

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 3 OF 3



UNION COUNTY, NEW JERSEY (ALL JURISDICTIONS)

| COMMUNITY NAME | NUMBER | COMMUNITY NAME | NUMBER |
|-------------------------------|--------|------------------------------------|--------|
| BERKELEY HEIGHTS, TOWNSHIP OF | 340459 | PLAINFIELD, CITY OF | 345312 |
| CLARK, TOWNSHIP OF | 345290 | RAHWAY, CITY OF | 345314 |
| CRANFORD, TOWNSHIP OF | 345291 | ROSELLE, BOROUGH OF | 340472 |
| ELIZABETH, CITY OF | 345523 | ROSELLE PARK, BOROUGH OF | 340473 |
| FANWOOD, BOROUGH OF | 340463 | SCOTCH PLAINS, TOWNSHIP OF | 340474 |
| GARWOOD, BOROUGH OF | 340464 | SPRINGFIELD, TOWNSHIP OF | 345321 |
| HILLSIDE, TOWNSHIP OF | 340465 | SUMMIT, CITY OF | 340476 |
| KENILWORTH, BOROUGH OF | 340466 | UNION, TOWNSHIP OF | 340477 |
| LINDEN, CITY OF | 340467 | WESTFIELD, TOWN OF | 340478 |
| MOUNTAINSIDE, BOROUGH OF | 340468 | WINFIELD, TOWNSHIP OF ¹ | 340479 |
| NEW PROVIDENCE, BOROUGH OF | 345306 | | |

¹ No Special Flood Hazard Areas Identified

REVISED:

**PRELIMINARY
APRIL 18, 2016**

FLOOD INSURANCE STUDY NUMBER
34039CV003B
Version Number 2.2.2.2



FEMA

NOTICE TO FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Countywide FIS Effective Date: September 20, 2006

Revised Countywide FIS Date: [TBD] – to change Base Flood Elevations, Special Flood Hazard Areas and zone designations; to update the effects of wave actions, roads and road names; and to reflect revised shoreline and updated topographic information.

to change the vertical datum for elevation information from the National Geodetic Vertical Datum of 1929 to the North American Vertical Datum of 1988.

ATTENTION: On FIRM panels 34039C0024G and 34039C035G the Elizabeth River levee and on FIRM panels 34039C0043G and 34039C0044G the Rahway River levee have not been demonstrated by the community or levee owner(s) to meet the requirements of Section 65.10 of the NFIP regulations in 44 CFR as it relates to the levee's capacity to provide 1-percent annual chance flood protection. The subject areas are identified on FIRM panels (with notes and bounding lines) and in the FIS report as potential areas of flood hazard data changes based on further review.

FEMA has updated the levee analysis and mapping procedures for non-accredited levees. Until such time as FEMA is able to initiate a new flood risk project to apply the new procedures, the flood hazard information on the aforementioned FIRM panel(s) that are affected by the Elizabeth River and Rahway River levees are being added as a snapshot of the prior previously effective information presented on the FIRMs and FIS reports dated September 20, 2006. As indicated above, it is expected that affected flood hazard data within the subject area could be significantly revised. This may result in floodplain boundary changes, 1-percent annual chance flood elevation changes, and/or changes to flood hazard zone designations.

The effective FIRM panels (and the FIS report) will again be revised at a later date to update the flood hazard information associated with the Elizabeth River and Rahway River levees when FEMA is able to initiate and complete a new flood risk project to apply the new levee analysis and mapping procedures.

TABLE OF CONTENTS – Volume 1

| | <u>Page</u> |
|---|-------------|
| 1.0 <u>INTRODUCTION</u> | 1 |
| 1.1 Purpose of Study | 1 |
| 1.2 Authority and Acknowledgments | 2 |
| 1.3 Coordination | 9 |
| 2.0 <u>AREA STUDIED</u> | 10 |
| 2.1 Scope of Study | 10 |
| 2.2 Community Description | 15 |
| 2.3 Principal Flood Problems | 16 |
| 2.4 Flood Protection Measures | 25 |
| 3.0 <u>ENGINEERING METHODS</u> | 31 |
| 3.1 Hydrologic Analyses | 31 |
| 3.2 Hydraulic Analyses | 55 |
| 3.3 Coastal Analyses | 66 |
| 3.4 Vertical Datum | 73 |
| 4.0 <u>FLOODPLAIN MANAGEMENT APPLICATIONS</u> | 74 |
| 4.1 Floodplain Boundaries | 74 |
| 4.2 Floodways | 78 |
| 5.0 <u>INSURANCE APPLICATION</u> | 121 |
| 6.0 <u>FLOOD INSURANCE RATE MAP</u> | 122 |
| 7.0 <u>OTHER STUDIES</u> | 127 |
| 8.0 <u>LOCATION OF DATA</u> | 127 |
| 9.0 <u>BIBLIOGRAPHY AND REFERENCES</u> | 127 |

TABLE OF CONTENTS – Volume 1 – continued

FIGURES

| | |
|--|----|
| Figure 1 – Frequency-Discharge, Drainage Area Curves | 42 |
| Figure 2 – Transect Location Map | 69 |
| Figure 3 – Transect Schematic | 72 |
| Figure 4 – Floodway Schematic | 80 |

TABLES

| | |
|--|-----|
| Table 1 – Initial and Final Precounty CCO Meetings | 9 |
| Table 2 – Flooding Sources Studied by Detailed Methods | 10 |
| Table 3 – [TBD], Scope of Revision | 11 |
| Table 4 – Model Dates for Riverine Flooding Sources | 12 |
| Table 5 – Stream Name Changes | 14 |
| Table 6 – LOMRs Incorporated | 15 |
| Table 7 – Summary of Discharges | 48 |
| Table 8 – Summary of Stillwater Elevations | 55 |
| Table 9 – Manning’s “n” Values | 64 |
| Table 10 – Transect Data | 70 |
| Table 11 – Countywide Vertical Datum Conversion | 73 |
| Table 12 – Floodway Data | 81 |
| Table 13 – Community Map History | 124 |

TABLE OF CONTENTS – Volume 2

EXHIBITS

Exhibit 1 – Flood Profiles

| | | |
|---------------------------|--------|---------|
| Black Brook | Panels | 01P-02P |
| Blue Brook | Panels | 03P-05P |
| Branch 10-24 | Panels | 06P-07P |
| Branch 10-30-1 | Panel | 08P |
| Branch 10-34 | Panel | 09P |
| Branch 22 | Panels | 10P-12P |
| Branch 22-11 | Panels | 13P-14P |
| Branch Blue Brook | Panel | 15P |
| Branch Green Brook | Panels | 16P-17P |
| Branch 1, Nomahegan Brook | Panel | 18P |
| Branch 2, Nomahegan Brook | Panels | 19P-20P |
| Branch 3, Nomahegan Brook | Panels | 21P-23P |
| Branch 7, Nomahegan Brook | Panels | 24P-25P |
| Branch West Brook | Panel | 26P |
| Bryant Brook | Panels | 27P-28P |
| Bryant Brook Branch | Panels | 29P-30P |
| Cedar Brook | Panels | 31P-33P |
| College Branch | Panel | 34P |
| Drainage Ditch | Panels | 35P-36P |
| East Branch Rahway River | Panel | 37P |
| Elizabeth River | Panels | 38P-44P |
| Gallows Hill Road Branch | Panels | 45P-48P |
| Garwood Brook | Panels | 49P-52P |
| Green Brook | Panels | 53P-62P |
| Irvington Branch | Panels | 63P-65P |
| Kings Creek | Panel | 70P |
| Lehigh Valley Branch | Panels | 71P-72P |
| Lightning Brook | Panels | 73P-74P |
| Maplewood Branch | Panel | 75P |
| Nomahegan Brook | Panels | 76P-79P |
| Orchard Creek | Panels | 80P-82P |
| Passaic River | Panels | 83P-89P |
| Peach Orchard Brook | Panels | 90P-93P |
| Pumpkin Patch Brook | Panels | 94P-95P |

