REPORT OF THE
VIRGINIA MARINE
RESOURCES COMMISSION ON

The Navigation Obstructions in the Elizabeth River Derelict Structures

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

SENATE DOCUMENT NO. 19

COMMONWEALTH OF VIRGINIA
RICHMOND
1990

COMMONWEALTH of VIRGINIA

Marine Resources Commission

P. O. Box 756

2600 Washington Avenue

Newport News, Virginia 23607-0756

Telephone: (804) 247-2200

(804) 247-2292 V/TDD

Information & Emergency Hotline 1-800-541-4646 V/TDD

WILLIAM A. PRUITT
Commissioner
ROBERT D. CRAFT
Chief, Administration and Finance
ROBERT W. GRABB
Chief, Habitat Management
ROBERT J. MARKLAND
Chief, Law Enforcement
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Chesapeake, Virginia
JANE C. WEBB
Newport News, Virginia

December 27, 1989

TO: The Honorable Gerald L. Baliles
Governor of Virginia
and
The General Assembly of Virginia

The 1989 General Assembly, by Senate Joint Resolution No. 216, requested the Virginia Marine Resources Commission to study the navigation obstructions in the Elizabeth River along its shorelines, to inventory such obstructions, and to recommend methods and means, as well as estimate the cost of removal of these obstacles.

Enclosed for your review and consideration is the report that has been prepared in response to this resolution.

Respectfully submitted,

William A. Pruitt
Commissioner

REPORT OF ELIZABETH RIVER DERELICT STRUCTURES

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I. Introduction

A. Background

Senate Joint Resolution No. 216, which was sponsored by Senators Earley of Chesapeake, Stallings and Holland of Virginia Beach, Joannou of Portsmouth, and Walker of Norfolk, acknowledges that the Elizabeth River is one of the Commonwealth's most valuable waterways. That value is directly attributable to its continued ability to function as a vital transportation link for waterborne commerce and to accommodate an ever increasing level of recreational use. The competitive posture and tonnage handled by Hampton Roads' port facilities, as well as the tremendous success of Norfolk's Harborfest and Portsmouth's Seawall Festivals, are but a few examples of those uses. Over the years, and as a direct result of that use, the Elizabeth River has experienced an accumulation of numerous obstacles and obstructions to navigation. Most often those obstructions take the form of abandoned vessels and barges, or deteriorated structures. If left unaddressed, those obstructions will invariably hinder the future value of the Elizabeth River and the State's ability to further develop and exploit its natural port facilities.

The responsibility to protect and regulate the use or development of the State's submerged lands has been assigned to the Virginia Marine Resources Commission. This responsibility is administered through a regulatory program administered by the Habitat Management Division. The laws establishing that program date from 1962.

B. Existing Programs

The 1974 General Assembly enacted Section 62.1-194.1:1 entitled "Removal of obstructing or hazardous property from state waters" which empowers the Marine Resources Commission to ascertain the lawful owner of abandoned boats or materials and cause their removal. Where the lawful owner cannot be determined after a diligent search, the Marine Resources Commission is even empowered to remove the property. With the exception of one $20,000 emergency appropriation, however, funds to accomplish the latter responsibility, i.e. removal where legal responsibility could not be fixed, have never been provided. The Commission continues to regularly receive complaints of derelict boats, materials and structures that exist or have been abandoned on State-owned subaqueous bottoms. Although the current study is restricted to the Elizabeth River, the complaints and occurrences are not so constrained.

Where the lawful owner can be ascertained, the program of removal is being addressed with the assistance of the Commission's Law Enforcement Division. The owner is compelled to effect removal within a specified period of time or a summons is issued. In cases where the lawful owner cannot be determined, little can be done unless a third party is willing to assume the cost of removal. Quite often, the governing body of a political subdivision will petition the Commission by official resolution, to undertake removal of the offending obstruction. Without a dedicated or identifiable source of funding, however, the Marine Resources Commission is largely unable to respond.

The United States Army Corps of Engineers, Norfolk District, Operations Branch, does maintain a drift removal program in the study area. They are charged with removing floating debris/obstructions that actually enter the navigation channels themselves, thereby posing a hazard to commercial shipping and recreational boating. In essence, theirs is a reactive program in that they remove pilings and debris that break off from the abandoned boats and structures as they deteriorate. The program makes no effort to approach the problem from a preemptive standpoint by undertaking removal of the sources of that material. Therefore, that program does not directly address the derelict structures and abandoned boats discussed herein. The Corps' program is budgeted at approximately $250,000 per year, which covers the operation of two recovery vessels and six full-time employees. Their area of operation is basically restricted to the Hampton Roads Harbor. All material retrieved from the waters is disposed at the Corps' Craney Island Disposal Facility.

The City of Norfolk has also been involved in the removal of derelict vessels deposited along their municipality's shoreline. They do not have a dedicated budgetary amount allocated to the program. Instead, they rely on interdepartmental cooperation and utilization of city equipment and labor to address specific sites as they are able. The City landfill is made available for the disposal of the refuse they collect.

II. Results

A. Methods

The Habitat Management Division of the Marine Resources Commission assumed primary responsibility for studying, inventorying, and recommending the method, means, as well as cost of removing the obstacles as required by the Resolution. This Division already regulates all encroachments in, on, or over State-owned subaqueous bottoms.

Project coordination was assigned to the Environmental Engineer handling projects in the Hampton Roads area. Because funding was not provided to accomplish the study, this became a collateral assignment in addition to his normal permitting responsibilities. Coordination with and the participation of, the agency's Law Enforcement Division was also necessary to capitalize on the Marine Patrol Officers and patrol vessels assigned to the area in an effort to expedite the inventory of the obstructions. The agency's single-engine fixed-wing aircraft was also utilized to obtain aerial photographs of the major obstructions.

The actual inventory of the obstructions required 18 hours, three different Marine Patrol Officers, use of a major patrol vessel, and approximately two hours of flying time in the agency's aircraft.

The inventory aside, our Marine Patrol Officers are invaluable in investigating leads and actually tracing vessel registrations in an effort to establish ownership. A major problem in ascertaining the ownership of abandoned vessels,however, is the ease and frequency with which vessel registration numbers are removed or obliterated prior to abandonment. Wooden vessels often have the numbers actually sawed out of the hull. Even steel vessels and barges, which normally have identifiable markings or documentation numbers as required by the U. S. Coast Guard, are often defaced or corroded to the point of being unidentifiable.

For the purposes of this study the river was broken into five geographic sections and ten quadrant maps (Figure 1)

(1) Western Branch of the Elizabeth River upstream from a line drawn between Lovette Point and Port Norfolk

(2) Southern Branch of the Elizabeth River upstream from a line drawn between the downtown Portsmouth seawall and the Berkley section of Norfolk

(3) Eastern Branch of the Elizabeth River upstream from a line connecting the Berkley section of Norfolk and downtown Norfolk

(4) Port Norfolk Reach which is essentially the main stem of the river and encompassed the area from Lamberts Point to downtown Norfolk and Portsmouth

(5) the Lafayette River from Tanners Point upstream to the limit of navigation

All of the maps and graphical depictions of the results of the survey were prepared by the Commission's Engineering Department. The branches of each of the rivers were further subdivided into map segments for the labeling of the obstructions. This resulted in a total of ten quadrant maps which were ultimately provided to selected venders for utilization in providing preliminary estimates of the cost of removal.

Coincidentally and concurrent with our own efforts, the Chesapeake Port Authority initiated their own study of the Southern Branch of the Elizabeth River. Not surprisingly, their study was confined to the political boundaries of the City of Chesapeake. Their report highlighted the same obstructions that were found in our investigation. While they also solicited estimates for removal, their inquiries were more informal and were accomplished by telephone conversations.

Three years ago, in July 1985, the City of Portsmouth also formally requested bids to remove derelict vessels and debris from two areas within that city, Scotts Creek and West Norfolk. No contract for removal was awarded, however, due to lack of available funding. The Habitat Division staff capitalized on that earlier effort and contacted the same vendors to obtain updated, 1989 estimates for the costs of removal. The general consensus of the vendors contacted was that an additional 5% per year should be added to their 1985 estimates to obtain the current cost of removal.

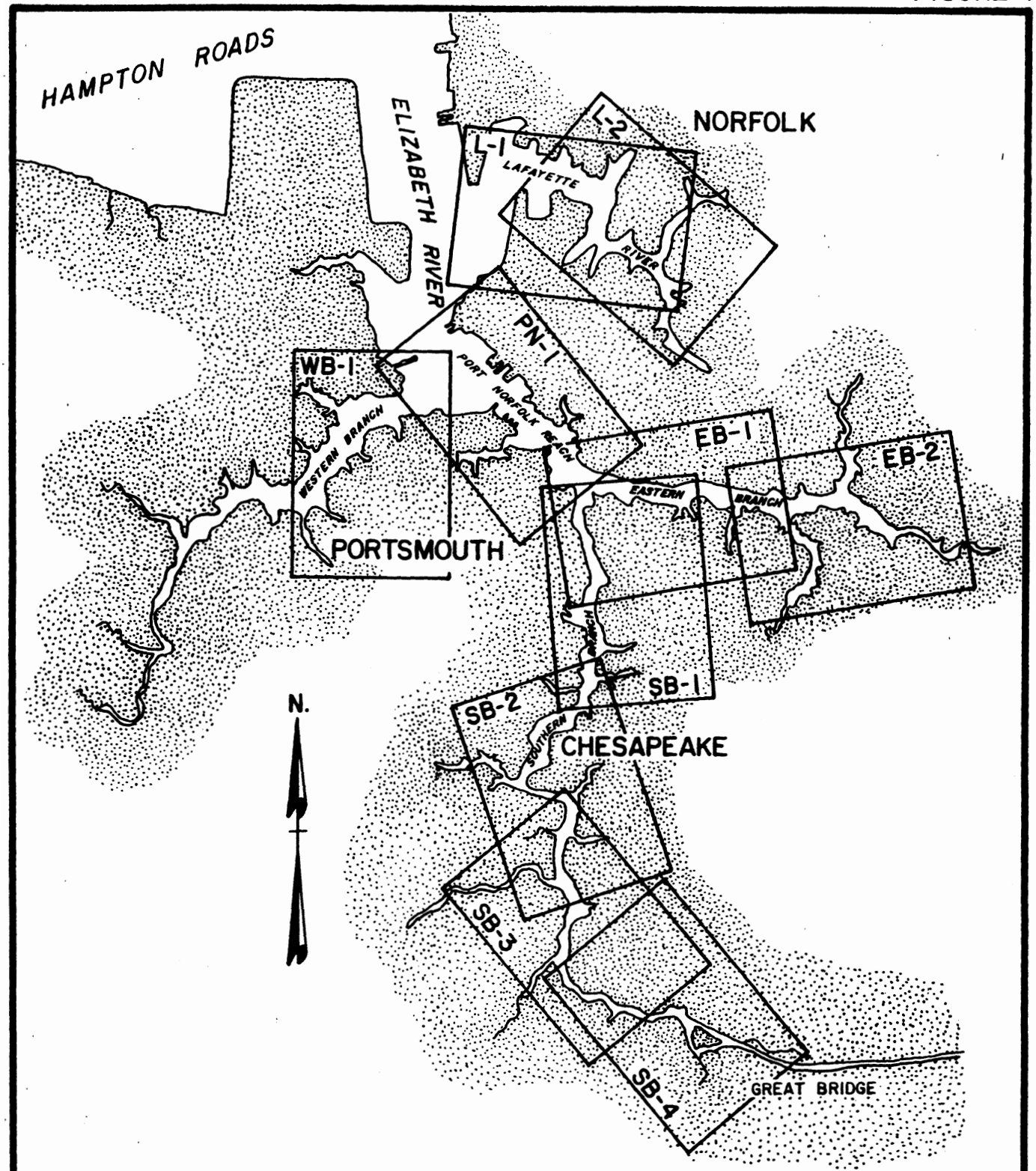
Estimates were also solicited from a number of other local vendors for removal of the obstructions along the City of Norfolk's waterfront.

