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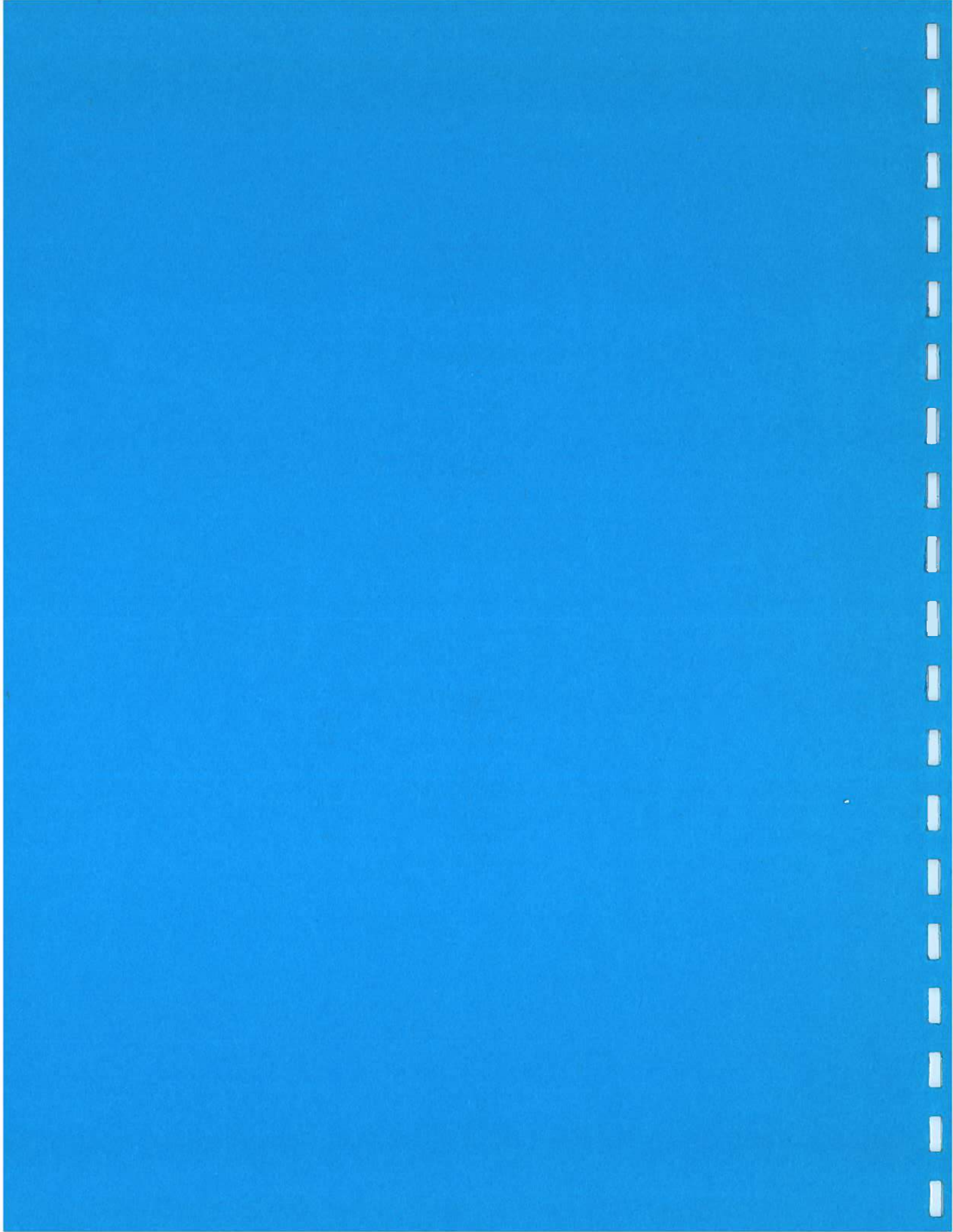
National
Resources
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Service

May 1995

Flood Plain Management Study Select Tributaries Of Upper Wicomico River

Wicomico County Maryland





FLOOD PLAIN MANAGEMENT STUDY
for
SELECT UPPER WICOMICO RIVER TRIBUTARIES
WICOMICO COUNTY, MARYLAND

May 1995

SPONSORED BY
Wicomico County Division of Public Works
Maryland Department of Natural Resources, WRA

WITH ASSISTANCE FROM
USDA, Natural Resources Conservation Service
John Hanson Business Center
339 Busch's Frontage Road, Suite 301
Annapolis, MD 21401

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SUMMARY

This study provides water surface elevations and peak stream flows for present condition and future condition floods of the 2, 10, 25, 50 and 100 year storm events in the Upper Wicomico River Watershed in Wicomico County for the following tributaries: Coty Cox, Owens, Middle Neck, Peggy, and Brewington Branches. The present condition 100-year flood plain is mapped and stream profiles are plotted for the present condition flood on the above mentioned tributaries.

The narrative describes the watershed briefly with emphasis on the flood plain which is largely woodland and agricultural land, with some urban land especially in the lower reaches of the watershed. Some suburban development is taking place throughout the upland portions of these watersheds. This report presents a number of management measures that might be implemented to minimize future flooding.

Copies of this report, general information on the watershed, and information on the models used to develop the water surface elevations may be obtained from the Natural Resources Conservation Service, 339 Busch's Frontage Rd., Suite 301, Annapolis, MD 21401 (phone 410-757-0861).

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**FLOOD PLAIN MANAGEMENT STUDY
FOR THE UPPER WICOMICO RIVER AND ITS TRIBUTARIES
WICOMICO COUNTY, MARYLAND**

INTRODUCTION

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) and the Maryland Department of Natural Resources, Water Resources Administration (WRA) working under the 1971 Joint Coordinated Agreement conducted the Upper Wicomico River Flood Plain Management Study.

Maryland's Flood Hazard Management Act of 1976 authorized the Water Resources Administration to establish a statewide flood management program. This authority allows the Administration to designate priority watersheds, perform watershed studies, approve flood management plans and administer a flood management grant program. The objectives of the program are to lessen the impacts caused from flooding by implementing flood management projects and to avoid future damage and hazards by assisting local jurisdictions in the management of flood-prone land. Projects may consist of acquisition of flood-prone buildings, construction of structural measures, or administrative controls. Partial funding may be provided through the State's Flood Management Grant Program. Non-structural projects such as acquisition are preferred although structural measures are eligible for funding.

The Natural Resources Conservation Service (U.S. Department of Agriculture) carries out flood plain management studies under the authority of Section 6 of Public Law 83-566, in response to Recommendation 9(c), "Regulation of Land Use," of House Document No. 465, 89th Congress, 2nd Session, and in compliance with Executive Order 11988 (February 20, 1978).

Prior to this study, the Wicomico River Watershed was partially analyzed by the Federal Insurance Administration (reference 1). This study analyzed the flooding problem on a limited basis. It was subsequently determined that a more in-depth study was necessary to better define the floodplan and to identify flooding problems.

The Natural Resources Conservation Service was asked to cooperate with WRA in May of 1989 to complete the flood plain management study under the 1971 Joint Coordination Agreement.

Certain tributary watersheds, i.e. Middle Neck, Peggy, and Brewington Branches are undergoing rapid residential development of mostly single family homes. However, some commercial operations are also developing in these areas. The Coty Cox Branch watershed is seeing some increase in residential development but is proportionally more developed than the other watersheds.

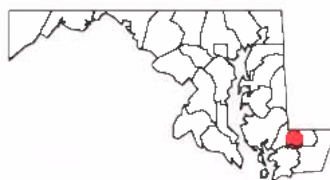
The Owens Branch watershed is largely rural with the county landfill occupying its upper third. This area appears slow to develop. The county officials are concerned that the increase in development found around the City of Salisbury will ultimately lead to increased frequencies and levels of flooding. Flooding problems already occur along the lower portions of Coty Cox Branch.



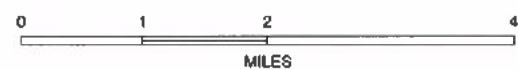
LEGEND

-  WATERSHED BOUNDARY
-  STREAM REACH STUDIED

LOCATION MAP
WICOMICO
FLOOD PLAIN MANAGEMENT STUDY
 WICOMICO COUNTY, MARYLAND



VICINITY MAP



SOURCE:
 BASE COMPILED FROM GENERAL HIGHWAY MAP AND
 INFORMATION FROM NRCS FIELD PERSONNEL.
 LAMBERT CONFORMAL CONIC PROJECTION.

STUDY AREA DESCRIPTION

The Wicomico River is located in Wicomico County. The portion of the watershed analyzed in this study occupies the nontidal part in the Salisbury vicinity. A total of 11,288 acres were investigated in this study, comprising the following tributary watersheds: Owens, Coty Cox, Middle Neck, Peggy, and Brewington Branches. The dominant land use is that of agriculture, occupying 37% of these watersheds followed by woodland at 30%, residential at 18%, open land at 9%, and commercial/industrial at 6%. The USGS 8 digit hydrologic unit number for the study area is 02060007.

The headwaters of these tributaries can be characterized typically as being farmland or woodland while the lower portions, which discharge into the Wicomico River system in Salisbury, become largely residential and commercial. The terrain is extremely flat with relief of 1 ft per 500 ft not being uncommon. Of particular note is the predominance of depression storage areas on the scale of 10-20 acres, typically, found in the agricultural areas.

The drainage area evaluated in this study lies entirely within Major Land Resource Area (MLRA) 153 C - Mid-Atlantic Coastal Plain.

The upland areas at the heads of the tributary watersheds consist chiefly of the Matawan soil series. This series contains soils that are deep and moderately well drained. These soils formed in marine sediments or very old alluvial sediments that were sandy in the upper part and finer textured in the lower part.

The upland areas near the tributary outlets are classified, principally, as those of the Norfolk series. These soils are generally deep, well-drained, and of a sandy texture. They have developed in thick beds of sandy material containing a rather small amount of clay and very little silt.

The Coty Cox Branch has a substantial amount of Evesboro series soils occupying the land adjacent to its watercourse. This sandy series is excessively drained. Evesboro soils formed in beds of sandy marine sediments or very old river sediments, generally underlain by finer textured material.

Wicomico County has a humid, continental climate, modified by its proximity to the Atlantic Ocean and the Chesapeake Bay. In winter the temperature rises when easterly winds, associated with a low pressure system, bring air from off the ocean.

In summer, winds from the east lower the temperature, and so does air flowing inland from the bay. The average annual temperature is 57° F. In an average year the high temperature does not exceed 95° F while the low temperature in winter seldom goes below 26° F.

The extreme temperatures of record for Salisbury are a high of 106° F and a low of -9° F. The average frost free period is 191 days falling mostly between mid-April and the end of October.

The average annual precipitation is about 46 inches and is fairly well distributed throughout the year. The precipitation may be heavy in any one month, but it varies more in the summer. In summer, rainfall occurs mostly as showers and

thunderstorms, and these may bring heavy rain to one area and only a sprinkle to another. In winter, precipitation usually occurs in general storms that cover large areas and may last for several days.

The prevailing wind is west to northwest, except in summer, when the prevailing wind is southerly. Winds average 8 to 10 miles per hour but may reach 50 to 60 miles per hour during a hurricane, severe thunderstorm, or general storm in the winter.

STUDY OBJECTIVES

The objectives of the flood plain management study are to delineate the flood plain, identify problem areas, aid local management, and to evaluate a range of alternatives for reducing flood hazards and damages. The results will produce data necessary to develop a flood management plan. The plan is to be developed and implemented by Wicomico County and the city of Salisbury. It will serve to correct existing flood problems and to avoid the increase of flood damage in the future. The information from the study may be used to analyze the effects of roads, bridges, stormwater management structures, land use changes, etc. on existing floodprone areas.

ENVIRONMENTAL RESOURCES

Wetlands

Wetlands in the tributary watersheds of the Upper Wicomico River consist primarily of palustrine wetlands, according to the National Wetlands Inventory mapping of the area (Ref: U.S. Fish and Wildlife Service). The palustrine wetlands include forested, scrub-shrub, and emergent cover types, as well as shallow open water areas (ponds and small lakes). The natural wetlands are located either on flood plains adjacent to the tributary streams or in topographic depressions which are isolated from other surface water bodies.

Wildlife Habitat

Wildlife habitat in the watershed varies with the land use. The forested areas are well-suited for woodland animals such as gray squirrels, deer, owls, voles, snakes, and various songbirds. Agricultural lands provide food and cover for rabbits, small mammals, foxes, hawks, songbirds, and quail. Palustrine wetlands in the watershed provide habitat for wetland species such as ducks, geese, wading birds, songbirds, muskrats, beaver, snakes, turtles, salamanders, and frogs. Residential and commercial areas provide habitat for animals which are tolerant of human activities. These animals include English sparrows, mourning doves, gray squirrels, raccoons, and opossums.

Fisheries Habitat

The tributary watersheds of the Upper Wicomico River are components of the Nanticoke/Wicomico River Basin. According to the 1987 Maryland Water Quality Inventory (the most recent published report), water quality in the basin ranges from fair to good. Problems associated with nutrient enrichment and elevated levels of pathogens have been reported. These water quality problems have been attributed

to agricultural runoff, municipal wastewater discharges, and faulty septic systems.

The Upper Wicomico River tributaries are designated as Use I - Water Contact Recreation and Protection of Aquatic Life. This designation includes waters which are suitable for water contact sports, fishing, growth and propagation of warm-water fish and other aquatic life, and agricultural and industrial water supplies.

Streams in the tributary watersheds are generally low gradient, shallow, headwaters streams typical of the Mid-Atlantic Coastal Plain region. The bottom substrate is usually comprised of sand particles, with lesser amounts of silt and clay. Water quality is satisfactory to support finfish species such as largemouth bass, sunfish, carp, and a variety of minnows and darters.

Threatened and Endangered Species

Except for occasional transient individuals, no federal or state rare, threatened, or endangered species are known to exist in the tributary watersheds of the Upper Wicomico River.

The U.S. Fish and Wildlife Service and Maryland Fish, Heritage and Wildlife Administration have indicated that the above statement should not be interpreted as meaning that no rare, threatened, or endangered species are present. Rather, such species could be present in the tributary watersheds, but have not been documented because an adequate survey has not been conducted or because survey results have not been reported to those agencies.

Cultural Resources of National Significance

The Maryland Inventory of Historic Properties presently records ten known archaeological sites with the study area. These sites represent the long span of human occupation of this region from prehistoric periods through the Eighteenth to Twentieth Centuries. Numerous archaeological resources that have not yet been identified are likely to survive in the area.

The majority of the study area has never been professionally examined to identify and evaluate its full range of archaeological properties. However, the Maryland State Highway Administration has conducted several archaeological surveys in the northern section of the study area, as part of planning for the U.S. Route 50/Salisbury Bypass project. Copies of these surveys are available in the library of the Maryland Historical Trust in Crownsville, MD.

Concerning historic structures, the Maryland Inventory of Historic Properties presently records a number of inventoried properties in the study area. At least three properties are listed in the National Register of Historic Places: Gillis-Grier House, Poplar Hill Mansion, and the Perry-Cooper House, all of which are located in the Salisbury area. Further investigations would undoubtedly identify many more historic properties, including those which would be eligible for the Register. The inventory of Wicomico County is neither comprehensive nor intensive. Largely a reconnaissance level inventory which focuses heavily on antebellum properties, it does not adequately address the wide range of historic resources in the county.

FLOOD PROBLEMS

Historically, the watershed has experienced minimal flood related damages. The reason is the absence of storm events severe enough to produce floods other than localized effects. One of the concerns of residents and public officials is the evidence that the smaller, more frequently occurring storms are causing more problems than in the past.

A 100-year storm event can expect to cause damages to several residents in the various watersheds. Affected residential properties would have water above the first floor elevation with average annual damages estimated to be over \$57,000*. Road and bridge damages are insignificant on an annual basis. Appendix B lists the flood frequency that would overtop each bridge. Most bridges will overtop between the 2 and 10-year frequency flood.

The total number of structures located with the present 100-year flood plain consists of 273 of the following types: residential, commercial, and industrial. Of these, 218 are residential and 55 are commercial. Existing structures located within the future 100-year flood plain consists of an additional 95 residential and 12 commercial or industrial.

Little historical information exists on precise dollar damages incurred from past flood events. Due to the high structural variability of non-residential buildings and the contents within, flood damages to commercial, industrial, and storage-type structures were not evaluated.

Damages for present and future condition floods were estimated for the 1, 2, 4, 10, and 50 percent chance of occurrence in the Upper Wicomico Watershed. Damages, expressed in average annual dollars, reflect an average yearly damage or cost, but do not reflect the damage or cost in any given year.

	<u>Present</u>	<u>Future</u>
Total # of houses in flood plain	218	313
Reach	# Houses damaged (water above the first floor)	
Brewington Branch	2	4
Peggy Branch	1	24
Owens Branch East Fork	1	2
Coty Cox Branch	76	121
Middle Neck Branch	<u>6</u>	<u>23</u>
Total # houses damaged	86	174
Dollar damages (Average annual)	\$57,000	\$114,000

*Present conditions, residential property only.

EXISTING FLOOD PLAIN MANAGEMENT

On the state level, within the Maryland Water Resources Administration, the Flood Management Division provides technical assistance to local governments to identify, prevent, and mitigate threats from flooding through implementation of the Flood Hazard Management Act of 1976 (Natural Resources Article Section 8-9A-01 (et seq.)). Cooperating with local jurisdictions and other state agencies, the Flood Management Division conducts watershed studies that identify flood-prone areas, investigates the impact of planned development on flood events, and evaluates various techniques to control flooding and to minimize damages. The Flood Hazard Management Act of 1976 also authorizes the Water Resources Administration to administer a comprehensive grant program to assist communities in implementing their flood management projects. Grants may be used for residence acquisition, retention basins, stream channel improvements, flood warning systems, and other measures. To be eligible for a grant, the local jurisdiction must develop a flood management plan that identifies present and potential flood hazards, guides the activities in the watershed to minimize these hazards, and develops alternatives to mitigate them. The Flood Management Division also coordinates at local and Federal level with the National Flood Insurance Program and provides information and education to public and private groups and individuals.

The State of Maryland code requires a permit for any activity that changes in any manner, "the course, current, or cross-section of any stream or body of water," within state waters (Code of Maryland, Natural Resources Article, Section 8-803). State waters are defined to include the flood plain of free flowing waters determined by the Department of Natural Resources on the basis of the 100-year frequency flood.

The Subdivision Regulation of the Wicomico County Code states:

"All new or substantially improved residential structures, including manufactured homes, shall have the lowest floor elevated to or above the flood protection elevation. Basements are not permitted.....All new or substantially improved nonresidential structures shall either be elevated as set forth above for residential structures or shall be floodproofed...."

Floodways shall be preserved to carry the discharge of the one-hundred-year flood....Fill shall not be permitted. New structures shall not be permitted. New development shall not be permitted in the floodway where alternatives exist elsewhere or if any increase in water surface elevations will result from the one-hundred-year flood."

ALTERNATIVES FOR FLOOD PLAIN MANAGEMENT

Analysis of Alternatives

- A. Present Condition (No Action) - This alternative would preserve the present conditions and the present trends in development. Wicomico County has nonstructural flood plain management policies for the county and the watershed. This study details the 100-year floodplain delineation on five major tributaries.

The flood-prone area determined is approximately 964 acres, distributed accordingly: Coty Cox - 125 Ac, Owens-117Ac, Middle Neck-229 Ac, Peggy-235 Ac, and Brewington-258 Ac. The 100-year flood will impact a total of approximately 86 structures.

- B. Land Treatment - Land treatment measures would reduce volume of runoff, but they would not significantly reduce flood peaks, especially where most of the development has occurred and is occurring presently. Treatment of cropland acres would have a positive effect on lessening water quality problems by reducing sediment and nutrients entering the streams from runoff.
- C. Protection of Environmental Resources - The opportunity exists to maintain and improve plant and wildlife habitat, water quality, and cultural resources protection in the Upper Wicomico tributaries.

Other than through land use and zoning regulations, no attempt has been made at the local level to provide specific protection for the above described resources. Measures suggested in the land treatment alternative could have a positive impact on these resources. Implementation of additional best management practices such as riparian buffers, stream restoration, and wetland restoration could increase environmental benefits to aquatic and terrestrial ecosystems. The Natural Resources Conservation Service, Maryland Department of Natural Resources, and the U.S. Fish and Wildlife Service can provide additional information concerning natural resources protection.

