



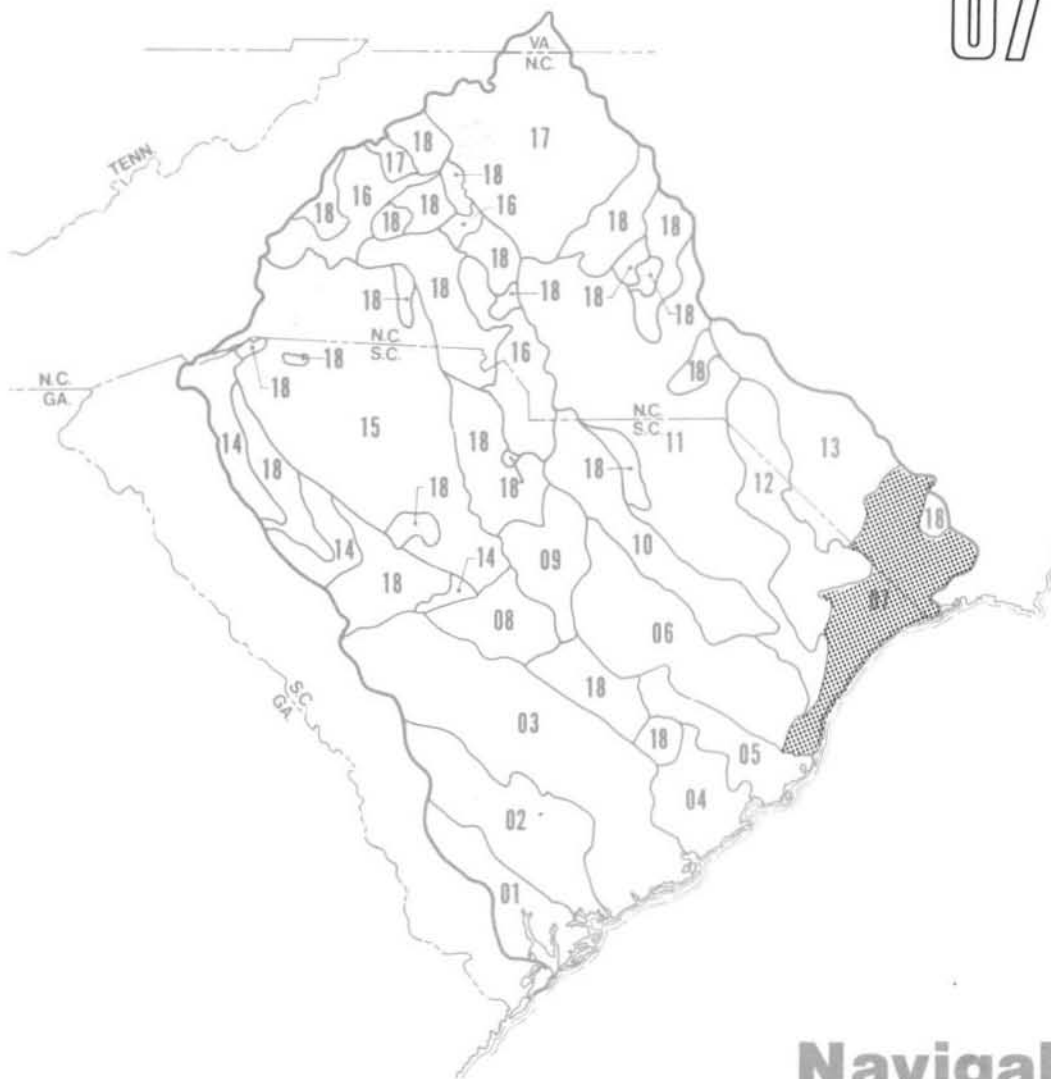
U.S. ARMY CORPS OF ENGINEERS  
CHARLESTON DISTRICT  
Charleston, South Carolina



# WACCAMAW RIVER BASIN

Report No.

07



**Navigability  
Study  
1977**



STANLEY CONSULTANTS

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## SECTION 1 - INTRODUCTION

### Purpose

The purpose of this study is to collect, develop, and evaluate information on waterbodies within the boundaries of the Charleston District, Corps of Engineers, for establishing the classification of "navigable waters of the U. S." and "waters of the U. S." (During the course of this study the term "navigable waters" was changed to "waters of the U. S." Herein references to "navigable waters" are synonymous with "waters of the U. S.") Study objectives include definition of the present head of navigation, the historic head of navigation, the potential head of navigation, and the headwaters of all waterbodies within the district.

The information generated as a part of the study will be utilized by the Charleston District in administration of its programs dealing with water resource project construction permits in "navigable waters of the U. S." (River and Harbor Act of 1899), and the deposition of dredge or fill material in "navigable waters" or their contiguous wetlands (Section 404 of PL 92-500).

### Scope

The scope of this project is generally summarized by the following:

1. Outline drainage areas, locate headwater points where mean flow is five cubic feet per second (cfs), summarize lake data (10 to 1,000 acres), establish stream mileage for "navigable waters of the U. S.", and prepare a stream catalog summary for the district.
2. Conduct field surveys of waterbodies to establish mean water levels and obstruction clearances for evaluating the potential head of navigation.
3. Analyze available hydrological data to estimate mean, maximum, and minimum discharge rates at obstructions and other selected locations.
4. Conduct a literature review to identify past, present, and future uses of waterbodies for interstate commerce.

5. Conduct a legal search to identify Federal and state court cases which impact on navigation classifications.
6. Prepare plan and profile drawings, maps of the district showing significant physical features, and a map delineating the recommended navigation classifications.
7. Prepare reports on all major river basins and large lakes (greater than 1,000 acres) including information on physical characteristics, navigation projects, interstate commerce, court decisions, navigation obstructions, and recommended classification of waterbodies for navigation.
8. Prepare a summary report outlining navigation-related information for the entire district as well as the methodology, procedures, and other factors pertinent to the development of each of the river basin reports.

Conduct of this study relies heavily upon available information. Compilation and evaluation of existing data from many sources and development of field survey information are the main contributions to the new water resource data base represented by this study.

#### Related Reports

Information pertaining to this navigability study for the Charleston District has been compiled into a series of reports, one of which is represented by this document. A complete listing of the reports is presented below to facilitate cross referencing.

<u>Number</u>	<u>Title</u>
--	Summary Report
01	Coosawhatchie River Area
02	Combahee River Area
03	Edisto River Area
04	Cooper River Area
05	Santee River Basin
06	Black River Area
07	Waccamaw River Basin
08	Congaree River Basin
09	Wateree River Basin
10	Lynches River Basin

<u>Number</u>	<u>Title</u>
11	Great Pee Dee River Basin
12	Little Pee Dee River Basin
13	Lumber River Basin
14	Saluda River Basin
15	Broad River Basin
16	Catawba River Basin
17	Yadkin River Basin
18	Lakes - Greater Than 1,000 Acres
--	Coastal Supplement

The eighteen reports covering various drainage areas in the district present information for the specific basins. The Summary Report provides an overview of the entire study of district waterbodies and presents information applicable to all waters in the district. Reference should be made to both the individual drainage area reports as well as the Summary Report to obtain a thorough understanding of the study approach and results.

#### Acknowledgements and Data Sources

The contribution of many project team members within the Corps of Engineers, Charleston District, and Stanley Consultants is gratefully acknowledged by Stanley Consultants. In addition to the legal search and other evaluations and input from Charleston District staff, several others made significant contributions to this study effort. Dr. John W. Gordon, Assistant Professor in the Department of History, The Citadel, prepared the narrative and literature review information for past and present interstate commerce.

Several state water resource, transportation, utility, and planning agencies also cooperated and provided useful data for compiling these reports. Federal water resource and regulatory agencies and private utilities provided information along with public and private operators of large reservoirs.

Specific numbered data sources are referenced in the reports in parentheses. These data sources are listed in the Bibliography of each report of the navigation study.

## SECTION 2 - PHYSICAL CHARACTERISTICS

The Waccamaw River basin has its headwaters in southeastern North Carolina on Buckhead Branch which flows southward to Lake Waccamaw. The Waccamaw River flows out of the lake 140 miles to its mouth at Winyah Bay near Georgetown, South Carolina. Plate 07-1 shows the entire drainage basin of the Waccamaw River and its tributaries. The most important tributary of the Waccamaw River is Bull Creek at river mile (R.M.) 21.4. Bull Creek connects the Waccamaw and Great Pee Dee Rivers and serves as a main passage for commercial river traffic between the two rivers. Bull Creek is tidally influenced between the two rivers.

Plates 07-2 and 07-3 are maps showing the significant physical features of the river basin. Conway, South Carolina, is the only major town within the river basin served by the Waccamaw River.

The Waccamaw River flows through the coastal plains of North and South Carolina with a gentle sloped channel. From the headwaters of the basin to the mouth of the Waccamaw River, a total of 149 river miles, the elevation of the water surface changes only 50 feet. The mean discharge of the river at its mouth is 1,930 cfs from a 1,750 square mile drainage area. The river is tidally influenced to R.M. 60.

Table 1 is a summary of selected physical characteristics of the Waccamaw River. Included in the table are approximate values for drainage area, mean water flow, and elevation change. Detailed slope information may be found in Table 4. Methodology for determining the numerical values of physical characteristics appearing in Table 1 is defined in the Summary Report.

The location of key USGS stream gaging stations on the Waccamaw River is presented in Table 2. Also shown are the mean, minimum, and maximum stream flows at each gaging station.



TABLE 1  
PHYSICAL CHARACTERISTICS (1)(2)(3)\*

Length-Mouth to Headwaters <sup>1)</sup>	149.0 miles
Elevation Change <sup>1)</sup>	50 feet
Drainage Area	1,750 square miles
Mean Discharge at Mouth	1,930 cfs
Limit of Tidal Influence	60 (R.M.)
Length of Present Navigable Waters of the U. S.	140.0 miles (R.M. 140.0)

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1) From mouth of the stream to a remote point in the basin having a mean annual flow of five cfs.

\* See Bibliography for these references.

TABLE 2

## KEY STREAM GAGING STATIONS (1) (2) (4) (5)

<u>Stream</u>	<u>USGS Gaging Station Number</u>	<u>Location Description</u>	<u>Drainage Area (sq.mi.)</u>	<u>Mean Flow (cfs)</u>	<u>Minimum Flow<sup>1)</sup> (cfs)</u>	<u>Maximum Flow<sup>2)</sup> (cfs)</u>
Waccamaw River	02109500	Located in Brunswick County, North Carolina downstream of New Britton Bridge on N. C. 130	706	703	26	2,359
Waccamaw River	02110500	Located in Horry County, South Carolina on down- stream side of S. C. 9 Highway Bridge	1,110	1,214	39	3,250

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1) Exceeded or equaled 90 percent of the time.

2) Exceeded or equaled 10 percent of the time.

## SECTION 3 - NAVIGATION IMPROVEMENT PROJECTS

### Federal Navigation Projects

There are several Federal projects on the Waccamaw River and its receiving waters, Winyah Bay. From R.M. 0 to R.M. 28.0 the Waccamaw River is a link of the Atlantic Intracoastal Waterway. Additional projects on the river include an 80 feet by 12 feet deep channel from R.M. 0 to R.M. 41.5, a 50 feet by 4 feet deep channel from R.M. 41.5 to R.M. 67.0, and a cleared channel from R.M. 67.0 to R.M. 140.0. Snagging and clearing of the Waccamaw channel was completed from R.M. 103.0 to R.M. 108.5 and R.M. 134.5 to R.M. 140.0. Also, 2.5 miles of Seven Creeks (confluence with the Waccamaw is at R.M. 103.5) has been snagged and cleared. The Waccamaw River is a tributary of Winyah Bay. Winyah Bay serves as the harbor for Georgetown and as a result is a Federal navigation project. Table 3 summarizes the Federal navigation projects in the Waccamaw River area.

A project at Murrells Inlet provides for a 12 feet deep entrance channel, 300 feet wide through the offshore bar; an inner channel 10 feet deep and 90 feet wide from the entrance channel to a turning basin in the vicinity of the old Army crash boat dock; jetties on the north and south sides of the inlet about 3,300 and 2,300 feet long, respectively, with appurtenant works for sand by-passing; and a fishing walkway on the south jetty with access and parking facilities. The project will be started in 1977, with interim maintenance to permit free and safe movement of vessels also being done.

A project at Little River Inlet, North and South Carolina, provides for a channel 12 feet deep by 300 feet wide through the offshore bar; an inner channel 10 feet deep and 90 feet wide to the Atlantic Intracoastal Waterway, and ocean jetties approximately 3,000 feet long on the sides of the inlet. The project is in the planning stages, however, interim maintenance to permit free and safe movement of vessels has been done.

Bull Creek connects the Waccamaw and Great Pee Dee Rivers at R.M. 21.4 and 27.8, respectively. This creek is a part of a Federal navigation project which is discussed in Report 11 (Great Pee Dee River basin).

Other Navigation Projects

Inquiries made at various state and Federal agencies indicate no projects are now planned or under construction which would improve or substantially benefit navigation on the Waccamaw River or its tributaries.

TABLE 3

## AUTHORIZED FEDERAL NAVIGATION PROJECTS (6) (7)

<u>Stream</u>	<u>Work Authorized</u>	<u>Date Complete</u>	<u>Project Location (R.M.)</u>	<u>Authorization</u>
Atlantic Intra-coastal Waterway	Provides for a waterway 12 ft. deep at mean low water and not less than 90 ft. wide from Little River to and including Port Royal Sound, with a branch channel of the same dimensions to McClellanville, a total distance of 210 miles; for the construction of three bridges crossing the waterway in Horry County, S.C.; and for an anchorage basin 125 ft. wide, 335 ft. long, and 12 ft. deep near Myrtle Beach, S.C.	1940	Waccamaw 0.0- 28.0	River and Harbor Acts -H. Doc., 56th Cong., 1st Sess., 1902 -H. Doc. 237, 68th Cong., 1st Sess., 1925 -S. Doc. 178, 68th Cong., 2nd Sess., 1925 -H. Doc. 41, 71st Cong., 1st Sess., 1930 Rivers and Harbors Comm. -Doc. 11, 72nd Cong., 1st Sess., 1935 -Doc. 14, 72nd Cong., 1st Sess., 1935 -Doc. 6, 75th Cong., 1st Sess., 1937 -H. Doc. 129, 72nd Cong., 1st Sess., 1935 -H. Doc. 327, 76th Cong., 1st Sess., 1945
Waccamaw River	80 ft. wide by 12 ft. deep channel 50 ft. wide by 4 ft. deep channel Cleared Channel	1924 1931 Not Available	0.0- 41.5 41.5- 67.0 67.0-140.0	River and Harbor Acts -S. Ex. Doc. 117, 46th Cong., 2nd Sess., 1880 -Annual Report, 1880 -H. Doc. 82, 70th Cong., 1st Sess., 1930

TABLE 3 (continued)

## AUTHORIZED FEDERAL NAVIGATION PROJECTS (6) (7)

<u>Stream</u>	<u>Work Authorized</u>	<u>Date Complete</u>	<u>Project Location</u> (R.M.)	<u>Authorization</u>
Waccamaw River & Seven Creeks	Snagging and Clearing of Channel	1961	Waccamaw 103.0-108.5 134.5-140.0 Seven Cr. 0.0- 2.5	Flood Control Act of 1954
Georgetown Harbor	Provides for a channel 27 ft. deep with varying widths of 600 to 400 ft. from the Atlantic Ocean to and including a turning basin in Sampit River, with a side channel 2,400 ft. long and not less than 200 ft. wide leading to a turning basin at the upper end of the built-up portion of the city water front widened at the bends, secured and maintained by two jetties of stone on brush mattresses springing respectively from North and South Islands, the north jetty 11,139 ft. long and the south jetty 21,051 ft. long. The project also provides for maintenance to a depth of 18 ft. for a width of 400 ft. of the bypassed portion of Sampit River opposite the city of Georgetown.	1951	Winyah Bay	River and Harbor Acts -H. Ex. Doc. 258, 48th Cong., 2nd Sess. -H. Ex. Doc. 117, 50th Cong., 2nd Sess. -H. Doc. 398, 58th Cong., 2nd Sess. -H. Doc. 211, 76th Cong., 1st Sess. -S. Doc. 21, 81st Cong., 1st Sess.
Murrells Inlet	Provides for offshore and inland channelization, a turning basin, jetties and sand by-passing facilities	Construction Started 1977	Coastal Zone	Flood Control Acts 1965 -H. Doc. 137, 92nd Cong.

TABLE 3 (continued)

## AUTHORIZED FEDERAL NAVIGATION PROJECTS (6) (7)

<u>Stream</u>	<u>Work Authorized</u>	<u>Date Complete</u>	<u>Project Location</u> (R.M.)	<u>Authorization</u>
Murrells Inlet	Interim maintenance until above project is completed.	On Going	Coastal Zone	Water Resources Act 1974 -H. Doc. 10203, 93d Cong., 2d Sess.
Little River Inlet	Provides for offshore and inland channelization, and jetties	Planning Phase	Little River Inlet	H. Doc. 362-2 92d Cong.
Little River Inlet	Interim maintenance until above project is completed.	On Going	Little River Inlet	Water Resources Act 1974 -H. Doc. 10203, 93d Cong., 2d Sess.