Four corporations responded with preliminary estimates and expressed a potential interest in participating in any subsequent removal efforts.

Several corporations and private individuals have expressed an interest in removing the steel vessels that have been identified, provided they could obtain the scrap value. This could prove to be a viable option provided the contractors are also willing to assume any required liability.

The United States Navy has also expressed an interest in removing select vessels in conjunction with certain planned Reserve Training Exercises. They would be interested in refloating vessels that have not deteriorated substantially to the point that they could be towed to an available scrap yard or offshore to be added to an artificial reef.

FIGURE 1



COMMONWEALTH OF VIRGINIA

MARINE RESOURCES COMMISSION

REPORT ON

ELIZABETH RIVER DERELICT STRUCTURES

MAP LOCATIONS

IN RESPONSE TO SJR 216

NOVEMBER, 1989 NOT TO SCALE

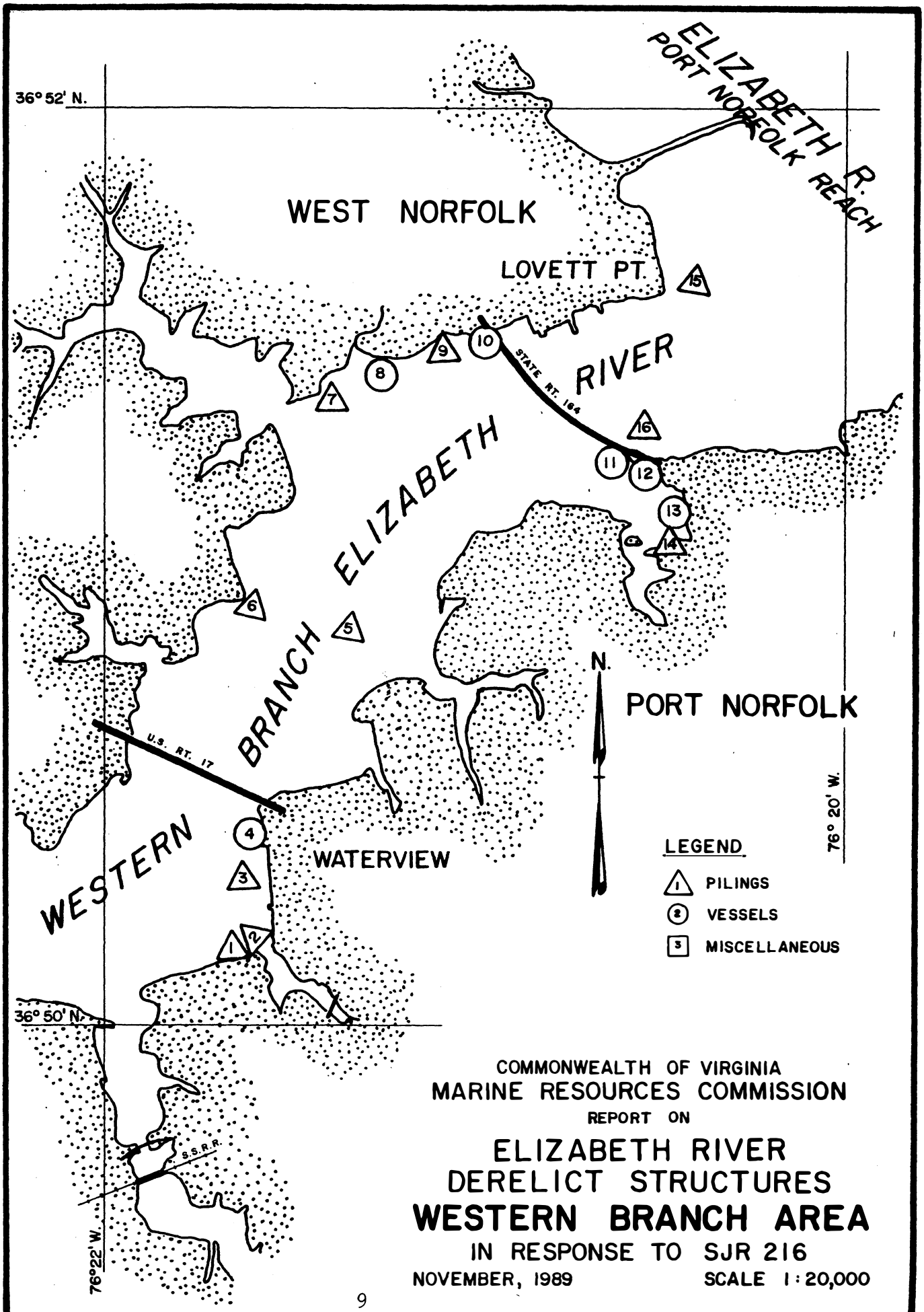
B. Inventory

As indicated in the previous sections, the study area was broken into five geographic regions or river sections. Primarily that initial breakdown was by water body or river branch. The rivers were further divided into segments or quadrants for ease of identification and manageability. This resulted in the generation of ten (10) maps, which are identified as follows:

Elizabeth River
- Western Branch
  - WB-1 Port Norfolk to headwaters
- Southern Branch
  - SB-1 Town Point Reach to N & W Railway Bridge
  - SB-2 N & W Railway Bridge to I-64 Bridge
  - SB-3 I-64 Bridge to State Route 104 (Dominion Boulevard)
  - SB-4 State Route 104 to Great Bridge
- Eastern Branch
  - EB-1 Town Point to Newton Park
  - EB-2 Newton Park to headwaters
- Port Norfolk Reach
  - PN-1 Main stem Lamberts Point to Hospital Point

Lafayette River
- L-1 Tanner Point to Granby Street Bridge
- L-2 Hampton Boulevard Bridge to headwaters

All obstructions or derelict structures noted were further identified as to type, i.e. pilings, vessels, or placed in a miscellaneous category. The three categories were chosen in an effort to further evaluate the origin of the problem as well as the magnitude. This information is tabulated behind each of the maps. No effort was made to research title to the adjacent upland property. Facilities in proximity to the identified vessels or obstructions are indicated, where known, for ease in identifying the location. No specific assignment of responsibility for removal is implied at this point unless so indicated.



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WESTERN BRANCH AREA

IN RESPONSE TO SJR 216

NOVEMBER, 1989 SCALE 1:20,000

TABLE #1

ELIZABETH RIVER WESTERN BRANCH

DERELICT PIER/VESSEL REFERENCE SHEET

MAP REFERENCE#	DESCRIPTION	ADJACENT UPLAND PROPERTY
1	9 pilings	
2	3 pilings	
3	4 pilings	
4	1 vessel	Leroy C. Rucker
5	8 pilings	
6	2 pilings	
7	pier w/building	
8	5 vessels, 3 pilings	Lee's Yacht Haven
9	45 + pilings	
10	9 barges, 2 pilings	Rose Marine
11	24 vessels, steel boiler	Elizabeth River Marina
12	2 vessels, pier	Michael J. Sassar
13	2 vessels	Paul Allen
14	15 pilings	
15	100 + pilings	
16	50 + pilings	

