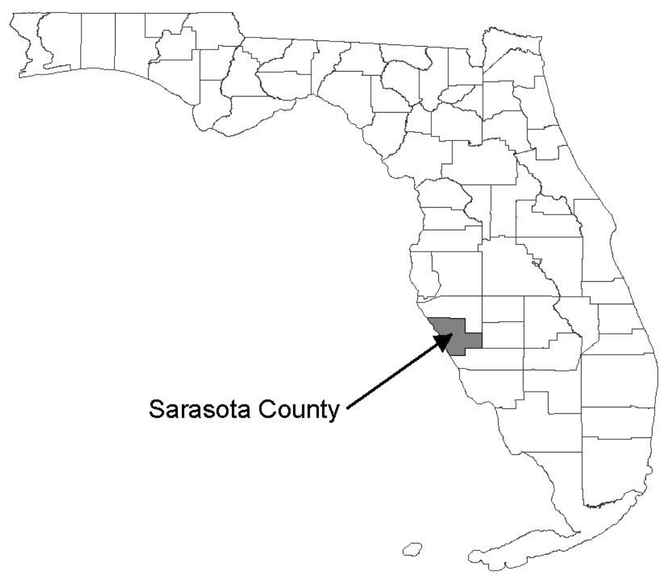
FLOOD INSURANCE STUDY

VOLUME 1 OF 3

SARASOTA COUNTY, FLORIDA

AND INCORPORATED AREAS



COMMUNITY NAME	COMMUNITY NUMBER
LONGBOAT KEY, TOWN OF	125126
NORTH PORT, CITY OF	120279
SARASOTA COUNTY (UNINCORPORATED AREAS)	125144
SARASOTA, CITY OF	125150
VENICE, CITY OF	125154

EFFECTIVE: November 4, 2016

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

12115CV001A

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes.

This Flood Insurance Study (FIS) report may not contain all data available within the Community Map Repository. Please contact the Community Map Repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS report by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. Therefore, users should consult with community officials and check the Community Map Repository to obtain the most current FIS report components.

Selected Flood Insurance Rate Map (FIRM) panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map (FBFM) panels (e.g., floodways, cross sections). In addition, former flood hazard zone designations have been changed as follows:

Old Zone(s)	New Zone
Al through A30	AE
B	X (shaded)
C	X

Initial Countywide FIS Effective Date: November 4, 2016

TABLE OF CONTENTS - Volume 1
November 4, 2016

1.0 INTRODUCTION 1

1.1 Purpose of Study 1

1.2 Authority and Acknowledgments 1

1.3 Coordination 4

2.0 AREA STUDIED 5

2.1 Scope of Study 5

2.2 Community Description 10

2.3 Principal Flood Problems 11

2.4 Flood Protection Measures 13

3.0 ENGINEERING METHODS 13

3.1 Hydrologic Analyses 14

3.2 Hydraulic Analyses 20

3.3 Wave Height Analysis 23

3.4 Vertical Datum 27

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS 28

4.1 Floodplain Boundaries 28

4.2 Floodways 30

5.0 INSURANCE APPLICATIONS 37

6.0 FLOOD INSURANCE RATE MAP 38

7.0 OTHER STUDIES 40

8.0 LOCATION OF DATA 40

9.0 BIBLIOGRAPHY AND REFERENCES 40

TABLE OF CONTENTS - Volume 1 (Continued)

FIGURES

Figure 1 - Transect Schematic 24
Figure 2 - Transect Location Map 26
Figure 3 - Floodway Schematic 32

TABLES

Table 1 - Initial and Final CCO Meetings 4
Table 2 - Flooding Sources Studied by Detailed Methods
Pre-Countywide Revision..6
Table 3 - Flooding Sources Studied by Detailed Methods for this
Countywide Revision 6
Table 4 - LOMCs...7
Table 5 - Summary of Discharges 17
Table 6 - Summary of Stillwater Elevations...19
Table 7 - Manning's "n" Values 22
Table 8 - Vertical Datum Conversion Values...27
Table 9 - Floodway Data Table 33
Table 10 - Community Map History Table...39

EXHIBITS

Exhibit 1 - Flood Profiles

Alligator Creek	Panels	01P - 02P
Big Slough Canal and Myakkahatchee Creek	Panels	03P
Curry Creek	Panels	04P - 05P
Hatchett Creek	Panel	06P - 07P
Matheny Creek	Panels	08P - 09P
Phillippi Creek	Panels	10P - 12P
Phillippi Creek Branch B	Panels	13P
Woodmere Creek West	Panels	14P
Woodmere Creek East	Panels	15P

Exhibit 2 - Flood Insurance Rate Map Index
Flood Insurance Rate Map

Nodes Table	Watershed Name
	Alligator Creek

TABLE OF CONTENTS - Volume 2

Nodes Table	Watershed Name
	Big Slough

TABLE OF CONTENTS - Volume 3

Nodes Table	Watershed Name
	Hudson Bayou
	Island of Venice
	Roberts Bay
	Whitaker Bayou

FLOOD INSURANCE STUDY
SARASOTA COUNTY, FLORIDA
AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) report investigates the existence and severity of flood hazards in or revises and updates previous FIS/Flood Insurance Rate Maps (FIRMs) for, the geographic area of Sarasota County, Florida including: the Cities of North Port, Sarasota and Venice; the Town of Longboat Key; and unincorporated areas of Sarasota County (herein referred to collectively as Sarasota County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood-risk data for various areas of the county that will establish actuarial flood insurance rates and to assist the county in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

Please note that the Town of Longboat Key is geographically located in Manatee and Sarasota Counties. Only the portion of the Town of Longboat Key located within Sarasota County is included in this FIS.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State or other jurisdictional agency will be able to explain them.

The Digital Flood Insurance Rate Map (DFIRM) and FIS report for this countywide study have been produced in digital format. Flood hazard information was converted to meet the Federal Emergency Management Agency (FEMA) DFIRM database specifications and Geographic Information System (GIS) format requirements. The flood hazard information was created and is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This FIS was prepared to include all jurisdictions within Sarasota County into a countywide format FIS. Information on the authority and acknowledgements for each of the previously printed FISs and FIRMs for communities within Sarasota County was compiled, and is shown below.

Longboat Key, Town of	The hydrologic and hydraulic analyses for this study were performed by Tetra Tech, Inc., for the FEMA, under Contract No. H-4059. This work, which was completed in July 1978, covered all significant flooding sources affecting Town of Longboat Key (Reference 1).
North Port, City of	The hydrologic and hydraulic analyses for this study were performed by Tetra Tech, Inc., for the Federal Insurance Administration (FIA), under Contract No. H-4059. This work, which was completed in March 1978, covered all significant flooding sources affecting the City of North Port (Reference 2).
Sarasota, City of	The hydrologic and hydraulic analyses for this study were performed by Tetra Tech, Inc., for the FIA, under Contract No. H-4059. This work, which was completed in March 1978, covered all significant flooding sources affecting the City of Sarasota (Reference 3).
Sarasota County	The hydrologic and hydraulic analyses for Phillippi, Matheny, Alligator, Curry and Woodmere Creeks were performed by Gee and Jenson Engineers-Architects-Planners, Inc., for the FEMA, under Contract No. EMW-87-C-2459. This study was completed in September 1988. The hydrologic and hydraulic analyses for Hatchett Creek were performed by Kimley-Horn and Associates, Inc., in September 1991. The hydrologic and hydraulic analyses for the coastal flood sources were performed by Tetra Tech, Inc., in March 1978 (Reference 4).
Venice, City of	There is no previous FIS report for the City of Venice; there is a FIS supplement – Wave Height Analysis report. The stillwater storm-surge elevations developed by Tetra Tech, Inc., in March 1978 were used for the wave height analysis performed (Reference 5).

The mapping and redelineation for this countywide study were prepared for FEMA by the Southwest Florida Water Management District (SWFWMD) under Contract No. EMA-2003-CA-5373 and EMA-2007-CA-5779. The District subsequently retained URS Corporation (URS) to complete the work in accordance with Agreement No. 04CON000060-B and associated work orders 1 through 10. These revisions were completed in March 2014 through a joint venture of URS and Stantec. The following areas were redelineated for this revision using updated topography: coastal areas, Big Slough and Phillippi Creek watersheds. Areas restudied as new watershed studies were Alligator Creek, Big Slough, Hudson Bayou, Island of Venice, Roberts Bay, and Whitaker Bayou. The following streams were redelineated for this revision: Matheny Creek, Phillippi Creek, and Phillippi Creek Branch B. The streams restudied as new detailed studies are: Alligator Creek, Curry Creek, Hatchett Creek, and Myakkahatchee Creek/Big Slough.

AMEC Environment & Infrastructure, Inc. (AMEC) formerly known as BCI Engineers and Scientists, Inc. was retained by SWFWMD to update the regulatory floodways for Alligator Creek, Curry Creek, and Hatchett Creek in Sarasota County, Florida. Curry Creek and Hatchett Creek are part of the Roberts Bay watershed, whereas Alligator Creek discharges into Lemon Bay. Tasks conducted under the work order are in accordance with Agreement No. 13CC0000007 (Reference 6).

AMEC also completed the Island of Venice watershed study, and updates of the Alligator Creek and Roberts Bay watershed studies. The work was completed in accordance with the terms and conditions of SWFWMD Agreement No. 06CC0000050, and associated Work Order No. 1 and 2. The watershed studies were completed in November 2011, October 2011, and May 2012, respectively (Reference 7, 8, and 9).

Ardaman and Associates, Inc. (Ardaman) was retained by the SWFWMD to update the regulatory floodway for Big Slough/Myakkahatchee Creek. Ardaman completed the "Floodway Analysis and Report" in accordance with the terms and conditions of SWFWMD Agreement No. 06CC0000044-A, and associated Work Order No. 12. The work was completed in January 2014 (Reference 10).

Ardaman also completed a new watershed study for the Big Slough watershed. The work was conducted in accordance with the terms and conditions of SWFWMD Agreement No. 03CONC00022-B, and associated Work Order No. 4. The work was completed in May 2013 (Reference 11).

Hudson Bayou was restudied as a new watershed study conducted by Jones Edmunds & Associates, Inc. (JE) in accordance with the terms and conditions of SWFWMD Agreement No. 04CONC00040-A, and associated Work Order No. 6; and SWFWMD Agreement No. 06CC0000042, and associated Work Order No. 4, 7, and 9. The work was completed in February 2011 (Reference 12).

Whitaker Bayou was restudied as a new watershed study conducted by Singhofen & Associates, Inc. in accordance with the terms and conditions of SWFWMD Agreement No. 04CONC00040-A, and associated Work Order No. 6; and SWFWMD Agreement No. 06CC0000042, and associated Work Order No. 4 and 8. The work was completed in July 2011 (Reference 13).

An approximate study prepared by the U. S. Geological Survey (Reference 14) was used to delineate unnumbered zone A areas along the Myakka River. The USGS study is based upon staff gage records. JE was retained by Sarasota County to review the USGS study. Model results were compared with actual storms that occurred in 1988, 1992 and 2003. The final report dated January 2010 (Reference 15) concluded that the USGS study "…remains a reasonable tool for assessing the 100-year flood stage on the main stem of the Myakka River."

The orthophotography base mapping was provided by SWFWMD at a scale of 1:19,200 from photography dated 2007 or as procured by Sarasota County (Reference 16).

SWFWMD provided Light Detection and Ranging (LiDAR) data collected in 2007, in the form of American Society for Photogrammetry and Remote Sensing (ASPRS) LAS format files, for generating the digital elevation model (DEM). The data was produced through two separate collection efforts. The first was performed by the Florida Department of Emergency Management (FDEM). This effort involved the collection of

LiDAR data along coastal areas, and obtained data for approximately 52% of the county (Reference 17).

The second effort was performed by Sarasota County through a cooperative funding agreement with the SWFWMD. Through this effort, LiDAR data was collected for the remaining inland areas of the county (Reference 18).

For the Big Slough watershed, the terrain that was initially used for the detailed study was based upon 2004 LiDAR data. When the 2007 LiDAR information became available, Ardaman identified 10 broad areas where the land had been disturbed between the 2004 and 2007 LiDAR flight dates. The City of North Port also provided Ardaman with a certification of occupancy list detailing which parcels had been developed between the 2004 and 2007 LiDAR flight dates. For these 10 areas and the identified parcels, Ardaman replaced 2004 LiDAR data with 2007 LiDAR data to create the final hybrid terrain that was used for the detailed study.

The digital countywide FIRM was produced in High Accuracy Reference Network Florida State Plane West Zone (FIPS Zone 0902) coordinate system with a Transverse Mercator projection, units in feet, and referenced to the North American Datum of 1983, GRS 1980 spheroid. Differences in datum and spheroid used in the production of the FIRMs for adjacent counties may result in slight positional differences in map features at the county boundaries. These differences do not affect the accuracy of the information shown on this FIRM.

1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. The initial and final meeting dates for the previous FIS reports for Sarasota County and its communities are listed in Table 1, "Initial and Final CCO Meetings."

Table 1 - Initial and Final CCO Meetings

COMMUNITY NAME	INITIAL MEETING	FINAL MEETING
Longboat Key, Town of	*	*
North Port, City of	*	June 8, 1979
Sarasota, City of	*	February 23, 1983
Sarasota County and Unincorporated Areas	November 24, 1986	March 19, 1991
Venice, City of	N/A	N/A

*Data not available

For this countywide study, the CCO meeting was held on January 21, 2004, and attended by representatives of SWFWMD, Stantec, AMEC (formerly known as BCI Engineers & Scientists, Inc.), Jones Edmunds & Associates, Singhofen & Associates, URS Corporation, and community officials.

A second CCO meeting for this countywide study was held on January 6, 2010, and attended by representatives of FEMA, the study contractors, and community officials. All problems raised at that meeting have been addressed.

A final CCO meeting is held to review the results of the study. This meeting was held on January 20, 2015.

The following persons or agencies were contacted for information describing hydrological conditions, drainage patterns, and other flood-related data, as well as information on the topography, roads, benchmarks, flooding history and demography of Sarasota County:

1. City of Sarasota Planning Department
2. Florida Department of Community Affairs
3. Florida Department of Environmental Regulation (FDER)
4. Florida Department of Natural Resources (FDNR), Bureau of Geology
5. FDNR, Division of State Planning
6. Florida State Department of Community Affairs
7. Florida State Department of Transportation (FDOT)
8. Longboat Key City Planning Department
9. National Oceanic and Atmospheric Administration (NOAA)
10. National Weather Service (NWS)
11. City of North Port Public Works Department
12. Sarasota County Stormwater and CRS Coordinator
13. Sarasota County Planning Division
14. Natural Resources Conservation Service (NCRS), formerly the Soil Conservation Service
15. Southwest Florida Regional Planning Council
16. SWFWMD
17. U.S. Army Corps of Engineers (USACE), Jacksonville District
18. U.S. Department of Agriculture
19. U.S. Geological Survey (USGS)
20. Venice Area Chamber of Commerce
21. Gee and Jensen, Consulting Engineers, Inc.
22. General Development Corporation
23. Smally, Wellford and Nalven, Consulting Engineers

The State NFIP Coordinator was involved with this survey through the Atlanta Regional Office of FEMA.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Sarasota County, Florida, including the incorporated communities listed in Section 1.1. The scope and methods of this study were proposed to, and agreed upon by FEMA, Sarasota County, and SWFWMD. Table 2, “Flooding Sources Studied by Detailed Methods Pre-Countywide Revision,” lists the streams that were studied by detailed methods prior to this revision. Table 3, “Flooding Sources Studied by Detailed Methods for this Countywide Revision” lists the streams that were studied by detailed methods for this mapping effort. Limits of Detailed Study are also indicated on the associated Flood Profiles (Exhibit 1).