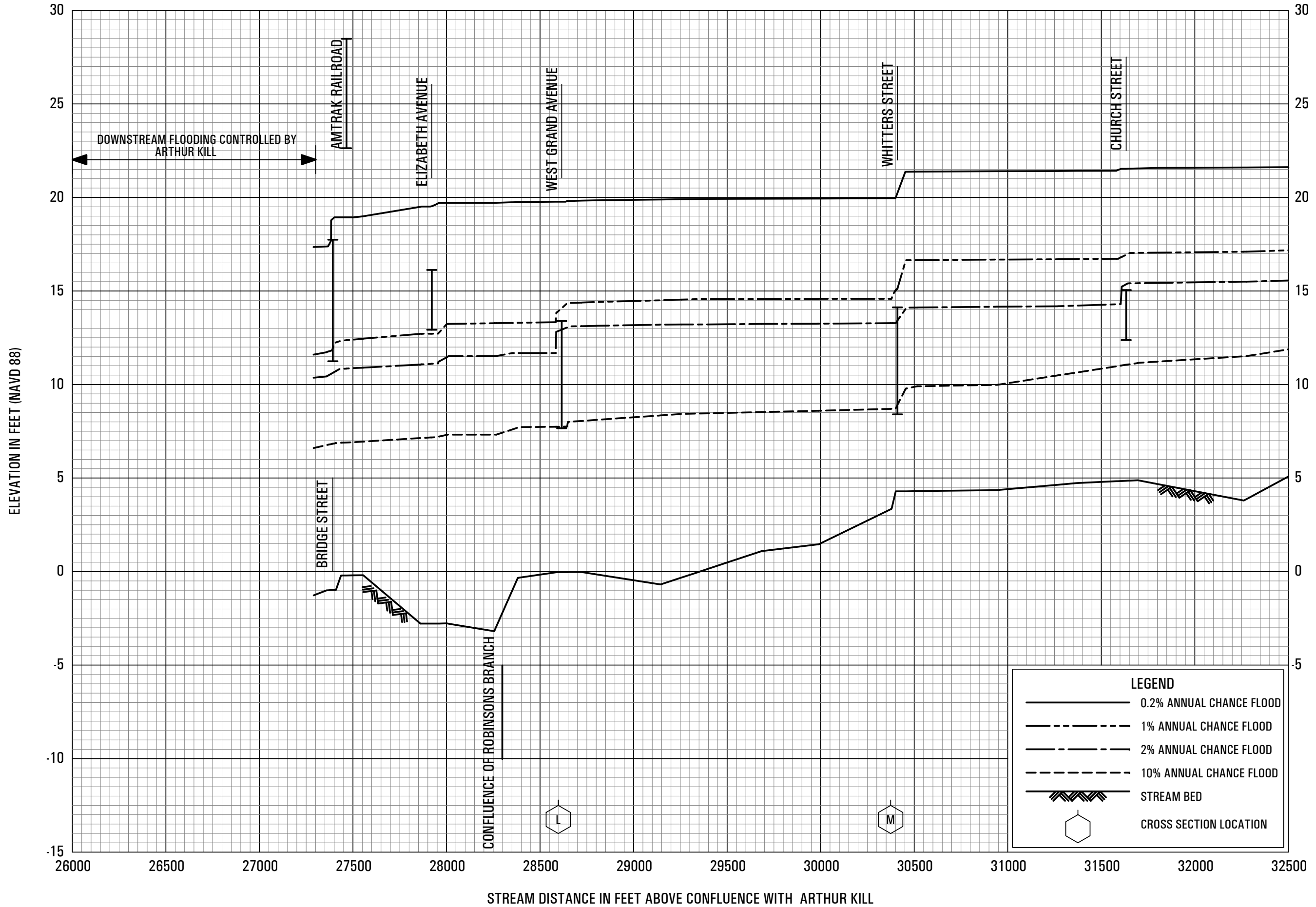
TABLE OF CONTENTS – Volume 3

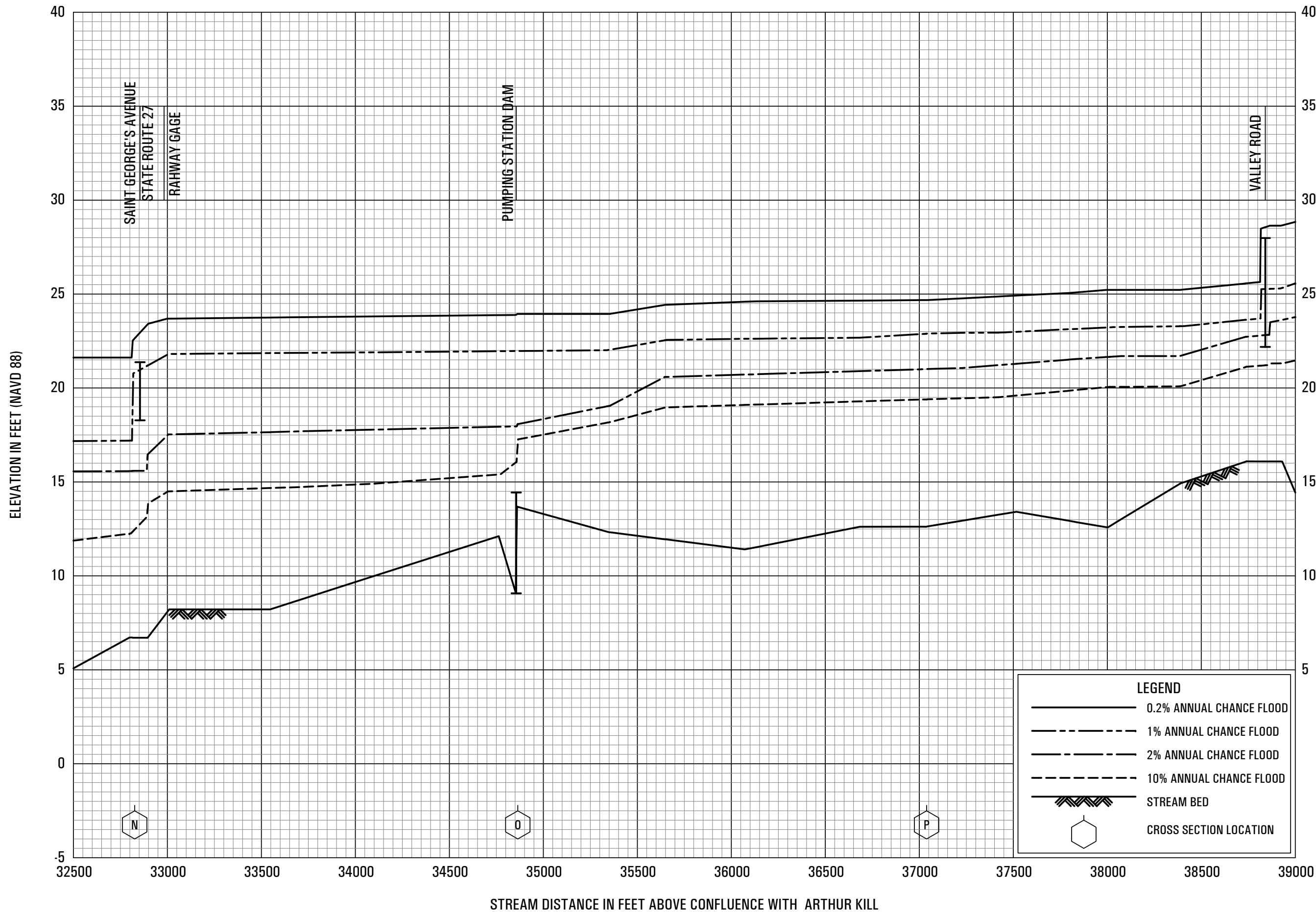
EXHIBITS – continued

Exhibit 1 – Flood Profiles (continued)

