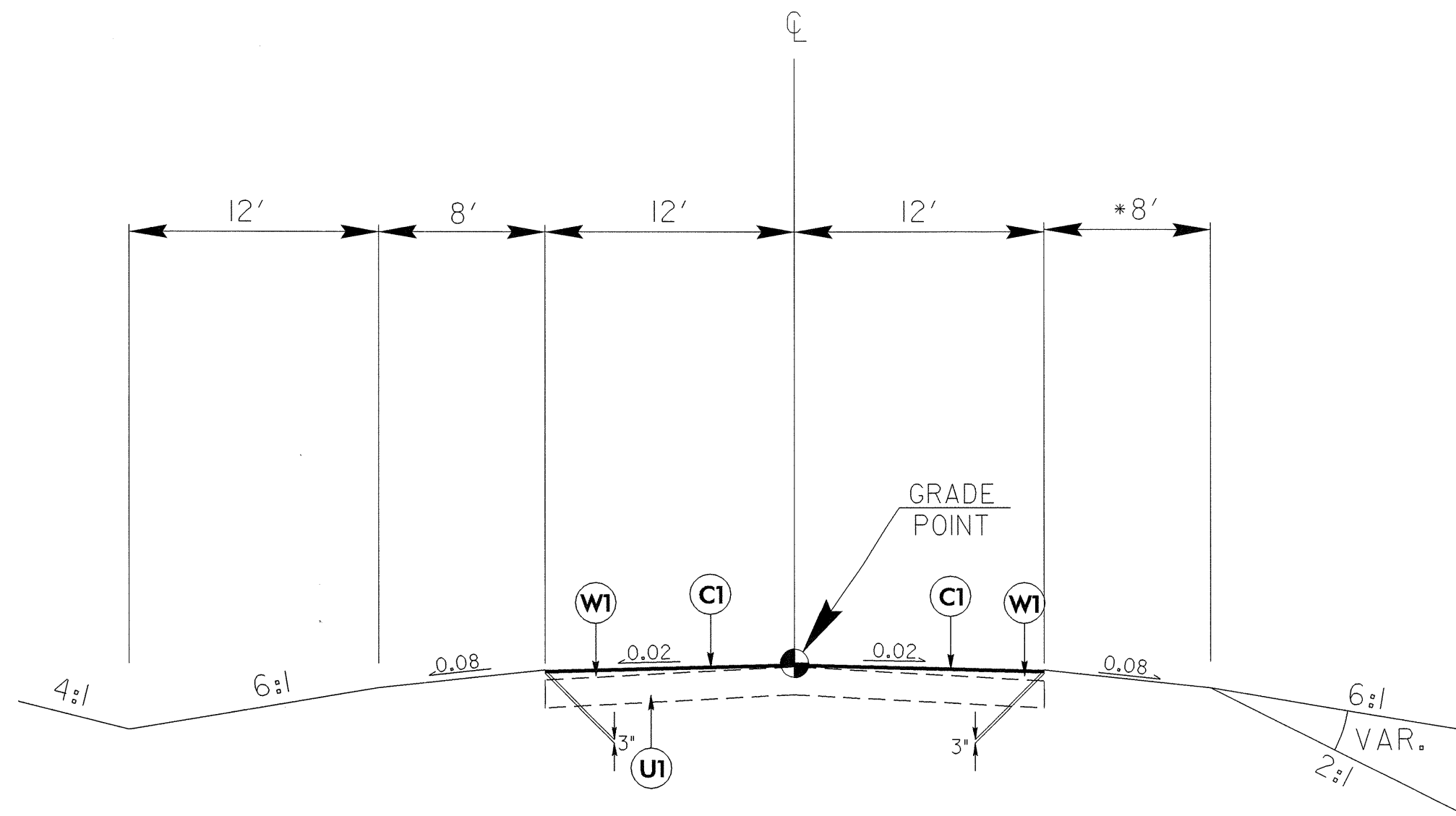
USE TYPICAL SECTION NO. 7

- Y-Lt. FROM STA. 27+48.31 TO 30+08.50
- Y-Lt. FROM STA. 30+08.50 TO 33+06.86, TRANSITION FROM TYP. SECT. NO. 7 TO TYP. SECT. NO. 8
- Y-Rt. FROM STA. 27+48.31 TO 33+48.38 FROM TYP. SECT. NO. 7 TO TYP. SECT. NO. 8



FINAL PAVEMENT SCHEDULE	
C1	1 1/2" TYPE S9.5C
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E1	4" TYPE B25.0C
E4	VAR. DEPTH, TYPE B25.0C
R1	2'-6" CONC. CURB AND GUTTER
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT
W1	VAR. DEPTH ASPHALT PAVEMENT

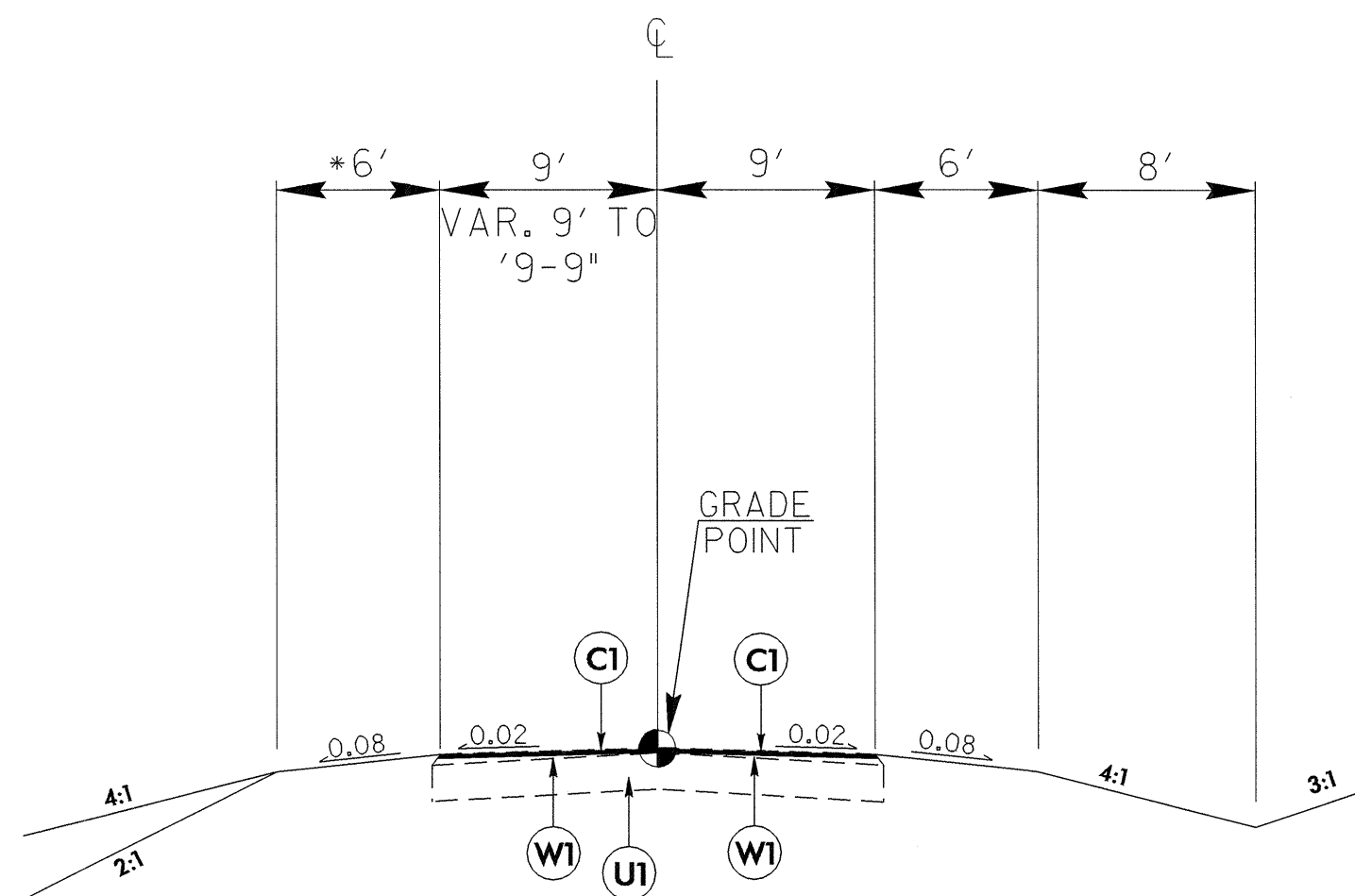
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 8

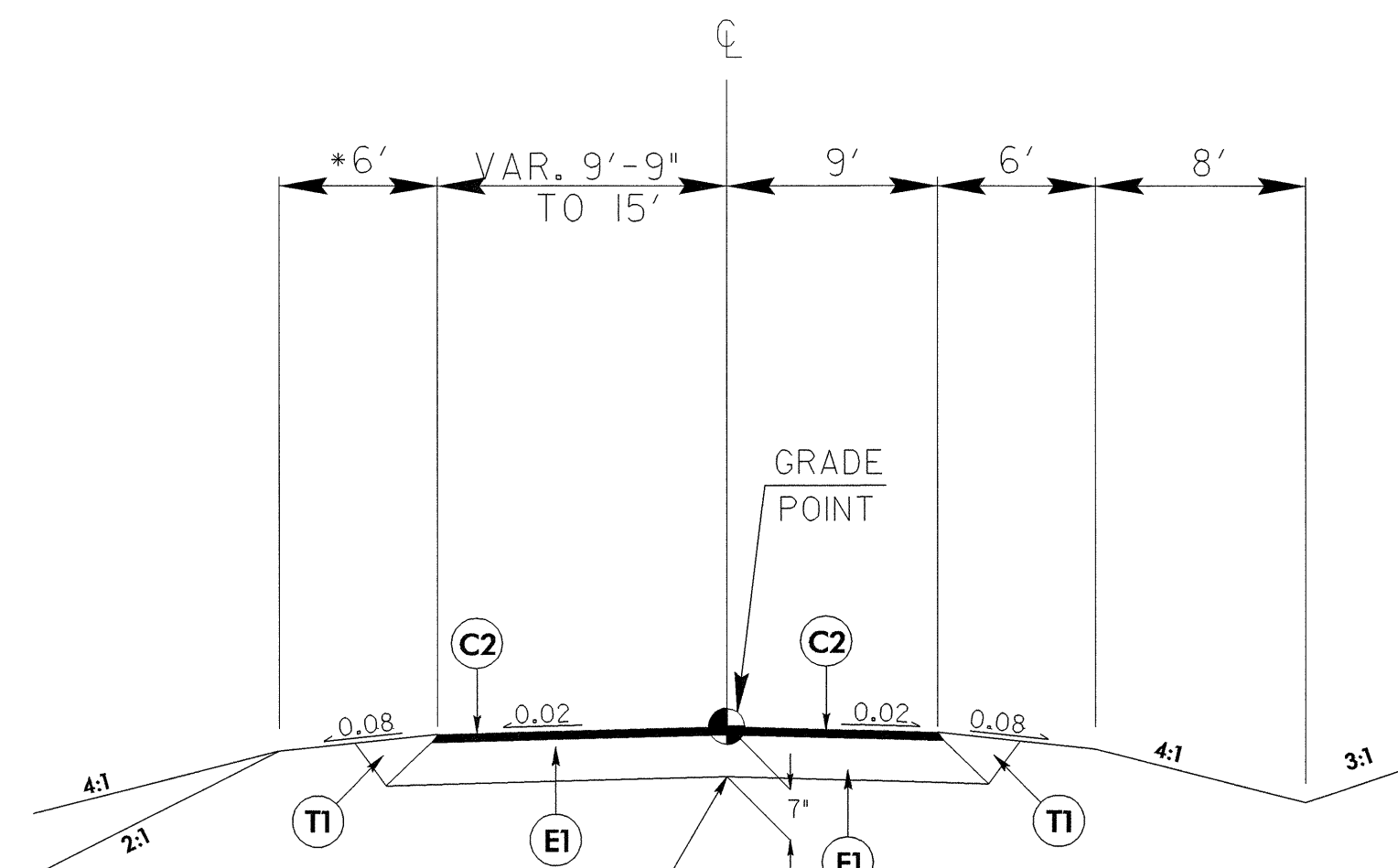
\* NOTE: 11' WITH GUARDRAIL

USE TYPICAL SECTION NO. 8  
 -Y-Lt. FROM STA. 33+06.86 TO 33+98.06  
 -Y-Rt. FROM STA. 33+48.38 TO 33+98.06



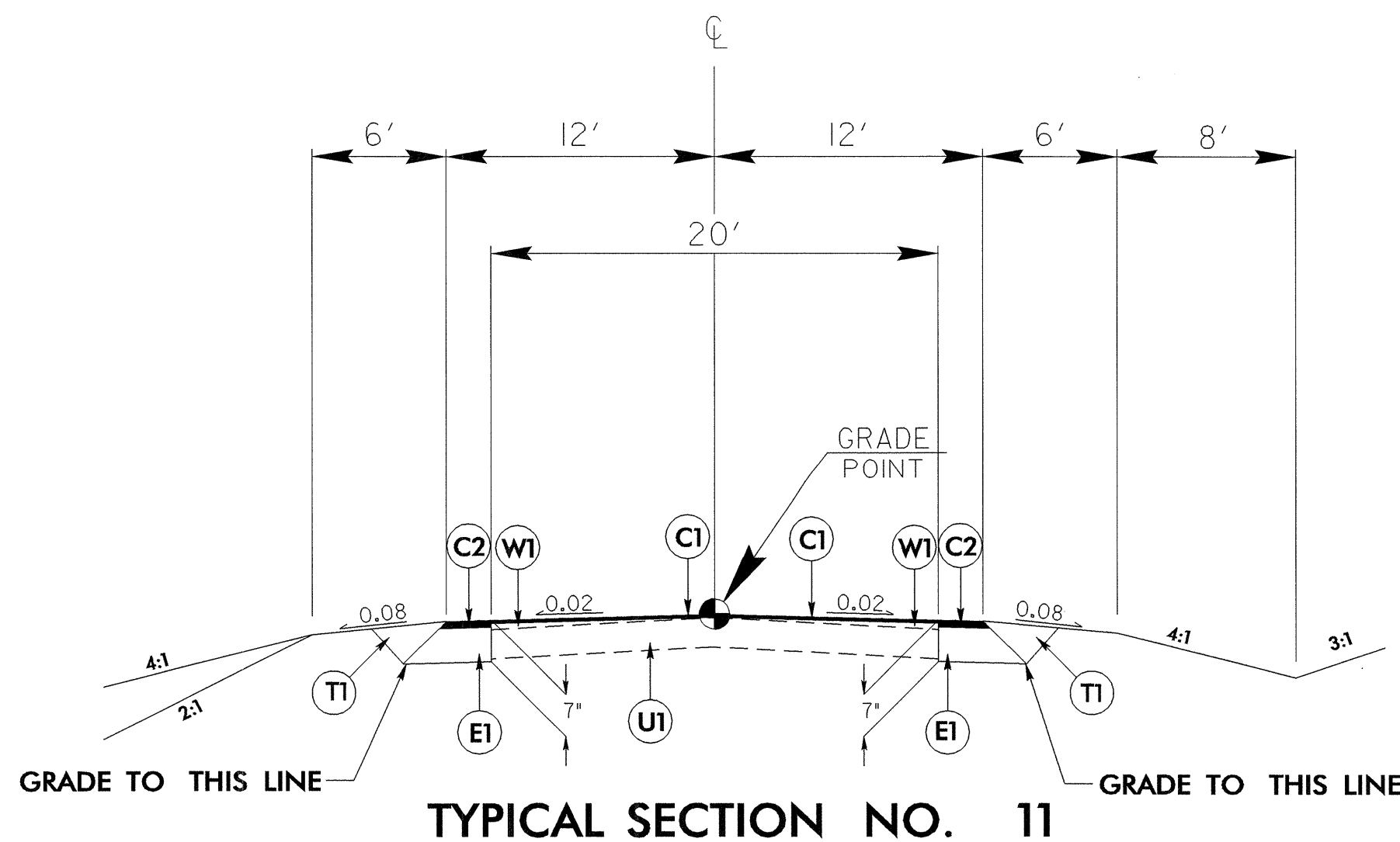
\* NOTE: USE 9' WITH GUARDRAIL  
 TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9  
 -Y1- FROM STA. 10+00.00 TO STA. 10+75.00



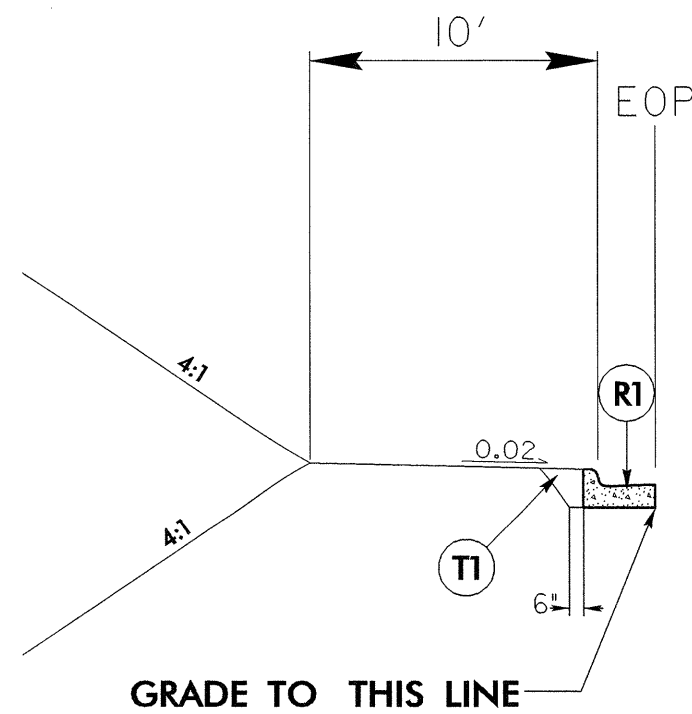
TYPICAL SECTION NO. 10  
 \* NOTE: USE 9' WITH GUARDRAIL

