

**FEASIBILITY STUDY
Wilmington Southern Bridge from US17 Bypass near
Bishop to US 421**

Brunswick and New Hanover Counties

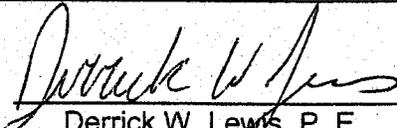
Division 3

FS-0103D

Prepared For:

N.C. Department of Transportation



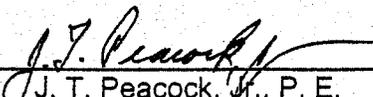

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Feasibility Studies Unit Head

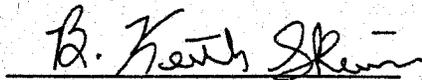
8/1/03
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Date

**Wilmington Southern Bridge from US 17 Bypass near Bishop to US 421
Brunswick and New Hanover Counties
Division 3
FS-0103D**

I. General Description

This feasibility study describes a proposed roadway all on new location south of Wilmington from US 17 Bypass to US 421, in the vicinity of the North Carolina State Ports. This facility would provide a "high rise" bridge built on new location over the Cape Fear River. The project would serve the North Carolina State ports, as well as the traveling public in and around the Wilmington area. This study will address the need for this roadway as an additional connector south of the Ports. The proposed roadway will have an approximate length of 9.5 miles. See Figure 1 for a vicinity map showing the project's location.

Two alternatives were studied for the subject project with the difference in alternatives being the vertical clearance for the Southern Bridge over the Cape Fear River. Alternative number 1 assumes a vertical clearance of 225 feet, which allows for larger cruise ships. Alternative number 2 assumes a vertical clearance of 185 feet. A detailed description of the proposed alignment is included below.

The design speed for the roadway will be 60 mph with a recommended 4-lane cross section designed to freeway standards with a 46 foot median. The proposed right-of-way will be fully controlled with a total width of approximately 350 feet. See Figure 2 for the proposed typical sections. The project will begin at the proposed US 17 Bypass interchange with existing US 17. This interchange will be modified to provide for all movements to and from the proposed roadway. This new roadway will extend from the US 17 Bypass interchange eastward approximately 5.5 miles to existing NC 133. This section of roadway will include seven bridges for spanning wetlands and US Army Railroad. The project cost allows for an intermediate grade-separated interchange between US 17 and NC 133 in the vicinity of Goodland Branch. The specific type of interchange is not known at this time. However, this interchange will provide access to a currently planned "urban-type" development in this area. A "full movement" interchange will be constructed at existing NC 133. This interchange will consist of two ramps and two loops on the west side of NC 133 with a bridge on the new freeway over existing NC 133. The structure over NC 133 will continue eastward spanning high quality wetlands and then the Cape Fear River before terminating at existing Independence Boulevard in Wilmington. The section of roadway between NC 133 and US 421 will also include bridges for spanning two additional wetlands adjacent to the Port area. The distance from NC 133 to US 421 along the project is approximately 4 miles with the total distance for the proposed roadway being approximately 9.5 miles.

II. Need for Project

The purpose and need of this project, according to the Wilmington Urban Area Transportation Plan adopted on August 2, 1999, is as follows:

- Provide another access to the North Carolina Ports.
- Serve the inter-modal needs of the North Carolina Ports by providing direct access to the west side of the Cape Fear River for truck traffic coming to and from the Port of Wilmington.

- Allow the movement of ocean going vessels to access the Port of Wilmington.
- Address the needs of commuter and tourists trips.
- Provide an unimpeded gateway to the city. The Cape Fear River Memorial Bridge, located 2 miles north of the new project, is a drawbridge. Therefore, commuter traffic consistently backs up on this bridge when it is opened for shipping purposes.
- The new bridge would allow for emergency vehicles to travel across the Cape Fear River without the possibility of being delayed by the drawbridge. This new bridge would also allow a safer and quicker evacuation of New Hanover County in the event of a hurricane or an accident at either the Brunswick County Nuclear Plant or the General Electric Nuclear Fuel processing plant on Castle Hayne Road.
- Provide improved access to Military Ocean Terminal, Sunny Point, N.C.
- Provide improved access to Port Facilities for military deployments from Camp Lejeune and Fort Bragg.