#### SECTION 4 - INTERSTATE COMMERCE

##### Past

The first significant penetration by Englishmen reaching the Waccamaw River basin appears to have been fostered by the Indian trade. In 1707, "Muskets, powder, lead, woolen cloth, tools, and Iron were the principal articles supplied to the Indians [at Wineau] near the Waccamaw Indians." The total volume of the Indian trade in South Carolina, of which a significant portion was apparently derived from the Waccamaw traffic, was as follows: in 1710, some 76,000 deerskins were received; in 1731, 250,000 skins; and in 1748, 600,000 skins. This trade presumably relied upon perriaugers\* or bateaux to move these goods on the river. (8)

As English settlers began clearing the lands in the Waccamaw region, the river became even more important, especially for the exportation of rice. Keeping the river open was a difficult task which, in 1778, resulted in the passage of an act by the General Assembly of South Carolina to "oblige all male inhabitants residing on or near Waccamaw River, to work on and lay open the navigation of the said river." A similar act was passed five years later. (9)

The fact that the Waccamaw originated in North Carolina, but flowed toward Georgetown and Winyah Bay in South Carolina favored the merchants of South Carolina. By 1812, North Carolinians were complaining that they had "sent to other ports ... by the Waccamaw, Little Pee Dee, and Lumber Rivers" our "Naval Stores, barrel staves, [and] lumber." (10) When the Civil and Military Engineer of South Carolina surveyed the Waccamaw in 1817 or 1818, he reported that it was "navigable from Winyah Bay to the North Carolina line, being between 70 and 80 miles.\*\* It was

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\* Perriauger - A vessel used during the early development period of the United States (1700's-1800's) for the transportation of supplies. The vessel was sometimes oared, poled, or pulled and was occasionally fitted with mast and sail.

\*\* This distance does not correspond to river miling developed as a part of this study. This study shows a distance of 93.8 river miles to the North Carolina state line.



obstructed by "logs, which have been suffered to accumulate," and by a sandbar "about 50 miles from the mouth of the river." He added that there was "never less than 5 feet water in any part of the Waccamaw, within this state." (11) Five years later, South Carolina's Board of Public Works (later Commission of Public Works) observed that the river had "a sloop and steamboat navigation to a point, a few miles above Conwayborough, about 40 miles from its entrance into Winyah Bay, and a boat navigation into Waccamaw Lake, ... 50 miles further." The tidal flow extended "to Conwayborough." (12)

By 1825, a similar report indicated that, "above ... Conwayborough, sloops and schooners now ascend, but the channel is much obstructed ... by logs and rafts, and the navigation is thus rendered difficult. Between Porter's Ferry and the North Carolina line, there is a boat navigation, obstructed only by logs, rafts, and ... sandbars." (13) These statements were reiterated by Robert Mills in 1826, who remarked that the river, from Lake Waccamaw on down, was "navigable for boats to Conwayborough, and from that place to Winyah Bay, it is navigable for schooners." (14)

Captain W. H. Bixby, Corps of Engineers, examined the Waccamaw River in 1879-1880. Around that time, "the steamers of Burroughs and Collins carried the trade between Conway and Georgetown" on the Waccamaw, a trade supplemented by pole boats and rafts. (15) Timber could be rafted all the way down from Lake Waccamaw, and two sidewheel steamers and a steam launch could get above Conway when the water was high enough. The Rivers and Harbors Act of June 14, 1880 authorized the improvement of the channel from the mouth to Conway, and up to Red Bluff and Lake Waccamaw. (16) These improvements greatly increased the volume of commerce moved on the river, which at the time consisted of timber, cotton, rice, rosin, turpentine, poultry and eggs, and cross-ties or other lumber products. In 1896 the Board of Trade of Georgetown, South Carolina noted that the Waccamaw could be navigated 117 miles upriver by steamers, and 147 miles by pole boats. Commerce, for the year ending June 1, 1895, comprised 128,466 tons valued at \$2,063,697. (17)

These figures had dropped to 20,412 tons (and \$568,501) by 1921. The fact that they had risen to 128,721 tons (\$1,611,213) by 1926 led the Corps of Engineers to recommend additional improvements on the river to clear out the various snags and obstructions which had accumulated. (18) This resulted in the Rivers and Harbors Act of July 3, 1930, which provided for an Improved channel from Conway to Red Bluff, South Carolina (R.M. 70). Red Bluff later became "The head of commercial navigation." (19)

The project was completed in 1931, although the additional maintenance efforts mounted in 1950 and in 1970 were necessary to clear the obstructions which had built up over the years. By 1972, however, "Above Red Bluff the channel was obstructed by logs and snags," and there was no commercial navigation" above that point. (20) After the construction of the Atlantic Intracoastal Waterway, a twenty-mile stretch of the Waccamaw linked the Waterway to Winyah Bay. (7)

#### Present

The Waccamaw River is currently being used for purposes of waterborne interstate commerce. The commodities moved on the river in 1975 consisted of shellfish, logs, and jet fuel. (21)

Red Bluff (R.M. 70) is described as the limit of actual navigation, although "Navigation [is also] approved to Lake Waccamaw" (R.M. 140.0). (7)

#### Future Potential

The use of the Waccamaw River and its tributaries for interstate commerce in future years is difficult to predict. Comprehensive analysis of the regional economics (income, education, employment, community facilities, transportation systems, and similar factors), which would indicate growth patterns and the services needed to sustain various types of industrial and commercial activities, is beyond the scope of this study. Thus, the potential use of the Waccamaw River and its tributaries for interstate commerce in future years is difficult to predict. However, some analysis and judgments have been made

concerning future commerce to assist in establishing navigation classifications.

As discussed later in Section 6, the Waccamaw River is classified "navigable waters of the U. S." from its mouth on Winyah Bay in South Carolina (R.M. 0) to Lake Waccamaw in North Carolina (R.M. 140.0).

The Waccamaw River is currently used for interstate commerce. This commerce is anticipated to continue in the future since the river is connected to Winyah Bay and the Atlantic Ocean. However, as regional economic trends change the degree of demand of commerce, activity on the Waccamaw River may also change. Future potential commerce could be significant on the Waccamaw River due to its established interstate commerce and its location near the coast.

## SECTION 5 - LEGAL AUTHORITY

### General

This section presents information pertaining to the legal aspects of the navigability investigation. Such Federal and state court decisions as apply to the specific basin reported on herein are outlined. The Summary Report presents more complete documentation and references to the court cases dealing with navigation classifications and legal jurisdiction.

### Navigability Interpretations

The term "navigable waters of the U. S." is used to define the scope and extent of the regulatory powers of the Federal government. Precise definitions of "navigable waters" or "navigability" are ultimately dependent on judicial interpretation, and are not made conclusively by administrative agencies.

Definitions of "navigability" are used for a wide variety of purposes and vary substantially between Federal and state courts. Primary emphasis must therefore be given to the tests of navigability which are used by the Federal courts to delineate Federal powers. Statements made by state courts, if in reference to state tests of navigability, are not authoritative for Federal purposes.

Federal courts may recognize variations in definition of navigability or its application where different Federal powers are under consideration. For instance, some tests of navigability may include:

1. Questions of title to beds underlying navigable waters.
2. Admiralty jurisdiction.
3. Federal regulatory powers.

This study is concerned with Federal regulatory powers. Unfortunately, courts often fail to distinguish between the tests, and instead rely on precedents which may be inapplicable. Thus, a finding that waters are "navigable" in a question dealing with land title may have a somewhat different meaning than "navigable waters of the U. S." which pertains to Federal regulatory functions.

In this study, the term "navigable waters of the U. S." is used to define the extent and scope of certain regulatory powers of the Federal government (River and Harbor Act); this is distinguished from the term "navigable waters" which refers to other Federal regulatory powers (Section 404 of PL 92-500).

Administratively, "navigable waters of the U. S." are determined by the Chief of Engineers and they may include waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate commerce landward to their ordinary high water mark and up to the head of navigation. "Navigable waters of the U. S." are also waters subject to the ebb and flow of the tide shoreward to their mean high water mark. These waters are deemed subject to a Federal "navigation servitude". The term "navigable waters of the U. S." defines the more restricted jurisdiction which pertains to the River and Harbor Acts -- particularly the one of 1899 which specifically defined certain regulatory functions for the Corps of Engineers.

In contrast, the term "navigable waters" defines the new broader jurisdiction with respect to Section 404 of the Federal Water Pollution Control Act Amendments of 1972. Accordingly, "navigable waters" not only include those waters subject to the navigation servitude, but adjacent or contiguous wetlands, tributaries, and other waters, as more fully defined in revised Corps of Engineers Regulations.

Although this navigability study covers both "navigable waters of the U. S." and "navigable waters", the analysis of judicial interpretation has only focused upon determining "navigable waters of the U. S." to the head of navigation. Due to common usages in court cases, the terms "navigability" and "navigable waters" may herein appear interchangeably with the term "navigable waters of the U. S." However, the summary of court cases is directed at the Federal regulatory jurisdiction of the River and Harbor Acts, and not necessarily regulatory jurisdiction under the Federal Water Pollution Control Act.

#### General Federal Court Cases

Powers of the Federal government over navigable waters stem from the Commerce Clause of the U. S. Constitution (Art. I, §8). Pursuant

to its powers under the Commerce Clause, Congress enacted the River and Harbor Act of 1899 which particularly specifies regulatory powers of the Federal government in "navigable waters of the U. S."

The well-established Federal test of navigability is whether a body of water is used or is capable of being used in conjunction with other bodies of water to form a continuous highway upon which commerce with other states or countries might be conducted.

Several Federal court decisions make it clear that a waterway which was navigable in its natural or improved state retains its character as "navigable in law" even though it is not presently used for commerce. The test of navigability is not whether the particular body of water is in fact being used for any form of commerce but whether it has the capacity for being used for some type of commerce. Several cases substantiate this (see the Summary Report for details on the court decisions).

The ebb and flow of the tide is another test which remains a constant rule of navigability in tidal areas, even though it has sometimes been disfavored as a test of Federal jurisdiction. Several cases note that ebb and flow should not be the sole criterion of navigability, but that extension of Federal jurisdiction into the major non-tidal inland waters is possible by an examination of the waters "navigable character". The ebb and flow test, however, remains valid as a rule of navigability in tidal areas; it is merely no longer a restriction for non-tidal areas. For bays and estuaries, this extends to the entire surface and bed of all waterbodies subject to tidal action, even though portions of the waterbody may be extremely shallow or obstructed by shoals, vegetation, or other barriers as long as such obstructions are seaward of the mean high tidal water line. Marshlands and similar areas are thus considered "navigable in law" insofar as they are subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters. Navigable waters are considered navigable laterally over the entire surface regardless of depth.

Another factor relevant to navigability determinations is land title. Whatever title a party may claim under state law, the private ownership of the underlying lands has no bearing on the existence or

extent of the dominant Federal jurisdiction over "navigable waters of the U. S." Ownership of a river or lake bed will vary according to state law; however, the Supreme Court has consistently held that title to the bottomlands is subordinate to the public right of navigation.

#### Specific Federal Court Cases

Navigability, in the sense of actual usability for navigation or as a legal concept embracing both public and private interests, is not defined or determined by a precise formula which fits every type of stream or body of water under all circumstances and at all times. A general definition or test which has been formulated for Federal purposes is that rivers or other bodies of water are navigable when they are used, or are susceptible of being used, in their ordinary condition as highways for commerce over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

The question of navigability of water when asserted under the Constitution of the U. S., as is the case with "navigable waters of the U. S.", is necessarily a question of Federal law to be determined according to the general rule recognized and applied in the Federal courts.

Review of Federal case history reveals one court decision which applies specifically to navigation on Winyah Bay which is the receiving waters for the Waccamaw River. This case is briefly summarized below. (22)

Chisolm v. Caines\* - This case dealt with Winyah Bay, Jones Creek, Town Creek, and Bread and Butter Creek, leading from the Atlantic Ocean, via North Inlet, into Winyah Bay. In it the court ruled that the question as to what is or is not a public, navigable stream is not one of local or statutory law, but of general law, as to which the Federal courts are entitled to exercise an independent judgment. In determining whether streams and arms of the sea traversing marsh lands are public, navigable waters, the test was whether they are, or

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\* 67 Fed. 285, Circuit Court, D. South Carolina, 1895.

are capable of becoming, public highways; that is, a means, open to the public, of passing from one place, where they have a right to be, to another, in which they have the same right. In that Jones Creek and Town Creek were found to lead in a continuous channel from the ocean, via North Inlet, into Winyah Bay, they were declared navigable in fact. Winyah Bay was recognized as navigable, the court stating: "Winyah Bay opens into the Atlantic Ocean, carries on its waters large commerce, and its channels are great public highways."

#### South Carolina State Court Cases

The South Carolina legislative enactment defining navigability and requiring freedom from obstruction may be found in Section 70-1 of the South Carolina Code of Laws. This section essentially provides that all streams which can float rafts of lumber or timber are considered navigable by state law.

Many of the South Carolina state cases reported are primarily concerned with state ownership questions. While the majority of states actually own streams and exercise control over their navigable waters, the ultimate authority has been granted to the Federal government by the Commerce Clause of the Constitution. The general rule, then, is that the states both own and control the navigable streams within their borders, subject to exercise of the superior right of control by the U. S. Although case histories show that state and Federal concepts of navigability do not always agree, when Federal interests are at stake, the Federal test will govern.

There are exceptions, however, to the "overwhelming majority rule of state ownership of lands beneath navigable waters", and South Carolina is in the minority. In the minority states, it was considered that property rights were vested at the time of independence from England and that the state took title only to tidal-navigable streams while riparian owners took title to all stream beds, both navigable and non-navigable, if non-tidal. Even in the minority states, however, private ownership of the bed does not affect the rights of the public to the use of navigable waters.



A legal search indicates there are two South Carolina state court cases which specifically deal with navigation considerations in the tidally influenced areas of Murrells Inlet and Salt Creek on Pawleys Island. These areas will be considered as part of the Waccamaw River area. These cases are briefly summarized below. (22)

State v. Murrells Inlet Camp and Marina, Inc.\* - In this case concerning Murrells Inlet, the state of South Carolina brought suit contesting title to approximately two acres which had been filled by defendant. The state claimed lands lying between the mean high water mark and the mean low water mark. The court held that the issue as to whether the land in question was covered by waters of the average high tide or only by unusually high tides in its natural state was for the jury. However, the court stated: "That the land in question in its natural state was salt marsh is plain beyond quibble." The relevance of this case concerns the state's assertion of ownership at Murrells Inlet, implicitly navigable.

State v. Hardee\*\* - This case concerning Salt Creek on Pawleys Island reaffirmed that title to land below the high water mark on tidal navigable streams is in the state to be held in trust for public purposes. Salt Creek at Pawleys Island was concluded to be a navigable stream by the trial judge, and no appeal was made regarding this factual determination.

#### North Carolina State Court Cases

The issue of navigability has arisen in a number of actions in the state courts of North Carolina. However, most of these cases concern coastal areas not within the boundary of the Charleston District.

North Carolina does not follow the English common-law rule that streams are navigable only as far as tidewater extends. Thus, unlike South Carolina as discussed previously, North Carolina conforms to the majority rule within the U. S. (i.e., state ownership of land beneath navigable waterways).

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\* 259 S. C. 404, 192 S. E. 2d 199 (1972).

\*\* 193 S. E. 2d 497 (1972).

A review indicates there are no North Carolina state court decisions which relate to navigation in the Waccamaw River basin.

#### Recent Federal Litigation

A review of recent Federal litigation concerning the Charleston District reveals five court actions in the Waccamaw River area relating to navigation. All these cases involve tidally influenced areas of the basin. The cases are briefly summarized below. (22)

U. S. v. Phil Permenter\* - This civil complaint, filed 9 May 1974, sought restoration and alleged that the defendant excavated, dredged, filled, and constructed an embankment in a tidal marsh located in Cherry Grove, North Myrtle Beach, Horry County, South Carolina, all in violation of Sections 10 and 13 of the River and Harbor Act of 1899. On motion by the government, a temporary restraining order was issued while a Corps' survey team took re-measurements to verify if defendant was working below the mean high water mark. The revised tidal data verified that much of the work had been performed below the elevation of mean high water. At a meeting held 5 December 1975 before the Federal District Judge, defendant agreed to restore the subject area in accordance with a Corps' plan. However, the court would not order defendant to defray the expense of restoration in that defendant alleged that he had initially relied on government tidal data which was subsequently shown to be erroneous. The court then took notice of a recent case in which the same defendant by court order, was assessed a civil penalty of \$7,500.00 for excavation, filling, and bulkhead construction at a different area without the requisite Corps' permit (Civil Action No. 75-542, U.S.D.C., South Carolina). It was agreed that the \$7,500.00 would be applied to the amount that defendant needed to accomplish restoration in the instant case. However, a subsequent inspection of the subject site by Corps' personnel on 11 June 1976 revealed that portions of the impounded areas were opening up through natural tidal action, and that the areas remaining to be opened and/or widened would not require extensive restoration.

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\* U.S.D.C., South Carolina, Civil Action No. 74-593.

