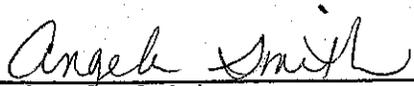


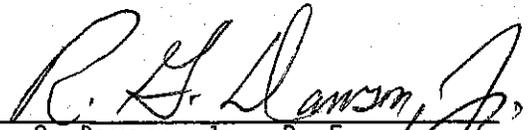
FEASIBILITY STUDY

NC 211
From Candor to US 1
Moore County
R-2591

Prepared by
Planning and Research Branch
Division of Highways
N. C. Department of Transportation



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6/27/90
Date

for 
L. J. Ward, P. E.
Manager, Planning and Research

NC 211
From Candor to US 1
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I. DESCRIPTION

This report covers a preliminary study of a proposed improvement of a 19-mile section of NC 211 from Candor to US 1 in Aberdeen, including a proposed bypass of Pinehurst (see Figure 1). This project is included in the 1990-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection and is not currently funded.

II. PURPOSE OF PROJECT

Existing Route Characteristics

NC 211 is classified as a major collector on the adopted thoroughfare plan for Moore County, and as a rural major collector on the County Functional Classification Plan. The proposed NC 211 Pinehurst bypass is part of the County Thoroughfare plan and also the recommended thoroughfare plan for Pinehurst, Southern Pines, and Aberdeen.

NC 211 is basically a 2-lane, 24-foot paved facility with variable 7 to 10-foot unpaved shoulders, except in Candor where a combination 4-lane, 52-foot curbed and 48-foot shoulder section extends to and through the US 220 interchange, and in West End where a 4-lane, 58-foot curb and gutter section with parking is located between NC 73 north and NC 73 south. The existing right-of-way on NC 211 ranges from 60 to 150 feet.

The existing portion of NC 211 through Pinehurst and Aberdeen is highly congested due to the concentration of development along this section, the speed limit of 35 to 45 mph, and the numerous traffic signals. The traffic flow through this area is very slow, even though parts of NC 211 are multi-lanes. Existing NC 211 coincides with two major US routes, US 1 and US 15-501, in Aberdeen.

Existing NC 211 is bounded on the south side by the railroad throughout most of the project length. Traffic signals are located at SR 1239 in Seven Lakes and at NC 73 north in West End.

The posted speed limit is generally 55 mph, but drops to 35 mph within the corporate Limits of Candor and West End. Development along the rural section consists of scattered industrial, commercial, and residential.

Traffic Volumes, Capacity, and Accident Record

The volume of traffic that utilizes this route varies from approximately 4000 at the Montgomery County Line to 9000 vehicles per day (vpd) near Pinehurst. These volumes are estimated to increase to 7,000 to

13,000 vpd by the year 2010. The estimated 2010 traffic on the proposed bypass of Pinehurst ranges from approximately 6,400 on the northern portion to 15,400 vpd in Aberdeen.

The capacity of the existing road in rural areas at level of service C is approximately 5000 vehicles per day. The actual volumes presently using the facility indicate that the capacity is exceeded along most of the studied length.

Accident data for a recent 3-year period shows a total of 170 accidents on the rural section of NC 211. This yields an accident rate of 89.32 per hundred million vehicle miles, which is significantly less than the statewide average of 214 accidents per hundred million vehicle miles for comparable 2-lane rural North Carolina routes. Rear-end (26.5%), running off the road (24.6%), and angle (15.9%) collisions were predominant accident types.

Need for Project

The improvement of NC 211 and a bypass of Pinehurst are needed to provide increased capacity and higher level of service for existing and future traffic volumes.

III. SUMMARY OF RECOMMENDATIONS

For purposes of recommendations and possible staging, the project has been divided into sections (see Figures 2 through 5). Generally, the recommended plan is to widen NC 211 for the most part, with a bypass of West End (see Figure 3A) in addition to a bypass of Pinehurst. It is recommended NC 211 be widened and relocated to provide a 4-lane divided facility in the more undeveloped areas, and to a 5-lane section through areas with concentrated development.

The improvements for Sections A, B, C, D, E, F, F-1, and G are described in detail in the following:

Section A: a 1.0-mile section from the US 220 interchange to SR 1146.

It is recommended NC 211 be widened on the north side away from the railroad to a 5-lane, 60-foot pavement with 12-foot shoulders (4 feet of which are paved), on an estimated 120 feet of right-of-way.

Section B: a 7.3-mile section from SR 1146 to SR 1135. A 4-lane divided section (two at 24-foot pavements divided by a minimum 46-foot median, with 12-foot shoulders (4 feet of which are paved), on an estimated 220 feet of right-of-way). Widening should be to the north to avoid the railroad right-of-way.

Section C: a 1.2-mile section from SR 1135 through the Seven Lakes area to SR 1238. A 5-lane, 64-foot curb and gutter section on an estimated 100 feet of right-of-way is recommended because of increased roadside development and traffic generated by the Seven Lakes Shopping Center and West End School. Widening should be to the north to avoid railroad right-of-way.

