

09/08/09

TIP PROJECT: R-5118

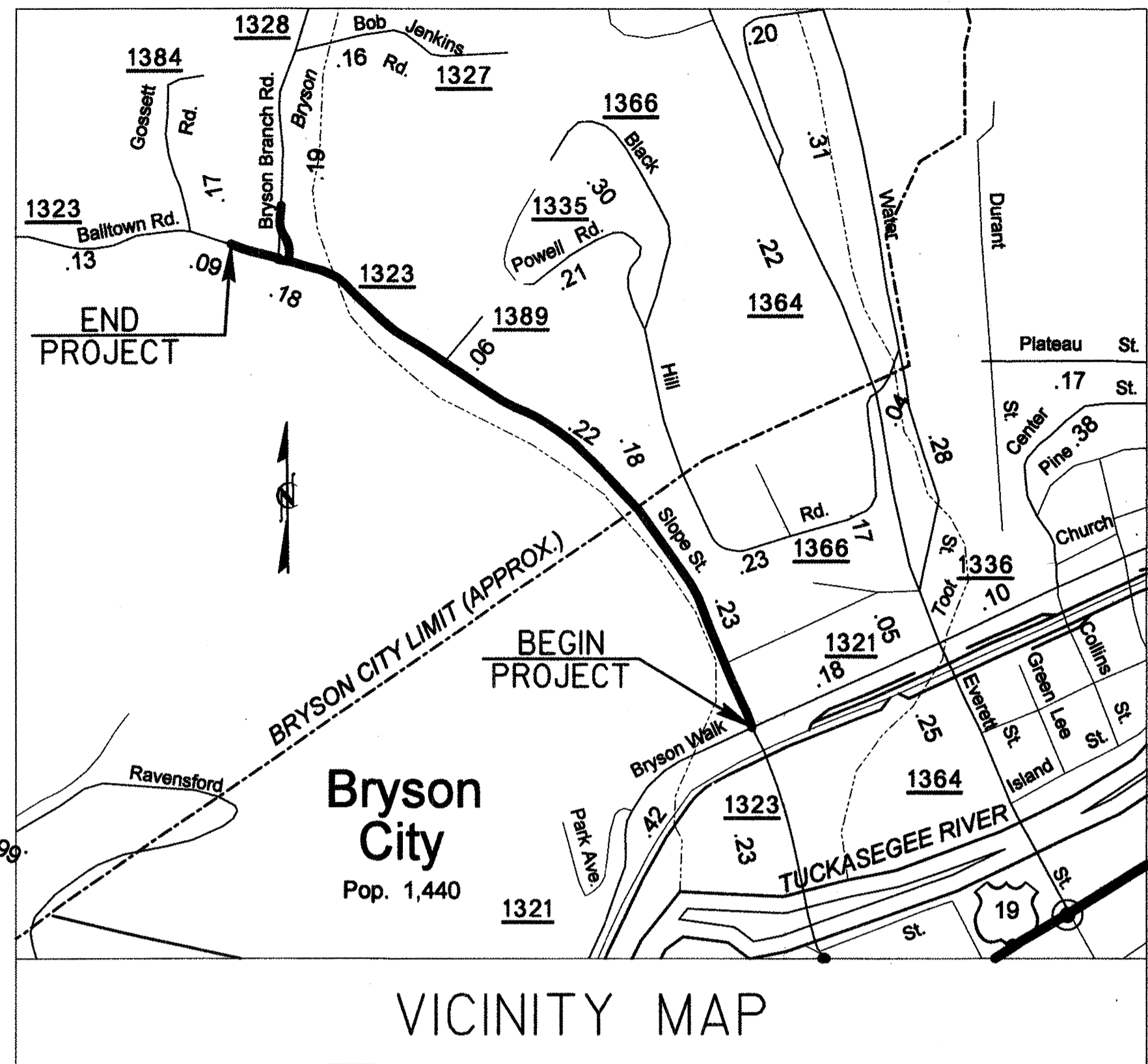
CONTRACT: C202259

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

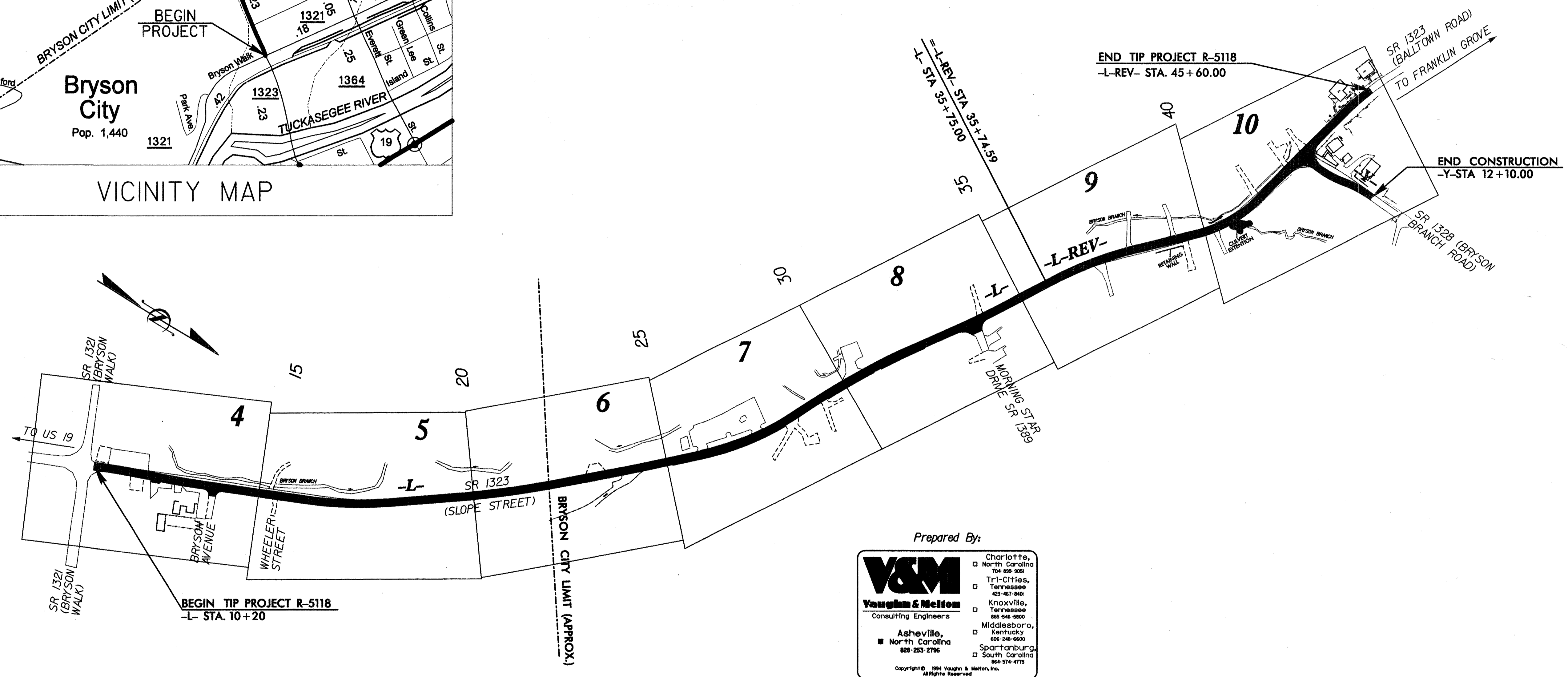
SWAIN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5118	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42550.1.1		P.E.	
42550.2.1		UTILITIES & RW	
42550.3.1		CONSTRUCTION	



LOCATION: Slope Street (SR 1323) between Bryson Walk (SR 1321) and Bryson Branch Road (SR 1328) in Bryson City.

TYPE OF WORK: Grading, Paving, Drainage



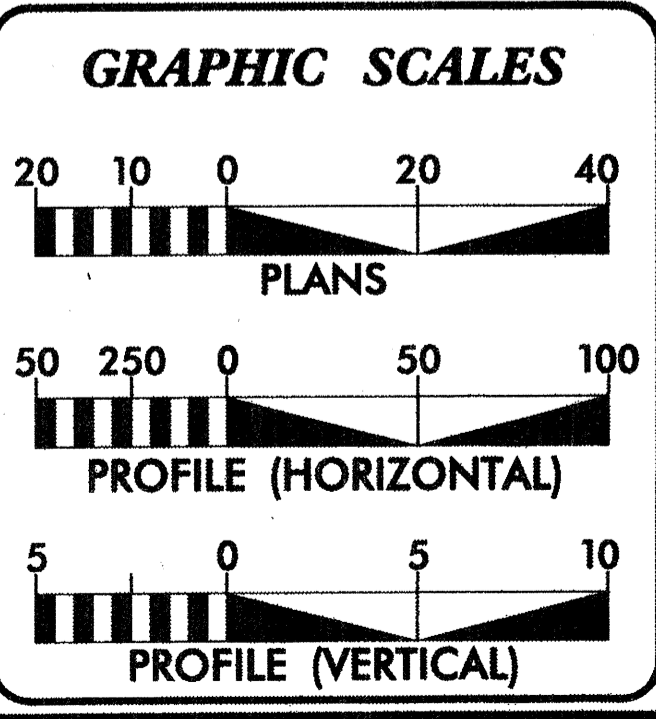
Prepared By:

Charlotte, North Carolina 704 895-9091
Tri-Cities, Tennessee 423-487-8400
Knoxville, Tennessee 865-545-0800
Middlesboro, Kentucky 606-236-6800
Spartanburg, South Carolina 864-574-4775

Asheville, North Carolina 828-253-2786

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NCDOT Contact: Jonathan Woodard - Division 14 - Project Manager



DESIGN DATA

ADT 2008 = 2500
ADT 2028 = 3500
V = 35 MPH

SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT R-5118 = 0.670 MI
TOTAL LENGTH ROADWAY PROJECT R-5118 = 0.670 MI

Prepared for:

**DIVISION OF HIGHWAYS
DIVISION FOURTEEN**

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____

LETTING DATE: FEBRUARY 15, 2011

Reece M. Schuler, PE
PROJECT ENGINEER

Aaron C. Carver, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

[Signature]

ROADWAY DESIGN ENGINEER

[Signature]

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE DESIGN ENGINEER

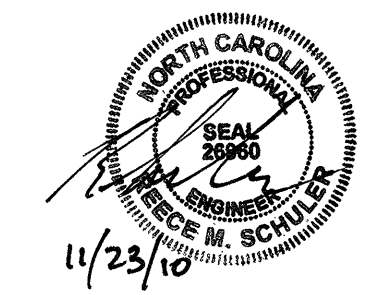
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED DIVISION ADMINISTRATOR

DATE

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ DGN \$\$\$\$\$\$
\$\$\$\$\$ USERNAME \$\$\$\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
INDEX OF SHEETS



SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE, DETAIL OF WEDGING NO. 1, AND TYPICAL SECTIONS
2-A	DETAIL OF TRAFFIC BEARING STEEL COVER
2-B	ANCHORAGE FOR FRAMES
2-C THRU 2-D	METHOD OF PIPE INSTALLATION
2-E	DETAIL OF 60"x 46" ARCH PIPE COLLAR
2-F	DETAIL OF MINIMUM DEPTH CATCH BASIN
2-G THRU 2-H	WHEELCHAIR RAMPS
2-I THRU 2-K	DETAIL OF REINFORCED CONCRETE HEADWALL
3	SUMMARY OF QUANTITIES
3-A THRU 3-C	SUMMARY OF DRAINAGE QUANTITIES, PARCEL INDEX, ROW AREA DATA, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3-D	SUMMARY OF EARTHWORK
4 THRU 10	PLAN SHEETS
11 THRU 13	PROFILE SHEETS
TCP-1 THRU TCP-12	TRAFFIC CONTROL PLANS
PM-1 THRU PM-3	PAVEMENT MARKING PLANS
EC-1 THRU EC-10	EROSION CONTROL PLANS
UC-1 THRU UC-14	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-7	UTILITY BY OTHERS
X-1A	CROSS SECTION SUMMARY
X-1 THRU X-30	CROSS SECTIONS

ROADWAY ENGLISH STANDARD DRAWINGS

STD. NO.	TITLE
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
654.01	PAVEMENT REPAIRS
815.03	PIPE UNDERDRAIN AND BLIND DRAIN
840.01	BRICK CATCH BASIN - 12" THRU 54" PIPE
840.02	CONCRETE CATCH BASIN - 12" THRU 54"
840.03	FRAME, GRATES, AND HOOD - FOR USE ON STANDARD CATCH BASIN
840.14	CONCRETE DROP INLET - 12" THRU 30" PIPE
840.15	BRICK DROP INLET - 12" THRU 30" PIPE
840.16	DROP INLET FRAME AND GRATE - FOR USE WITH STD. DWG.S 840.14 AND 840.15
840.46	TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE
840.66	DRAINAGE STRUCTURE STEPS
840.71	CONCRETE AND BRICK PIPE PLUG
840.72	PIPE COLLAR
846.01	CONC. CURB, GUTTER AND CURB AND GUTTER
848.02	DRIVEWAY TURNOUT - RADIUS TYPE
848.04	STREET TURNOUT
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS

GENERAL NOTES

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

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

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

SIDE ROADS:
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

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

DRIVEWAYS:
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII 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 RADII NOTED ON PLANS.

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 THE TOWN OF BRYSON CITY, DUKE POWER, AND VERIZON. 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 SHEETS 2-G AND 2-H

5/28/99

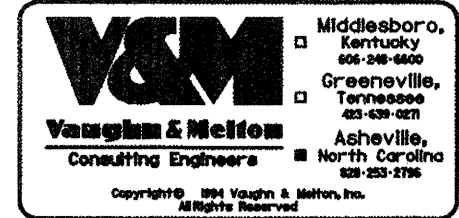
5/28/99
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SHEET NO. 1-B
PROJECT REFERENCE NO. R-5118
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*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

PROJECT REFERENCE NO. R-5118
SHEET NO. 1-B



ROADS & RELATED ITEMS

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

RIGHT OF WAY

Baseline Control Point	-----
Existing Right of Way Marker	-----
Exist. Right of Way Line w/Marker	-----
Prop. Right of Way Line with Proposed	-----
R/W Marker (Iron Pin & Cap)	-----
Prop. Right of Way Line with Proposed	-----
(Concrete or Granite) R/W Marker	-----
Exist. Control of Access Line	-----
Prop. Control of Access Line	-----
Exist. Easement Line	-----
Prop. Temp. Construction Easement Line	-----
Prop. Temp. Drainage Easement Line	-----
Prop. Perm. Drainage Easement Line	-----

HYDROLOGY

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

STRUCTURES

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

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

UTILITIES

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

Recorded Water Line	-----
Designated Water Line (S.U.E.*)	-----
Sanitary Sewer	-----
Recorded Sanitary Sewer Force Main	-----
Designated Sanitary Sewer Force Main(S.U.E.*)	-----
Recorded Gas Line	-----
Designated Gas Line (S.U.E.*)	-----
Storm Sewer	-----
Recorded Power Line	-----
Designated Power Line (S.U.E.*)	-----
Recorded Telephone Cable	-----
Designated Telephone Cable (S.U.E.*)	-----
Recorded UG Telephone Conduit	-----
Designated UG Telephone Conduit (S.U.E.*)	-----
Unknown Utility (S.U.E.*)	-----
Recorded Television Cable	-----
Designated Television Cable (S.U.E.*)	-----
Recorded Fiber Optics Cable	-----
Designated Fiber Optics Cable (S.U.E.*)	-----
Exist. Water Meter	-----
UG Test Hole (S.U.E.*)	-----
Abandoned According to UG Record	-----
End of Information	-----

BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	-----
Exist. Iron Pin	-----
Property Corner	-----
Property Monument	-----
Property Number	-----
Parcel Number	-----
Fence Line	-----
Existing Wetland Boundaries	-----
High Quality Wetland Boundary	-----
Medium Quality Wetland Boundaries	-----
Low Quality Wetland Boundaries	-----
Proposed Wetland Boundaries	-----
Existing Endangered Animal Boundaries	-----
Existing Endangered Plant Boundaries	-----

BUILDINGS & OTHER CULTURE

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

TOPOGRAPHY

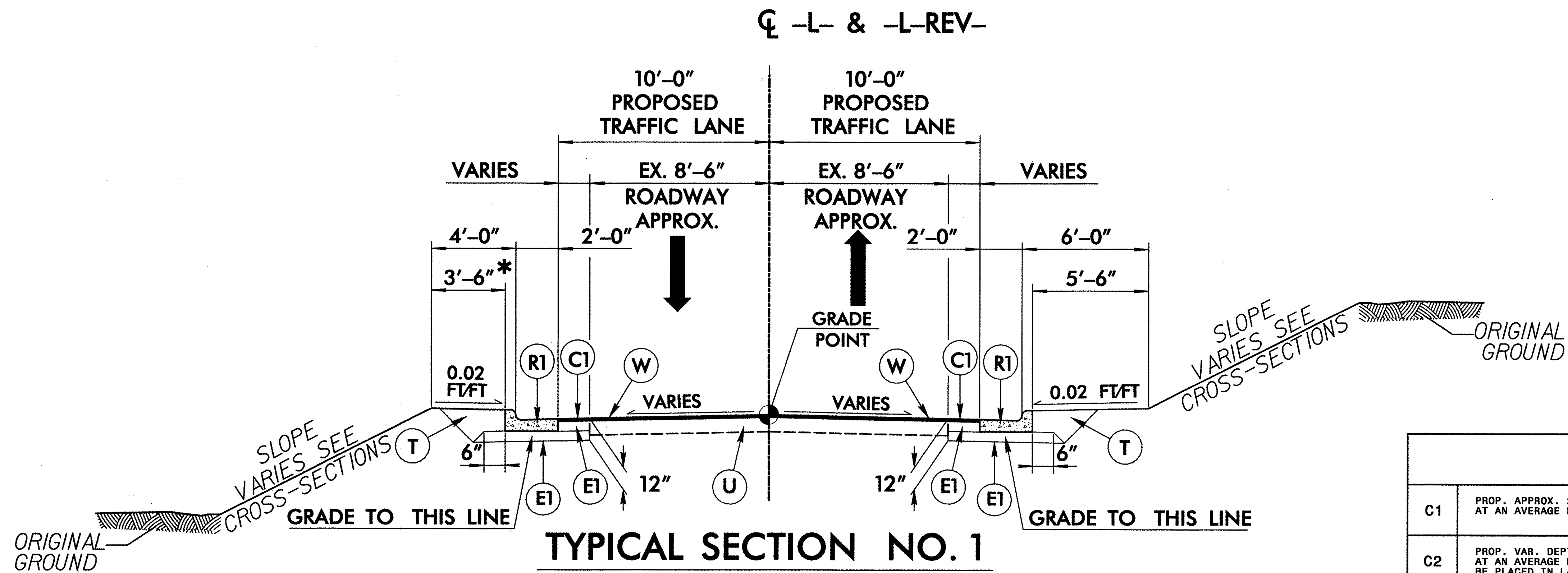
Loose Surface	-----
Hard Surface	-----
Change in Road Surface	-----
Curb	-----
Right of Way Symbol	-----
Guard Post	-----
Paved Walk	-----
Bridge	-----
Box Culvert or Tunnel	-----
Ferry	-----
Culvert	-----
Footbridge	-----
Trail, Footpath	-----
Light House	-----

VEGETATION

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

RAILROADS

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



TYPICAL SECTION NO. 1

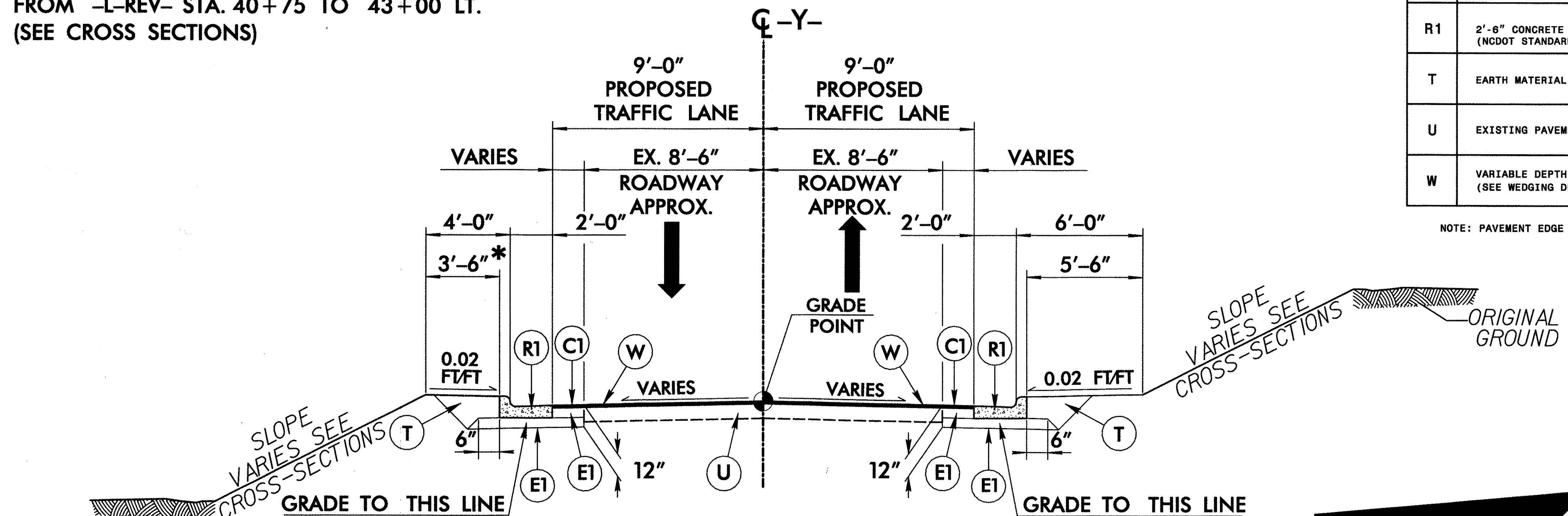
WIDENING

-L- STA. 10+20 TO -L-REV- STA. 45+60
SUPERELEVATED 0.06 FT/FT MAX.