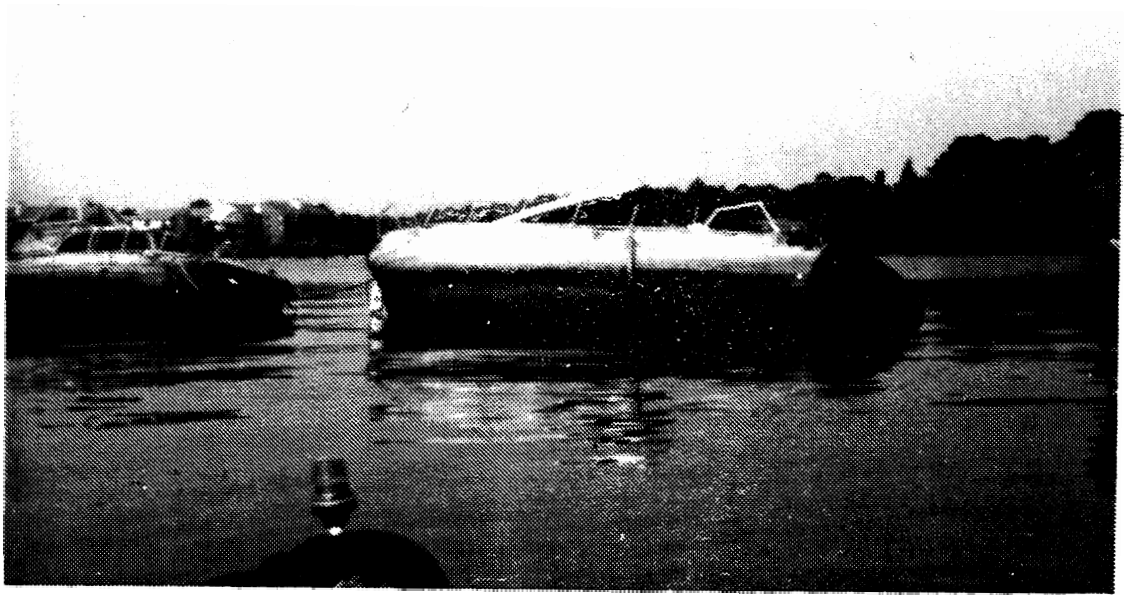
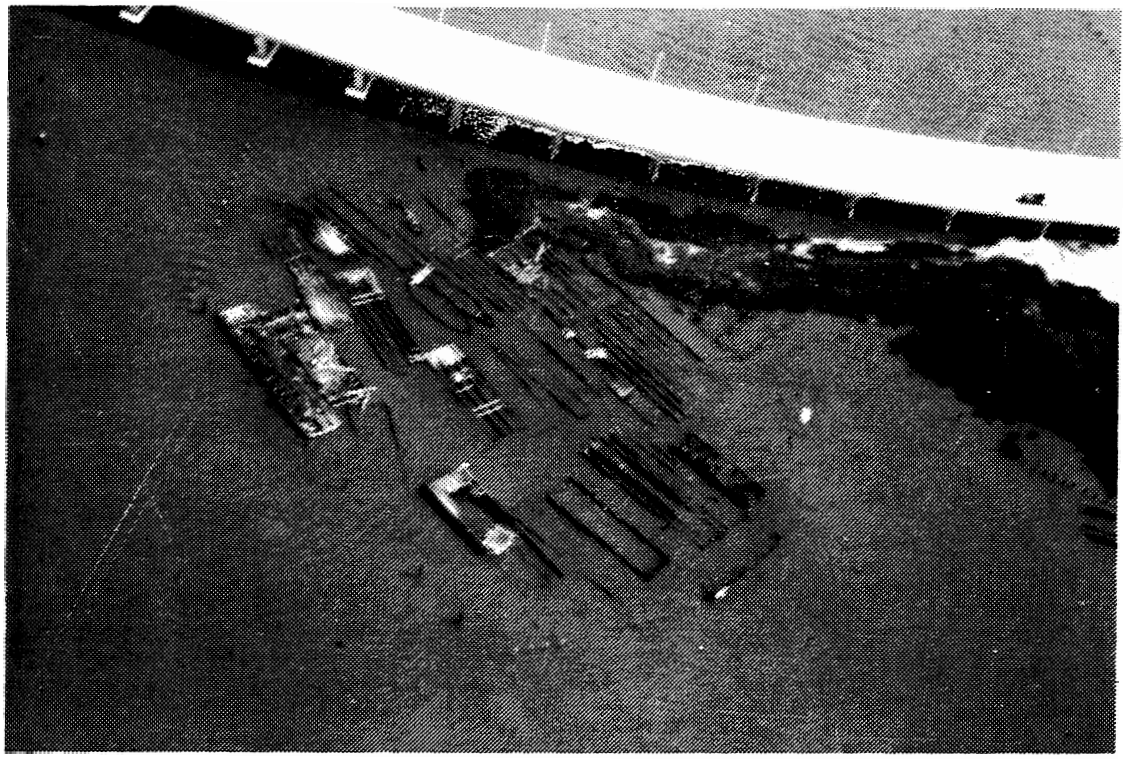
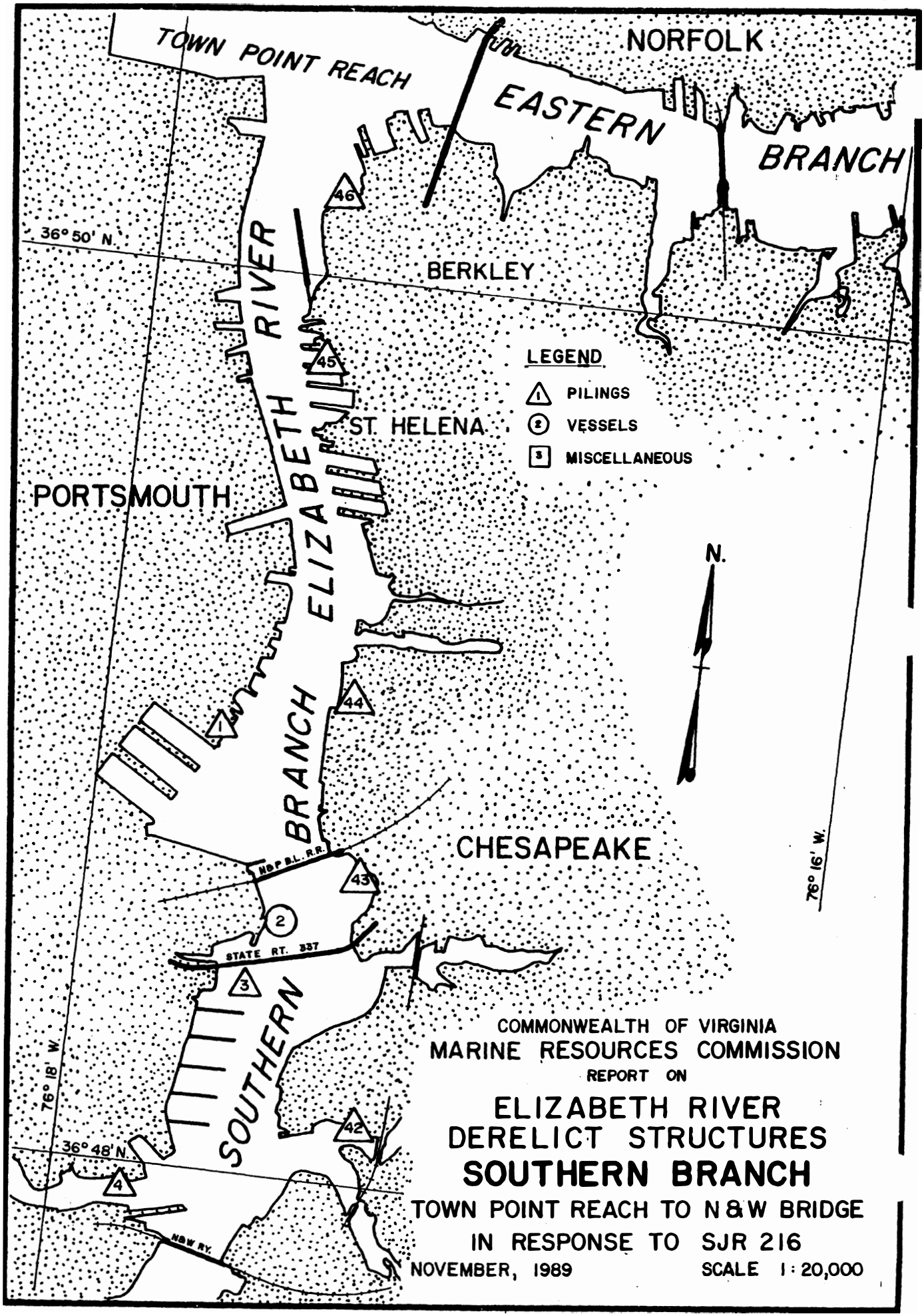


Photo #1 - Western Branch Elizabeth River (Map Ref #8)
5 vessels, 3 pilings



Aerial Photo #2 - Western Branch Elizabeth River
(Map Ref #11) 24 vessels, steel boiler



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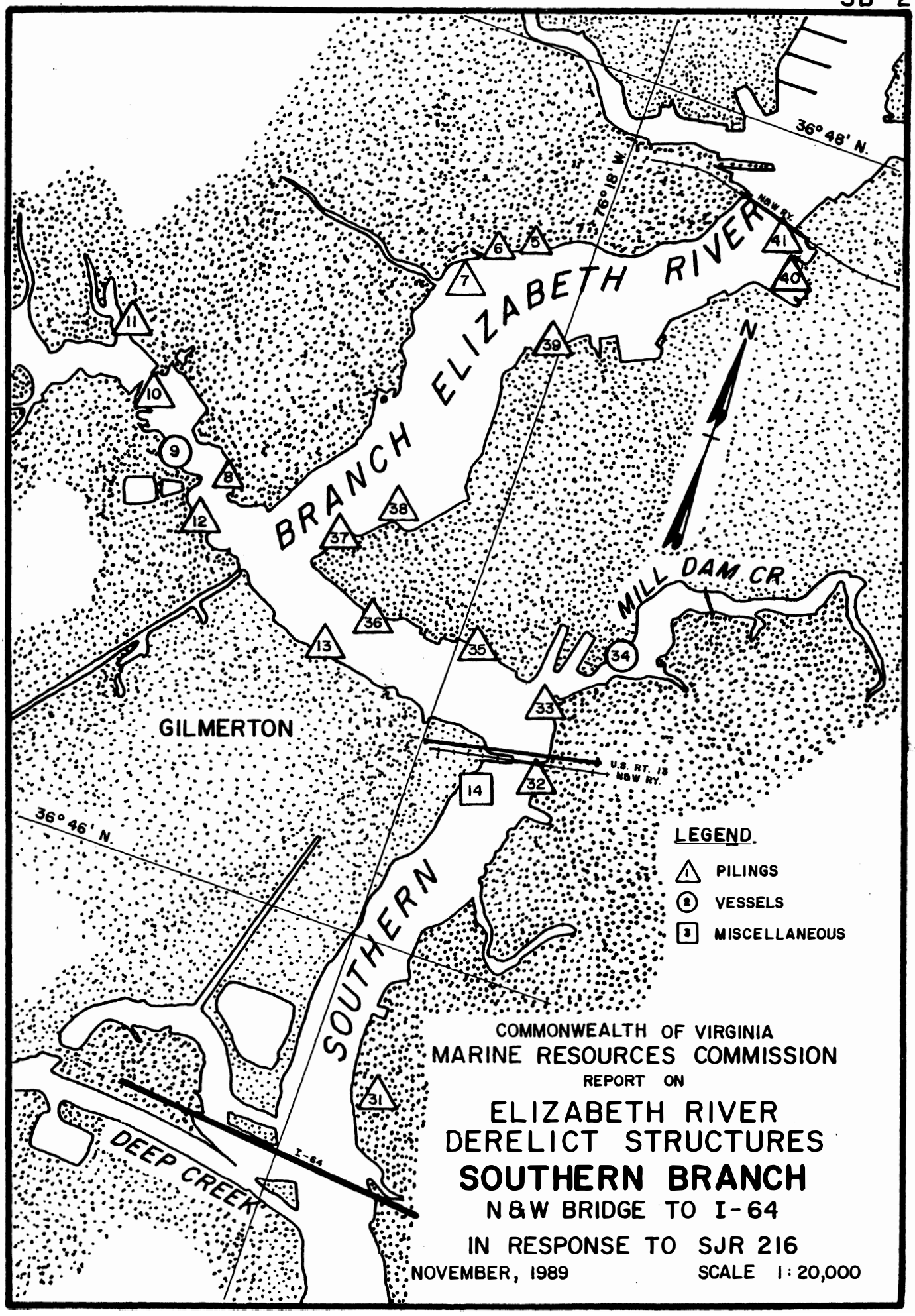
SOUTHERN BRANCH