Sandy Island Development Corp. v. Col. Robert Nelson and the United States Army Corps of Engineers\* - In this litigation, plaintiff is in the process of developing its land on Sandy Island at the confluence of Thoroughfare and Barrack Creeks, and the Waccamaw River, Georgetown County, South Carolina. The development consists principally of construction of a system of finger canals with home sites built on their banks by dredge and fill operations. Access to the adjacent navigable waters can be made by removing earthen "plugs", or embankments, presently separating the canals from the existing creeks. In July 1972, plaintiff applied to the Corps to remove a "plug" between its main canal and Thoroughfare Creek. Plaintiff also applied for an "after-the-fact" approval for filling in an old irrigation ditch which adjoined Barrack Creek. Meanwhile, the Charleston District Engineer issued a cease and desist order. Plaintiff filed this civil action on 20 May 1974 seeking a temporary and permanent restraining order against the Corps. On 19 June 1974, defendants filed their motion to dismiss the complaint for lack of jurisdiction. By order dated 30 July 1975 the court granted defendants' motion to dismiss concluding that the matter was not "ripe" for judicial review; that the Corps had primary jurisdiction and was then processing the permits; and that until conclusive determinations had been made thereon, there would have been no final agency action sufficient to invoke the court's jurisdiction. It is considered that the dismissal of this suit reinstates defendants' cease and desist order to prohibit further breaching of the embankment. The District is currently preparing its recommendations for submission to the Office of the Chief of Engineers. In the interim, the District authorized defendants' contractor to "float out" its construction equipment from an interior canal, following approval of a "locked" area.

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\* U.S.D.C., South Carolina, Civil Action No. 74-1936.

U. S. v. Winford Johnson\* - This civil complaint, filed 10 December 1974, alleged that defendant placed fill material in marshlands of Pawleys Island Creek, Pawleys Island, Georgetown County, South Carolina in violation of Section 10 of the River and Harbor Act of 1899. On 8 August 1975 plaintiff and defendant consented without trial to a decree providing that the defendant would be permanently restrained and enjoined from any further unauthorized filling activities below the elevation of mean high water at the subject area. It further provided that due to revised Corps regulations expanding permit jurisdiction, defendant would also be required to comply with Section 404 of the Federal Water Pollution Control Act (1972 Amendments) for filling in wetlands above the level of mean high water.

U. S. v. Phillip R. Permenter\*\* - This civil complaint, filed 4 April 1975, alleged violation of Section 10 of the River and Harbor Act of 1899 and non-compliance with Sections 404(a) and 301(a) of the Federal Water Pollution Control Act (1972 Amendments). The complaint alleged that defendant unlawfully excavated a canal, filled and constructed a bulkhead at House Creek, in the Cherry Grove area, Horry County, South Carolina. Defendant's answer was served on 5 May 1975. Following a trial held 20 October 1975, the court ruled that the government had proved its case. Subsequently, defendant was ordered by the court to restrain from further filling, construction, modification, or alteration in "navigable waters of the U. S." and surrounding wetlands subject to tidal flow. Additionally, defendant was assessed a civil penalty of \$7,500.00 pursuant to Section 309(d) of the Federal Water Pollution Control Act.

U. S. v. E. A. Dorman\*\*\* - This Criminal Information charged that at some time between 19 October 1972 and 4 June 1976, the defendant did unlawfully excavate, alter, and modify the course and condition of the Waccamaw River, which forms a part of the Atlantic Intracoastal Waterway,

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\* U.S.D.C., South Carolina, Civil Action No. 74-1936.

\*\* U.S.D.C., South Carolina, Civil Action No. 75-542.

\*\*\* U.S.D.C., South Carolina, Criminal No. 76-250.

a "navigable water of the U. S." This was done without the required permit, and without the recommendation of the Chief of Engineers and the authorization of the Secretary of the Army, all in violation of Sections 403 and 406 of the River and Harbor Act of 1899. Specifically, defendant allegedly unlawfully excavated a canal and boat slip near Bucksport Marina, in Horry County, South Carolina. There is indication that defendant may well plead guilty to the one-count Criminal Information in the near future.

#### Federal Agency Jurisdiction

The delineation of "navigable waters of the U. S.", as discussed earlier, in essence, defines the Federal navigation servitude and is applicable to Federal jurisdiction generally (not merely applicable to the Corps of Engineers). No matter which Federal agency or activity may be involved, the assertion of "navigability" ("navigable waters of the U. S.") arises under the U. S. Constitution, or under application of Federal statute.

By virtue of the Commerce Clause of the Federal Constitution, and the clause empowering Congress to make all laws necessary to carry into execution the Federal judicial power in admiralty and maritime matters, "navigable waters of the U. S." are under the control of Congress, which has the power to legislate with respect thereto. It is for Congress to determine when and to what extent its power shall be brought into activity. It may be exercised through general or special laws, by Congressional enactments, or by delegation of authority.

Thus, Congress has power which is paramount to that of the states to make improvements in the navigable streams of the U. S. and for this purpose to determine and declare what waters are navigable. The Federal government also has the power to regulate the use of, and navigation on, navigable waters.

The above presents the basis upon which Federal jurisdiction in "navigable waters of the U. S." is established. The basic definition or jurisdictional concept of "navigable waters of the U. S." remains consistent, irrespective of which department or office of the Federal

government may be delegated particular responsibility. For instance, the safety, inspection, and marine working functions of the U. S. Coast Guard embrace vessel traffic within "navigable waters of the U. S." as previously defined.

With specific reference to agency regulation of construction or work within "navigable waters of the U. S.", other than by the Corps of Engineers, the Department of Transportation Act of 15 October 1966 (PL 89-670) transferred to and vested in the Secretary of Transportation, certain functions, powers, and duties previously vested in the Secretary of the Army and the Chief of Engineers. By delegation of authority from the Secretary of Transportation, the Commandant, U. S. Coast Guard, has been authorized to exercise certain of these functions, powers, and duties relating to the location and clearances of bridges and causeways in the "navigable waters of the U. S."

An additional agency of particular interest concerning work or construction within "navigable waters of the U. S." is the Federal Power Commission. The Federal Power Act, Title 16, United States Code, Sections 791 et. seq., contemplates the construction and operation of water power projects on navigable waters in pursuance of licenses granted by the Federal Power Commission. The statute was enacted to develop, conserve, and utilize the navigation and water power resources of the nation. The act provides for the improvement of navigation, development of water power, and use of public lands to make progress with the development of the water power resources of the nation.

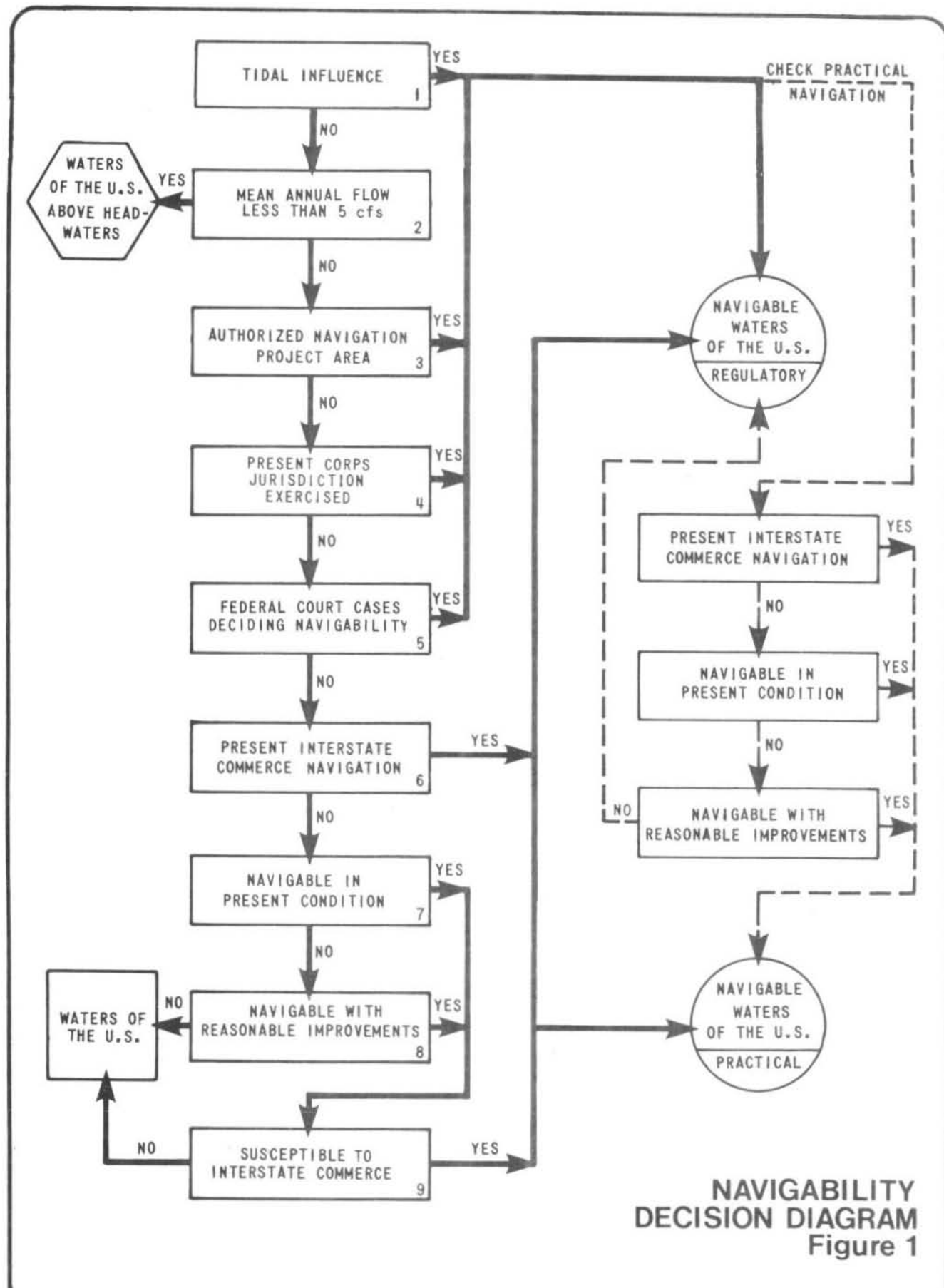
## SECTION 6 - NAVIGATION OBSTRUCTIONS AND CLASSIFICATIONS

### Navigation Classification Procedures

As noted in Section 5, definition of navigability is not subject to a single precise formula which applies to every circumstance. Many factors including stream physical characteristics (depth, width, flow, slope, etc.), presence of obstructions, court decisions, authorized navigation projects, potential for reasonable improvements, and susceptibility of a stream to interstate commerce activities, play a role in the decision-making process for classifying waterbodies in the Charleston District. In an effort to make the analytical process concerning stream classifications as systematic as possible, a "Navigability Decision Diagram" has been developed and is presented in Figure 1. This diagram has been utilized as a guide in assessing the various navigation classifications for streams in the Charleston District. The Summary Report includes a detailed presentation on the methodology and approaches used in the analysis; however, the following presents a brief synopsis of the techniques as indicated in Figure 1.

Tidal Influenced Areas - Tidal areas (see Item 1 in Figure 1) which are affected by mean high water are classified "navigable waters of the U. S." according to various legislative and judicial actions. The "navigable waters of the U. S." are subject to regulatory jurisdiction by the Corps of Engineers and other agencies. Even though all tidal areas are so classified and subject to regulatory procedures, many are not practically navigable based upon past and/or present requirements for vessels. Figure 1 shows that some additional "check" analyses are necessary to distinguish those tidal waters which are actually capable of practical navigation. Investigation of the tidal areas is beyond the scope of this study; however, drawings showing the "plan" of major rivers to their mouth, often tidal influenced, are presented in the interest of continuity.

Waters of the U. S. Above Headwaters - Section 404 of PL 92-500 considers the headwaters of waterbodies to be the point at which the mean annual flow is five cfs. Waterbodies or portions of waterbodies



NAVIGABILITY  
DECISION DIAGRAM  
Figure 1





located upstream of the headwaters are nationally permitted by law and will not require an individual application for dredge or fill discharge permits provided the proposed work will meet certain conditions.

However, these waters are classified "waters of the U. S." and are within Corps of Engineers jurisdiction as applicable to Section 404. Item 2 in Figure 1 shows the testing procedure for the five cfs point.

Authorized Navigation Project Area - Any streams which currently have authorized Federal projects to aid navigation are classified as "navigable waters of the U. S." (Item 3 in Figure 1). Many of the projects thus authorized were based upon conditions which are not currently applicable (for example, use of pole boats or steamboats for justifying the navigation benefits). Consequently, many of the streams having older authorized projects will not allow passage of present-day commercial navigation vessels without some additional improvement. Thus, some portions of the authorized project areas are not considered practical for navigation. Figure 1 shows the additional "check" procedure which has been followed to assess the practical limit of "navigable waters of the U. S."

Present Corps Jurisdiction Exercised - The Corps of Engineers is exercising jurisdiction on several non-tidal waterbodies which are not covered by authorized projects (Item 4 in Figure 1). (7) Determinations previously made on these waterbodies under the River and Harbor Act indicated use for interstate commerce and hence the current classification as "navigable waters of the U. S." Some of these streams are not currently navigable by present-day commercial vessels and thus have practical limits. Figure 1 shows the "check" used to assess the practical limits of "navigable waters of the U. S."

Federal Court Decisions - As noted in Section 5, Federal case law is the predominant indicator which is to be used for establishing Federal jurisdiction over waterbodies in the Charleston District (Item 5 in Figure 1). Several decisions have been rendered which classify certain streams in the district as "navigable waters of the U. S." However, some of these court decisions have been arrived at under different circumstances or without the benefit of the data developed as a part of this investigation. Therefore, even though some of the

streams are classified by judicial review as "navigable waters of the U. S.", they are not practical for navigation with present-day vessels. Figure 1 shows the steps necessary to "check" those portions of the "navigable waters of the U. S." which are capable of practical navigation.

Present Interstate Commerce Navigation - Any rivers currently involved in interstate commerce activities are classified as "navigable waters of the U. S." from both the regulatory and practical standpoint (see Item 6 in Figure 1).

Waters of the U. S. Below Headwaters - For those streams, or portions of streams, not subject to authorized projects, court cases, or present interstate commerce navigation, several additional tests for determining navigability are required (Items 7 and 8 in Figure 1). If the waterbody is not judged to be navigable in its present state or with reasonable improvements, then it is beyond the limit of "navigable waters of the U. S." and is termed "waters of the U. S." over the remaining length. These "waters of the U. S." (as well as the "navigable waters of the U. S.") up to the headwaters (five cfs points) of the streams are subject to jurisdiction under Section 404 of PL 92-500. A general or individual permit is required for discharge of dredged or fill material below the headwaters (five cfs point) of "waters of the U. S." Discharges above the headwaters are discussed in the previous subsection, "Waters of the U. S. Above Headwaters."

Interstate Commerce - Some non-tidal waters in the district are not now subject to authorized projects, court decisions, or interstate commerce navigation, but can be navigated under present or reasonably improved conditions. These streams may be considered for classification as "navigable waters of the U. S." if they are susceptible to interstate commerce activities (past, present, or future). A combined judgment considering both "reasonable improvement" factors (Item 8 in Figure 1) and "interstate commerce" factors (Item 9 in Figure 1) has often been utilized in arriving at the conclusions and recommendations concerning navigability of waterbodies in the Charleston District. The Summary Report provides further details on these factors.

### Navigation Classification Categories

This study classifies streams into several different categories, each of which is discussed subsequently:

1. Present "navigable waters of the U. S." (by regulatory procedures).
2. Historically navigable waters (based on literature review).
3. Recommended "navigable waters of the U. S." (based upon data developed as a part of this investigation).
4. Recommended waters for practical navigation (within "navigable waters of the U. S.").
5. Headwaters for all waterbodies (five cfs points).

The first four navigation classifications are displayed on the plates presented later in this report. The headwater limits are summarized in Appendix A.

### Present Navigable Waters of the U. S.

Currently the Waccamaw River is classified as "navigable waters of the U. S." from its mouth on Winyah Bay (R.M. 0) to Lake Waccamaw (R.M. 140.0) in North Carolina. (6) (7) From the mouth to Lake Waccamaw a total of 140 miles of river has been classified as a Federal navigation project (see Section 3). The present day limit of actual navigation for interstate commerce is to Red Bluff, South Carolina (R.M. 70).

### Historically Navigable Waters

In the past, the Waccamaw River has been utilized for navigation from Lake Waccamaw (R.M. 140.0) to its mouth on Winyah Bay. The most recent use of the river for navigation has been from Red Bluff (R.M. 70) to Winyah Bay (see Section 4). Navigation extended into Lake Waccamaw (see Report 18).

### Recommended and Practical Navigable Waters of the U. S.

"Navigable waters of the U. S.", once classified in the past, cannot be declassified. Thus, the recommended limit of "navigable waters of the U. S." (for regulatory purposes) on the Waccamaw River must be at Lake Waccamaw (R.M. 140.0), because that is the limit of an authorized Federal navigation project.

The recommended practical limit of navigation is at the N. C. secondary 1928 highway bridge (R.M. 129.5). There are seven bridge crossings on the non-tidal portion of the river which were investigated in the field. The stretch of river between the N. C. secondary 1928 highway bridge (R.M. 129.5) and Lake Waccamaw (R.M. 140.0) was determined to be impractical for commercial navigation. Field investigations at R.M. 129.5, R.M. 133.8, and R.M. 140.0 revealed insufficient navigable depths (minimum of 7 feet deep, 50 feet wide channel), extreme channel twisting, and debris conditions; often a minimum channel width of 50 feet was not found. Opening R.M. 129.5 to R.M. 140.0 to commercial navigation would require extensive channel dredging and clearing through swamp-like areas and possible stream flow augmentation to provide sufficient depth. At R.M. 140.0 locks would be required to allow access into the very shallow Lake Waccamaw (see Report 18).

