09/08/99

TIP PROJECT: W-5104

CONTRACT: C202282

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER & BRUNSWICK COUNTY

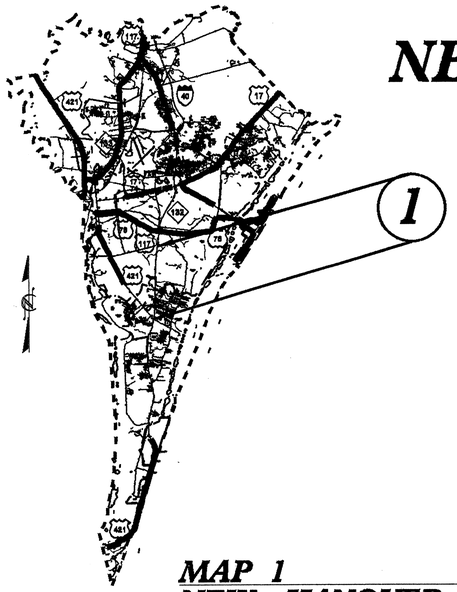
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5104	1	

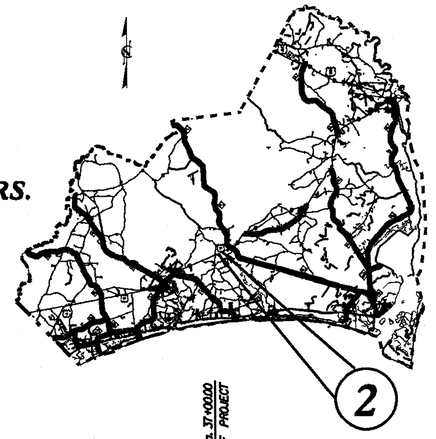
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
41868.1.1	STPNHS-0132(5)	PE
41868.3.1	STPNHS-0132(6)	CONST.
42599.1.1	STPNHS-017(92)	PE
42599.3.1		CONST.

LOCATION MAP 1: NC 132 FROM 0.037 MILES NORTH OF SR 1521 TO 0.016 MILES SOUTH OF HOLLY TREE ROAD IN THE CITY OF WILMINGTON IN NEW HANOVER COUNTY.

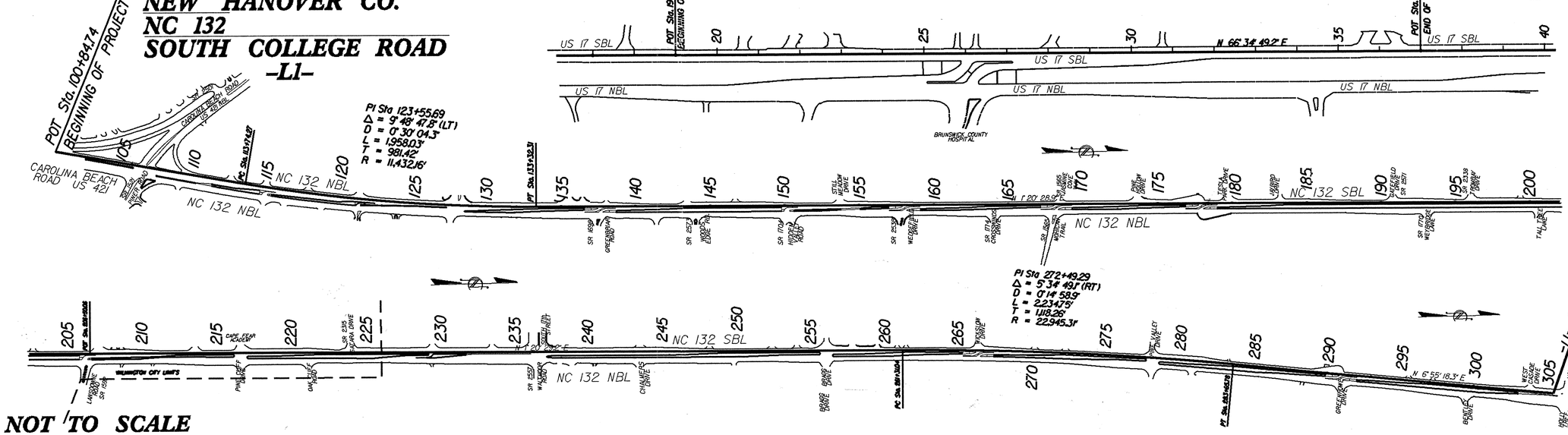
LOCATION MAP 2: US 17 FROM 0.50 MILES NORTH OF SR 1130 TO 0.84 MILES NORTH OF SR 1130 IN BRUNSWICK COUNTY.

TYPE OF WORK: GRADING, WIDENING, CONCRETE ISLANDS, AND DRAINAGE FOR CONSTRUCTION OF DIRECTIONAL LEFTOVERS.





MAP 1
NEW HANOVER CO.
NC 132
SOUTH COLLEGE ROAD
-L1-



MAP 2
BRUNSWICK CO. – US 17
-L2-

NOT TO SCALE

GRAPHIC SCALES

PLANS: 25 12.5 0 25 50

PROFILE (HORIZONTAL): 0

PROFILE (VERTICAL): 0

PROJECT LENGTH

MAP NO. 1 = 3.88 MI.
MAP NO. 2 = 0.34 MI.

TOTAL = 4.22 MI.

Prepared in the Office of:

DIVISION OF HIGHWAYS

124 Division Dr., Wilmington, NC 28401

2006 STANDARD SPECIFICATIONS

LETTING DATE:
NOV. 16, 2010

ROADWAY DESIGN TECHNICIAN

Carla M. Schoonmaker
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION ENGINEER

8/23/10

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cschoonmaker AT DSCAD237933

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

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 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
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
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
852.01	Concrete Islands
852.02	Concrete Mountable Median - for Use with Rigid or Flexible Pavement
852.10	Median Construction - with Curb and Gutter
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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.

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.

UTILITIES:

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER
8/20/10

INDEX OF SHEETS

8/17/99

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3/15

Note: Not to Scale

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

PROJECT REFERENCE NO.	SHEET NO.
W-5104	1-B

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 — EPM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — EWB
- Proposed Wetland Boundary — PWB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- 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
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- C & G and Pavement Removal
- 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 — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- 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 — T
- Telephone Booth — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- 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 — W
- 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 — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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 — S
- Utility Unknown U/G Line — PUTL
- 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.

PROJECT REFERENCE NO.	SHEET NO.
W-5104	1-C

Beginning chain L1 description

Point 10000 N 143,262.2770 E 2,334,669.1120 Sta 100+84.74

Course from 10000 to PC C1 N 11° 09' 19.57" E Dist 1,289.5328

Curve Data

Curve C1
P.I. Station 123+55.69 N 145,490.3195 E 2,335,108.4757
Delta = 9° 48' 47.85" (LT)
Degree = 0° 30' 04.25"
Tangent = 981.4172
Length = 1,958.0337
Radius = 11,432.1560
External = 42.0486
Long Chord = 1,955.6413
Mid. Ord. = 41.8945
P.C. Station 113+74.27 N 144,527.4453 E 2,334,918.5996
P.T. Station 133+32.31 N 146,471.4674 E 2,335,131.4631
C.C. N 146,739.2395 E 2,323,702.4435
Back = N 11° 09' 19.57" E
Ahead = N 1° 20' 31.72" E
Chord Bear = N 6° 14' 55.65" E

Course from PT C1 to 10006 N 1° 20' 28.90" E Dist 7,317.7515

Point 10006 N 153,787.2136 E 2,335,302.7645 Sta 206+50.06

Course from 10006 to PC C2 N 1° 20' 29.23" E Dist 5,480.9772

Curve Data

Curve C2
P.I. Station 272+49.29 N 160,384.6396 E 2,335,457.2568
Delta = 5° 34' 49.05" (RT)
Degree = 0° 14' 58.94"
Tangent = 1,118.2574
Length = 2,234.7467
Radius = 22,945.3120
External = 27.2334
Long Chord = 2,233.8635
Mid. Ord. = 27.2011
P.C. Station 261+31.04 N 159,266.6887 E 2,335,431.0777
P.T. Station 283+65.78 N 161,494.7468 E 2,335,592.0221
C.C. N 158,729.5242 E 2,358,370.1012
Back = N 1° 20' 29.23" E
Ahead = N 6° 55' 18.29" E
Chord Bear = N 4° 07' 53.76" E

Course from PT C2 to 10020 N 6° 55' 18.29" E Dist 2,904.9294

Point 10020 N 164,378.5041 E 2,335,942.1056 Sta 312+70.71

Ending chain L1 description

CONTROL POINT LIST -L1-:

Point#	North(Y)	East(X)	Elev(Z)
Pt DDC22,	N 143872.1820,	E 2334890.6590,	Z 27.9520,
Pt DDC23,	N 145150.3330,	E 2335062.0520,	Z 20.6770,
Pt DDC24,	N 146107.2350,	E 2335155.7240,	Z 26.2430,
Pt DDC25,	N 147527.5100,	E 2335183.8620,	Z 29.0530,
Pt DDC26,	N 151579.5260,	E 2335280.0870,	Z 30.4230,
Pt DDC27,	N 153137.2250,	E 2335309.2390,	Z 38.0330,
Pt DDC28,	N 156874.6690,	E 2335407.7060,	Z 46.7230,
Pt DDC29,	N 157838.6180,	E 2335423.6180,	Z 48.0810,
Pt DDC30,	N 159261.5310,	E 2335457.7720,	Z 51.2570,
Pt DDC31,	N 160272.1920,	E 2335505.5320,	Z 51.6380,
Pt DDC32,	N 161712.9630,	E 2335646.7900,	Z 51.4490,
Pt DDC33,	N 162714.2670,	E 2335764.4090,	Z 35.5280
Pt U47182,	N 164049.9740,	E 2335940.0430,	Z 38.13

CONTROL POINT LIST -L2-:

Point#	North(Y)	East(X)	Elev(Z)
Pt BL1,	N 95312.1030,	E 2213988.3780,	Z 35.00,
Pt BL2,	N 95723.3790,	E 2214939.7400,	Z 33.63,
Pt BL3,	N 96075.3250,	E 2215748.1930,	Z 17.30,
Pt BL4,	N 96455.8940,	E 2216623.8540,	Z 24.79,

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "ENNIS"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 136261.243(ft) EASTING: 2332811.338(ft)
ELEVATION: 49.278(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000072815
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "ENNIS" TO -L1 100+84.74- STATION IS 468.1738 LT

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

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 95723.3790(ft) EASTING: 2214939.7400(ft)
ELEVATION: 33.63(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000109032
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL2" TO -L2 28+36.26- STATION IS 64.39 RT

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

Beginning chain L2 description

Point 20000 N 95,118.2033 E 2,213,380.5706 Sta 11+65.00

Course from 20000 to 20001 N 66° 34' 49.19" E Dist 4,145.6109

Point 20001 N 96,765.9301 E 2,217,184.6587 Sta 53+10.61

Ending chain L2 description

5/14/20

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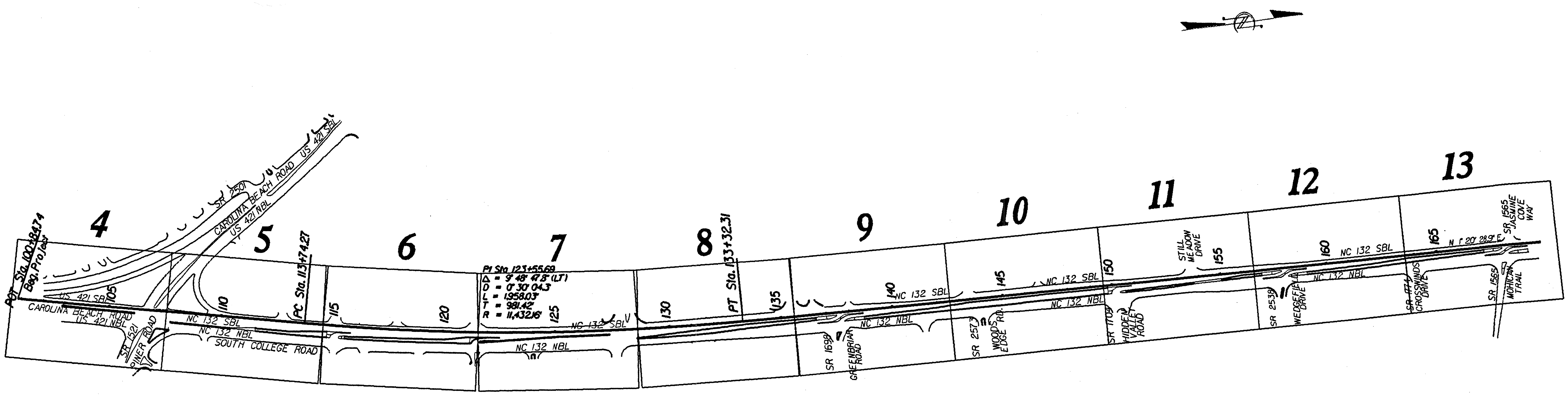
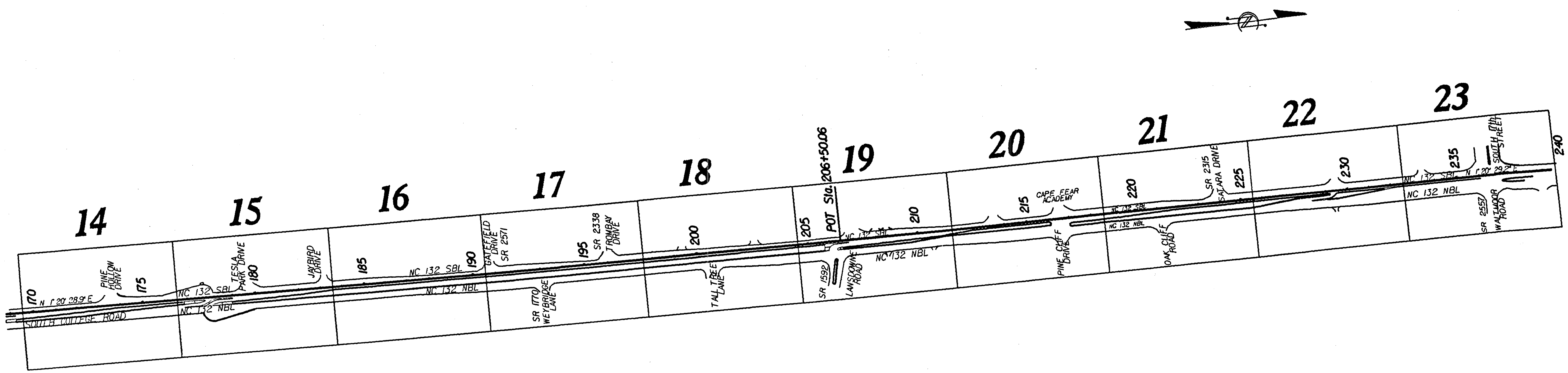
PROJECT REFERENCE NO.	SHEET NO.
W-5104	1-D

NEW HANOVER CO. NC 132 - COLLEGE ROAD
ALIGNMENTS AND SHEET LAYOUT
-L1-





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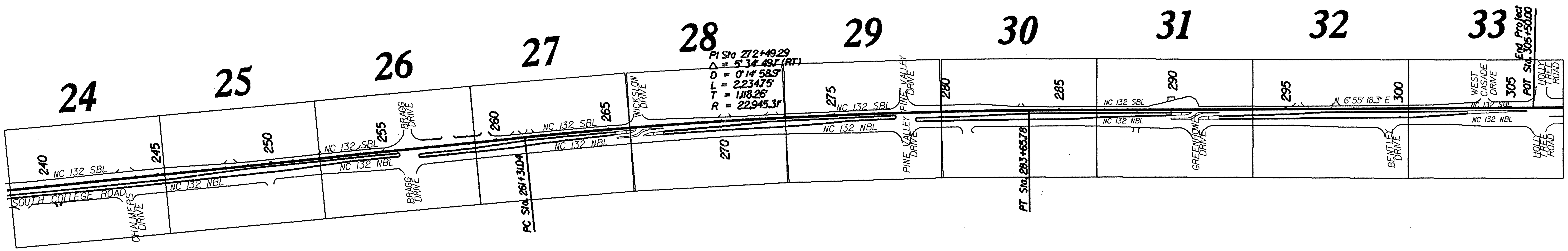
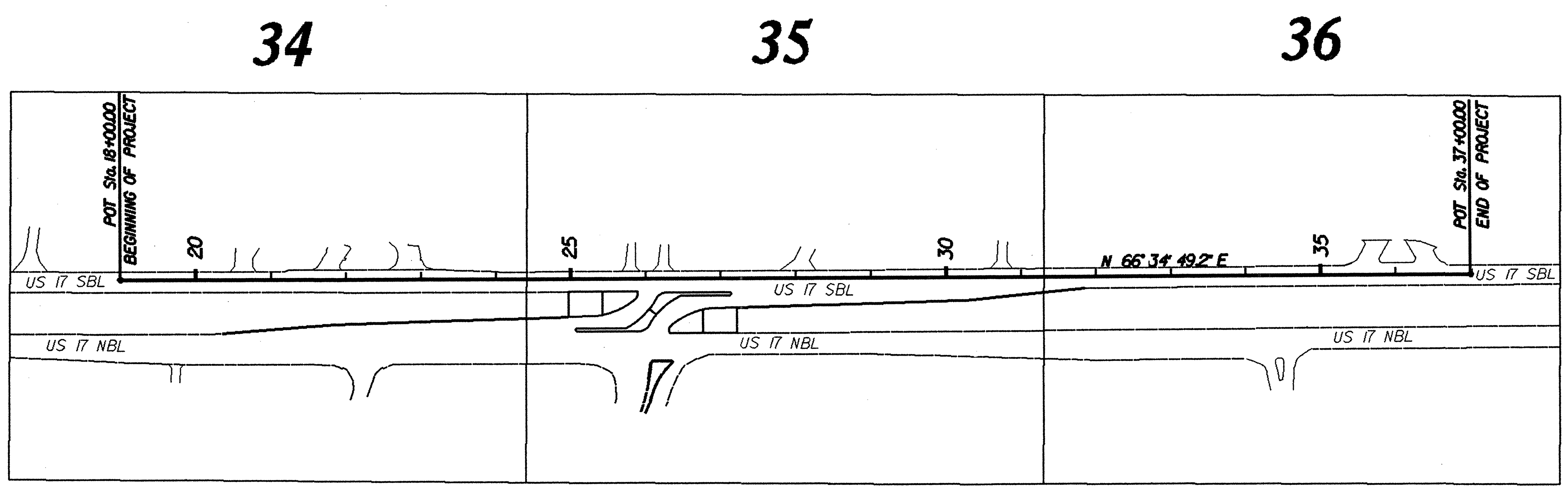
PROJECT REFERENCE NO.	SHEET NO.
W-5104	1-E

NEW HANOVER CO. NC 132 – COLLEGE ROAD ALIGNMENTS AND SHEET LAYOUT
–L1–



NOT TO SCALE

BRUNSWICK CO. – US 17 ALIGNMENTS AND SHEET LAY OUT
–L2–



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8/17/99

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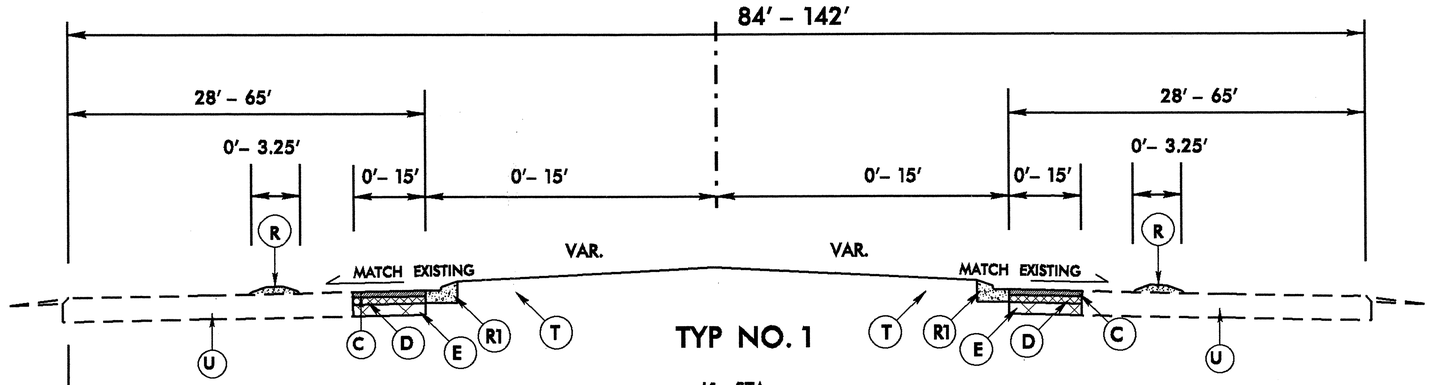
PROJECT REFERENCE NO.	SHEET NO.
W-5104	2

