

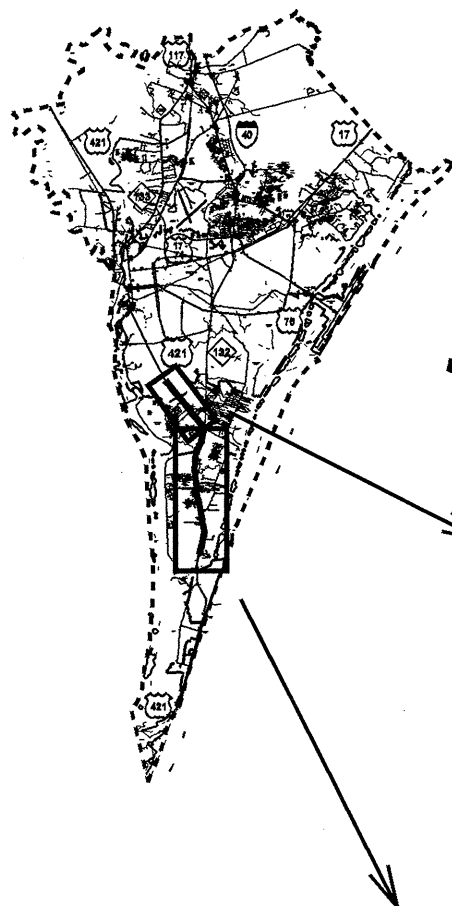
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

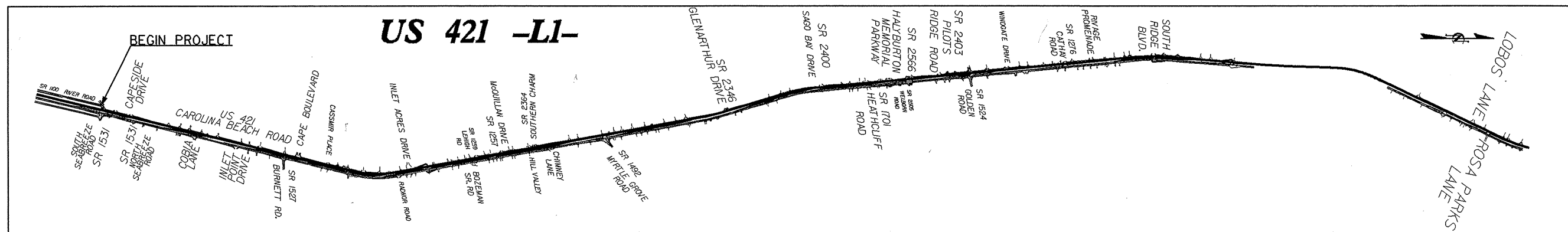
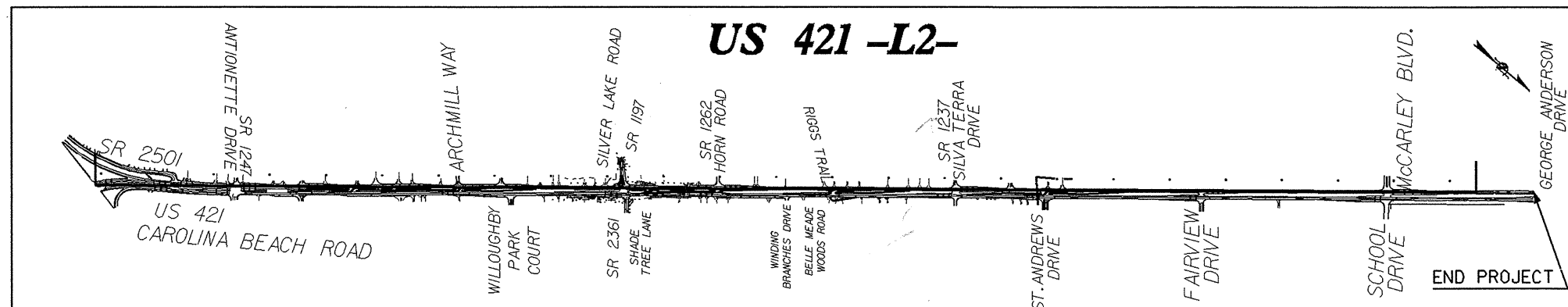
LOCATION: WIDENING FOR DIRECTIONAL CROSSOVERS ALONG US 421 IN NEW HANOVER COUNTY FROM SR 1100 (RIVER ROAD) TO GEORGE ANDERSON DRIVE

TYPE OF WORK: GRADING, DRAINAGE AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5103	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41867.1.1	STPNHS-042(45)	PE	
41867.2.1	STPNHS-042(45)	RW	
41867.3.1	STPNHS-042(45)	CONST	



SITES



CONTRACT: C202073 W.B.S. 41867 TIP PROJECT: W-5103

GRAPHIC SCALES



PROJECT LENGTH

-L1- = 4.64 MI.

-L2- = 1.69 MI.

TOTAL = 6.33 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
124 Division Dr., Wilmington, NC 28401

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:
JANUARY 19, 2010

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

DIVISION DESIGN ENGINEER

CHUCK SCHOONOVER

SIGNATURE:

DIVISION DESIGN TECHNICIAN

CARLA M. SCHOONMAKER

SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA



Charles A. Schoonover
DIVISION DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Charles A. Schoonover
DIVISION DESIGN ENGINEER

INDEX OF SHEETS

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
225.02	Guide for Grading Subgrade - Secondary and Local
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
852.01	Concrete Islands
852.02	Concrete Mountable Median - for Use with Rigid or Flexible Pavement
852.10	Median Construction - with Curb and Gutter

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-E	ALIGNMENT NOTES
2-A - 2-E	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND DETAIL SHEETS
3-A - 3-B	SUMMARY OF QUANTITIES
3-C & 3-D	SUMMARY OF DRAINAGE QUANTITIES
4 THRU 26	PLAN SHEETS
TCP-1	TRAFFIC CONTROL PLANS
PM-1 THRU PM-22	PAVEMENT MARKING PLANS
X-1 THRU X-82	CROSS-SECTIONS

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

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

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.

SUBSURFACE PLANS:

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

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

8/17/99
 28-OCT-2009 09:44
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 schoonover

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	○
Property Corner	✕
Property Monument	□
Parcel/Sequence Number	123
Existing Fence Line	×-×-×-×
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	CSX TRANSPORTATION 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
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	XXXX
Proposed Conc. Island	□

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	S

UTILITIES:

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

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	□
Telephone Pedestal	⊕
Telephone Cell Tower	⊗
UG Telephone Cable Hand Hole	PH
Recorded UG Telephone Cable	T
Designated UG Telephone Cable (S.U.E.*)	T
Recorded UG Telephone Conduit	TC
Designated UG Telephone Conduit (S.U.E.*)	TC
Recorded UG Fiber Optics Cable	T FO
Designated UG Fiber Optics Cable (S.U.E.*)	T FO

WATER:

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

TV:

TV Satellite Dish	⊗
TV Pedestal	⊕
TV Tower	⊗
UG TV Cable Hand Hole	PH
Recorded UG TV Cable	TV
Designated UG TV Cable (S.U.E.*)	TV
Recorded UG Fiber Optic Cable	TV FO
Designated UG Fiber Optic Cable (S.U.E.*)	TV FO

GAS:

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

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
UG 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 UG Line	UUL
UG Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
UG Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

CONTROL AND ALIGNMENT DESCRIPTIONS

Beginning chain L1 description

Point 20000 N 115,229.4788 E 2,333,397.1450 Sta 59+34.98

Course from 20000 to TS S1B N 13° 45' 45.76" E Dist 5,600.2921

Spiral S1B Type 1 Spiral Element

Angle 6° 07' 30.03" (LT) P 3.1167 BKN 13° 45' 45.76" E
 LS 350.0000 K 174.9334 AHN 7° 38' 15.72" E
 R 1,637.0200 LT 233.4732 CBN 11° 43' 16.46" E
 YS 12.4617 ST 116.7938 Defl 2° 02' 29.30"
 XS 349.6002 LC 349.8223 Deg 3° 30' 00.02"

Spiral Coordinates

Point	North	East	Station
TS	120,668.9827	2,334,729.4620	115+35.28
PI	120,895.7527	2,334,785.0056	117+68.75
SC	121,011.5103	2,334,800.5285	118+85.28
CC	121,229.0843	2,333,178.0317	

Curve Data

Curve S1
 P.L. Station 120-42.88 N 121,177.6303 E 2,334,822.8049
 Delta = 11° 41' 30.35" (LT)
 Degree = 3° 30' 00.02"
 Tangent = 167.6070
 Length = 334.0499
 Radius = 1,637.0200
 External = 8.5579
 Long Chord = 333.4706
 Mid. Ord. = 8.5134
 P.C. Station 118+85.28 N 121,011.5103 E 2,334,800.5285
 P.T. Station 122+19.33 N 121,344.8179 E 2,334,810.9555
 C.C. N 121,229.0843 E 2,333,178.0317
 Back = N 7° 38' 15.72" E
 Ahead = N 4° 03' 14.62" W
 Chord Bear = N 1° 47' 30.55" E

Spiral S1A Type 2 Spiral Element

Angle 6° 07' 30.03" (LT) P 3.1167 BKN 4° 03' 14.62" W
 LS 350.0000 K 174.9334 AHN 10° 10' 44.65" W
 R 1,637.0200 LT 233.4732 CBN 8° 08' 15.35" W
 YS 12.4617 ST 116.7938 Defl 2° 02' 29.30"
 XS 349.6002 LC 349.8223 Deg 3° 30' 00.02"

Spiral Coordinates

Point	North	East	Station
CS	121,344.8179	2,334,810.9555	122+19.33
PI	121,461.3194	2,334,802.6984	123+36.12
ST	121,691.1178	2,334,761.4379	125+69.33
CC	121,229.0843	2,333,178.0317	

Course from ST S1A to PC C1 N 10° 10' 44.65" W Dist 5,345.3369

Curve Data

Curve C1
 P.L. Station 181-41.28 N 127,175.3722 E 2,333,776.7328
 Delta = 6° 53' 55.36" (LT)
 Degree = 1° 31' 26.17"
 Tangent = 226.6188
 Length = 452.6900
 Radius = 3,739.7200
 External = 6.8236
 Long Chord = 452.4166
 Mid. Ord. = 6.8112
 P.C. Station 179+14.66 N 126,952.3203 E 2,333,816.7821
 P.T. Station 183+67.35 N 127,391.9987 E 2,333,710.1817
 C.C. N 126,287.8830 E 2,330,116.2392
 Back = N 10° 10' 44.65" W
 Ahead = N 17° 04' 40.02" W
 Chord Bear = N 13° 37' 42.33" W

Course from PT C1 to TS S2B N 17° 04' 40.02" W Dist 974.7691

Spiral S2B Type 1 Spiral Element

Angle 3° 07' 30.01" (RT) P 1.1362 BKN 17° 04' 40.02" W
 LS 250.0000 K 124.9876 AHN 13° 57' 10.01" W
 R 2,291.8300 LT 166.6926 CBN 16° 02' 10.11" W
 YS 4.5442 ST 83.3569 Defl 1° 02' 29.91"
 XS 249.9256 LC 249.9669 Deg 2° 30' 00.00"

Spiral Coordinates

Point	North	East	Station
TS	128,323.7872	2,333,423.9216	193+42.12
PI	128,483.1299	2,333,374.9690	195+08.81
SC	128,564.0274	2,333,354.8698	195+92.12
CC	129,116.6384	2,335,579.0789	

Curve Data

Curve S2
 P.L. Station 196+98.40 N 128,667.1697 E 2,333,329.2438
 Delta = 5° 18' 36.36" (RT)
 Degree = 2° 30' 00.00"
 Tangent = 106.2780
 Length = 212.4039
 Radius = 2,291.8300
 External = 2.4629
 Long Chord = 212.3279
 Mid. Ord. = 2.4602
 P.C. Station 195+92.12 N 128,564.0274 E 2,333,354.8698
 P.T. Station 198+04.53 N 128,772.2409 E 2,333,313.2732
 C.C. N 129,116.6384 E 2,335,579.0789
 Back = N 13° 57' 10.01" W
 Ahead = N 8° 38' 33.65" W
 Chord Bear = N 11° 17' 51.83" W

Spiral S2A Type 2 Spiral Element

Angle 3° 07' 30.01" (RT) P 1.1362 BKN 8° 38' 33.65" W
 LS 250.0000 K 124.9876 AHN 5° 31' 03.64" W
 R 2,291.8300 LT 166.6926 CBN 6° 33' 33.55" W
 YS 4.5442 ST 83.3569 Defl 1° 02' 29.91"
 XS 249.9256 LC 249.9669 Deg 2° 30' 00.00"

Spiral Coordinates

Point	North	East	Station
CS	128,772.2409	2,333,313.2732	198+04.53
PI	128,854.6513	2,333,300.7470	198+87.88
ST	129,020.5716	2,333,284.7191	200+54.53
CC	129,116.6384	2,335,579.0789	

Course from ST S2A to PC C2 N 5° 31' 03.64" W Dist 5,555.0920

Curve Data

Curve C2
 P.L. Station 259+49.90 N 134,888.6330 E 2,332,717.8616
 Delta = 10° 10' 54.03" (RT)
 Degree = 1° 30' 00.00"
 Tangent = 340.2852
 Length = 678.7785
 Radius = 3,819.7200
 External = 15.1274
 Long Chord = 677.8857
 Mid. Ord. = 15.0678
 P.C. Station 256+09.62 N 134,549.9245 E 2,332,750.5810
 P.T. Station 262+88.40 N 135,227.7914 E 2,332,745.5309
 C.C. N 134,917.2016 E 2,336,552.6026
 Back = N 5° 31' 03.64" W
 Ahead = N 4° 39' 50.38" E
 Chord Bear = N 0° 25' 36.63" W

Course from PT C2 to PC C3 N 4° 39' 50.38" E Dist 1,715.1784

Curve Data

Curve C3
 P.L. Station 281+33.86 N 137,067.1453 E 2,332,895.5897
 Delta = 2° 36' 19.04" (LT)
 Degree = 1° 00' 00.01"
 Tangent = 130.2864
 Length = 260.5280
 Radius = 5,729.5600
 External = 1.4811
 Long Chord = 260.5055
 Mid. Ord. = 1.4807
 P.C. Station 280+03.57 N 136,937.2903 E 2,332,884.9958
 P.T. Station 282+64.10 N 137,197.3477 E 2,332,900.2700
 C.C. N 137,403.1734 E 2,327,174.4082
 Back = N 4° 39' 50.38" E
 Ahead = N 2° 03' 31.34" E
 Chord Bear = N 3° 21' 40.86" E

Course from PT C3 to TS S3B N 2° 03' 31.34" E Dist 790.0377

Spiral S3B Type 1 Spiral Element

Angle 6° 07' 30.03" (RT) P 3.1167 BKN 2° 03' 31.34" E
 LS 350.0000 K 174.9334 AHN 8° 11' 01.38" E
 R 1,637.0200 LT 233.4732 CBN 4° 06' 00.64" E
 YS 12.4617 ST 116.7938 Defl 2° 02' 29.30"
 XS 349.6002 LC 349.8223 Deg 3° 30' 00.02"

Spiral Coordinates

Point	North	East	Station
TS	137,986.8754	2,332,928.6509	290+54.14
PI	138,220.1979	2,332,937.0381	292+87.61
SC	138,335.8024	2,332,953.6634	294+04.14
CC	138,102.7765	2,334,574.0132	

Curve Data

Curve S3
 P.L. Station 295+64.58 N 138,494.6045 E 2,332,976.5011
 Delta = 11° 11' 41.20" (RT)
 Degree = 3° 30' 00.02"
 Tangent = 160.4359
 Length = 319.8503
 Radius = 1,637.0200
 External = 7.8430
 Long Chord = 319.3418
 Mid. Ord. = 7.8056
 P.C. Station 294+04.14 N 138,335.8024 E 2,332,953.6634
 P.T. Station 297+23.99 N 138,645.9512 E 2,333,029.7349
 C.C. N 138,102.7765 E 2,334,574.0132
 Back = N 8° 11' 01.38" E
 Ahead = N 19° 22' 42.57" E
 Chord Bear = N 13° 46' 51.97" E

Spiral S3A Type 2 Spiral Element

Angle 6° 07' 30.03" (RT) P 3.1167 BKN 19° 22' 42.57" E
 LS 350.0000 K 174.9334 AHN 25° 30' 12.60" E
 R 1,637.0200 LT 233.4732 CBN 23° 27' 43.31" E
 YS 12.4617 ST 116.7938 Defl 2° 02' 29.30"
 XS 349.6002 LC 349.8223 Deg 3° 30' 00.02"

Spiral Coordinates

Point	North	East	Station
CS	138,645.9512	2,333,029.7349	297+23.99
PI	138,756.1284	2,333,068.4879	298+40.78
ST	138,966.8516	2,333,169.0135	300+73.99
CC	138,102.7765	2,334,574.0132	

Course from ST S3A to TS S4B N 25° 30' 12.60" E Dist 2,264.2273

Spiral S4B Type 1 Spiral Element

Angle 3° 07' 30.01" (LT) P 1.1362 BKN 25° 30' 12.60" E
 LS 250.0000 K 124.9876 AHN 22° 22' 42.60" E
 R 2,291.8300 LT 166.6926 CBN 24° 27' 42.70" E
 YS 4.5442 ST 83.3569 Defl 1° 02' 29.91"
 XS 249.9256 LC 249.9669 Deg 2° 30' 00.00"

Spiral Coordinates

Point	North	East	Station
TS	141,010.4503	2,334,143.9134	323+38.22
PI	141,160.9003	2,334,215.6836	325+04.91
SC	141,237.9795	2,334,247.4216	325+88.22
CC	142,110.5329	2,332,128.1916	