Table 2 – Flooding Sources Studied by Detailed Methods
Pre-Countywide Revision

Stream	**Limits of Detailed Study**
Alligator Creek	From the confluence with Intracoastal Waterway to approximately 5,300 feet upstream of U.S. Route 41
Big Slough Canal/ Myakkahatchee Creek	Starting approximately 14,200 feet upstream of the confluence with Myakka River to approximately 265 feet upstream of McCarthy Boulevard
Curry Creek	From U.S. Route 41 to approximately 2,100 feet upstream of Interstate 75
Hatchett Creek	From approximately 75 feet downstream of U.S. Route 41 to Jacaranda Boulevard
Matheny Creek	From the confluence with Intracoastal Waterway to to State Road 773
Phillippi Creek	From the confluence with Intracoastal Waterway to Proctor Road
Phillippi Creek Branch B	From approximately 5,075 feet upstream with the confluence Phillippi Creek to Fruitville Road
Woodmere Creek	From the confluence with Intracoastal Waterway to Englewood Road

The areas studied by detailed methods as part of pre-countywide mapping activities were selected with priority given to all known flood hazards and areas of projected development or proposed construction and forecasted development through 1983. The analysis included the effects of hurricane and coastal surge in the tidal areas of the County. The main source of coastal flooding is the Gulf of Mexico.

Numerous flooding sources were studied by approximate methods as part of the pre-countywide analysis. Approximate analyses were used to study those areas having a low development potential or minimal flooding hazards. Unless these areas have been incorporated into new detailed studies, the effective data has been refined. Special flood hazard areas designated as Zone A that were previously digitized from georeferenced effective FIRMs have been refined using the LiDAR terrain data. The Zone A refinement methodology utilized is in accordance with FEMA guidelines (Reference 19 and 20).

Table 3 – Flooding Sources Studied by Detailed Methods for this
Countywide Revision

Stream	**Limits of Detailed Study**
Alligator Creek	Includes the area contributing flow to the Alligator Creek from its confluence with the Intracoastal Waterway to Venice East Boulevard.
Big Slough Canal/ Myakkahatchee Creek	Includes the area contributing flow to Big Slough Canal/Myakkahatchee Creek from U.S. Route 41 to the R-36 Canal.

Table 3 – Flooding Sources Studied by Detailed Methods for this Countywide Revision (continued)

Stream	Limits of Detailed Study
Roberts Bay (includes Curry Creek and Hatchett Creek)	Includes the area contributing flow to Curry Creek from U.S. Route 41 to Jacaranda Boulevard along the southern Blackburn Canal, and North Jackson Road along the northern Blackburn Canal; and the areas contributing to Hatchett Creek from approximately 2,800 feet downstream of U.S. Route 41 to Jacaranda Boulevard.
Hudson Bayou	Includes the area contributing flow to Hudson Bayou from the confluence with Intracoastal Waterway to approximately 730 feet upstream of U.S. Route 41
Island of Venice	Includes conveyances located on the Island of Venice and an area east of the Intracoastal Waterway bounded by Venice Bypass to the east, the Intracoastal Waterway to the west, Calle Del Sol to the North, and extends to approximately 450 feet south of the intersection of Seaboard Avenue and Venice Bypass.

The areas studied by detailed methods as part of this countywide revision were selected with priority given to known flood hazards and areas of rapid development. The effects of hurricane and coastal surge in the tidal areas of the county that were evaluated as part of the pre-countywide analysis were digitally converted for the countywide FIRMS with the limit of the most landward AE zone redelineated on LiDAR based terrain. The main source of coastal flooding is the Gulf of Mexico. The scope and methods of study were proposed to, and agreed upon, by FEMA and the communities.

Table 4, "LOMCs," Letter of Map Changes lists those revisions that have been incorporated into the countywide update for Sarasota County.

Table 4 - LOMCs

LOMC	Case Number	Date Issued	Project Identifier	Community
LOMR	15-04-6953P	2/26/2016	Beau Ciel LOMR	City of Sarasota
LOMR	14-04-7975P	4/6/2015	Spears LOMR -- from 780 feet to 1,310 feet southwest of the intersection of Holiday Drive North and South Tamiami Trail in an area from 60 feet to 550 feet southeast of Southpointe Drive	Sarasota County
LOMR	14-04-5443P	11/13/2014	Marina Jack -- from 810 feet east and 100 feet south of the intersection of Coconut Avenue and Gulf Stream Avenue to 540 feet west and 1,700 feet south	City of Sarasota
LOMR	14-04-3983P	10/30/2014	Regent Place Condominiums, Buildings 1, 2, and Clubhouse -- 655-675 Longboat Club Drive	Town of Longboat Key
LOMR	14-04-3830P	10/22/2014	Avishar LOMR -- from 100 feet west and 100 feet north of the intersection of Bay View Drive and Colony Terrace to 635 feet west and 265 feet south of the intersection	City of Sarasota

Table 4 – LOMCs (continued)

LOMC	Case Number	Date Issued	Project Identifier	Community
LOMR	14-04-3759P	10/15/2014	Seidel LOMR -- from 100 feet West and 265 feet South of the intersection of Picasso Drive and Bellini Circle to 685 feet west and 265 North of the intersection	Sarasota County
LOMR	13-04-5178P	8/29/2014	Mohl LOMR - 310 Bird Key Drive	City of Sarasota
LOMR	12-04-8304P	7/7/2014	L'Ambiance Condominium, Buildings 1 and 2	Town of Longboat Key
LOMR	13-04-5170P	3/21/2014	Siesta Townhouse -- from 810 feet north and 600 feet east to 1,510 feet north and 495 feet east of the intersection of Ocean Boulevard and	Sarasota County
LOMR	13-04-6707P	2/12/2014	O'Donoghue LOMR -- from 60 feet north and 1,330 feet west to 270 feet south and 875 feet west of the intersection of Camino Real and Quail Drive	Sarasota County
LOMR	13-04-6594P	1/31/2014	Goldfarb LOMR -- from 625 feet east and 1,090 feet south of Reference Mark RM8 to 420 feet east and 940 feet south	City of Sarasota
LOMR	13-04-5092P	1/10/2014	Island West Condominium	Town of Longboat Key
LOMR	13-04-2683P	11/08/2013	Yates Property -- from 1,330 feet south and 1,270 feet west to 1,160 feet south and 1,150 feet west of the intersection of Southpoint Drive and South Tamiami Trail	Sarasota County
LOMR	13-04-1985P	8/23/2013	Pelican Cove -- from 210 feet east and 820 feet north of the intersection of Dunmore Drive and Colleen Street to 290 feet west and 1,650 feet	Sarasota County
LOMR	13-04-1684P	8/9/2013	Paterson LOMR -- 1131 North Lakeshore Drive	Sarasota County
LOMR	12-04-4786P	2/8/2013	Pierre Condominium -- 455 Longboat Club Road	Town of Longboat Key
LOMR	11-04-1370P	7/21/2011	Bayonne Estates -- from 1,600 feet south and 830 feet west of the intersection of Sunset Road and Sara Bay Drive to 1,980 feet south and 1,170 feet west	Sarasota County
LOMR	11-04-5986P	6/30/2011	Woodmere Creek - Gulfview Estates -- unnamed ponding areas just southeast of the intersection of Englewood Road and Temple Road	Sarasota County
LOMR	11-04-4005P	6/9/2011	Whitaker's Landing -- from 1,600 feet south and 830 feet west of the intersection of Sunset Road and Sara Bay Drive to 1,980 feet south and 1,170 feet west	City of Sarasota
LOMR	11-04-2151P	3/25/2011	101 North Warbler Lane	City of Sarasota

Table 4 – LOMCs (continued)

LOMC	Case Number	Date Issued	Project Identifier	Community
LOMR	10-04-6569P	10/28/2010	Mr. Michel Rapoport -- from 1,600 feet south and 830 feet west of the intersection of Sunset Road and Sara Bay Drive to 1,980 feet south and 1,170 feet west	City of Sarasota
LOMR	10-04-4670P	7/9/2010	Osprey Harbor Village -- from 1,600 feet south and 830 feet west of the intersection of Sunset Road and Sara Bay Drive to 1,980 feet south and 1,170 feet west	Sarasota County
LOMR	10-04-3887P	5/26/2010	Bird Key Subdivision -- from 170 ft south and 100 ft west to 500 ft south to 200 ft west of the intersection of Mourning Dove Drive and Wild Turkey Lane	City of Sarasota
LOMR	09-04-6869P	4/15/2010	368 W Royal Flamingo Drive	City of Sarasota
LOMR	08-04-1962P	1/20/2009	Ventura Village -- Englewood Road, Temple Road, and Tulane Road	Sarasota County
LOMR	08-04-3096P	4/30/2008	Bird Key Subdivision, Block 3, Lot 44 -- 103 South Warbler Lane	City of Sarasota
LOMR	08-04-0621P	3/28/2008	Bird Key Subdivision, Block 23, Lot 29 -- 667 Mourning Dove Drive	City of Sarasota
LOMR	07-04-3837P	1/17/2008	Sarasota Bay Vista, LLC -- 1137 Bayshore Road	Sarasota County
LOMR	06-04-BH18P	8/28/2006	900 & 901 Alameda Lane	City of Sarasota
102	04-04-325P	1/7/2005	Martel Property - 800 ft southwest of the intersection of Mourning Dove Drive and Wild Turkey Lane	City of Sarasota
102	04-04-187P	10/7/2004	Graham Property - northwest corner of West Royal Flamingo Drive	City of Sarasota
102	04-04-A194P	6/24/2004	1420 Bay Point Drive	City of Sarasota
102	02-04-211P	10/24/2002	1,350 ft west of the intersection of North Lake Shore Drive and Camino Real Road	Sarasota County
102	02-04-041P	2/21/2002	1400 Kenilworth Street	Sarasota County
102	00-04-107P	4/21/2000	451 Picasso Drive	Sarasota County
102	99-04-333P	2/16/2000	Henson Property -- 1,600 ft west southwest of the intersection of North Lake Shore Drive and Camino Real Road	Sarasota County
102A	99-04-033P	7/8/1999	Fisherman's Bay Subdivision	Sarasota County
102A	99-04-015P	3/17/1999	Saslaw Property -- 800 ft west of the intersection of Alameda Avenue and Alameda Lane	City of Sarasota

Table 4 – LOMCs (continued)

LOMC	Case Number	Date Issued	Project Identifier	Community
102	98-04-183P	4/24/1998	Gulf and Bay Club Condominium, Building F-2	Sarasota County
102	92-04-093P	8/25/1992	Foodman Property -- 3034 Southwest Drive	City of Sarasota

2.2 Community Description

Sarasota County, located in southwest Florida, encompasses an area of 563 square miles (Reference 21). It is bordered on the north by Manatee County, Florida; on the south by Charlotte County, Florida; on the east by Manatee and DeSoto Counties, Florida; and on the west by the Gulf of Mexico. The county seat is the City of Sarasota, located in the northwest region of the county. The county is served by Interstate 75; U.S. Route 41; State Roads 72, 758, 772, 773, 775, and 780; and CSX railroad. The 2010 population was reported to be 379,448 according to the U.S. Census Bureau (Reference 22).

The climate in Sarasota County is a subtropical climate, which is characterized by mild, dry winters and warm, wet summers. The wet season extends from June through September and coincides with the hurricane season. During this four-month period, the County receives nearly two-thirds of its annual precipitation. The summer heat is tempered by sea breezes and the winter temperature being moderated by the Gulf of Mexico. The average high temperature ranges from 91 degrees Fahrenheit (ºF) in July and the average low is 52ºF in January. The highest recorded temperature was 100ºF in 1998. The lowest recorded temperature was 20ºF in 1983. Monthly precipitation averages approximately 4.69 inches, with the maximum monthly average occurring in August, with 9.81 inches and the minimum monthly average occurring in April, with 2.15 inches, respectively (Reference 23).

This region of Florida was originally inhabited by the Seminole Native American Tribe. The first non-native explorer known to have visited this area was the Spanish explorer Desoto, who landed in what is now Sarasota in 1539. Although pioneers, fishermen, and hunters passed through this area during the colonial period, no permanent settlement was established. Following the Seminole War, newcomers started settling along the coast.

Residential, commercial, and industrial development occurs in and around the communities of Longboat Key, North Port, Sarasota, and Venice, Florida. Early economy was based on fishing, citrus, and cattle; the present economy is based primarily on tourism (Reference 24).

The vegetation is subtropical in nature. Although much of the county was originally heavily forested with pine, most of these trees have been cut for timber. Wooded and treeless areas are intermingled. Pine forests, with an undergrowth of saw palmetto and wiregrass, dominate the flatwoods. Scrub oaks prevail on the drier sand ridges. Numerous grasses and low-growing types of plants grow over the prairie areas. Cabbage palmetto and live oak form a dense growth on the hammocks that commonly occur. The other varieties of trees include water oak, cedar, and mangrove. In addition, the coastal region is the habitat for miscellaneous shrubs, such as the Spanish bayonet and oak. Several areas of coastal mangroves are located along the Sarasota Bay. Consisting of shore-ringing stands of red, black, and white varieties, these mangroves offer protection from erosion and flooding. On the Gulf of Mexico, the coastal region contains a well-established primary dune, which offers natural shoreline protection.

The topography of Sarasota County is between 10 feet and 35 feet National Geodetic Vertical Datum of 1929 (NGVD), with nearly level terrain that gradually slopes toward the Gulf of Mexico. As a result of this lack of steepness, drainage is poor throughout the county. The Myakka River is the major stream within the county and, along with its major tributaries, Deer Prairie Creek, Big Slough Canal and Myakkahatchee Creek, drains approximately 75 percent of the area in the county. Other means of drainage are mainly ditches, canals, and several small creeks (Reference 25). Low areas exist along the broad, flat floodplains of Phillippi Creek, Matheny Creek, Curry Creek, Hatchett Creek, Alligator Creek, and Woodmere Creek. There are several small regions within the county that consist of narrow, low ridges a few feet above the adjacent terrain. In addition, the county is dotted with numerous small depressions and sloughs; these shallow, wet areas, range in depth from 1 to 3 feet.

Ground water in Sarasota County is associated with the Hawthorne formation. Composed primarily of clay, sand, limestone, and marl, this formation ranges from 300 to 600 feet in thickness. Overlying surface materials consist primarily of sands and shells, along with some clay.

The Myakka River divides the City of North Port into two regions. The larger portion, with an area of approximately 55 square miles, is located to the north and east of Myakka River. Under the jurisdiction of the City of North Port Public Works Department, this region is bounded on the north by agricultural areas of the Big Slough watershed, on the east by the DeSoto County line, on the south by the Charlotte County line, and on the west by the Deer Prairie Slough watershed. The remaining sector, located to the south and west of Myakka River, is bounded on the east and the south by the Charlotte County line and on the west by unincorporated lands within Sarasota County.

Physiographically, the study area lies within the Coastal lowlands. This region is characterized by level or nearly level terrain with very gradual changes in elevation. In addition, numerous small depressions and sloughs are scattered throughout the study area. These shallow wet areas range in depths from 1 to 3 feet. The lands within the North Port Water Management District slope gradually downward toward Myakkahatchee Creek. The elevation in this district ranges from 10 to 30 feet.

