

I-75 (SR 93A)

FINAL LOCATION HYDRAULIC REPORT

PD&E Study from South of Fowler Avenue, Hillsborough County, to South of SR 56, Pasco County

WPI Segment No.: 408459 1
Federal Aid Project Number: 0751 105 I

Reevaluation Study from South of SR 56 to CR 54, Pasco County

WPI Segment No.: 258736 1
Federal Aid Project Number: NH-75-1(91)275

**Florida Department
of Transportation
District Seven**



November 2003

I-75 (SR 93A) PD&E Study
From South of Fowler Avenue to south of County Road 54
FPN: 408459-1-22-0

LOCATION HYDRAULIC REPORT

Technical Memorandum
June 2003

INTRODUCTION

Protection of floodplains and floodways is required by Executive Order 11988, "Floodplain Management", USDOT Order 5650.0, "Floodplain Management and Protection", and Federal-Aid Policy Guide 23 CFR 650A. This Location Hydraulics Report memorandum is prepared in accordance with the requirements set forth in the Florida Department of Transportation (FDOT) PD&E Manual, Part 2, Chapter 24, revised April 22, 1998. This document supports the I-75 (SR 93A) PD&E Study. It is intended to determine the effects of the encroachment within the 100-year base floodplain of the recommended alternative.

PROPOSED IMPROVEMENTS

The FDOT is proposing improvements to I-75 (SR 93A) from south of Fowler Avenue to North of SR 54 in Hillsborough and Pasco County, a distance of approximately 13.9 miles. The proposed improvements consist of widening the existing interstate facility.

The Proposed project is divided into four segments with varying typical sections. With the exception of Bruce B. Downs Boulevard to the I-275 / I-75 interchange, each preferred typical section proposes to widen the existing facility from four 12-foot lanes (two in each direction) to eight 12-foot lanes (four in each direction). The preferred typical section from Bruce B. Downs Boulevard to the I-275 / I-75 interchange proposes to widen the existing four 12-foot lanes (two in each direction) to six 12-foot lanes (three in each direction). All of the preferred typical sections include four 10-foot paved shoulders (two in each direction). The preferred typical sections have been included in Appendix A.

BASIN DESCRIPTION

I-75 (SR 93A) is located within the Hillsborough River watershed. Within the project limits the Hillsborough River watershed is comprised of a variety of smaller tributary sub-basins, some of which either cross or exist in the vicinity of I-75. Some of these tributaries include Cypress Creek, Trout Creek, Clay Gulley Creek, Cabbage Swamp and Cowhouse Slough. None of these waterways are considered to be restrictive or have adverse flooding conditions associated with them.

FEMA FIRMs

FEMA has prepared Flood Insurance Studies (FIS) for the unincorporated areas of Hillsborough and Pasco County. The Flood Insurance Rate Map (FIRM) Community-Panel Numbers that cover the project area are as follows: 120230 430E, 120230 0410E,

120230 425E, 120112 0230E, 120122 0236C, 120122 0238C, 120112 0070E, & 120112 0210E. A Figure has been developed from the FEMA FIRMs and is included in Appendix A.

The project crosses and is near regulatory floodways in a few locations. Section 60.3 (d) (3) of the National Flood Insurance Program (NFIP) regulations states that a community shall “*prohibit encroachment, including fill, new construction, substantial improvements, and other developments within the adopted regulatory floodways unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base (100-year) flood discharge.*”

In order to assess Regulatory Floodways in and adjacent to the project, Flood Boundary and Floodway Maps (FBFM) were inspected. In addition to researching the available floodway maps within the project corridor the Hillsborough and Pasco County Floodplain coordinators were contacted.

Within the limits of the project, the project crosses a regulatory floodway south of the interchange of I-75 / I-275 at Cypress Creek. According to the regulatory floodway map, the Hillsborough River is considered a regulatory floodway west of the project limits. Therefore, the project does not cross the regulatory floodway at the Hillsborough River. Based on inspection of the regulatory floodway maps in Pasco County, there are no regulatory floodways in the project limits in Pasco County.

The Flood Boundary and Floodway Map showing the area of the regulatory floodways on the Hillsborough River and Cypress Creek have been included in Appendix A.