TOWN POINT REACH TO N&W BRIDGE

IN RESPONSE TO SJR 216

NOVEMBER, 1989 SCALE 1:20,000


36° 48' N.
76° 18' W.
N&W RY.
BRANCH ELIZABETH RIVER
N
MILL DAM CR.
GILMERTON
U.S. RT. 13
N&W RY.
36° 46' N
SOUTHERN
DEEP CREEK
I-64
LEGEND
PILINGS
VESSELS
MISCELLANEOUS
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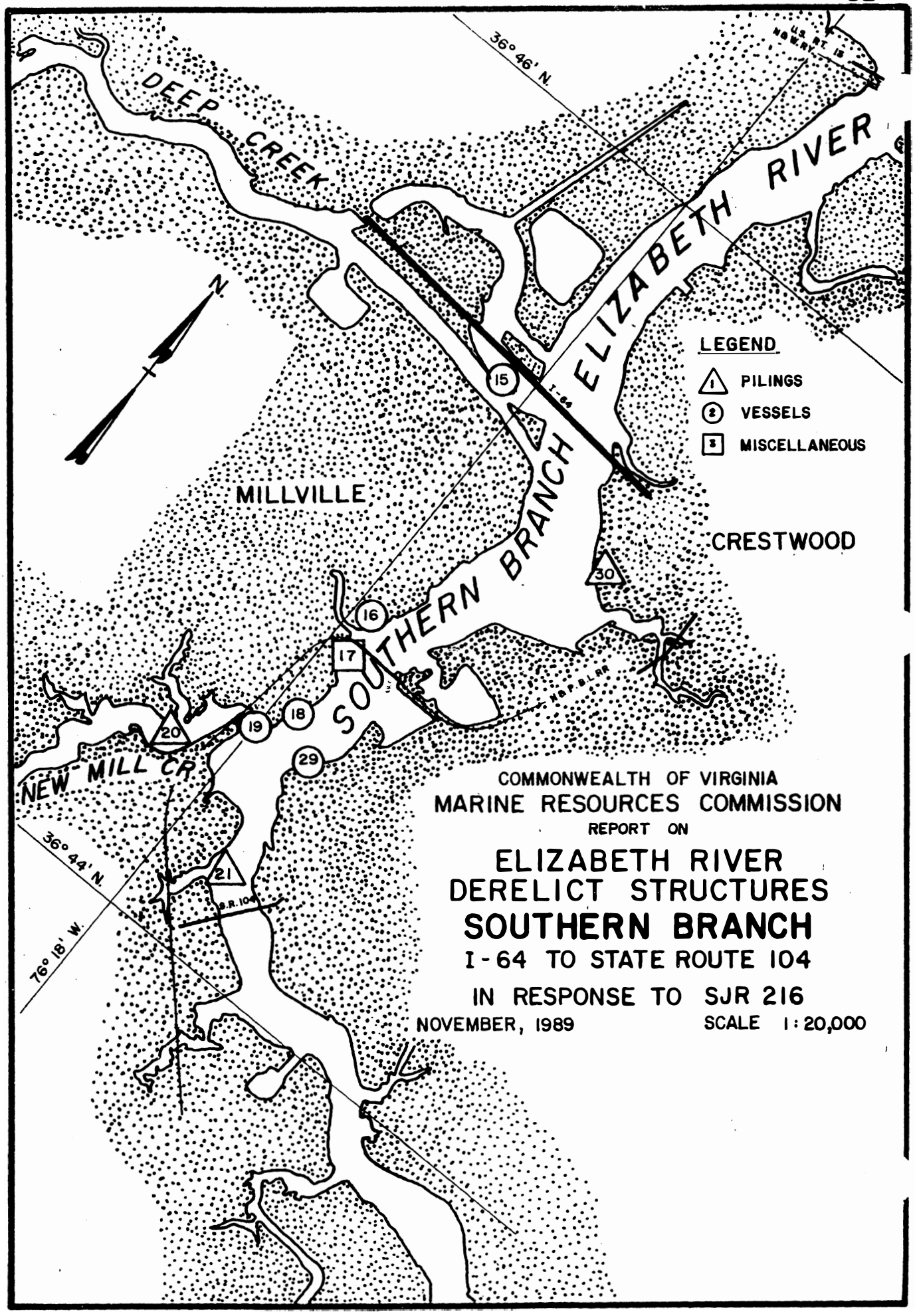
DERELICT STRUCTURES
SOUTHERN BRANCH
N&W BRIDGE TO I-64
IN RESPONSE TO SJR 216
NOVEMBER, 1989
SCALE 1:20,000



COMMONWEALTH OF VIRGINIA

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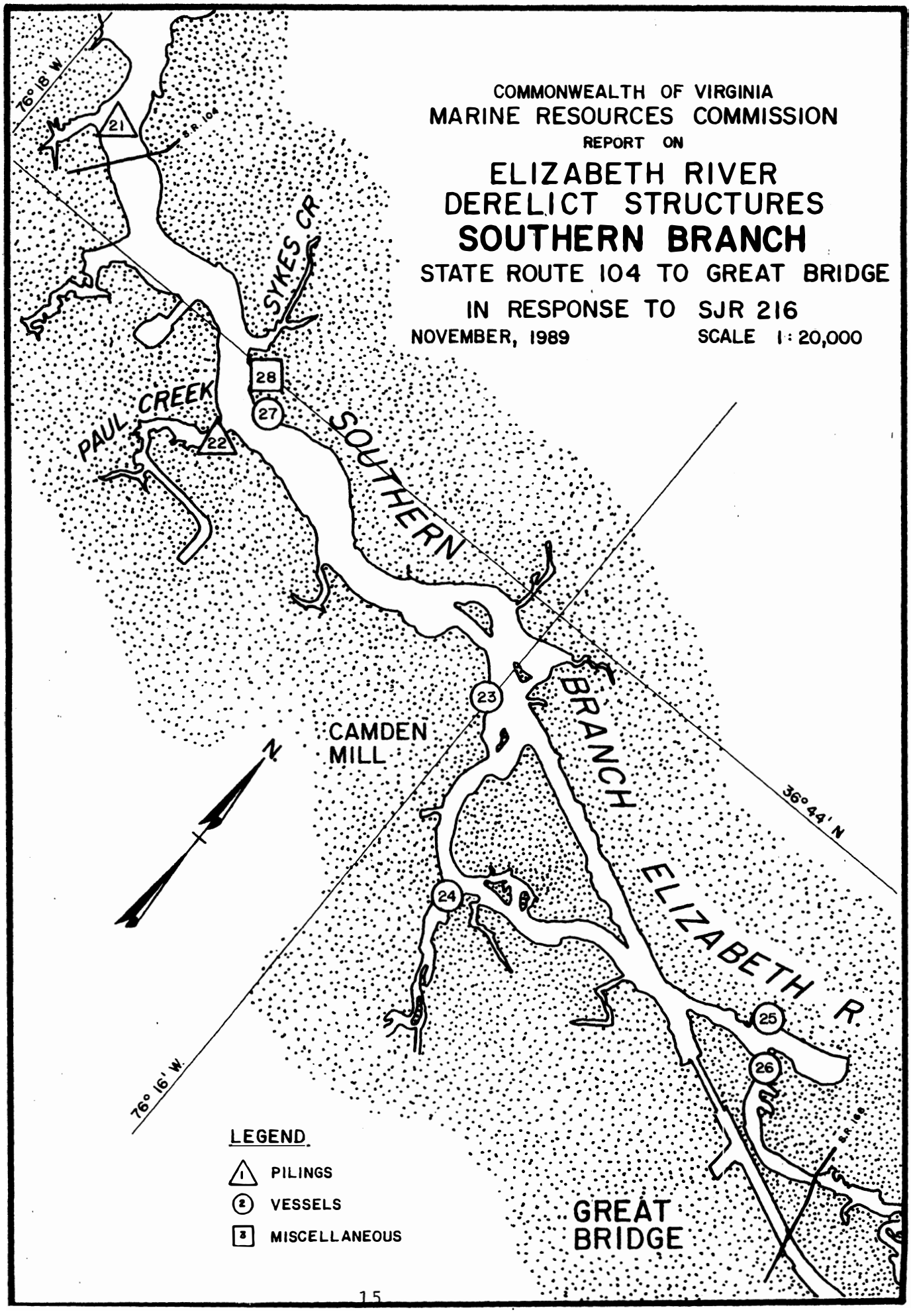
SOUTHERN BRANCH

I-64 TO STATE ROUTE 104

IN RESPONSE TO SJR 216

NOVEMBER, 1989

SCALE 1:20,000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SOUTHERN BRANCH
STATE ROUTE 104 TO GREAT BRIDGE
IN RESPONSE TO SJR 216
NOVEMBER, 1989
SCALE 1:20,000
76° 18' W.
21
S.R. 104
SYKES CR
28
27
PAUL CREEK
22
SOUTHERN
23
CAMDEN
MILL
N
BRANCH ELIZABETH R.
36° 44' N
24
25
26
76° 16' W.
LEGEND
1 PILINGS
2 VESSELS
3 MISCELLANEOUS
GREAT
BRIDGE

