

09/08/09

See Sheet 1-A For Index of Sheets

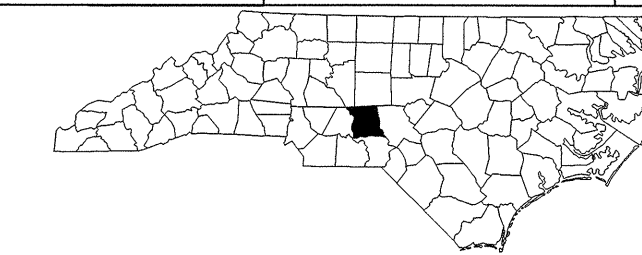
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY

LOCATION: BISCOE - NC 24-27 (EAST MAIN ST.) FROM US 220A
(MAIN ST.) TO I-73/74/US 220

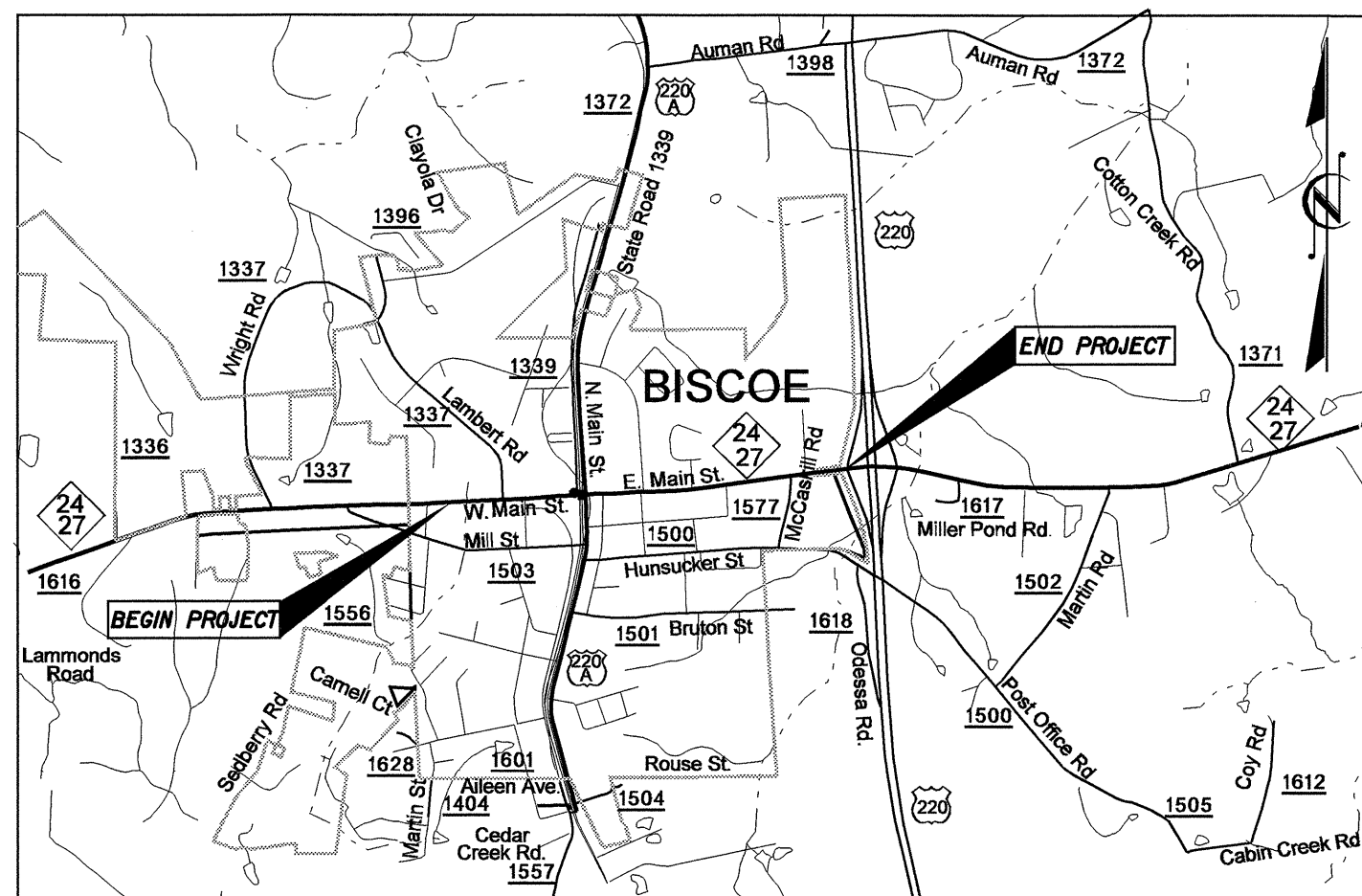
TYPE OF WORK: GRADING, DRAINAGE, PAVING,

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2107B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34373.1.1		PE	
34373.2.2		RW & UTIL	
34373.3.ST1		CONST.	

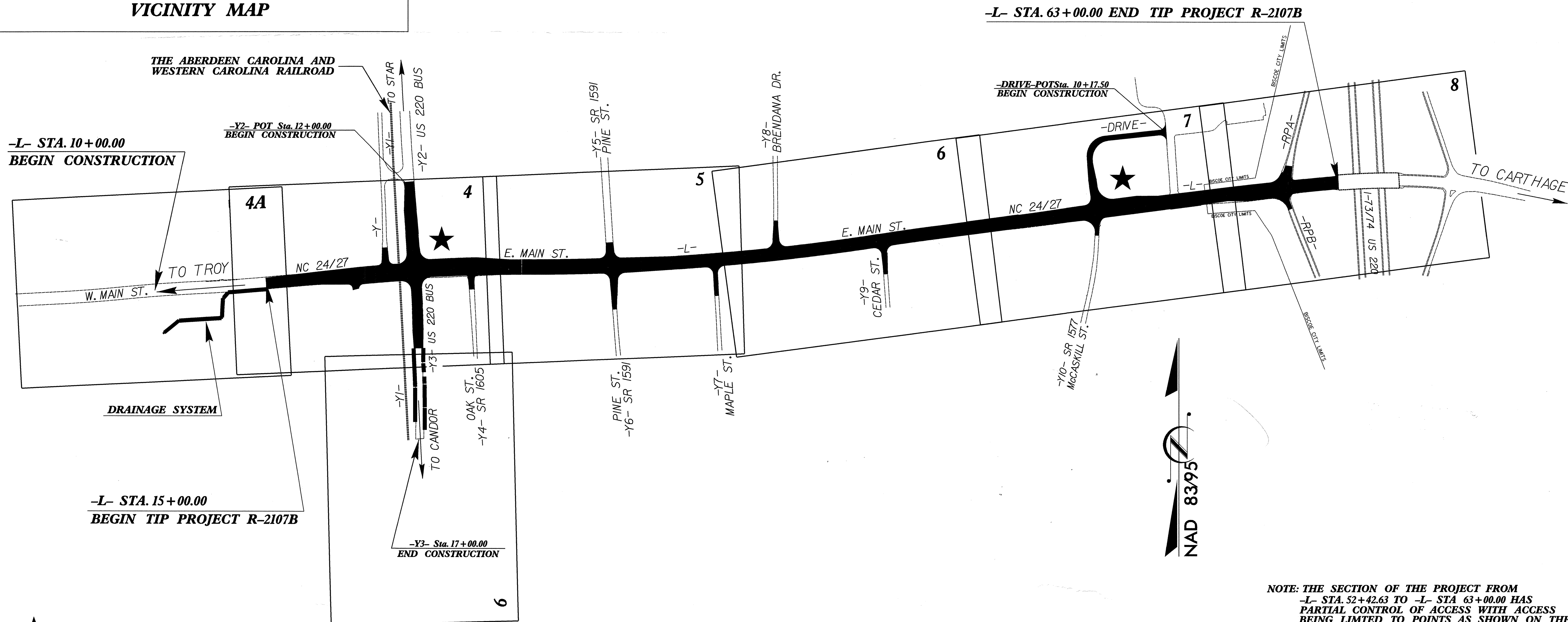


TIP PROJECT: R-2107B

CONTRACT: C202043



VICINITY MAP



-L- STA. 10+00.00
BEGIN CONSTRUCTION

-Y2- POT Sta. 12+00.00
BEGIN CONSTRUCTION

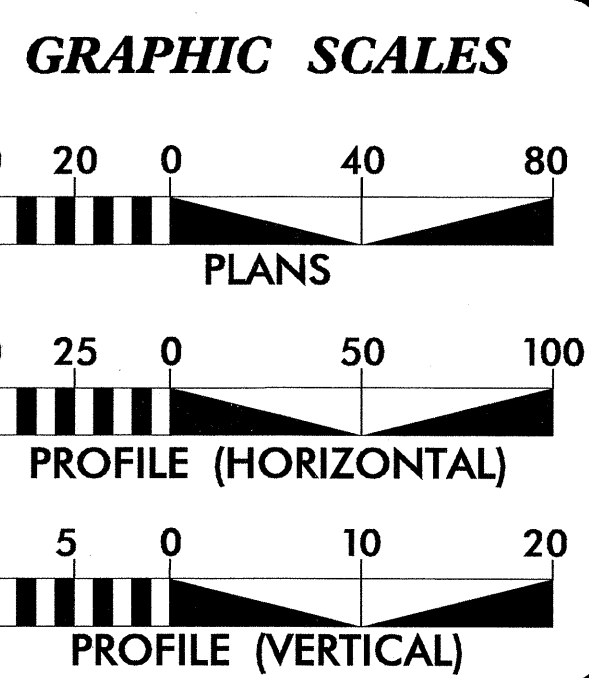
-L- STA. 63+00.00 END TIP PROJECT R-2107B

-L- STA. 15+00.00
BEGIN TIP PROJECT R-2107B

-Y3- Sta. 17+00.00
END CONSTRUCTION

★ TRAFFIC SIGNAL

NOTE: THE SECTION OF THE PROJECT FROM
-L- STA. 52+42.63 TO -L- STA. 63+00.00 HAS
PARTIAL CONTROL OF ACCESS WITH ACCESS
BEING LIMITED TO POINTS AS SHOWN ON THE
PLANS.



DESIGN DATA

ADT 2008 =	19,400
ADT 2028 =	29,700
DHV =	10 %
D =	40 %
T =	11 % *
V =	40 MPH
* TTST 7%	DUAL 4%

FUNCTIONAL CLASSIFICATION
MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2107B =	0.909 MILES
TOTAL LENGTH OF TIP PROJECT R-2107B =	0.909 MILES

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

2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: JUNE 15, 2007	G.E. BREW, P.E. PROJECT ENGINEER
LETTING DATE: March 17, 2009	I.T. YOUNIS PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Mark T. Showin
10-22-08
SEAL 20870
M. T. SHOWIN
ENGINEER

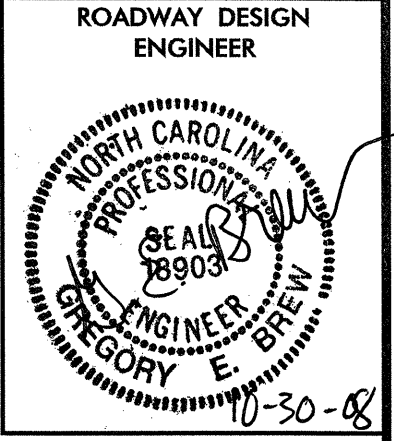
ROADWAY DESIGN ENGINEER

G.E. Brew
10-30-08
SEAL 18903
GREGORY E. BREW
ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Ont McMillan
P.E.
STATE HIGHWAY DESIGN ENGINEER

21-OCT-2008 12:24
R:\Roadway\Projects\R-2107b_rdy_tsh.dgn
\$\$\$USERNAME\$\$\$



INDEX OF SHEETS

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1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
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2 THRU 2-E	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-F THRU 2-H	INTERSECTION AND CHANNELIZATION DETAILS
2-I	DETAIL OF CONVERTING EXISTING CB TO JBW/MH COVER
2-J THRU 2-O	GRAVITY RETAINING WALLS DETAILS
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3-H	SUMMARY OF WOVEN WIRE FENCE QUANTITIES SUMMARY OF GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARY
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EC-1 THRU EC-17	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-11	SIGNING PLANS
SIG-1 THRU SIG-17	SIGNAL PLANS
UC-1 THRU UC-9	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-7	UTILITIES PLANS
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X-1 THRU X-31	CROSS-SECTIONS

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD. NO.	TITLE
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
654.01	Pavement Repairs
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
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
840.14	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
840.29	Frames and Narrow Slot Flat Grates
840.30	Driveway Drop Inlet
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
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
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
866.02	Woven Wire Fence - with Wood Post
876.02	Guide for Rip Rap at Pipe Outlets

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

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

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

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

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

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

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.

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE TOWN OF BISCOE, MONTGOMERY COUNTY WATER SYSTEM, EMBARG, PROGRESS ENERGY, TIME WARNER CABLE. 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 CONTRACT.

WHEELCHAIR RAMPS:
WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH STD. NO. 848.06

8/17/09

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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	(23)
Existing Fence Line	-x-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	--- WL.B ---
Proposed Wetland Boundary	--- WL.B ---
Existing Endangered Animal Boundary	--- EAB ---
Existing Endangered Plant Boundary	--- EPB ---

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
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	□ 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	-----

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 ---

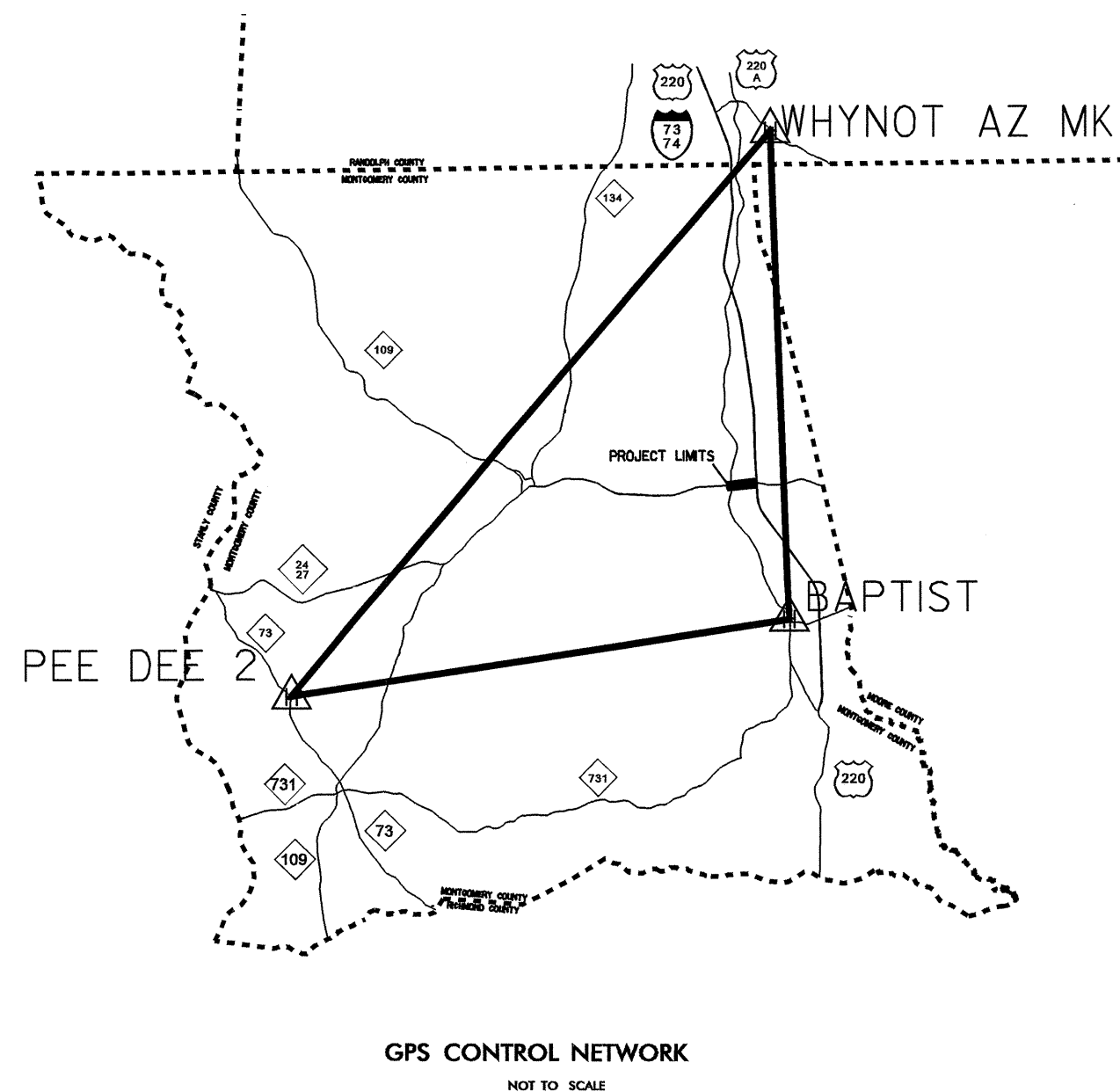
SANITARY SEWER:

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	--- UTL ---
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 R-2107B



NCDOT GPS STATION "R2107B-1"
LOCALIZED PROJECT COORDINATES
N = 586570.507
E = 1763909.243

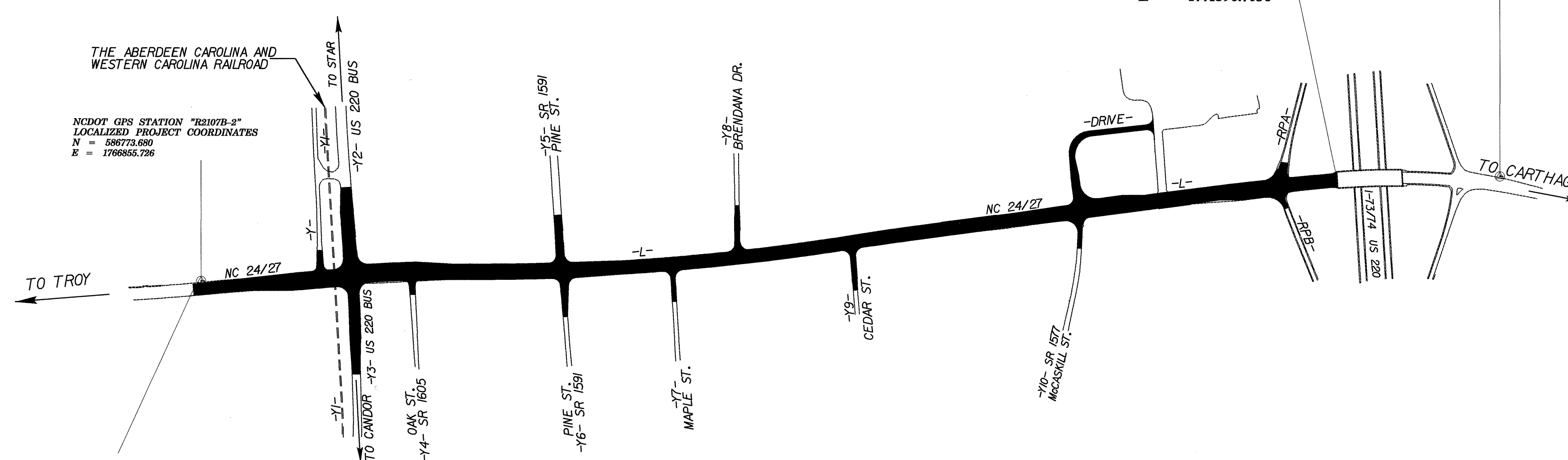
NCDOT GPS STATION "R2107B-2"
LOCALIZED PROJECT COORDINATES
N = 586773.680
E = 1766855.726

-L- STA. 63+00.00 END TIP PROJECT R-2107B
LOCALIZED PROJECT COORDINATES
N = 587190.2531
E = 1771596.7036

NCDOT GPS STATION "R2107B-3"
LOCALIZED PROJECT COORDINATES
N = 587206.824
E = 1772311.578

NCDOT GPS STATION "R2107B-4"
LOCALIZED PROJECT COORDINATES
N = 586820.895
E = 1773839.411

-L- STA. 15+00.00 BEGIN TIP PROJECT R-2107B
LOCALIZED PROJECT COORDINATES
N = 586736.1479
E = 1766822.6340



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2107B-1"

WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 586570.507(ft) EASTING: 1763909.243(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985065

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2107B-1" TO -L- STATION 15+00.00 IS
N 86 44 45.4 E 2,918.095'

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

- NOTES:**
- THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
 - THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOI.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
- THE FILES TO BE FOUND ARE AS FOLLOWS:
- R2107B_LS_GPSCALIB_070103.HTML
 - R2107B_LS_WGS84_070103.TXT
 - R2107B_LS_LOCAL_070103.TXT
 - R2107B_LS_CONTROL_070103.TXT
- THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION.
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET R-2107B

PROJECT REFERENCE NO.	SHEET NO.
R-2107B	I-D
Location and Surveys	

GPS CALIBRATION REPORT
PROJECT - R2107B

TIP NUMBER R2107B
 USER NAME SCRANFORD DATE & TIME 3:27:58 PM 10/2/2006
 COORDINATE SYSTEM US STATE PLANE ZONE NORTH CAROLINA 3200
 HORIZONTAL DATUM NAD 1983 (AT GROUND)
 VERTICAL DATUM NAVD88 GEOID MODEL GEOID99 (CONUS)
 COORDINATE UNITS US SURVEY FEET
 DISTANCE UNITS US SURVEY FEET
 HEIGHT UNITS US SURVEY FEET

LOCAL SITE INFORMATION
 LOCALIZED AROUND
 LATITUDE 35°21'32.83910"N
 LONGITUDE 79°47'30.70438"W
 SITE SCALE FACTOR 1.0001493700
 HEIGHT 496.2805FT

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED. PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS. THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS
 DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION
 UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS
 NORTHING COORDINATE OF ROTATION CENTER 587081.7775FT
 EASTING COORDINATE OF ROTATION CENTER 1761783.6215FT
 ROTATION ABOUT THE CENTER POINT 0+00'00"
 TRANSLATION NORTH 0.0045FT
 TRANSLATION EAST 0.0005FT
 SCALE FACTOR 1.00000016

VERTICAL ADJUSTMENT PARAMETERS
 NORTHING COORDINATE OF ORIGIN POINT 647967.2525FT
 EASTING COORDINATE OF ORIGIN POINT 1774204.4635FT
 VERTICAL SEPARATION AT ORIGIN 7.6995FT
 SLOPE NORTH 0.853PPM
 SLOPE EAST 1.460PPM

GEOID MODEL DEFINITION
 GEOID99 (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY		
MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL 0.0205FT	0.003	WHYNOT AZ MK GPS
VERTICAL 0.0065FT	0.001	BAPTIST GPS
THREE-DIMENSIONAL 0.0205FT	0.003	WHYNOT AZ MK GPS

POINT RESIDUALS		
WGS84 COORDINATES	CALCULATED POINT FOR DISPLAY ONLY	LOCAL COORDINATES
POINT WHYNOT AZ MK GPS LATITUDE 35°31'39.82331"N LONGITUDE 79°45'32.07446"W HEIGHT 506.6305FT	NORTHING 647967.2525FT EASTING 1774204.4635FT ELEVATION 614.4225FT HORZ ERROR 0.0205FT VERT ERROR 0.0035FT 3D ERROR 0.0205FT	POINT WHYNOT AZ MK GPS NORTHING 647867.2725FT EASTING 1774204.4695FT ELEVATION 614.4225FT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT PEE DEE 2 GPS LATITUDE 35°15'31.92111"N LONGITUDE 80°01'57.47129"W HEIGHT 330.3205FT	NORTHING 550739.9875FT EASTING 1691736.9525FT ELEVATION 437.9385FT HORZ ERROR 0.0145FT VERT ERROR 0.0015FT 3D ERROR 0.0145FT	POINT PEE DEE 2 NORTHING 550739.9905FT EASTING 1691736.9665FT ELEVATION 437.9395FT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT BAPTIST GPS LATITUDE 35°17'50.21189"N LONGITUDE 79°44'45.02964"W HEIGHT 630.9885FT	NORTHING 563954.4255FT EASTING 1777462.8225FT ELEVATION 739.3965FT HORZ ERROR 0.0025FT VERT ERROR 0.0065FT 3D ERROR 0.0075FT	POINT BAPTIST NORTHING 563954.4255FT EASTING 1777462.8205FT ELEVATION 739.4015FT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT R2107B-6 GPS LATITUDE 35°20'46.24807"N LONGITUDE 79°46'46.88197"W HEIGHT 523.2095FT	NORTHING 581729.8485FT EASTING 1767501.2215FT ELEVATION 631.3235FT HORZ ERROR 0.0025FT VERT ERROR 0.0015FT 3D ERROR 0.0045FT	POINT R2107B-6 NORTHING 581729.8455FT EASTING 1767501.2205FT ELEVATION 631.3225FT UTILIZED HORZ AND VERT QUALITY ADJUSTED QUALITY
POINT R2107B-1 GPS LATITUDE 35°21'32.83911"N LONGITUDE 79°47'30.70438"W HEIGHT 496.6505FT	NORTHING 586570.5135FT EASTING 1763909.2475FT ELEVATION 596.6905FT HORZ ERROR 0.0075FT VERT ERROR 0.0015FT 3D ERROR 0.0075FT	POINT R2107B-1 NORTHING 586570.5075FT EASTING 1763909.2435FT ELEVATION 596.6795FT UTILIZED HORZ AND VERT QUALITY ADJUSTED QUALITY
POINT R2107B-5 GPS LATITUDE 35°22'57.30953"N LONGITUDE 79°46'39.04646"W HEIGHT 514.2625FT	NORTHING 592044.2125FT EASTING 1768231.1615FT ELEVATION 622.3215FT HORZ ERROR 0.0075FT VERT ERROR 0.0015FT 3D ERROR 0.0075FT	POINT R2107B-5 NORTHING 592044.2065FT EASTING 1768231.1575FT ELEVATION 622.3205FT UTILIZED HORZ AND VERT QUALITY ADJUSTED QUALITY
POINT R2107B-4 GPS LATITUDE 35°21'39.37882"N LONGITUDE 79°45'30.85003"W HEIGHT 451.5265FT	NORTHING 586850.8975FT EASTING 1773829.4135FT ELEVATION 559.7065FT HORZ ERROR 0.0025FT VERT ERROR 0.0025FT 3D ERROR 0.0035FT	POINT R2107B-4 NORTHING 586850.8965FT EASTING 1773829.4115FT ELEVATION 559.7045FT UTILIZED HORZ AND VERT QUALITY ADJUSTED QUALITY
POINT R2107B-2 GPS LATITUDE 35°21'39.77713"N LONGITUDE 79°46'55.15286"W HEIGHT 499.4625FT	NORTHING 586773.6945FT EASTING 1768955.7235FT ELEVATION 607.5245FT HORZ ERROR 0.0065FT VERT ERROR 0.0015FT 3D ERROR 0.0065FT	POINT R2107B-2 NORTHING 586773.6985FT EASTING 1768955.7265FT ELEVATION 607.5235FT UTILIZED HORZ AND VERT QUALITY ADJUSTED QUALITY
POINT R2107B-3 GPS LATITUDE 35°21'39.77713"N LONGITUDE 79°45'49.32773"W HEIGHT 453.4785FT	NORTHING 587206.2275FT EASTING 1772311.5615FT ELEVATION 561.6315FT HORZ ERROR 0.0045FT VERT ERROR 0.0035FT 3D ERROR 0.0065FT	POINT R2107B-3 NORTHING 587206.2245FT EASTING 1772311.5785FT ELEVATION 561.6285FT UTILIZED HORZ AND VERT QUALITY ADJUSTED QUALITY

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	586742.0610	1766381.8782	601.09	10+60.00	33.52 LT
2	R2107B-2	586773.6788	1766855.7248	607.52	15+36.46	34.27 LT
102	BL-102	586741.5118	1767437.7341	616.94	21+14.16	49.80 RT
103	BL-103	586826.1133	1767919.0071	611.84	25+99.43	16.17 LT
104	BL-104	586786.0028	1768395.2201	590.48	30+74.46	30.93 RT
105	BL-105	586867.0579	1768886.1747	589.96	34+89.33	26.48 LT
106	BL-106	586895.1983	1769121.1674	590.77	38+06.39	24.83 LT
107	BL-107	586904.2629	1769620.4961	592.07	43+02.53	33.11 RT
108	BL-108	587089.4112	1770557.8635	574.01	52+56.76	25.38 LT
109	BL-109	587204.2033	1771338.5402	569.13	60+44.91	39.49 LT
110	BL-110	587226.4874	1772097.1994	565.31	67+98.30	34.25 LT
3	R2107B-3	587206.2239	1772311.5768	561.63	70+10.86	39.77 LT
111	BL-111	587090.7800	1772883.1246	548.66		OUTSIDE PROJECT LIMITS

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
113	BY1-113	587393.0453	1767422.9699	616.26		OUTSIDE PROJECT LIMITS

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
102	BL-102	586741.5118	1767437.7341	616.94	10+34.91	59.16 RT
114	BY1-114	586166.8217	1767487.8888	610.94		OUTSIDE PROJECT LIMITS

BY2 POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
103	BL-103	586826.1133	1767919.0071	611.84		OUTSIDE PROJECT LIMITS
115	BY2-115	586443.4581	1767760.8703	620.83		OUTSIDE PROJECT LIMITS

BY3 POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
116	BY3-116	587148.6591	1768330.6591	593.97		OUTSIDE PROJECT LIMITS

BY3 POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
104	BL-104	586786.0028	1768395.2201	590.48	10+34.62	21.06 LT
117	BY3-117	586483.0646	1768386.5278	599.79		OUTSIDE PROJECT LIMITS

BY4 POINT	DESC.	NORTH	EAST	ELEVATION	Y7 STATION	OFFSET
105	BL-105	586867.0579	1768886.1747	589.96		OUTSIDE PROJECT LIMITS
118	BY4-118	586580.7520	1768862.3994	583.13	12+61.59	11.70 LT

BY5 POINT	DESC.	NORTH	EAST	ELEVATION	Y8 STATION	OFFSET
119	BY5-119	587145.6356	1769117.1716	579.45		OUTSIDE PROJECT LIMITS
106	BL-106	586895.1983	1769121.1674	590.77	12+44.82	11.66 LT

BY6 POINT	DESC.	NORTH	EAST	ELEVATION	Y9 STATION	OFFSET
107	BL-107	586904.2629	1769620.4961	592.07	10+26.23	27.75 LT
120	BY6-120	586628.7118	1769602.9965	598.07	12+99.81	9.49 RT

BY7 POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
108	BL-108	587089.4112	1770557.8635	574.01		OUTSIDE PROJECT LIMITS
121	BY7-121	586737.3993	1770545.0085	572.21		OUTSIDE PROJECT LIMITS

DATUM DESCRIPTION

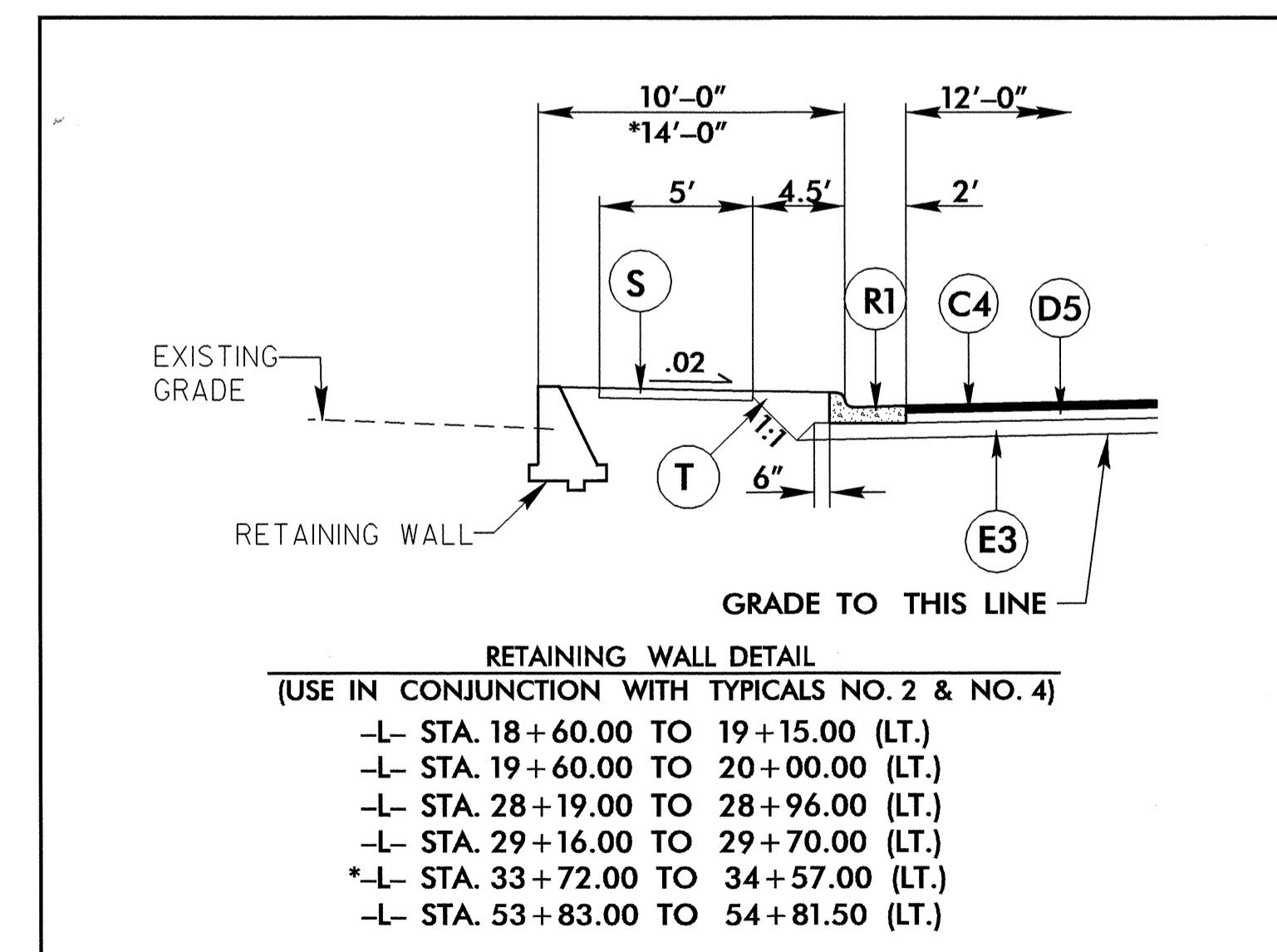
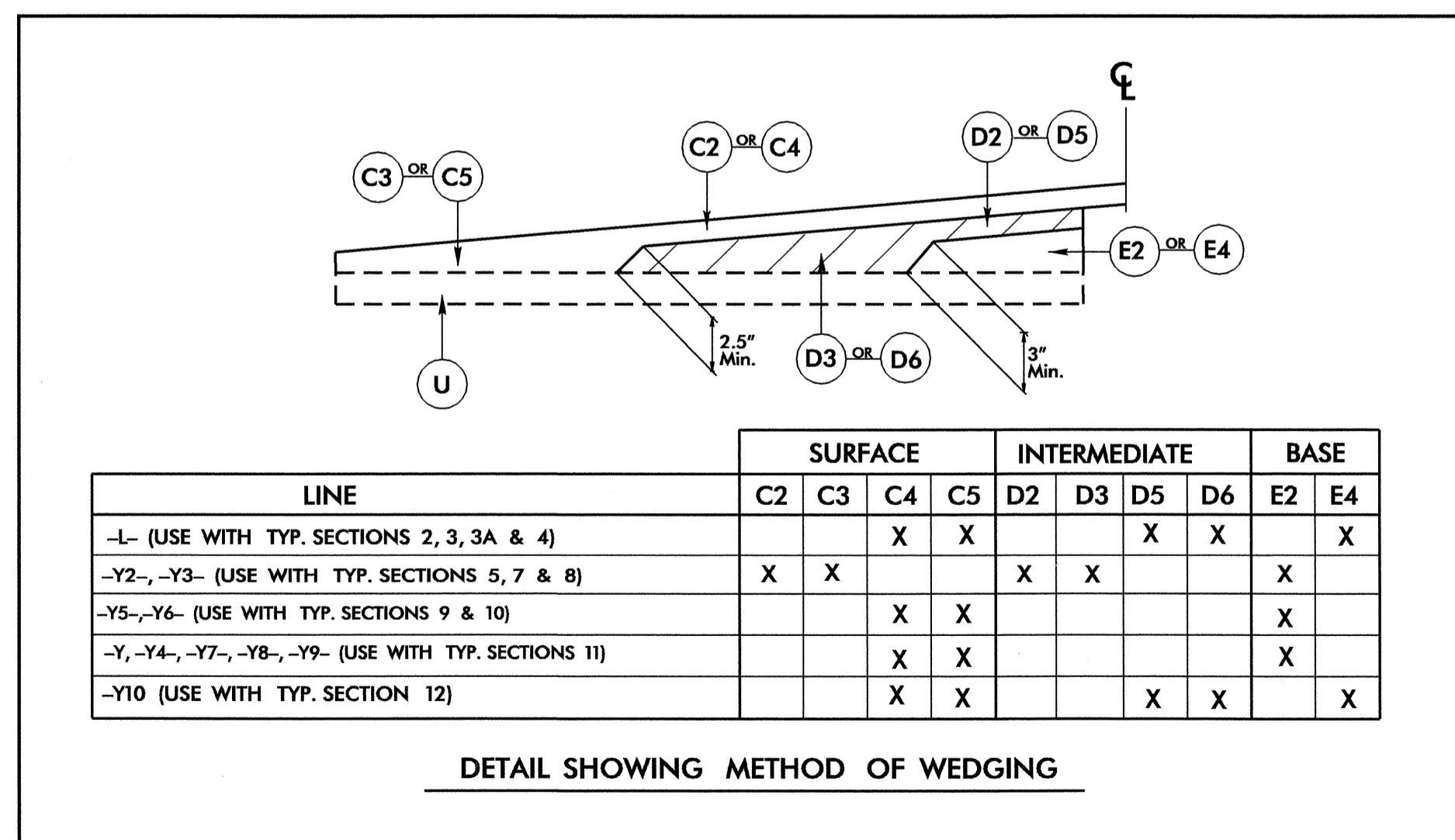
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2107B-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 586570.507(ft) EASTING: 1763909.243(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985065 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2107B-1" TO L- STATION 15+00.00 IS N 86 44 45.4 E 2,918.095' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