Curve Data

Curve S4
 P.L. Station 327+65.77 N 141,402.1641 E 2,334,315.0215
 Delta = 8° 51' 36.48" (LT)
 Degree = 2° 30' 00.00"
 Tangent = 177.5566
 Length = 354.4052
 Radius = 2,291.8300
 External = 6.8677
 Long Chord = 354.0522
 Mid. Ord. = 6.8472
 P.C. Station 325+88.22 N 141,237.9795 E 2,334,247.4216
 P.T. Station 329+42.62 N 141,574.8015 E 2,334,356.5266
 C.C. N 142,110.5329 E 2,332,128.1916
 Back = N 22° 22' 42.60" E
 Ahead = N 13° 31' 06.11" E
 Chord Bear = N 17° 56' 54.36" E

Spiral S4A Type 2 Spiral Element

Angle 3° 07' 30.01" (LT) P 1.1362 BKN 13° 31' 06.11" E
 LS 250.0000 K 124.9876 AHN 10° 23' 36.11" E
 R 2,291.8300 LT 166.6926 CBN 11° 26' 06.02" E
 YS 4.5442 ST 83.3569 Defl 1° 02' 29.91"
 XS 249.9256 LC 249.9669 Deg 2° 30' 00.00"

Spiral Coordinates

Point	North	East	Station
CS	141,574.8015	2,334,356.5266	329+42.62
PI	141,655.8491	2,334,376.0119	330+25.98
ST	141,819.8067	2,334,406.0841	331+92.62
CC	142,110.5329	2,332,128.1916	

Course from ST S4A to 20014 N 10° 23' 36.11" E Dist 1,580.2963

Point 20014 N 143,374.1741 E 2,334,691.1778 Sta 347+72.92

Ending chain L1 description

Beginning chain L2 description

Point 30000 N 143,844.8327 E 2,334,777.5035 Sta 19+54.17

Course from 30000 to 30003 N 39° 33' 23.46" W Dist 12,287.1216

Point 30003 N 153,318.1638 E 2,326,952.5846 Sta 142+41.29

Ending chain L2 description

CONTROL POINTS

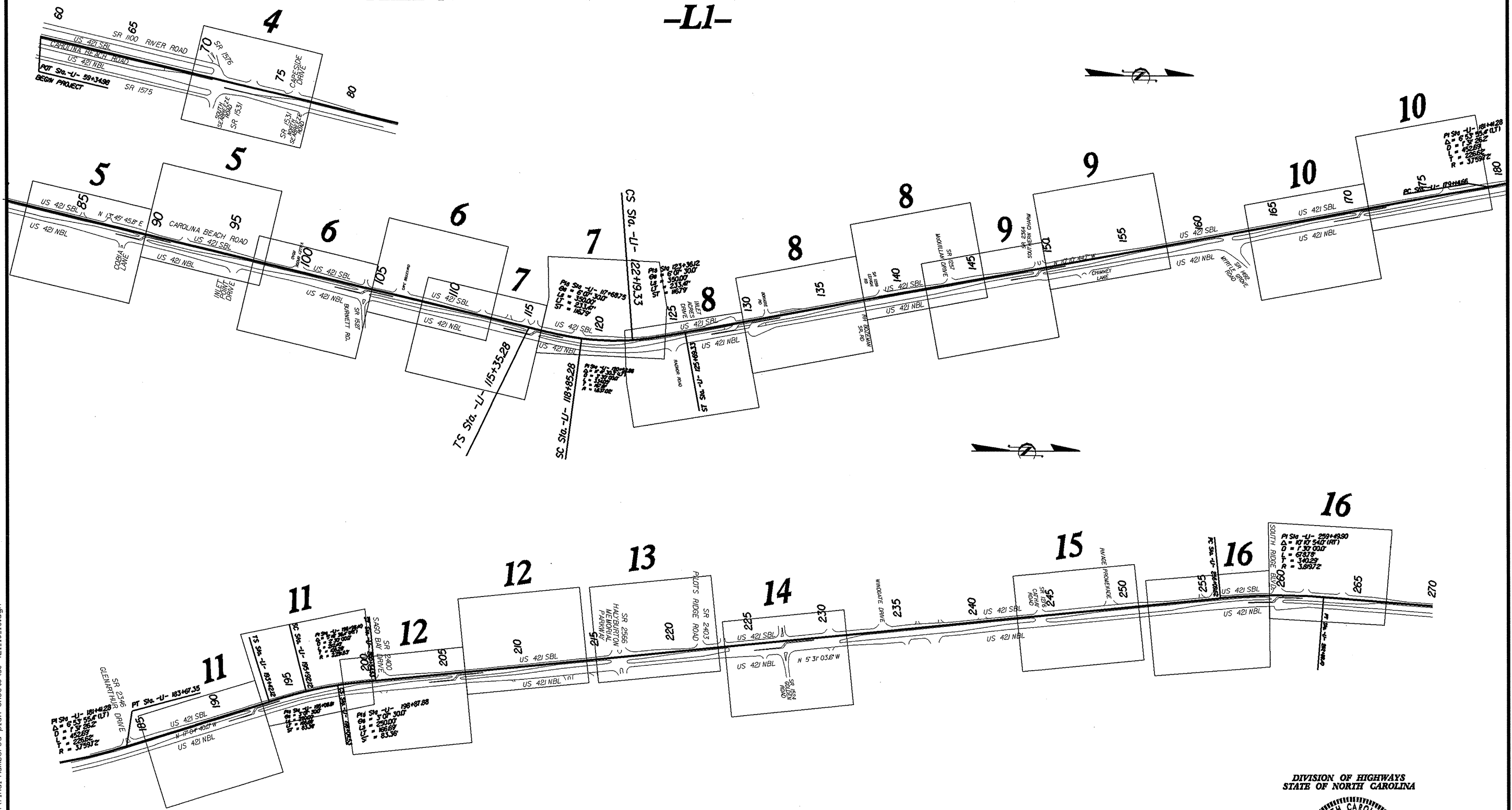
Point	North	East	Elevation	Feature
BRYAN	141,367.87	2,334,392.17	37.961	4015
DDC2	116,327.50	2,333,644.20	11.318	4017
DDC3	118,430.82	2,334,220.50	13.358	4017
DDC4	119,247.14	2,334,400.36	15.462	4017
DDC5	120,993.38	2,334,747.80	14.781	4017
DDC6	121,642.12	2,334,864.90	18.333	4017
DDC7	122,276.13	2,334,639.09	18.344	4017
DDC8	124,121.60	2,334,367.12	24.647	4017
DDC10	125,756.22	2,334,051.77	26.155	4017
DDC11	128,564.27	2,333,393.45	26.652	4017
DDC12	129,301.68	2,333,280.06	28.951	4017
DDC13	135,041.13	2,332,774.16	42.211	4017
DDC14	135,756.60	2,332,827.09	47.405	4017
DDC15	145,727.61	2,333,274.13	21.001	4017
DDC16	146,495.82	2,332,641.09	19.886	4017
DDC17	148,263.78	2,331,181.24	21.314	4017
DDC18	149,049.72	2,330,534.30	21.761	4017
DDC19	150,486.01	2,329,348.68	10.474	4017
DDC21	153,076.39	2,327,207.45	21.185	4017
ECHOFARMS	153,900.34	2,326,440.15	26.575	4015
ENNIS	136,261.24	2,332,811.34	49.278	4015
HARDEES	165,779.99	2,336,080.34	40.232	4015
PSPT1	137,184.42	2,332,939.04	44.267	4020
PSPT2	139,502.06	2,333,450.61	34.343	4020
WATERWAY	112,225.18	2,333,343.84	49.536	4015

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BRYAN". WITH 2NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 141367.68(FT) EASTING: 2334391.92(FT) ELEVATION: 38.081(FT). THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: ? THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BRYAN" TO -1 STATION 327+57.18

ALIGNMENTS AND SHEET LAY OUT

-L1-



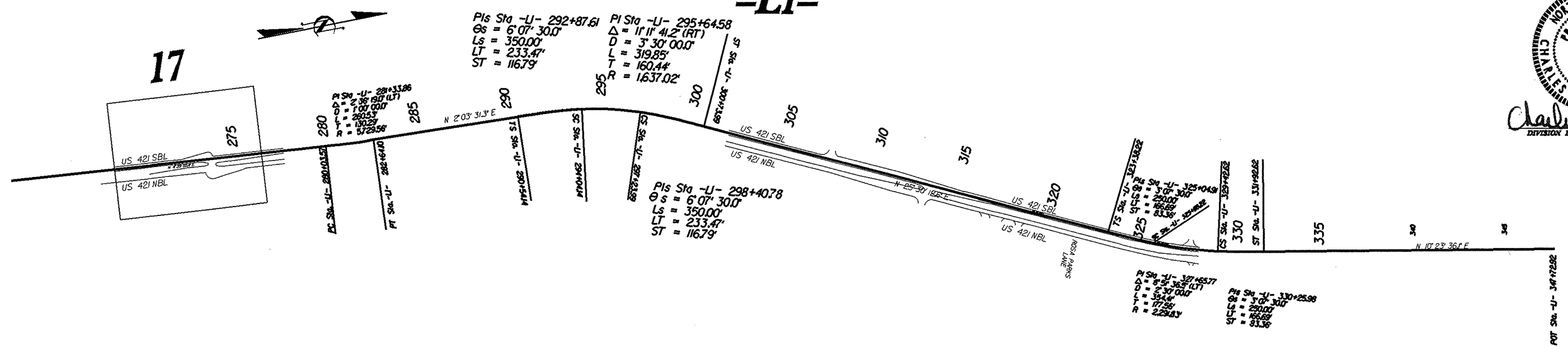
NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROFESSIONAL SEAL
20224
ENGINEER
CHARLES A. SCHMIDT, P.E.
10-28-09
DIVISION DESIGN ENGINEER

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 5/14/09

ALIGNMENTS AND SHEET LAY OUT -L1-

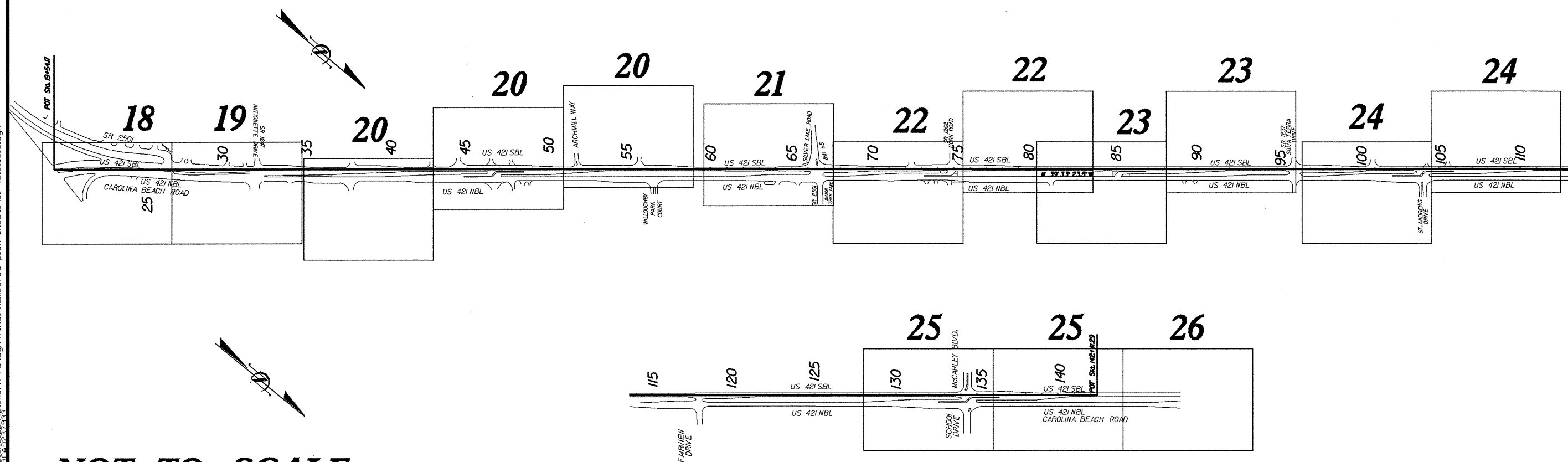


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROFESSIONAL ENGINEER
SEAL 20224
CHARLES A. SCHOMMEYER
10-28-09
DIVISION DESIGN ENGINEER

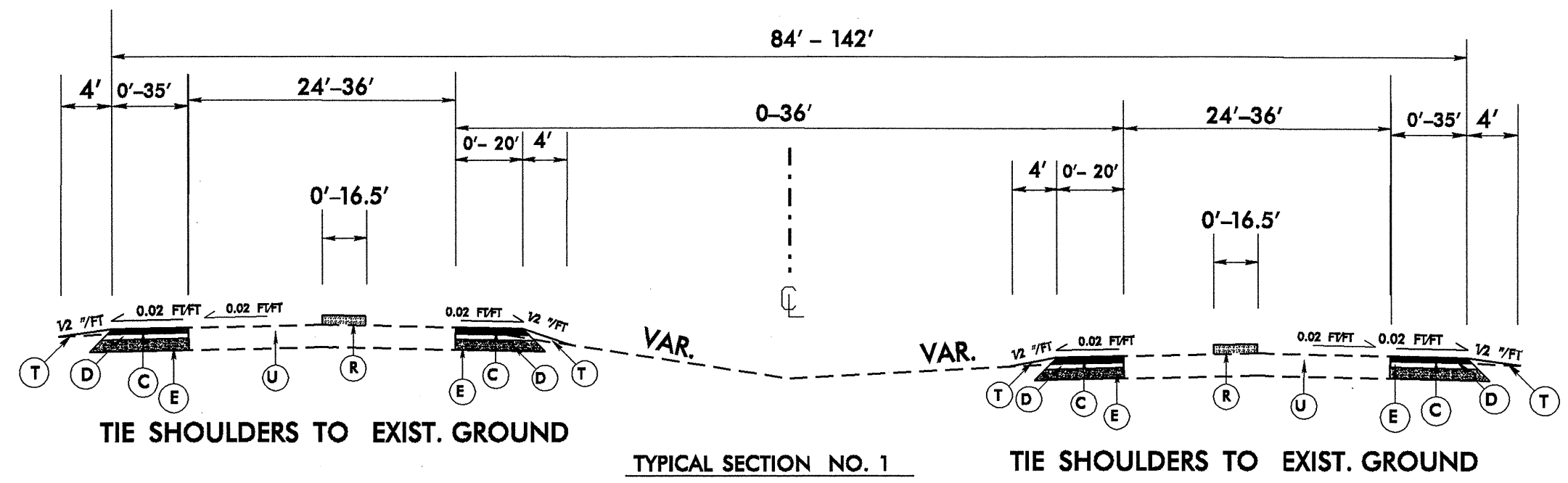
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ALIGNMENTS AND SHEET LAY OUT -L2-



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PAVEMENT SCHEDULE	
C	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
R	5" MONOLITHIC CONCRETE ISLAND.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



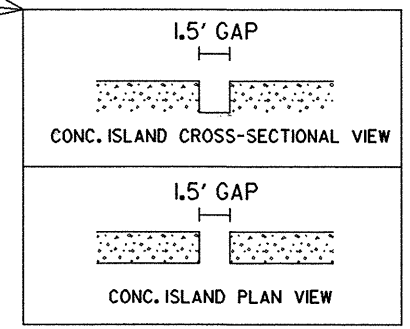
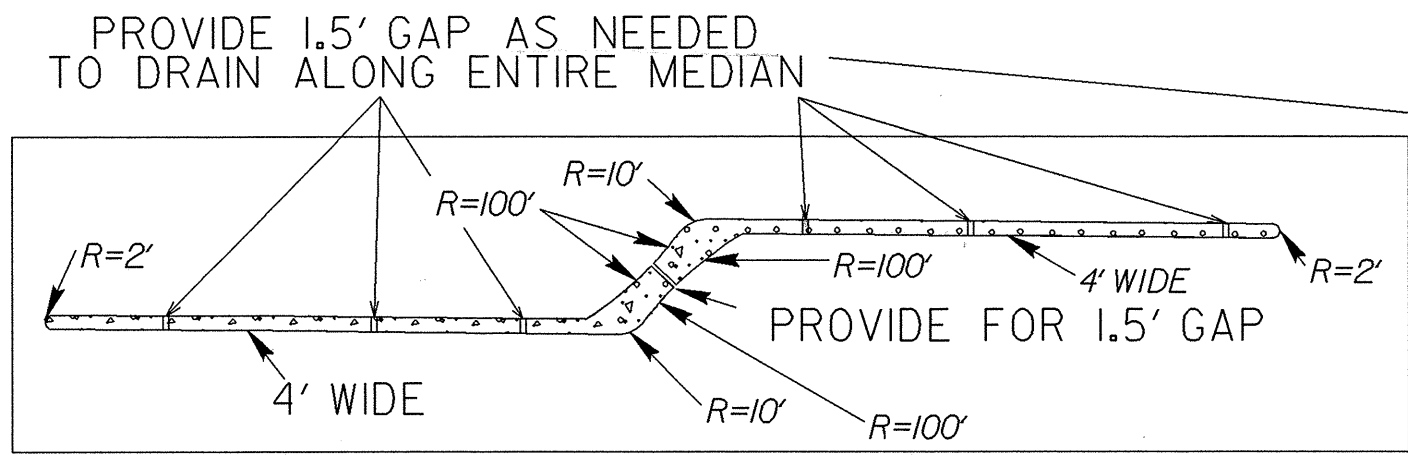
Charles A. Schoonover
DIVISION DESIGN ENGINEER



Charles A. Schoonover
DIVISION DESIGN ENGINEER P.E.