III. Traffic Operations

The purpose of this section is to explain the status of future traffic operations for the proposed facility and to recommend additional measures needed to ensure that traffic operates at acceptable levels of service.

According to the Wilmington Urban Area Transportation Plan adopted on August 2, 1999, traffic, especially commuter traffic, consistently backs up on the Cape Fear River Memorial Bridge. The current traffic volume on the Cape Fear River Memorial Bridge is approximately 54,000 vpd. Projections for traffic in 2025 at the Cape Fear River Memorial Bridge estimate volumes of 93,700 vehicles per day (vpd) even with the US 17 Bypass, currently under construction, in place. Projections for traffic on the Southern Bridge in 2025 anticipate that it will accommodate 30,500 vpd. Providing the additional crossing of the Cape Fear River under this project reduces the projected volumes on the Cape Fear River Memorial Bridge to 76,100 vpd in the year 2025.

IV. Project Cost

As previously stated, two alternatives were evaluated for this project. The associated costs for each of the alternatives are as follows:

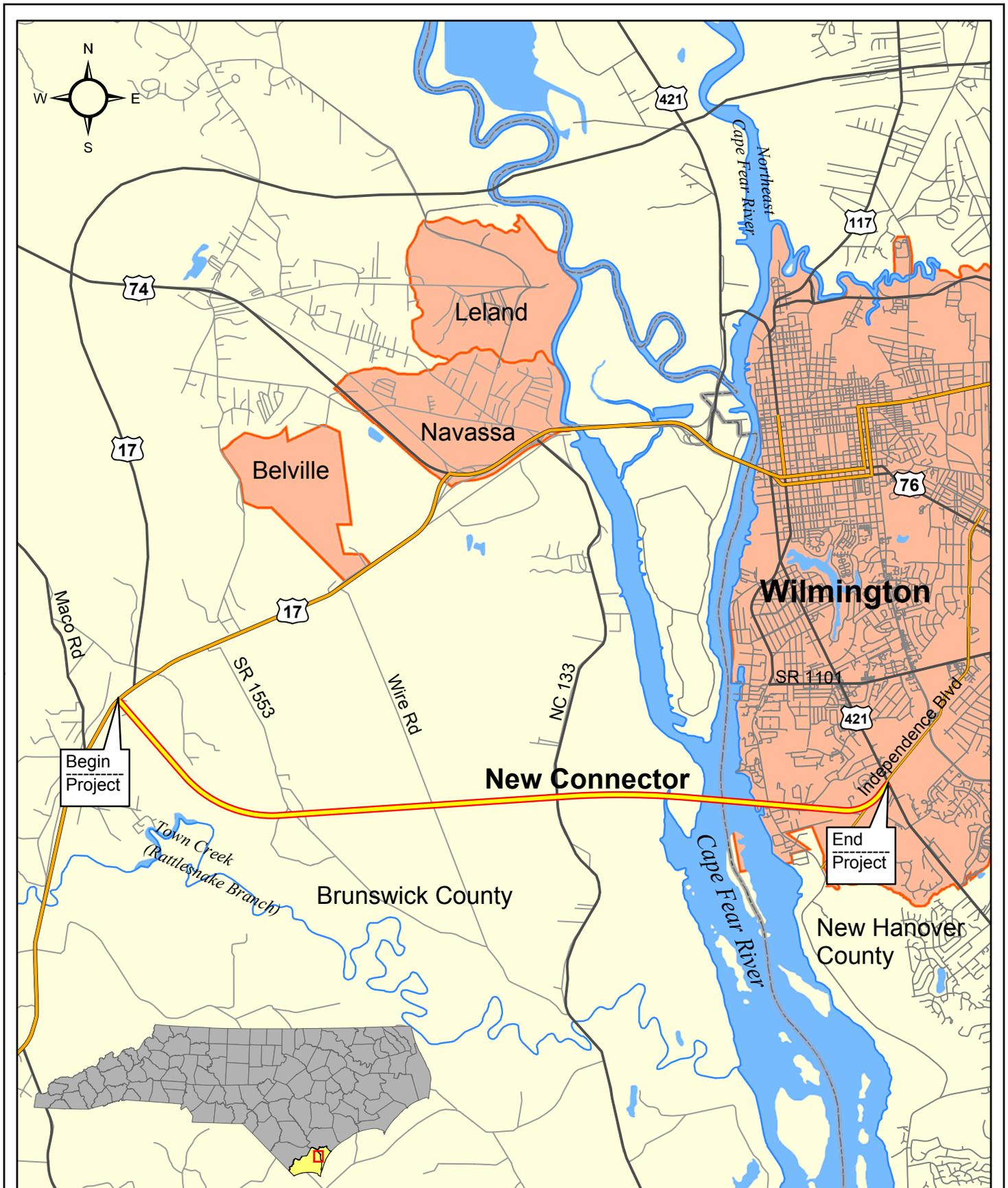
Alternative	Right-of-Way Cost	Construction Cost	Total Project Cost
One (225' Clearance)	\$15,200,000	\$329,600,000	\$344,800,000
Two (185' Clearance)	\$15,200,000	\$323,000,000	\$338,200,000