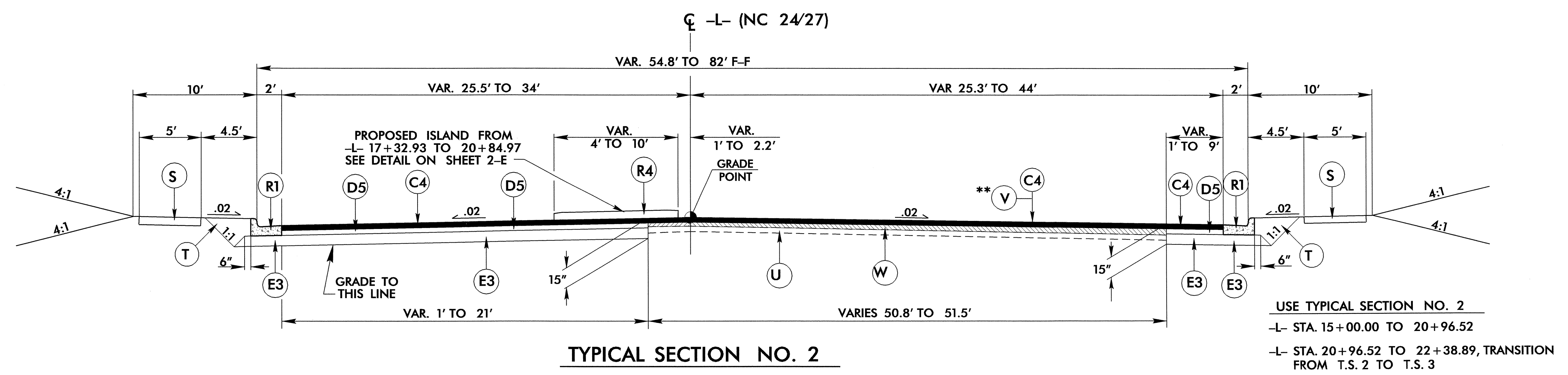
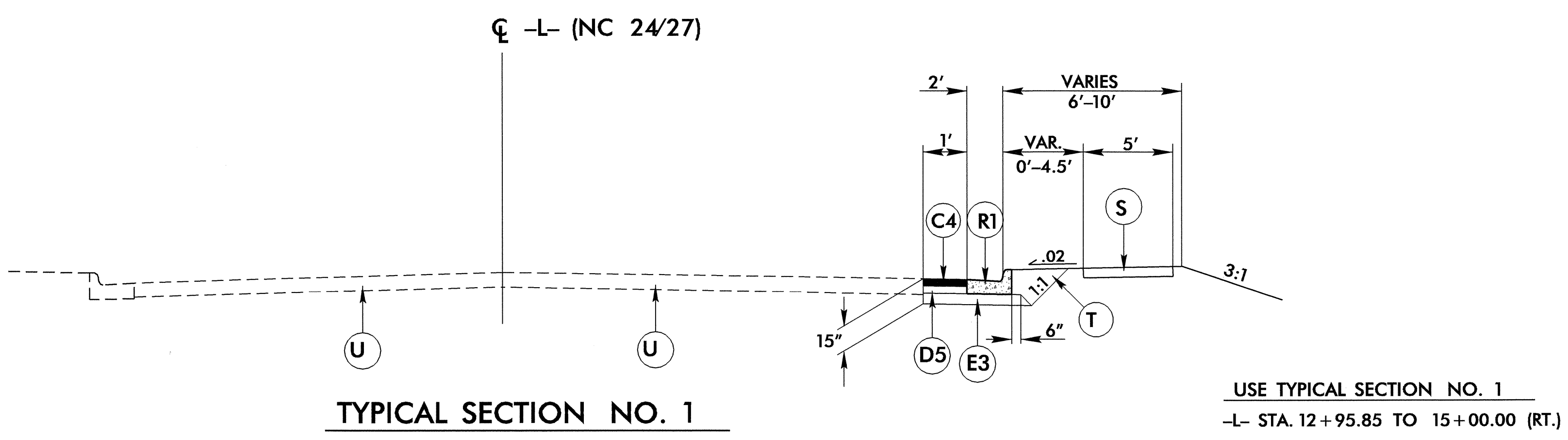
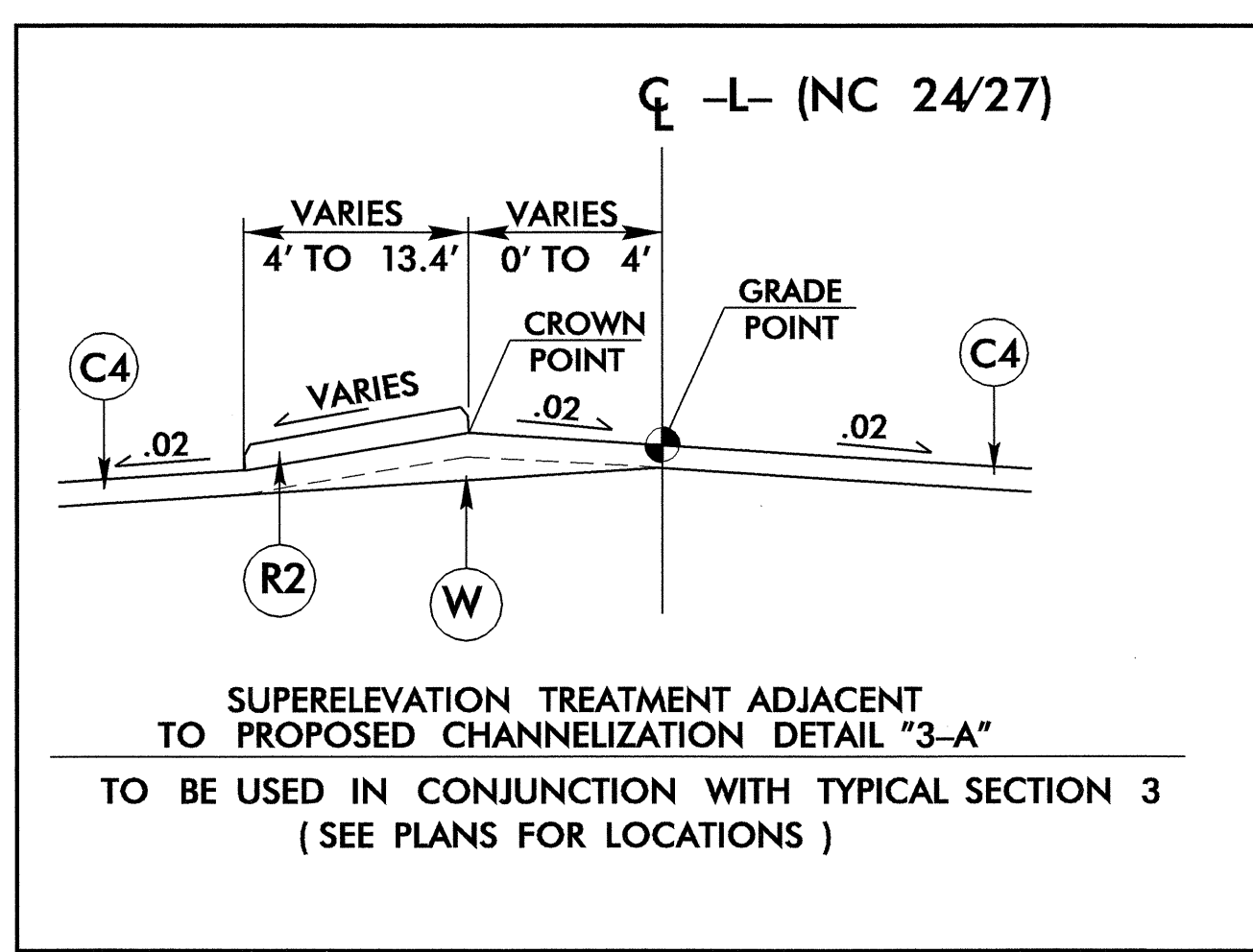
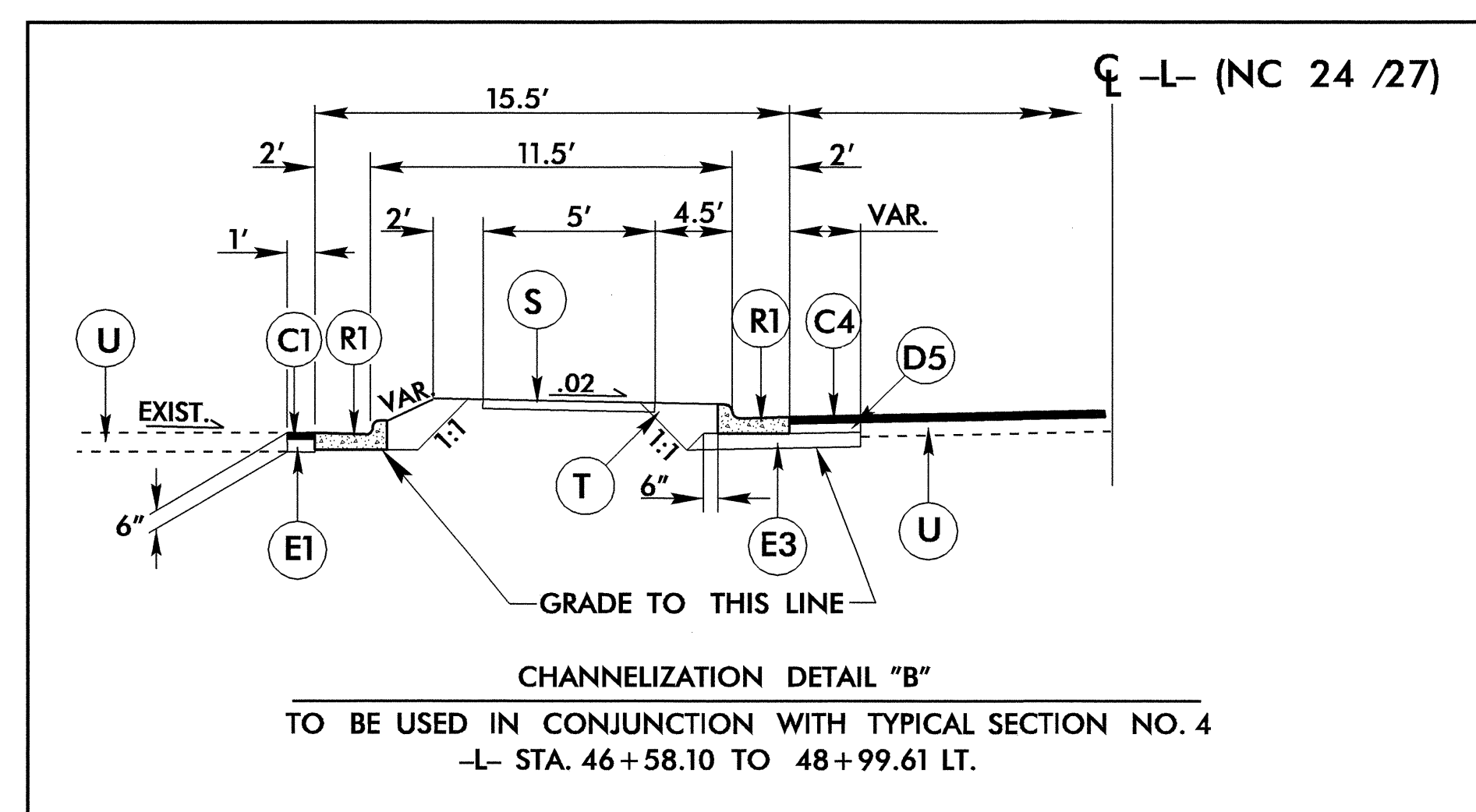
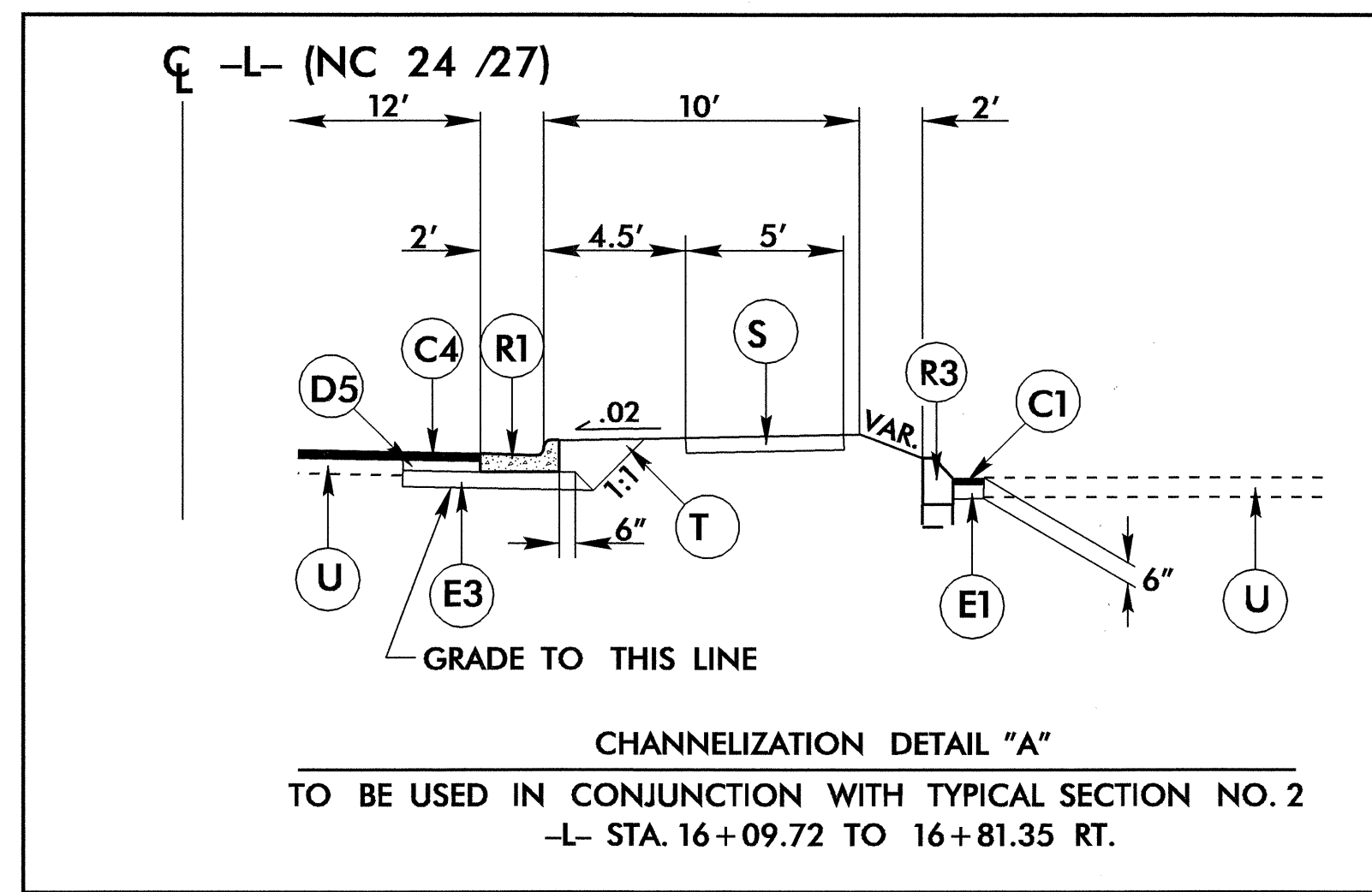
NOTES:

- THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTP://WWW.DOI.DOT.STATE.NC.US/PRECONSTRUCTION/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruction/highway/location/project/) THE FILES TO BE FOUND ARE AS FOLLOWS:
 R2107B_LS_GPSALIB_070103.HTML
 R2107B_LS_WGS84_070103.TXT
 R2107B_LS_LOCAL_070103.TXT
 R2107B_LS_CONTROL_070103.TXT
 THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM NETWORK ESTABLISHED FROM EXISTING HARN POSITIONING NETWORK
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 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.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E3	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	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.	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 5 1/2" IN DEPTH.
C4	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.	J1	PROP. 8" AGGREGATE BASE COURSE.
C5	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 2" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	R2	5" MONOLITHIC CONCRETE ISLAND.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	8" x 18" CONCRETE CURB
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R4	6" MONOLITHIC CONCRETE ISLAND.
D4	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK.
D5	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.
D6	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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	U	EXISTING PAVEMENT.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V	MILLING ASPHALT PAVEMENT, 0" - 4"
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.		W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE WEDGING DETAIL)

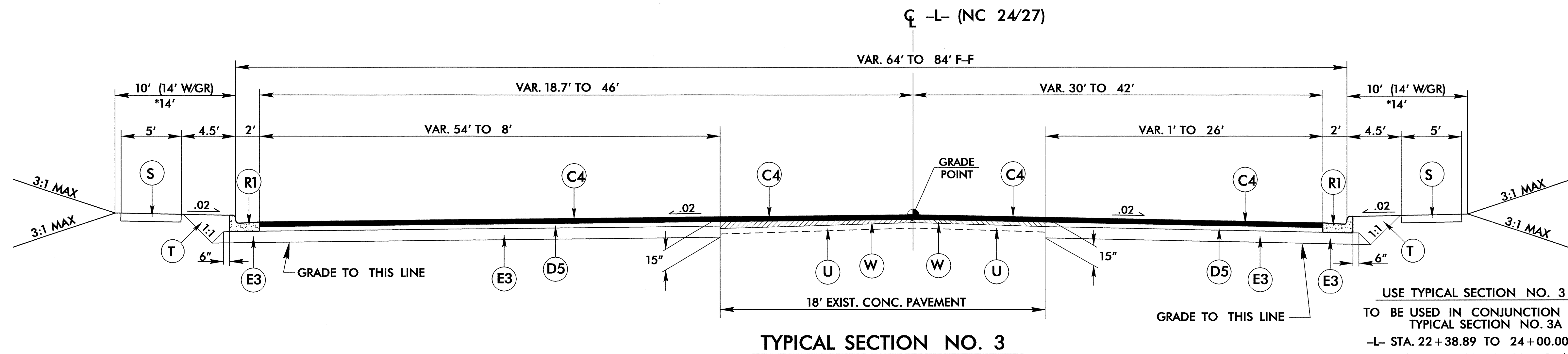




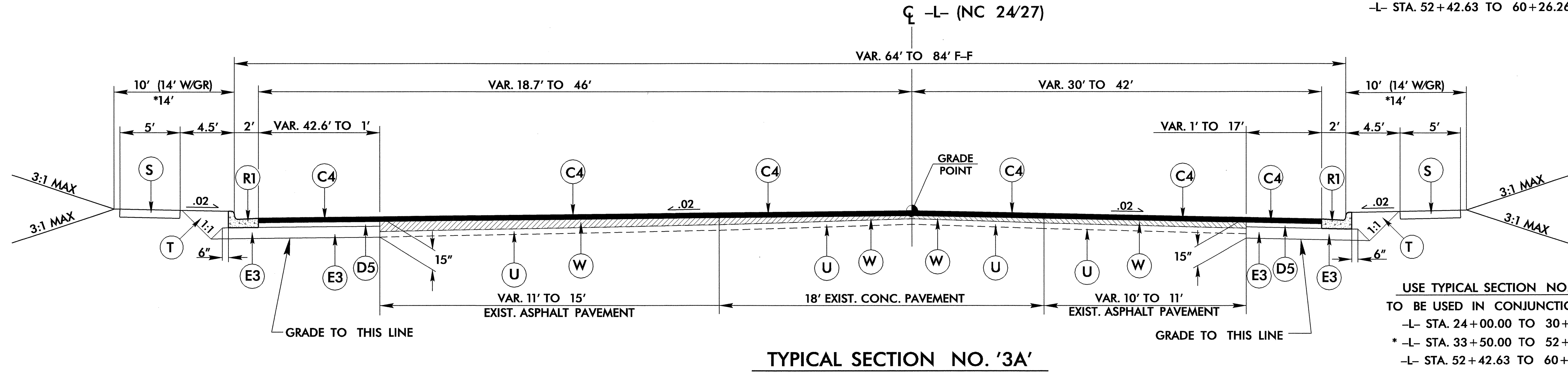
FINAL PAV'T DESIGN	
C1	2" S9.5B
C2	3" S9.5B
C4	3" S9.5C
D1	2 1/2" I19.0B
D2	4" I19.0B
D4	2 1/2" I19.0C
D5	4" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	8" B25.0C
E4	VAR. B25.0C
J1	8" ABC
R1	2'-6" C & G
R2	5" MONO. ISLAND
R3	8" x 18" CURB
R4	6" MONO. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V	MILLING
W	WEDGING

** MILL FROM 21+06.07 TO 21+82 THROUGH THE INTERSECTION AREA

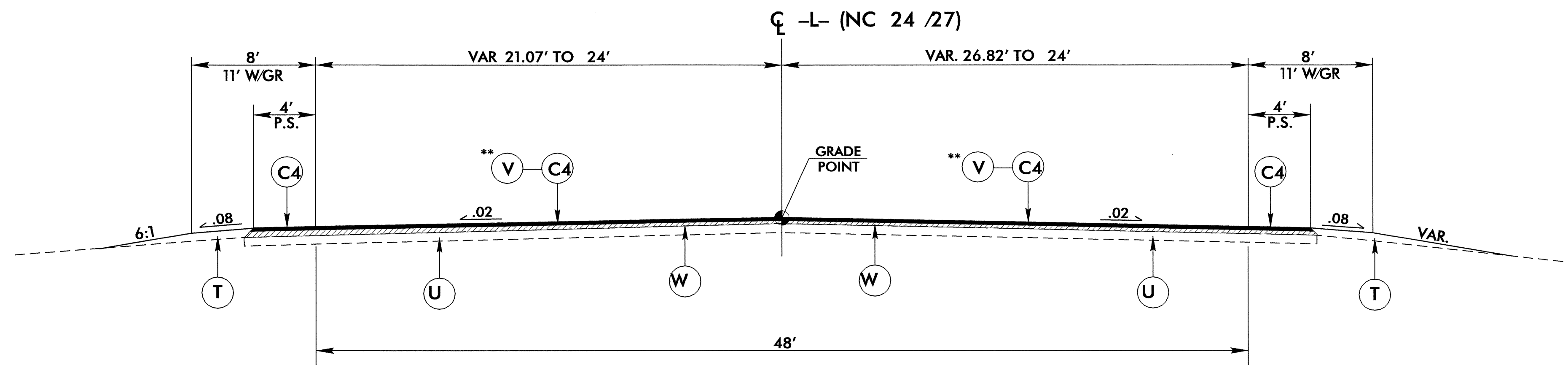
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USE TYPICAL SECTION NO. 3
TO BE USED IN CONJUNCTION WITH
TYPICAL SECTION NO. 3A
-L- STA. 22+38.89 TO 24+00.00 LT.
-L- STA. 30+00.00 TO 30+52.16 LT.
* -L- STA. 30+52.16 TO 33+50.00 LT.
-L- STA. 24+50.00 TO 29+00.00 RT.
* -L- STA. 40+00.00 TO 52+42.63 RT.
-L- STA. 52+42.63 TO 60+26.26 RT



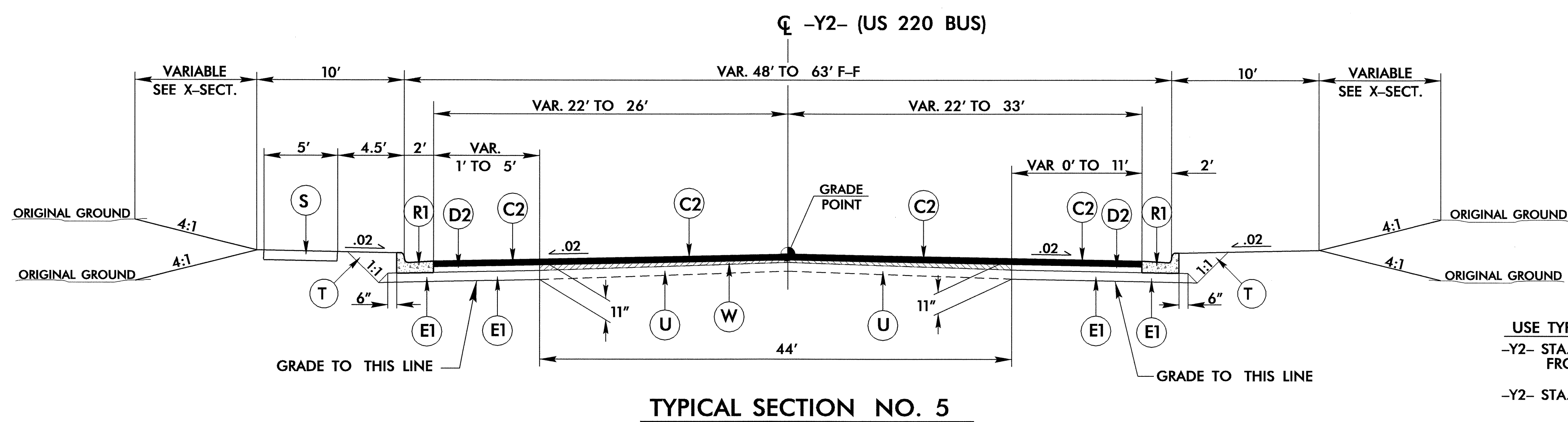
USE TYPICAL SECTION NO. 3A
TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 3
-L- STA. 24+00.00 TO 30+00.00 LT.
* -L- STA. 33+50.00 TO 52+42.63 LT.
-L- STA. 52+42.63 TO 60+26.26 LT.
-L- STA. 22+38.89 TO 24+50.00 RT.
-L- STA. 29+00.00 TO 30+52.16 RT.
* -L- STA. 30+52.16 TO 40+00.00 RT.



USE TYPICAL SECTION NO. 4
-L- STA. 60+26.26 TO 61+74.00, TRANSITION
FROM T.S. NO. 3 TO T.S. NO. 4
** MILL FROM -L- STA. 61+74.00 TO 63+00.00

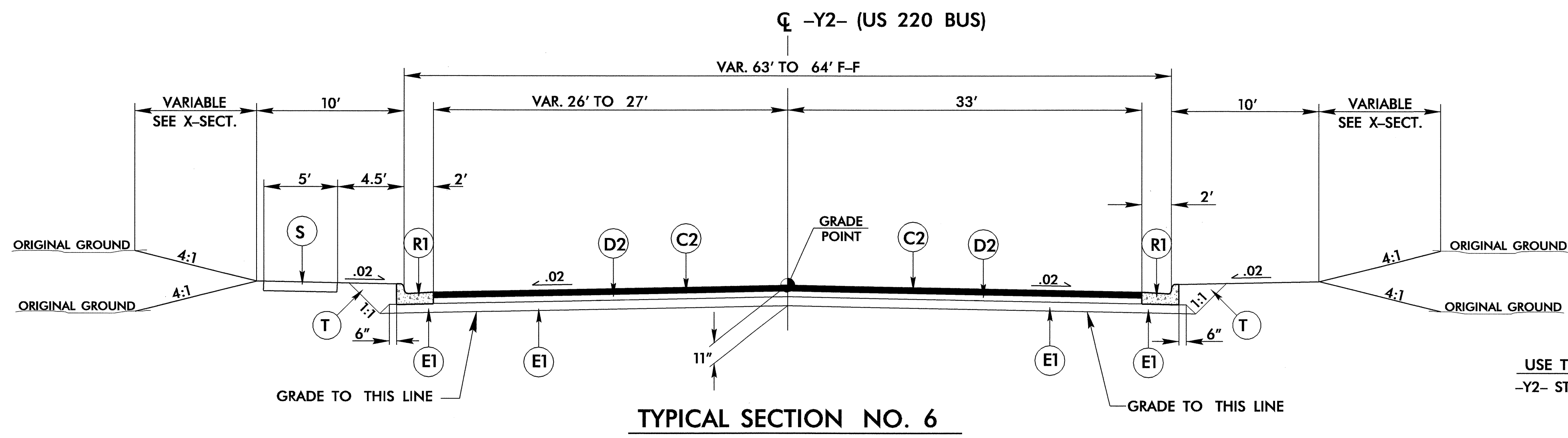
FINAL PAV'T DESIGN	
C1	2" S9.5B
C2	3" S9.5B
C4	3" S9.5C
D1	2 1/2" I19.0B
D2	4" I19.0B
D4	2 1/2" I19.0C
D5	4" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	8" B25.0C
E4	VAR. B25.0C
J1	8" ABC
R1	2'-6" C & G
R2	5" MONO. ISLAND
R3	8" x 18" CURB
R4	6" MONO. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V	MILLING
W	WEDGING

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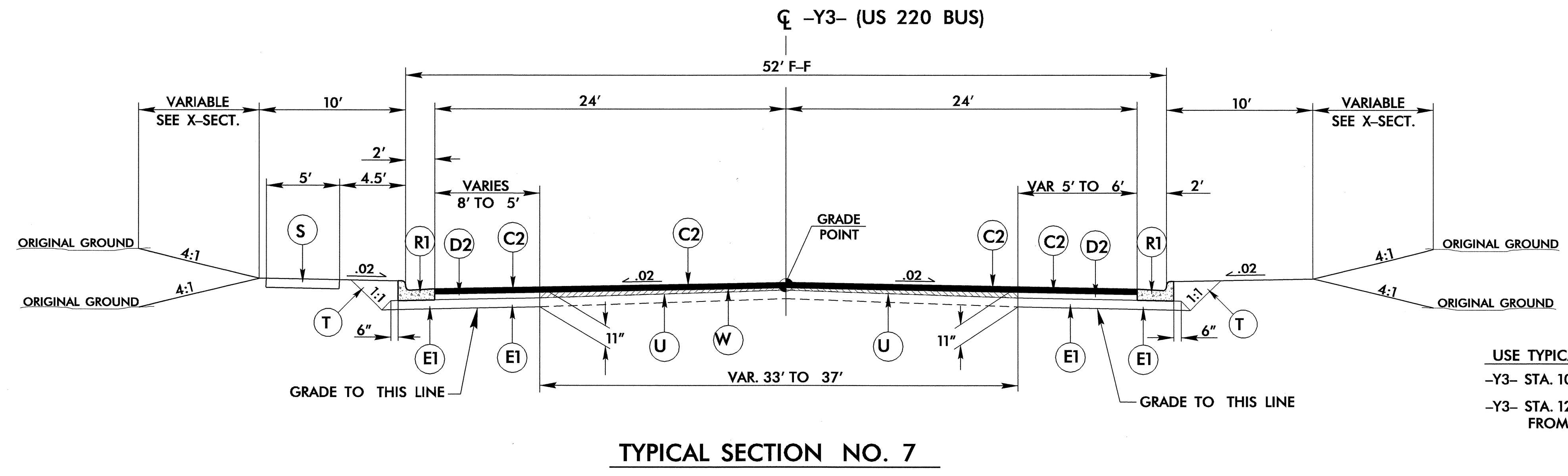
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
 -Y2- STA. 12+00.00 TO 12+50, TRANSITION FROM EXIST. TO T.S. NO. 5
 -Y2- STA. 12+50.00 TO 14+77.65



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
 -Y2- STA. 14+77.65 TO 15+08.97

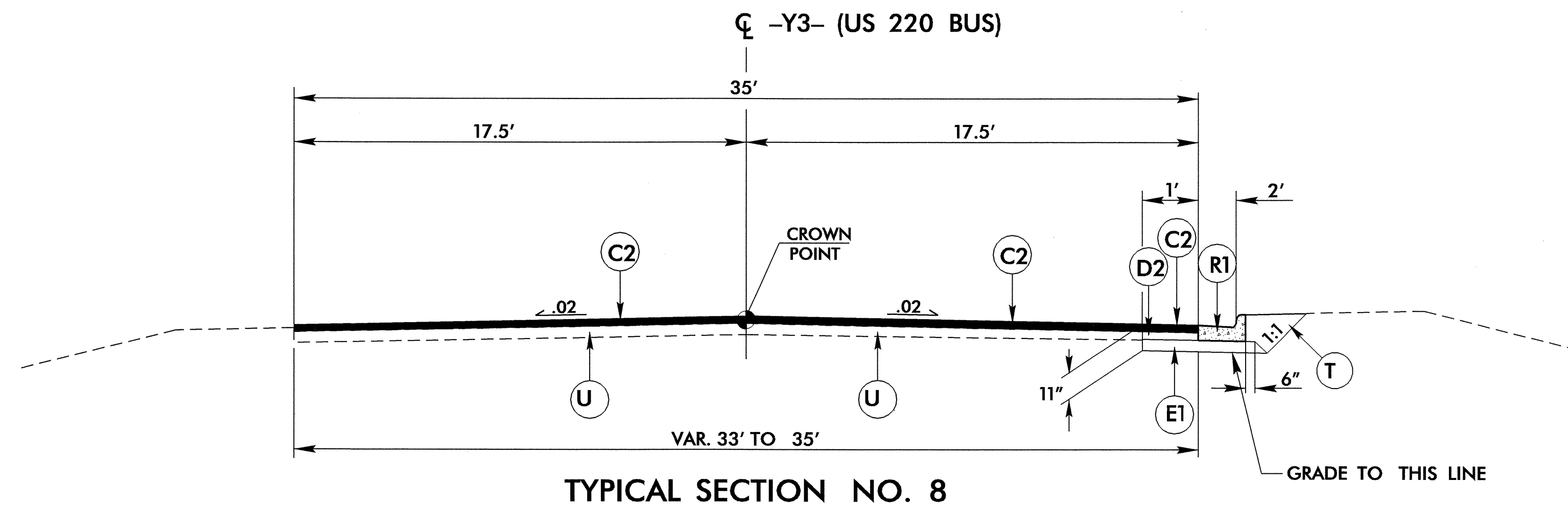


TYPICAL SECTION NO. 7

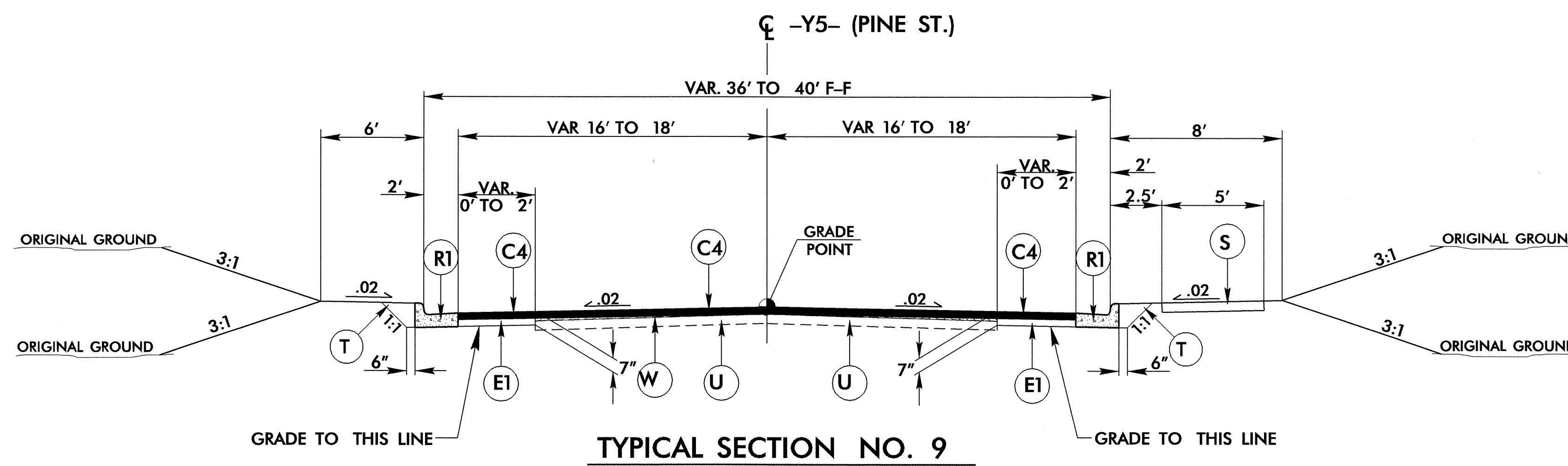
USE TYPICAL SECTION NO. 7
 -Y3- STA. 10+71.31 TO 12+50.00
 -Y3- STA. 12+50.00 TO 14+00.00, TRANSITION FROM T.S. 7 TO EXISTING

FINAL PAV'T DESIGN	
C1	2" S9.5B
C2	3" S9.5B
C4	3" S9.5C
D1	2 1/2" I19.0B
D2	4" I19.0B
D4	2 1/2" I19.0C
D5	4" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	8" B25.0C
E4	VAR. B25.0C
J1	8" ABC
R1	2'-6" C & G
R2	5" MONO. ISLAND
R3	8" x 18" CURB
R4	6" MONO. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V	MILLING
W	WEDGING

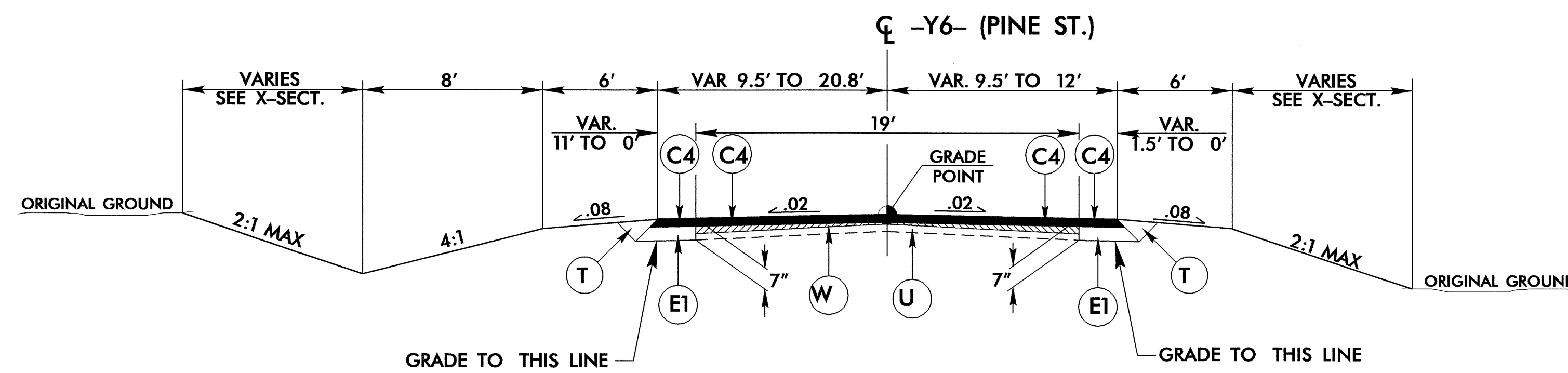
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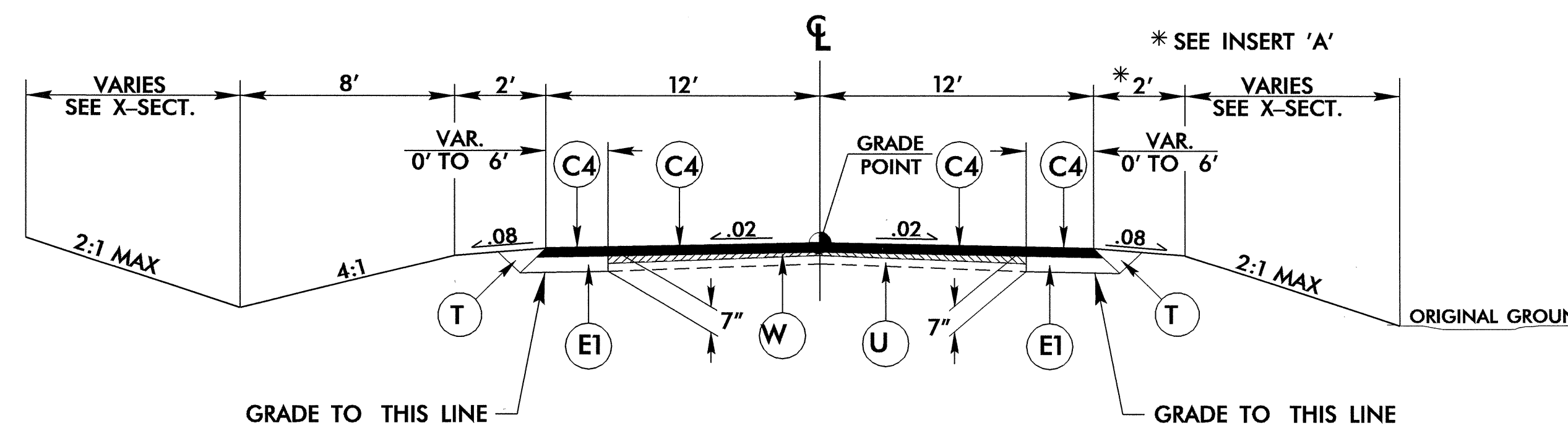
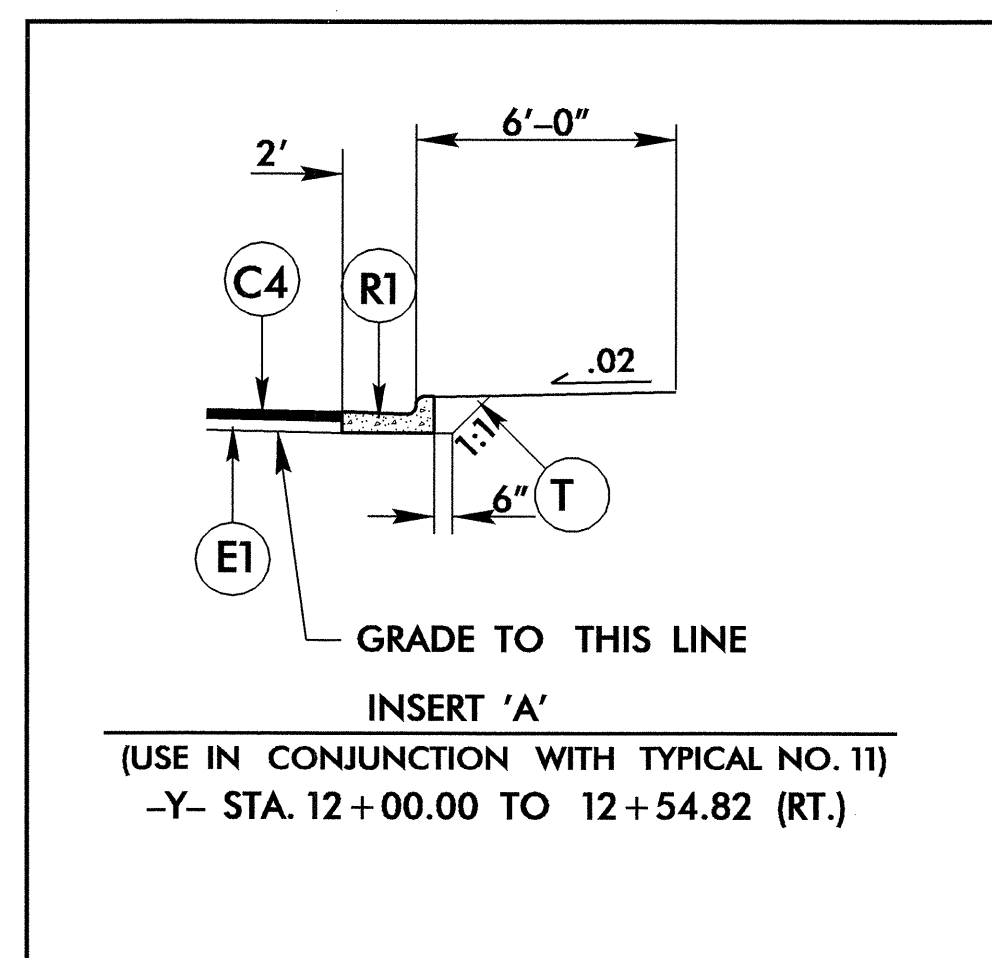
USE TYPICAL SECTION NO. 8
-Y3- STA. 14+00.00 TO 17+00.00