DETAIL SHEET

CONCRETE MONOLITHIC ISLAND DETAILS

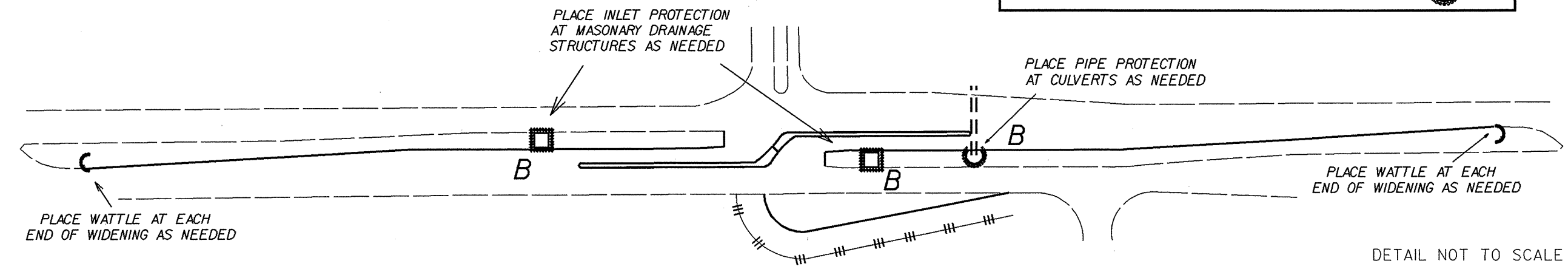


SEE PLAN SHEETS FOR LENGTHS

DETAILS NOT TO SCALE

EROSION CONTROL DETAIL

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	III III III
1632.03	Rock Inlet Sediment Trap Type B	□
1633.01	Wattle	⌋
1635.01	Rock Pipe Inlet Sediment Trap Type-B	⌋



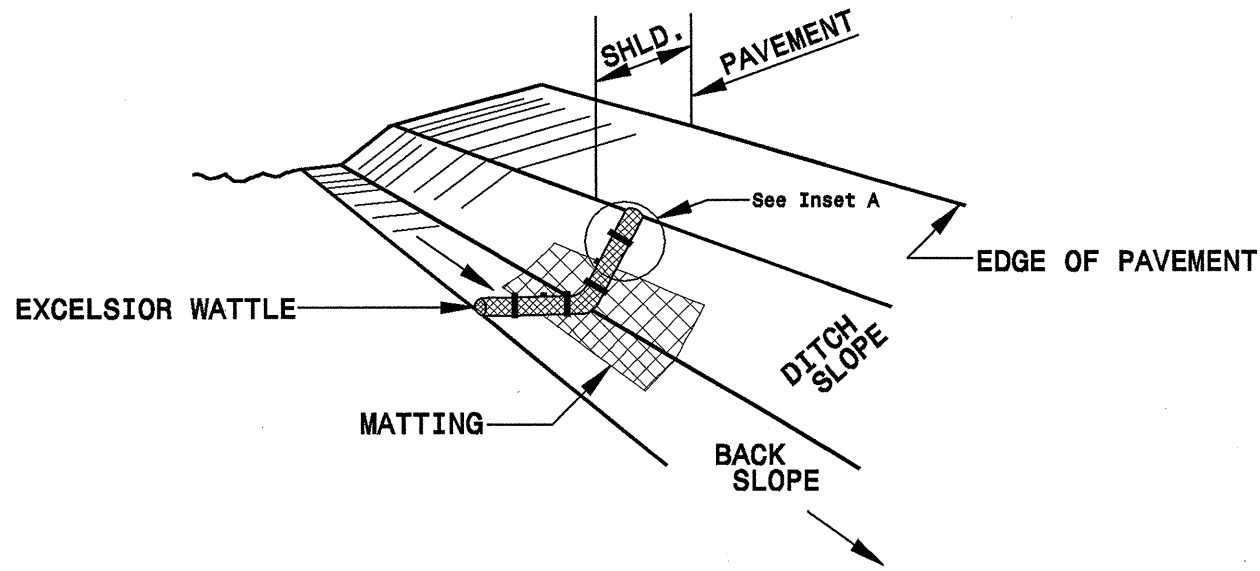
DETAIL NOT TO SCALE

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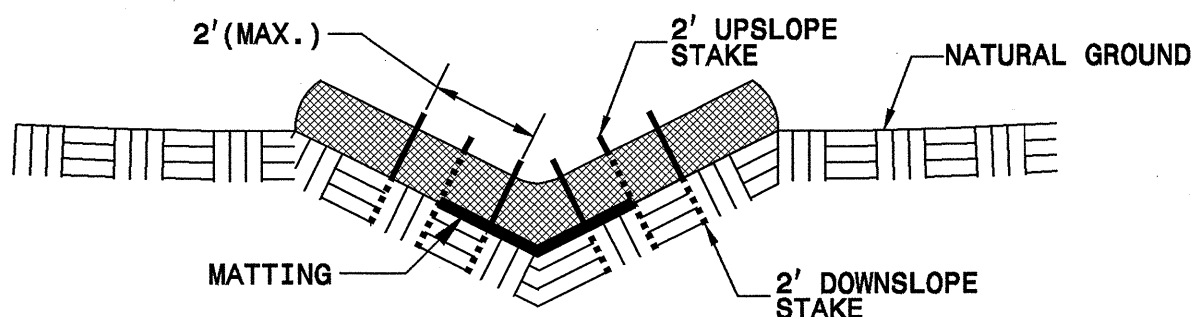
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PROJECT REFERENCE NO. W-5103	SHEET NO. 2-B
R/W SHEET NO. (2 of 2)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

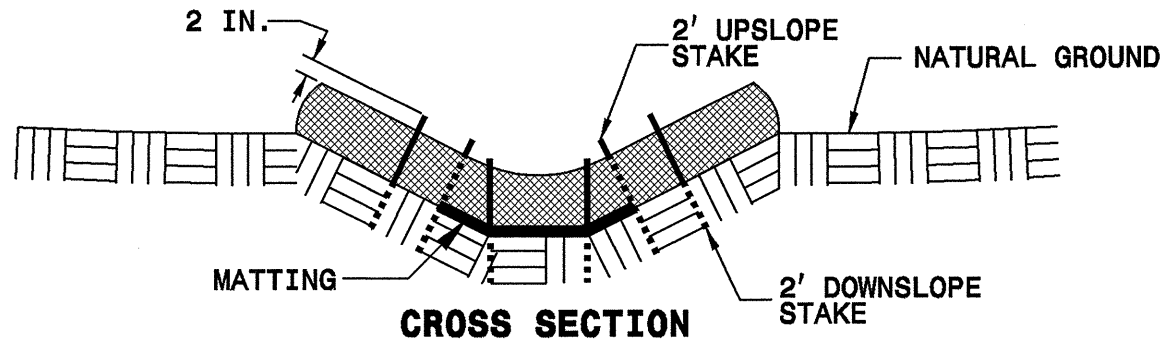
WATTLE DETAIL



ISOMETRIC VIEW



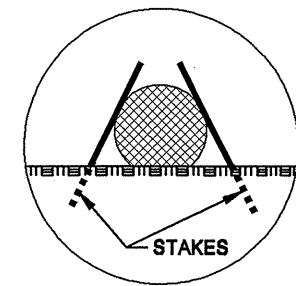
CROSS SECTION VEE DITCH



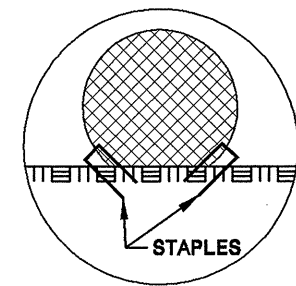
CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

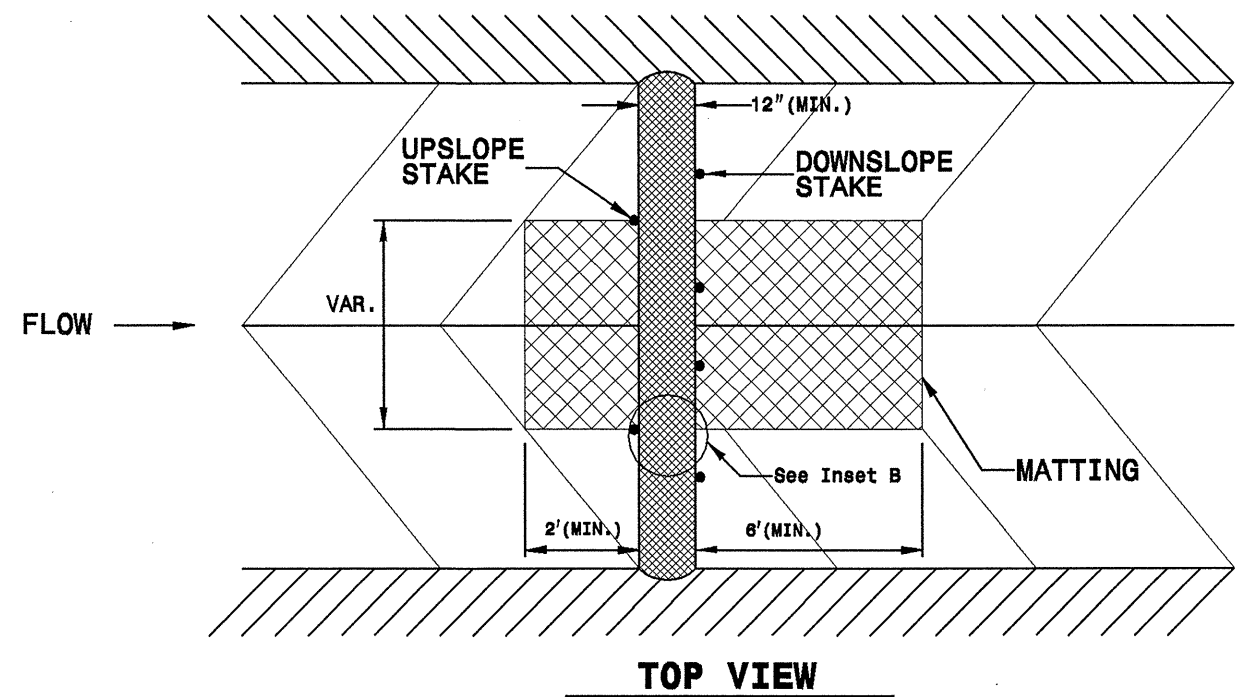
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



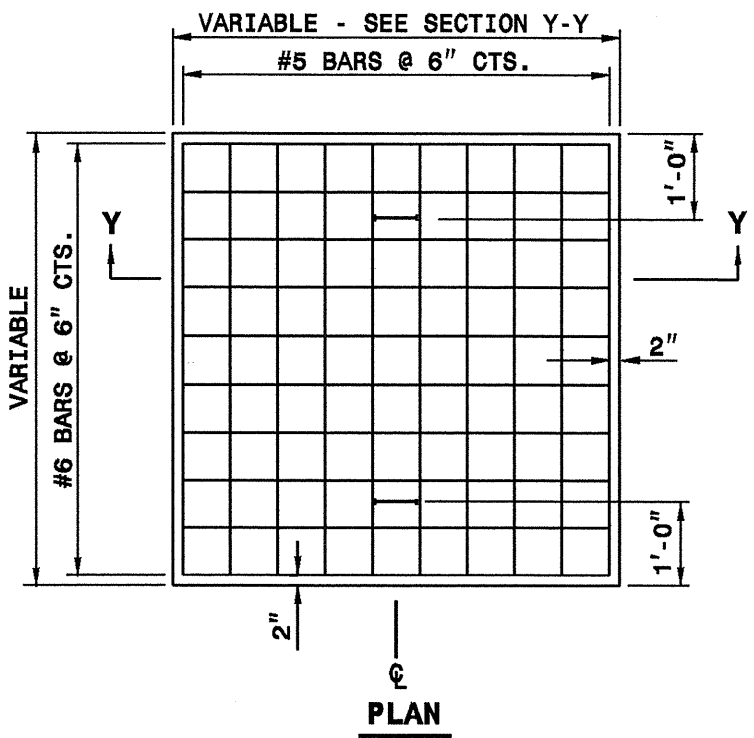
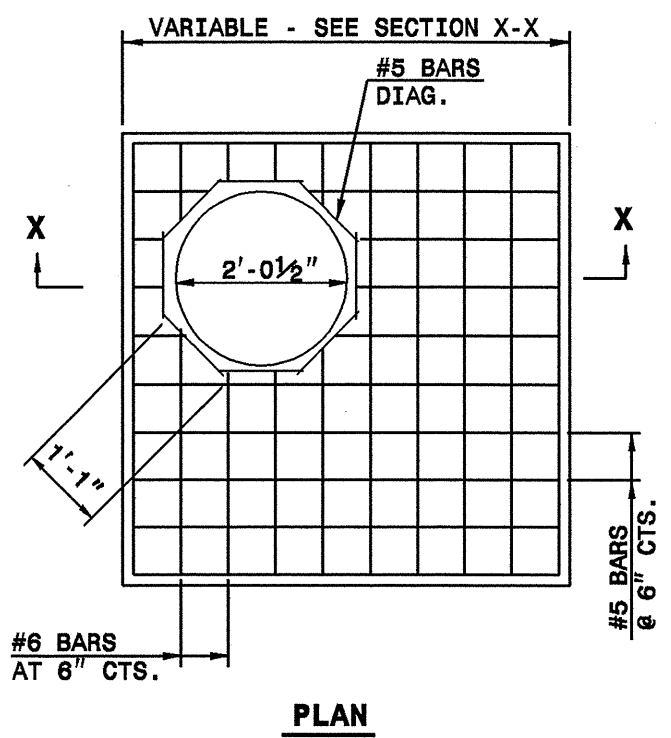
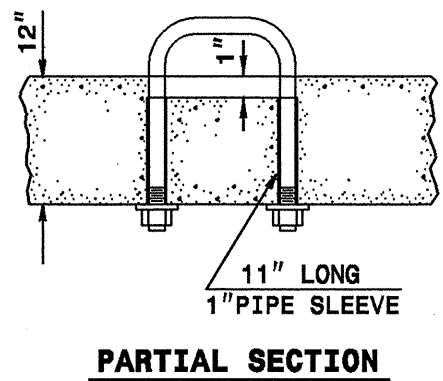
INSET A



INSET B



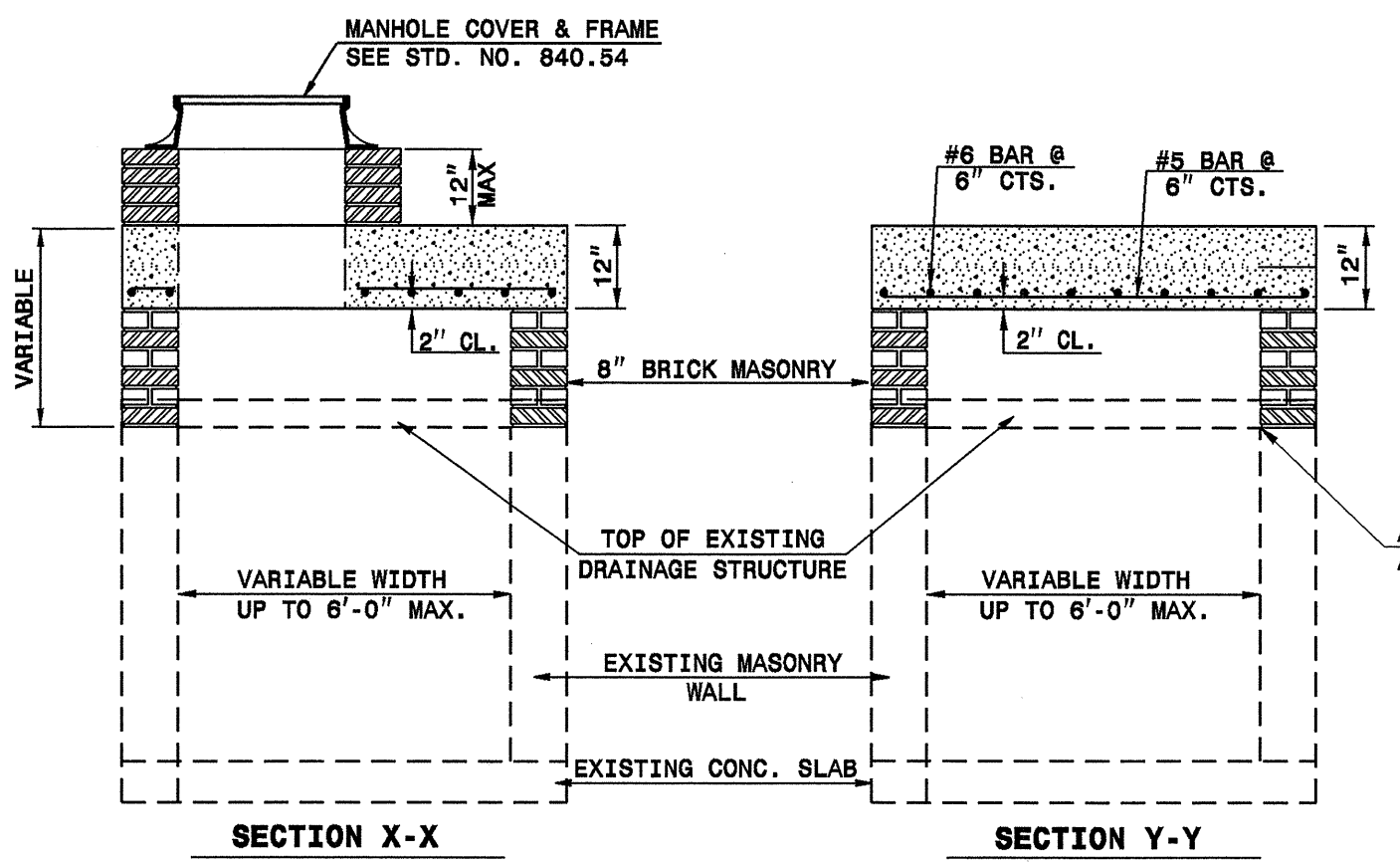
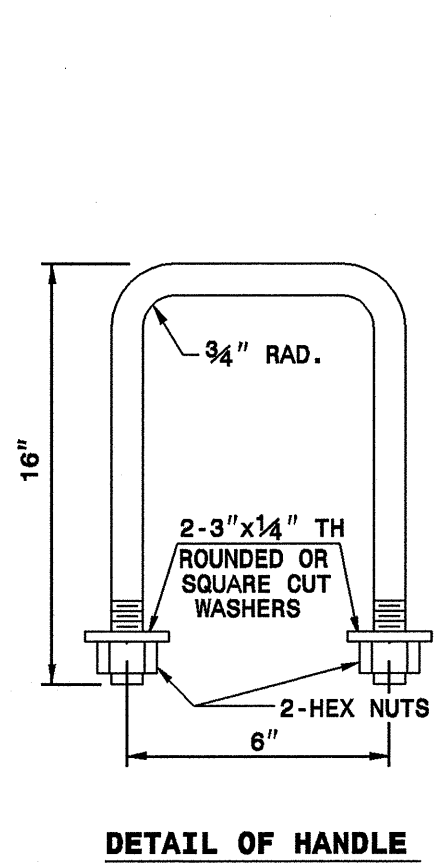
TOP VIEW