To achieve actual navigation to the practical limit of navigation at R.M. 129.5 all bridges on non-tidal areas of the river would require renovation to meet horizontal and vertical clearances of 50 feet and 25 feet, respectively, necessary for commercial river vessels.

In addition, field investigation of small tributary streams revealed sufficient water depth of at least 7 feet and channel width of at least 50 feet to justify recommendation of some tributaries for navigability classifications. Thus, the following streams (which confluence with the Waccamaw River within its recommended and practical limits of "navigable waters of the U. S." are recommended for classification and are listed with their upstream recommended and practical limits of "navigable waters of the U. S." indicated in parentheses: secondary channel near Big Savannah Bluff (R.M. 0.4) secondary channel near R.M. 97.5 (R.M. 0.3), Big Savannah Lake (R.M. 0.2), and Gore Lake (R.M. 1.0). The downstream recommended and practical limit of "navigable waters of the U. S." for each of these streams is at its confluence with the Waccamaw River.

There are no other non-tidal tributaries of the Waccamaw River which justify classification as "navigable waters of the U. S."

These conclusions on the navigation limit meet the criteria established for the Federal test of navigability that the body of water is used, or is capable of being used, in conjunction with other bodies of water to form a continuous highway upon which commerce with other states or countries might be conducted.

Plates 07-4 through 07-10 are plan and profiles for the recommended "practical navigable waters of the U. S." The plan and profile plates show mean water surface as determined from USGS maps, stream bed depth, 50 feet wide navigable channel depth, pier spacing for bridges crossing the river, and vertical clearances at structures. Approximate vertical clearances for overhead utilities are shown later in this section in Table 4. It is emphasized that all references to elevation are approximate since vertical control was established from USGS contour maps and not field instrument surveys. Water depth and structure vertical clearance measurements are also approximate due to the accuracy inherent in the field techniques. Small tributaries recommended for classification as "navigable waters of the U. S." for less than one mile in length from their confluences are shown on the plan only. (See the Summary Report for a detailed description of field procedures and the methodology used to calculate water depth at mean flow.)

#### Obstructions to Navigation

Table 4 is a listing of all obstructions within the recommended "navigable waters of the U. S." on the Waccamaw River. No obstructions were found on the small tributary streams recommended for classification as "navigable waters of the U. S." Mean water slope and vertical clearance to mean water level at all obstructions and mean discharge at all bridges are presented in the table. It is emphasized that mean discharge, slope, and vertical clearances are only approximations based on best available data. Specific procedures for determining these are discussed in the Summary Report.

Photographs of each obstruction investigated in the field are presented in Figures 07-2 through 07-13. Each photograph is identified to correspond with the obstructions listed in Table 4.

#### Waters of the U. S.

"Waters of the U. S." are considered to be all streams beyond the recommended limits of "navigable waters of the U. S." "Waters of the U. S." with more than five cfs mean annual flow require a permit for discharge of dredged or fill material. "Waters of the U. S." with less than five cfs mean annual flow are nationally permitted by law and will not require an individual application for dredge or fill discharge permits provided the proposed work will meet certain conditions.

Appendix A lists all the five cfs flow points located in the Waccamaw River basin. Each point is located by stream code, stream name, latitude and longitude, and a mileage reference.

Appendix B lists the lakes located in the Waccamaw River basin which have surface areas between 10 and 1,000 acres. The lake summary identifies the stream basin code, lake name or owner, county location, and where data is available, the surface area and gross storage.

TABLE 4

OBSTRUCTION LISTING FROM TIDAL INFLUENCE LIMIT  
TO RECOMMENDED PRACTICAL LIMIT OF NAVIGABLE WATERS OF THE U. S. (3)

<u>Waccamaw River Mile</u>	<u>Description</u>	<u>Mean Discharge (cfs)</u>	<u>Mean Water Slope (ft/mi)</u>	<u>Approximate Vertical Clearance To Obstruction (ft)</u>
62.7	Utility Line (power)	--	0.12	70.0 <sup>1)</sup>
62.7	S. C. Secondary 105 Highway Bridge	1,340	0.12	11.5
70.4	S. C. Secondary 31 Highway Bridge	1,240	0.30	10.0
70.5	Utility Line (power)	--	0.30	38.2
81.8	Utility Line (power)	--	0.38	34.5
85.1	Utility Line (power)	--	0.42	40.0
85.4	S. C. 9 Highway Bridge	1,210	0.42	7.5
102.1	N. C. 904 Highway Bridge	1,090	0.58	8.5
102.1	Utility Line (power)	--	0.58	38.0
118.3	N. C. 130 Highway Bridge	790	0.68	9.5
118.3	Utility Line (power)	--	0.68	43.0
129.5	Utility Line (power)	--	0.68	45.0
129.5	N. C. Secondary 1928 Highway Bridge	600	0.68	7.5

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1) Vertical clearance at high water.



FIGURE 2 - UTILITY LINE (R.M. 62.7) (S. C. SECONDARY 105 HIGHWAY BRIDGE)



FIGURE 3 - S. C. SECONDARY 105 HIGHWAY BRIDGE (R.M. 62.7)





FIGURE 4 - S. C. SECONDARY 31 HIGHWAY BRIDGE (R.M. 70.4)



FIGURE 5 - UTILITY LINE (R.M. 70.5) (S. C. SECONDARY 31 HIGHWAY BRIDGE)



FIGURE 6 - UTILITY LINE (R.M. 81.8)



FIGURE 7 - UTILITY LINE (R.M. 85.1) (S. C. 9 HIGHWAY BRIDGE)



FIGURE 8 - S. C. 9 HIGHWAY BRIDGE (R.M. 85.4)



FIGURE 9 - N. C. 904 HIGHWAY BRIDGE (R.M. 102.1)

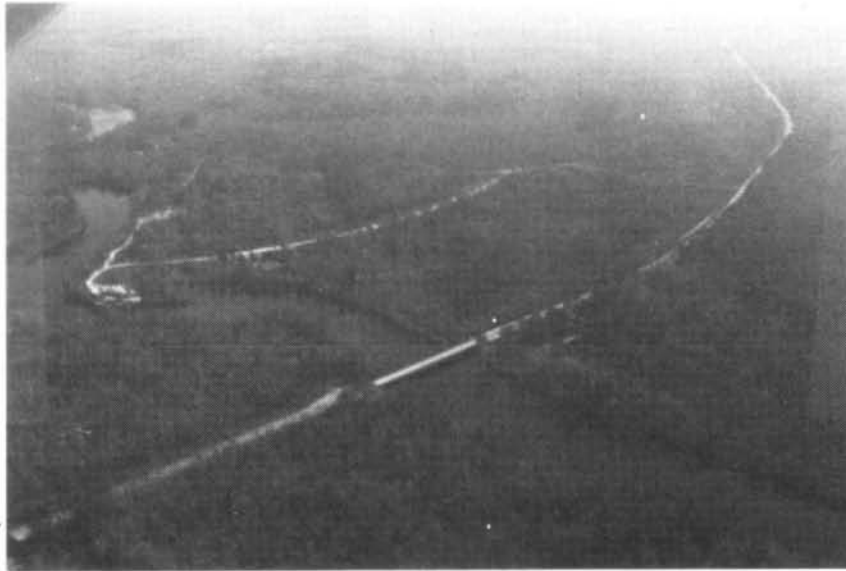


FIGURE 10 - UTILITY LINE (R.M. 102.1) (N. C. 904 HIGHWAY BRIDGE)



FIGURE 11 - N. C. 130 HIGHWAY BRIDGE (R.M. 118.3)



FIGURE 12 - UTILITY LINE (R.M. 118.3) (N. C. 130 HIGHWAY BRIDGE)



FIGURE 13 - UTILITY LINE AND N. C. SECONDARY 1928 HIGHWAY BRIDGE (R.M. 129.5)

## SECTION 7 - CONCLUSIONS AND RECOMMENDATIONS

Five classifications of navigation on streams in the Waccamaw River basin have been determined and are presented below. The first two are classifications developed from historical evidence and current Federal stream classifications. Classification 3 is based on field measurements, observations, and data analysis for the river. Classification 4 is based on review of all previously determined limits with a recommendation of the most upstream locations with supporting evidence of navigability. The fifth classification accounts for all streams not otherwise classified and was determined based on the drainage area and hydrological aspects of the stream.

1. The Waccamaw River is presently classified "navigable waters of the U. S." between its mouth at Winyah Bay near Georgetown, South Carolina to Lake Waccamaw (R.M. 140.0).
2. The historical limit of navigation on the Waccamaw River is at Lake Waccamaw (R.M. 140.0). Navigation extended into Lake Waccamaw (see Report 18).
3. The recommended practical limit of navigation is at N. C. secondary 1928 highway bridge (R.M. 129.5). Some minor channel and bridge improvements will be necessary for commercial river craft to actually use the river up to this point. In addition, the following small tributaries are recommended for practical navigation, and are listed with their upstream recommended practical limit of navigation indicated in parentheses: secondary channel near Big Savannah Bluff (R.M. 0.4) secondary channel near R.M. 97.5 (R.M. 0.3), Big Savannah Lake (R.M. 0.2), and Gore Lake (R.M. 1.0). The downstream limit for each of these small streams is at its confluence with the Waccamaw River.
4. Since an authorized project establishes "navigable waters of the U. S." up to Lake Waccamaw (R.M. 140.0) and this cannot be declassified, the recommended limit for classifying "navigable waters of the U. S." is at R.M. 140.0. In addition, the following small tributaries are recommended

for classification as "navigable waters of the U. S." from their confluences with the Waccamaw River to the upstream limits indicated in parentheses: secondary channel near Big Savannah Bluff (R.M. 0.4), secondary channel near R.M. 97.5 (R.M. 0.3), Big Savannah Lake (R.M. 0.2), and Gore Lake (R.M. 1.0). This is based on the analytical procedures and tests of navigability used in this study effort.

5. All streams not recommended for classification as "navigable waters of the U. S." are recommended for classification as "waters of the U. S." throughout their entire length.

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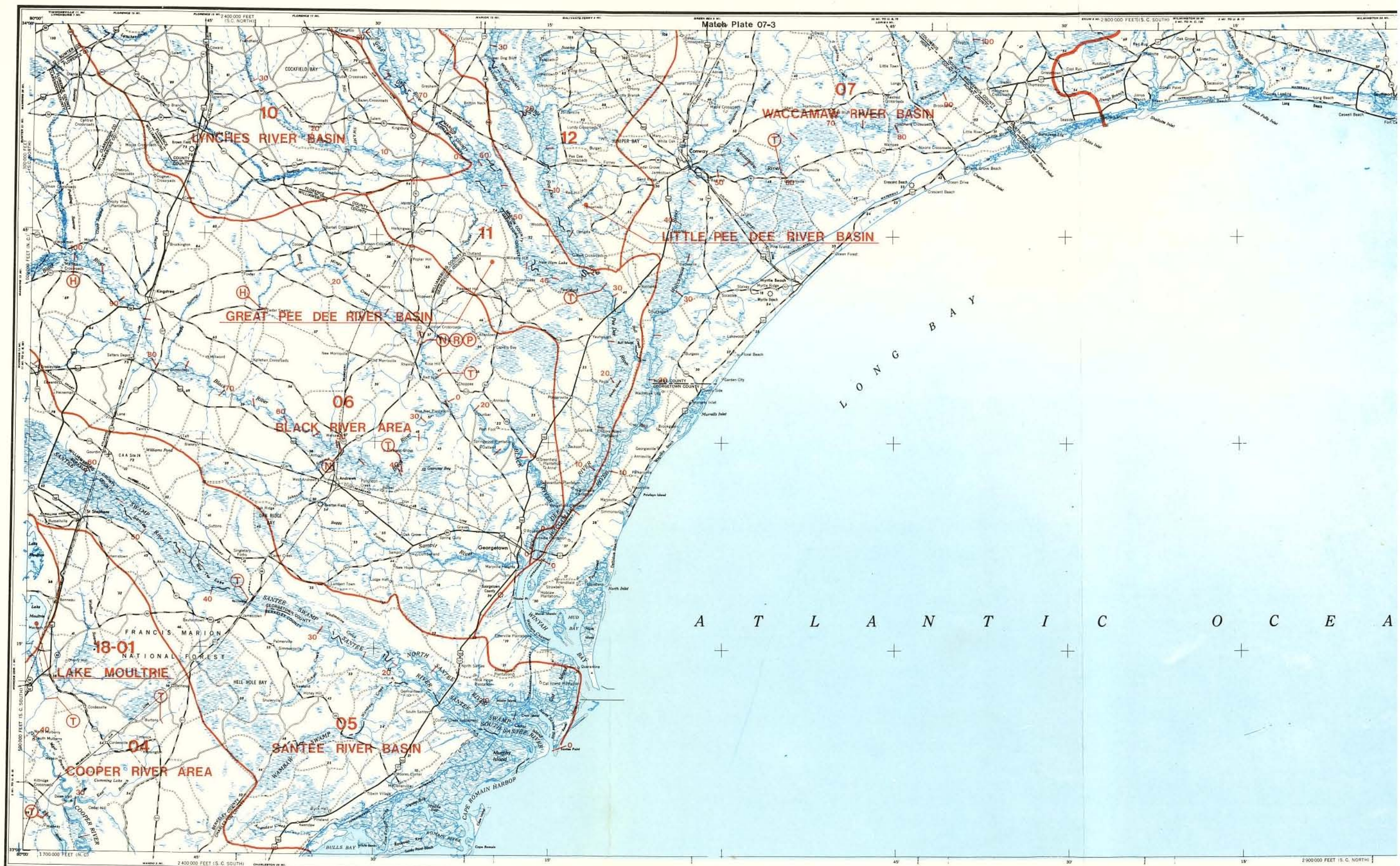
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POPULATED PLACES	
Over 500,000	NEW ORLEANS
100,000 to 500,000	CHARLOTTE
25,000 to 100,000	CHARLESTON
5,000 to 25,000	Georgetown
1,000 to 5,000	Other
Less than 1,000	Other

ROADS	
Primary, all weather, hard surface	Interstate, U.S. State
Secondary, all weather, hard surface	Other
Light duty, all weather, improved surface	
Fair or dry weather, unimproved surface	
Trail	

RAILROADS	
Standard gauge	Landmark School, Church, Other, I & S
Narrow gauge	Landmark School, Church, Other, I & S
Passenger	Landmark School, Church, Other, I & S
Freight	Landmark School, Church, Other, I & S
Passenger	Landmark School, Church, Other, I & S
Freight	Landmark School, Church, Other, I & S

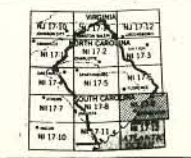
**USGS BASE MAP**  
**GEORGETOWN, S.C.; N.C.**  
**NI 17-9**

0 5 10  
 scale in miles

**LEGEND:**

(N) PRESENT LIMIT OF NAVIGABLE WATERS OF THE U.S.  
 (H) HISTORIC LIMIT OF NAVIGATION  
 (P) PRACTICAL LIMIT OF NAVIGATION (RECOMMENDED)  
 (R) LIMIT OF NAVIGABLE WATERS OF THE U.S. (RECOMMENDED)