USE TYPICAL SECTION NO. 10  
 -Y1-Lt. FROM STA. 10+75.00 TO STA. 11+62.05  
 -Y1-Rt. FROM STA. 10+75.00 TO STA. 11+80.85



TYPICAL SECTION NO. 11

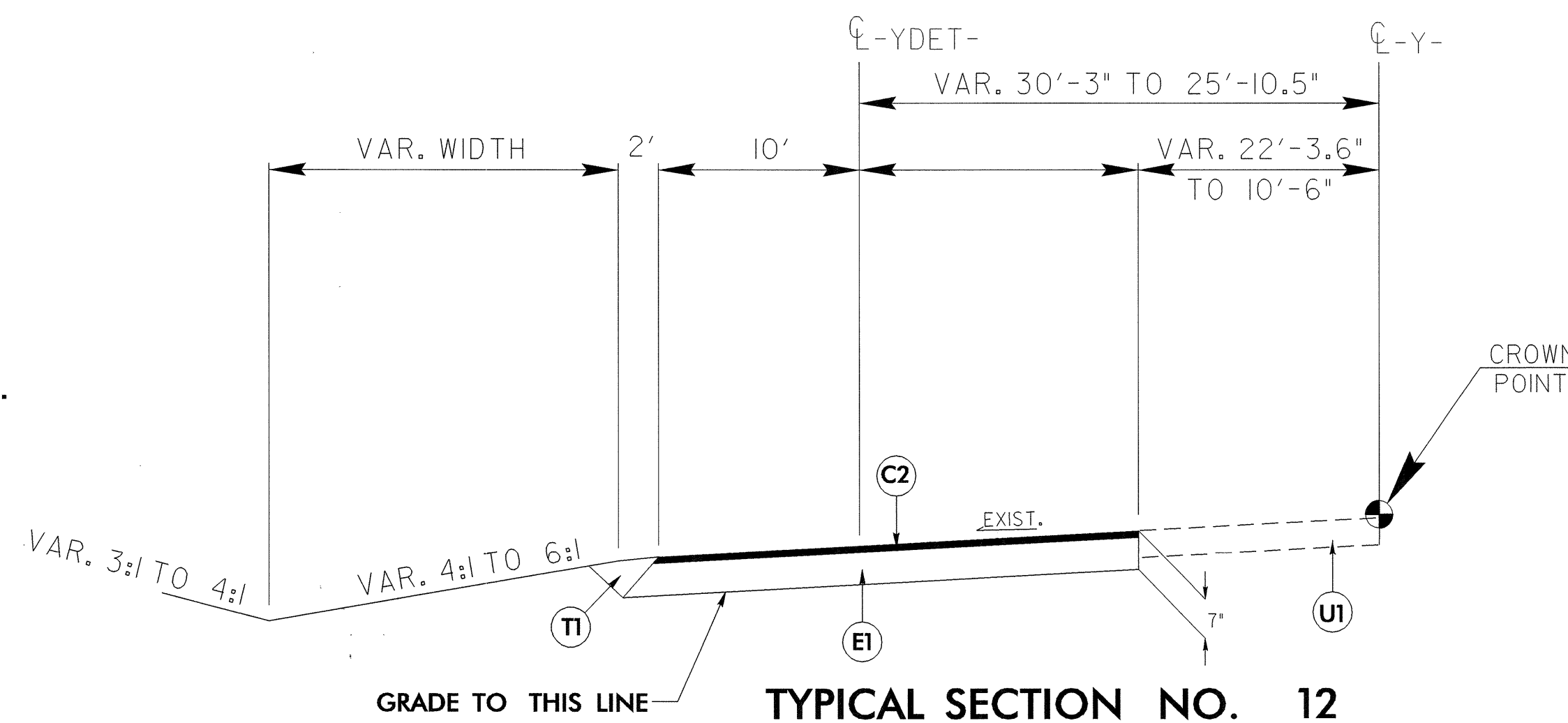
USE TYPICAL SECTION NO. 11  
 -Y2-Lt. FROM STA. 19+15.00 TO STA. 10+00.00, TRANSITION EXISTING TO TYP. SECT. NO. 11  
 -Y2-Rt. FROM STA. 19+15.00 TO STA. 10+00.00, TRANSITION EXISTING TO TYP. SECT. NO. 11  
 -Y2-Lt. FROM STA. 10+00.00 TO STA. 11+47.72  
 -Y2-Rt. FROM STA. 10+00.00 TO STA. 11+38.13



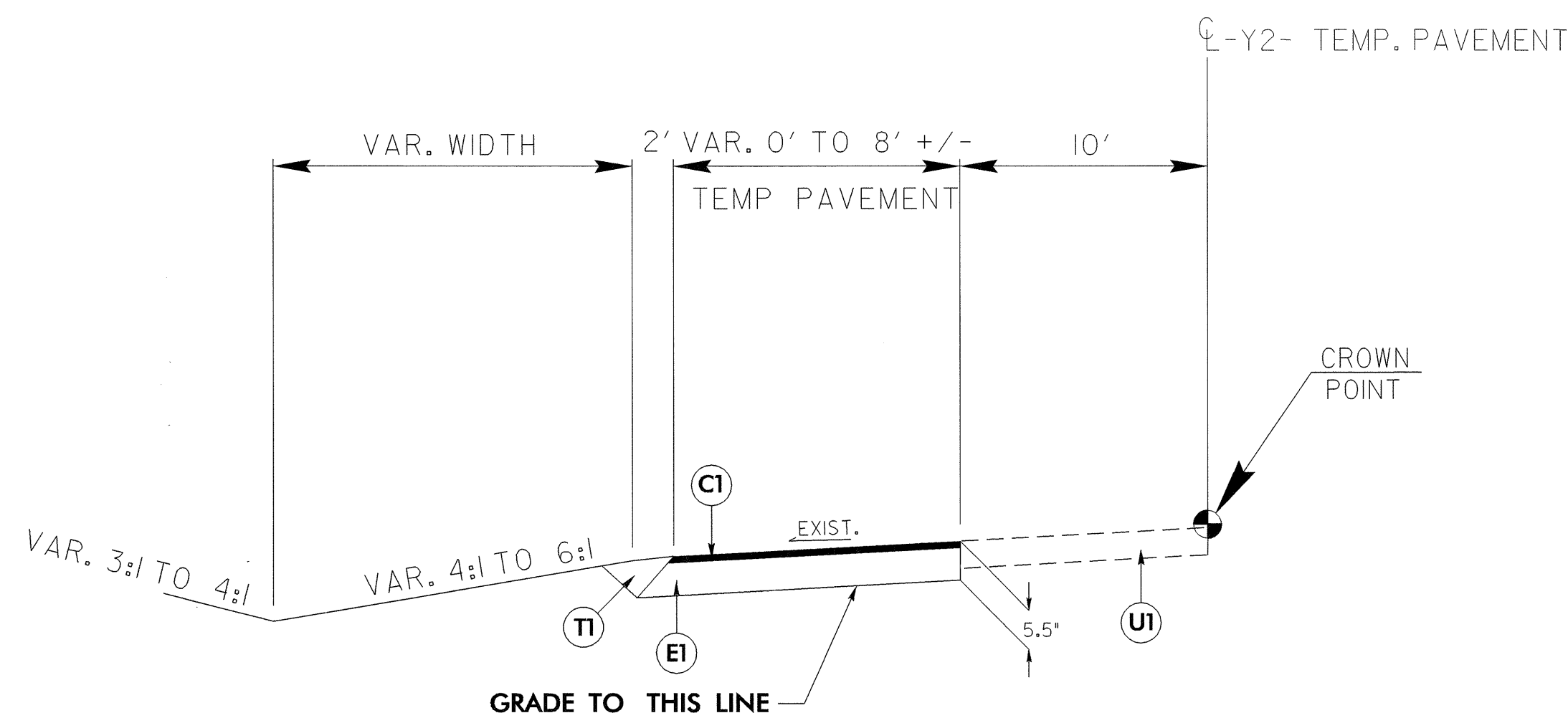
INSERT 'H'  
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 10  
 -Y1- FROM STA. 11+16.00 TO STA. 11+62.05

FINAL PAVEMENT SCHEDULE	
C1	1½" TYPE S9.5C
C2	3" TYPE S9.5C
E1	4" TYPE B25.0C
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT

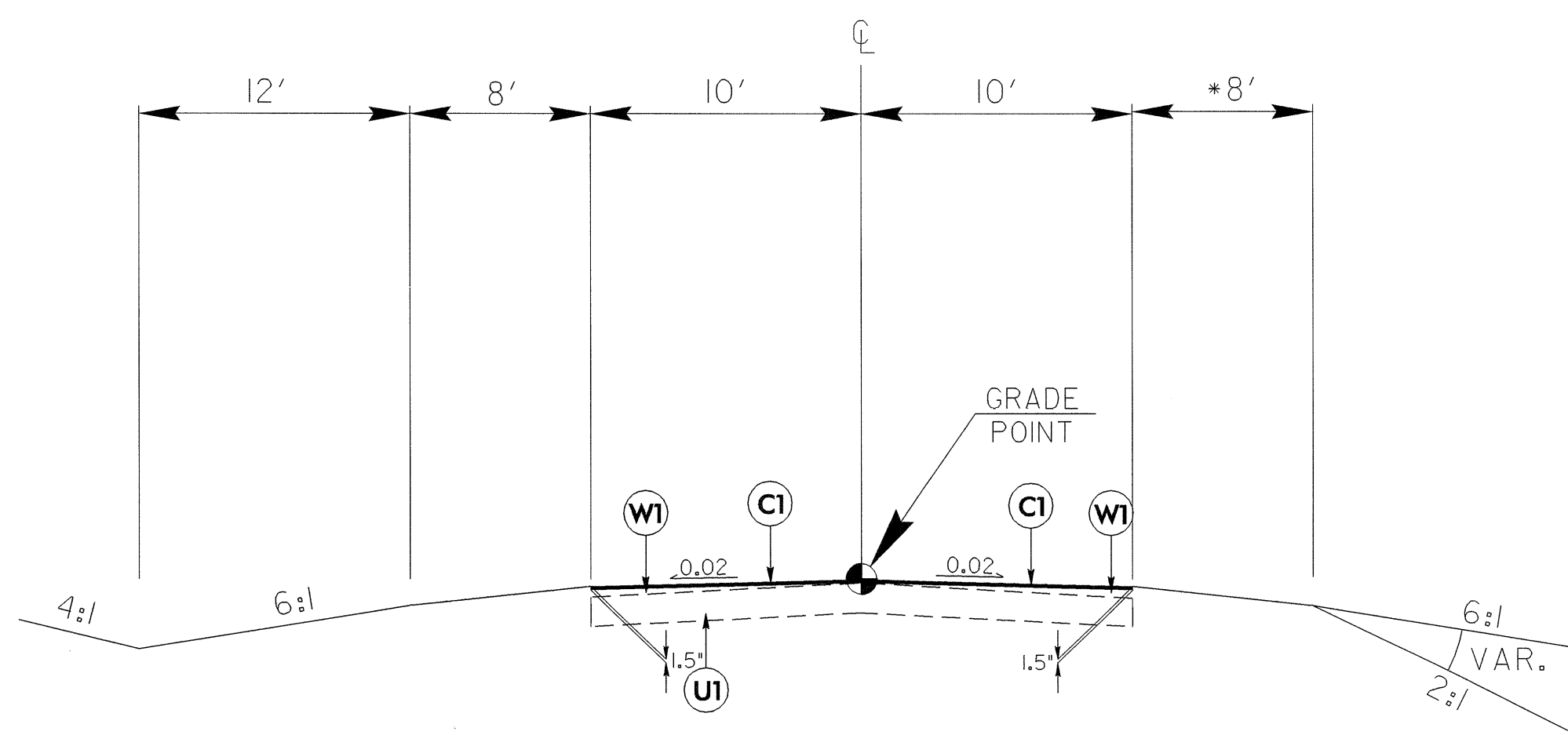
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



USE TYPICAL SECTION NO. 12  
 -YDET- FROM STA. 27+90.13 TO STA. 29+54.15m, TRANSITION FROM EXISTING TO TYP. SECT NO. 12  
 -YDET- FROM STA. 29+54.15 TO STA. 31+55.88  
 -YDET- FROM STA. 31+55.88 TO STA. 33+55.59, TRANSITION FROM TYP. SECT. NO. 12 TO EXISTING



USE TYPICAL SECTION NO. 13  
 -Y2-Lt. FROM STA. 10+80.00 TO STA. 11+58.47 +/-



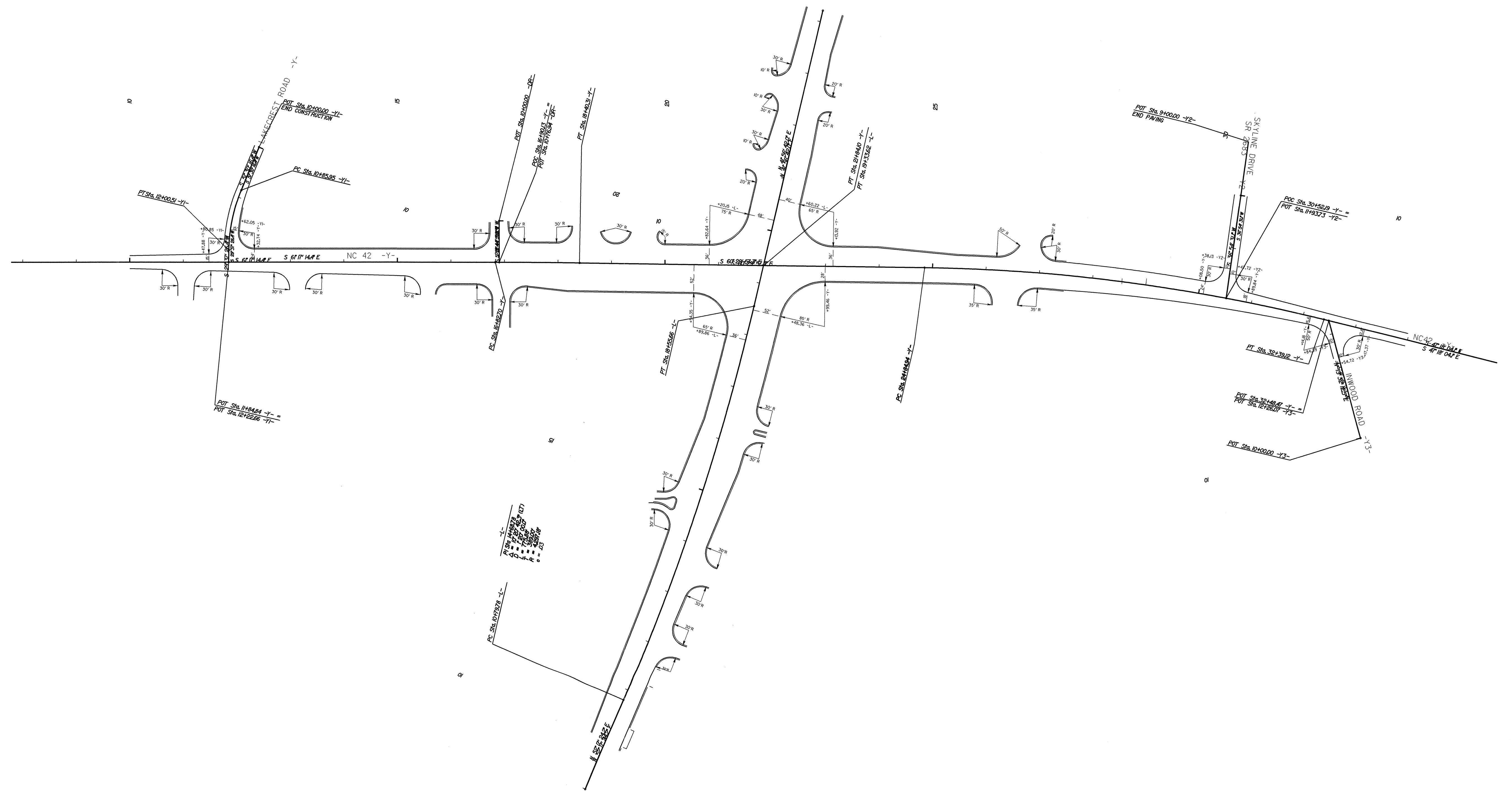
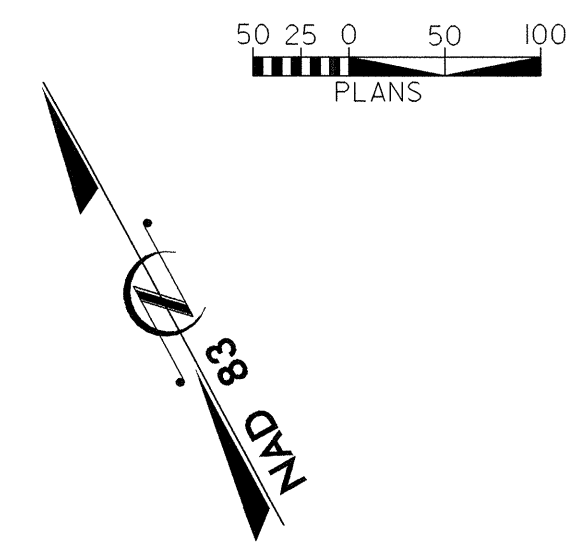
\* NOTE: 11' WITH GUARDRAIL

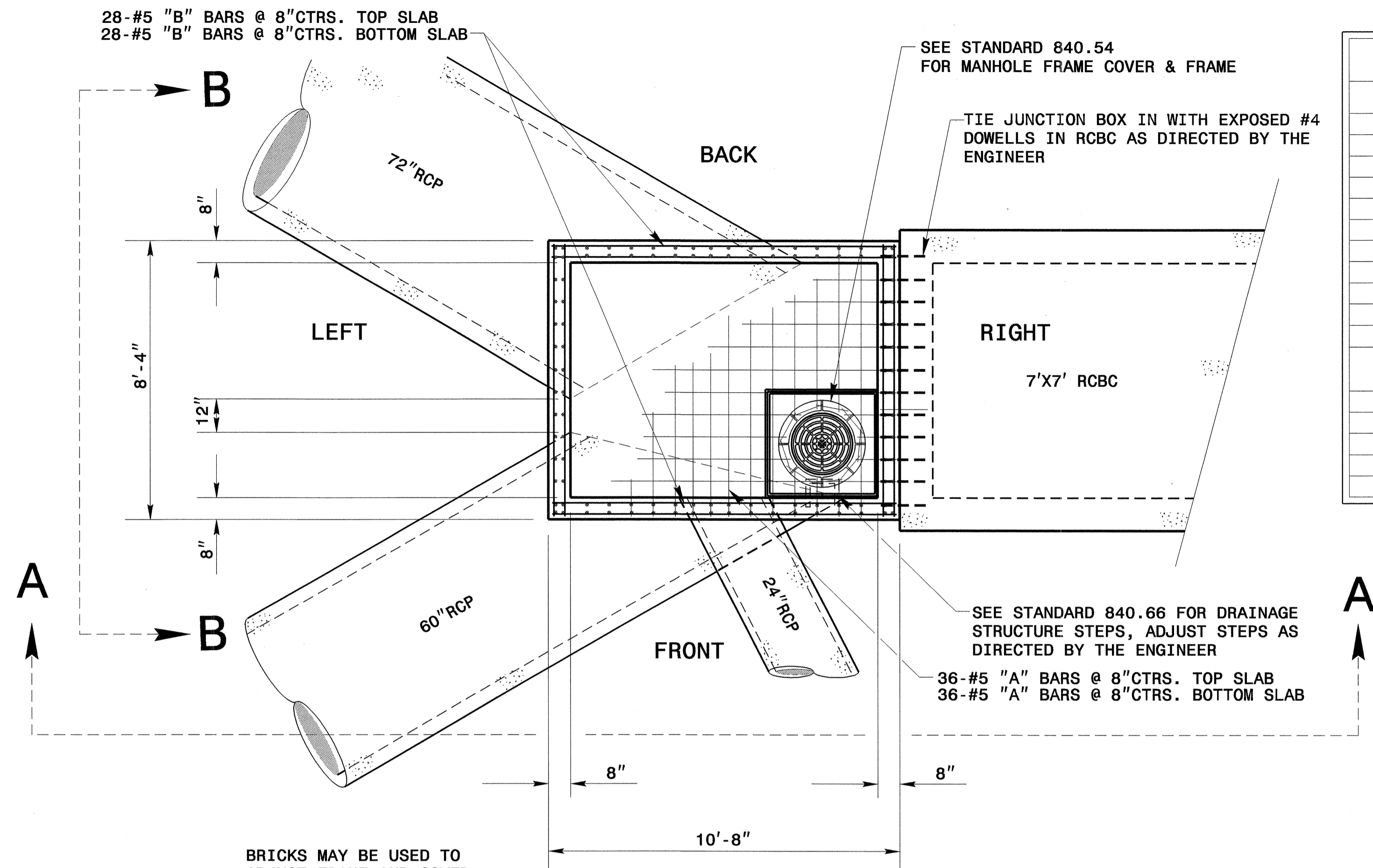
USE TYPICAL SECTION NO. 14  
 -Y3- FROM STA. 11+00.00 TO 11+54.72