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT COOKE EVANS

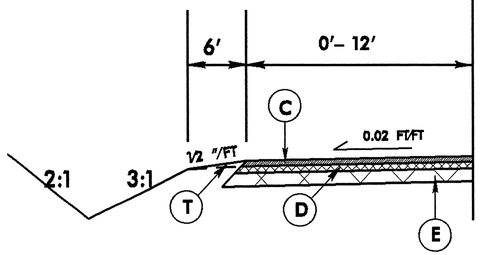
DIVISION DESIGN ENGINEER

9/11/18



TYP NO. 1

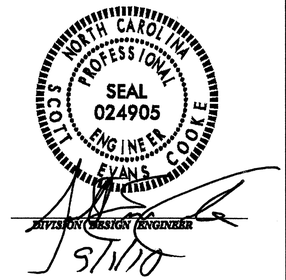
–L1– STA.
AT MEDIAN WIDENING
OR
MEDIAN REMOVAL



–L1– STA.
218+90 TO 223+17
255+18 TO 255+98

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 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. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
R	8 " MONOLITHIC CONCRETE ISLAND.
R1	1'-6" CONC. C&G
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

PROJECT REFERENCE NO.	SHEET NO.
W-5104	2-A



TYP NO. 2

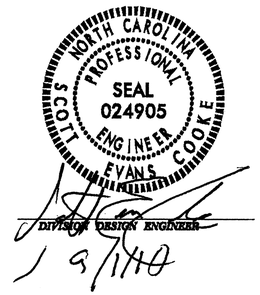
–L1– STA.
AT CROSSOVERS
OR
CONCRETE ISLANDS

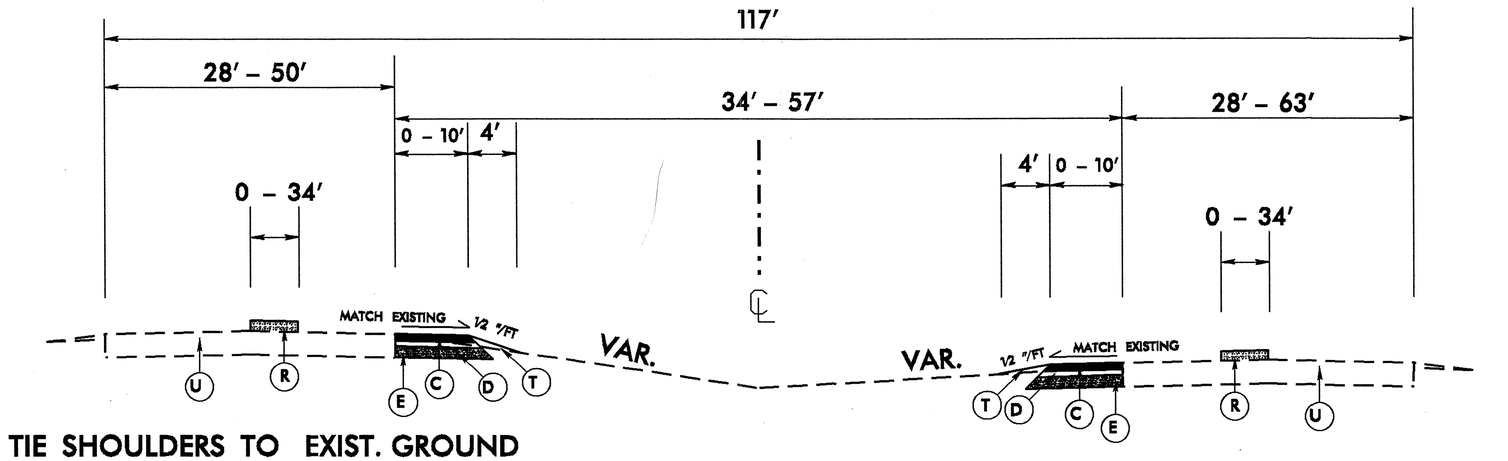
–L1– STA.
175+90 TO 178+14
288+91 TO 291+15

–L1– STA.
168+20 TO 168+83
177+66 TO 179+93

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 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.
R1	1′-6" CONC. C&G
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

PROJECT REFERENCE NO.	SHEET NO.
W-5104	2-B





TIE SHOULDERS TO EXIST. GROUND

TIE SHOULDERS TO EXIST. GROUND

TYPICAL SECTION NO. 3

US 17

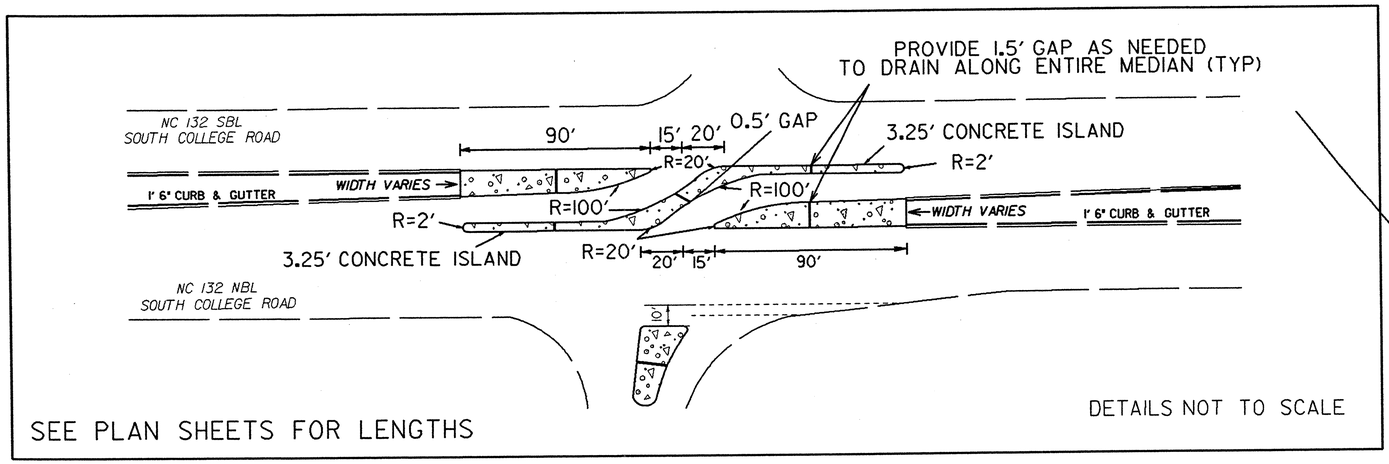
SEE CROSS SECTIONS

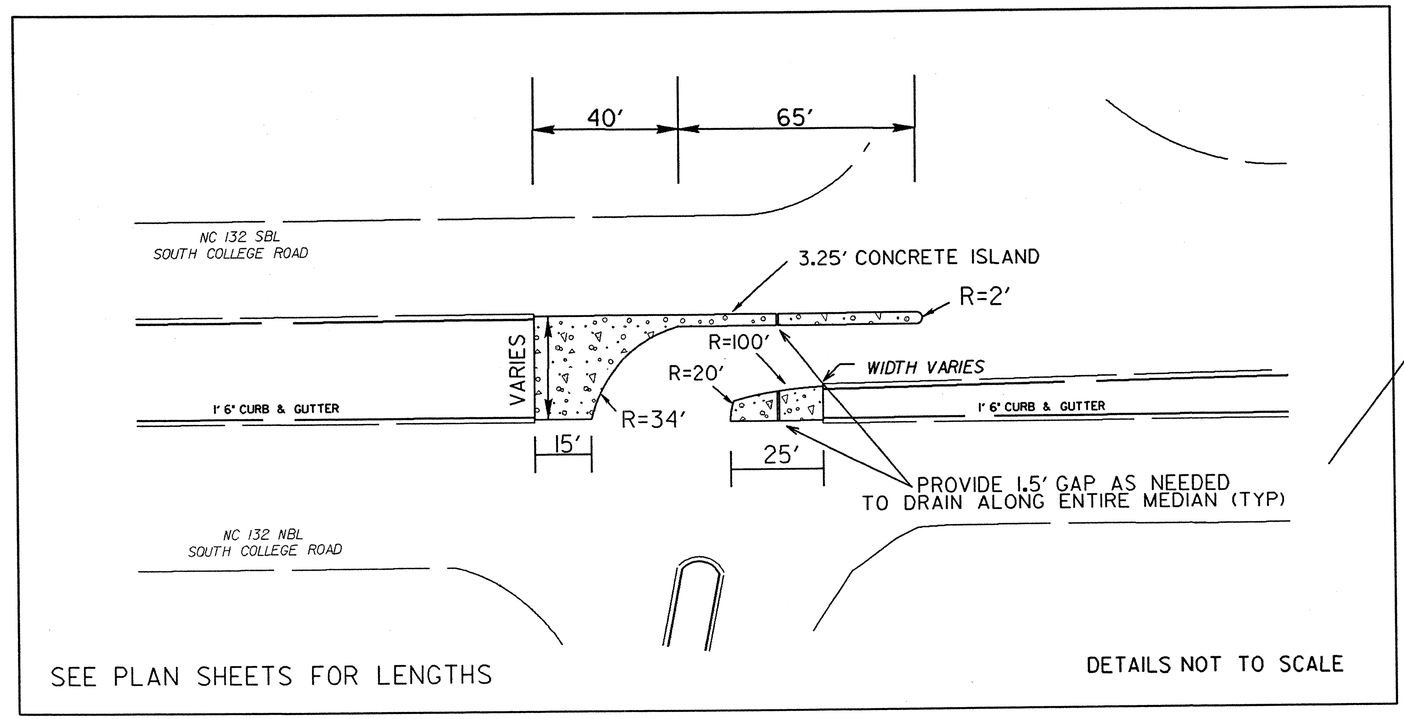
PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
R	8 " MONOLITHIC CONCRETE ISLAND.
R1	1'-6" CONC. C&G
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

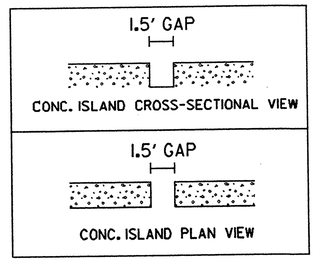
PROJECT REFERENCE NO.	SHEET NO.
W-5104	2-C

DETAIL SHEET

CONCRETE MONOLITHIC ISLANDS







REVISIONS

8/17/99

12-AUG-2010 08:56
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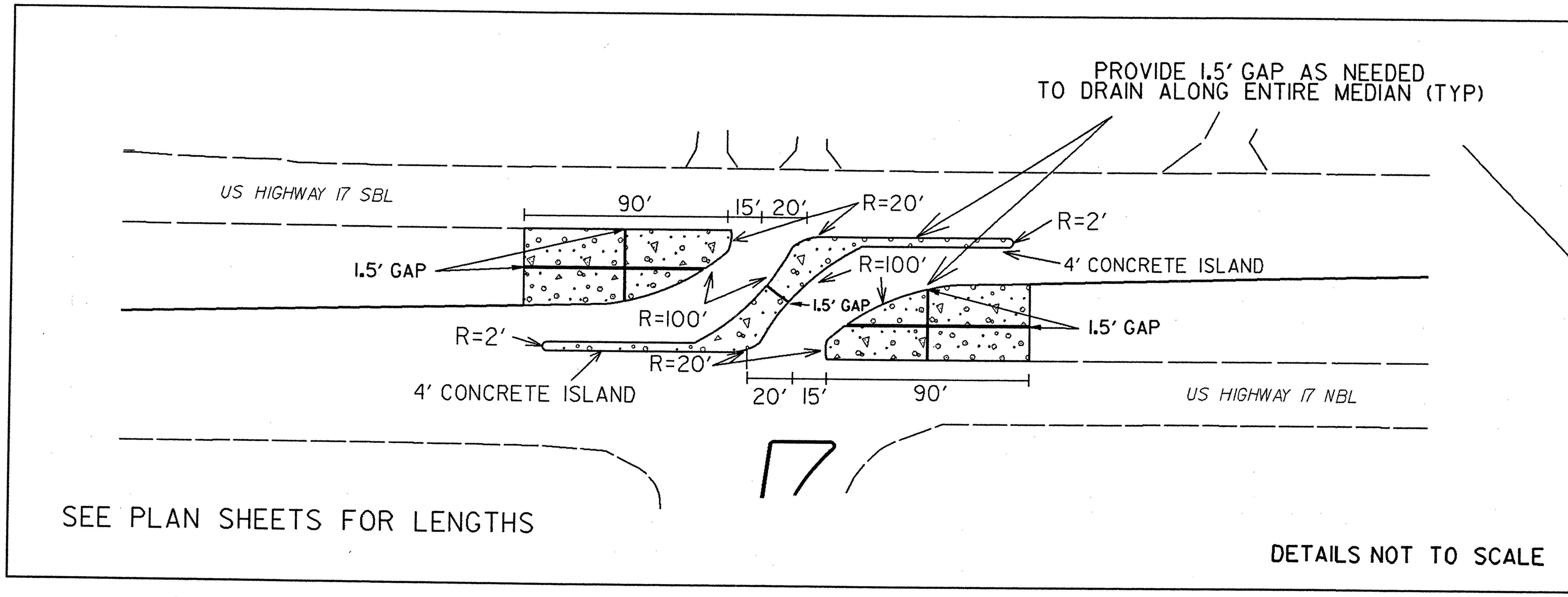
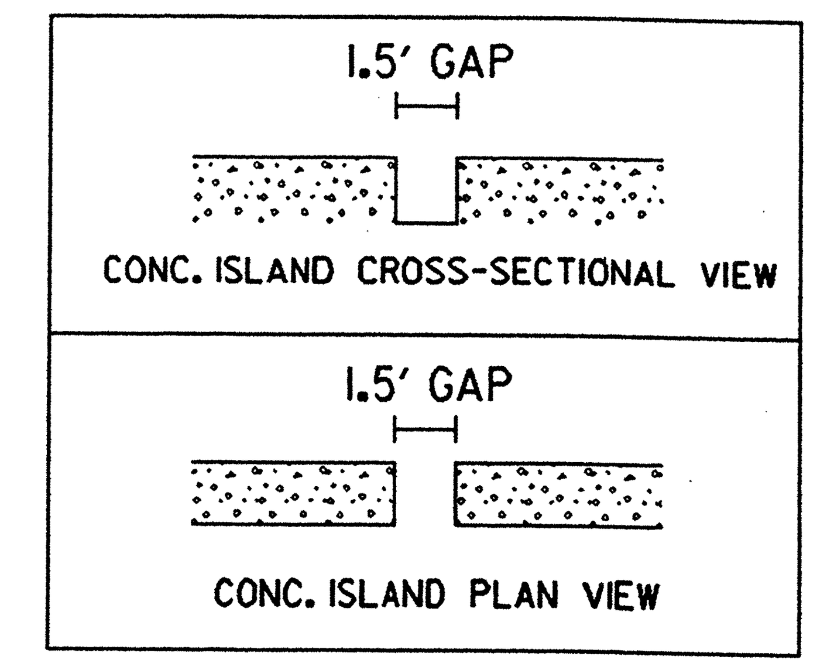
PROJECT REFERENCE NO.	SHEET NO.
W-5104	2-D

DETAIL SHEET

CONCRETE MONOLITHIC ISLANDS





REVISIONS

8/17/99

12-AUG-2010 08:58
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PROJECT REFERENCE NO.	SHEET NO.
W-5104	2-E

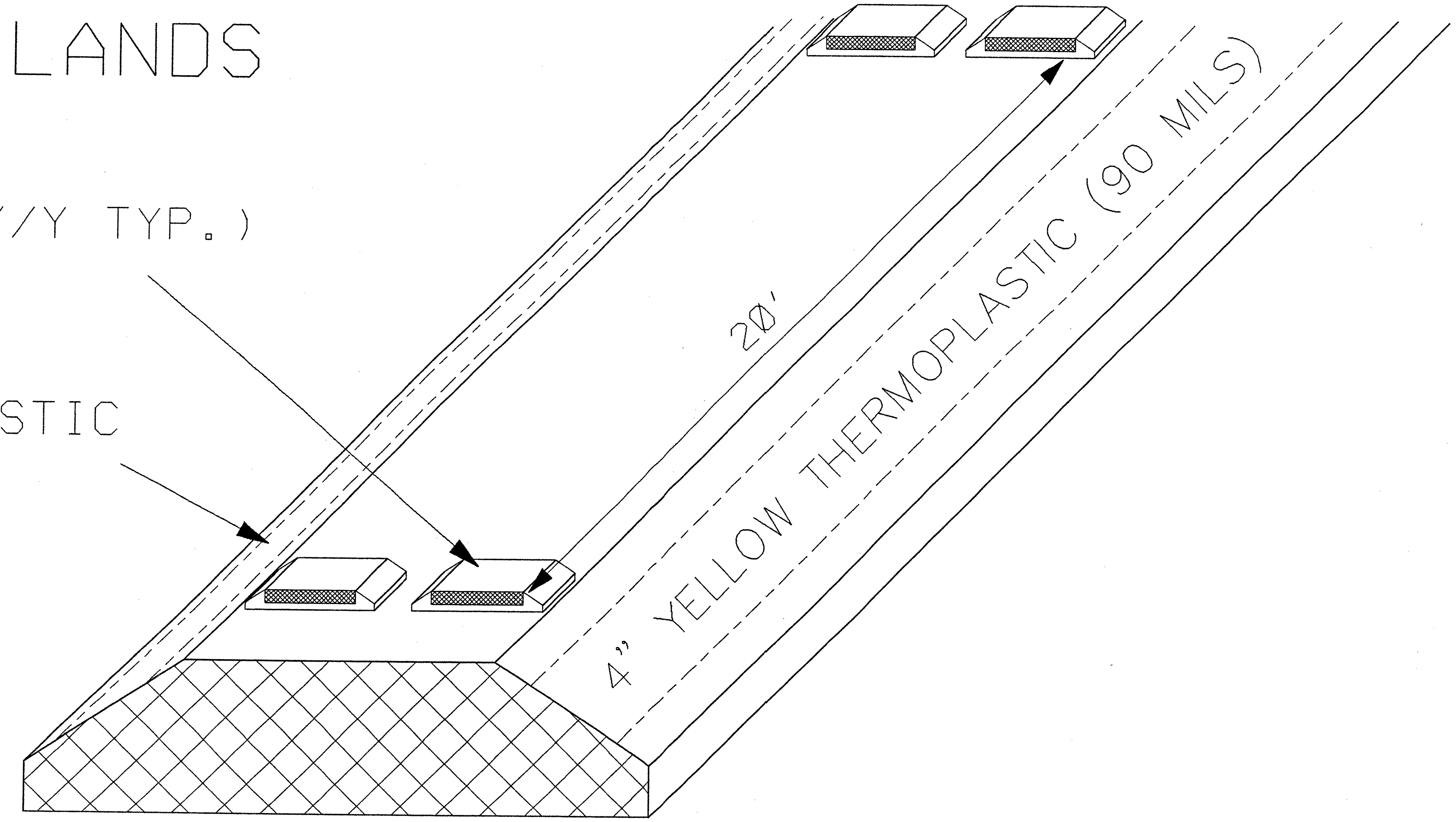
DETAIL SHEET

CONCRETE MONOLITHIC ISLANDS

PAVEMENT MARKINGS DETAIL FOR CONCRETE ISLANDS

RAISED PAVEMENT MARKER (Y/Y TYP.)
(STD. DWG 1251.01)

4" YELLOW THERMOPLASTIC
(90 MILS)



MONOLITHIC CONCRETE ISLAND
(SEE STANDARD DRAWINGS 852.01 & 852.02 FOR DETAILS.)

APPLY PORTLAND CEMENT CONCRETE SEALER (FTI LOW-VOC SEALER)TO SIDES OF MEDIAN PRIOR TO PLACEMENT OF 4" YELLOW THERMOPLASTIC (90 MILS)

W-5104 2-F

STATE OF NORTH CAROLINA
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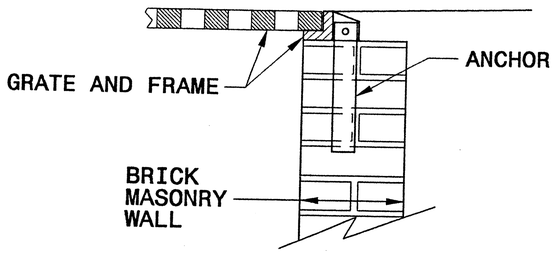
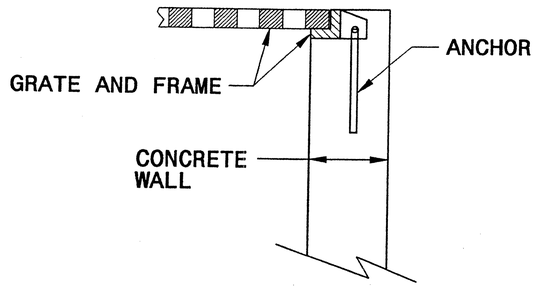
RALEIGH, N.C.