USE TYPICAL SECTION NO. 9
-Y5- STA. 12+00.00 TO 12+37.77



USE TYPICAL SECTION NO. 10
-Y6- STA. 10+68.28 TO 12+00.00

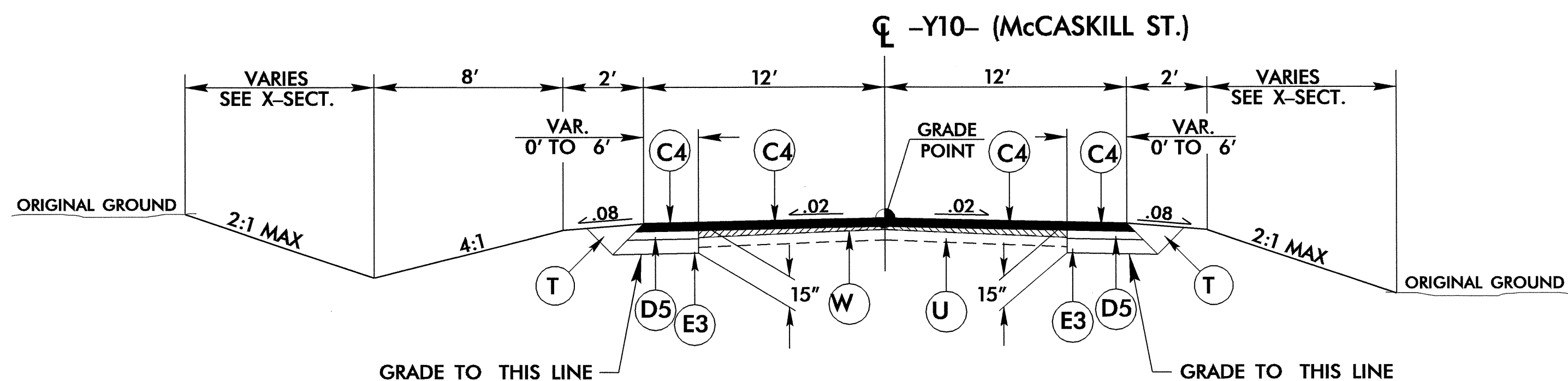


USE TYPICAL SECTION NO. 11
* -Y- STA. 12+00.00 TO 12+54.82
-Y4- STA. 10+17.79 TO 10+80.00
-Y7- STA. 10+59.22 TO 11+60.00
-Y8- STA. 11+20.00 TO 12+03.69
-Y9- STA. 10+61.33 TO 12+00.00

FINAL PAV'T DESIGN	
C1	2" S9.5B
C2	3" S9.5B
C4	3" S9.5C
D1	2 1/2" I19.0B
D2	4" I19.0B
D4	2 1/2" I19.0C
D5	4" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	8" B25.0C
E4	VAR. B25.0C
J1	8" ABC
R1	2'-6" C & G
R2	5" MONO. ISLAND
R3	8" x 18" CURB
R4	6" MONO. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V	MILLING
W	WEDGING

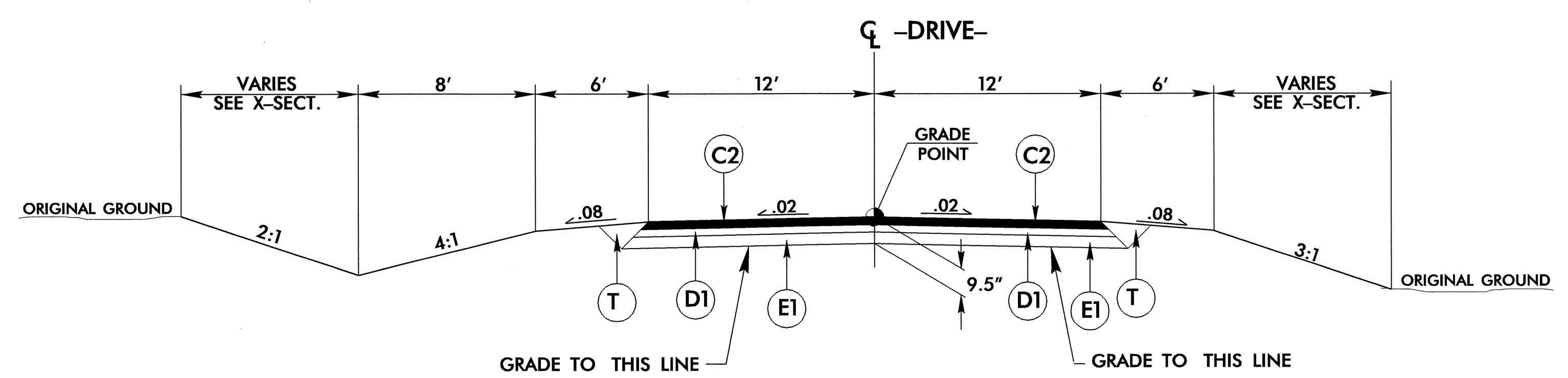
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PROJECT REFERENCE NO. R-2107B	SHEET NO. 2-E
ROADWAY DESIGN ENGINEER GREGORY E. BRIN	PAVEMENT DESIGN ENGINEER DONGCHI CHEN



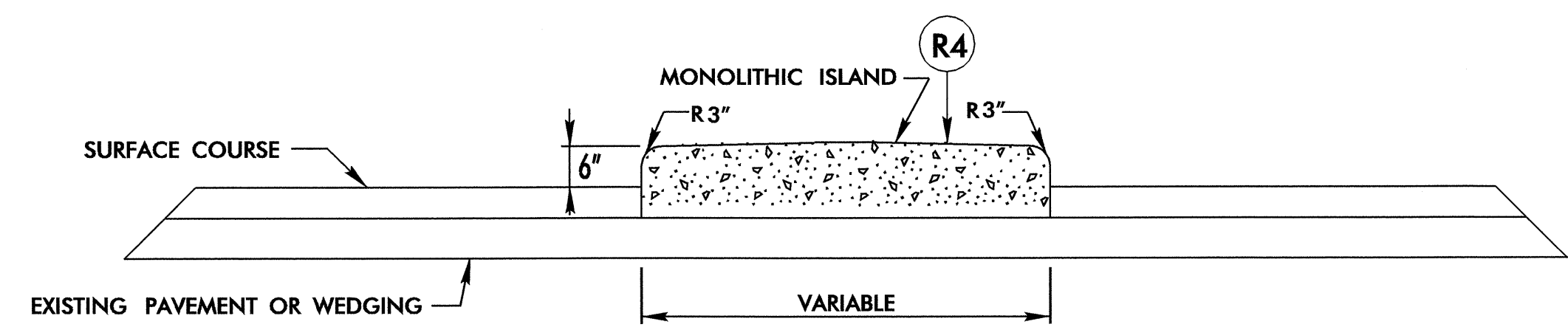
TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
-Y10- STA. 10+88.15 TO 11+00.00



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
-DRIVE- STA. 10+17.50 TO 15+42.78

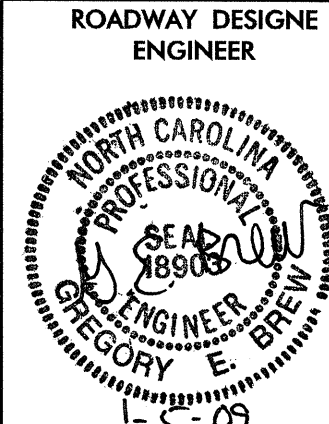


KEYED IN NON-MOUNTABLE MONOLITHIC ISLAND

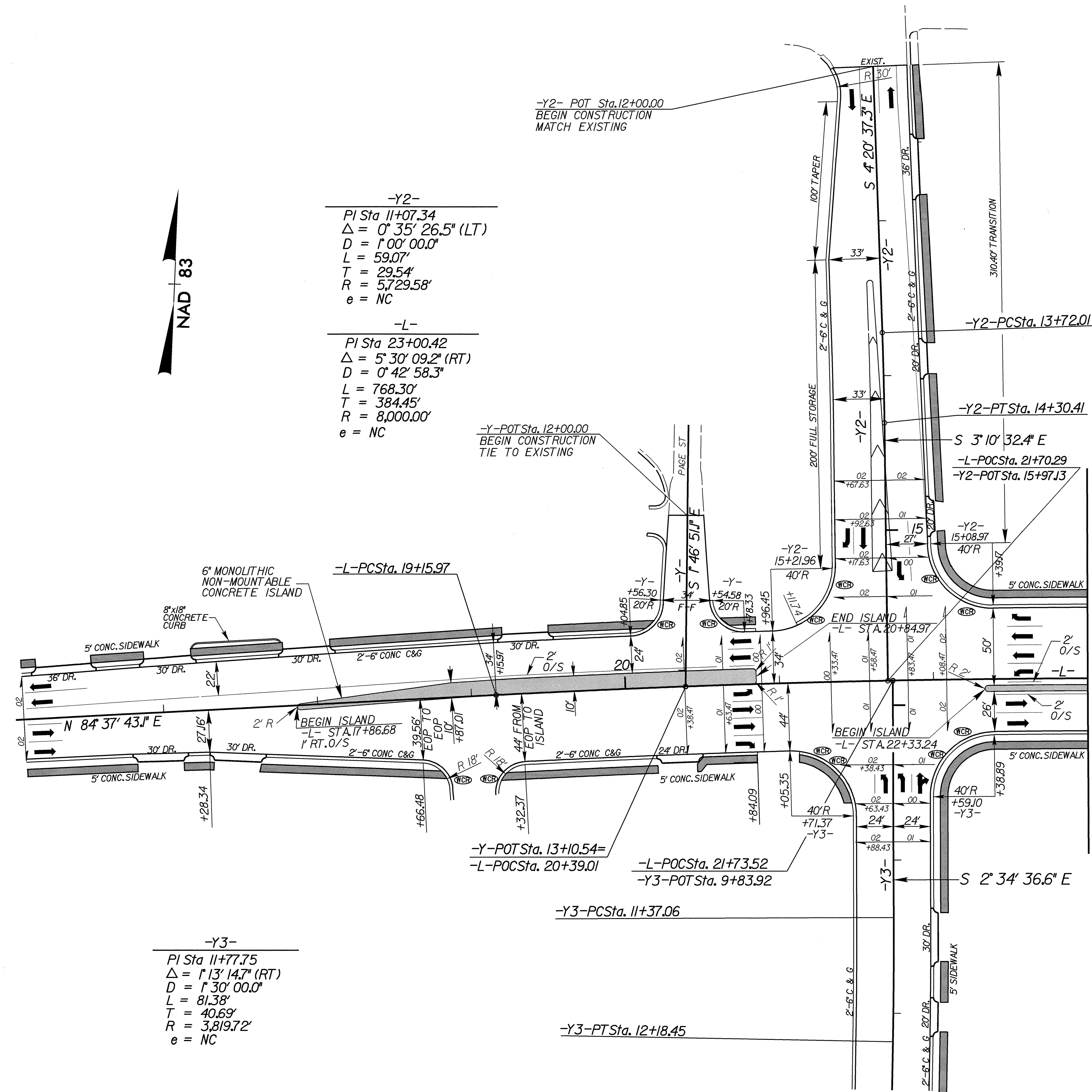
TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 2

NOTE:
SEE ROADWAY PLANS FOR ISLAND DIMENSIONS

FINAL PAV'T DESIGN	
C1	2" S9.5B
C2	3" S9.5B
C4	3" S9.5C
D1	2 1/2" I19.0B
D2	4" I19.0B
D4	2 1/2" I19.0C
D5	4" I19.0C
E1	4" B25.0B
E2	VAR. B25.0B
E3	8" B25.0C
E4	VAR. B25.0C
J1	8" ABC
R1	2'-6" C & G
R2	5" MONO. ISLAND
R3	8"x 18" CURB
R4	6" MONO. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST PAVEMENT
V	MILLING
W	WEDGING



FOR PLANS SEE SHEET 4
 ■ PROPOSED SIDEWALK
 ■ PROPOSED 5' MONOLITHIC ISLAND



NAD 83

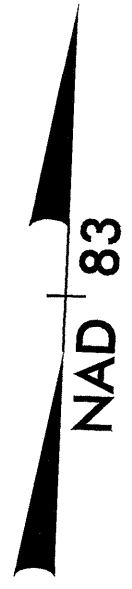
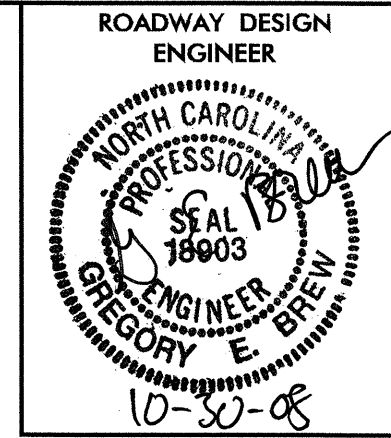
-Y2-
 PI Sta 11+07.34
 $\Delta = 0^\circ 35' 26.5''$ (LT)
 $D = 1'00'00.0''$
 $L = 59.07'$
 $T = 29.54'$
 $R = 5,729.58'$
 $e = NC$

-L-
 PI Sta 23+00.42
 $\Delta = 5^\circ 30' 09.2''$ (RT)
 $D = 0^\circ 42' 58.3''$
 $L = 768.30'$
 $T = 384.45'$
 $R = 8,000.00'$
 $e = NC$

-Y3-
 PI Sta 11+77.75
 $\Delta = 1^\circ 13' 14.7''$ (RT)
 $D = 1'30'00.0''$
 $L = 81.38'$
 $T = 40.69'$
 $R = 3,819.72'$
 $e = NC$

-Y2 & -Y3- CHANNELIZATION AND INTERSECTION DETAILS

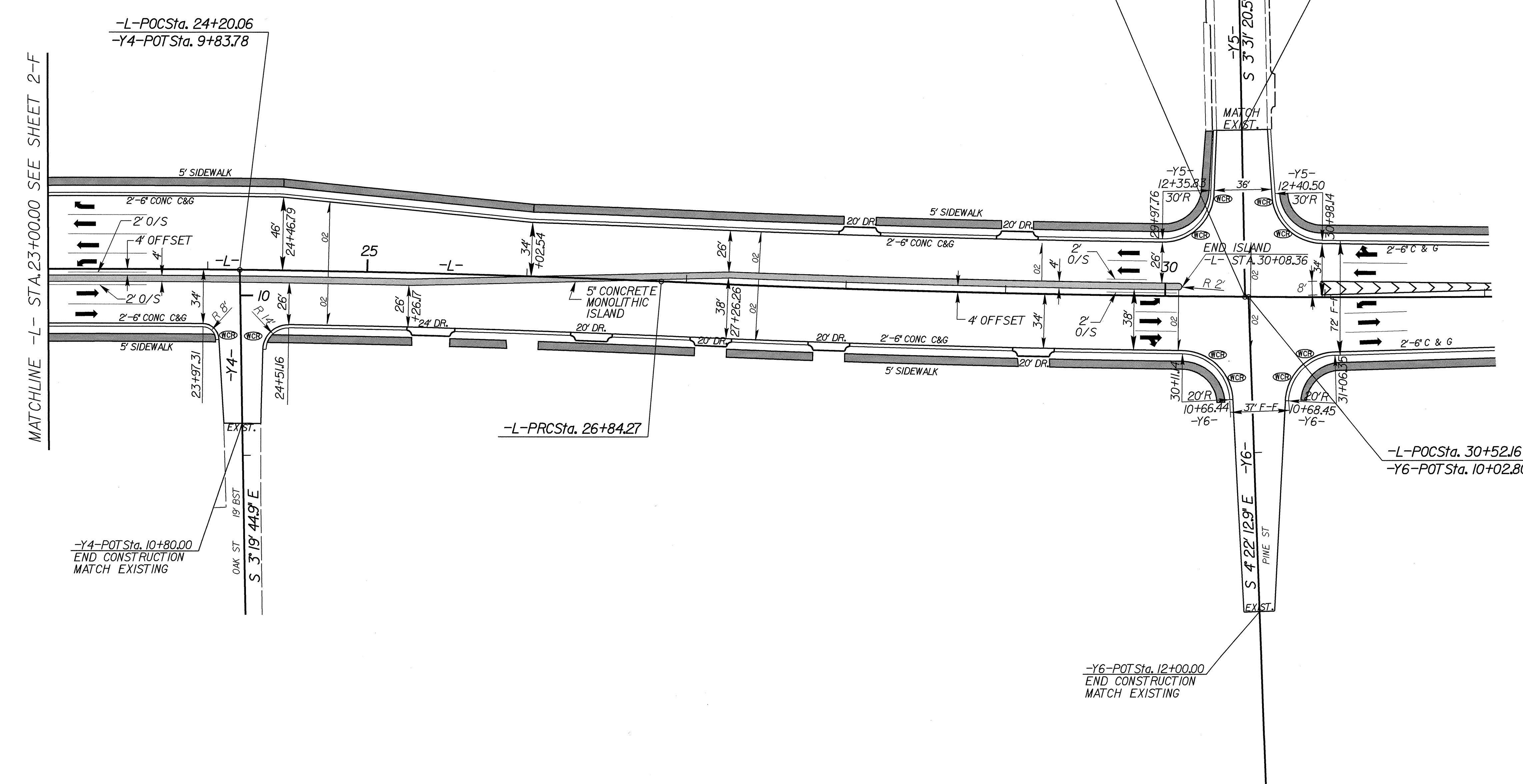
05-JAN-2009 11:56 j3-island.deta11s.dgn



-L-	
PI Sta 13+71.88	PI Sta 23+00.42
$\Delta = 2' 30' 34.4''$ (LT)	$\Delta = 5' 30' 09.2''$ (RT)
$D = 1' 08' 45.3''$	$D = 0' 42' 58.3''$
$L = 219.00'$	$L = 768.30'$
$T = 109.52'$	$T = 384.45'$
$R = 5,000.00'$	$R = 8,000.00'$
$e = EXIST.$	$e = NC$

-L-POCSta. 30+49.92
-Y5-POTSta. 13+05.29

FOR PLANS SEE SHEET 5
 ■ PROPOSED SIDEWALK
 ■ PROPOSED 5" MONOLITHIC ISLAND



MATCHLINE -L- STA. 23+00.00 SEE SHEET 2-F

-L-POCSta. 24+20.06
-Y4-POTSta. 9+83.78

-Y4-POTSta. 10+80.00
END CONSTRUCTION
MATCH EXISTING

-L-PRCSta. 26+84.27

-Y6-POTSta. 12+00.00
END CONSTRUCTION
MATCH EXISTING

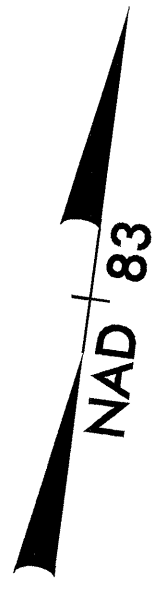
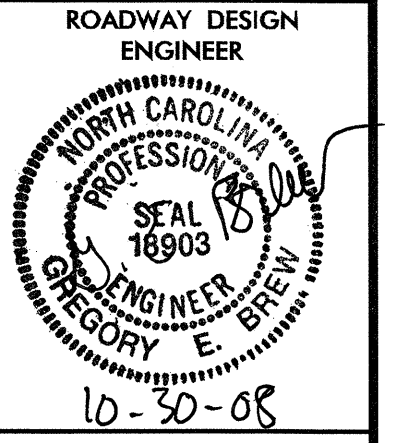
-L-POCSta. 30+52.16
-Y6-POTSta. 10+02.80

-Y5- & -Y6- CHANNELIZATION AND INTERSECTION DETAILS

8/17/99



PROJECT REFERENCE NO. R-2107B	SHEET NO. 2-H
RW SHEET NO.	

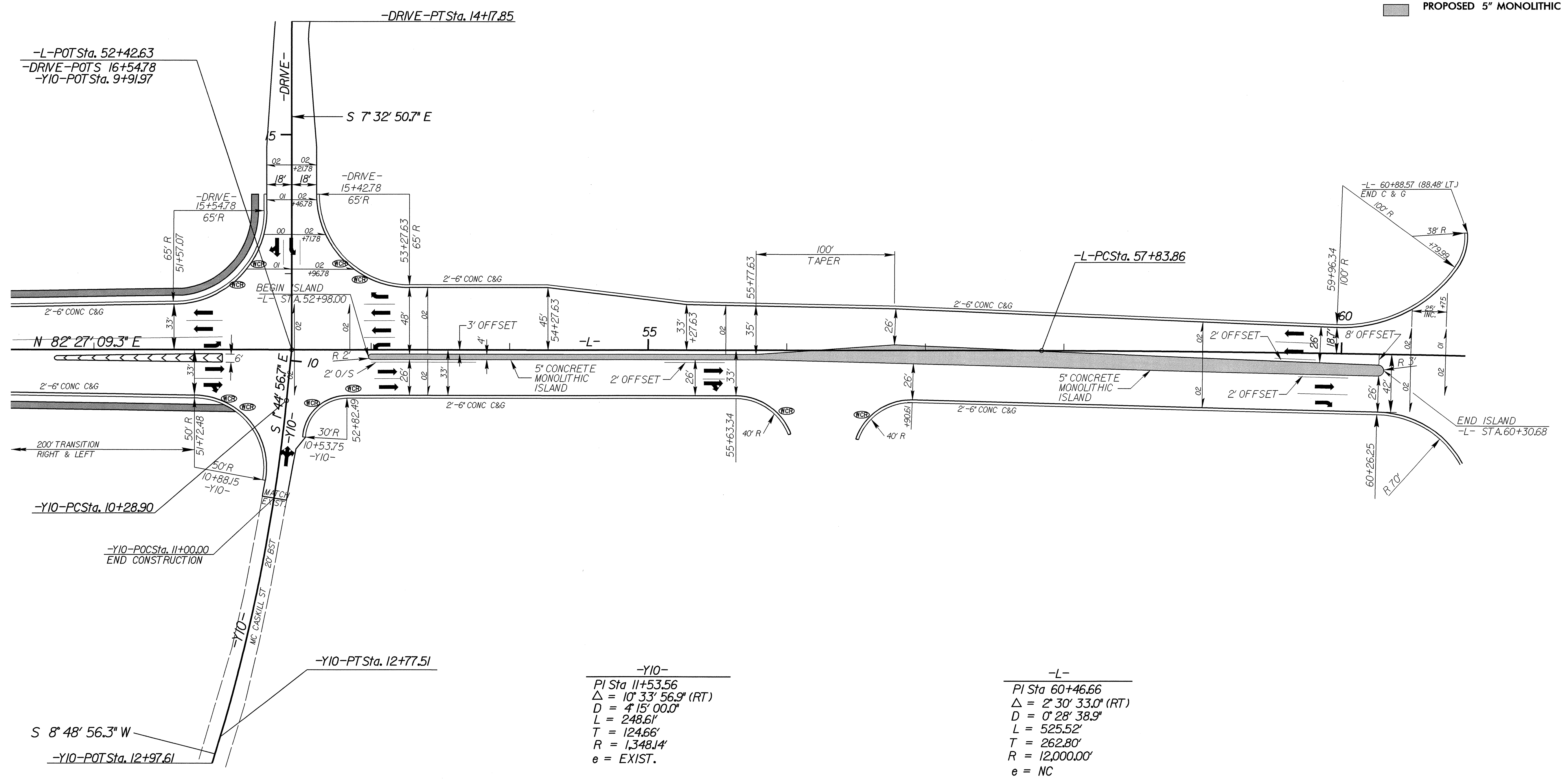


FOR PLANS SEE SHEETS 7 & 8

■ PROPOSED SIDEWALK

■ PROPOSED 5" MONOLITHIC ISLAND

REVISIONS

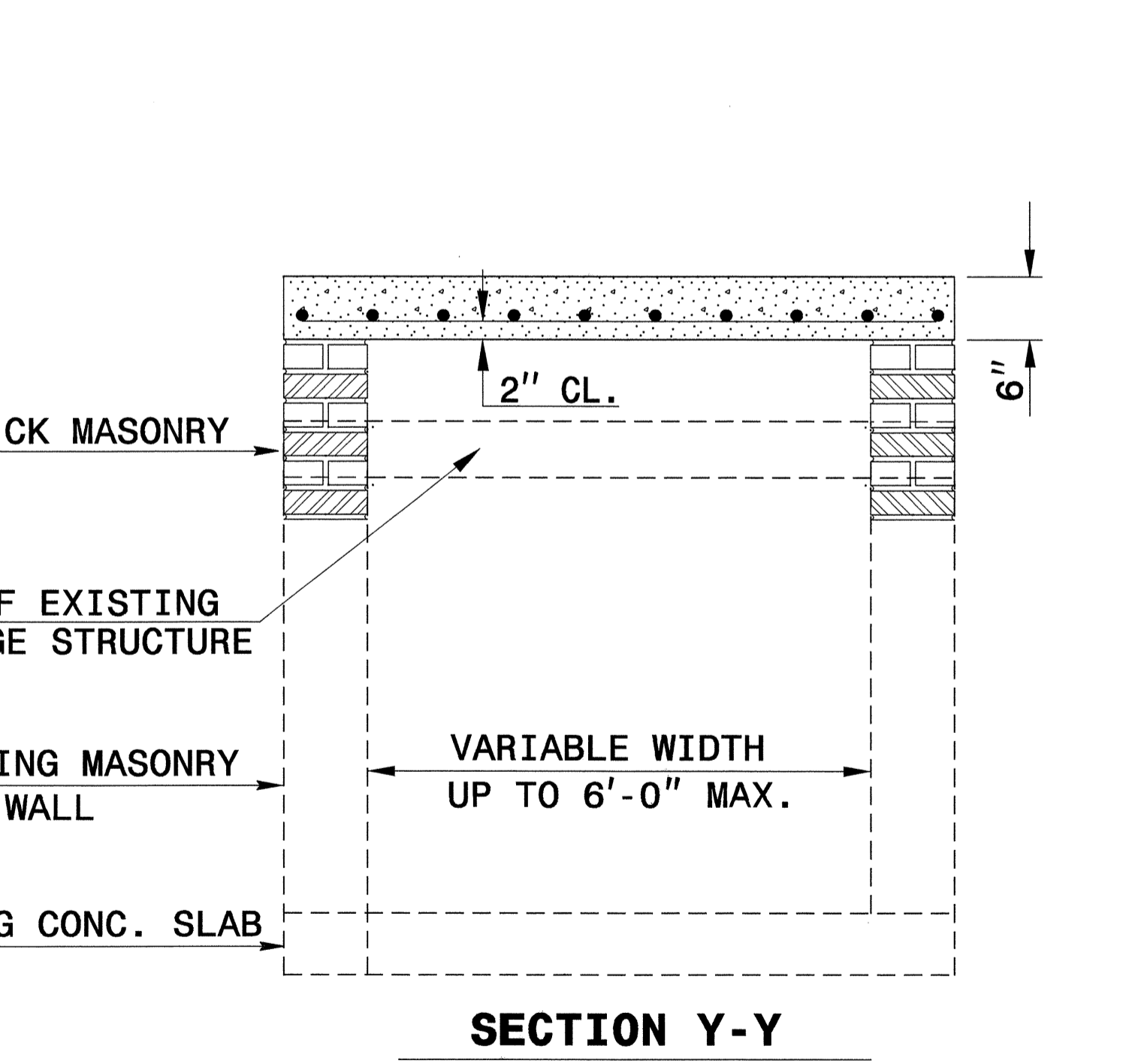
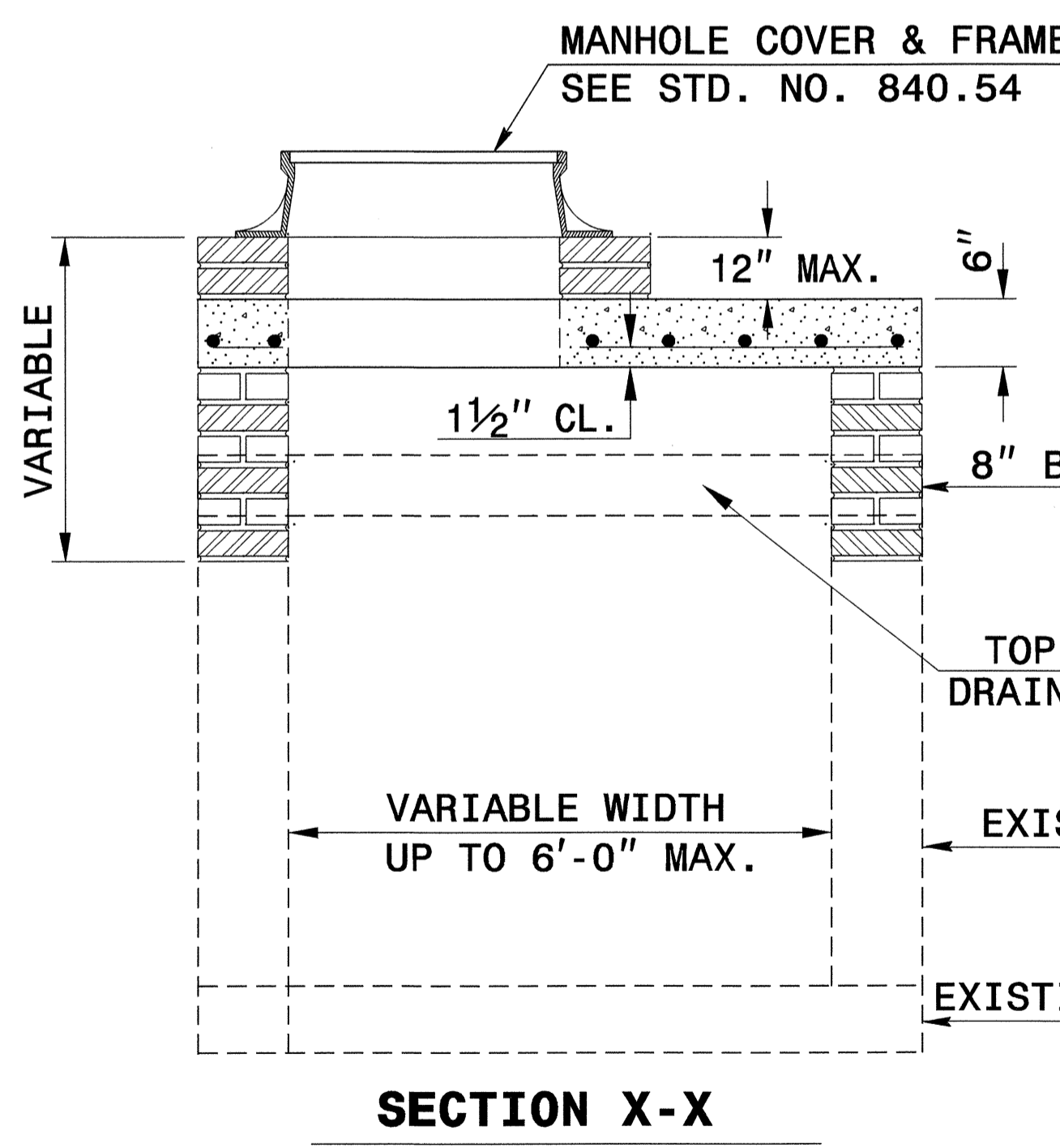
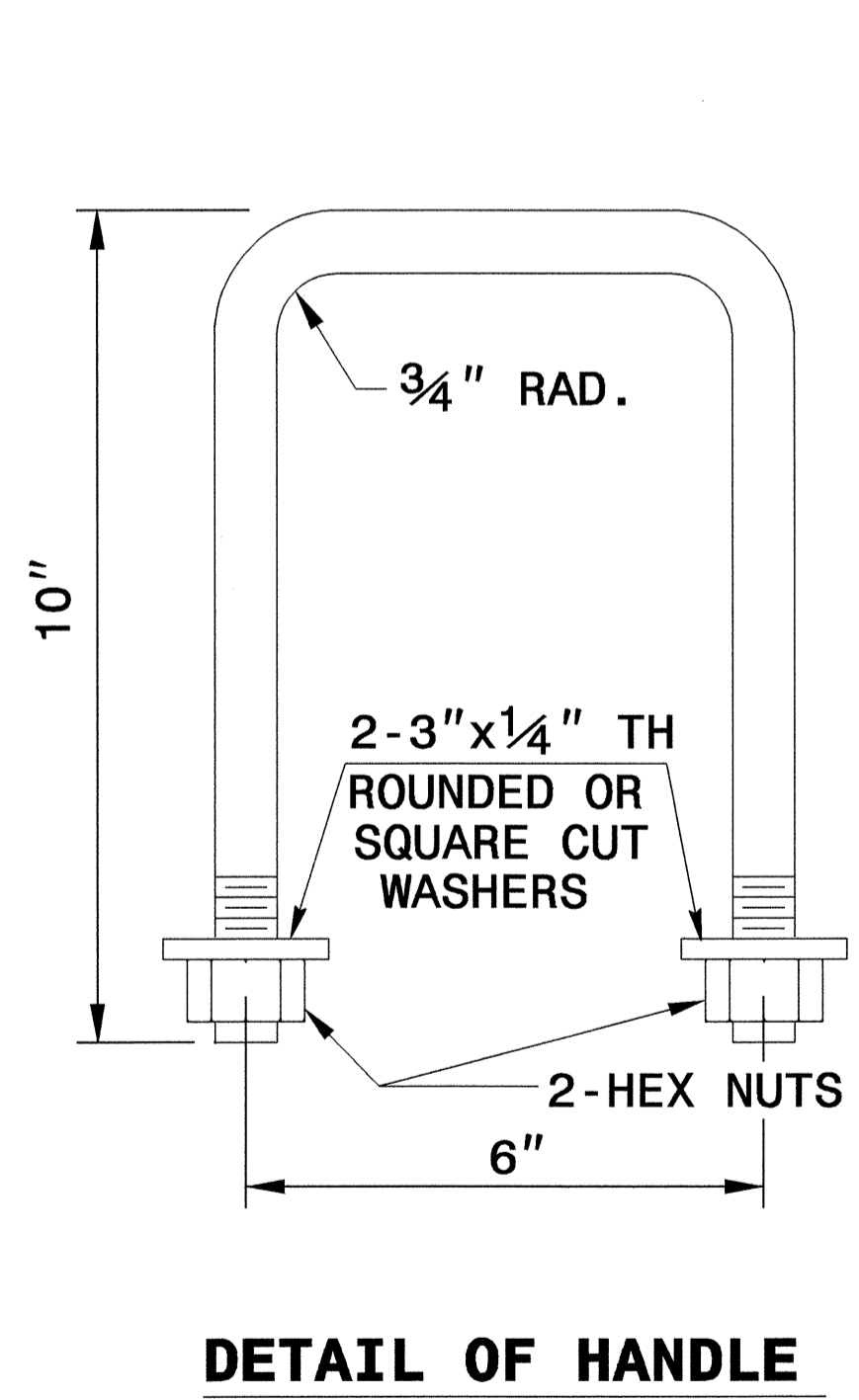
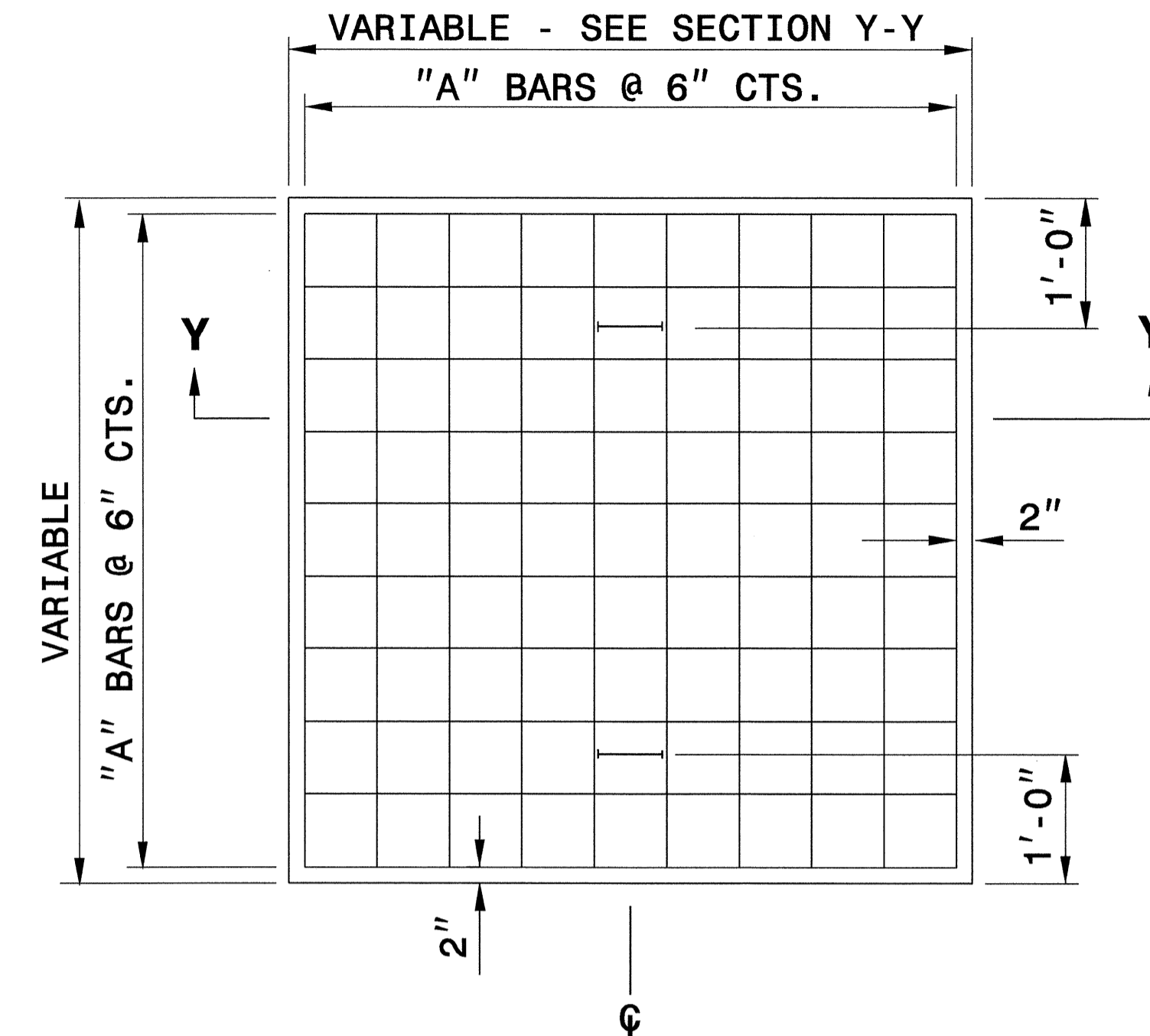
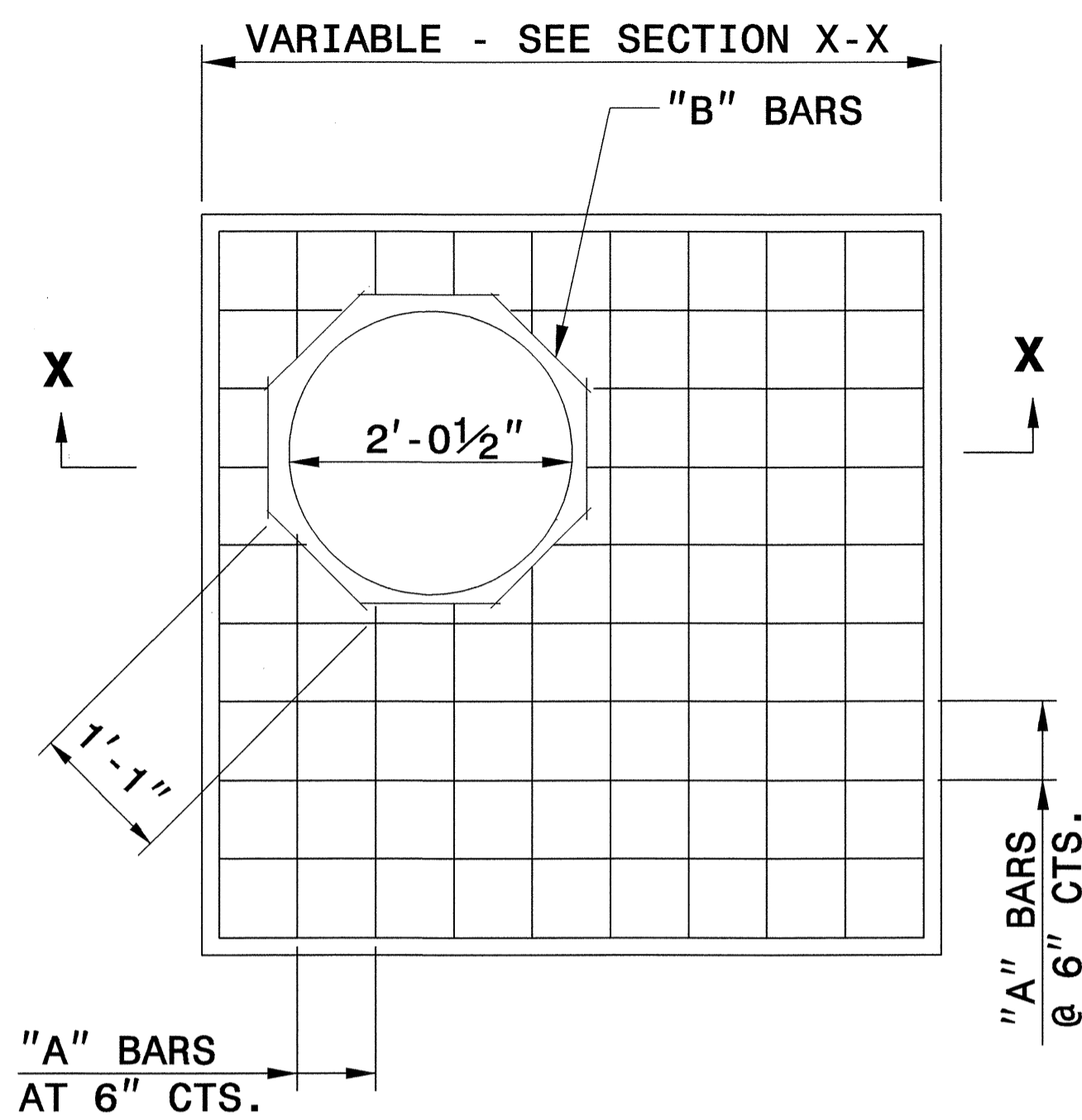
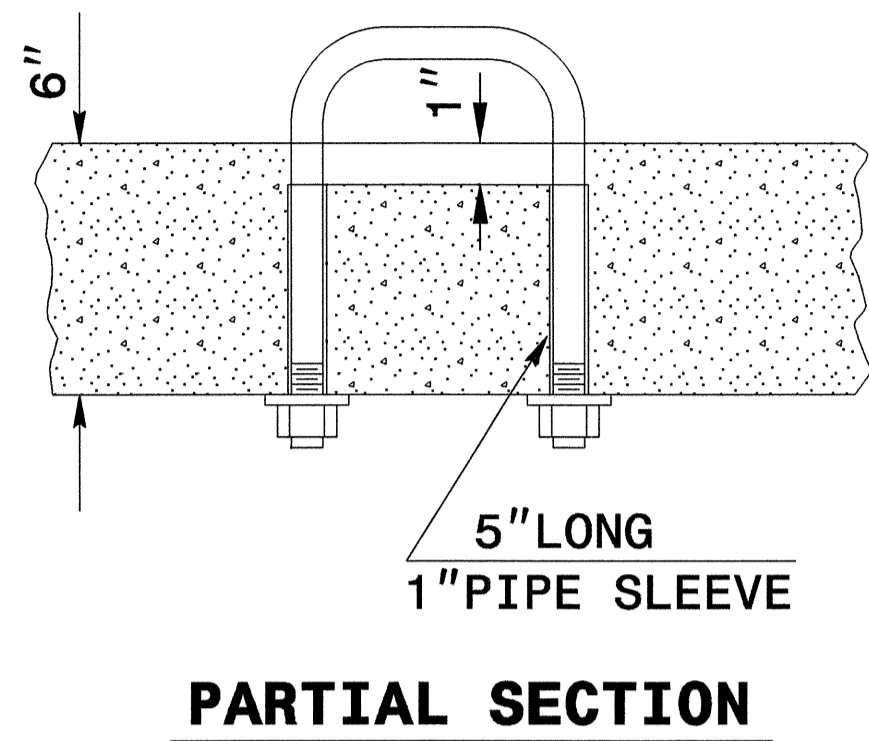


-Y10-
 PI Sta 11+53.56
 $\Delta = 10^\circ 33' 56.9''$ (RT)
 D = 4' 15" 00.0"
 L = 248.61'
 T = 124.66'
 R = 1,348.14'
 e = EXIST.