* NOTE: BERM WIDTH VARIES
FROM -L- STA 13+50 TO 17+00 LT.
FROM -L- STA 25+40 TO 25+70 LT.
FROM -L-REV- STA. 40+75 TO 43+00 LT.
(SEE CROSS SECTIONS)

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R1	2'-6" CONCRETE CURB AND GUTTER. (NCDOT STANDARD DRAWING 846.01)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL FOR RESURFACING).

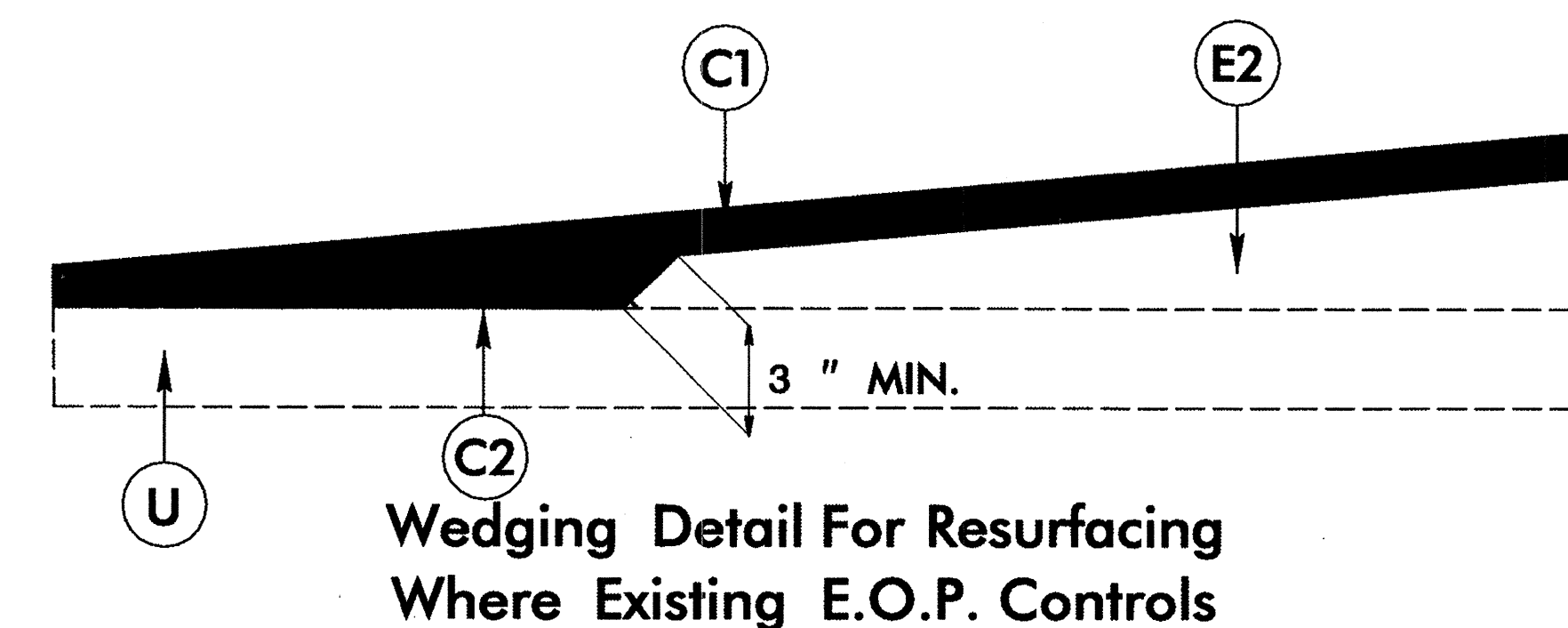
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



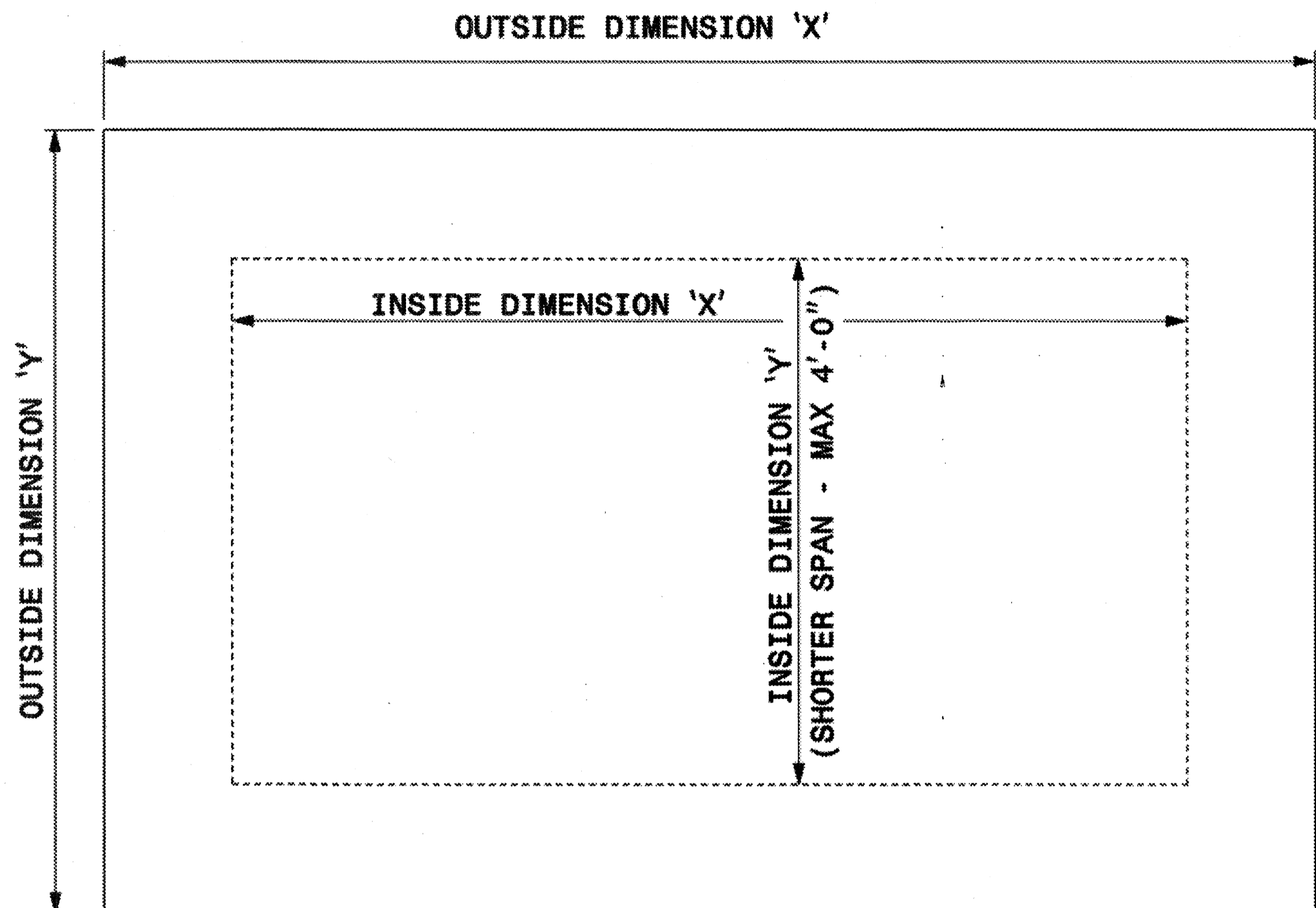
TYPICAL SECTION NO. 2

WIDENING

-Y- STA. 10+10 TO STA. 12+10
SUPERELEVATED 0.06 FT/FT MAX.

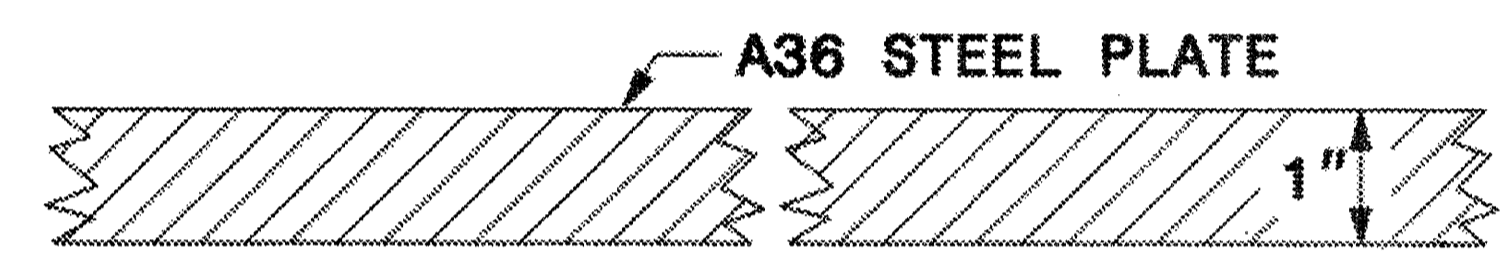


Wedging Detail For Resurfacing
Where Existing E.O.P. Controls



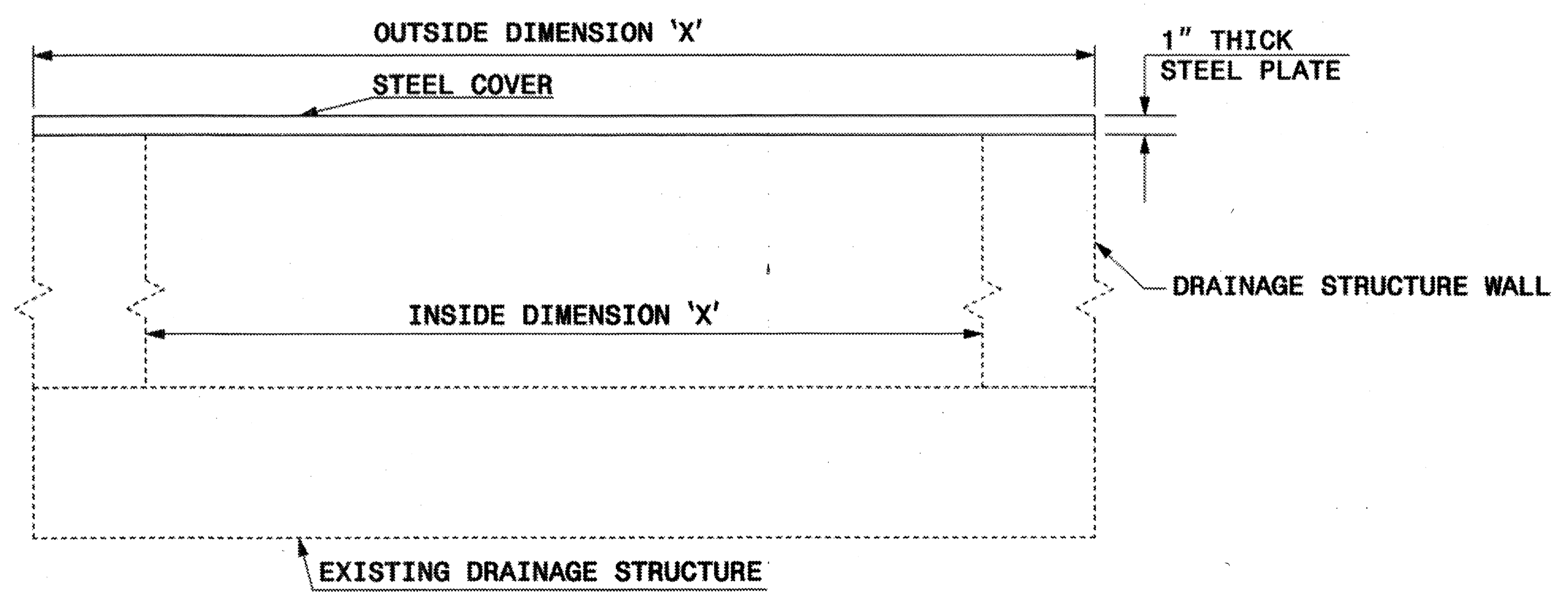
GENERAL NOTES:

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

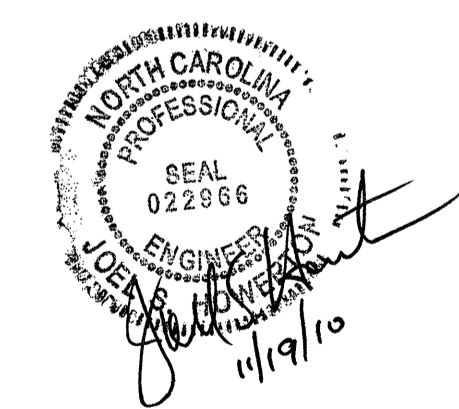


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



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**DETAIL OF TEMPORARY
1" STEEL COVER
OVER DRAINAGE STRUCTURE**

ORIGINAL BY: E.E. WARD DATE: 2-2-98
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: eric:/usr/details/metric/stand/at1cwr2.dgn

C:\Users\eric\Documents\Standards and Special Design\at1cwr2.dgn
 11/9/10 10:50 AM
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STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

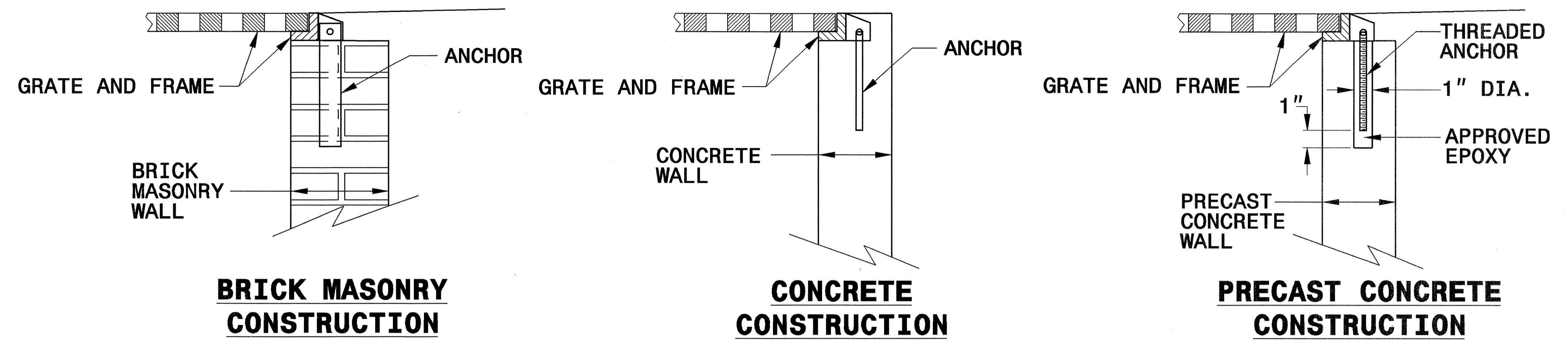
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

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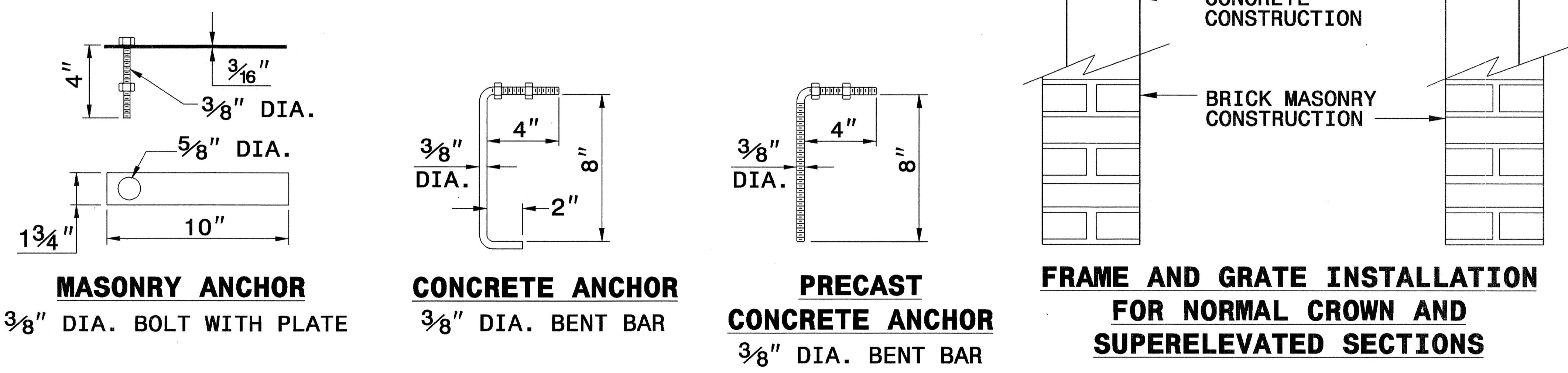
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25



DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

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



27-SEP-2006 08:59 C:\projects\Special Details\vertical\stds\06' Stds to Special Details\84025 Anchorage for Frames\0840d25.dgn



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SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

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

7-06

**ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION**

FLEXIBLE PIPE

SHEET 1 OF 3
300D01

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

7-06

**ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION**

FLEXIBLE PIPE

SHEET 1 OF 3
300D01

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

■ TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

□ LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 OR TYPE II, SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

▨ UNDISTURBED EARTH MATERIAL

▩ SELECT SUITABLE LOCAL MATERIAL.

▧ SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

▦ SPRINGLINE OF PIPE

▧ DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

**STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
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 RALEIGH, N.C.**

7-06

**ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION**

RIGID PIPE

SHEET 1 OF 3
300D01

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

7-06

**ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION**

RIGID PIPE

SHEET 2 OF 3
300D01

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

■ TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

□ LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 OR TYPE II, SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

▨ UNDISTURBED EARTH MATERIAL

▩ SELECT SUITABLE LOCAL MATERIAL.

▧ SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

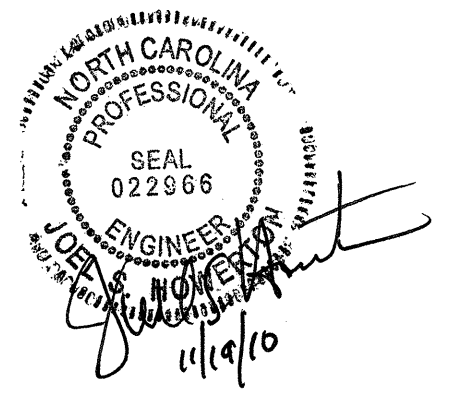
▦ SPRINGLINE OF PIPE

▧ DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC: /p2527801/stds/stdstodetails/30001/0300d01.dgn



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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

FLEXIBLE PIPE

Round Corrugated Steel Pipe 2 2/3 x 1/2 corrugation **			
Diameter (inches)	Minimum cover (inches)	(Ga) 16	Maximum Height of Cover (feet)
12	12	204	14 12 10 8
15	12	182	256 204
18	12	135	169 239
21	12	115	145 204
24	12	100	126 178
30	12	79	100 142
36	12	65	83 117 152
42	12	55	70 100 130 160
48	12	48	61 87 113 139
54	12	54	77 100 123
60	12		69 90 111
66	12		81 100
72	12		74 91
78	12		81 81
84	12		69 69

Round Corrugated Aluminum Pipe 2 2/3 x 1/2 corrugation **			
Diameter (inches)	Minimum cover (inches)	(Ga) 16	Maximum Height of Cover (feet)
12	12	123	14 12 10 8
15	12	98	155 218 281 344
18	12	81	123 174 224 275
21	12	69	102 144 187 228
24	12	60	87 123 160 195
27	12	67	76 108 139 171
30	12	60	67 95 123 151
36	12	50	60 85 111 136
42	12	50	71 92 113
48	12	52	60 78 96
54	12	46	52 68 84
60	12	46	46 50 74
66	12		50 62
72	12		51 51
78	12		41 41

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

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

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

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

RIGID PIPE

- RCP - * (Minimum fill) 1' for Class IV & CLASS V
 2' for Class III & Class II
- * (Maximum fill) 10' - Class II pipe
 20' - Class III pipe
 30' - Class IV pipe
 40' - Class V pipe

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

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- RCP - AASHTO M170

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

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

SHEET 3 OF 3
300D01

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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

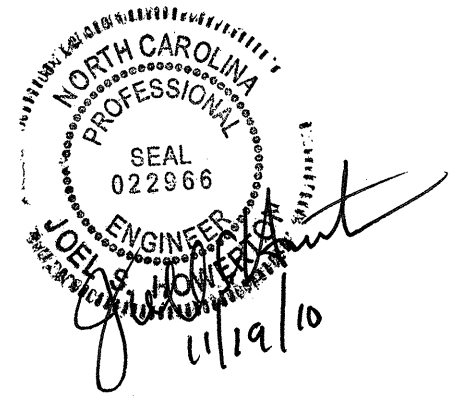
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