GENERAL NOTES:
 CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
 FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS			
MASONRY			
TOP SLAB CONCRETE CLASS "A"		.037YDS ³	PER FT ²
BRICK MASONRY		.025YDS ³	PER FT ²
REINFORCING STEEL		7.64LBS	PER FT ²
MANHOLE OPTION QUANTITIES			
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04

NOTE:
 CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.
 BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



ALIGN PROPOSED BRICK VERTICAL ADJUSTMENT TO INNER FACE OF WALL



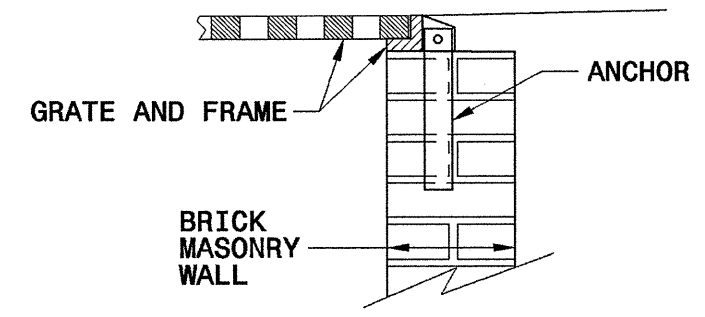
PROJECT SERVICES UNIT STANDARDS AND SPECIAL DESIGN Office 919-250-4128 FAX 919-250-4119			
DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)			
ORIGINAL BY:	T.S.S.	DATE:	FEB.2000
MODIFIED BY:	E.E.W.	DATE:	NOV.2001
CHECKED BY:		DATE:	
FILE SPEC.:	w:ericward/usr/details/stand/boxtotbiba.dgn		

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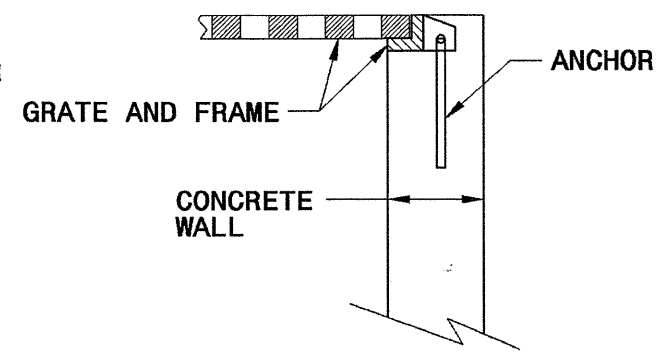
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

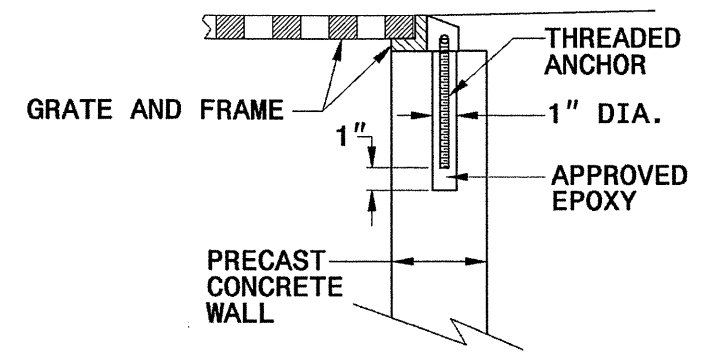
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



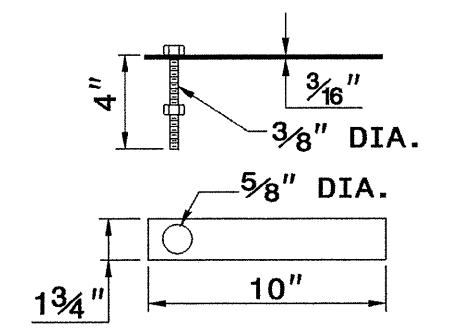
CONCRETE CONSTRUCTION



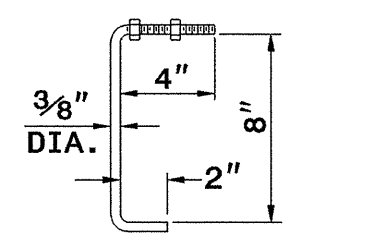
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

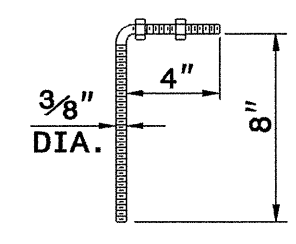
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



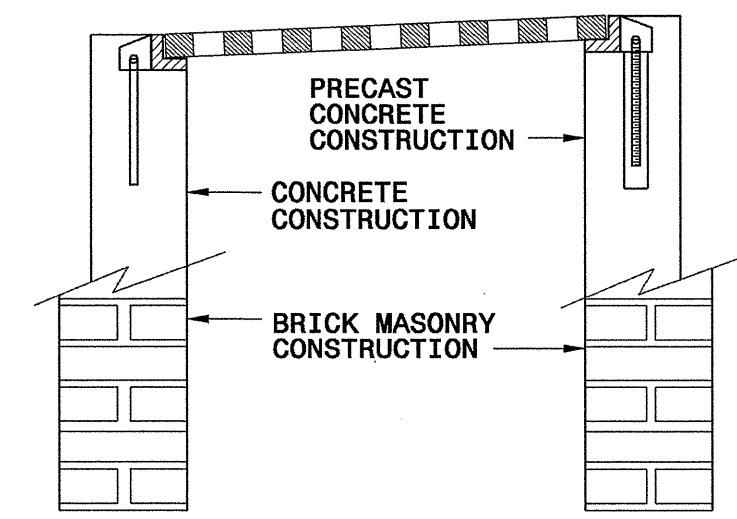
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



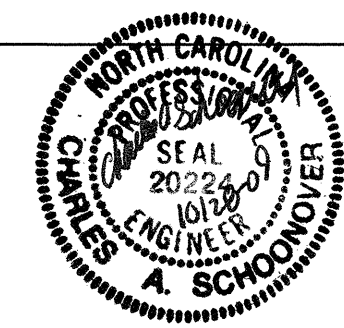
FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

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

SHEET 1 OF 1
840D25

27-SEP-2006 08:59 21:sep-2006 08:59 Special Details\enrward\stds\06\stds to Special Details\840D25 Anchorage for Frames\0840d25.dgn enrward A 10/25/06



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

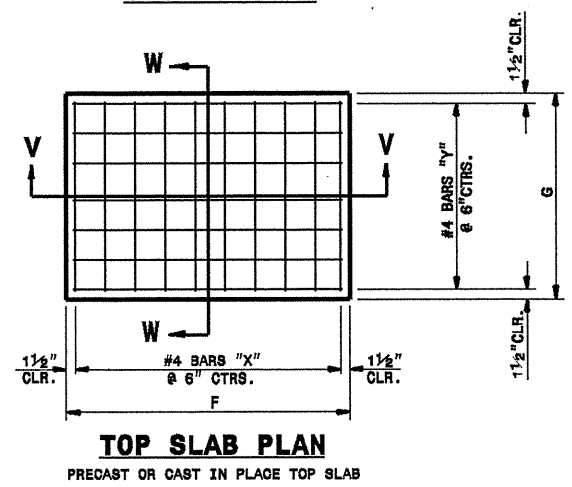
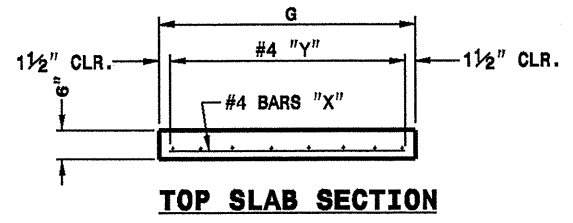
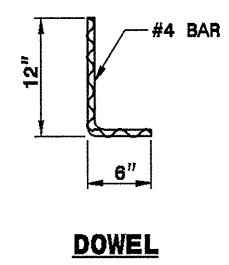
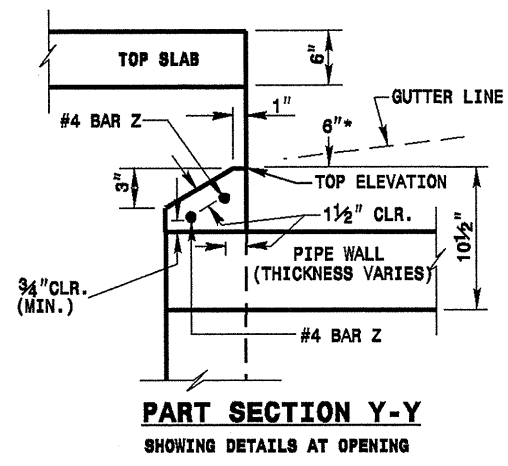
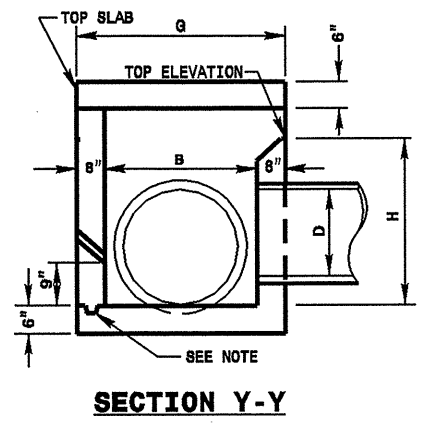
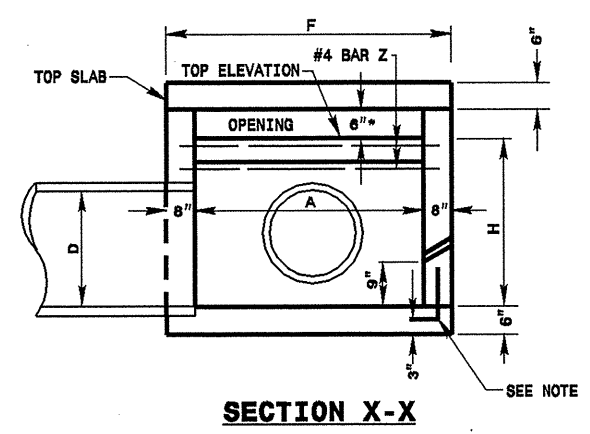
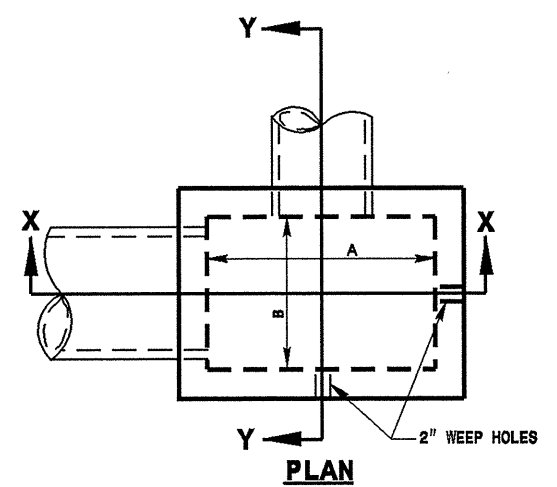
SEE PLATE FOR TITLE

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

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

ENGLISH DETAIL DRAWING FOR
CONCRETE TRAFFIC BEARING OPEN THROAT CATCH BASIN
12" THRU 48" PIPE

SHEET 1 OF 1
840D04



NOTES: USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.00.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CROWNS MATCHING.
INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.
* INCREASE THE SIZE OF THE 6" OPENING TO 8" MAX., AS DIRECTED BY THE ENGINEER BY ADDING 2" TO THE WALL HEIGHT ABOVE THE TOP ELEVATION. ADJUST QUANTITIES ACCORDINGLY.
ANCHOR THE TOP SLAB TO THE WALL OF THE STRUCTURES AS DIRECTED BY THE ENGINEER.

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

ENGLISH DETAIL DRAWING FOR
CONCRETE TRAFFIC BEARING OPEN THROAT CATCH BASIN
12" THRU 48" PIPE

SHEET 1 OF 1
840D04

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)																			
PIPE DIA.	DIM'S OF BOX & PIPE				REINFORCING			TOP & BOT. SLAB DIMENSIONS		CU. YDS. CONC. IN BOX			TOTAL QUANTITIES BOX & SLAB		DEDUCTION ONE PIPE		DED. ONE THROAT OPENING YD ³		
	SPAN A	WIDTH B	HEIGHT H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	F	G	TOP SLAB	BOT. SLAB	WALL, FT. HT.	LSB. REINF.	YD ³ (MIN. H)		C.S.	R.C.
12"	3'-6"	2'-3"	1'-10"	11	3'-4"	8	4'-7"	2	4'-7"	4'-10"	3'-7"	0.315	0.271	0.275	56	1.538	0.015	0.032	0.048
15"	3'-6"	2'-8"	2'-1"	11	3'-4"	8	4'-7"	2	4'-7"	4'-10"	3'-7"	0.315	0.271	0.275	56	1.534	0.023	0.036	0.046
18"	4'-0"	2'-8"	2'-4"	12	3'-9"	10	5'-1"	2	5'-1"	5'-4"	4'-0"	0.355	0.340	0.310	71	1.909	0.033	0.049	0.053
24"	4'-0"	2'-8"	2'-10"	12	3'-9"	10	5'-1"	2	5'-1"	5'-4"	4'-0"	0.355	0.340	0.310	71	2.107	0.059	0.085	0.053
30"	4'-0"	3'-8"	3'-4"	12	4'-7"	11	5'-1"	2	5'-1"	5'-4"	4'-10"	0.477	0.417	0.357	81	2.828	0.082	0.127	0.053
36"	4'-6"	4'-0"	3'-10"	13	5'-1"	12	5'-7"	2	5'-7"	5'-10"	5'-4"	0.578	0.510	0.382	97	3.258	0.132	0.178	0.059
42"	5'-0"	4'-6"	4'-4"	14	5'-7"	13	6'-1"	2	6'-1"	6'-4"	5'-10"	0.684	0.611	0.411	114	3.953	0.180	0.243	0.068
48"	5'-0"	5'-0"	4'-10"	14	6'-1"	14	6'-1"	2	6'-1"	6'-4"	6'-4"	0.742	0.688	0.435	125	4.469	0.235	0.317	0.068

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4118

CONCRETE TRAFFIC BEARING OPEN THROAT CATCH BASIN

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: nbritt DATE: 10/27/09
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: detail/nbritt/english/hydro/tbotcb840d04.dgn

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PROJECT NO.	SHEET NO.	TOTAL NO.
41867.3.1 W-5103	3-A	