Above Myakka Lake, drainage is extremely poor due to the enormous population of water hyacinths in the channel. Below the lake, drainage is more effective. Natural drainage of the flood plain of the Myakka River is rather slow. Ditches have been constructed in order to facilitate the removal of excess water. In addition to the Myakka River system, several small creeks in the coastal portion of the county area drain several miles inland. Tidewaters extend several miles inland into these coastal streams and into the Myakka River.

2.3 Principal Flood Problems

Flooding in the Sarasota County area results primarily from tropical storms and hurricanes causing intense rainfall, excessive runoff, and tidal surge (and associated wave action) in coastal areas. Inland areas are subject to flooding as a result of rainfall accumulation in low, flat areas which have inadequate or poorly maintained drainage systems. The Sarasota County coastline is subject to abnormally high storm tides from hurricanes. Not all storms passing in the near vicinity of the study area produce extremely high tides. Similarly, storms producing extreme conditions in one area may not necessarily produce critical conditions in other parts of the study area.

The Myakka River is a broad estuary, and, under certain conditions, tides generated at its mouth in Charlotte Harbor can intrude far upriver, causing tidal flooding. Rainfall, which usually accompanies hurricanes, can aggravate the tidal flood situation, particularly in areas where the secondary drainage system is poorly developed. Because of the flatness of the terrain, most inland areas are characterized by shallow flooding during heavy rainfalls.

Storms passing Florida in the vicinity of Sarasota County have produced severe tidal floods, as well as damage from extreme winds. A description of specific hurricane events has been given in previous studies (Reference 26, 27, and 28). It should be noted that most hurricanes occur in the latter portion of the rainy season. Thus, rain associated with hurricanes commonly falls when conditions are most critical for runoff. A brief description of several significant hurricanes provides historic information to which coastal flood hazards and the projected flood depths can be compared.

<u>October 24, 1921</u>

This storm, born in the waters of the western Caribbean Sea, entered Florida north of the City of Tarpon Springs, Florida. Flooding conditions were prolonged due to the slow forward movement of the storm. A combination of high tides (approximately 7 feet) and wave action resulted in heavy damage in Sarasota County. Total losses in Sarasota County were estimated at $200,000.

<u>September 19, 1926</u>

This hurricane was one of the most destructive storms of the twentieth century. Originating in the Atlantic Ocean near the Cape Verde Islands, it approached the coast of Florida on September 17, 1926. In the Sarasota area, flood damage was estimated at $1 million. In addition, wave action resulted in considerable erosion along the Coast of Sarasota County.

<u>September 10, 1960</u>

Hurricane Donna resulted in tidal heights of approximately 3 feet above normal in Sarasota County. Precipitation from the storm averaged from 5 to 7 inches in the county, but a heavy pre-storm rainfall of approximately 10 inches saturated the ground. Consequently, considerable flooding resulted from this hurricane.

<u>October 18, 1968</u>

This storm originated in the Caribbean Sea before entering the Florida Straits. Tides of up to 5 feet above normal produced considerable damage in Sarasota County. In addition, the storm caused beach erosion and the lowering of beach profiles throughout Sarasota County.

June 18, 1972

Hurricane Agnes originated on the northeastern tip of the Yucatan Peninsula and traveled westward. Although the center of this storm passed approximately 150 miles west of the Florida peninsula, it produced high tides of 3 feet above normal and precipitation of 5 inches in Sarasota County. The high tides caused damage to many homes, seawalls, revetments, and roads along the Sarasota County coastline. In addition, wave action produced considerable erosion throughout Sarasota County.

1992

An El Niño rain event in 1992 flooded inland areas including over 1,200 homes, some flooded with over 21 inches of water.

September 13, 2001

Tropical Storm Gabrielle formed after meandering as a tropical wave and depression in the Gulf of Mexico. Just before landfall in Venice (Sarasota County) Hurricane Gabrielle reached her peak intensity with a small core of hurricane winds (80 mph). The combination of wind, rain and coastal flooding produced damage which exceeded $15 million across the Tampa Bay area.

August 14, 2004

Hurricane Charley strengthened rapidly before striking the southwestern coast of Florida as a Category 4 hurricane. Charley was the strongest hurricane to hit the United States since Andrew in 1992 and, although small in size, it caused severe wind damage throughout southwest Florida. Charley was one of three hurricanes to hit Florida in 2004.

June 23-25, 2012

Tropical storm Debbie produced significant rainfall throughout southwest Florida over June 23-25 2012. Rainfall amount totals in Sarasota County ranged from 2 inches in south Sarasota County to over 7 inches in northern Sarasota County.

2.4 Flood Protection Measures

No specific flood protection measures are known to exist in the community, and no flood protection structures have been built. Floodproofing of structures is done on an individual basis and includes such measures as elevation of dwellings, conservation of mangroves and dunes, and construction of seawalls. Development in the 1-percent-annual-chance floodplain is controlled by local ordinance, based on the previous FEMA identification of flood hazard areas.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and

0.2-percent-annual-chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance (100-year) flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for the flooding source studied by detail methods affecting the communities within Sarasota County. Information on the methods used to determine the peak discharge-frequency relationships for each flooding source studied by detailed methods is shown below.

Pre-Countywide Analysis

The unit hydrograph (UH) method was adopted to develop peak discharge-frequency relationships for streams studied in detail. For Phillippi, Matheny, Alligator, Curry, and Woodmere Creeks, a total volume of 12.0 inches of rainfall for the 1-percent-annual-chance, 24-hour duration storm (Reference 29 and 30) was used with NRCS Type II modified rainfall distribution to compute hydrographs. The USGS quadrangle maps (Reference 31) and aerial photographs (Reference 32) were used to delineate drainage boundaries. They were also used to compute hydrologic parameters in UH, such as pervious/impervious areas, lake areas, and peak rate factors for each basin. Sarasota County soil maps (References 33 and 34) were used to identify the soil characteristics and runoff curve numbers (Reference 35) for potential retention volume. Time of concentration for each basin was based on ranges of 0.1-0.3 feet per second for overland flow, and 1.0-3.0 feet per second for channel flow (Reference 36).

For Hatchett Creek, a total volume of 10.0 inches of rainfall for the 1-percent-annual-chance, 24-hour duration storm (Reference 30 and 36) was used with an SCS Type II modified rainfall distribution to compute hydrographs. The drainage boundaries were delineated from aerial photographs (Reference 37) and topographic maps (Reference 38). They were also used to compute hydrologic parameters in UH such as pervious/impervious areas, lake areas, and peak rate factors for each basin. Sarasota County soil maps (Reference 33 and 34) were used to identify the soil characteristics and runoff curve numbers (Reference 38 and 39) for potential retention volume. For undeveloped areas, the time of concentration was developed by determining a lag time (Reference 39), then dividing the lag time by 0.06. The time of concentration for developed areas was taken as a sum of sheet flow and shallow flow times (Reference 35). Channel flow travel times were determined to be 2.5 feet per second.

A stream flow gaging station was maintained and monitored from 1960 to 1981 by the USGS on Phillippi Creek. Since 1981 this gaging station has been discontinued. Peak discharges were developed using log-Pearson Type III analysis (Reference 41), with 22 years of record. Peak rate factors for UH, ranging from 150 to 350 for undeveloped areas to highly developed areas, were established by calibrating peak discharges from UH to the results of the log-Pearson Type III analysis at the gaging station. The same peak rate factor range was used in UH for Matheny, Curry, Hatchett, Alligator, and Woodmere Creeks.

Peak discharges were developed for Hatchett Creek utilizing the AdICPR hydrodynamic computer program (Reference 42).

For Myakka River, regression flood-frequency distributions were weighted with log-Pearson Type III distributions for gaged and ungaged sites; flood discharges for natural and diked conditions were evaluated (Reference 14). The Myakka River flood stages for the 10-, 2-, 1- and 0.2-percent-annual-chance flood frequencies are higher than the flood stages of Blackburn Canal (Reference 43). Blackburn canal is connected with Curry Creek to release water from the Myakka River through Curry Creek and to drain into the Gulf of Mexico. Therefore, this analysis recognizes that released discharges from the Myakka River must be added to those of Curry Creek, in accordance with the different stages between the Myakka River and Blackburn Canal.

Countywide Analyses

For this countywide FIS, development of the model for the Alligator Creek, Big Slough, Hudson Bayou, Island of Venice, Roberts Bay, and Whitaker Bayou watershed involved establishing a nodal network to represent the runoff hydrographs and the stormwater flow conveyance system from sub-basin outfalls to the downstream conveyance system discharge. The model generates runoff hydrographs and conveys or "routes" the hydrographs through the conveyance system and through any hydraulic control structures located along the conveyance system.

The conceptual representation of a stormwater conveyance system is based on the "link-node" or "reach-junction" concept. The links (or reaches) represents sections of ditches, canals, rivers, or pipes along the conveyance system. Nodes (and/or junctions) represent storage or the intersection of two or more reaches and are described as confluence or diversion points of flow. Nodes also provide a computation point that is used to determine water surface elevations within the primary storm event. The node and reach designation were completed in accordance with the SWFWMD's Watershed Management Program Guidelines and Specifications (G&S). A node table representing the node name, watershed, and elevation is presented at the end of this FIS report.

The computer model most often used for this Watershed Management Program is the Interconnected Channel and Pond Routing Model (ICPR) Version 3, which is fully accepted by local, state, and federal agencies for flood elevation determination of drainage systems (Reference 44). The ICPR model dynamically routes stormwater through open channels and/or closed conduits. The model's unique solution algorithm allows it to simulate a wide variety of complex conveyance systems including dendritic, diverging, looped, and bifurcated features. Other models, such as CHAN and SWMM, are also used for the Watershed Management Program, and are accepted by local, state, and federal agencies for flood elevation determination (Reference 45 and 46).

Based on the available and acquired data, descriptions of hydrologic features represented in models originally developed by the County were modified for the Alligator Creek, Big Slough, Hudson Bayou, Island of Venice, Roberts Bay and Whitaker Bayou studies. In general, the model data and GIS database were updated jointly as new information was acquired. The 1-percent-annual-chance / 24-hour event was modeled for each of the study areas using the District's G&S designated rainfall depth of 10 inches. The rainfall distribution used was the Florida Type II Modified per the District's G&S. In addition to the 1-percent-annual-chance / 24-hour event, an event of recent memory was also simulated to verify model results.

Tropical Storm Henri (September 2003) was simulated for the Alligator Creek and Roberts Bay study areas. For Tropical Storm Henri, a Doppler (NEXRAD) rainfall simulation event was developed and used in the models. This event produced approximately 8 inches of rainfall over three days with 6.2 inches of rainfall on September 5, 2003.

Time/Stage Boundary conditions in the Intracoastal Canal were described for nodes in the Alligator Creek and Island of Venice models. The boundaries were assigned a fixed elevation of 1.42 ft. NAVD88. Boundary conditions were also described in Roberts Bay and the Intracoastal Canal for the Roberts Bay model, and assigned a fixed elevation of 0 ft. NAVD88, which is the mean high tide elevation. For tropical storm Henri, observed water levels at the Port of Manatee were used to represent coastal conditions.

Two verification models were developed for the Whitaker Bayou study area. The model calibration was based on Tropical Storm Gabrielle, September 2001. The model validation was then based on a June 1992 storm event (Tropical Depression 1). Tropical Storm Gabrielle was selected for the calibration, because this storm generated the highest stages recorded by USGS Gauge 02299861 (Walker Creek near Sarasota, FL). Tropical Depression 1 was selected because high water mark data are available for the rainfall event. The rainfall information was obtained from NEXRAD rainfall data. For Tropical Storm Gabrielle, the total amount of rainfall was 9.6 inches over approximately 3 days. For the June 1992 storm, the total rainfall was 16.7 inches over approximately 3.5 days.

In order to verify the Hudson Bayou model results, the 1 percent-annual-chance 24-hour event results were analyzed for numeric stability and storage interconnectivity. Model results were then compared to measured gauge data and historical data. A February 27, 2005 event was also simulated to verify model results. This event was selected after a review for NEXRAD data for the six pixels covering the Hudson Bayou study area from 2004 to 2008. The February 27, 2005 event exhibited the best combination of intensity/volume, isolation from other events, and a reasonable measured response in the in-stream gauge data. The event totaled an average of 5.6 inches of rain over a 24 hour period for the six pixels. Boundary conditions were described in the Gulf of Mexico for the Hudson Bayou and Whitaker Bayou models and assigned a fixed elevation of 1.42 ft. NAVD88.

For the Big Slough watershed, the 1-percent-annual-chance 24 hour and 120 hour events were simulated using the CHAN model. The 1-percent-annual-chance / 24 hour event was modeled using the District's G&S designated rainfall depth of 10.1 inches for the 24 hour event, and 18.5 inches for the 120 hour event. The rainfall distribution used for the 24 hour event was the Florida Type II Modified per the District's G&S. The results of the 24 hour event were used to delineate the floodplain in the contributing areas, but not along Big Slough/Myakkahatchee Creek itself. Due to the time for flows from the upper watershed to reach the lower portion of the creek system, the 120 hour event was used to delineate the floodplain along Big Slough/Myakkahatchee Creek. The rainfall distribution for the 120 hour event was the District's 5 day distribution found in the District's G&S. Rainfall excess for each subbasin was computed for each of the synthetic storm events. The NRCS Curve Number method was selected to perform this computation. Soils and land use maps were obtained from the SWFWMD, and updated. Using GIS applications, this information was used to determine Curve Numbers for each subbasin. The NRCS TR-55 method was used to determine time of concentration values for each subbasin. Due to insufficient streamflow data, it was decided to corroborate model results by simulating a June 2003 event that was well documented by City of North Port staff. In addition, Ardaman staff visited the area in 2004, immediately after Hurricane Charley, to record findings for model verification. Verification rainfall events consisted of 13.08 inches over 5 days for the 2003 event, and 10.34 inches over 7 days for the 2004 event.

The boundary condition for the Big Slough study area was based upon elevations provided in the District's G&S. Specifically, a tidal tailwater condition for the Big Slough Canal downstream of the U.S. Highway 41 watershed boundary was set to a fixed elevation of -0.02 feet NAVD88.

Peak discharge-drainage area relationships for the 10-, 2-, 1-, and 0.2-percent-annual-chance floods for each stream studied by detailed methods are presented in Table 5, "Summary of Discharges."