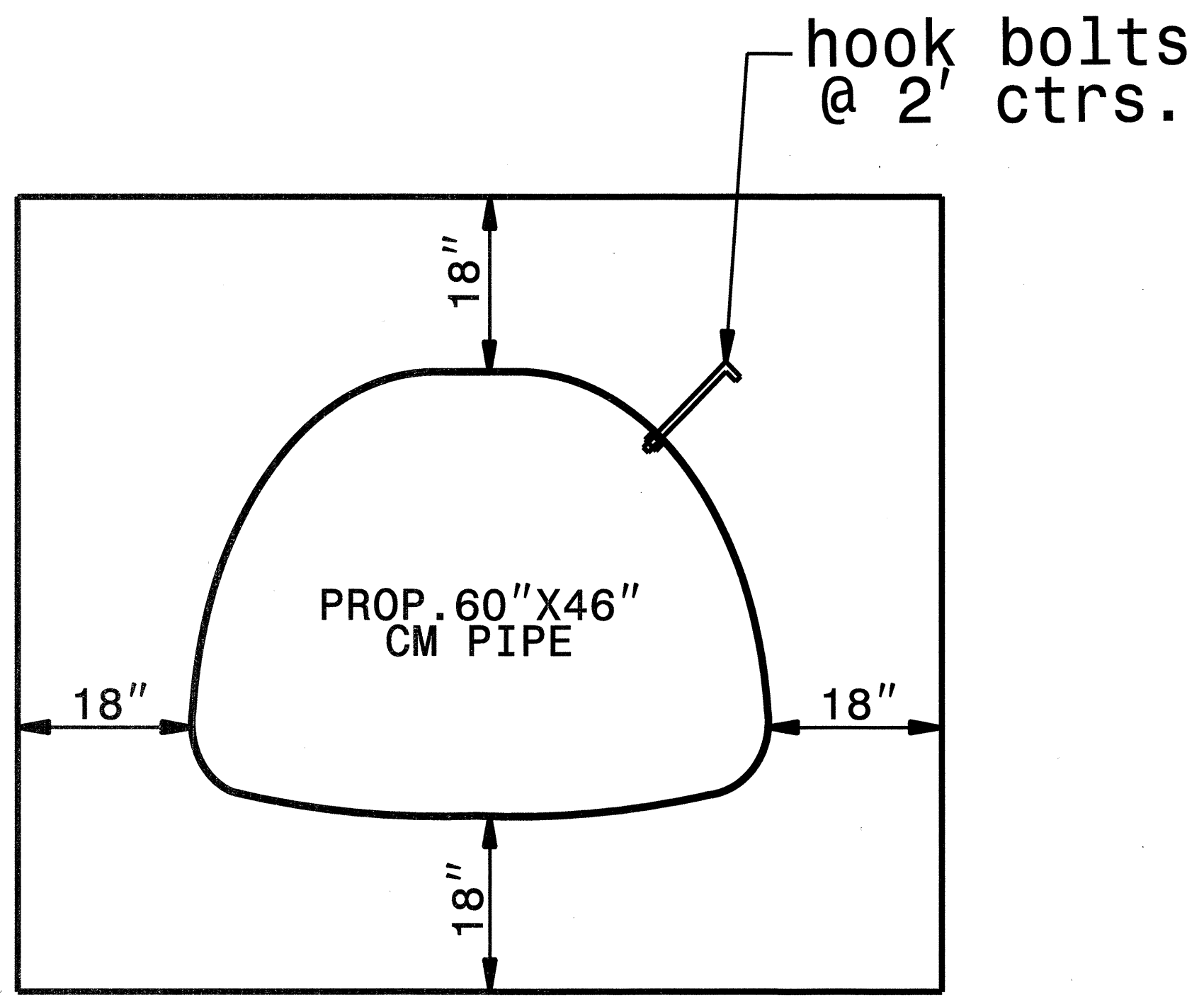
**PROJECT SERVICES UNIT
 STANDARDS AND SPECIAL DESIGN**
 Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

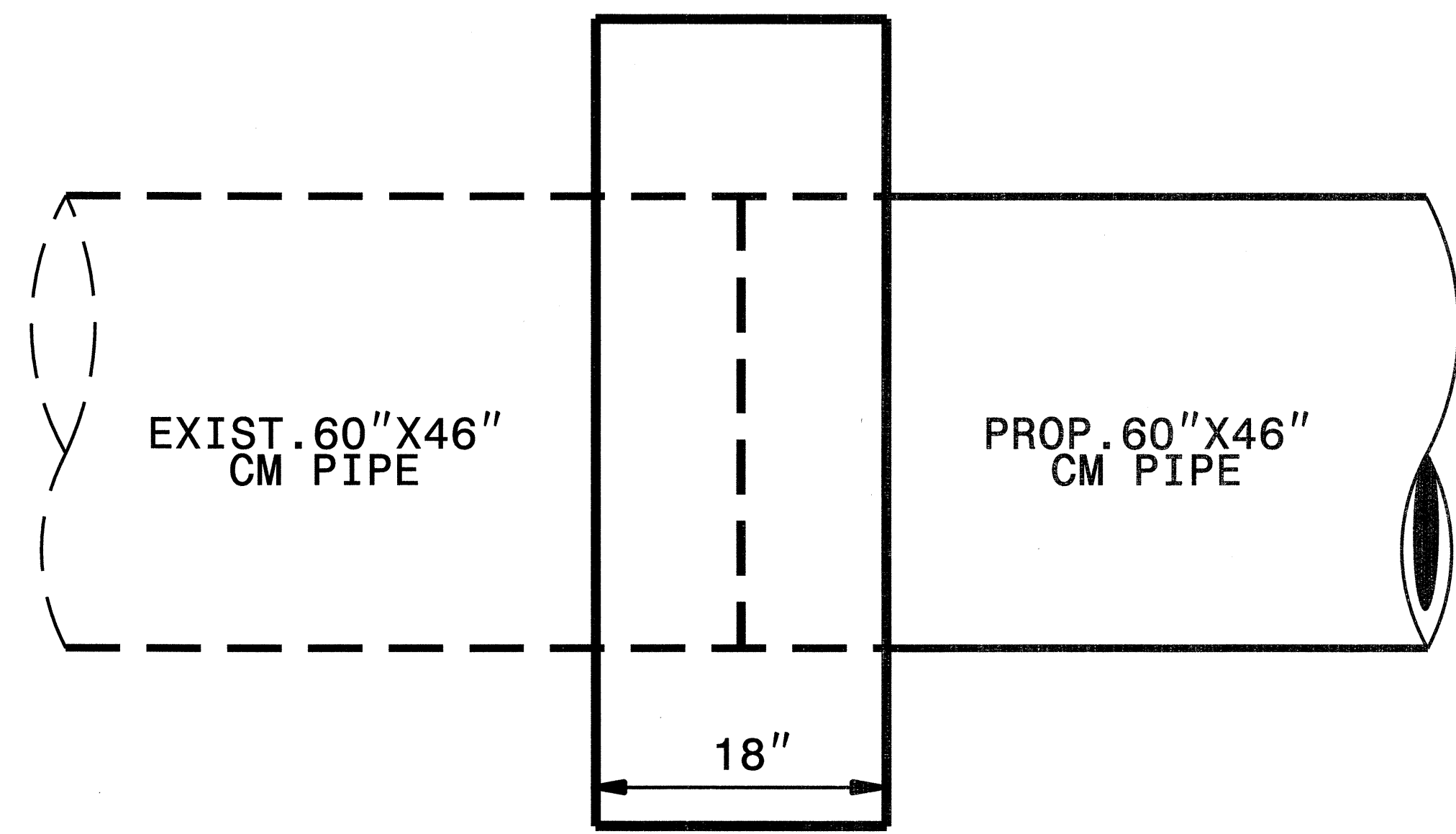
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5/14/99



ELEVATION



SIDE ELEVATION

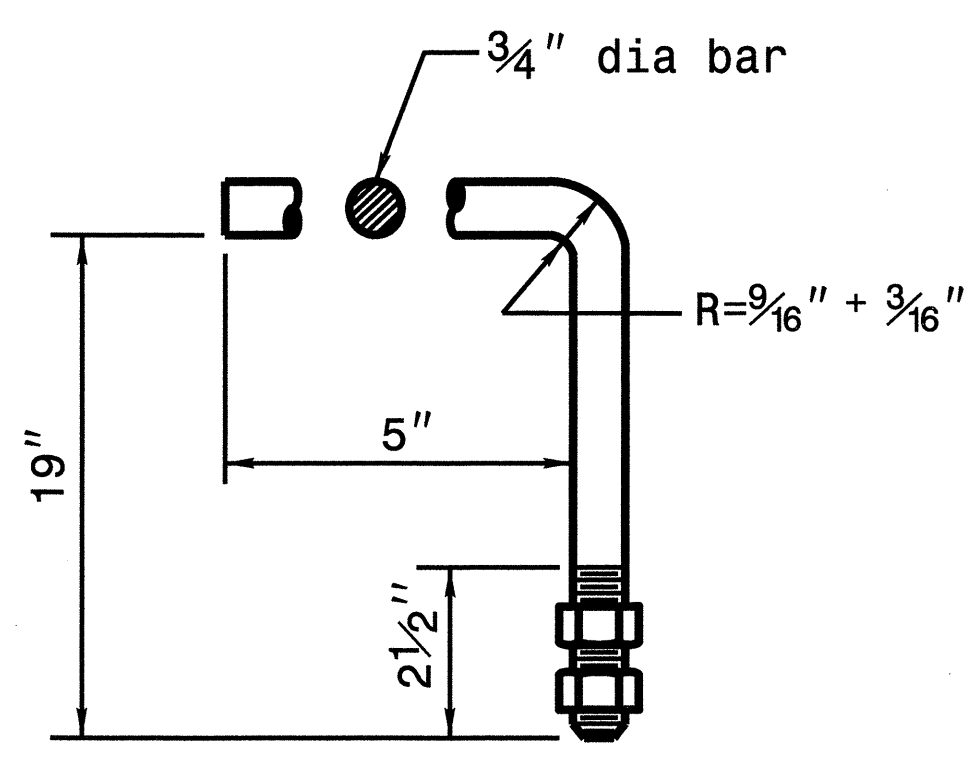
GENERAL NOTES:

USE PIPE COLLAR FOR EXTENDING EXISTING CORRUGATED METAL PIPE CULVERT AT THE LOCATION SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. THIS INCLUDES EXTENDING EXISTING PIPE WITH PIPES OF DIFFERENT MATERIALS.

CONSTRUCT THE PIPE COLLAR WITH CLASS "B" OR BETTER CONCRETE.

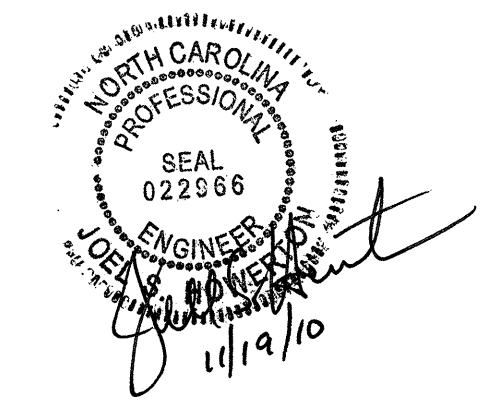
OBSERVE ALL REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

PLACE HOOK BOLTS AS DIRECTED BY THE ENGINEER.



HOOK BOLT

MATERIAL QUANTITY
CLASS "B" CONCRETE = 2.2 CU.YDS.



CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

DETAIL FOR 60"X46" CM PIPE COLLAR

ORIGINAL BY: nbritt DATE: 10-20-10
MODIFIED BY: nbritt DATE: 10-20-10
CHECKED BY: DATE: 11-19-10
FILE SPEC: details/nbritt/english/rural/rs118_60x46collar.dgn

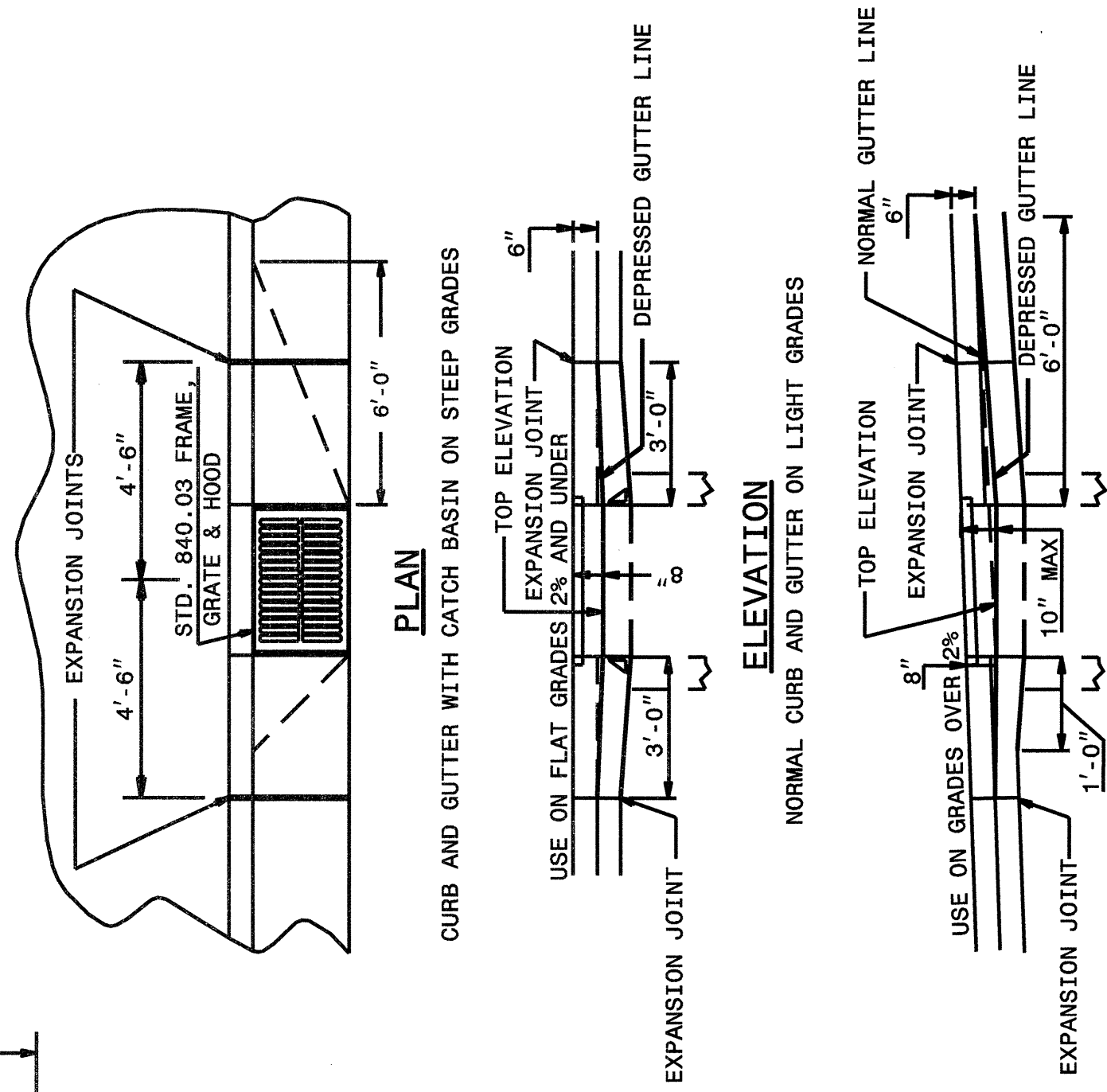
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STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK CATCH BASIN
 12" THRU 24" PIPE

SHEET 1 OF 1
840D01

GENERAL NOTES:
 MORTAR JOINTS 1/2" TO 3/8" THICK.
 USE CLASS "B" CONCRETE THROUGHOUT.
 USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
 DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
 USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.



MINIMUM DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN								
PIPE DIMENSIONS	BOX AND PIPE		CONC. IN BOX		BRICK MASONRY		DEDUCTIONS	
	SPAN	WIDTH	MIN.	HEIGHT	TOTAL SLAB	BRICK MASONRY IN WALLS	CONC.	ONE PIPE
D	A	B	H				C.M.	R.C.
12"	3'-0"	2'-2"	2'-0"	0.281	0.481	0.762	0.020	0.042
15"	3'-0"	2'-2"	2'-3"	0.281	0.562	0.843	0.031	0.047
18"	3'-0"	2'-2"	2'-6"	0.281	0.642	0.923	0.044	0.065
24"	3'-0"	2'-2"	3'-1"	0.281	0.828	1.109	0.078	0.121

STATE OF NORTH CAROLINA
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 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK CATCH BASIN
 12" THRU 24" PIPE

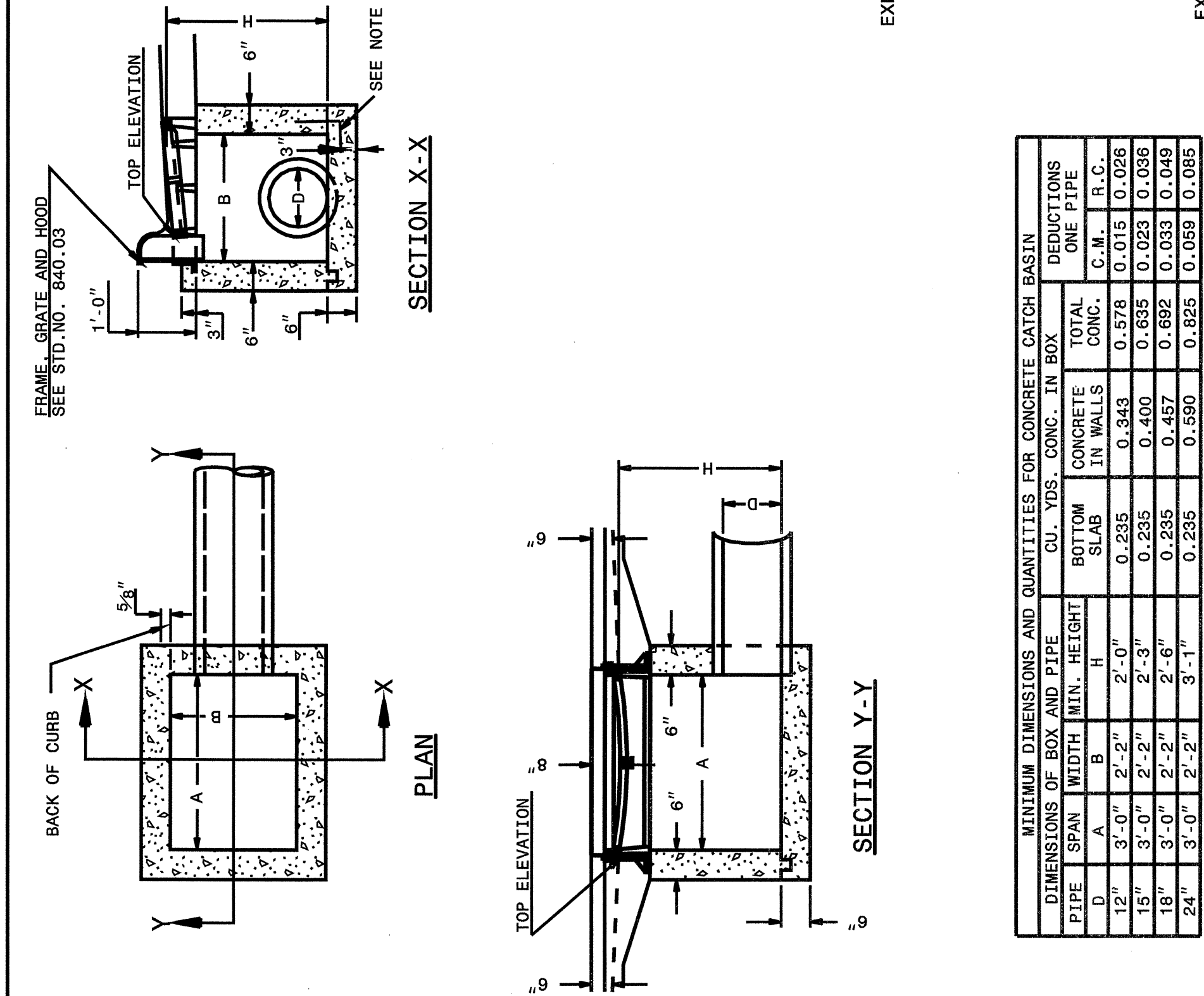
SHEET 1 OF 1
840D01

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

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH CONCRETE CATCH BASIN
 12" THRU 24" PIPE

SHEET 1 OF 1
840D02

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN						
PIPE DIMENSIONS	BOX AND PIPE		CONC. IN BOX		DEDUCTIONS	
	SPAN	WIDTH	MIN.	HEIGHT	TOTAL BOTTOM SLAB	CONC. IN WALLS
D	A	B	H			C.M.
12"	3'-0"	2'-2"	2'-0"	0.235	0.343	0.578
15"	3'-0"	2'-2"	2'-3"	0.235	0.400	0.635
18"	3'-0"	2'-2"	2'-6"	0.235	0.467	0.692
24"	3'-0"	2'-2"	3'-1"	0.235	0.590	0.825

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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

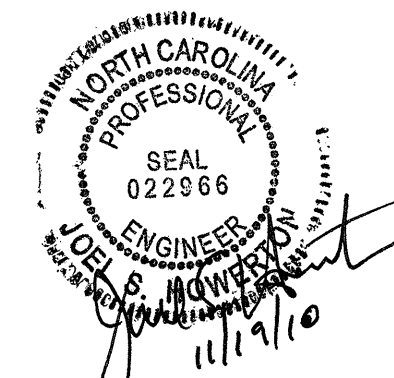
ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH CONCRETE CATCH BASIN
 12" THRU 24" PIPE