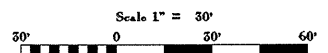
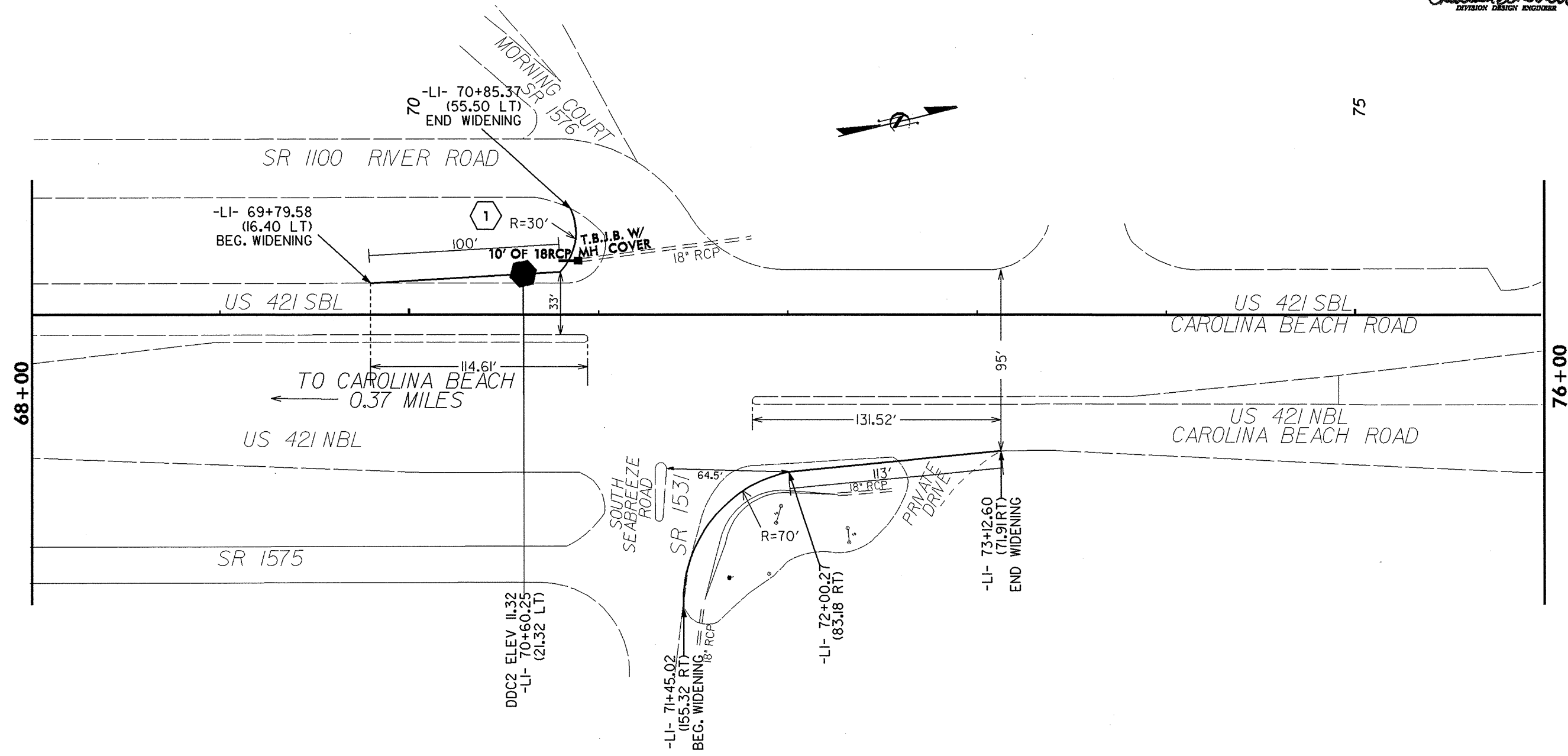
SUMMARY OF QUANTITIES

PROJECT NO.	COUNTY	MAP NO.	ROUTE	DESCRIPTION	TYP	LENGTH	WIDTH	REMOVAL OF EXISTING ASPHALT PAVEMENT	REMOVAL OF CONCRETE ISLAND	GRADING PER SMI	FOUND. COND. MATERIAL, MINOR STRS	24" RC PIPE CULVERTS, CLASS IV	15" RC PIPE CULVERTS, CLASS IV	18" RC PIPE CULVERTS, CLASS IV	PIPE REMOVAL	INC. STONE BASE	BASE COURSE, B25.0B	INT. COURSE, H9.0B	SURFACE COURSE, S9.5B	PG 64 22 PLANT MIX	PIPE COLLARS	PIPE PLUGS	MASONRY DRAINAGE STRUCT	FRAME WITH TWO GRATES, STD 840.16	FRAME WITH TWO GRATES, STD 840.22	FRAME WITH TWO GRATES, STD 840.29	FRAME WITH COVER, STD 840.54	5" MONOLITHIC CONC ISLANDS (SURFACE MOUNTED)	ADJ. MAN-HOLES	ADJ. METER OR VALVE BOX	CONV EXIST CB OR DI TO TBJB	PORT ABLE LIGHTING	TEMP. SILT FENCE	STONE FOR EROSION CONTROL, CLASS A	STONE FOR EROSION CONTROL, CLASS B	SEDIMENT CONTROL STONE	WATTLE	SEED & MULCHING		
NO		NO			NO	FT	FT	SY	SY	SMI	TON	LF	LF	LF	LF	TONS	TONS	TONS	TONS	TONS	CY	CY	EA	EA	EA	EA	EA	SY	EA	EA	EA	LS	LF	TON	TON	TON	EA	AC		
41867.3.1	New Hanover	1	US 421	WIDENING FOR DIRECTIONAL CROSSOVERS ALONG US 421 IN NEW HANOVER COUNTY FROM SR 1100 (RIVER ROAD) TO GEORGE ANDERSON DRIVE		0	14															0.13																		
	New Hanover	"	"	WIDENING FOR U-TURNS	1	333	12			0.06	1			10	9	67	36	25	6			1				1														0.06
TOTAL FOR MAP NO. 1						333				0.06	1			10	9	67	36	25	6			0.13	1			1												0.06		
		2	-L1- STA 82+55 - 96+31	DIRECTIONAL CROSSOVERS	1	1378	14			0.25	110		8	990	10	576	314	215	52	1.30		3			1	2		189.00												0.26
TOTAL FOR MAP NO. 2						1378				0.25	110		8	990	10	576	314	215	52	1.30		3			1	2		189.00										0.26		
	New Hanover	3	-L1- STA 97+29 - 111+30	DIRECTIONAL CROSSOVER	1	1399	14		16	0.25						362	197	135	33			1						197.00												0.27
TOTAL FOR MAP NO. 3						1399			16	0.25						362	197	135	33			1						197.00										0.27		
	New Hanover	4	-L1- STA 108+85 - 122+64	DIRECTIONAL CROSSOVER	1	1399	14			0.25	111	4		1,020		612	334	228	56	1.00		4						204.00												0.27
TOTAL FOR MAP NO. 4						1399				0.25	111	4		1,020		612	334	228	56	1.00		4						204.00										0.27		
	New Hanover	5	-L1- STA 122+31 - 143+89	DIRECTIONAL CROSSOVER AND BULB OUTS	1	2160	14	902		0.39	53			468	144	18	1,324	722	495	121	0.45	3	1	2				670.89				*	455	14	6	12	2	0.41		
TOTAL FOR MAP NO. 5						2160		902		0.39	53			468	144	18	1,324	722	495	121	0.45	3	1	2				670.89				455	14	6	12	2	0.41			
		7	-L1- STA 142+20 - 156+03	DIRECTIONAL CROSSOVER	1	1383	14	50	76	0.25	12			100	4	582	318	218	53	0.90		2	1		1			293.00											0.26	
TOTAL FOR MAP NO. 7						1383		50	76	0.25	12			100	4	582	318	218	53	0.90		2	1		1			293.00										0.26		
		8	-L1- STA 163+71 - 177+43	DIRECTIONAL CROSSOVER	1	1373	14			0.25	57			508	12	584	318	219	53	0.90		3			1			197.00											0.26	
TOTAL FOR MAP NO. 8						1373				0.25	57			508	12	584	318	219	53	0.90		3			1			197.00										0.26		
		9	-L1- STA 185+44 - 199+40	DIRECTIONAL CROSSOVER	1	1394	14			0.25	10	92			12	564	308	210	51	0.55					1			192.00											0.26	
TOTAL FOR MAP NO. 9						1394				0.25	10	92			12	564	308	210	51	0.55					1			192.00										0.26		
		10	-L1- STA 198+90 - 212+85	DIRECTIONAL CROSSOVER	1	1373	14			0.25	50			444	16	588	320	220	54				3		1			255.33											0.26	
TOTAL FOR MAP NO. 10						1373				0.25	50			444	16	588	320	220	54				3		1			255.33										0.26		
	New Hanover	11	-L1- STA 216+92 - 218+23	WIDENING FOR U-TURNS	1	132	12								4	39	22	15	4																					
	"	"	"	DIRECTIONAL CROSSOVER	1	1061	14		35						12	68	37	25	6																					
TOTAL FOR MAP NO. 11						1193			35						16	107	59	40	10									271.00												
		12	-L1- STA 243+99 - 246+12	WIDENING FOR U-TURNS	1	211	12								8	50	27	19	5																					
	"	"	"	DIRECTIONAL CROSSOVER AND BULB OUTS	1	1441	14			0.27	54			480	12	724	395	270	66	0.90		3			1			228.00					*	245	14	6	12	2	0.27	
TOTAL FOR MAP NO. 12						1652				0.27	54			480	20	774	422	289	71	0.90		3			1			228.00					245	14	6	12	2	0.27		
		13	-L1- STA 272+10 - 273+86	BULB OUT	1	174	27								16	99	54	37	9																					
TOTAL FOR MAP NO. 13						174									16	99	54	37	9																					
		14	-L2- STA 21+74 - 27+00	CLOSE AT GRADE INTERSECTION	1	528	12																					38.00												
TOTAL FOR MAP NO. 14						528																						38.00												
		15	-L2- STA 32+19 - 33+47	WIDENING FOR U-TURNS	1	127	12								4	36	19	13	3																					
	New Hanover	"	"	DIRECTIONAL CROSSOVER	1	1463	14	1,090		0.26	2			8	136	8	835	456	312	76	0.45	1			1			217.00												0.28
TOTAL FOR MAP NO. 15						1590		1,090		0.26	2			8	136	12	871	475	325	79	0.45	1			1		217.00											0.28		
	New Hanover	16	-L2- STA 60+89 - 68+27	OFFSET LEFTS	1	739	12		70						8	352	192	131	32																					
TOTAL FOR MAP NO. 16						739			70						8	352	192	131	32																					
		17	-L2- STA 68+27 - 79+27	DIRECTIONAL CROSSOVER	1	1098	14	359		0.20	6			16		347	189	129	32			4			2			350.00		2										1.00
TOTAL FOR MAP NO. 17						1098		359		0.20	6			16		347	189	129	32			4			2			350.00		2									1.00	
	New Hanover	18	-L2- STA 80+61 - 91+93	DIRECTIONAL CROSSOVER	1	1130	14	447		0.27					172		248	135	93	23								275.00											0.21	
TOTAL FOR MAP NO. 18						1130		447		0.27					172		248	135	93	23								275.00										0.21		
		19	-L2- STA 96+90 - 110+86	DIRECTIONAL CROSSOVER	1	1394	14		93	0.25	52		15	400	50	512	279	191	47	0.85		7	1		4	2		283.00		2									0.26	
TOTAL FOR MAP NO. 19						1394			93	0.25	52		15	400	50	51																								

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



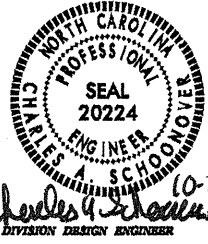
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REVISIONS

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 8/17/99

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



10-28-09
Charles A. Schoonover
DIVISION DESIGN ENGINEER

VALLEY BROOK ROAD
100

DDC4 ELEV 15.46
-LI- 100+75.96
(18.54 RT)

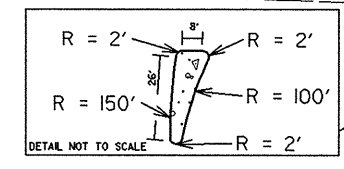


96+79

104+79

US 421 SBL
CAROLINA BEACH ROAD

US 421 NBL
CAROLINA BEACH ROAD



105

MASONBORO COUNTRY CLUB AT THE CAPE

CAPE BOULEVARD

104+79

112+79

US 421 SBL

US 421 SBL
CAROLINA BEACH RD.

US 421 NBL

US 421 NBL
CAROLINA BEACH ROAD

P.C. 4' OF 24RCP

200' OF 18RCP

O.T.C.B.

-LI- 104+98.37
(31.91 RT)

-LI- 105+32.36
(15.70 RT)
END CONC. ISLAND

-LI- 105+80.51
(31.54 RT)

-LI- 108+65.45
(48.02 RT)
BEG. WIDENING

-LI- 108+73.07
(12.25 RT)
END WIDENING

-LI- 105+09.99
(83.63 RT)

-LI- 104+80.43
(45.65 RT) (33.38 RT)

-LI- 106+09.93
(71.81 RT)
END WIDENING

-LI- 102+37.41
(43.23 RT)
BEG. CONC. ISLAND

-LI- 104+44.07
(81.37 RT)
BEG. CONC. ISLAND

-LI- 104+44.56
(108.37 RT)

-LI- 104+54.28
(82.10 RT)
END CONC. ISLAND

-LI- 112+25.46
(28.19 RT)

-LI- 104+54.18
(35.82 RT)
BEG. WIDENING

-LI- 104+62.06
(107.28 RT)
BEG. WIDENING

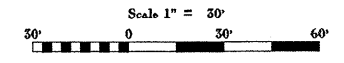
-LI- 103+79.45
(25.10 RT) (19.76 RT)

-LI- 103+52.67
(27.29 RT)

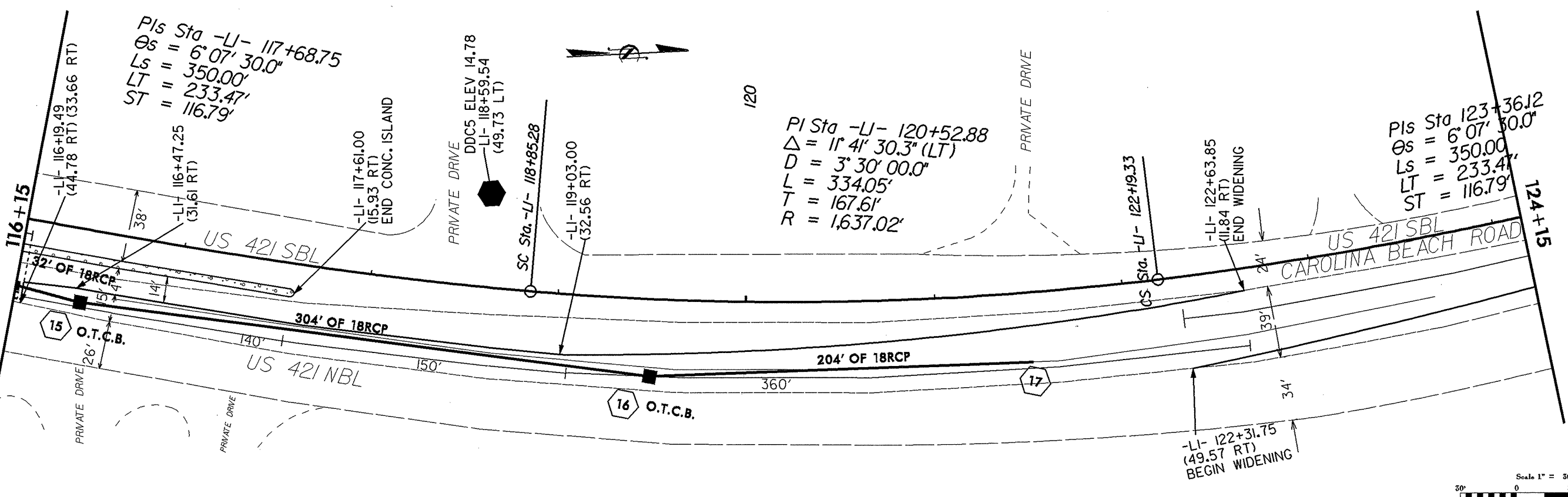
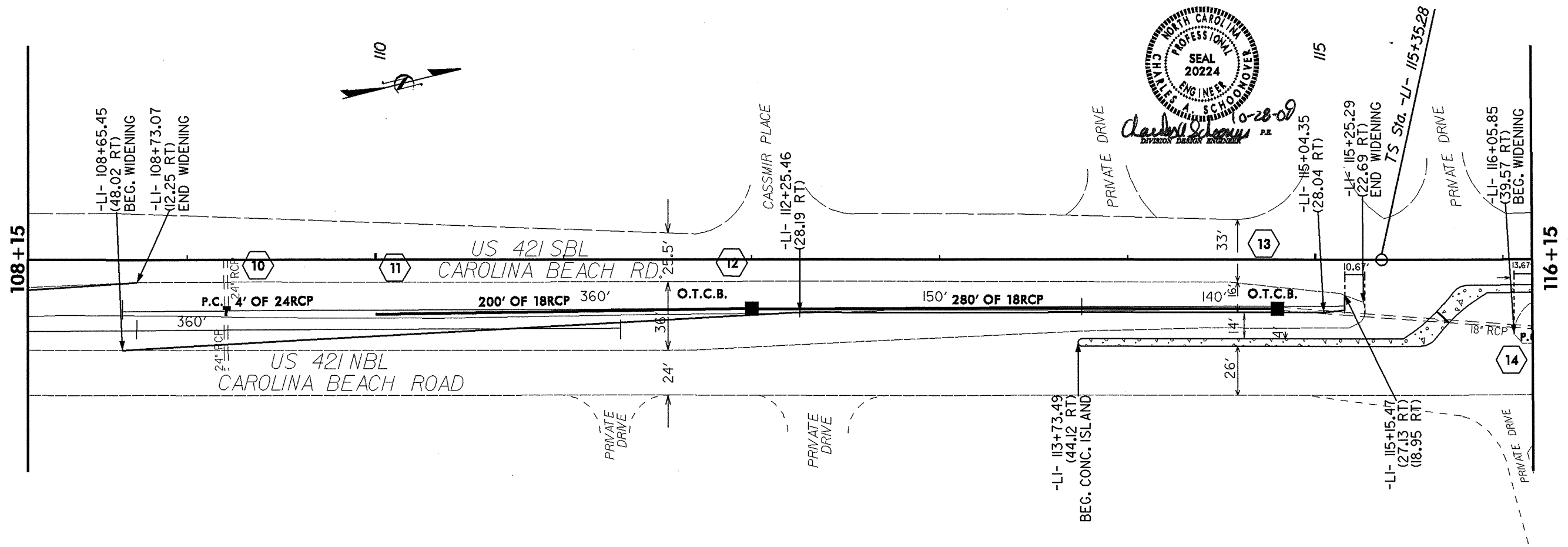
-LI- 97+29.44
(47.73 RT)
BEG. WIDENING

REVISIONS

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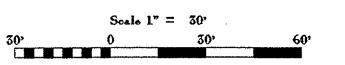
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Pls Sta -LI- 117+68.75
 $\Delta s = 6' 07' 30.0''$
 $Ls = 350.00'$
 $LT = 233.47'$
 $ST = 116.79'$