The costs for each of these alternatives include provisions for an intermediate grade-separated interchange in the vicinity of Goodland Branch. As well, this project will displace approximately thirty residences and four businesses. The majority of the relocations are located in the vicinity of the US 17 Bypass interchange and at the eastern end of the proposed Wilmington Southern Bridge. The costs of these relocations are included above.

V. Additional Comments

An exhaustive environmental screening was not conducted for this study. However, the following items were identified as needing more detailed analyses during future planning and/or design phases:

- Any Cape Fear River Buffer Rules will need to be considered.
- Wetland and Stream impacts.
- Socioeconomic Impacts.
- A hazardous materials screening is needed on the west side of the Cape Fear River.
- Protected species and an aquatic community study will be needed.
- Coordination with the U.S Coastguard and U.S. Army Corp of Engineers.
- Historic/Archeological screening will be needed.
- Impacts to the Lower Cape Fear/Town Creek Project Area



New Connector Across the Cape Fear River from
 US 17 Bypass in Brunswick County to US 421 in
 New Hanover County

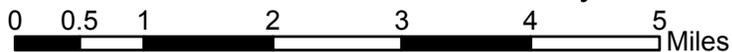
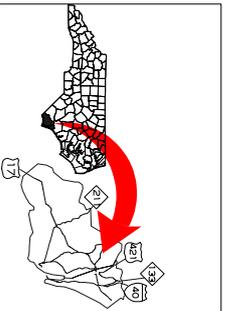
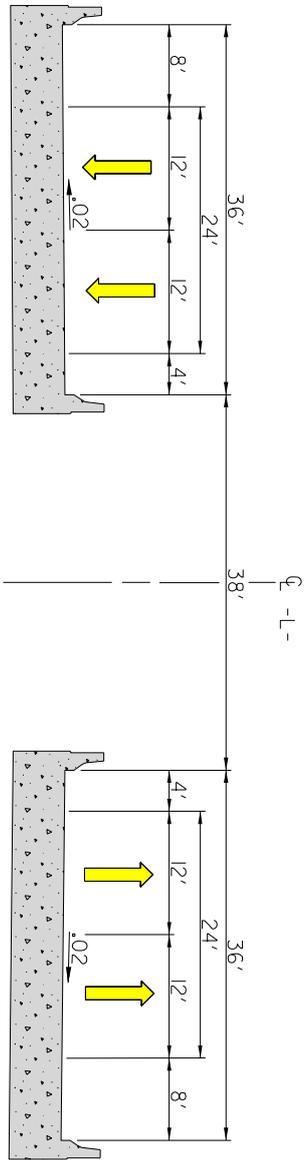
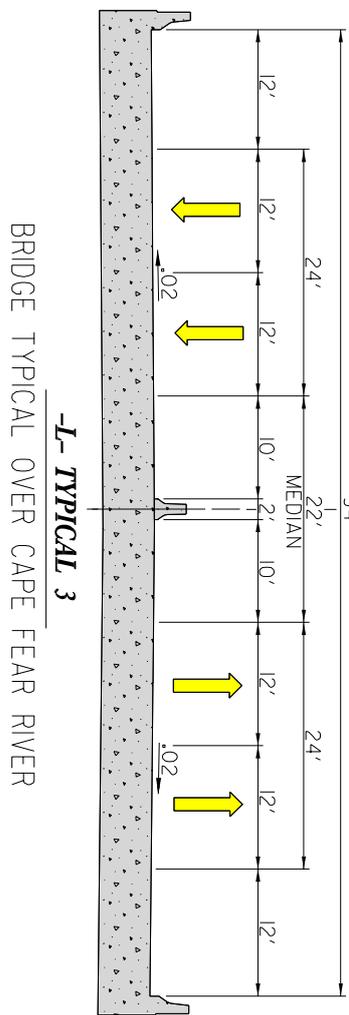
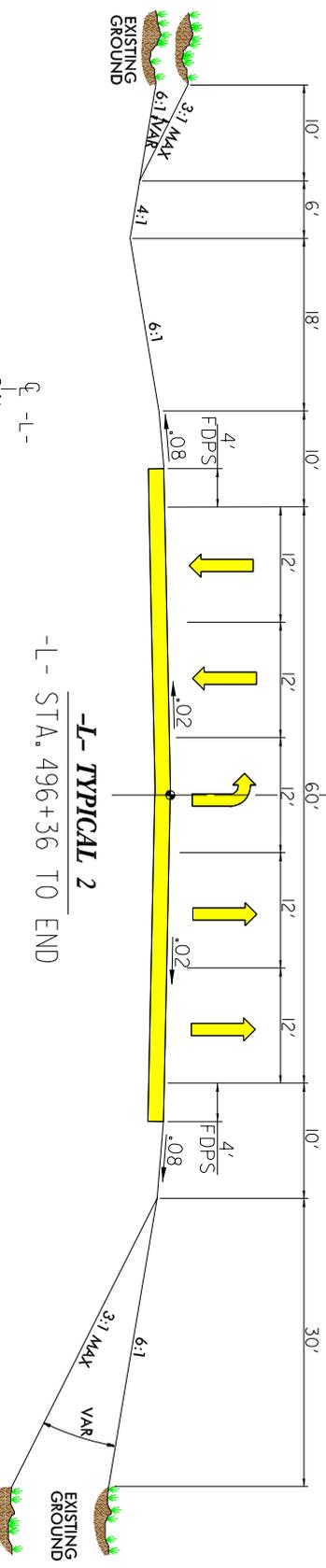
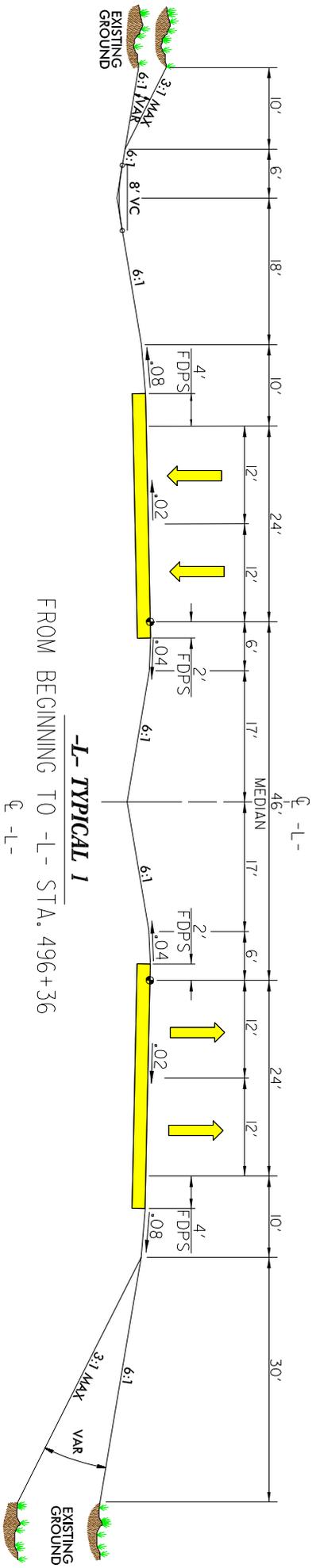