SHEET 1 OF 1
840D02

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

SEE PLATE FOR TITLE

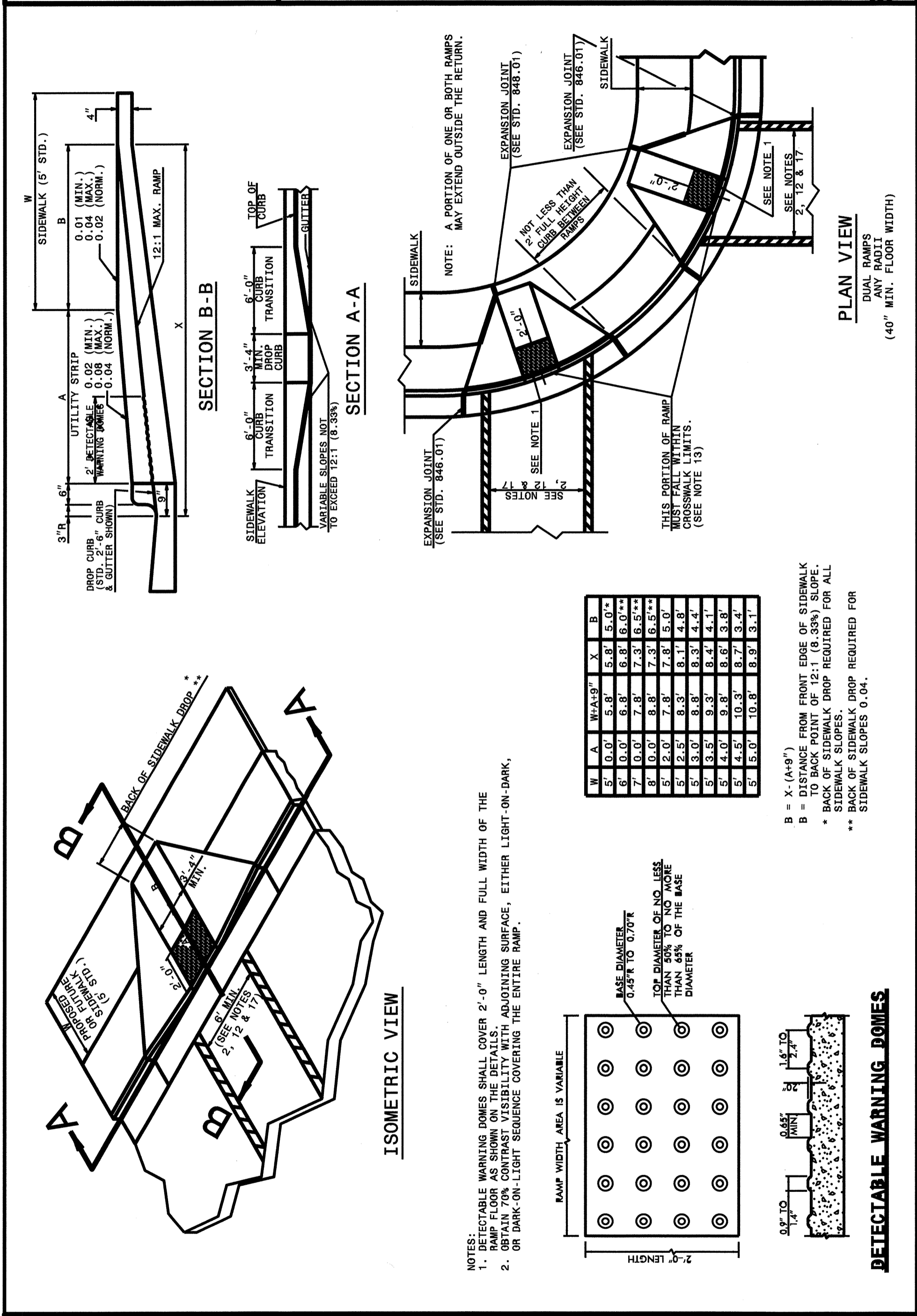
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 CHECKED BY: _____ DATE: _____
 FILE SPEC.: _____



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

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
PROPOSED CURB AND GUTTER

SHEET 1 OF 3
848D05



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

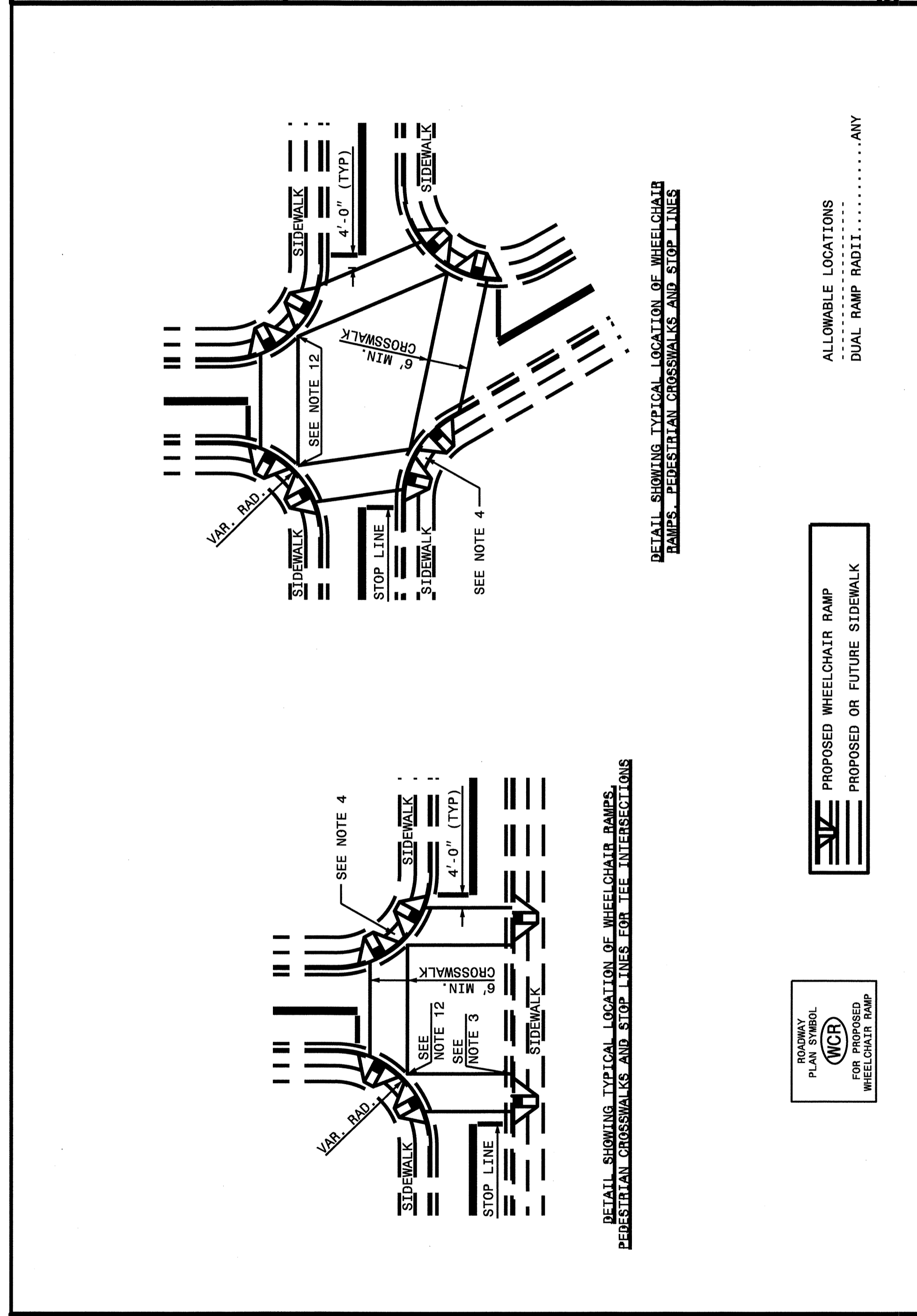
ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
PROPOSED CURB AND GUTTER

SHEET 1 OF 3
848D05

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

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
PROPOSED CURB AND GUTTER

SHEET 2 OF 3
848D05



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

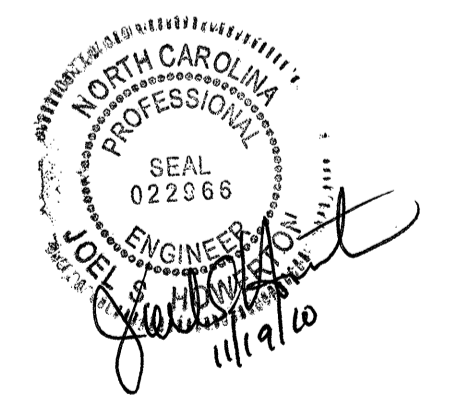
ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
PROPOSED CURB AND GUTTER

SHEET 2 OF 3
848D05

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

SEE PLATE FOR TITLE

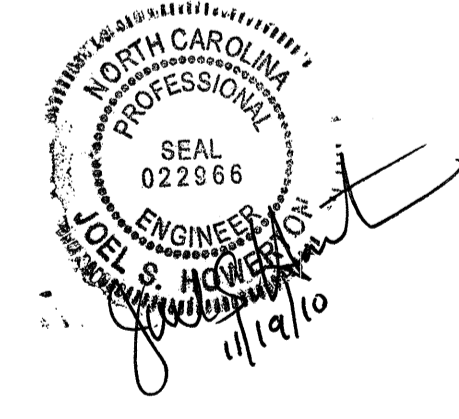
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MODIFIED BY: DATE: _____
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FILE SPEC.: SpecialDetails\ericward\stds\84805.dgn



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP PROPOSED CURB AND GUTTER
SHEET 3 OF 3 848D05	SHEET 3 OF 3 848D05

NOTES:

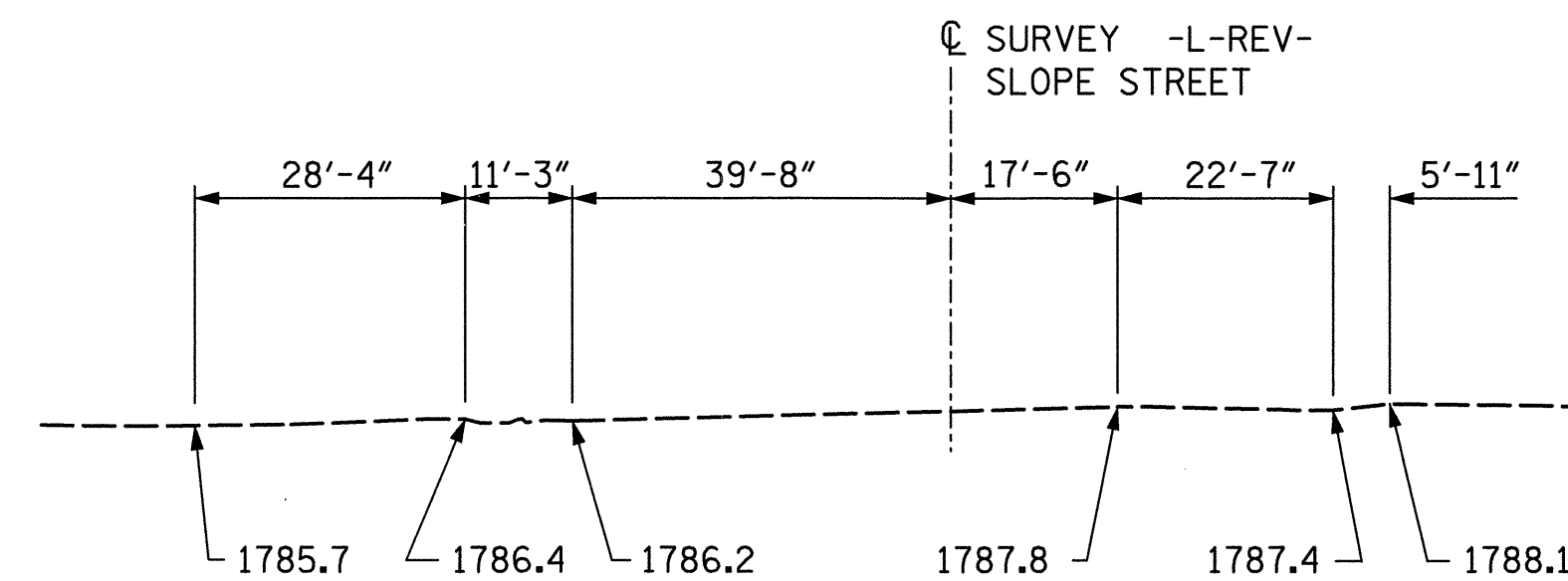
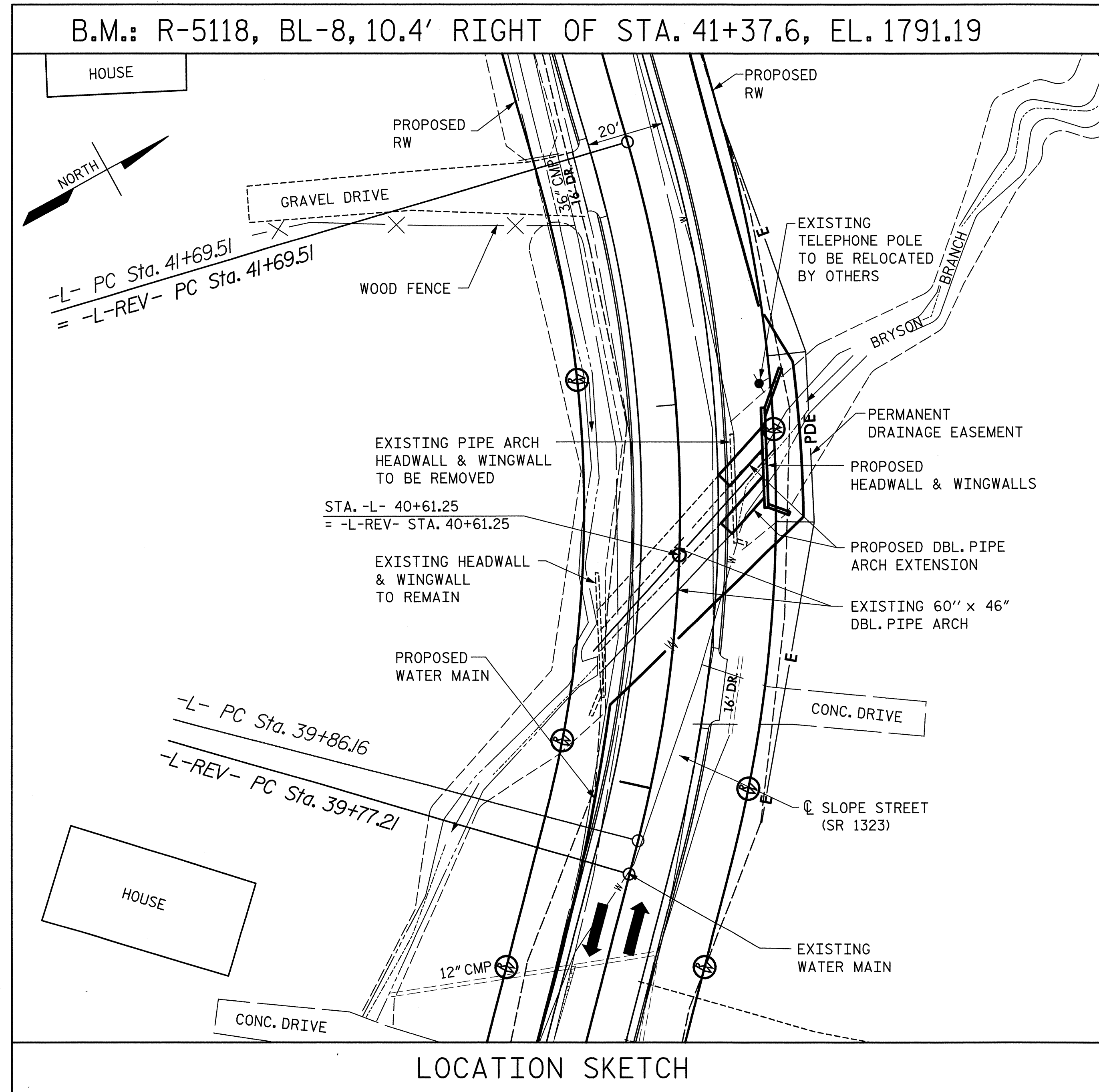
1. CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
2. CROSSWALK WIDTHS AND CONFIGURATION VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS.
3. NORTH CAROLINA GENERAL STATUTE 136-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, OR RELOCATION OF UTILITIES OR OTHER PURPOSES AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW.
 IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.
 THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES. COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.
4. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED PLACE NOT LESS THAN 2 FEET OF FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
5. DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
6. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS.
7. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
8. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01.
9. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADIUS, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 17)
10. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
11. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE.
12. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY.
13. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
14. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.



PROJECT SERVICES UNIT STANDARDS AND SPECIAL DESIGN Office 919-250-4128 FAX 919-250-4119	
SEE PLATE FOR TITLE	
ORIGINAL BY: STD.No.848.05	DATE: 4-22-10
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: SpecialDetails\EricWard\STD\84805.dgn	

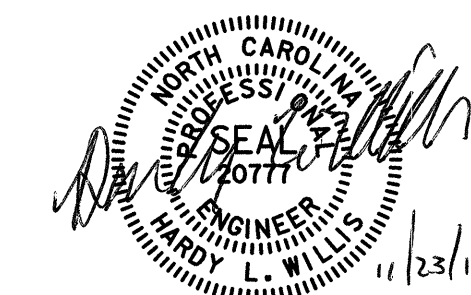
GENERAL NOTES

- ALL CONCRETE SHALL BE CLASS "A".
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 1".
- ALL DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING STEEL ARE TO CENTERS OF BARS.
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF PIPE ARCH EXTENSION BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- A 3'-0" STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- REMOVAL OF EXISTING CONCRETE SHALL BE IN ACCORDANCE WITH ARTICLE 420-9 OF THE STANDARD SPECIFICATIONS.
- FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET 1-A.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- DESIGN FILL = 5.5 FT.

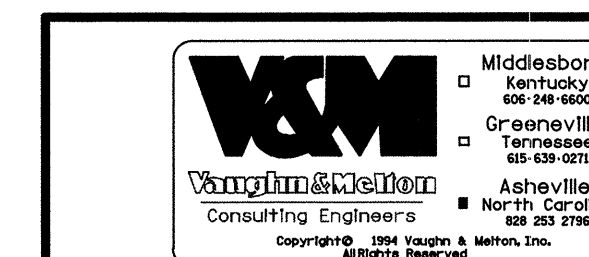


PROFILE ALONG C BETWEEN PIPES

PROJECT NO. R-5118
SWAIN COUNTY
 STATION: 40+61.25 -L-REV-



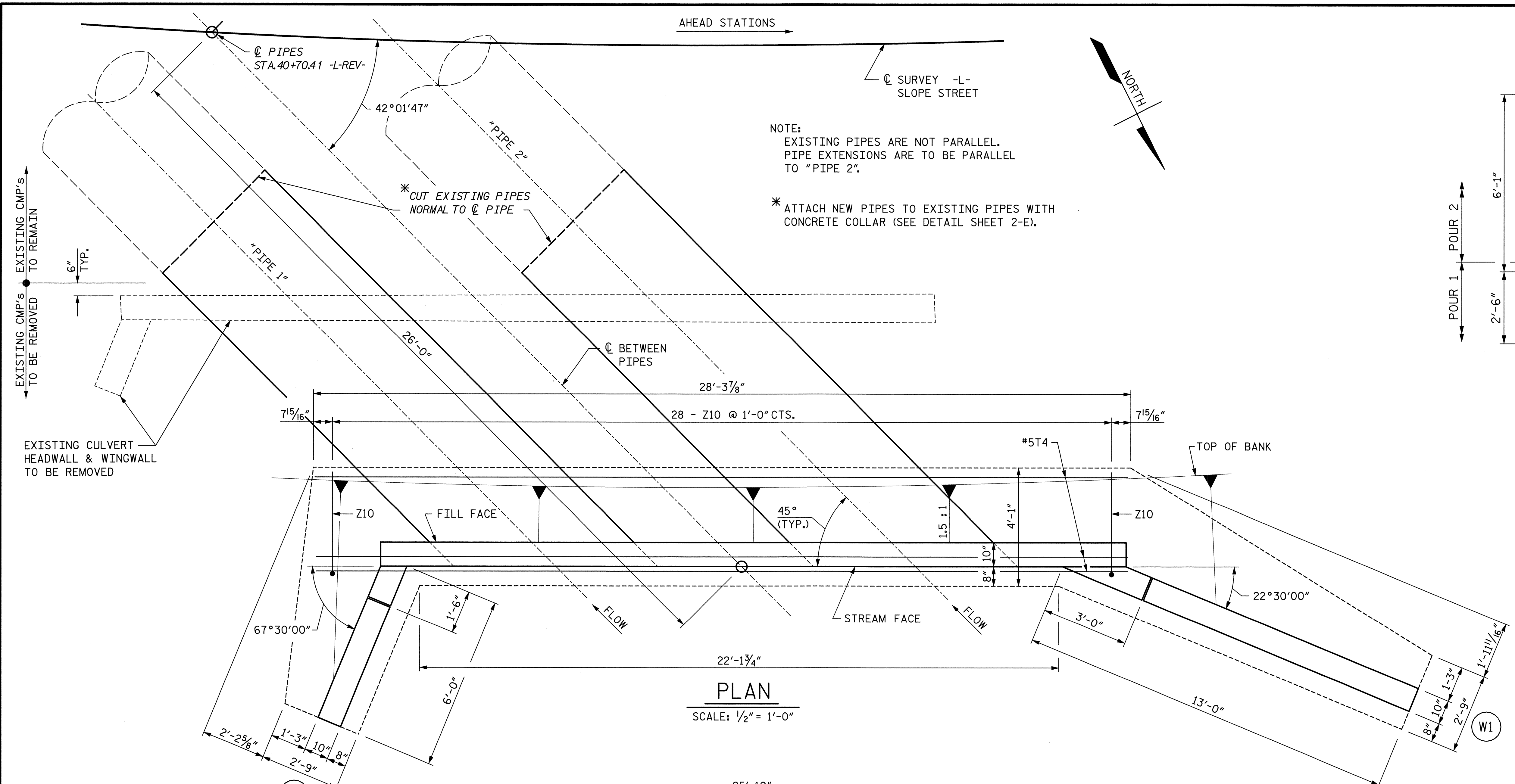
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**DOUBLE 60" X 46"
 PIPE ARCH EXTENSION
 45° SKEW**