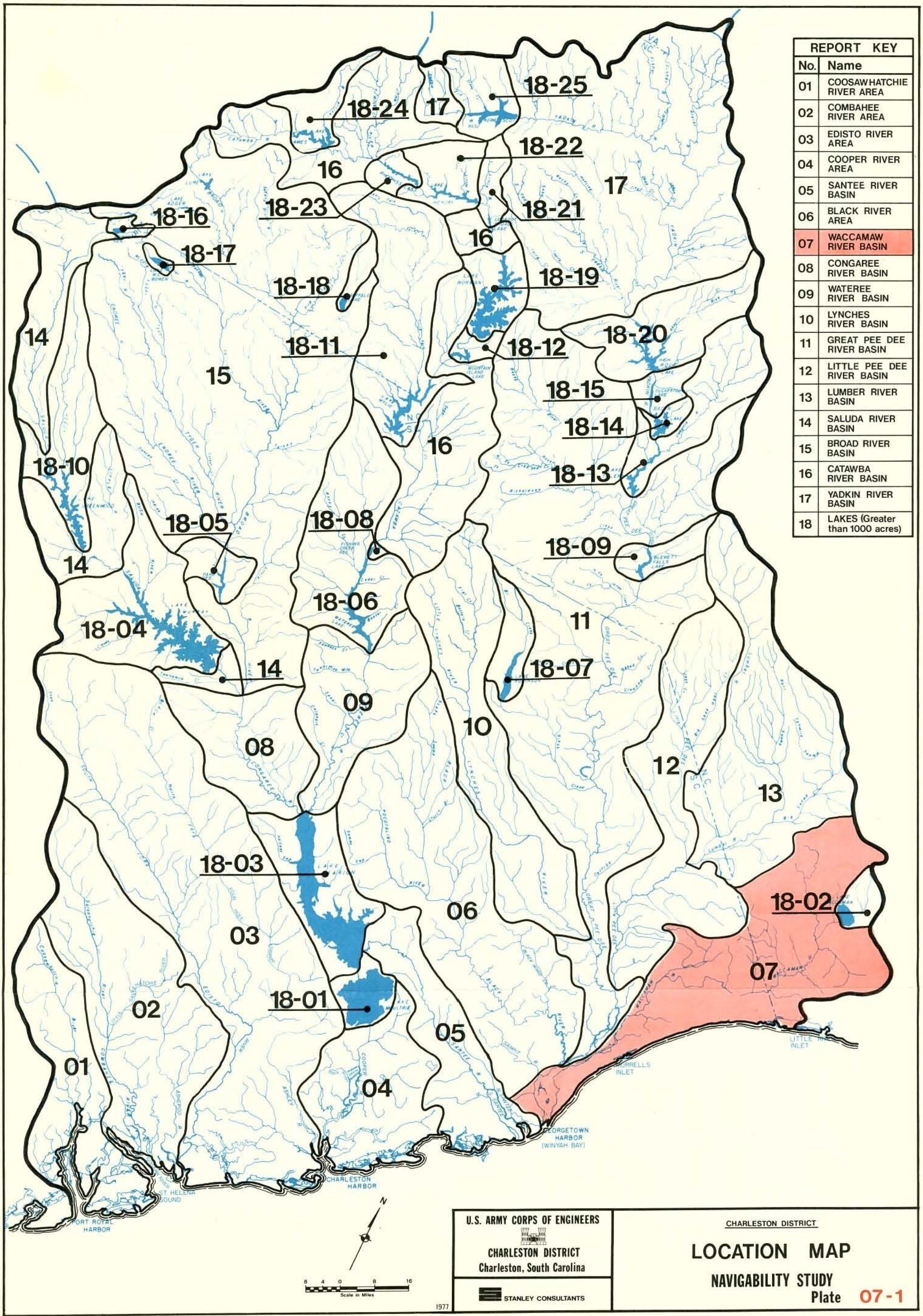
(T) APPROXIMATE LIMIT OF TIDAL INFLUENCE  
 (RM) RIVER MILE



<b>U.S. ARMY CORPS OF ENGINEERS</b> <b>CHARLESTON DISTRICT</b> Charleston, South Carolina	<b>SIGNIFICANT</b> <b>WACCAMAW RIVER</b> Report No. 04,05,C <b>NAVIGABILITY</b>
	<b>STANLEY CONSULTANTS</b>

1977





REPORT KEY	
No.	Name
01	COOSAWHATCHIE RIVER AREA
02	COMBAHEE RIVER AREA
03	EDISTO RIVER AREA
04	COOPER RIVER AREA
05	SANTEE RIVER BASIN
06	BLACK RIVER AREA
07	WACCAMAW RIVER BASIN
08	CONGAREE RIVER BASIN
09	WATEREE RIVER BASIN
10	LYNCHES RIVER BASIN
11	GREAT PEE DEE RIVER BASIN
12	LITTLE PEE DEE RIVER BASIN
13	LUMBER RIVER BASIN
14	SALUDA RIVER BASIN
15	BROAD RIVER BASIN
16	CATAWBA RIVER BASIN
17	YADKIN RIVER BASIN
18	LAKES (Greater than 1000 acres)

U.S. ARMY CORPS OF ENGINEERS

CHARLESTON DISTRICT  
Charleston, South Carolina

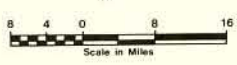
STANLEY CONSULTANTS

CHARLESTON DISTRICT

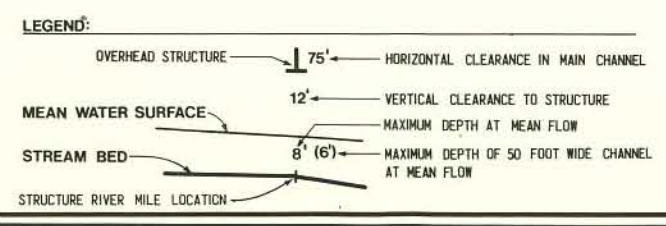
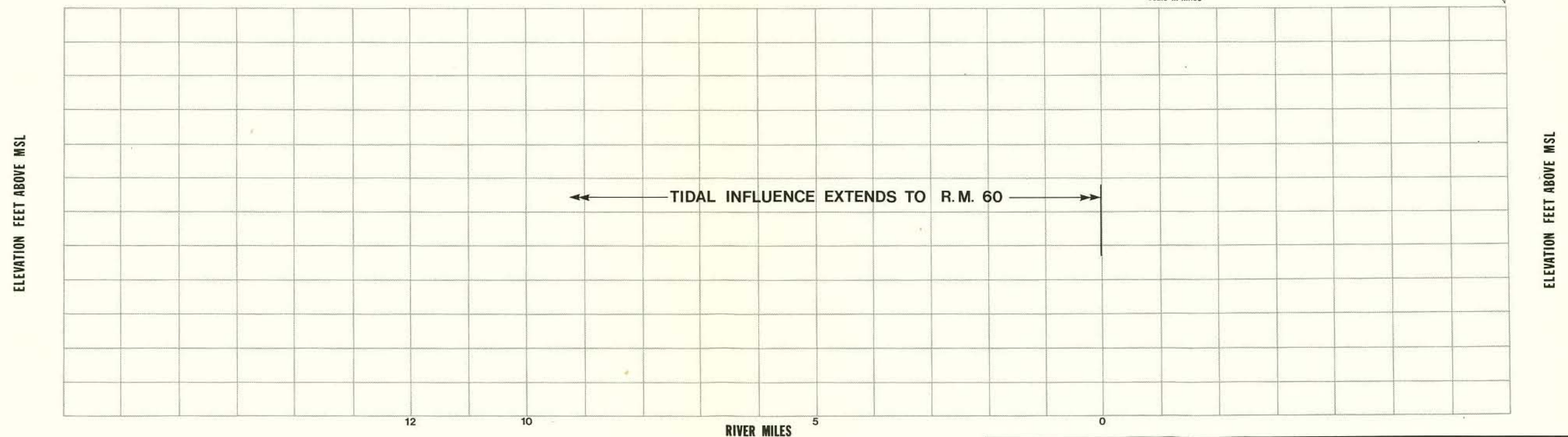
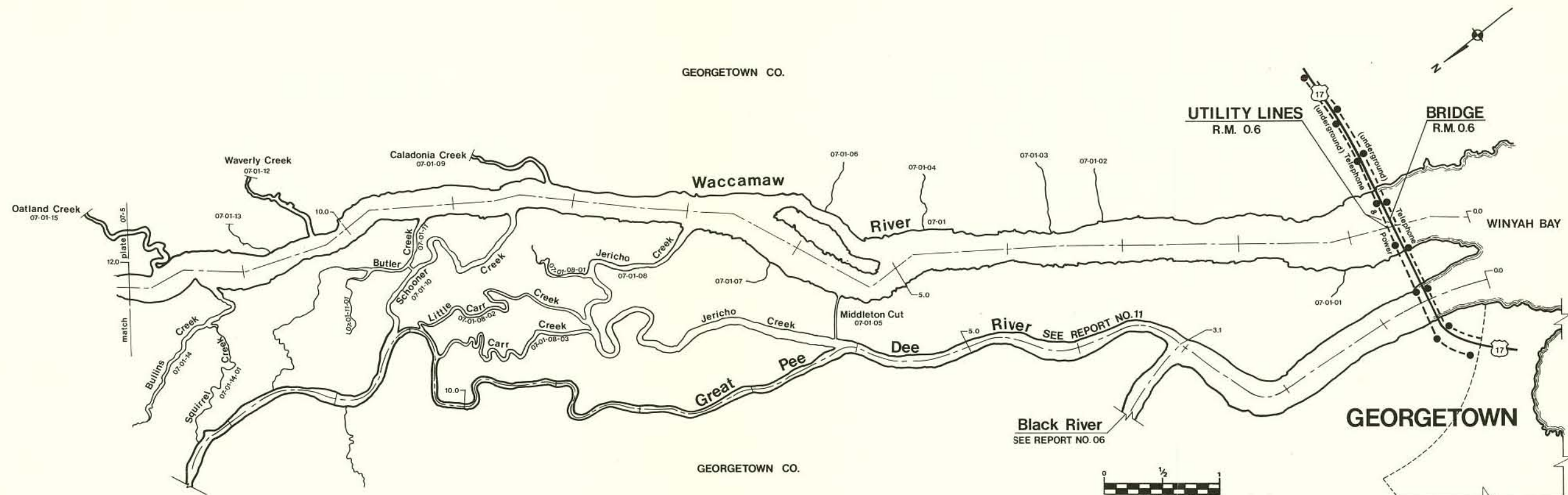
### LOCATION MAP

NAVIGABILITY STUDY

Plate 07-1



1977



**NOTES:**

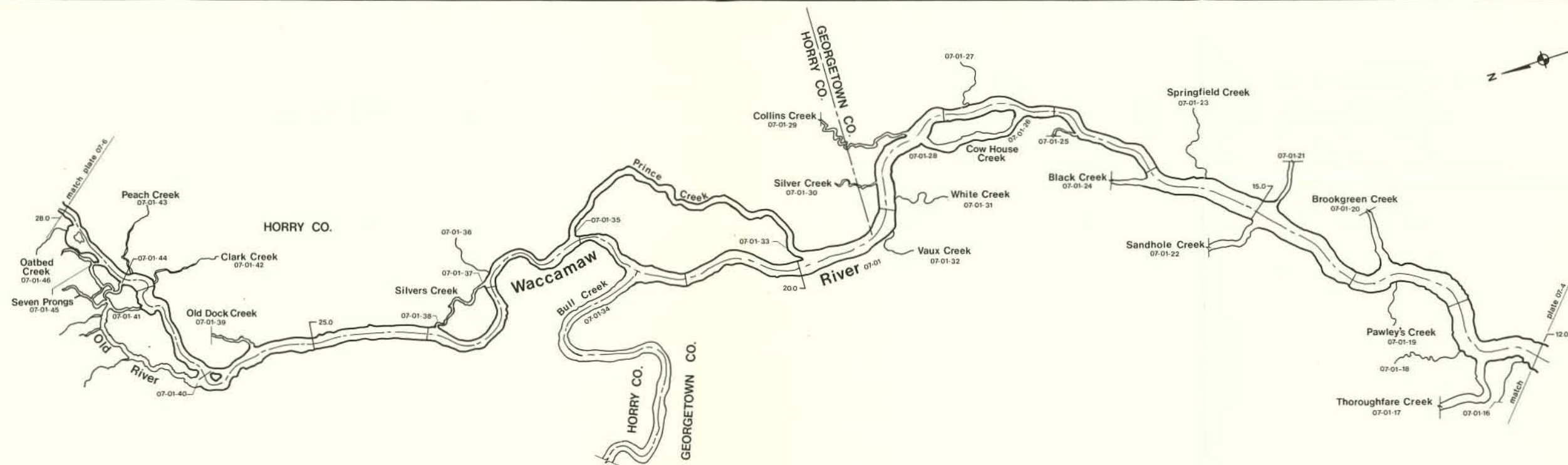
1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.
2. THE UPSTREAM EXTENT OF TIDAL INFLUENCE IS APPROXIMATED BY PROJECTING THE ELEVATION OF MEAN HIGH TIDE HORIZONTALLY FROM THE MOUTH OF A RIVER TO A MILE POINT WHERE IT INTERSECTS THE PLOTTED MEAN WATER SURFACE OF THAT RIVER.

**U.S. ARMY CORPS OF ENGINEERS**  
 CHARLESTON DISTRICT  
 Charleston, South Carolina

STANLEY CONSULTANTS

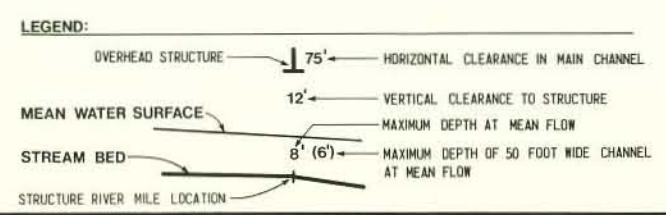
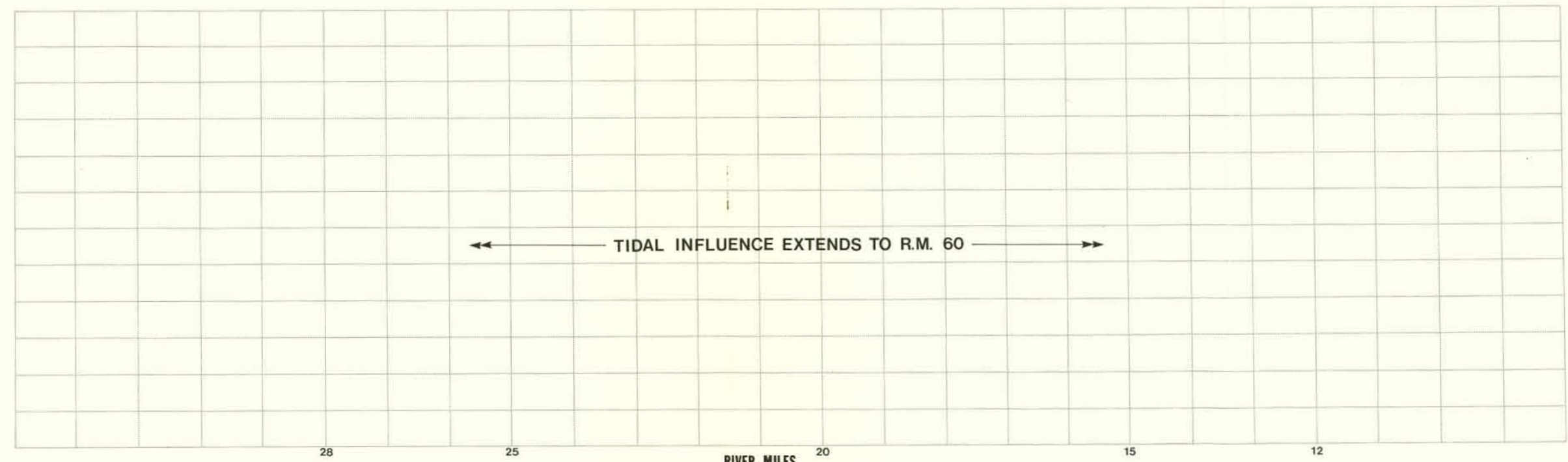
1977

**PLAN AND PROFILE**  
**WACCAMAW RIVER**  
 Waccamaw River Basin  
 GEORGETOWN CO., S.C.  
**NAVIGABILITY STUDY**  
 Miles 0.0-12.0 Plate 07-4



ELEVATION FEET ABOVE MSL

ELEVATION FEET ABOVE MSL

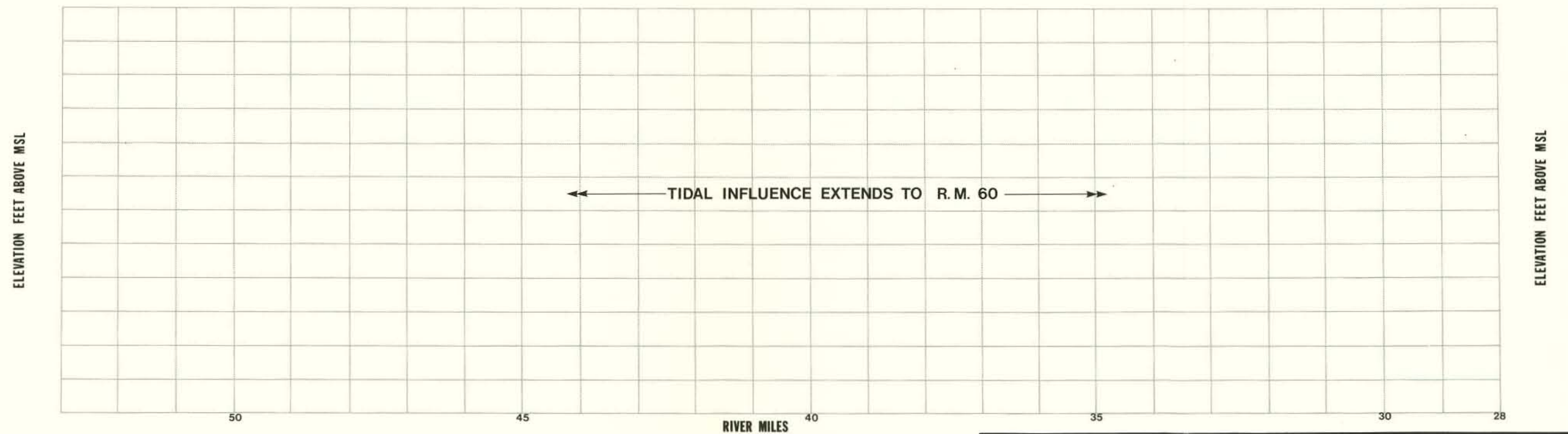
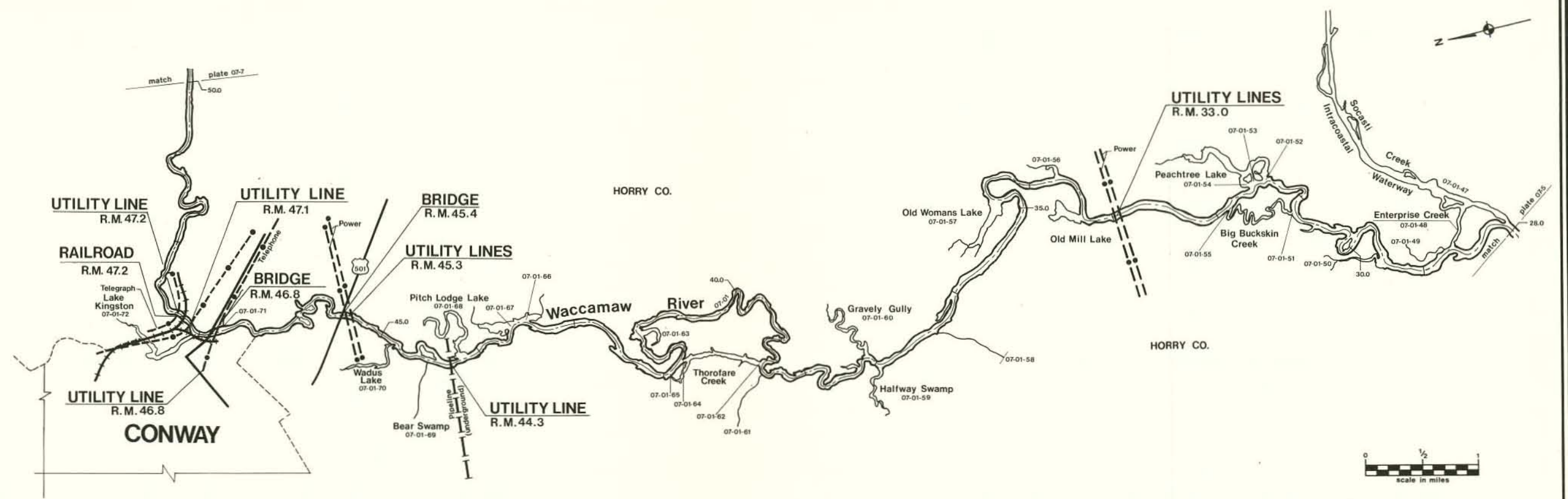