Section D: a 2.8-mile relocation from SR 1238 to east of SR 1004. This is a northern bypass of West End on new location. A 5-lane, 60-foot pavement with 12-foot shoulders (4 feet of which are paved), on an estimated 140 feet of right-of-way with partial control of access (generally one access point per property) is recommended. This cross section would be a continuation of the five-lane proposal in adjoining Section C and minimize right-of-way damage through existing development and valuable peach orchards and farmland. A new traffic signal is anticipated to be installed at NC 73. The Aberdeen and Briar Patch Railroad will be crossed at grade east of SR 1004. Railroad warning signals with gates are recommended to be installed since the volume of trains utilizing this track is approximately 2 trains per day at low speeds.

Section E: a ^{B.D}~~4.0~~-mile section from SR 1004 to near SR 1103, all on new location for the proposed Pinehurst bypass, as shown on Figure 4 and 5. A 4-lane divided section with two 24-foot pavements divided by a minimum 60-foot grassed median, with 12-foot shoulders (4 feet of which are paved), on an estimated 220-foot right-of-way with partial control of access (generally one access point per property) is recommended.

Section F: a 1.8-mile section from near SR 1103 along SR 1112 (Roseland Road) to SR 1111. A 4-lane divided section with two 24-foot pavements divided by a minimum 46-foot median, with 12-foot shoulders (4 feet of which are paved), on an estimated 220-foot right-of-way. Widening should be to the south of the centerline of SR 1112.

Section G: a 1.1-mile section from SR 1111 to US 15/501. A 5-lane, 64-foot curb and gutter facility is recommended to be constructed on new location to allow for a smooth tie-in to NC 211 at US 15-501, with a grade separation of the CSX Railroad. Justification for a grade separation is based on the fact the CSX Railroad consists of multiple tracks carrying approximately 10 trains per day and the topography in the area. Signalization is anticipated for the at-grade intersections with US 1 and US 15-501. The recommended width on this section of the project would tie into the proposed five-lane curbed roadway on existing NC 211 east of US 15-501 as recommended in a feasibility study for R-2591 (see Figure 5).

Section F-1: It is also recommended a 0.6-mile, 2-lane, 24-foot paved extension on 60 feet of right-of-way be built to connect SR 1110 to Roseland Road. This would allow traffic from the J. P. Stevens industry, located on NC 5, direct access to the bypass and avoid congested travel through Aberdeen. This section is part of the Thoroughfare Plan shown on Figure 6.

Costs

The total cost of the recommended improvements is \$43,700,000. The estimated costs of the recommended improvements to the various sections are as follows:

	<u>Cross Section</u>	<u>Construction Cost</u>	<u>Right-of-Way Cost</u>	<u>Total Cost</u>
Section A	5 Lane Shoulder	\$1,400,000	\$ 340,000	\$ 1,740,000
Section B	4-Lane Divided	\$8,100,000	\$1,710,000	\$ 9,810,000
Section C	5-Lane Curbed	\$1,650,000	\$1,800,000	\$ 3,450,000
Section D	5-Lane Shoulder	\$4,950,000	\$ 660,000	\$ 5,610,000
Section E	4-Lane Divided	\$7,700,000 \$14,400,000	\$2,840,000	\$10,540,000 \$17,240,000
Section F	4-Lane Divided	\$1,900,000	\$1,310,000	\$ 3,210,000
Section G	5-Lane Curbed	\$7,000,000	\$1,210,000	\$ 8,210,000
Section F-1	2-Lane Shoulder	\$ 600,000	\$ 160,000	\$ 760,000

Cost estimates were prepared by the Preliminary Cost Estimate Engineer and the Right-of-Way Branch.