In general, improved flood plain management strategies can help to protect the area's cultural resources from threats and impacts caused by flooding. However, alternatives which entail construction and ground disturbing actions have the potential to affect historic structures and archaeological sites. Any future flood plain management strategies should consider and address the potential direct impacts associated with the implementation of various flood plain management alternatives. The project sponsor should contact the Maryland Historical Trust for additional information and project review to ensure protection of significant cultural resources.

- D. Non-Structural Measures - Flood plain delineation can provide the sponsors with an effective tool for flood plain management along with the application of some non-structural measures.

*Present condition only.

Floodproofing with low walls, flood doors and windows, could protect individual affected properties, scattered throughout the watershed, from flooding below specified elevations.

Another option would be to raise affected structures which have the sufficient structural integrity. Physical relocation of presently flooded structures, especially outbuildings, to higher ground is another alternative.

Relocation in which the landowner actually moves to another location is another management alternative, which could be combined with a program of flood plain purchase by the state or county. Flood plain management can also be done through local and county zoning ordinances, building codes, community planning, and the permits systems. Legal restrictions on construction and land use in the flood plain can be a powerful tool for controlling future flood plain uses if they are strongly enforced.

Flood insurance is available to interested property owners. The flood elevations given here and the detailed mapping to be available through the flood insurance study are tailored for this program.

Since damages in the watershed are somewhat scattered, it may well be that a combination of non-structural measures would provide the best protection to those now receiving damages. A strong zoning code and its enforcement could keep inappropriate land uses out of the flood zone in the future.

- E. Structural Measures - Sandbars choke the streams, and create particular hazards at road crossings and culverts where fallen trees and debris may jam and trap even more sediment. The blockages increase flooding problems by backing up water during high flows. The channel can be cleared of fallen trees and debris dams to improve channel capacity and reduce some flooding. Any work in a watercourse in Maryland needs to have the appropriate permits issued by the state.

In most of the watersheds analyzed by this study it was found that at least one stream crossing, be it a bridge or culvert, is acting as a flow restricting control. These can be located on the profiles of Appendix A. They will appear as crossings where the upstream elevation of flow is significantly higher than that found downstream. A simple way of reducing this impounding effect is to enlarge the size of bridge opening/culvert. Caution is warranted though, as this will increase flow rates felt downstream which may result in increased flood damages felt there.

Stormwater management ordinances usually require developers to install stormwater controls that maintain present runoff levels or increase future runoff by no more than a specified amount. Such controls could be structural (detention ponds, levees, roof-top detention facilities), non-structural (porous pavements, minimum use of natural drainages, infiltration pits, increased open space) or some appropriate combination of these. An effective program could reduce the expected levels of flooding in the future.

A system of dikes could provide flood protection for some damageable properties in the Coty Cox Watershed. The economic feasibility of dikes was not evaluated, but it is very likely that one dike would have to provide protection to several properties before it became economically justifiable.

FLOOD BOUNDARY MAPS

The map sheets showing the 100-year floodplain of the studied tributaries of the eWicomico River are published as Appendix A of this report. The base maps are a mosaic of orthophoto maps provided by the City of Salisbury government. The original scale of these maps was 1:1200. The flood plain linework has been transferred to 1:24000 U.S.G.S. 7 1/2 minute topographic quadrangles to fit in this report. Cross-section locations are marked and the base maps can be used with the profiles that accompany them to determine the elevations of various frequency floods at points within the watershed.

To utilize the information in Appendix A (Maps and Profiles) and Appendix B (elevations tables), one should locate a point of interest on the map, and then find the nearest cross-section. Reference to the tables at that cross-section will give the elevations of the various floods. Measuring up or down stream on the profiles from the cross-section an appropriate distance will give an estimate of flood levels at points between the sections. The elevations for specific points should be surveyed in the field if accurate data is needed. Coastal Geodetic Survey (USGS) benchmarks should be used as the basis. Several cross-sections are plotted in Appendix D, showing the general channel shape and some of the characteristics of the floodplain.

GLOSSARY OF TERMS

cfs - Cubic feet per second (unit of stream discharge).

cross-section - Shape and dimensions of a channel and valley perpendicular to the line of flow.

discharge - Rate of water flow, expressed in cubic feet per second (cfs).

elev. - bridge deck - Elevation of a roadway across a bridge or culvert.

elev. - low beam - Elevation of lowest structural "beam" that limits the height of the bridge opening; or may indicate the top of a culvert opening.

elev. low road - Elevation of low point on a roadway approaching or crossing a bridge or culvert.

flood - An overflow of lands not normally covered by water; a temporary increase in streamflow or stage; or the discharge causing the overflow or temporary increase.

flood frequency - An expression of how often a flood of given magnitude can be expected. (Note: The word "frequency" often is omitted to avoid monotonous repetition.)

Examples:

10-year flood or 10-year frequency flood - The flood which can be expected to be equalled or exceeded on an average once in 10 years; and which would have a 10 percent chance of being equalled or exceeded in any given year.

50-year flood - ...two percent chance....in any given year.

100-year flood - ...one percent chance...in any given year.

flood peak or peak discharge - The highest stage or discharge attained during a flood.

flood plain - Lands adjoining a stream (or other body of water) which have been or may be covered with water.

profile - A plotted line showing the highest water surface elevations along a stream during a particular flood.

flood routing - Computation of the changes in the rise and fall in stream flow as a flood moves downstream. The results provide hydrographs of discharge versus time at given points on the stream.

frequency-discharge curve - A plotted line showing the frequency of various flood discharges at a surveyed cross-section or other point along a stream. (Used with a stage-discharge curve to determine the high water elevations resulting from selected flood discharge at the point on the stream.)

hydrograph - A plotted curve showing the rise and fall of flood discharge with respect to time at a specific point on a stream.

land use - Classification of type of vegetation, or other surface cover conditions on a watershed used (with a similar classification of soils) to indicate the rate and volume of flood runoff.

peak discharge - The highest rate of runoff (discharge) attained during a flood.

runoff - That portion of the total storm rainfall flowing across the ground or other surface and contributing to the flood discharge.

stage-discharge curve - A plotted curve showing elevations resulting from a range of discharges at a surveyed cross-section, stream gage, or other point on a stream.

watershed - A drainage area which collects and transmits runoff to the outlet of the drainage basin.

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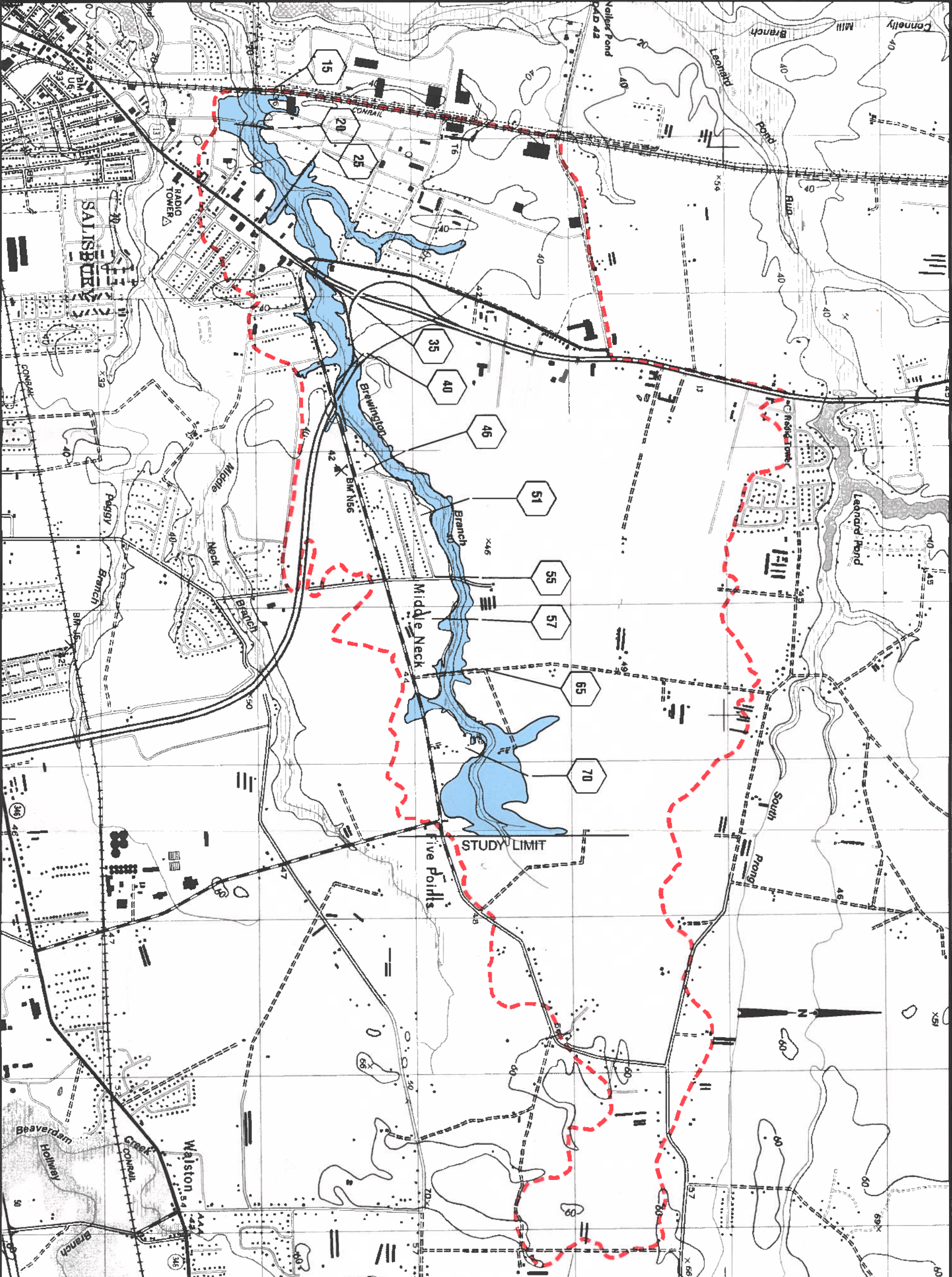
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APPENDIX A