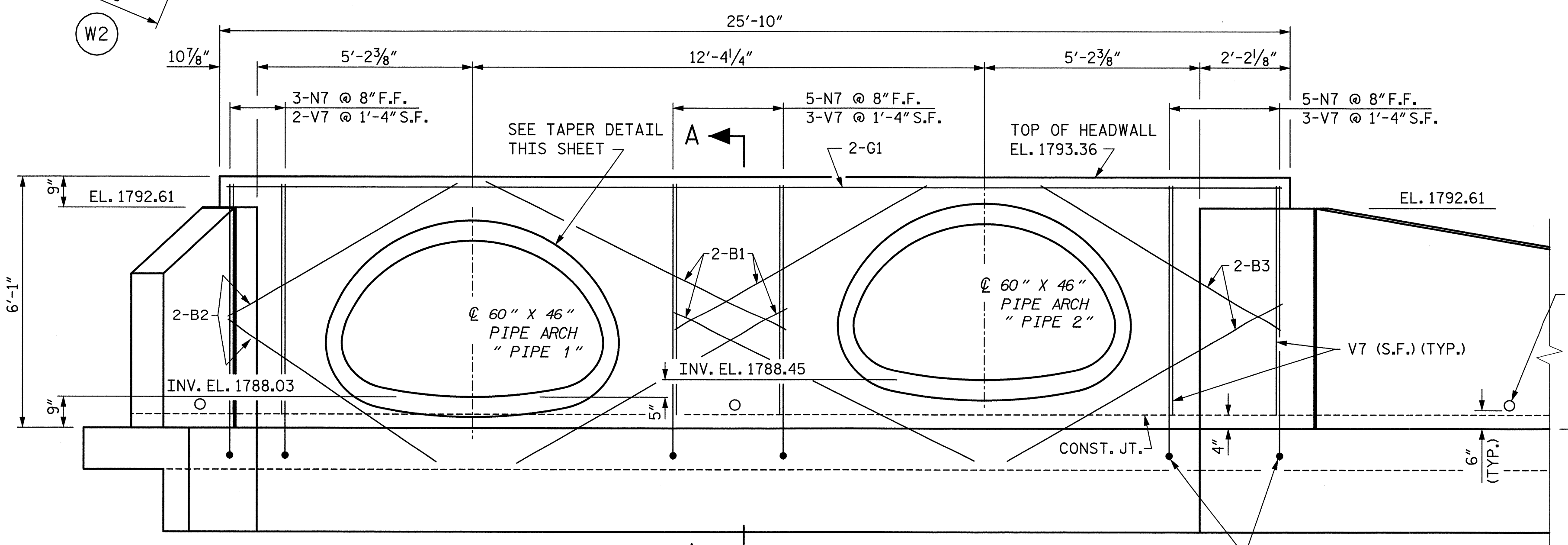
DRAWN BY: SF DATE: JAN. 2006
 CHECKED BY: HLW DATE: JAN. 2006
 DRAWING NO. 1 OF 3

JANUARY		2006	
REVISIONS			
NO.	BY:	DATE:	TOTAL SHEETS
1			4
2			4

SHEET NO.
 2-I

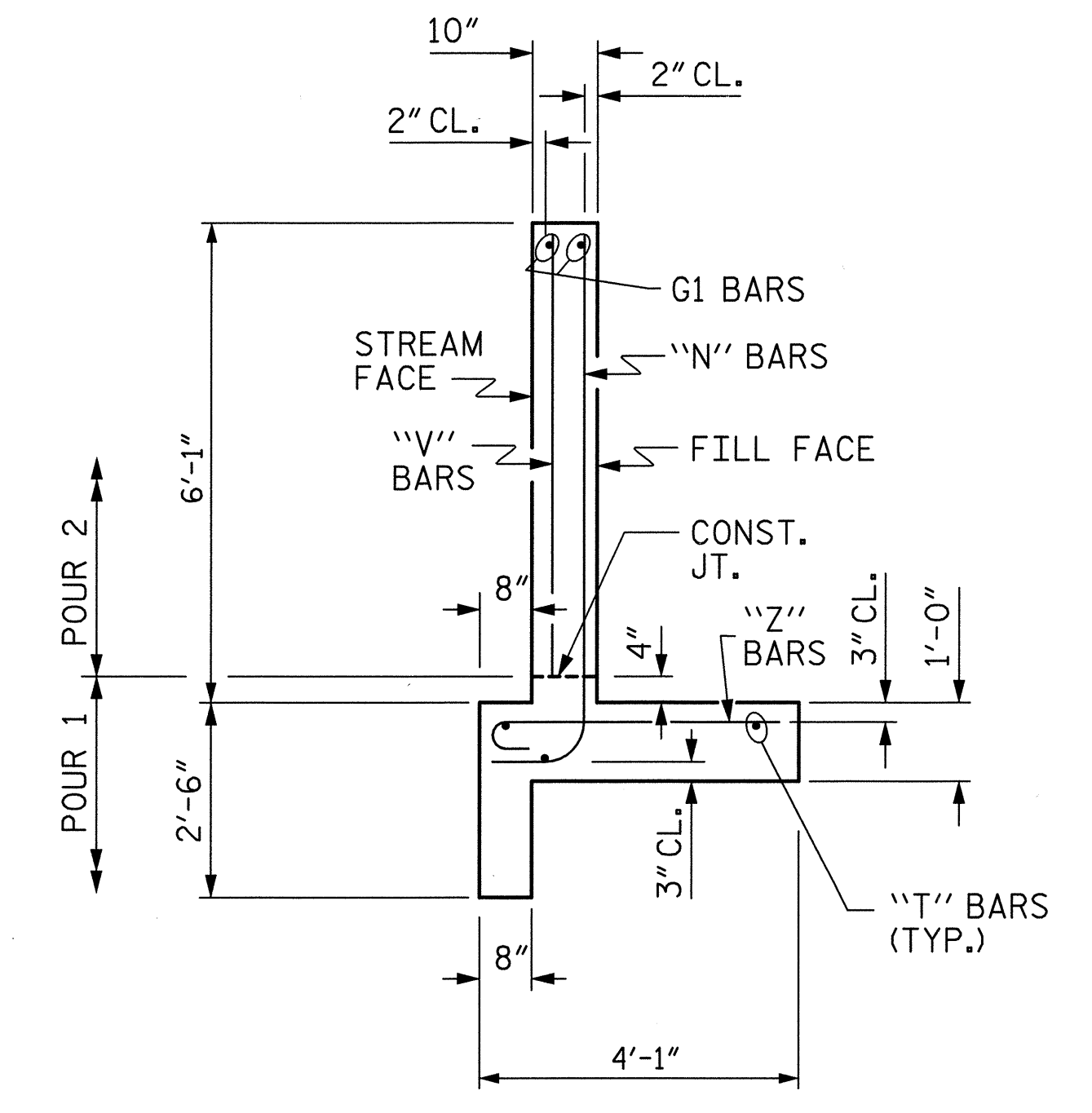


PLAN
SCALE: 1/2" = 1'-0"

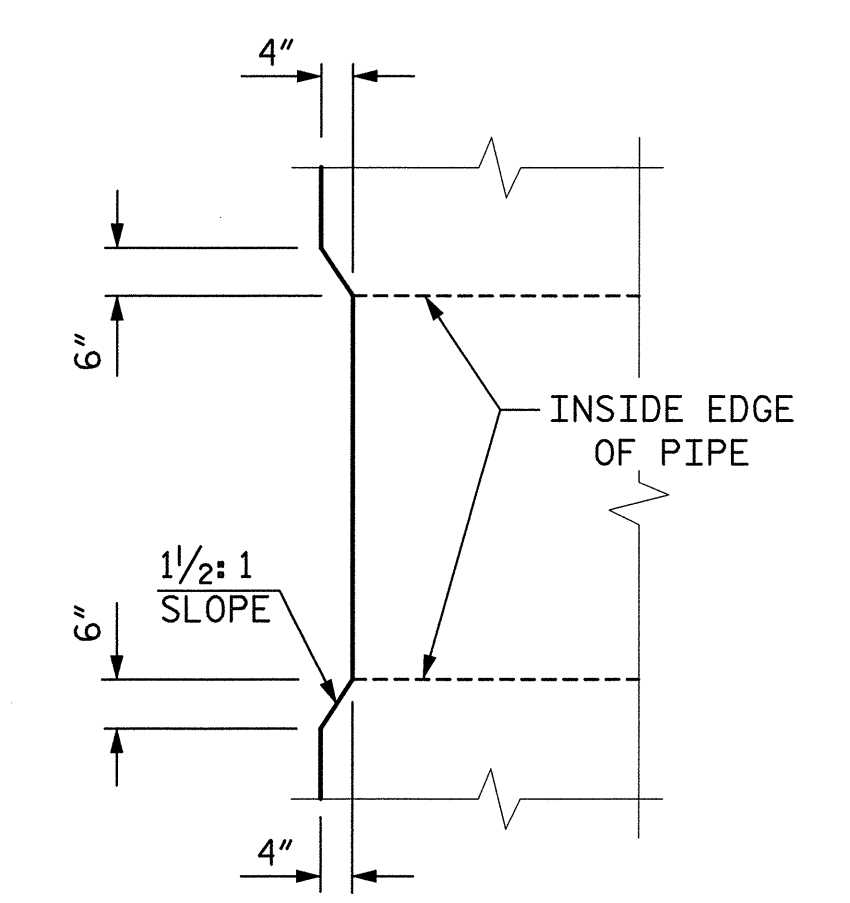


HEADWALL ELEVATION
SCALE: 1/2" = 1'-0"

F.F. = FILL FACE
S.F. = STREAM FACE
E.F. = EACH FACE

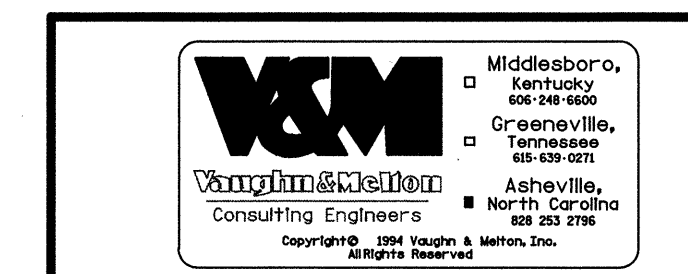
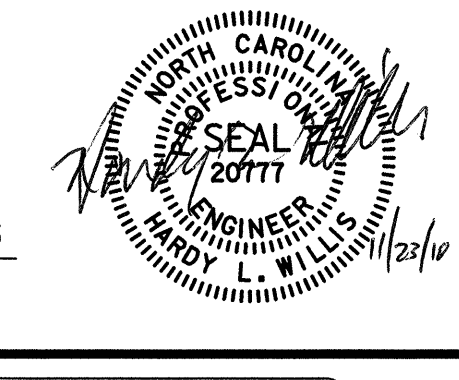


SECTION A-A

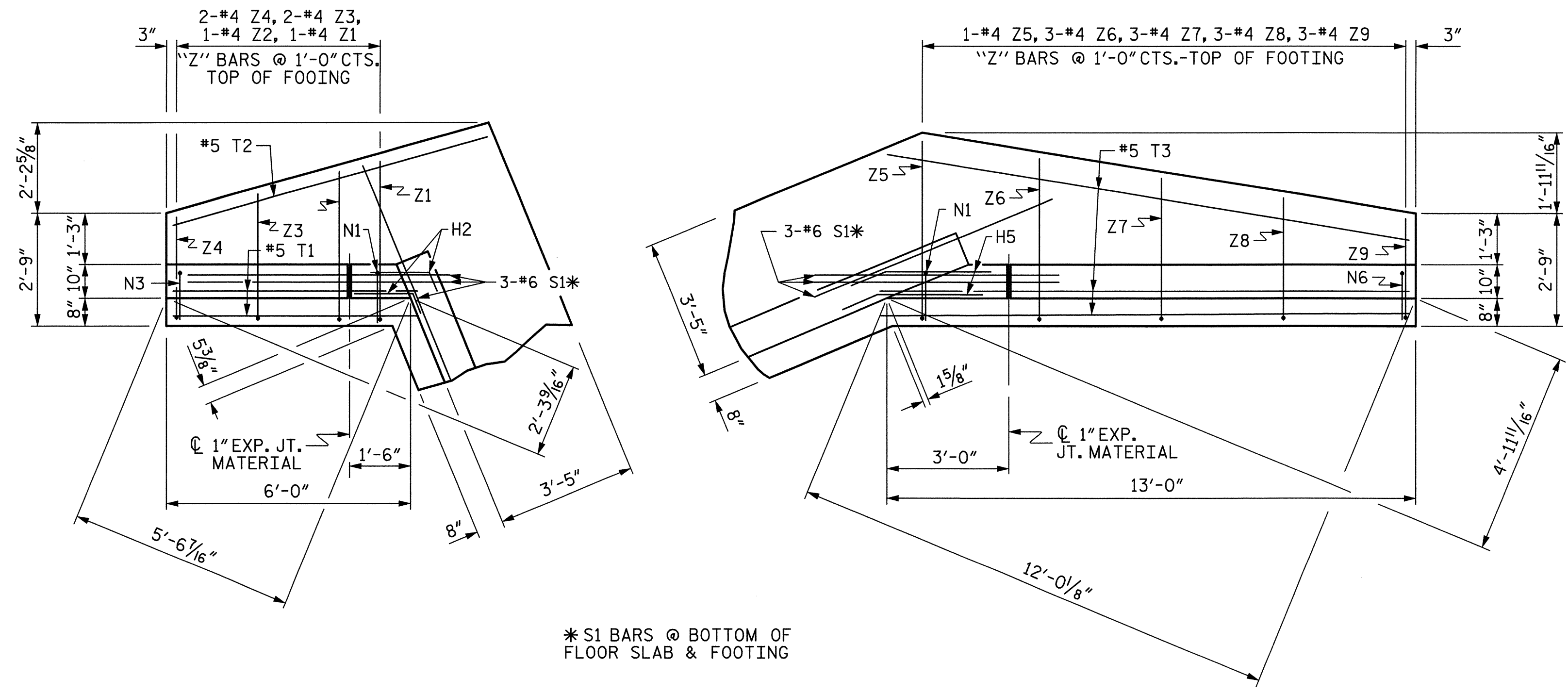


TAPER DETAIL

PROJECT NO. R-5118
SWAIN COUNTY
STATION: 40+61.25 -L-REV-



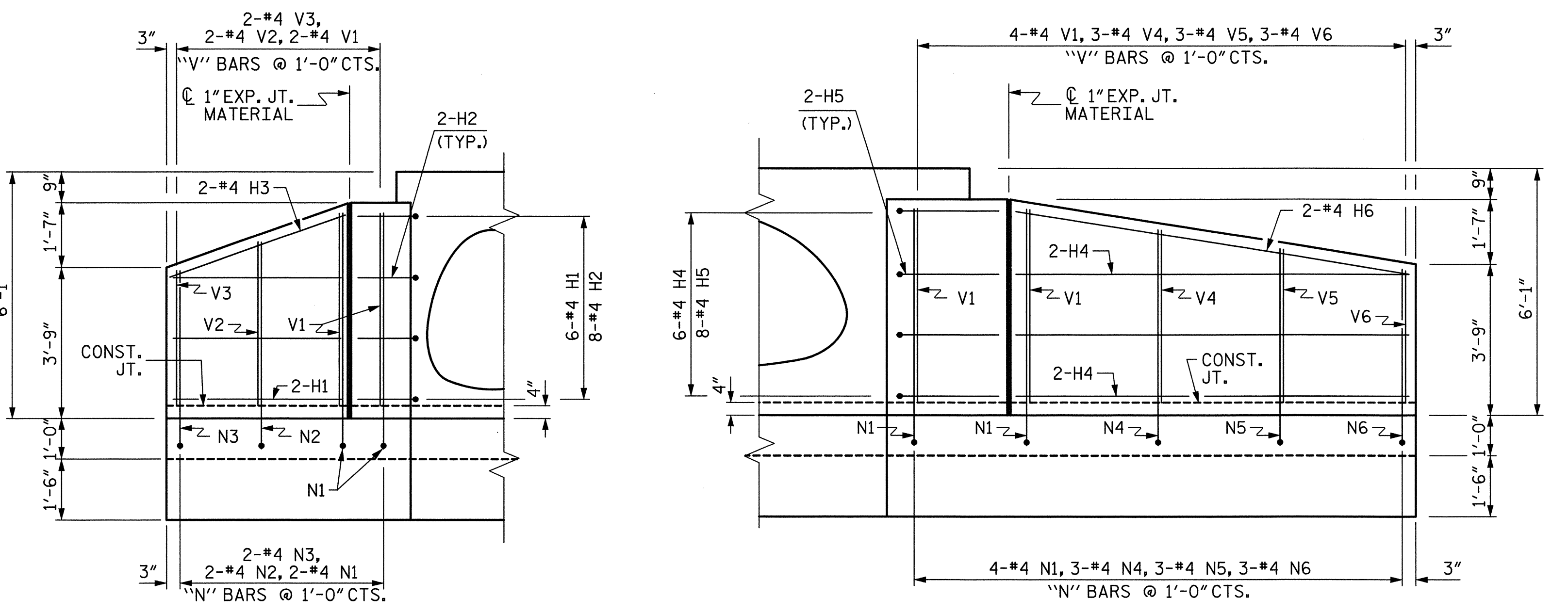
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH		JANUARY 2006			
PLAN & ELEVATION					
DRAWN BY: SF		DATE: JAN. 2006			
CHECKED BY: HLW		DATE: JAN. 2006			
DRAWING NO. 2 OF 3					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. 2-J			TOTAL SHEETS		



PLAN W2

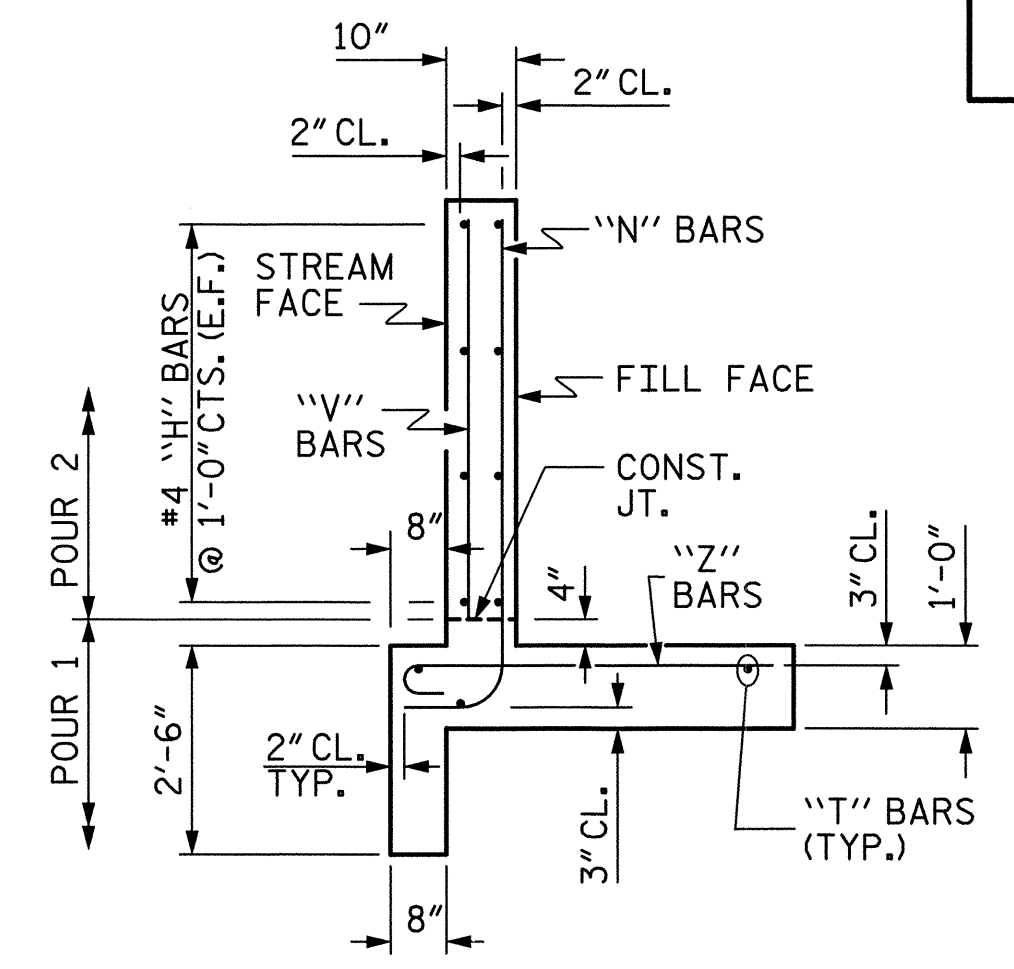
PLAN W1

* S1 BARS @ BOTTOM OF FLOOR SLAB & FOOTING

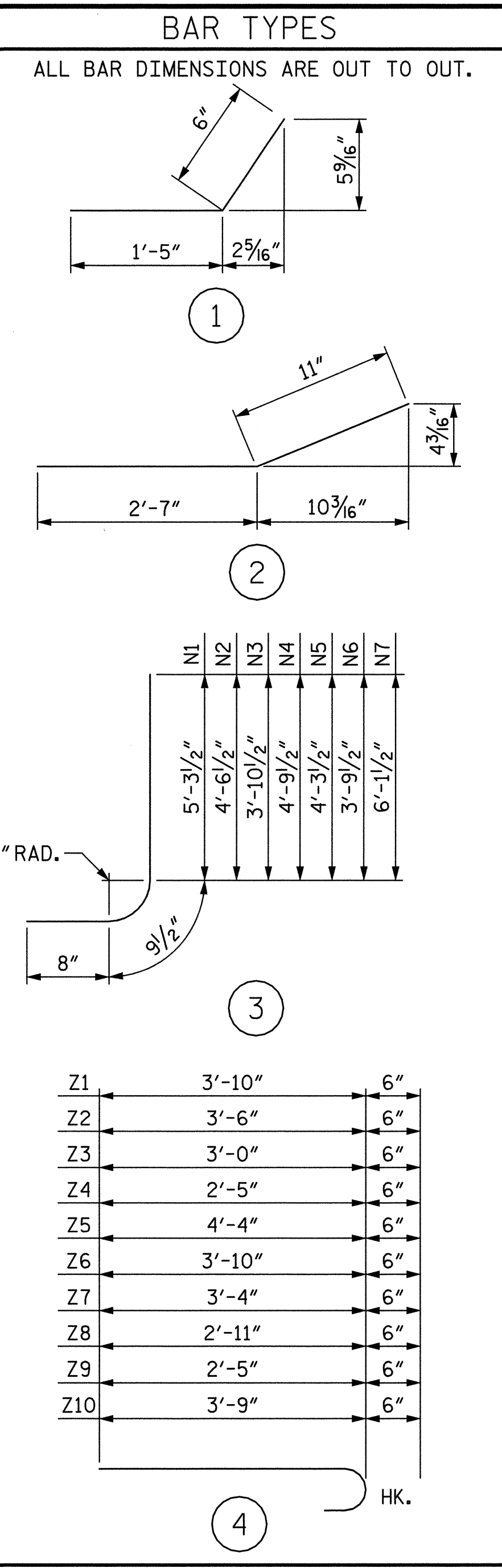


ELEVATION W2

ELEVATION W1

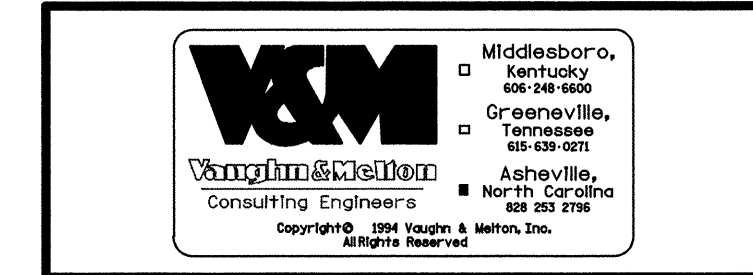
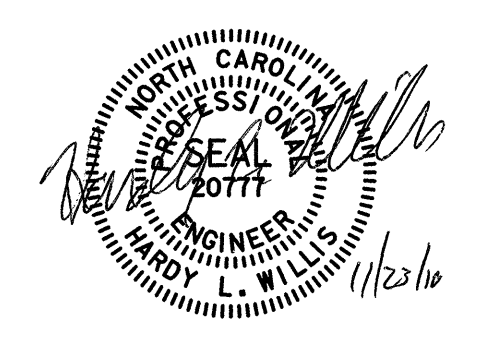