Table 5 - Summary of Discharges

		Peak Discharges (cubic feet per second)			
Flooding Source and Location	**Drainage Area (sq. miles)**	**10-Percent-Annual-Chance**	**2-Percent-Annual-Chance**	**1-Percent-Annual-Chance**	**0.2-Percent-Annual-Chance**
ALLIGATOR CREEK					
At mouth	9.88	[2]	[2]	2,956	[2]
At U.S. Route 41	7.66	[2]	[2]	1,714	[2]
About 1,950 feet downstream of Jacaranda Boulevard	7.11	[2]	[2]	1,400	[2]
At Jacaranda Boulevard	5.16	[2]	[2]	1,051	[2]
BIG SLOUGH CANAL					
At junction with Snover Waterway	151.95	[2]	[2]	8,073	[2]
CURRY CREEK[1]					
At U.S. Route 41	*	[2]	[2]	1,839	[2]
At Albee Farm Road	*	[2]	[2]	1,740	[2]
About 2,300 feet downstream of Pinebrook Road	*	[2]	[2]	1,480	[2]
At Pinebrook Road	*	[2]	[2]	1,257	[2]
At Capri Isles Boulevard	*	[2]	[2]	972	[2]
At Auburn Road	*	[2]	[2]	879	[2]
At Interstate 75	*	[2]	[2]	869	[2]

Table 5 – Summary of Discharges (continued)

Flooding Source and Location	Drainage Area (sq. miles)	Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
HATCHETT CREEK					
At Intercoastal Waterway	5.49	[2]	[2]	1,132	[2]
At Venice Bypass North	4.95	[2]	[2]	906	[2]
At Venice Avenue East	4.28	[2]	[2]	468	[2]
At Pinebrook Road	3.05	[2]	[2]	391	[2]
At Hatchett Creek Road	2.10	[2]	[2]	143	[2]
At Jacaranda Boulevard	0.93	[2]	[2]	85	[2]
MATHENY CREEK					
At U.S. Route 41	2.61	380	540	650	770
At Gulf Gate Drive	1.41	230	340	410	460
At Beneva Road	0.72	150	220	250	270
MYAKKAHATCHEE CREEK					
At junction with Cocoplum Waterway	183.94	[2]	[2]	6,735	[2]
At Appomattox Drive	153.79	[2]	[2]	8,939	[2]
At Price Boulevard	152.96	[2]	[2]	9,563	[2]
PHILLIPI CREEK					
At U.S. Route 41	55.97	4,300	6,300	7,500	8,400
At Proctor Road West	54.57	4,100	6,100	7,300	8,100
At Bee Ridge Road West	50.58	3,650	5,400	6,500	7,300
At Webber Street	49.59	3,500	5,200	6,300	7,000
At Bahia Vista Street West	46.23	3,150	4,700	5,700	6,400
At Beneva Road	36.22	2,200	3,200	3,900	4,500
About 2, 200 feet upstream of CSX railroad	34.42	2,000	3,000	3,700	4,200
At Bahia Vista Street East	32.53	1,800	2,750	3,300	3,800
About 4, 700 feet upstream of Bahia Vista Street East	30.90	1,700	2,550	3,100	3,600
About 4, 500 feet downstream of Cattlemen Road	28.90	1,500	2,300	2,800	3,200
At confluence with Phillipi Creek Branch B	10.40	1,031	1,603	1,892	2,687
About 3,000 feet downstream of Cattlemen Road	6.27	400	610	730	920
At Cattlemen Road	4.74	380	600	700	880
At Bee Ridge Road East	4.06	370	580	650	850

Table 5 – Summary of Discharges (continued)

Flooding Source and Location	Drainage Area (sq. miles)	Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
PHILLIPI CREEK (CONTINUED)					
At Proctor Road East	3.11	350	560	600	800
WOODMERE CREEK					
At mouth	[3]	[3]	[3]	[3]	[3]
At Heron Street	[3]	[3]	[3]	[3]	[3]
At Pompano Road	[3]	[3]	[3]	[3]	[3]
At Florida Avenue	0.43	120	170	200	210
At Englewood Road	0.49	*	*	122	*

[1] The peak discharges were considered receiving flood flows from the Myakka River through Blackburn Canal; contributing drainage areas may vary under various conditions of the Myakka River.
[2] Peak discharges determined for 1-percent-annual-chance event only.
[3] Contributing area and flows not determined due to overlap with Alligator Creek watershed between Florida Ave. and Heron St.
* Data not available

Stillwater Elevations for the 10-, 2-, 1-, and 0.2-percent-annual-chance floods for each stream and waterbody studied by detailed methods are presented in Table 6, "Summary of Stillwater Elevations." Elevations are shown in the North American Vertical Datum of 1988 (NAVD88).

Table 6 - Summary of Stillwater Elevations

Flooding Source and Location	ELEVATION (feet NAVD88) 10-Percent Annual-Chance	2-Percent Annual-Chance	1-Percent Annual-Chance	0.2-Percent Annual-Chance
GULF OF MEXICO				
At Manasota Key, approximately 3.97 miles west of North Port corporate limits	5.1	7.7	9.9	12.1
Sarasota Bay at City of Sarasota corporate limits	5.0	9.5	11.3	14.5
Sarasota Bay at Tenth Street	4.9	9.0	10.7	13.6
Sarasota Bay at Bird Key	4.3	8.1	9.7	12.5
Sarasota Bay at Bishops Point	4.3	8.2	9.8	12.7
At Lyons Lane	4.6	7.7	9.2	12.2

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5-foot for floods of the selected recurrence intervals. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway is computed (Section 4.2), selected cross-section locations are also shown on the FIRM (Exhibit 2). Unless specified otherwise, the hydraulic analyses for these studies were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations shown on the Flood Profiles and FIRM (Exhibits 1 and 2) are referenced to the NAVD88.

<u>Pre-Countywide Analyses</u>

The flood elevations for the Myakka River region were taken from the adjacent FIRMs for Charlotte County (Reference 47). Myakka River flood heights were computed from flood-peak discharges for natural and diked conditions using the U.S. Geological Survey step-backwater computer program E-431 (Reference 14).

Starting water-surface elevations for the HEC-2 analyses were obtained from the high tide levels on Charlotte Harbor, located south of the study area in Charlotte County.

Water-surface profiles for riverine flooding sources were developed using the USACE HEC-2 computer program (Reference 48). Profiles were determined for the 10-, 2-, 1-, and 0.2-percent-annual-chance floods.

The slope-area method was used to compute the starting water-surface elevation for Alligator, Curry, Hatchett, Matheny, Phillippi, and Woodmere Creeks. Water-surface elevations for floods of the selected recurrence intervals were developed using the HEC-2 water-surface profile computer model (Reference 49).

Cross sections used in the hydraulic analyses for the Big Slough Canal and Myakkahatchee Creek were field surveyed.

Cross sections for the backwater analyses were surveyed for Curry, Hatchett, Matheny, and Woodmere Creeks (Reference 50). Cross-section information for Alligator and Phillippi Creeks was provided by the Sarasota County Transportation Department (Reference 51). In some cases, USGS topographic maps (Reference 31) were used to extend surveyed cross sections for geometry of floodplains. Cross-section information for Blackburn Canal, which connects Curry Creek with the Myakka River, was obtained from the USGS (Reference 43). Bridges and culverts were field checked and surveyed to obtain elevation data and structural geometry of waterway crossings for Curry, Hatchett, Matheny, and Woodmere Creeks (Reference 50). Cross-section geometry adopted from the 1986 Sarasota County Stormwater Master Plan report (Reference 51) for Alligator and Phillippi Creeks was field checked and coordinated with the Sarasota County Transportation Department for revisions of new bridges.

Cross sections, dams, and culverts for the backwater analysis of the streams studied in detail were obtained by field survey. Cross-section information provided by the Sarasota County Transportation Department, were in some cases, extended based on USGS Quad maps.

Shallow flooding depths were determined using a two-dimensional kinematic wave analysis and field reconnaissance. Topographic maps at a scale of 1:24,000, with a contour interval of 5 feet (Reference 31), were also used.

Countywide Analyses

For this countywide FIS, Alligator Branch, Hudson Bayou, Island of Venice, Roberts Bay, and Whitaker Bayou watersheds were studied using Streamline Technologies ICPR v.3 unsteady flow model to estimate flood levels. The development of the model schematic was performed using ArcGIS. Various sources were utilized in developing the schematic including GIS shapefiles of the transportation network, ortho-aerial photography of Sarasota County, Digital Elevation Model (DEM) of Sarasota County and contours derived from the DEM. An ArcGIS automated subroutine was used to determine the stage-area relationships for each subbasin. Overtopping weirs are used in ICPR to transfer water between the storage areas. The cross sections for the overtopping weirs were derived using the DEM for Sarasota County. Starting water surface elevations for each subbasin were determined from the DEM. An ICPR model for the study areas was developed based on the information described above. HEC-RAS models were also developed for Alligator Creek, Curry Creek, and Hatchett Creek to prepare the floodway information (Reference 52). The HEC-RAS models were made consistent with the riverine floodplain ICPR models. Creek centerlines, edge of creek banks, and natural channel cross-sections were developed using the HEC-GeoRAS fool and the digital topographic information previously used for the ICPR model. As the DEM cannot provide the cross-section geometry for areas that are located under water such as channel bottoms, the HEC-RAS cross-sections were created using the ICPR model geometries for the channel part of the cross-sections. The geometry of the overbanks were obtained from the DEM. Roughness coefficients (Manning's "n") for the channel portion of the cross-sections were consistent with those used in the ICPR model. The peak flow rates and boundary conditions used were also consistent with the ICPR models.

For the Big Slough watershed, survey cross-section and bridge geometry data were acquired in May 2006 by Lombardo, Foley & Kolarik, Inc. - Consulting Engineers, Surveyors & Planners (LF&K). The survey performed by LF&K was used to develop the SWFWMD approved effective model CHAN as well as the floodway model HEC-RAS.

Cross-section station elevations, lengths, manning roughness coefficients were imported in the HEC-RAS model using the surveyed data. A few cross-sections were extended at the left and right banks using LiDAR based topographic information where necessary. The locations of the extended cross-sections are provided as a GIS shapefile. The surveyed cross-sections were interpolated at nearly 500-foot intervals for better resolution in Geo-RAS mapping. The evaluated stretch of the river system encompasses two bridges (at Price Boulevard and Appomattox Drive) and one Water Control Structure (WCS-101, Gated Weir Structure). The water control structure is located just north of the confluence of Myakkahatchee Creek and Cocoplum Waterway. The reach boundary condition used was set to a known water surface elevation derived from the effective model CHAN for the selected 5-day, 1-percent-annual-chance storm event.

For all of the models, starting elevations were determined on a subbasin basis; therefore, each subbasin could theoretically have a different starting elevation. The lowest point for the initial stage as indicated by the DEM or the wetland/pond limits in the aerial photographs was used for most starting conditions.

Channel and overbank roughness factors (Manning's "n" values) used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the stream and floodplain areas. The channel "n" values ranged from 0.010 to 0.140, and the overbank "n" values ranged from 0.025 to 0.150 for all streams.

Table 7, "Manning's n" Values," shows the channel and overbank "n" values for the streams studied by detailed methods.

Table 7 - Manning's "n" Values

Stream	Channel	Overbank
Alligator Creek[1]	0.010 – 0.040	0.025 – 0.150
Big Slough Canal[1]	0.012 – 0.060	0.120
Curry Creek[1]	0.010 – 0.140	0.040 – 0.140
Hatchett Creek[1]	0.013 – 0.060	0.030 – 0.150
Matheny Creek	0.035 – 0.060	0.060 – 0.080
Myakkahatchee Creek[1]	0.030 – 0.080	0.060 – 0.150
Phillippi Creek	0.030 – 0.045	0.060 – 0.100
Phillippi Creek Branch B	0.040 – 0.140	0.050 – 0.100
Woodmere Creek	0.045 – 0.080	0.120 – 0.150

[1] Manning's "n" values obtained from 2013 HEC-RAS models.

All qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Benchmarks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)
- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS benchmarks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for benchmarks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their Web site at www.ngs.noaa.gov.

It is important to note that temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Wave Height Analysis

Hydraulic analyses, considering storm characteristics and the shoreline and bathymetric characteristics of the flooding sources studied, were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along the shorelines.

Figure 1 is a profile for a hypothetical transects showing the effects of energy dissipation on a wave as it moves inland. This figure shows the wave elevations being decreased by obstructions, such as buildings, vegetation, and rising ground elevations and being increased by open, unobstructed wind fetches. Actual wave conditions may not necessarily include all of the situations shown in Figure 1, “Transect Schematic.”

The determination of coastal inundation from the Gulf of Mexico caused by passage of hurricane surge was approached by the joint probability method (Reference 53). The storm populations were described by probability distributions of five parameters, which influence surge heights. These were central-pressure depression (which measures the intensity of the storm), radius-to-maximum winds, forward speed of the storm, shoreline crossing point, and crossing angle.

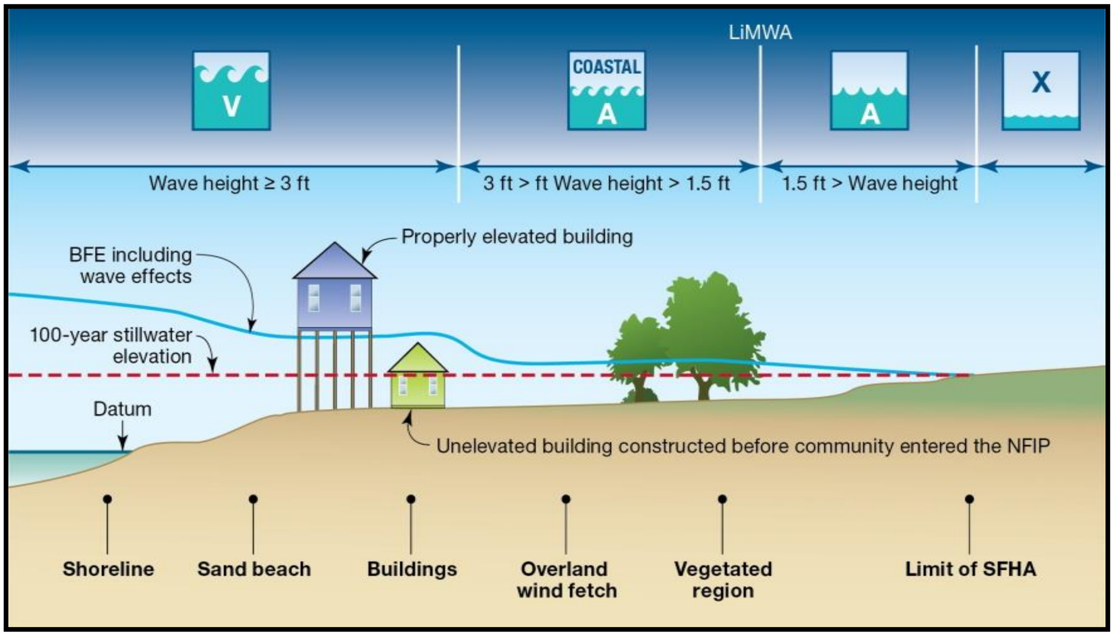


Figure 1 - Transect Schematic

These characteristics were described statistically based upon an analysis of observed storms in the vicinity of Sarasota County. Primary sources of data for this analysis were the National Climatic Center (Reference 54); Cry (Reference 55); Ho, Schwerdt, and Goodyear (Reference 56); the National Hurricane Research Project (Reference 57); and the Monthly Weather Review (Reference 58). Digitized storm information for all storms from 1886 to 1977 was used to correlate statistics (Reference 59).

The FEMA standard coastal surge model was used to simulate the coastal surge generated by any chosen storm (that is, any combination of the five storm parameters defined previously). By performing such simulations for a large number of storms (each of known total probability), the frequency distribution of surge height, as a function of coastal location, can be established. These distributions incorporate the large scale surge behavior, but do not include an analysis of the added effects associated with much finer scale wave phenomena, such as wave height, setup, and runup. The astronomic tide for the region is then statistically combined with the computed storm surge to yield recurrence intervals of total water level (Reference 60).

The standard coastal surge model utilizes a grid pattern approximating the geographic features of the study area and the adjoining areas. Surges were computed utilizing grids of 5 nautical miles, 1 nautical mile, and 2,000 feet, depending on the resolution required.