-L-
 PI Sta 60+46.66
 $\Delta = 2^\circ 30' 33.0''$ (RT)
 D = 0' 28' 38.9"
 L = 525.52'
 T = 262.80'
 R = 12,000.00'
 e = NC

-DRIVE- & -Y10- CHANNELIZATION AND INTERSECTION DETAILS

22-OCT-2008 11:51
 R:\poc\work\proj\drive_y10_island_details.dgn
 11:51 AM
 GREGORY E. BREW

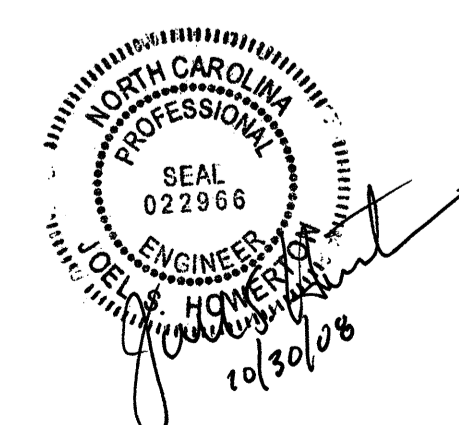


GENERAL NOTES:

- CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
- FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES
- DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS				
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.433 *
BRICK MASONRY PER FT HT (MIN)				.4111

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



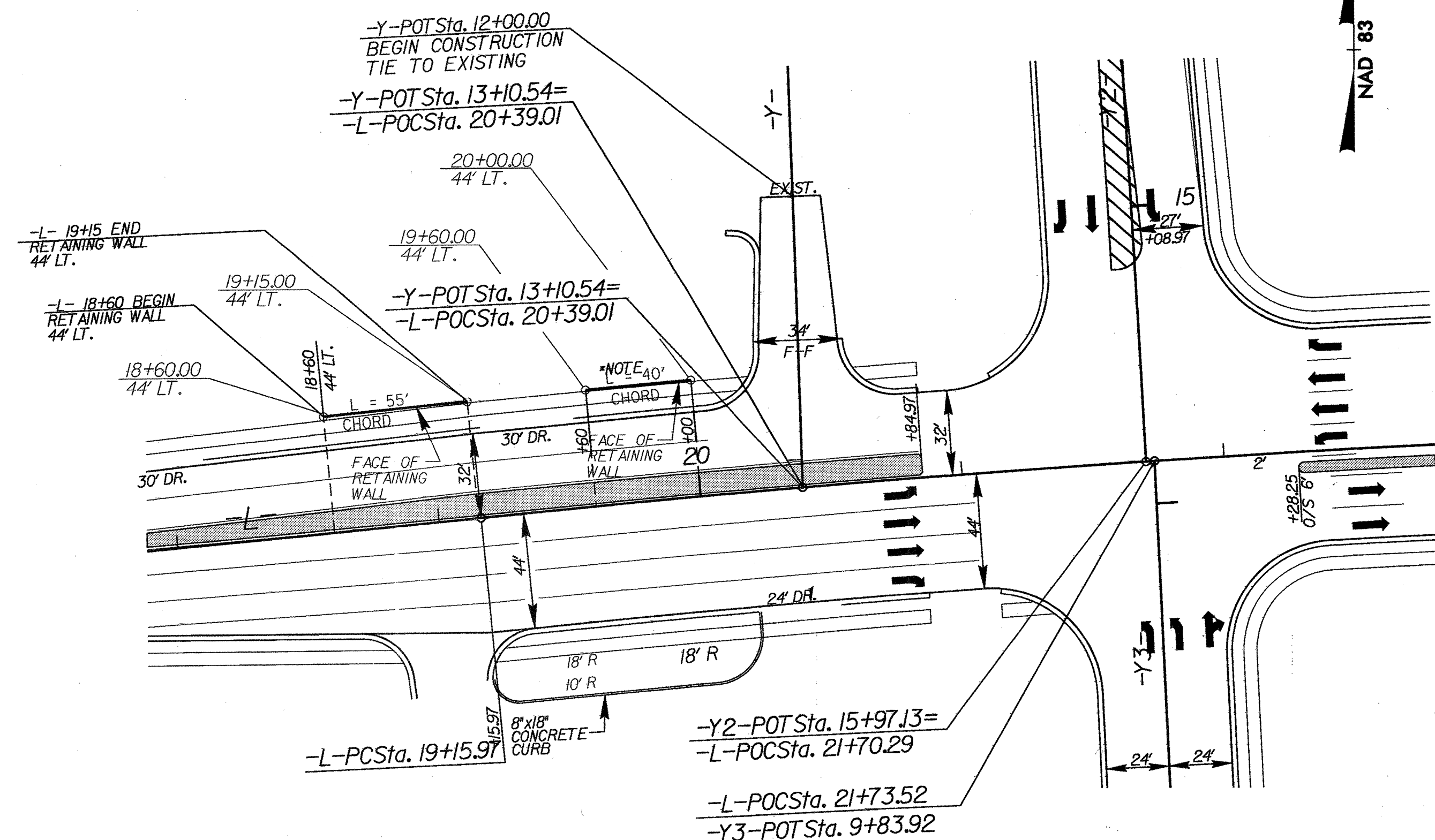
**PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

**DETAIL TO CONVERT EXISTING
DROP INLET OR CATCH BASIN
TO JUNCTION BOX
(MANHOLE OPTIONAL)**

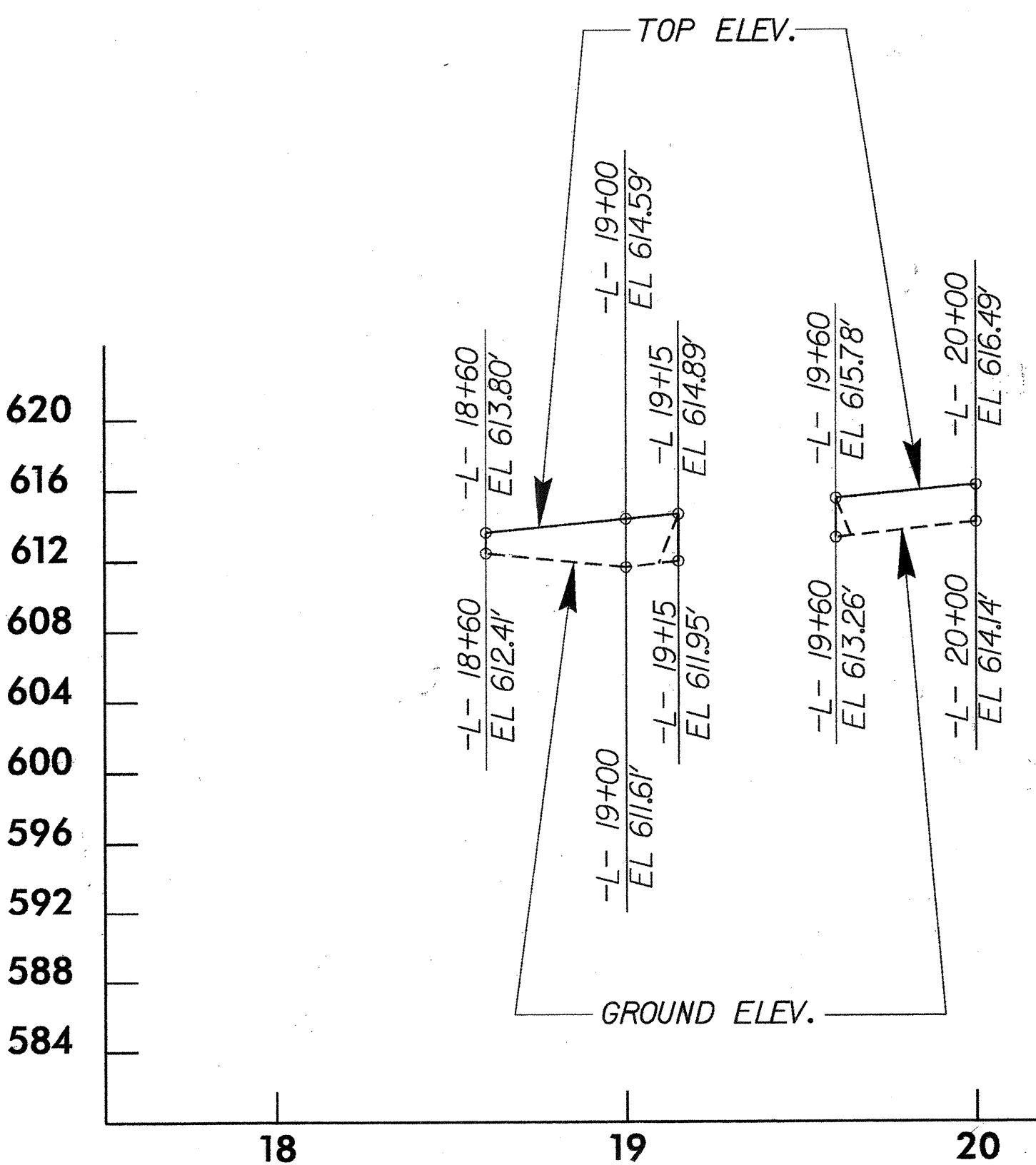
ORIGINAL BY: T.S.S. DATE: NOV. 1997
 MODIFIED BY: E.E.W. DATE: 8-28-02
 CHECKED BY: J.S. DATE: 9/15/08
 FILE SPEC.: /usr/details/stand/boxtoibe.dgn

CUSTOMER'S USE ONLY
 1. DATE OF CONSTRUCTION
 2. DRAWING NO.
 3. PROJECT NAME
 4. DRAWING TITLE
 5. DRAWN BY
 6. CHECKED BY
 7. DATE OF ISSUE

BM - 1 RR SPIKE IN BASE OF POWER POLE (CP&L #8820) -BL- STA. 3+42.67 -L- 77.10' LT.
 EL. = 602.23' N 586808.5190 E 1766219.7640



LOCATION SKETCH



GRAVITY RETAINING WALL

STA. 18+60.00 -L- TO 19+15.00 -L- AND STA. 19+60.00 -L- TO 20+00.00 -L-

TOTAL STRUCTURE QUANTITIES

GRAVITY RETAINING WALLS	131	SQ. FT.
1 1/2" GALVANIZED STEEL PIPE RAIL	55	LIN. FT.

STA. 18+60.00 -L- TO 19+15.00 -L-

TOTAL STRUCTURE QUANTITIES

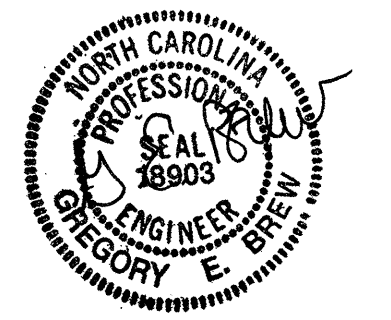
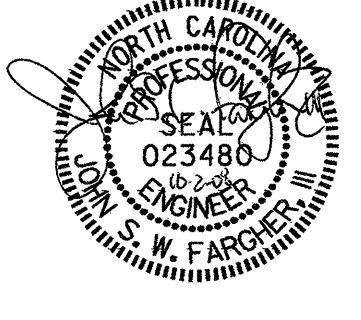
GRAVITY RETAINING WALLS	98	SQ. FT.
1 1/2" GALVANIZED STEEL PIPE RAIL	40	LIN. FT.

STA. 19+60.00 -L- TO 20+00.00 -L-

PEDESTRIAN SAFETY RAIL TO BE USED WITH THESE WALLS (SEE DETAIL)

NOTES

- NO BRICK VENEER WILL BE ALLOWED.
- NO FENCE WILL BE REQUIRED
- SET APPROVED SLEEVES IN RETAINING WALL IN ACCORDANCE WITH THE DETAILS IN THE PLANS. AFTER THE POSTS HAVE BEEN SET, FILL SLEEVES WITH GROUT.

ROADWAY DESIGN ENGINEER  SIGNATURE _____ DATE 10-30-08	GEOTECHNICAL ENGINEER  SIGNATURE _____ DATE _____
---	--

GRAVITY RETAINING WALL ELEVATIONS

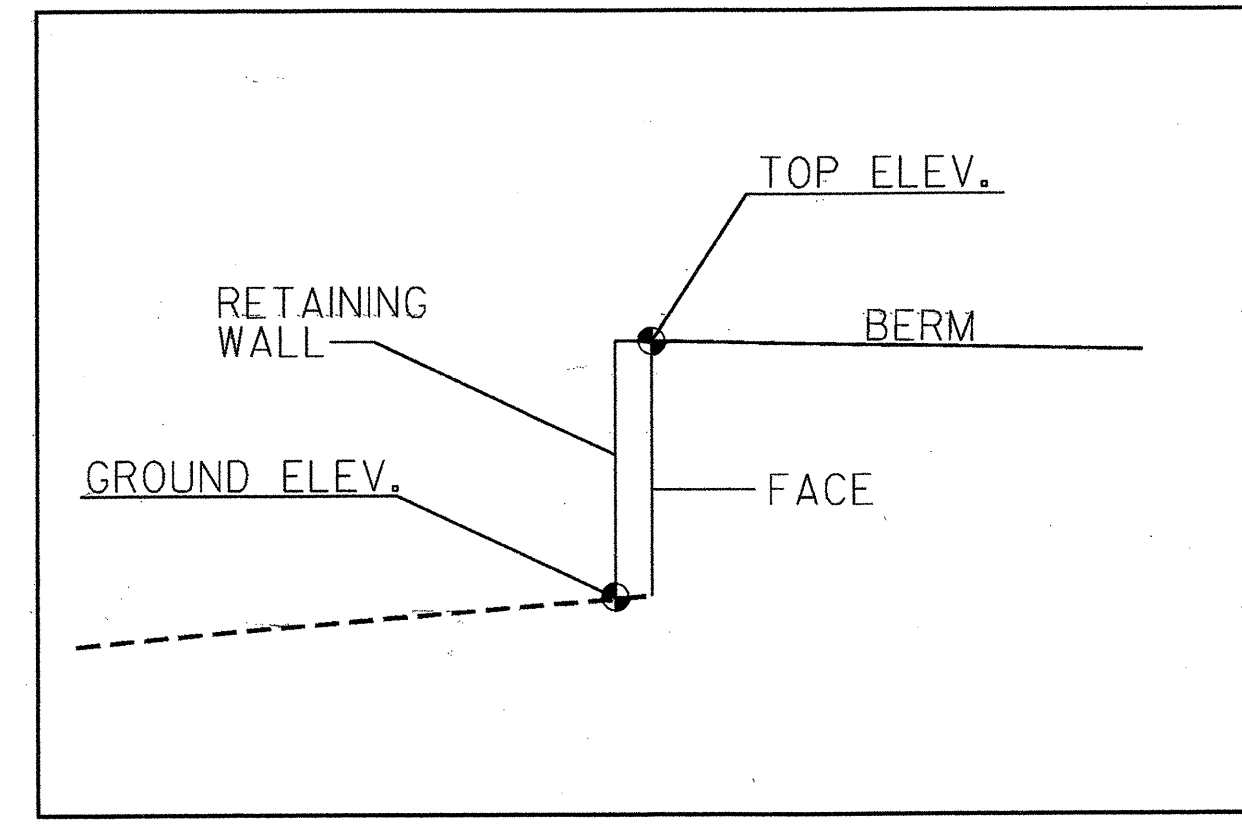
-L- STA	OFFSET FROM CL (LEFT)	ELEV @ TOP OF WALL	GROUND ELEVATION
18+60.00	44.00	613.80	612.41
19+00.00	44.00	614.59	611.61
19+15.00	44.00	614.89	611.95

STA. 18+60.00 -L- TO 19+15.00 -L-

GRAVITY RETAINING WALL ELEVATIONS

-L- STA	OFFSET FROM CL (LEFT)	ELEV @ TOP OF WALL	GROUND ELEVATION
19+60.00	44.00	615.78	613.26
20+00.00	44.00	616.49	614.14

STA. 19+60.00 -L- TO 20+00.00 -L-



PROJECT NO.: 34373.1.1 R-2107B
 MONTGOMERY COUNTY
 STATION: 18+60.00 TO 19+15.00 -L- AND 19+60.00 TO 20+00.00 -L-

SHEET 1 OF 6

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH


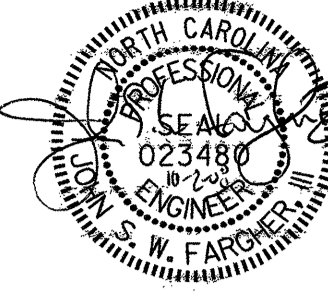
GRAVITY RETAINING WALL

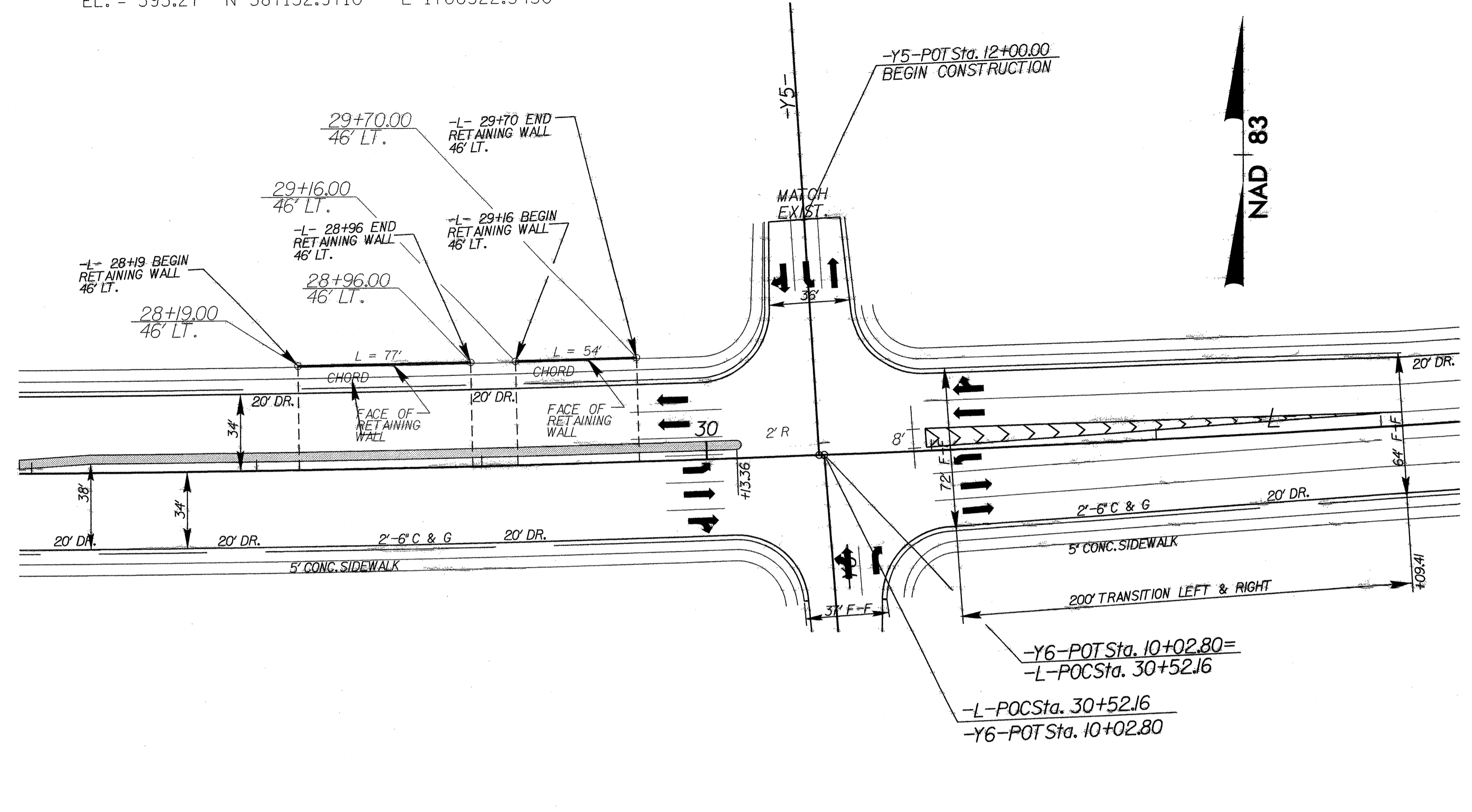
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 2-J
TOTAL SHEETS

PREPARED BY: EJS DATE: 06/14/07
 REVIEWED BY: JSF DATE: 06/14/07

BM - 2 RR SPIKE IN BASE OF POWER POLE (CP&L #3128) -L- STA. 30+13.03 -L- 338.29' LT.
 EL. = 595.27' N 587152.9710 E 1768322.3430

ROADWAY DESIGN ENGINEER  SIGNATURE _____ DATE 10-30-08	GEOTECHNICAL ENGINEER  SIGNATURE _____ DATE _____
---	--



LOCATION SKETCH

GRAVITY RETAINING WALL ELEVATIONS

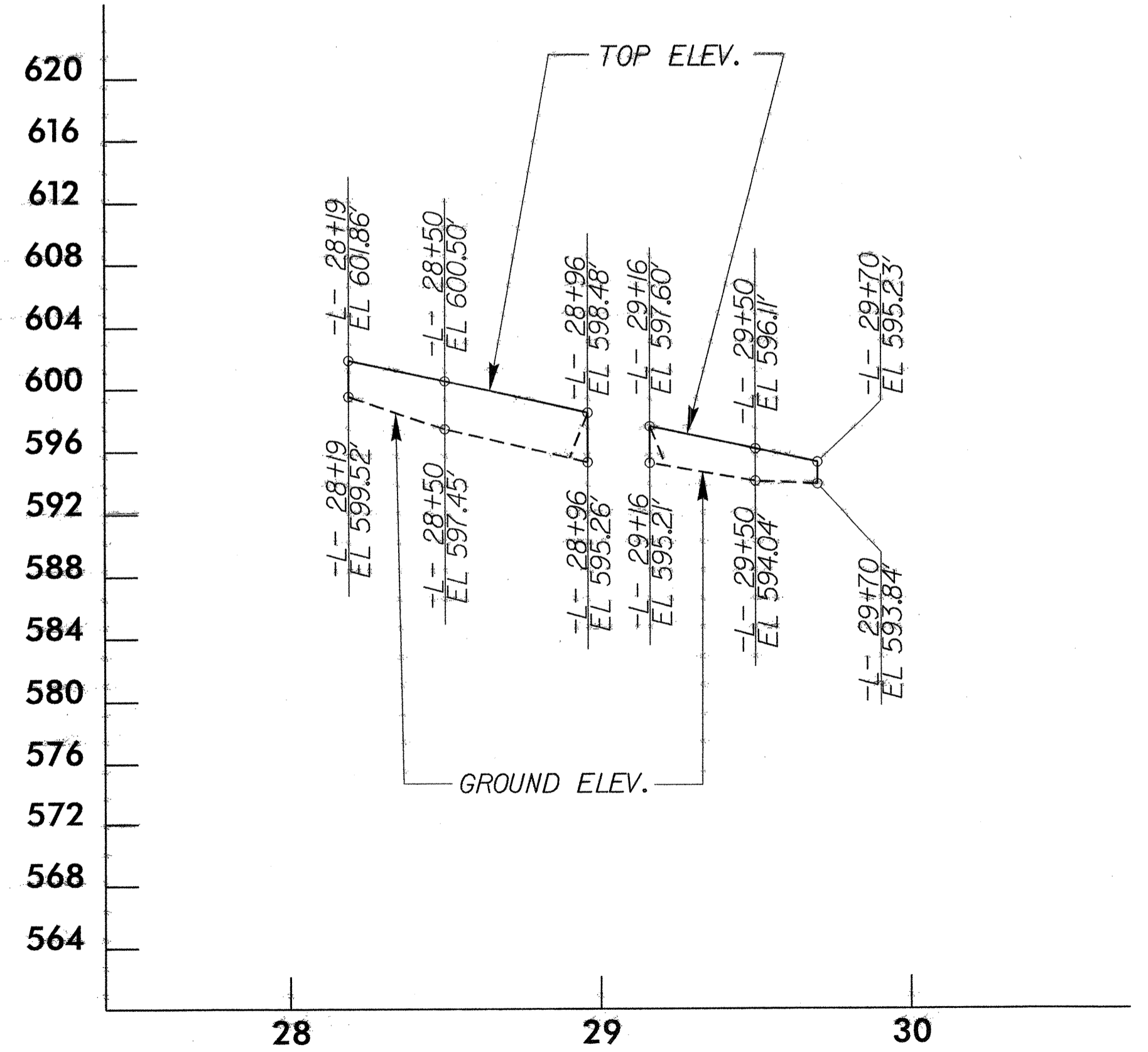
-L- STA	OFFSET FROM CL (LEFT)	ELEV @ TOP OF WALL	GROUND ELEVATION
28+19.00	46.00	601.86	599.52
28+50.00	46.00	600.50	597.45
28+96.00	46.00	598.48	595.26

STA. 28+19.00 -L- TO 28+96.00 -L-

GRAVITY RETAINING WALL ELEVATIONS

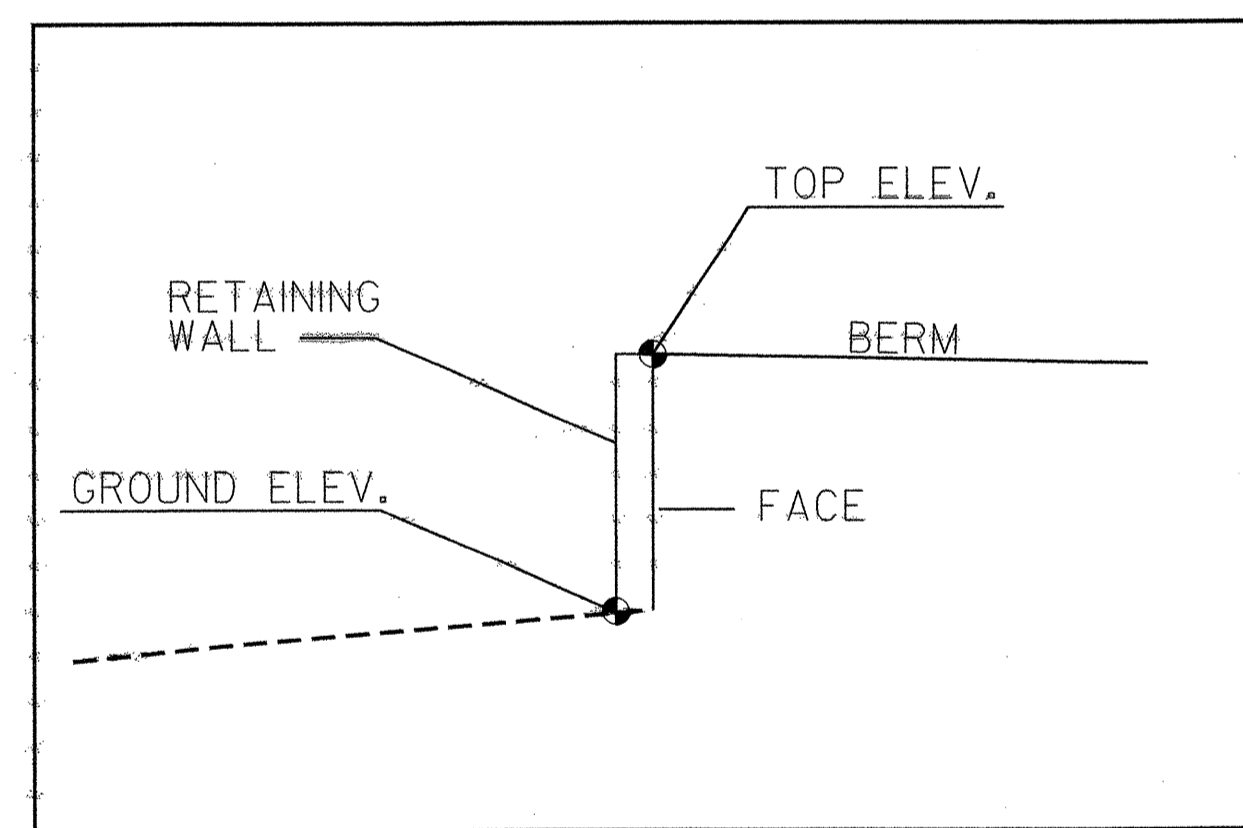
-L- STA	OFFSET FROM CL (LEFT)	ELEV @ TOP OF WALL	GROUND ELEVATION
29+16.00	46.00	597.60	595.21
29+50.00	46.00	596.10	594.04
29+70.00	46.00	595.23	593.84

STA. 29+16.00 -L- TO 29+70.00 -L-



GRAVITY RETAINING WALL

STA. 28+19.00 -L- TO 28+96.00 -L- AND STA. 29+16.00 -L- TO 29+70.00 -L-



NOTES

- NO BRICK VENEER WILL BE ALLOWED.
- NO FENCE WILL BE REQUIRED
- SET APPROVED SLEEVES IN RETAINING WALL IN ACCORDANCE WITH THE DETAILS IN THE PLANS.
- AFTER THE POSTS HAVE BEEN SET, FILL SLEEVES WITH GROUT.

TOTAL STRUCTURE QUANTITIES

STA. 28+19.00 -L- TO 28+96.00 -L-

GRAVITY RETAINING WALLS	228	SQ. FT.
1 1/2" GALVANIZED STEEL PIPE RAIL	77	LIN. FT.

TOTAL STRUCTURE QUANTITIES

STA. 29+16.00 -L- TO 29+70.00 -L-

GRAVITY RETAINING WALLS	111	SQ. FT.
1 1/2" GALVANIZED STEEL PIPE RAIL	54	LIN. FT.

SHEET 2 OF 6

PROJECT NO.: 34373.1.1 R-2107B
 MONTGOMERY COUNTY
 STATION: 28+19.00 TO 28+96.00 -L- AND 29+16.00 TO 29+70.00 -L-

GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

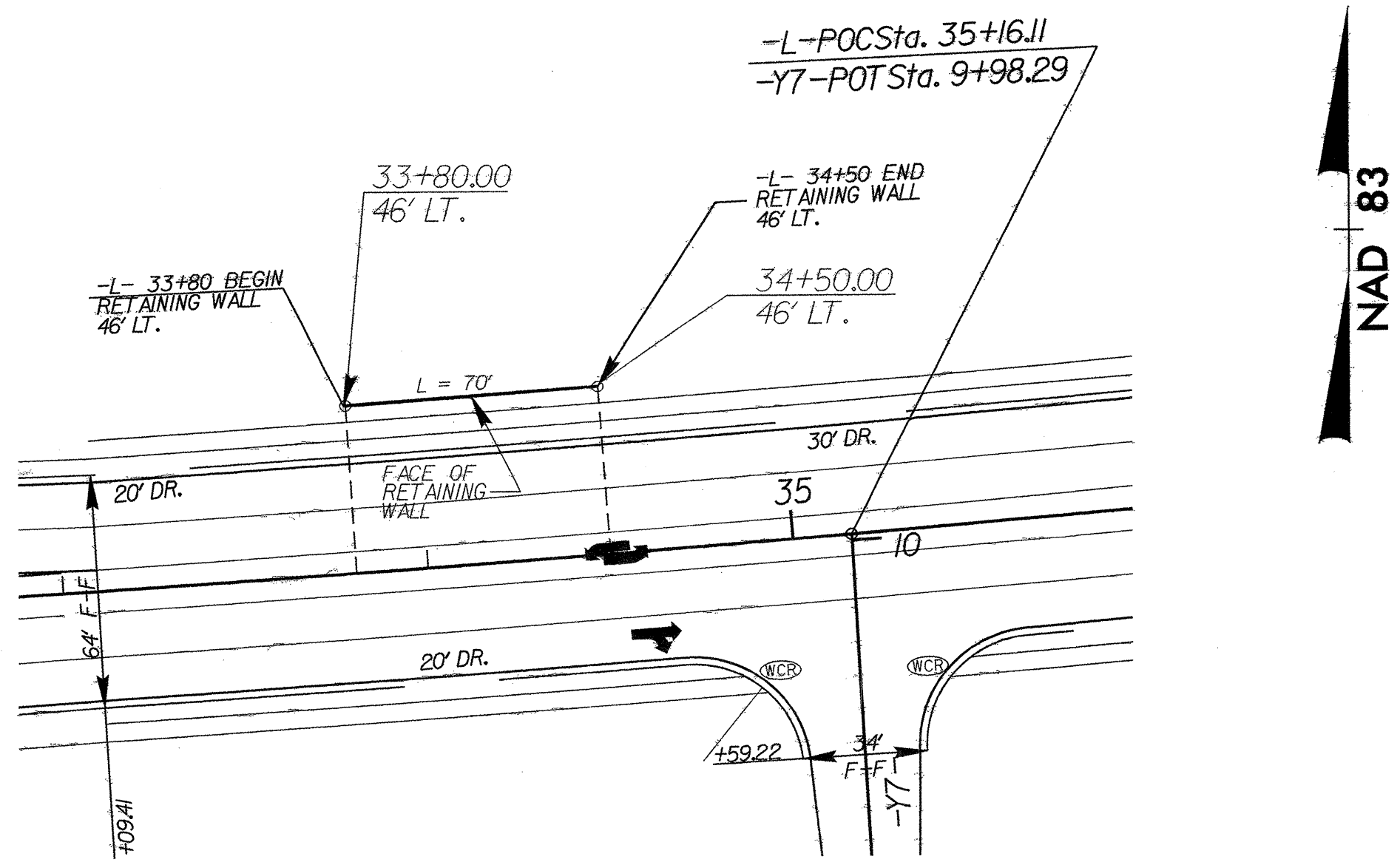
GRAVITY RETAINING WALL

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 2-K
 TOTAL SHEETS

PREPARED BY: EJS DATE: 06/14/07
 REVIEWED BY: JSF DATE: 06/14/07

BM - 2 RR SPIKE IN BASE OF POWER POLE (CP&L #3128) -L- STA. 30+13.03 -L- 338.29' LT.
 EL. = 595.27' N 587152.9710 E 1768322.3430

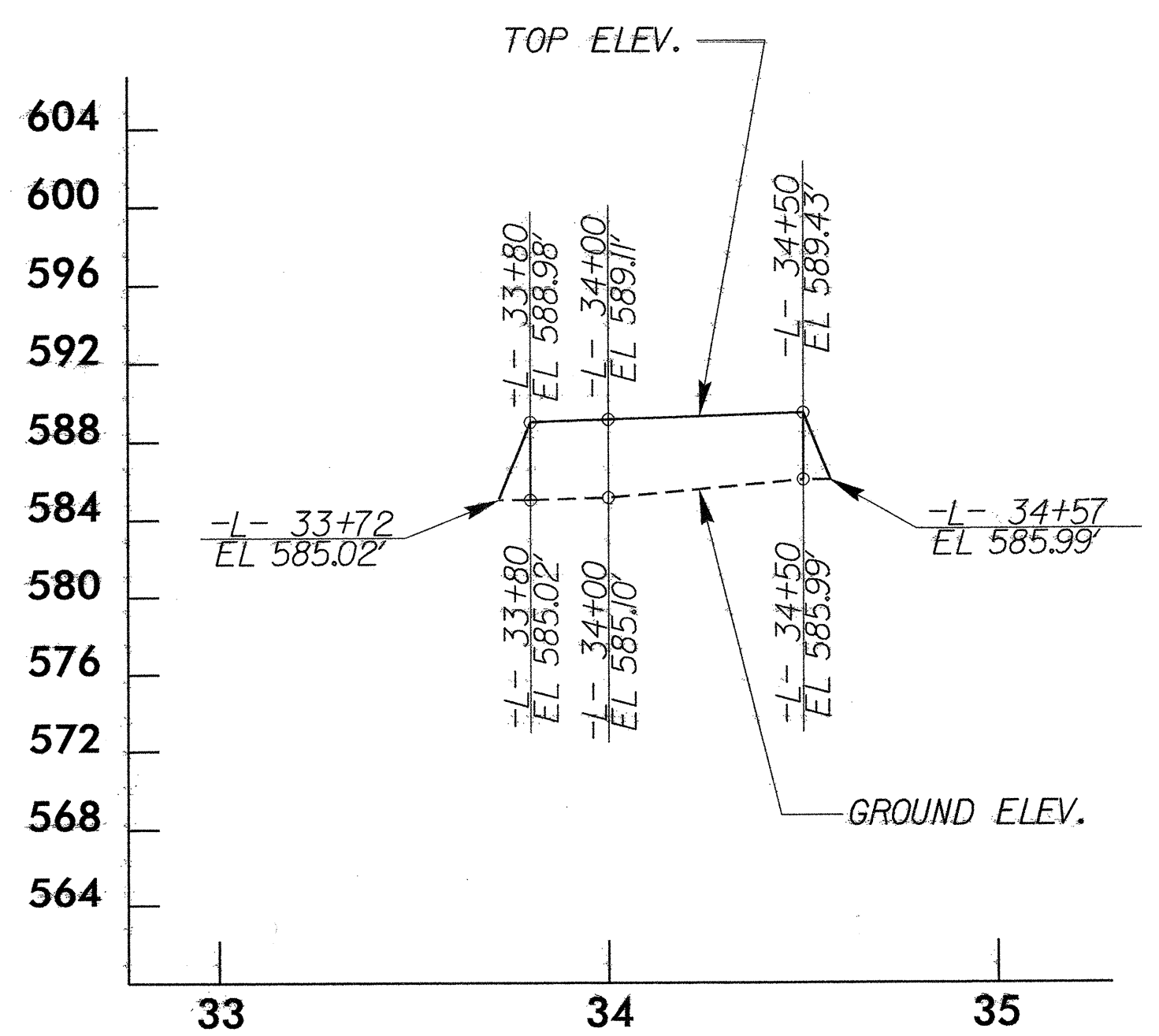
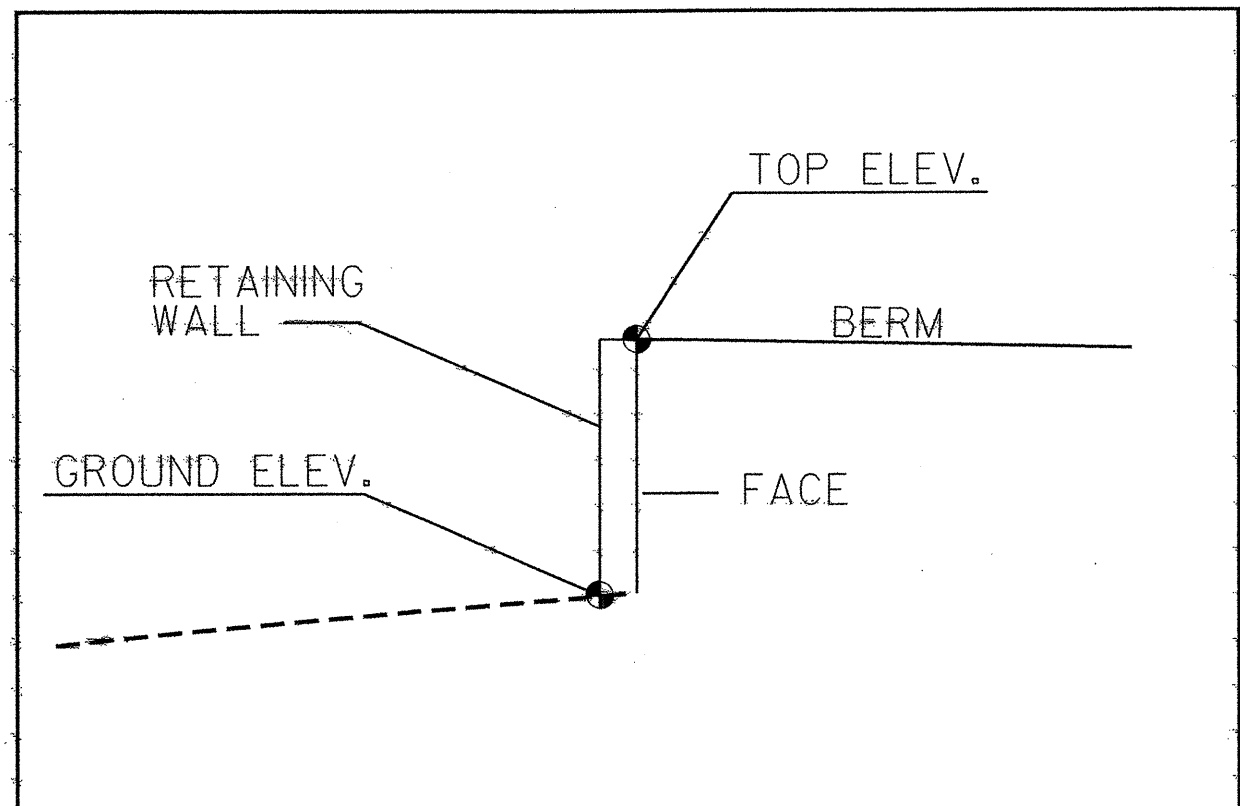


LOCATION SKETCH

GRAVITY RETAINING WALL ELEVATIONS

-L- STA	OFFSET FROM C (LEFT)	ELEV @ TOP OF WALL	GROUND ELEVATION
33+72.00	46.00	585.02	585.02
33+80.00	46.00	588.98	585.02
34+00.00	46.00	589.11	585.10
34+50.00	46.00	589.43	585.99
34+57.00	46.00	585.99	585.99

STA. 33+72.00 -L- TO 34+57.00 -L-



GRAVITY RETAINING WALL

STA. 33+72.00 -L- TO 34+57.00 -L-

TOTAL STRUCTURE QUANTITIES

STA. 33+72.00 -L- TO 34+57.00 -L-

GRAVITY RETAINING WALLS	294	SQ. FT.
1 1/2" GALVANIZED STEEL PIPE RAIL	70	LIN. FT.