Figure 1





TYPICAL SECTIONS FOR NEW CONNECTOR ACROSS THE CAPE FEAR RIVER
FIGURE 2

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PAULTON, NORTH CAROLINA

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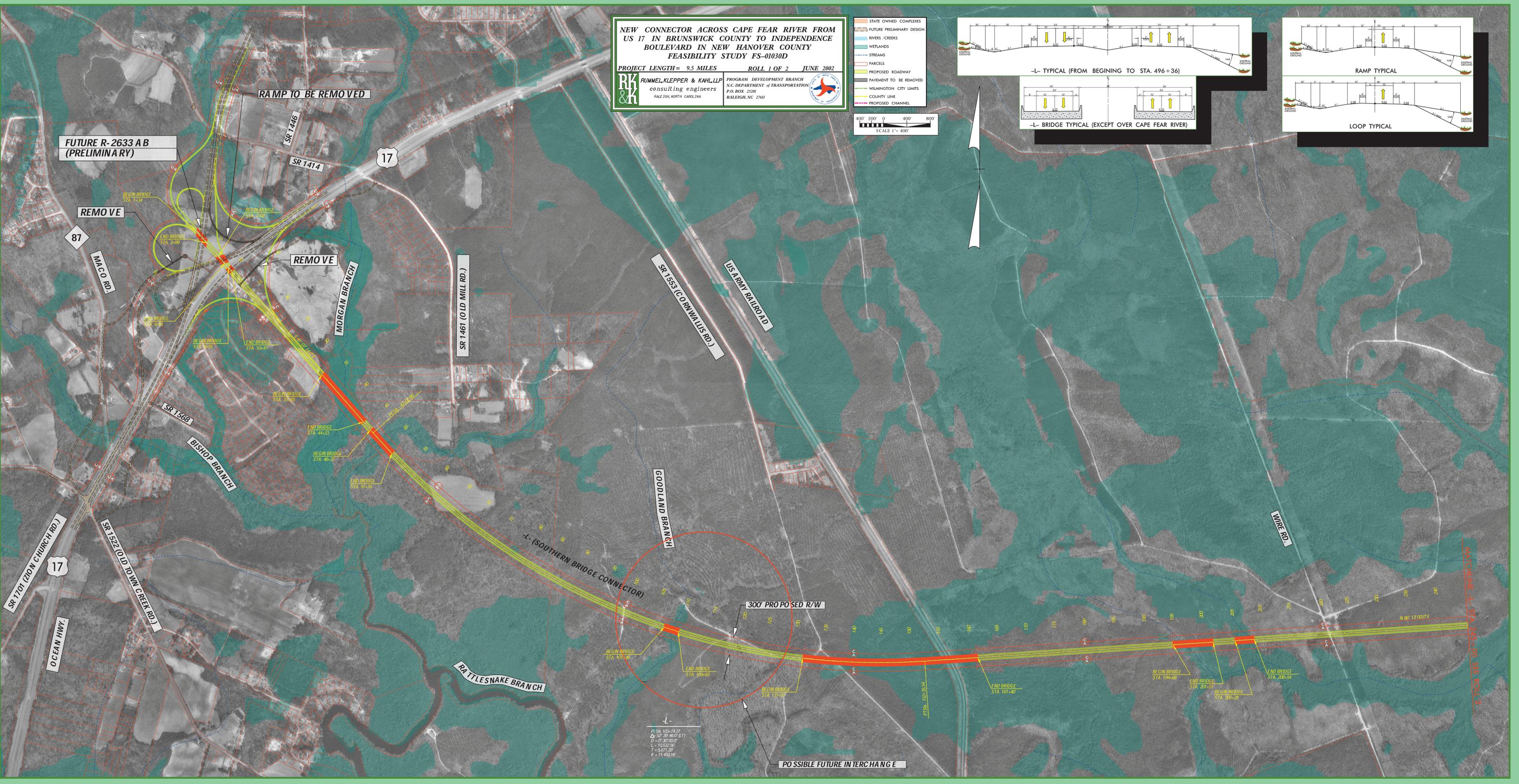
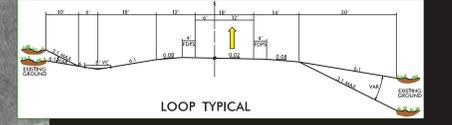
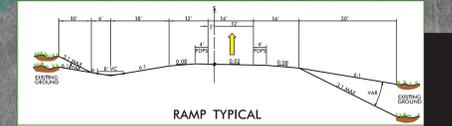
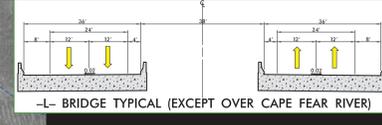
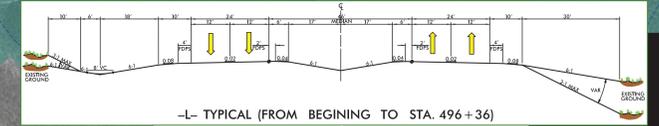
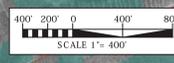
**NEW CONNECTOR ACROSS CAPE FEAR RIVER FROM US 17 IN BRUNSWICK COUNTY TO INDEPENDENCE BOULEVARD IN NEW HANOVER COUNTY
FEASIBILITY STUDY FS-01030D**