IV. OTHER COMMENTS

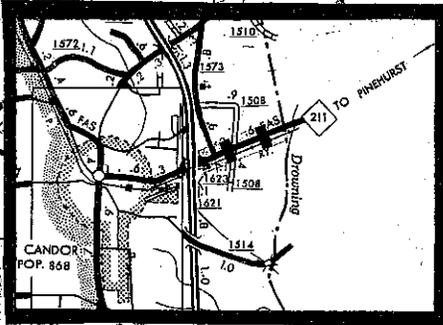
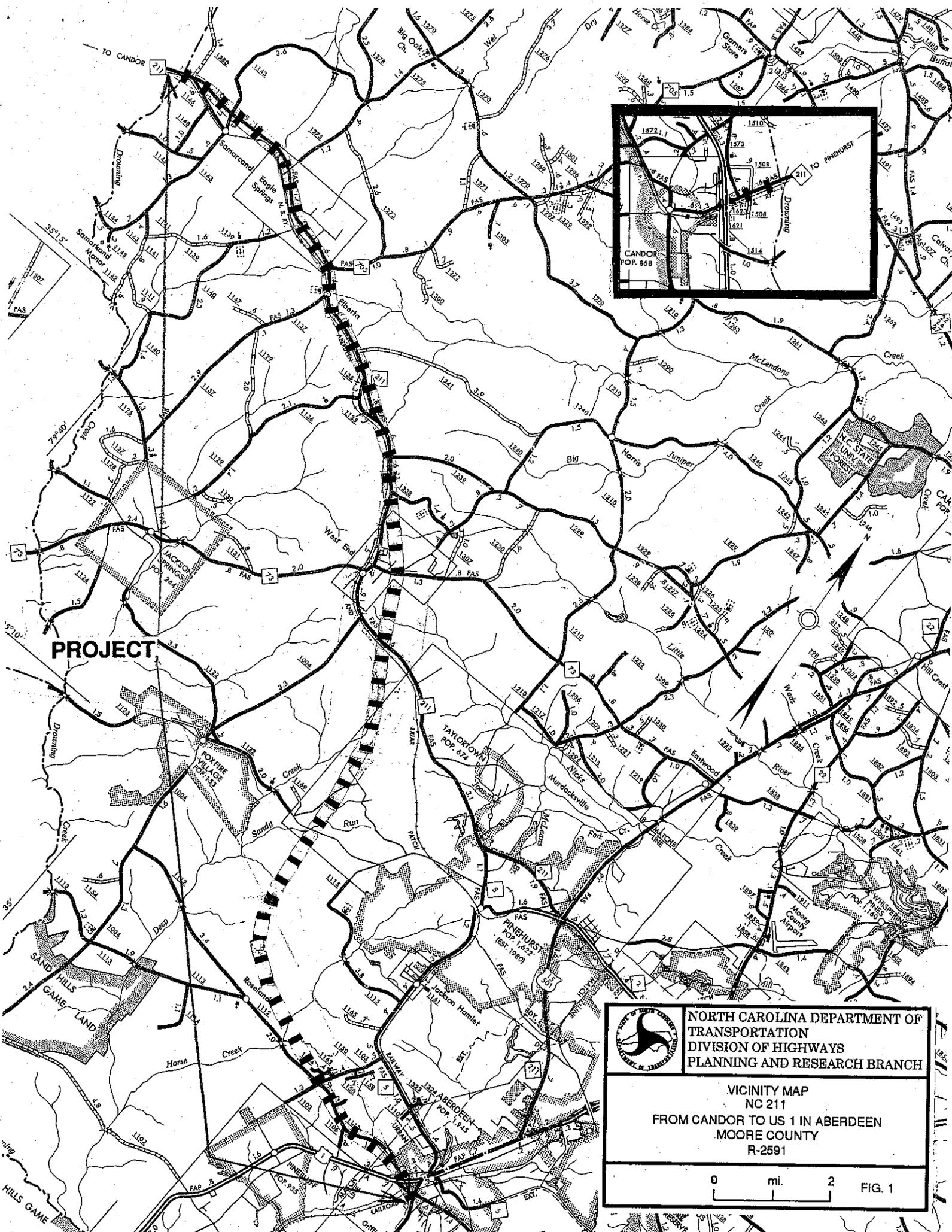
No other locations were considered for this project except for an alternate location in West End (refer to Figure 3A). This alternate would follow a 2.7-mile section of existing NC 211 from SR 1238 through the West End area to east of SR 1004. However, widening to a 5-lane, 64-foot curb and gutter section would cause considerable disruption to existing development in West End, resulting in overall cost of approximately \$1,500,000 more than the recommended bypass. For this reason, this alternative is not recommended.

The location of the NC 211 bypass of Pinehurst was coordinated with the Division Engineer, the City Engineer of the Village of Pinehurst, Village Council members, and the Pinewild Project Manager. The western part of the Pinehurst bypass was intentionally shifted further away from Pinehurst than is shown on the adopted thoroughfare plan because of the new Pinewild Country Club (see Figure 4).

Negative environmental impacts of the proposed project are as follows: (1) loss of forested land; (2) relocation of 30 residences and 10 businesses, (3) loss of wetlands, and (4) possible disturbance of habitat for cockaded woodpecker (endangered species).

If the project is to be implemented in the future, all feasible alternatives and their associated impacts will need to be evaluated in a planning and environmental document prior to that time, and a final decision made as to the most appropriate improvement.