PROJECT NO.: 34373.1.1 R-2107B
 MONTGOMERY COUNTY
 STATION: 33+72.00 TO 34+57.00 -L-

SHEET 3 OF 6

NOTES

- NO BRICK VENEER WILL BE ALLOWED.
- NO FENCE WILL BE REQUIRED
- SET APPROVED SLEEVES IN RETAINING WALL IN ACCORDANCE WITH THE DETAILS IN THE PLANS.
- AFTER THE POSTS HAVE BEEN SET, FILL SLEEVES WITH GROUT.

GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GRAVITY RETAINING WALL

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

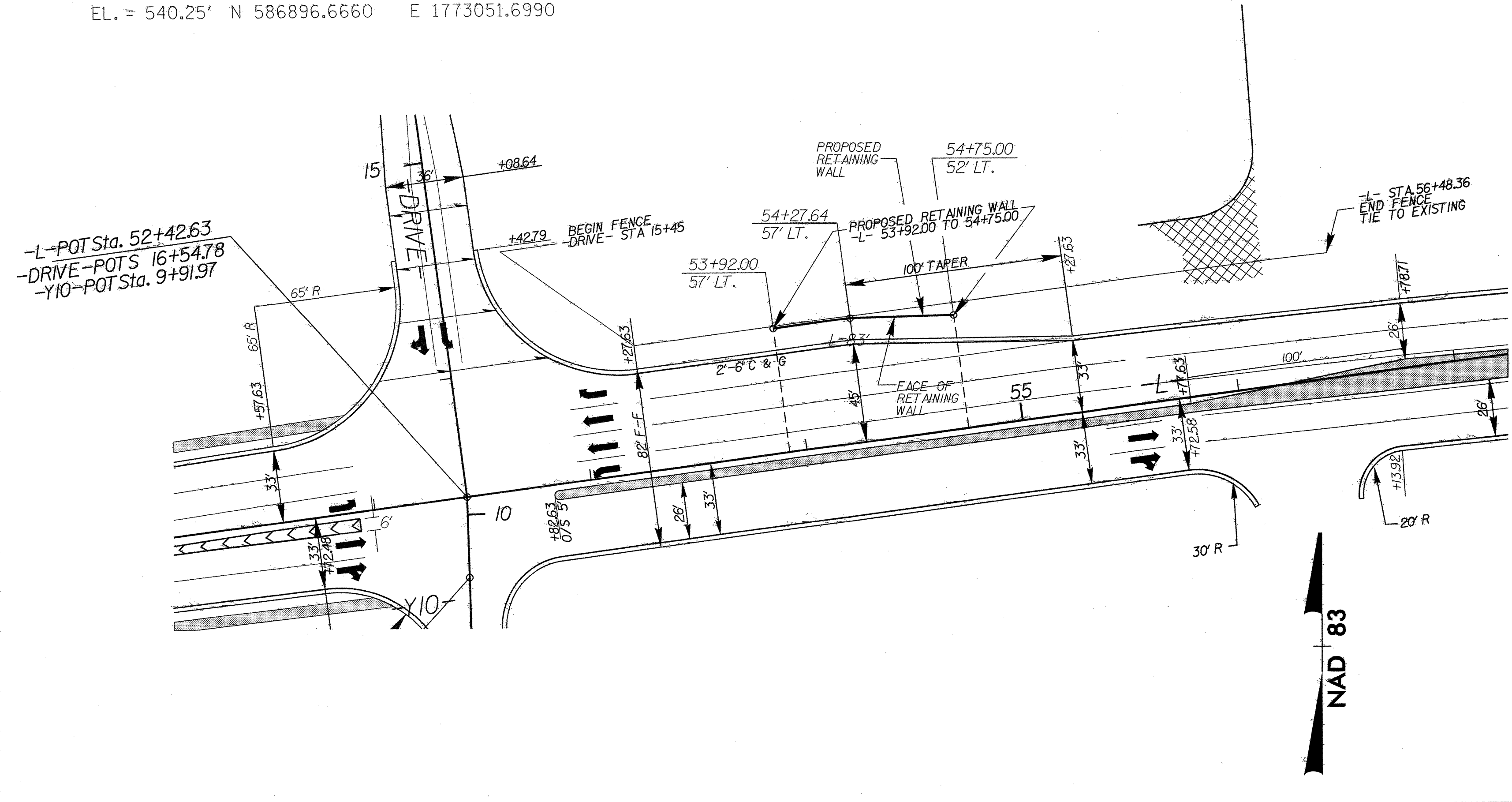
PREPARED BY: EJS DATE: 06/14/07
 REVIEWED BY: JSF DATE: 06/14/07

ROADWAY DESIGN ENGINEER
 GEOTECHNICAL ENGINEER

10-30-08

BM - 3 RR SPIKE IN BASE OF POWER POLE (CP&L #5391) -BL- STA. 72+64.51 -L- 156.90' RT.
 EL. = 540.25' N 586896.6660 E 1773051.6990

ROADWAY DESIGN ENGINEER
 GEOTECHNICAL ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL
 GREGORY E. BRUN
 10-30-08
 SIGNATURE DATE SIGNATURE DATE

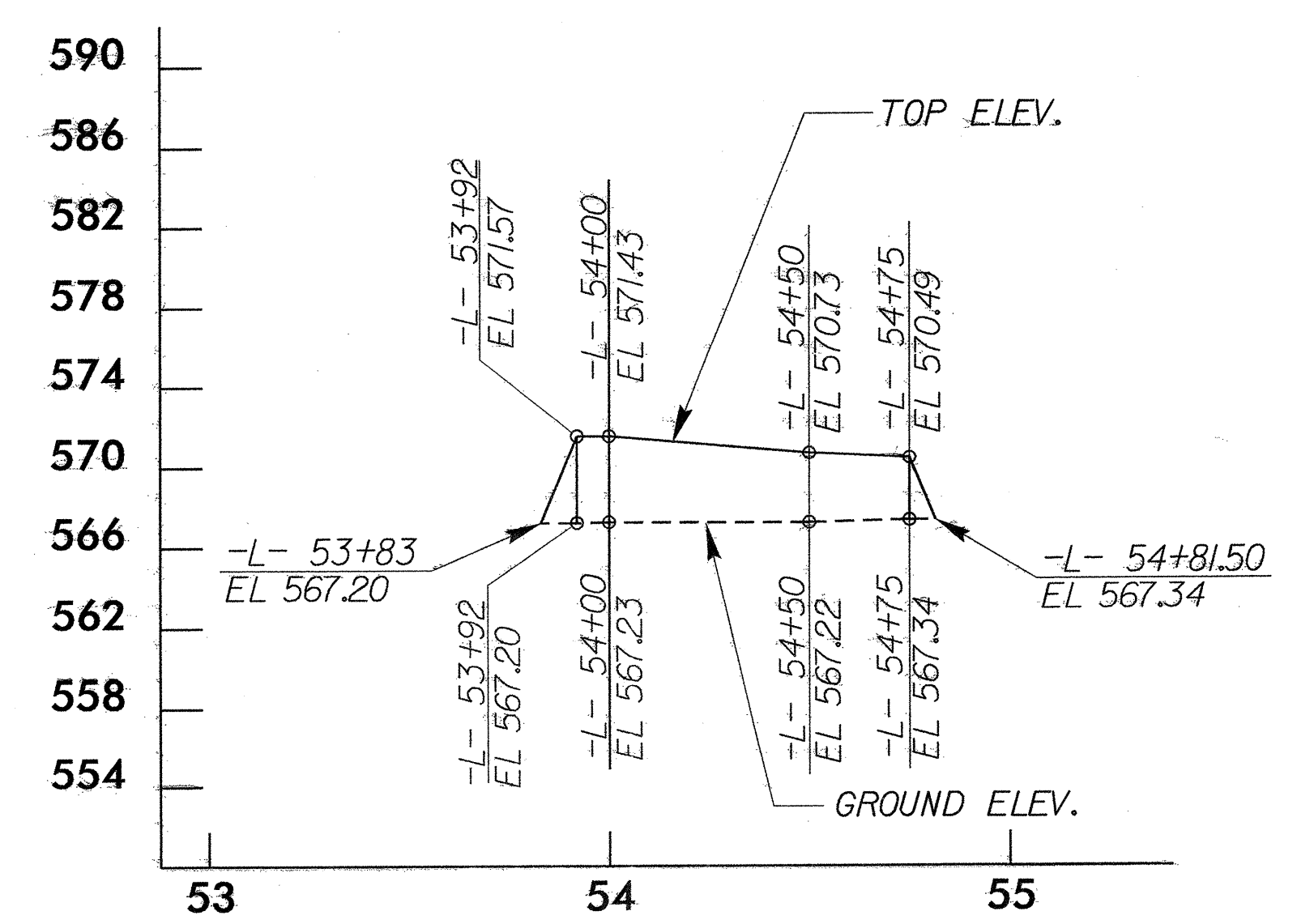


LOCATION SKETCH

GRAVITY RETAINING WALL ELEVATIONS

-L- STA	OFFSET FROM CL (LEFT)	ELEV @ TOP OF WALL	GROUND ELEVATION
53+83.00	57.00	567.20	567.20
53+92.00	57.00	571.57	567.20
54+00.00	57.00	571.43	567.23
54+50.00	54.64	570.73	567.22
54+75.00	52.00	570.49	567.34
54+81.50	52.00	567.34	567.34

STA. 53+83.00 -L- TO 54+81.50 -L-



GRAVITY RETAINING WALL

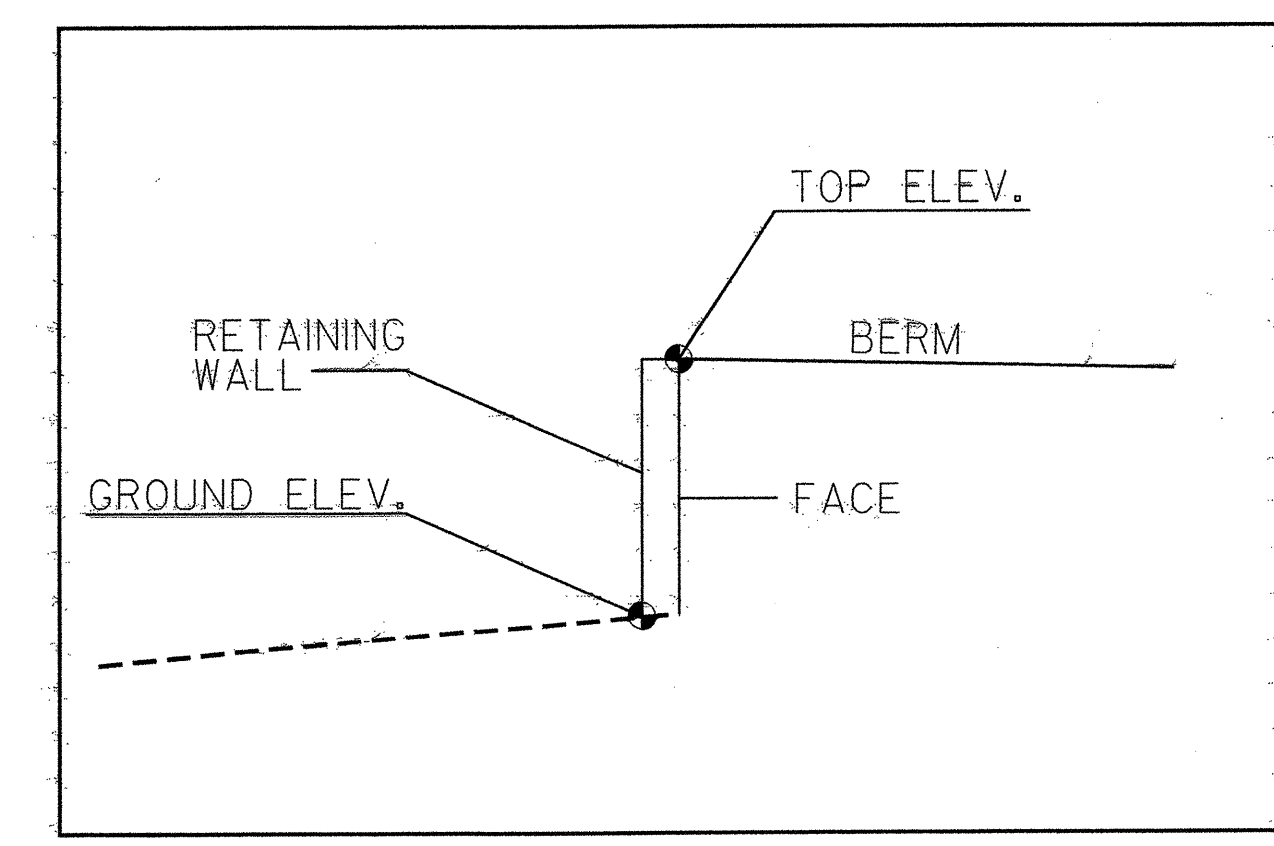
STA. 53+83.00 -L- TO 54+81.50 -L-

TOTAL STRUCTURE QUANTITIES

GRAVITY RETAINING WALLS	340	SQ. FT.
1 1/2" GALVANIZED STEEL PIPE RAIL	83	LIN. FT.

STA. 53+83.00 -L- TO 54+81.50 -L-

PEDESTRIAN SAFETY RAIL TO BE USED WITH THESE WALLS (SEE DETAIL)



NOTES

- NO BRICK VENEER WILL BE ALLOWED.
- NO FENCE WILL BE REQUIRED
- SET APPROVED SLEEVES IN RETAINING WALL IN ACCORDANCE WITH THE DETAILS IN THE PLANS.
- AFTER THE POSTS HAVE BEEN SET, FILL SLEEVES WITH GROUT.

GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SHEET 4 OF 6

PROJECT NO.: 34373.1.1 R-2107B
 MONTGOMERY COUNTY
 STATION: 53+83.00 TO 54+81.50 -L-

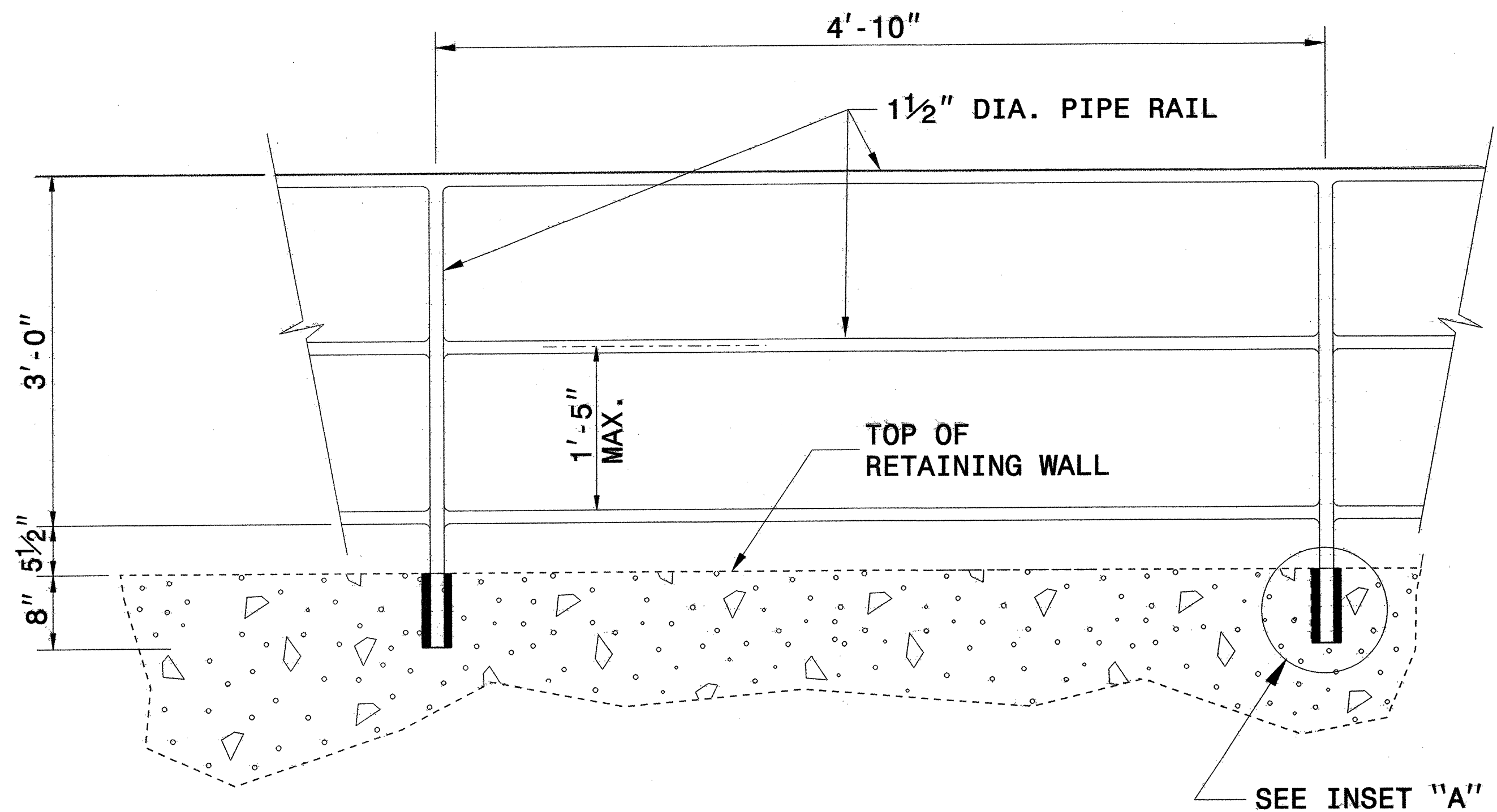
GRAVITY RETAINING WALL

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

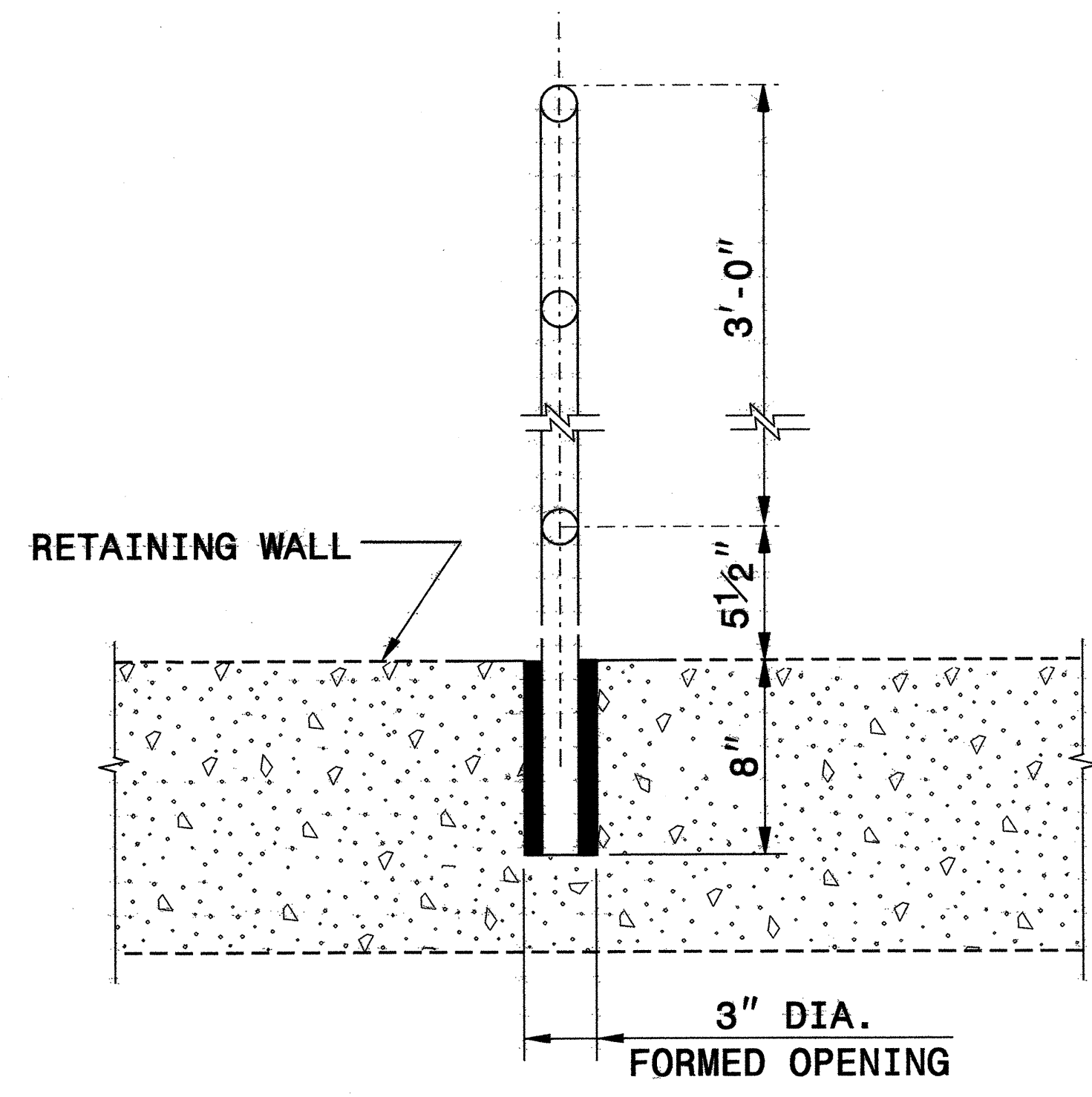
PREPARED BY: EJS DATE: 06/14/07
 REVIEWED BY: JSF DATE: 06/14/07

ROADWAY DESIGN ENGINEER
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 18903
 GREGORY E. BREWSTER
 SIGNATURE DATE 10-30-08

GEOTECHNICAL ENGINEER
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 023480
 JOHN S. W. FARGHER III
 SIGNATURE DATE



ELEVATION OF PROPOSED PEDESTRIAN HANDRAIL



INSET 'A'

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

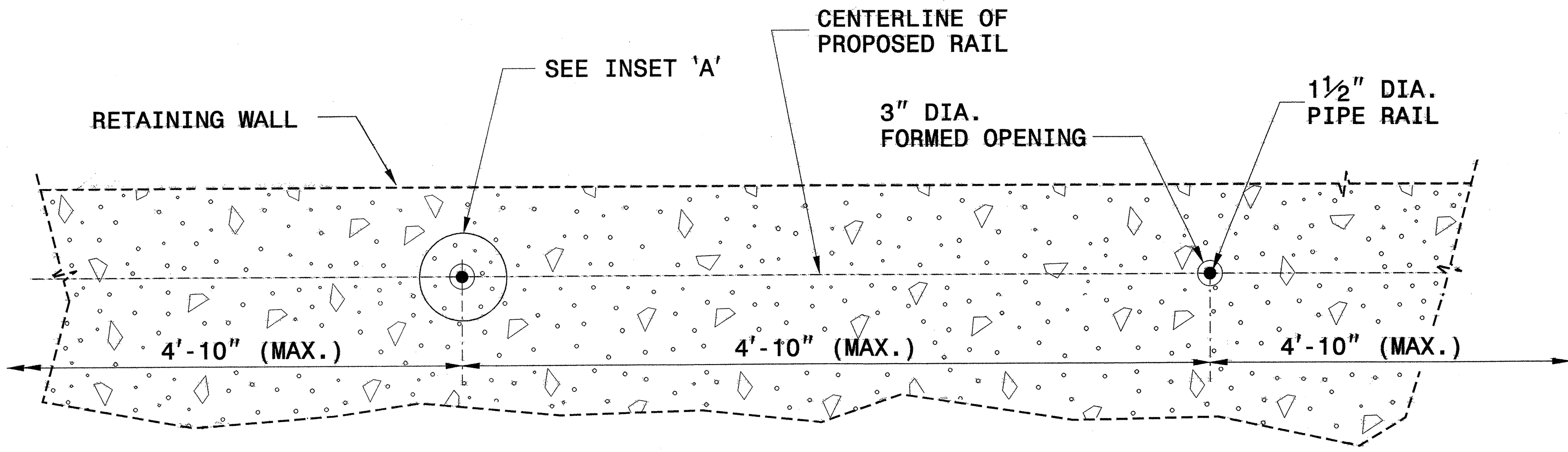
PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-20 OF THE STANDARD SPECIFICATIONS.

1 1/2" DIA. STEEL PIPE SHALL MEET THE REQUIREMENTS OF ASTM A53 FOR STANDARD WEIGHT PIPE AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

POSTS AND VERTICAL ELEMENTS OF THE RAIL SHALL BE PLUMB.

THE PIPE RAIL POSTS SHALL BE GROUTED IN PLACE USING NON-SHRINK, NON-METALLIC GROUT AS APPROVED BY THE ENGINEER.



PLAN VIEW

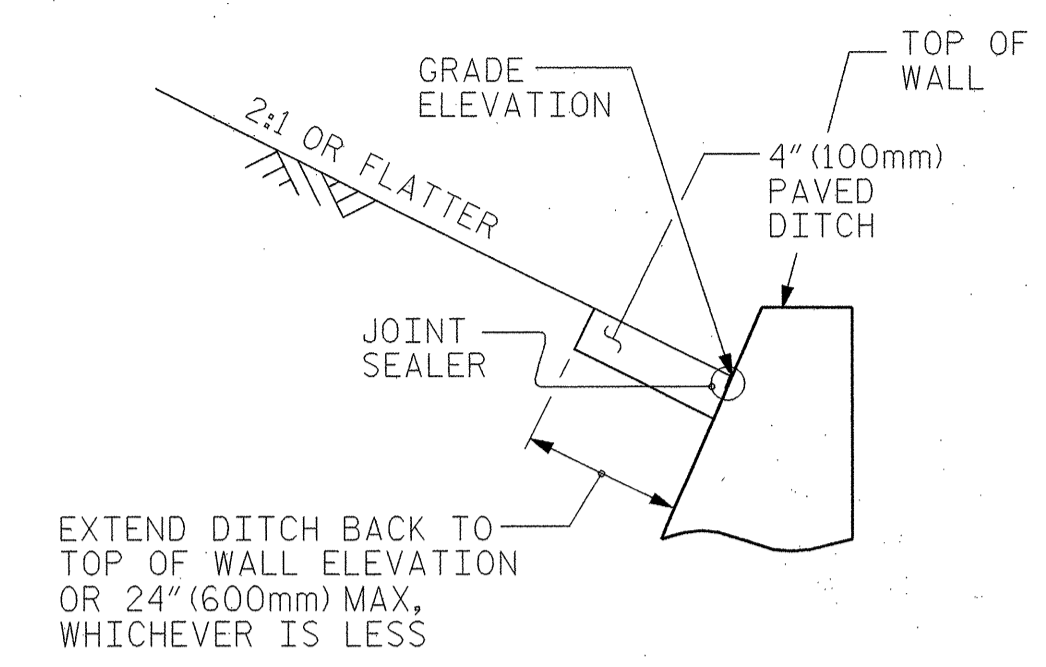
PROJECT NO.: 34373.1.1 R-2107B
MONTGOMERY COUNTY
STATION: 18+60.00 TO 19+15.00 -L-
 19+60.00 TO 20+00.00 -L-
 28+19.00 TO 28+96.00 -L-
 29+16.00 TO 29+70.00 -L-
 33+72.00 TO 34+57.00 -L-
 53+83.00 TO 54+81.50 -L-

SHEET 5 OF 6

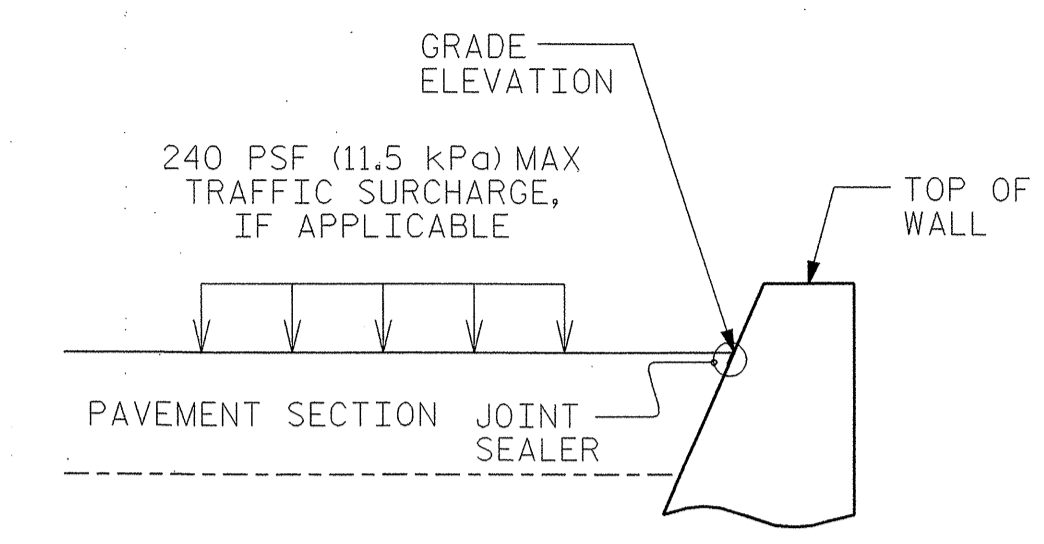
GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

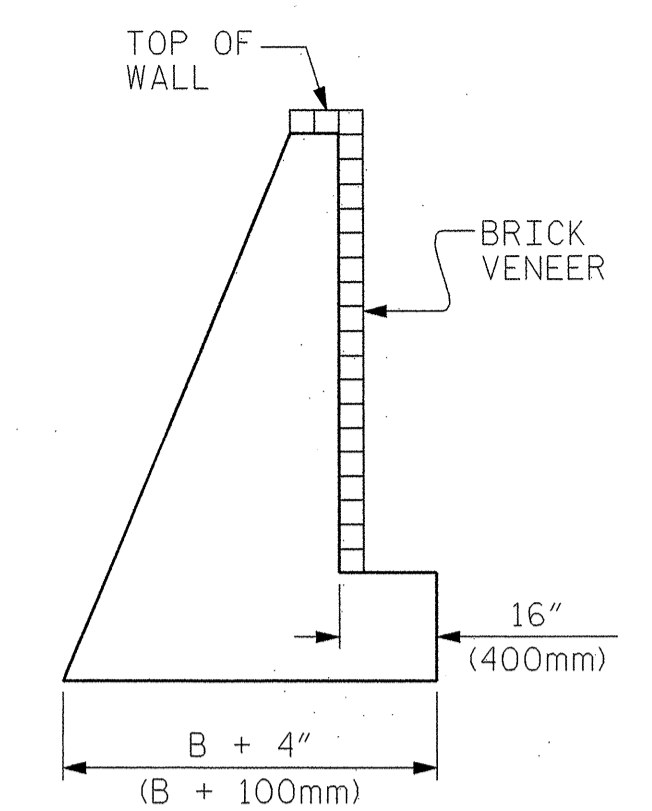
PREPARED BY: EJS DATE: 6/14/07
 REVIEWED BY: JSF DATE: 6/14/07



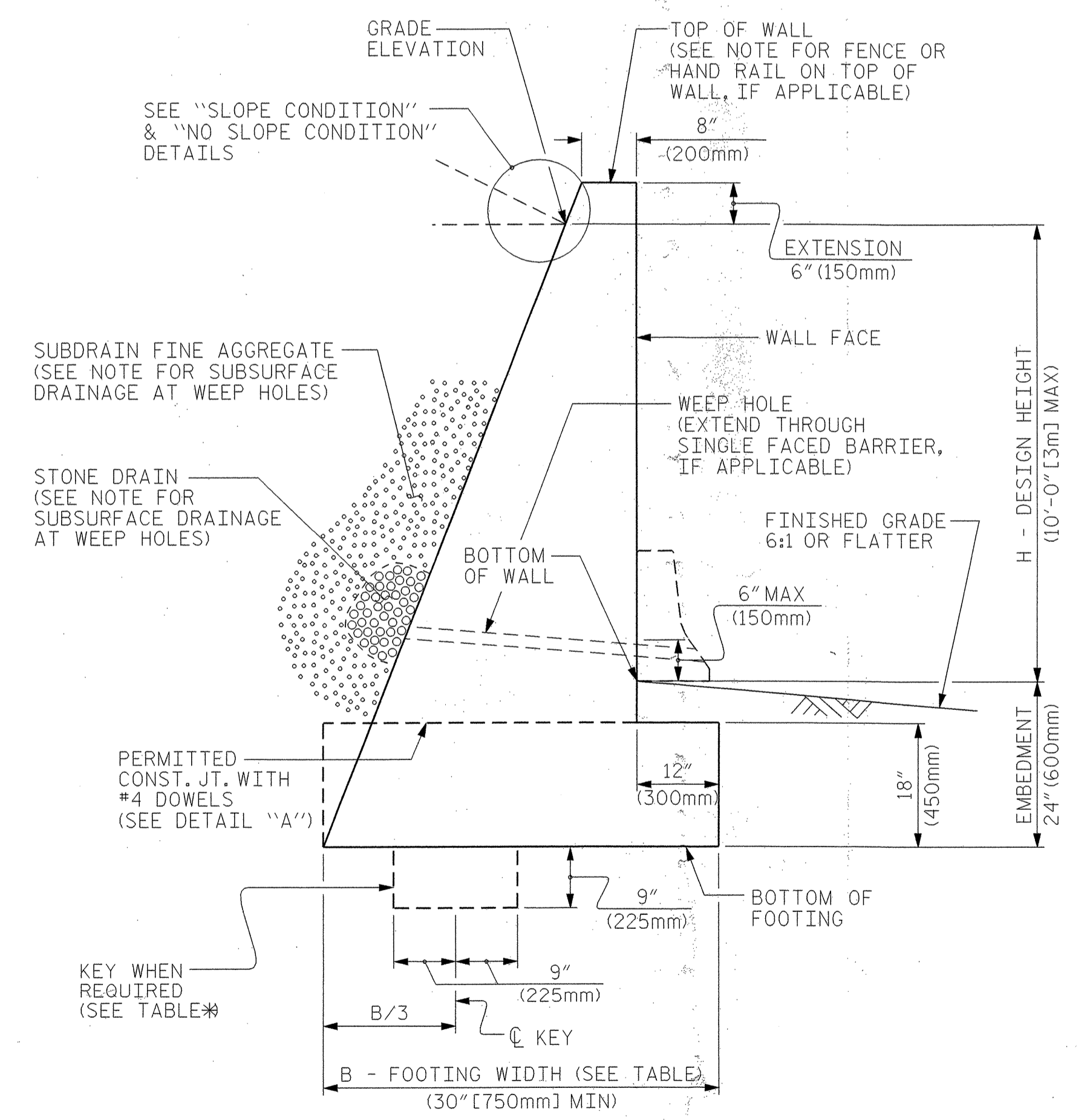
SLOPE CONDITION



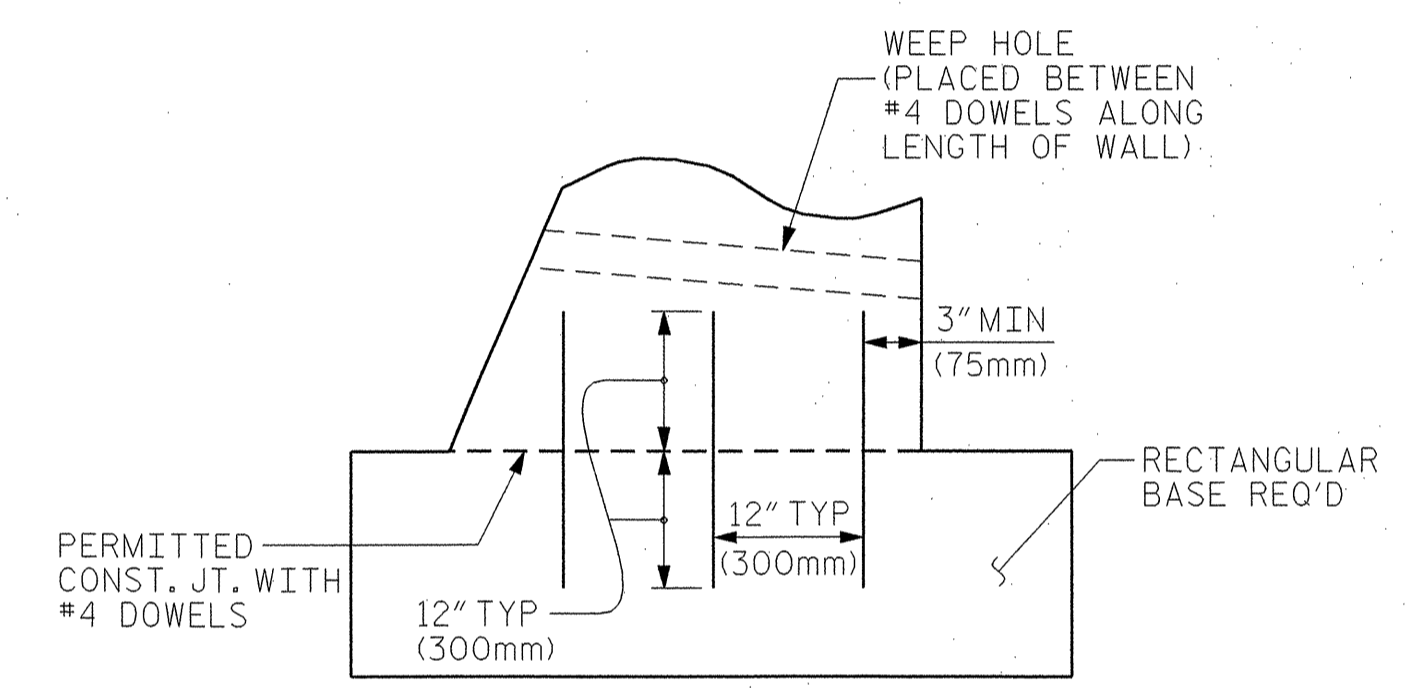
NO SLOPE CONDITION



BRICK VENEER DETAIL
(WHEN APPLICABLE)



TYPICAL SECTION



DETAIL "A"

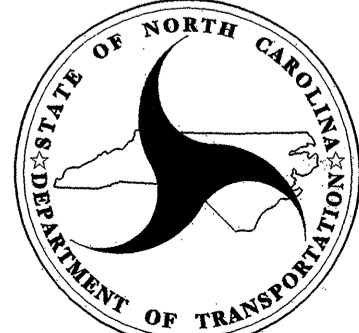
H + 2 (FT)	3 - < 6	6 - 9	> 9 - 12
H + 0.6 (m)	0.9 - < 1.8	1.8 - 2.7	> 2.7 - 3.7
NO SLOPE CONDITION WITHOUT TRAFFIC SURCHARGE	.60	.60	.60
NO SLOPE CONDITION WITH TRAFFIC SURCHARGE	.80	.75*	.70*
SLOPE CONDITION	.66	.70*	.75*

B/(H + 2) RATIO
(B = 30" [750mm] MIN)
 *KEY IS REQUIRED FOR SLOPE CONDITION OR NO SLOPE CONDITION WITH TRAFFIC SURCHARGE WHEN H + 2 FT (H + 0.6m) IS 6'-0" (1.8m) OR GREATER.