| | | |
|---------------------------------------|--------|-----------|
| Rahway River | Panels | 96P-106P |
| Robinsons Branch | Panels | 107P-112P |
| Robinsons Branch 15 | Panels | 113P-116P |
| Robinsons Branch 15-1 | Panel | 117P |
| Robinsons Branch 15-2 | Panels | 118P-120P |
| Salt Brook | Panels | 121P-124P |
| Snyder Avenue Brook | Panels | 125P-128P |
| South Branch Rahway River | Panels | 129P-130P |
| Southwest Branch | Panels | 131P-132P |
| Stream 10-30 | Panel | 133P |
| Sub-Branch, Branch 2, Nomahegan Brook | Panel | 134P |
| Tributary A | Panel | 135P |
| Tributary B | Panel | 136P |
| Trotters Lane Branch | Panels | 137P-138P |
| Van Winkles Brook | Panels | 139P-143P |
| Vauxhall Branch | Panels | 144P-145P |
| Vauxhall Subbranch | Panel | 146P |
| West Branch | Panels | 147P-148P |
| West Branch Elizabeth River | Panels | 149P-150P |
| West Branch of Salt Brook | Panels | 151P-153P |
| West Branch West Brook | Panel | 154P |
| West Brook | Panels | 155P-163P |
| Winding Brook | Panels | 164P-167P |

Exhibit 2 – Flood Insurance Rate Map Index
Flood Insurance Rate Map





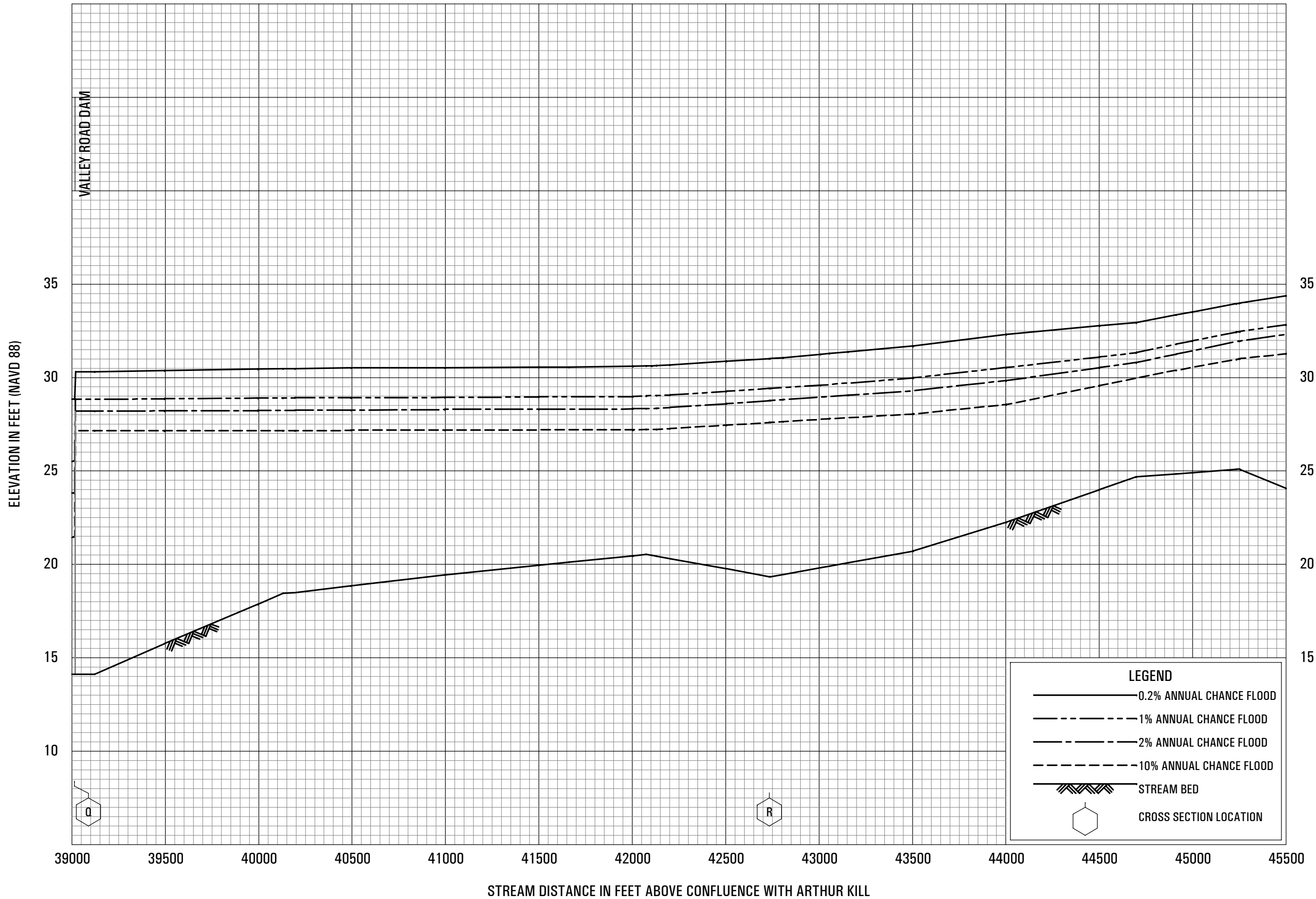
FLOOD PROFILES

RAHWAY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UNION COUNTY, NJ

(ALL JURISDICTIONS)