**NOTES:**

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U.S. ARMY CORPS OF ENGINEERS  
 CHARLESTON DISTRICT  
 Charleston, South Carolina  
 STANLEY CONSULTANTS

PLAN AND PROFILE  
**WACCAMAW RIVER**  
 Waccamaw River Basin  
 GEORGETOWN-HORRY CO., S.C.  
**NAVIGABILITY STUDY**  
 Miles 12.0-28.0 Plate 07-5



**LEGEND:**

OVERHEAD STRUCTURE	75'	HORIZONTAL CLEARANCE IN MAIN CHANNEL
MEAN WATER SURFACE	12'	VERTICAL CLEARANCE TO STRUCTURE
STREAM BED	8' (6')	MAXIMUM DEPTH AT MEAN FLOW
STRUCTURE RIVER MILE LOCATION		MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

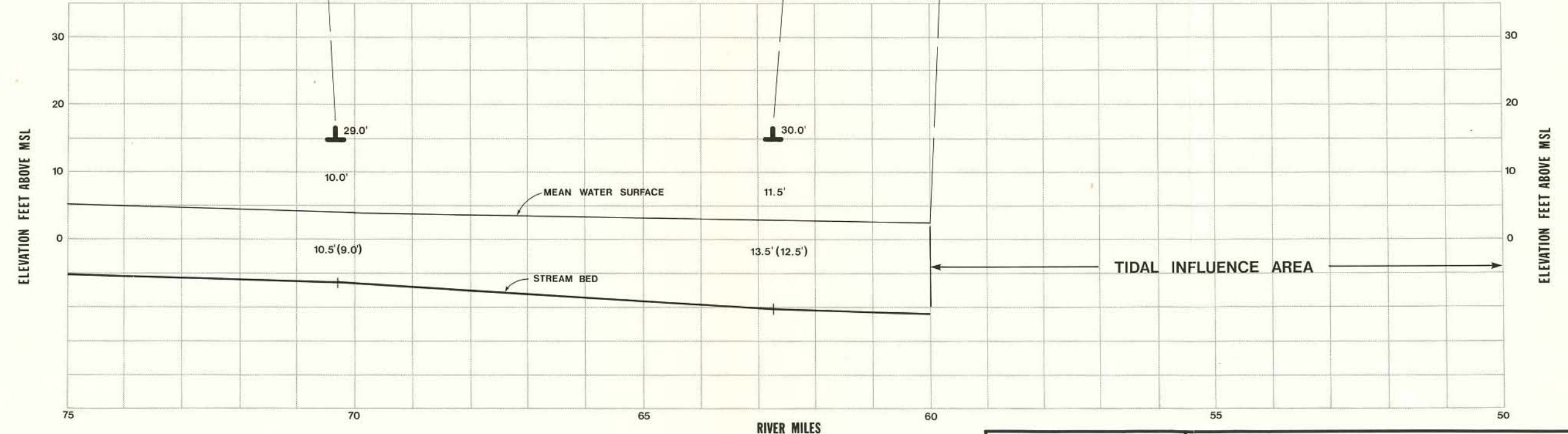
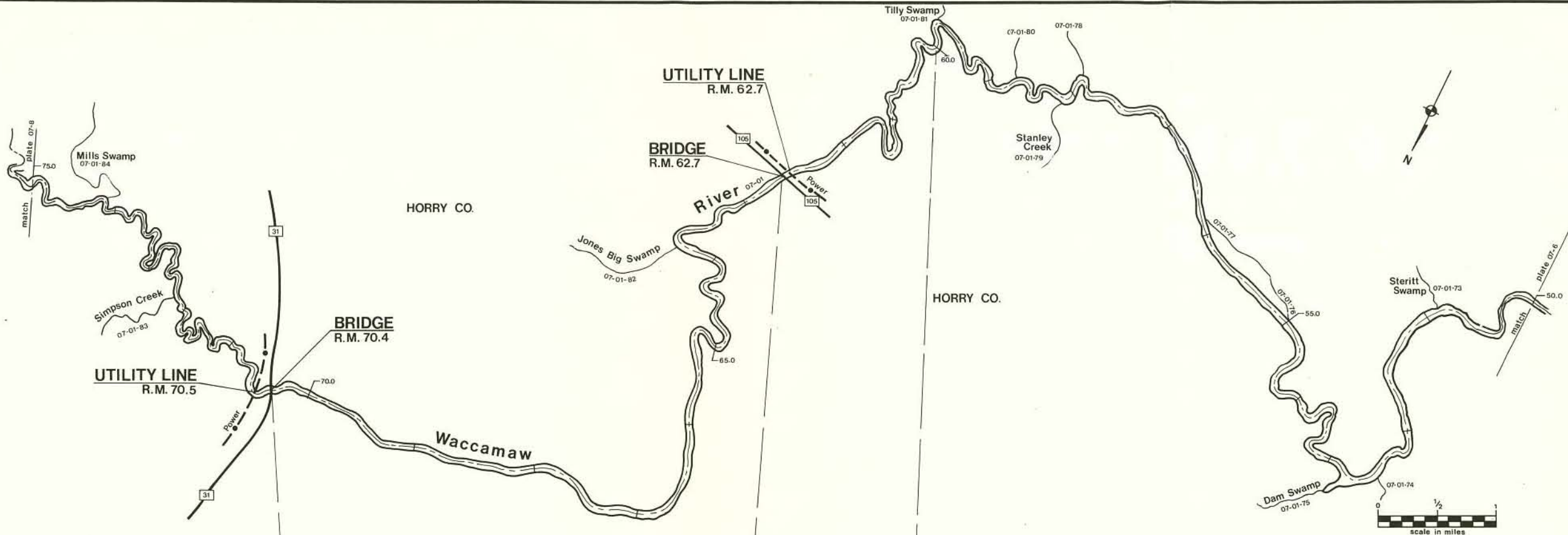
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**U.S. ARMY CORPS OF ENGINEERS**  
 CHARLESTON DISTRICT  
 Charleston, South Carolina

STANLEY CONSULTANTS

**PLAN AND PROFILE**  
**WACCAMAW RIVER**  
 Waccamaw River Basin  
 HORRY CO., S.C.  
**NAVIGABILITY STUDY**  
 Miles 28.0-50.0 Plate 07-6



**LEGEND:**

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

MEAN WATER SURFACE — 12' — VERTICAL CLEARANCE TO STRUCTURE

STREAM BED — 8' (6') — MAXIMUM DEPTH AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

**NOTES:**

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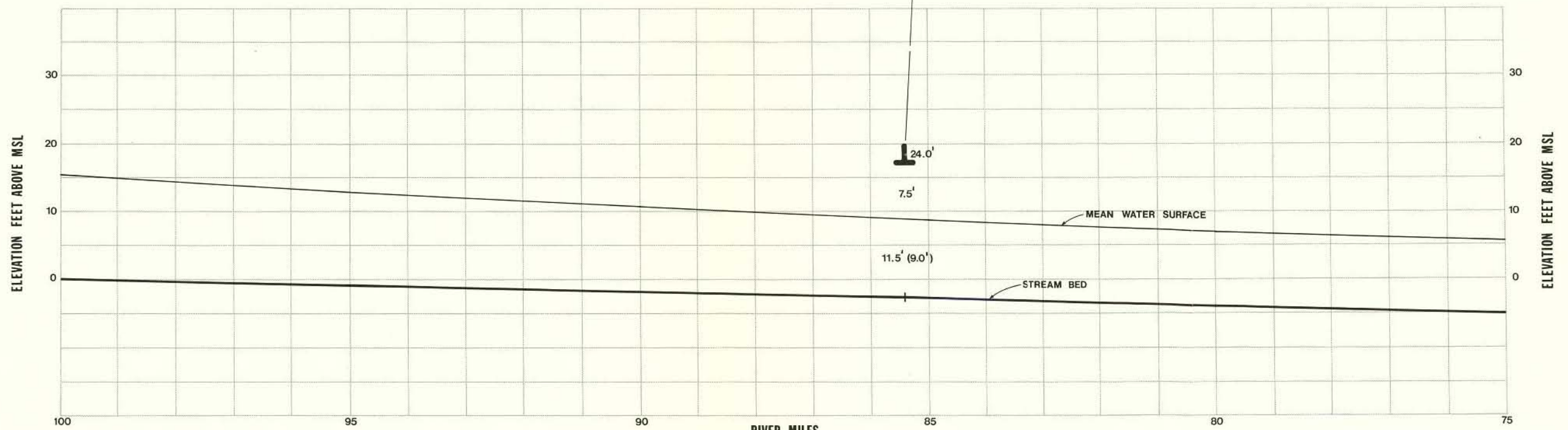
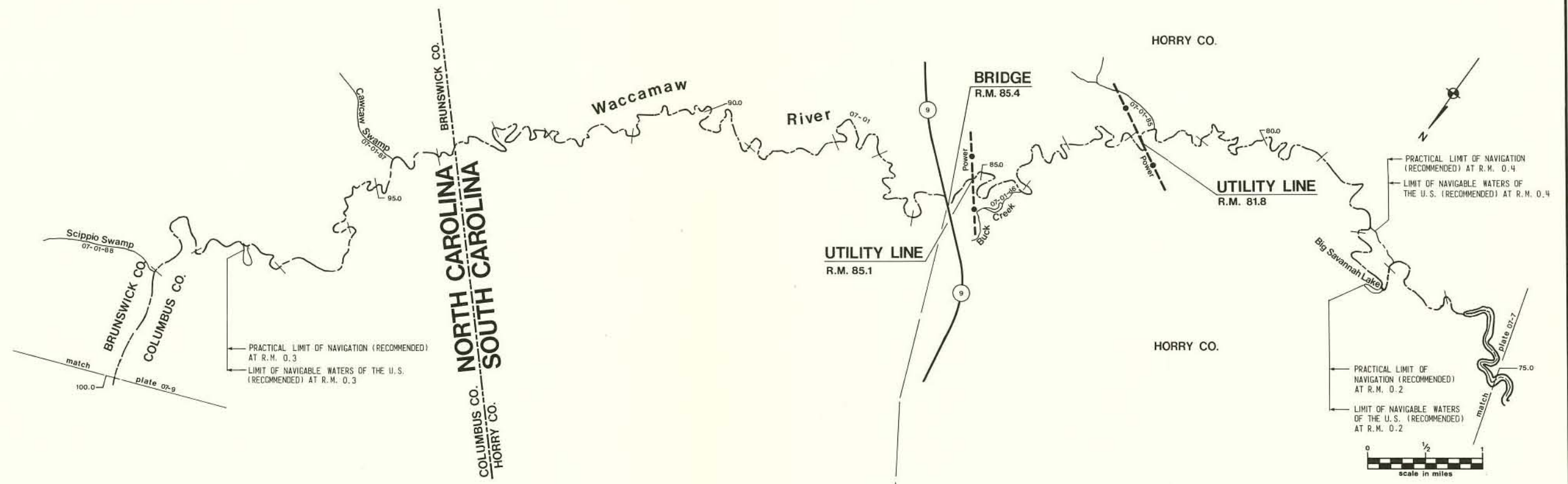
U.S. ARMY CORPS OF ENGINEERS  
 CHARLESTON DISTRICT  
 Charleston, South Carolina

PLAN AND PROFILE  
**WACCAMAW RIVER**  
 Waccamaw River Basin  
 HORRY CO., S.C.  
**NAVIGABILITY STUDY**  
 Miles 50.0-75.0 Plate 07-7

STANLEY CONSULTANTS

1977





**LEGEND:**

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

MEAN WATER SURFACE — 12' — VERTICAL CLEARANCE TO STRUCTURE

STREAM BED — 8' (6') — MAXIMUM DEPTH AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

**NOTES:**

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**U.S. ARMY CORPS OF ENGINEERS**

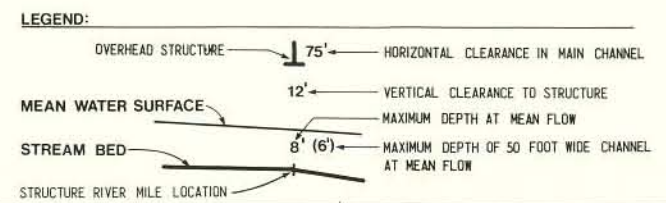
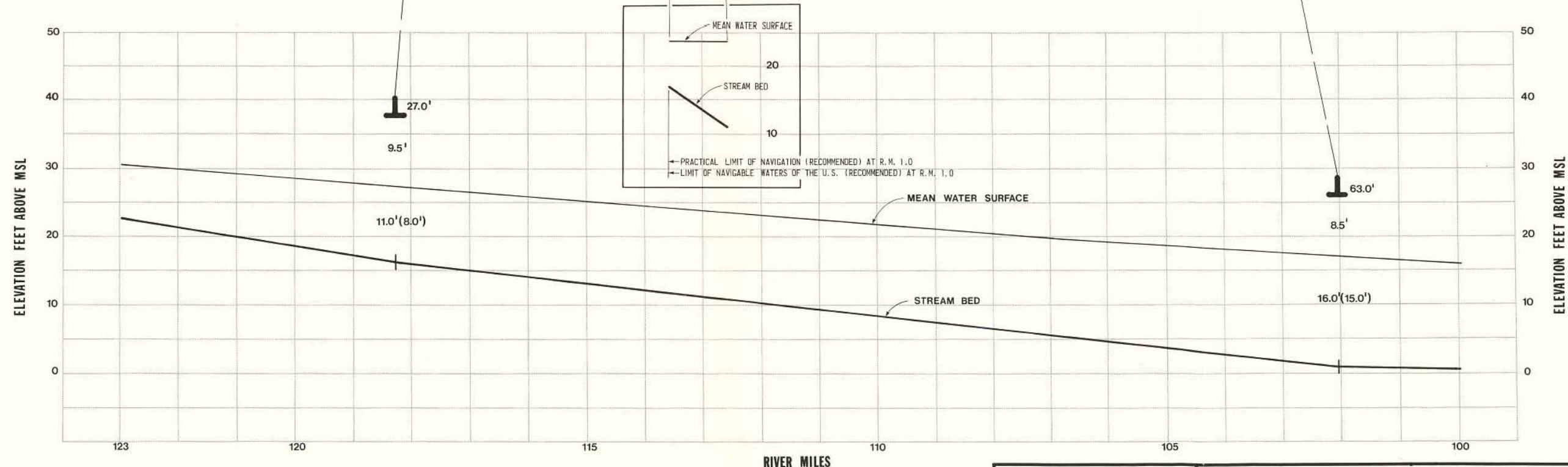
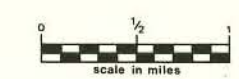
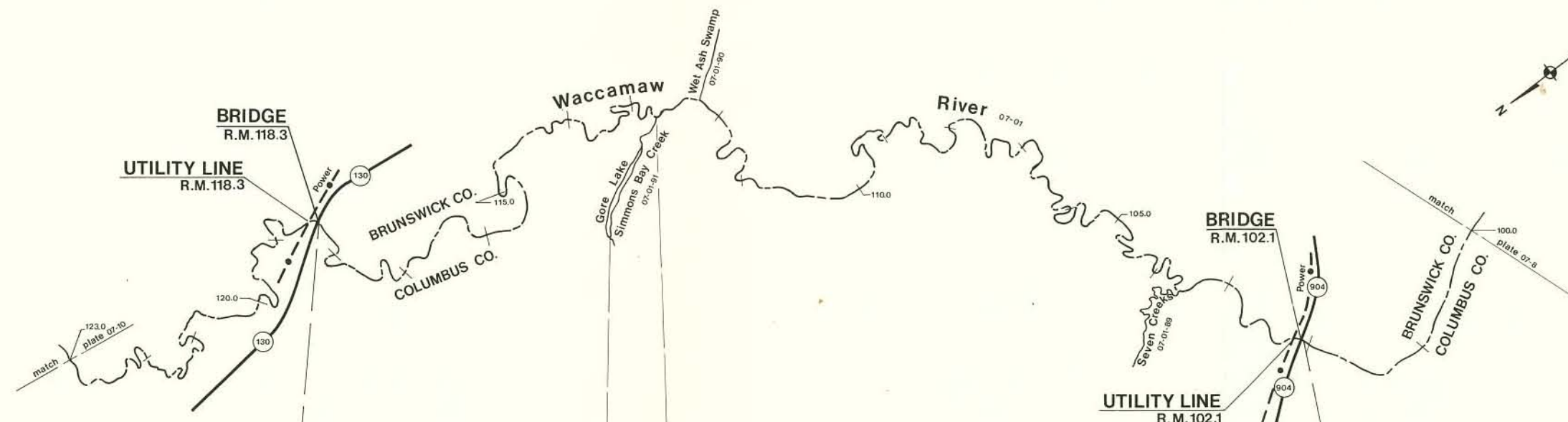
**CHARLESTON DISTRICT**  
Charleston, South Carolina