RISK ASSESSMENT

The following ten Items have been addressed to document that the floodplain encroachments will be minimal.

1. History of Flooding: No flooding problems have been identified with any of the drainage structures on this project.

2. Longitudinal or Transverse Encroachments: The project encroaches the 100-year floodplain in several locations. These include the following:

- Transverse encroachment at Cow House Creek between Fletcher Ave and Fowler Ave for approximately 900 feet from STA. 1918+00 to STA. 1927+00
- Transverse encroachment at the Hillsborough River for approximately 1800 feet from STA. 2022+00 to STA. 2040+00
- Transverse encroachment 7500 feet south of the Hillsborough / Pasco County Line for approximately 200 feet from STA. 2274+00 to STA. 2276+00
- Transverse encroachment 5000 feet south of the Hillsborough / Pasco County Line for approximately 800 feet from STA. 2316+00 to STA. 2324+00

- Transverse encroachment south of the Hillsborough / Pasco County Line at Cypress Creek for approximately 700 feet from STA. 2332+50 to STA. 2338+50
- Longitudinal encroachment north of the Hillsborough / Pasco County line for approximately 3,000 feet from STA. 598+00 to STA. 628+00
- Transverse encroachment in Pasco County at Cypress Creek for approximately 2000 feet from STA. 630+55 to STA. 650+55
- Longitudinal encroachment in Pasco County near the Tampa North Airport for approximately 3500 feet from STA. 790+00 to STA. 825+00
- Longitudinal encroachment south of SR 54 for approximately 1500 feet from STA. 845+00 to STA. 860+00

3. Avoidance Alternatives: Floodplain encroachments have been minimized or avoided by following the existing roadway alignment and utilizing the existing roadway embankment to the greatest extent possible.

4. Emergency Services and Evacuations: I-75 has no history of overtopping. It is anticipated that the proposed improvements will not increase the potential for overtopping; therefore, no emergency services or evacuation opportunities will be adversely affected

5. Base Flood Impacts: The projects drainage design will be consistent with local FEMA, FDOT, and Southwest Florida Water Management District's Stormwater Management Master Plan design guidelines. Therefore, no significant changes in base flood elevations or limits will occur.

6. Regulatory Floodway: According to Floodway Boundary Maps and Coordination with the FEMA coordinators for Hillsborough and Pasco County, the project crosses one regulatory floodway south of the I-75 / I-275 interchange at Cypress Creek.

It is anticipated that the floodway will not be adversely affected for the following reasons:

- Hydrologic and hydraulic analysis will be performed using standard engineering practice to demonstrate there will not be an increase in flood levels.
- The project's drainage design will be consistent with FEMA, FDOT, and Southwest Florida Water Management District's Stormwater Management Master Plan design guidelines. Therefore, no significant changes in base flood elevations or limits will occur.
- Encroachments into the floodplain will be mitigated for by providing compensation within the same floodplain.

7. Natural and Beneficial Floodplain Values: The proposed roadway will follow the same general alignment as the existing roadway. Encroachments into the floodplain will be mitigated for by providing compensation within the same floodplain. Therefore, no natural and beneficial floodplain values will be significantly affected.

8. Floodplain Consistency and Development: The proposed project is consistent with the local comprehensive plan for both Hillsborough County. It should not encourage

floodplain development due to Federal (FEMA), State (SWFWMD), and local (Hillsborough and Pasco County) regulations.