Pls Sta 123+36.12
 $\Delta s = 6' 07' 30.0''$
 $Ls = 350.00'$
 $LT = 233.47'$
 $ST = 116.79'$

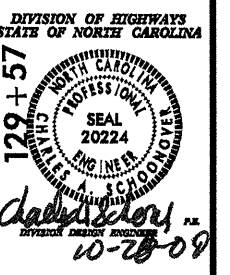
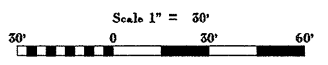
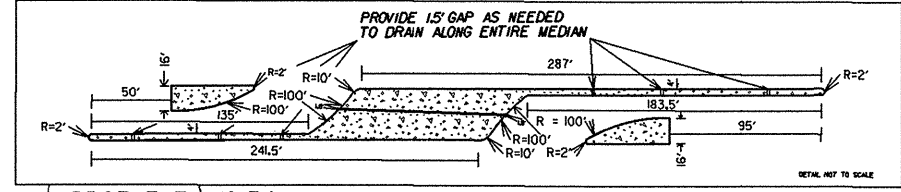
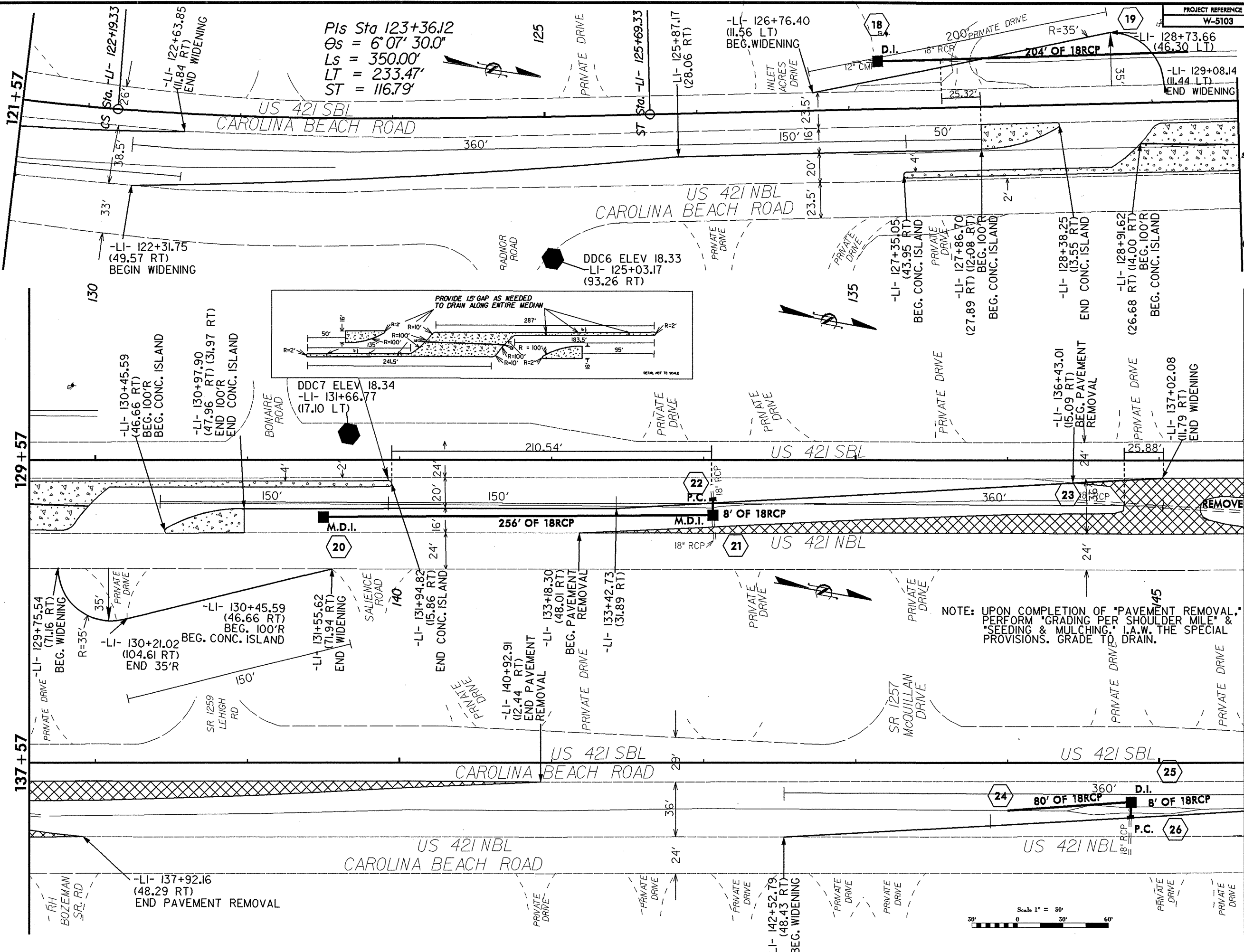
PI Sta -LI- 120+52.88
 $\Delta = 11' 41' 30.3'' (LT)$
 $D = 3' 30' 00.0''$
 $L = 334.05'$
 $T = 167.61'$
 $R = 1,637.02'$



REVISIONS

8/17/99

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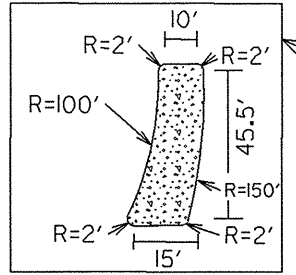
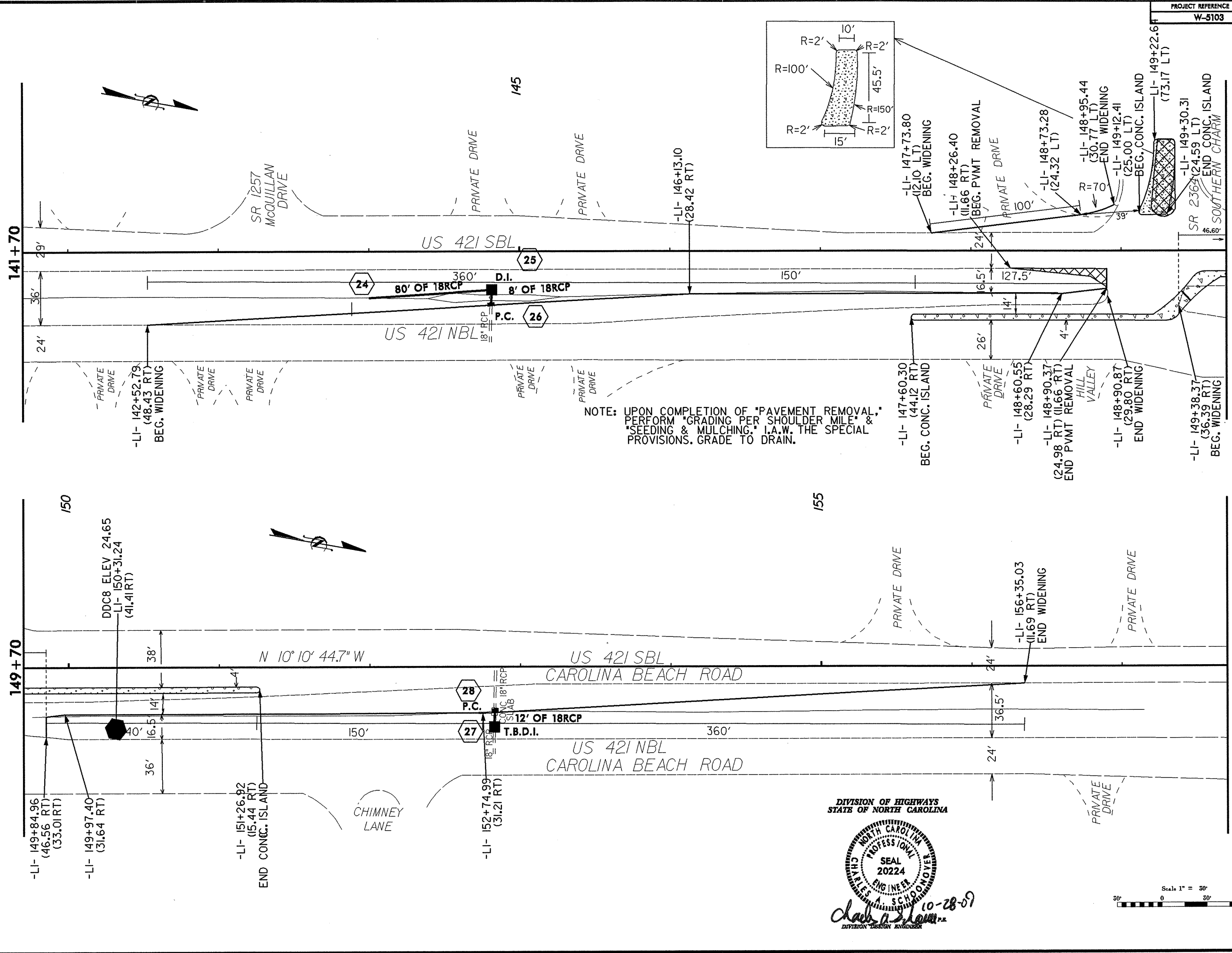


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 REVISIONS

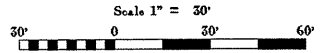
8/17/99

REVISIONS

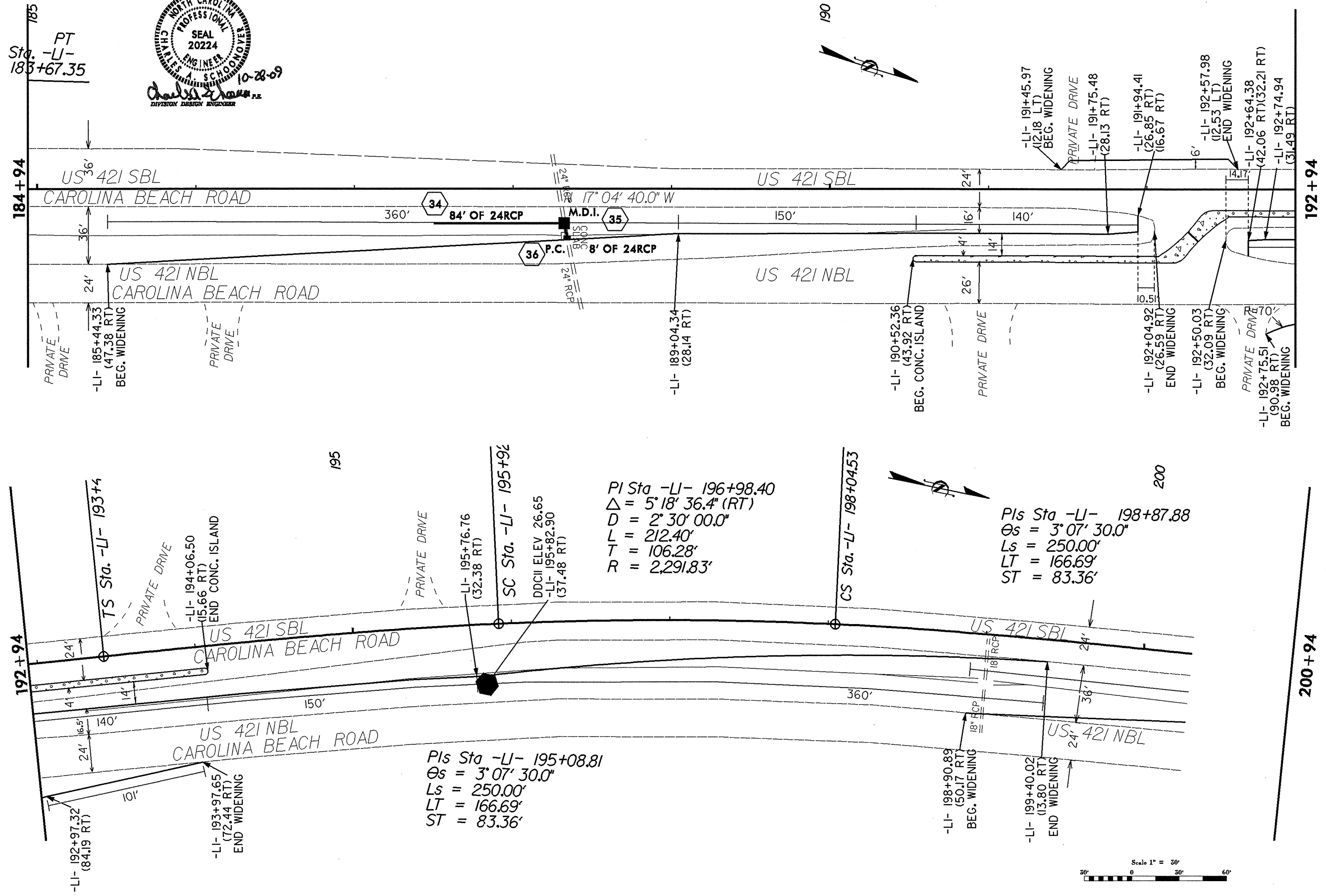
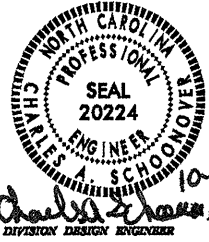
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DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

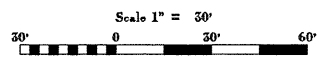


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



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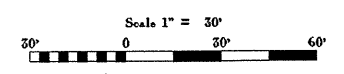
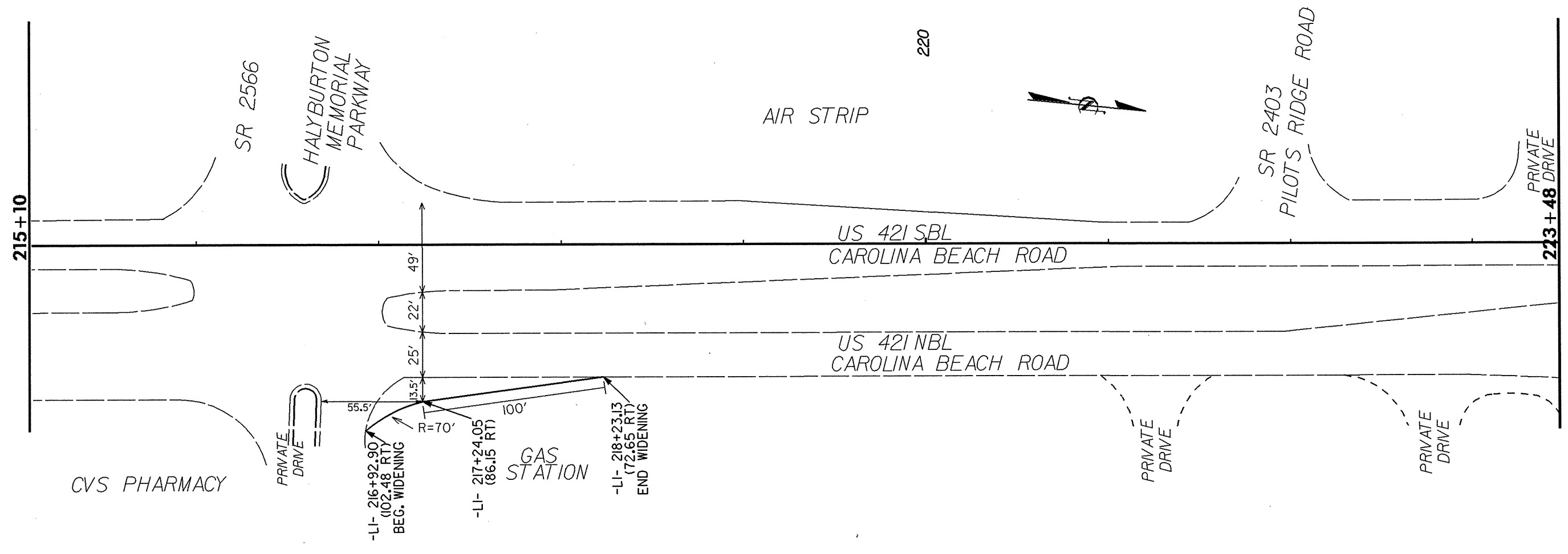
ASHLEY HIGH SCHOOL

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Charles A. Schoonover
DIVISION DESIGN ENGINEER