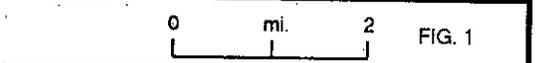
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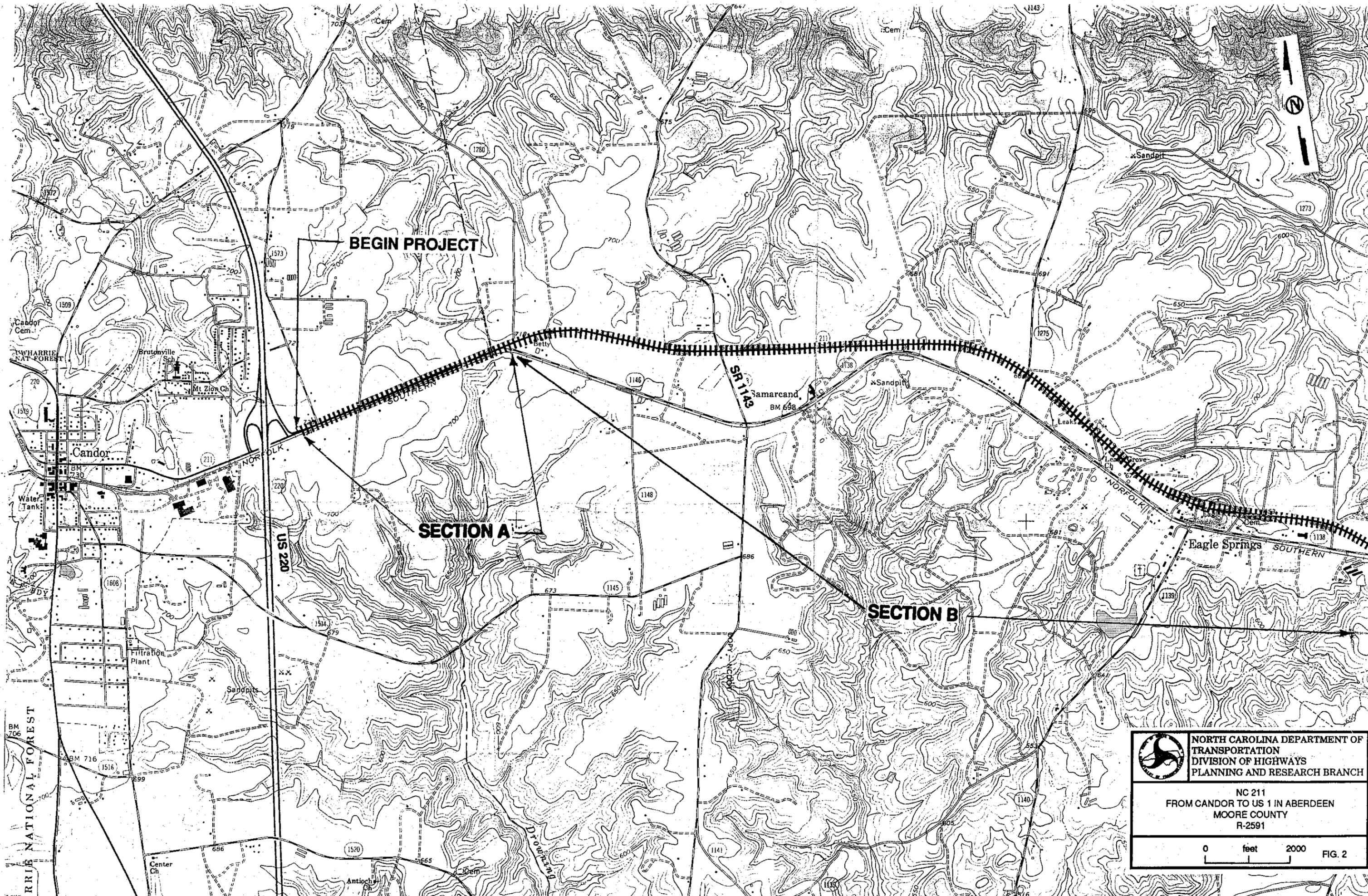