TABLE #2

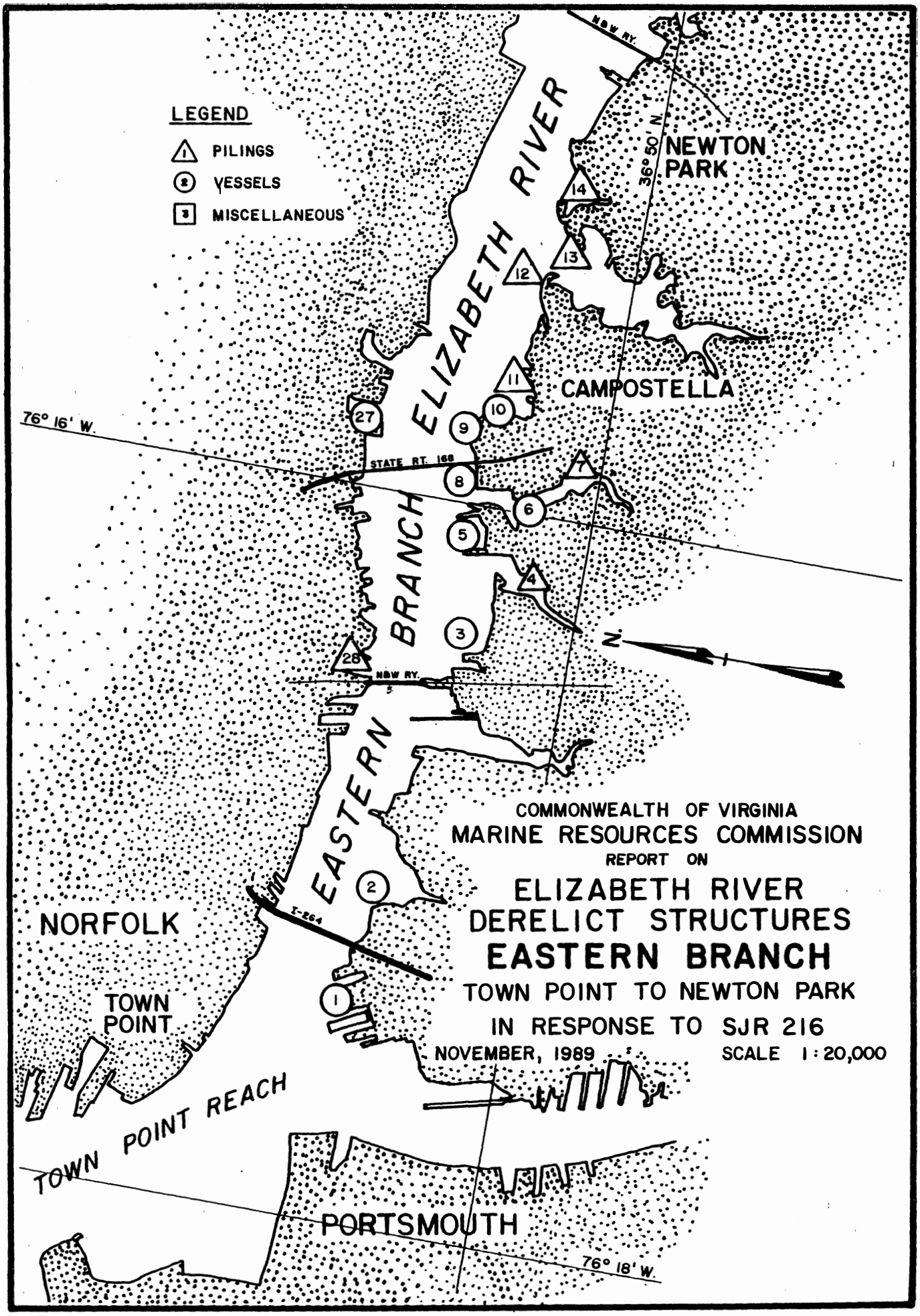
ELIZABETH RIVER SOUTHERN BRANCH

DERELICT PIER/VESSEL REFERENCE SHEET

MAP REFERENCE#	DESCRIPTION	ADJACENT UPLAND PROPERTY
1	60 + pilings	Norfolk Naval Shipyard
2	200 + pilings & 2 barges	Norfolk Naval Shipyard
3	200 + pilings	Norfolk Naval Shipyard
4	10 pilings	U. S. Naval Shipyard
5	35 pilings	
6	6 pilings & chain link fence	
7	150 + pilings	
8	17 pilings	U. S. Naval Ammunition Depot
9	1 barge	
10	20 + pilings	
11	20 pilings	
12	20 pilings	
13	200 + pilings	Atlantic Energy
14	Steel cylinder?	Va. Power
15	3 steel barges	
16	200 + pilings & 4 barges	Higgerson-Buchanan
17	Railroad trestle	Norfolk Portsmouth Beltline
18	4 barges	BF Diamond Construction
19	12 barges, railroad trestle, & concrete footings	BF Diamond Construction
20	6 pilings	
21	35 pilings railroad trestle	
22	22 pilings	
23	5 barges	Tarmac Va., Inc.
24	75 + pilings & 5 barges	City of Chesapeake (landfill)
25	Tug boat & piling	Allen Enterprises
26	2 vessels	Steen Contracting Corporation
27	3 vessels	Riverwalk Corporation
28	Piers & drydock	Riverwalk Corporation
29	Barge & Pier	Tarmac Va., Inc.
30	31 pilings	Huntsman Chemical Co.
31	Pier	
32	Pier	Smith Douglas
33	Wharf	Chilean Nitrate

MAP REFERENCE#	DESCRIPTION	ADJACENT UPLAND PROPERTY
34	Barge	Jacobsen Metals
35	25 pilings	Elizabeth River Terminals
36	10 pilings	Atlantic Cement
37	30 pilings	Royster
38	75 pilings	Royster
39	150 + pilings	Albert Sholmeyer
40	Pier	Conoco Oil Co.
41	25 pilings	Texaco
42	4 pilings	Cargill
43	27 pilings	J. G. Wilson
44	5 pilings	
45	Failing pier	U. S. Navy - St. Helena Complex
46	45 pilings	Norshipco

Photo #3 - Southern Branch Elizabeth River (Map Ref #27)
3 vessels


LEGEND
PILINGS
VESSELS
MISCELLANEOUS
N&W RY.
ELIZABETH RIVER
EASTERN BRANCH
NEWTON PARK
36° 50' N.
CAMPOSTELLA
76° 16' W.
STATE RT. 168
N&W RY.
I-264
NORFOLK
TOWN POINT
TOWN POINT REACH
PORTSMOUTH
76° 18' W.
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EASTERN BRANCH
TOWN POINT TO NEWTON PARK
IN RESPONSE TO SJR 216
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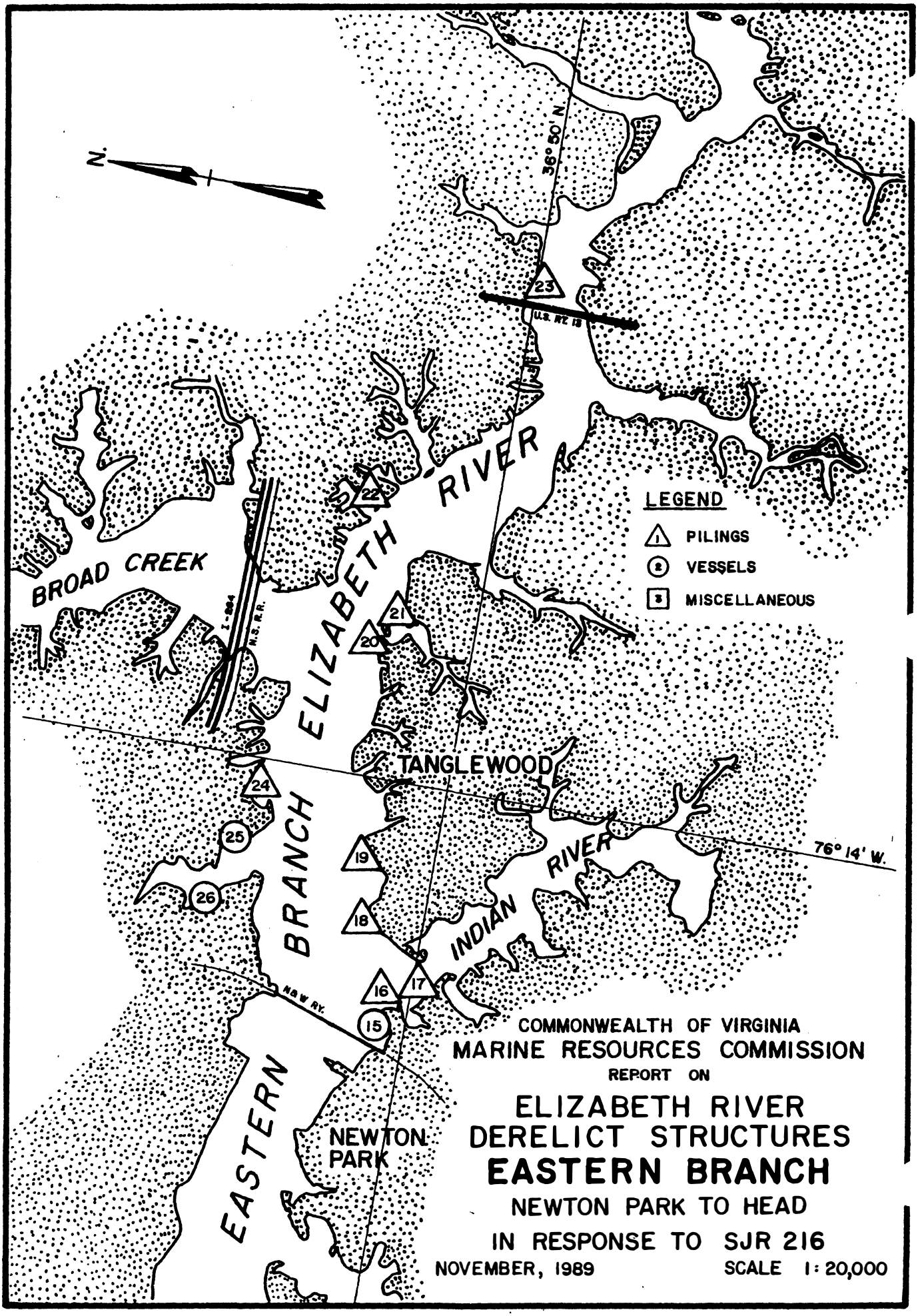
SCALE 1:20,000


N
36° 50' N.
23
U.S. RT. 13
BROAD CREEK
I-264
N.S. R.R.
ELIZABETH RIVER
22
21
20
LEGEND
PILINGS
VESSELS
MISCELLANEOUS
TANGLEWOOD
24
25
26
19
18
17
16
15
INDIAN RIVER
76° 14' W.
N&W RY.
EASTERN BRANCH
NEWTON PARK
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EASTERN BRANCH
NEWTON PARK TO HEAD
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TABLE #3

ELIZABETH RIVER EASTERN BRANCH

DERELICT PIER/VESSEL REFERENCE SHEET

MAP REFERENCE#	DESCRIPTION	ADJACENT UPLAND PROPERTY
1	4 vessels	Tarmac Va., Inc.
2	1 vessel, dolphin	Hale Container Corporation
3	1 vessel	
4	22 pilings	Allied Terminal
5	3 vessels, pier	Marine Hydraulics, Inc.
6	5 vessels, concrete footings	Marine Hydraulics, Inc.
7	Pier, gazebo	
8	1 vessel	Allied Repair Service
9	1 vessel	
10	3 vessels	Leon B. Miles, et al
11	17 pilings	
12	27 pilings	
13	12 pilings	
14	20 pilings	Ford Truck Plant
15	2 vessels	
16	16 pilings	
17	8 pilings	
18	8 pilings	
19	13 pilings	
20	60 + pilings	
21	22 pilings	
22	10 pilings	
23	25 pilings	
24	20 + pilings	
25	1 vessel, 30 pilings	
26	1 vessel	
27	3 vessels, 35 + pilings	Tarmac Va., Inc.
28	20 pilings	