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

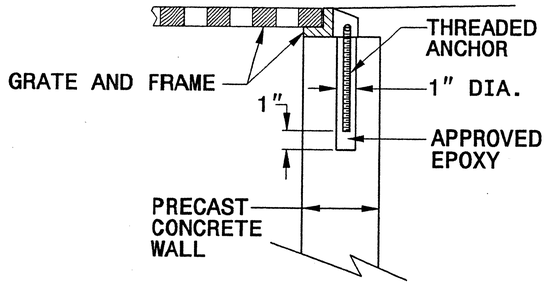
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



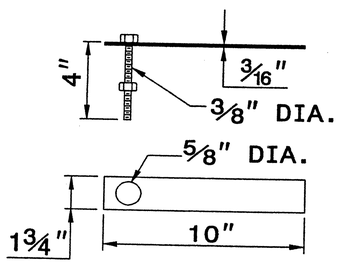
CONCRETE CONSTRUCTION



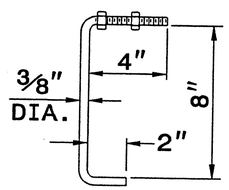
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

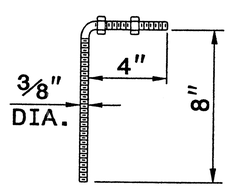
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



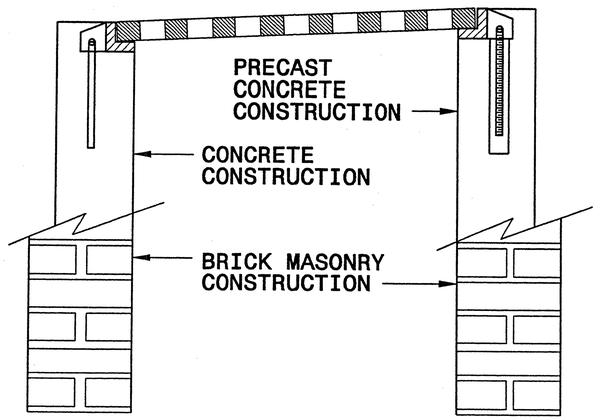
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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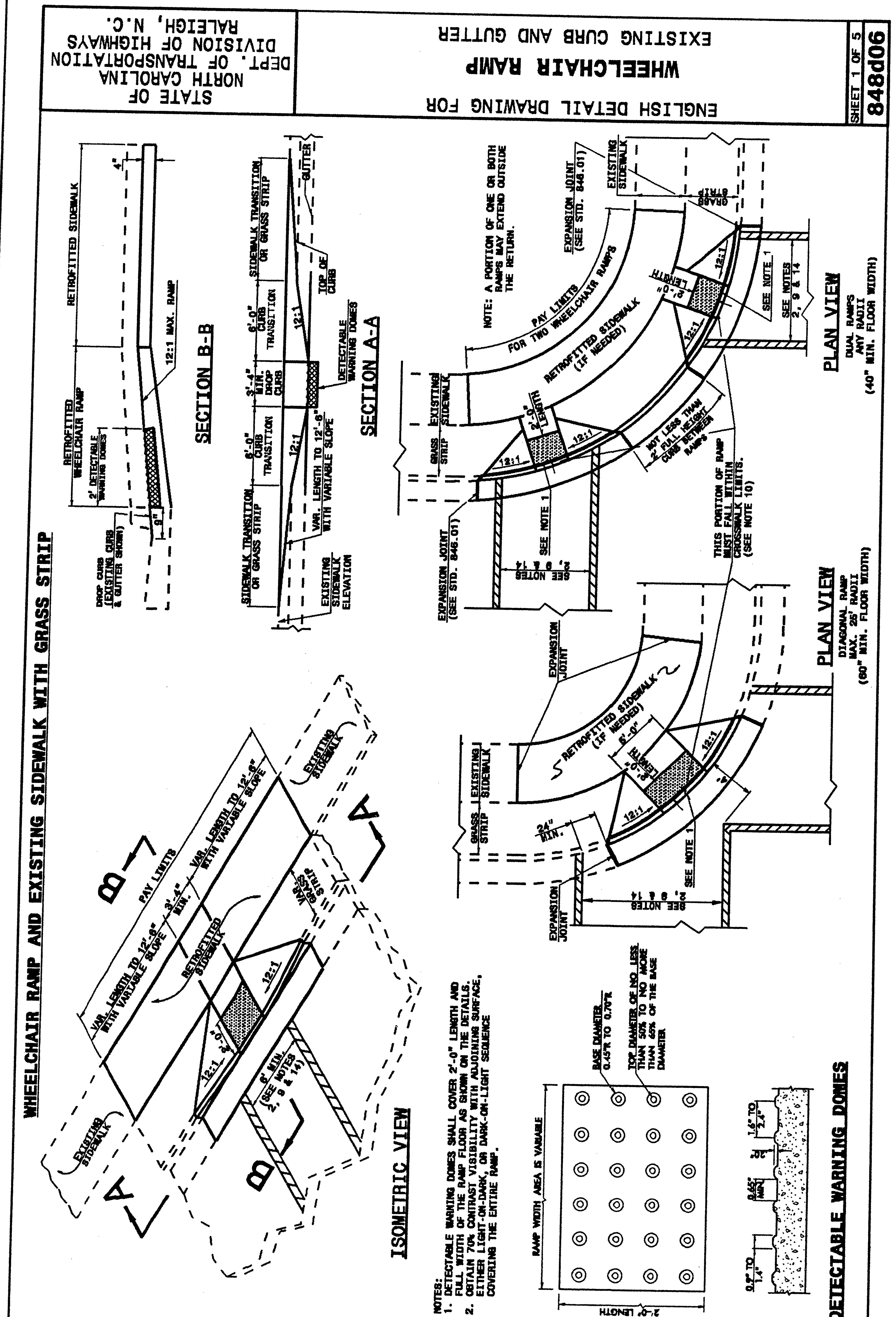
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

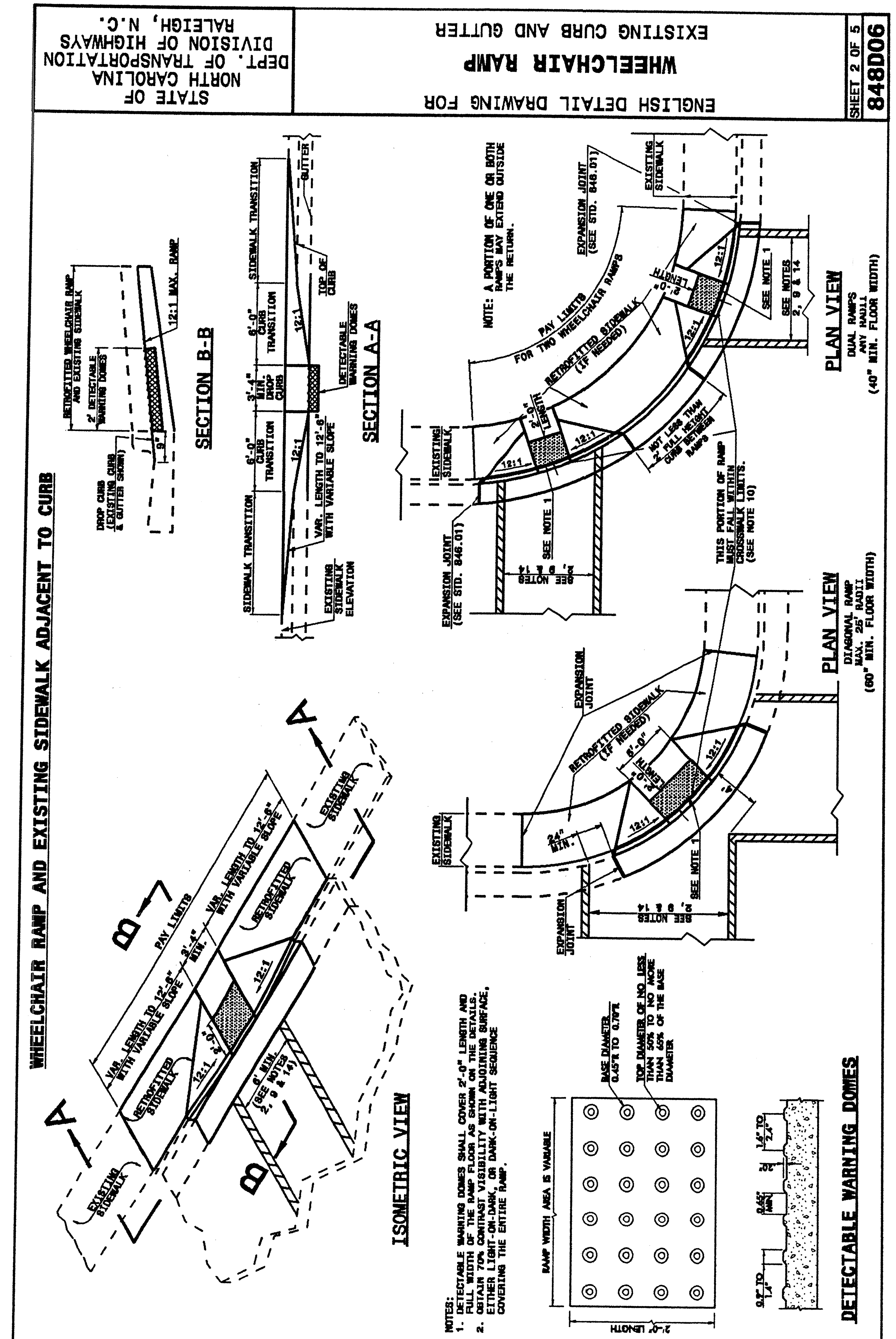
SHEET 1 OF 1
840D25



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

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

SHEET 1 OF 5
848D06



STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

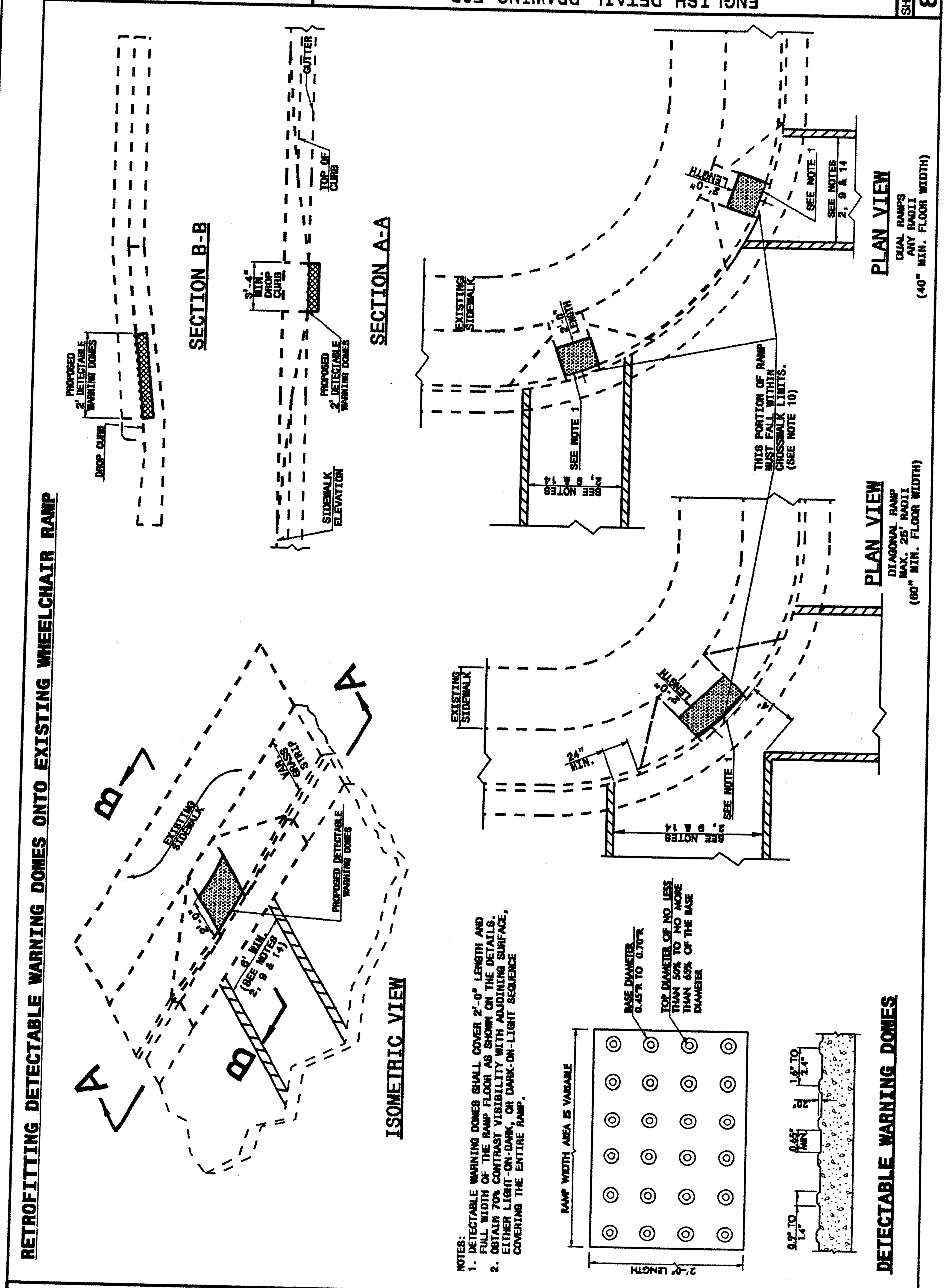
SHEET 2 OF 5
848D06

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

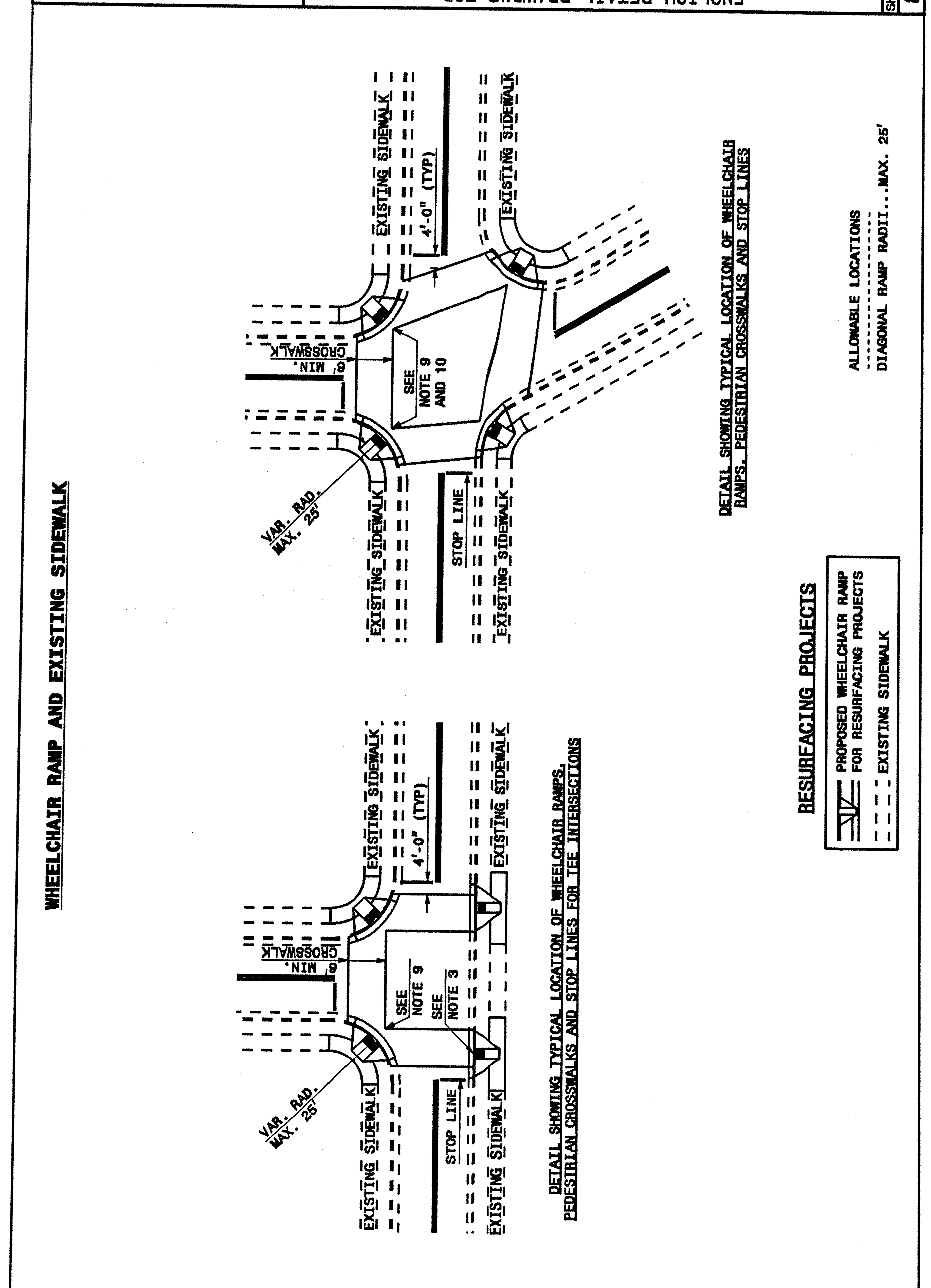
SEE PLATE FOR TITLE

ORIGINAL BY: STD.NO.848.06 DATE: 4-22-10
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: SpecialDetails/EricWard/STDS/848d06.dgn

PROJECT REFERENCE NO.	SHEET NO.
W-5104	2-H



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **WHEELCHAIR RAMP** EXISTING CURB AND GUTTER	SHEET 3 OF 5 848D06



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **WHEELCHAIR RAMP** EXISTING CURB AND GUTTER	SHEET 4 OF 5 848D06

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-411

SEE PLATE FOR TITLE

ORIGINAL BY: STD.NO.848.06 DATE: 4-22-10
MODIFIED BY: ________ DATE: ______

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

ENGLISH DETAIL DRAWING FOR

WHEELCHAIR RAMP

EXISTING CURB AND GUTTER

SHEET 5 OF 5

848D06

WHEELCHAIR RAMP AND EXISTING SIDEWALK

NOTES:

1. CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
2. CROSSWALK WIDTHS AND CONFIGURATION VARY, BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS.
3. NORTH CAROLINA GENERAL STATUTE 136-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW.

   IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1,1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.

   THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES, COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILIAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.
4. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED PLACE NOT LESS THAN 2 FEET OF FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
5. DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
6. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS AND 60" (5'-0") OR GREATER FOR DIAGONAL RAMPS.
7. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
8. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01.
9. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADII, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 14)
10. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
11. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE.
12. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY.
13. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
14. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

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

ENGLISH DETAIL DRAWING FOR

WHEELCHAIR RAMP

EXISTING CURB AND GUTTER

SHEET 5 OF 5

848D06

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4174

ORIGINAL BY: SID_NO_848_06 DATE: 4-22-10
MODIFIED BY: DATE:

SEE PLATE FOR TITLE

PROJECT REFERENCE NO. W-5104
SHEET NO. 2-1

W-5104 | 2-J

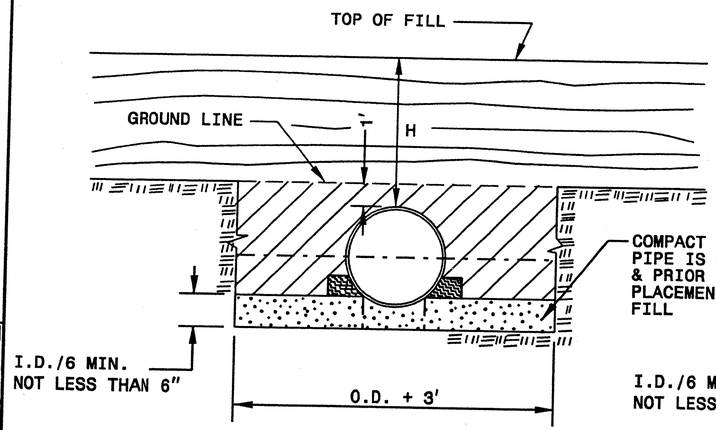
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

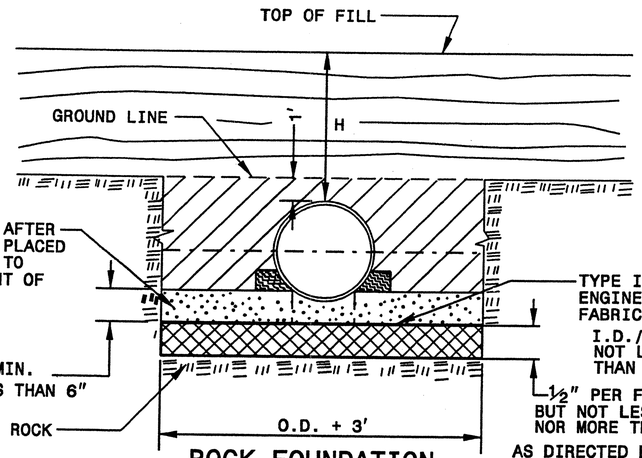
ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