PROJECT

**NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH**

VICINITY MAP
NC 211
FROM CANDOR TO US 1 IN ABERDEEN
MOORE COUNTY
R-2591



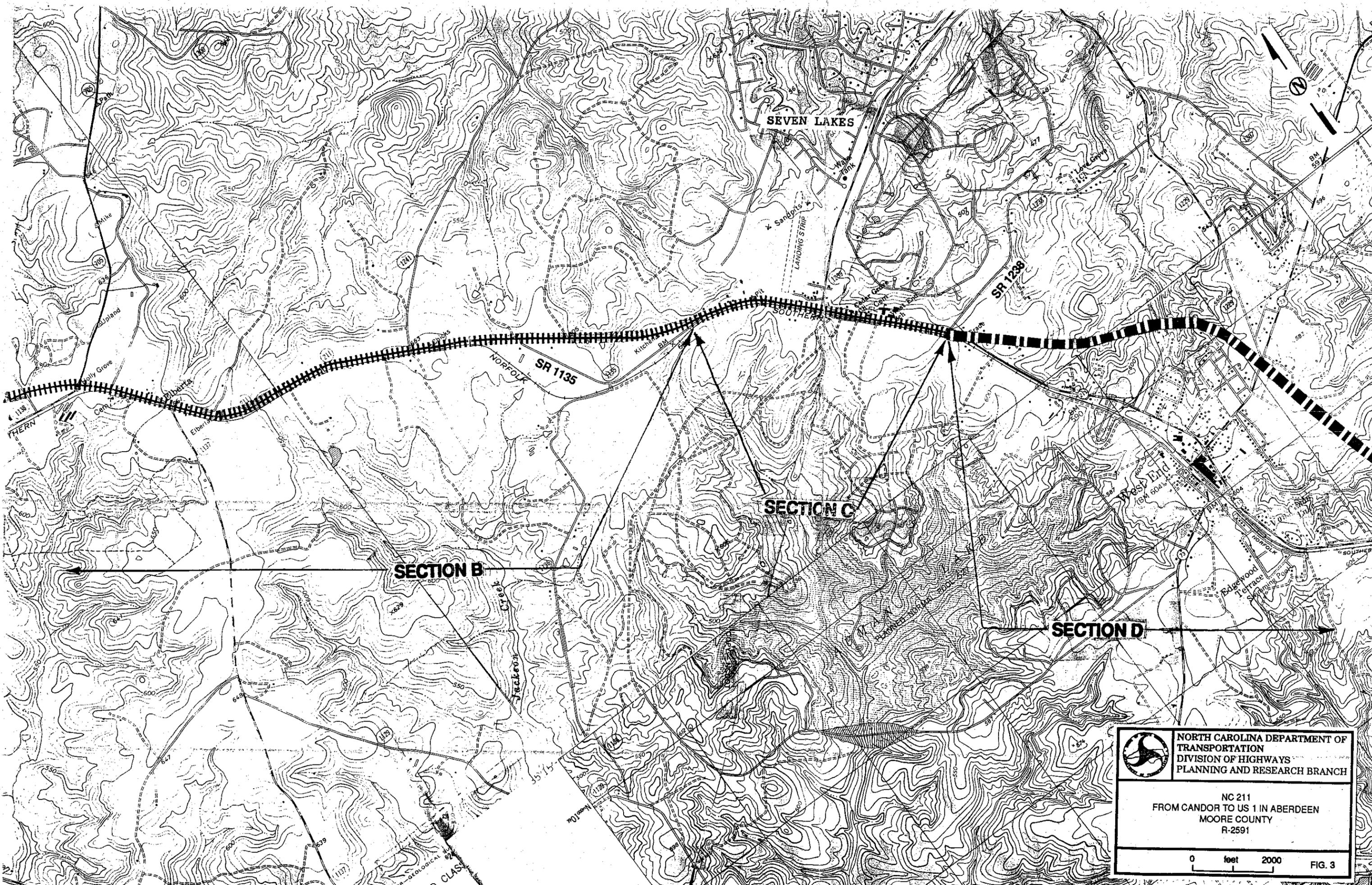


BEGIN PROJECT

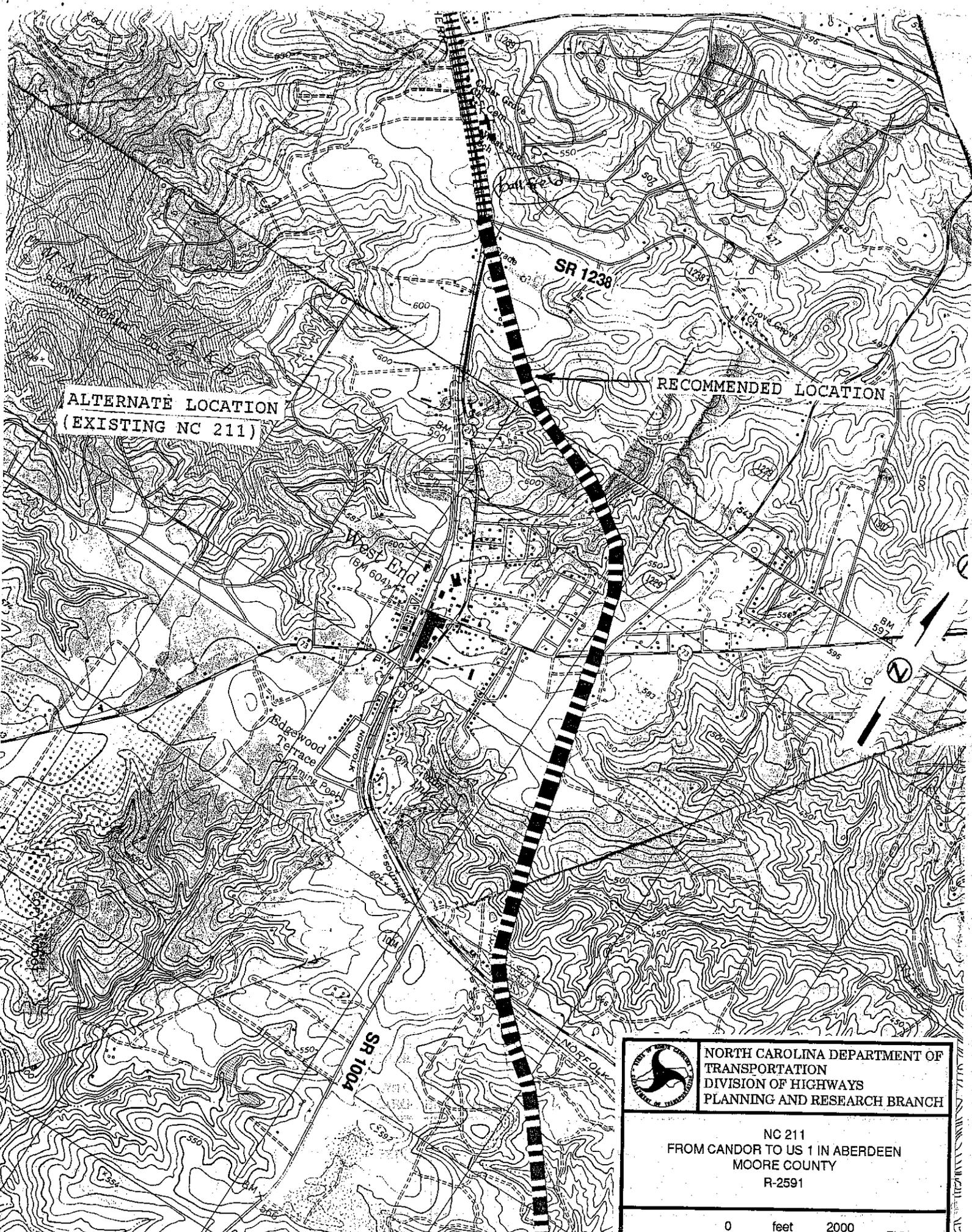
SECTION A

SECTION B

	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANNING AND RESEARCH BRANCH
	NC 211 FROM CANDOR TO US 1 IN ABERDEEN MOORE COUNTY R-2591
0 feet 2000	
FIG. 2	



	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
	DIVISION OF HIGHWAYS PLANNING AND RESEARCH BRANCH
NC 211 FROM CANDOR TO US 1 IN ABERDEEN MOORE COUNTY R-2591	
	
FIG. 3	



ALTERNATE LOCATION
(EXISTING NC 211)