Wave heights were added to stillwater storm-surge elevations using the methodology recommended by the National Academy of Sciences (NAS) (Reference 61). This method is based on the following major concepts. First, depth-limited waves in shallow water reach a maximum breaking height that is equal to 0.78 times the stillwater depth. The wave crest is 70 percent of the total wave height above the stillwater level. The second major concept is that wave height may be diminished by dissipation of energy, due to the presence of obstructions, such as sand dunes, dikes and seawalls, buildings, and vegetation. The amount of energy dissipation is a function of the physical characteristics of the obstruction and is determined by NAS procedures (Reference 61). The third major concept is that wave height can be regenerated in open fetch areas, due to the transfer of wind energy to the water. This added energy is related to fetch length and depth.

Wave heights were computed along transects (cross-section lines) in accordance with the User's Manual for Wave Height Analysis (Reference 62). The transects were located along the coastal areas as illustrated in Figure 2, "Transect Location Map". The transects were located with consideration given to the physical and cultural characteristics of the land so that they would closely represent conditions in their locality. Transects were spaced close together in areas of complex topography and dense development. In areas having more uniform characteristics, they were spaced at larger intervals. It was also necessary to locate transects in areas where unique flooding existed and in areas where computed wave heights varied significantly between adjacent transects.

Each transect was taken perpendicular to the shoreline and extended inland to a point where wave action ceased. Along each transect, wave heights and elevations were computed considering the combined effects of changes in ground elevation, vegetation, and physical features. The stillwater elevations for the 1-percent-annual-chance flood were used as the starting elevations for these computations. Wave heights were calculated to the nearest 0.1 foot, and wave elevations were determined at whole-foot increments along the transects. The location of the 3-foot breaking wave, used to determine the terminus of the V zone (area with velocity wave action), was computed at each transect.

After analyzing wave heights along each transect, wave elevations were interpolated between transects. Various source data were used in the interpolation, including topographic maps (Reference 31), beach profiles (Reference 63), city boundary maps (Reference 64), aerial photographs (Reference 65), and engineering judgment. Controlling features affecting the elevations were identified and considered in relation to their positions at a particular transect and their variation between transects. The results of the study are considered accurate until local topography, vegetation, or cultural development undergoes major changes.

Flood frequency statistics for riverine flooding sources were derived from rainfall-runoff methods.

Precipitation-time-intensity patterns were generated for selected recurrence intervals from analysis of precipitation data obtained from the National Climatic Center (References 66 and 67). The precipitation-time-intensity patterns were then used as input into a two-dimensional numerical model, which is based upon kinematic wave approximations (Reference 68).

Areas exist where greater flood hazards may be expected than are presently indicated on the revised FIRM due to potential wave action. These areas include, but may not be limited to, the western shorelines of Sarasota Bay, Big Sarasota Pass, and Roberts Bay; the eastern shoreline of Bird Key; and the Intracoastal Waterway below Tamiami Trail (U.S. Business Route 41). Due to limitations of the data and engineering methodology, including knowledge of wave generation and propagation mechanisms and wind-surge correlations in time, the magnitude and extent of wave hazard cannot be accurately determined at present and these areas have been omitted from rigorous analysis. As further refinements to existing study methods become available, the FIRM will be revised accordingly.

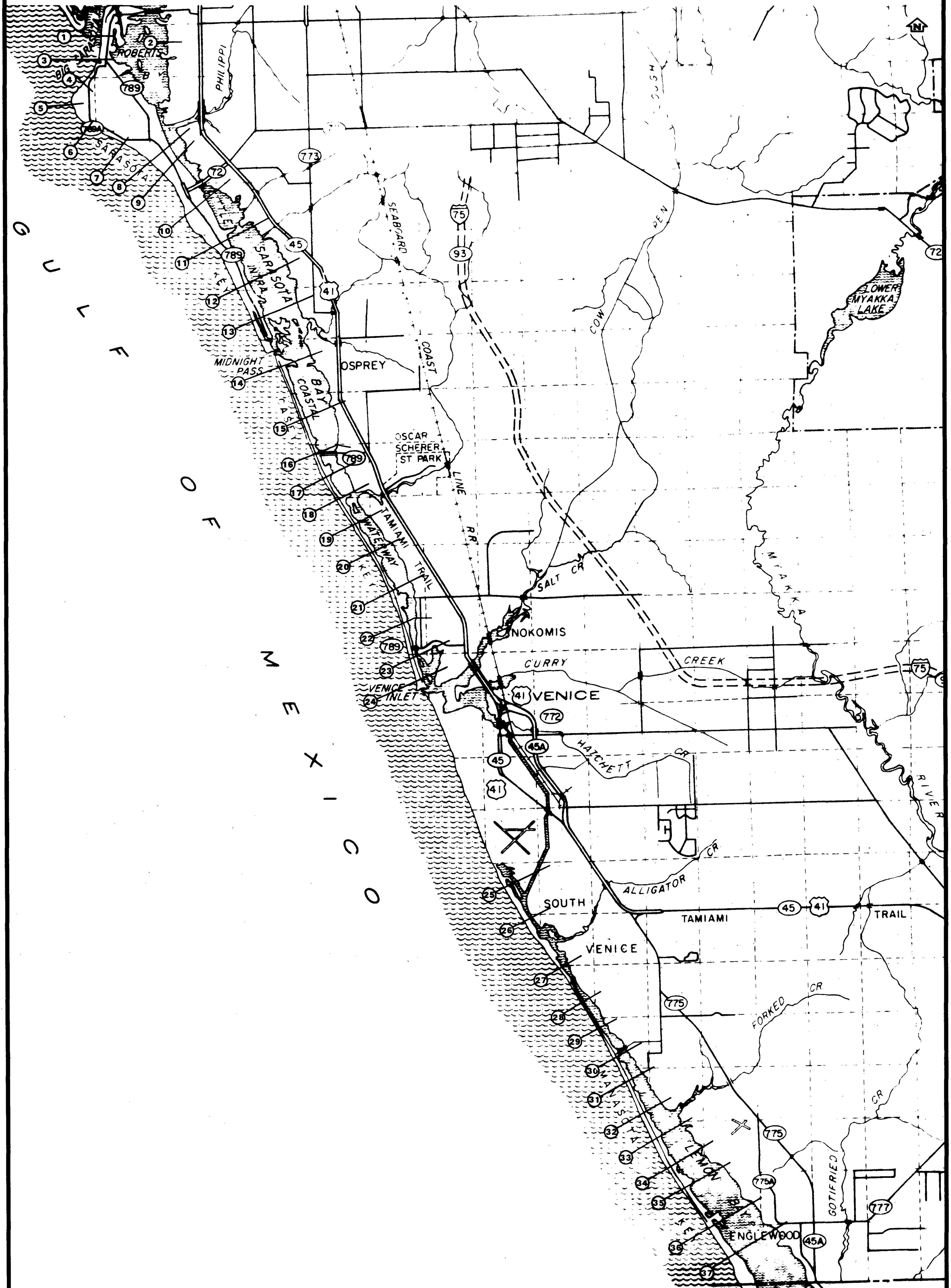


FIGURE 2	FEDERAL EMERGENCY MANAGEMENT AGENCY SARASOTA COUNTY AND INCORPORATED AREAS, FL	APPROXIMATE SCALE 7000 0 7000 14000 21000 FEET **TRANSECT LOCATION MAP**

3.4 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS reports and FIRMs was NGVD29. With the completion of NAVD88, many FIS reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS report and on the FIRM are referenced to the NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. Some of the data used in this revision were taken from the prior effective FIS reports and FIRMs and adjusted to NAVD88. The datum conversion factor from NGVD29 to NAVD88 in Sarasota County is **-1.08** feet. The data points used to determine the conversion are listed in Table 8, "Vertical Datum Conversion Values."

Table 8 - Vertical Datum Conversion Values

Quad Name	Corner	Longitude	Latitude	Conversion from NGVD29 to NAVD88
Bee Ridge	SE	-82.375	27.25	-1.08
Bird Keys	SE	-82.5	27.125	-1.11
Bradenton	SE	-82.5	27.375	-1.02
Bradenton Beach	SE	-82.625	27.375	-1.02
El Jobean	SE	-82.125	26.875	-1.14
Englewood	SE	-82.25	26.875	-1.13
Englewood NW	SE	-82.375	26.875	-1.12
Laurel	SE	-82.375	27.125	-1.12
Lorraine	SE	-82.375	27.375	-0.97
Lower Myakka Lake	SE	-82.25	27.125	-1.11
Murdock	SE	-82.125	27	-1.13
Murdock NE	SE	-82	27.125	-1.11
Murdock NW	SE	-82.125	27.125	-1.11
Murdock SE	SE	-82	27	-1.14
Myakka City	SE	-82.125	27.25	-1.04
Myakka City NW	SE	-82.125	27.375	-0.98
Myakka River	SE	-82.25	27	-1.12
Old Myakka	SE	-82.25	27.25	-1.05
Punta Gorda	SE	-82	26.875	-1.14
Sarasota	SE	-82.5	27.25	-1.09
Sarasota OE W	SE	-82.625	27.25	-1.06
Venice	SE	-82.375	27	-1.11
Verna	SE	-82.25	27.375	-0.95
			AVERAGE	**-1.08 feet**

The BFEs shown in the FIRM represent whole-foot rounded values. For example, a BFE of 1470.4 will appear as 1470 on the FIRM and 1470.6 will appear as 1471. Therefore, users who wish to convert the elevations in this FIS to NGVD29 should apply the stated conversion factor to elevations shown on the Flood Profiles and supporting data tables in the FIS report, which are shown at a minimum to the nearest 0.1 foot.

For additional information regarding conversion between the NGVD29 and NAVD88, visit the National Geodetic Survey website at http://www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey, SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data.

Prior versions of the FIS reports and FIRMs were referenced to the NGVD29. When a datum conversion is effected for a FIS report and FIRM, the Flood Profiles, BFEs, and Elevation Reference Marks (ERM) reflect the new datum values. To compare structure and ground elevations to 1-percent annual chance flood elevations shown in the FIS and on the FIRM, the subject structure and ground elevations must be referenced to the new datum.

To obtain current elevation, description, and/or location information for benchmarks shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at http://www.ngs.noaa.gov.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS provides 1-percent-annual-chance (100-year) flood elevations and delineations of the 1- and 0.2-percent-annual-chance (500-year) floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles and Floodway Data Table. Users should reference the data presented in the FIS report as well as additional information that may be available at the local map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

In order to provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by the FEMA as the base flood for purposes of flood plain management measures. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 1-percent-annual-chance flood have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using a city boundary map at a scale of 1:7,200 (Reference 69); zoning maps at a scale of 1:9,600 (Reference 70); USGS topographic maps at a scale of 1:24,000, with a contour interval of 5 feet (Reference 31); and using aerial photographs at scales of 1:10,800 and 1:21,600 (References 71 and 72). Boundaries of the 0.2-percent-annual-chance flood were not determined for new detailed study areas and study updates. Boundaries of the 0.2-percent-annual-chance event have been included for streams with special flood hazard boundaries that were redelineated.

Digital floodplain boundaries were redelineated for the following streams in Sarasota County: Matheny Creek, Phillippi Creek, and Phillippi Creek Branch B. Approximately 15 miles of streams were redelineated using the effective profiles and digital elevation models with 5-foot pixel resolution. Floodplain boundaries for Woodmere Creek were not redelineated due to discrepancies between the effective BFEs in the Woodmere Creek watershed and the updated BFEs in bordering Alligator Creek watershed.

For the areas affected by the shallow flooding and tidal surge, flood boundaries were determined using topographic maps at a scale of 1:24,000, with a contour interval of 5 feet (Reference 31), and aerial photographs at scales of 1:10,800 and 1:21,600 (References 71 and 72).

For the areas affected by coastal surge, aerial photographs were used at scales of 1:3,600, 1:7,200, 1:10,800, and 1:21,600 (Reference 65).

Approximate 1-percent-annual-chance boundaries were delineated using zoning maps at a scale of 1:9,600 (Reference 70); USGS topographic maps at a scale of 1:12,000, with a contour interval of 1 foot (References 73, 74, 75, 76, 77, 78 and 79); USGS topographic maps at a scale of 1:24,000, with a contour interval of 5 feet (Reference 31); and using aerial photographs at scales of 1:10,800 and 1:21,600 (References 71 and 72).

The 1-percent-annual-chance / 24-hour storm event was used for estimation of floodplains for this analysis. This storm is commonly used for floodplain analysis applications in areas where the use of longer duration storms is not supported by prevailing data. For this watershed modeling effort, this storm event was first considered as providing a reasonable indication of flood hazard unless compelling evidence for the use of a longer duration event (3-, 5-, or 7-day for example) was indicated through review of available verification data. Due to the lack of available verification no compelling evidence was considered to be present to justify the use of a longer duration storm event for the Alligator Creek, Hudson Bayou, Island of Venice, Roberts Bay and Whitaker Bayou studies. However, there was sufficient evidence to justify the use of a 120-hour duration event along Big Slough Canal/Myakkahatchee Creek. The 24-hour duration event was used to delineate special flood hazard boundaries in the rest of the Big Slough detailed study area.

Floodplain boundaries are indicated on the FIRM. On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zone A, AE, AH, AO, V and VE) and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards (Zone B and Zone X shaded). In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

Flood boundaries for the 1- and 0.2-percent-annual-chance floods are shown on the Flood Boundary and Floodway Map (Exhibit 2).

Small areas within the flood boundaries may lie above the flood elevations and, therefore, not be subject to flooding; owing to limitations of the map scale, such areas are not shown.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS report and on the FIRM were computed for certain stream segments on the basis of equal-conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations have been tabulated for selected cross sections Table 9, “Floodway Data,” The computed floodways are shown on the FIRM. In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown.

A floodway generally is not applicable in areas where the dominant source of flooding is from coastal waters.

The floodways for Woodmere Creek were digitally converted from the effective Zone AE from Pompano Road to the Intercoastal waterway. Vertical datum offset of -1.08 will be used to update cross sections. BFEs will be placed spatially where they are on current effective panels and will have the vertical datum offset applied to them also. This will now be known as “Woodmere Creek West” and will have its own profile and FDT that take into account the datum conversion.

The floodways for Woodmere Creek east of Florida Avenue were also digitally converted from the effective Zone AE. The cross section and BFE located within this area will have the datum conversion offset applied to them. This will be known as "Woodmere Creek East" and will have its own profile and FDT that takes into account the datum conversion.

Alligator Creek ICPR model results will be mapped from east of Pompano Road to west of Florida Road. The floodway will be removed from this area as well as effective cross section E.

The floodways for the Alligator Creek, Curry Creek, and Hatchett Creek Basins were computed for the three stream segments on the basis of equal conveyance reductions from each side of the floodplain. Floodway widths were computed at the cross sections. Floodway boundaries were interpolated between consecutive cross-sections. The digital GIS maps developed for this projects show those limits in more detail.

In cases where the floodway and the 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Ardaman and Associates, Inc. used the May 22, 2012 SWFWMD approved (link-node type) model as the effective model to perform the floodway analysis update for the North Port/Big Slough Watershed. The selected storm event is the (multiday) 5-day 1-percent-annual-chance rainfall event, which is consistent with the accepted multiday event along the Myakkahatchee Creek used for floodplain mapping.