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 REVISIONS

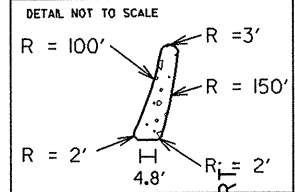
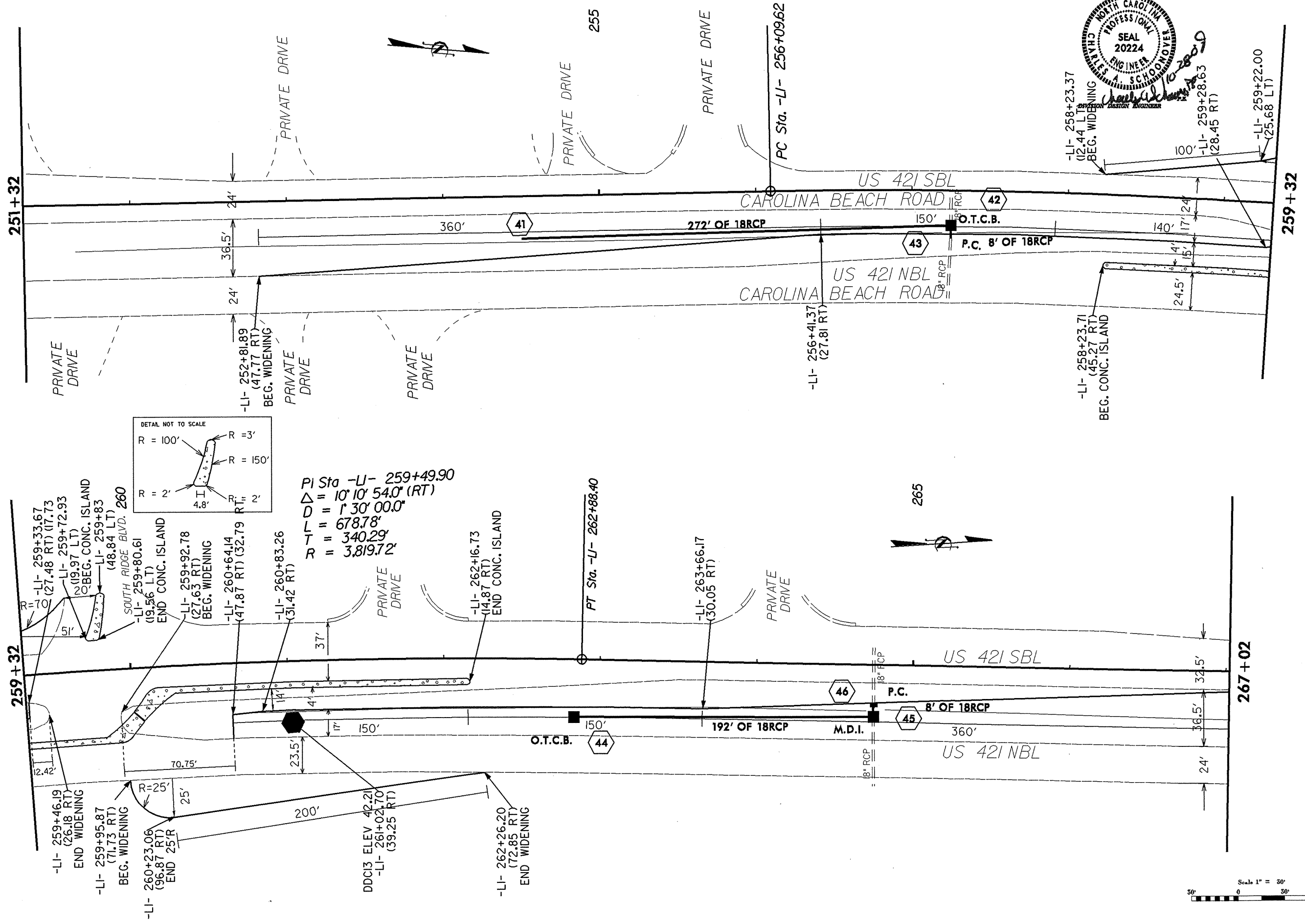


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

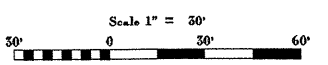


REVISIONS

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8/17/99



PI Sta -LI- 259+49.90
 $\Delta = 10^\circ 10' 54.0''$ (RT)
 $D = 1^\circ 30' 00.0''$
 $L = 678.78'$
 $T = 340.29'$
 $R = 3,819.72'$



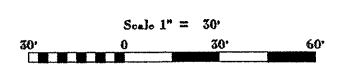
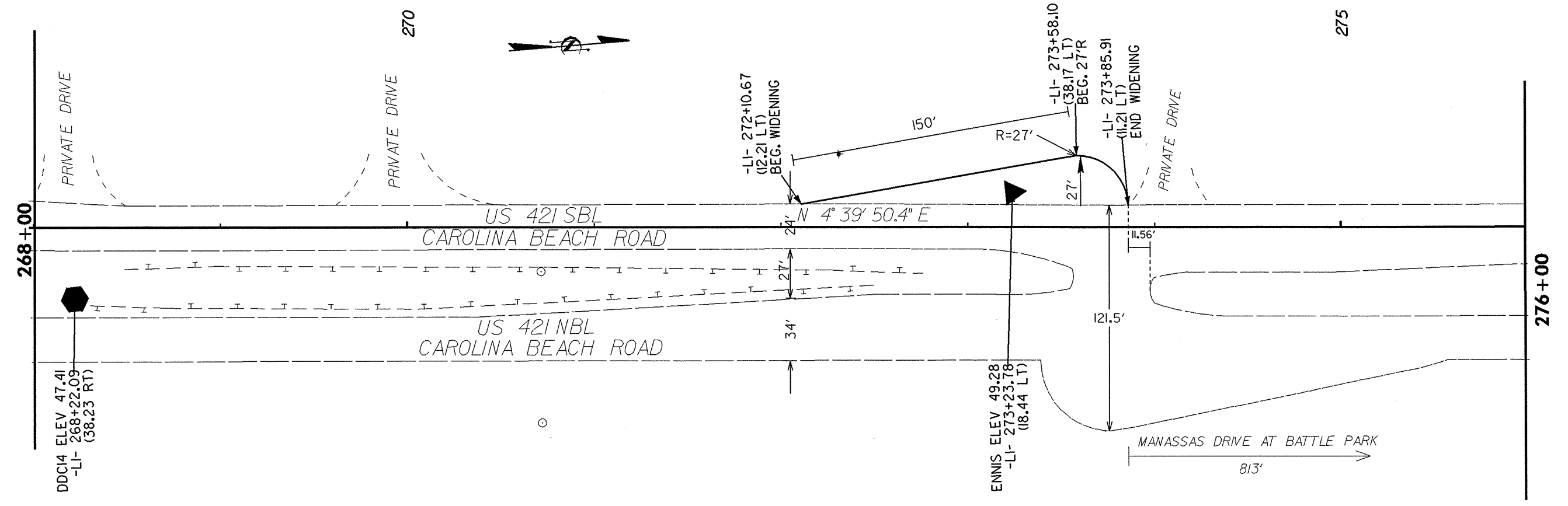
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Charles Schoonover P.E.
DIVISION DESIGN ENGINEER

REVISIONS

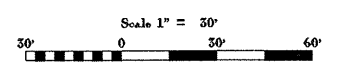
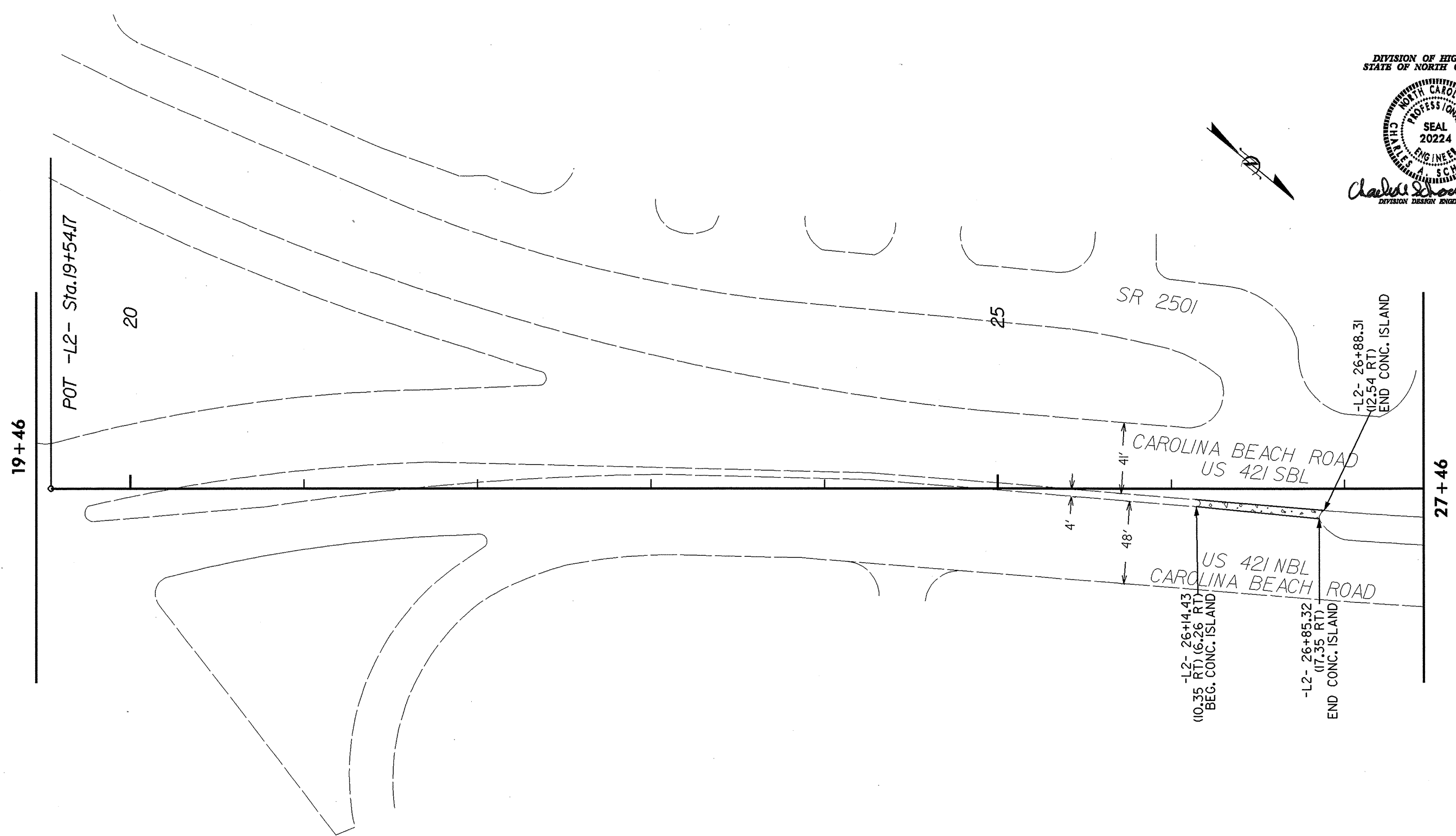
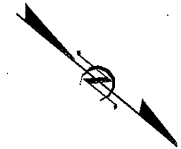
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8/17/99



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Charles A. Schoonover
DIVISION DESIGN ENGINEER



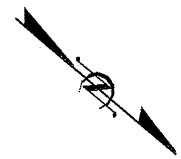
REVISIONS

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 8/17/99

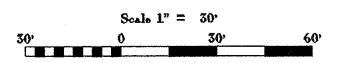
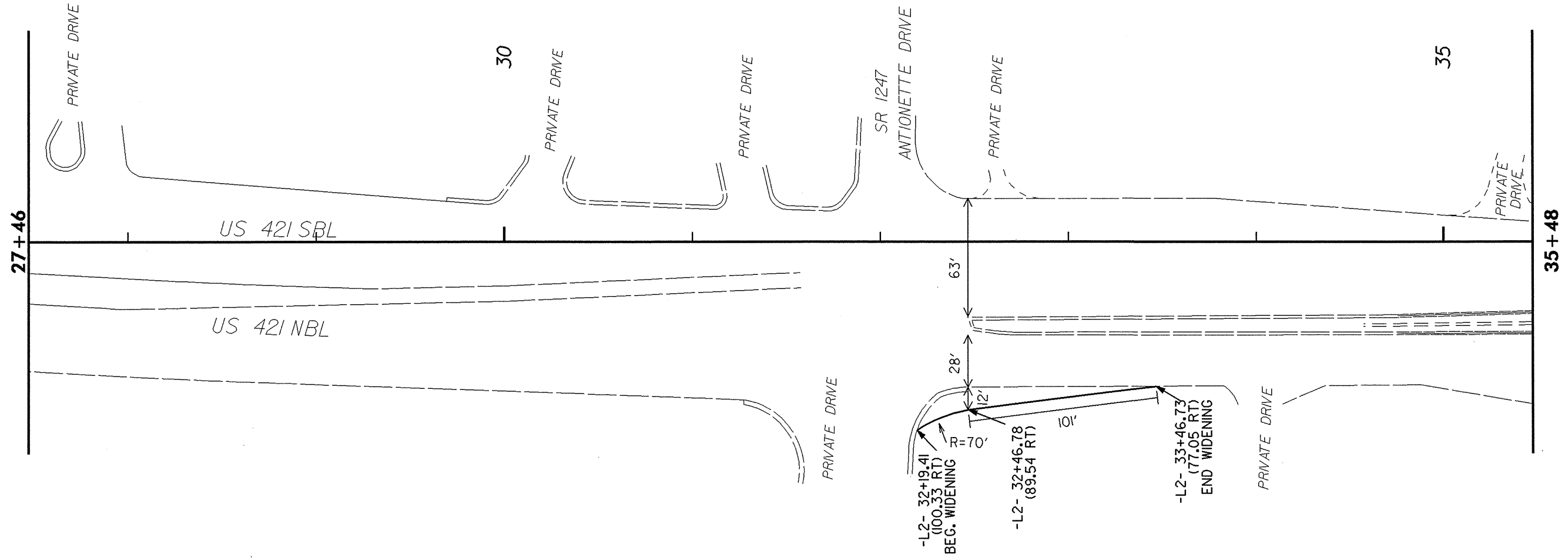
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



David Schmitt
DIVISION DESIGN ENGINEER

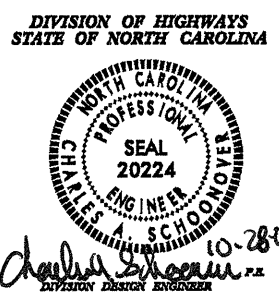
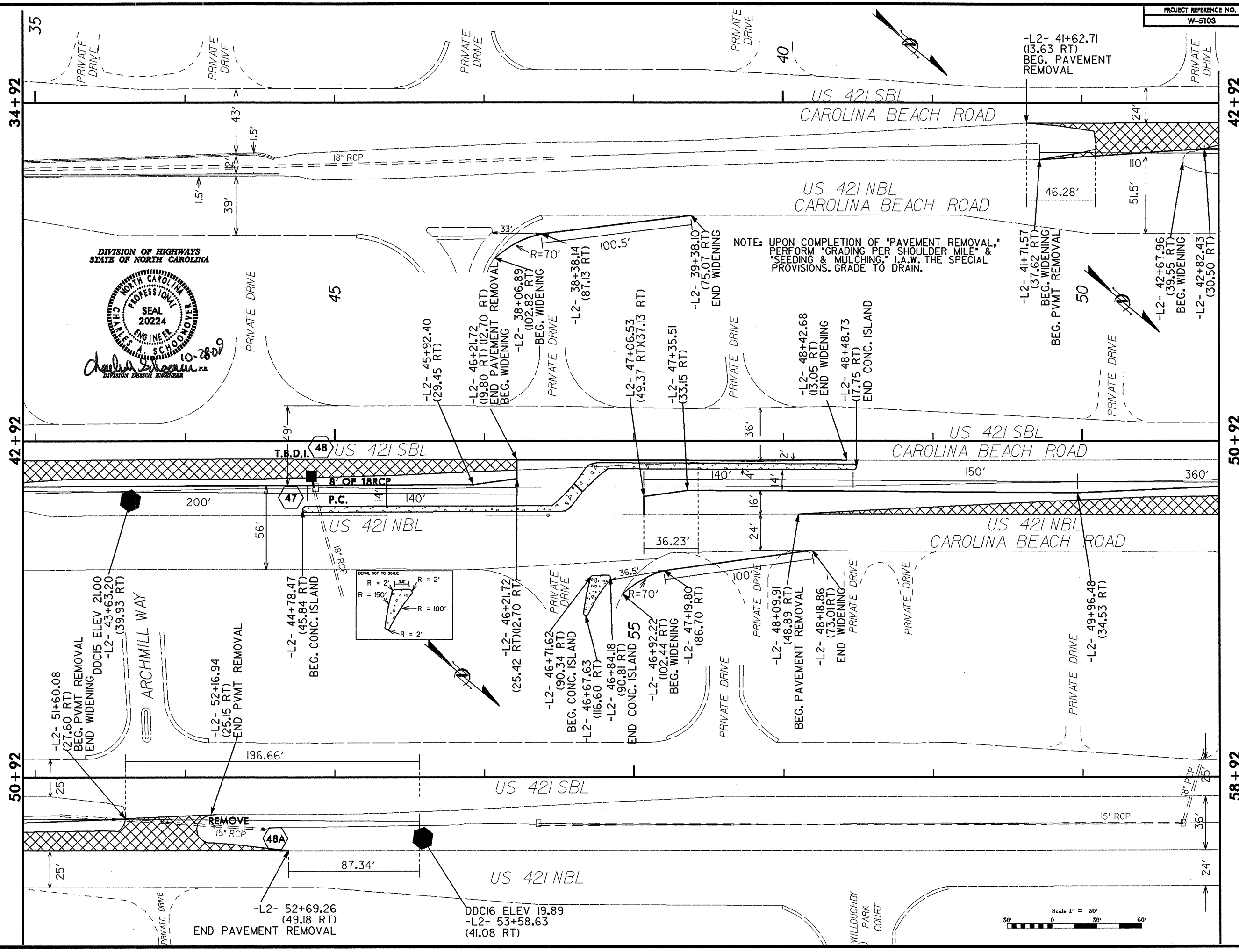


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 REVISIONS

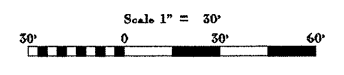
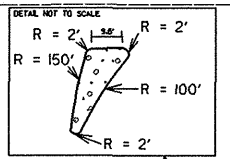


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 8/17/99

REVISIONS



NOTE: UPON COMPLETION OF "PAVEMENT REMOVAL," PERFORM "GRADING PER SHOULDER MILE" & "SEEDING & MULCHING," I.A.W. THE SPECIAL PROVISIONS. GRADE TO DRAIN.