TYPICAL WING SECTION



BILL OF MATERIAL					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#4	STR	6'-10"	37
B2	4	#4	STR	5'-0"	13
B3	4	#4	STR	6'-6"	17
G1	2	#7	STR	25'-6"	104
H1	6	#4	STR	4'-1"	16
H2	8	#4	1	1'-11"	10
H3	2	#4	STR	4'-5"	6
H4	6	#4	STR	9'-7"	38
H5	8	#4	2	3'-6"	19
H6	2	#4	STR	9'-9"	13
N1	6	#4	3	6'-9"	27
N2	2	#4	3	6'-0"	8
N3	2	#4	3	5'-4"	7
N4	3	#4	3	6'-3"	13
N5	3	#4	3	5'-9"	12
N6	3	#4	3	5'-3"	11
N7	13	#4	3	7'-7"	66
S1	6	#6	STR	6'-0"	54
T1	2	#5	STR	6'-2"	13
T2	1	#5	STR	7'-11"	8
T3	3	#5	STR	13'-2"	41
T4	3	#5	STR	28'-0"	88
V1	6	#4	STR	4'-9"	19
V2	2	#4	STR	4'-0"	5
V3	2	#4	STR	3'-4"	4
V4	3	#4	STR	4'-3"	9
V5	3	#4	STR	3'-9"	8
V6	3	#4	STR	3'-3"	7
V7	8	#4	STR	5'-7"	30
Z1	1	#4	4	4'-4"	3
Z2	1	#4	4	4'-0"	3
Z3	2	#4	4	3'-6"	5
Z4	2	#4	4	2'-11"	4
Z5	1	#4	4	4'-10"	3
Z6	3	#4	4	4'-4"	9
Z7	3	#4	4	3'-10"	8
Z8	3	#4	4	3'-5"	7
Z9	3	#4	4	2'-11"	6
Z10	28	#4	4	4'-3"	79
REINFORCING STEEL					830 LBS
FOR HEADWALL & 2 WINGS					
CLASS A CONCRETE					
POUR 1					8.4 CY
POUR 2					5.2 CY
TOTAL					13.6 CY

F.F. = FILL FACE
S.F. = STREAM FACE
E.F. = EACH FACE



PROJECT NO. R-5118
SWAIN COUNTY
STATION: 40+61.25 -L-REV-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
WINGWALLS AND
BILL OF MATERIAL
JANUARY 2006

DRAWN BY: SF DATE: JAN. 2006
CHECKED BY: HLW DATE: JAN. 2006
DRAWING NO. 3 OF 3

REVISIONS						SHEET NO. 2-K TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202259

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2220000000-E	838	14	CY	REINFORCED ENDWALLS	4820000000-E	1205	80	LF	PAINT PAVEMENT MARKING LINES (8")	6042000000-E	1632	1,740	LF	1/4" HARDWARE CLOTH
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	2253000000-E	840	2.2	CY	PIPE COLLARS	4835000000-E	1205	144	LF	PAINT PAVEMENT MARKING LINES (24")	6045000000-E	SP	30	LF	*** TEMPORARY PIPE (24")
0043000000-N	226	Lump Sum		GRADING	2264000000-E	840	1	CY	PIPE PLUGS	5325600000-E	1510	46	LF	6" WATER LINE	6069000000-E	1638	60	CY	STILLING BASINS
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	2286000000-N	840	44	EA	MASONRY DRAINAGE STRUCTURES	5325800000-E	1510	2,270	LF	8" WATER LINE	6071030000-E	SP	175	LF	COIR FIBER BAFFLES
0057000000-E	226	100	CY	UNDERCUT EXCAVATION	2308000000-E	840	3.46	LF	MASONRY DRAINAGE STRUCTURES	5540000000-E	1515	7	EA	6" VALVE	6084000000-E	1660	3	ACR	SEEDING & MULCHING
0134000000-E	240	4	CY	DRAINAGE DITCH EXCAVATION	2364000000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.16	5546000000-E	1515	8	EA	8" VALVE	6087000000-E	1660	3	ACR	MOWING
0318000000-E	SP	220	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	2374000000-N	840	5	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	5666000000-E	1515	2	EA	FIRE HYDRANT	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
0320000000-E	SP	690	SY	FOUNDATION CONDITIONING FABRIC	2374000000-N	840	19	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	5691100000-E	1520	300	LF	4" SANITARY GRAVITY SEWER	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
0335100000-E	SP	8	LF	12" DRAINAGE PIPE	2374000000-N	840	13	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	5691300000-E	1520	1,538	LF	8" SANITARY GRAVITY SEWER	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
0335200000-E	SP	972	LF	15" DRAINAGE PIPE	2374000000-N	840	13	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	5775000000-E	1525	9	EA	4" DIA UTILITY MANHOLE	6108000000-E	1665	1.5	TON	FERTILIZER TOPDRESSING
0335300000-E	SP	1,024	LF	18" DRAINAGE PIPE	2549000000-E	846	6,340	LF	2'-6" CONCRETE CURB & GUTTER	5780000000-E	1525	16	LF	UTILITY MANHOLE WALL, ** DIA (4")	6110000000-E	SP	50	LF	IMPERVIOUS DIKE
0335500000-E	SP	48	LF	30" DRAINAGE PIPE	2605000000-N	848	5	EA	CONCRETE WHEELCHAIR RAMPS	5801000000-E	1530	1,551	LF	ABANDON 8" UTILITY PIPE	6114500000-N	SP	10	MHR	SPECIALIZED HAND MOWING
0938000000-E	320	40	LF	*** X *** CS STRUCTURAL PLATE PIPE ARCH, ** GAUGE (60" X 46", 10)	2612000000-E	848	330	SY	6" CONCRETE DRIVEWAY	5816000000-N	1530	5	EA	ABANDON UTILITY MANHOLE	6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
0995000000-E	340	403	LF	PIPE REMOVAL	3566000000-E	867	155	LF	WOVEN WIRE FENCE RESET	5828000000-N	1530	1	EA	REMOVE UTILITY MANHOLE					
1220000000-E	545	54	TON	INCIDENTAL STONE BASE	3628000000-E	876	7	TON	RIP RAP, CLASS I	6000000000-E	1605	4,030	LF	TEMPORARY SILT FENCE					
1489000000-E	610	3,760	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	3649000000-E	876	10	TON	RIP RAP, CLASS B	6006000000-E	1610	720	TON	STONE FOR EROSION CONTROL, CLASS A					
1519000000-E	610	1,170	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	3656000000-E	876	1,125	SY	FILTER FABRIC FOR DRAINAGE	6009000000-E	1610	95	TON	STONE FOR EROSION CONTROL, CLASS B					
1560000000-E	620	235	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4400000000-E	1110	126	SF	WORK ZONE SIGNS (STATIONARY)	6012000000-E	1610	420	TON	SEDIMENT CONTROL STONE					
1693000000-E	654	460	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	4405000000-E	1110	240	SF	WORK ZONE SIGNS (PORTABLE)	6015000000-E	1615	2	ACR	TEMPORARY MULCHING					
2022000000-E	SP	100	CY	SUBDRAIN EXCAVATION	4430000000-N	1130	64	EA	DRUMS	6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING					
2033000000-E	SP	50	CY	SUBDRAIN FINE AGGREGATE	4450000000-N	1150	1,000	HR	FLAGGER	6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING					
2044000000-E	SP	300	LF	6" PERFORATED SUBDRAIN PIPE	4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS	6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS					
2070000000-N	SP	1	EA	SUBDRAIN PIPE OUTLETS	4485000000-E	1170	70	LF	PORTABLE CONCRETE BARRIER	6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS					
2077000000-E	SP	6	LF	6" OUTLET PIPE (SUBDRAINS)	4770000000-E	1205	7,100	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	6029000000-E	SP	750	LF	SAFETY FENCE					
2190000000-N	828	9	EA	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	4810000000-E	1205	16,011	LF	PAINT PAVEMENT MARKING LINES (4")	6030000000-E	1630	245	CY	SILT EXCAVATION					
										6036000000-E	1631	5,000	SY	MATTING FOR EROSION CONTROL					

5/28/09

8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BRYSON CP2" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 6750607.44(1) EASTING: 639989.517(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99962875 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BRYSON CP2" TO -L- STATION 10+00.00 IS N 18° 30' 37.5" W 1,089.31' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

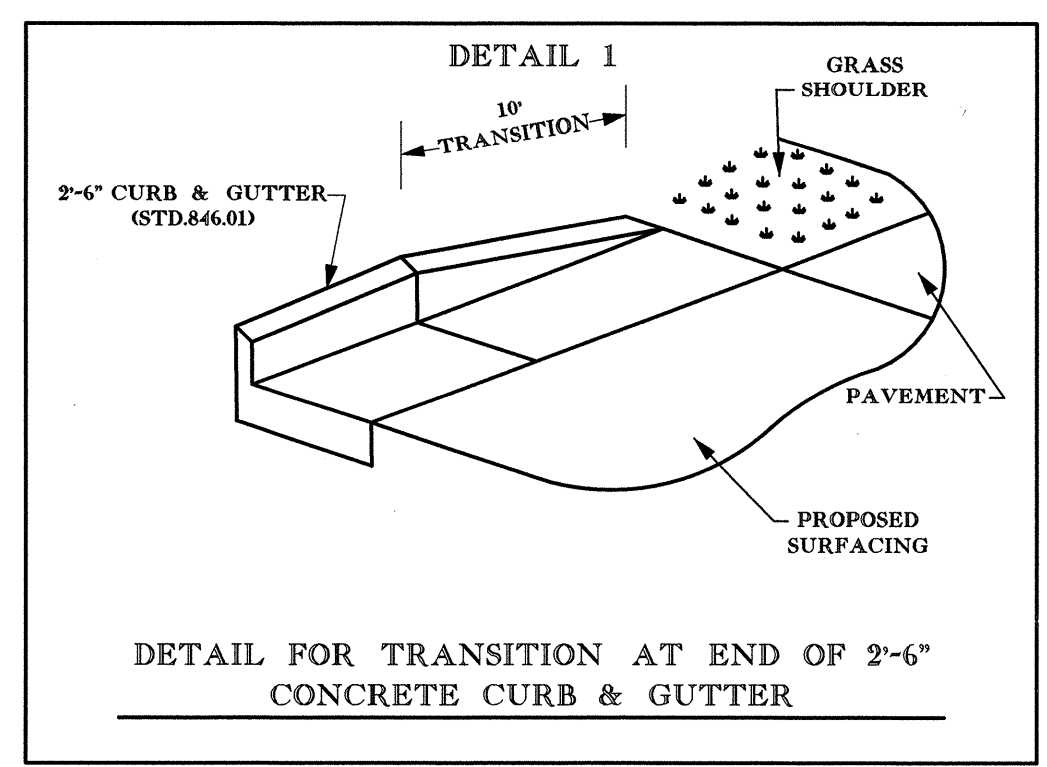
PROJECT REFERENCE NO. R-5118		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

REMOVE EXISTING PAVEMENT

TIE TO EXISTING PAVEMENT
BEGIN TIP PROJECT R-5118
-L- STA. 10+20

TIE TO EXISTING PAVEMENT
BEGIN CURB & GUTTER
-L- STA 10+25
SEE DETAIL 1

10+16.22 @ EXIST. RW



PI Sta 10+88.11
 $\Delta = 2' 35' 53.8" (RT)$
 $D = 2' 36' 15.7"$
 $L = 99.77'$
 $T = 49.89'$
 $R = 2,200.00'$
 $SE = 0.03$
 $RO = 63.00'$

PI Sta 12+46.82
 $\Delta = 2' 31' 47.9" (LT)$
 $D = 2' 37' 15.7"$
 $L = 97.14'$
 $T = 48.58'$
 $R = 2,200.00'$
 $SE = 0.03$
 $RO = 63.00'$

SEE SHEET 11 FOR PROFILE

MATCHLINE -L- 14+50 SEE SHEET 5

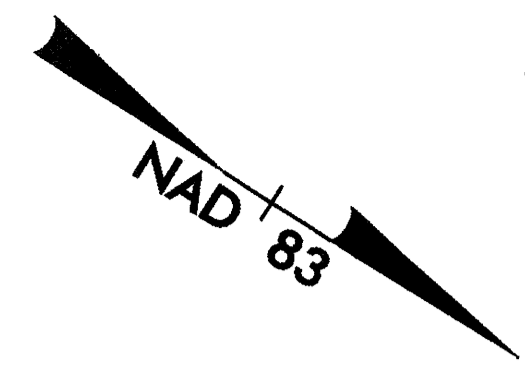
REVISIONS

SYSTEMS
 DESIGN
 CONSULTANTS
 INC.

DESIGNER: RW, CSD, JCM, 11/2/2010 7:58:10 PM

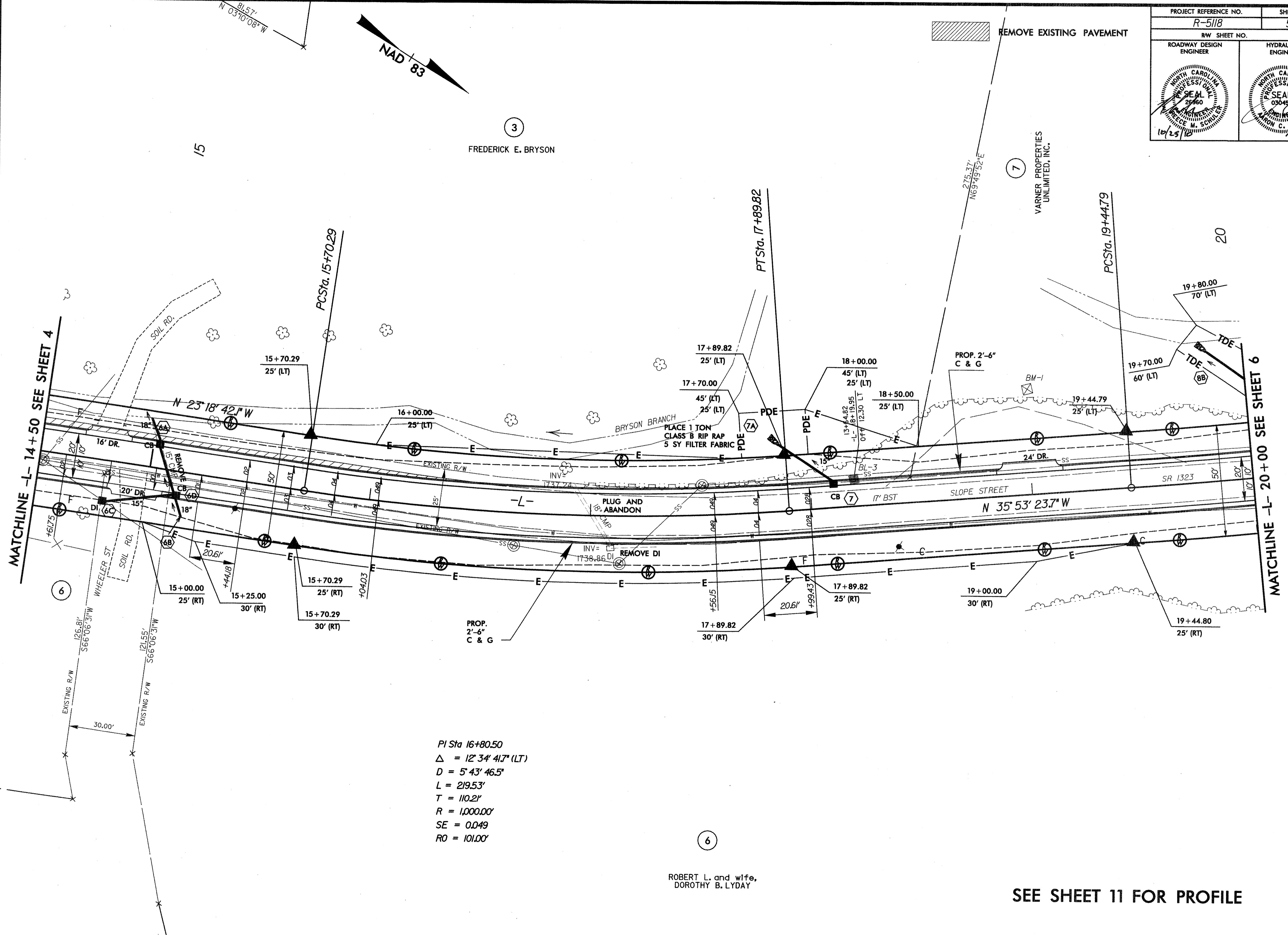
8/17/99

PROJECT REFERENCE NO. <i>R-5118</i>		SHEET NO. 5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



3
FREDERICK E. BRYSON

7
VARNER PROPERTIES
UNLIMITED, INC.



PI Sta 16+80.50
 $\Delta = 12' 34' 41.7''$ (LT)
 $D = 5' 43' 46.5''$
 $L = 219.53'$
 $T = 110.21'$
 $R = 1,000.00'$
 $SE = 0.049$
 $RO = 101.00'$