9. Floodplain/FIRM: A figure showing the proposed project with the FEMA FIRM has been attached.

10. Risk Assessment: Floodplain encroachments do not vary significantly with any of the alternatives.

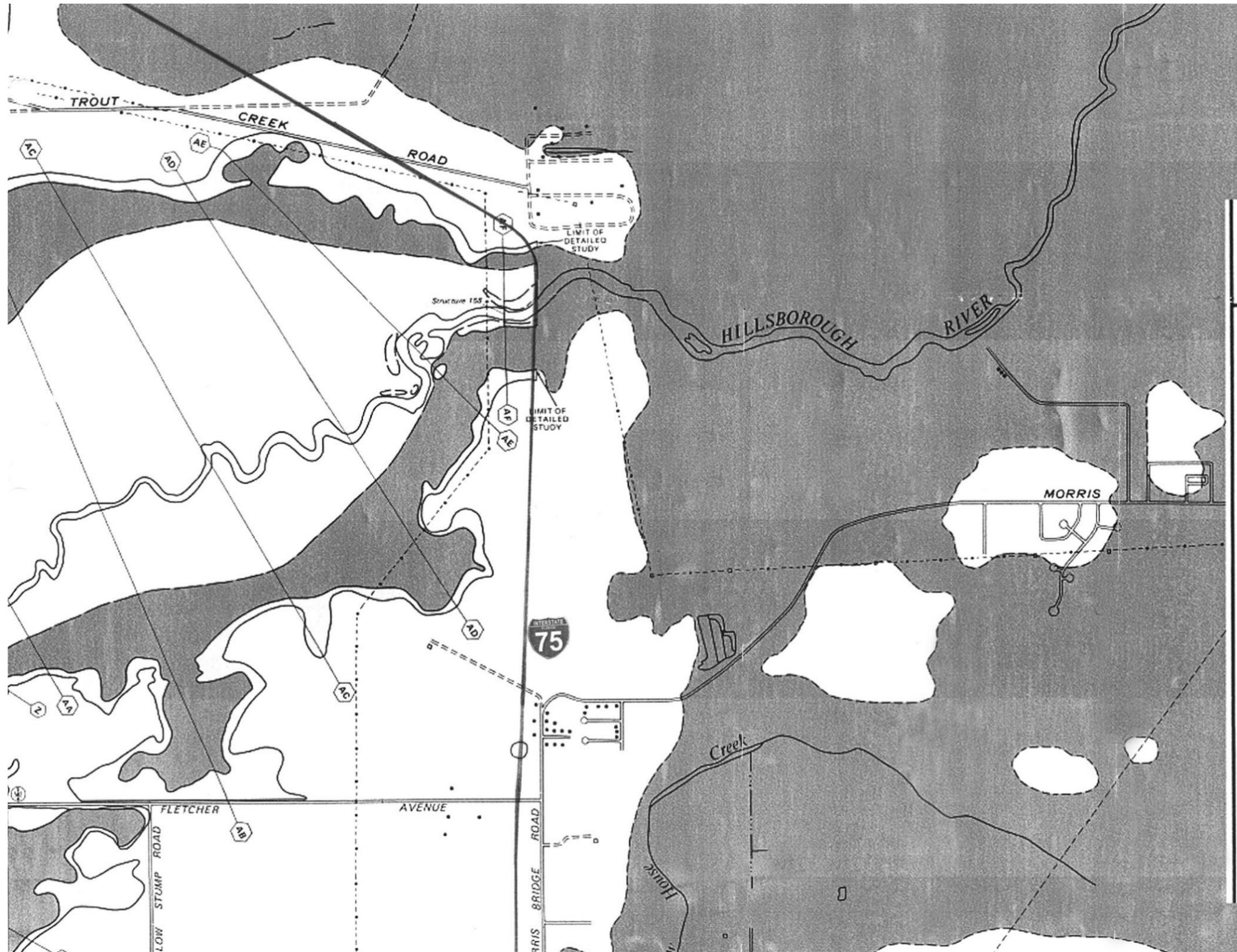
The floodplain involvement has been categorized by level of significance and project activity. A preliminary hydraulic evaluation was used as a means of selecting the project category for each floodplain encroachment location. The level of significance is determined to be MINIMAL and the project activity is Category 4.

Floodplain Evaluation Category 4 – Projects on existing alignment involving modification or replacement of existing drainage structures with no record of drainage problems.

CONCLUSION

It has been determined through coordination with local, state, and federal water resource and floodplain management agencies that the project will cross one regulatory floodway south of the interchange of I-275 / I-75 at Cypress Creek. Therefore, it will be necessary to demonstrate through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base (100-year) flood discharge.

The proposed drainage structures must be designed to perform hydraulically in a manner equal to or greater than the existing structures. Similarly, backwater surface elevations must be maintained or reduced. As a result, there will be no adverse impacts on natural or beneficial floodplain values. There will be no significant change in flood risk, or in the potential for interruption of emergency service or emergency evacuation routes.



NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP

HILLSBOROUGH COUNTY,
FLORIDA
(UNINCORPORATED AREAS)

PANEL 230 OF 825
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
120112 0230

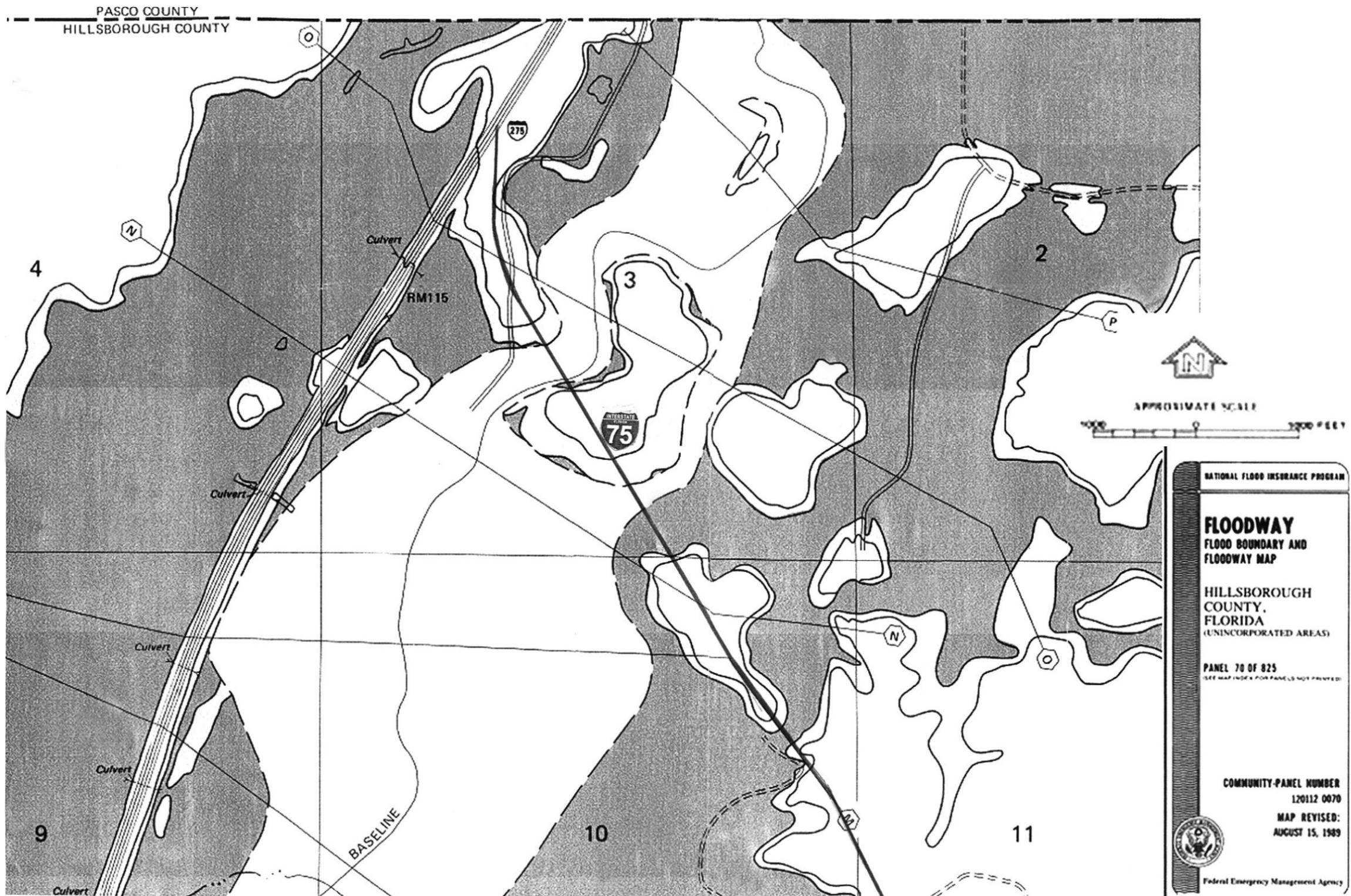
EFFECTIVE DATE:
JUNE 18, 1980



U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

I - 75 PD&E Study
from south of Fowler Avenue to CR 54
Hillsborough and Pasco Counties
WPI Seg. No: 408459 1 / FAP No: 0751 105 1
WPI Seg. No: 258736 1 / FAP No: NH-75-1-(91)275