Flood Plain Maps and Profiles

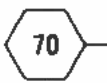


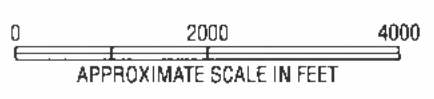


LEGEND

 100-Year Flood Hazard Area

 Watershed Boundary

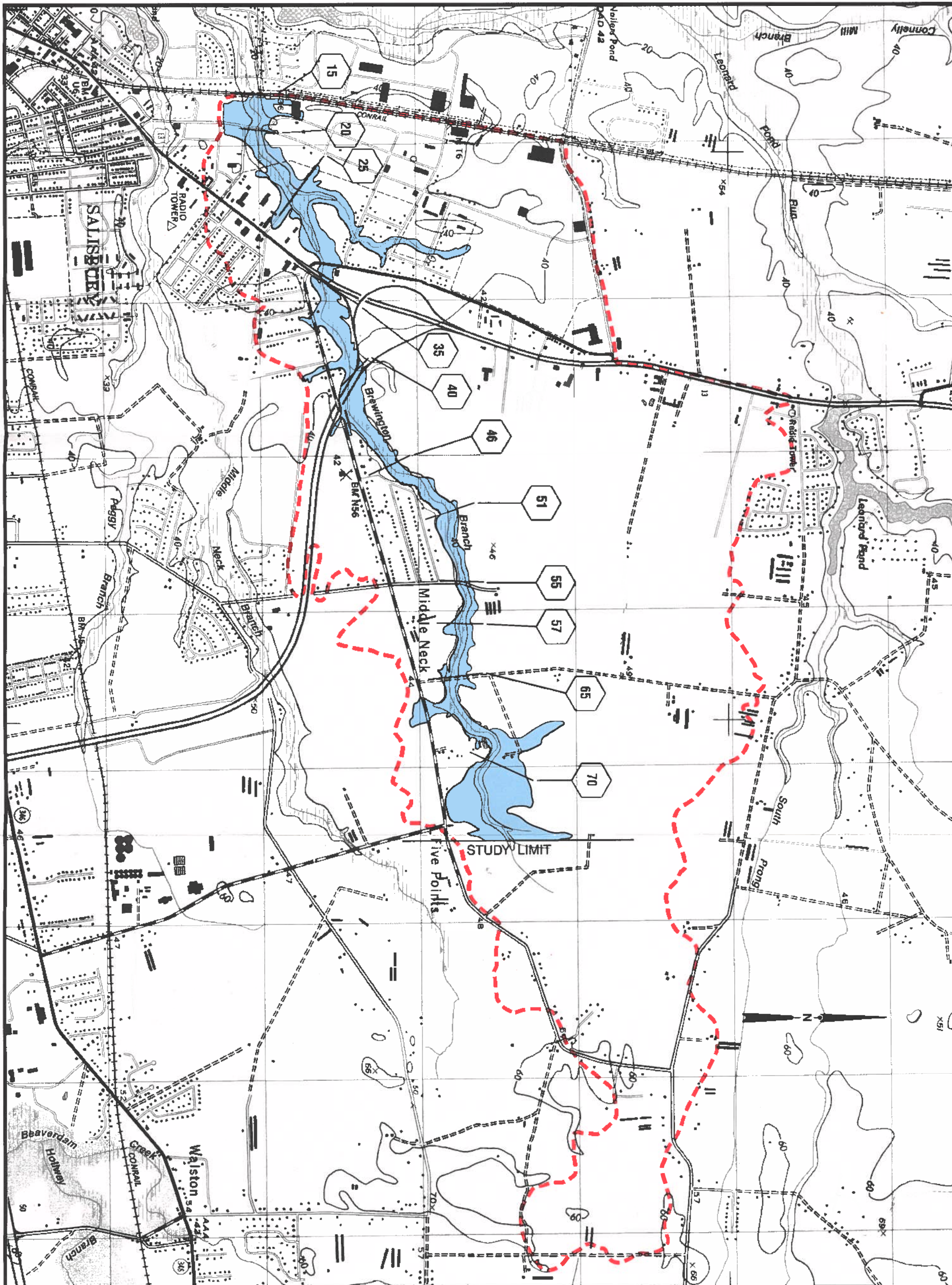
 70 Valley Section Location



1:24,000 USGS Quadrangles

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 WICOMICO COUNTY, MARYLAND

FLOOD HAZARD AREA
BREWINGTON BRANCH



LEGEND

100-Year Flood Hazard Area

Watershed Boundary

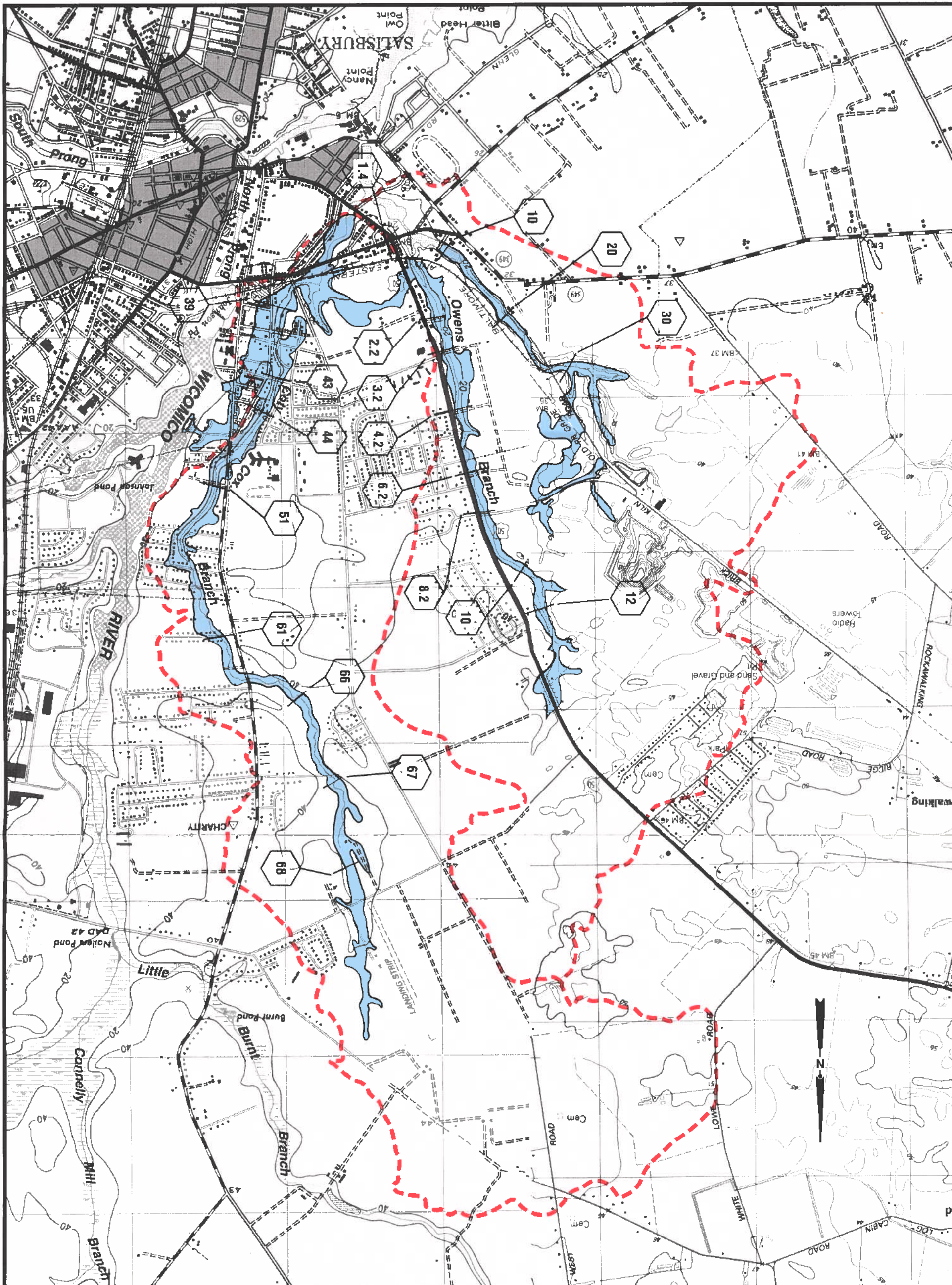
70 Valley Section Location

0 2000 4000
APPROXIMATE SCALE IN FEET

1:24,000 USGS Quadrangles


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WICOMICO COUNTY, MARYLAND

FLOOD HAZARD AREA
BREWINGTON BRANCH



LEGEND

 100-Year Flood Hazard Area

 Watershed Boundary

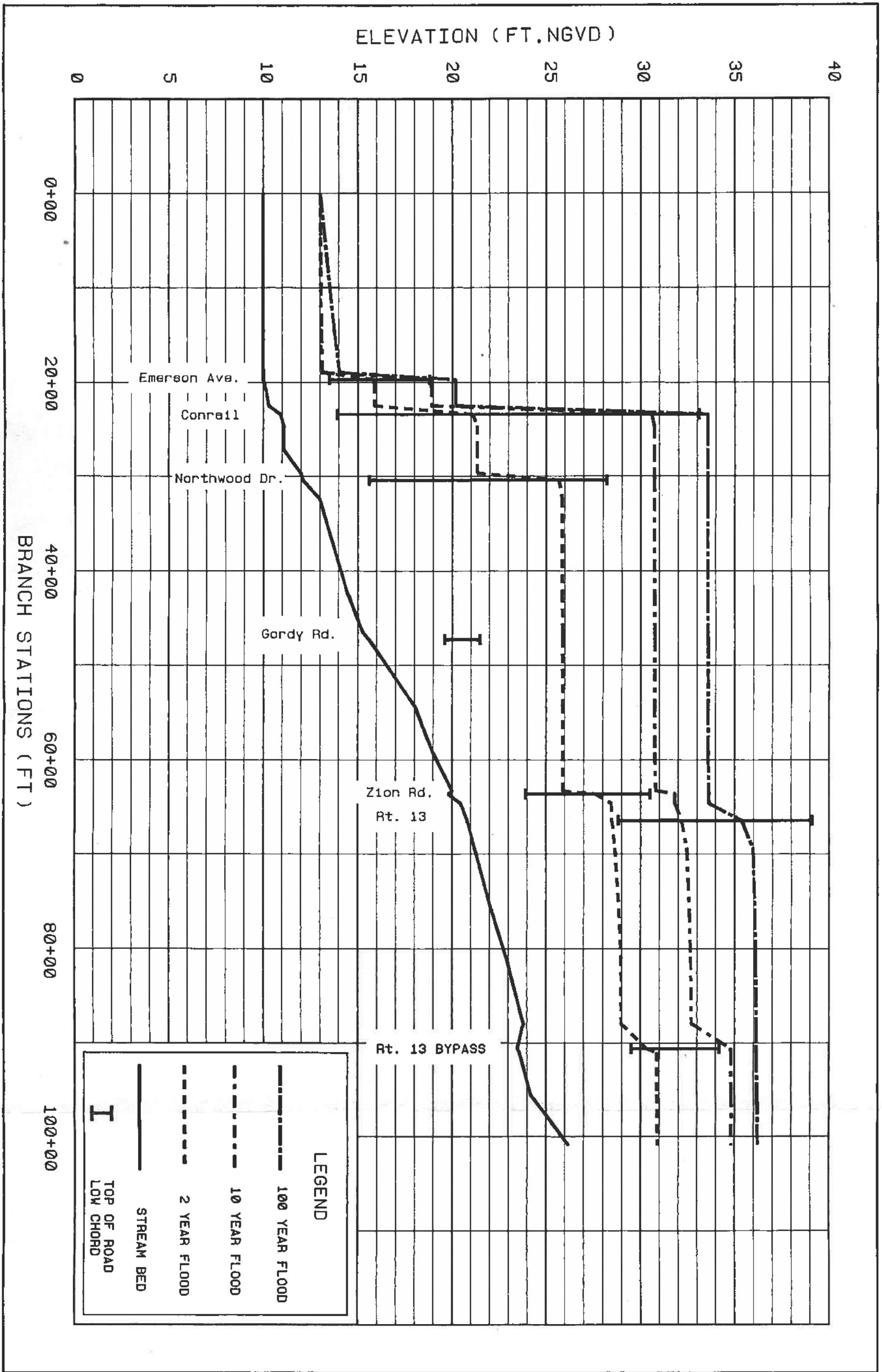
 Valley Section Location

 APPROXIMATE SCALE IN FEET

1:24,000 USGS Quadrangles

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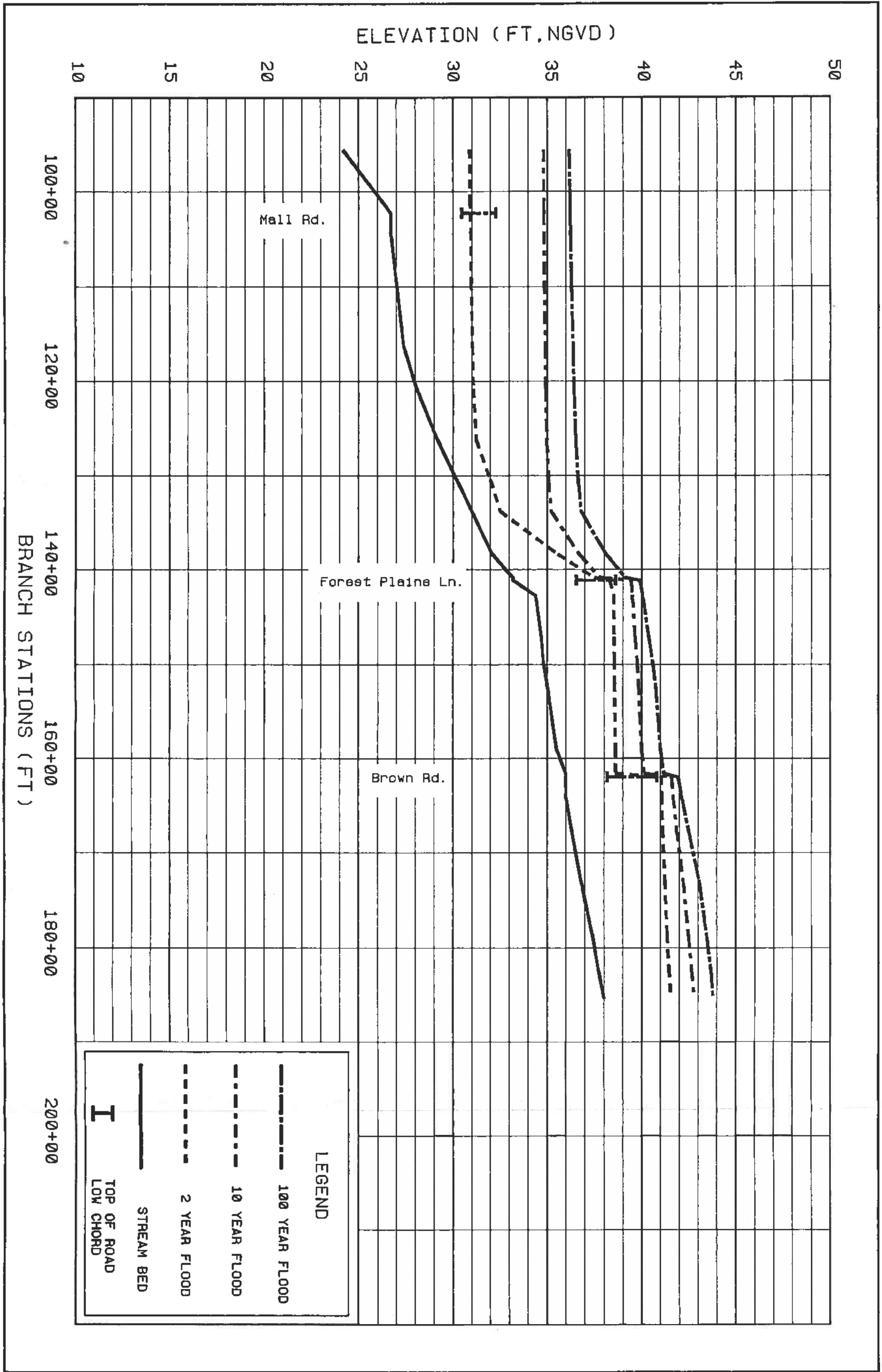
FLOOD HAZARD AREA
OWENS AND COTY COX BRANCHES



U. S. DEPARTMENT OF AGRICULTURE
 NATURAL RESOURCES CONSERVATION SERVICE
 UPPER WICOMICO RIVER FLOODPLAIN MANAGEMENT STUDY
 WICOMICO COUNTY, MARYLAND

FIGURE
 1A OF 2A

FLOOD PROFILES
 BREWINGTON BRANCH STA 0+00 TO 100+00



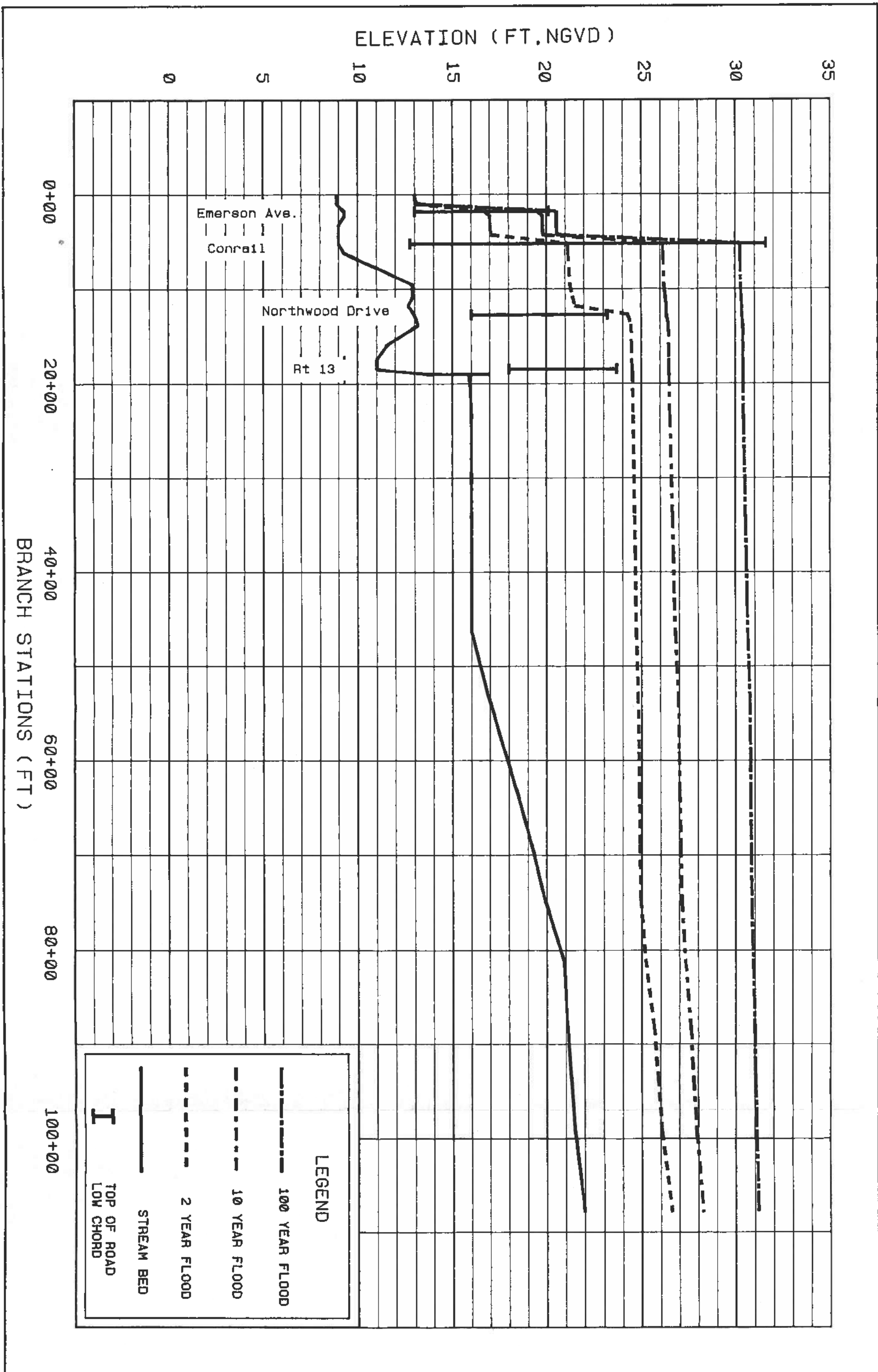
LEGEND

- 100 YEAR FLOOD
- - - 2 YEAR FLOOD
- · - · - 10 YEAR FLOOD
- STREAM BED
- I TOP OF ROAD LOW CHORD

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 WICOMICO COUNTY, MARYLAND

FLOOD PROFILES
 BREWINGTON BRANCH STA 100+00 TO 185+35

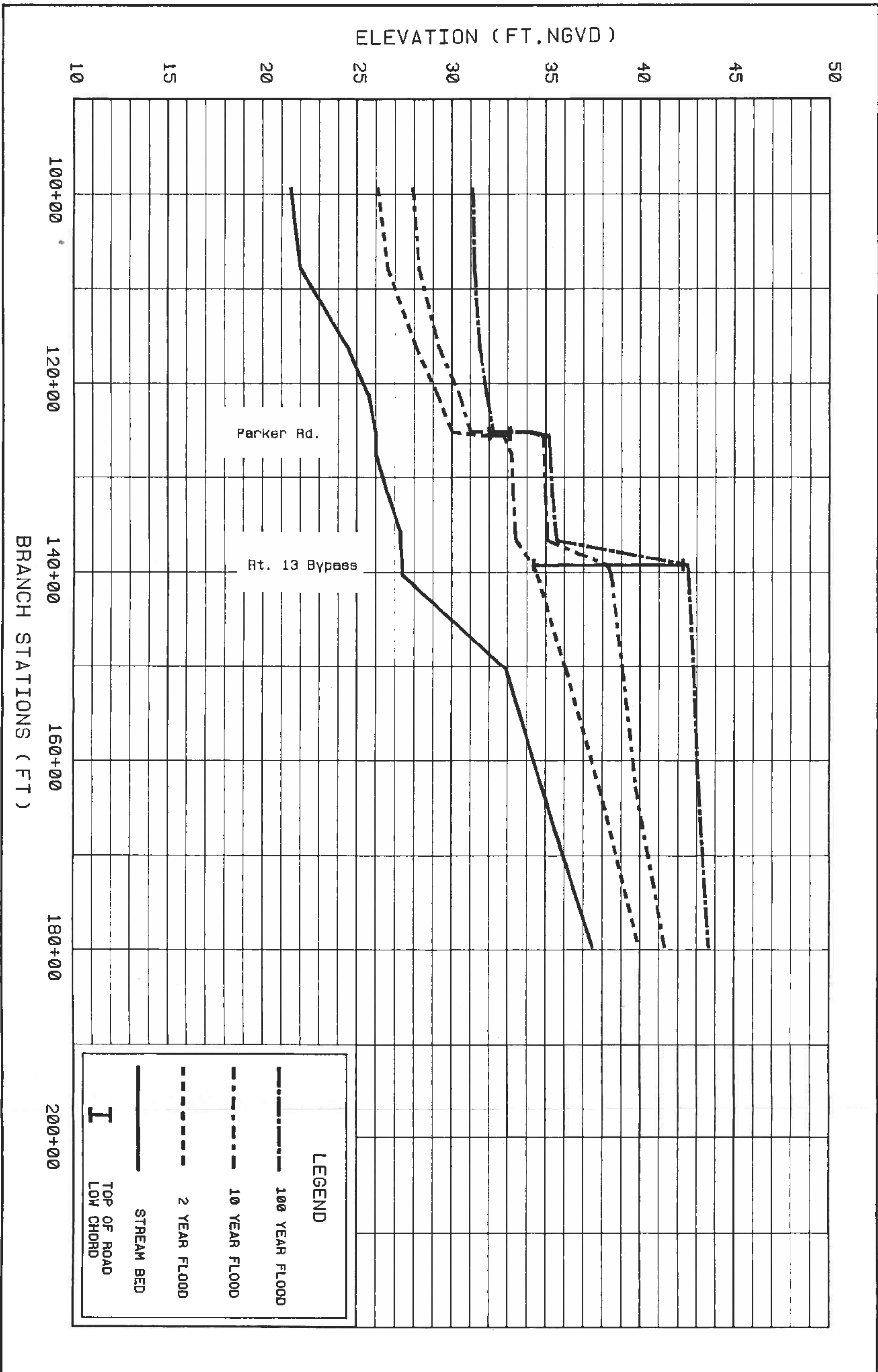
FIGURE
 2A OF 2A

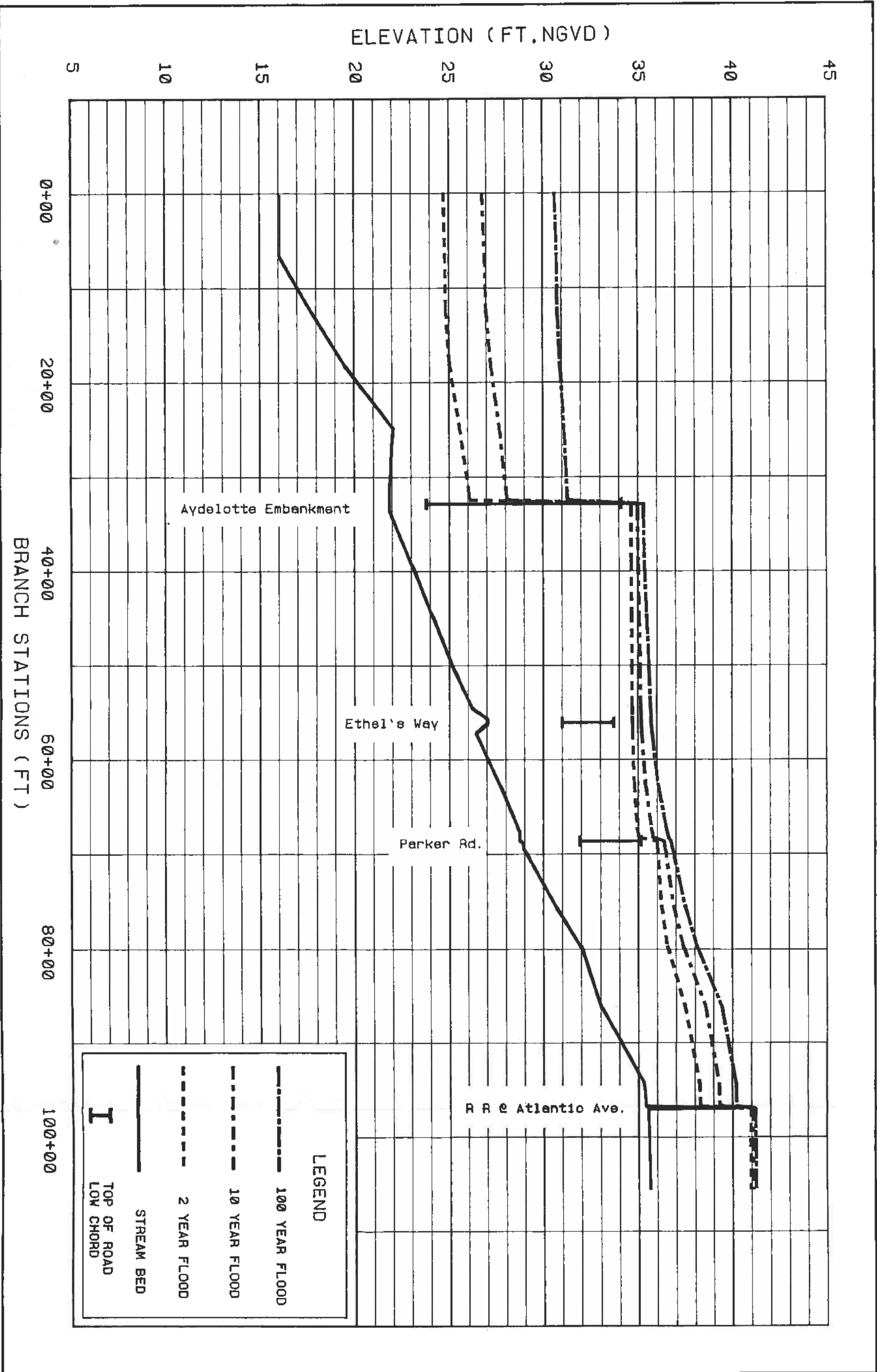


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FLOOD PROFILES
 MIDDLENECK BRANCH STA 0+00 TO 100+00

FIGURE 18 OF 28



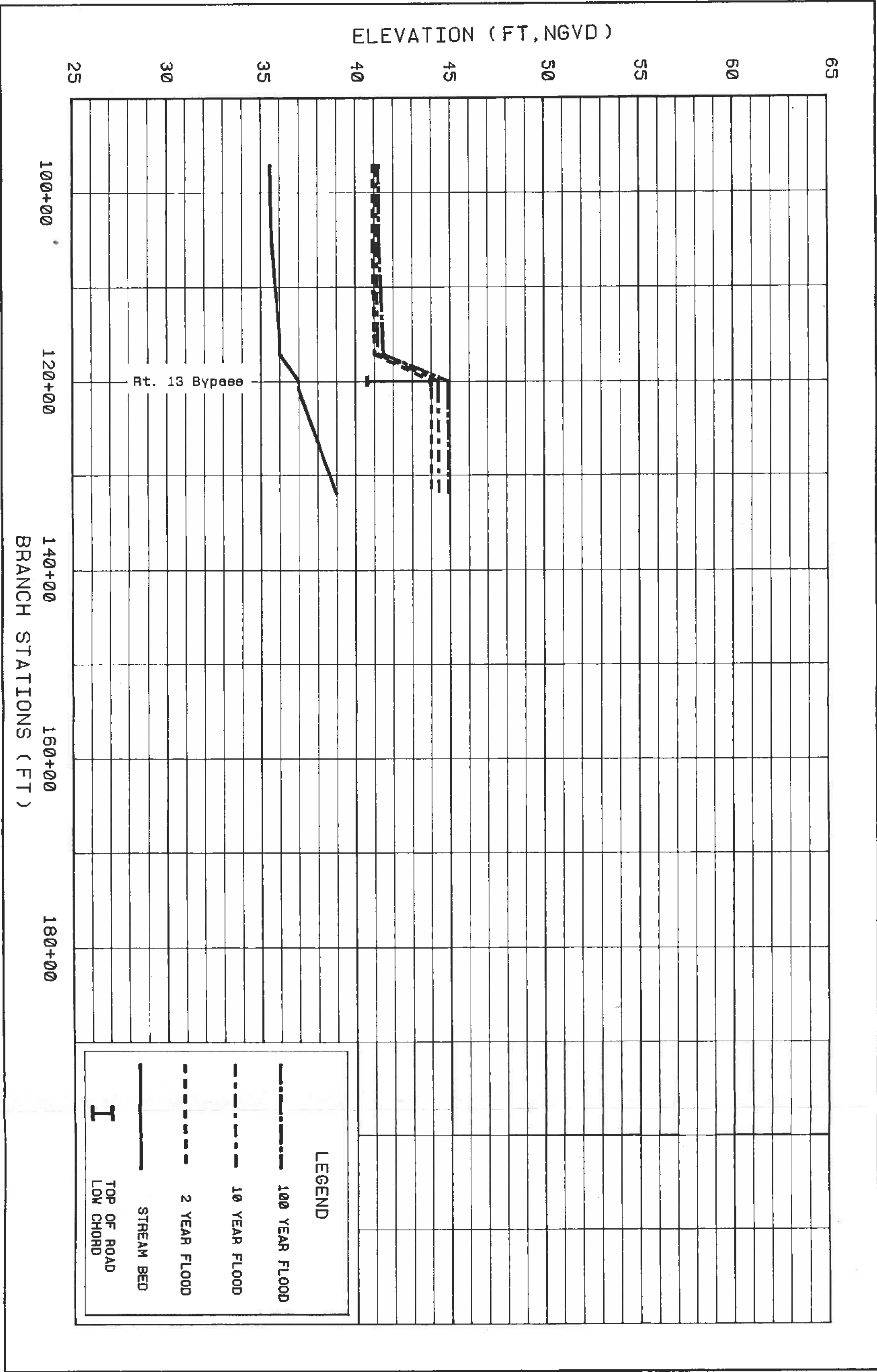


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FLOOD PROFILES

PEGGY BRANCH STA 0+00 TO 100+00

FIGURE
1C OF 2C



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FLOOD PROFILES
 PEGGY BRANCH STA 100+00 TO 131+95