PROJECT LENGTH= 9.5 MILES ROLL 1 OF 2 JUNE 2002

RK & K RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
RALEIGH, NORTH CAROLINA

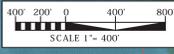
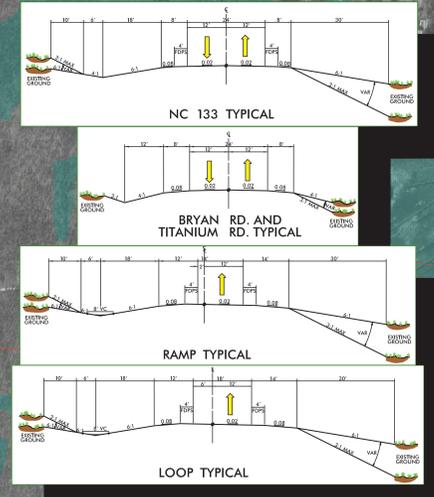
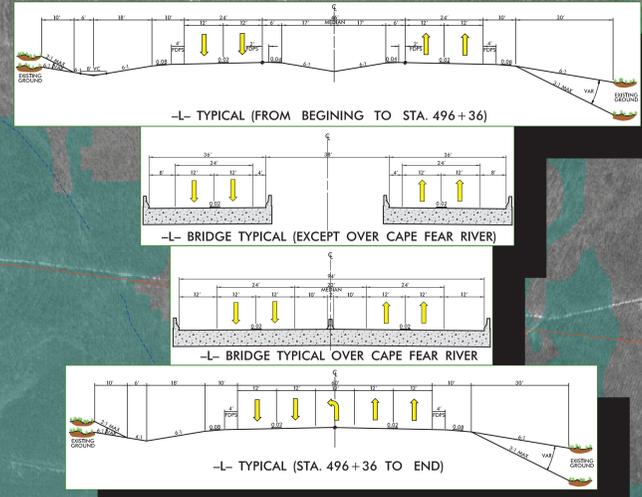
PROGRAM DEVELOPMENT BRANCH
N.C. DEPARTMENT OF TRANSPORTATION
P.O. BOX 3530
RALEIGH, NC 27611