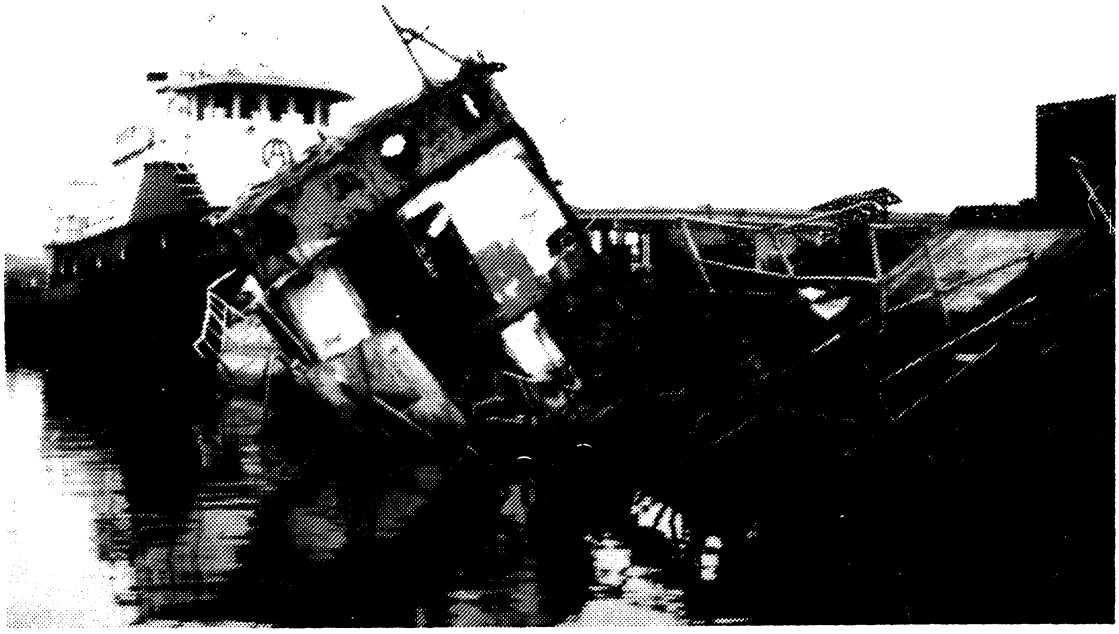
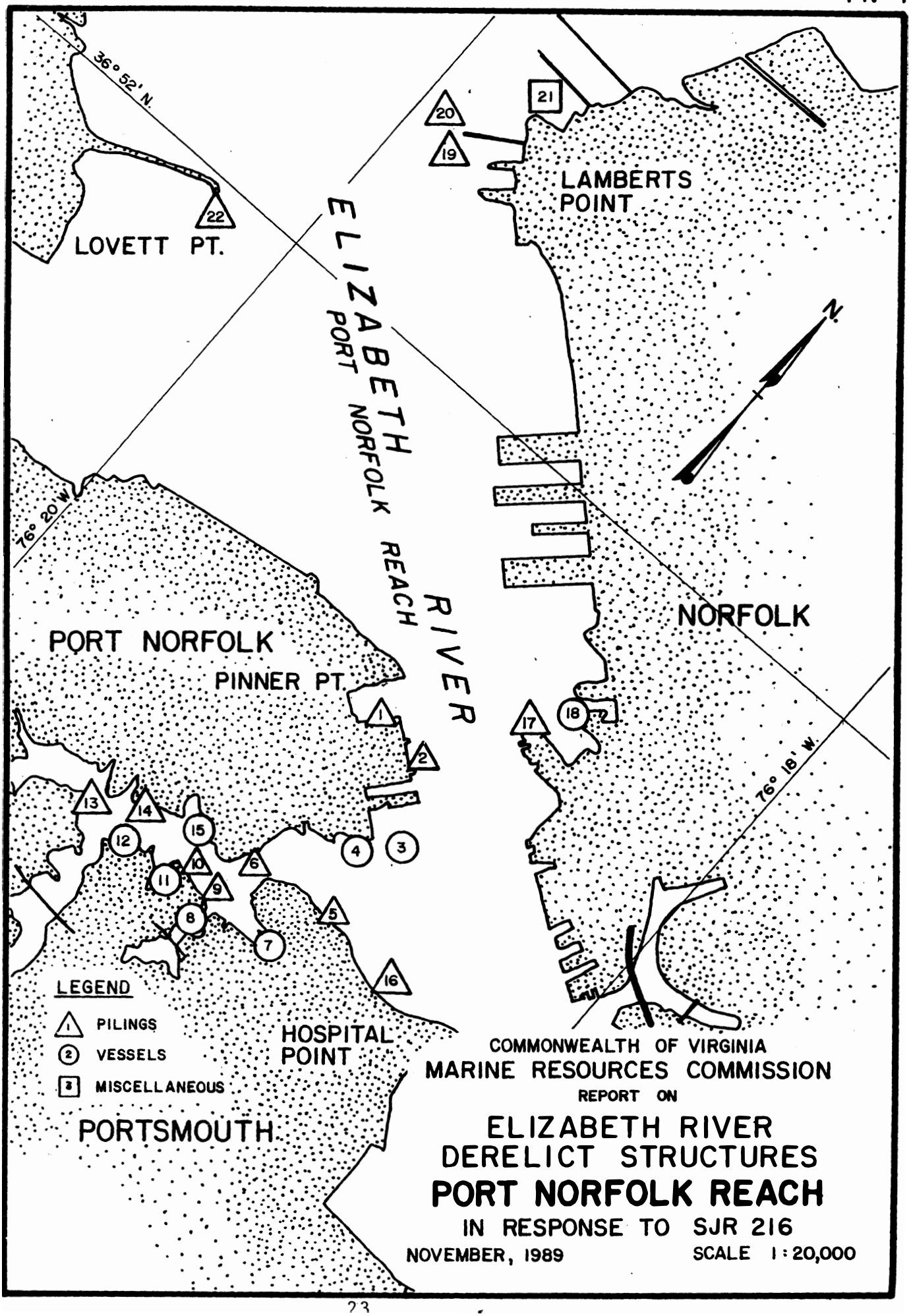


Photo #4 - Eastern Branch Elizabeth River (Map Ref #6)
5 vessels, concrete footings

Aerial Photo #5 - Eastern Branch Elizabeth River (Map
Ref #6) 5 vessels, concrete footings


36° 52' N.
LOVETT PT.
22
20
19
21
LAMBERTS POINT
ELIZABETH RIVER
PORT NORFOLK REACH
N
76° 20' W.
NORFOLK
PORT NORFOLK
PINNER PT.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
76° 18' W.
LEGEND
PILINGS
VESSELS
MISCELLANEOUS
HOSPITAL POINT
PORTSMOUTH
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PORT NORFOLK REACH
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TABLE #4

PORT NORFOLK REACH

DERELICT PIER/VESSEL REFERENCE SHEET

MAP REFERENCE#	DESCRIPTION	ADJACENT UPLAND PROPERTY
1	100 + pilings, quarrystone	Portsmouth Marine Terminal
2	300 + pilings	Moon Engineering
3	3 vessels, 20 + pilings	Moon Engineering
4	5 vessels	
5	150 + pilings	Portsmouth Naval Hospital
6	4 pilings	Scott Creek Marina
7	2 vessels, piling	Russell Bros. Seafood
8	2 vessels	
9	7 pilings	
10	13 pilings	
11	1 vessel	
12	2 vessels	Lonnie's Custom Marine
13	20 pilings	
14	25 pilings	
15	2 vessels, 100 + pilings	
16	2 platforms	Portsmouth Naval Hospital
17	wharf	J. H. Miles Co.
18	3 vessels, 400 + pilings	
19	Damaged pier	Norfolk & Western R. R.
20	30 + pilings	Norfolk & Western R. R.
21	40 concrete footings	Norfolk & Western R. R.