6
ROBERT L. and wife,
DOROTHY B. LYDAY

SEE SHEET 11 FOR PROFILE

REVISIONS

MATCHLINE -L- 14+50 SEE SHEET 4

MATCHLINE -L- 20+00 SEE SHEET 6

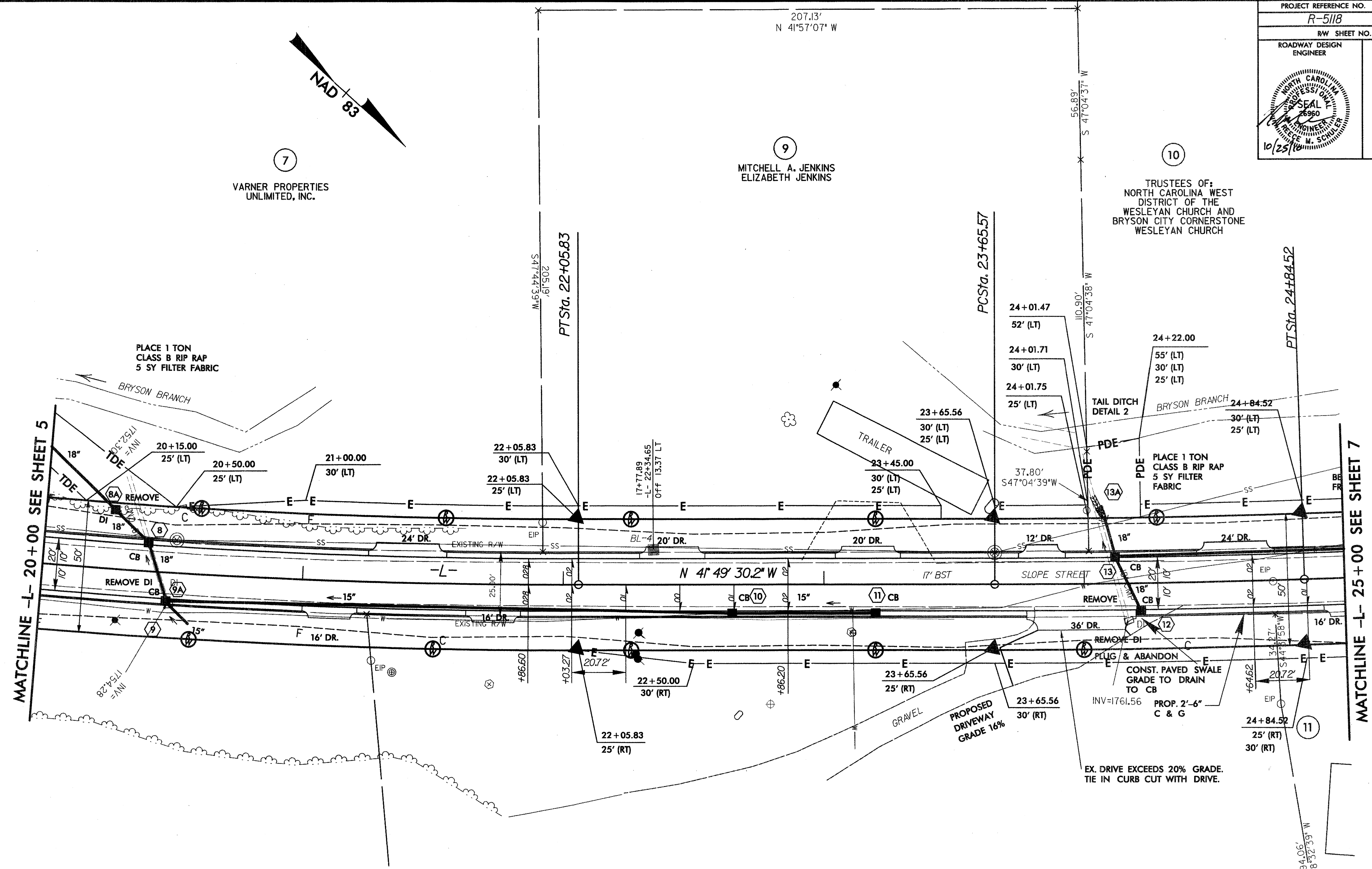
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PROJECT REFERENCE NO. R-5118	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

7
VARNER PROPERTIES
UNLIMITED, INC.

9
MITCHELL A. JENKINS
ELIZABETH JENKINS

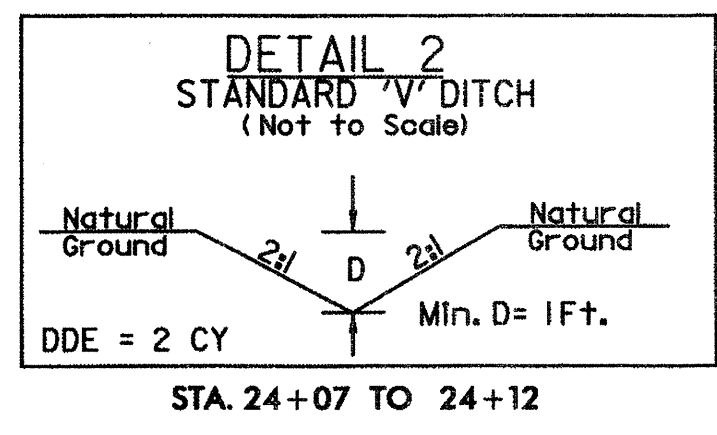
10
TRUSTEES OF:
NORTH CAROLINA WEST
DISTRICT OF THE
WESLEYAN CHURCH AND
BRYSON CITY CORNERSTONE
WESLEYAN CHURCH



PI Sta 20+75.43
 $\Delta = 5' 56'' 06.4''$ (LT)
 $D = 2' 16'' 25.1''$
 $L = 261.04'$
 $T = 130.64'$
 $R = 2,520.00'$
 $SE = 0.028$
 $RO = 58.10'$

6
ROBERT L. and wife,
DOROTHY B. LYDAY

8
MARK FORTNER



PI Sta 24+25.05
 $\Delta = 1' 52'' 20.6''$ (LT)
 $D = 1' 34'' 26.6''$
 $L = 118.95'$
 $T = 59.48'$
 $R = 3,640.00'$
 $SE = 0.02$
 $RO = 41.44'$

SEE SHEET 11 & 12 FOR PROFILE

REVISIONS

8/17/99

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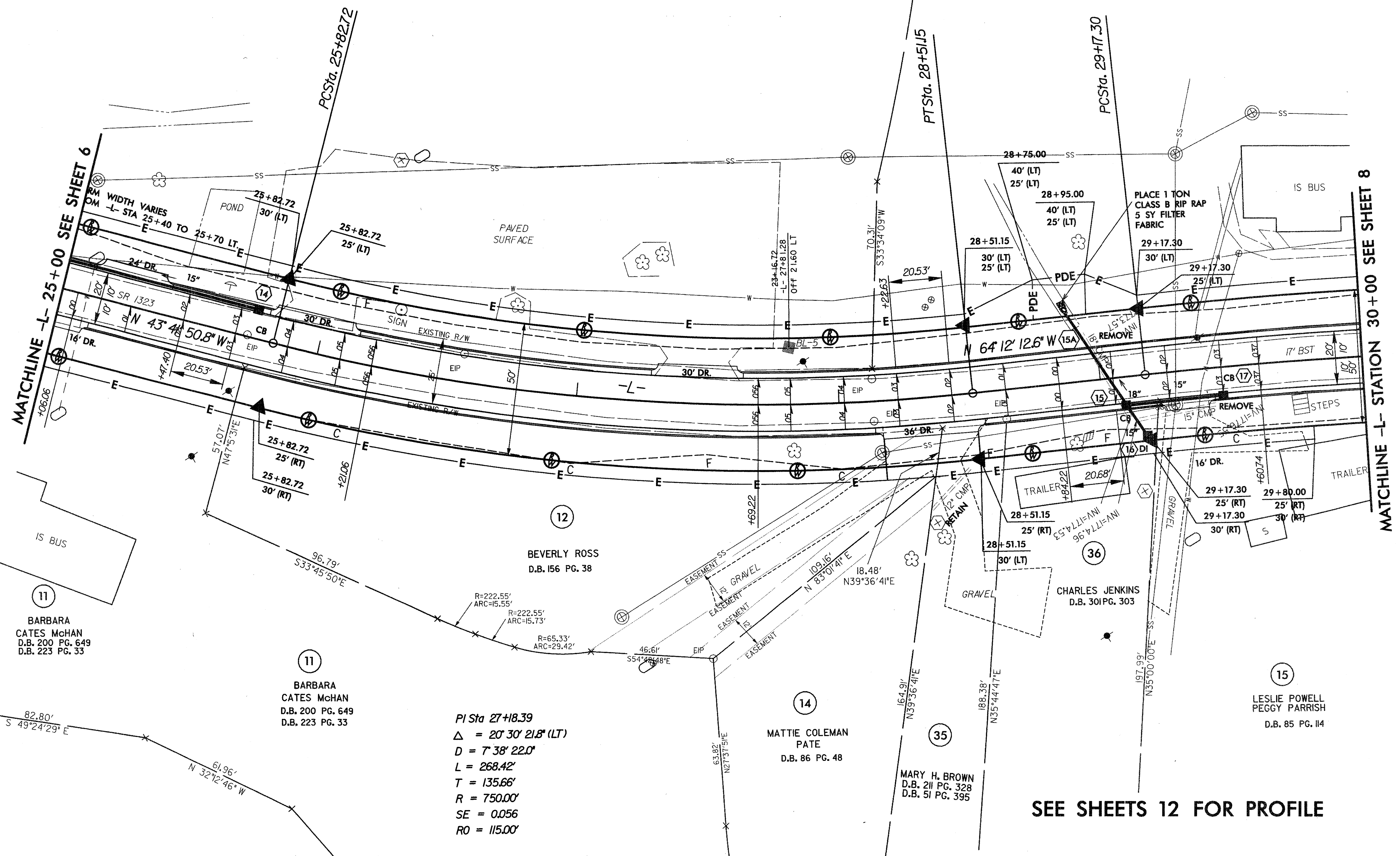
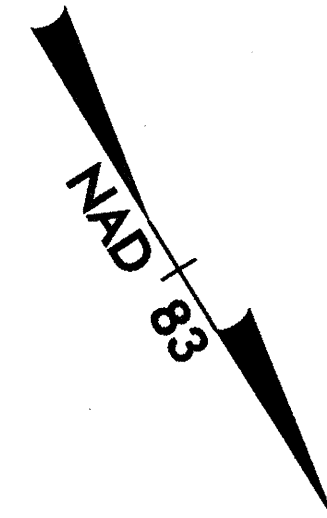
8/17/99

REVISIONS

PROJECT REFERENCE NO. R-5118	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

10
 TRUSTEES OF:
 NORTH CAROLINA WEST
 DISTRICT OF THE
 WESLEYAN CHURCH AND
 BRYSON CITY CORNERSTONE
 WESLEYAN CHURCH
 D.B. 208 PG. 762

13
 MOUNTAIN MORTGAGE
 INVESTMENT COMPANY
 D.B. 120 PG. 683



PI Sta 27+18.39
 $\Delta = 20' 30' 21.8''$ (LT)
 $D = 7' 38' 22.0''$
 $L = 268.42'$
 $T = 135.66'$
 $R = 750.00'$
 $SE = 0.056$
 $RO = 115.00'$

SEE SHEETS 12 FOR PROFILE

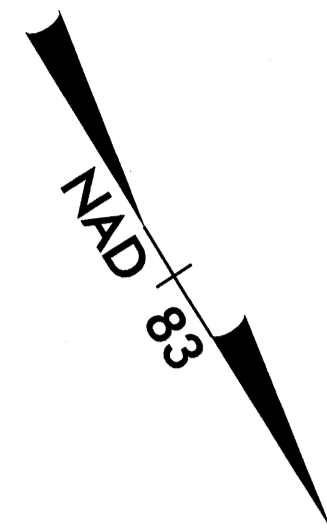
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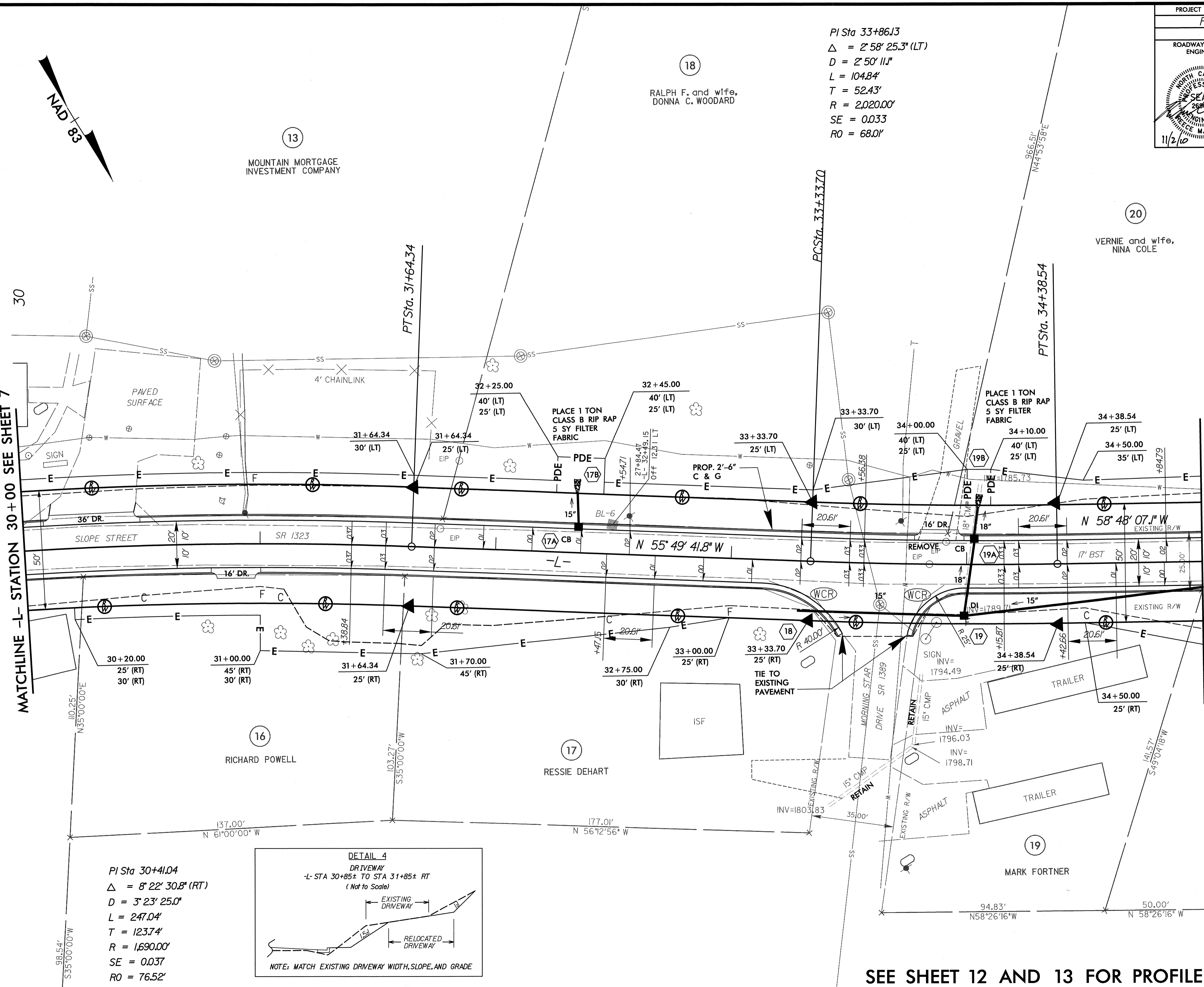
PROJECT REFERENCE NO. R-5118		SHEET NO. 8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

PI Sta 33+86J3
 $\Delta = 2' 58' 25.3" (LT)$
 $D = 2' 50' 11.1"$
 $L = 104.84'$
 $T = 52.43'$
 $R = 2,020.00'$
 $SE = 0.033$
 $RO = 68.01'$

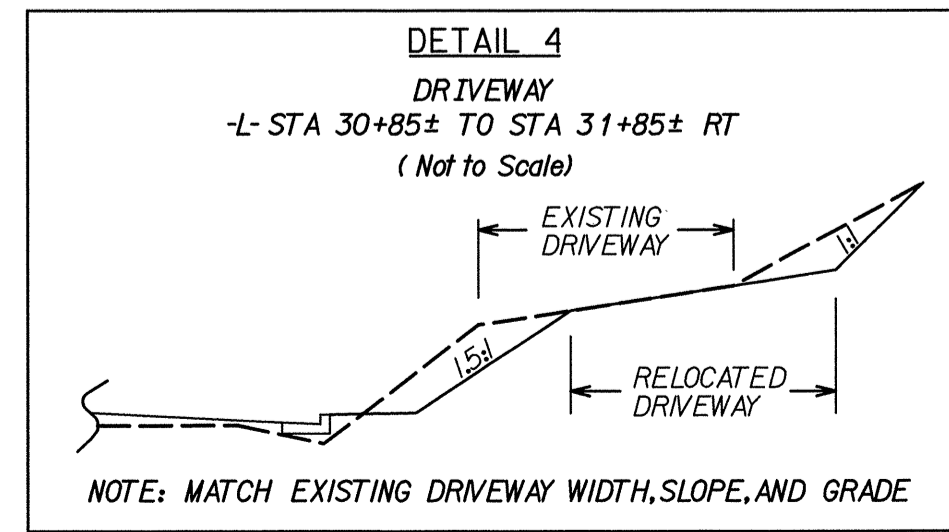


MATCHLINE -L- STATION 30+00 SEE SHEET 7

MATCHLINE L- STATION 35+00 SEE SHEET 9



PI Sta 30+41.04
 $\Delta = 8' 22' 30.8" (RT)$
 $D = 3' 23' 25.0"$
 $L = 247.04'$
 $T = 123.74'$
 $R = 1,690.00'$
 $SE = 0.037$
 $RO = 76.52'$

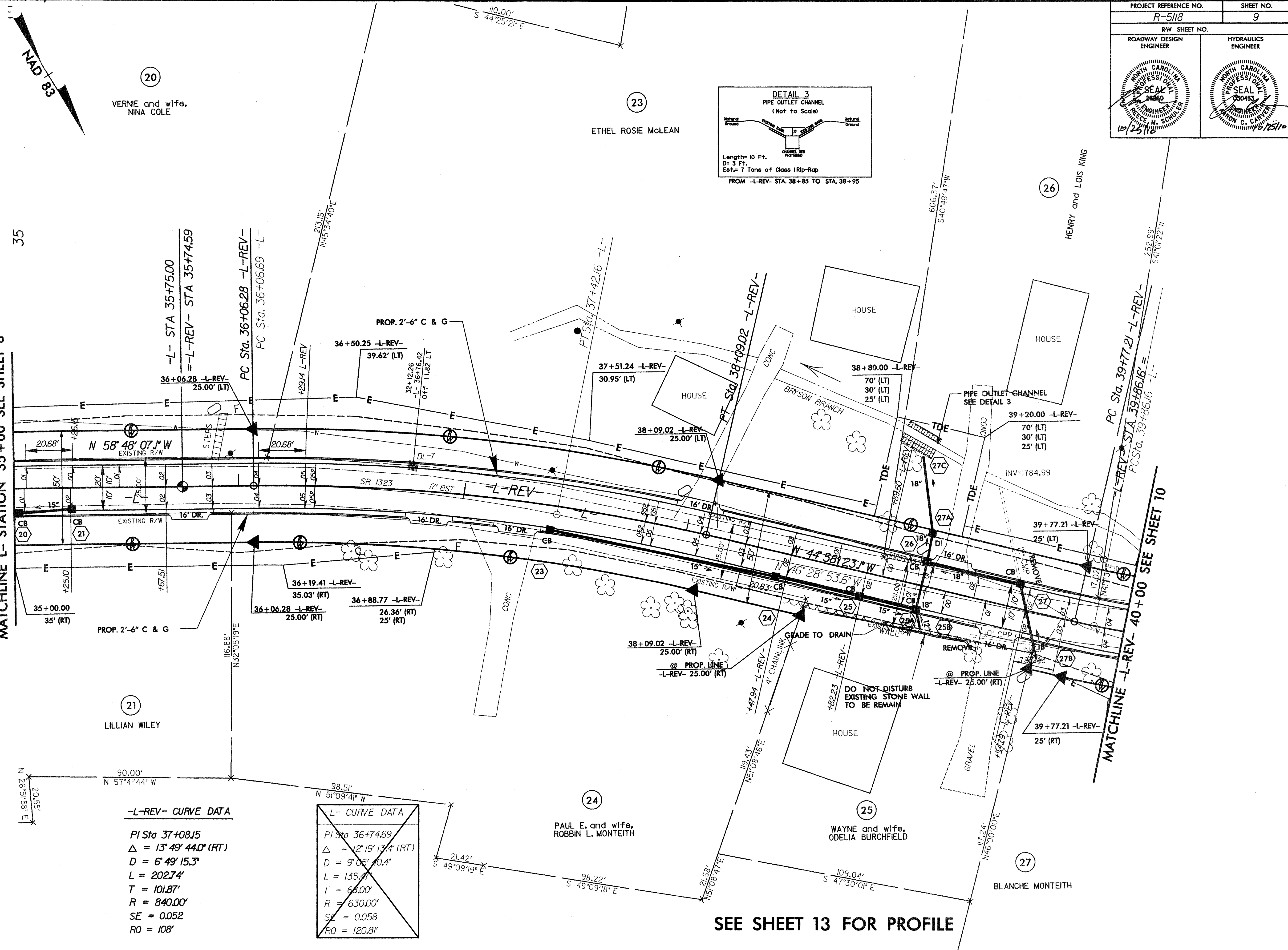
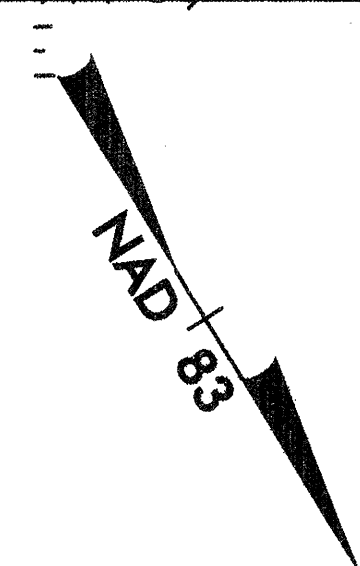
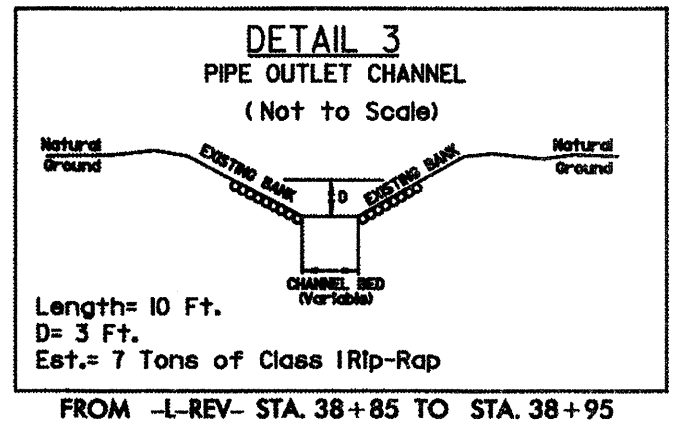