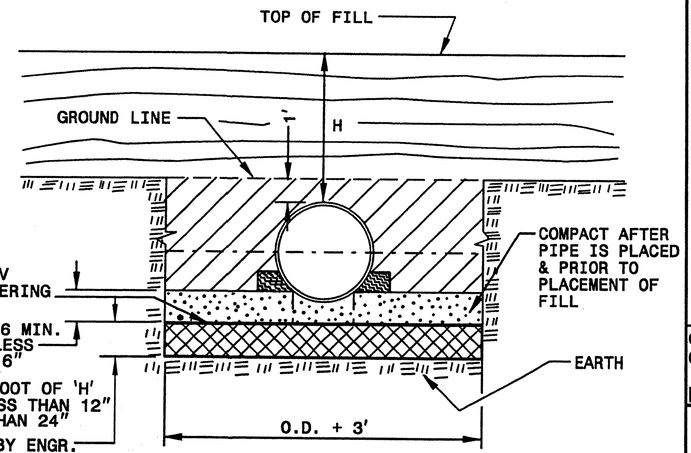
FLEXIBLE PIPE



NORMAL EARTH FOUNDATION

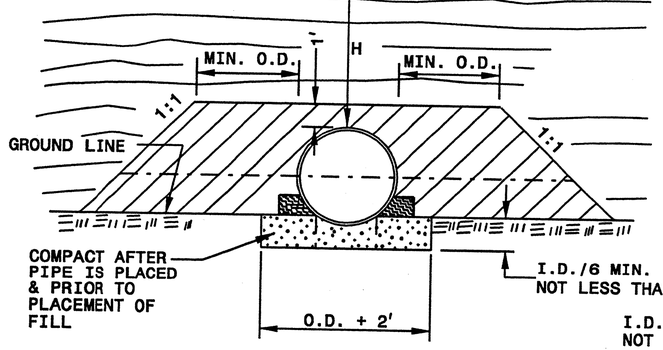


ROCK FOUNDATION

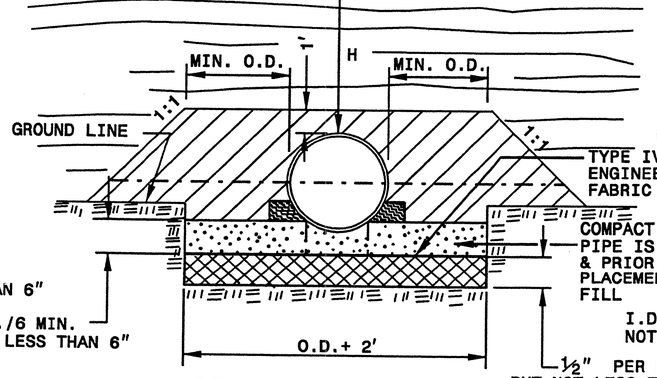


UNSUITABLE MATERIAL FOUNDATION

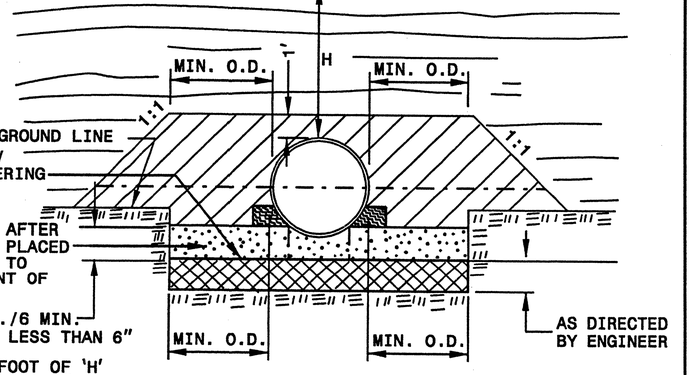
PIPE IN TRENCH



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

SPRINGLINE OF PIPE

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

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3
300D01

W-5104 | 2-K

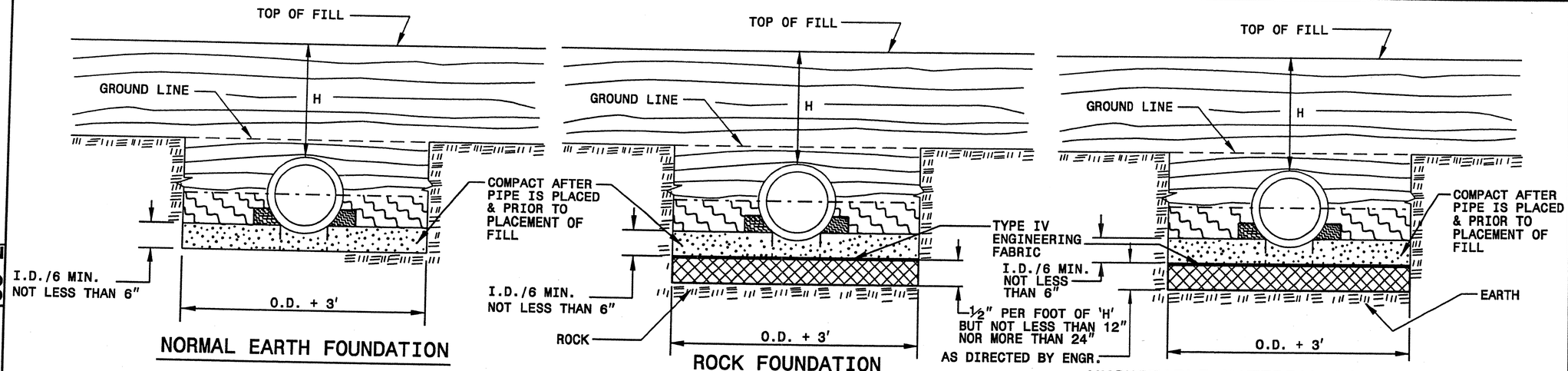
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

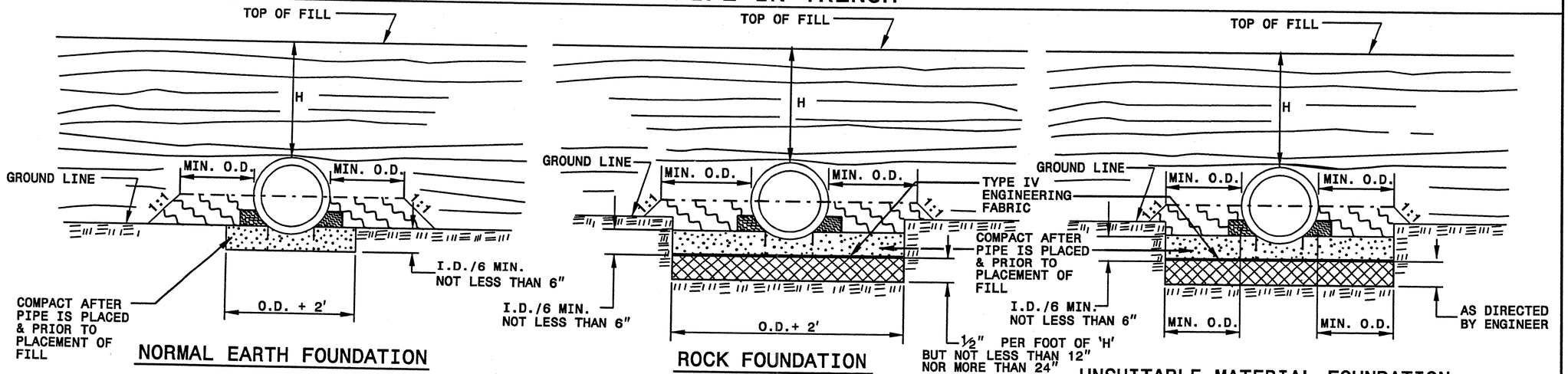
ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

STATE OF NORTH CAROLINA
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ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

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STATE OF NORTH CAROLINA
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RALEIGH, N.C.

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ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	(Ga)	Maximum Height of Cover (feet) 16	14	12	10	8
12	12		204	256			
15	12		162	204			
18	12		135	169	239		
21	12		115	145	204		
24	12		100	126	178		
30	12		79	100	142		
36	12		65	83	117	152	
42	12		55	70	100	130	160
48	12		48	61	87	113	139
54	12			54	77	100	123
60	12				69	90	111
66	12					81	100
72	12					74	91
78	12						81
84	12						69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

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

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

HDPE - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 60″
* (Maximum fill) 20′ for pipe diameters ≤ 24″
17′ for pipe diameters ≥ 30″ and ≤ 60″

PVC - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 36″
* (Maximum fill) 30′ for pipe diameters ≥ 12″ and ≤ 36″

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

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

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

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

RIGID PIPE

RCP - * (Minimum fill) 1′ for Class IV & CLASS V
2′ for Class III & Class II

* (Maximum fill) 10′ - Class II pipe
20′ - Class III pipe
30′ - Class IV pipe
40′ - Class V pipe

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

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

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

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

STATE OF NORTH CAROLINA
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RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PROJECT NO.	SHEET NO.	TOTAL NO.
W-5104 (41868.3.1 & 42599.3.1)	3	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH FT	WIDTH FT	UNDERCUT EXC. CY	BORROW EXC. CY	REMOVAL OF EXISTING ASPHALT PAVEMENT SY	REMOVAL OF CONC. CURB & GUTTER LF	REMOVAL OF CONCRETE ISLAND SY	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES TON	FOUNDATION CONDITIONING FABRIC SY	30" RC PIPE CULVERTS, CLASS IV LF	36" RC PIPE CULVERTS, CLASS IV LF	18" RC PIPE CULVERTS, CLASS IV LF	INCIDENTAL STONE BASE TON	BASE COURSE, B25.0B TONS	INT. COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	PG 64-22 PLANT MIX TONS	PIPE COLLARS CY	PIPE PLUGS CY
W-5104 41868.3.ST1	New Hanover	1	PROJECT WIDE	NC 132 IN NEW HANOVER COUNTY FROM 0.045 MILES NORTH OF THE INTERSECTION OF US 421 AND NC 132 TO THE INTERSECTION OF NC 132 AND HOLLY TREE ROAD	1, 2	NO			1,000	*									10					2.20	1.30
		"	"	111+53 TO 121+01, DIRECTIONAL CROSS OVER	1, 2	NO	950	110			654	585	178							83	47	24	7		
		"	"	131+88 TO 143+38, DIRECTIONAL CROSS OVER	1, 2	NO	1151	100				1,184								172	99	51	15		
		"	"	143+38 TO 163+80, DIRECTIONAL CROSSOVER, RIGHT TURN WIDENING	1, 2	NO	2043	100			375	2,261								558	319	163	49		
	New Hanover	"	"	162+45 TO 173+95, DIRECTIONAL CROSSOVER, RIGHT TURN WIDENING	1, 2	NO	1151	100				1,191								176	101	52	15		
	NewHanover	"	"	172+30 TO 183+71, DIRECTIONAL CROSSOVER, (2) BULB OUTS	1, 2	NO	1140	100				1,349		70	220	352	300			967	552	284	85		
		"	"	183+71 TO 205+79, REMOVE EXISTING AT-GRADE INTERSECTIONS	1, 2	NO	2207	100			2,541	2,403													
	New Hanover	"	"	205+79 TO 212+52, DIRECTIONAL CROSSOVER	1, 2	NO	671	100			133	588								154	88	45	13		
	NewHanover	"	"	212+52 TO 260+63, REMOVE EXISTING AT-GRADE INTERSECTIONS, RIGHT TURN WIDENING, ETC.	1, 2	NO	4810	100			2,808	4,160		10	20			32		591	338	174	52		
		"	"	260+63 TO 272+15, DIRECTIONAL CROSSOVER	1, 2	NO	1151	100				1,218								217	124	63	19		
		"	"	285+34 TO 296+79, DIRECTIONAL CROSSOVER, BULB OUT, RIGHT TURN WIDENING	1,2	NO	1146	100			166	1,445								410	234	121	36		
		"	"	296+79 TO 305+05, REMOVE EXISTING AT-GRADE INTERSECTION, RIGHT TURN WIDENING	1,2	NO	824	100			926	559	178												
TOTAL FOR MAP NO. 1							**17244**		**1,000**		**7,603**	**16,943**	**356**	**80**	**240**	**352**	**300**	**32**	**10**	**3,328**	**1,902**	**977**	**291**	**2.20**	**1.30**
TOTAL FOR PROJ NO. 41868.3.ST1							**17244**		**1,000**		**7,603**	**16,943**	**356**	**80**	**240**	**352**	**300**	**32**	**10**	**3,328**	**1,902**	**977**	**291**	**2.20**	**1.30**
W-5104 42599.3.1	Brunswick	2	US 17 (20+35-31+78)	20+35 TO 31+78, DIRECTIONAL CROSSOVERS	3	NO	1140	112		*										396	226	115	35		
TOTAL FOR MAP NO. 2							**1140**													**396**	**226**	**115**	**35**		
TOTAL FOR PROJ NO. 42599.3.1							**1140**													**396**	**226**	**115**	**35**		
GRAND TOTAL							**18384**		**1000**	**500**	**7603**	**16,943**	**356**	**80**	**240**	**352**	**300**	**32**	**10**	**3,724**	**2,128**	**1,092**	**326**	**2.2**	**1.30**
											included in lump sum grading pay item														

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	MASONRY DRAINAGE STRUCT EA	FRAME WITH TWO GRATES, STD 840.16 EA	1'-6" CONCRETE CURB & GUTTER LF	RETROFIT EXISTING WHEEL CHAIR RAMPS EA	5" MONOLITHIC CONC ISLANDS (SURFACE MOUNTED) SY	RIP RAP, CLASS I TON	FILTER FABRIC FOR DRAINAGE SY	PORTABLE LIGHTING LS	TEMP. SILT FENCE LF	STONE FOR EROSION CONTROL, CLASS B TON	SEDIMENT CONTROL STONE TON	TEMP MULCHING AC	SEED FOR TEMP SEEDING LBS	SILT EXC. CY	1/4" HARD WARE CLOTH LF	SEED & MULCHING AC	GENERIC TRAFFIC CONTROL ITEM LS
W-5104 41868.3.ST1	New Hanover	1	PROJECT WIDE	NC 132 IN NEW HANOVER COUNTY FROM 0.045 MILES NORTH OF THE INTERSECTION OF US 421 AND NC 132 TO THE INTERSECTION OF NC 132 AND HOLLY TREE ROAD	1, 2				4				1				2.25	150			2.25	*
		"	"	111+53 TO 121+01, DIRECTIONAL CROSS OVER	1, 2			1,220		252				350	22	13			5	22		
		"	"	131+88 TO 143+38, DIRECTIONAL CROSS OVER	1, 2			940		352				150	11	5			2			
		"	"	143+38 TO 163+80, DIRECTIONAL CROSSOVER, RIGHT TURN WIDENING	1, 2			1,598		618					22	9			3			
	New Hanover	"	"	162+45 TO 173+95, DIRECTIONAL CROSSOVER, RIGHT TURN WIDENING	1, 2			786		442				75								
	NewHanover	"	"	172+30 TO 183+71, DIRECTIONAL CROSSOVER, (2) BULB OUTS	1, 2			926		350	38	71		775	26	5			11			
		"	"	183+71 TO 205+79, REMOVE EXISTING AT-GRADE INTERSECTIONS	1, 2			2,759							22	9			3			
	New Hanover	"	"	205+79 TO 212+52, DIRECTIONAL CROSSOVER	1, 2			557		211					11	5			2			
	NewHanover	"	"	212+52 TO 260+63, REMOVE EXISTING AT-GRADE INTERSECTIONS, RIGHT TURN WIDENING, ETC.	1, 2	1	1	4,001		128	4	10		600	46	22			9	22		
		"	"	260+63 TO 272+15, DIRECTIONAL CROSSOVER	1, 2			940		357												
		"	"	285+34 TO 296+79, DIRECTIONAL CROSSOVER, BULB OUT, RIGHT TURN WIDENING	1,2			935		363				125		9			3	44		
		"	"	296+79 TO 305+05, REMOVE EXISTING AT-GRADE INTERSECTION, RIGHT TURN WIDENING	1,2			728		174					11	5			2			
TOTAL FOR MAP NO. 1						**1**	**1**	**15,390**	**4**	**3,247**	**42**	**81**	**1**	**2,075**	**171**	**82**	**2.25**	**150**	**40**	**88**	**2.25**	**1**
TOTAL FOR PROJ NO. 41868.3.ST1						**1**	**1**	**15,390**	**4**	**3,247**	**42**	**81**	**1**	**2,075**	**171**	**82**	**2.25**	**150**	**40**	**88**	**2.25**	**1**
W-5104 42599.3.1	Brunswick	2	US 17 (20+35-31+78)	20+35 TO 31+78, DIRECTIONAL CROSSOVERS	3					740					18	14			8	44	0.25	
TOTAL FOR MAP NO. 2										**740**					**18**	**14**			**8**	**44**	**0.25**	
TOTAL FOR PROJ NO. 42599.3.1										**740**					**18**	**14**			**8**	**44**	**0.25**	
GRAND TOTAL (W-5104)						**1**	**1**	**15,390**	**4**	**3,987**	**42**	**81**	**1**	**2,075**	**189**	**96**	**2.250**	**150**	**48**	**132**	**2.50**	**1**

PROJECT NO.	SHEET NO.	TOTAL NO.
W-5104 41868.3.1 & 42599.3.1	3-A	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E 4" X 90 M WHITE THERMO LF	4" X 90 M YELLOW THERMO LF	4686000000-E 4" X 120 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	4695000000-E 8" X 90 M WHITE THERMO LF	8" X 90 M YELLOW THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4721000000-E THERMO MSG ONLY 120 M EA	4725000000-E THERMO RT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO LT ARROW 90 M EA	THERMO U-TURN ARROW 90 M EA	4810000000-E 4" WHITE PAINT LF	4" YELLOW PAINT LF	4835000000-E 24" WHITE PAINT LF	4850000000-E 4" LINE REMOVAL LF	4870000000-E 24" LINE REMOVAL LF	4875000000-N PVMT SYMBOL/CHAR REMOVAL EA	4900000000-N YELLOW & YELLOW MARKERS EA	4905000000-N SNOW PLOWABLE MARKERS (C/R) EA	4905000000-N SNOW PLOWABLE MARKERS (Y/Y) EA
W-5104 41868.3.1	New Hanover	1	PROJECT WIDE	NC 132 IN NEW HANOVER COUNTY FROM 0.045 MILES NORTH OF THE INTERSECTION OF US 421 AND NC 132 TO THE INTERSECTION OF NC 132 AND HOLLY TREE ROAD													1,000	1,000	1,000	200	50	10				
		"	"	111+53 TO 121+01, DIRECTIONAL CROSS OVER		566	19		844						3					224		3	29	48	
		"	"	131+88 TO 143+38, DIRECTIONAL CROSS OVER		823	49		1,292						6					438		6	52	78	
		"	"	143+38 TO 163+80, DIRECTIONAL CROSSOVER, RIGHT TURN WIDENING		1,421	68		2,132						9					857		9	116	124	
	New Hanover	"	"	162+45 TO 173+95, DIRECTIONAL CROSSOVER, RIGHT TURN WIDENING	91	1,021	68	1,168	1,292	55	170		3		6					777	130	9	62	82	8
	NewHanover	"	"	172+30 TO 183+71, DIRECTIONAL CROSSOVER, (2) BULB OUTS	499	841	89		1,281			4				6				442			52	88	
		"	"	183+71 TO 205+79, REMOVE EXISTING AT-GRADE INTERSECTIONS																					
	New Hanover	"	"	205+79 TO 212+52, DIRECTIONAL CROSSOVER		498	77		836						3					310		3	26	62	
	NewHanover	"	"	212+52 TO 260+63, REMOVE EXISTING AT-GRADE INTERSECTIONS, RIGHT TURN WIDENING, ETC.	519	540	1,738				20	20	11	16	16					1,573		39	28	107	
		"	"	260+63 TO 272+15, DIRECTIONAL CROSSOVER		825	49		1,289						6					527		6	52	78	
		"	"	285+34 TO 296+79, DIRECTIONAL CROSSOVER, BULB OUT, RIGHT TURN WIDENING	248	837	78		1,281						3	3				720		6	52	85	
		"	"	296+79 TO 305+05, REMOVE EXISTING AT-GRADE INTERSECTION, RIGHT TURN WIDENING		418																	20		
TOTAL FOR MAP NO. 1					**1,357**	**7,790**	**2,235**	**1,168**	**10,247**	**55**	**190**	**24**	**14**	**16**	**52**	**9**	**1,000**	**1,000**	**1,000**	**6,068**	**180**	**91**	**489**	**752**	**8**
TOTAL FOR PROJ NO. 41868.3.1					**1,357**	**7,790**	**2,235**	**1,168**	**10,247**	**55**	**190**	**24**	**14**	**16**	**52**	**9**	**1,000**	**1,000**	**1,000**	**6,068**	**180**	**91**	**489**	**752**	**8**
					9,147		**3,403**		**10,302**			**24**	**91**				**2,000**							**760**	
W-5104 42599.3.1	Brunswick	2	US 17 (20+35-31+78)	20+35 TO 31+78, DIRECTIONAL CROSSOVERS		2,044	220		1,286						6					1,629		6	52	74	
TOTAL FOR MAP NO. 2						**2,044**	**220**		**1,286**						**6**					**1,629**		**6**	**52**	**74**	
TOTAL FOR PROJ NO. 42599.3.1						**2,044**	**220**		**1,286**						**6**					**1,629**		**6**	**52**	**74**	
					2,044		**220**						**6**										**74**	
GRAND TOTAL (W-5104)					**1,357**	**9,834**	**2,455**	**1,168**	**11,533**	**55**	**190**	**24**	**14**	**16**	**58**	**9**	**1,000**	**1,000**	**1,000**	**7,697**	**180**	**97**	**541**	**826**	**8**
					11,191		**3,623**		**11,588**				**97**				**2,000**							**834**	