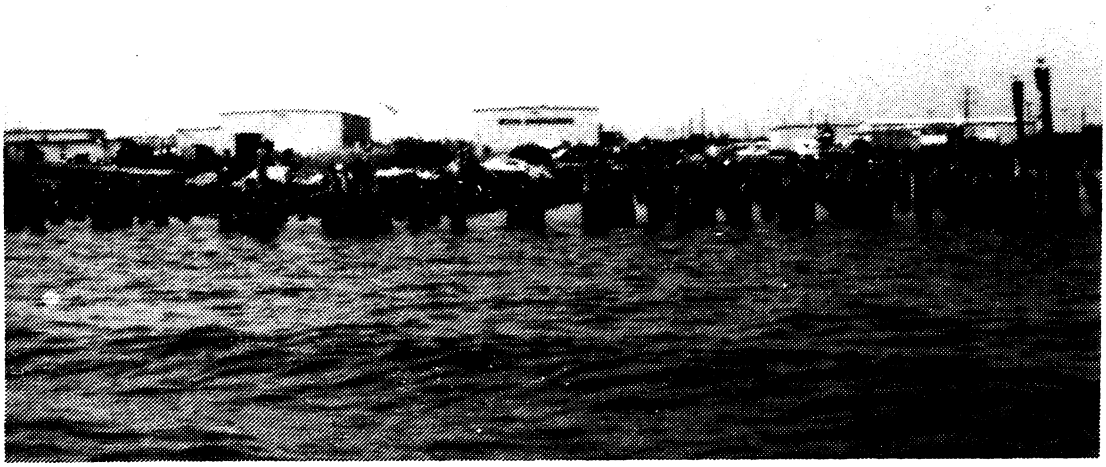


Photo #6 - Elizabeth River Port Norfolk Reach (Map Ref #2) 300 + pilings

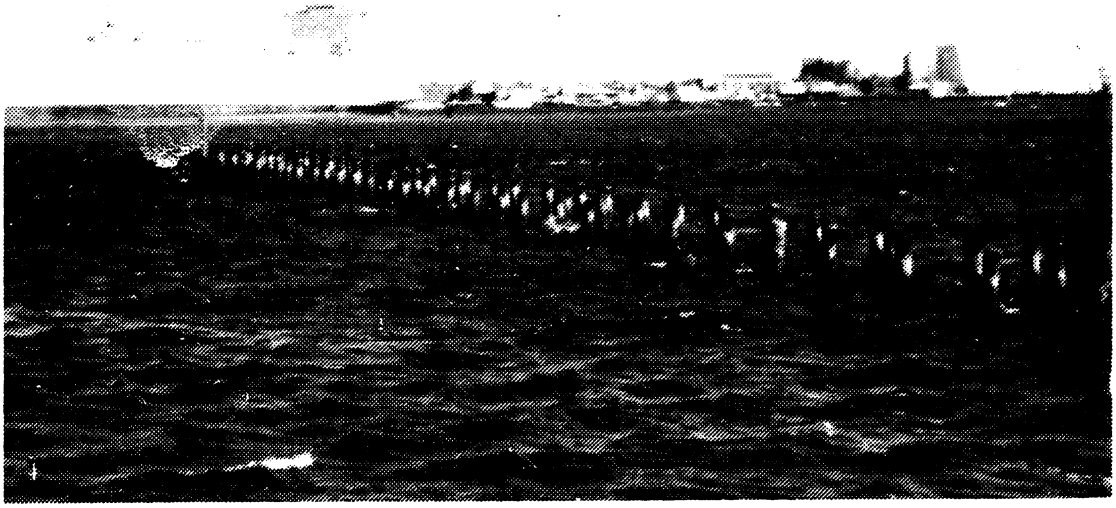
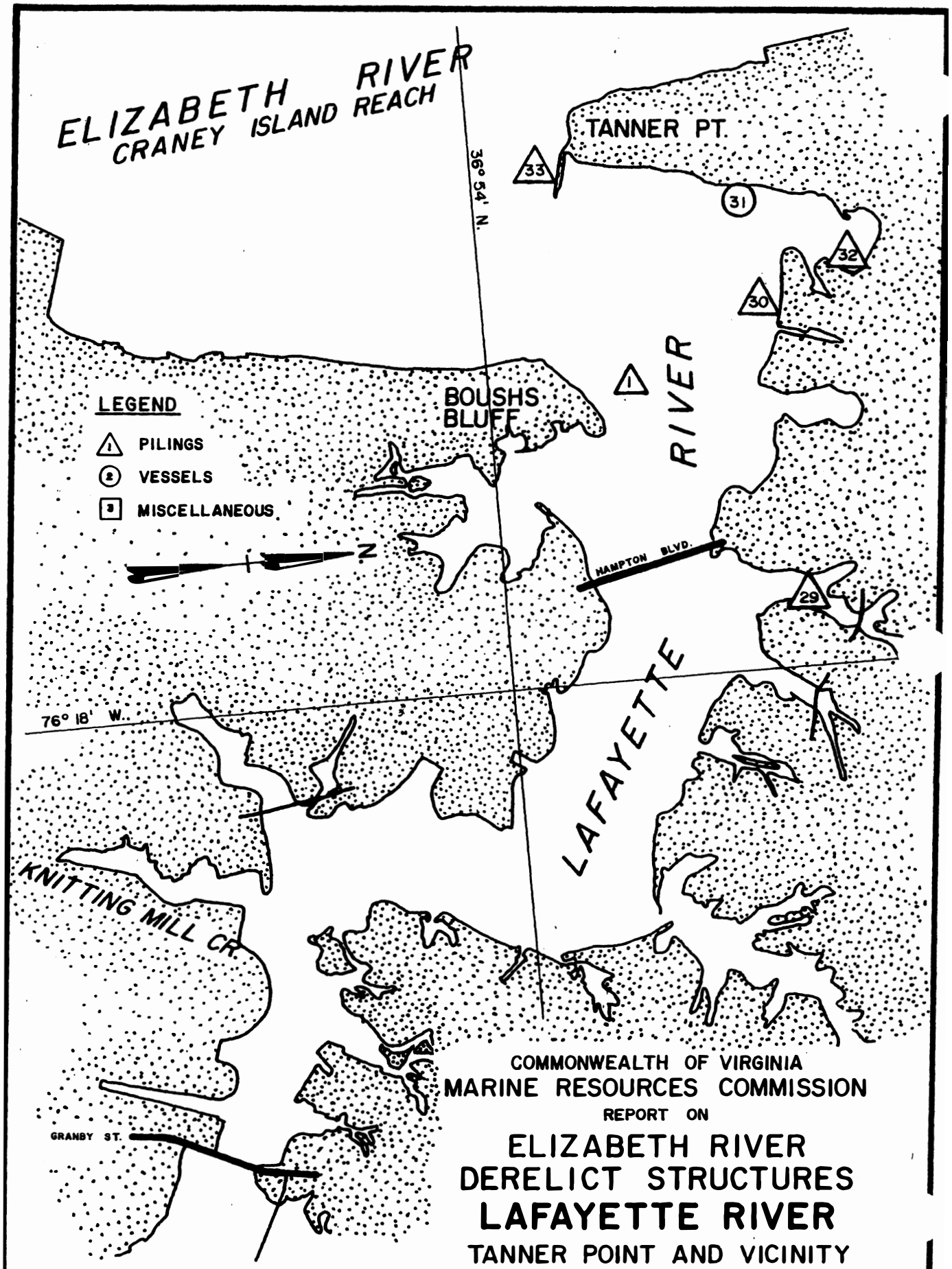


Photo #7 - Elizabeth River Port Norfolk Reach (Map Ref #5) 150 + pilings



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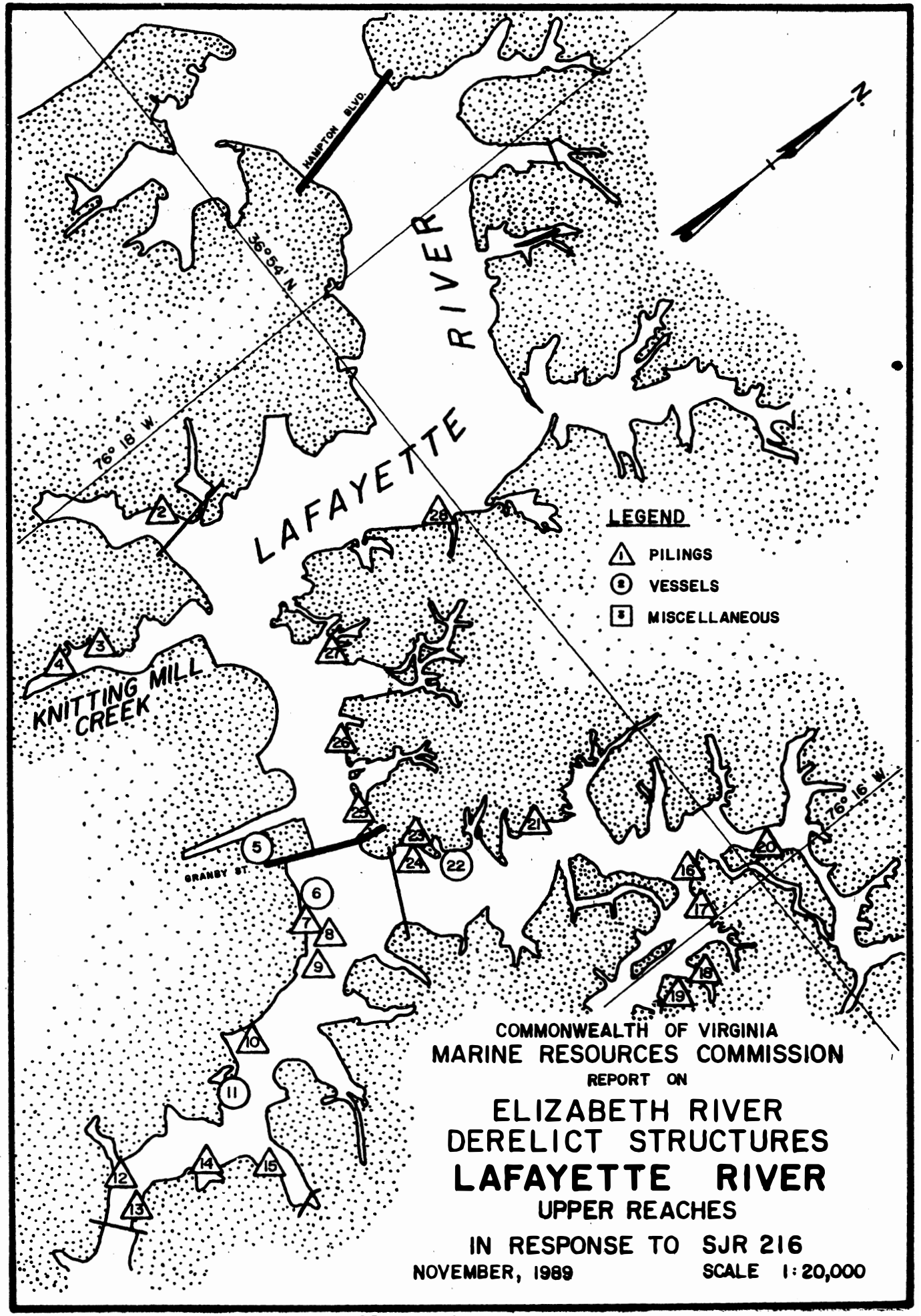
LAFAYETTE RIVER

TANNER POINT AND VICINITY
IN RESPONSE TO SJR 216

NOVEMBER, 1989 SCALE 1:20,000


HAMPTON BLVD.
36°54' N
LAFAYETTE RIVER
76° 18' W
76° 16' W
KNITTING MILL CREEK
GRANBY ST.
LEGEND
PILINGS
VESSELS
MISCELLANEOUS
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MARINE RESOURCES COMMISSION
REPORT ON
ELIZABETH RIVER
DERELICT STRUCTURES
LAFAYETTE RIVER
UPPER REACHES
IN RESPONSE TO SJR 216
NOVEMBER, 1989
SCALE 1:20,000

TABLE #5

LAFAYETTE RIVER

DERELICT PIER/VESSEL REFERENCE SHEET

MAP REFERENCE#	DESCRIPTION	ADJACENT UPLAND PROPERTY
1	8 pilings	
2	4 pilings	
3	75 + pilings	
4	4 pilings	
5	Abandon Marina 1 vessel	Lafayette Yacht Club
6	1 vessel, 32 pilings	
7	47 pilings	
8	4 pilings	
9	15 pilings	
10	30 + pilings	
11	1 vessel	
12	8 pilings	
13	9 pilings	
14	9 pilings	
15	2 pilings	
16	pier	
17	pier	
18	12 pilings	
19	4 pilings	
20	20 pilings	
21	12 pilings	
22	1 vessel	
23	35 + pilings	
24	24 pilings	
25	60 + pilings	
26	30 pilings	
27	40 + pilings	
28	33 pilings	
29	15 pilings	
30	30 pilings	Norfolk International Terminals
31	1 barge	Norfolk International Terminals
32	5 pilings	
33	8 pilings	Norfolk International Terminals

C. Cost Estimates

The resolution specifically requested an estimation of the cost of removing the obstructions identified. As indicated in an earlier section, both the City of Portsmouth and Chesapeake Port Authority had already independently secured estimates for the cost of removing a majority of the obstructions within their own jurisdictions. Portsmouth's study was accomplished in 1985 and the estimates have been inflated at a rate of 5% per year. The Chesapeake Port Authority's estimates were only recently obtained. As a cost saving measure, and because of the preliminary nature of this study, no effort was made to duplicate the estimates for those localities. Estimates for the Eastern Branch, Main Stem, and Lafayette River were compiled from submittals of selected contractors that responded to a written inquiry.