TYPICAL SECTION NO. 14

# INTERSECTION DETAILS AND DRIVEWAY DIMENSION

PROJECT REFERENCE NO. U-3401	SHEET NO. 2-F
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



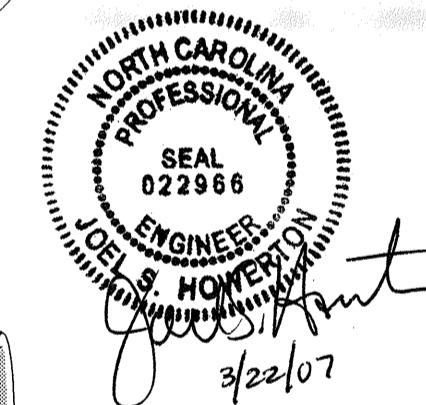
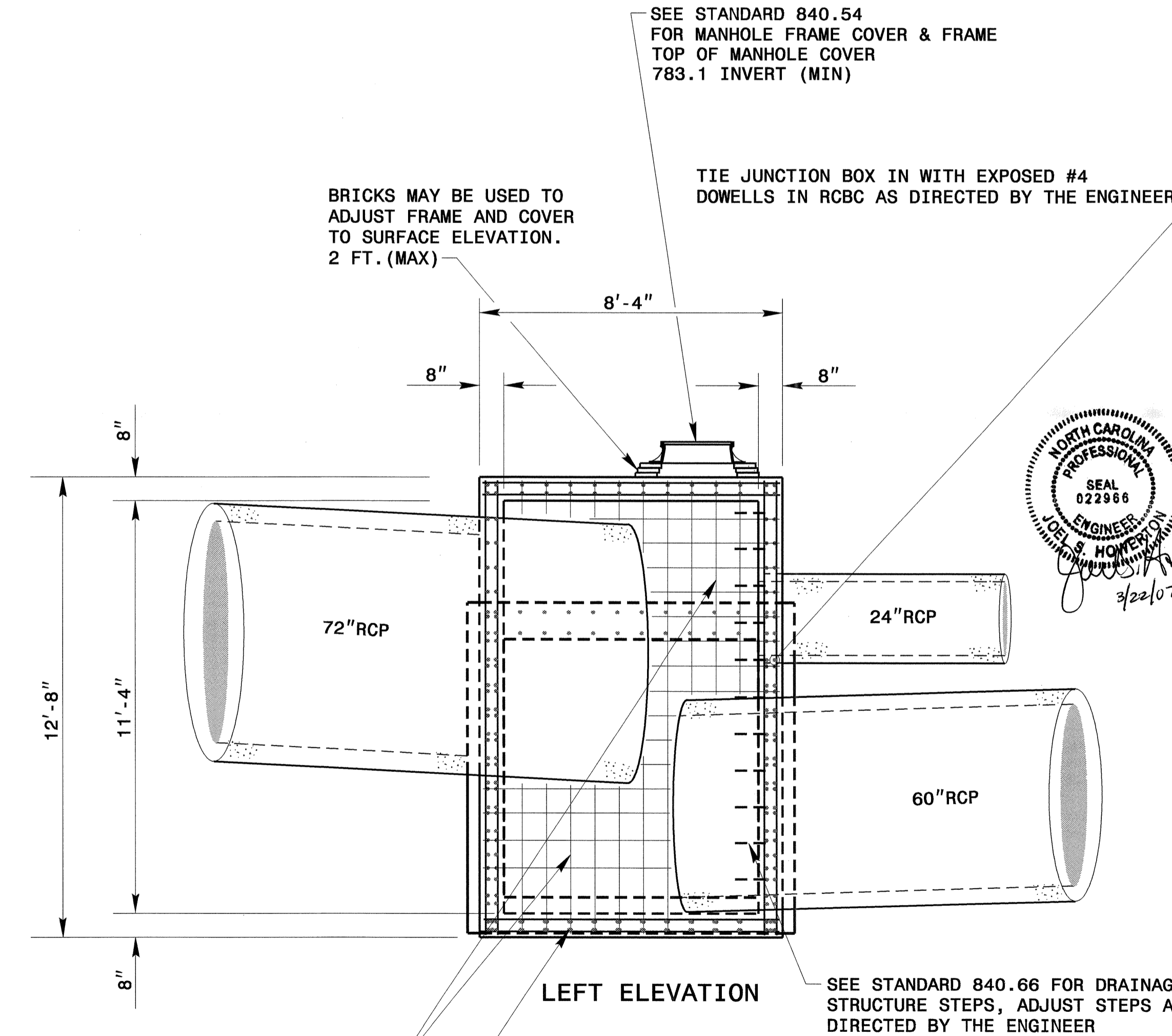
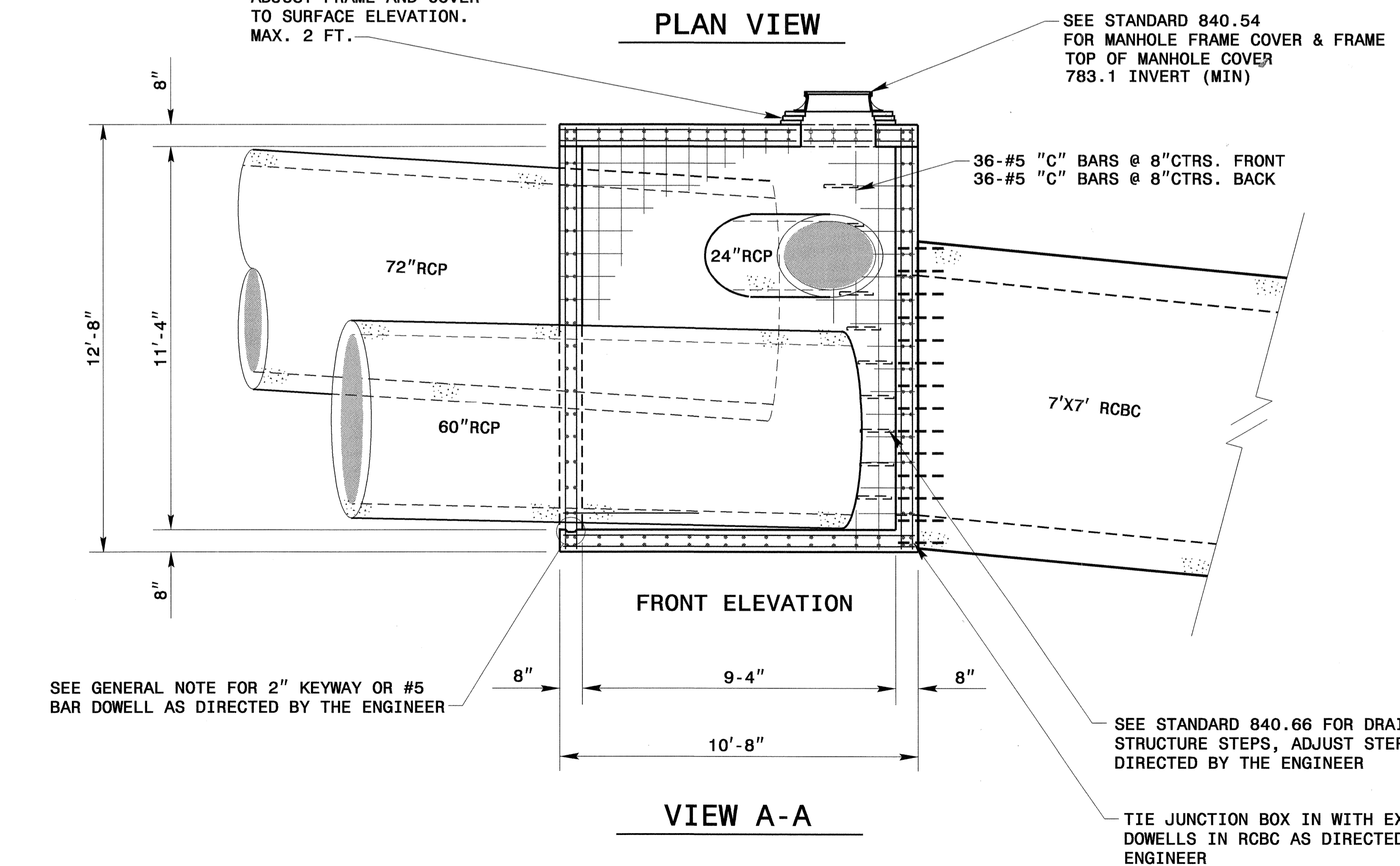


**BILL OF MATERIALS**

BAR	NO.	SIZE	LENGTH	TOTAL LENGTH	WEIGHT
A	72	#5	8'-2"	588	614
B	56	#5	10'-6"	588	614
C	100	#5	12'-6"	1250	1304
C1	28	#5	4'-3"	119	125
CONC. (CU.YDS.)					13.1
PIPE DEDUCTIONS (CU.YDS.)					-1.7
TOTAL CONC. (CU.YDS.)					11.4
TOTAL REINF. STEEL (LBS.)					2657
0.45 CU. YDS PER FOOT OF RISER HEIGHT					

**GENERAL NOTES:**

- THE BASE SLAB SHALL BE CONSTRUCTED BY FORMING.
- SEE STD. DWG. 840.00 FOR CONSTRUCTION OF BASE SLAB IF PIPE IS SET INTO BASE SLAB.
- CLASS 'B' CONCRETE SHALL BE USED THROUGHOUT.
- REINFORCING STEEL SHALL BE CUT, BENT OR RELOCATED TO POSITION PIPE AS DIRECTED BY THE ENGINEER.
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 1 INCH.
- SEE STD. DRAWING 840.34 FOR CONSTRUCTION OF RISER AND MANHOLE, IF REQUIRED.
- JUNCTION BOXES OVER 3'-6" IN DEPTH WITH MANHOLES SHALL REQUIRE STEPS TO BE PLACED ON 1'-2" CTRS. REFERENCE STD. NO. 840.66.
- OPTIONAL CONSTRUCTION MONOLITHIC PORT 2" KEYWAY OR #5 BAR DOWELL AT 12" CENTERS OR AS DIRECTED BY THE ENGINEER.



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

**DETAIL OF JUNCTION BOX**

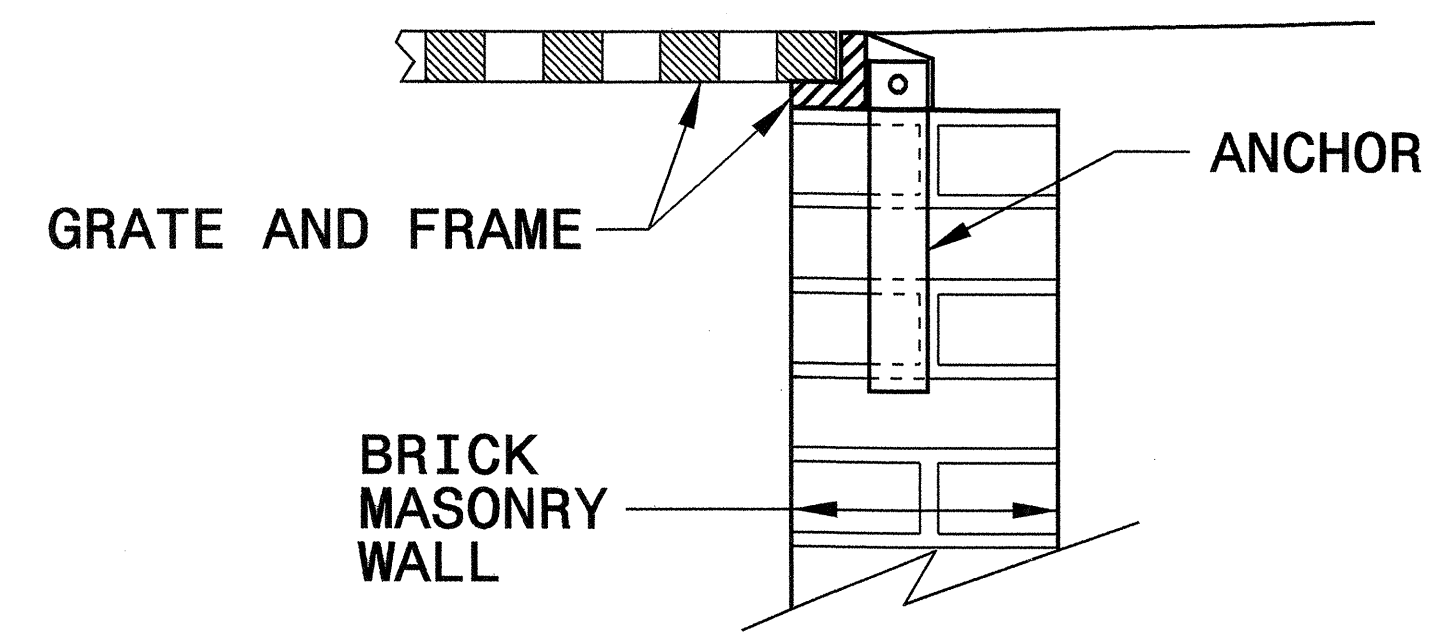
ORIGINAL BY: rnbritt DATE: 06-28-04  
 MODIFIED BY: DATE:   
 CHECKED BY: DATE:   
 FILE SPEC.: details/nbritt/english/urban/u3401jb.dgn

FIELD ADJUST PIPE ELEVATIONS AND BOX HEIGHT TO OBTAIN AT LEAST 1' MINIMUM COVER

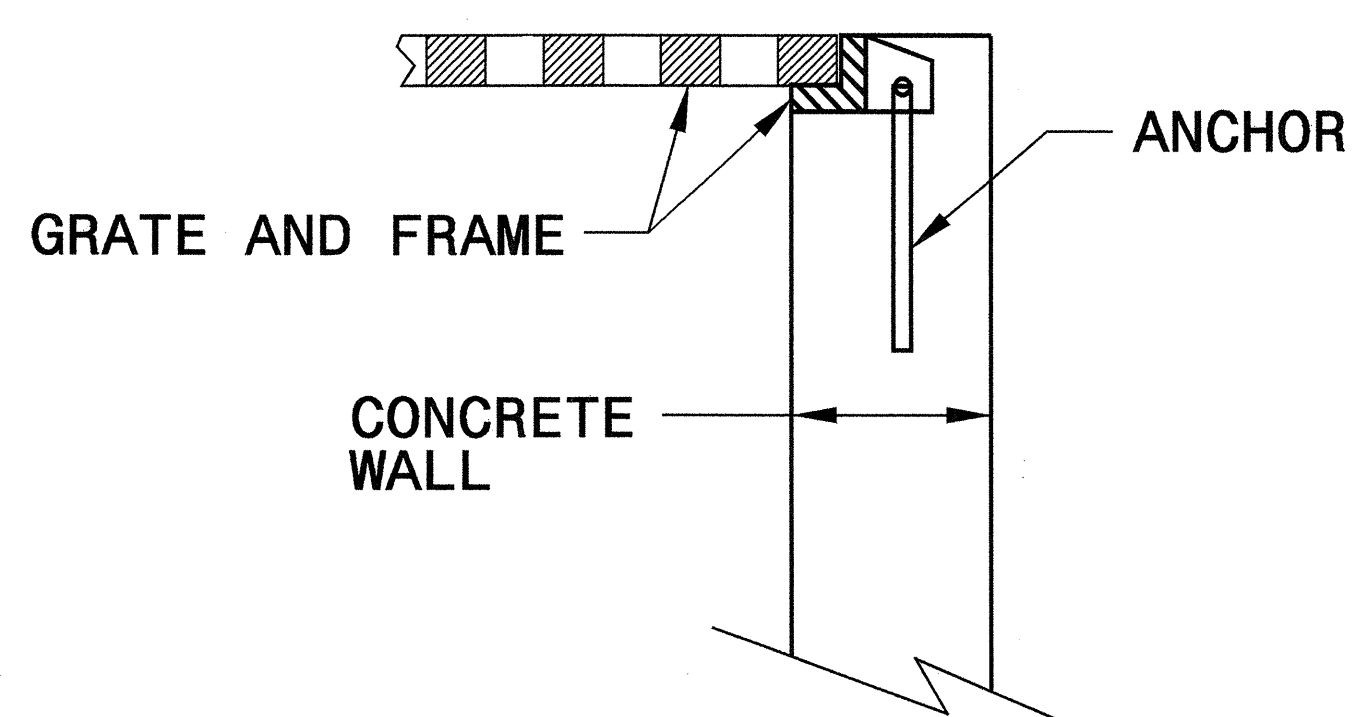
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

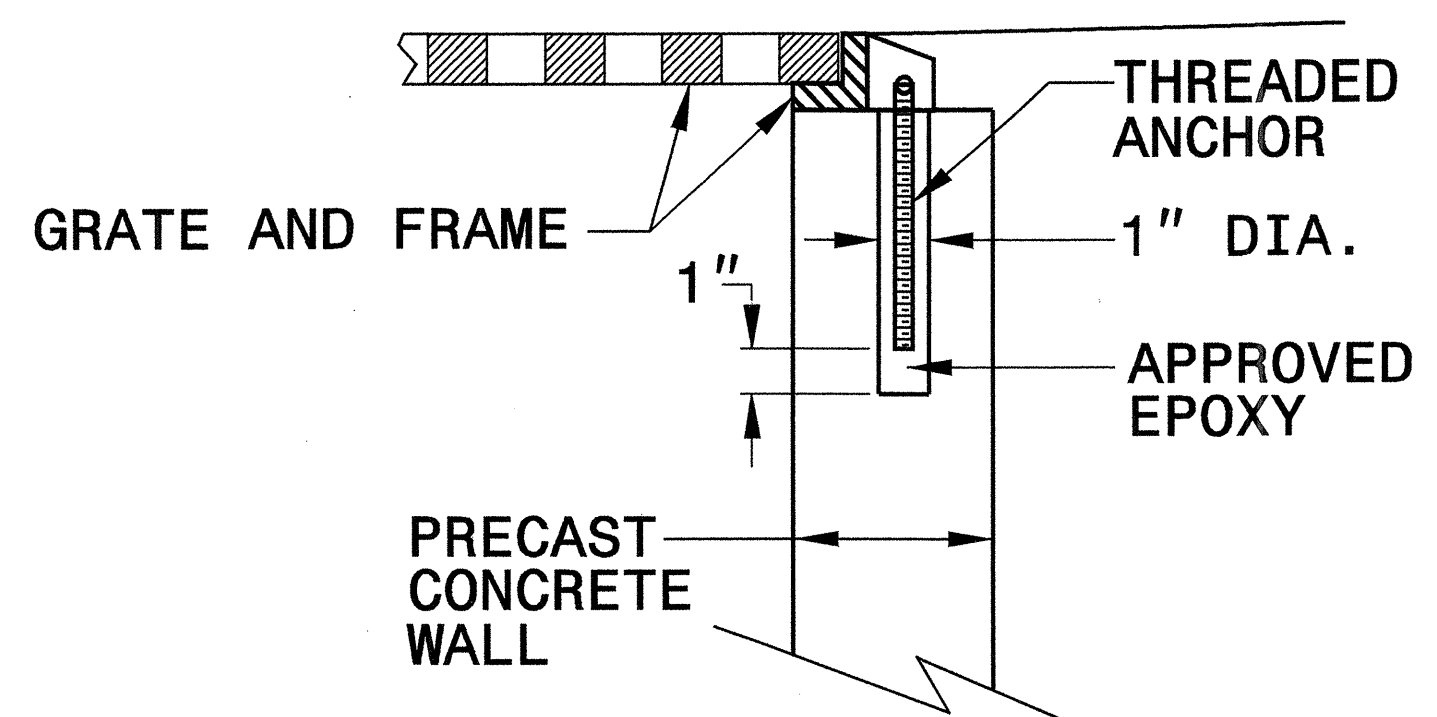
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