For this evaluation, the 5-day 1-percent-annual-chance floodplain encroachments were set to the extents of the previously defined floodway. HEC-RAS model results indicate that the floodplain with previously defined encroachments would cause the water surface elevation to increase up to 1.3 feet compared to the regulatory flood elevation (riverine elevations based on CHAN floodplain analysis) at a few cross section locations. The regulatory base flood elevation (BFE) was derived from the effective model (CHAN) results developed for the floodplain analysis.

The calibrated HEC-RAS model was then used to redefine the floodway such that the increase in water-surface elevation would be less than the allowable one foot threshold. The criteria for determining the encroachments are as follows: a) no floodplain encroachments were allowed on the west side at the Big Slough Canal, downstream of West Price Boulevard, since well-defined steep banks along the man-made (relief) canal are not suitable for encroachments; b) Encroachments are allowed on the east side of the entire stretch, starting from the identified top of bank station of the main natural Myakkahatchee Creek, up to the shallow available floodway fringe area.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage and heightens potentials flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 9, "Floodway Data." To reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

The area between the floodway and 1-percent-annual-chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the Water Surface Elevation (WSEL) of the 1-percent-annual-chance flood more than 1-foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 3, "Floodway Schematic."

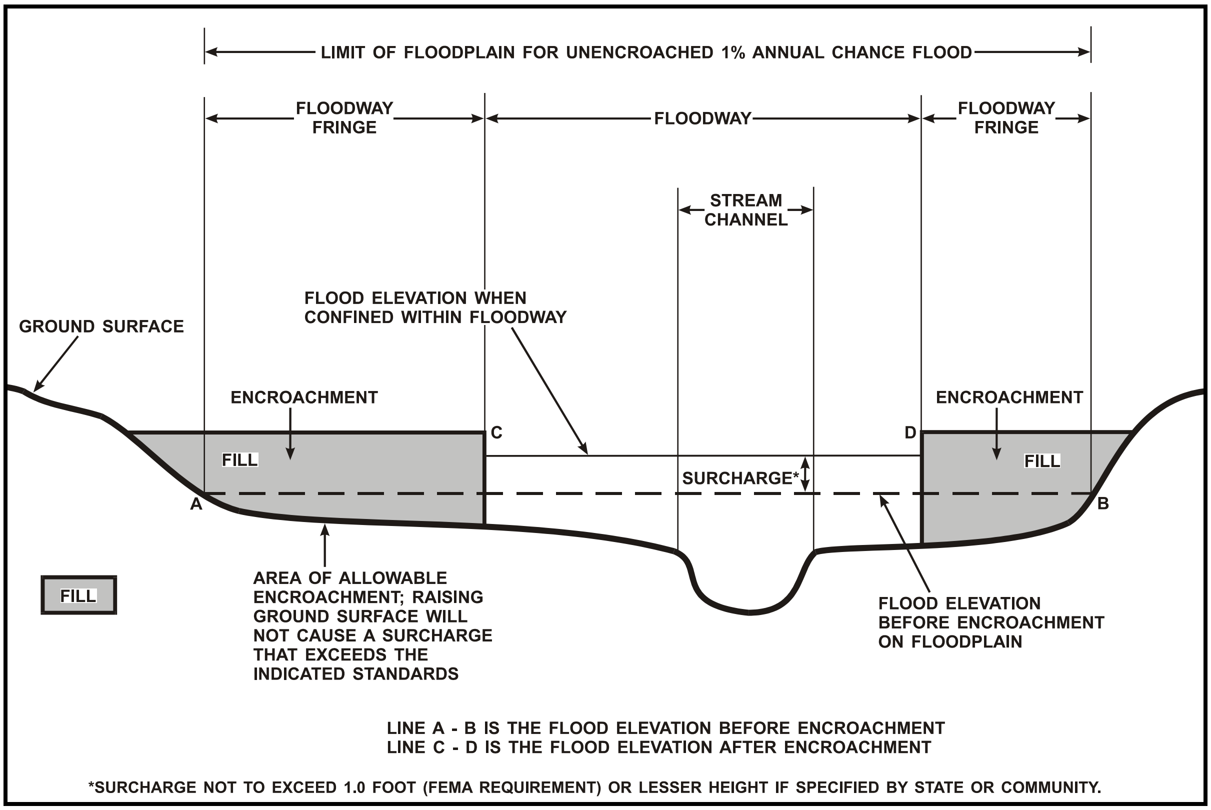


Figure 3- Floodway Schematic

FLOODING SOURCE		FLOODWAY			1-PERCENT ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
ALLIGATOR CREEK								
A	3,362[1]	475	521	5.2	10.0	3.5[2]	3.8	0.3
B	5,530[1]	132	802	2.6	10.0	3.8[2]	4.3	0.5
C	8,678[1]	82	442	3.8	10.0	5.0[2]	5.1	0.1
D	14,492[1]	44	380	2.8	10.0	7.7[2]	8.3	0.6
BIG SLOUGH CANAL AND MYAKKAHATCHEE CREEK								
A	339[3]	278	3,861	2.2	11.9[4]	11.9[4]	12.1	0.2
B	2,154[3]	523	4,587	1.9	12.6[4]	12.6[4]	12.9	0.3
C	5,579[3]	956	7,087	1.3	13.1[4]	13.1[4]	13.9	0.8
D	6,646[3]	822	4,800	1.9	13.3[4]	13.3[4]	14.1	0.8
E	6,703[3]	837	4,726	2.0	13.7[4]	13.7[4]	14.2	0.5
F	8,636[3]	1,014	5,670	1.7	14.0[4]	14.0[4]	14.6	0.6
G	11,116	877	5,231	1.8	14.7[4]	14.7[4]	15.6	0.9
H	13,689	580	3,505	2.7	16.2[4]	16.2[4]	16.8	0.6
I	13,744	480	3,858	2.4	16.6[4]	16.6[4]	16.9	0.3
J	15,792	735	4,579	2.0	17.6[4]	17.6[4]	17.8	0.2
K	16,331	588	4,488	2.1	17.9[4]	17.9[4]	18.1	0.2

[1] Feet above mouth
[2] Elevations based on ICPR floodplain analysis without considering backwater effects from storm surge in The Intracoastal Waterway
[3] Feet above section d/s boundary
[4] Elevations based on CHAN floodplain analysis without considering backwater effects from storm surge in the Myakka River

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

ALLIGATOR CREEK – BIG SLOUGH CANAL AND MYAKKAHATCHEE CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CURRY CREEK								
A	246[1]	137	505	3.6	11.0	0.2[2]	0.3	0.1
B	2,036[1]	353	764	2.4	11.0	2.1[2]	2.5	0.4
C	5,994[1]	80	453	3.8	10.0	2.6[2]	3.2	0.6
D	11,984[1]	53	436	2.9	10.0	5.2[2]	5.9	0.7
E	14,611[1]	65	429	2.3	10.0	5.8[2]	6.5	0.7
F	17,392[1]	62	442	2.0	10.0	6.3[2]	6.7	0.4
G	17,885[1]	52	431	2.1	10.0	6.5[2]	6.9	0.4
H	21,100[1]	63	579	1.5	10.0	7.4[2]	7.7	0.3
I	23,345[1]	60	534	1.6	10.0	7.6[2]	7.9	0.3
HATCHETT CREEK								
A	96[3]	74	380	3.8	10.0	1.2[4]	1.2	0.0
B	2,395[3]	110	590	2.3	10.0	7.4[4]	7.9	0.5
C	2,943[3]	74	302	3.0	10.0	8.0[4]	8.2	0.2
D	4,932[3]	49	367	1.4	10.0	8.3[4]	8.6	0.3
E	6,011[3]	50	242	1.9	10.0	8.4[4]	8.8	0.4
F	11,185[3]	62	173	2.3	10.0	9.7[4]	10.0	0.3
G	17,929[3]	101	128	1.2	11.3	11.3	11.9	0.6
H	20,658[3]	67	339	0.3	11.3	11.3	12.0	0.7

[1] Feet above mouth
[2] Elevations without considering storm surge from Roberts Bay
[3] Feet above Intracoastal Waterway
[4] Elevations without considering backwater effects from Intracoastal Waterway

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

CURRY CREEK – HATCHETT CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
MATHENY CREEK								
A	1,560	71	358	1.8	10.0	2.3[2]	3.2	0.9
B	2,460	44	142	4.5	10.0	4.0[2]	5.0	1.0
C	4,030	48	208	3.1	11.4	11.4	11.4	0.0
D	5,875	45	217	1.9	13.9	13.9	14.0	0.1
E	7,945	46	217	1.2	15.4	15.4	15.5	0.1
F	8,665	46	201	1.2	15.5	15.5	15.6	0.1
PHILLIPPI CREEK								
A	4,140	380	3,091	2.4	10.0	3.0[2]	3.9	0.9
B	7,100	117	1,181	6.4	10.0	5.3[2]	5.7	0.4
C	9,810	421	3,891	1.9	10.0	7.3[2]	8.3	1.0
D	13,100	117	1,460	5.0	10.0	7.9[2]	8.8	0.9
E	15,700	240	2,109	3.1	10.0	8.8[2]	9.8	1.0
F	18,150	160	2,010	3.2	10.0	9.8[2]	10.7	0.9
G	20,180	150	2,360	2.7	10.3	10.3	11.3	1.0
H	21,650	255	2,730	2.3	10.5	10.5	11.5	1.0
I	26,040	155	2,273	2.5	11.6	11.6	12.6	1.0
J	26,940	123	1,396	4.1	11.7	11.7	12.6	0.9
K	29,210	144	1,636	2.4	12.6	12.6	13.6	1.0
L	30,280	134	1,451	2.7	13.0	13.0	14.0	1.0
M	32,430	334	1,799	2.1	14.6	14.6	15.3	0.7

[1] Feet above mouth
[2] Elevations without considering backwater effects from Intracoastal Waterway

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

MATHENY CREEK – PHILLIPPI CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
PHILLIPPI CREEK								
N	33,950[1]	300	2,215	1.5	14.9	14.9	15.7	0.8
O	34,080[1]	80	744	4.4	15.0	15.0	15.9	0.9
P	36,540[1]	450	1,825	1.8	16.5	16.5	17.4	0.9
Q	39,050[1]	800	1,745	1.8	17.5	17.5	18.5	1.0
R	41,650[1]	1,000	3,535	0.9	18.5	18.5	19.5	1.0
S	42,780[1]	1,000	2,503	1.1	18.7	18.7	19.7	1.0
T	45,730[1]	134	801	0.9	18.9	18.9	19.9	1.0
U	47,050[1]	38	239	2.9	19.1	19.1	20.1	1.0
V	48,450[1]	60	436	1.6	19.9	19.9	20.9	1.0
W	51,520[1]	203	2,508	0.3	20.4	20.4	21.4	1.0
X	53,690[1]	45	188	3.5	21.5	21.5	22.0	0.5
WOODMERE CREEK WEST								
A	550[1]	297	1,440	0.4	10.0	1.9[3]	2.9	1.0
B	2,250[1]	25	108	4.8	10.0	2.0[3]	2.9	0.9
C	3,710[1]	50	471	0.6	11.6	11.6	11.6	0.0
D	5,015[1]	40	357	0.8	14.6	14.6	14.6	0.0
WOODMERE CREEK EAST								
A	120[2]	100	489	0.4	15.7	15.7	16.1	0.4

[1] Feet above mouth
[2] Feet above Florida Road
[3] Elevations without considering backwater effects from Intracoastal Waterway

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

PHILLIPPI CREEK - WOODMERE CREEK WEST-
WOODMERE CREEK EAST

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base (1-percent-annual-chance) flood elevations (BFEs) or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by detailed methods. Whole foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1-foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile (sq. mi.), and areas protected from the base flood by levees. No BFEs or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance risk zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of Sarasota County. Previously, FIRMs were prepared for each incorporated community and the unincorporated areas of the County identified as flood-prone. This countywide FIRM also includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps, where applicable. Historical data relating to the maps prepared for each community are presented in Table 10, "Community Map History."

COMMUNITY NAME	INITIAL NFIP MAP DATE	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	INITIAL FIRM DATE	FIRM REVISIONS DATE
Longboat Key, Town of	April 20, 1970		April 20, 1970	July 1, 1974 February 20, 1976 August 15, 1983 October 1, 1983 May 18, 1992
North Port, City of	June 10, 1977		September 2, 1981	N/A
Sarasota, City of	July 30, 1971		July 30, 1971	February 20, 1976 February 15, 1984 May 18, 1992 September 29, 1996
Sarasota County and Unincorporated Areas	July 31, 1971		July 31, 1971	July 1, 1974 February 20, 1976 April 2, 1976 May 1, 1984 September 3, 1992
Venice, City of	July 31, 1971		July 31, 1971	July 1, 1974 February 20, 1976 August 15, 1980 January 18, 1984 May 18, 1992

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL

AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Sarasota County has been compiled into this countywide FIS. Therefore, this FIS report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the NFIP.

The countywide FIS reports for Charlotte County, Florida (2003), Desoto County, Florida (2013) and Manatee County (2014) have already gone effective (References 80, 81 and 82).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting Federal Insurance and Mitigation Division, FEMA Region IV, Koger-Center – Rutgers Building, 3003 Chamblee Tucker Road, Atlanta, Georgia 30341.

9.0 BIBLIOGRAPHY AND REFERENCES

1. Federal Emergency Management Agency, Flood Insurance Study, Town of Longboat Key, Manatee and Sarasota Counties, Florida, Washington, D.C., February 15, 1983.
2. Federal Emergency Management Agency, Flood Insurance Study, City of North Port, Sarasota County, Florida, Washington, D.C., March 2, 1981.
3. Federal Emergency Management Agency, Flood Insurance Study, City of Sarasota, Sarasota County, Florida, Washington, D.C., August 15, 1983.
4. Federal Emergency Management Agency, Flood Insurance Study, Sarasota County and Unincorporated Areas, Sarasota County, Florida, Washington, D.C., September 3, 1992.
5. Federal Emergency Management Agency, Flood Insurance Study Supplement – Wave Height Analysis, City of Venice, Sarasota County, Florida, Washington, D.C., July 18, 1983.
6. AMEC Environment & Infrastructure, Inc., Floodway Analysis Curry Creek Hatchett Creek and Alligator Creek Basins, September, 2013. Lakeland Florida.
7. AMEC-BCI, Floodplain Justification Report for Maintenance of Watershed Parameters and Models in the Alligator Creek Watershed (B315), October 2011. Lakeland, Florida.
8. AMEC Environment & Infrastructure, Inc., Floodplain Justification Report for Maintenance of Watershed Parameters and Models in the Roberts Bay Watershed (B315) (SubWatersheds Curry Creek and Hatchett Creek), May 2012. Lakeland, Florida.
9. AMEC-BCI, Floodplain Justification Report for Maintenance of Watershed Parameters and Models in the Island of Venice Watershed (B315), November 2011. Lakeland, Florida.
10. Ardaman & Associates, Inc., North Port/Big Slough Watershed Management Program (B206), Work Order #12, Completion Report for Task 2.4.11 – Final Report, Floodway Analysis and Report, January 16, 2014. Orlando, Florida.

11. Ardaman & Associates, Inc., Watershed Management Program Consulting Services in the North Port/Big Slough Watershed (K883) Floodplain Analysis Report, Revised August 2007. Orlando, Florida.

12. Jones Edmunds & Associates, Inc., Sarasota County Model Update Final Report: Hudson Bayou, February 2011. Gainesville, Florida.