- STATE OWNED COMPLEXES
- FUTURE PRELIMINARY DESIGN
- RIVERS / CREEKS
- WETLANDS
- STREAMS
- PARCELS
- PROPOSED ROADWAY
- PAVEMENT TO BE REMOVED
- WILMINGTON CITY LIMITS
- COUNTY LINE
- PROPOSED CHANNEL



L-
PI SW 103+74.27
Δ 52° 38' 46" (0.7)
D = 0.31 (0.0)
L = 103.5269
T = 5.67129
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DATE PLOTTED: 11/28/02 11:00 AM



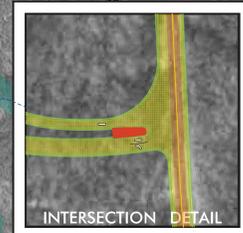
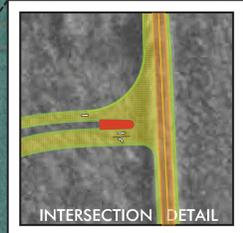
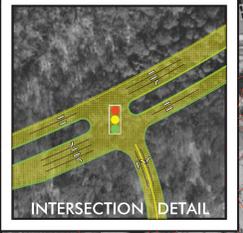
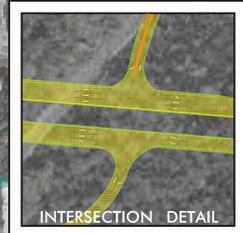
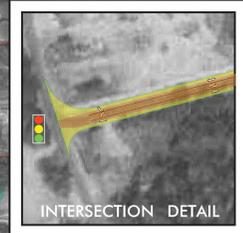
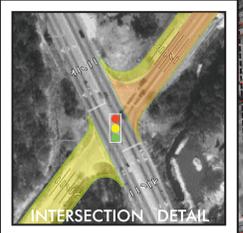
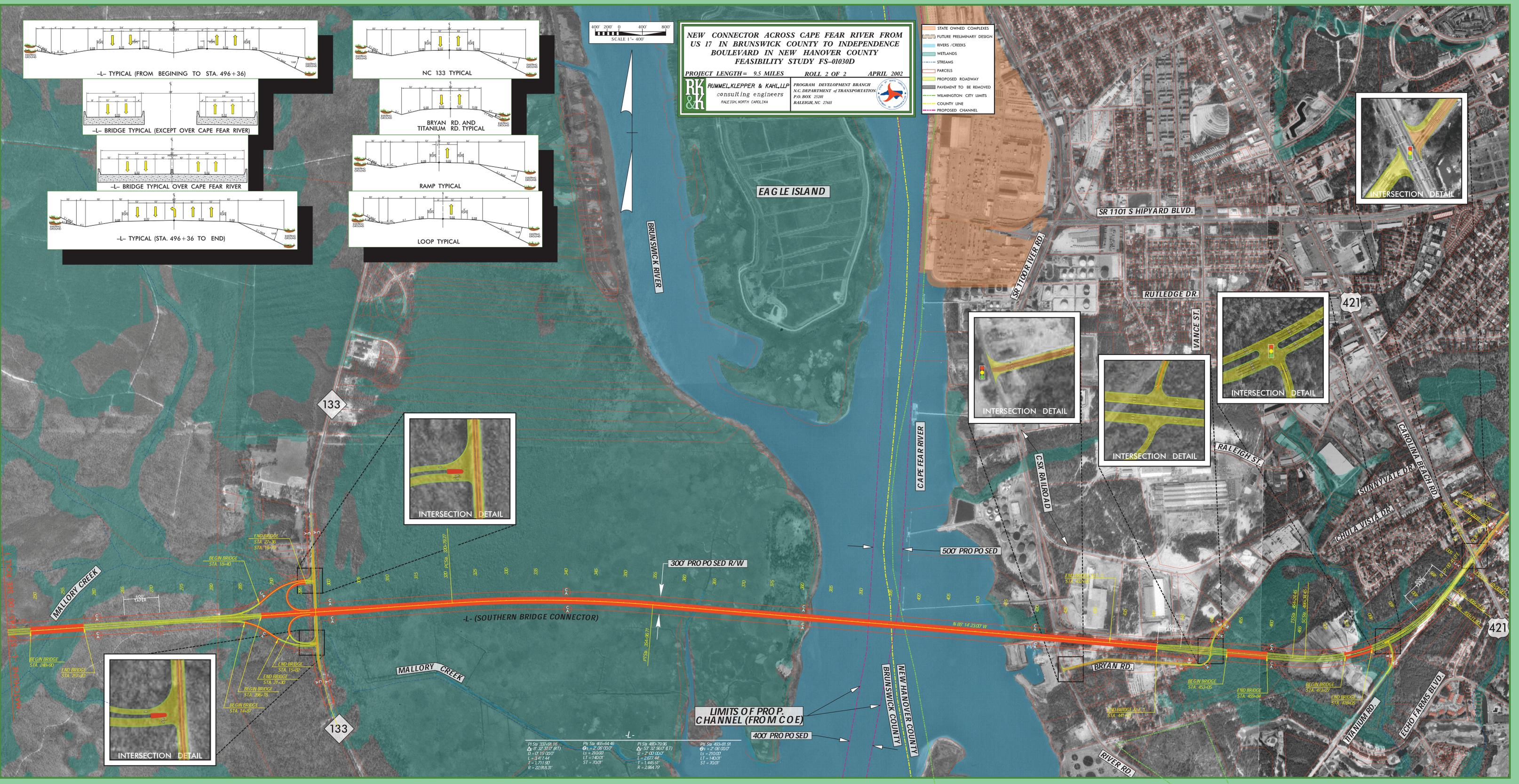
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- STATE OWNED COMPLEXES
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- PROPOSED CHANNEL