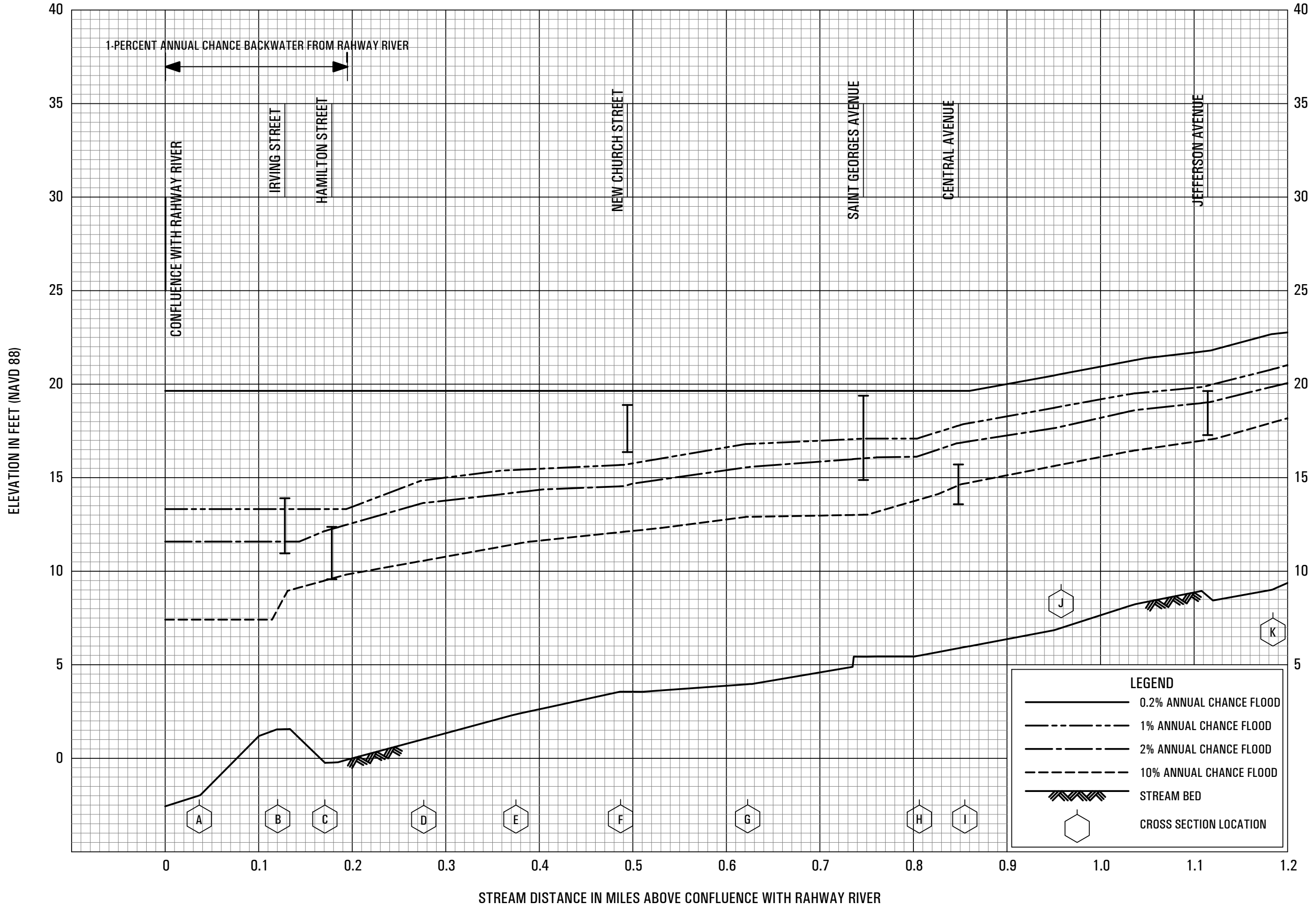
FLOOD PROFILES

RAHWAY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

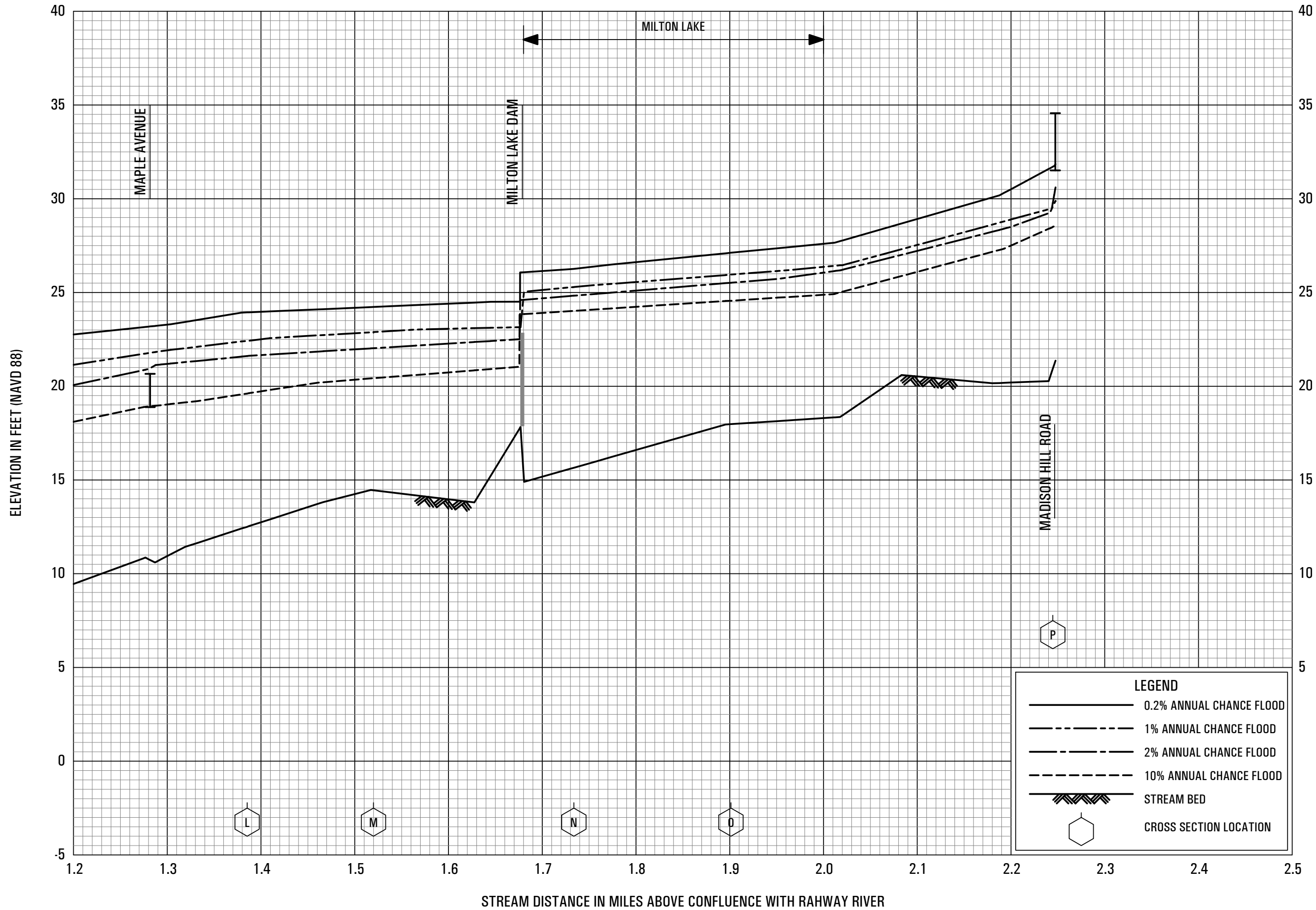
UNION COUNTY, NJ

(ALL JURISDICTIONS)



FLOOD PROFILES
ROBINSONS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
UNION COUNTY, NJ
 (ALL JURISDICTIONS)