NOTES

- FOR STANDARD GRAVITY RETAINING WALLS, SEE GRAVITY RETAINING WALLS PROVISION AND SECTION 453 OF THE STANDARD SPECIFICATIONS.
- SEE PREVIOUS SHEETS FOR PLAN AND PROFILE (WALL ENVELOPE) VIEWS AND PROPOSED ELEVATIONS.
- STANDARD GRAVITY RETAINING WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 UNIT WEIGHT, $\gamma = 120$ PCF (18.8 kN/m³)
 FRICTION ANGLE, $\phi = 35$ DEGREES (GROUNDWATER WITHIN 5'-0" (1.5m) OF BOTTOM OF FOOTING)
 FRICTION ANGLE, $\phi = 30$ DEGREES (GROUNDWATER MORE THAN 5'-0" (1.5m) BELOW BOTTOM OF FOOTING)
 COHESION, $c = 0$ PSF (0 kPa)
- DO NOT USE STANDARD GRAVITY RETAINING WALLS IF THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF FOOTING.
- DO NOT USE STANDARD GRAVITY RETAINING WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW WALLS.
- DO NOT PLACE CONCRETE UNTIL OBTAINING APPROVAL OF THE EXCAVATION DEPTH AND FOUNDATION MATERIAL.
- WHEN A CONSTRUCTION JOINT IS LOCATED AT THE BASE OF THE WALL, IN SECTION, PROVIDE A MINIMUM OF 3 #4 DOWELS AT AN EQUAL SPACING. SPACE ALL DOWELS AT 1'-6" (450mm) ALONG THE LENGTH OF THE WALL.
- FOR SUBSURFACE DRAINAGE AT WEEP HOLES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.
- FOR WALLS WITH BRICK VENEERS, SUBMIT BRICK SAMPLES TO THE ENGINEER FOR APPROVAL BEFORE BEGINNING WALL CONSTRUCTION.
- FOR SINGLE FACED PRECAST CONCRETE BARRIERS, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- FOR FENCES OR HAND RAILS ON TOP OF WALLS, USE SLEEVES IN ACCORDANCE WITH SECTION 866 OF THE STANDARD SPECIFICATIONS FOR POSTS OR SUBMIT POST ANCHOR PLATE DETAILS TO THE ENGINEER FOR APPROVAL.

PROJECT NO.: 34373.1.1 R-2107B
MONTGOMERY COUNTY
STATION:
 SHEET OF


GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

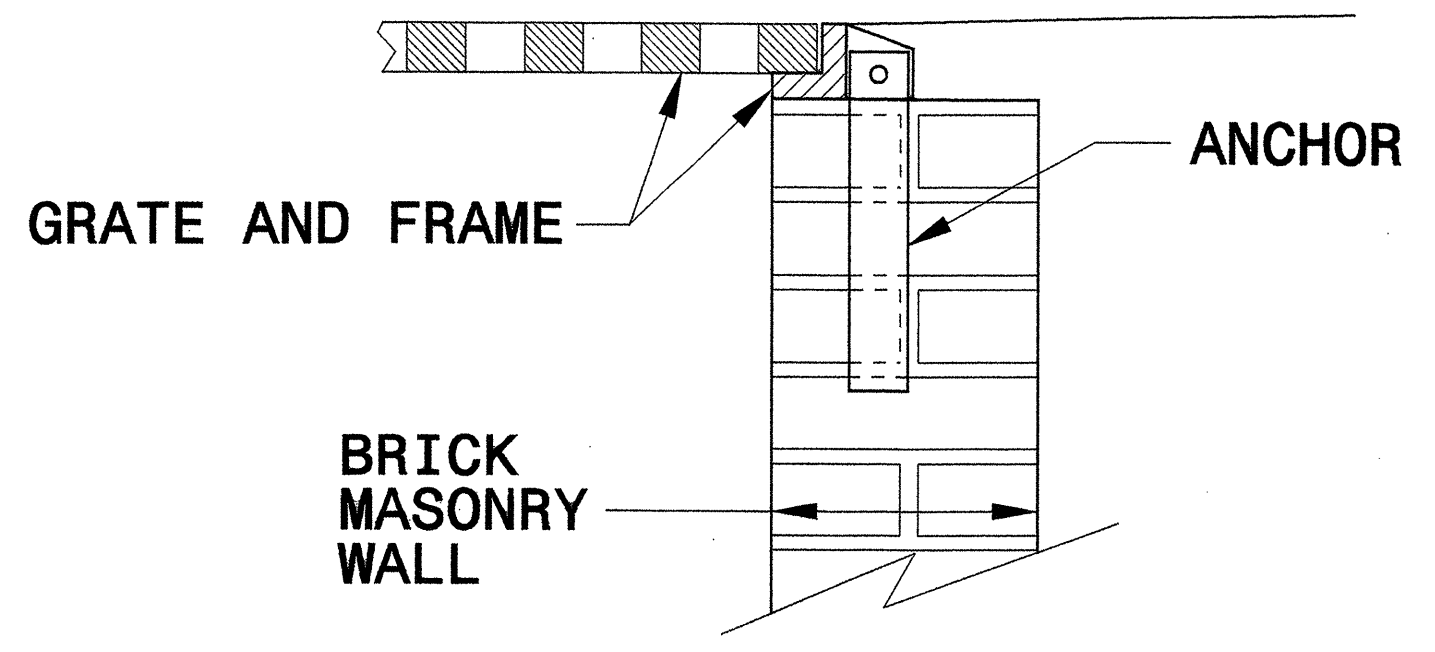
STANDARD DRAWING NO. 453.01
STANDARD GRAVITY RETAINING WALL
 SHEET NO. 2-0
 TOTAL SHEETS
 DATE: 12-16-08

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

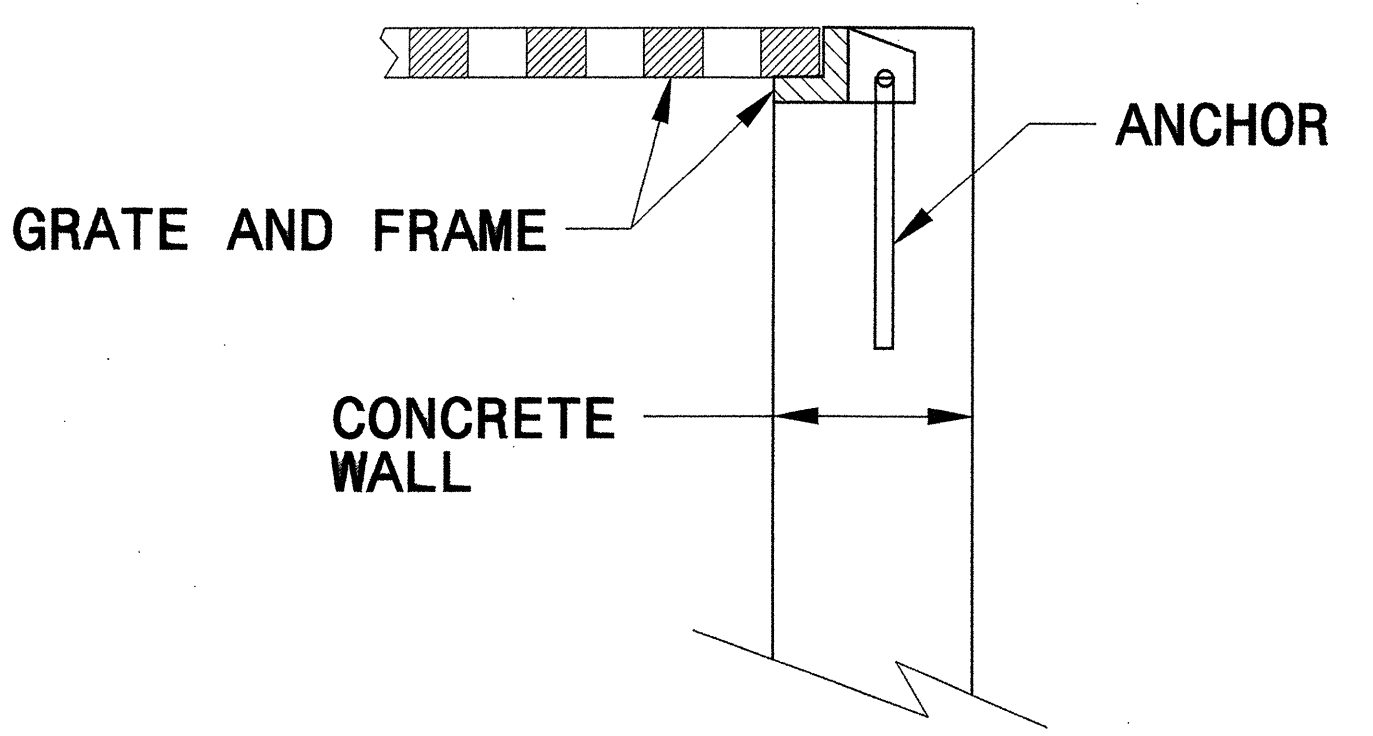
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

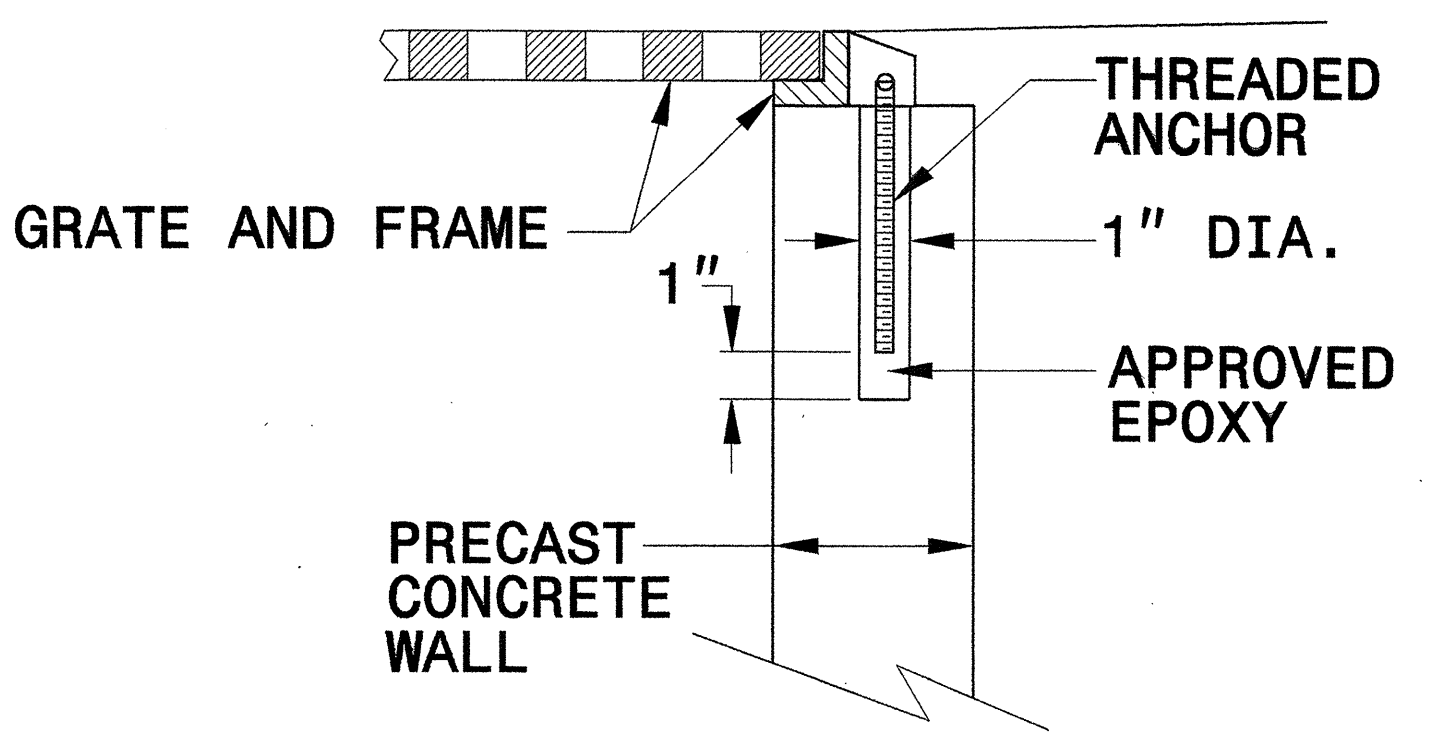
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



BRICK MASONRY CONSTRUCTION



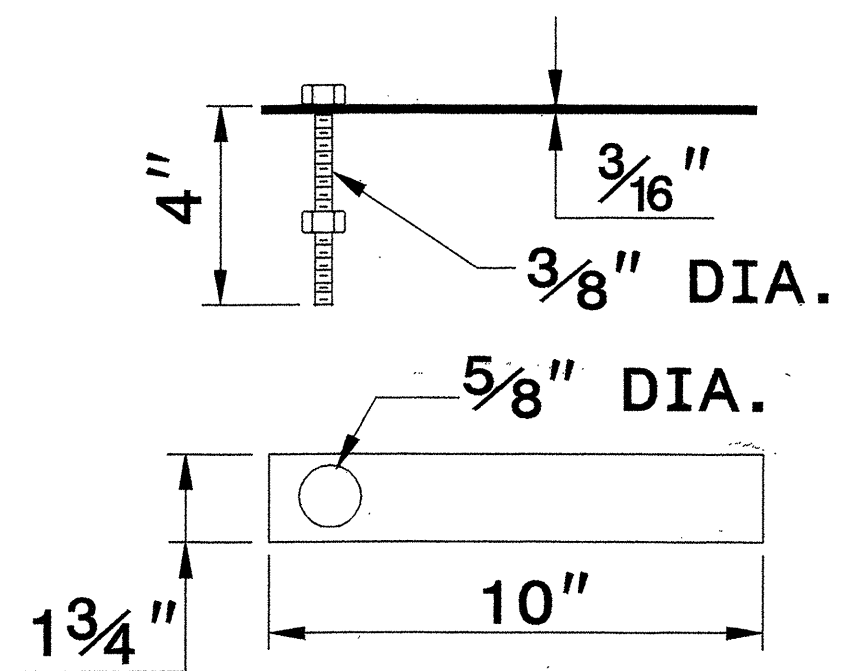
CONCRETE CONSTRUCTION



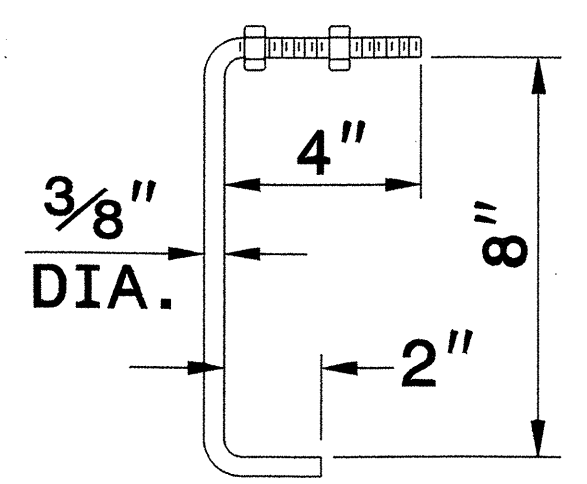
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

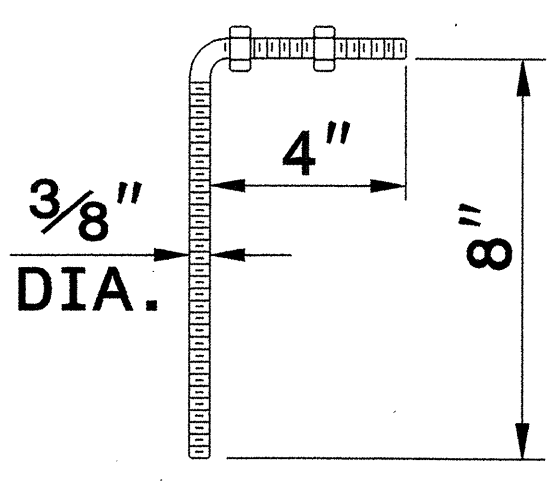
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



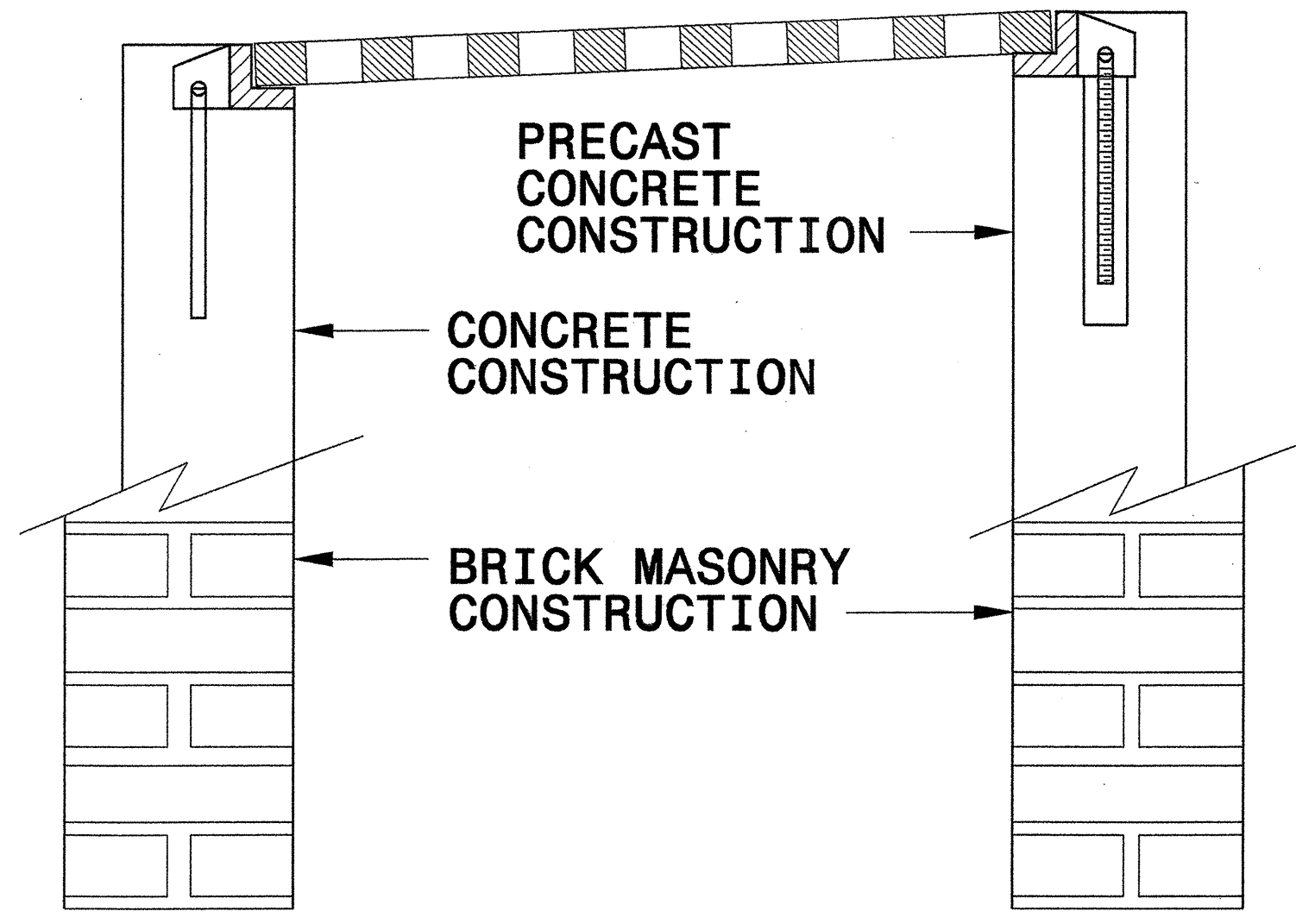
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



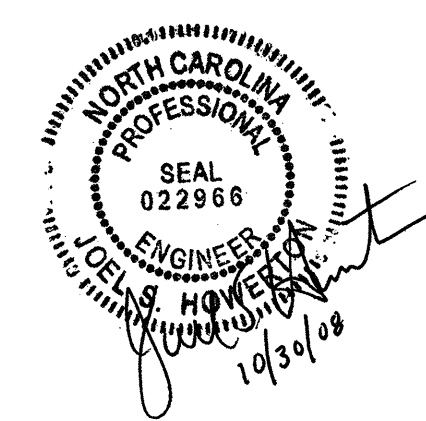
CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS



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

SEE PLATE FOR TITLE

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

SYSTEM: \$\$\$\$\$\$
DRAWING: \$\$\$\$\$\$
USER: \$\$\$\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202043														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION	259100000-E	848	3,800	SY	4" CONCRETE SIDEWALK	477000000-E	1205	1,367	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (I)
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	260500000-N	848	60	EA	CONCRETE WHEELCHAIR RAMPS	477000000-E	1205	4,101	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
004300000-N	226	Lump Sum		GRADING	261200000-E	848	1,550	SY	6" CONCRETE DRIVEWAY	480500000-N	1205	5	EA	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (I)
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	264700000-E	852	1,000	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	480500000-N	1205	10	EA	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (IV)
005700000-E	226	3,000	CY	UNDERCUT EXCAVATION	273900000-E	852	300	SY	GENERIC PAVING ITEM 6" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	481000000-E	1205	68,048	LF	PAINT PAVEMENT MARKING LINES (4")
008000000-E	SP	4,725	TON	CLASS IV SUBGRADE STABILIZATION	280000000-N	858	6	EA	ADJUSTMENT OF CATCH BASINS	482000000-E	1205	4,096	LF	PAINT PAVEMENT MARKING LINES (8")
013400000-E	240	72	CY	DRAINAGE DITCH EXCAVATION	283000000-N	858	11	EA	ADJUSTMENT OF MANHOLES	483000000-E	1205	828	LF	PAINT PAVEMENT MARKING LINES (16")
019500000-E	265	500	CY	SELECT GRANULAR MATERIAL	284500000-N	858	46	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES	483500000-E	1205	1,404	LF	PAINT PAVEMENT MARKING LINES (24")
019600000-E	270	5,000	SY	FABRIC FOR SOIL STABILIZATION	289300000-N	SP	2	EA	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX WITH MANHOLE COVER	484000000-N	1205	52	EA	PAINT PAVEMENT MARKING CHARACTER
031800000-E	300	1,215	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	303000000-E	862	250	LF	STEEL BM GUARDRAIL	484500000-N	1205	206	EA	PAINT PAVEMENT MARKING SYMBOL
034400000-E	310	56	LF	18" SIDE DRAIN PIPE	315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	485000000-E	1205	27,500	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
097400000-E	SP	88	LF	*** WELDED STEEL PIPE, ***** THICK, GRADE B, (UNDER RR) (15", 0.500")	321000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	486000000-E	1205	800	LF	REMOVAL OF PAVEMENT MARKING LINES (8")
099500000-E	340	552	LF	PIPE REMOVAL	327000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	487000000-E	1205	368	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
111000000-E	510	1,000	TON	STABILIZER AGGREGATE	350000000-E	866	330	LF	WOVEN WIRE FENCE, *** FABRIC (48")	487500000-N	1205	40	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS
122000000-E	545	1,500	TON	INCIDENTAL STONE BASE	350600000-E	866	20	EA	4" TIMBER FENCE POSTS, ***** LONG (8")	490000000-N	1251	60	EA	PERMANENT RAISED PAVEMENT MARKERS
130800000-E	607	1,200	SY	MILLING ASPHALT PAVEMENT, ***** TO ***** DEPTH (0" TO 4")	351200000-E	866	7	EA	5" TIMBER FENCE POSTS, ***** LONG (8")	490500000-N	1253	428	EA	SNOWPLOWABLE PAVEMENT MARKERS
148900000-E	610	775	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	362800000-E	876	7	TON	RIP RAP, CLASS I	532560000-E	1510	2,772.5	LF	6" WATER LINE
149100000-E	610	11,500	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C	364900000-E	876	23	TON	RIP RAP, CLASS B	532580000-E	1510	1,013	LF	8" WATER LINE
149800000-E	610	925	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	365600000-E	876	905	SY	FILTER FABRIC FOR DRAINAGE	554000000-E	1515	9	EA	6" VALVE
150300000-E	610	4,200	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	407200000-E	903	1,374	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	554600000-E	1515	1	EA	8" VALVE
151900000-E	610	1,150	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	409600000-N	904	5	EA	SIGN ERECTION, TYPE D	564800000-N	1515	34	EA	RELOCATE WATER METER
152300000-E	610	7,150	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	410200000-N	904	47	EA	SIGN ERECTION, TYPE E	564900000-N	1515	11	EA	RECONNECT WATER METER
156000000-E	620	838	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	410800000-N	904	22	EA	SIGN ERECTION, TYPE F	566600000-E	1515	6	EA	FIRE HYDRANT
156500000-E	620	430	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22	415500000-N	907	53	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	570920000-E	1520	365	LF	4" FORCE MAIN SEWER
169300000-E	654	725	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	440000000-E	1110	2,138	SF	WORK ZONE SIGNS (STATIONARY)	580000000-E	1530	1,831	LF	ABANDON 6" UTILITY PIPE
200000000-N	806	86	EA	RIGHT OF WAY MARKERS	440500000-E	1110	1,010	SF	WORK ZONE SIGNS (PORTABLE)	581550000-N	1530	6	EA	REMOVE FIRE HYDRANT
202200000-E	815	115	CY	SUBDRAIN EXCAVATION	441000000-E	1110	346	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	588200000-N	SP	1	EA	GENERIC UTILITY ITEM ABANDON WATER VAULT
203300000-E	815	85	CY	SUBDRAIN FINE AGGREGATE	441500000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C	600000000-E	1605	4,750	LF	TEMPORARY SILT FENCE
204400000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE	442000000-N	1120	4	EA	CHANGEABLE MESSAGE SIGN	600600000-E	1610	915	TON	STONE FOR EROSION CONTROL, CLASS A
205500000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	443000000-N	1130	510	EA	DRUMS	600900000-E	1610	550	TON	STONE FOR EROSION CONTROL, CLASS B
206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	443500000-N	1135	95	EA	CONES	601200000-E	1610	1,200	TON	SEDIMENT CONTROL STONE
207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)	444500000-E	1145	424	LF	BARRICADES (TYPE III)	601500000-E	1615	10.5	ACR	TEMPORARY MULCHING
225300000-E	840	2	CY	PIPE COLLARS	445000000-N	1150	9,180	HR	FLAGGER	601800000-E	1620	350	LB	SEED FOR TEMPORARY SEEDING
226400000-E	840	3	CY	PIPE PLUGS	448000000-N	1165	2	EA	TMIA	602100000-E	1620	3.25	TON	FERTILIZER FOR TEMPORARY SEEDING
228600000-N	840	89	EA	MASONRY DRAINAGE STRUCTURES	450700000-E	SP	2,581	LF	WATER FILLED BARRIER	602400000-E	1622	410	LF	TEMPORARY SLOPE DRAINS
236400000-N	840	11	EA	FRAME WITH TWO GRATES, STD 840.16	450800000-E	SP	1,304	LF	RESET WATER FILLED BARRIER	602700000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
236600000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.24	451000000-N	SP	540	HR	POLICE	603000000-E	1630	3,165	CY	SILT EXCAVATION
236700000-N	840	6	EA	FRAME WITH TWO GRATES, STD 840.29	451600000-N	1180	170	EA	SKINNY DRUM	603600000-E	1631	6,500	SY	MATTING FOR EROSION CONTROL
237400000-N	840	5	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	465000000-N	1251	613	EA	TEMPORARY RAISED PAVEMENT MARKERS	603700000-E	SP	15	SY	COIR FIBER MAT
237400000-N	840	25	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	468600000-E	1205	19,483	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	603800000-E	SP	1,200	SY	PERMANENT SOIL REINFORCEMENT MAT
237400000-N	840	32	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	469500000-E	1205	1,088	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	604200000-E	1632	2,650	LF	1/4" HARDWARE CLOTH
239600000-N	840	10	EA	FRAME WITH COVER, STD 840.54	469700000-E	1205	960	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	6071030000-E	SP	470	LF	COIR FIBER BAFFLES
241800000-E	SP	32	LF	FRAME WITH GRATES, DRIVEWAY DROP INLET	470500000-E	1205	414	LF	THERMOPLASTIC PAVEMENT MARKING LINES (16", 120 MILS)	608400000-E	1660	11.5	ACR	SEEDING & MULCHING
245100000-N	852	1	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS	471000000-E	1205	702	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	608700000-E	1660	6.5	ACR	MOWING
253500000-E	846	270	LF	***X*** CONCRETE CURB (8" X 18")	472100000-E	1205	26	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
254900000-E	846	9,780	LF	2'-6" CONCRETE CURB & GUTTER	472500000-E	1205	103	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
										609600000-E	1662	225	LB	SEED FOR SUPPLEMENTAL SEEDING

5/28/99
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STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
610800000-E	1665	6.25	TON	FERTILIZER TOPDRESSING
611400000-N	SP	5	HR	SPECIALIZED HAND MOWING
611700000-N	SP	27	EA	RESPONSE FOR EROSION CONTROL
700000000-E	1705	4	EA	PEDESTRIAN SIGNAL HEAD (***, ** SECTION) (16", 1)
706000000-E	1705	2,070	LF	SIGNAL CABLE
712000000-E	1705	20	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
713200000-E	1705	4	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
714400000-E	1705	3	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
726400000-E	1710	950	LF	MESSENGER CABLE (3/8")
728800000-E	1715	60	LF	PAVED TRENCHING (***** (1, 2"))
730000000-E	1715	475	LF	UNPAVED TRENCHING (***** (1, 2"))
732400000-N	1716	9	EA	JUNCTION BOX (STANDARD SIZE)
736000000-N	1720	8	EA	WOOD POLE
737200000-N	1721	16	EA	GUY ASSEMBLY
740800000-E	1722	2	EA	1" RISER WITH WEATHERHEAD
742000000-E	1722	8	EA	2" RISER WITH WEATHERHEAD
744400000-E	1725	6150	LF	INDUCTIVE LOOP SAWCUT
745600000-E	1726	10,690	LF	LEAD-IN CABLE (***** (14-2))
763600000-N	1745	10	EA	SIGN FOR SIGNALS
767500000-N	SP	2	EA	LED BLANKOUT SIGN
768400000-N	1750	2	EA	SIGNAL CABINET FOUNDATION
775600000-N	1751	2	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
778000000-N	1751	12	EA	DETECTOR CARD (TYPE 2070L)
790100000-N	1753	2	EA	CABINET BASE EXTENDER
843600000-E	453	1,202	SF	GRAVITY RETAINING WALLS

ItemNumber	Sec #	Quantity	Unit	Description
883900000-E	SP	379	LF	GENERIC RETAINING WALL ITEM PEDESTRIAN SAFETY HANDRAIL
***** BEGIN SCHEDULE AA ***** (3 ALTERNATES) *****				
036600000-E	310	4,144	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	1,368	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	1,148	LF	24" RC PIPE CULVERTS, CLASS III
038400000-E	310	116	LF	30" RC PIPE CULVERTS, CLASS III
*** OR ***				
036600000-E	310	3,980	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	1,260	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	1,016	LF	24" RC PIPE CULVERTS, CLASS III
038400000-E	310	64	LF	30" RC PIPE CULVERTS, CLASS III
053600000-E	SP	164	LF	**** HDPE PIPE CULVERTS (15")
053600000-E	SP	108	LF	**** HDPE PIPE CULVERTS (18")
053600000-E	SP	132	LF	**** HDPE PIPE CULVERTS (24")
053600000-E	SP	52	LF	**** HDPE PIPE CULVERTS (30")
*** OR ***				
036600000-E	310	3,980	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	1,260	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	1,016	LF	24" RC PIPE CULVERTS, CLASS III
038400000-E	310	64	LF	30" RC PIPE CULVERTS, CLASS III
054000000-E	SP	164	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")

ItemNumber	Sec #	Quantity	Unit	Description
054000000-E	SP	108	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (18", 0.064")
054000000-E	SP	132	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24", 0.064")
054000000-E	SP	52	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (30", 0.079")
***** END SCHEDULE AA *****				

COMPUTED BY: JBT DATE: 4/8/2008
CHECKED BY: ITY DATE: 8/8/2008

PROJECT NO. SHEET NO.
R-2107B 3-E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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, WELDED STEEL PLATE GRADEB- UNDER R/R, CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD STANDARD, TYPE OF GRATE, CONC. COLLARS, CONC. & BRICK PIPE PLUG, PIPE REMOVAL, and REMARKS. Includes a 'SHEET TOTALS' row at the bottom.

ABBREVIATIONS
C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I.(N.S.) GRATED DROP INLET (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
SUMMARY NO. 1					
LEFT SIDE					
-L- STA. 15+00 TO 38+50	1,335		2,331	996	
-Y- 12+00 TO 12+50	2		15	13	
-Y2- 12+00 TO 15+00	99		536	437	
-Y5- 12+00 TO 12+50	5		47	42	
-Y8- 11+20 TO 12+00	31		79	48	
RIGHT SIDE					
-L- STA. 13+00 TO 38+50	805		1,909	1,104	
-Y3- 11+00 TO 16+50	207		320	113	
-Y6- 11+00 TO 12+00	52		29		23
-Y7- 10+50 TO 11+60	62		15		47
SUMMARY NO. 1 TOTAL	2,598		5,281	2,753	70
SUMMARY NO. 2					
LEFT SIDE					
-L- STA. 38+50 TO 63+00	1,272		4,222	2,950	
-DRIVE- 10+17.50 TO 15+50	821		389		432
RIGHT SIDE					
-L- STA. 38+50 TO 63+00	1,892		1,497		395
-Y9- 10+50 TO 11+50	483				483
-Y10- 10+50 TO 11+00	7				7
SUMMARY NO. 2 TOTAL	4,475		6,108	2,950	1,317
SUB TOTAL	7,073		11,388	5,703	1,387
BORROW TO REPLACE UNSUITABLE			575	575	
LOSS DUE TO CLEARING AND GRUBBING	-1,000			1,000	
EARTH WASTE TO REPLACE BORROW				-887	-887
TOTAL	6,073		11,963	6,391	500
ESTIMATE 5% TO REPLACE TOPSOIL ON BORROW PITS				320	
GRAND TOTAL	6,073			6,711	500
SAY	6,500			7,000	
ESTIMATED DDE = 72 CU. YDS.					
ESTIMATED UNDERCUT = 3000 CU. YDS.					

Note: 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.

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STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

WOVEN WIRE FENCE

LINE	STATION TO STATION	SIDE	FABRIC (FT)	4" POSTS (EA)	5" POSTS (EA)
-L-	53+28.00 TO 56+48.36	LT	320.36	19	7
		TOTAL	320.36	19	7
		SAY	330'	20	7

PAVEMENT REMOVAL

LINE	STATION TO STATION	SIDE	SQUARE YARDS
-L-	15+25.00 TO 18+00.00	LT	490.62
-L-	21+07.00 TO 21+64.00	RT	154.51
-L-	21+82.00 TO 22+00.00	RT	56.17
-L-	24+50.00 TO 29+00.00	RT	556.63
-L-	40+00.00 TO 60+27.00	RT	3,247.35
-L-	21+75.00 TO 24+00.00	CL	278.39
-L-	29+99.80 TO 33+50.00	LT	417.51
-L-	55+82.28 TO 56+18.65	LT	30.56
		TOTAL	5,231.75
		SAY	5,235

"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

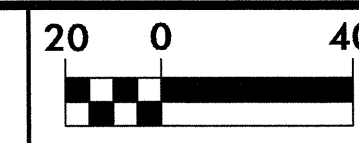
SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE 350	CAT-1					NO.		G	NG
-L-	57+26	60+26	RT	300'						50'														
			LESS DEDUCTIONS																					
			GAU 350 1 @ 50.00' =	-50.00'																				
			CAT-1 1 @ 6.25' =	-6.25'																				
			TOTAL	243.75'																				
			SAY	250.00'																				
ADDITIONAL GUARDRIAL POSTS =				5 EA																				

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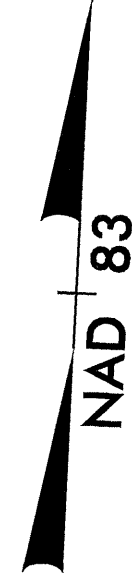
**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS**

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME	PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4A	HAROLD VAN DERVEER, JR.	61	7	HARDEE'S FOOD SYSTEM, INC.
2	4A	TOWN OF BISCOE	62	7,8	DREAMY HOLLOW APARTMENTS, CO.
3	4A,4	LARRY LONG, SR.	63	4	TOWN OF BISCOE
4	4A,4	TOWN OF BISCOE	64	4,9	ABERDEEN CAROLINA AND WESTERN RAILROAD COMPANY
5	4	THE FIDELITY BANK			
5A	4	ALLEN CRANFORD AND ANN V. CRANFORD			
6	4	VISIONS PROPERTIES, LLC			
7	4	COMMUNITYONE BANK			
8	4	HAROLD VANDERDEER			
10	4	THE FIRST NATIONAL BANK OF RANDOLPH COUNTY			
11	4,9	RAYMOND MILLER & ROGER MILLER			
12	4	FRANCES BALDWIN			
13	4	FIRST HEALTH OF THE CAROLINAS, INC			
14	4	TOWN OF BISCOE			
15	4	CANDOR OIL COMPANY, INC.			
16	4	LISA CLONINGER AND KAREN DODD			
17	4	CALVARY TEMPLE CHURCH			
18	4,5	BISCOE PRESBYTERIAN CHURCH			
19	4	WALTER JENKINS, III			
20	4	KENNETH CAGLE			
21	4	GARY L. DUNN AND DAVID T. MCALLISTER			
22	4	JERRY PARKS			
23	4,5	THE FIDELITY BANK			
24	4,5	VON ALLEN			
25	5	RANDY BRITT			
26	5	MYRA M. AND HAROLD M. MANESS, JR.			
27	5	T. J. STALEY			
28	5	GARY REYNOLDS			
29	5	FIRST BAPTIST CHURCH			
30	5	TONY CHARPENTIER, SR.			
31	5	ARTURO FRAUSTO, JR.			
32	5	GARY DUNN			
33	5	ALFREDO GUARDADO			
34	5	FRANCES BALDWIN			
35	5	JAMES SMITH			
36	5,6	FRANCES BALDWIN			
37	5	HELEN K. WILLIAMS AND STANTON E. KELLAM			
38	5	JAMES BALDWIN III			
39	5,6	BUDDY BATTEN			
40	6	WINFRED LEMONDS			
41	6	JEAN P. BREWER			
42	6	NICKY L. GARNER			
43	6	CECIL L. MILLS, JR.			
44	6	ELIZABETH ASHMAN			
45	6	WALTER JENKINS, JR.			
46	6	ELSIE P. MONROE			
47	6	BOBBIE BREWER			
48	6	FARRELL W. AUMAN, III			
49	6	MICHAEL FOUSHEE			
50	6	HELEN M. CAGLE			
51	6	MYRA MANESS			
52	6	ALAN MARTIN			
53	6	CHOICE INVESTMENT, INC.			
54	6	SHERRY R. BENNETT			
55	6,7	MONTGOMERY MUNICIPAL A.B.C. BOARD			
56	6,7	ALBERT HUDSON			
57	7	UNITED NC POPERTIES, LLC			
58	7	NORMAN W. LYERLY			
59	7	CRV/CVS INVESTMENT PROPERTIES, LLC			
60	7,8	CITATION CAROLINA CORPORATION			
62	7,8	DREAMY HOLLOW APARTMENTS, CO.			