SIGNAL QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	SIGNAL CABLE LF	VEHICLE SIGNAL HEAD (12", 3 SECTION) EA	VEHICLE SIGNAL HEAD (12", 4 SECTION) EA	TRACER WIRE LF	UNPAVED TRENCH-ING (1, 2") LF	DIREC-TIONAL DRILL (1, 2") LF	JUNCTION BOX (STANDARD SIZE) EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY) EA	GUY ASSEMB LY EA	HEAT SHRINK TUBING RETROFIT KIT EA	INDUC-TIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF	COMMUNI-CATIONS CABLE (24 FIBER) LF	SPLICE ENCLO-SURE EA	INTER CONNECT CENTER EA	DELINE-ATOR MARKER EA	METAL POLE WITH SINGLE MAST ARM EA	SOIL TEST EA	DRILLED PIER FOUNDATION CY	SIGNAL PEDESTAL WITH FOUNDATIO N EA	MAST ARM WITH METAL POLE DESIGN EA	SIGN FOR SIGNALS EA	SIGNAL CABINET FOUNDA TION EA	CONTROL-LER WITH CABINET (TYPE 2070L, BASE MOUNTED) EA	DETEC-TOR CARD (TYPE 2070L) EA	CABINET BASE EXTENDE R EA	DIREC-TIONAL DRILL (3, 2") LF	DIREC-TIONAL DRILL (2, 2") LF
W-5104 41868.3.1	New Hanover	1	NC 132	PROEJCT WIDE	1,450	4	7	280	1,100	440	13	5	1	1	2,165	5,970	550	1	1	2	1	1	7	3	1	1	1	1	2	1	90	20
TOTAL FOR MAP NO. 1					**1,450**	**4**	**7**	**280**	**1,100**	**440**	**13**	**5**	**1**	**1**	**2,165**	**5,970**	**550**	**1**	**1**	**2**	**1**	**1**	**7**	**3**	**1**	**1**	**1**	**1**	**2**	**1**	**90**	**20**
TOTAL FOR PROJ NO. 41868.3.1					**1,450**	**4**	**7**	**280**	**1,100**	**440**	**13**	**5**	**1**	**1**	**2,165**	**5,970**	**550**	**1**	**1**	**2**	**1**	**1**	**7**	**3**	**1**	**1**	**1**	**1**	**2**	**1**	**90**	**20**
W-5104 42599.3.1	Brunswick	2	US 17																													
TOTAL FOR MAP NO. 2																																
TOTAL FOR PROJ NO. 42599.3.1																																
GRAND TOTAL (W-5104)					**1,450**	**4**	**7**	**280**	**1,100**	**440**	**13**	**5**	**1**	**1**	**2,165**	**5,970**	**550**	**1**	**1**	**2**	**1**	**1**	**7**	**3**	**1**	**1**	**1**	**1**	**2**	**1**	**90**	**20**

D3CAD237933

COMPUTED BY: CMS DATE: 06.07.10

CHECKED BY: SEC DATE: 06.14.10

PROJECT NO.	SHEET NO.
W-5104	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO / DS NO.	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15" CLASS IV	18" CLASSS IV	24" CLASS IV	30" CLASS IV	36" CLASS IV	42"	48"
-L1- 176+94.31	62.95 (LT)		1		23.60	23.50							150		
-L1- 176+94.31	58.93 (LT)		2		23.60	23.50							150		
-L1- 177+52.94	99.22 (RT)		3		24.50	24.00						176			
-L1- 177+52.94	102.22 (RT)		4		24.50	24.00						176			
-L1- 255+32.74+/-	35.06 (LT)+/-		5		M.E.	M.E.				26					
-L1- 255+58.69+/-	36.73 (LT)+/-		6		M.E.	M.E.				6					
SUB-TOTALS	SHEET ONE									32		352	300		
GRAND TOTAL										32		352	300		

STATION	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
-L1- 176+94.31																				
-L1- 176+94.31																				
-L1- 177+52.94																				
-L1- 177+52.94																				
-L1- 255+32.74+/-																				
-L1- 255+58.69+/-																				
SUB-TOTALS														1						
GRAND TOTAL														1						

STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	M.D.I. TYPE "A" STD. 840.17 OR 840.26	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. FRAME WITH GRATE STD. 840.20	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	O.T.C.B.	CONVERT EXIST DI OR CB TO T.B.J.B.	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FRAME AND TWO GRATES STD. 840.29	RIP RAP, CLASS I (TONS)	FILTER FABRIC FOR DRAINAGE (SY)	FOUNDATION CONDITIONING FABRIC (SY)	FOUNDATION CONDITIONING MATERIAL MINOR STRUCTURES (TONS)	REMARKS
-L1- 176+94.31																			22	41	50	15	
-L1- 176+94.31																					50	15	
-L1- 177+52.94																			16	30	60	20	
-L1- 177+52.94																					60	20	
-L1- 255+32.74+/-																			4	10	20	10	M.E.=MATCH EXISTING
-L1- 255+58.69+/-																							
SUB-TOTALS	1	1																	42	81	240	80	
GRAND TOTAL	1	1																	42	81	240	80	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I.(N.S.)	MEDIAN 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

PROJECT REFERENCE NO.	SHEET NO.
W-5104	4

8/17/99

105

POT Sta. 100+84.74
BEGIN PROJECT

CAROLINA BEACH ROAD
US 421 SBL

CAROLINA BEACH ROAD
US 421 SBL

N 11° 09' 19.6" E

107+73

NC 132
SOUTH COLLEGE ROAD →

US 421 NBL
CAROLINA BEACH ROAD

DDC22

PINER ROAD
SR 1521

DDC22 ELEV 27.95
-LI- 107+25.98
(99.36 RT)

Scale 1" = 50'

50' 0 50' 100'

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/99

JB-AUG-2010 10:36
R:\BOX 20\THREE_NEW HANOVER\W5104_NC132 Crossovers_2010\ROADWAY\Proj\psh_L1_4.dgn

18-AUG-2010 10:44
R:\RDY\DTHREE\..NEW_HANOVER\W5104_NC132 Crossovers_2010\ROADWAY\Proj\psh_LI_5.dgn
8/17/99

REVISIONS

107+73

US 421

Scale 1" = 50'

50' 0 50' 100'

110

3'

-LI- 110+43.90
(52.57 RT)
BEG. PROP. CONC. ISLAND
MATCH EXISTING

43'

64'

-LI- 110+43.94
(50.06 RT)
BEG. PROP. CONC. ISLAND
MATCH EXISTING
BEG. REMOVAL OF CONC. ISLAND

109'

PROP. CONC. ISLAND

SOUTH COLLEGE ROAD
NC 132 SBL

-LI- 111+53.08
(55.34 RT)
END PROP. CONC. ISLAND
BEG. PROP. CURB & GUTTER
BEG. PVMT REMOVAL

-LI- 111+53.43
(40.12 RT)
END PROP. CONC. ISLAND
BEG. PROP. CURB & GUTTER
BEG. PVMT REMOVAL

154.5'

NC 132 NBL
SOUTH COLLEGE ROAD

-LI- 113+07.83
(40.91 RT)

PC Sta. 113+74.27

138'

PROP. 1'-6" CURB & GUTTER

PROP. 1'-6" CURB & GUTTER

-LI- 114+60.25
(43.45 RT)
END REMOVAL OF CONC. ISLAND

-LI- 114+46.21
(28.87 RT)

114+61

8/29/10

SEAL
024905
SCOTT
EVANS
COOKE
ENGINEER
NORTH CAROLINA
PROFESSIONAL

PROJECT REFERENCE NO.
W-5104

SHEET NO.
5


PROJECT REFERENCE NO. W-5104
SHEET NO. 6
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024905 SCOTT EVANS COOKE
DIVISION DESIGN ENGINEER
8/20/10
8/17/99
REVISIONS
115
120
575'
114+61
121+49
41'
42'
3.25'
54.5'
13.5'
12'
38'
22.07'
447.5'
99'
SOUTH COLLEGE ROAD
NC 132 SBL
NC 132 NBL
SOUTH COLLEGE ROAD
PROP. CONC. ISLAND
PROP. CONC. ISLAND
EXIST 1' 6" C & G
PROP. 1' 6" CURB & GUTTER
EXIST 1' 6" C & G
DDC23
-L1- 114+76.14 (28.56 RT) END PROP. C & G END PVMT REMOVAL BEG. PROP. CONC. ISLAND
-L1- 115+29.93 (52.15 RT) BEG. PROP. CONC. ISLAND
-L1- 115+51.76 (44.08 RT) BEG. PROP. WIDENING BEGIN PROP. PVMT
-L1- 115+81.78 (29.29 RT) END PROP. CONC. ISLAND
-L1- 120+01.87 (35.10 RT)
-L1- 121+00.83 (22.56 RT) END PROP. WIDENING END PROP. C & G MATCH EXISTING
-L1- 114+76.39 (56.82 RT) END PROP. C & G END PVMT REMOVAL BEG. PROP. CONC. ISLAND
-L1- 115+55.70 (56.40 RT) END PROP. CONC. ISLAND BEGIN PROP. C & G BEG. PVMT REMOVAL
-L1- 115+82.11 (56.32 RT) END PVMT REMOVAL END PROP. C & G MATCH EXISTING
DDC23 ELEV 20.68 -L1- 120+11.36 (38.04 RT)
Scale 1" = 50'
50' 0 50' 100'
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PROJECT REFERENCE NO.	SHEET NO.
W-5104	7

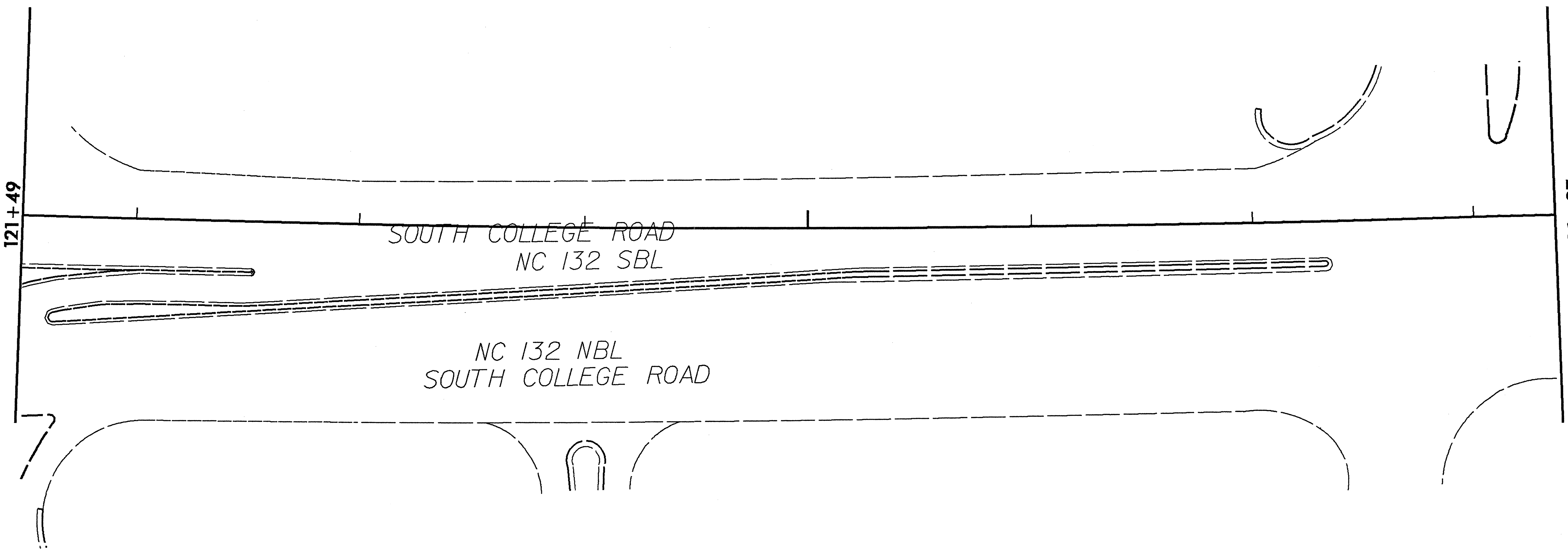
NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

125

PI Sta 123+55.69
Δ = 9° 48′ 47.8″ (LT)
D = 0° 30′ 04.3″
L = 1,958.03′
T = 981.42′
R = 11,432.16′



Scale 1" = 50'

50' 0 50' 100'

8/17/99

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	8

130

135

PT Sta. 133+32.31

575'

-LI- 131+87.72
(43.71 RT)
BEGIN PROP. WIDENING
BEGIN PROP. C & G
MATCH EXISTING

SOUTH COLLEGE ROAD
NC 132 SBL

128+37

135+25

48'

20.5'

29.5'

EXIST 1' 6" C & G

DDC24

EXIST 1' 6" C & G

PROP. 1' 6" CURB & GUTTER

320'

149.5'

NC 132 NBL
SOUTH COLLEGE ROAD

DDC24 ELEV 26.24
-LI- 129+69.90
(38.55 RT)

-LI- 133+36.96
(31.18 RT)

Scale 1" = 50'

50' 0 50' 100'

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER LOSS EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/99

REVISIONS

8/17/99

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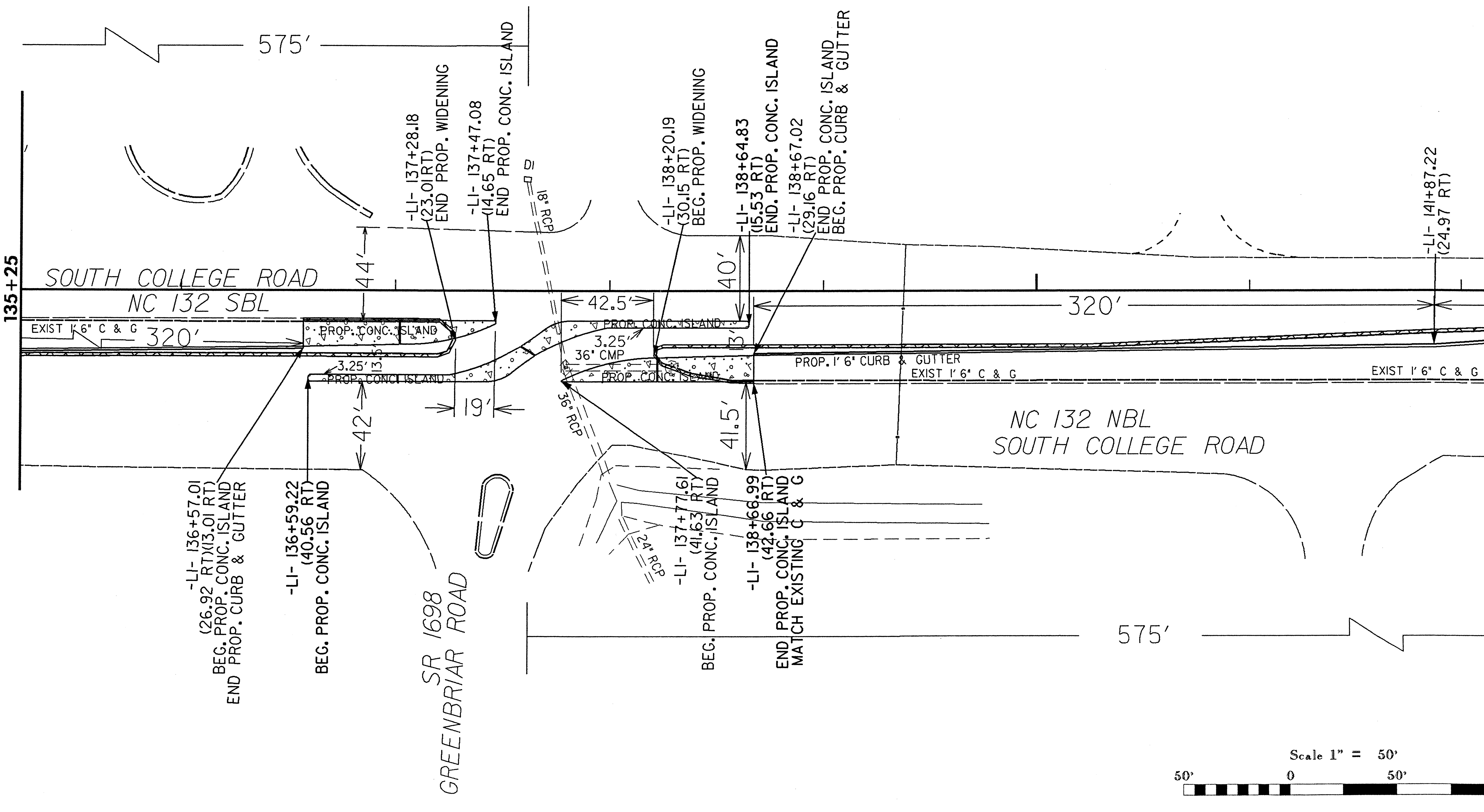
PROJECT REFERENCE NO.	SHEET NO.
W-5104	9

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

140



Scale 1" = 50'

50' 0 50' 100'

REVISIONS

8/17/99

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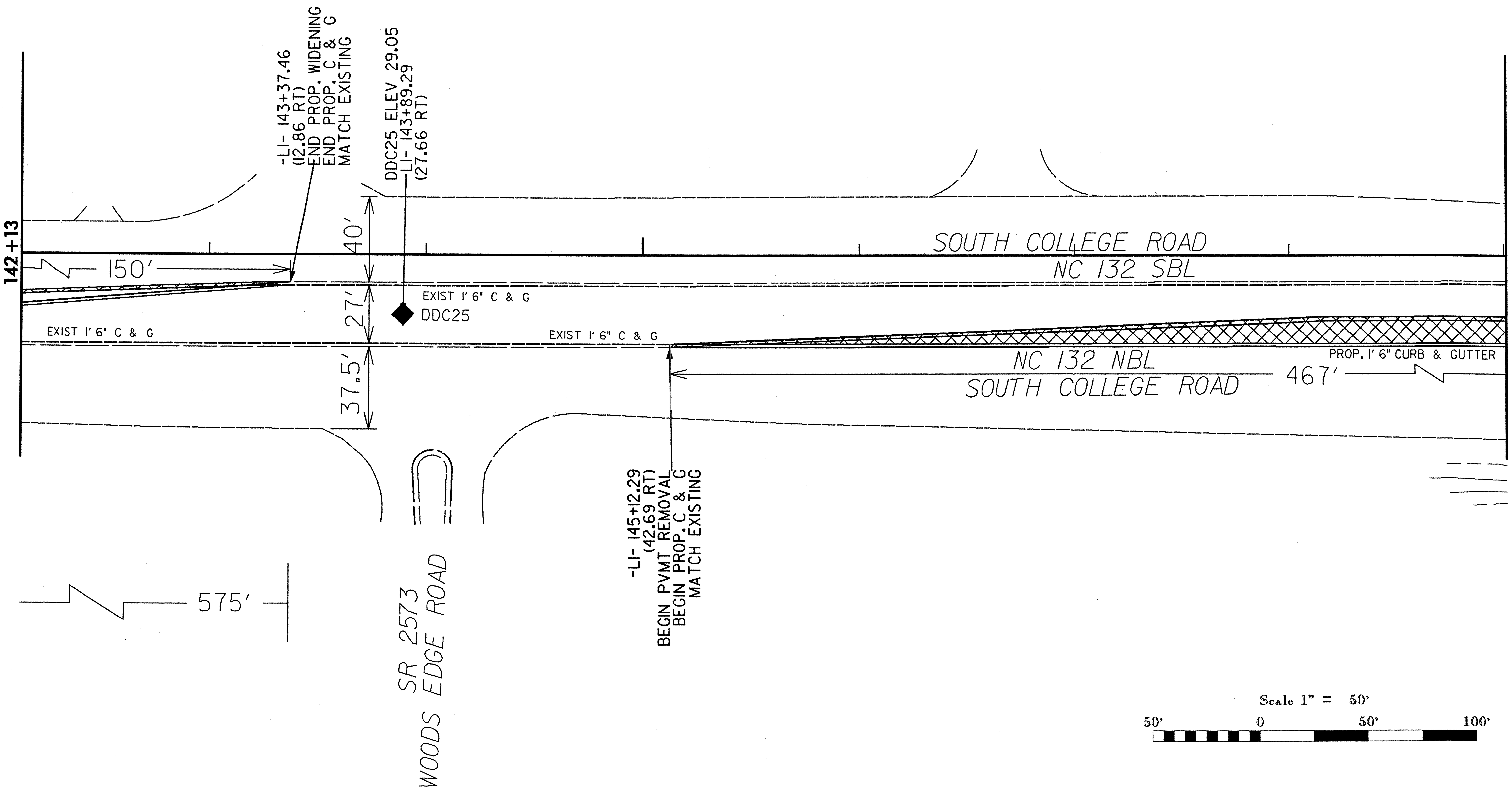
PROJECT REFERENCE NO.	SHEET NO.
W-5104	10