FLOOD BOUNDARY AND FLOODWAY MAP



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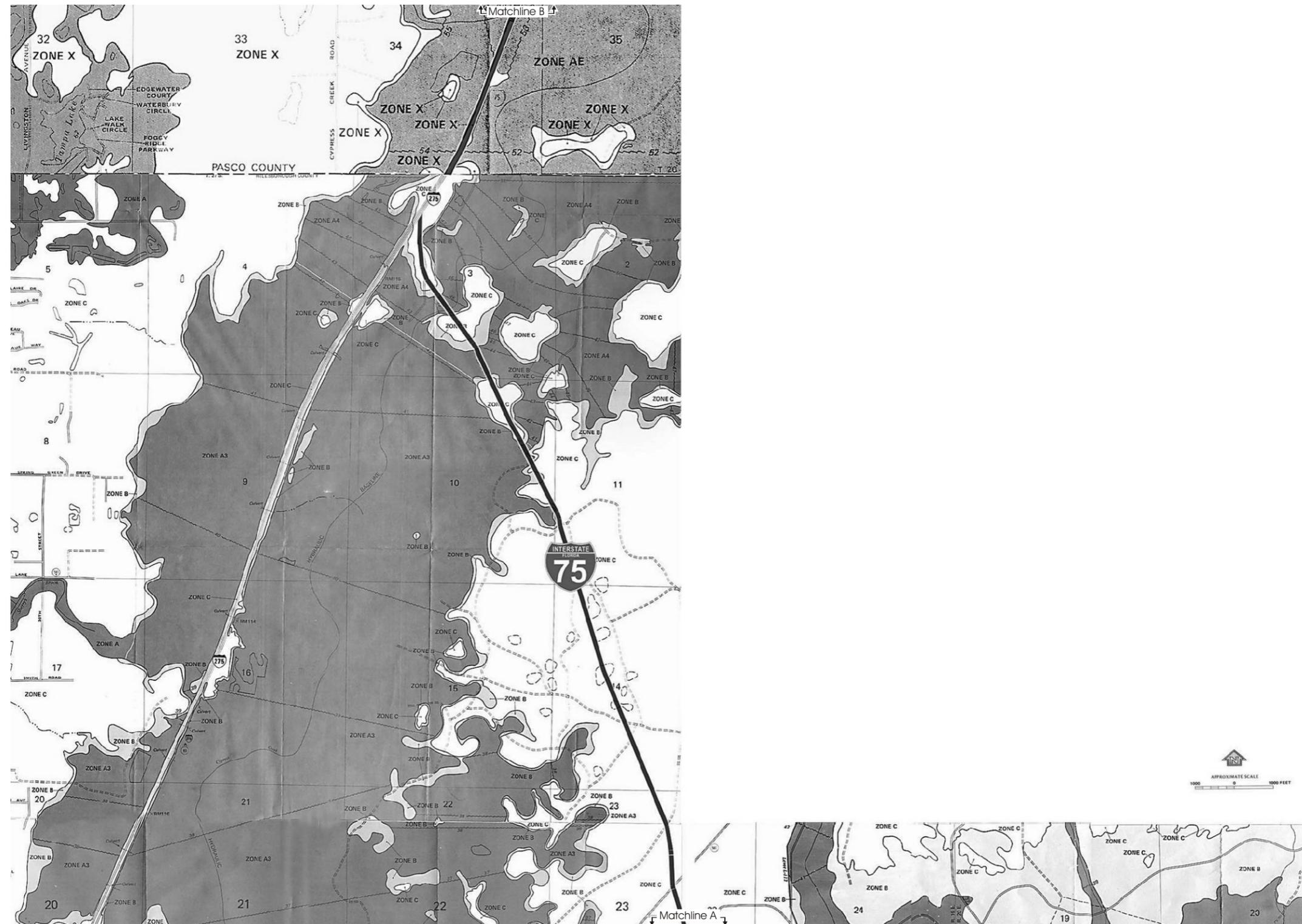
FLOOD BOUNDARY AND FLOODWAY MAP
 (Continued)