RECOMMENDED LOCATION

SR 1238

SR 1004

Edgewood Terrace
Swimming Pool

West End
BM 604

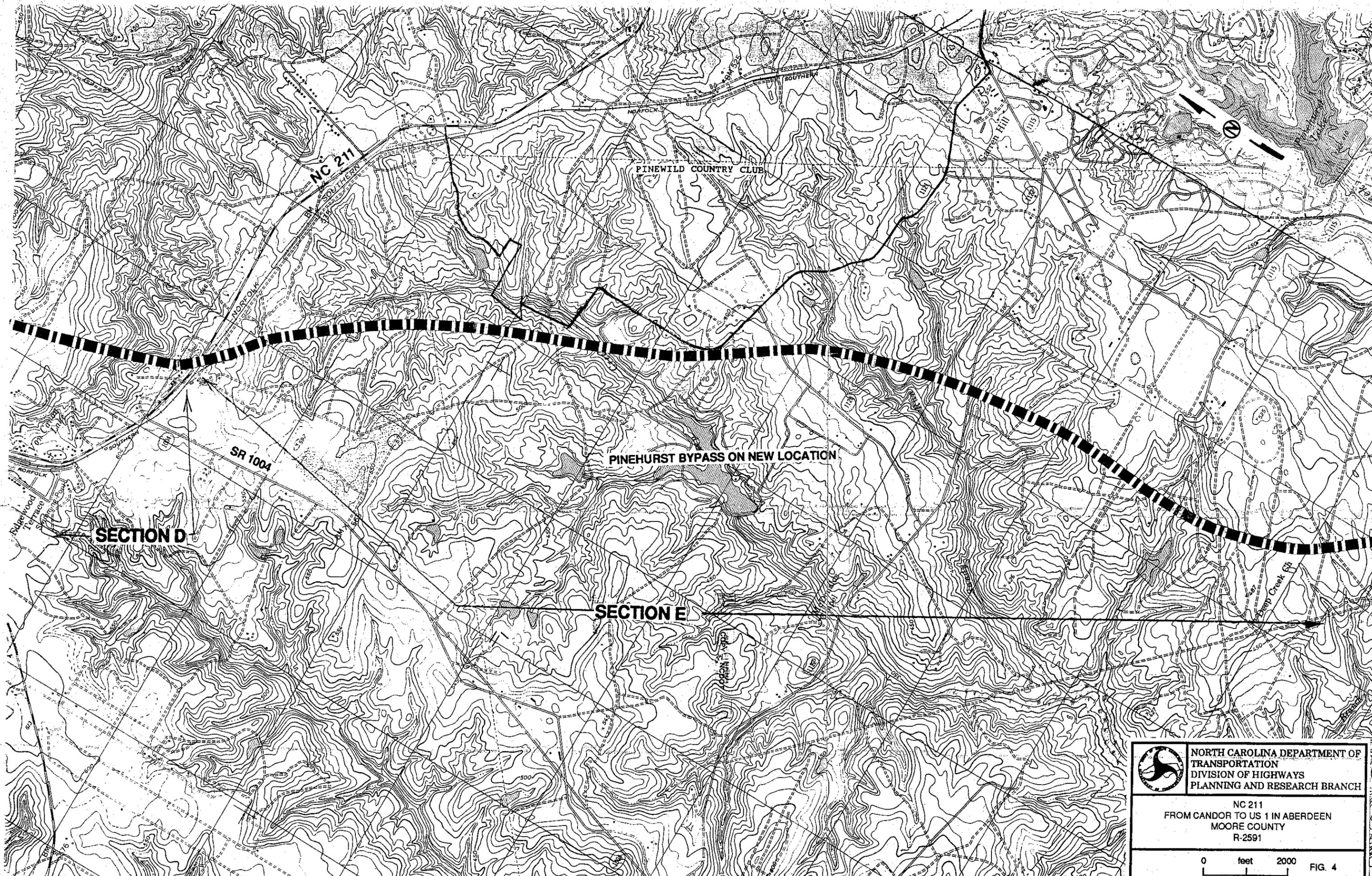


NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
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PLANNING AND RESEARCH BRANCH

NC 211