**STANLEY CONSULTANTS**

**PLAN AND PROFILE**

**WACCAMAW RIVER**  
Waccamaw River Basin  
BRUNSWICK-COLUMBUS CO., N.C.- HORRY CO., S.C.

**NAVIGABILITY STUDY**  
Miles 75.0-100.0 Plate 07-8



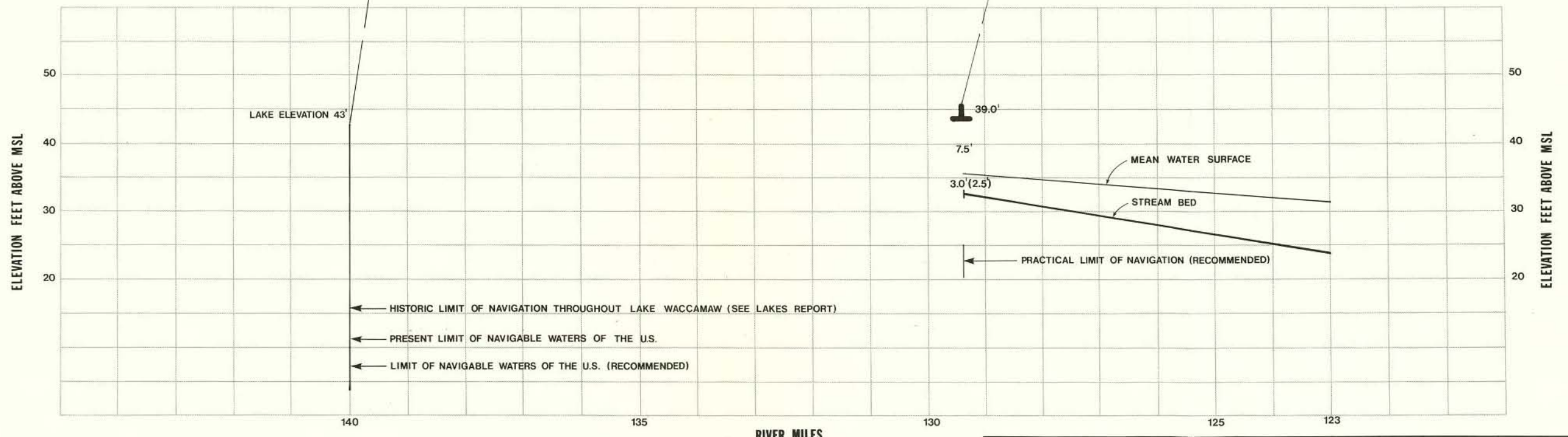
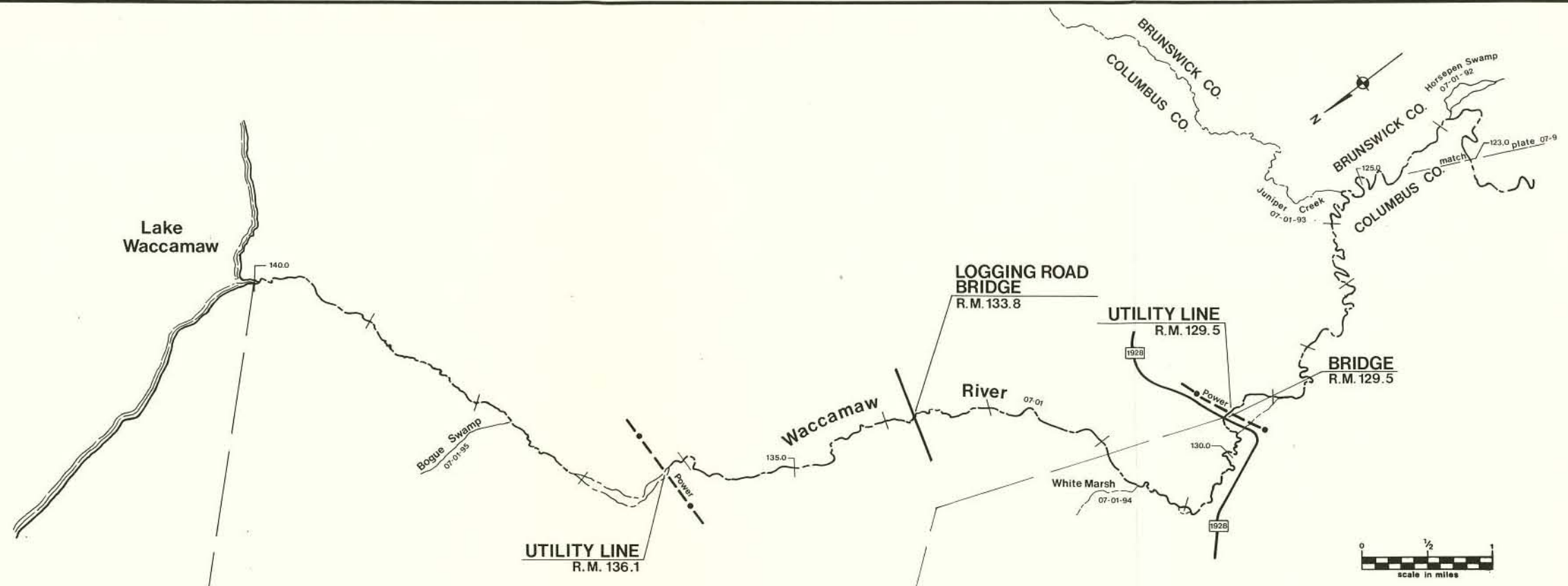
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**U.S. ARMY CORPS OF ENGINEERS**  
**CHARLESTON DISTRICT**  
 Charleston, South Carolina

STANLEY CONSULTANTS

**PLAN AND PROFILE**  
**WACCAMAW RIVER**  
 Waccamaw River Basin  
 BRUNSWICK-COLUMBUS CO., N.C.  
**NAVIGABILITY STUDY**  
 Miles 100.0-123.0 Plate 07-9



**LEGEND:**

OVERHEAD STRUCTURE	75'	HORIZONTAL CLEARANCE IN MAIN CHANNEL
MEAN WATER SURFACE	12'	VERTICAL CLEARANCE TO STRUCTURE
STREAM BED	8' (6')	MAXIMUM DEPTH AT MEAN FLOW
STRUCTURE RIVER MILE LOCATION		MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

**NOTES:**

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

U.S. ARMY CORPS OF ENGINEERS  
 CHARLESTON DISTRICT  
 Charleston, South Carolina  
 STANLEY CONSULTANTS

PLAN AND PROFILE  
**WACCAMAW RIVER**  
 Waccamaw River Basin  
 BRUNSWICK-COLUMBUS CO., N.C.  
**NAVIGABILITY STUDY**  
 Miles 123.0-140.0 Plate 07-10

APPENDIX A  
STREAM CATALOG

This appendix presents a coded listing of all non-tidal streams located in the Waccamaw River basin having a mean annual flow greater than or equal to five cfs. In tidal areas essentially all streams are coded; however, some very small, short streams and drainage tile systems were not coded. This summary does not include secondary streams in the drainage area for Lake Waccamaw (18-02); these stream codes are presented in Report 18.

Streams which are all or partially subject to tidal influence are noted in the listing. These are classified "navigable waters of the U. S." to the tidal limit. Non-tidal reaches of streams classified "navigable waters of the U. S." are covered in Section 6 of this report. All other streams not tidally influenced are classified "waters of the U. S."

The points where flow is approximately equal to five cfs (headwaters) are defined by approximate longitude and latitude, and river miles from the nearest named tributary, major highway, railroad, or other similar reference point. Some streams listed in the tabulation may not have headwater locations identified. This occurs when the name of a stream changes at a confluence where the flow immediately downstream is greater than five cfs. Thus, the headwater locations for streams with more than one name are associated with the appropriate upstream name found on USGS quadrangle maps. Some streams in this appendix listing are also coded in other reports for this study. Cross-references to specific reports are noted.

The coding system shown in the tabulation uses a procedure developed by the Charleston District, Corps of Engineers. Streams are summarized from the mouth of the major river upstream to the report boundary.

USGS data was used to identify the location where the mean annual stream flow is five cfs. Flow records from gaging stations throughout the Charleston District were evaluated and an isoflow map developed

to indicate variations in runoff (cfs per square mile). These runoff values were then applied to the appropriate stream drainage areas (as determined from USGS quadrangle maps) so that a flow of five cfs was approximated.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER		STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER	LATITUDE ( ° ' " )		LONGITUDE ( ° ' " )	STREAM MILES		FROM		
						UP		DOWN					
07	01						Waccamaw River * # (Winyah Bay)						
		01					Unnamed Tributary *						
		02					Unnamed Tributary *						
		03					Unnamed Tributary *						
		04					Unnamed Tributary *						
		05					Middleton Cut * ##						
		06					Unnamed Tributary *						
		07					Unnamed Tributary *						
		08					Jericho Creek * ##						
			01				Unnamed Tributary *						
			02				Little Carr Creek * ##						
			03				Carr Creek * ##						
		09					Caledonia Creek *						
			01				Duncan Creek *						
		10					Schooner Creek *						
		11					Butler Creek *						
			01				Unnamed Tributary *						

07-A3

\* All or part tidally influenced.

# Dual code in Report 07.

## Dual code in Report 11.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' '' )	LONGITUDE ( ° ' '' )	STREAM MILES		FROM
										UP	DOWN	
07	01	12					Waverly Creek *					
		13					Unnamed Tributary *					
		14					Bullins Creek * #					
			01				Squirrel Creek *					
		15					Oatland Creek *					
		16					Unnamed Tributary *					
		17					Thoroughfare Creek * #					
			01				Guendalose Creek * #					
			02				Cooter Creek *					
				01			Little Bull Creek * #					
		18					Unnamed Tributary *					
		19					Pawley's Creek *					
		20					Brookgreen Creek *					
			01				Stil Creek *					
			02				Unnamed Tributary * ##					

07-A4

\* All or part tidally influenced.

# Dual code in Report 11.

## Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM	
										UP	DOWN		
07	01	20	03				Springfield Creek *						
		21					Unnamed Tributary * #						
		22					Sandhole Creek *						
			01				Ruinsville Creek *						
			02				Crane Creek *						
		23					Springfield Creek *						
		24					Black Creek *						
			01				Unnamed Tributary *						
			02				White Creek *						
				01			Vaux Creek * #						
		25					Unnamed Tributary *						
		26					Cow House Creek * #						
		27					Unnamed Tributary *						
		28					Cow House Creek * #						
29					Collins Creek *								
		01			Unnamed Tributary *								

07-A5

\* All or part tidally influenced.

# Dual code in Report 07.



APPENDIX A  
STREAM CATALOG

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )							
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM			
										UP	DOWN				
07	01		29	02			Unnamed Tributary *								
			03				Unnamed Tributary *								
			04					Unnamed Tributary *							
					01				Big Swamp *						
			30					Silver Creek *							
			31					White Creek *							
				01					Vaux Creek * ##						
			32						Vaux Creek * ##						
			33						Prince Creek *						
				01					Fisherman Creek *						
			34						Bull Creek *						
				01					Little Bull Creek * #						
					01					Cooter Creek * #					
					02					Unnamed Tributary *					
					03					Cowford Swamp *					

07-A6

\* All or part tidally influenced.

# Dual code in Report 11.

## Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	01	34	03	01								
					01	Horsepen Branch *						
						Unnamed Tributary *						
		35				Prince Creek *						
		36				Unnamed Tributary *						
		37				Silvers Creek * #						
		38				Silvers Creek * #						
		39				Old Dock Creek *						
			01			Righthand Creek *						
		40				Old River * #						
			01			Nimrod Creek *						
		41				Unnamed Tributary *						
		42				Clark Creek *						
		43				Peach Creek *						
		44				Old River * #						
		45				Seven Prongs *						
		46				Oatbed Creek *						

07-A7

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	01	47					Intracoastal Waterway *					
			01				Enterprise Creek * #					
				01			Unnamed Tributary *					
			02				Enterprise Creek * #					
			03				Enterprise Creek * #					
			04				Socastee Creek * #					
			05				Socastee Creek * #					
			06				Socastee Creek * #					
			07				Socastee Creek * #					
			08				Unnamed Tributary *					
				01			Unnamed Tributary *					
			09				Unnamed Tributary *					
			10				Unnamed Tributary *					
			11				Unnamed Tributary *					
			12				Socastee Swamp *					
				01			Cross Swamp *					
			13				Unnamed Tributary *					

07-A8

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

07-A9

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM	
										UP	DOWN		
07	01	47	14				Unnamed Tributary *						
			15				Unnamed Tributary *						
			16				Unnamed Tributary *						
			17				Unnamed Tributary *						
			18				Folly Swamp *						
			19				Black Creek *						
			20				Unnamed Tributary *						
			21				Unnamed Tributary *						
			22				Unnamed Tributary *						
			23				Unnamed Tributary *						
			24				Unnamed Tributary *						
			25				Unnamed Tributary *						
			26			01		Long Branch *					
			27					Unnamed Tributary * (Prices Swamp)					
28					Prices Swamp Run *								

\* All of part tidally influenced.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )							
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM			
										UP	DOWN				
07	01	47	29				Unnamed Tributary *								
			30				Camp Branch Run *								
			31				Unnamed Tributary *								
			32				Unnamed Tributary *								
			33				Unnamed Tributary *								
			34				Unnamed Tributary *								
			35				Unnamed Tributary *								
			36				Unnamed Tributary *								
			37				Unnamed Tributary *								
			38				Unnamed Tributary *								
			39				Unnamed Tributary *								
			40				Unnamed Tributary *								
			41				Unnamed Tributary *								
			42				Unnamed Tributary *								
			43				Unnamed Tributary *								
			44				Unnamed Tributary *								
			45						Little River * #						

\* All or part tidally influenced.

# Dual code in Report 07.

07-A10

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )						
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM	
										UP	DOWN		
07	01	47	45	01		Unnamed Tributary *							
				02		Unnamed Tributary *							
				03		Unnamed Tributary *							
				04		Unnamed Tributary *							
				05		Mullet Creek *							
				06		Calabash Creek *							
					01	Unnamed Tributary *							
					02	Unnamed Tributary *							
					07	Miliken Cove *							
					08	Intracoastal Waterway *							
					01	Horse Ford Creek *							
					02	Clayton Creek *							
					03	Bonaparte Creek *							
					04	Jinks Creek *							
					09	Dunn Sound Creek *							
					10	Horse Ford Creek *							
					11	Sheephead Creek *							

\* All or part tidally influenced.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	01	48					Enterprise Creek * #					
		49					Unnamed Tributary *					
		50					Unnamed Tributary *					
		51					Big Buckskin Creek * #					
		52					Unnamed Tributary * (Peachtree Lake)					
			01				Unnamed Tributary *					
		53					Unnamed Tributary *					
		54					Unnamed Tributary *					
		55					Big Buckskin Creek * #					
		56					Unnamed Tributary *					
		57					Unnamed Tributary * (Old Womans Lake)					
		58					Unnamed Tributary *					
		59					Halfway Swamp *					
	01				Big Branch *							
60					Gravelly Gully *							

07-A12

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

07-A13

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' '' )	LONGITUDE ( ° ' '' )	STREAM MILES		FROM	
										UP	DOWN		
07	01	61					Unnamed Tributary *						
		62					Thorofare Creek * #						
			01				Unnamed Tributary *						
		63					Unnamed Tributary *						
		64					Thorofare Creek * #						
		65					Thorofare Creek * #						
		66					Unnamed Tributary *						
		67					Unnamed Tributary *						
		68					Pitch Lodge Lake *						
		69					Bear Swamp *						
			01				Willow Springs Branch *						
			02				Baiter Swamp *						
		70					Wadus Lake *						
		71					Unnamed Tributary *						
		72					Kingston Lake Swamp	33 58 15	78 53 45	2.8		Alligator Swamp	
			01				Crab Tree Swamp	33 51 15	79 05 50			Confluence-Okey Swp/ Crabtree Swp	

\* All or part tidally influenced.