SOURCE: NFIP Floodway Map Panel 230

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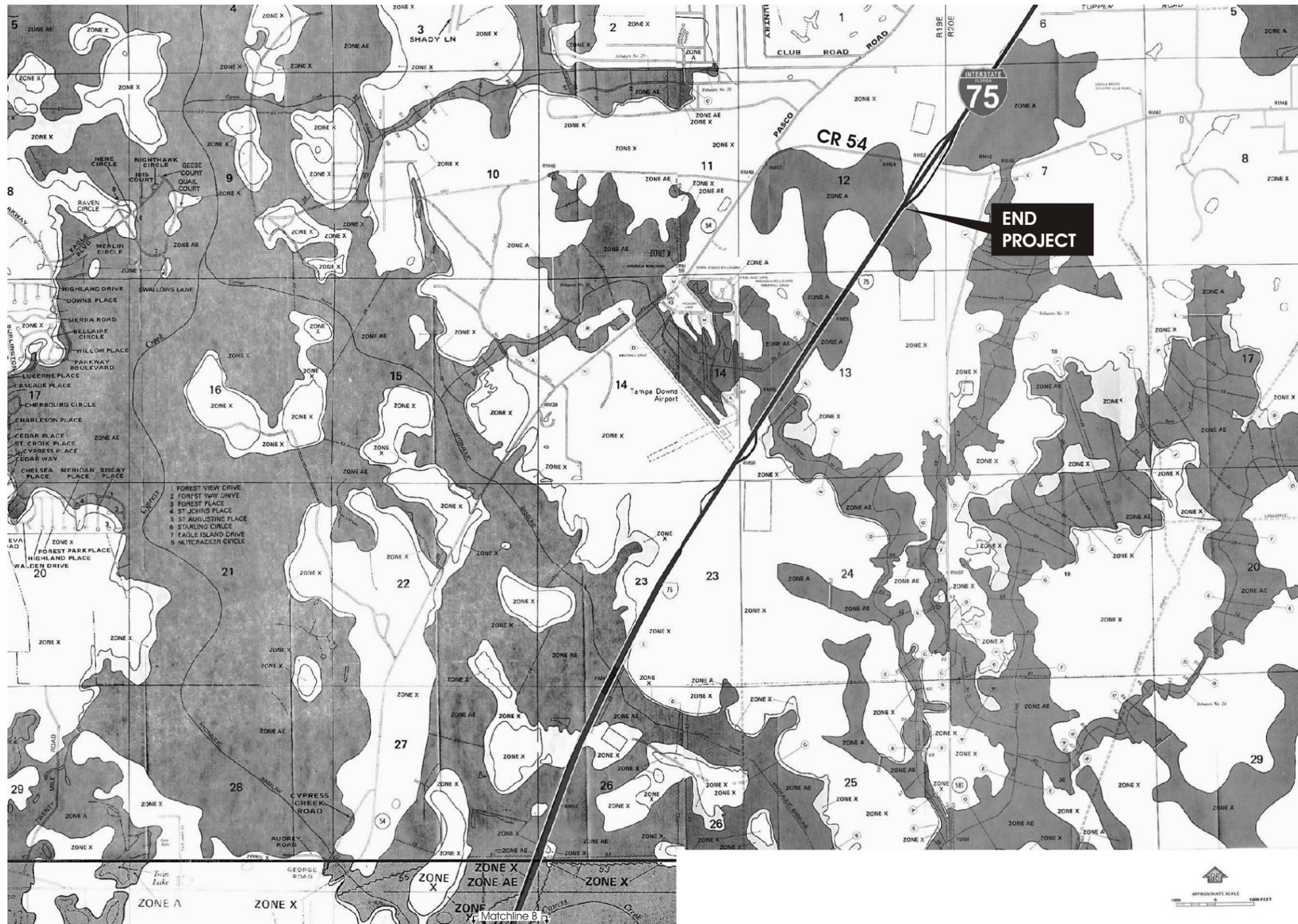
FEMA FLOOD INSURANCE RATE MAP



SOURCE: FEMA Firm 120230 0425E, 120112 0070E, 120112 0210E

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FEMA FLOOD INSURANCE RATE MAP
 (Continued)



SOURCE: FEMA Firm 120230 430E, 120230 0410E, 120230 0425E

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FEMA FLOOD INSURANCE RATE MAP
 (Continued)