FROM CANDOR TO US 1 IN ABERDEEN
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0 feet 2000

FIG. 3A



NC 211

PINEWILD COUNTRY CLUB

SR 1004

PINEHURST BYPASS ON NEW LOCATION

SECTION D

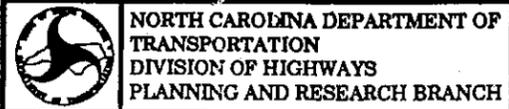
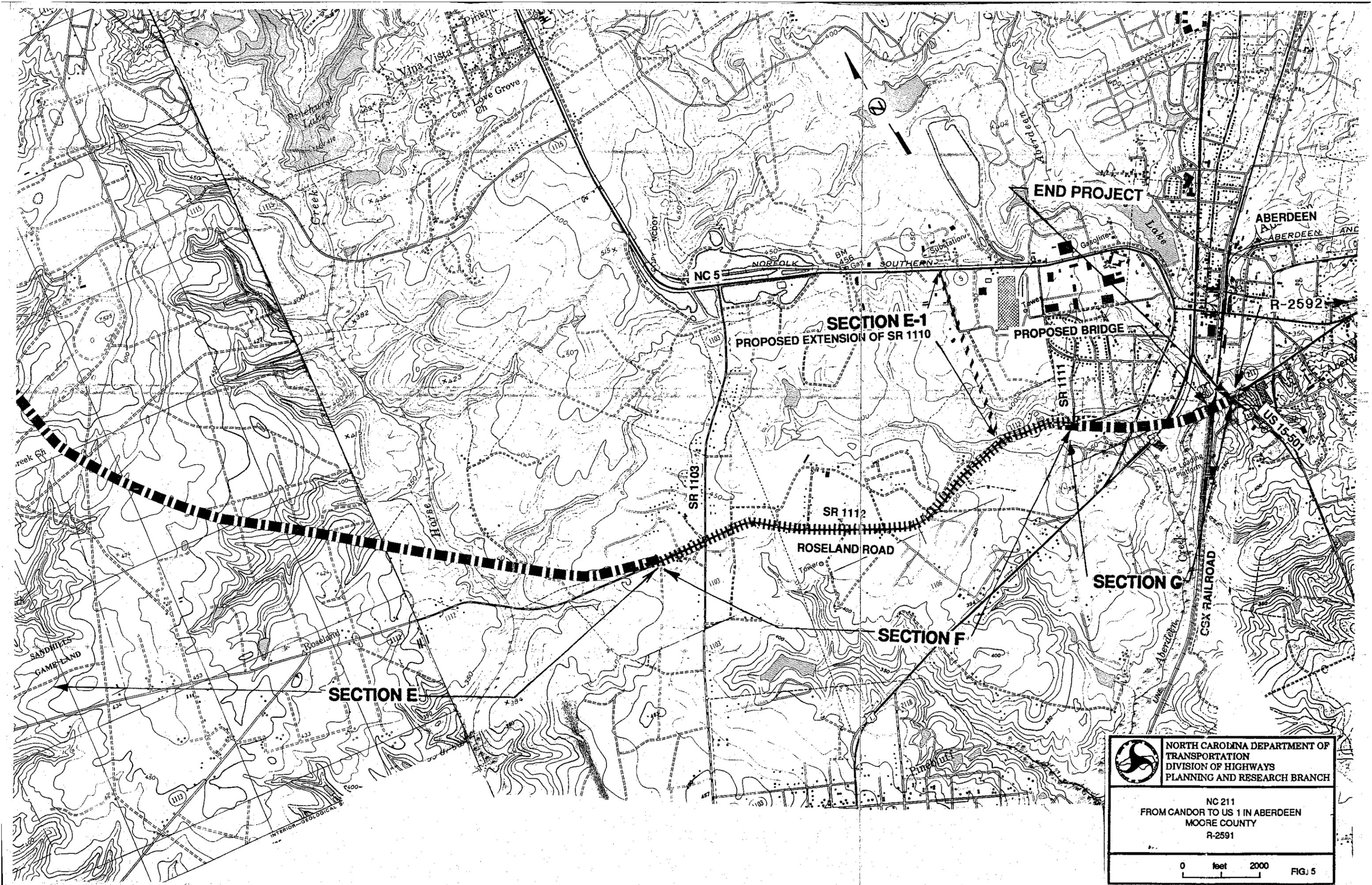
SECTION E