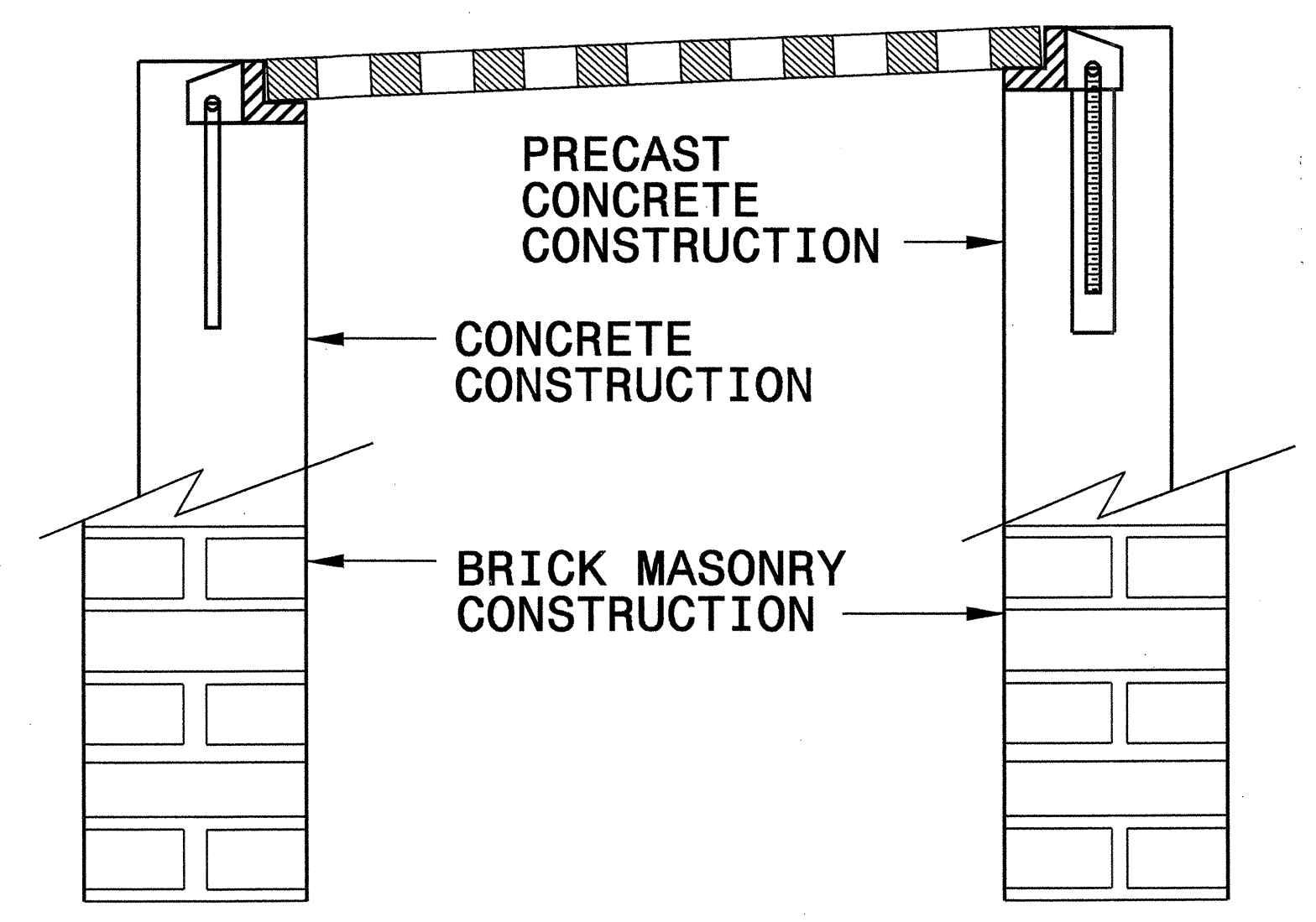
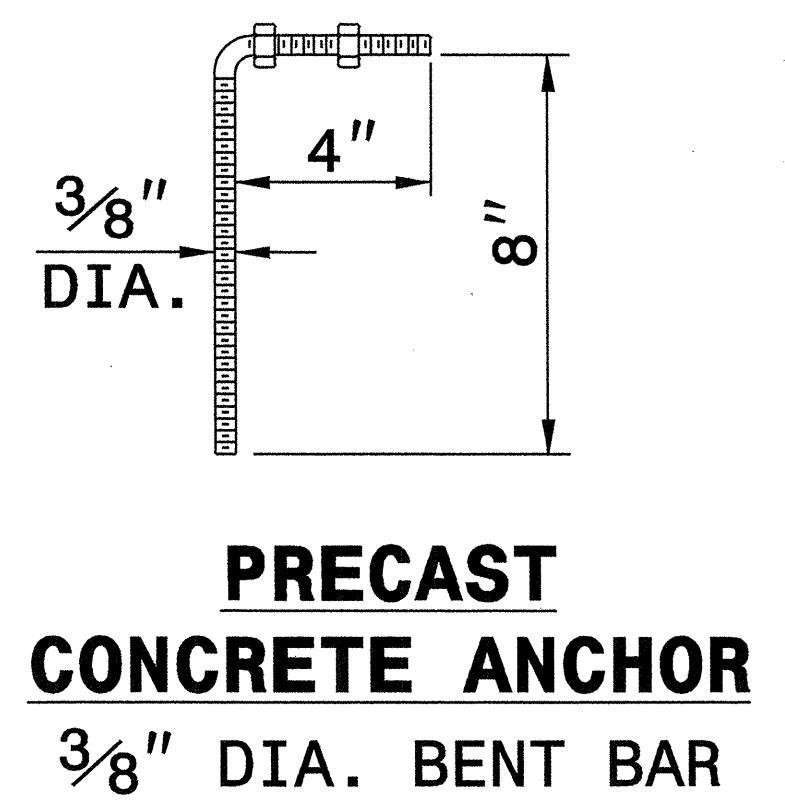
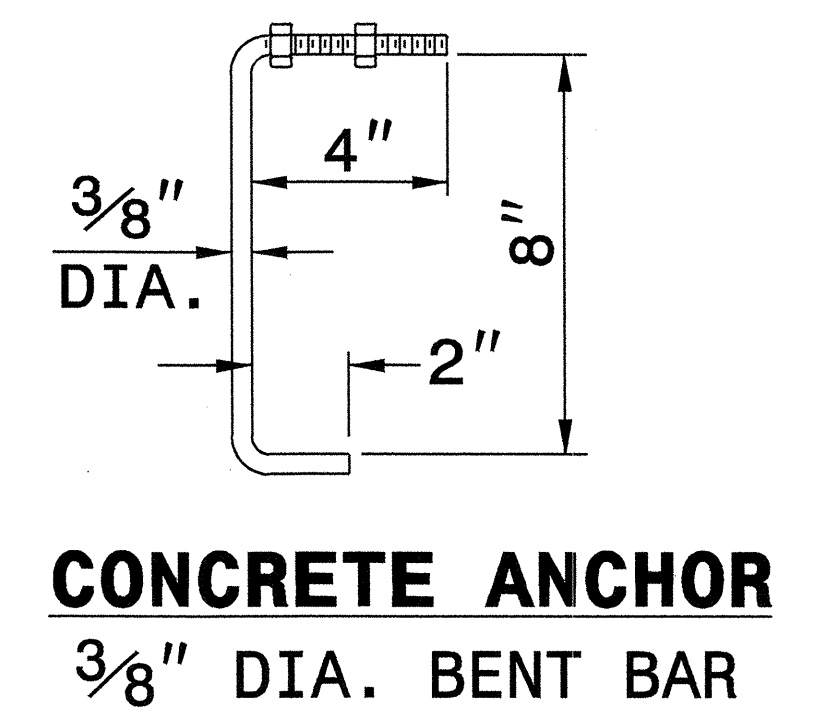
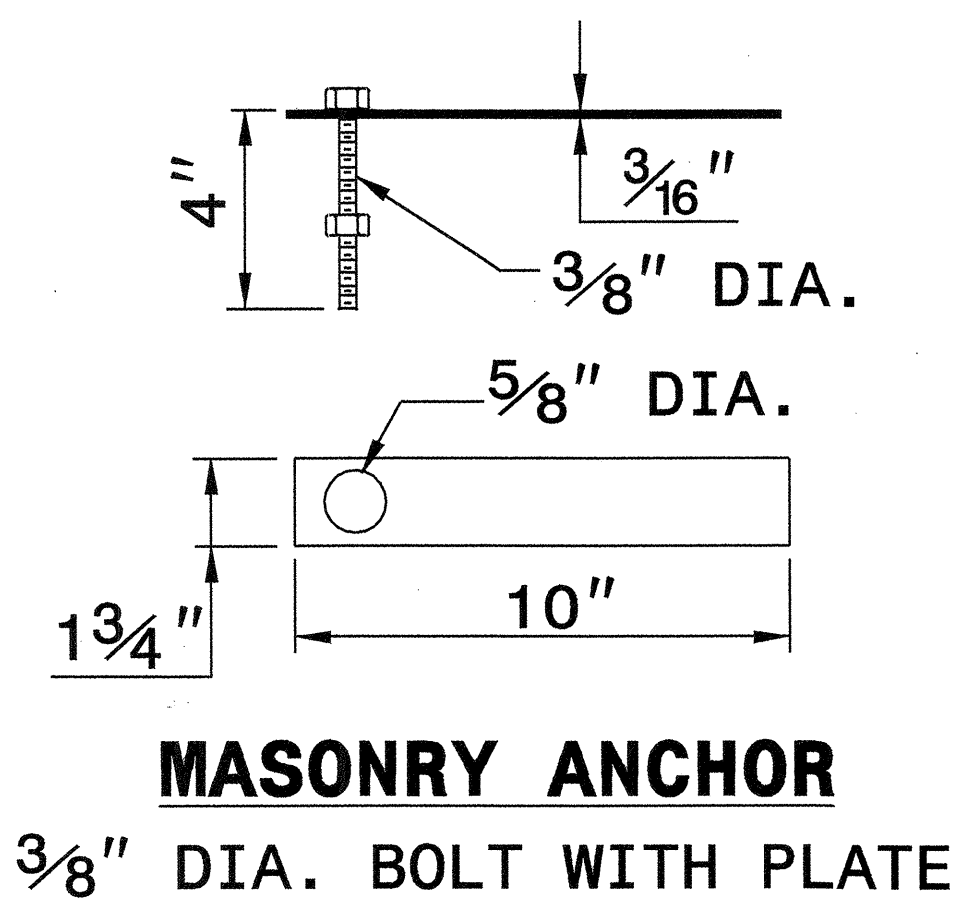
**CONCRETE CONSTRUCTION**



**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.



**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**

27-SEP-2006 09:01  
S:\Contracts\Conf\Projects\Special Details\ertward\stds\06\_3tds to Special Details\840D25 Anchorage for Frames\08-40d25.dgn  
ertward AT P5222293

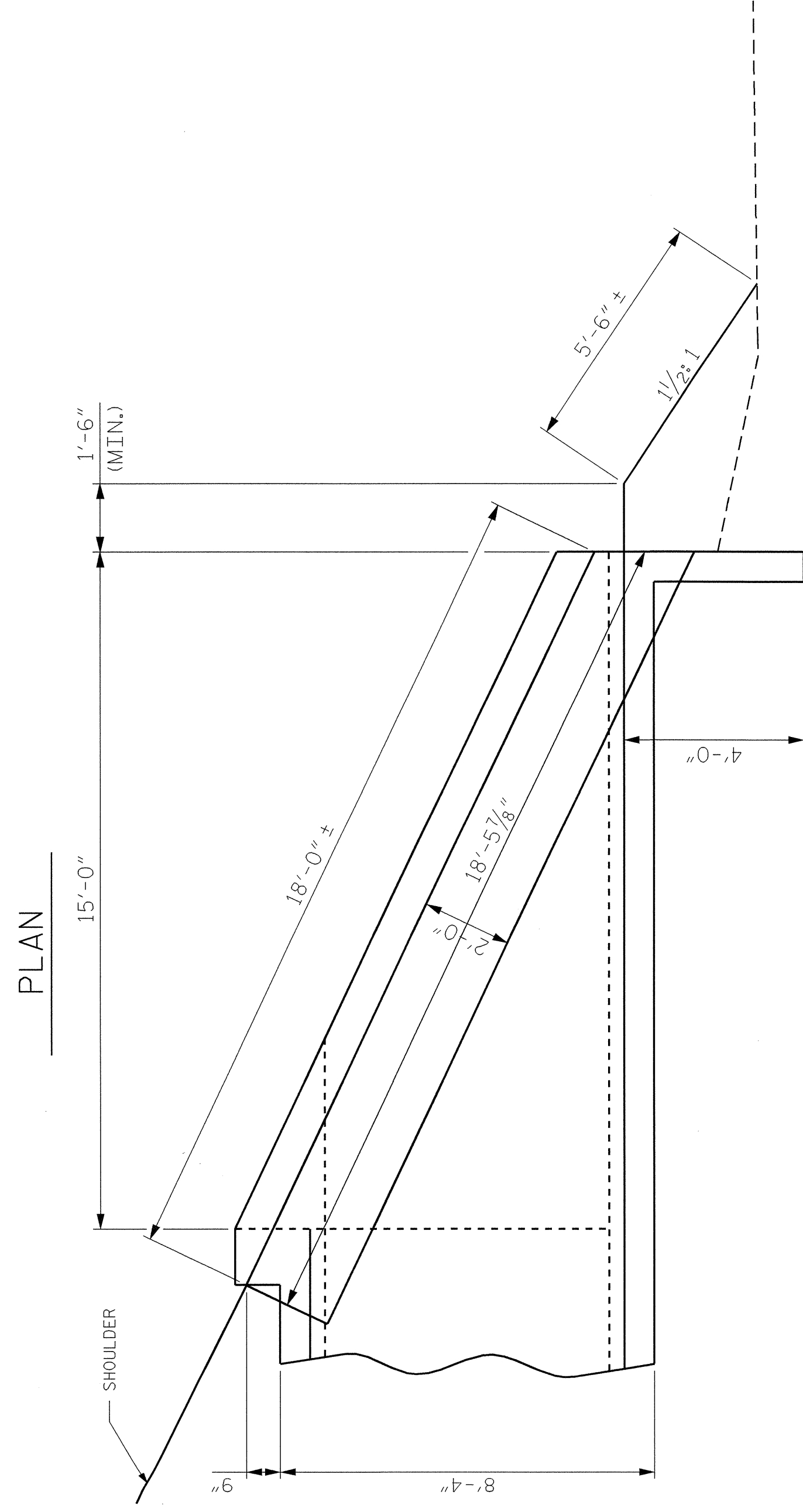
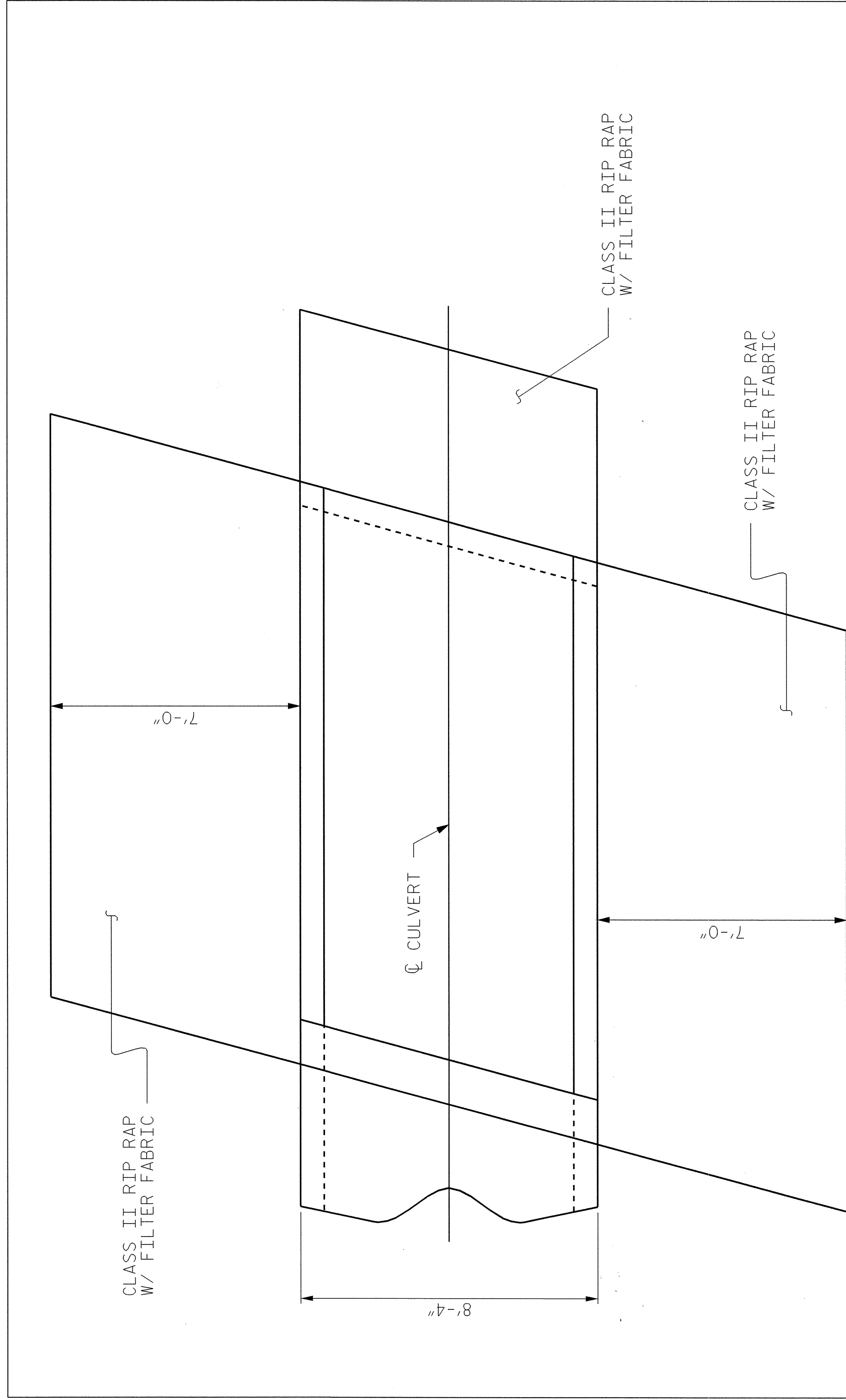


PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN  
Office 919-250-4128 FAX 919-250-4119

**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: J.S. Howerton DATE: 7/27/06  
FILE SPEC.:

STATE OF NORTH CAROLINA SUBJECT RIP RAP DETAILS PROJECT U-3401  
 DEPARTMENT OF TRANSPORTATION AT CULVERT OUTLET RANDOLPH COUNTY  
 DIVISION OF HIGHWAYS PREPARED BY LES DATE 1/2/07 STATION 30+24.50 -L-  
 HIGHWAY BUILDING P. O. BOX 25201 CHECKED BY DATE STR NO SHEET OF  
 RALEIGH, NORTH CAROLINA 27611



ELEVATION

RIP RAP DETAILS AT CULVERT OUTLET

PLAN QUANTITIES: 31 TONS CLASS II RIP RAP  
 35 SY FILTER FABRIC FOR DRAINAGE

12-MAR-2007 11:29  
 #####DGN#####  
 #####USERNAME#####

PROJECT REFERENCE NO. U-3401	SHEET NO. 2-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER GREGORY E. BREW NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19693 4-13-07	HYDRAULICS ENGINEER PAUL ATKINSON NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19690 4/13/07

6/2/99

PROJECT REFERENCE NO.		SHEET NO.	
U-3401		3	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS SUMMARY OF QUANTITIES

Sheet 1 of 2

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201276														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	1523000000-E	610	4,900	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	3030000000-E	862	850	LF	STEEL BM GUARDRAIL
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	1560000000-E	620	400	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	3045000000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
0043000000-N	226	Lump Sum		GRADING	1565000000-E	620	295	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22	3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	1693000000-E	654	100	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
0057000000-E	226	1,000	CY	UNDERCUT EXCAVATION	2220000000-E	838	8	CY	REINFORCED ENDWALLS	3210000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZATION	2253000000-E	840	6	CY	PIPE COLLARS	3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
0134000000-E	240	170	CY	DRAINAGE DITCH EXCAVATION	2264000000-E	840	1	CY	PIPE PLUGS	3360000000-E	863	200	LF	REMOVE EXISTING GUARDRAIL
0195000000-E	265	1,000	CY	SELECT GRANULAR MATERIAL	2286000000-N	840	66	EA	MASONRY DRAINAGE STRUCTURES	3628000000-E	876	16	TON	RIP RAP, CLASS I
0196000000-E	270	1,500	SY	FABRIC FOR SOIL STABILIZATION	2297000000-E	840	12	CY	MASONRY DRAINAGE STRUCTURES	3635000000-E	876	31	TON	RIP RAP, CLASS II
0199000000-E	SP	2,000	SF	TEMPORARY SHORING	2308000000-E	840	22	LF	MASONRY DRAINAGE STRUCTURES	3649000000-E	876	2	TON	RIP RAP, CLASS B
0255000000-E	SP	50	TON	GENERIC GRADING ITEM DISPOSAL OF CONTAMINATED SOIL	2364000000-N	840	10	EA	FRAME WITH TWO GRATES, STD 840.16	3656000000-E	876	576	SY	FILTER FABRIC FOR DRAINAGE
0318000000-E	300	659	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	2366000000-N	840	6	EA	FRAME WITH TWO GRATES, STD 840.24	4072000000-E	903	1,112	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
0343000000-E	310	68	LF	15" SIDE DRAIN PIPE	2374000000-N	840	6	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	4096000000-N	904	6	EA	SIGN ERECTION, TYPE D
0344000000-E	310	72	LF	18" SIDE DRAIN PIPE	2374000000-N	840	22	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	4102000000-N	904	21	EA	SIGN ERECTION, TYPE E
0414000000-E	310	12	LF	60" RC PIPE CULVERTS, CLASS III	2374000000-N	840	15	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	4108000000-N	904	15	EA	SIGN ERECTION, TYPE F
0426000000-E	310	16	LF	72" RC PIPE CULVERTS, CLASS III	2374000000-N	840	2	EA	FRAME WITH COVER, STD 840.54	4116100000-N	904	4	EA	SIGN ERECTION, RELOCATE, TYPE *** (GROUND MOUNTED) (E)
0588000000-E	310	36	LF	18" CS PIPE CULVERTS, 0.064" THICK	2396000000-N	840	2	EA	FRAME WITH GRATES, DRIVEWAY DROP INLET	4155000000-N	907	31	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
0594000000-E	310	32	LF	24" CS PIPE CULVERTS, 0.064" THICK	2418000000-E	SP	50	LF	FRAME WITH GRATES, DRIVEWAY DROP INLET	4400000000-E	1110	360	SF	WORK ZONE SIGNS (STATIONARY)
0995000000-E	340	1,634	LF	PIPE REMOVAL	2549000000-E	846	5,465	LF	2'-6" CONCRETE CURB & GUTTER	4405000000-E	1110	448	SF	WORK ZONE SIGNS (PORTABLE)
0996000000-N	350	1	EA	PIPE CLEAN-OUT	2591000000-E	848	2,400	SY	4" CONCRETE SIDEWALK	4410000000-E	1110	40	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
1110000000-E	510	50	TON	STABILIZER AGGREGATE	2605000000-N	848	34	EA	CONCRETE WHEELCHAIR RAMPS	4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
1220000000-E	545	500	TON	INCIDENTAL STONE BASE	2612000000-E	848	100	SY	6" CONCRETE DRIVEWAY	4430000000-N	1130	140	EA	DRUMS
1330000000-E	607	150	SY	INCIDENTAL MILLING	2619000000-E	850	10	SY	4" CONCRETE PAVED DITCH	4435000000-N	1135	30	EA	CONES
1491000000-E	610	4,200	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C	2647000000-E	852	1,000	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	4445000000-E	1145	100	LF	BARRICADES (TYPE III)
1503000000-E	610	4,600	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C						4450000000-N	1150	1,440	HR	FLAGGER
										4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS

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# STATE OF NORTH CAROLINA SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
447000000-N	1160	2	EA	RESET TEMPORARY CRASH CUSHIONS
448000000-N	1165	2	EA	TMIA
448500000-E	1170	580	LF	PORTABLE CONCRETE BARRIER
450000000-E	1170	170	LF	RESET PORTABLE CONCRETE BARRIER
451000000-N	SP	80	HR	POLICE
460000000-N	SP	20	EA	GENERIC TRAFFIC CONTROL ITEM TEMP CONC BARRIER DELINEATOR
465000000-N	1251	630	EA	TEMPORARY RAISED PAVEMENT MARKERS
468500000-E	1205	850	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	14,100	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
469500000-E	1205	1,600	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
471000000-E	1205	350	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
472100000-E	1205	2	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
472500000-E	1205	61	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
481000000-E	1205	63,600	LF	PAINT PAVEMENT MARKING LINES (4")
482000000-E	1205	6,800	LF	PAINT PAVEMENT MARKING LINES (8")
483500000-E	1205	800	LF	PAINT PAVEMENT MARKING LINES (24")
484000000-N	1205	4	EA	PAINT PAVEMENT MARKING CHARACTER
484500000-N	1205	122	EA	PAINT PAVEMENT MARKING SYMBOL
485000000-E	1205	2,800	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
490500000-N	1253	480	EA	SNOWPLOWABLE PAVEMENT MARKERS
494500000-N	1267	20	EA	FLEXIBLE DELINEATORS (CRYSTAL & RED)
525500000-N	1413	Lump Sum		PORTABLE LIGHTING
532560000-E	1510	64	LF	6" WATER LINE
532580000-E	1510	871	LF	8" WATER LINE
554600000-E	1515	2	EA	8" VALVE
555800000-E	1515	1	EA	12" VALVE
564800000-N	1515	17	EA	RELOCATE WATER METER
564900000-N	1515	3	EA	RECONNECT WATER METER
567200000-N	1515	2	EA	RELOCATE FIRE HYDRANT
580100000-E	1530	1,305	LF	ABANDON 8" UTILITY PIPE
587190000-E	1550	34	LF	TRENCHLESS INSTALLATION OF 16" IN SOIL
587191000-E	1550	34	LF	TRENCHLESS INSTALLATION OF 16" NOT IN SOIL
588200000-N	SP	1	EA	GENERIC UTILITY ITEM REMOVE EXISTING VALVE & VALVE BOX
600000000-E	1605	2,850	LF	TEMPORARY SILT FENCE
600600000-E	1610	1,530	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	585	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	1,550	TON	SEDIMENT CONTROL STONE
601500000-E	1615	10	ACR	TEMPORARY MULCHING
601800000-E	1620	350	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	60	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	135	LF	SAFETY FENCE
603000000-E	1630	4,600	CY	SILT EXCAVATION
603600000-E	1631	2,100	SY	MATting FOR EROSION CONTROL
603700000-E	SP	40	SY	COIR FIBER MAT
603800000-E	SP	2,450	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	200	LF	1/4" HARDWARE CLOTH

ItemNumber	Sec #	Quantity	Unit	Description
604500000-E	SP	30	LF	*** TEMPORARY PIPE (18")
604500000-E	SP	240	LF	*** TEMPORARY PIPE (24")
606900000-E	1638	27	CY	STILLING BASINS
6071030000-E	SP	725	LF	COIR FIBER BAFFLES
6071050000-E	SP	5	EA	*** SKIMMER (2")
6071050000-E	SP	1	EA	*** SKIMMER (2-1/2")
608400000-E	1660	10.5	ACR	SEEDING & MULCHING
608700000-E	1660	6	ACR	MOWING
609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	250	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	8	TON	FERTILIZER TOPDRESSING
611100000-E	SP	100	LF	IMPERVIOUS DIKE
611400000-N	SP	2.5	HR	SPECIALIZED HAND MOWING
611700000-N	SP	8	EA	RESPONSE FOR EROSION CONTROL
612300000-E	1670	0.1	ACR	REFORESTATION
706000000-E	1705	3,710	LF	SIGNAL CABLE
712000000-E	1705	26	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
714400000-E	1705	4	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
726400000-E	1710	1,240	LF	MESSENGER CABLE (3/8")
727900000-E	1715	2,040	LF	TRACER WIRE
728800000-E	1715	180	LF	PAVED TRENCHING (*****) (1 CONDUIT, 2")
730000000-E	1715	1,100	LF	UNPAVED TRENCHING (*****) (1 CONDUIT, 2")
730100000-E	1715	1,770	LF	DIRECTIONAL DRILL (*****) (1 CONDUIT, 2")
732400000-N	1716	12	EA	JUNCTION BOX (STANDARD SIZE)
734800000-N	1716	6	EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
736000000-N	1720	4	EA	WOOD POLE
737200000-N	1721	8	EA	GUY ASSEMBLY
740800000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
742000000-E	1722	2	EA	2" RISER WITH WEATHERHEAD
744400000-E	1725	2,420	LF	INDUCTIVE LOOP SAWCUT
745600000-E	1726	7,860	LF	LEAD-IN CABLE (*****) (18-2) (1600' of 18-4 pair)
751600000-E	1730	2,040	LF	COMMUNICATIONS CABLE (**FIBER) (12)
755200000-N	1731	1	EA	INTERCONNECT CENTER
756400000-N	1732	1	EA	FIBER-OPTIC TRANSCEIVER, DROP & REPEAT
756600000-N	1733	5	EA	DELINEATOR MARKER
757400000-N	SP	1	EA	FURNISH FIBER-OPTIC TRANSCEIVER
757516000-E	1734	1,870	LF	REMOVE EXISTING COMMUNICATIONS CABLE
757600000-N	SP	4	EA	METAL STRAIN SIGNAL POLE
761300000-N	SP	4	EA	SOIL TEST
761410000-E	SP	24	CY	DRILLED PIER FOUNDATION
763600000-N	1745	2	EA	SIGN FOR SIGNALS
768400000-N	1750	1	EA	SIGNAL CABINET FOUNDATION
775600000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
778000000-N	1751	10	EA	DETECTOR CARD (TYPE 2070L)
790100000-N	1753	1	EA	CABINET BASE EXTENDER

\*\*\*\*\* BEGIN SCHEDULE AA \*\*\*\*\*  
\*\*\*\*\* (3 ALTERNATES) \*\*\*\*\*

ItemNumber	Sec #	Quantity	Unit	Description
037200000-E	310	676	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	628	LF	24" RC PIPE CULVERTS, CLASS III
038400000-E	310	736	LF	30" RC PIPE CULVERTS, CLASS III
*** OR ***				
036000000-E	310	838	LF	12" RC PIPE CULVERTS, CLASS III
036600000-E	310	1,836	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	296	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	128	LF	24" RC PIPE CULVERTS, CLASS III
038400000-E	310	172	LF	30" RC PIPE CULVERTS, CLASS III
053600000-E	SP	116	LF	**** HDPE PIPE CULVERTS (12")
053600000-E	SP	264	LF	**** HDPE PIPE CULVERTS (15")
053600000-E	SP	380	LF	**** HDPE PIPE CULVERTS (18")
053600000-E	SP	500	LF	**** HDPE PIPE CULVERTS (24")
053600000-E	SP	564	LF	**** HDPE PIPE CULVERTS (30")
*** OR ***				
036000000-E	310	838	LF	12" RC PIPE CULVERTS, CLASS III
036600000-E	310	1,836	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	296	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	128	LF	24" RC PIPE CULVERTS, CLASS III
038400000-E	310	172	LF	30" RC PIPE CULVERTS, CLASS III
054000000-E	SP	116	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (12", 0.064")
054000000-E	SP	264	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
054000000-E	SP	380	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (18", 0.064")
054000000-E	SP	500	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24", 0.064")
054000000-E	SP	564	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (30", 0.064")

\*\*\*\*\* END SCHEDULE AA \*\*\*\*\*



4/04/06

COMPUTED BY: C.J. TILLMAN DATE: DEC. 20, 2006  
CHECKED BY: W.T. BEST DATE: JAN. 30, 2007

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. U-3401  
SHEET NO. 3-A

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

Table with columns for Station, Location, Structure No., Top Elevation, Invert Elevation, Slope Critical, Class III R.C. Pipe, C.S. Pipe, Class III R.C. Pipe, Endwalls, R.C.P., C.S.P., Frame, Grates and Hood Standard, Type of Grate, and Remarks. Includes a summary row at the bottom for SHEET TOTAL.

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4/04/06

COMPUTED BY: C.J. TILLMAN DATE: DEC. 20, 2006  
CHECKED BY: W.T. BEST DATE: JAN. 30, 2007

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. U-3401  
SHEET NO. 3-C

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

Table with columns for Station, Location, Structure No., Top Elevation, Invert Elevation, Slope Critical, Pipe Size (12" to 48"), Class III R.C. Pipe, C.S. Pipe, Class III R.C. Pipe, Endwalls, Quantities for Drainage Structures, Frame, Grates and Hood Standard, Type of Grate, and Remarks. Includes a SHEET TOTAL row at the bottom.

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4/04/06

COMPUTED BY: C.J. TILLMAN DATE: DEC. 20, 2006  
CHECKED BY: W.T. BEST DATE: JAN. 30, 2007

PROJECT REFERENCE NO. SHEET NO.  
U-3401 3-D

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

Table with columns: STATION, LOCATION (LT, RT, OR CU), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, CLASS III R.C. PIPE, C.S. PIPE, CLASS III R.C. PIPE OR C.S. PIPE, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES AND HOOD STANDARD, TYPE OF GRATE, CORR. STEEL ELBOWS, CONC. COLLARS, CONC. & BRICK PIPE PLUG, PIPE REMOVAL, ABBREVIATIONS, REMARKS.

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COMPUTED BY: C.J. TILLMAN DATE: DEC. 20, 2006  
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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. U-3401  
 SHEET NO. 3-E

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION	LOCATION (L, R, OR CL)		STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)						C.S. PIPE						STRUCTURAL PLATE PIPE				REINFORCED ENDWALLS		MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03			J.B. (DETAIL SHEET 2-6)	M.H. FRAME & COVER STD. 840.54	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & SIZE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	PIPE REMOVAL LIN.FT.	REMARKS
	SIZE		FROM	TO					54"	60"	66"	72"	78"	84"	54"	60"	66"	72"	60"	66"	72"		WITH R.C. - C.Y.	WITH C.S. - C.Y.	E	F			G											
THICKNESS OR GAUGE									.109	.138	.168	.138	.168	.138	.168	.138	.168	.12	.10	.12	.10	.12	.10																	
30+08.34 -Y-			33		783J	771.27																		11.4				1	1											
30+02.41 -Y-	LT.		31	33		771.3+/-	771.27	12'																											2.85	REM. 12' +/- EXIST. 60" CONC. NO QUANTITY				
30+10.36 -Y-	LT.		32	33		775.50	774.9						16'																						2.85	REM. 10' +/- EXIST. 60" CONC. NO QUANTITY				
SHEET TOTAL																																								

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COMPUTED BY: C.J. TILLMAN DATE: DEC. 10, 2006  
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PROJECT REFERENCE NO. U-3401  
 SHEET NO. 3-F

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

"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	CAT-1	AT-1					PERMITTED													
																						NO.		G	NG										
-L-	10+00.00	14+12.50	LEFT	412.50'				13+50.00	2'	10' BERM		50'		1																		TIE TO EXIST GUARDRAIL AT THE BEGINNING			
-Y-	17+12.81	19+49.29	RIGHT	212.50'	50'				2'	10' BERM	50'	50'		1																					
-Y-	28+25.00	32+20.79	RIGHT	400.00'				29+50.00	8'	11'	50'	50'		9'																					
			SUB-TOTAL	1025.00'	50'																3	1	1												
			DEDUCTION FOR GUARDRAIL ANCHOR UNITS	-162.50'																															
			TOTAL	862.50'	50'																														
			SAY	850.00'	50'																														
			10 EA ADDITIONAL GUARDRAIL POST																																
																	DEDUCTIONS FOR GUARDRAIL ANCHOR UNITS																		
																	GRAU TYPE 350					3 AT 50' EA = 150.00'													
																	GRAU CAT-1					1 AT 6.25' = 6.25'													
																	GRAU AT-1					1 AT 6.25' = 6.25'													
																						TOTAL 162.50'													