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

145



REVISIONS

8/17/99

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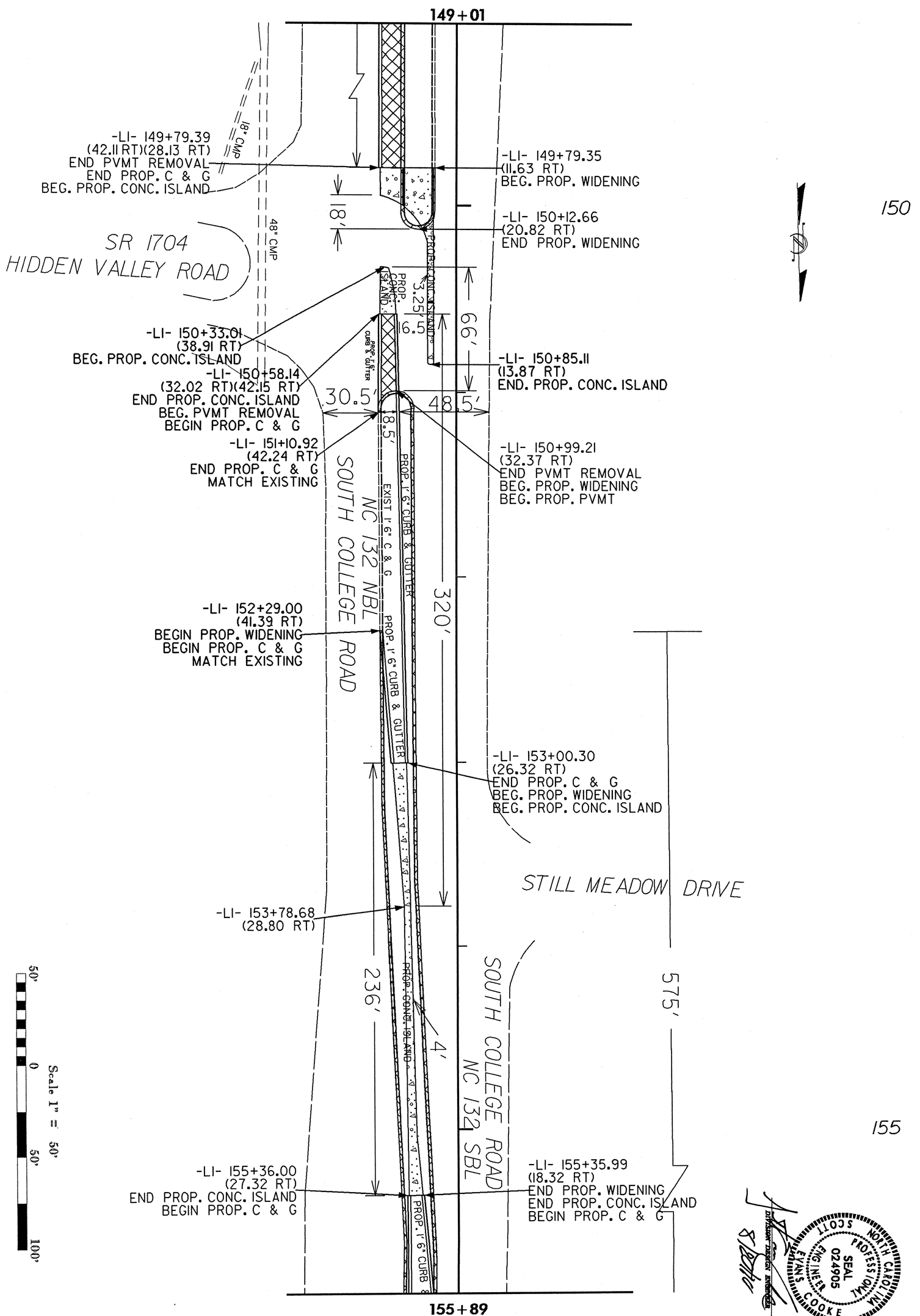
8/17/99



NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE
DIVISION DESIGN ENGINEER

PROJECT REFERENCE NO. W-5104
SHEET NO. 11

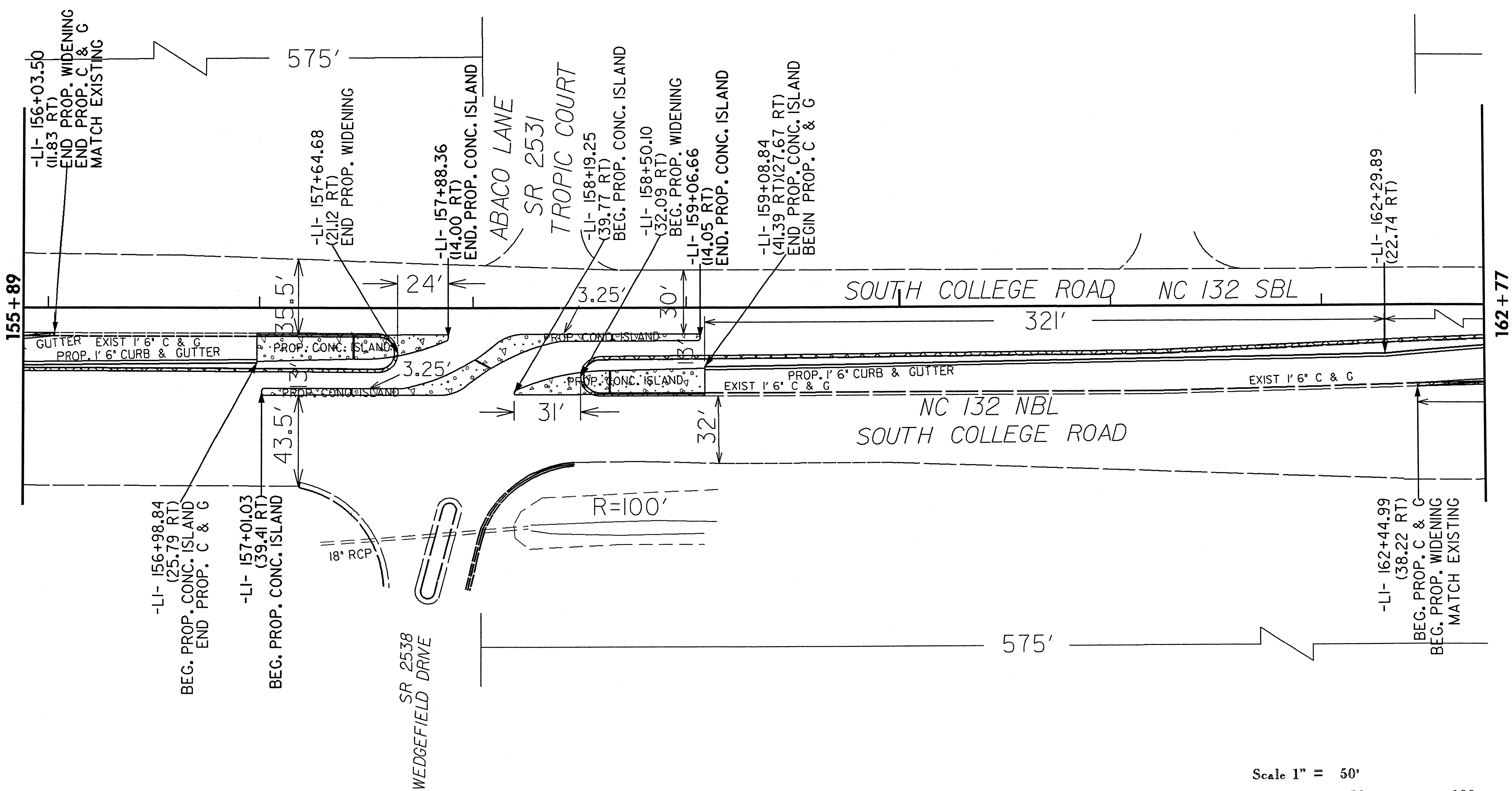
PROJECT REFERENCE NO.	SHEET NO.
W-5104	12

160

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER 8/20/10

REVISIONS



Scale 1" = 50'

50' 0 50' 100'

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	13

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

REVISIONS

8/17/99

165

575'

SOUTH COLLEGE ROAD
NC 132 SBL

162+77

150'

EXIST 1' 6" C & G

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

150'

320'

NC 132 NBL
SOUTH COLLEGE ROAD

-LI- 163+79.71
(11.24 RT)
END PROP. WIDENING
END PROP. C & G
MATCH EXISTING

-LI- 163+94.84
(29.03 RT)

SR 1774
CROSSWINDS DRIVE

-LI- 167+58.83
(20.26 RT)
END PROP. WIDENING

-LI- 168+05.15
(12.44 RT)
END PROP. CONC. ISLAND

29.5'

46'

PROP. CONC. ISLAND

3.25'

PROP. CONC. ISLAND

41.25'

-LI- 167+15.03
(24.78 RT)
END PROP. C & G
BEG. PROP. CONC. ISLAND

-LI- 167+17.27
(38.41 RT)
BEG. PROP. CONC. ISLAND

-LI- 167+98.03
(81.35 RT)
BEG. PROP. CONC. ISLAND

-LI- 167+96.87
(134.11 RT)

SR 1565
MOHICAN TRAIL

SR 1565
JASMINE COVE WAY

-LI- 168+50.16
(32.74 RT)
BEG. PROP. WIDENING

15'

PROP. CONC. ISLAND

3.25'

PROP. CONC. ISLAND

SEE DETAIL I-A

15'

R=75'

-LI- 168+20.87
(125.96 RT)
BEG. PROP. WIDENING
BEGIN 75' R

-LI- 168+35.19
(39.59 RT)
BEG. PROP. CONC. ISLAND

-LI- 168+83.15
(71.81 RT)
END PROP. WIDENING
END 75' R

-LI- 169+22.86
(13.29 RT)
END PROP. CONC. ISLAND

-LI- 169+25.00
(41.27 RT)(26.84' RT)
END PROP. CONC. ISLAND
BEG. PROP. C & G

44.5'

1' 6" CURB & GUTTER

30.5'

169+65

R=2'

27'

R=2'

72'

R=100'

R=5'

DETAIL I-A
NOT TO SCALE

Scale 1" = 50'

50' 0 50' 100'

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	14

170

175

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

REVISIONS

8/17/99

PINE HOLLOW DRIVE

575'

-L1- 173+95.49
(13.03 RT)
END PROP. WIDENING
END PROP. C & G
MATCH EXISTING

-L1- 175+90.67
(24.95 LT)
BEGIN PROP. WIDENING

169+65

N 1° 20' 28.9" E

320'

37.5'

150'

SOUTH COLLEGE ROAD
NC 132 SBL

42" RCP

42" RCP

176+53

1' 6" CURB & GUTTER

EXIST 1' 6" C & G

19'

1' 6" CURB & GUTTER

EXIST 1' 6" C & G

PROP. 1' 6" CURB & GUTTER

30'

137'

320'

NC 132 NBL
SOUTH COLLEGE ROAD

-L1- 172+29.95
(41.46 RT)
BEG. PROP. WIDENING
BEGIN PROP. C & G
MATCH EXISTING

-L1- 172+45.16
(24.96 RT)

-L1- 173+66.67
(29.55 RT)

575'

Scale 1" = 50'

50' 0 50' 100'

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	15

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE
DIVISION DESIGN ENGINEER
8/26/10

8/17/99

REVISIONS

TESLA PARK DRIVE

180

JAYBIRD DRIVE

36" RCP
36" RCP

SOUTH COLLEGE ROAD
NC 132 SBL

176+53

183+41

-LI- 177+61.75
(59.75 LT)
BEGIN 46' R

-LI- 178+14.61
(18.73 LT)
END PROP. WIDENING

-LI- 178+07.42
(40.28 RT)
BEGIN PROP. WIDENING
BEG. PROP. CONC. ISLAND

-LI- 178+97.82
(14.98 RT)
END PROP. CONC. ISLAND

-LI- 178+97.02
(28.59 RT)
END PROP. CONC. ISLAND
BEG. PROP. C & G

575'
180'

150' OF DUAL 36" RCP

1
2

22 TONS OF CLASS I RIP RAP
41 SY OF FILTER FABRIC FOR DRAINAGE

36" RCP

R=46'

34'
31'
3.25'
PROP. CONC. ISLAND
PROP. CONC. ISLAND
PROP. CONC. ISLAND
PROP. CONC. ISLAND
PROP. 1' 6" CURB & GUTTER
EXIST 1' 6" C & G
320.5'
153.5'
30'
3.25'
30'

NC 132 NBL
SOUTH COLLEGE ROAD

16 TONS OF CLASS I RIP RAP
30 SY OF FILTER FABRIC FOR DRAINAGE

3
4

176' OF DUAL 30" RCP

R=46'

180'

575'

-LI- 176+87.01
(25.71 RT)(12.77 RT)
END PROP. C & G
BEG. PROP. CONC. ISLAND

-LI- 176+86.19
(39.35 RT)
BEG. PROP. CONC. ISLAND

-LI- 177+76.58
(14.56 RT)
END PROP. WIDENING
END PROP. CONC. ISLAND

-LI- 177+66.13
(71.03 RT)
BEG. PROP. WIDENING
BEG. PROP. 46' R

-LI- 178+18.94
(111.47 RT)

-LI- 179+91.50
(70.75 RT)
END PROP. WIDENING

-LI- 182+17.48
(25.80 RT)

Scale 1" = 50'

50' 0 50' 100'

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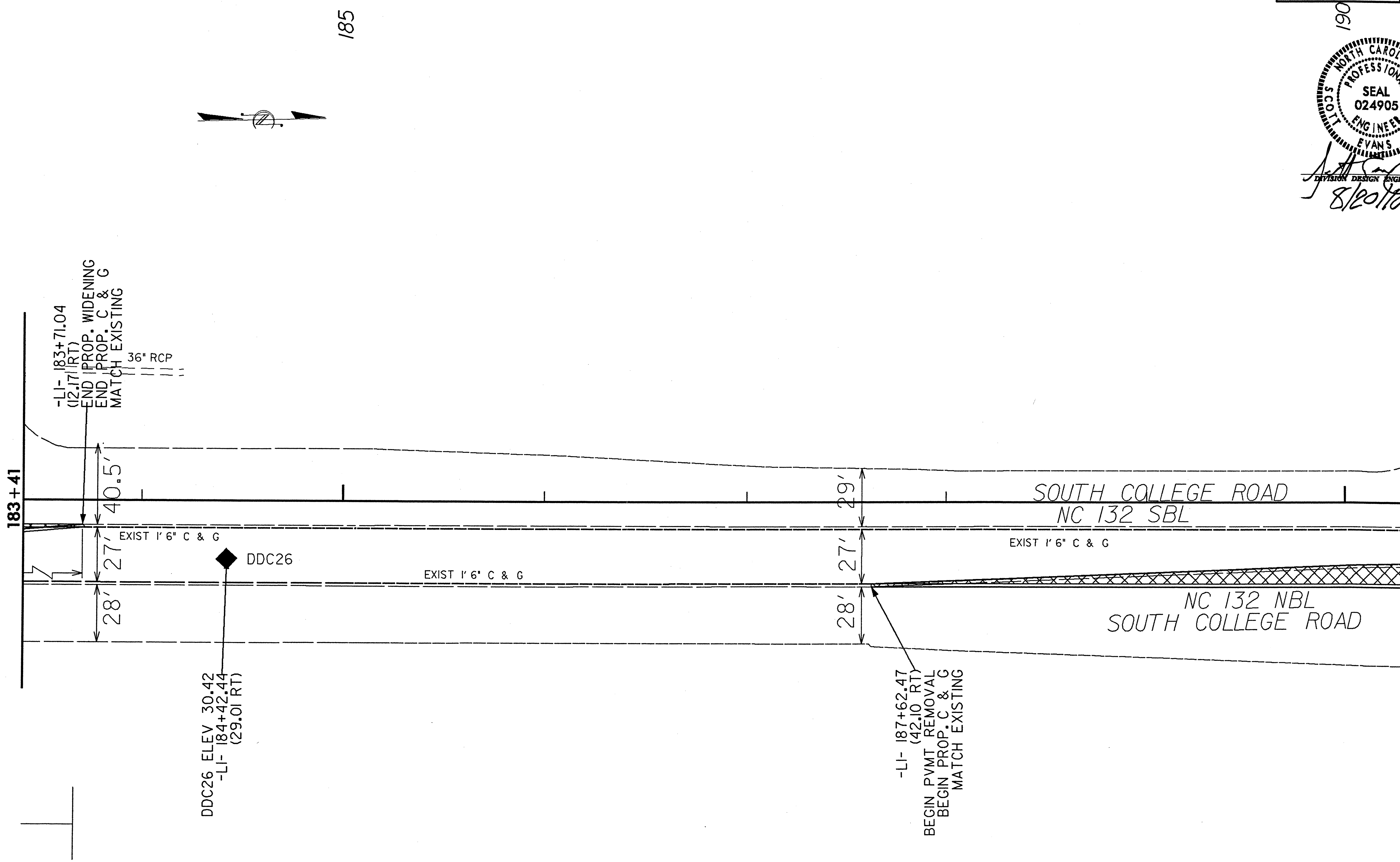
PROJECT REFERENCE NO.	SHEET NO.
W-5104	16



NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

Scale 1" = 50'

50' 0 50' 100'

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	17

REVISIONS

8/17/99

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/99

195

GATEFIELD DRIVE

SR 2571

SR 2338 TROMBAY DRIVE

-LI- 192+56.34
(12.09 RT)
BEGIN PVMT REMOVAL
BEGIN PROP. C & G
MATCH EXISTING

190+29

SOUTH COLLEGE ROAD
NC 132 SBL

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

29.5'

EXIST 1' 6" C & G

28.5'

PROP. 1' 6" CURB & GUTTER

NC 132 NBL
SOUTH COLLEGE ROAD

28.5'

197+17

18" RCP

WEYBRIDGE LANE
SR 1770

-LI- 193+55.36
(42.03 RT)
END PVMT REMOVAL
END PROP. C & G
MATCH EXISTING

-LI- 195+25.29
(41.78 RT)
BEG. PVMT REMOVAL
BEG. PROP. C & G

Scale 1" = 50'

50' 0 50' 100'

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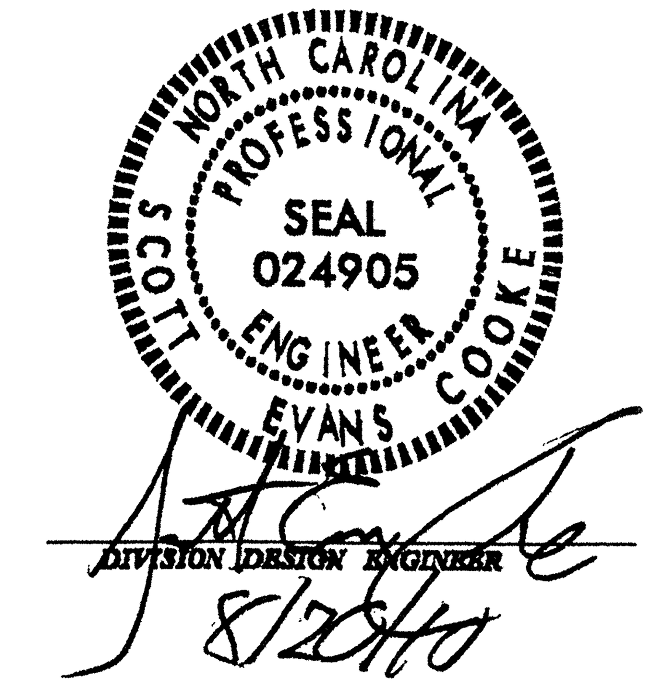
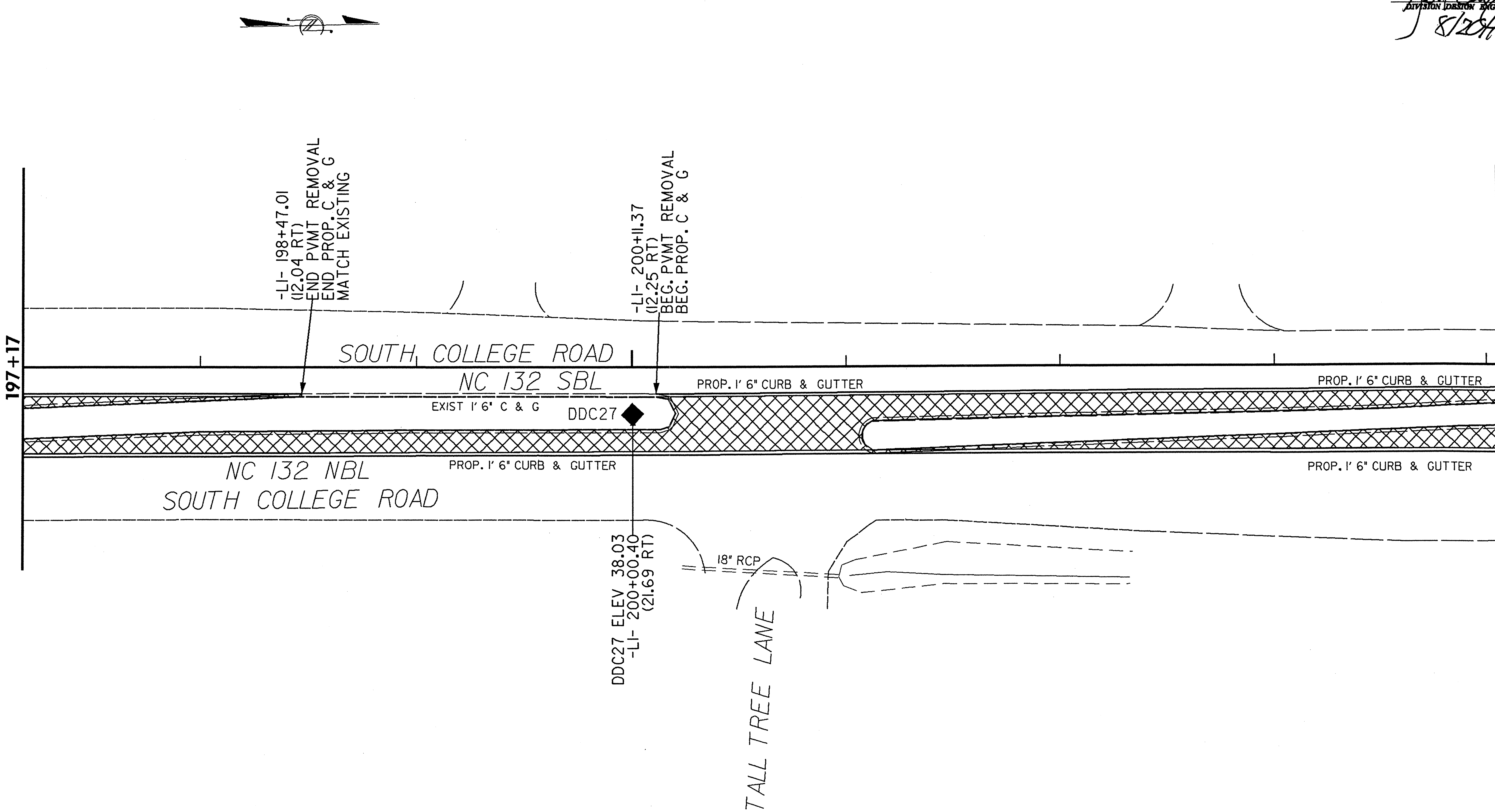
PROJECT REFERENCE NO.	SHEET NO.
W-5104	18