13. Singhofen & Associates, Whitaker Bayou (M115, B206) Floodplain Justification Report, Inc., August 31, 2009, Revised July 20, 2011. Winter Park, Florida.

14. U.S. Geological Survey, Water-Resources Investigation 78-65, Magnitude and Frequency of Flooding on the Myakka River, Southwest Florida, 1978.

15. Jones Edmunds & Associates, Inc., Model Maintenance Myakka Mainstem, January 2010.

16. Southwest Florida Water Management District, Aerial Imagery, 30 cm rgb-ir ortho rectified imagery using 2007 LiDAR data, 2007.

17. Florida Department of Emergency Management (FDEM); Southwest Florida Water Management District; and Woolpert, Inc., FDEM Area D, 2007 Light Detection and Ranging (LiDAR) based digital terrain model (DTM), published March 27, 2008.

18. Florida Department of Emergency Management (FDEM); Southwest Florida Water Management District; Sarasota County, Florida; and Woolpert, Inc., Sarasota County Buy-Up Areas, 2007 Light Detection and Ranging (LiDAR) based digital terrain model (DTM) for Sarasota County landward of FDEM Area D project area, published March 27, 2008.

19. Federal Emergency Management Agency, The Zone A Manual: Managing Floodplain Development in Approximate Zone A Areas, Washington, D.C., April 1995.

20. Federal Emergency Management Agency, Procedural Memorandum No.38 – Implementation of Floodplain Boundary Standard, Washington, D.C., October 2007.

21. The Florida Almanac, 1986-1987, Pelican Publishing Company, 1985.

22. U.S. Census Bureau, 2010 U.S. Census: Sarasota County, Florida. Retrieved on July 6, 2012 from http://2010.census.gov/2010census/

23. The Weather Channel, Monthly Averages for Sarasota County, Florida. Retrieved on July 6, 2012 from http://www.weather.gov.

24. U.S. Army Corps of Engineers, Jacksonville District, Floodplain Information, Coastal Areas, Sarasota County, Florida, May 1973.

25. Federal Emergency Management Agency, Flood Insurance Study, Sarasota County and Unincorporated Areas, Sarasota County, Florida, Washington, D.C., September 3, 1992.

26. U.S. Department of the Army, Corps of Engineers, Jacksonville District, Flood Plain Information Report, Charlotte and North Lee Counties, Florida, May 1968.

27. U.S. Department of the Army, Corps of Engineers, Flood Plain Information Report, South Lee County Coastal Areas, Florida, July 1970.

28. U.S. Department of the Army, Corp of Engineers, Jacksonville District, Flood Plain Information, South Creek, North Creek, Catfish Creek, Clover Creek, Elligraw Bayou, and Matheny Creek, Sarasota County, Florida, prepared for the Sarasota County Board of Comissioners, June 1973.

29. U.S. Department of Commerce, Technical Paper 40: Rainfall Frequency Atlas of the United States May 1961.

30. University of Central Florida, Engineering and Industrial Experiment Station, Rainfall Analysis Southwest Florida Area, October 1987, for Southwest Florida Water Management District.

31. U.S. Department of the Interior, Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 5 Feet: Bradenton, Florida, 1964, photorevised 1969; Lorraine, Florida, 1973; Verna, Florida, 1973; Bradenton Beach, Florida, 1964, photorevised 1969; Sarasota, Florida, 1973; Bee Ridge, Florida, 1973; Old Myakka, Florida, 1973; Bird Keys, Florida, 1973; Laurel, Florida, 1973; Lower Myakka Lake, Florida, 1973; Murdock NW, Florida, 1956, photorevised 1972; Murdock NE, Florida, 1956, photoinspected 1971; Murdock SE, Florida, 1956, photorevised 1970; Englewood NW, Florida, 1957, photorevised 1972; Englewood, Florida, 1956, photorevised 1972; Punta Gorda, Florida, 1957; Venice, Florida, 1973; Myakka River, Florida, 1973.

32. Southwest Florida Water Management District, 1 Foot Contour Aerial Photographs, 1:2,400 Scale, May 1982.

33. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Sarasota County.

34. U.S. Department of Transportation, Soil Conservation Service, Soil Characteristics and Delineation of Drainage Basins in Sarasota County, August 1987.

35. U.S. Department of Agriculture, Soil Conservation Service, Technical Release 55, 2nd Edition, 1986.

36. Hydrologic and Hydraulic Analysis for Hatchett Creek Basin, Sarasota County, Florida, prepared by C.K. Sarkar, Ph.D., P.E., Tri-County Engineering, Inc., April 1974.

37. Southwest Florida Water Management District, 1 Foot Contour Aerial Photographs, Scales 1:200 and 1:1,000, April 1987.

38. Southern Resource Mapping Corporation, Topographic Survey Maps, Scale 1:100, December 1982.

39. South Florida Water Management District, Estimation of Runoff Peak Rates and Volumes from Flatwoods Watersheds, Final Report, Agricultural Engineering Department, University of Florida, February 1986.

40. U.S. Department of Agriculture, Agricultural Research Service, Hydrology of Three Experimental Watersheds in Southern Florida, ARS Publication No. 41-152, 1969.

41. U.S. Water Resources Council, Bulletin No. 17B, Guidelines for Determining Flood Flow Frequency, March 1982.

42. Streamline Technologies, ICPR Advanced Computer Model, Version 1.31, Copyrighted 1983-1990.

43. U.S. Geological Survey, Water Resources Investigations, 78-65, Magnitude and Frequency of Flooding on the Myakka River, Southwest Florida, K.M. Hammett, J.T. Turner, Jr., and W.R. Murphy Jr.,1978.

44. Interconnected Channel and Pond Routing Model (ICPR) Version 3, Streamline Technologies, Winter Springs, FL, Copyright 2002, 2008.

45. CHAN for Windows Version 2, Aquarian Software, Inc., Orlando, FL 32806, Copyright 1996, 1997

46. PercPack™ A groundwater – Surface Water Interface for ICPR, Streamline Technologies, Altamonte Springs, Florida, Copyright 2008.

47. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Charlotte County, Florida (Unincorporated Areas), 1977.

48. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, Training Document No. 6, Applications of the HEC-2 Bridge Routines, Davis, California, June 1974.

49. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water-Surface Profiles Generalized Computer Program, Davis, California, November 1976.

50. Ground Surveys, obtained by Zoller, Najjar, and Schroyer, Inc., Bradenton, Florida, 1988, under contract to Gee & Jenson Engineers-Architects-Planners, Inc.

51. Sarasota County Stormwater Master Plan Final Report, prepared by Camp, Dresser & McKee, Inc., October 1986, for Sarasota County Transportation Department.

52. U.S. Army Corps of Engineers, Hydrologic Engineering Center, River Analysis System (HEC- RAS) model version 4.1.0, Davis, California, January 2010.

53. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Science Services Administration, Technical Memorandum WBTM Hydro 11, Joint Probability Method of Tide Frequency Analysis, V.A. Myers, April 1970.

54. National Weather Service, Tropical Cyclone Deck 993, 1975.

55. National Weather Service, Technical Paper No. 55, Tropical Cyclones of the North Atlantic Ocean 1871-1963, G. W. Cry, Washington, D.C., 1965.

56. National Weather Service, Technical Report NWS-15, Some Climatological Characteristics of Hurricanes and Tropical Storms, Gulf and East Coasts of the U.S., F. P. Ho, R. W. Schwerdt, and H. V. Goodyear, May 1975.

57. National Hurricane Research Project, Report No. 5, Survey of Meteorological Factors Pertinent to Reduction of Loss of Life and Property in Hurricane Situations, March 1975.

58. National Weather Service, Monthly Weather Review, Abstracts of Previous Year Hurricane Season, Hurricane Seasons 1964-1977.

59. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Climatic Center, Tape of Digitized Storm Information from 1886 through 1977, Asheville, North Carolina.

60. Tetra Tech, Inc., Coastal Flooding Handbook, Parts I and II, prepared for the U.S. Department of Housing and Urban Development, May 1977.

61. National Academy of Sciences, Methodology for Calculating Wave Action Effects Associated with Storm Surges, 1977.

62. Federal Emergency Management Agency, User's Manual for Wave Height Analysis, Revised April 1981.

63. Florida Department of Natural Resources, Bureau of Beaches and Shores, Beach Profiles, August 1974.

64. Smally, Wellford and Nalven, Consulting Engineers, Inc., Street and Boundary Map, Scale 1:7,200, November, 1977.

65. Real Estate Data, Inc., Real Estate Atlas of Sarasota County, Florida, Scales 1:3,600, 1:7,200, 1:10,800, and 1:21,600; 1976, 1978, and 1979.

66. U.S. Department of Commerce, Weather Bureau, Technical Paper No. 40, Rainfall Frequency Atlas of the United States for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years, May 1961.

67. ------------ National Climatic Center, Deck 488, 1977.

68. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Coastal Flooding Handbook, Parts I and II, Tetra Tech, Inc., May 1977.

69. General Development Corporation, Street Map City of North Port, Florida, Scale 1:7,200.

70. City of Sarasota Planning Department, Zoning Maps, Scale 1:9,600, November 1976.

71. Real Estate Data, Inc., Real Estate Atlas of Sarasota County, Florida (Aerial Map), Scale 1:10,800 (1976).

72. Real Estate Data, Inc., Real Estate Atlas of Sarasota County, Florida (Aerial Map), Scale 1:21,600 (1976).

73. Board of County Commissioners, Sarasota County, Florida, Phillippi Creek Basin Flood Control Study, Scale 1: 12,000, Contour Intervals 1 and 2 feet: Phillippi Creek, Intracoastal Waterway to Main B, 1960; Main A, Main B to Dike Road, 1961; Main B to Branch BA and Branch BA, 1961; Clark Lakes Branch, 1961; Branch AA, Main A to Clark Road, 1961; Main C, Main A to end 1961; Main B, from Branch BA to county line and Branch BC, 1961.

74. Board of County Commissioners, Sarasota County, Florida, Elligraw Bayou Basin Flood Control District, Scale 1:12,000, Contour Interval 1 foot: Elligraw Bayou Basin, 1969.

75. Board of County Commissioners, Sarasota County, Florida, Lower Godfrey Creek Basin Flood Control Study, Scale 1:12,000, Contour Interval 1 foot: Lower Godfrey Creek Basin 1965.

76. Board of County Commissioners, Sarasota County, Florida, Matheny Creek Basin Flood Control Study, Scale 1:12,000, Contour Interval 1 foot: Matheny Creek, 1967.

77. Board of County Commissioners, Sarasota County, Florida, Alligator Creek Basin Flood Control Study, Scale 1: 12,000, Contour Interval 1 foot: Alligator Creek Basin, 1964.

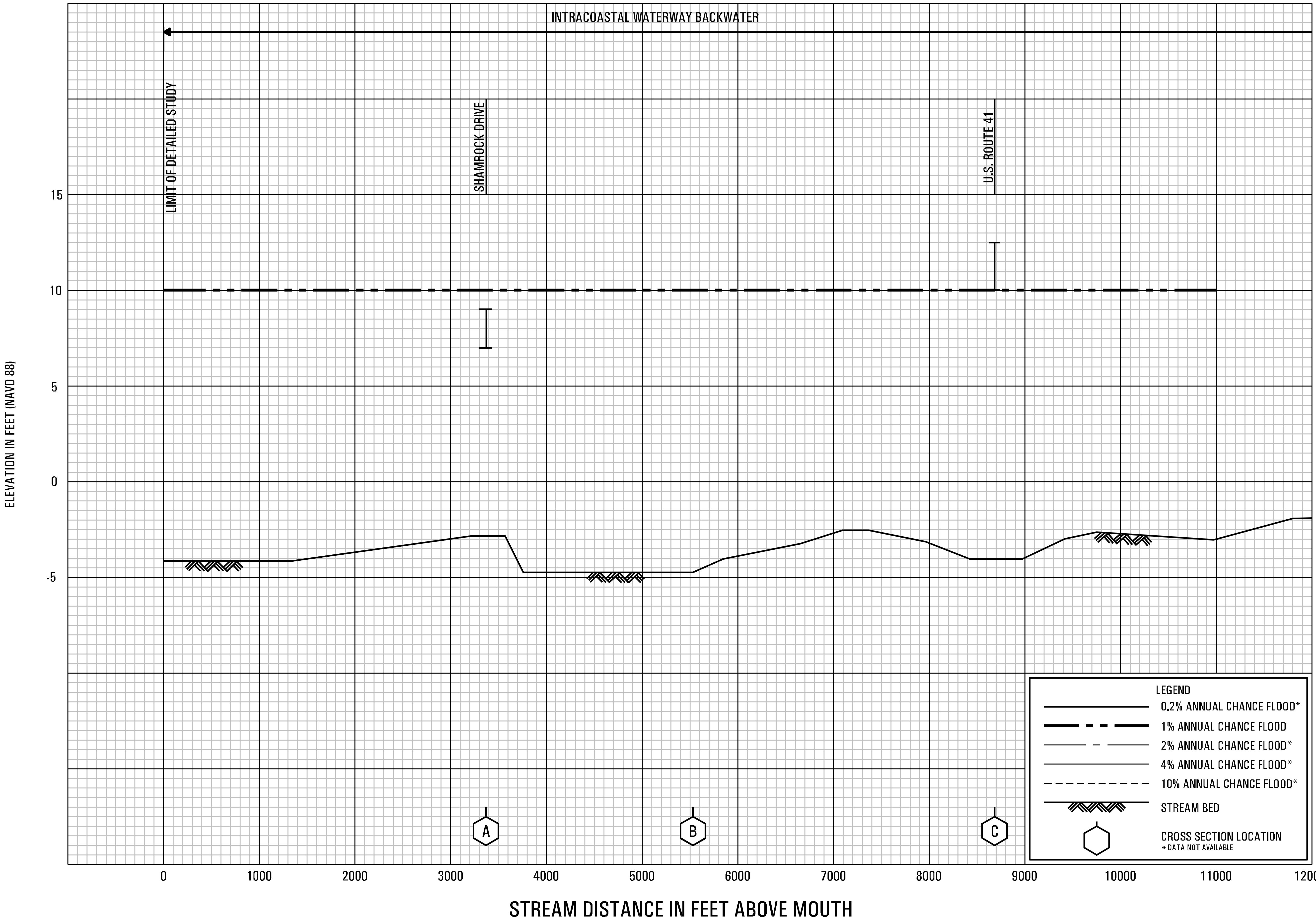
78. Board of County Commissioners, Sarasota County, Florida, Drainage Study, Alligator Creek Basin, Scale 1:12,000, Contour Interval 1 foot: Alligator Creek Basin, 1975.

79. Board of County Commissioners, Sarasota County, Florida, Sarasota County Coastal Basins, County Comprehensive Drainage Plan, Scale 1:12,000, Contour Interval 1 foot: Godfrey Creek Basin, 1961, revised 1964.

80. Federal Emergency Management Agency, Flood Insurance Study, Charlotte County and Incorporated Areas, Charlotte County, Florida, Washington, D.C., May 5, 2003.

81. Federal Emergency Management Agency, Flood Insurance Study, Desoto County and Incorporated Areas, Desoto County, Florida, Washington, D.C., June 3, 2013.

82. Federal Emergency Management Agency, Flood Insurance Study, Manatee County and Incorporated Areas, Manatee County, Florida, Washington, D.C., March 17, 2014.