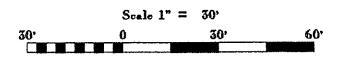
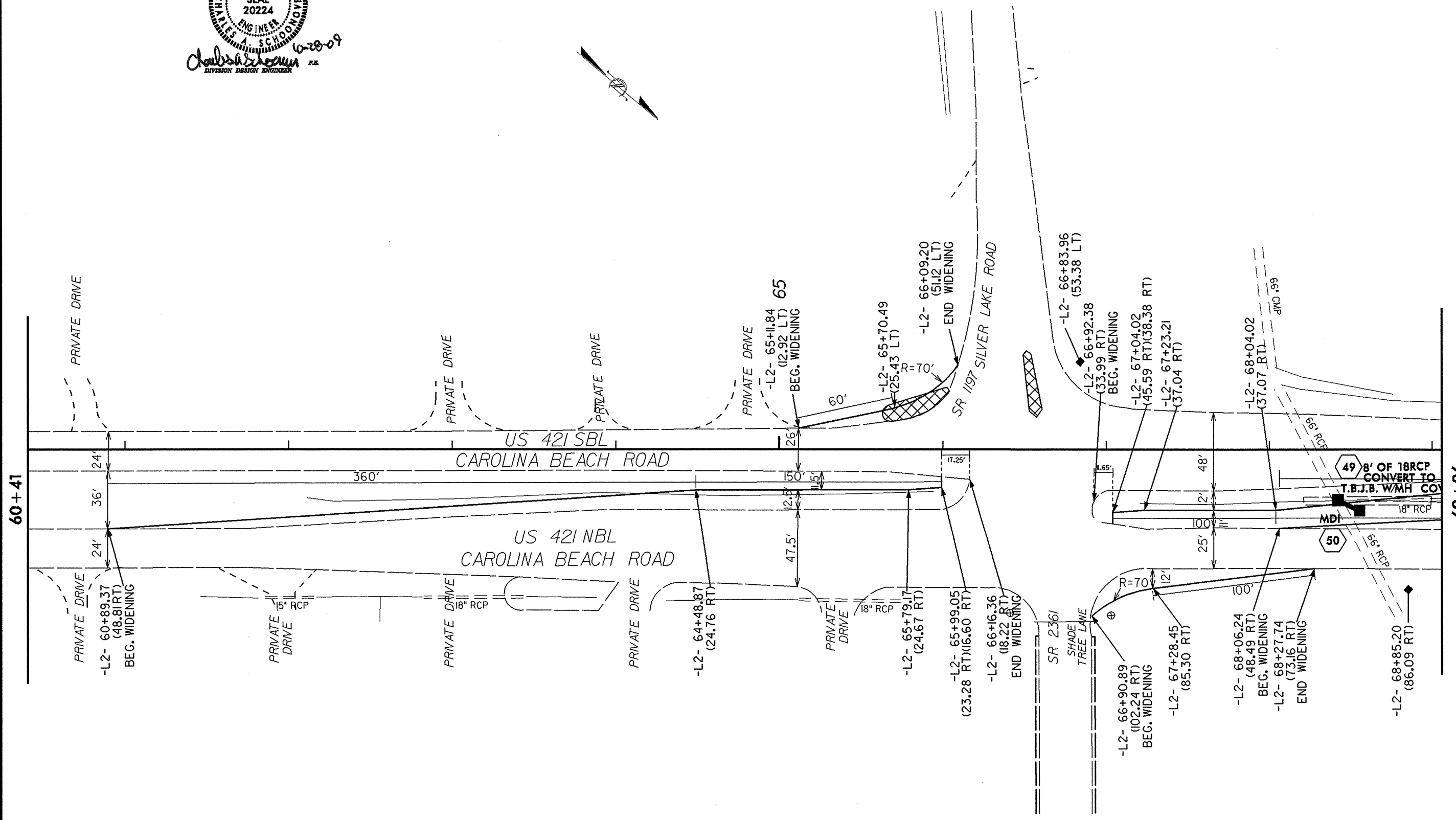


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



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 8/17/99

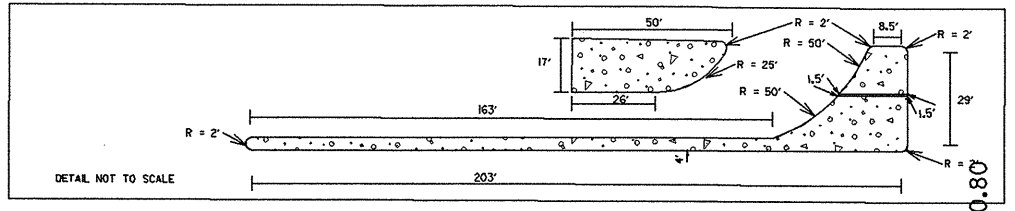
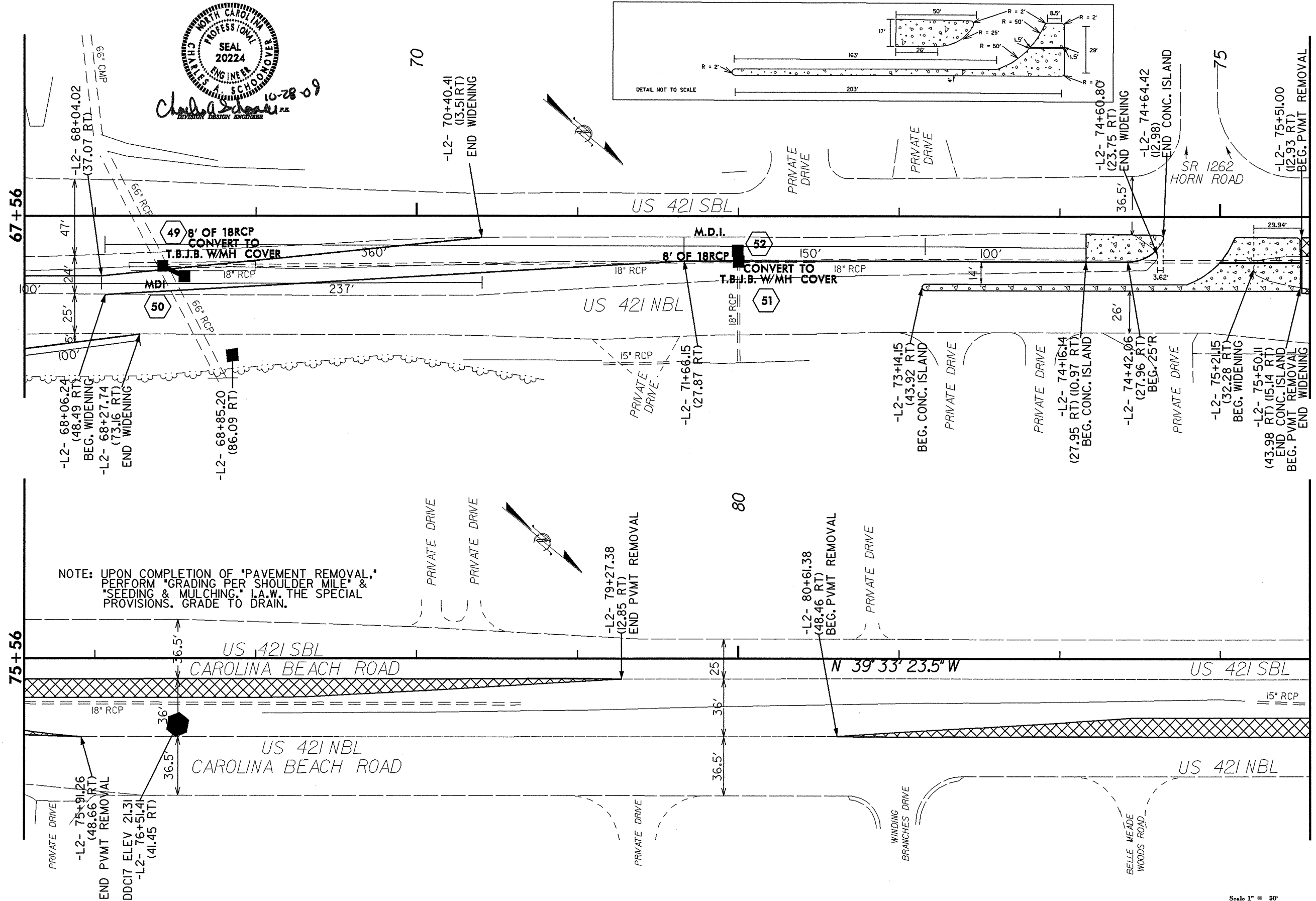
REVISIONS



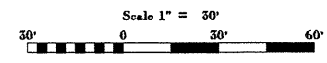
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Charles A. Schoonover
DIVISION DESIGN ENGINEER



NOTE: UPON COMPLETION OF "PAVEMENT REMOVAL," PERFORM "GRADING PER SHOULDER MILE" & "SEEDING & MULCHING," I.A.W. THE SPECIAL PROVISIONS. GRADE TO DRAIN.



REVISIONS

8/17/99

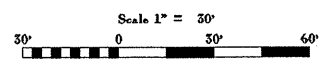
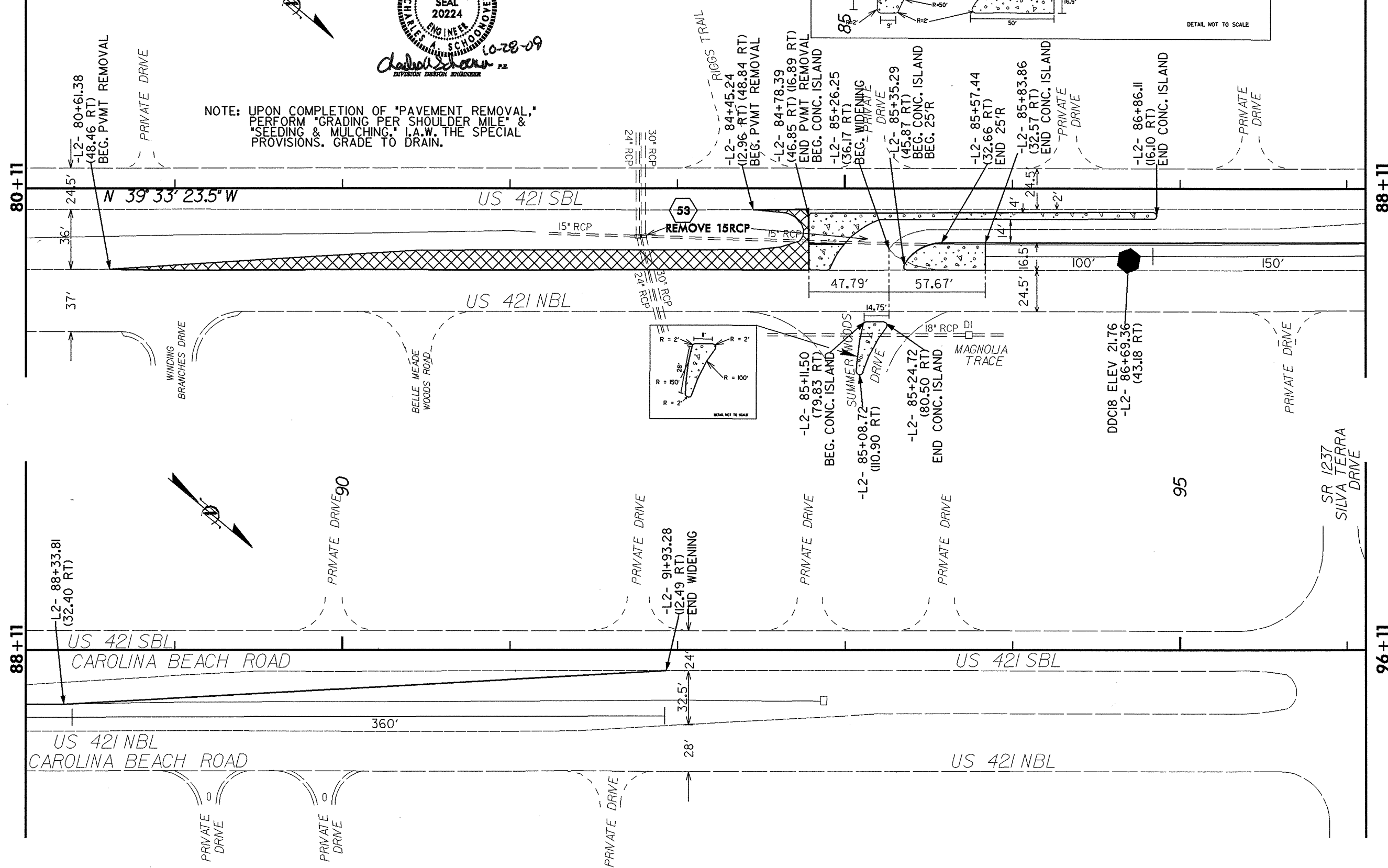
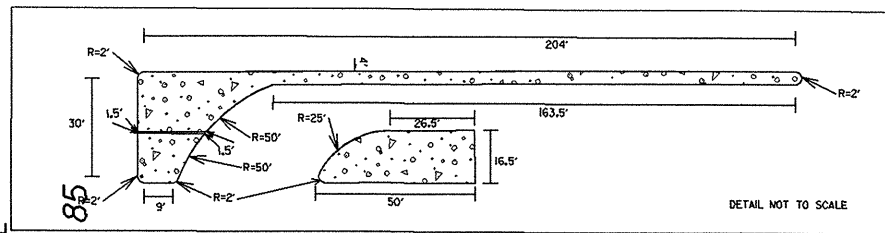
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Charles A. Schoonover, P.E.
DIVISION DESIGN ENGINEER

NOTE: UPON COMPLETION OF "PAVEMENT REMOVAL,"
PERFORM "GRADING PER SHOULDER MILE" &
"SEEDING & MULCHING," I.A.W. THE SPECIAL
PROVISIONS. GRADE TO DRAIN.

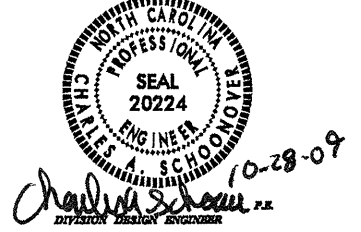


REVISIONS

8/17/99

23-OCT-2009 09:00
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

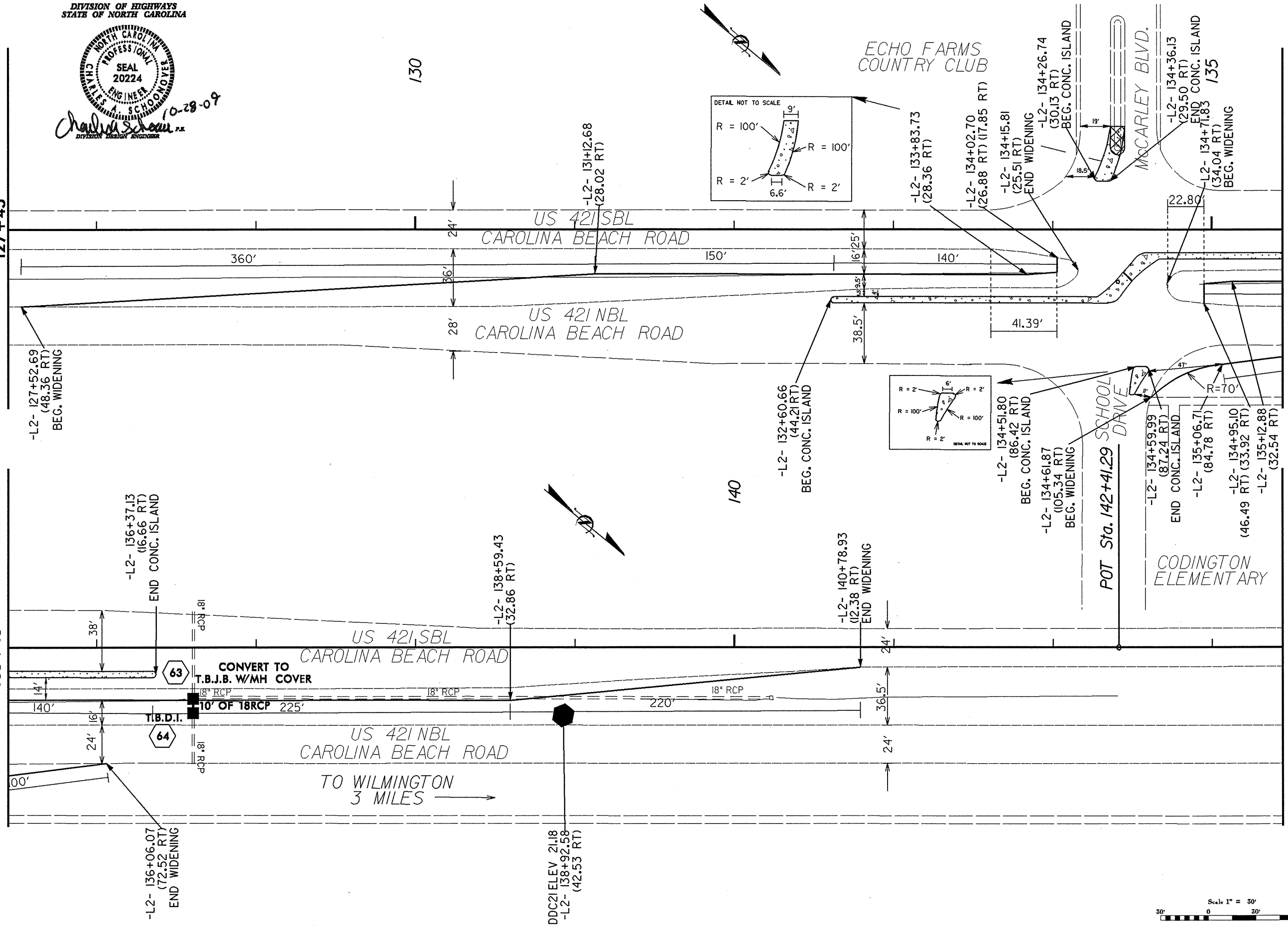


127 + 45

135 + 45

135 + 45

143 + 45



REVISIONS

23-OCT-2009 09:01
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