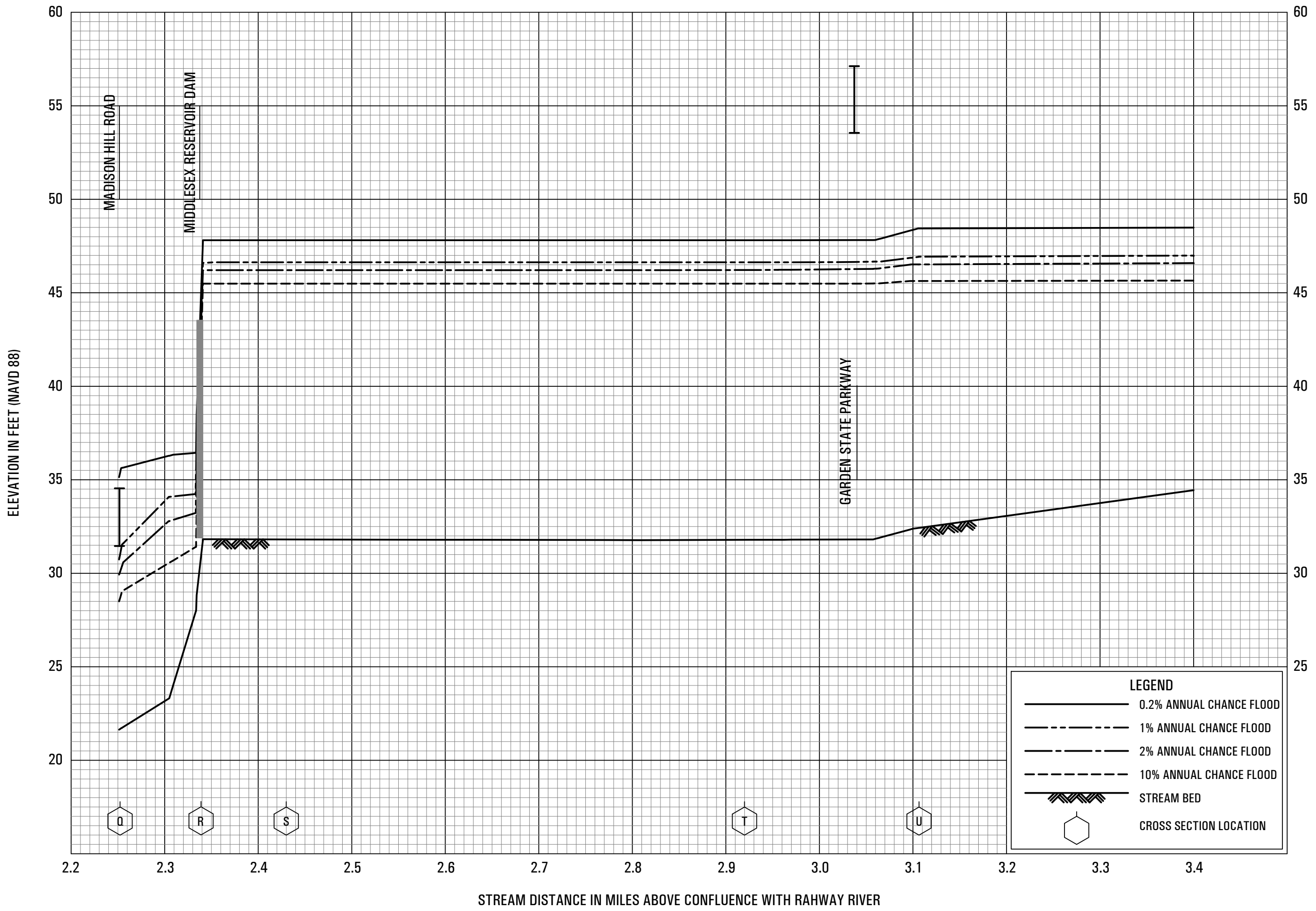


FLOOD PROFILES

ROBINSONS BRANCH

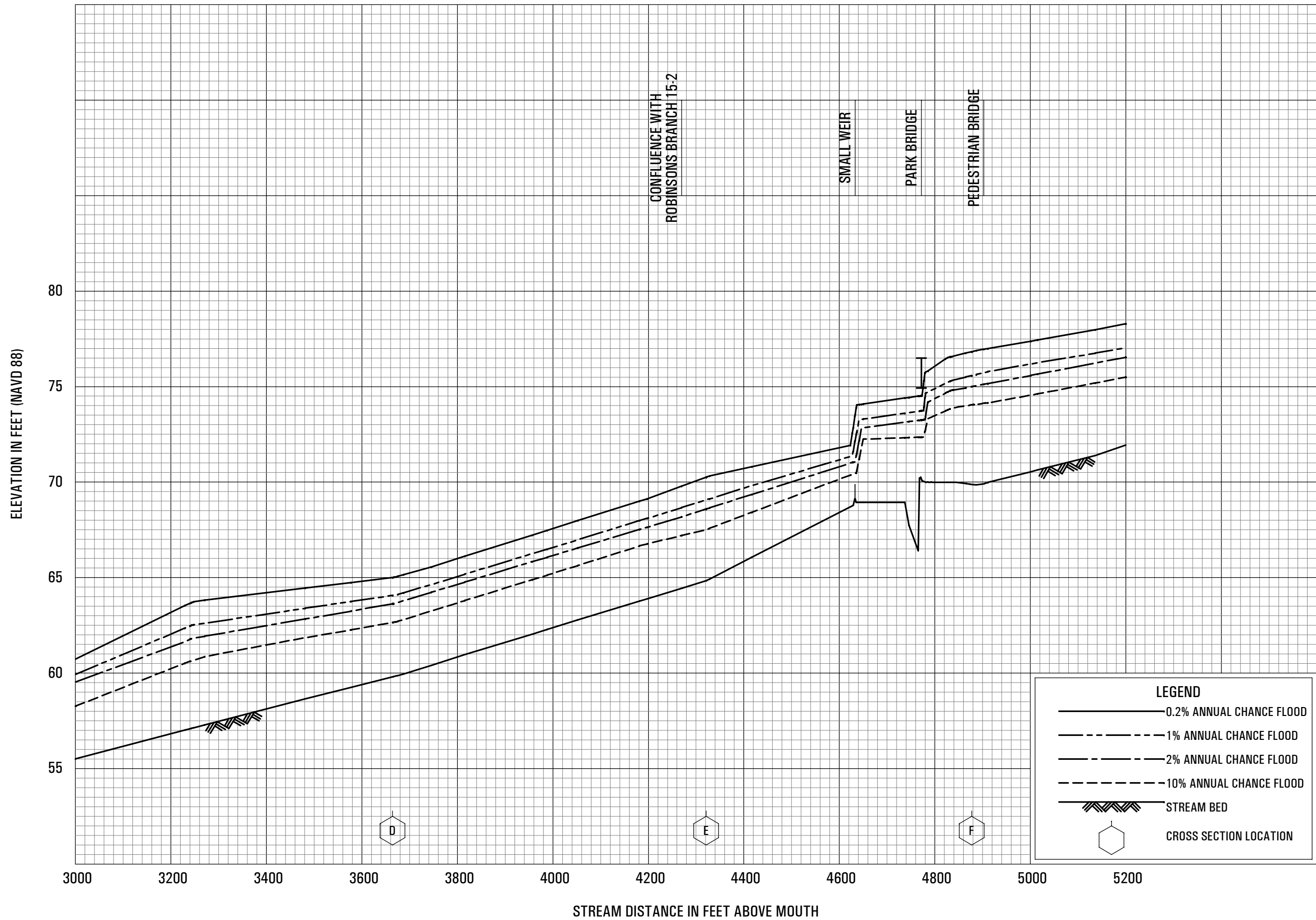
FEDERAL EMERGENCY MANAGEMENT AGENCY

UNION COUNTY, NJ
(ALL JURISDICTIONS)