FIGURE
 2C OF 2C

ELEVATION (FT. NGVD)

0 5 10 15 20 25 30

0+00

20+00

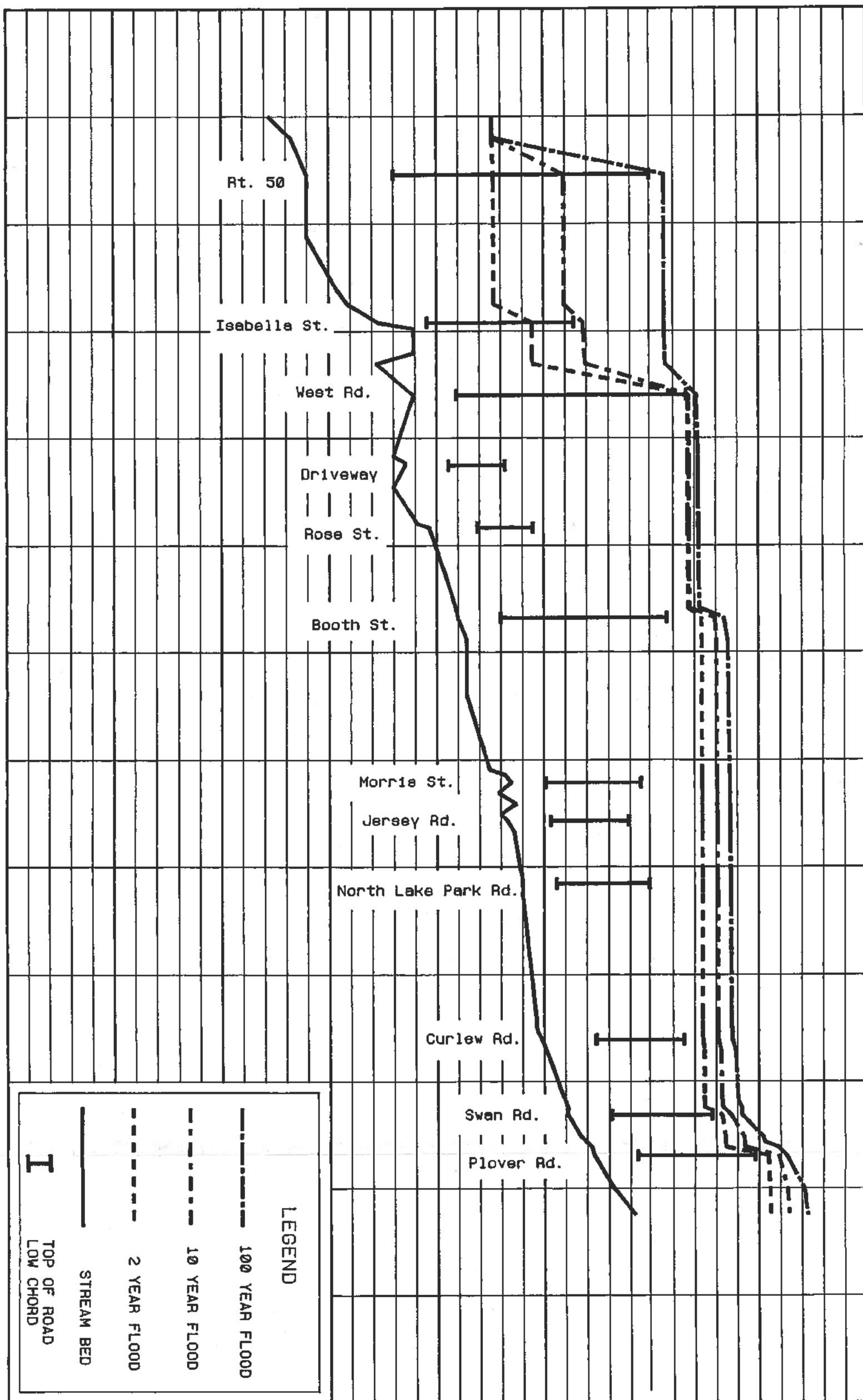
40+00

60+00






80+00

100+00

BRANCH STATIONS (FT)



LEGEND

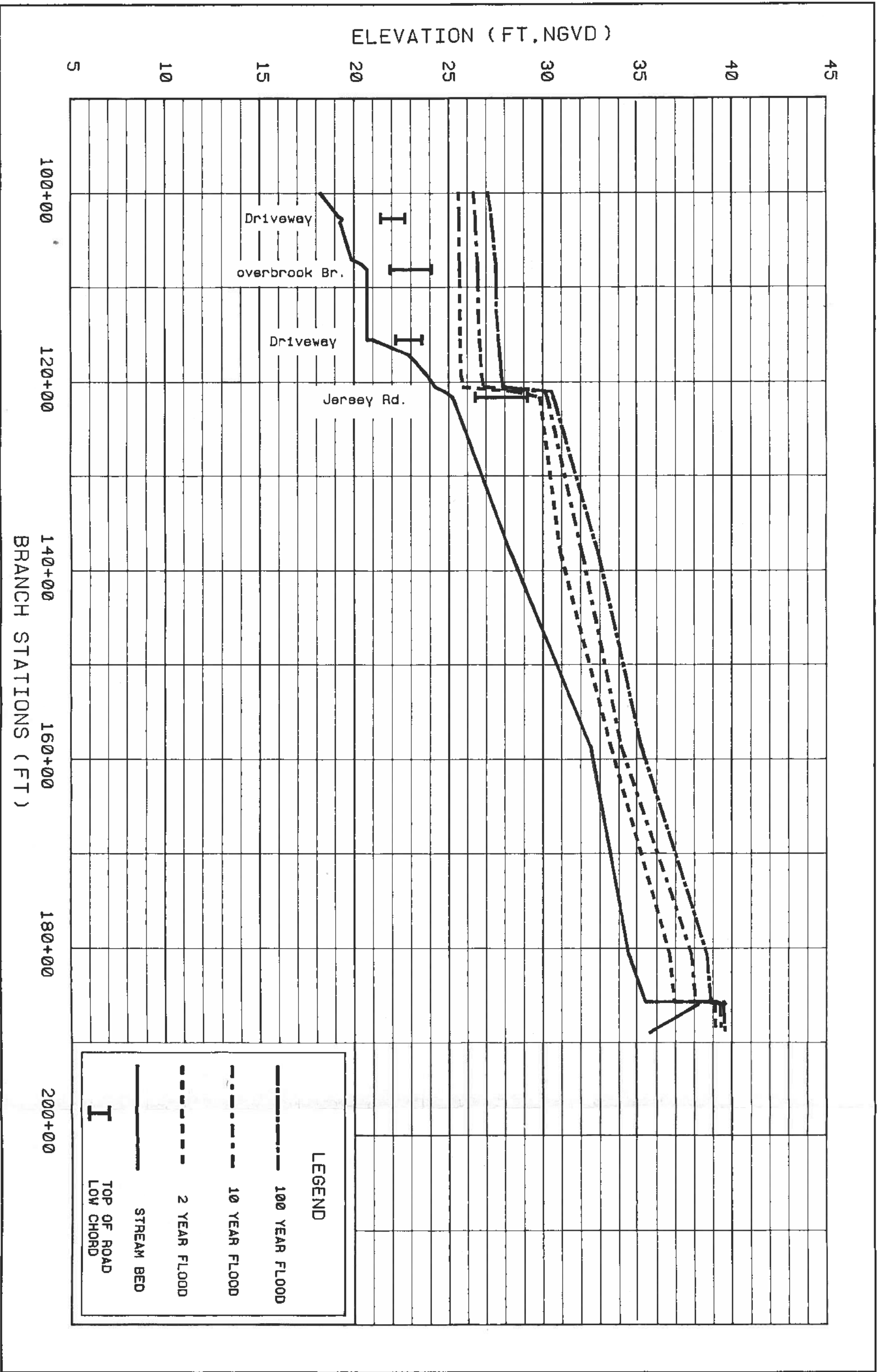
-  100 YEAR FLOOD
-  10 YEAR FLOOD
-  2 YEAR FLOOD
-  STREAM BED
-  TOP OF ROAD LOW CHORD

U. S. DEPARTMENT OF AGRICULTURE
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FIGURE 10 OF 20

FLOOD PROFILES

COTY COX BRANCH STA 0+00 TO 100+00

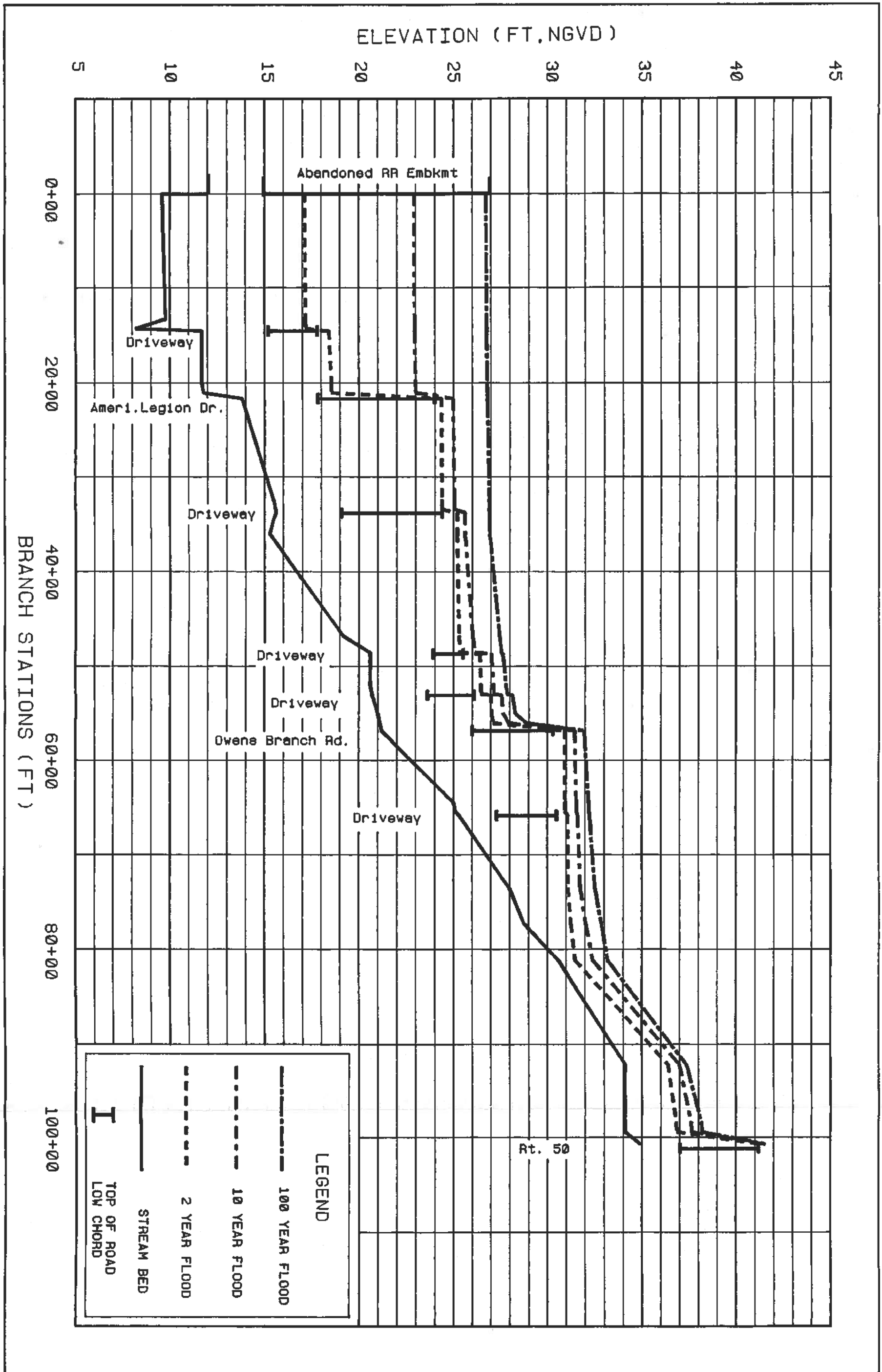


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FLOOD PROFILES

COTY COX BRANCH STA 100+00 TO 188+94

FIGURE
 20 OF 20

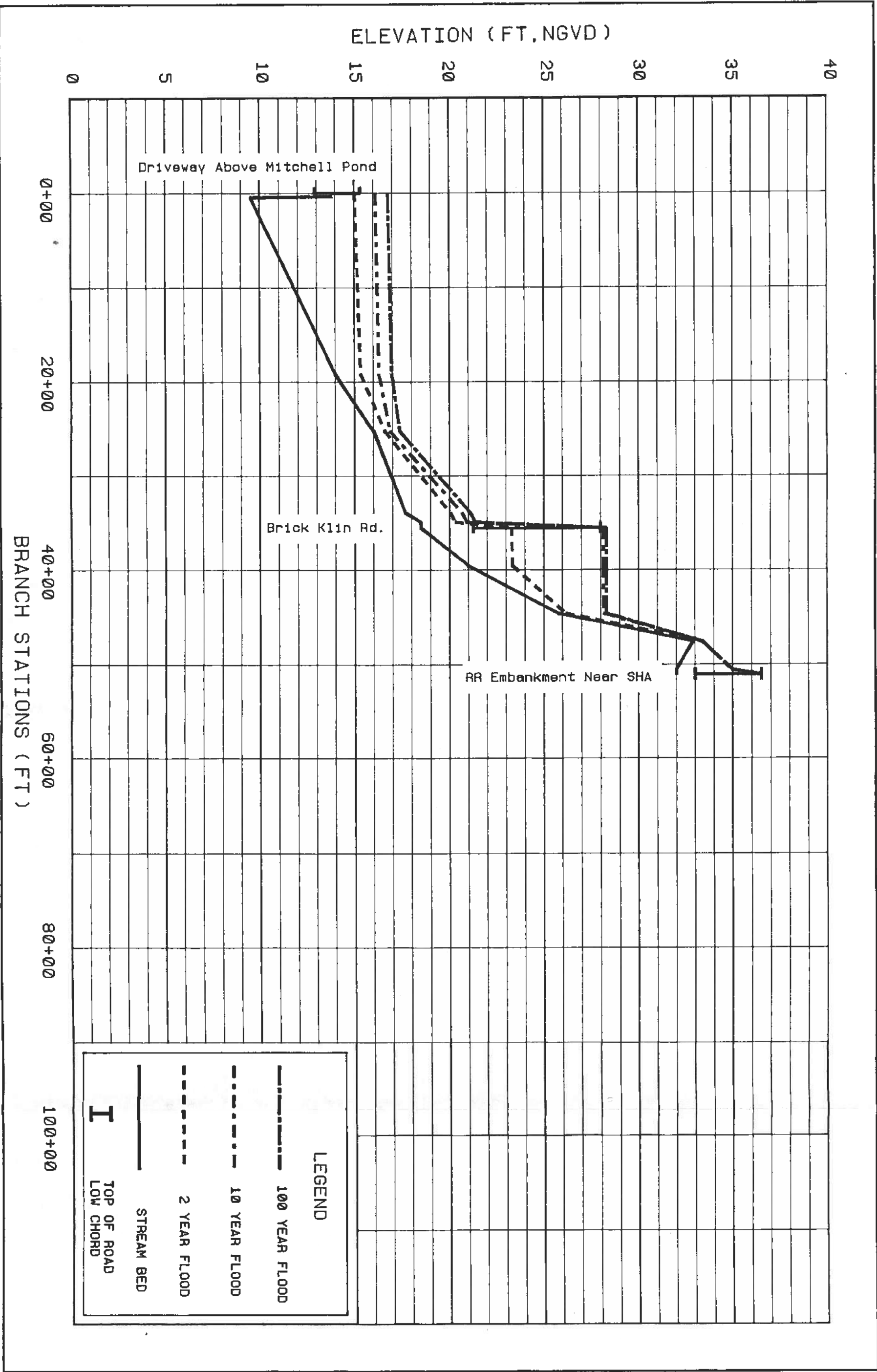


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FLOOD PROFILES

OWENS BRANCH - EAST STA 0+00 TO 100+97

FIGURE 1E OF 3E



LEGEND

- 100 YEAR FLOOD
- · - · 10 YEAR FLOOD
- - - 2 YEAR FLOOD
- STREAM BED
- I TOP OF ROAD LOW CHORD

BRANCH STATIONS (FT)

ELEVATION (FT. NGVD)

Driveway Above Mitchell Pond

Brick Kln Rd.