Scale 1" = 50'

50' 0 50' 100'

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	19

205

210

POT Sta. 206+50.06

807'

575'

-LI- 205+35.92
(9.87 RT)
END PVMT REMOVAL
END PROP. C & G
MATCH EXISTING

-LI- 205+78.85
(9.71 RT)
BEG. PROP. WIDENING

-LI- 206+09.20
(18.55 RT)
END PROP. WIDENING

-LI- 206+84.74
(11.95 RT)
END PROP. CONC. ISLAND

-LI- 207+19.01
(28.81 RT)
END PVMT REMOVAL
BEG. PROP. WIDENING

-LI- 210+72.18
(31.20 RT)(22.22 RT)
BEG. PROP. WIDENING
BEG. PROP. CONC. ISLAND

204+05

210+93

SOUTH COLLEGE ROAD
NC 132 SBL

26.5'

52'

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

PROP. CONC. ISLAND

77'

3.25'

6'

85.5'

444'

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

13'

PROP. 1' 6" CURB & GUTTER

PROP. CONC. ISLAND

PROP. 1' 6" CURB & GUTTER

67.5'

NC 132 NBL
SOUTH COLLEGE ROAD

150'

29'

40.5'

-LI- 205+78.83
(40.13 RT)(9.71 RT)
END PVMT REMOVAL
END PROP. C & G
BEG. PROP. CONC. ISLAND

18" RCP

SR 1592
LANSDOWNE ROAD

-LI- 206+33.19
(37.32 RT)
BEGIN PROP. WIDENING
BEG. PROP. CONC. ISLAND

-LI- 206+58.48
(41.10 RT)(29.94 RT)
END PROP. CONC. ISLAND
BEG. PVMT REMOVAL
BEG. PROP. C & G

-LI- 207+26.01
(41.14 RT)
END PROP. C & G
MATCH EXISTING

WILMINGTON CITY LIMITS

-LI- 209+69.04
(40.12 RT)
BEG. PROP. WIDENING
BEG. PROP. C & G

Scale 1" = 50'

50' 0 50' 100'

REVISIONS

8/17/99

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/99

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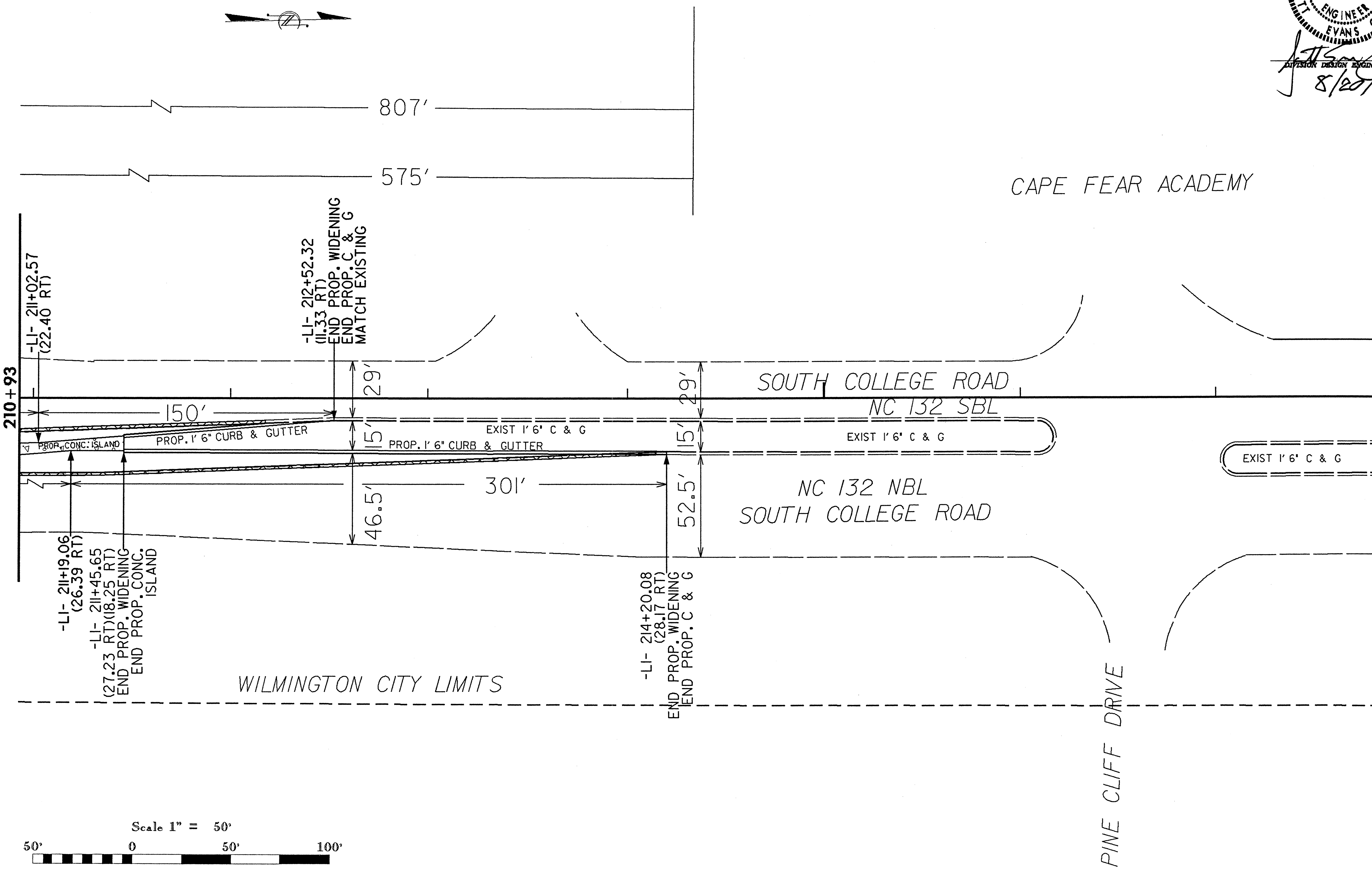
PROJECT REFERENCE NO.	SHEET NO.
W-5104	20

215

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10



Scale 1" = 50'

50' 0 50' 100'

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	21

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

8/17/99

REVISIONS

220

-LI- 218+90.39 (29.52 LT) BEG. PROP. WIDENING

-LI- 221+29.19 (30.03 LT)

-LI- 223+17.99 (17.64 LT) END PROP. WIDENING

-LI- 223+50.21 (11.49 RT) BEGIN PVMT REMOVAL BEG. PROP. C & G

SATARA DRIVE SR 2315

24" RCP

239'

189'

217+81

224+69

51'

SOUTH COLLEGE ROAD

NC 132 SBL

29'

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

EXIST 1' 6" C & G

EXIST 1' 6" C & G

26'

15'

NC 132 NBL

SOUTH COLLEGE ROAD

PROP. 1' 6" CURB & GUTTER

40'

30'

-LI- 218+93.17 (39.36 RT) BEGIN PVMT REMOVAL BEGIN PROP. C & G

OAK CLIFF ROAD

WILMINGTON CITY LIMITS

-LI- 224+47.40 (41.05 RT) END PVMT REMOVAL END PROP. C & G MATCH EXISTING

Scale 1" = 50'

50' 0 50' 100'

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PROJECT REFERENCE NO.	SHEET NO.
W-5104	22

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

8/17/96

REVISIONS

225

230

SOUTH COLLEGE ROAD
NC 132 SBL

224+69

231+57

PROP. 1' 6" CURB & GUTTER

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

EXIST 1' 6" C & G

EXIST 1' 6" C & G

PROP. 1' 6" CURB & GUTTER

-L1- 229+20.42
(11.08 RT)
END PVMT REMOVAL
END PROP. C & G
MATCH EXISTING

44'

220.5'

13.5'

35.5'

NC 132 NBL
SOUTH COLLEGE ROAD

-L1- 229+50.60
(39.46 RT)
BEG. PROP. WIDENING
BEG. PROP. C & G

WILMINGTON CITY LIMITS

Scale 1" = 50'

50' 0 50' 100'

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231+57

-LI- 231+71.15
(20.49 RT)(15.88 RT)
END PROP. C & G
BEG. PROP. CONC. ISLAND

-LI- 232+09.69
(16.16 RT)

38.5'

PROP. CONC. ISLAND

64.5'

42.5'

192'

N 1° 20' 28" E

-LI- 234+01.68
(15.87 RT)(11.87 RT)
END PROP. WIDENING
END PROP. CONC. ISLAND
MATCH EXISTING CONC. IS.

NC 132 NBL
SOUTH COLLEGE ROAD

NC 132 SBL
SOUTH COLLEGE ROAD

235

SR 2557
WALTMOOR ROAD

18" RCP

SOUTH 17th STREET

DDC28 ELEV 46.72
-LI- 237+39.12
(32.63 RT)

DDC28

EXIST 1'6" C & G

38'

55'

-LI- 238+12.05
(41.48 RT)
BEGIN PVMT REMOVAL
BEG. PROP. C & G

EXIST 1'6" C & G

50' 0 50' 100'

Scale 1" = 50'

238+45

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024905 SCOTT EVANS COOKE

PROJECT REFERENCE NO. W-5104

SHEET NO. 23

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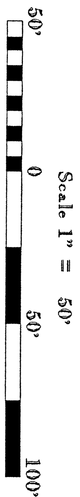
8/17/99



238+45

-L1- 238+53.71
(23.68 RT)
BEG. PROP. WIDENING
BEG. PROP. C & G

240

NC 132 NBL
SOUTH COLLEGE ROAD

SOUTH COLLEGE ROAD
NC 132 SBL

PROP. 1' 6" CURB & GUTTER

PROP. 1' 6" CURB & GUTTER

-L1- 243+16.06
(23.67 RT)
END PROP. WIDENING

CHALMERS DRIVE

-L1- 244+03.10
(41.62 RT)
END PVMT REMOVAL
END PROP. C & G
MATCH EXISTING

-L1- 244+02.04
(23.67 RT)
END PVMT REMOVAL
END PROP. C & G
MATCH EXISTING

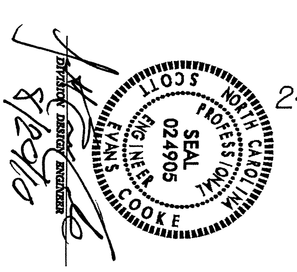
-L1- 244+55.06
(41.55 RT)
BEGIN PVMT REMOVAL
BEG. PROP. C & G

39.5'
15'
52'

EXIST 1' 6" C & G

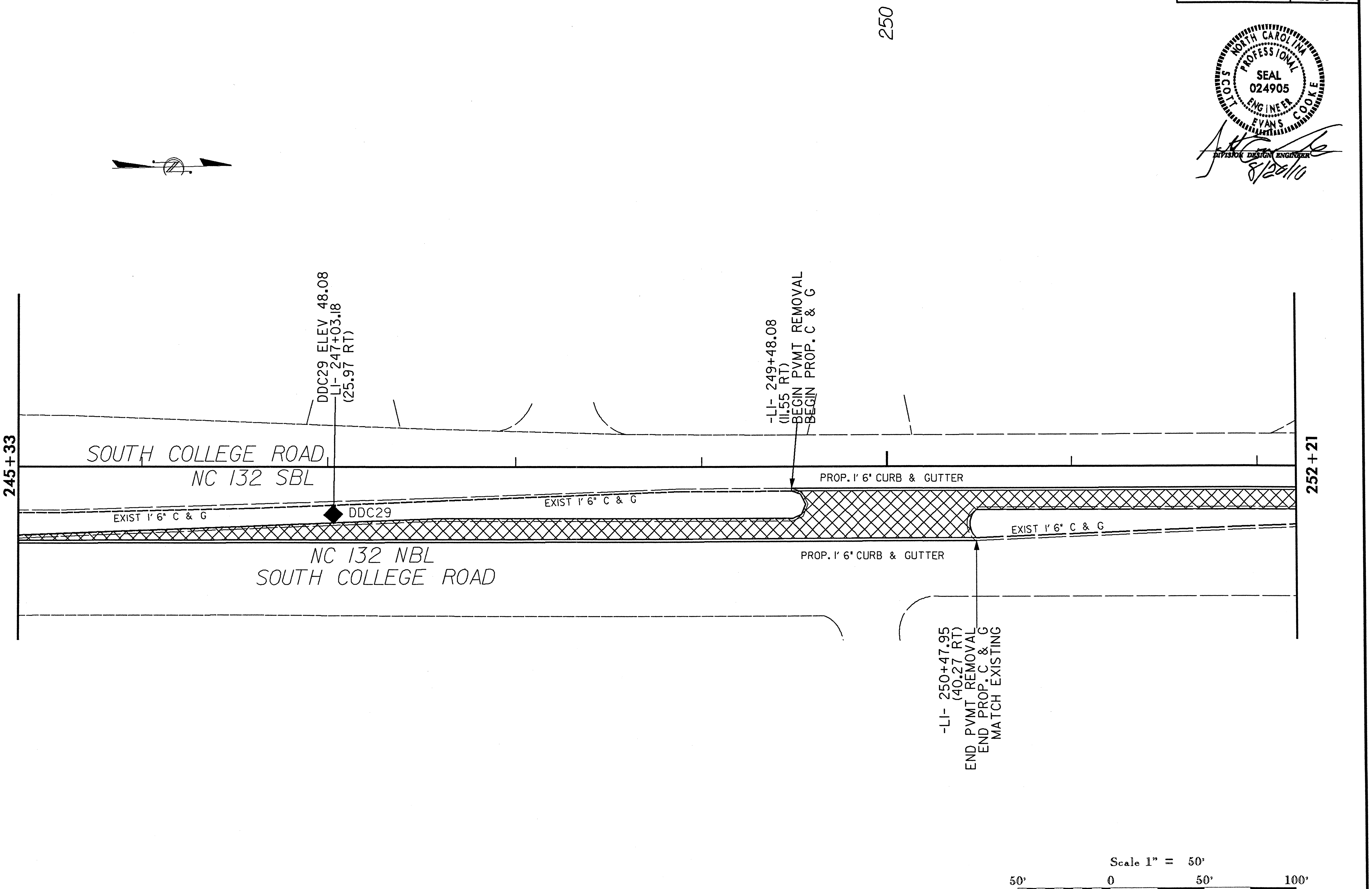
245

245+33



PROJECT REFERENCE NO.	SHEET NO.
W-5104	24

PROJECT REFERENCE NO.	SHEET NO.
W-5104	25



REVISIONS

8/17/99

17-AUG-2010 13:58
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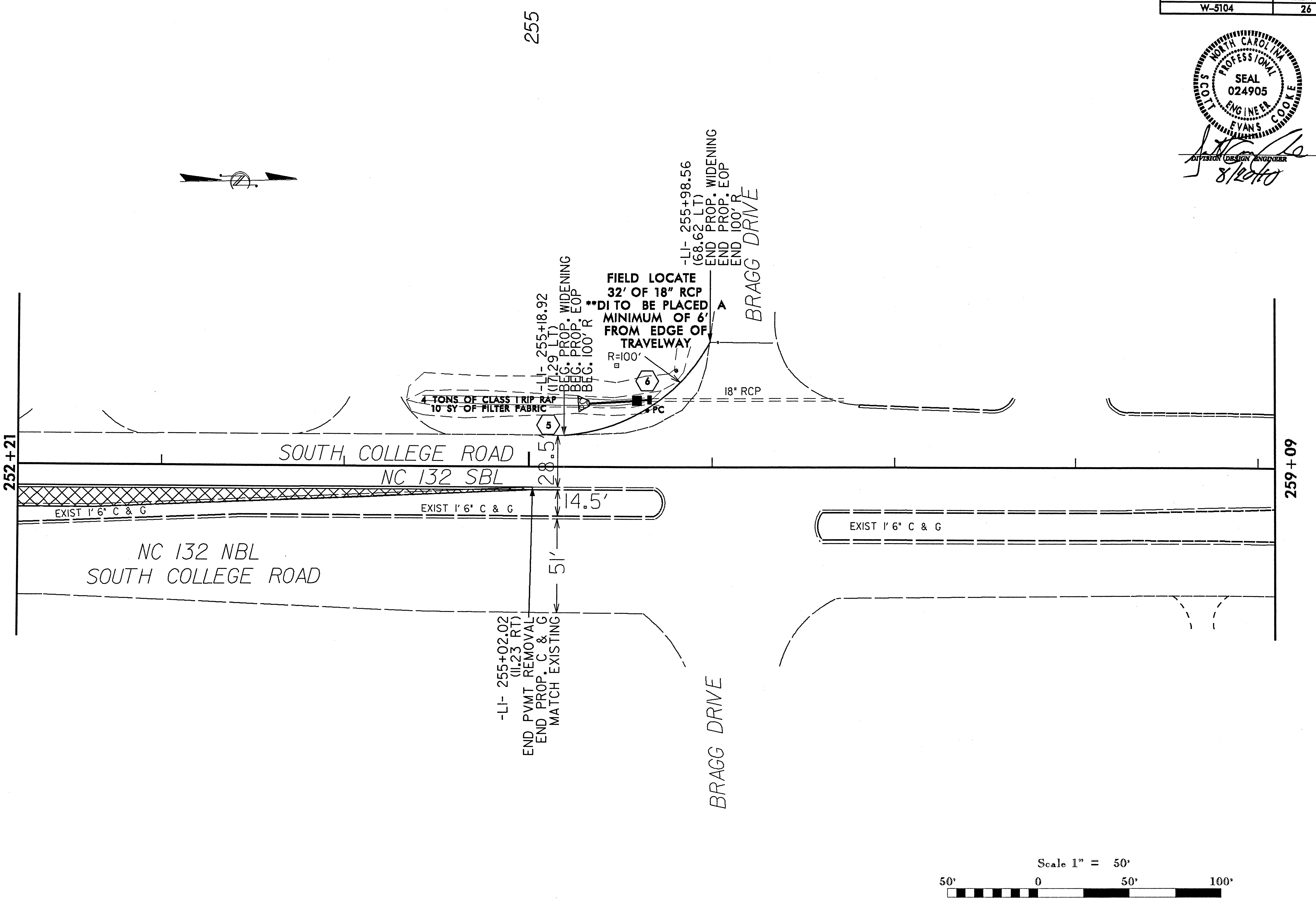
PROJECT REFERENCE NO.	SHEET NO.
W-5104	26



REVISIONS

8/17/99

18-AUG-2010 14:08
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PROJECT REFERENCE NO.	SHEET NO.
W-5104	27