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DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**  
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
<b>SUMMARY NO. 1</b>					
10+00.00 TO 19+31.13 -L- RT. SIDE	93		840	747	0
23+00.00 TO 35+50.00 -Y- RT. SIDE	666		1066	400	0
<b>TOTAL SUMMARY NO. 1</b>	<b>759</b>		<b>1906</b>	<b>1147</b>	<b>0</b>
<b>SUMMARY NO. 2</b>					
10+00.00 TO 18+83.74 -L- LT. SIDE	133		1982	1849	0
10+00.00 TO 21+00.00 -Y- RT. SIDE	581		3902	3321	0
<b>TOTAL SUMMARY NO. 2</b>	<b>714</b>		<b>5885</b>	<b>5171</b>	<b>0</b>
<b>SUMMARY NO. 3</b>					
19+82.03 TO 24+21.00 -L- RT. SIDE	194		31	0	163
<b>PHASE 1 -Y- ON-SITE DETOUR</b>					
28+00.00 TO 30+00.00 -Y- LT. SIDE	114		55	0	58
31+00.00 TO 33+00.00 -Y- LT. SIDE	55		139	85	
<b>PHASE 3 -Y- LT. SIDE</b>					
23+00.00 TO 34+00.00 -Y- LT. SIDE	576		350	0	226
<b>PHASE 1 -Y2- ON-SITE DETOUR</b>					
10+80.00 TO 11+50.00 -Y2- LT. SIDE	5		4	0	0
<b>PHASE 2 -Y2- RT. SIDE</b>					
10+00.00 TO 11+00.00 -Y2- RT. SIDE	7		22	15	0
<b>PHASE 3 -Y2- LT. SIDE</b>					
10+00.00 TO 11+00.00 -Y2- LT. SIDE	60		18	0	42
<b>TOTAL SUMMARY NO. 3</b>	<b>1011</b>		<b>619</b>	<b>100</b>	<b>490</b>
<b>SUMMARY NO. 4</b>					
19+36.87 TO 24+21.00 -L- LT. SIDE	351		112	0	239
5+50.00 TO 21+00.00 -Y- LT. SIDE	1532		359	0	1173
10+00.00 TO 11+75.00 -Y1-	519		12	0	507
<b>TOTAL SUMMARY NO. 4</b>	<b>2402</b>		<b>482</b>	<b>0</b>	<b>1920</b>
<b>SUMMARY TOTALS</b>	<b>4886</b>		<b>8892</b>	<b>6417</b>	<b>2409</b>
LOSS DUE TO CLEARING AND GRUBBING	-475			475	
WASTE TO BE USED IN LIEU OF BORROW				-2409	-2409
<b>PROJECT TOTAL</b>	<b>4404</b>			<b>4483</b>	
EST. 5% FOR REPLACING TOPSOIL AT					
BORROW PIT				224	
<b>GRAND TOTAL</b>	<b>4404</b>			<b>4707</b>	
<b>SAY</b>	<b>4500</b>			<b>4800</b>	
		EST. 1000 CY UNDERCUT			
		EST. 170CY DDE			

**SUMMARY OF ASPHALT PAVEMENT REMOVAL**  
 IN SQUARE YARDS

LINE	STATION TO STATION	LOCATION	ASPHALT REMOVAL
-Y-	30+10.42 TO 30+38.50	CENTERLINE	126
-YDET-	28+02.42 TO 30+37.77	CENTERLINE	331
-YDET-	30+69.34 TO 33+34.65	CENTERLINE	432
-Y1-	10+75.00 TO 12+10.86	CENTERLINE	337
-Y2-	10+95.89 TO 11+58.47	LT.	26
		<b>TOTAL</b>	<b>1252</b>
		<b>SAY</b>	<b>1260</b>

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

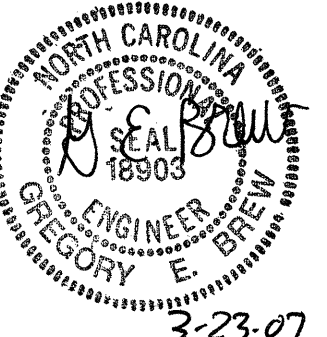
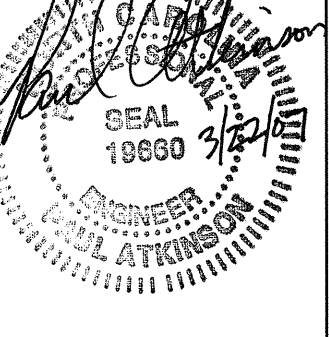
NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

5/9/06

13-MAR-2007 08:20 C:\01\RDY\_SUM.dgn





PROJECT REFERENCE NO.		SHEET NO.	
U-3401		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 GREGORY E. BREW 3-23-07		 GREG L. ATKINS	

NOTE: FOR -L- PROFILE SEE SHEET 9

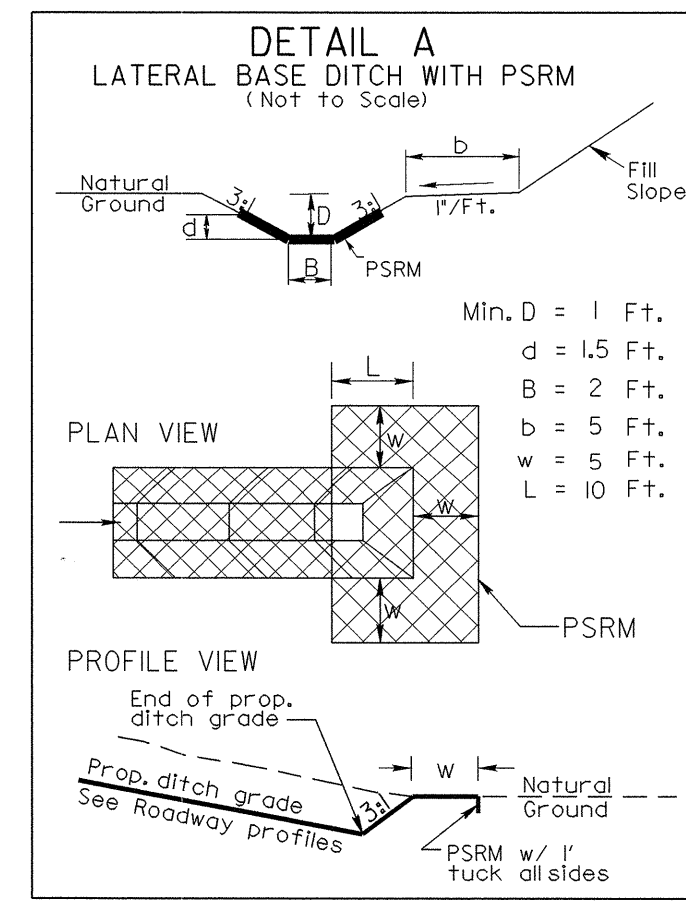
PROP. 4" CONC. SIDEWALK, AND 5" MONOLITHIC CONC. ISLANDS

-L-

PI Sta 14+68.78  
 $\Delta = 10^{\circ} 20' 42.3" (LT)$   
 $D = 1^{\circ} 20' 00.0"$   
 $L = 775.88'$   
 $T = 389.00'$   
 $R = 4,297.18'$   
 $e = .03$

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3401-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 710365.8988(1) EASTING: 176656.18278(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999871400 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3401-1" TO -L- STATION 9+00.00 IS S 47° 23' 56.08" W 1494.30' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29



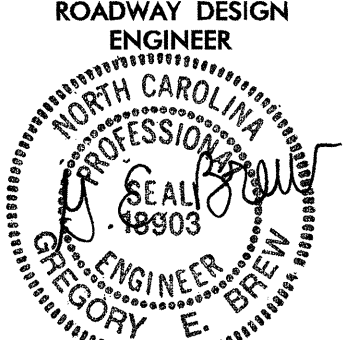
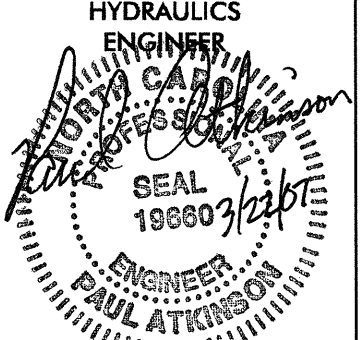
STA. 9+00.00 -L- BEGIN TIP PROJECT U-3401

STA. 10+00.00 BEGIN WIDENING AND AND RESURFACING

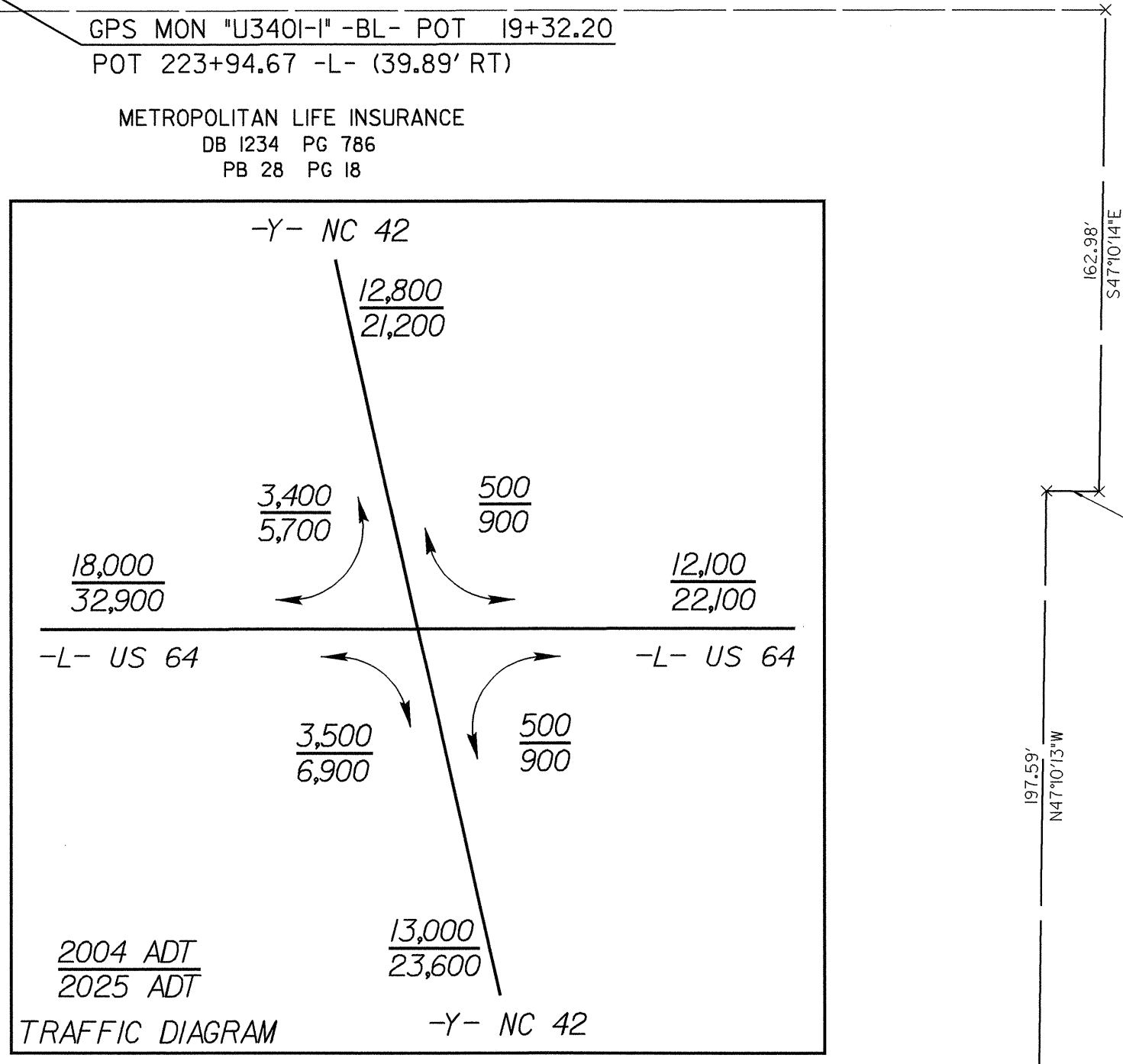
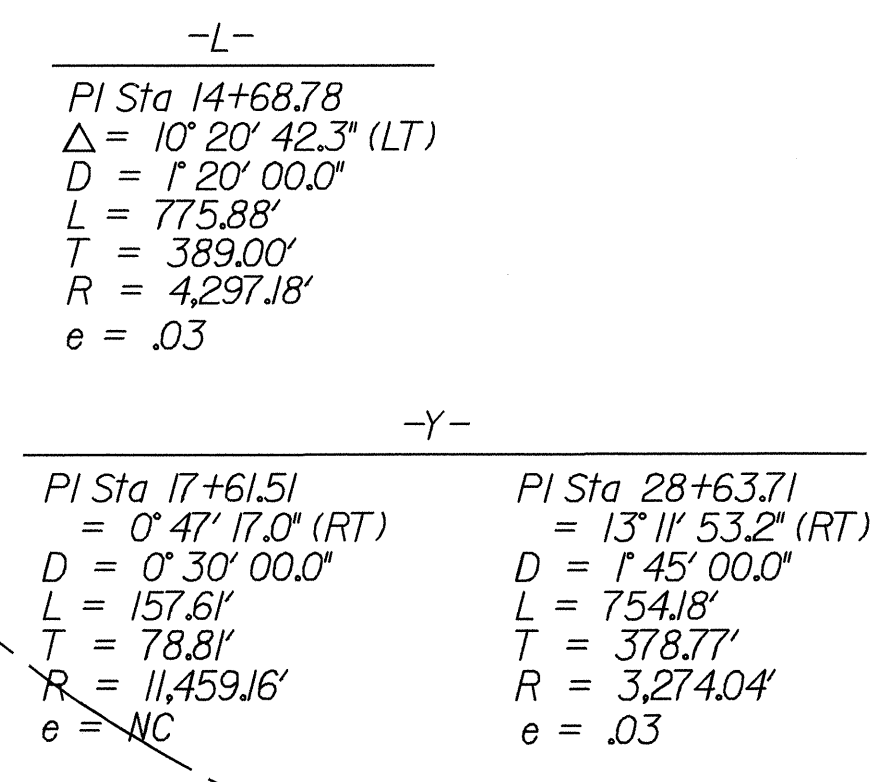
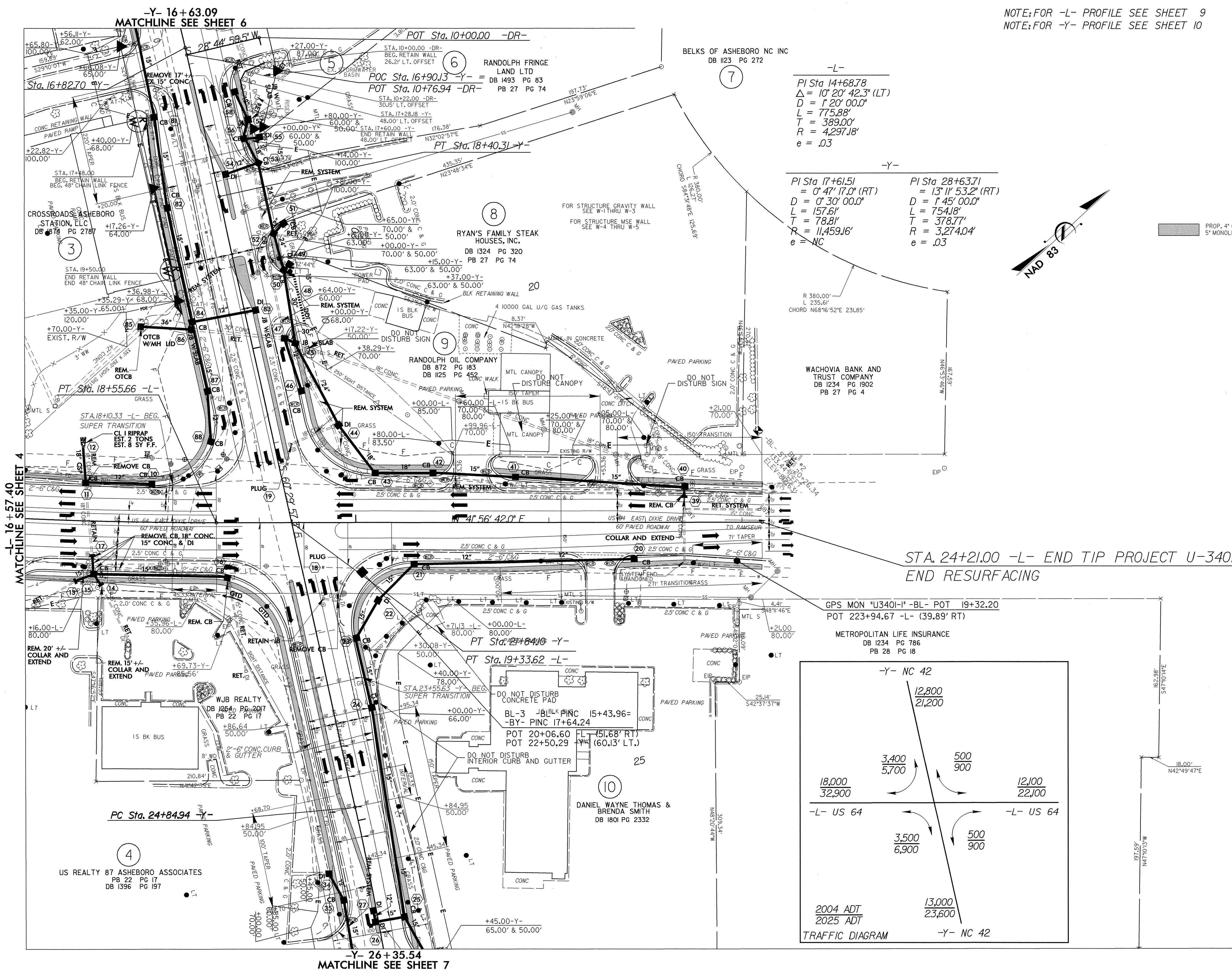
-L- 16 + 57.40  
MATCHLINE SEE SHEET 5

US REALTY 87 ASHEBORO ASSOCIATES  
PB 22 PG 17  
DB 1386 PG 197

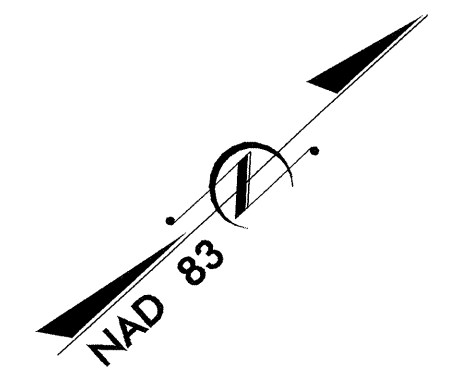
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PROJECT REFERENCE NO.	SHEET NO.
U-3401	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
3-23-07	