RR Embankment Near SHA

0+00

20+00

40+00

60+00

80+00

100+00

0

5

10

15

20

25

30

35

40

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FLOOD PROFILES
 OWENS BRANCH - WEST STA 0+00 TO 51+06

FIGURE
 2E OF 2E

APPENDIX B

Flood Elevations at Selected Frequencies

**UPPER WICOMICO FPMS
Brewington Branch - Present Condition (94)
2, 10, 25, 50, 100 YR Profiles**

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
5.0 (0)	13.0 (181)	13.0 (259)	13.0 (284)	13.0 (566)	13.0 (925)	10.00
10.1 (1450)	13.0 (181)	13.1 (259)	13.1 (284)	13.4 (566)	13.8 (925)	10.00
10.2 (1890)	13.1 (181)	13.1 (259)	13.2 (284)	13.5 (566)	14.0 (925)	10.00
Emmon Ave: Low Ft. - 18.9						
10.3 (1970)	15.9 (181)	18.9 (259)	19.1 (284)	19.7 (566)	20.2 (925)	10.00
10.4 (2030)	15.9 (181)	18.9 (259)	19.1 (284)	19.7 (566)	20.2 (925)	10.10
15.2 (2250)	15.9 (181)	18.9 (259)	19.1 (284)	19.7 (566)	20.2 (925)	10.30
Conrell: Low Ft. - 33.1						
15.3 (2341)	21.1 (181)	30.6 (259)	33.2 (284)	33.4 (566)	33.5 (925)	10.90
15.4 (2471)	21.3 (231)	30.7 (630)	33.2 (767)	33.4 (969)	33.5 (1200)	11.10
20.1 (2721)	21.3 (231)	30.7 (630)	33.2 (767)	33.4 (969)	33.5 (1200)	11.10
20.2 (2971)	21.3 (231)	30.7 (630)	33.2 (767)	33.4 (969)	33.6 (1200)	12.00

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
Northwood Dr.: Low Pt. - 28.2						
20.3 (3045)	25.7 (231)	30.7 (630)	33.2 (767)	33.4 (969)	33.6 (1200)	12.10
20.4 (3245)	25.9 (231)	30.7 (630)	33.2 (767)	33.4 (969)	33.6 (1200)	13.00
25.1 (4245)	25.9 (231)	30.7 (630)	33.2 (767)	33.4 (969)	33.6 (1200)	14.50
25.2 (4655)	25.9 (231)	30.8 (630)	33.2 (767)	33.4 (969)	33.6 (1200)	15.30
Gordy Rd.: Low Pt. - 21.5						
25.3 (4729)	25.9 (231)	30.8 (630)	33.2 (767)	33.4 (969)	33.6 (1200)	15.60
25.4 (5429)	25.9 (189)	30.8 (504)	33.2 (590)	33.4 (864)	33.6 (1030)	18.00
30.1 (5929)	25.9 (189)	30.8 (504)	33.2 (590)	33.4 (864)	33.6 (1030)	19.00
30.2 (6329)	25.9 (189)	30.8 (504)	33.2 (590)	33.4 (864)	33.6 (1030)	20.00
Zion Rd.: Low Pt. - 30.5						
30.3 (6363)	27.6 (189)	31.8 (504)	33.2 (590)	33.4 (864)	33.6 (1030)	19.80
35.2 (6463)	28.4 (189)	31.8 (504)	33.2 (590)	33.4 (864)	33.6 (1030)	20.45

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
Rt. 13: Low Pt. - 38.7						
35.3 (6643)	28.5 (189)	32.2 (504)	33.7 (590)	34.6 (864)	35.4 (1030)	20.80
35.4 (6943)	28.6 (378)	32.5 (867)	34.0 (1045)	35.1 (1248)	36.0 (1454)	21.20
38.0 (7593)	28.8 (378)	32.6 (867)	34.1 (1045)	35.2 (1248)	36.1 (1454)	22.10
40.1 (8093)	29.0 (294)	32.7 (664)	34.2 (795)	35.2 (945)	36.1 (1097)	22.90
40.2 (8793)	29.0 (294)	32.7 (664)	34.2 (795)	35.3 (945)	36.1 (1097)	23.80
Rt. 13 Bypass: Low Pt. - 34.2						
40.3 (9060)	30.3 (294)	34.8 (664)	35.0 (795)	35.3 (945)	36.1 (1097)	23.50
40.4 (9110)	30.9 (70)	34.8 (221)	35.0 (377)	35.3 (542)	36.2 (578)	23.60
45.1 (9560)	30.9 (70)	34.8 (221)	35.0 (377)	35.3 (542)	36.2 (578)	24.20
45.2 (10090)	30.9 (70)	34.8 (221)	35.0 (377)	35.4 (542)	36.2 (578)	26.20
Main Rd.: Low Pt. - 32.3						
45.3 (10225)	30.9 (70)	34.8 (221)	35.0 (377)	35.4 (542)	36.2 (578)	26.70
45.4 (10425)	30.9 (105)	34.8 (379)	35.1 (508)	35.4 (635)	36.2 (759)	26.70
46.0 (10950)	31.0 (105)	34.8 (379)	35.1 (508)	35.5 (635)	36.3 (759)	27.00

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
48.0 (11640)	31.0 (105)	34.9 (379)	35.2 (508)	35.5 (635)	36.4 (759)	27.40
50.0 (12090)	31.1 (105)	34.9 (379)	35.2 (508)	35.6 (635)	36.4 (759)	28.10
51.0 (12630)	31.2 (105)	35.0 (379)	35.3 (508)	35.7 (635)	36.5 (759)	29.20
52.0 (13050)	32.0 (72)	35.1 (337)	35.4 (443)	35.8 (546)	36.6 (648)	30.20
53.0 (13380)	32.5 (72)	35.2 (337)	35.6 (443)	36.0 (546)	36.8 (648)	31.00
55.1 (13840)	35.6 (72)	36.7 (337)	37.2 (443)	37.7 (546)	38.1 (648)	32.10
55.2 (14090)	37.5 (72)	37.8 (337)	38.3 (443)	38.7 (546)	39.1 (648)	33.20
Forest Plains La.: Low Pt. - 36.6						
55.3 (14118)	38.3 (72)	39.4 (337)	39.6 (443)	39.8 (546)	39.9 (648)	33.20
55.4 (14278)	38.5 (79)	39.5 (347)	39.7 (448)	39.9 (550)	40.0 (652)	34.40
56.0 (14718)	38.5 (79)	39.7 (347)	39.9 (448)	40.2 (550)	40.4 (652)	34.70
57.0 (14968)	38.5 (79)	39.8 (347)	40.1 (448)	40.3 (550)	40.6 (652)	34.80
60.0 (15203)	38.6 (79)	39.8 (347)	40.2 (448)	40.5 (550)	40.7 (652)	35.00
65.1 (15903)	38.6 (79)	40.0 (347)	40.4 (448)	40.7 (550)	41.0 (652)	35.50
65.2 (16163)	38.6 (79)	40.1 (347)	40.5 (448)	40.9 (550)	41.2 (652)	36.00

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
Brown Rd.: Low Pt. - 38.6						
65.3 (16200)	41.0 (79)	41.6 (347)	41.7 (448)	41.8 (550)	41.9 (652)	36.00
65.4 (16410)	41.1 (169)	41.7 (430)	41.8 (525)	42.0 (634)	42.1 (743)	36.00
66.0 (16760)	41.1 (169)	41.8 (430)	42.1 (525)	42.3 (634)	42.5 (743)	36.30
67.0 (17295)	41.2 (169)	42.2 (430)	42.5 (525)	42.8 (634)	43.0 (743)	36.80
68.0 (17865)	41.3 (169)	42.5 (430)	42.8 (525)	43.1 (634)	43.5 (743)	37.40
69.0 (18225)	41.5 (169)	42.7 (430)	43.0 (525)	43.3 (634)	43.7 (743)	37.70
70.0 (18535)	41.6 (169)	42.8 (430)	43.1 (525)	43.5 (634)	43.8 (743)	38.00

**UPPER WICOMICO FPMS
Middle Neck Branch - Present Condition (94)
2, 10, 25, 50, 100 YR Profiles**

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
5.1 (0)	13.0 (281)	13.0 (351)	13.0 (381)	13.0 (408)	13.0 (434)	8.90
5.2 (100)	13.0 (281)	13.0 (351)	13.1 (381)	13.1 (408)	13.1 (434)	8.90
Emerson Ave. Low Pt. - 20.1						
5.3 (180)	16.7 (281)	19.5 (351)	20.3 (381)	20.5 (408)	20.5 (434)	9.30
5.4 (230)	17.0 (281)	19.8 (351)	20.3 (381)	20.5 (408)	20.5 (434)	9.30
10.1 (330)	17.0 (281)	19.8 (351)	20.3 (381)	20.5 (408)	20.5 (434)	9.00
10.2 (430)	17.1 (281)	19.8 (351)	20.4 (381)	20.5 (408)	20.6 (434)	9.00
Conrail: Low Pt. - 31.6						
10.3 (520)	21.1 (281)	26.1 (351)	27.8 (381)	29.0 (408)	30.3 (434)	9.00
10.4 (620)	21.1 (522)	26.1 (1058)	27.8 (1251)	29.0 (1479)	30.3 (1709)	9.30
11.0 (950)	21.3 (522)	26.2 (1058)	27.9 (1251)	29.1 (1479)	30.3 (1709)	12.90
12.1 (1080)	21.4 (522)	26.3 (1058)	27.9 (1251)	29.1 (1479)	30.3 (1709)	12.90
12.2 (1180)	21.5 (522)	26.3 (1058)	28.0 (1251)	29.1 (1479)	30.3 (1709)	12.70

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
Northwood Drive: Low Pt. - 232						
12.3(1270)	24.3 (522)	26.3 (1058)	28.0 (1251)	29.1 (1479)	30.3 (1709)	13.00
12.4(1380)	24.5 (522)	26.4 (1058)	28.0 (1251)	29.2 (1479)	30.4 (1709)	13.20
14.1(1595)	24.5 (522)	26.5 (1058)	28.0 (1251)	29.2 (1479)	30.4 (1709)	11.50
14.2(1745)	24.5 (522)	26.5 (1058)	28.0 (1251)	29.2 (1479)	30.4 (1709)	11.00
Rt. 13: Low Pt. - 237						
14.3(1845)	24.5 (522)	26.5 (1058)	28.0 (1251)	29.2 (1479)	30.4 (1709)	11.00
15.1(1900)	24.5 (522)	26.5 (1058)	28.1 (1251)	29.2 (1479)	30.4 (1709)	13.70
15.2(1901)	24.5 (522)	26.5 (1058)	28.1 (1251)	29.2 (1479)	30.4 (1709)	17.00
15.3(1902)	24.5 (522)	26.5 (1058)	28.1 (1251)	29.2 (1479)	30.4 (1709)	15.90
16.0(2342)	24.6 (522)	26.5 (1058)	28.1 (1251)	29.3 (1479)	30.4 (1709)	16.00
17.0(2972)	24.6 (522)	26.6 (1058)	28.1 (1251)	29.3 (1479)	30.5 (1709)	16.00
18.0(3407)	24.6 (522)	26.6 (1058)	28.2 (1251)	29.4 (1479)	30.5 (1709)	16.00
19.0(3787)	24.7 (522)	26.7 (1058)	28.2 (1251)	29.4 (1479)	30.6 (1709)	16.00
19.5(4287)	24.7 (522)	26.7 (1058)	28.3 (1251)	29.4 (1479)	30.6 (1709)	16.00
20.0(4637)	24.7 (522)	26.8 (1058)	28.3 (1251)	29.5 (1479)	30.6 (1709)	16.00

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
21.0(5307)	24.8 (214)	26.9 (439)	28.4 (516)	29.6 (591)	30.7 (667)	16.90
22.0(5917)	24.9 (214)	27.0 (439)	28.5 (516)	29.6 (591)	30.8 (667)	17.80
23.0(6317)	24.9 (214)	27.0 (439)	28.5 (516)	29.6 (591)	30.8 (667)	18.40
24.0(6897)	24.9 (214)	27.1 (439)	28.5 (516)	29.7 (591)	30.8 (667)	19.20
25.0(7467)	25.0 (214)	27.1 (439)	28.6 (516)	29.7 (591)	30.8 (667)	19.90
30.0(8102)	25.2 (214)	27.3 (439)	28.7 (516)	29.8 (591)	30.9 (667)	20.90
31.0(8822)	25.7 (214)	27.6 (439)	28.8 (516)	29.9 (591)	31.0 (667)	21.10
33.0(9357)	25.9 (214)	27.8 (439)	29.0 (516)	30.0 (591)	31.0 (667)	21.30
35.0(9932)	26.1 (185)	27.9 (405)	29.0 (469)	30.0 (522)	31.1 (581)	21.50
36.0(10782)	26.6 (185)	28.3 (405)	29.2 (469)	30.2 (522)	31.2 (581)	22.00
37.0(11612)	28.1 (185)	29.3 (405)	29.9 (469)	30.6 (522)	31.5 (581)	24.50
40.1(12122)	29.3 (185)	30.4 (405)	30.8 (469)	31.2 (522)	31.9 (581)	25.60
40.2(12517)	30.0 (151)	31.0 (354)	31.3 (398)	31.7 (450)	32.2 (489)	26.00
Perfor Rd.: Low Ft. - 33.1						
40.3(12518)	30.0 (151)	34.1 (354)	34.2 (398)	34.2 (450)	34.3 (489)	26.00
40.4(12554)	31.6 (151)	34.8 (354)	34.8 (398)	35.0 (450)	35.0 (489)	26.00

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
40.5(12555)	32.8 (151)	34.9 (354)	35.0 (398)	35.1 (450)	35.2 (489)	26.00
40.6(12755)	33.2 (193)	34.9 (373)	35.0 (418)	35.2 (486)	35.2 (592)	26.00
45.0(13165)	33.3 (193)	35.0 (373)	35.1 (418)	35.2 (486)	35.4 (592)	26.60
50.1(13575)	33.4 (193)	35.1 (373)	35.2 (418)	35.4 (486)	35.5 (592)	27.30
50.2(13675)	33.4 (193)	35.1 (373)	35.2 (418)	35.4 (486)	35.6 (592)	27.30
Rt. 13 Bypass: Low Fl. - 42.3						
50.3(13929)	34.3 (193)	38.3 (373)	39.2 (418)	40.8 (486)	42.5 (592)	27.40
50.4(14029)	34.5 (285)	38.4 (668)	39.4 (806)	40.9 (973)	42.6 (1147)	27.40
53.0(15029)	36.1 (285)	39.0 (668)	39.9 (806)	41.3 (973)	42.8 (1147)	32.90
55.0(16279)	37.8 (215)	39.8 (515)	40.5 (625)	41.7 (760)	43.1 (900)	34.80
60.0(17979)	39.9 (145)	41.3 (361)	41.8 (443)	42.6 (544)	43.7 (653)	37.50

**UPPER WICOMICO FPMS
Peggy Branch - Present Condition (94)
2, 10, 25, 50, 100 YR Profiles**

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
20.0 (0)	24.7 (522)	26.8 (1058)	28.3 (1251)	29.5 (1479)	30.6 (1709)	16.00
21.0 (650)	24.8 (220)	26.9 (481)	28.4 (583)	29.6 (693)	30.7 (803)	16.00
22.0 (1230)	24.8 (220)	27.0 (481)	28.5 (583)	29.6 (693)	30.8 (803)	17.70
23.0 (1805)	25.0 (220)	27.2 (481)	28.6 (583)	29.8 (693)	30.9 (803)	19.50
24.0 (2470)	25.5 (220)	27.7 (481)	29.0 (583)	30.0 (693)	31.1 (803)	22.00
25.1 (3145)	26.0 (190)	28.0 (384)	29.2 (460)	30.2 (545)	31.3 (625)	21.80
25.2 (3245)	26.1 (190)	28.1 (384)	29.2 (460)	30.2 (545)	31.3 (625)	21.80
Aydelotte Embankment: Low Ft. - 34.1						
25.3 (3285)	34.6 (190)	35.0 (384)	35.1 (460)	35.2 (545)	35.3 (625)	21.80
25.4 (3335)	34.6 (190)	35.0 (384)	35.1 (460)	35.2 (545)	35.3 (625)	21.80
26.0 (3915)	34.6 (190)	35.0 (384)	35.1 (460)	35.3 (545)	35.3 (625)	23.00
27.0 (4465)	34.7 (190)	35.1 (384)	35.2 (460)	35.3 (545)	35.5 (625)	24.10
30.0 (5015)	34.7 (190)	35.1 (384)	35.3 (460)	35.4 (545)	35.6 (625)	25.20

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
31.1 (5435)	34.7 (190)	35.2 (384)	35.3 (460)	35.5 (545)	35.7 (625)	26.20
31.2 (5545)	34.7 (190)	35.2 (384)	35.4 (460)	35.5 (545)	35.7 (625)	27.00
31.3 (5605)	34.7 (190)	35.2 (384)	35.4 (460)	35.5 (545)	35.7 (625)	27.00
32.0 (5705)	34.7 (160)	35.2 (287)	35.4 (336)	35.6 (395)	35.8 (448)	26.40
33.0 (6260)	34.8 (160)	35.4 (287)	35.6 (336)	35.8 (395)	36.0 (448)	27.70
35.1 (6730)	35.0 (160)	35.7 (287)	36.0 (336)	36.3 (395)	36.5 (448)	28.70
35.2 (6830)	35.0 (160)	35.8 (287)	36.1 (336)	36.4 (395)	36.6 (448)	28.70
Parker Rd.: Low Ft. - 35.2						
35.3 (6866)	36.0 (160)	36.4 (287)	36.5 (336)	36.6 (395)	36.7 (448)	28.90
35.4 (6916)	36.0 (165)	36.4 (304)	36.5 (347)	36.6 (397)	36.8 (454)	28.90
36.0 (7546)	36.2 (165)	36.9 (304)	37.1 (347)	37.3 (397)	37.5 (454)	30.70
37.0 (7966)	36.5 (165)	37.4 (304)	37.6 (347)	37.8 (397)	38.1 (454)	32.00
39.0 (8606)	37.5 (165)	38.5 (304)	38.8 (347)	39.1 (397)	39.4 (454)	33.00
45.0 (9426)	38.3 (135)	39.3 (225)	39.6 (257)	39.9 (300)	40.2 (350)	35.30
46.1 (9676)	38.3 (135)	39.3 (225)	39.6 (257)	39.9 (300)	40.2 (350)	35.40
46.2 (9686)	40.7 (135)	40.8 (225)	40.8 (257)	40.9 (300)	40.9 (350)	40.50

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
46.3 (9694)	40.9 (135)	41.0 (225)	41.0 (257)	41.1 (300)	41.1 (350)	40.50
46.4 (9704)	40.9 (135)	41.1 (225)	41.1 (257)	41.2 (300)	41.2 (350)	35.50
47.0 (10554)	40.9 (106)	41.1 (145)	41.1 (167)	41.2 (204)	41.2 (239)	35.60
48.0 (11054)	41.0 (106)	41.1 (145)	41.2 (167)	41.3 (204)	41.3 (239)	35.80
55.1 (11504)	41.0 (106)	41.2 (145)	41.2 (167)	41.3 (204)	41.4 (239)	36.00
55.2 (11704)	41.0 (106)	41.2 (145)	41.2 (167)	41.3 (204)	41.4 (239)	36.00
Rt. 13 Bypass: Low Ft. - 44.0						
55.3 (11995)	44.0 (106)	44.4 (145)	44.5 (167)	44.7 (204)	44.9 (239)	37.00
55.4 (12095)	44.0 (255)	44.4 (563)	44.5 (671)	44.7 (797)	44.9 (925)	37.00
65.0 (13195)	44.0 (255)	44.4 (563)	44.5 (671)	44.8 (797)	44.9 (925)	39.00

**UPPER WICOMICO FPMS
Coty Cox Branch - Present Condition (94)
2, 10, 25, 50, 100 YR Profiles**

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
30.8 (0.0)	12.6 (46)	12.6 (309)	12.6 (443)	12.6 (590)	12.6 (658)	2.20
31.0 (200)	12.6 (46)	12.6 (309)	12.6 (443)	12.6 (590)	12.6 (658)	3.25
32.0 (549)	12.7 (46)	15.9 (309)	19.5 (443)	20.5 (590)	20.6 (658)	4.00
Rt. 50: Low Fl. - 19.9						
32.1 (624)	12.7 (46)	16.0 (309)	19.5 (443)	20.5 (590)	20.6 (658)	4.00
32.5 (1124)	12.7 (46)	16.0 (309)	19.5 (443)	20.5 (590)	20.6 (658)	4.00
32.9 (1624)	12.7 (46)	16.0 (309)	19.5 (443)	20.5 (590)	20.6 (658)	5.45
33.0 (1689)	12.7 (46)	16.0 (309)	19.5 (443)	20.5 (590)	20.6 (658)	5.68
33.0 (1749)	12.7 (46)	16.0 (309)	19.5 (443)	20.5 (590)	20.6 (658)	5.90
34.0 (1917)	14.5 (46)	16.8 (309)	19.5 (443)	20.5 (590)	20.6 (658)	7.30
Isabella St.: Low Fl. - 16.4						
34.2 (1977)	14.5 (46)	16.8 (309)	19.5 (443)	20.5 (590)	20.6 (658)	8.94
34.7 (2207)	14.5 (46)	16.9 (309)	19.5 (443)	20.5 (590)	20.6 (658)	8.94

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
35.0 (2307)	14.5 (46)	16.9 (309)	19.5 (443)	20.5 (590)	20.6 (658)	7.20
West Rd.: Lot Pt. - 21.6						
38.0 (2598)	21.7 (33)	21.7 (35)	21.9 (87)	22.0 (147)	22.1 (211)	8.92
38.2 (2628)	21.7 (260)	21.7 (653)	21.9 (802)	22.0 (979)	22.1 (1160)	8.90
38.9 (3168)	21.7 (260)	21.7 (653)	21.9 (802)	22.0 (979)	22.2 (1160)	8.00
39.0 (3228)	21.7 (260)	21.7 (653)	21.9 (802)	22.0 (979)	22.2 (1160)	8.55
40.0 (3252)	21.7 (260)	21.7 (653)	21.9 (802)	22.0 (979)	22.2 (1160)	8.55
40.4 (3452)	21.7 (260)	21.7 (653)	21.9 (802)	22.0 (979)	22.2 (1160)	8.00
40.8 (3692)	21.7 (260)	21.7 (653)	21.9 (802)	22.0 (979)	22.2 (1160)	8.80
41.0 (3792)	21.7 (260)	21.8 (653)	21.9 (802)	22.0 (979)	22.2 (1160)	9.10
42.0 (3832)	21.7 (260)	21.8 (653)	21.9 (802)	22.0 (979)	22.2 (1160)	9.65
Rose St.: Low Pt. - 14.5						
42.5 (4212)	21.7 (260)	21.8 (653)	21.9 (802)	22.1 (979)	22.2 (1160)	10.30
43.0 (4592)	21.7 (260)	21.8 (653)	21.9 (802)	22.1 (979)	22.2 (1160)	10.90
44.0 (4678)	22.3 (260)	22.9 (653)	23.1 (802)	23.2 (979)	23.4 (1160)	10.98