It should be noted that the cost estimates provided were only preliminary in nature. Almost all of the contractors involved indicated that the estimates could vary considerably based upon a variety of factors. These include, but are not necessarily limited to, site specific characteristics of each project site and nature of material to be removed, method of removal (land based crane or barge-mounted), any economic returns to be realized from the material removed (scrap value), economies of scale (mobilization costs and the number of items to be removed in close proximity to one another), transportation costs (land or water based), disposal costs, and proximity of disposal site to location of removal.

It is also conceivable that the order of removal would be determined only after a prioritization process, which has yet to be developed. This would likely entail an evaluation of the available funding, an assessment of a particular structures impact on the public's health, safety and welfare, its effect on navigation or other recreational uses, its potential to serve as a continual source for drift material, or its effect on the economic potential or access to an adjacent upland parcel.

Because of wide variations between individual bids and the numerous factors already cited above, we have chosen to compile and summarize the bids received from four potential contractors by waterway or river segment. Even so, one can readily see the variability encountered. The specific contractors listed should not be regarded as the only ones deemed qualified or available, nor is their mention at this point an indication of the fact that they might ultimately be interested in bidding on any proposals for removal that might be forthcoming. Their estimates do, however, provide useful insight into the magnitude of the problem and the funding levels which would be required to permit a systematic restoration of the effected waterways. The cost estimates for complete removal are summarized in Table #6.

Table #6

Removal Costs by Waterway

	BID #1	BID #2	BID #3	BID #4	Chesapeake Port Authority
Western Branch (WB-1)	$ 295,000	$ 758,364	$ 440,400	NE	NE
Southern Branch (SB-1 through SB-4)	$1,146,200	$ 676,600	$1,081,500	$1,119,500	$375,000*
Eastern Branch (EB-1 & EB-2)	$ 616,400	$1,220,200	$ 312,000	$ 760,500	NE
Port Norfolk Reach (PN-1)	$ 625,000	$1,714,000	$ 615,000	$ 494,000	NE
Lafayette River (L-1 & L-2)	$ 274,000	$ 102,200	$ 335,000	$ 149,600	NE
Total Bid Cost	$2,956,600	$4,471,364	$2,783,900	$2,523,600	NE

Average Cost/Waterway

Western Branch	$ 497,921
Southern Branch	$ 755,950
Eastern Branch	$ 649,353
Port Norfolk Reach	$ 862,000
Lafayette River	$ 215,200
Average Total Cost	$2,980,424

NOTES: NE - No Estimate Available

* - Chesapeake Port Authority estimate did not include the removal of all obstructions inventoried in the Southern Branch of the Elizabeth River. As such the estimate is understandably lower than those received from the other contractors.

III. Conclusions

A. Summary

A review of the figures cited in Table #6 reveals that the cost of removing all of the obstructions and derelict structures identified as a result of the study performed would approach $3,000,000 in 1989 dollars. The average cost of the cleanup per waterway is approximately; Western Branch - $500,000; Southern Branch - $750,000; Eastern Branch - $650,000; Port Norfolk Reach - $865,000; Lafayette River - $215,000.

In the previous section we attempted to explain the wide variability in our cost estimates by touching on some of the factors that would likely be involved in any bid preparation. Waterborne demolition and removal is not as simple as that normally encountered on land. With newer vessels, the potential for a pollution incident (i.e. oil spill) also exists unless the vessel's engines were removed and bilges were cleaned before it came to rest on State-owned bottoms. This is not normally the case, nor is it usually a problem with the vast majority of old wooden vessels, barges and deteriorating structures that were inventoried. While the former might also yield a minor economic return attributable to the materials scrap value, there is no conceivable value to the old wooden debris. In fact, disposal of that material could represent a significant problem in its own right.

The Corps continues to rely on the Craney Island Disposal Facility as the ultimate repository for the material they recover. They have made it available to the public in the past, and might be persuaded to do so in the future, if convinced that a State effort would serve to minimize the amount of material entering the navigable waters of the Hampton Roads harbor. We also assume, however, that the Corps would be hesitant to agree to any long term commitment to provide the disposal site for the material removed. The Craney Island Disposal Facility is filling rapidly. The Corps is already involved in a feasibility study with the Port Authority on a potential expansion. Without an identified replacement site, however, the Corps is attempting to maximize Craney Island's use for dredged material.

If the wooden material could be stock piled until it dried, and then burned, the volume would be tremendously reduced.

Another option might be to require the localities involved to provide the disposal facility (i. e. landfills) for all material removed within their boundaries. As indicated earlier, Norfolk has done so in the past with the material they have removed.

No attempt was made in the present study to fully explore all of the potential disposal options and potential costs.

Disposal of the steel and iron debris may not be as much of a problem. There are several facilities adjacent to the river that have agreed to accept all of the metallic material brought to them for recycling. While the scrap value will never approach the cost of removal, it is hoped that the ability to generate even a minimal return would be reflected in lower bids.

The question of liability during the removal process also remains to be more fully explored. Because of the possibility of an oil spill, or unforeseen difficulties that might arise during the refloating and transportation of vessels, we assume the Commonwealth would not wish to accept any and all liabilities associated with the removal operations. The effect such a decision might have on the bids obtained is unknown.

While vessels should be totally removed, such removal might not be desirable or cost effective when it comes to deteriorated structures or their remains.

To remove all pilings in their entirety would be extremely difficult and very expensive. In all likelihood it would also require considerable dredging or bottom disturbances to ensure that all piling fragments were extricated. A more logical approach would be to require removal only to the bottom or mud line, unless the area was slated to be dredged in the near future. If the adjacent upland were scheduled to undergo economic development, only then might it be cost effective to require complete removal while the equipment was on site. The return would be a lessened cost for dredging because of the fewer obstructions encountered.

No attempt was made in the present study to prioritize the obstructions or vessels inventoried. A multitude of factors would have to be considered and weighed in any prioritization process. Because of the considerable costs associated with equipment mobilization, it would likely be advisable to prioritize waterways, or segments of waterways, in lieu of individual sites. Bids could then be solicited and awarded for complete removal of all obstructions in a given area thereby minimizing mobilization costs. Strict and effective enforcement would prohibit the reappearance of new vessels once an area had been "cleaned". Public awareness and support of the removal effort would enhance such enforcement.

Public ownership commences at the low water mark. As a result areas landward of the low water mark, including the intertidal areas, are generally privately owned. Therefore, a few of the vessels and a portion of the derelict piers and obstructions inventoried are not entirely on public property. In those instances the State would have no authority to either require or undertake removal under the Code Sections cited. Instead, a closely coordinated local/State effort would likely be required to effect complete removal.

B. Recommendations

Section 62.1-194.1:1 of the Code of Virginia empowers the Marine Resources Commission with the authority to remove obstructing or hazardous property from the Commonwealth's waterways State-wide. SJR 216 on the other hand directed us to concentrate our present study on a specific, yet vital waterway. We have attempted to do so within the fiscal and time constraints leveled upon us.

If taken as a whole, and then extended State-wide, the costs of a comprehensive removal program rapidly become a fiscal impossibility. To leave the problem unaddressed, however, could be perceived as an abrogation of our public trust responsibilities as well as being contrary to the intent and authority that were clearly expressed by the General Assembly in 1974.

A far more reasonable approach appears to be the initiation of a persistent and concerted attack on the problem that would extend over several biennia. The Marine Resources Commission has in the past unsuccessfully sought funding for a modest removal program as both a Chesapeake Bay initiative and/or an agency budget addenda. Another addenda request in the amount of $400,000 for the 1990-92 biennium has again been submitted. This amount would fund one position to inventory, monitor and oversee the removal of obstructions State-wide. The figure includes an estimated $130,000 per year which would be subcontracted out to remove specific obstructions. No in-house removal capability is contemplated or desirable at this point.

The Division would have to work closely with all of the localities to develop the prioritization process discussed earlier. Once developed, however, the scale of removal and restoration would be dictated by the amount of available funding. An approach like that outlined would realistically extend over subsequent biennia. As such, an identifiable source of dedicated and continual finding would be desirable.

At present, all royalties or funds collected by the Commission pursuant to Section 62.1-3 of the Code of Virginia are paid into the Special Public Oyster Rock Replenishment fund for the purposes of that fund. As a result of recent court decisions we are finding that such a nexus is not a clear one.

An alternative might be for all royalties to be paid into the General Fund. They could then be appropriated by the General Assembly for the removal of obstructions or other hazardous property from State waters as provided by Chapter 20 of Title 62.1. As such, the monies collected could enable the State and localities to expand the public's use of the Bay and its tributaries. The encroachments of today would, in essence, be used to remove the encroachments and abandoned boats of yesterday. Such a change would, however, require legislative action.

IV. Appendices

SENATE JOINT RESOLUTION NO. 216
Offered January 24, 1989

WHEREAS, the Elizabeth River is one of the Commonwealth's most valuable waterways for commerce, shipping and recreation: and

WHEREAS, through centuries of use, the Elizabeth River has accumulated numerous obstacles and obstuctions to navigation in the form of abandoned vessels, barges and structures: and

WHEREAS, the present and future of the Elizabeth River and the development of its ports is hindered because of these accumulated obstacles and obstructions: now, there, be it

RESOLVED by the Senate, the House of Delegates concurring, That the Virginia Marine Resources Commission is requested to study the navigation osbtructions in the Elizabeth River and along its shorelines, to inventory such obstructions and to recommend methods and means, as well as estimate the cost of removal of these obstacles.

The Commission shall complete its work in time to submit its findings and recommendations to the Governor and the 1990 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for processing legislative documents.

Section 62.1-194.1:1. Removal of obstructing or hazardous property from state waters. - Whenever any wharf, pier, piling, bulkhead or boat is found in or upon the bays, oceans, rivers, streams or creeks of the Commonwealth in a state of abandonment or in such disrepair as to constitute a hazard or obstruction to the lawful use of such waterway, the Marine Resources Commission shall be empowered to ascertain the lawful owner of such property and have the owner repair or remove the property from the waters of the Commonwealth. If the identity or whereabouts of the lawful owner be unknown and unascertainable after a diligent search and after lawful notice to the last know address of any known owner, the Marine Resources Commission may have the property removed from the waterways of the Commonwealth after giving notice by publication once in a newspaper of general circulation in the area where such property is located. (1974, c.602.)