NOTE: FOR -L- PROFILE SEE SHEET 9  
 NOTE: FOR -Y- PROFILE SEE SHEET 10



PROP. 4" CONC. SIDEWALK, AND 5" MONOLITHIC CONC. ISLANDS



8/17/99  
 22-MAR-2007 11:35 U:\3401\1\_r.dwg psh05.dgn  
 8:38:51 USER:GREGORY

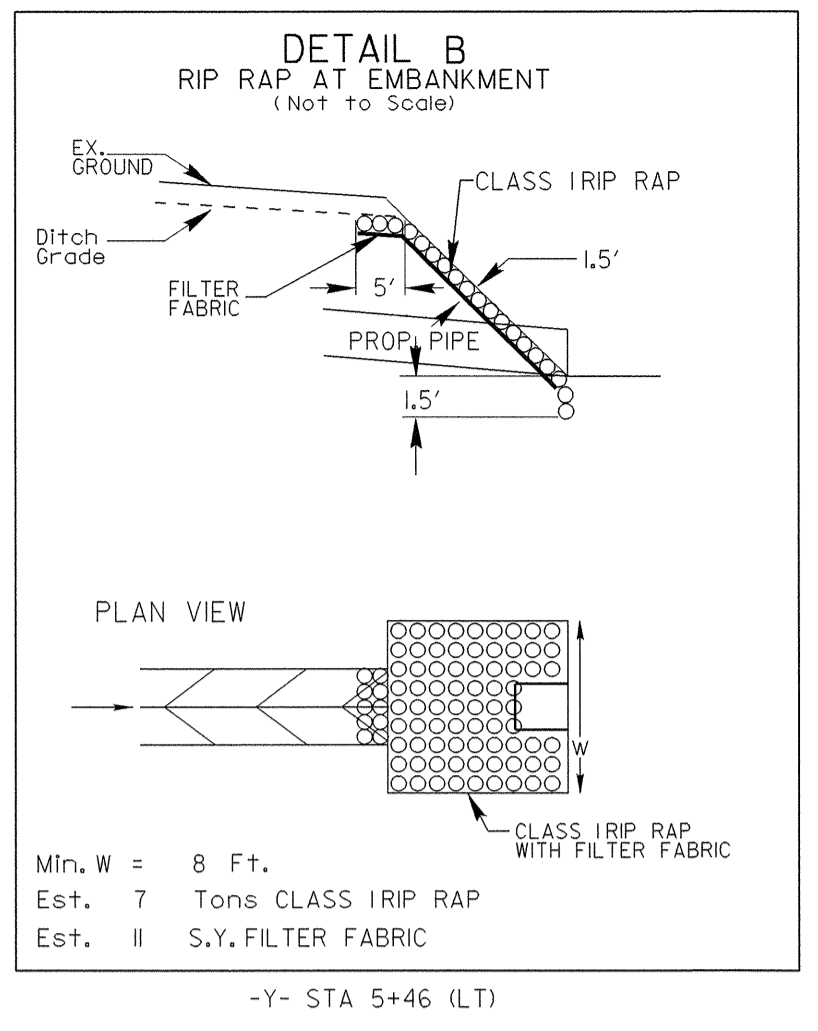
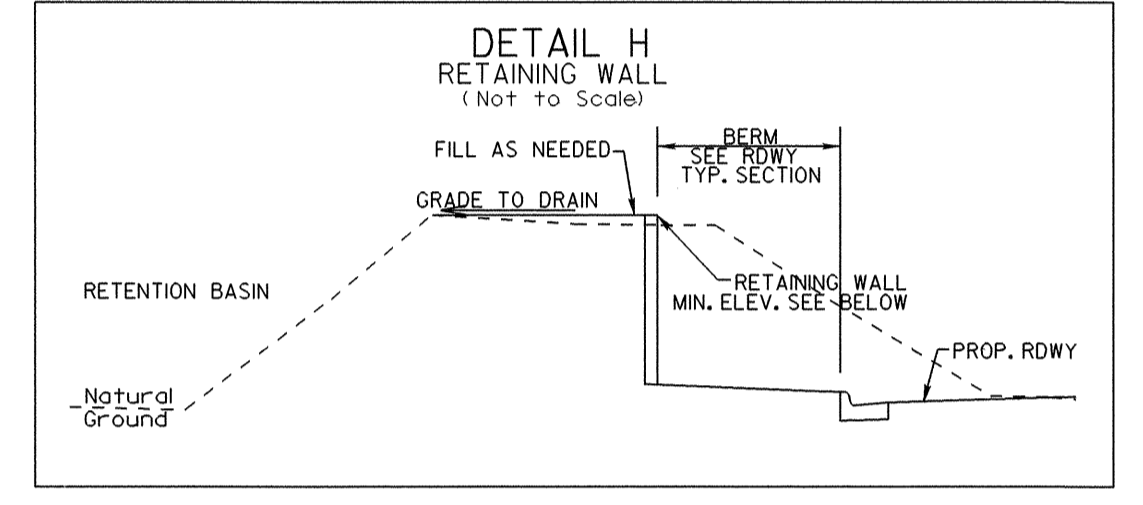
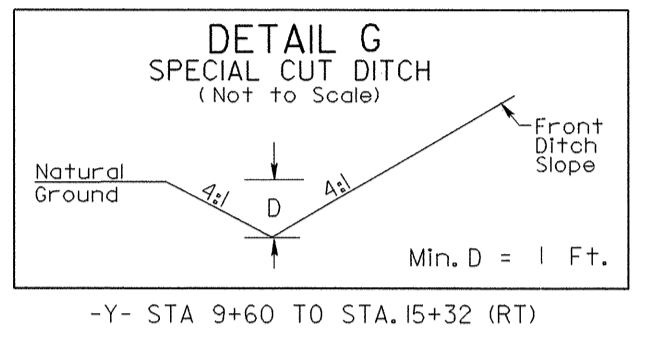
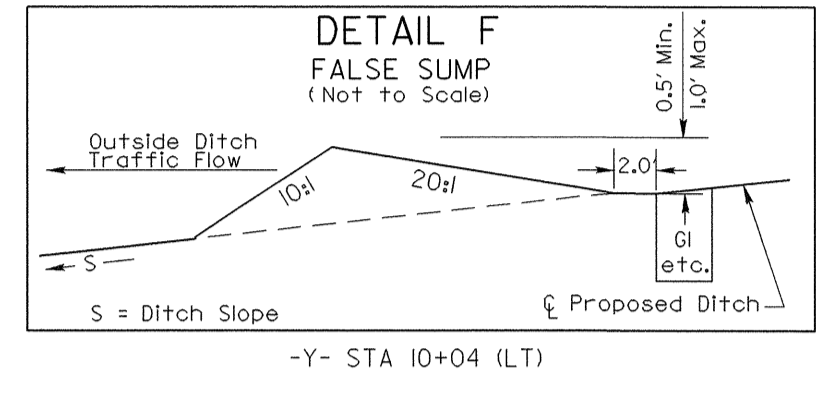
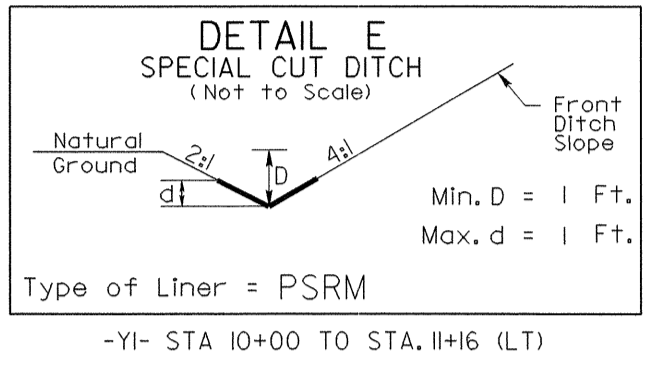
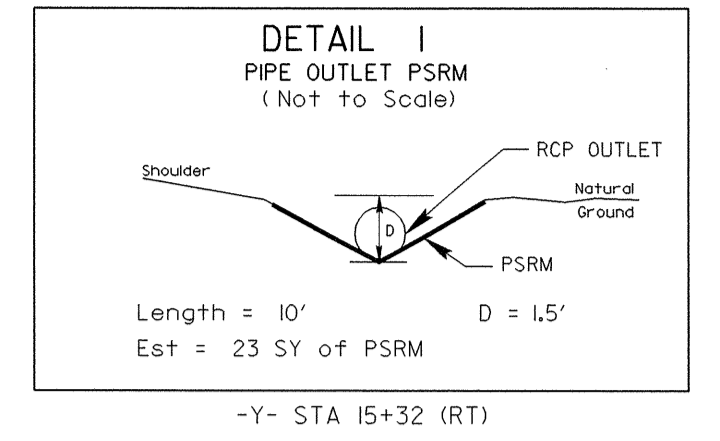
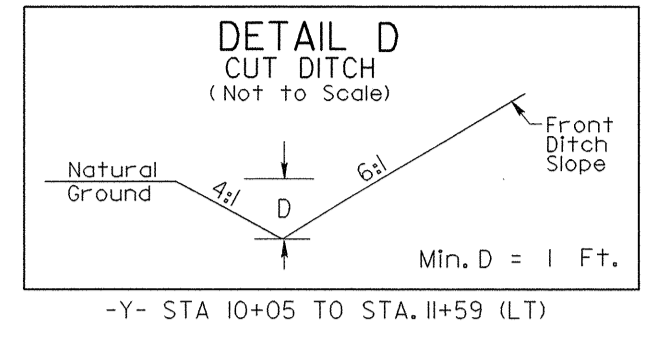
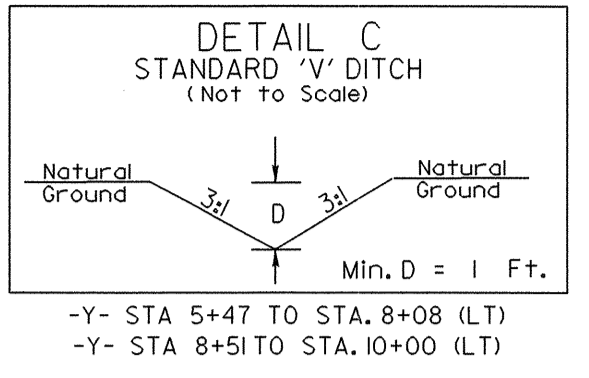
MATCHLINE SEE SHEET 4

-Y- 16+63.09  
MATCHLINE SEE SHEET 6

-Y- 26+35.54  
MATCHLINE SEE SHEET 7

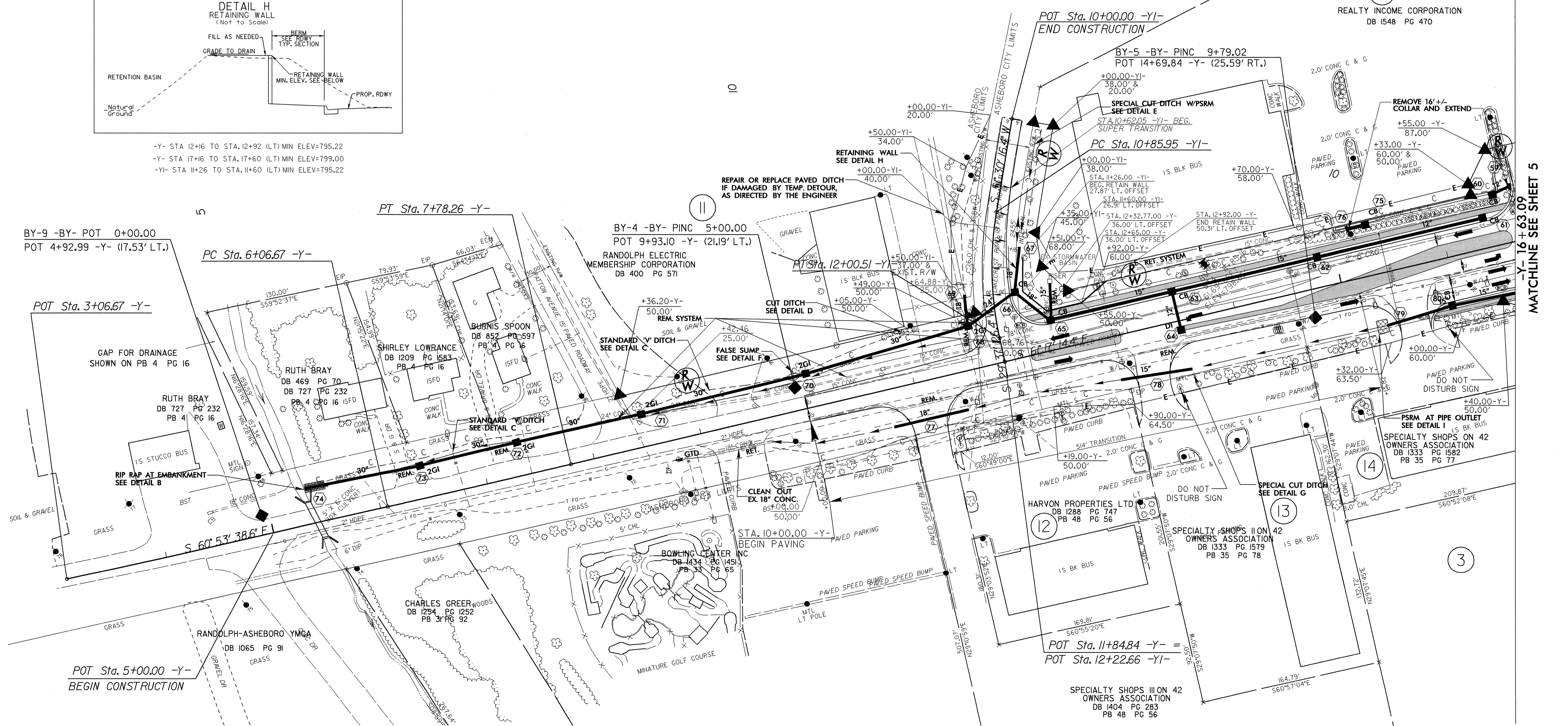
STA. 24+21.00 -L- END TIP PROJECT U-3401  
END RESURFACING

PROJECT REFERENCE NO. U-3401	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 48903 GREGORY E. BREWER	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 18660 PAUL ATKINSON
3-23-07	



NOTE: FOR -Y- PROFILE SEE SHEET 10  
NOTE: FOR -YI- PROFILE SEE SHEET 11

-Y-	-YI-
PI Sta 6+92.47	PI Sta 11+43.94
D = 0' 23' 35.7" (LT)	D = 2' 52' 50.0" (LT)
D = 0' 13' 45.1"	D = 19' 05' 54.9"
L = 171.59'	L = 114.57'
T = 85.80'	T = 57.99'
R = 25,000.00'	R = 300.00'
	e = RC

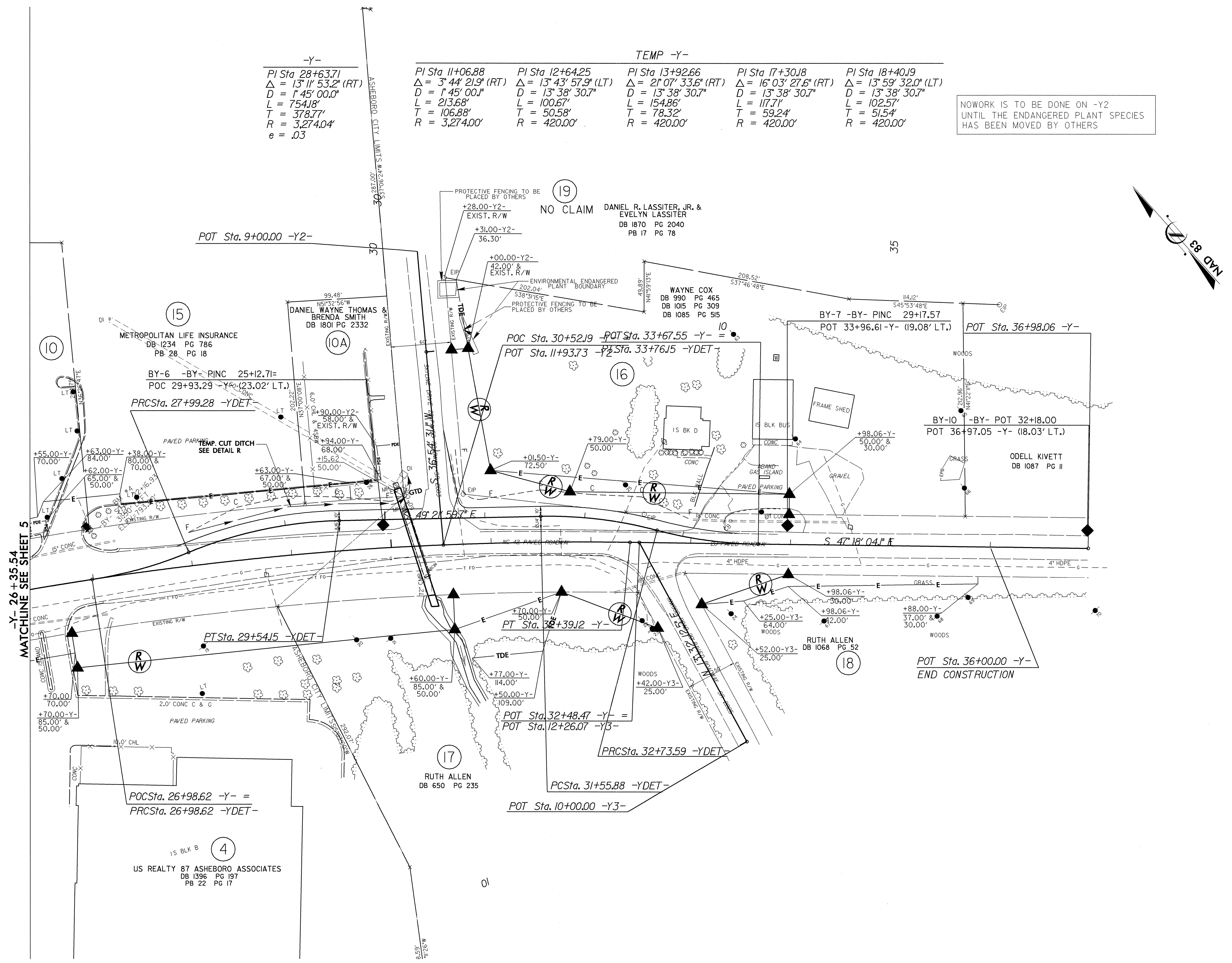


MATCHLINE SEE SHEET 5



-Y-	TEMP -Y-				
PI Sta 28+63.71 Δ = 13° 11' 53.2" (RT) D = 1' 45' 00.0" L = 754.18' T = 378.77' R = 3,274.04' e = .03	PI Sta 11+06.88 Δ = 3° 44' 21.9" (RT) D = 1' 45' 00.1" L = 213.68' T = 106.88' R = 3,274.00'	PI Sta 12+64.25 Δ = 13° 43' 57.9" (LT) D = 13' 38' 30.7" L = 100.67' T = 50.58' R = 420.00'	PI Sta 13+92.66 Δ = 2° 07' 33.6" (RT) D = 13' 38' 30.7" L = 154.86' T = 78.32' R = 420.00'	PI Sta 17+30.18 Δ = 16° 03' 27.6" (RT) D = 13' 38' 30.7" L = 117.71' T = 59.24' R = 420.00'	PI Sta 18+40.19 Δ = 13° 59' 32.0" (LT) D = 13' 38' 30.7" L = 102.57' T = 51.54' R = 420.00'