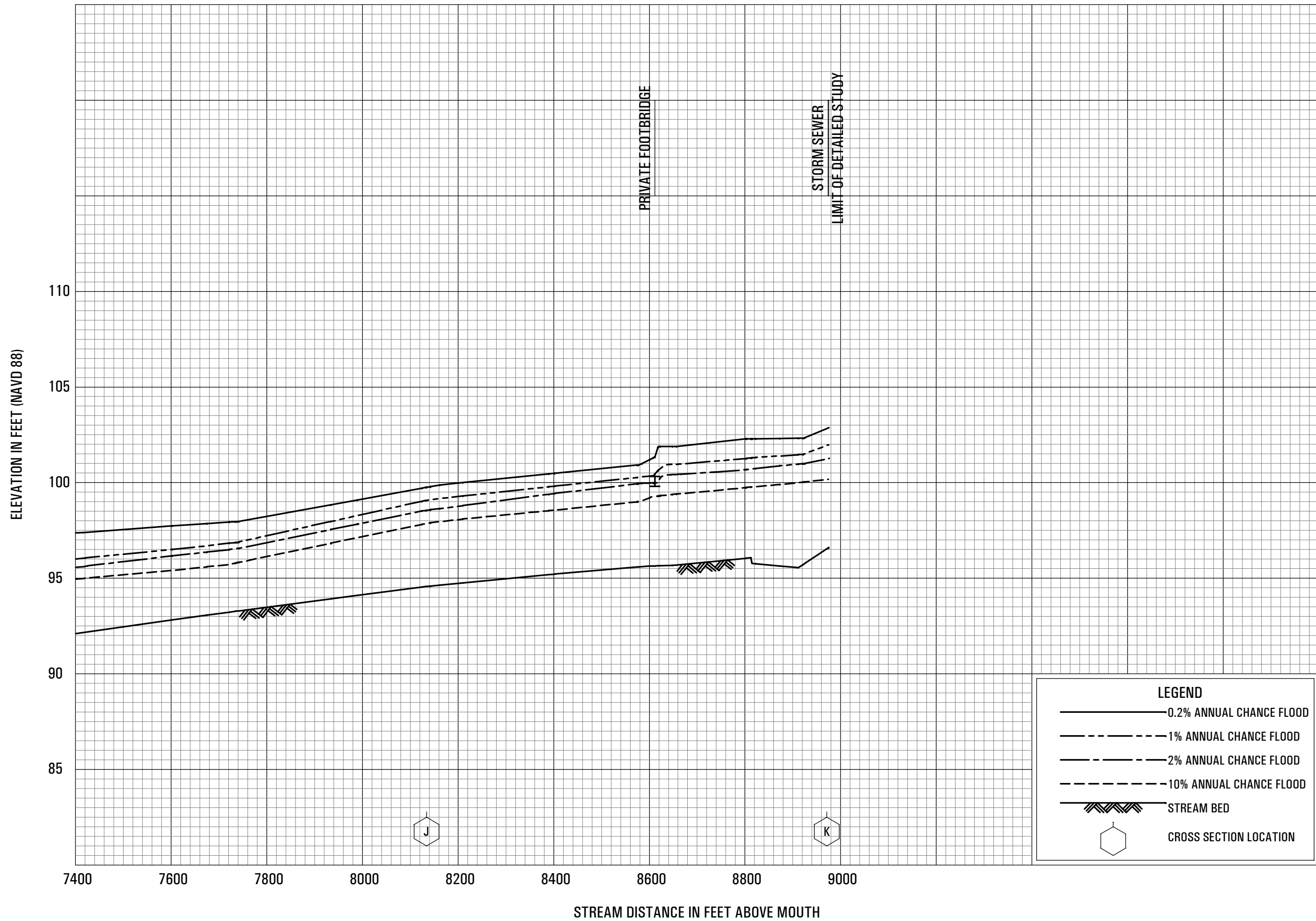
FLOOD PROFILES
ROBINSONS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
UNION COUNTY, NJ
(ALL JURISDICTIONS)



FLOOD PROFILES
ROBINSON BRANCH 15

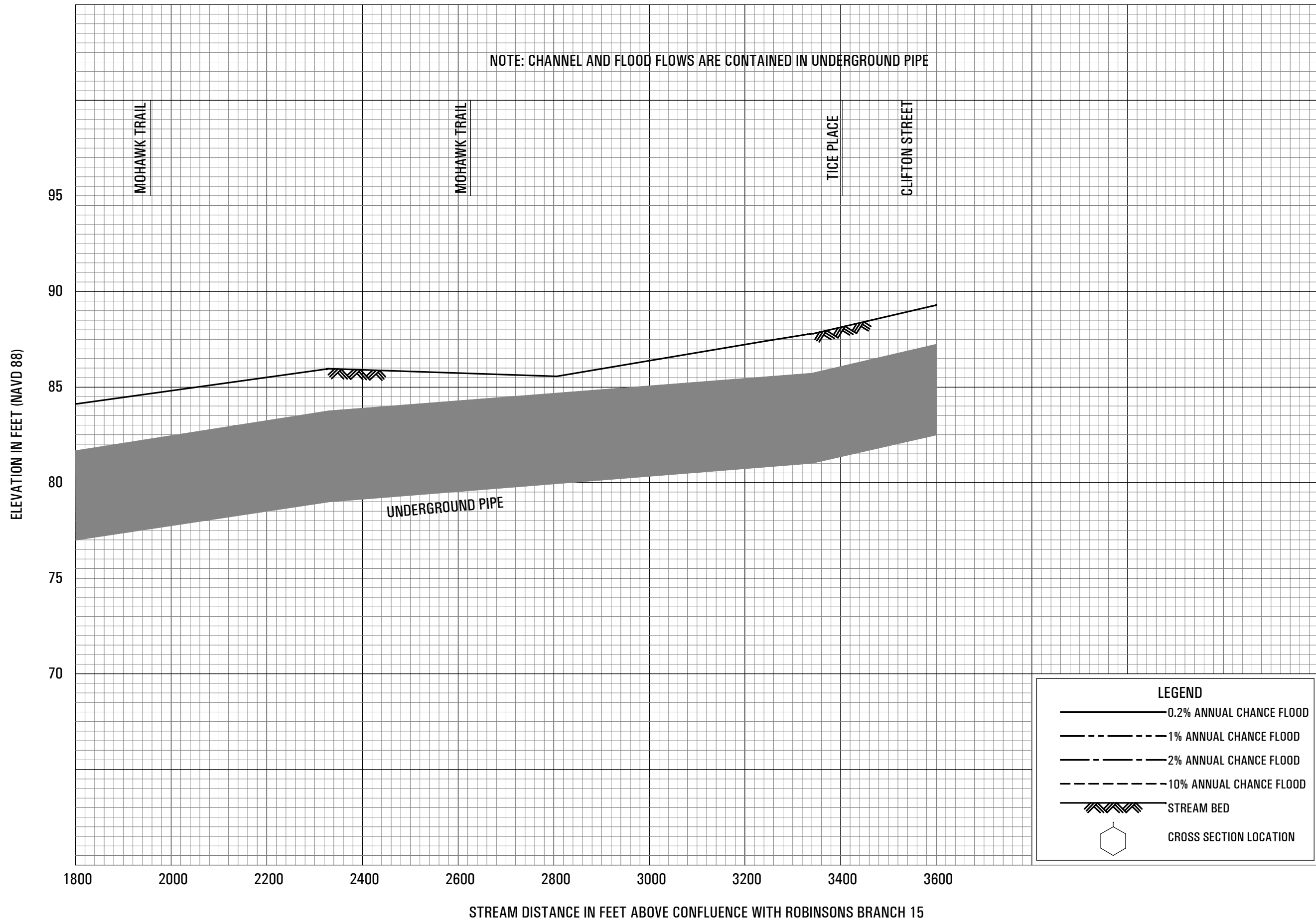
FEDERAL EMERGENCY MANAGEMENT AGENCY
UNION COUNTY, NJ
(ALL JURISDICTIONS)



FLOOD PROFILES
ROBINSON BRANCH 15

FEDERAL EMERGENCY MANAGEMENT AGENCY
UNION COUNTY, NJ
(ALL JURISDICTIONS)