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
Booth St.: Low Pt. - 20.7						
44.1 (4878)	22.3 (260)	23.0 (653)	23.2 (802)	23.4 (979)	23.5 (1160)	11.40
44.5 (5408)	22.3 (260)	23.0 (653)	23.2 (802)	23.4 (979)	23.6 (1160)	11.40
44.9 (6093)	22.3 (260)	23.0 (653)	23.3 (802)	23.5 (979)	23.6 (1160)	12.50
46.0 (6143)	22.3 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.6 (1160)	13.20
47.0 (6212)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.6 (1160)	13.50
Month St.: Low Pt. - 19.5						
47.3 (6312)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.6 (1160)	12.90
47.6 (6412)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.6 (1160)	13.70
48.0 (6512)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.7 (1160)	13.00
49.0 (6570)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.7 (1160)	13.30
Jersey Rd.: Low Pt. - 18.9						
49.2 (6670)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.7 (1160)	13.60
49.8 (7020)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.7 (1160)	13.90
50.0 (7120)	22.4 (260)	23.1 (653)	23.3 (802)	23.5 (979)	23.7 (1160)	14.00
51.0 (7157)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.7 (634)	14.00

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
North Lake Park Rd.: Low Fl. - 19.9						
51.1 (7257)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.7 (634)	14.00
51.5 (7797)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.7 (634)	14.30
51.9 (8337)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.7 (634)	14.60
52.0 (8437)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.7 (634)	14.65
52.0 (8487)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.7 (634)	14.65
52.0 (8537)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.8 (634)	14.70
53.0 (8610)	22.4 (102)	23.1 (324)	23.3 (413)	23.5 (521)	23.8 (634)	14.90
Ourlew Rd.: Low Fl. - 21.5						
53.2 (8710)	22.4 (102)	23.2 (324)	23.5 (413)	23.7 (521)	23.9 (634)	15.10
53.8 (9140)	22.4 (102)	23.3 (324)	23.5 (413)	23.8 (521)	24.0 (634)	15.90
53.9 (9190)	22.5 (102)	23.3 (324)	23.5 (413)	23.8 (521)	24.0 (634)	16.00
54.0 (9240)	22.5 (102)	23.3 (324)	23.6 (413)	23.9 (521)	24.2 (634)	16.10
55.0 (9313)	23.3 (102)	23.7 (324)	23.9 (413)	24.0 (521)	24.2 (634)	16.10

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
Swan Rd.: Low Pt. - 22.6						
55.6 (9513)	23.4 (102)	24.3 (324)	24.6 (413)	24.9 (521)	25.2 (634)	16.70
55.8 (9563)	23.4 (102)	24.3 (324)	24.6 (413)	24.9 (521)	25.3 (634)	16.95
56.0 (9613)	23.4 (102)	24.3 (324)	24.6 (413)	25.7 (521)	25.9 (634)	17.20
57.0 (9694)	25.4 (102)	25.9 (324)	26.0 (413)	26.1 (521)	26.2 (634)	17.30
Flower Rd.: Low Pt. - 24.8						
57.5 (9994)	25.5 (102)	26.3 (324)	26.6 (413)	26.8 (521)	27.1 (634)	18.20
58.0 (10249)	25.5 (102)	26.4 (324)	26.7 (413)	27.0 (521)	27.3 (634)	19.20
59.0 (10270)	25.5 (102)	26.4 (324)	26.7 (413)	27.0 (521)	27.3 (634)	19.40
59.1 (10320)	25.5 (102)	26.4 (324)	26.7 (413)	27.0 (521)	27.3 (634)	19.30
59.9 (10700)	25.6 (102)	26.5 (324)	26.8 (413)	27.2 (521)	27.5 (634)	19.90
60.0 (10750)	25.6 (102)	26.5 (324)	26.9 (413)	27.2 (521)	27.5 (634)	20.40
61.0 (10811)	25.6 (102)	26.5 (324)	26.9 (413)	27.2 (521)	27.5 (634)	20.70
Overbrook Br.: Low Pt. - 24.1						
61.1 (10921)	25.6 (102)	26.6 (324)	26.9 (413)	27.2 (521)	27.5 (634)	20.70
61.9 (11261)	25.6 (102)	26.6 (324)	26.9 (413)	27.2 (521)	27.5 (634)	20.70

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
62.0 (11551)	25.6 (102)	26.6 (324)	27.0 (413)	27.3 (521)	27.6 (634)	20.70
63.0 (11553)	25.6 (102)	26.6 (324)	27.0 (413)	27.3 (521)	27.6 (634)	21.00
63.4 (11713)	25.6 (102)	26.7 (324)	27.0 (413)	27.4 (521)	27.7 (634)	22.90
63.8 (11913)	25.6 (102)	26.8 (324)	27.1 (413)	27.5 (521)	27.8 (634)	23.80
63.9 (12053)	25.7 (102)	26.9 (324)	27.2 (413)	27.5 (521)	27.9 (634)	24.30
64.0 (12103)	28.5 (102)	30.1 (324)	30.3 (413)	30.4 (521)	30.5 (634)	24.80
65.0 (12163)	29.8 (92)	30.2 (265)	30.4 (333)	30.5 (413)	30.6 (496)	25.20
Jersey Rd.: Low Fl. - 29.2						
66.0 (13813)	30.9 (92)	32.1 (265)	32.3 (333)	32.6 (413)	32.9 (496)	28.30
67.0 (15863)	33.5 (92)	34.1 (265)	34.5 (333)	34.9 (413)	35.2 (496)	32.50
68.0 (18063)	36.7 (92)	37.8 (265)	38.1 (333)	38.4 (413)	38.7 (496)	34.50
69.0 (18563)	36.9 (92)	38.1 (265)	38.3 (333)	38.6 (413)	38.9 (496)	35.40
69.5 (18564)	38.7 (101)	39.0 (231)	39.0 (278)	39.1 (309)	39.2 (389)	38.20
69.6 (18594)	39.1 (101)	39.4 (231)	39.4 (278)	39.5 (309)	39.6 (389)	38.20
70.0 (18894)	39.1 (101)	39.4 (231)	39.5 (278)	39.5 (309)	39.7 (389)	35.60

Jersey Rd.: Low Fl. - 29.2

UPPER WICOMICO FPMS
Owens Branch-East Fork - Present Condition (94)
2, 10, 25, 50, 100 YR Profiles

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
Abandoned RR: Low Ft. - 27.3						
1.4 (0)	17.1 (182)	22.9 (452)	24.4 (566)	25.7 (712)	26.7 (861)	9.60
2.1 (1330)	17.2 (182)	22.9 (452)	24.4 (566)	25.7 (712)	26.8 (861)	9.80
2.2 (1430)	17.2 (182)	22.9 (452)	24.4 (566)	25.7 (712)	26.8 (861)	8.20
2.3 (1454)	18.4 (182)	22.9 (452)	24.4 (566)	25.7 (712)	26.8 (861)	11.70
3.1 (2004)	18.5 (182)	23.0 (452)	24.4 (566)	25.8 (712)	26.8 (861)	11.70
3.2 (2104)	18.6 (182)	23.0 (452)	24.4 (566)	25.8 (712)	26.8 (861)	11.80
American Legion Dr.: Low Ft. - 24.0						
3.3 (2169)	24.4 (182)	25.0 (452)	25.1 (566)	25.8 (712)	26.8 (861)	13.80
4.1 (3244)	24.4 (182)	25.0 (452)	25.3 (566)	25.9 (712)	26.9 (861)	15.50
4.2 (3344)	24.4 (182)	25.1 (452)	25.3 (566)	25.9 (712)	26.9 (861)	15.60
4.3 (3383)	25.2 (182)	25.6 (452)	25.8 (566)	26.0 (712)	26.9 (861)	15.60
5.0 (3608)	25.2 (182)	25.6 (452)	25.8 (566)	26.0 (712)	26.9 (861)	15.30

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
6.1 (4683)	25.3 (182)	26.0 (452)	26.3 (566)	26.7 (712)	27.5 (861)	19.20
6.2 (4858)	25.4 (182)	26.2 (452)	26.5 (566)	26.9 (712)	27.6 (861)	20.60
6.3 (4873)	26.4 (182)	27.0 (452)	27.2 (566)	27.4 (712)	27.6 (861)	20.60
7.1 (5198)	26.5 (182)	27.1 (452)	27.3 (566)	27.5 (712)	27.8 (861)	20.60
7.2 (5298)	26.5 (182)	27.2 (452)	27.4 (566)	27.6 (712)	27.9 (861)	20.70
7.3 (5312)	27.0 (182)	27.6 (452)	27.8 (566)	28.0 (712)	28.1 (861)	20.70
8.1 (5512)	27.0 (182)	27.7 (452)	27.9 (566)	28.1 (712)	28.3 (861)	21.00
8.2 (5612)	27.1 (182)	28.0 (452)	28.2 (566)	28.6 (712)	28.9 (861)	21.10
Owens Branch Rd.: Low Fl. - 30.3						
8.3 (5692)	30.9 (182)	31.5 (452)	31.6 (566)	31.8 (712)	32.0 (861)	21.20
9.1 (6442)	31.0 (121)	31.5 (317)	31.8 (389)	32.0 (475)	32.2 (563)	25.00
9.2 (6542)	31.0 (121)	31.6 (317)	31.8 (389)	32.0 (475)	32.2 (563)	25.10
9.3 (6582)	31.1 (121)	31.6 (317)	31.8 (389)	32.0 (475)	32.2 (563)	25.30
10.0 (7357)	31.1 (121)	31.8 (317)	32.0 (389)	32.3 (475)	32.5 (563)	28.00
11.0 (7742)	31.3 (121)	32.0 (317)	32.3 (389)	32.6 (475)	32.9 (563)	28.80

Owens Branch Rd.: Low Fl. - 30.3

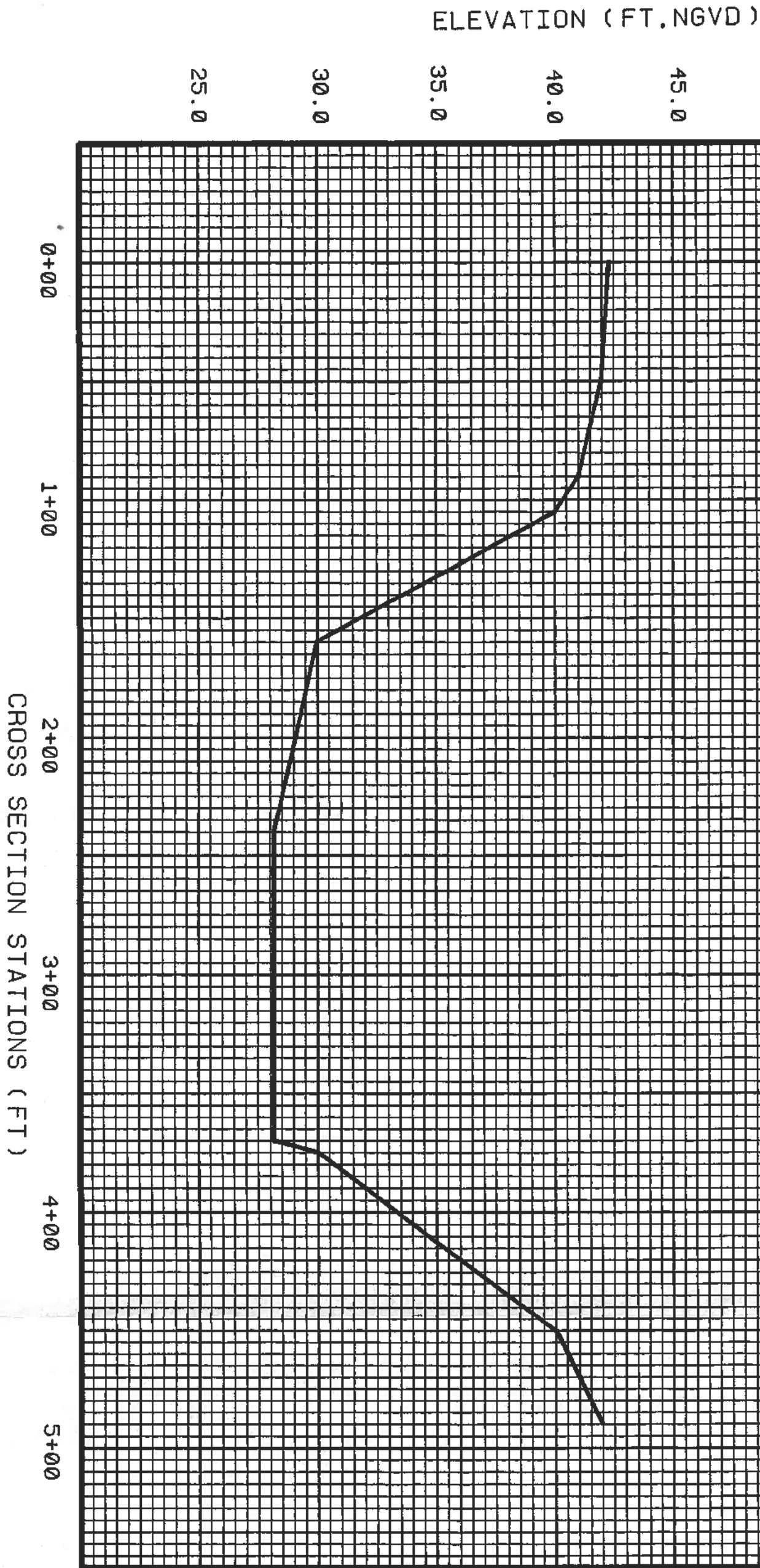
Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
12.0 (8117)	31.5 (121)	32.4 (317)	32.7 (389)	32.9 (475)	33.2 (563)	30.60
13.0 (9217)	36.4 (121)	37.0 (317)	37.1 (389)	37.3 (475)	37.4 (563)	34.10
14.1 (9842)	36.8 (121)	37.6 (317)	37.8 (389)	38.0 (475)	38.2 (563)	34.10
14.2 (9942)	36.8.(50)	37.6 (147)	37.8 (194)	38.0 (235)	38.2 (276)	34.10
Rt. 50: Low Pt. - 41.2						
14.3 (10072)	41.3 (50)	41.4 (147)	41.5 (194)	41.5 (235)	41.5 (276)	34.90
14.4 (10097)	41.3 (50)	41.4 (147)	41.5 (194)	41.5 (235)	41.5 (276)	34.90

**UPPER WICOMICO FPMS
Owens Branch-West Fork - Present Condition (94)
2, 10, 25, 50, 100 YR Profiles**

Section No. (Station Upstream from first Section, Ft.)	2 year Stage - Ft. (Discharge - CFS)	10 year Stage - Ft. (Discharge - CFS)	25 year Stage - Ft. (Discharge - CFS)	50 year Stage - Ft. (Discharge - CFS)	100 year Stage - Ft. (Discharge - CFS)	Stream Invert Elevation
10.0 (0)	15.0 (106)	16.1 (246)	16.3 (296)	16.5 (353)	16.8 (411)	3.90
20.0 (1920)	15.3 (20)	16.3 (51)	16.5 (67)	16.7 (81)	17.0 (95)	14.00
25.0 (2520)	16.6 (20)	16.9 (51)	17.0 (67)	17.1 (81)	17.4 (95)	16.00
30.1 (3395)	20.1 (20)	20.7 (51)	20.9 (67)	21.0 (81)	21.1 (95)	17.70
30.2 (3495)	20.3 (20)	20.9 (51)	21.1 (67)	21.3 (81)	21.4 (95)	18.50
Brick Kiln Rd.: Low Ft. - 28.0						
30.3 (3556)	23.3 (20)	28.1 (51)	28.2 (67)	28.3 (81)	28.3 (95)	18.50
40.0 (3956)	23.4 (35)	28.1 (64)	28.2 (75)	28.3 (87)	28.3 (99)	21.00
50.0 (4456)	26.2 (22)	28.1 (25)	28.2 (26)	28.3 (27)	28.3 (27)	25.80
60.1 (4756)	33.4 (22)	33.4 (25)	33.4 (26)	33.4 (27)	33.4 (27)	32.90
60.2 (5056)	35.0 (22)	35.0 (25)	35.0 (26)	35.0 (27)	35.0 (27)	32.00
RR Embankment: Low Ft. - 36.5						
60.3 (5106)	36.2 (22)	36.5 (25)	36.5 (26)	36.5 (27)	36.5 (27)	32.00

APPENDIX C

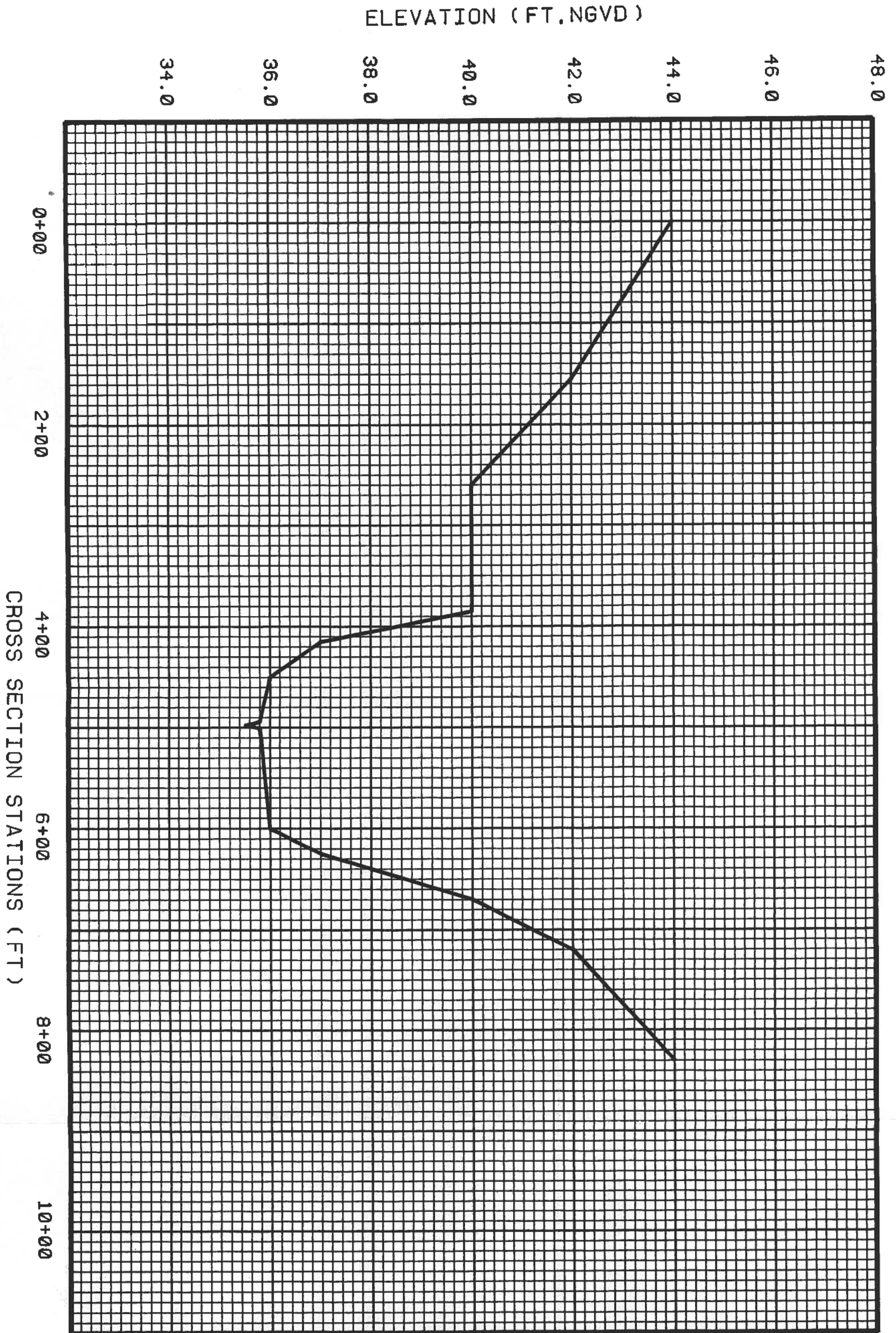
Typical Cross-Sections



U. S. DEPARTMENT OF AGRICULTURE
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 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 50.0
 BREWINGTON BRANCH