# Dual code in Report 07.



APPENDIX A  
STREAM CATALOG

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )										
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM						
										UP	DOWN							
07	01	72	02	01			Grier Swamp	33 52 50	79 02 25	0.4		Brown Swamp						
							Brown Swamp	33 53 05	79 04 40			Confluence-Mary Br/ Brown Swamp						
							03	01				Maple Swamp	33 57 10	79 00 50	0.1		Atlantic Coast Line Railroad	
												Poplar Swamp	33 56 15	79 00 50			Confluence-Smith Br/ Poplar Swamp	
							04					Whiteoak Swamp	33 59 30	78 56 40			Confluence-Horsepen Branch/Whiteoak	
												Bug Swamp	33 59 00	78 59 35			Confluence-Hellhole Swamp/Bug Swamp	
							73						Steritt Swamp *					
													South Prong *					
													East Prong *					
													Mill Creek *					
													Unnamed Tributary *					
							74						Unnamed Tributary *					
							75						Dam Swamp *					
							76						Unnamed Tributary *					
77						Unnamed Tributary *												

\* All or part tidally influenced.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' '' )	LONGITUDE ( ° ' '' )	STREAM MILES		FROM	
										UP	DOWN		
07	01	78					Unnamed Tributary *						
		79					Stanley Creek *						
			01					Beaverdam Swamp *					
		80						Unnamed Tributary *					
		81						Tilly Swamp *					
			01					Cane Bay *					
		82						Jones Big Swamp	33 50 05	78 49 00			Confluence-Boggy Swp
		83						Simpson Creek	33 59 35	78 50 45			Confluence-Mill Br
			01					Cowpen Swamp	33 57 15	78 48 05	1.6		Simpson Creek
			02					Mill Branch	33 56 50	78 50 40	0.8		Simpson Creek
		84						Mills Swamp	33 52 20	78 47 55			Confluence-Meeting House Branch
		85						Unnamed Tributary	33 53 20	78 43 15	0.7		Waccamaw River
		86						Buck Creek	34 02 10	78 47 20	2.0		Sheepbridge Branch
			01					Deep Branch	34 00 20	78 42 05	2.4		Waccamaw River
			02					Camp Swamp	34 02 05	78 44 30	2.2		Buck Creek
			01			Unnamed Tributary	34 00 50	78 43 50	0.6		Camp Swamp		

\* All or part tidally influenced.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	01	87					Cawcaw Swamp	33 58 40	78 32 35	4.2		Shingletree Swamp
			01				Shingletree Swamp	33 55 30	78 35 40	1.3		Cawcaw Swamp
		88					Scippio Swamp	34 00 25	78 34 20		1.9	Butler Pond Dam
		89					Seven Creeks					
			01				Big Cypress Swamp	34 04 10	78 39 40	0.7		Grissett Swamp
			02				Grissett Swamp	34 10 00	78 51 45	2.4		Spring Branch
				01			Monie Swamp					
					01		Gum Swamp (Mill Br Swp)	34 12 50	78 50 30	5.6		Mill Branch Swamp
						01	Mill Branch Swamp	34 10 40	78 46 40	0.7		Gum Swamp
						02	Beaverdam Swamp	34 15 15	78 49 15			Confluence-Big Br
						01	Boggy Branch	34 11 40	78 41 45	0.9		Beaverdam Swamp
					02		Juniper Swamp	34 04 00	78 51 10	7.9		Whiskey Swamp
					03		Tom's Fork	34 05 15	78 47 25	3.0		Ironhill Branch
			90				Wet Ash Swamp	34 02 10	78 29 50			Confluence-Mill Branch & South Prong
			91				Simmons Bay Creek					
		01			Sand Pit Branch	34 07 45	78 39 00	1.0		Simmons Bay Creek		

07-A16

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )						
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM	
										UP	DOWN		
07	01	92					34 07 10	78 31 10	1.3		Waccamaw River		
		93											
			01					34 07 40	78 27 50	2.3		Bell Swamp	
			02					34 11 15	78 22 20		0.4	Clear Branch	
			03										
				01				34 07 40	78 22 10	0.3		First Cross Swamp	
			04					34 05 40	78 23 05	1.3		Little Muddy Branch	
			94										
				01									
					01			34 20 40	78 44 15			Confluence-Gray Br	
				02				34 22 55	78 38 40	2.6		White Marsh	
				03				34 24 30	78 47 15	1.1		Greens Branch	
					01			34 26 05	78 43 15			Confluence-Curries Branch	
					02			34 25 45	78 46 00	0.5		Western Branch	
		04											
											Red Hill Swamp		

07-A17

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM	
										UP	DOWN		
07	01	94	04	01			Slades Swamp	34 26 35	78 36 45	2.2		Red Hill Swamp	
			05				Brown Marsh Swamp	34 30 45	78 44 30	3.1		Mill Race	
				01			Elkton Marsh						
					01		Horseshoe Swamp	34 29 30	78 33 45				Confluence-Pine Log Swamp
						02	Whites Creek	34 33 45	78 38 40	1.7			Little Whites Creek
				95			Bogue Swamp	34 21 00	78 34 20	0.6			White Oak Branch
					01		Palmetto Branch	34 17 50	78 35 30	0.5			Bogue Swamp
					02		Jockey Branch	34 18 40	78 36 15	0.9			Bogue Swamp
				96			Big Creek # <sup>1)</sup>						
			02				Unnamed Tributary *						
			03				Unnamed Tributary *						
			04				Mosquito Creek * ##						
				01			Lagoon Creek *						
			05				Unnamed Tributary *						
06				Unnamed Tributary *									

07-A18

\* All or part tidally influenced.  
1) Name change situation.

# Dual code in Report 18.

## Dual code in Report 05.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	07					Western Channel *						
		01				Esterville Minim Creek Canal * #						
		02				Unnamed Tributary *						
	08					Unnamed Tributary *						
	09					Unnamed Tributary *						
	10					Unnamed Tributary *						
	11					Unnamed Tributary *						
	12					Unnamed Tributary *						
	13					Unnamed Tributary *						
	14					Unnamed Tributary *						
	15					Sampit River * (Winyah Bay)						
	16					Great Pee Dee River*### (Winyah Bay)						
	17					Unnamed Tributary *						
		01				Unnamed Tributary *						

07-A19

\* All or part tidally influenced.  
### Dual code in Report 11.

# Dual code in Report 05.

## Dual code in Report 06.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	18											
	19											
	20											
		01										
			01									
				01								
					02							
						03						
							04					
								05				
									06			
										07		
											08	
											09	
				01								
					02							

07-A20

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	20	01	09	03								
				04								
					01							
			10									
				01								
				02								
		02										
			01									
				01								
			02									
	21											
	22											
	23											
		01										
		02										
		03										
		04										

07-A21

\* All or part tidally influenced.

# Dual code in Report 07.



APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' '' )	LONGITUDE ( ° ' '' )	STREAM MILES		FROM
										UP	DOWN	
07	23	05					Dividing Creek *					
		06					Nancy Creek *					
		07					Little Jones Creek *					
		08					Boor Creek *					
			01				Peablossom Creek *					
			02				Wood Creek * #					
		09					Unnamed Tributary *					
		10					Haulover Creek * #					
		11					Noble Slough * #					
		12					Unnamed Tributary *					
		13					Duck Creek * #					
		14					Unnamed Tributary *					
		15					Perry Creek *					
		16					Wood Creek * #					
			01				Little Wood Creek *					
			02				Double Prong Creek *					
		17					Bobs Garden Creek *					

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )						
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM	
										UP	DOWN		
07	23	18											
	24												
	25												
	26												
	27												
			01										
			02										
	28												
			01										
			02										
	29												
			01										
				01									
				02									
30													

07-A23

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' '' )	LONGITUDE ( ° ' '' )	STREAM MILES		FROM
										UP	DOWN	
07	30	01										
			01				Woodland Creek *					
			02				Unnamed Tributary * #					
			03				Unnamed Tributary *					
			04				Unnamed Tributary * #					
			05				Unnamed Tributary *					
			06				Weston Flat *					
		02					Unnamed Tributary *					
		03					Unnamed Tributary *					
		04					Unnamed Tributary *					
		05					Unnamed Tributary *					
		06					Unnamed Tributary *					
		07					Allston Creek *					
		08					Unnamed Tributary *					
		09					Unnamed Tributary *					
		10					Unnamed Tributary *					

07-A24

\* All or part tidally influenced.

# Dual Code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' '' )	LONGITUDE ( ° ' '' )	STREAM MILES		FROM	
										UP	DOWN		
07	31						Main Creek *						
			01				(Murrells Inlet)						
							Unnamed Tributary *						
							Unnamed Canal *						
							Whale Creek * #						
							Unnamed Tributary *						
							Parsonage Creek *						
							Whale Creek * #						
							Unnamed Tributary *						
		32					Unnamed Tributary *						
		33					Unnamed Tributary *						
		34					Unnamed Tributary *						
		35					Unnamed Tributary *						
		36					Unnamed Tributary * (Midway Swash)						
	37					Unnamed Tributary * (Withers Swash)							

07-A25

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	38											
	39					Black Creek * (Deephead Swash)						
	40					Canepatch Creek * (Canepatch Swash)						
	41					Bear Branch *						
	42					Buck Island Swamp (Singleton Swash)						
	43					White Point Creek * (White Point Swash)						
	44					Unnamed Tributary *						
	45					Unnamed Tributary *						
	46					Unnamed Tributary *						
	47					Unnamed Tributary *						
	48					Williams Creek * # (Hog Inlet)						
		01				Unnamed Tributary *						
		02				Unnamed Tributary *						

\* All or part tidally influenced.

# Dual code in Report 07.

07-A26

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	MAJOR RIVER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
		PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	48	03										
			01				Unnamed Tributary *					
			02				Unnamed Tributary *					
			03				Unnamed Tributary *					
		04					Unnamed Tributary *					
			01				Unnamed Tributary * #					
			02				Unnamed Tributary * #					
		05					Unnamed Tributary *					
			01				Unnamed Tributary *					
		06					Unnamed Tributary *					
		07					House Creek *					
			01				Unnamed Tributary *					
				01			Unnamed Tributary *					
				02			Unnamed Tributary *					
				03			Unnamed Tributary *					
				04			Unnamed Tributary *					
				05			Unnamed Tributary *					

07-A27

\* All or part tidally influenced.

# Dual code in Report 07.

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )					
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' '' )	LONGITUDE ( ° ' '' )	STREAM MILES		FROM	
										UP	DOWN		
07	48	07	01	06			Unnamed Tributary *						
							07						Unnamed Tributary *
							02						Unnamed Tributary *
							03						Unnamed Tributary *
							04						Unnamed Tributary *
							05						Unnamed Tributary *
							06						Unnamed Tributary *
							07						Unnamed Tributary *
							08						Unnamed Tributary * #
							09						Unnamed Tributary *
							10						Williams Creek * #
	11	Unnamed Tributary *											
	49	08					Unnamed Tributary * #						
Little River * # (Little River Inlet)													
	01					Bonaparte Creek * #							
		01				East River * #							

\* All or part tidally influenced.

# Dual code in Report 07.

07-A28

APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE					STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )						
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER		FIFTH ORDER	LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM	
										UP	DOWN		
07	49	02											
		03											
		04											
		05											
		06											
		07											
		08											
		09											
		10											
		11											
		50											
			01										
			01										
				01									
		02											
		01											

07-A29

\* All or part tidally influenced.

# Dual code in Report 07.



APPENDIX A  
STREAM CATALOG

REPORT NUMBER	STREAM CODE						STREAM NAME	HEADWATER LOCATION ( Mean Flow = 5 cfs )				
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE ( ° ' " )	LONGITUDE ( ° ' " )	STREAM MILES		FROM
										UP	DOWN	
07	50	03										
			01				Blane Creek *					
				01			Unnamed Tributary *					
					01		The Big Narrows *					
			02				Fox Creek *					
	51						Jinks Creek *					
							(Tubbs Inlet)					
		01					Eastern Channel *					
		02					Cooter Creek *					

\* All or part tidally influenced.

07-A30

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

This appendix is a compilation of lakes from 10 to 1,000 acres which are contained in the Waccamaw River basin.

This inventory was compiled from the following sources:

1. Inventory of Lakes in South Carolina Ten Acres or More in Surface Area.
2. Hydrologic Information Storage and Retrieval System, Register of Dams for North Carolina (computer printout).
3. USGS Quadrangle Maps.

The USGS quadrangle maps are used to locate and to detect lakes that were not listed in the other sources. Actual surface area and gross storage information is supplied where available. The lakes were coded by major stream basin in accordance with other procedures developed for identifying streams. The map data from Source 1 above generally does not permit detailed location of the small lakes. Thus, lakes are coded by basin only as far as the secondary order.

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

REPORT NUMBER	STREAM CODE					LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY  (SOUTH CAROLINA)
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FIFTH ORDER				
07	01	49				Col. Jensen	10	28	Horry
07	01					Billy Foxworth (Old Mill Lake)	225	225	Horry
07	01					Old Womans Lake	--	--	Horry
07	01	69				Conway Lagoon	30	150	Horry
07	01	69				Busbee Lake	400	1,100	Horry
07	01	72	02			Conway Lagoon	10	50	Horry
07	01	72	01			Conway Lagoon	18	80	Horry
07	01	72	02			Ralph Hoffman	35	105	Horry
07	01	72	04			S. T. Mishoe	10	24	Horry
07	01	73	01			Myrtle Nat. Golf	14	75	Horry
07	01	73	01			International Paper Co.	12	28	Horry
07	01					Kermit Todd	10	40	Horry
07	01					H. W. Lewis	10	30	Horry
07	01					O. M. Harrelson	20	200	Horry
07	01	86				Unnamed Lake	--	--	Horry
07	01	34	01			Horseshoe Lake	--	--	Georgetown

07-82

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

REPORT NUMBER	STREAM CODE					LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY (SOUTH CAROLINA)
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FIFTH ORDER				
07 03						Unnamed Lake	--	--	Georgetown
07 11						Dover Plantation	20	32	Georgetown
07 21	01	10				Unnamed Lake	--	--	Georgetown
07 32						Huntington Beach State Park	25	50	Georgetown
07 38						Surside	12	24	Horry
07 39						Lake Mary	25	25	Horry
07 39						S. T. Mishoe	10	24	Horry
07 01	47					Myrtle Beach Lagoon	35	175	Horry
07 43						North Myrtle Beach Lagoon	12	55	Horry
07 45						Dunes Lake	40	80	Horry
07 45						Chapin Pond	--	--	Horry
07 45						Chestnut Lake	20	60	Horry
07 45						Long Pond	--	--	Horry
07 46						Burroughs Lake	18	55	Horry
07 46						Lake Arrow Head	30	85	Horry
07 46						Windy Hill Beach	15	30	Horry
07 49	01	01				Cherry Grove Beach	25	30	Horry

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

REPORT NUMBER	STREAM CODE					LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY (SOUTH CAROLINA)
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FIFTH ORDER				
07	01	47	45			Ralph Ellis	15	50	Horry
07	01					Cox Ferry Lake	--	--	Horry
07	12					Bell Island Garden	12	36	Georgetown
07	12					Georgetown Co.	35	78	Georgetown
07	07					Unnamed Lake (Esterville Plantation)	--	--	Georgetown
07	28					Unnamed Lake	--	--	Georgetown
07	29	01				Unnamed Lake	--	--	Georgetown
07	32	01				Weston Flat	--	--	Georgetown
									(NORTH CAROLINA)
07	01	94	01			Benton Millpond	23	--	Columbus
07	01	88				Butler Pond	--	--	Brunswick
07	01	94	01			Cook Pond	10	--	Columbus
07	01	96	02			Council Millpond	200	--	Bladen
07	01	96	02			Meapes Millpond #	--	--	Bladen
07	01	89	02			Bertha Cox Pond	10	--	Columbus
07	01	94	01			Frink's Pond	25	--	Columbus

# Dual code in Report 18.

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APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

REPORT NUMBER	STREAM CODE					LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY  (NORTH CAROLINA)
	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FIFTH ORDER				
07	01	87				Gwynn Pond	25	--	Brunswick
07	01	94				Hill Pond (Earl Pond)	10	--	Columbus
07	01	94				Inman Pond	15	--	Columbus
07	01	94				Mashby Pond	12	--	Columbus
07	01					Schulkens Lake (State of N.C.)	640	--	Columbus
07	01	94	01			Sellers Pond	30	--	Columbus
07	01	94	01			(Wilbur) Smith Pond	30	--	Columbus
07	01	89	02			Lake Tabor	--	--	Columbus
07	01	87				Twin Lakes	50	--	Brunswick
07	01	89	02			Unnamed Lake	--	--	Columbus
07	01	89	02			Unnamed Lake	--	--	Columbus
07	01	94	01			Watkins Pond	10	--	Columbus
07	01	94	01			(Bennett) White Pond	20	--	Columbus
07	01	89	02			(High) Williams Pond	10	--	Columbus

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