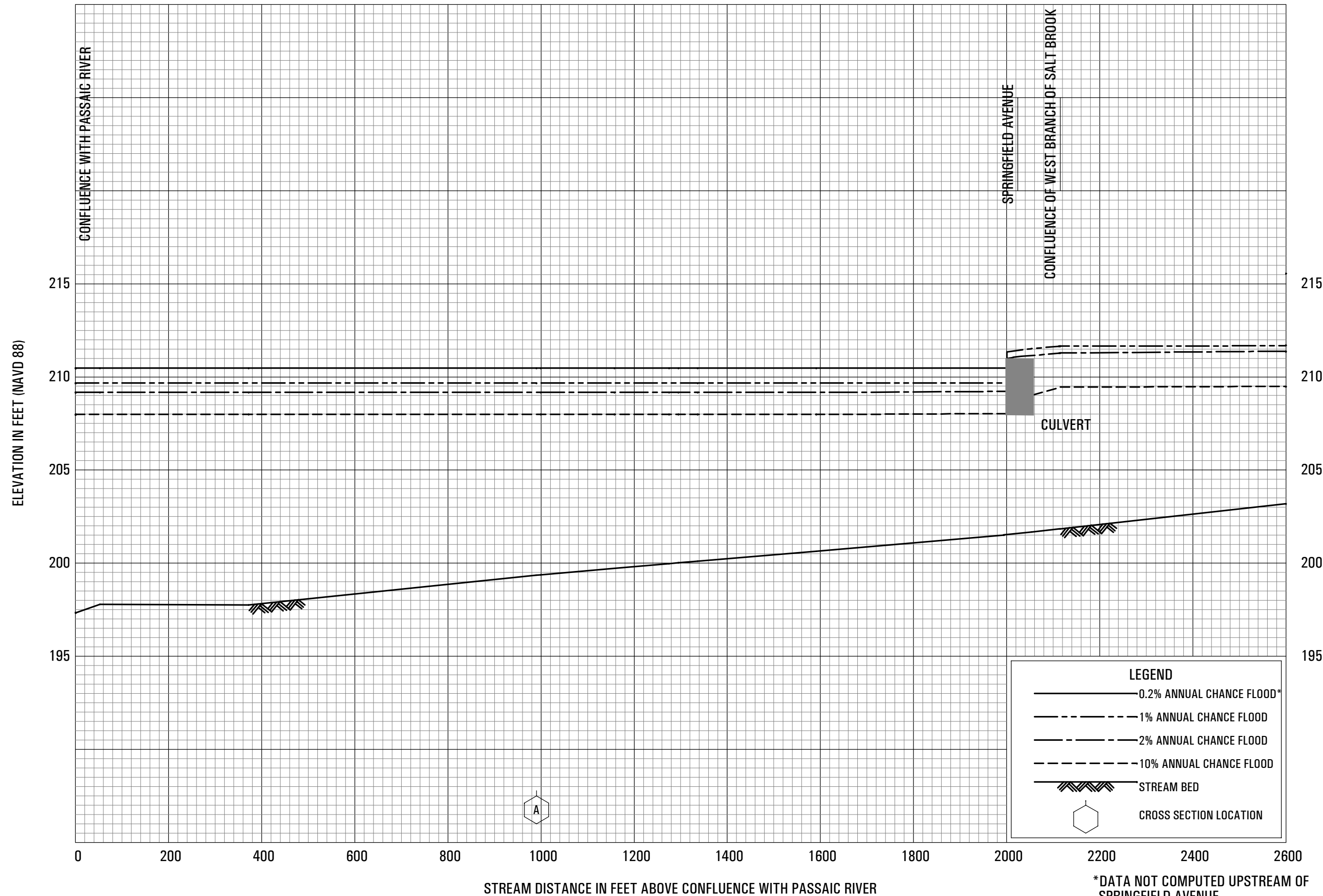
116P



FLOOD PROFILES

ROBINSONS BRANCH 15-2

FEDERAL EMERGENCY MANAGEMENT AGENCY
UNION COUNTY, NJ
 (ALL JURISDICTIONS)

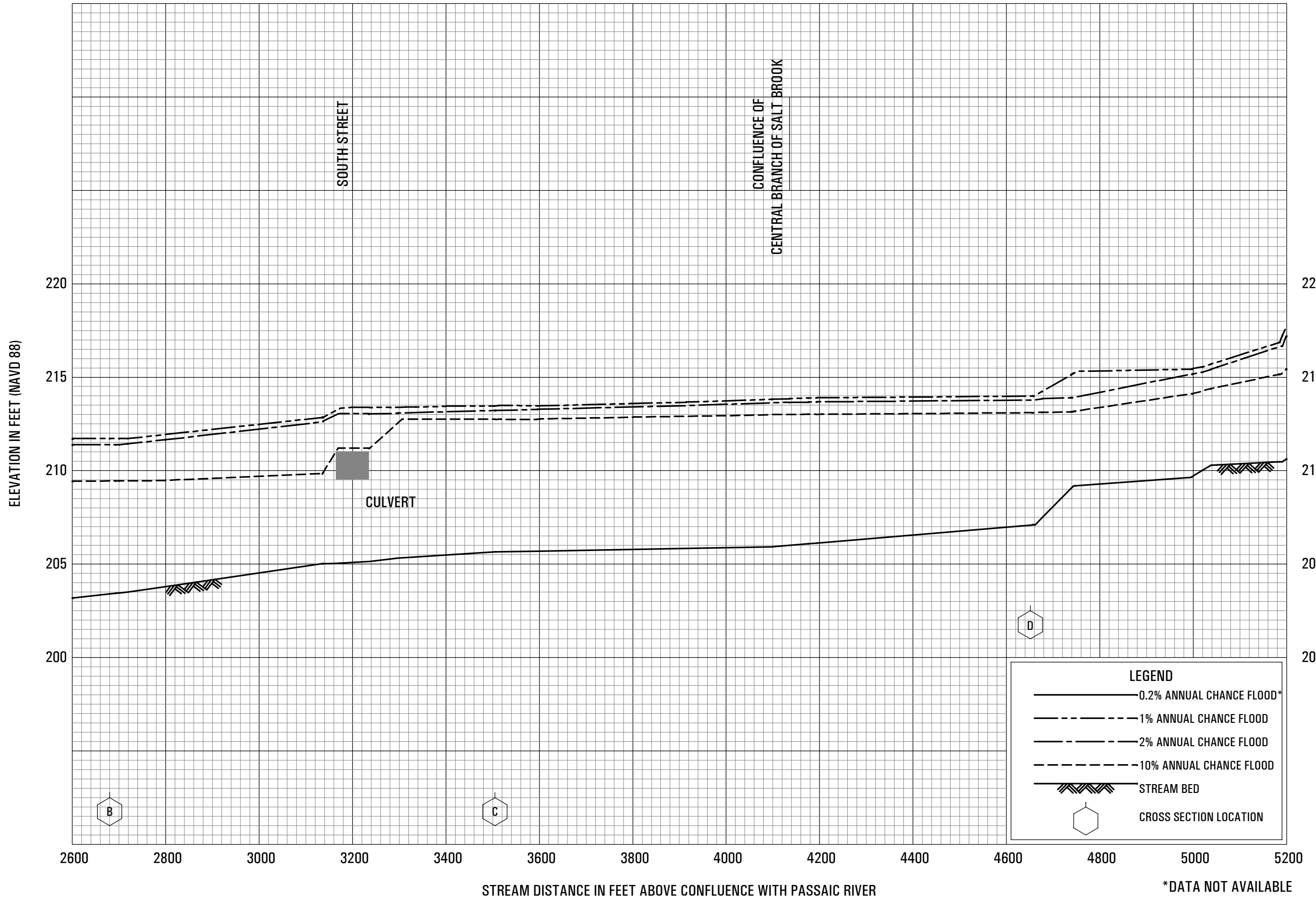


FLOOD PROFILES

SALT BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY
UNION COUNTY, NJ
(ALL JURISDICTIONS)