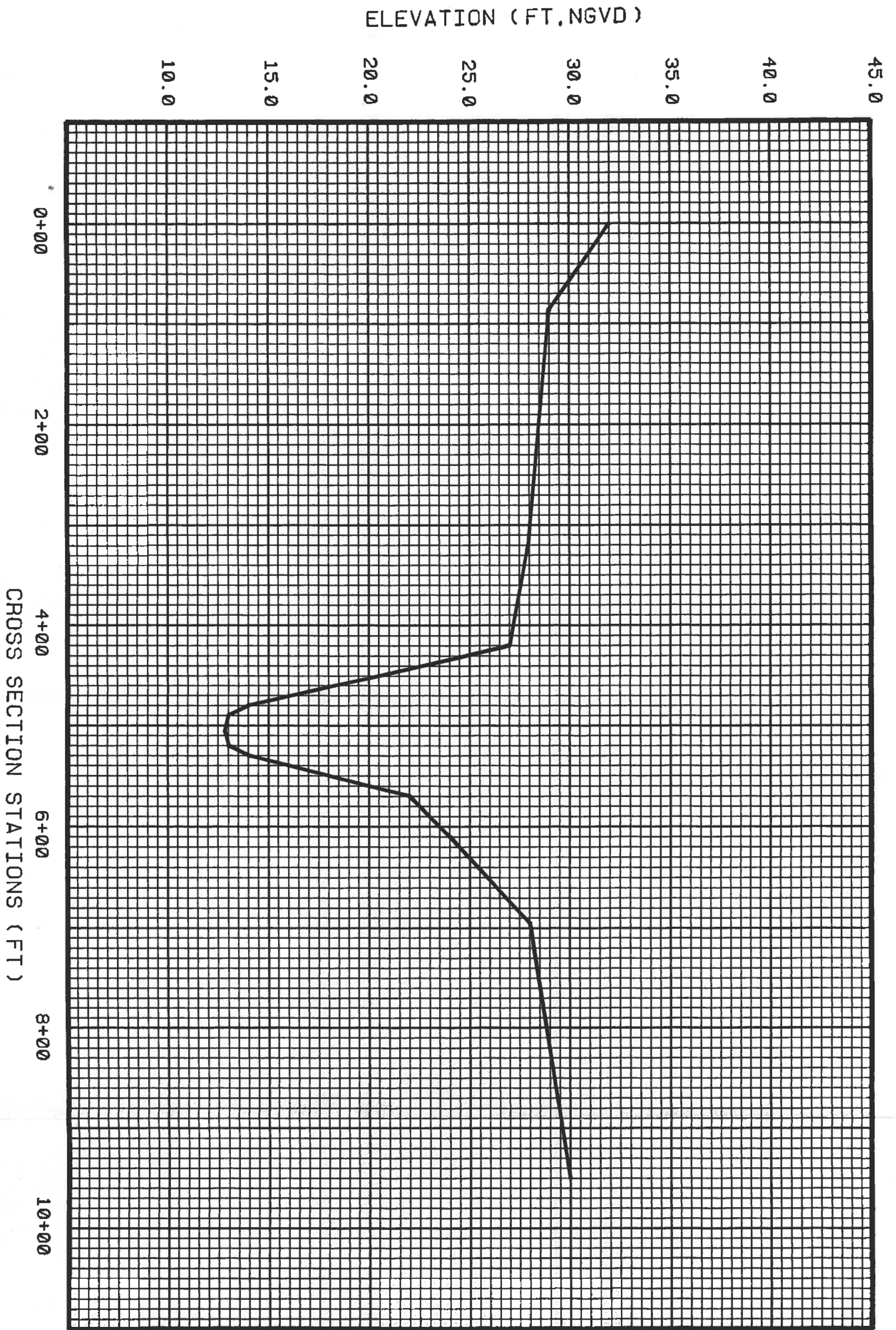
FIGURE
 1F OF 12F



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 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 65.1
 BREWINGTON BRANCH

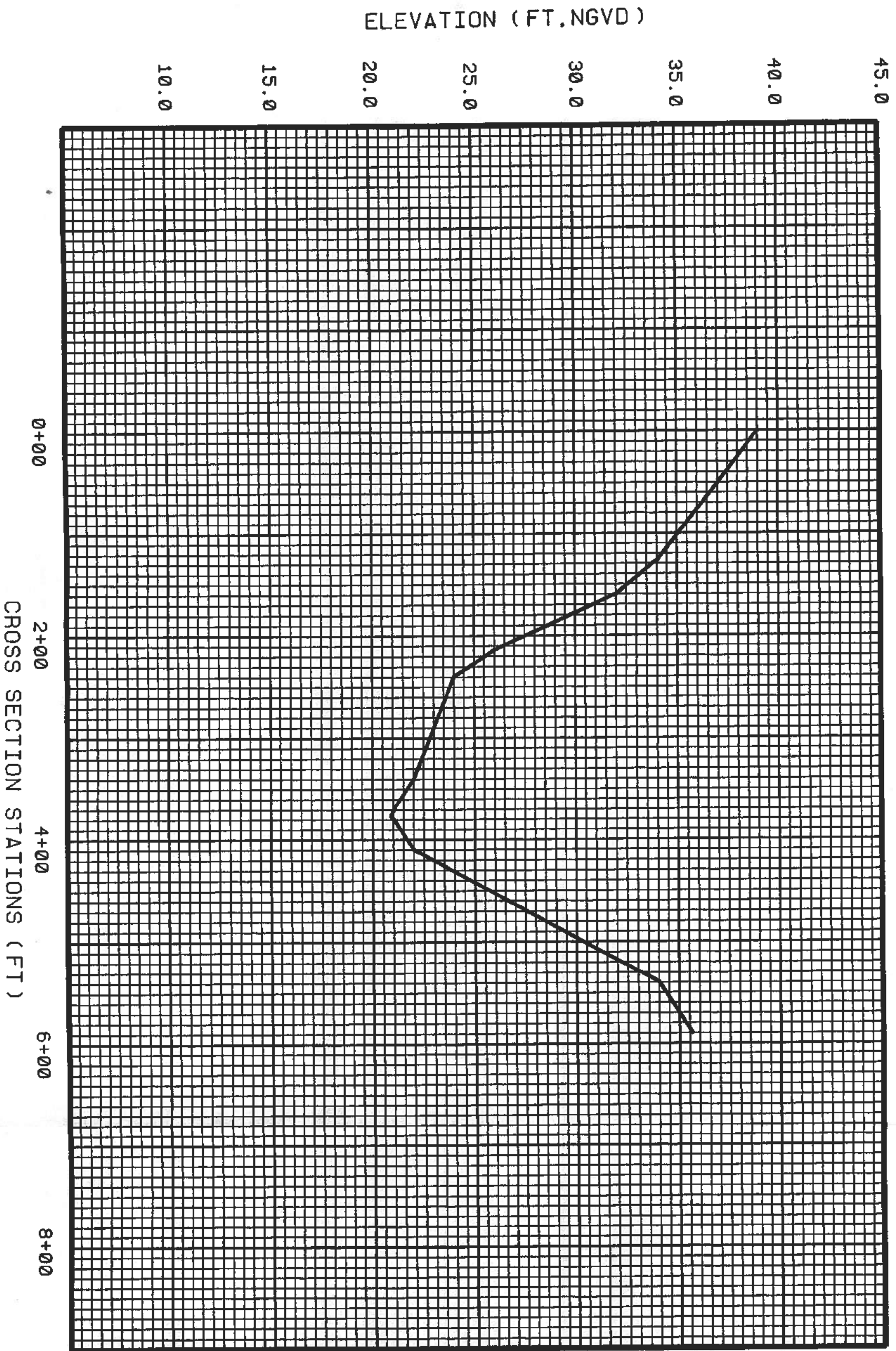
FIGURE
 25 OF 125



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 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 11.0
 MIDDLENECK BRANCH

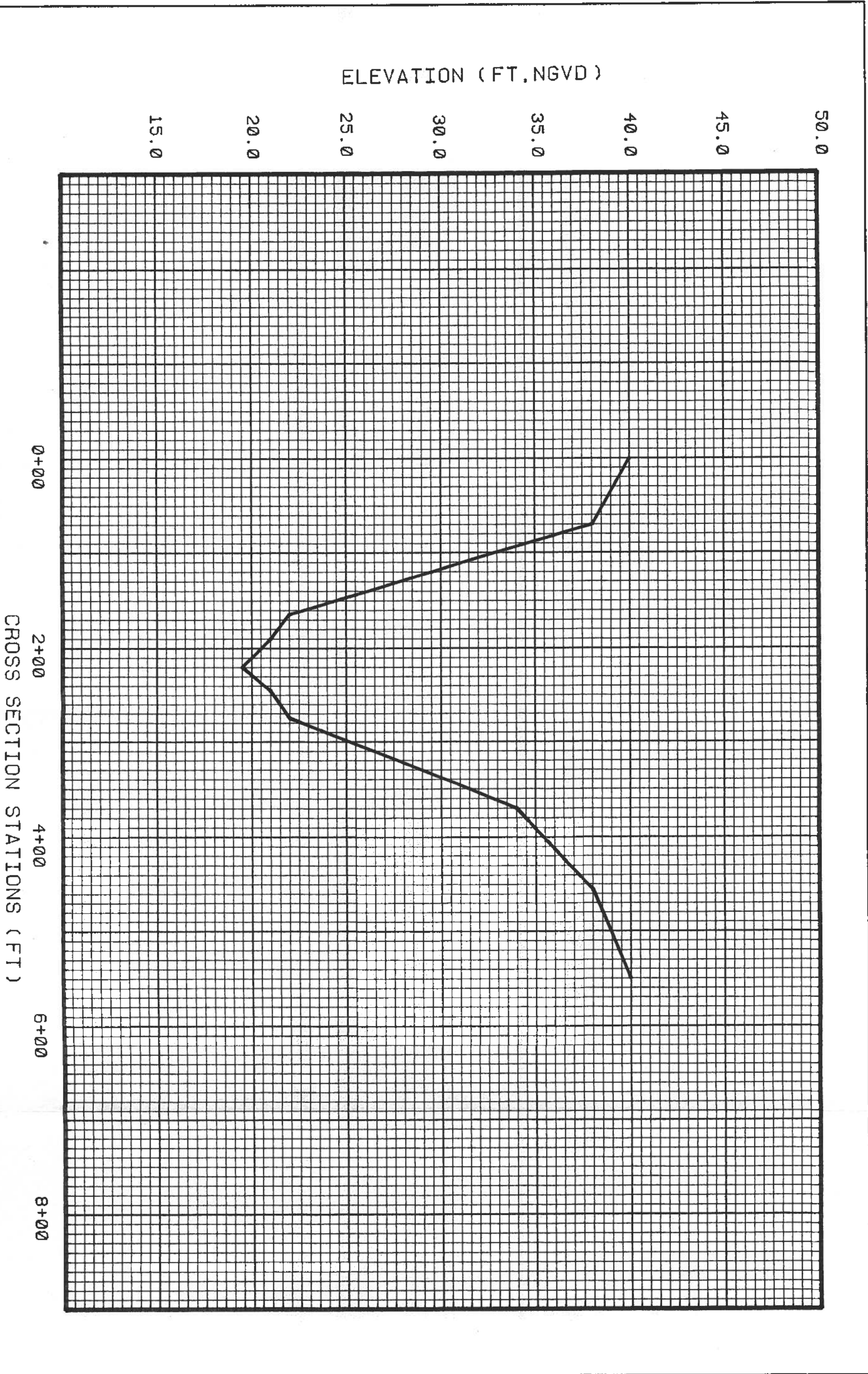
FIGURE
 34 OF 125



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 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 30.0
 MIDDLENECK BRANCH

FIGURE
 4 OF 12F



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 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 23.0
 PEGGY BRANCH

FIGURE
 59 OF 125

ELEVATION (FT. NGVD)

43.0

38.0

33.0

28.0

23.0

18.0

13.0

0+00

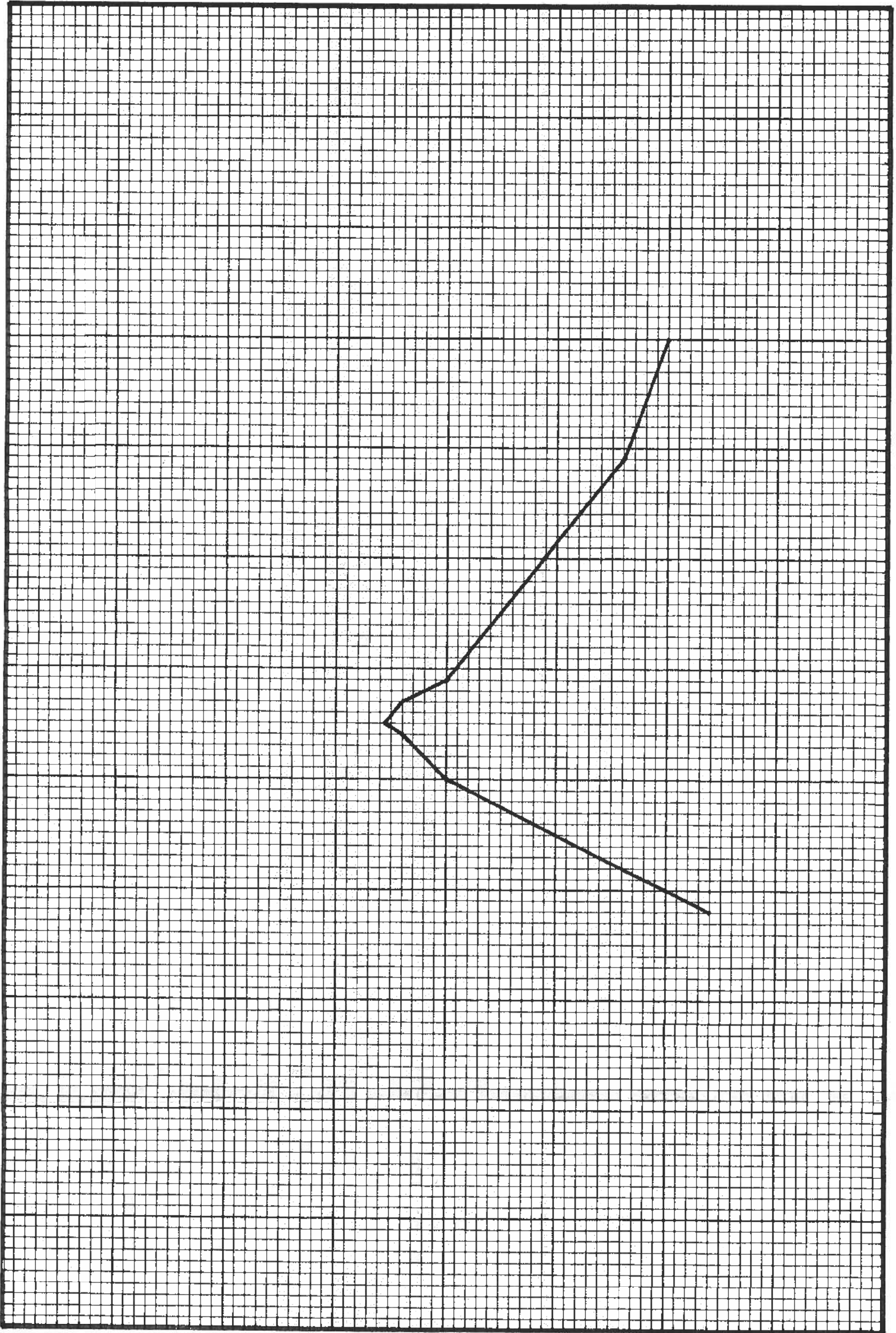
2+00

4+00

6+00

8+00

CROSS SECTION STATIONS (FT)

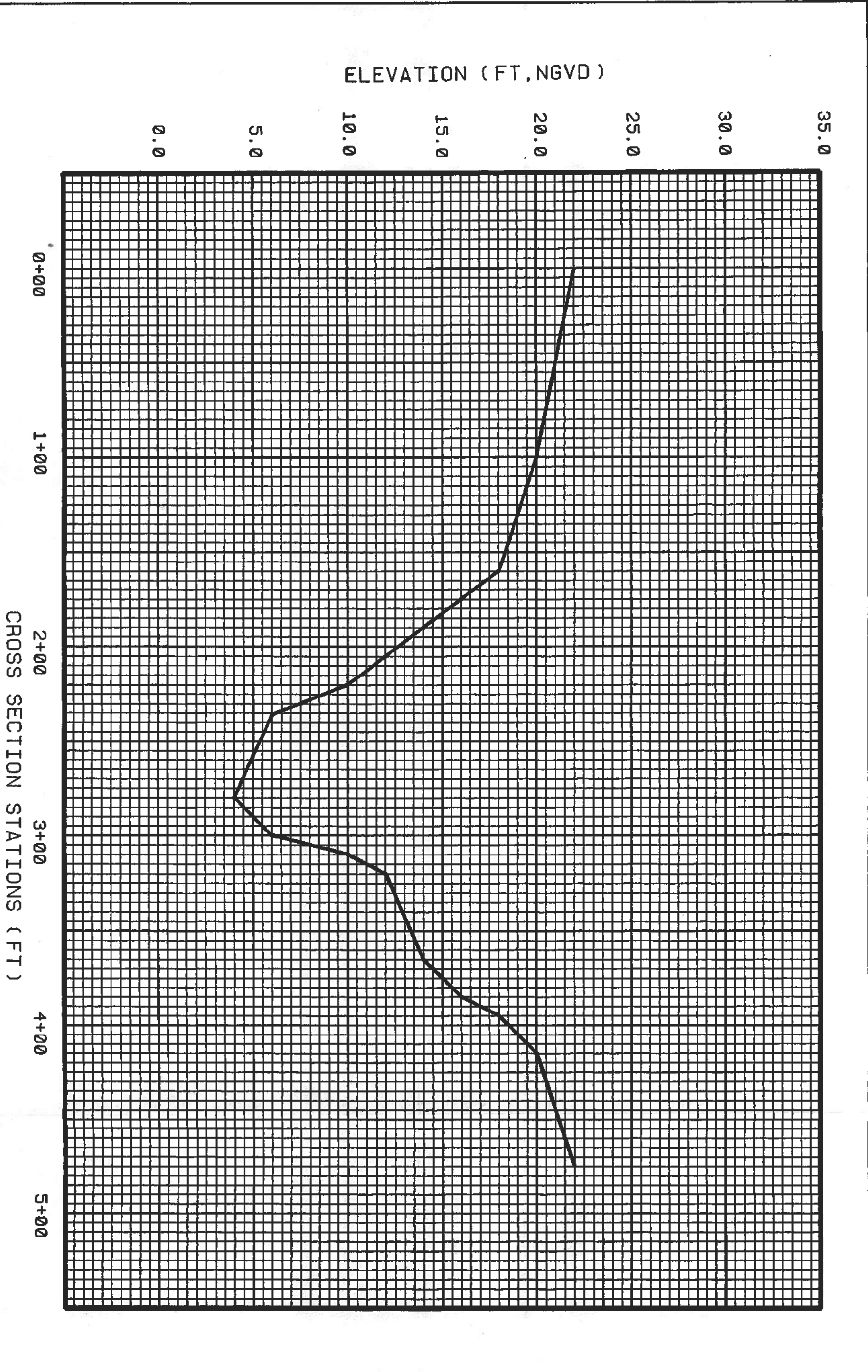


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WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 30.0