NOWORK IS TO BE DONE ON -Y2 UNTIL THE ENDANGERED PLANT SPECIES HAS BEEN MOVED BY OTHERS

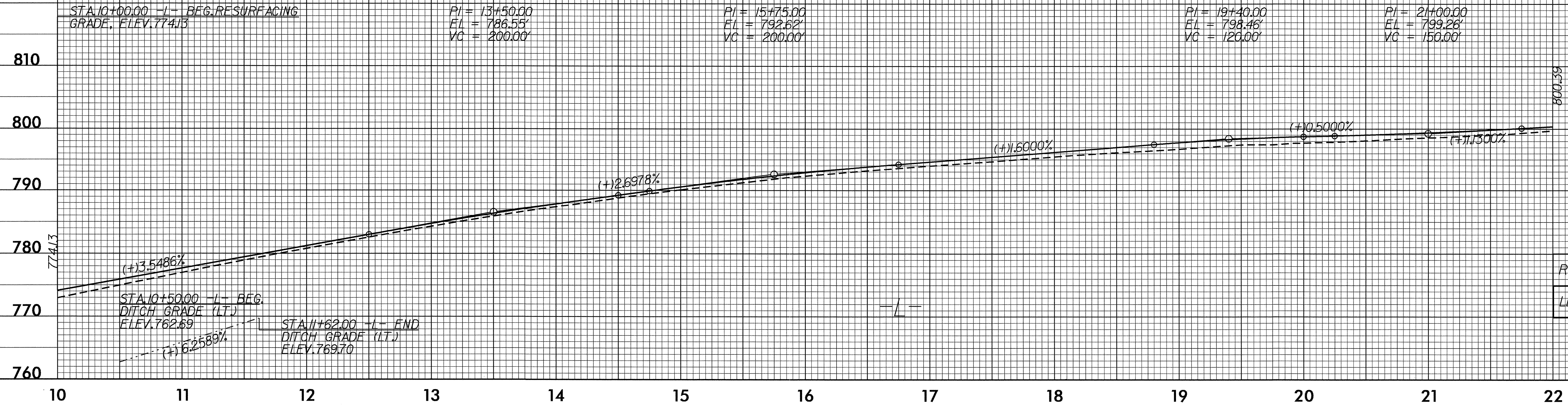


MATCHLINE SEE SHEET 5

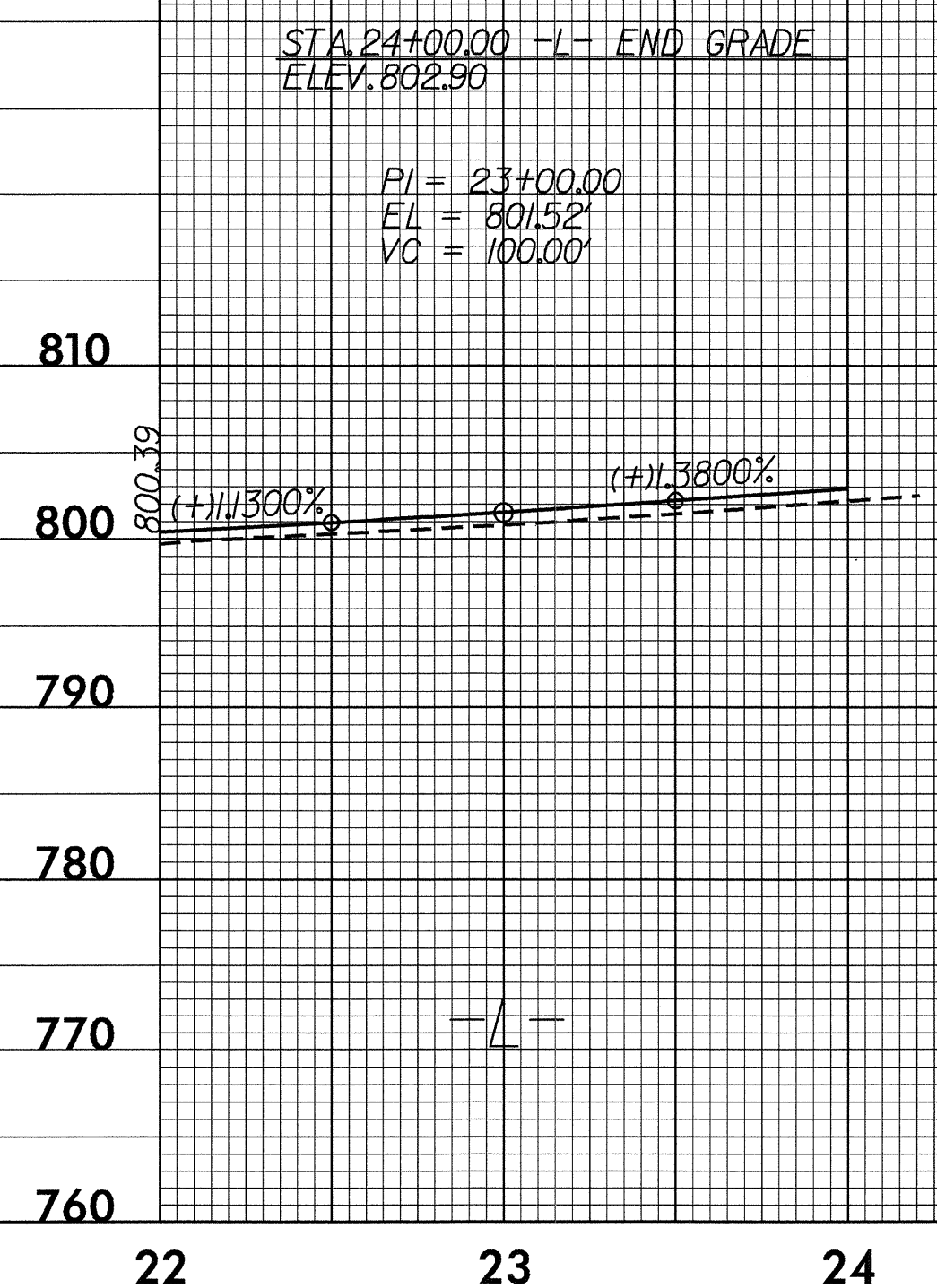
5/28/99

BM\*1 (N 70947) E 765551  
RR SPIKE LOCATED 38' LEFT OF  
STA 10+42.00 -L- IN BASE OF  
POWER POLE  
ELEV. 775.32

PROJECT REFERENCE NO. U-3401	SHEET NO. 9
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 18903 GREGORY E. BIEHL	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 19680 PAUL ATKINSON
5-21-07	




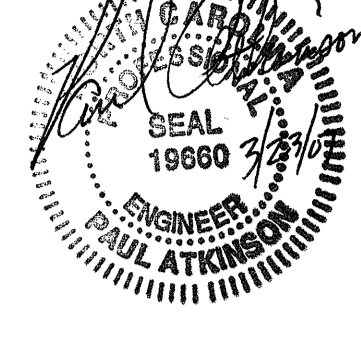
BM\*2 (N 710472 E 766477)  
RR SPIKE LOCATED 94' LEFT OF STA 24+17.00 -L-  
IN BETWEEN PAVEMENT AND CURB AND GUTTER  
IN SOUTHEAST CORNER OF WACHPVA PARKING LOT  
ELEV. 812.63

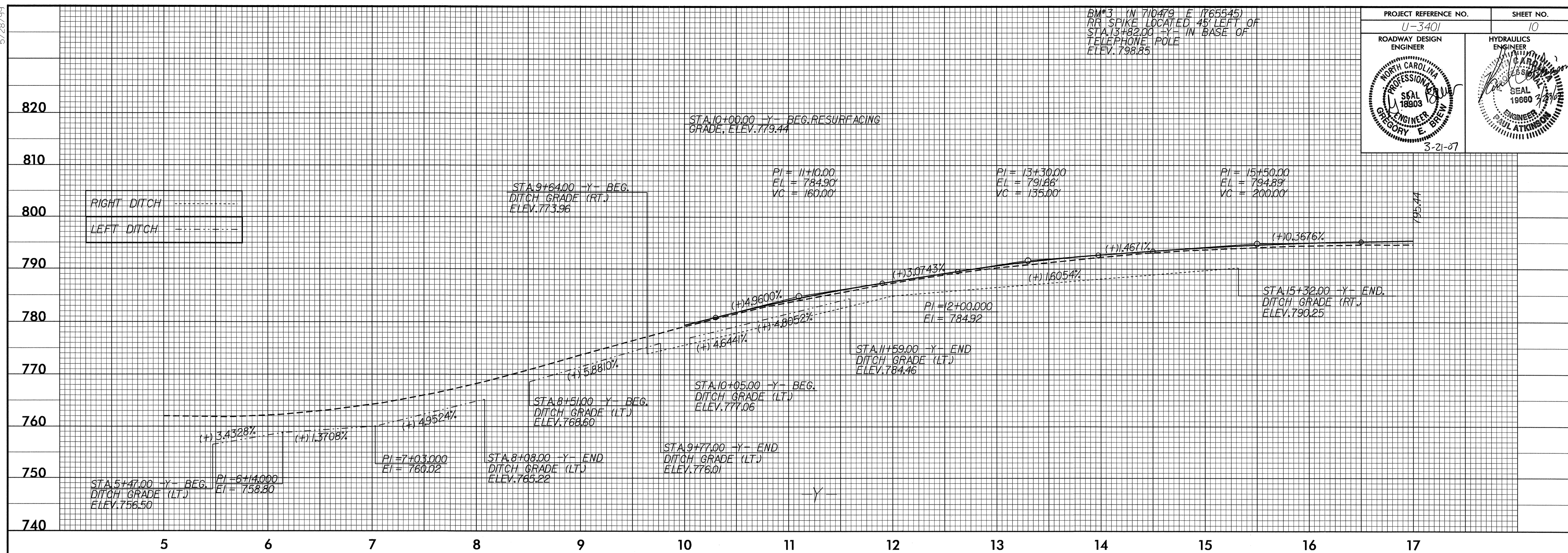


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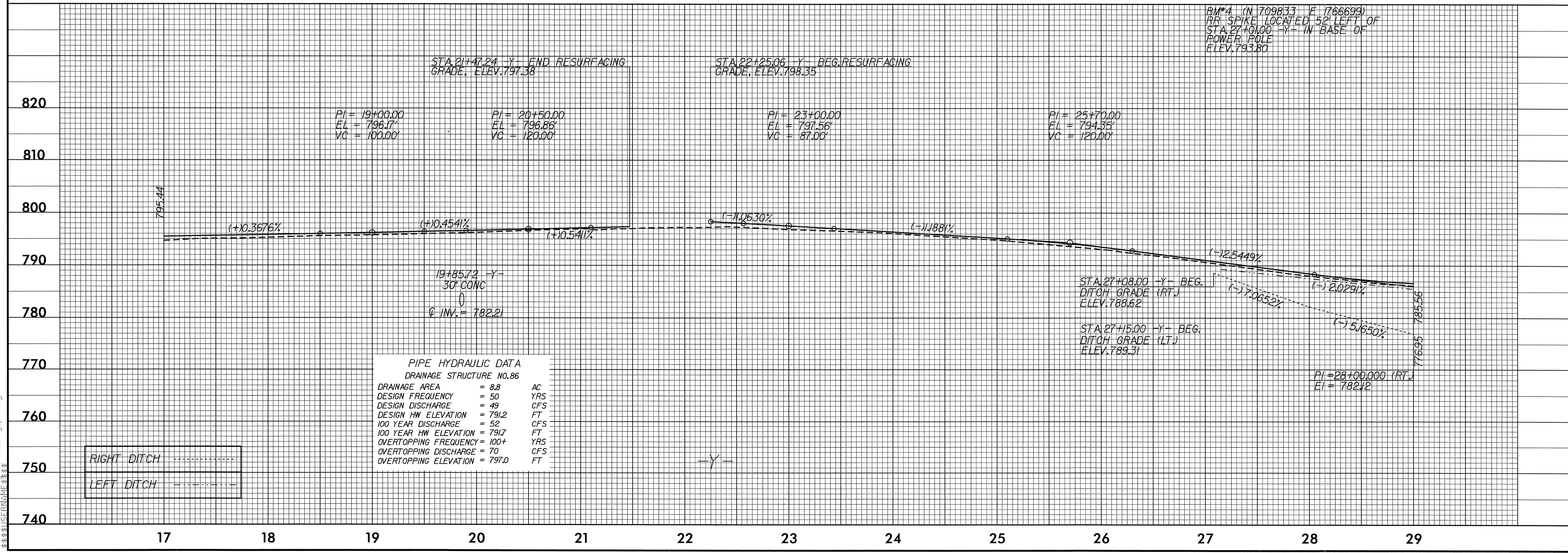
5/28/99

BM#3 (N 710479 E 1765545)  
RR SPIKE LOCATED 45' LEFT OF  
STA 13+82.00 -Y- IN BASE OF  
TELEPHONE POLE  
ELEV. 798.85

PROJECT REFERENCE NO. U-3401	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
3-21-07	



20-MAR-2007 08:52:401-rdy-p1.dgn  
63388025ENAM1E8336

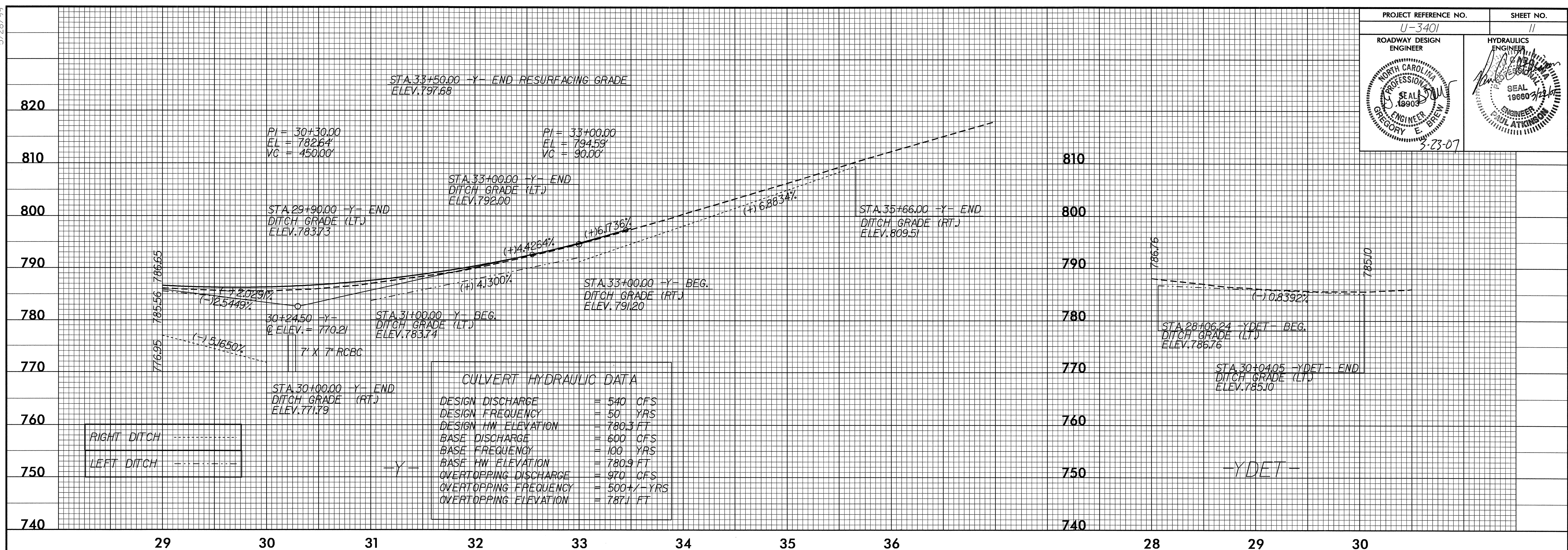


PIPE HYDRAULIC DATA  
DRAINAGE STRUCTURE NO. 86

DRAINAGE AREA	= 8.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 49	CFS
DESIGN HW ELEVATION	= 791.2	FT
100 YEAR DISCHARGE	= 52	CFS
100 YEAR HW ELEVATION	= 791.7	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 70	CFS
OVERTOPPING ELEVATION	= 797.0	FT

5/28/99

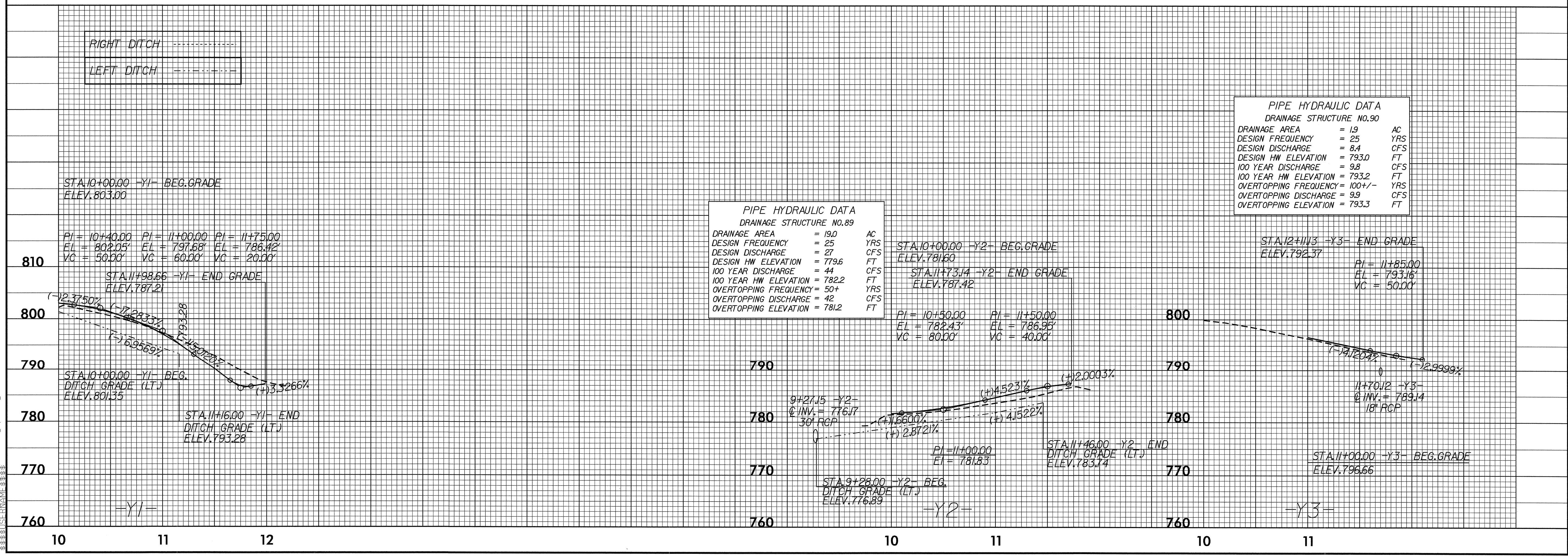
PROJECT REFERENCE NO. U-3401	SHEET NO. 11
ROADWAY DESIGN ENGINEER GREGORY E. BREW	HYDRAULICS ENGINEER PAUL ATKINSON
3-23-07	



**CULVERT HYDRAULIC DATA**

DESIGN DISCHARGE	= 540 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 780.3 FT
BASE DISCHARGE	= 600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 780.9 FT
OVERTOPPING DISCHARGE	= 970 CFS
OVERTOPPING FREQUENCY	= 500 +/- YRS
OVERTOPPING ELEVATION	= 787.1 FT

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



**PIPE HYDRAULIC DATA**  
DRAINAGE STRUCTURE NO. 89

DRAINAGE AREA	= 19 AC
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 8.4 CFS
DESIGN HW ELEVATION	= 793.0 FT
100 YEAR DISCHARGE	= 9.8 CFS
100 YEAR HW ELEVATION	= 793.2 FT
OVERTOPPING FREQUENCY	= 100 +/- YRS
OVERTOPPING DISCHARGE	= 9.9 CFS
OVERTOPPING ELEVATION	= 793.3 FT

**PIPE HYDRAULIC DATA**  
DRAINAGE STRUCTURE NO. 89

DRAINAGE AREA	= 19.0 AC
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 27 CFS
DESIGN HW ELEVATION	= 779.6 FT
100 YEAR DISCHARGE	= 44 CFS
100 YEAR HW ELEVATION	= 782.2 FT
OVERTOPPING FREQUENCY	= 50+ YRS
OVERTOPPING DISCHARGE	= 42 CFS
OVERTOPPING ELEVATION	= 781.2 FT

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

22-MAR-2007 11:34 AM U-3401-rdy-pl.dgn