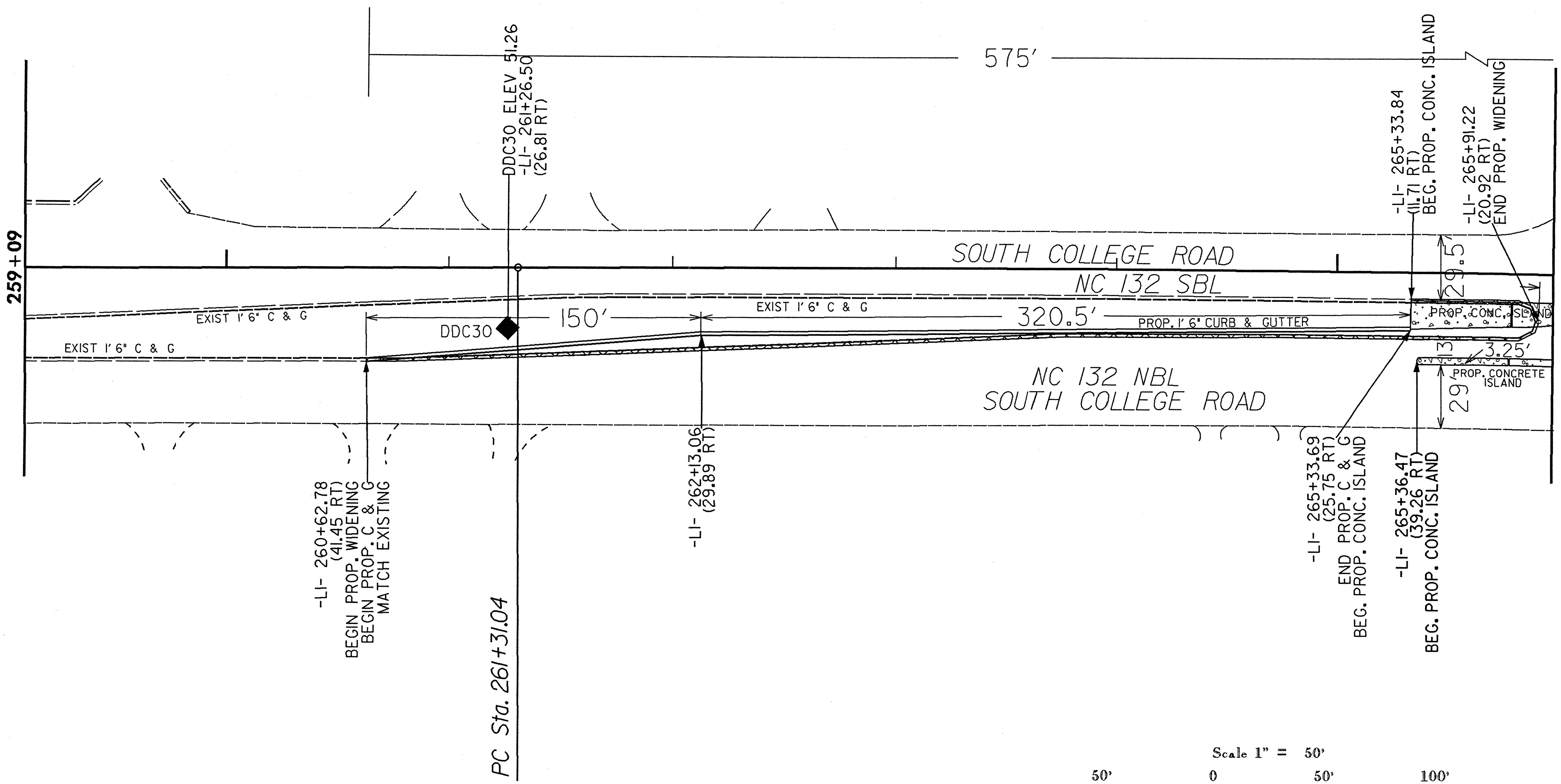
NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

REVISIONS

8/17/99



Scale 1" = 50'

50' 0 50' 100'

17-AUG-2010 13:58
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PROJECT REFERENCE NO.	SHEET NO.
W-5104	28

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER 8/20/10

PI Sta 272+49.29
Δ = 5° 34' 49.1" (RT)
D = 0° 14' 58.9"
L = 2,234.75'
T = 1,118.26'
R = 22,945.31'

REVISIONS

8/17/99

270

WICKSLOW DRIVE

-LI- 266+23.83
(13.42 RT)
END PROP. CONC. ISLAND

-LI- 267+43.67
(14.16 RT)
END PROP. CONC. ISLAND

-LT- 267+43.95
(41.66 RT)(27.72 RT)
END PROP. CONC. ISLAND
BEGIN PROP. C & G
MATCH EXISTING

-LI- 270+64.41
(25.48 RT)

-LI- 272+14.60
(11.83 RT)
END PROP. WIDENING
END PROP. C & G
MATCH EXISTING

265+98

272+86

SOUTH COLLEGE ROAD NC 132 SBL

41'

32.5'

3.25'

320'

150'

28.5'

PROP. CONC. ISLAND

21'

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

EXIST 1' 6" C & G

EXIST 1' 6" C & G

EXIST 1' 6" C & G

DDC31

26.5'

18.5'

29'

NC 132 NBL
SOUTH COLLEGE ROAD

29.5'

-LI- 266+54.04
(40.01 RT)
BEG. PROP. CONC. ISLAND

-LI- 266+72.63
(32.63 RT)
BEG. PROP. WIDENING

DDC31 ELEV 51.64
-LI- 271+39.59
(28.76 RT)

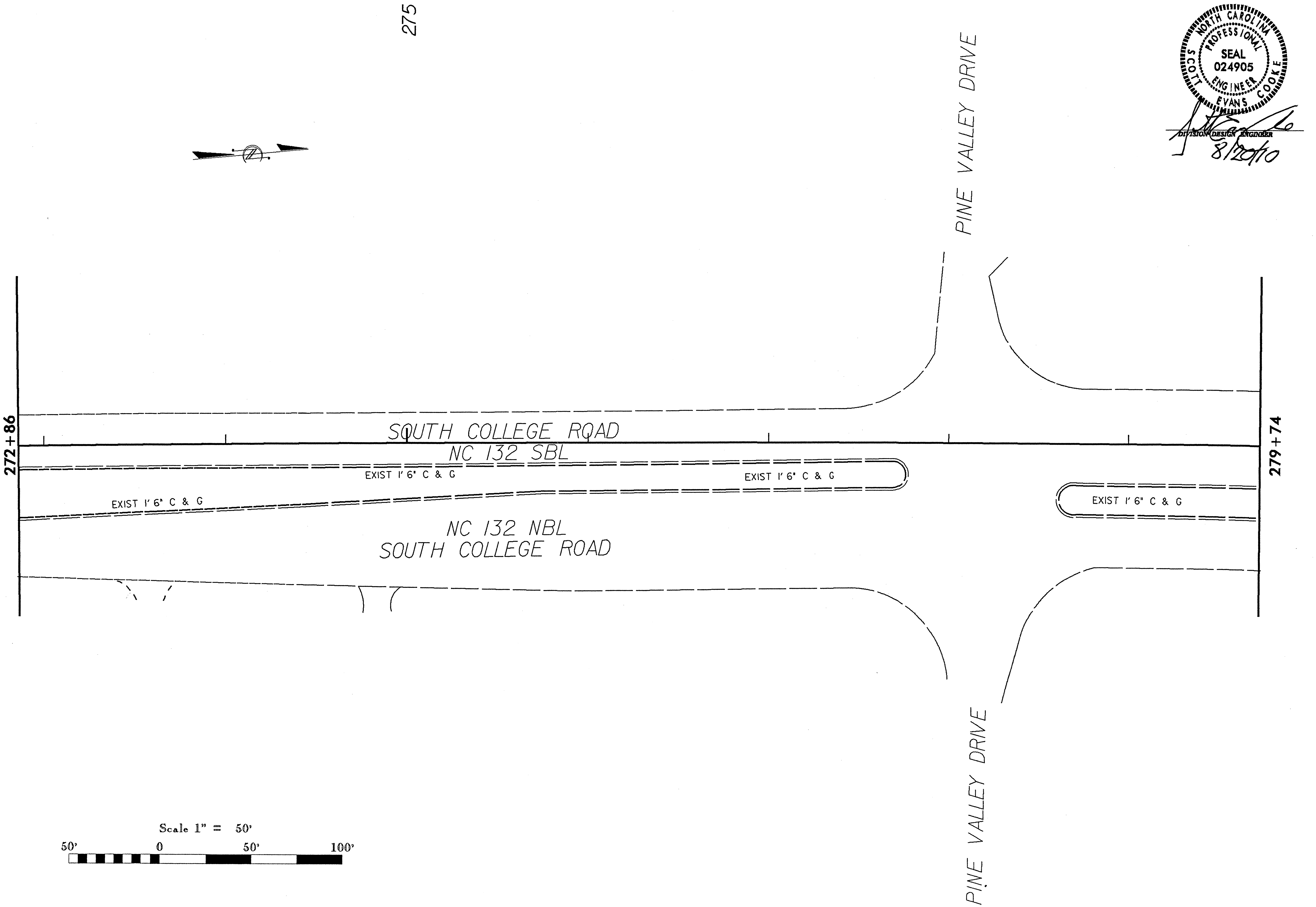
575'

Scale 1" = 50'

50' 0 50' 100'

17-AUG-2010 13:58
R:\RDY\07THREE_NEW_HANOVER\W5104_NC132 Crossovers_2010\ROADWAY\Proj\psh_LL_28.dgn
rschoonmaker at NAD83(2007)

PROJECT REFERENCE NO.	SHEET NO.
W-5104	29



REVISIONS

8/17/99

17-AUG-2010 13:59
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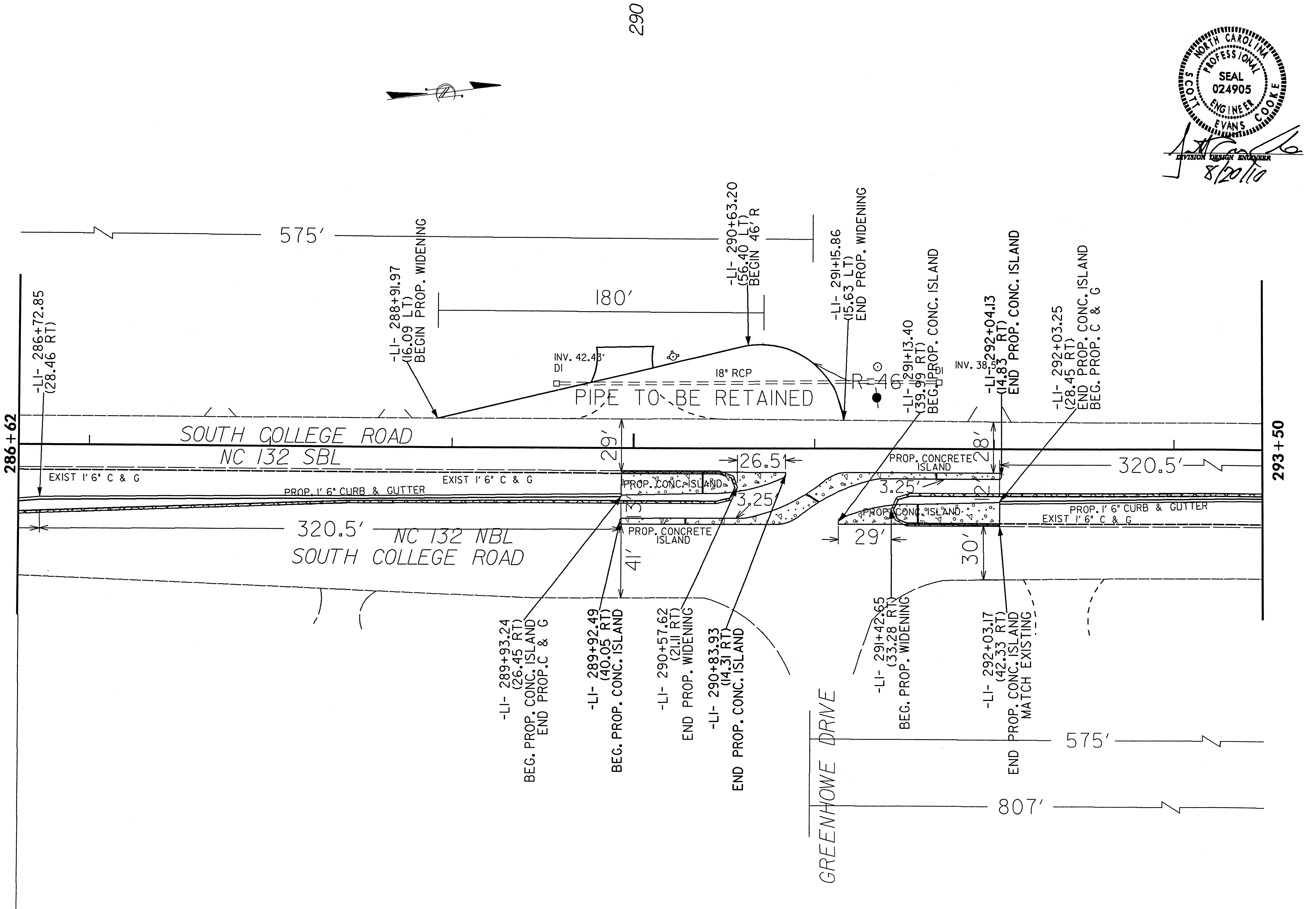
PROJECT REFERENCE NO.
W-5104
SHEET NO.
30
NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE
DIVISION DESIGN ENGINEER
8/20/10
8/17/99
REVISIONS
280
285
575'
279+74
286+62
SOUTH COLLEGE ROAD
NC 132 SBL
EXIST 1' 6" C & G
EXIST 1' 6" C & G
EXIST 1' 6" C & G
EXIST 1' 6" C & G
NC 132 NBL
SOUTH COLLEGE ROAD
28'
27'
28'
DDC32
139'
-L1- 285+33.89 (41.87 RT)
BEG. PROP. WIDENING
BEGIN PROP. C & G
DDC32 ELEV 51.45
-L1- 285+89.01 (28.07 RT)
PT Sta. 283+65.78
Scale 1" = 50'
50'
0
50'
100'

PROJECT REFERENCE NO.	SHEET NO.
W-5104	31



REVISIONS

8/17/99

17-AUG-2010 14:00
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PROJECT REFERENCE NO.	SHEET NO.
W-5104	32

295

300

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER

8/20/10

REVISIONS

8/17/99

293+50

300+38

-LI- 295+23.70 (24.64 RT)

-LI- 296+78.51 (12.84 RT) END PROP. WIDENING END PROP. C & G MATCH EXISTING

-LI- 299+02.00 (13.07 RT) BEGIN PVMT REMOVAL BEGIN PROP. C & G MATCH EXISTING

38'

154.5'

27'

SOUTH COLLEGE ROAD

NC 132 SBL

N 6

PROP. 1' 6" CURB & GUTTER

EXIST 1' 6" C & G

DDC33

27.5'

EXIST 1' 6" C & G

16'

EXIST 1' 6" C & G

29'

NC 132 NBL

PROP. 1' 6" CURB & GUTTER

37'

SOUTH COLLEGE ROAD

-LI- 294+23.98 (42.03 RT) BEG. PVMT REMOVAL BEGIN PROP. C & G

DDC33 ELEV 35.53 -LI- 295+97.19 (24.16 RT)

24" RCP

-LI- 300+04.96 (4.84 RT) END PVMT REMOVAL END PROP. C & G MATCH EXISTING

575'

807'

BENTLEY DRIVE

Scale 1" = 50'

50' 0 50' 100'

17-AUG-2010 14:00
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PROJECT REFERENCE NO.	SHEET NO.
W-5104	33

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT COOKE EVANS

DIVISION DESIGN ENGINEER

8/20/99

8/17/99

REVISIONS

300+38

55' 18.3" E

SOUTH COLLEGE ROAD

NC 132 SBL

NC 132 NBL

SOUTH COLLEGE ROAD

EXIST 1' 6" C & G

PROP. CONC. ISLAND

-LI- 303+04.32
(20.81 RT)(13.18 RT)
END PVMT REMOVAL
END PROP. C & G
BEG. PROP. CONC. ISLAND

WEST CASCADE DRIVE

38'

201'

51.5'

-LI- 303+04.25
(26.47 RT)
BEG. EXIST CONC. IS. REMOVAL
BEG. PROP. CONC. ISLAND

-LI- 305+05.13
(17.22 RT)(13.23 RT)
END EXIST. CONC. ISLAND REMOVAL
END PROP. CONC. ISLAND
MATCH EXISTING

POT Sta. 305+50.00
END PROJECT

41'

65'

HOLLY TREE ROAD

307+26

18" RCP

HOLLY TREE ROAD

Scale 1" = 50'

50' 0 50' 100'

17-AUG-2010 14:00
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PROJECT REFERENCE NO.	SHEET NO.
W-5104	34

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE

DIVISION DESIGN ENGINEER 7-23-10

8/17/99

REVISIONS

20

POT Sta. 19+00.00

BEGINNING OF PROJECT

575'

BST

BST WIDTH VARIES

INV=31.20'

INV=30.40'

CONC

15" RCP

INV=31.24'

INV=31.43'

15" CMP

INV=31.38'

DI

18" RCP

15" RCP DI

TOP=34.15'

INV=31.46'

INV=31.44'

INV=31.54'

TOP=33.51'

INV=31.17'

INV=31.19'

18" RCP

BST

DI

TOP=34.16'

15" RCP

INV=31.58'

INV=31.65'

INV=31.86'

INV=31.81'

TOP=34.36'

DI

BST

15" RCP

TOP=34.42'

15" RCP

INV=31.97'

INV=31.99'

INV=31.97'

BST WIDTH VARIES

24+51

28.5'

US 17 SBL

56'

US HIGHWAY 17

149'

313'

DI

CONC

INV=28.90'

TOP=31.34'

INV=28.89'

BLI

BST WIDTH VARIES

41'

US 17 NBL

18" RCP

INV=31.71'

12" BST

INV=31.54'

15" CMP

INV=27.20'

TOP=3.83'

INV=28.32'

18" CMP

DI

INV=28.00'

BST

15" CMP

INV=29.26'

TOP=31.47'

INV=29.12'

DI

15" CMP

INV=30.18'

RIP RAP

INV=29.76'

INV=27.63'

24" CMP

INV=27.77'

BST WIDTH VARIES

BLI ELEV 35.00
-L2- 17+99.80
(63.66 RT)

-L2- 20+35.41
(72.25 RT)
BEGIN PROP. WIDENING

-L2- 21+84.46
(60.35 RT)

Scale 1" = 50'

50' 0 50' 100'

23-JUL-2010 10:41
R:\HDT\DTHREE_NEW HANOVER\W5104_NC132 Crossovers_2010\ROADWAY\Proj\psh_L2_34.dgn


PROJECT REFERENCE NO. W-5104
SHEET NO. 35
NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT EVANS COOKE
DIVISION DESIGN ENGINEER
7-23-10
8/17/99
REVISIONS
25
30
575'
24+51
31+39
-L2- 24+97.19 (17.44 RT) BEG. PROP. CONC. ISLAND
-L2- 25+88.73 (21.76 RT) END PROP. CONC. ISLAND END PROP. WIDENING
-L2- 27+13.88 (21.43 RT) END PROP. CONC. ISLAND
-L2- 27+21.54 (39.24 RT) END PROP. CONC. ISLAND
INV=32.87'
15" RCP
15" RCP
DI
BOT=33.46'
TOP=34.85'
INV=32.71'
BST
15" CMP
BST
INV=34.09'
INV=33.34'
INV=33.39'
SOIL
BST
15" RCP
INV=32.99'
INV=29.92'
18" RCP
12' BST
28'
34'
16'
8.25'
4'
4'
8.25'
30'
16'
34'
28'
42.5'
314'
150'
US 17 SBL
BST WIDTH VARIES
US HIGHWAY 17
BL2
US 17 NBL
BST WIDTH VARIES
SEE DETAIL I-B
10'
47.5'
BST
BST
8" CONC. CURB
22'
-L2- 24+97.28 (51.46 RT) BEG. PROP. CONC. ISLAND
-L2- 25+06.04 (69.37 RT) BEG. PROP. CONC. ISLAND
-L2- 26+07.07 (112.56 RT) BEG. PROP. CONC. ISLAND
-L2- 26+06.11 (166.33 RT) END PROP. CONC. IS.
-L2- 26+35.80 (112.12 RT) END PROP. CONC. ISLAND
-L2- 26+31.20 (69.60 RT) BEGIN PROP. WIDENING BEG. PROP. CONC. ISLAND
-L2- 27+21.64 (73.65 RT) END PROP. CONC. ISLAND
BI2 ELEV 33.86 -L2- 28+36.26 (64.39 RT)
-L2- 30+35.39 (30.52 RT)
R = 2'
25'
R = 2'
23.5'
R = 100'
MATCHING EXISTING
DETAIL I-B
NOT TO SCALE
Scale 1" = 50'
50' 0 50' 100'
23-JUL-2010 09:15
R:\HDY\OTHREE\NEW HANOVER\W5104_NC132 Crossovers_2010\ROADWAY\Proj\psh_L2_35.dgn

PROJECT REFERENCE NO.	SHEET NO.
W-5104	36

NORTH CAROLINA PROFESSIONAL SEAL 024905 ENGINEER SCOTT COOKE EVANS

DIVISION DESIGN ENGINEER 7-23-10

8/17/99

REVISIONS

35

POT Sta. 37+00.00

END OF PROJECT

INV UNKNOWN
+/- DIRECTION

INV=21.69' 18" CMP INV=21.06' INV=17.03' 18" RCP ?

BST BST CONC

8" CONC CURB

DI
CONC
INV=25.40'
TOP=29.98'
INV=24.91'

31+39

N 66° 34' 49.2" E

28'

US 17 SBL

18" RCP

DI
CONC
INV=23.72'
TOP=26.37'
INV=23.73'

56.5'

BL3

40.5'

18" RCP

US 17 NBL

INV=23.05'

INV=20.26'

INV=20.14'

INV=20.93' 24" CMP

BST BST

24" RCP

INV=18.65'

CONC PAVED DITCH

INV=15.17' 24" CMP INV=12.88'

-L2- 31+84.89
(16.33 RT)
END PROP. WIDENING
MATCH EXISTING

Scale 1" = 50'

50' 0 50' 100'

23-NOV-2010 10:42
R:\RDY\DTHREE_NEW_HANOVER\W5104_NC132 Crossovers_2010\ROADWAY\Proj\psh_L2.36.dgn