*DATA NOT COMPUTED UPSTREAM OF SPRINGFIELD AVENUE



*DATA NOT AVAILABLE

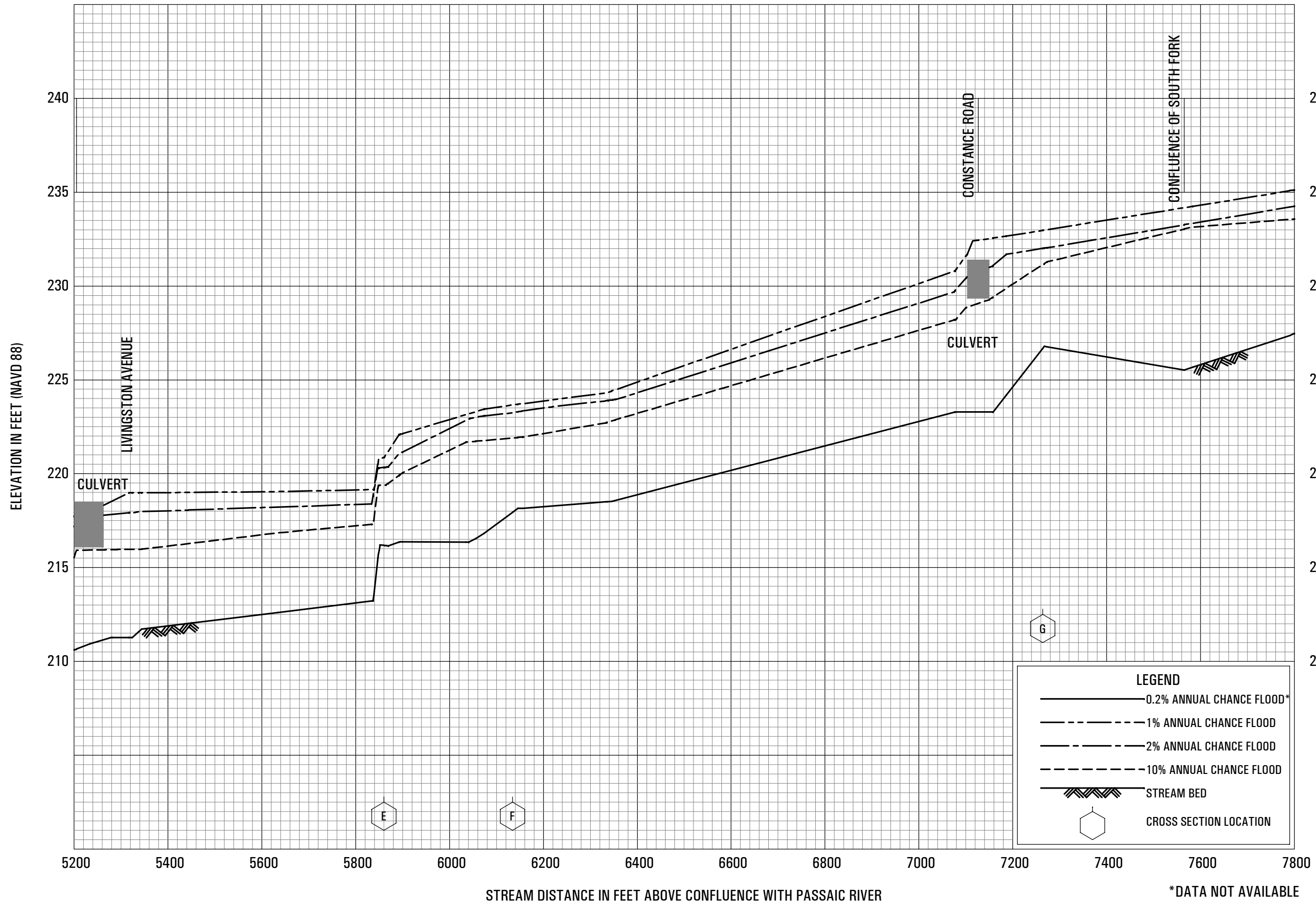
FLOOD PROFILES

SALT BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UNION COUNTY, NJ
(ALL JURISDICTIONS)

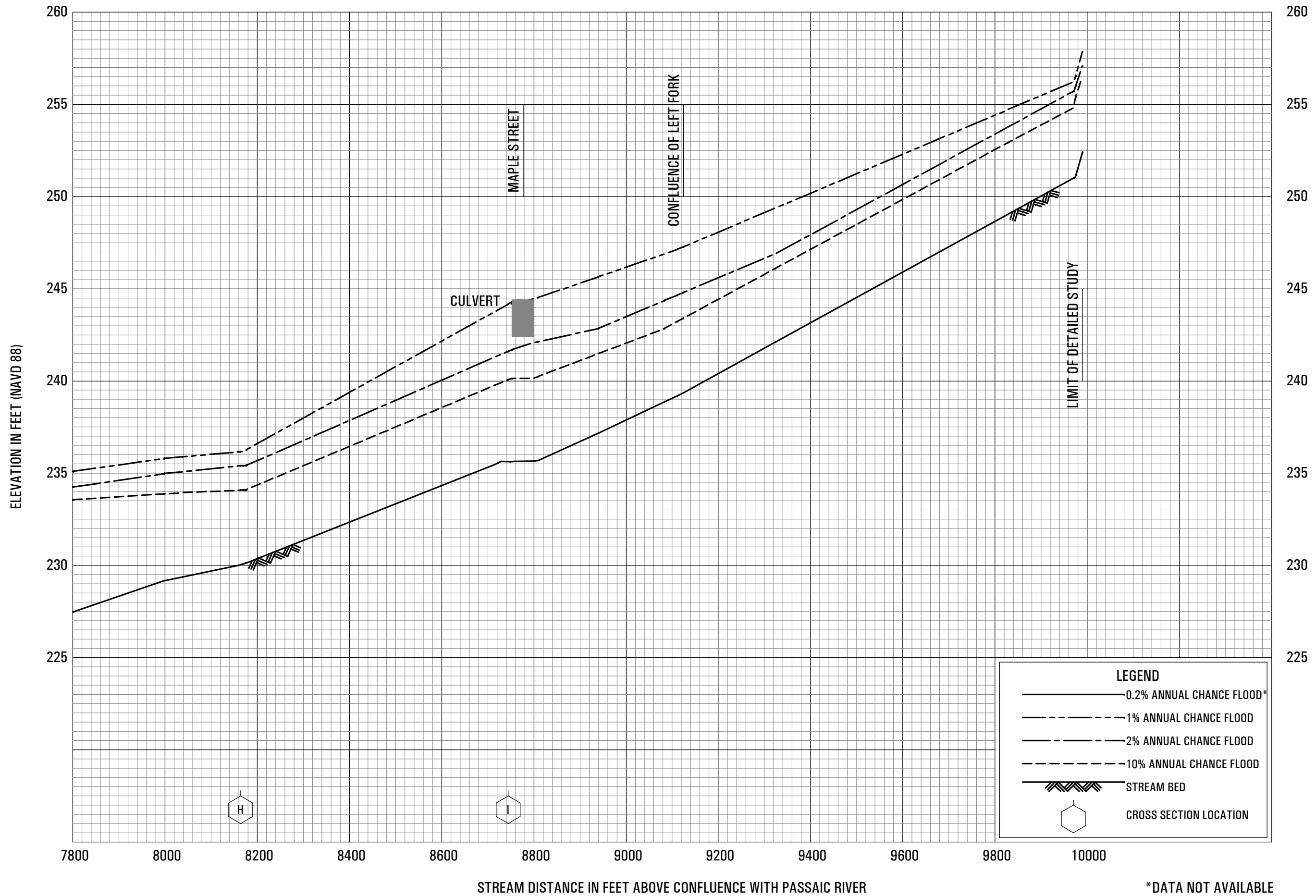
122P



*DATA NOT AVAILABLE

FEDERAL EMERGENCY MANAGEMENT AGENCY
 UNION COUNTY, NJ
 (ALL JURISDICTIONS)

FLOOD PROFILES
 SALT BROOK



*DATA NOT AVAILABLE

FEDERAL EMERGENCY MANAGEMENT AGENCY
 UNION COUNTY, NJ
 (ALL JURISDICTIONS)

FLOOD PROFILES
 SALT BROOK