NORTH CAROLINA DEPARTMENT OF
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PLANNING AND RESEARCH BRANCH

NC 211
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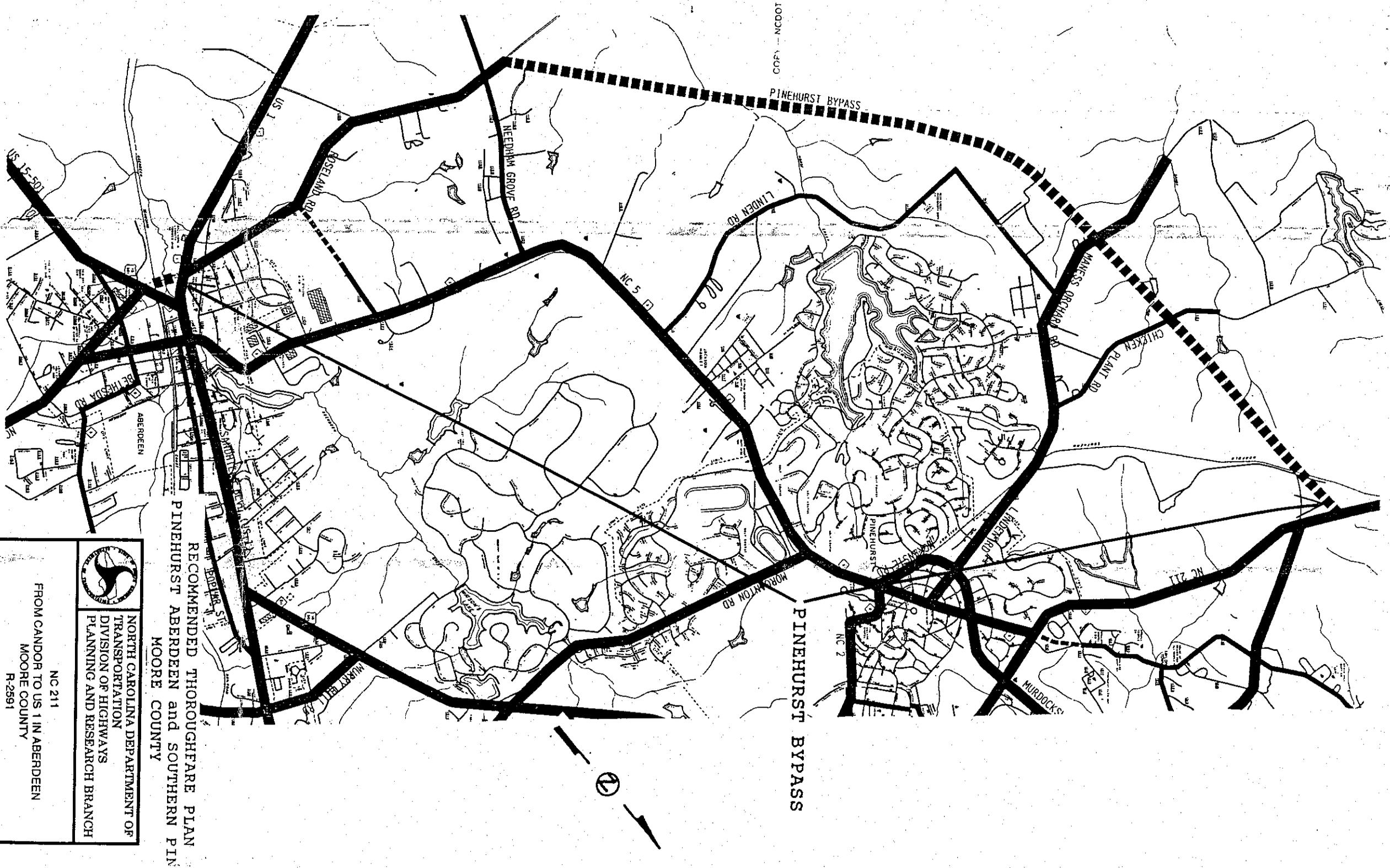
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FIG. 4



NORTH CAROLINA DEPARTMENT OF
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PLANNING AND RESEARCH BRANCH

NC 211
FROM CANDOR TO US 1 IN ABERDEEN
MOORE COUNTY
R-2591

0 feet 2000
FIG. 5



PINEHURST BYPASS

PINEHURST BYPASS

RECOMMENDED THOROUGHFARE PLAN
 PINEHURST ABERDEEN and SOUTHERN PINE
 MOORE COUNTY



NORTH CAROLINA DEPARTMENT OF
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 PLANNING AND RESEARCH BRANCH

NC 211
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