PEGGY BRANCH

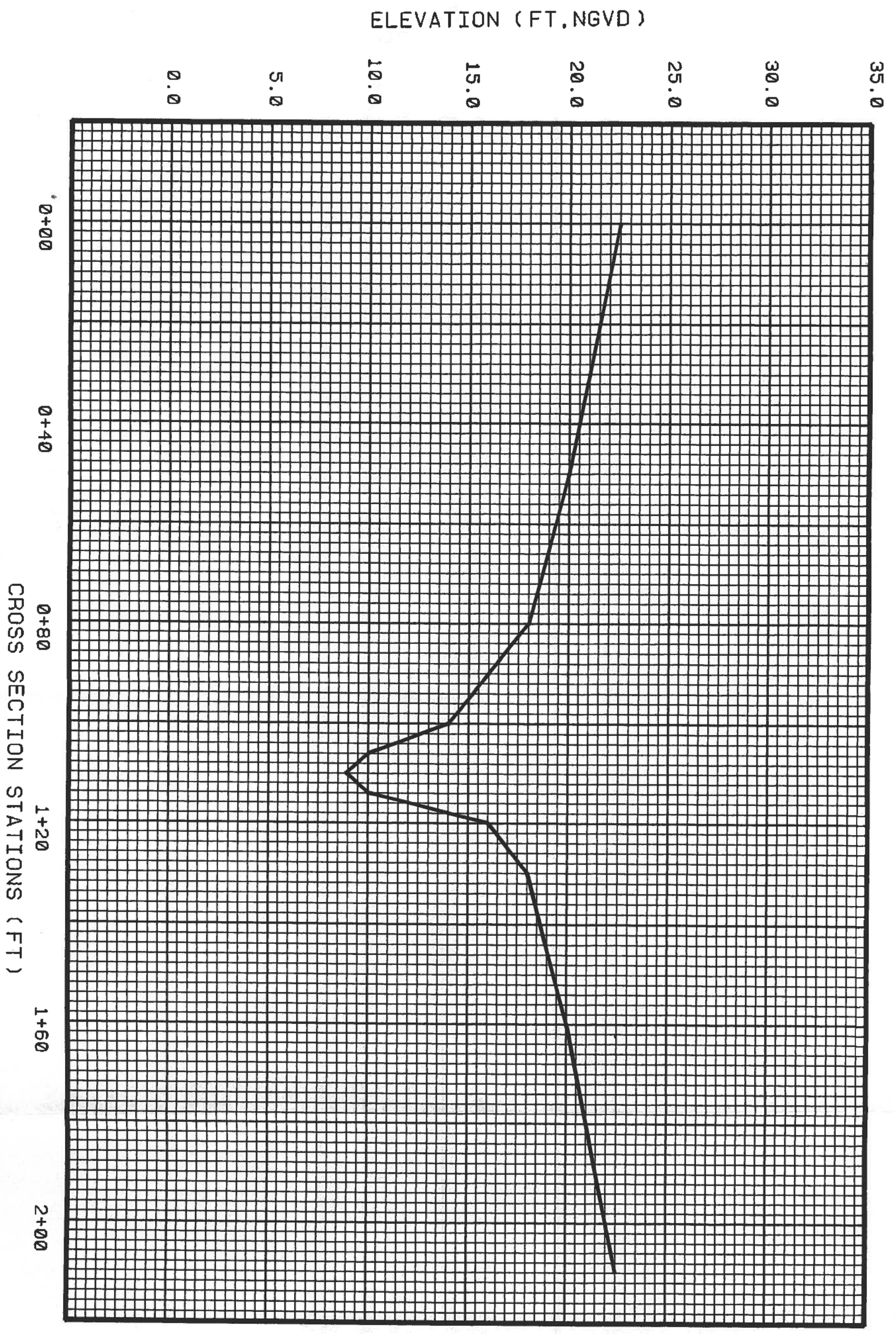
FIGURE
OF OF 12P



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 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 17.0
 COTY COX BRANCH

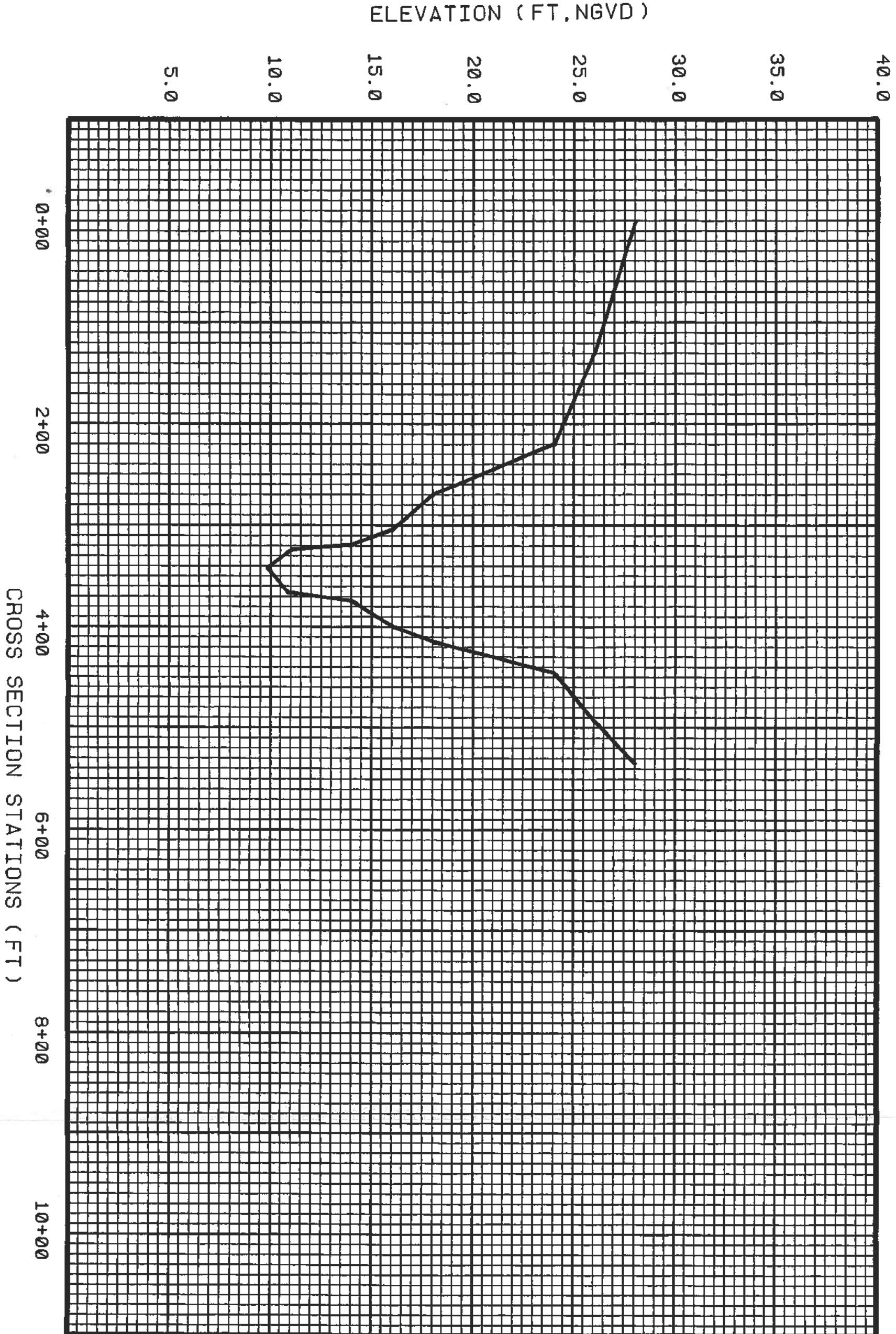
FIGURE
 7E OF 12E



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 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 12.0
 COTY COX BRANCH

FIGURE
 OF 12P



ELEVATION (FT, NGVD)

40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0

0+00
2+00
4+00
6+00
8+00
10+00

CROSS SECTION STATIONS (FT)

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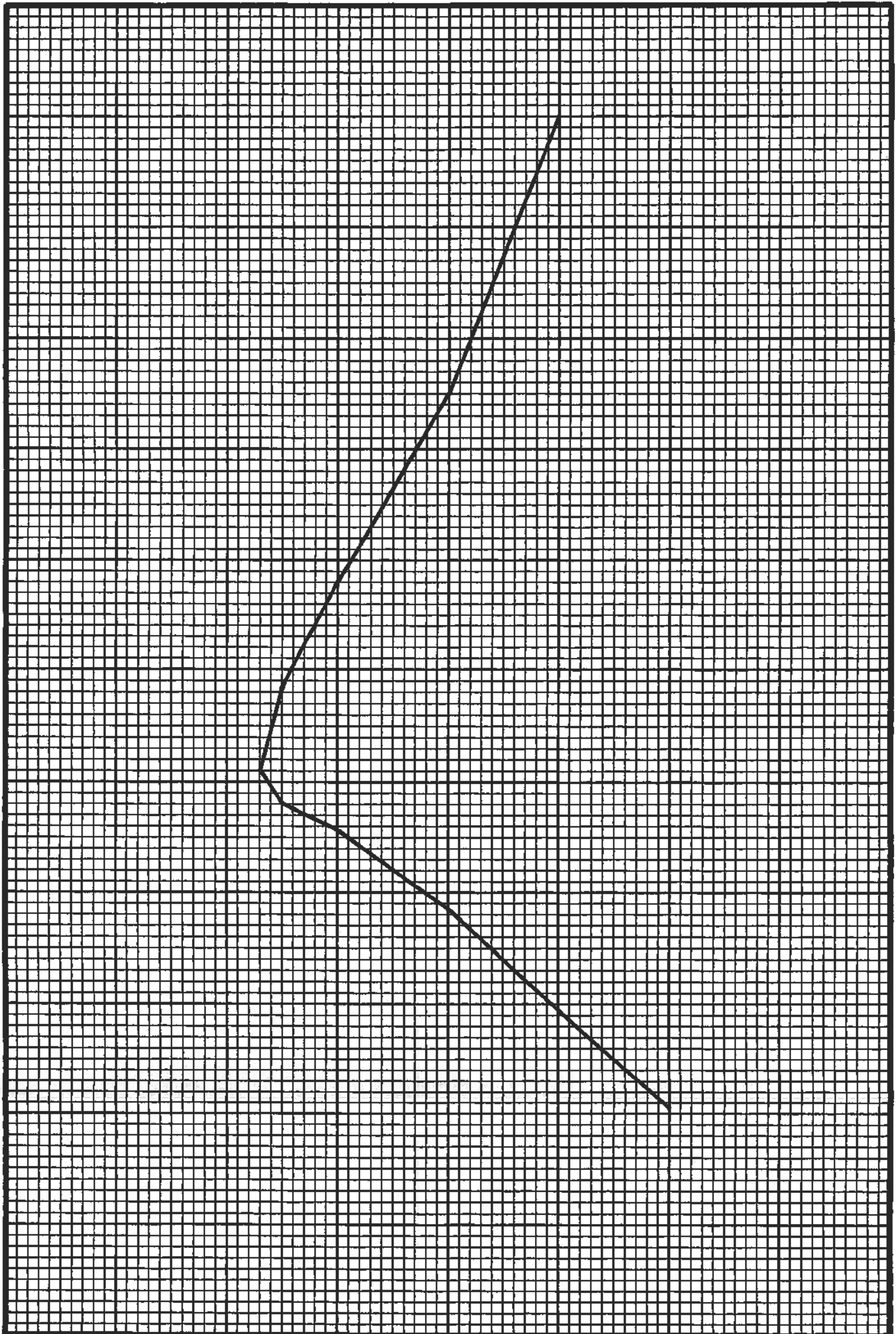
CROSS SECTION NO. 15.0
OWENS BRANCH - EAST

FIGURE
58 OF 125

ELEVATION (FT. NGVD)

40.0
36.0
34.0
32.0
30.0
28.0

CROSS SECTION STATIONS (FT)
0+00
1+00
2+00
3+00
4+00
5+00

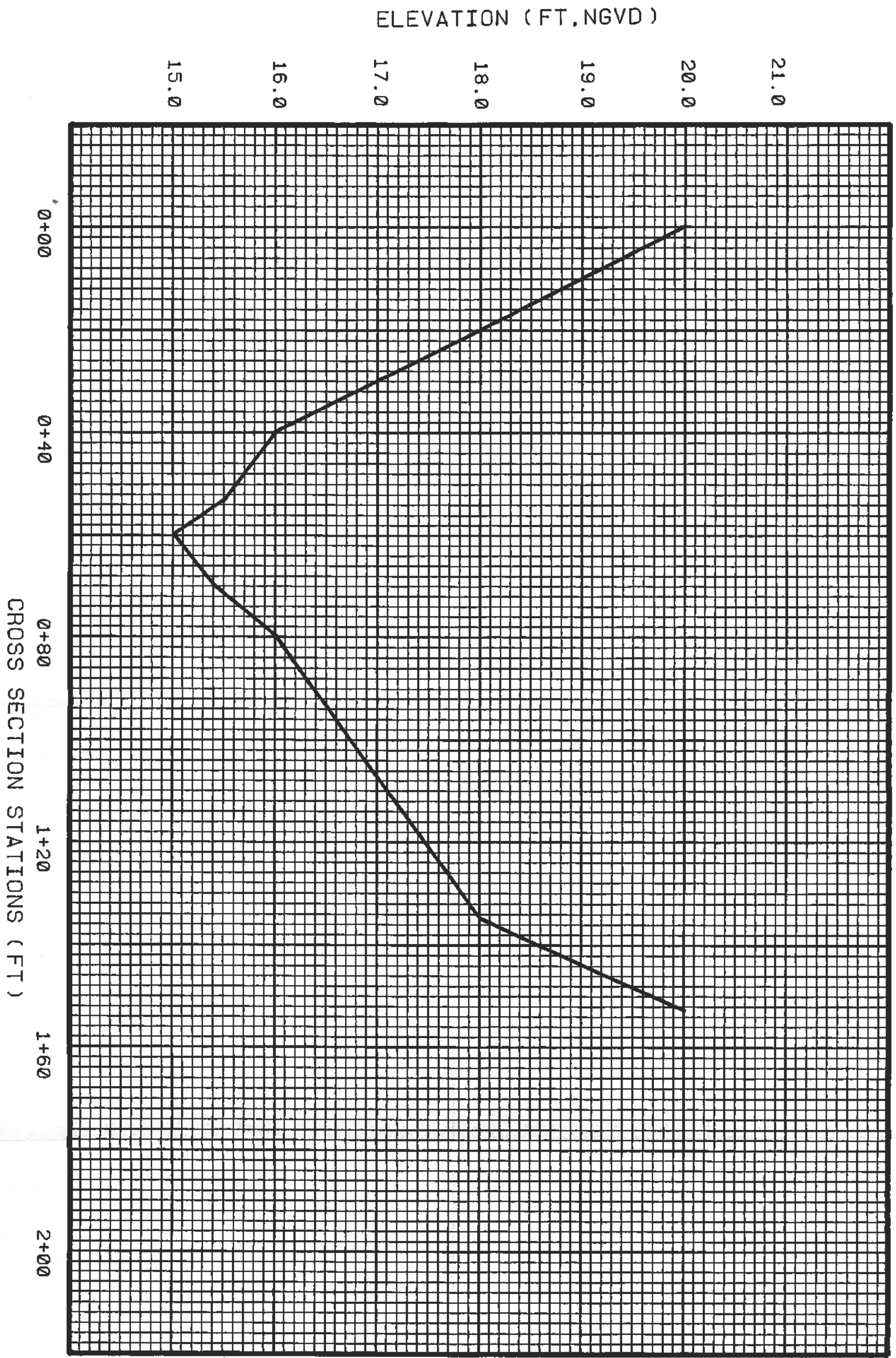


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WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 9.0

OWENS BRANCH - EAST

FIGURE
106 OF 126



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 UPPER WICOMICO RIVER FLOODPLAIN MANAGEMENT STUDY
 WICOMICO COUNTY, MARYLAND

CROSS SECTION NO. 8.0
 OWENS BRANCH - WEST

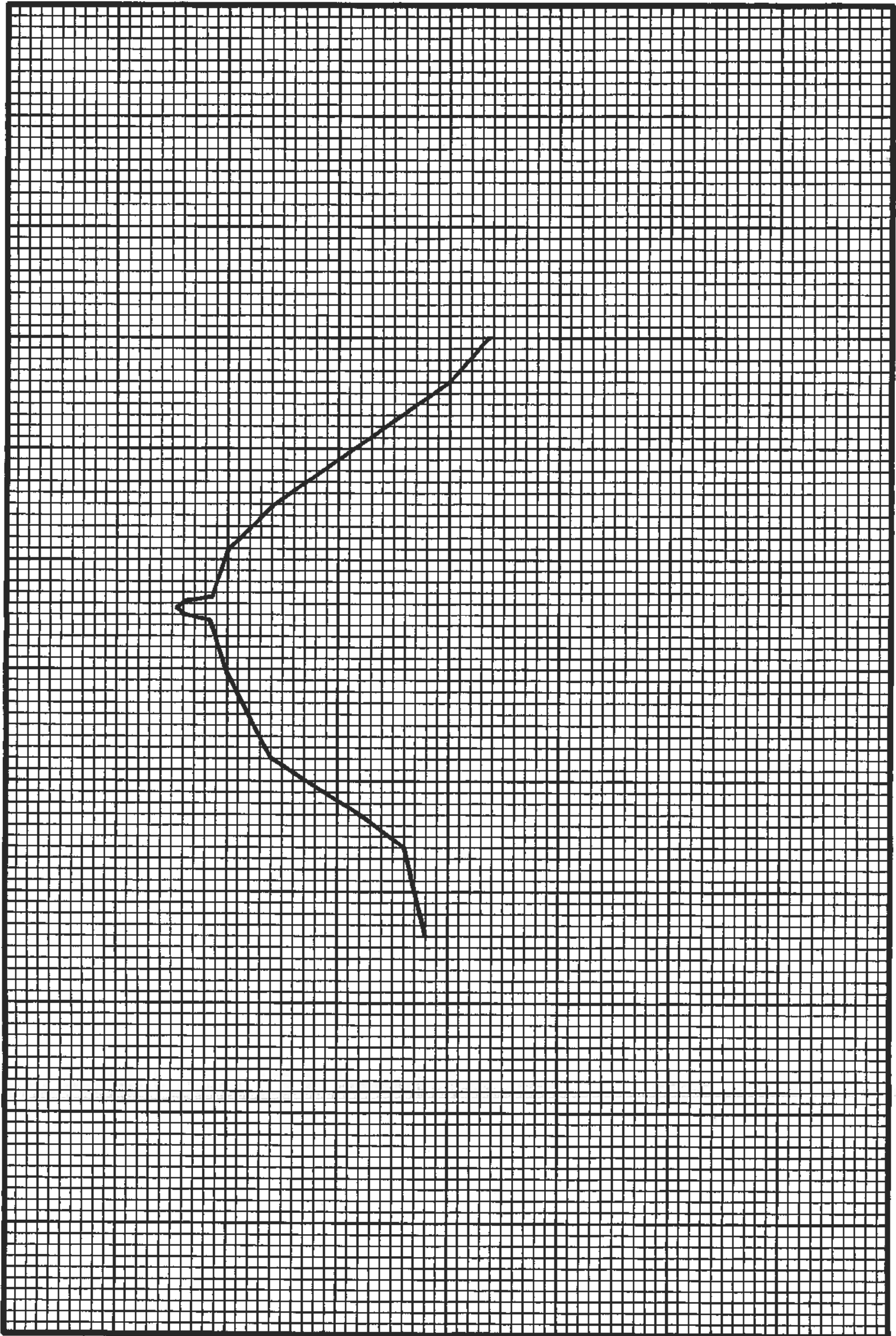
FIGURE
 11F OF 12F

ELEVATION (FT. NGVD)

15.0
20.0
25.0
30.0
35.0
40.0

0+00
1+00
2+00
3+00
4+00

CROSS SECTION STATIONS (FT)



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UPPER WICOMICO RIVER FLOODPLAIN MANAGEMENT STUDY
WICOMICO COUNTY, MARYLAND

FIGURE
12F OF 12F

CROSS SECTION NO. 14.0

OWENS BRANCH - WEST

APPENDIX D

Investigations and Analysis

APPENDIX D

INVESTIGATIONS AND ANALYSES

HYDRAULIC: Channel and floodplain sections, bridge data, and n-values were surveyed and collected in the field. The base maps were mosaicked from orthophoto maps provided by the City of Salisbury. The Corps of Engineers water surface profile computer program HEC2 was used to compute the flood heights at the cross-section locations for specific discharges corresponding to flows of various frequencies. The flood elevations between cross-sections were interpolated.

HYDROLOGIC: Land use data compiled from county plans and investigation by state office personnel were overlaid with soils data to generate Runoff Curve numbers. Weighted Curve Numbers were calculated for each subwatershed. Times of concentration were calculated using overland flow length and in-channel flow velocities developed from observations of small swales and headwater channels in the watershed, plus the cross-sections used in the water surface profile.

Rainfall data were obtained from TP-40 for the 2,10,25,50,100-year, 24-hour events. This information is based upon analysis of rainfall gages within a region. Rainfall amounts were reduced by an aerial distribution factor. Rainfall amounts used for this study are 3.5 inches for the 2-year, 5.6 inches for the 10-year, 6.3 inches for the 25-year, 7.1 inches for the 50-year, and 7.9 inches for the 100-year storm event. Flow frequency was determined through the use of the rainfall frequency data above input into the NRCS TR-20 hydrologic model.

ECONOMICS: Values given for damage estimates were developed by the staff economist after examination of the available data and a tour of the damage areas. Information on development within the present and future flood plains was compiled from orthophoto maps provided by the City of Salisbury and field survey. Market values for buildings were estimated from information provided by the Department of Assessments and Taxation. First-floor elevations of structures were surveyed and collected in the field. A standard depth-damage curve was selected from the 1991 Flood Insurance Rate Review. Average annual damages were computed with the NRCS urban floodwater damage computer program URB1.

LOCAL MANAGEMENT ALTERNATIVES: These were developed by the planning staff after reviewing the watershed application and touring the watershed as being appropriate alternatives. The Wicomico County Department of Public Works contributed to them.