SEE SHEET 12 AND 13 FOR PROFILE

REVISIONS

SYSTEMS ENGINEERING

TECHNICAL DRAWING



-L-REV- CURVE DATA

PI Sta 37+08.15
$\Delta = 13^\circ 49' 44.0''$ (RT)
$D = 6' 49' 15.3''$
$L = 202.74'$
$T = 101.87'$
$R = 840.00'$
$SE = 0.052$
$RO = 108'$

-L- CURVE DATA

PI Sta 36+74.69
$\Delta = 12^\circ 19' 13.4''$ (RT)
$D = 9' 06' 10.4''$
$L = 135.4'$
$T = 68.00'$
$R = 630.00'$
$SE = 0.058$
$RO = 120.81'$

SEE SHEET 13 FOR PROFILE

MATCHLINE L- STATION 35+00 SEE SHEET 8

MATCHLINE -L-REV- 40+00 SEE SHEET 10

REVISIONS

SYSTEMS DESIGN CONSULTANTS
 8/17/99
 PROJECT: R-5118, SHEET: 9, DATE: 10/25/18, TIME: 12:54:48 PM

PROJECT REFERENCE NO. R-5118	SHEET NO. 10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-REV- CURVE DATA

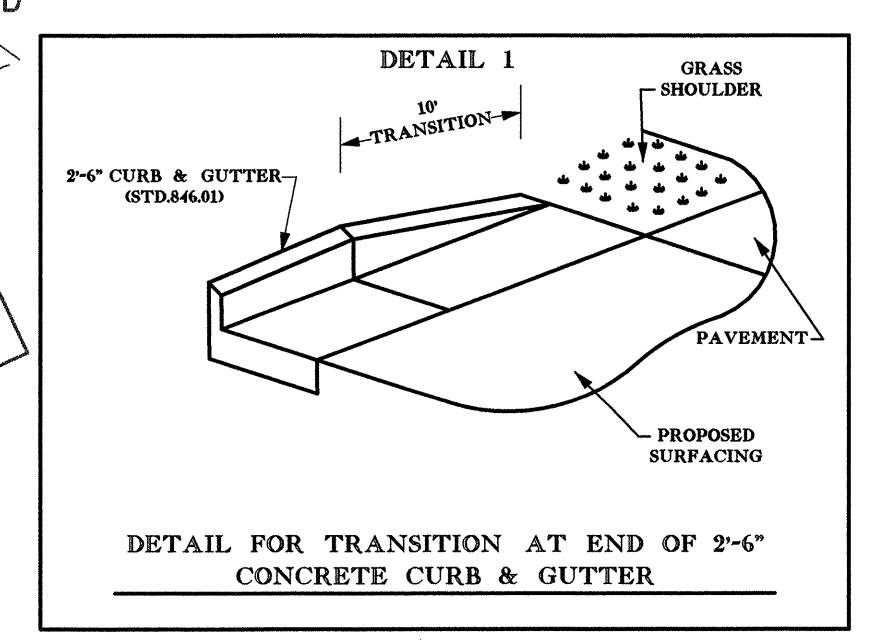
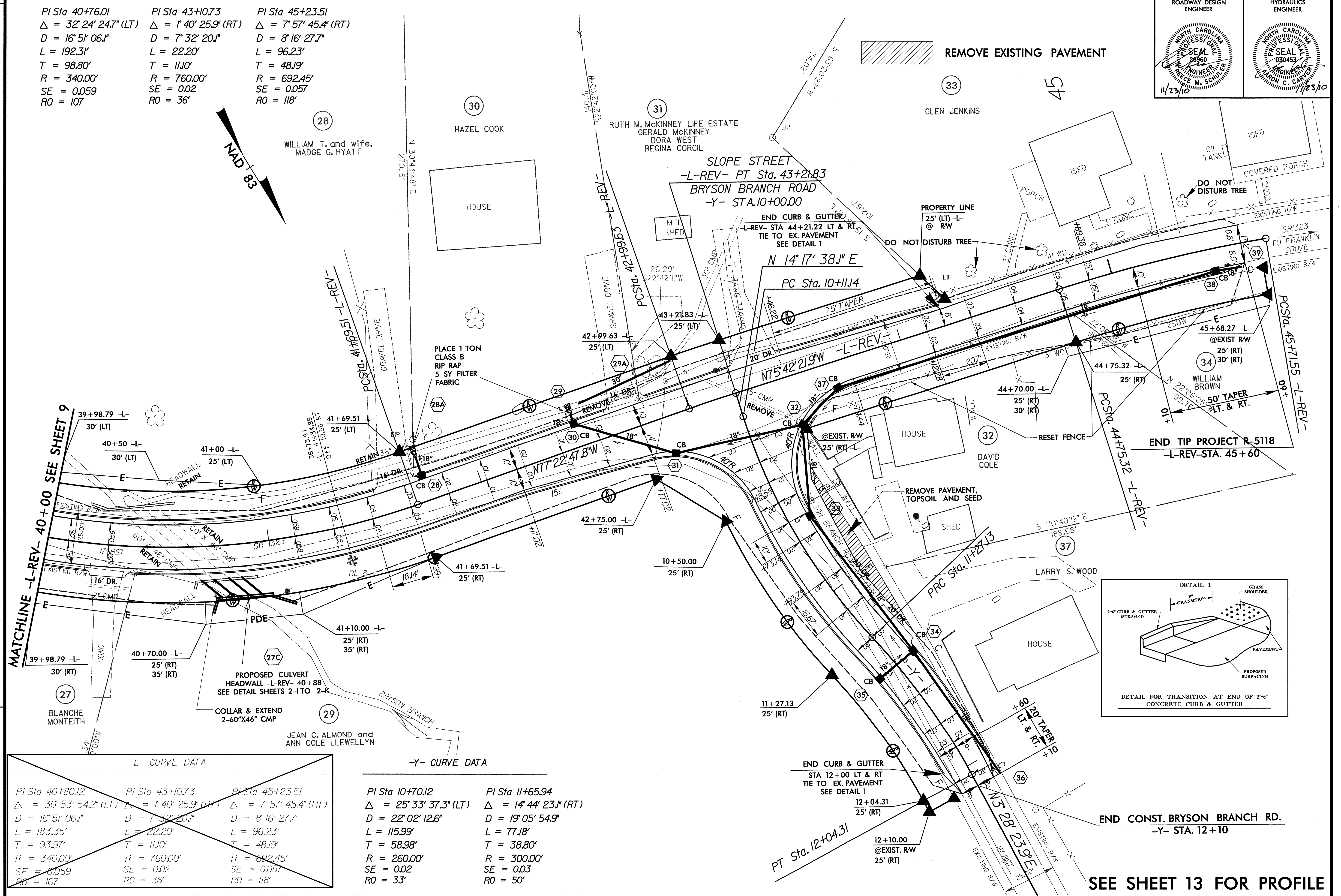
PI Sta 40+76.01 Δ = 32° 24' 24.7" (LT) D = 16' 51' 06.1" L = 192.31' T = 98.80' R = 340.00' SE = 0.059 RO = 107	PI Sta 43+10.73 Δ = 1° 40' 25.9" (RT) D = 7' 32' 20.1" L = 22.20' T = 11.0' R = 760.00' SE = 0.02 RO = 36'	PI Sta 45+23.51 Δ = 7° 57' 45.4" (RT) D = 8' 16' 27.7" L = 96.23' T = 48.19' R = 692.45' SE = 0.057 RO = 118'
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-L- CURVE DATA

PI Sta 40+80.12 Δ = 30° 53' 54.2" (LT) D = 16' 51' 06.1" L = 183.35' T = 93.97' R = 340.00' SE = 0.059 RO = 107	PI Sta 43+10.73 Δ = 1° 40' 25.9" (RT) D = 7' 32' 20.1" L = 22.20' T = 11.0' R = 760.00' SE = 0.02 RO = 36'	PI Sta 45+23.51 Δ = 7° 57' 45.4" (RT) D = 8' 16' 27.7" L = 96.23' T = 48.19' R = 692.45' SE = 0.057 RO = 118'
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-Y- CURVE DATA

PI Sta 10+70.12 Δ = 25° 33' 37.3" (LT) D = 22' 02' 12.6" L = 115.99' T = 58.98' R = 260.00' SE = 0.02 RO = 33'	PI Sta 11+65.94 Δ = 14° 44' 23.1" (RT) D = 19' 05' 54.9" L = 77.18' T = 38.80' R = 300.00' SE = 0.03 RO = 50'
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SEE SHEET 13 FOR PROFILE

REVISIONS

8/17/99

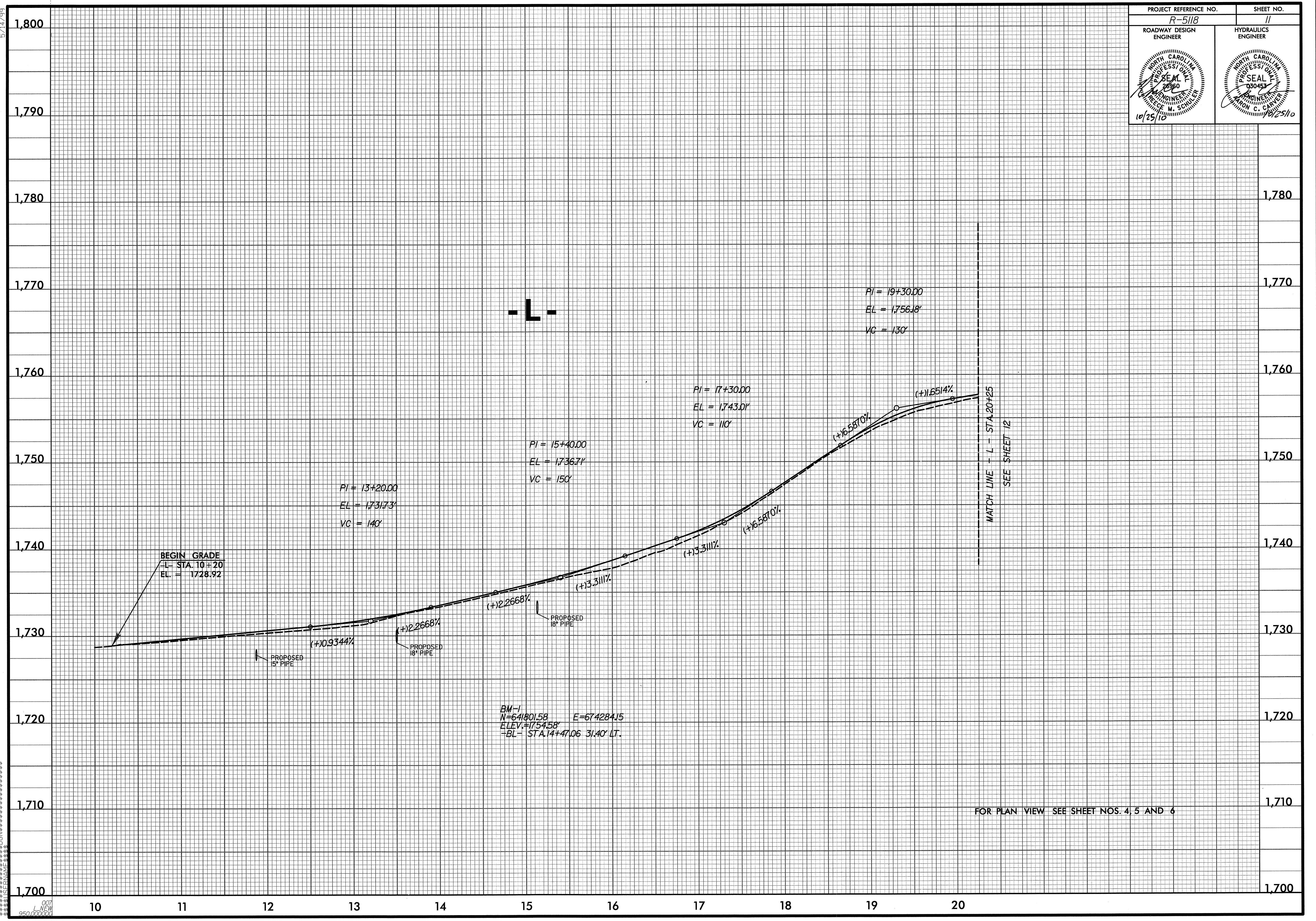
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007
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STATIONING
CONSTRUCTION

PROJECT REFERENCE NO. R-5118	SHEET NO. 11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

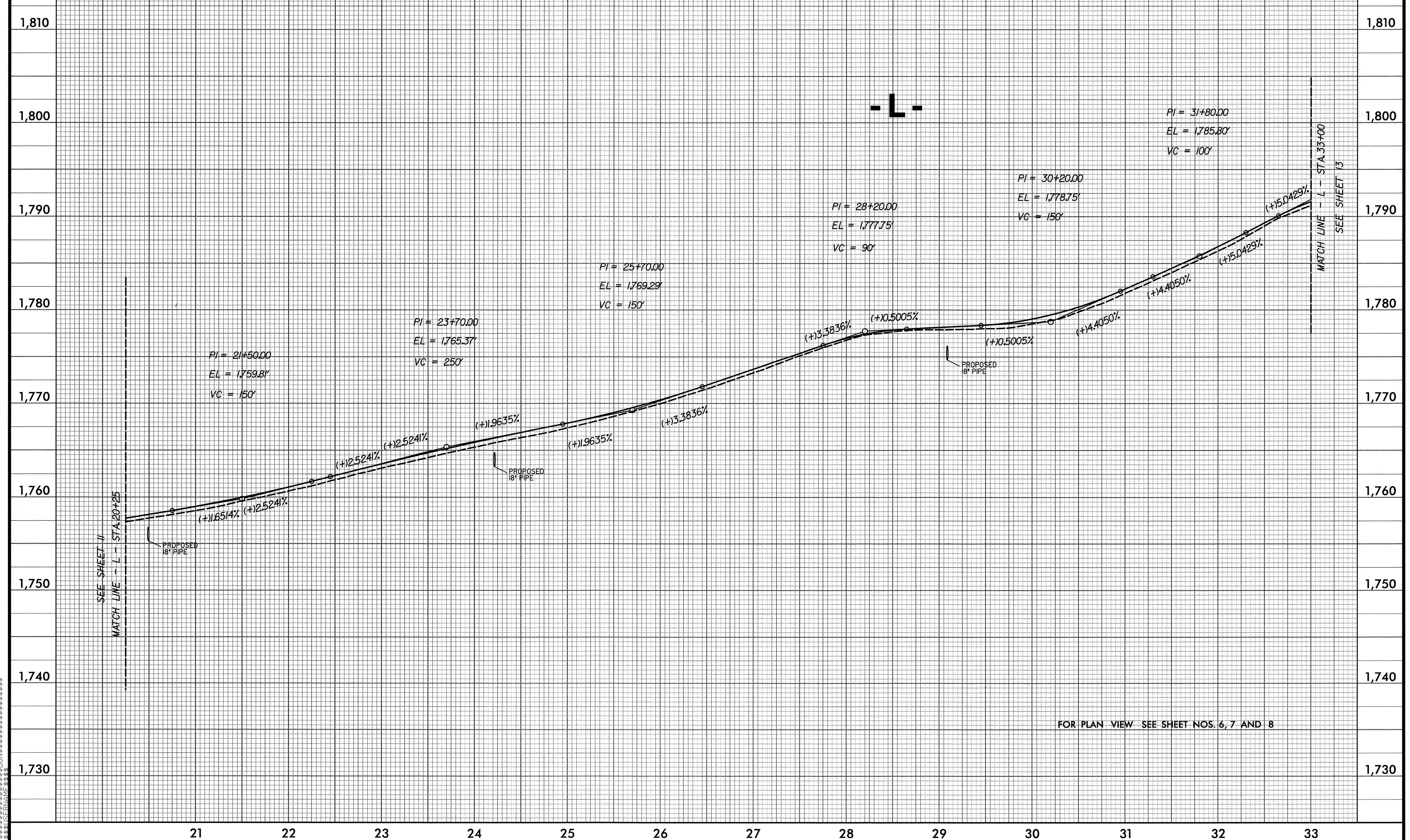


FOR PLAN VIEW SEE SHEET NOS. 4, 5 AND 6

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5/14/99
SYSTEMS
SECTION
DATE

PROJECT REFERENCE NO. R-5118	SHEET NO. 12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

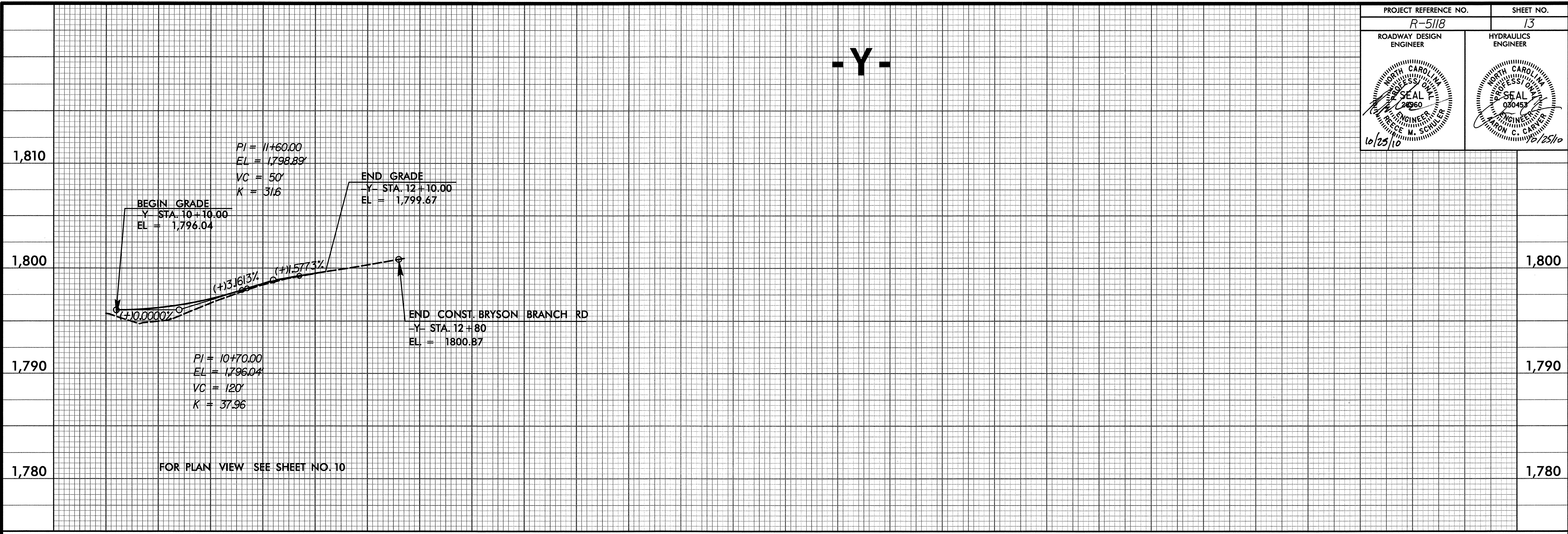


FOR PLAN VIEW SEE SHEET NOS. 6, 7 AND 8

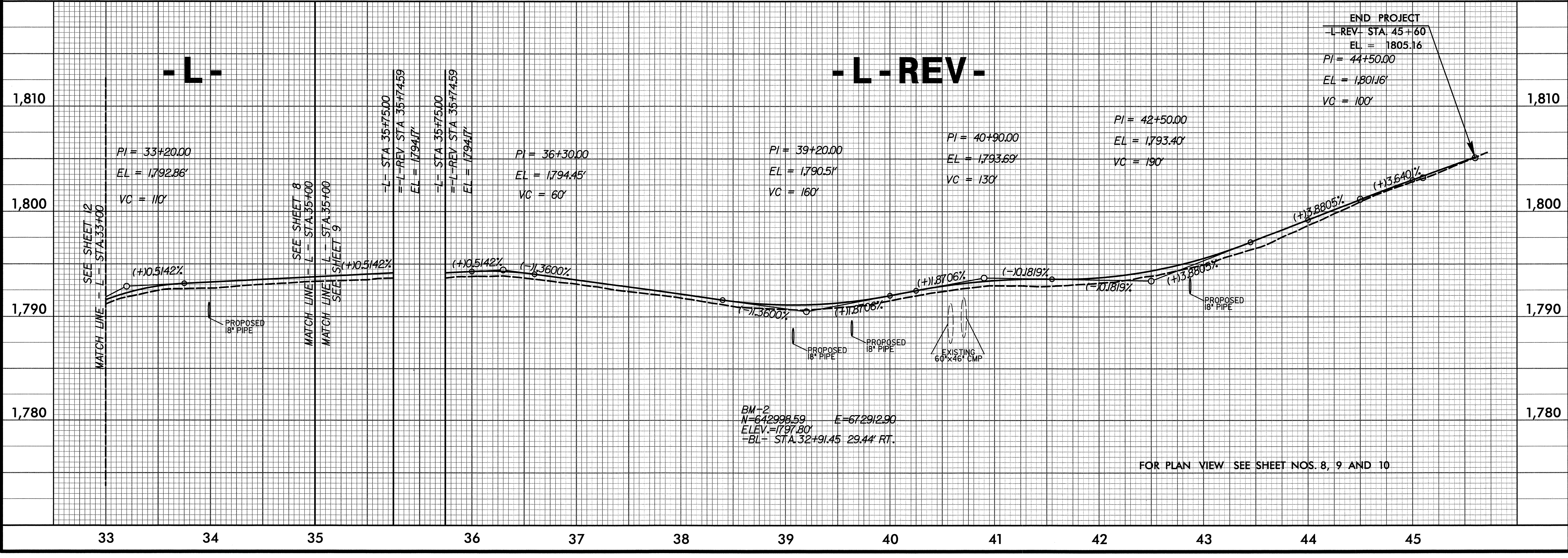
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PROJECT REFERENCE NO. R-5118	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



10 11 12 13



33 34 35 36 37 38 39 40 41 42 43 44 45

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