PI Sta 337+91.16
 Δ = 32.370' (R1)
 D = 215.000'
 L = 347.24'
 T = 171.13'
 R = 22.8163'

PI Sta 425+64.46
 Δ = 51.32360' (L1)
 D = 210.000'
 L = 267.44'
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 R = 2.85172'

PI Sta 493+81.91
 Δ = 32.3610' (L1)
 D = 210.000'
 L = 143.01'
 T = 70.01'
 R = 2.85172'

LIMITS OF PROP. CHANNEL (FROM C.O.E.)

400' PROPOSED

500' PROPOSED

300' PROPOSED R/W

133

133

421

421

EAGLE ISLAND

BRUNSWICK RIVER

CAPE FEAR RIVER

NEW HANOVER COUNTY

BRUNSWICK COUNTY

-L- (SOUTHERN BRIDGE CONNECTOR)

MALLORY CREEK

MALLORY CREEK

BRYAN RD.

SUNNYSIDE DR.

CHULA VISTA DR.

CAROLINA BEACH RD.

ECHO FARMS BLVD.

TITANIUM RD.

RIVER RD.

SR 1101 S HIPYARD BLVD.

RUTLEDGE DR.

VANCE ST.

RALEIGH ST.

BRYAN RD.

RIVER RD.

SR 1101 RIVER RD.

CSX RAILROAD

-L-