PROJECT REFERENCE NO. R-2107B	SHEET NO. 4A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER

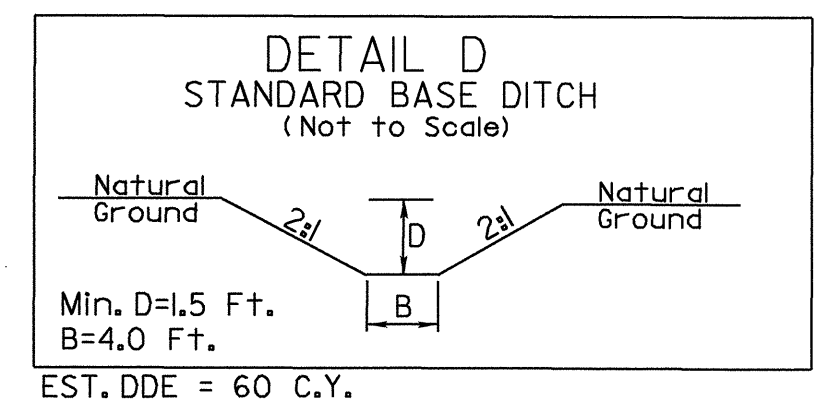
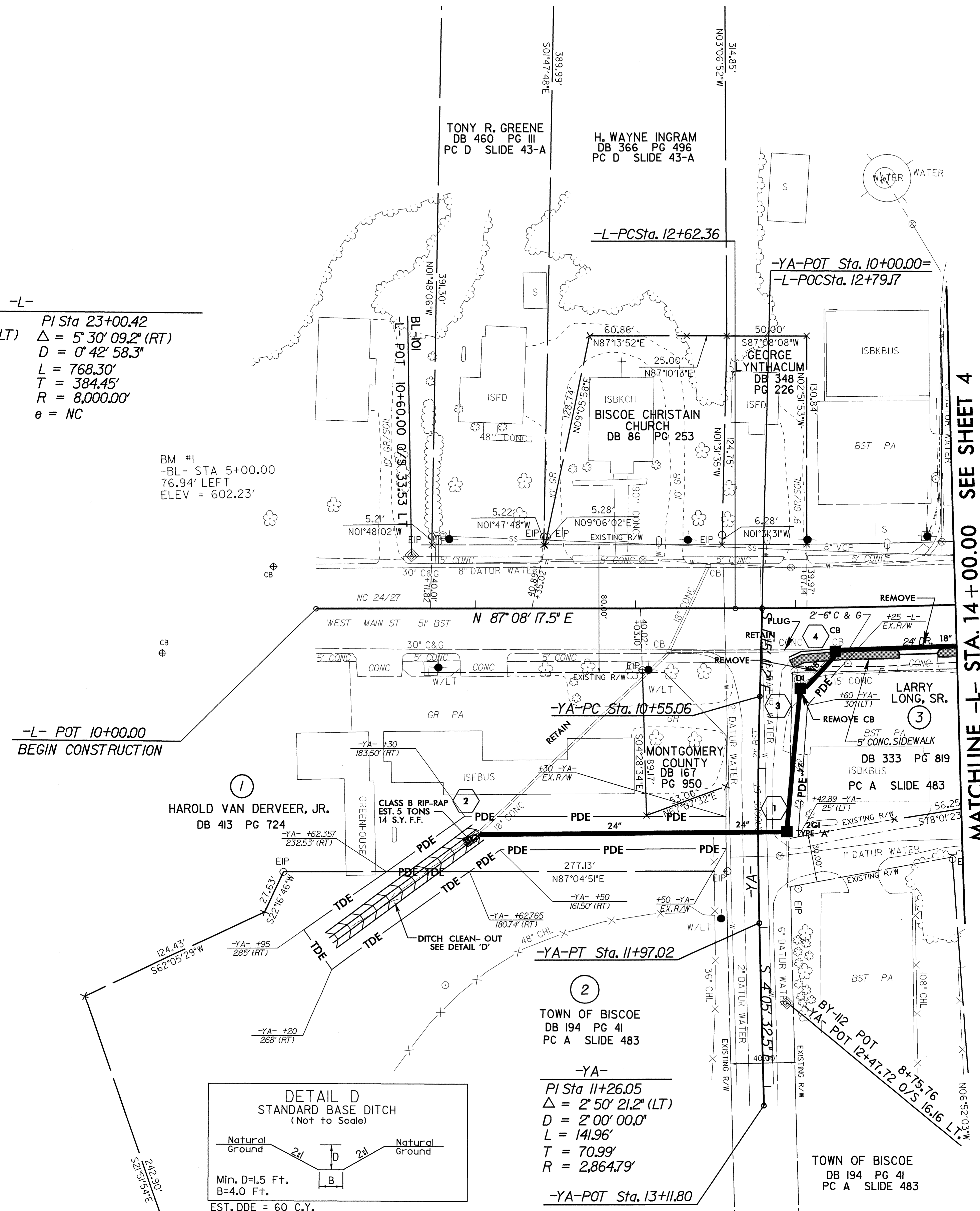


-L-

PI Sta 13+71.88	PI Sta 23+00.42
$\Delta = 2^{\circ}30'34.4"$ (LT)	$\Delta = 5^{\circ}30'09.2"$ (RT)
D = 1'08'45.3"	D = 0'42'58.3"
L = 219.00'	L = 768.30'
T = 109.52'	T = 384.45'
R = 5,000.00'	R = 8,000.00'
e = EXIST.	e = NC

BM #1
-BL- STA 5+00.00
76.94' LEFT
ELEV = 602.23'

-L- POT 10+00.00
BEGIN CONSTRUCTION



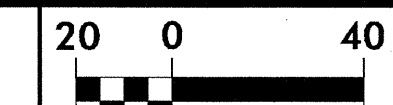
-YA-
PI Sta 11+26.05
 $\Delta = 2^{\circ}50'21.2"$ (LT)
D = 2'00'00.0"
L = 141.96'
T = 70.99'
R = 2,864.79'

-YA- POT Sta. 13+11.80

MATCHLINE -L- STA. 14+00.00 SEE SHEET 4

REVISIONS

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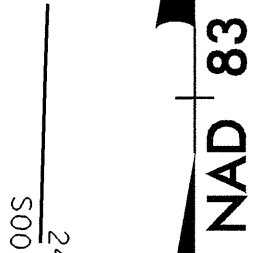
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18903 GREGORY E. BROWN 1-5-09	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 28876 MARC T. SHOWN 1-5-09
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FOR PROFILE OF LINE -L- SEE SHEET 10
 FOR PROFILE OF LINE -Y- SEE SHEET 12
 FOR PROFILE OF LINE -Y2- SEE SHEET 12
 FOR PROFILE OF LINE -Y3- SEE SHEET 12
 FOR PROFILE OF LINE -Y4- SEE SHEET 12

-L-
 PI Sta 13+71.88 Δ = 2° 30' 34.4" (LT)
 D = 1'08" 45.3" L = 219.00'
 T = 109.52' R = 5,000.00'
 e = EXIST.

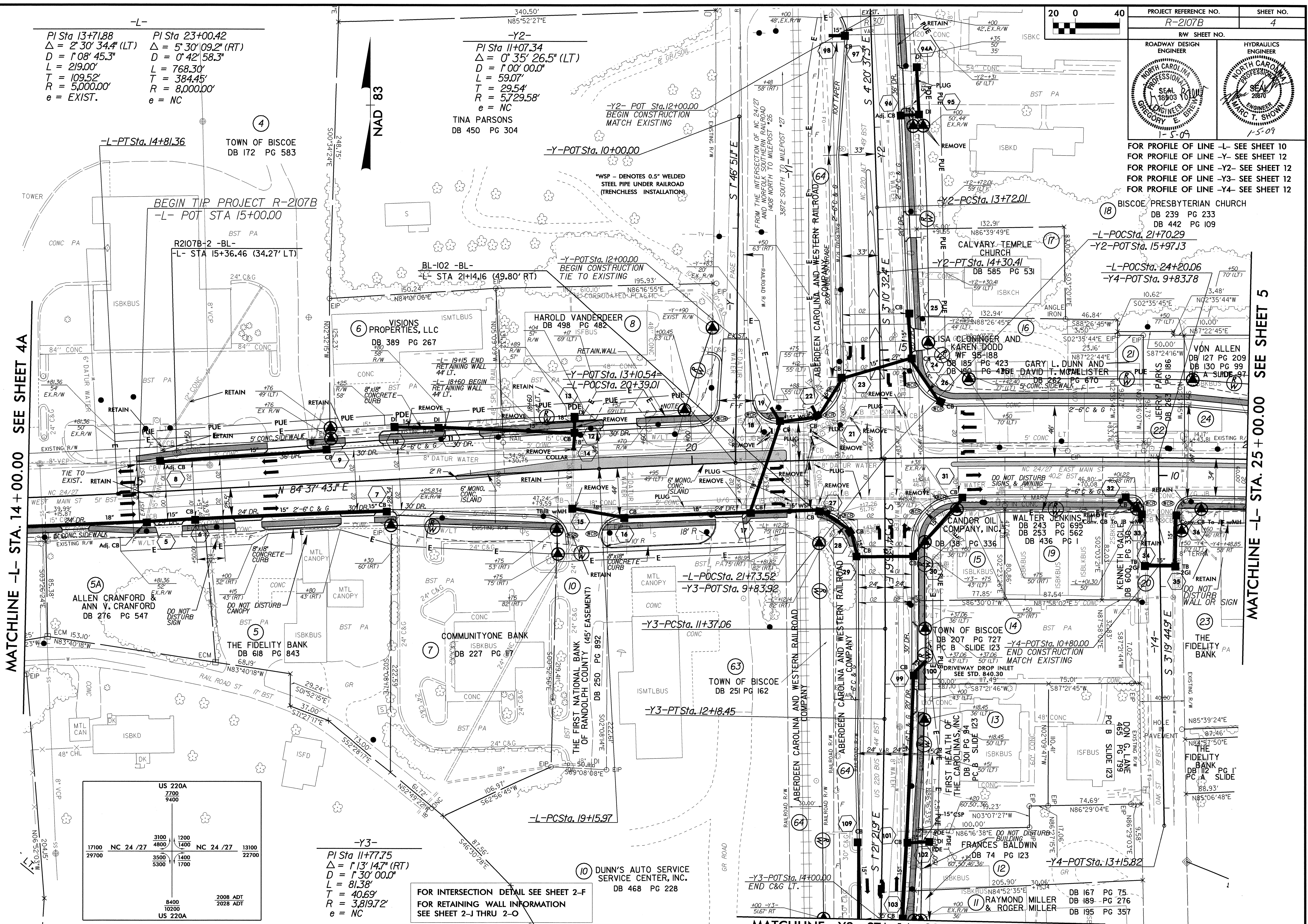
PI Sta 23+00.42 Δ = 5° 30' 09.2" (RT)
 D = 0' 42" 58.3" L = 768.30'
 T = 384.45' R = 8,000.00'
 e = NC

-Y2-
 PI Sta 11+07.34 Δ = 0° 35' 26.5" (LT)
 D = 1'00" 00.0" L = 59.07'
 T = 29.54' R = 5,729.58'
 e = NC



MATCHLINE -L- STA. 14 + 00.00 SEE SHEET 4A

MATCHLINE -L- STA. 25 + 00.00 SEE SHEET 5



US 220A			
17100	3100	1200	13100
29700	4800	1400	22700
	3500	1400	
	5300	1700	
	8400		
	10200		
	US 220A		

-Y3-
 PI Sta 11+77.75 Δ = 1° 13' 14.7" (RT)
 D = 1'30" 00.0" L = 81.38'
 T = 40.69' R = 3,819.72'
 e = NC

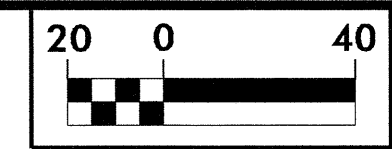
FOR INTERSECTION DETAIL SEE SHEET 2-F
 FOR RETAINING WALL INFORMATION SEE SHEET 2-J THRU 2-O

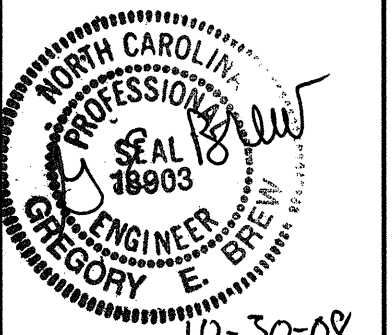
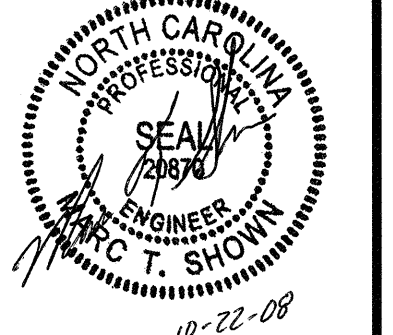
10 DUNN'S AUTO SERVICE SERVICE CENTER, INC. DB 468 PG 228

MATCHLINE -Y3- STA. 14 + 00.00 SEE SHEET 9

REVISIONS

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PROJECT REFERENCE NO. <i>R-2107B</i>	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
10-30-08	

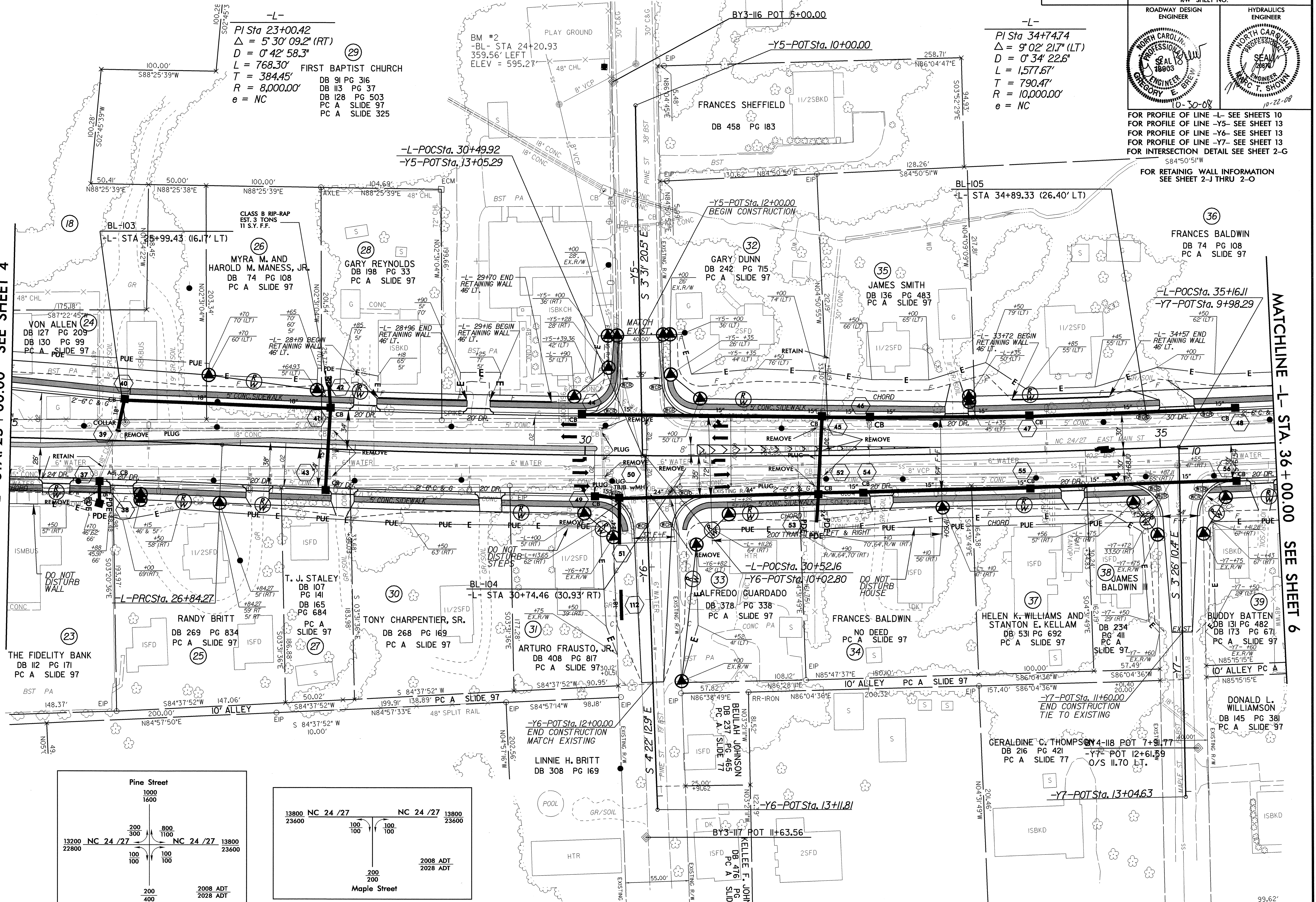
FOR PROFILE OF LINE -L- SEE SHEETS 10
FOR PROFILE OF LINE -Y5- SEE SHEET 13
FOR PROFILE OF LINE -Y6- SEE SHEET 13
FOR PROFILE OF LINE -Y7- SEE SHEET 13
FOR INTERSECTION DETAIL SEE SHEET 2-G

FOR RETAINING WALL INFORMATION
SEE SHEET 2-J THRU 2-O

NAD 83

MATCHLINE -L- STA. 25 + 00.00 SEE SHEET 4

MATCHLINE -L- STA. 36 + 00.00 SEE SHEET 6



-L-
PI Sta 23+00.42
 $\Delta = 5' 30' 09.2''$ (RT)
 $D = 0' 42' 58.3''$ (29)
 $L = 768.30'$ FIRST BAPTIST CHURCH
 $T = 384.45'$ DB 91 PG 316
DB 113 PG 37
DB 128 PG 503
PC A SLIDE 97
PC A SLIDE 325
 $R = 8,000.00'$
 $e = NC$

-L-
PI Sta 34+74.74
 $\Delta = 9' 02' 21.7''$ (LT)
 $D = 0' 34' 22.6''$
 $L = 1,577.67'$
 $T = 790.47'$
 $R = 10,000.00'$
 $e = NC$

THE FIDELITY BANK
DB 112 PG 171
PC A SLIDE 97

RANDY BRITT
DB 269 PG 834
PC A SLIDE 97

TONY CHARPENTIER, SR.
DB 268 PG 169
PC A SLIDE 97

ARTURO FRAUSTO, JR.
DB 408 PG 817
PC A SLIDE 97

ALFREDO GUARDADO
DB 378 PG 338
PC A SLIDE 97

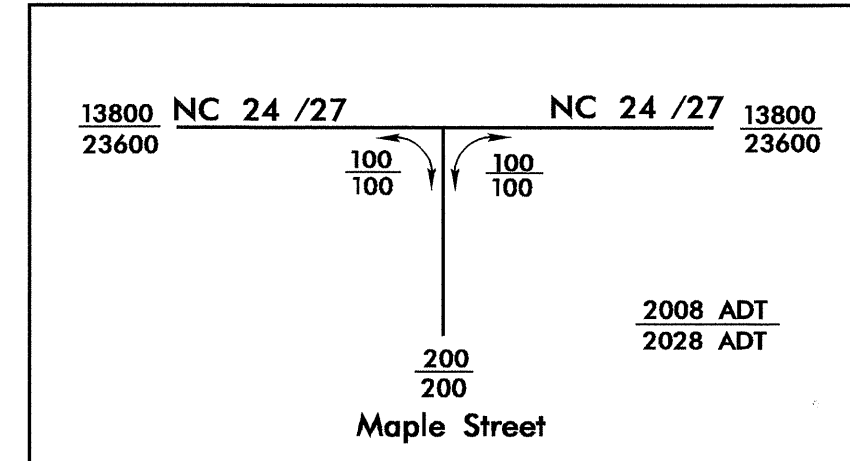
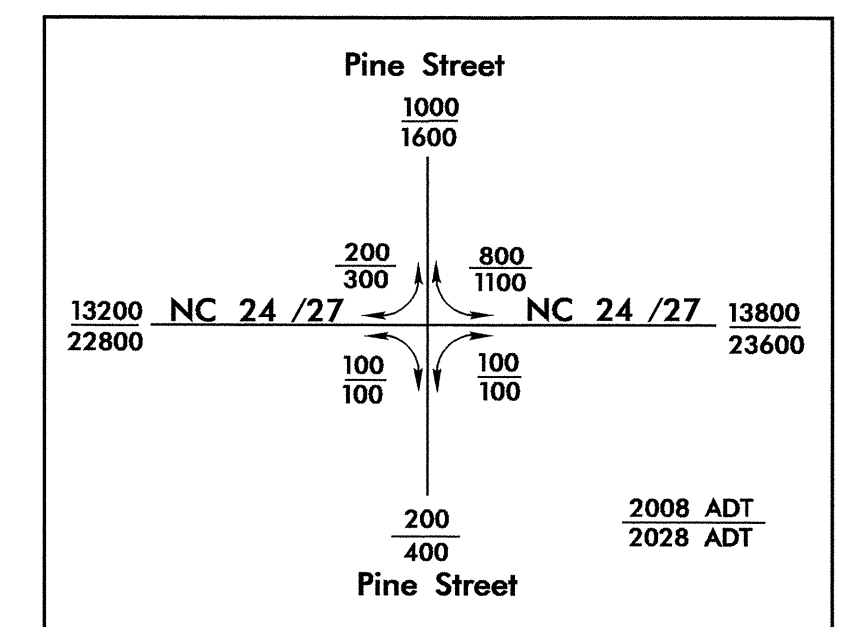
FRANCES BALDWIN
NO DEED
PC A SLIDE 97

HELEN K. WILLIAMS AND
STANTON E. KELLAM
DB 531 PG 692
PC A SLIDE 97

JAMES BALDWIN II
DB 234 PG 411
PC A SLIDE 97

BUDDY BATTEN
DB 131 PG 482
DB 173 PG 671
PC A SLIDE 97

DONALD L. WILLIAMSON
DB 145 PG 381
PC A SLIDE 97



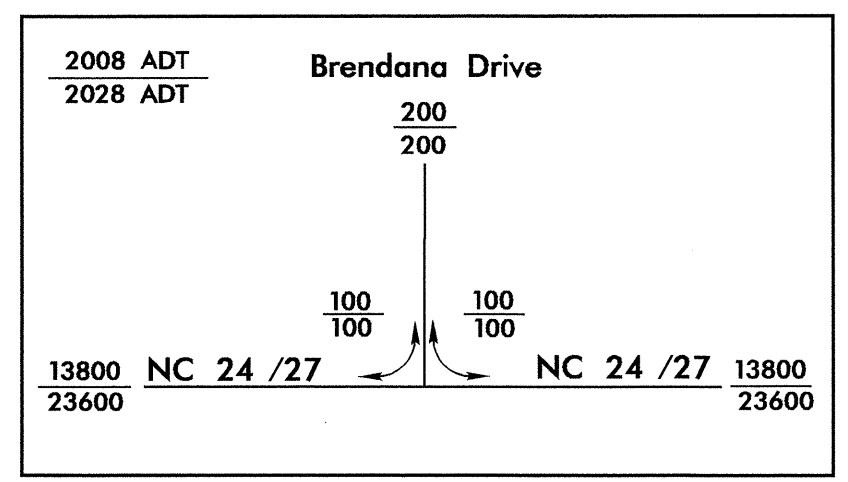
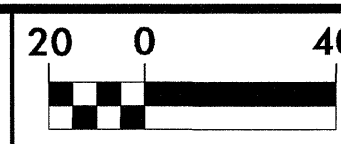
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RW SHEET NO. HYDRAULICS ENGINEER

CHOICE INVESTMENT, INC.
DB 313 PG 646

FOR PROFILE OF LINE -L- SEE SHEET 10 & 11
FOR PROFILE OF LINE -Y8- SEE SHEET 13
FOR PROFILE OF LINE -Y9- SEE SHEET 14

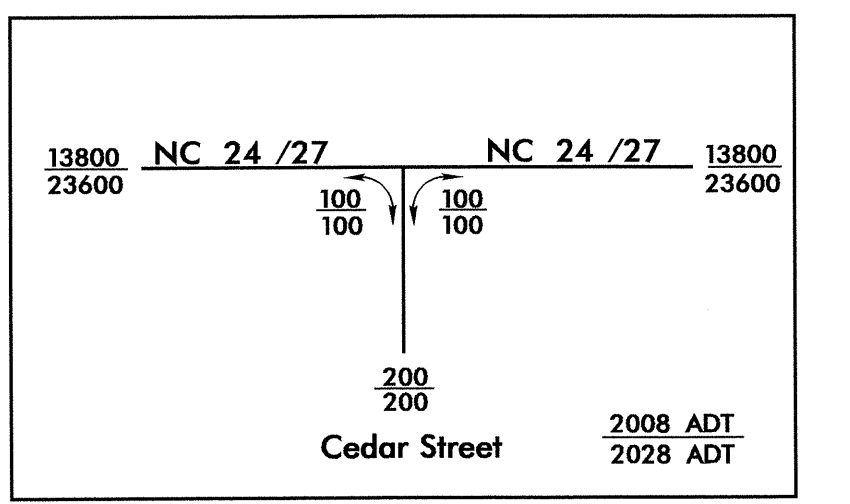
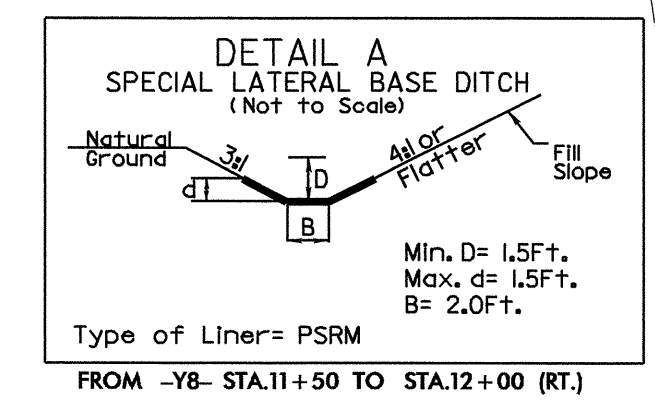
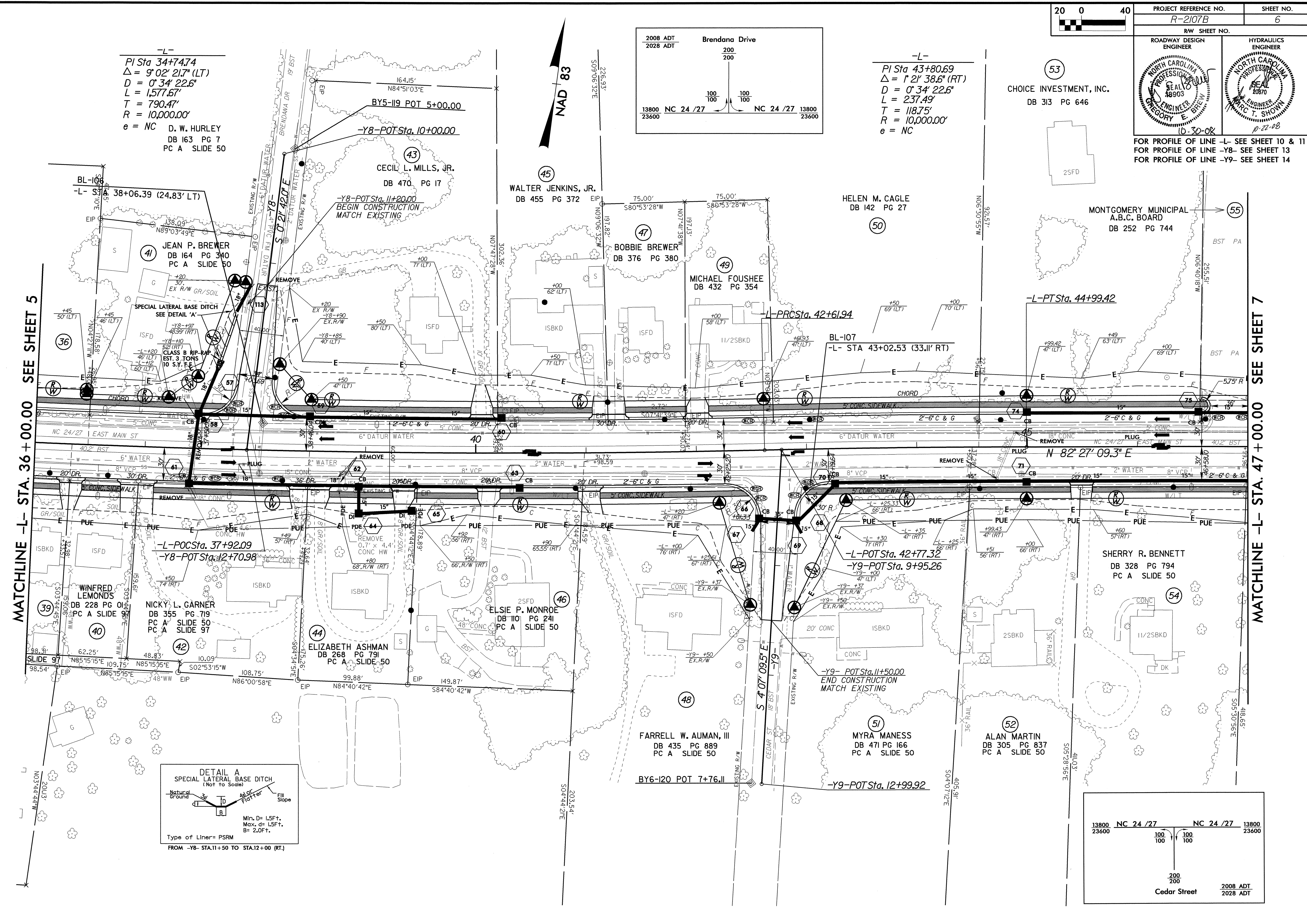


-L-
PI Sta 43+80.69
 $\Delta = 1' 21'' 38.6'' (RT)$
 $D = 0' 34'' 22.6''$
 $L = 237.49'$
 $T = 118.75'$
 $R = 10,000.00'$
e = NC

-L-
PI Sta 34+74.74
 $\Delta = 9' 02'' 21.7'' (LT)$
 $D = 0' 34'' 22.6''$
 $L = 1,577.67'$
 $T = 790.47'$
 $R = 10,000.00'$
e = NC D. W. HURLEY
DB 163 PG 7
PC A SLIDE 50

MATCHLINE -L- STA. 36+00.00 SEE SHEET 5

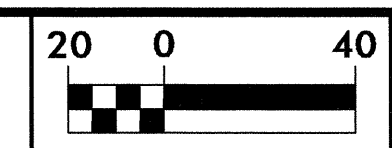
MATCHLINE -L- STA. 47+00.00 SEE SHEET 7



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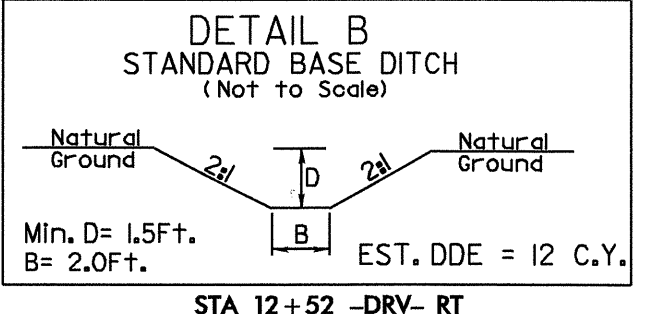


PROJECT REFERENCE NO. R-2107B		SHEET NO. 7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 10/10/08	
16-30-08		12-22-08	

FOR PROFILE OF LINE -L- SEE SHEET 11
 FOR PROFILE OF LINE -DRIVE- SEE SHEET 14
 FOR INTERSECTION DETAIL SEE SHEET 2-H
 FOR RETAINING WALL PLANS SEE SHEET 2-J THRU 2-O

(62)
 DREAMY HOLLOW APARTMENTS, CO.
 DB 332 PG 563

-DRIVE-
 PI Sta 13+72.20
 $\Delta = 91' 20'' 38.9''$ (LT)
 $D = 71' 37'' 11.0''$
 $L = 127.54'$
 $T = 81.90'$
 $R = 80.00'$
 $e = NC$



DETAIL C
SPECIAL CUT DITCH
 (Not to Scale)
 Min. D = 1.5 Ft.
 FROM STA 12+00 -DRY- TO STA 12+50 -DRY- RT.
 FROM STA 12+50 -DRY- TO STA 13+50 -DRY- RT.
 FROM STA 15+00 -DRY- TO STA 15+50 -DRY- RT.

-L-POT Sta. 52+42.63
-DRIVE-POTS 16+54.78
-Y10-POT Sta. 9+91.97

CLASS B RIP RAP
 EST. 2 TONS
 7 S.Y. F.F.

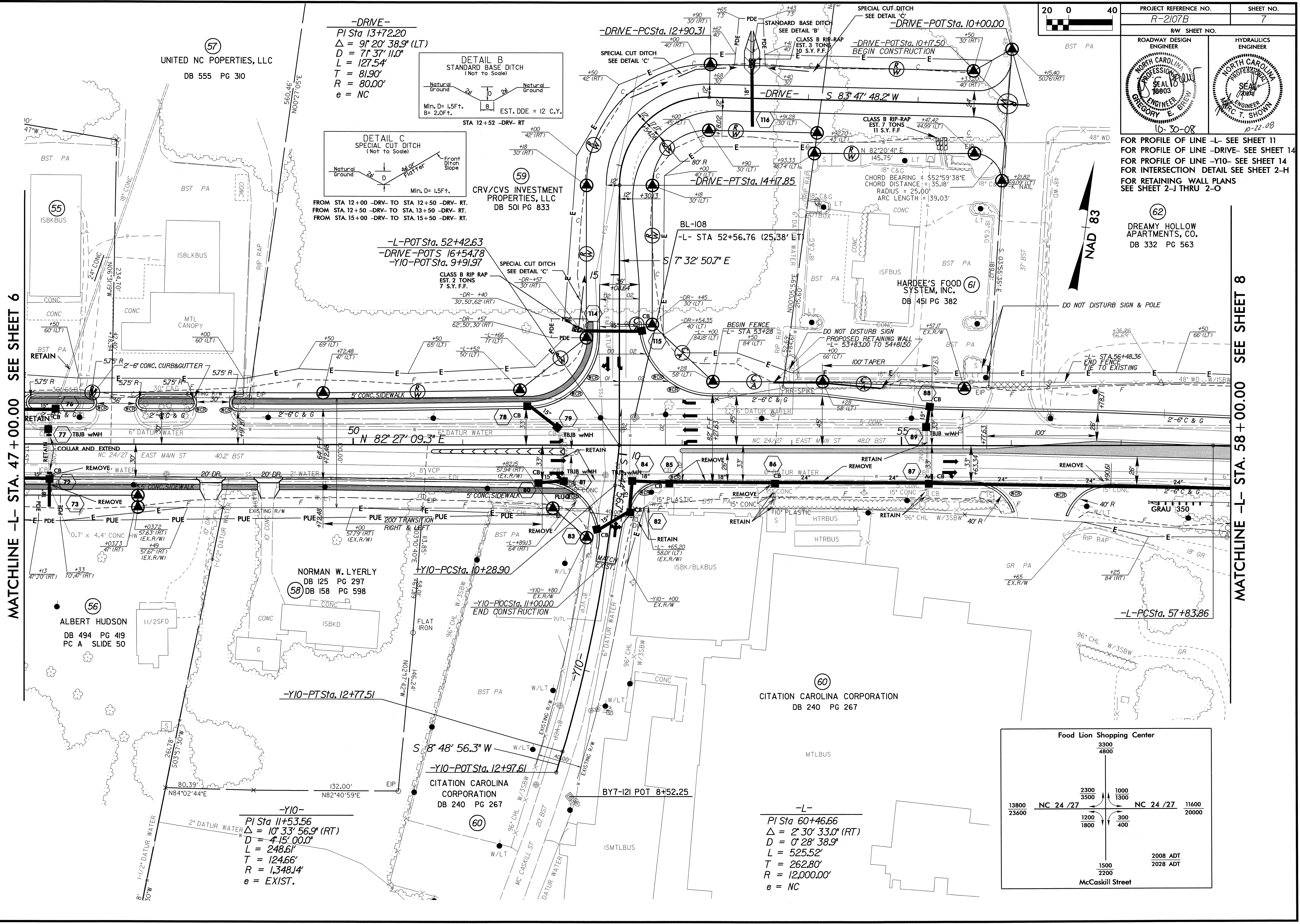
-DRIVE-PC Sta. 12+90.31
-DRIVE-POT Sta. 10+00.00
-DRIVE-POT Sta. 10+17.50
-DRIVE-PT Sta. 14+17.85

BL-108
-L- STA 52+56.76 (25'38" E)
 $S 7' 32'' 50.7'' E$

HARDEE'S FOOD SYSTEM, INC.
 DB 451 PG 382

MATCHLINE -L- STA. 47 + 00.00 SEE SHEET 6

MATCHLINE -L- STA. 58 + 00.00 SEE SHEET 8



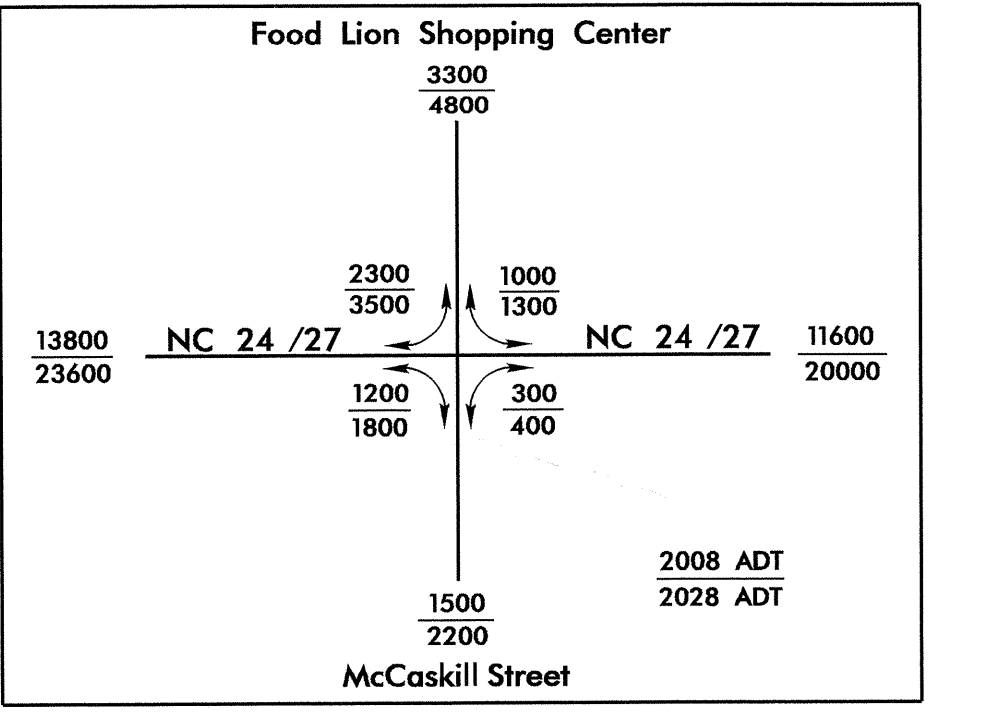
NORMAN W. LYERLY
 DB 125 PG 297
 DB 158 PG 598

(56)
 ALBERT HUDSON
 DB 494 PG 419
 PC A SLIDE 50

(60)
 CITATION CAROLINA CORPORATION
 DB 240 PG 267

-Y10-
 PI Sta 11+53.56
 $\Delta = 10' 33'' 56.9''$ (RT)
 $D = 4' 15'' 00.0''$
 $L = 248.61'$
 $T = 124.66'$
 $R = 1,348.14'$
 $e = EXIST.$

-L-
 PI Sta 60+46.66
 $\Delta = 2' 30'' 33.0''$ (RT)
 $D = 0' 28'' 38.9''$
 $L = 525.52'$
 $T = 262.80'$
 $R = 12,000.00'$
 $e = NC$



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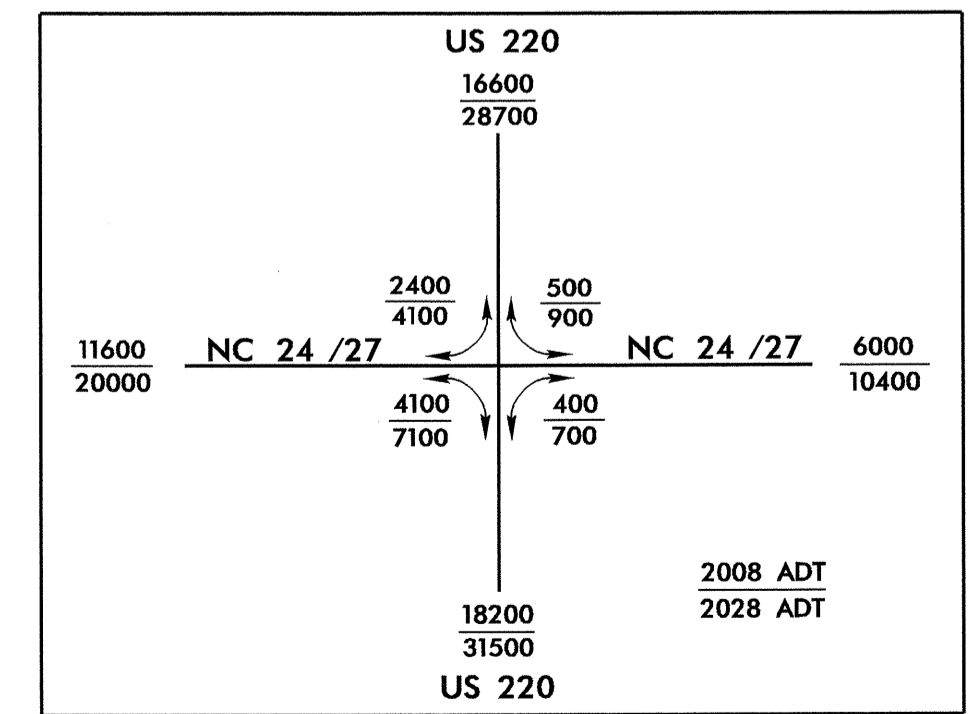
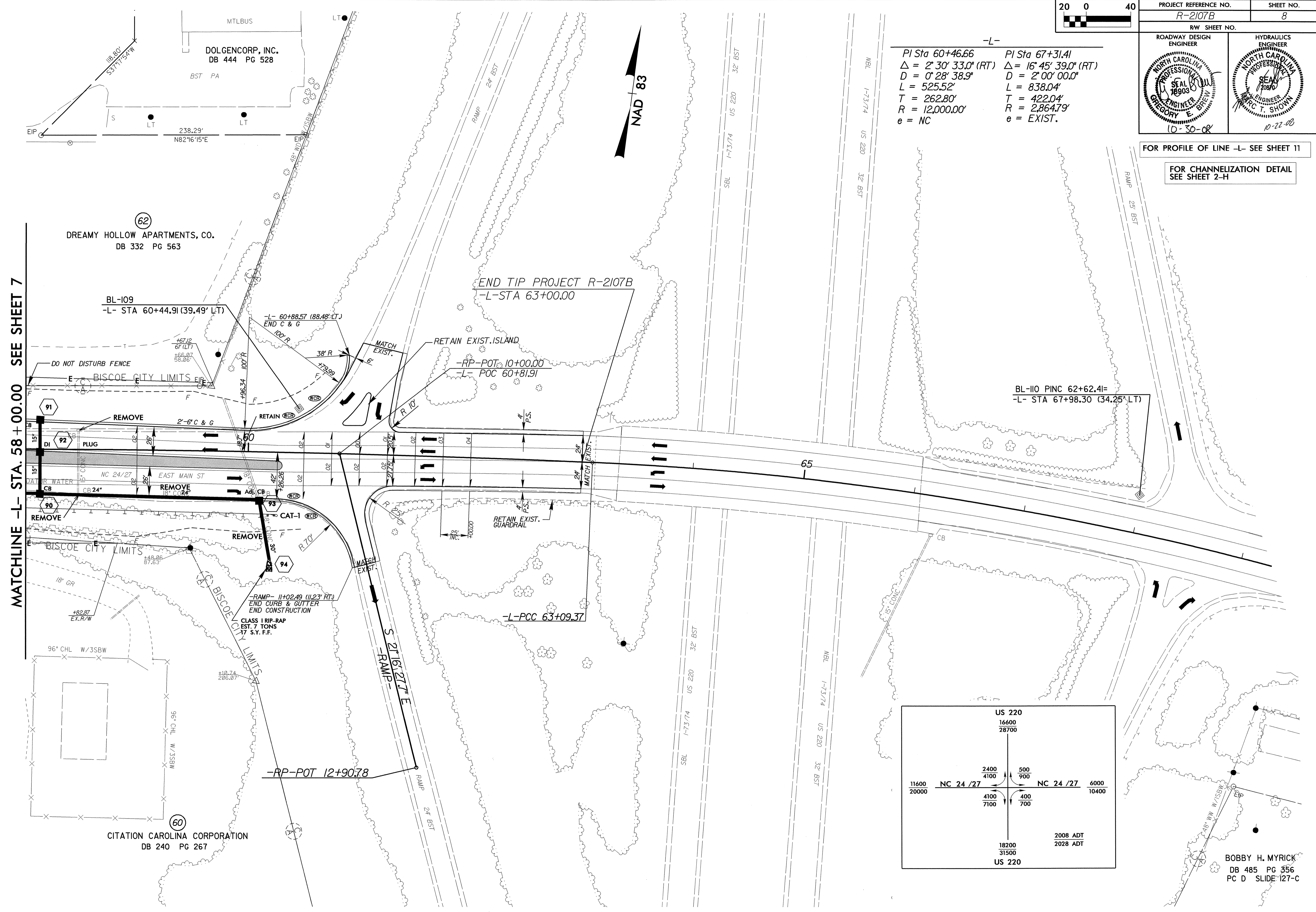
RW SHEET NO.

ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 16903 GREGORY E. BISHOP 10-30-08	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 10890 MFC T. SHOWN 10-22-08
--	---

-L-
PI Sta 60+46.66 Δ = 2° 30' 33.0" (RT) L = 525.52' T = 262.80' R = 12,000.00' e = NC
PI Sta 67+31.41 Δ = 16° 45' 39.0" (RT) L = 838.04' T = 422.04' R = 2,864.79' e = EXIST.

FOR PROFILE OF LINE -L- SEE SHEET 11

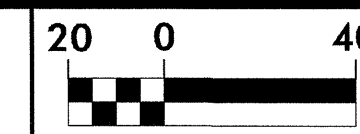
FOR CHANNELIZATION DETAIL SEE SHEET 2-H



BOBBY H. MYRICK
DB 485 PG 356
PC D SLIDE 127-C

REVISIONS

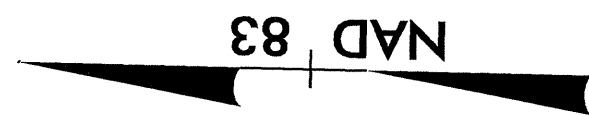
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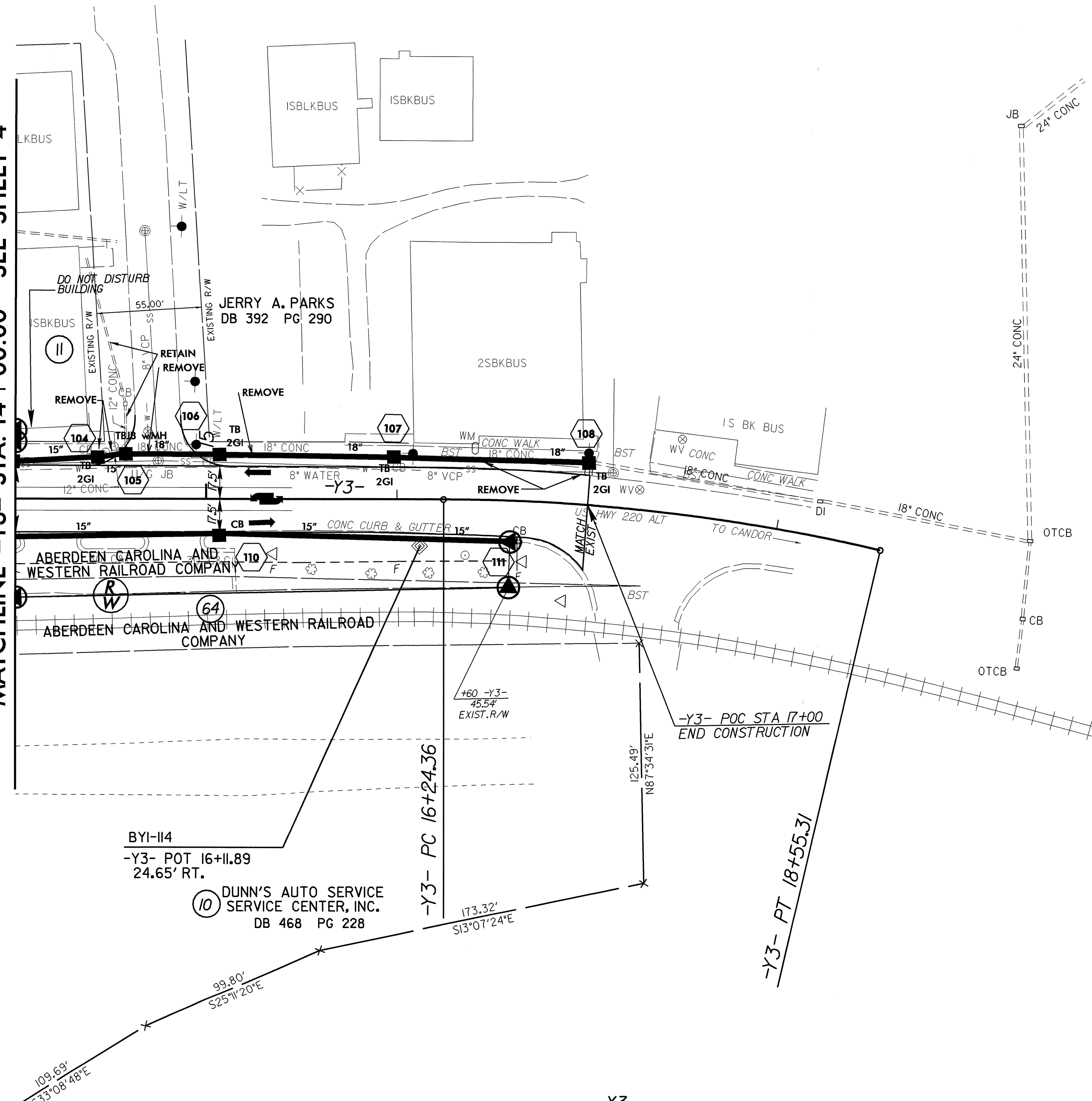
PROJECT REFERENCE NO. R-2107B	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER GREGORY E. BREWSTER 10-30-08	HYDRAULICS ENGINEER MARC T. SHOWN 10-22-08

8/17/99

REVISIONS



MATCHLINE -Y3- STA. 14+00.00 SEE SHEET 4



-Y3-
PI Sta 17+40.35
D = 13°13' 57.6" (RT)
D = 5°43' 46.5"
L = 230.95'
T = 115.99'
R = 1,000.00'
e = EXIST.

CURB
610.42'

CB
|||

CURB
613.31'

21-OCT-2008 10:30
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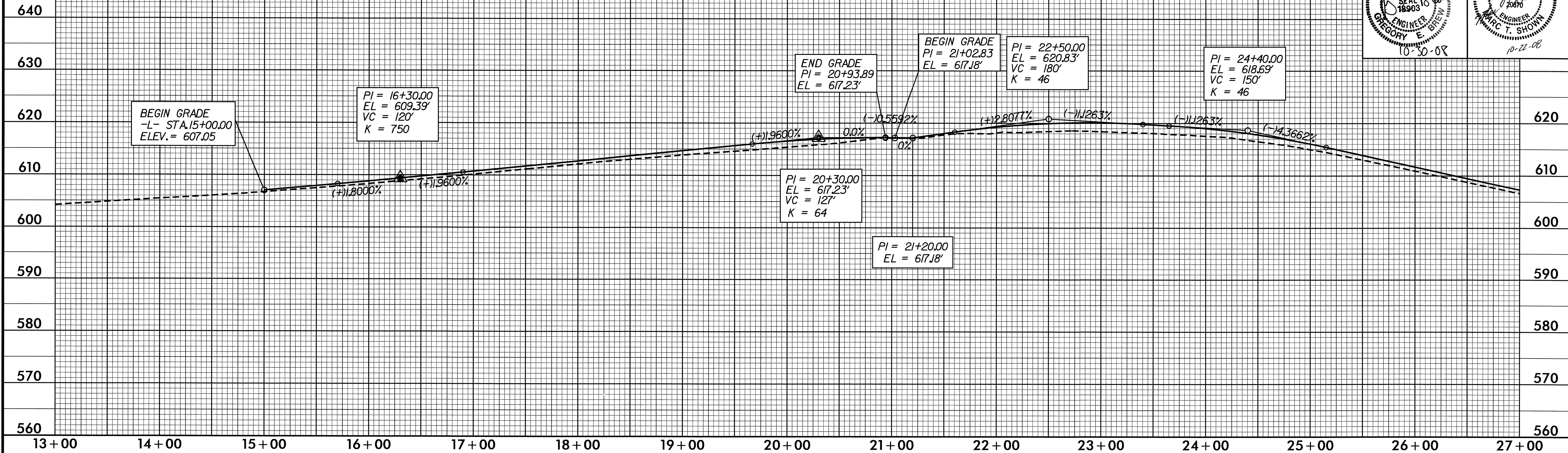
5/28/99

BM-1 RR SPIKE IN BASE OF POWER POLE
LEFT OF CENTER LINE OF NC 2427 WEST MAIN ST.
602.23 LT. OF -BL- STA. 5+00.00 (-L- STA.
10+49.96 OFF 338.29' (LT.))
ELEV. = 595.27

FOR PLAN OF LINE -L- SEE SHEETS 4 & 5

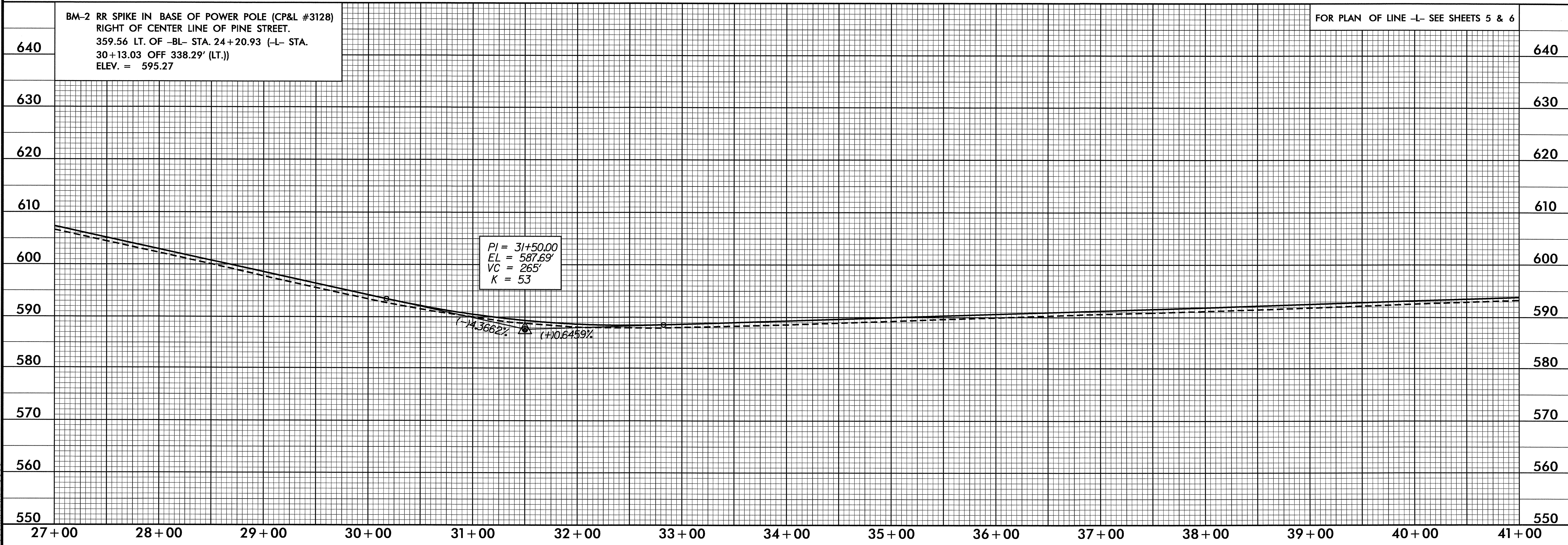
PROJECT REFERENCE NO. R-2170B	SHEET NO. 10
ROADWAY DESIGN ENGINEER GREGORY E. BREWSTER 10-30-08	HYDRAULICS ENGINEER MARC T. SHOWN 10-22-08

-L-



BM-2 RR SPIKE IN BASE OF POWER POLE (CP&L #3128)
RIGHT OF CENTER LINE OF PINE STREET.
359.56 LT. OF -BL- STA. 24+20.93 (-L- STA.
30+13.03 OFF 338.29' (LT.))
ELEV. = 595.27

FOR PLAN OF LINE -L- SEE SHEETS 5 & 6



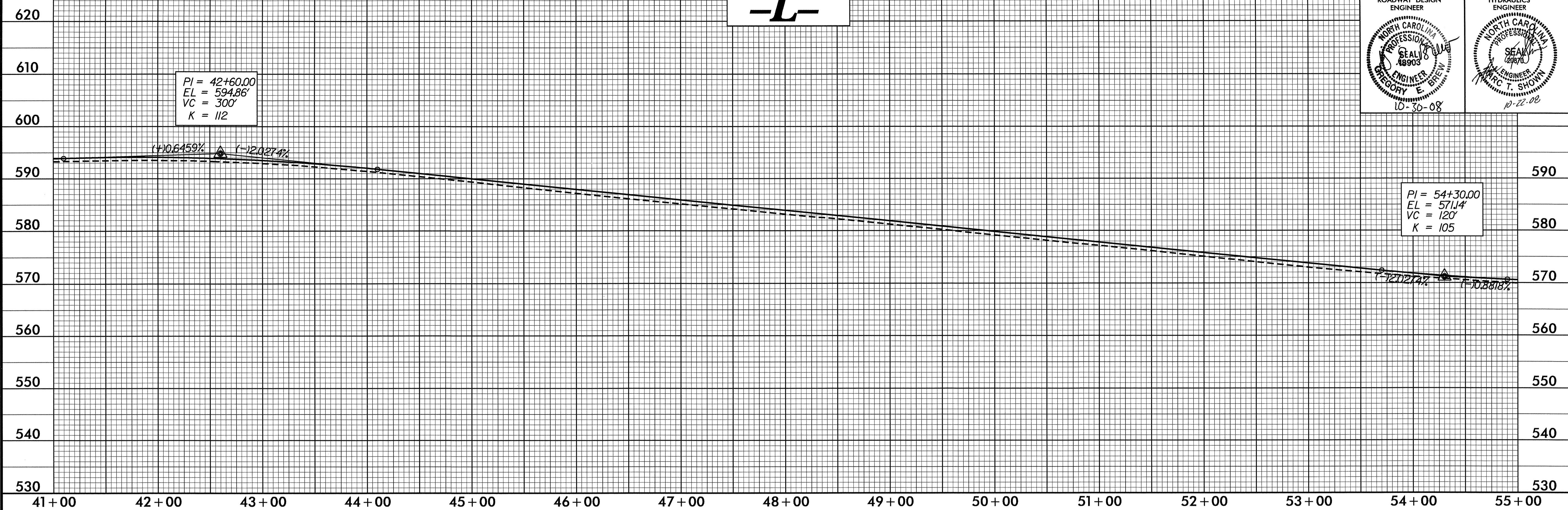
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FOR PLAN OF LINE -L- SEE SHEETS 6 & 7

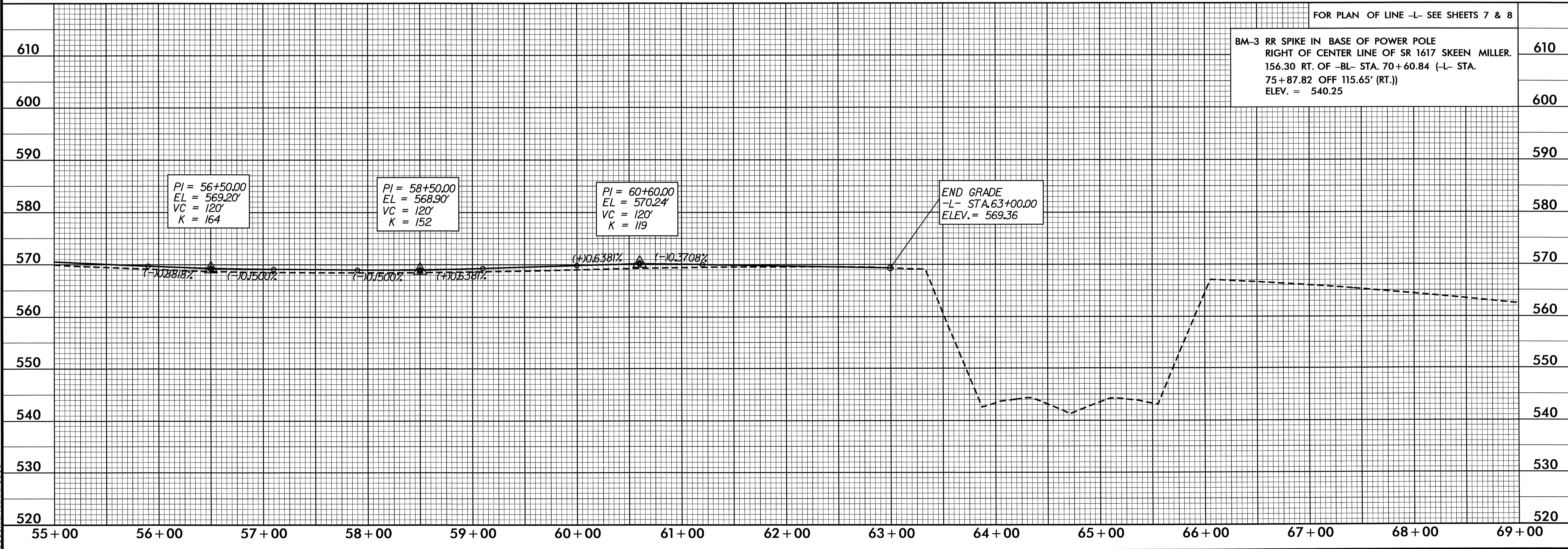
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ROADWAY DESIGN ENGINEER GREGORY E. BROWN 10-30-08	HYDRAULICS ENGINEER MTC T. SHOWN 10-22-08

-L-



FOR PLAN OF LINE -L- SEE SHEETS 7 & 8

BM-3 RR SPIKE IN BASE OF POWER POLE
 RIGHT OF CENTER LINE OF SR 1617 SKEEN MILLER.
 156.30 RT. OF -BL- STA. 70+60.84 (-L- STA.
 75+87.82 OFF 115.65' (RT.))
 ELEV. = 540.25



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FOR PLAN OF LINE -Y- SEE SHEET 4

FOR PLAN OF LINE -Y2- SEE SHEET 4

PROJECT REFERENCE NO.

R-2107B

SHEET NO.

12

ROADWAY DESIGN ENGINEER

ENGINEER

SEAL

48903

GREGORY E. BREW

10-30-08

HYDRAULICS ENGINEER

ENGINEER

SEAL

20870

MARC T. SHOWN

10-22-08

660
650
640
630
620
610
600
590
580
570

630
620
610
600
590
580
570

-Y-

-Y2-

PI = 12+35.00
EL = 615.18'
VC = 50

PI = 14+00.00
EL = 619.93'
VC = 150'
K = 93

BEGIN GRADE -Y-
STA. 12+00.00
ELEV. = 615.05

END GRADE -Y-
STA. 12+78.50
EOP -L- STA. 20+40.52
ELEV. = 616.40

BEGIN GRADE -Y2-
STA. 12+50.00
ELEV. = 618.99

END GRADE -Y2-
STA. 15+63.12
EOP -L- STA. 21+70.51
ELEV. = 618.33

10+00 11+00 12+00 13+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00

FOR PLAN OF LINE -Y3- SEE SHEET 4

FOR PLAN OF LINE -Y4- SEE SHEET 4

660
650
640
630
620
610
600
590
580
570

660
650
640
630
620
610
600
590
580
570

-Y3-

-Y4-

PI = 11+50.00
EL = 618.04'
VC = 150'
K = 130

PI = 10+60.00
EL = 618.15'
VC = 40'

BEGIN GRADE -Y3-
STA. 10+17.92
EOP -L- STA. 21+72.96
ELEV. = 618.38

END GRADE -Y3-
STA. 14+00.00
ELEV. = 614.50

-Y3- STA 17+00.00
END PAVT OVERLAY

END GRADE -Y4-
STA. 10+80.00
ELEV. = 618.41

BEGIN GRADE -Y4-
STA. 10+17.79
EOP -L- STA. 24+20.99
ELEV. = 617.89

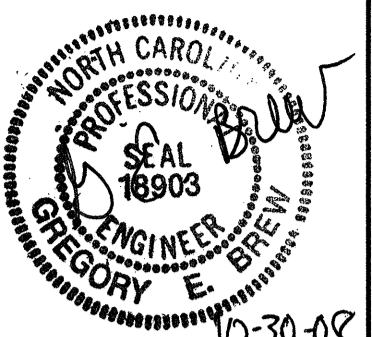
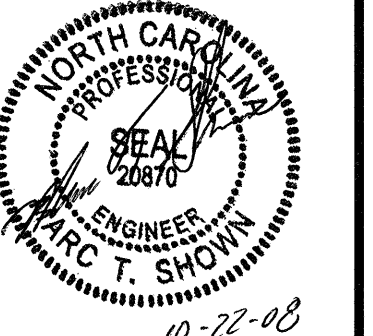
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 10+00 11+00 12+00 13+00

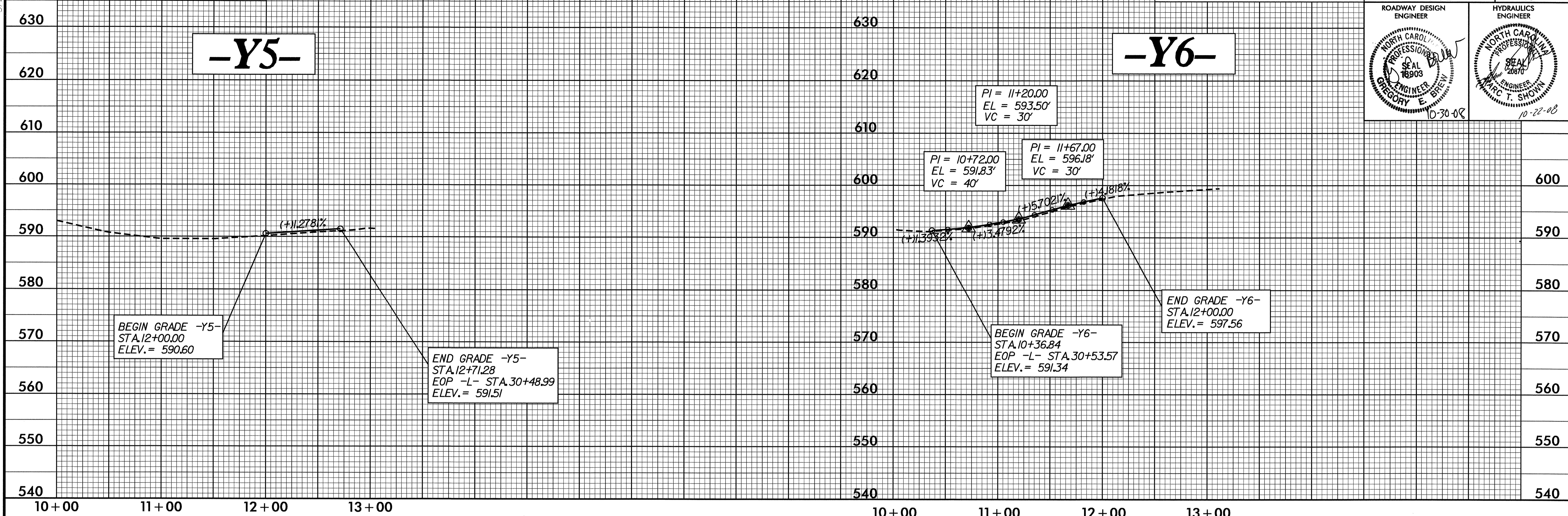
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5/28/99

FOR PLAN OF LINE -Y5- SEE SHEET 5

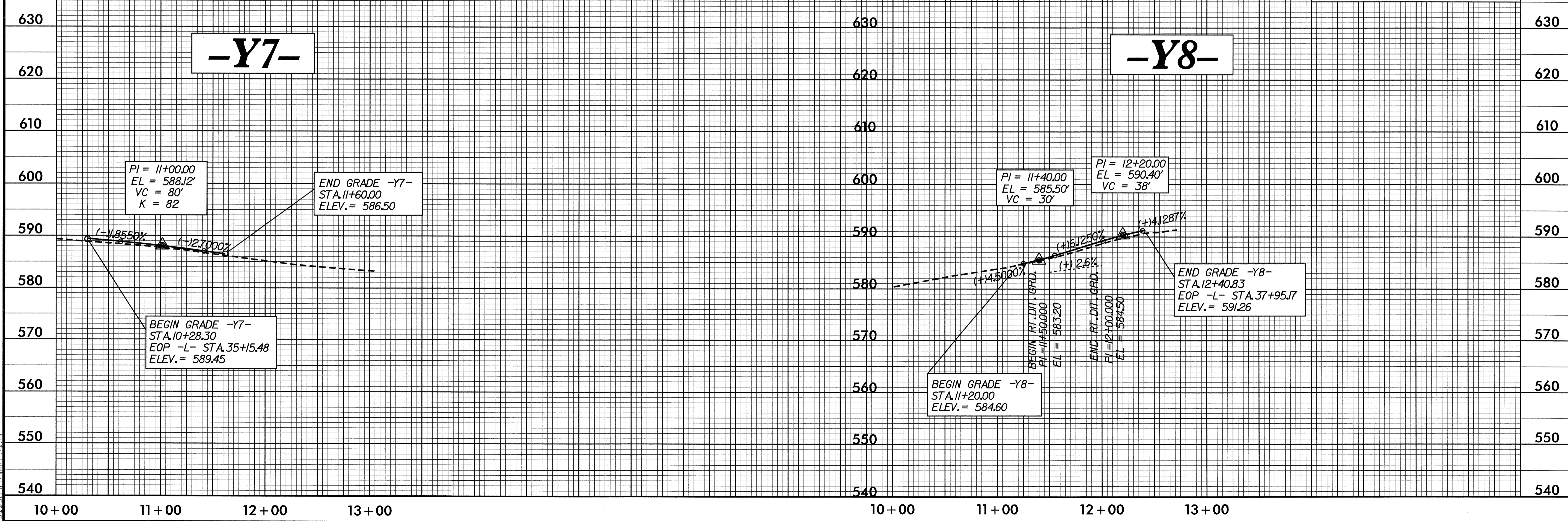
FOR PLAN OF LINE -Y6- SEE SHEET 5

PROJECT REFERENCE NO. R-2107B	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 GREGORY E. BREW 10-30-08	 MARC T. SHOWEN 10-22-08



FOR PLAN OF LINE -Y7- SEE SHEET 5

FOR PLAN OF LINE -Y8- SEE SHEET 6



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FOR PLAN OF LINE -Y9- SEE SHEET 6

FOR PLAN OF LINE -Y10- SEE SHEET 7

PROJECT REFERENCE NO.

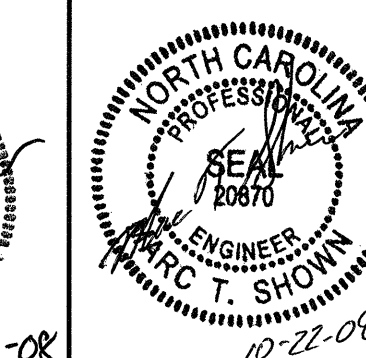
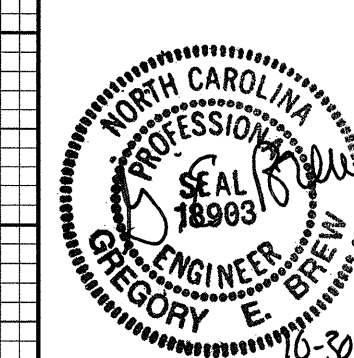
SHEET NO.

R-2170B

14

ROADWAY DESIGN ENGINEER

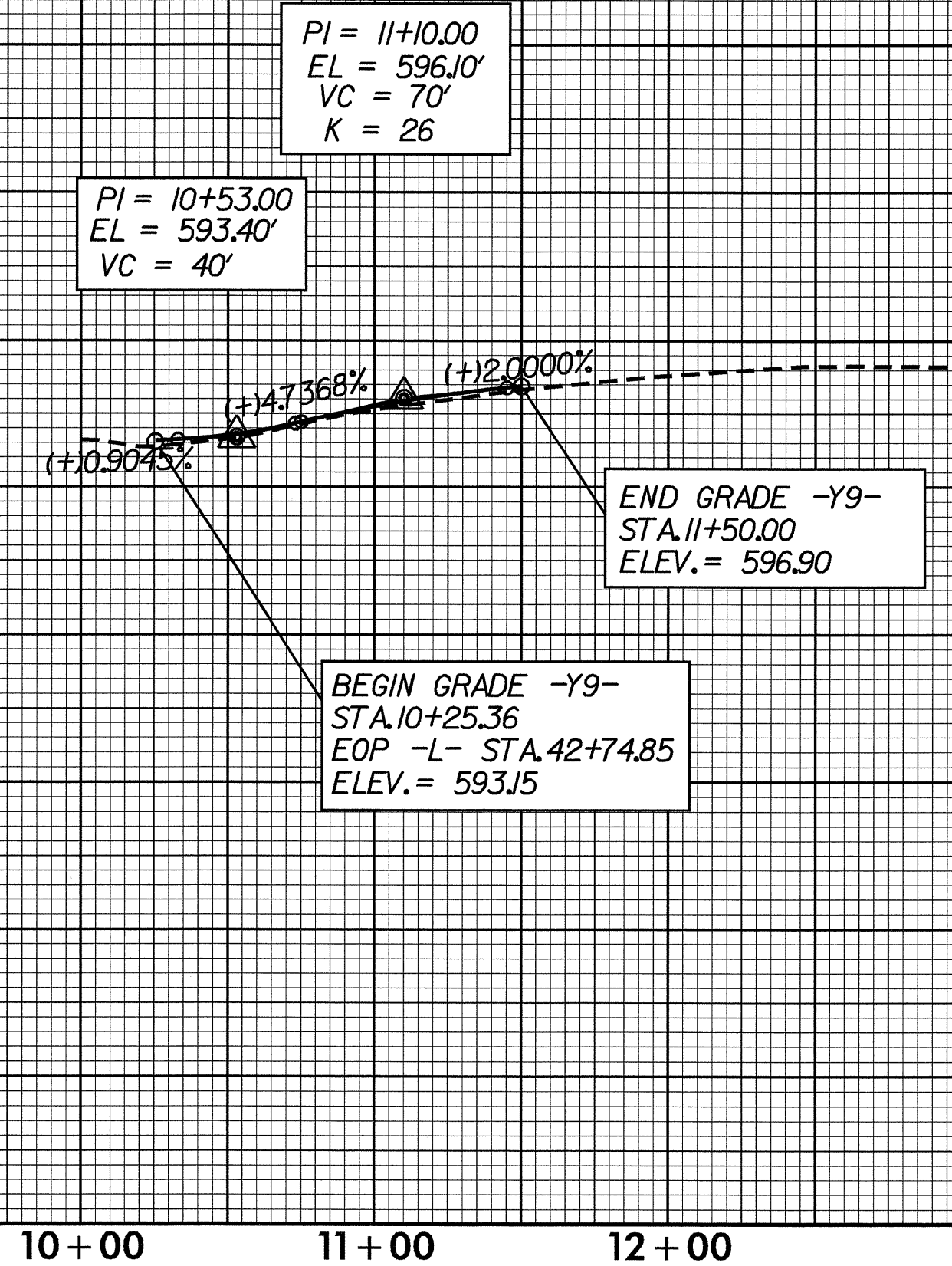
HYDRAULICS ENGINEER



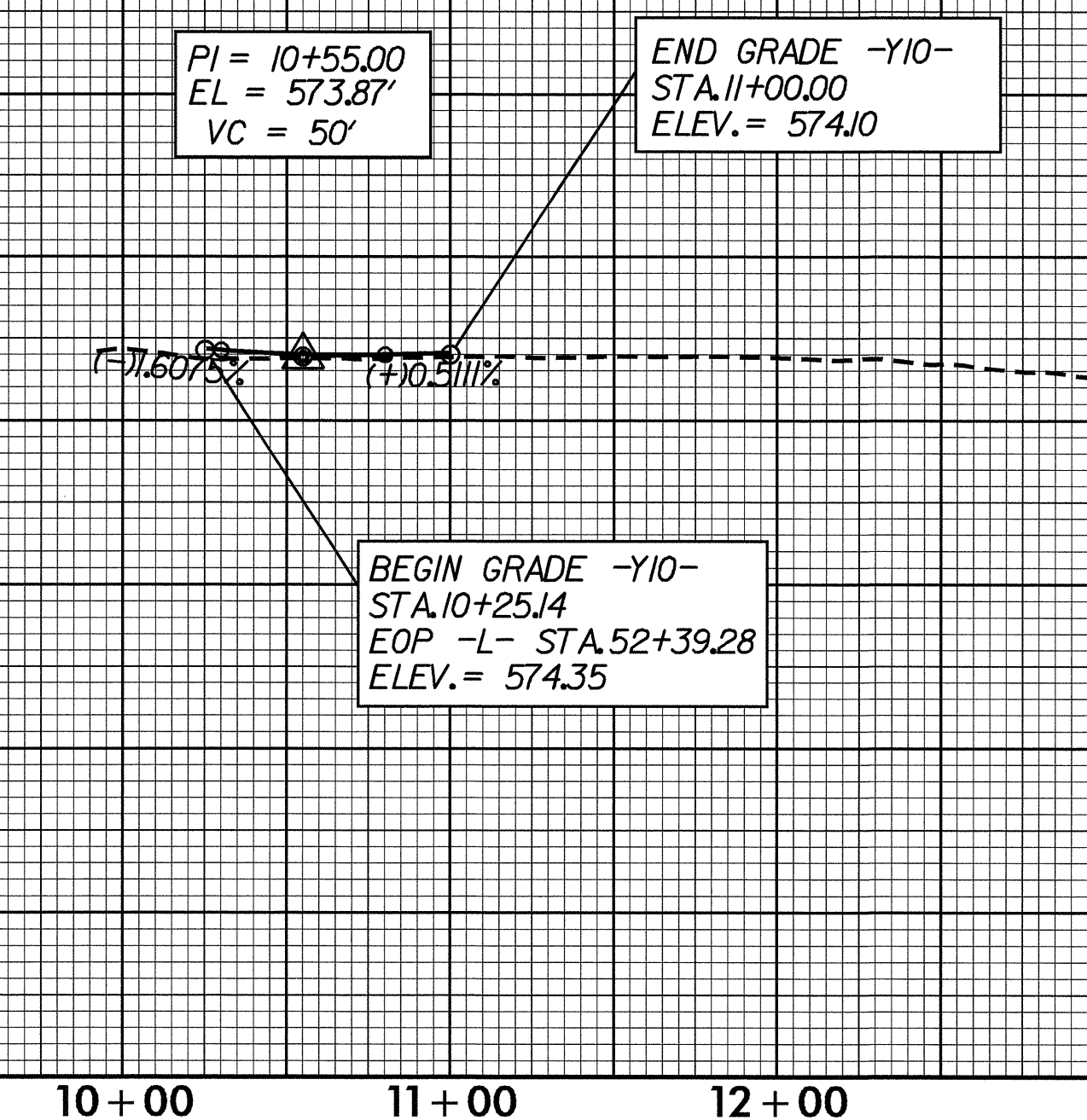
630
620
610
600
590
580
570
560
550
540

-Y9-

-Y10-



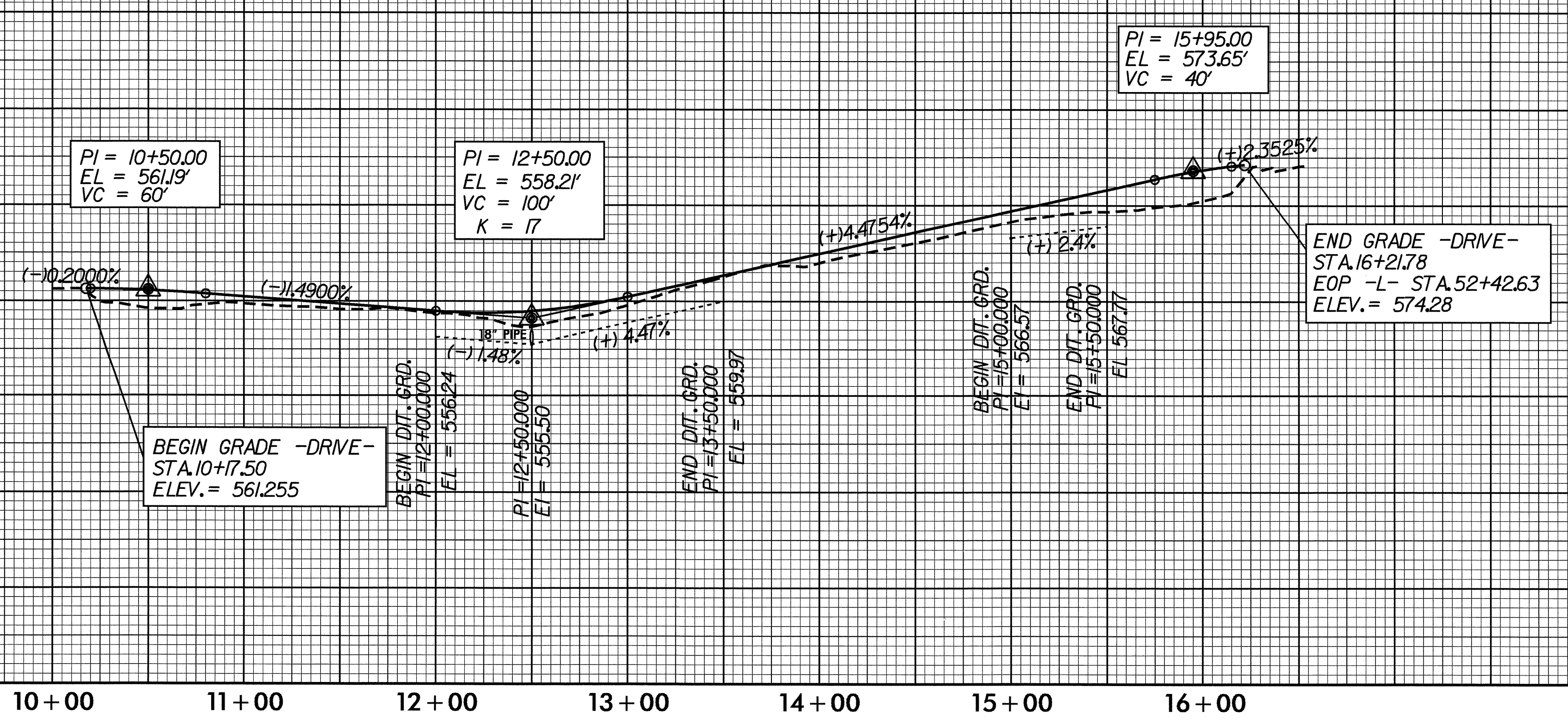
600
590
580
570
560
550
540
530



FOR PLAN OF LINE -DRIVE- SEE SHEET 7

-DRIVE-

600
590
580
570
560
550
540
530
520



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 116

DRAINAGE AREA	= 1.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 7.0	CFS
DESIGN HW ELEVATION	= 557.7	FT
100 YEAR DISCHARGE	= 9.0	CFS
100 YEAR HW ELEVATION	= 558.1	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 13.0	CFS
OVERTOPPING ELEVATION	= 559.0	FT

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5/28/99