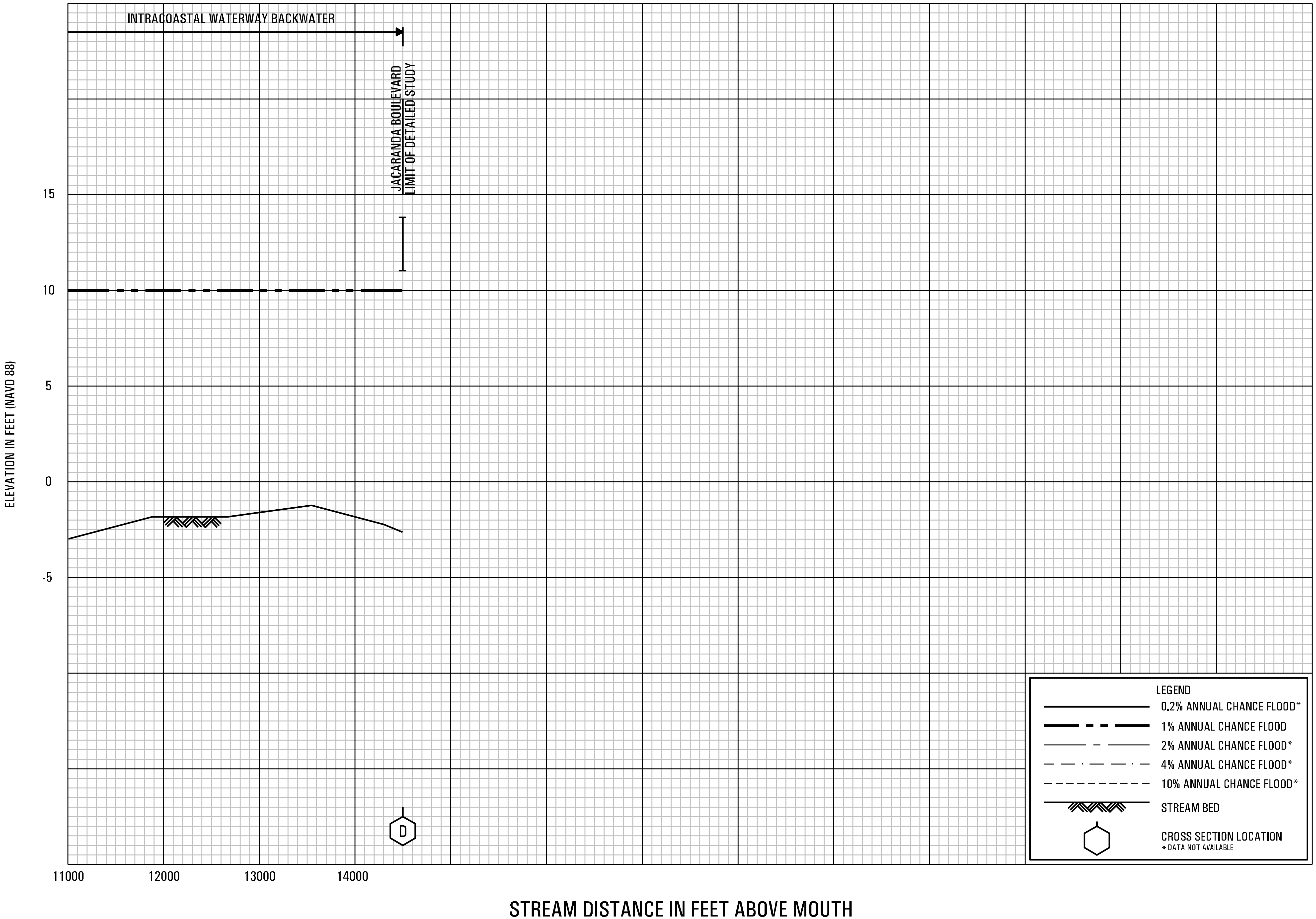
FLOOD PROFILES

ALLIGATOR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

01P

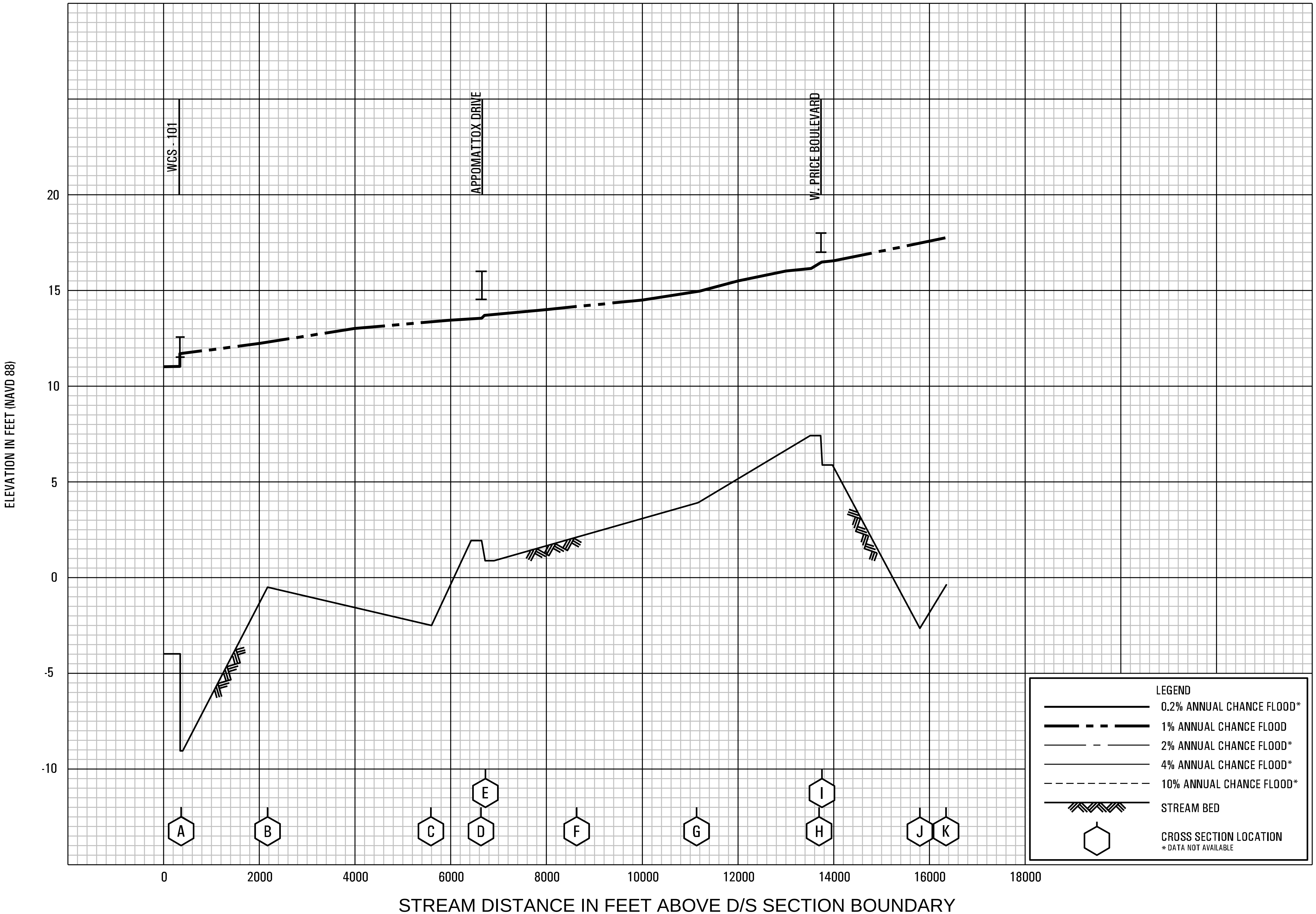


FLOOD PROFILES

ALLIGATOR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS



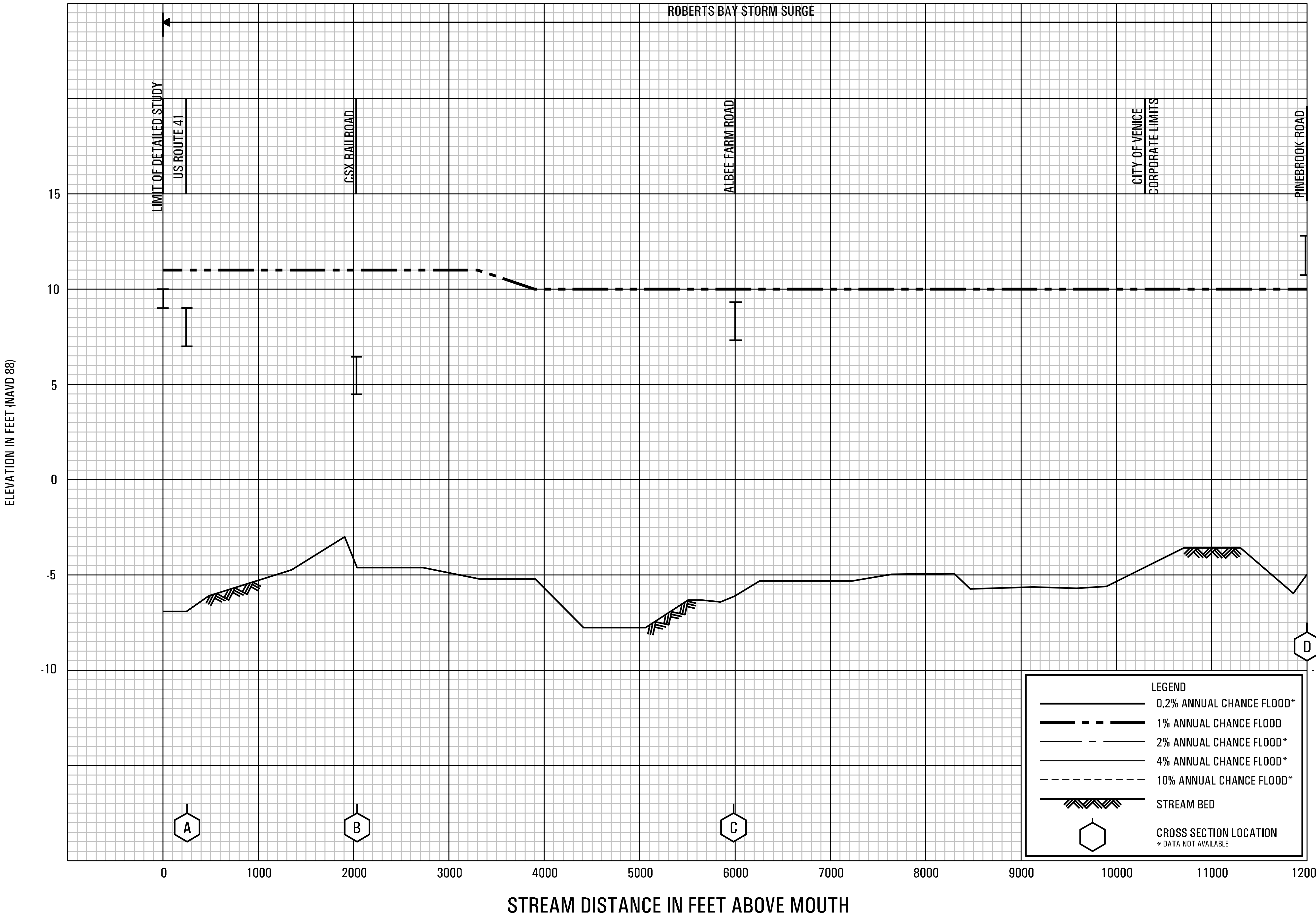
FLOOD PROFILES

BIG SLOUGH CANAL AND MYAKKAHATCHEE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL AND INCORPORATED AREAS

03P

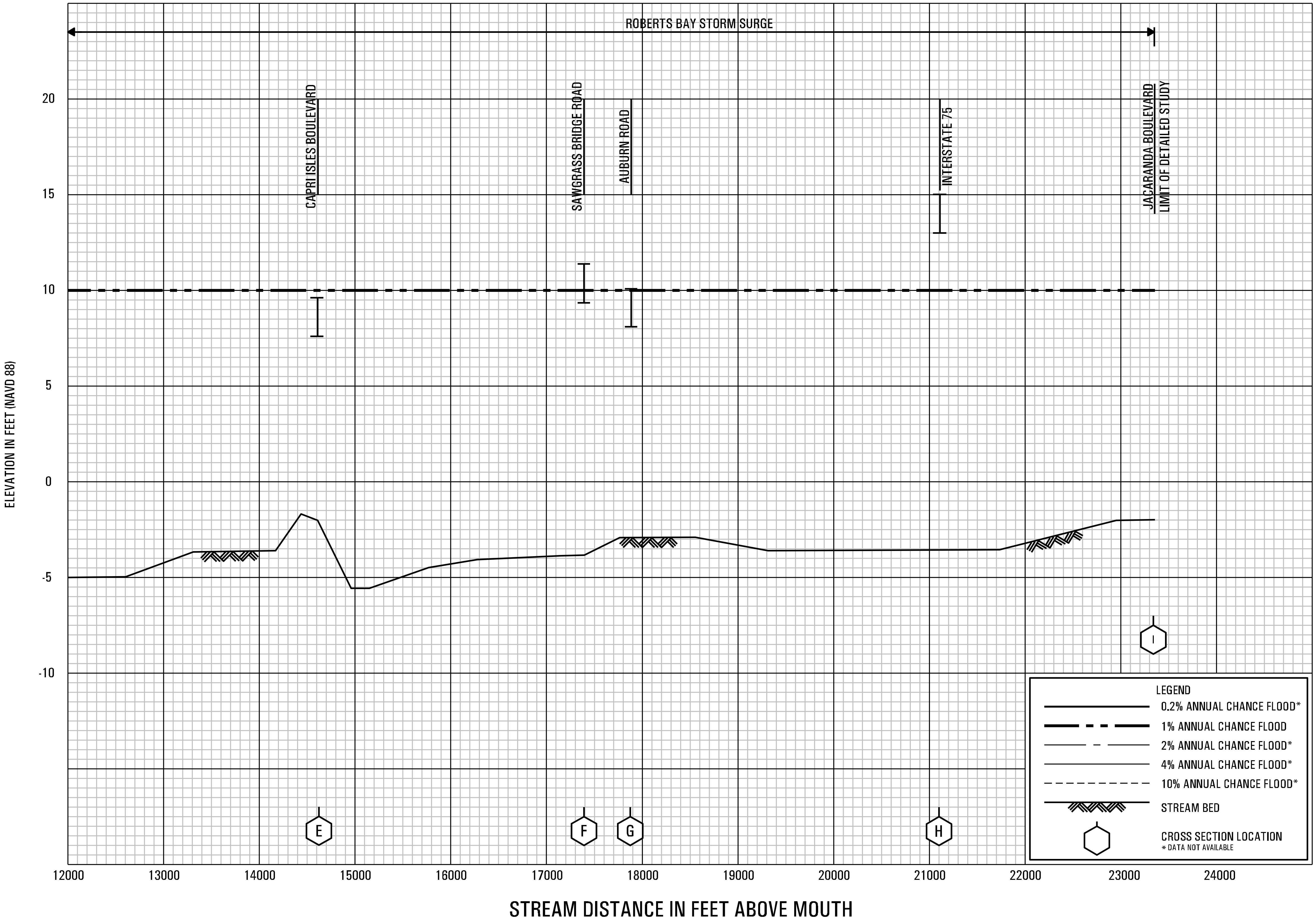


FLOOD PROFILES

CURRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL AND INCORPORATED AREAS

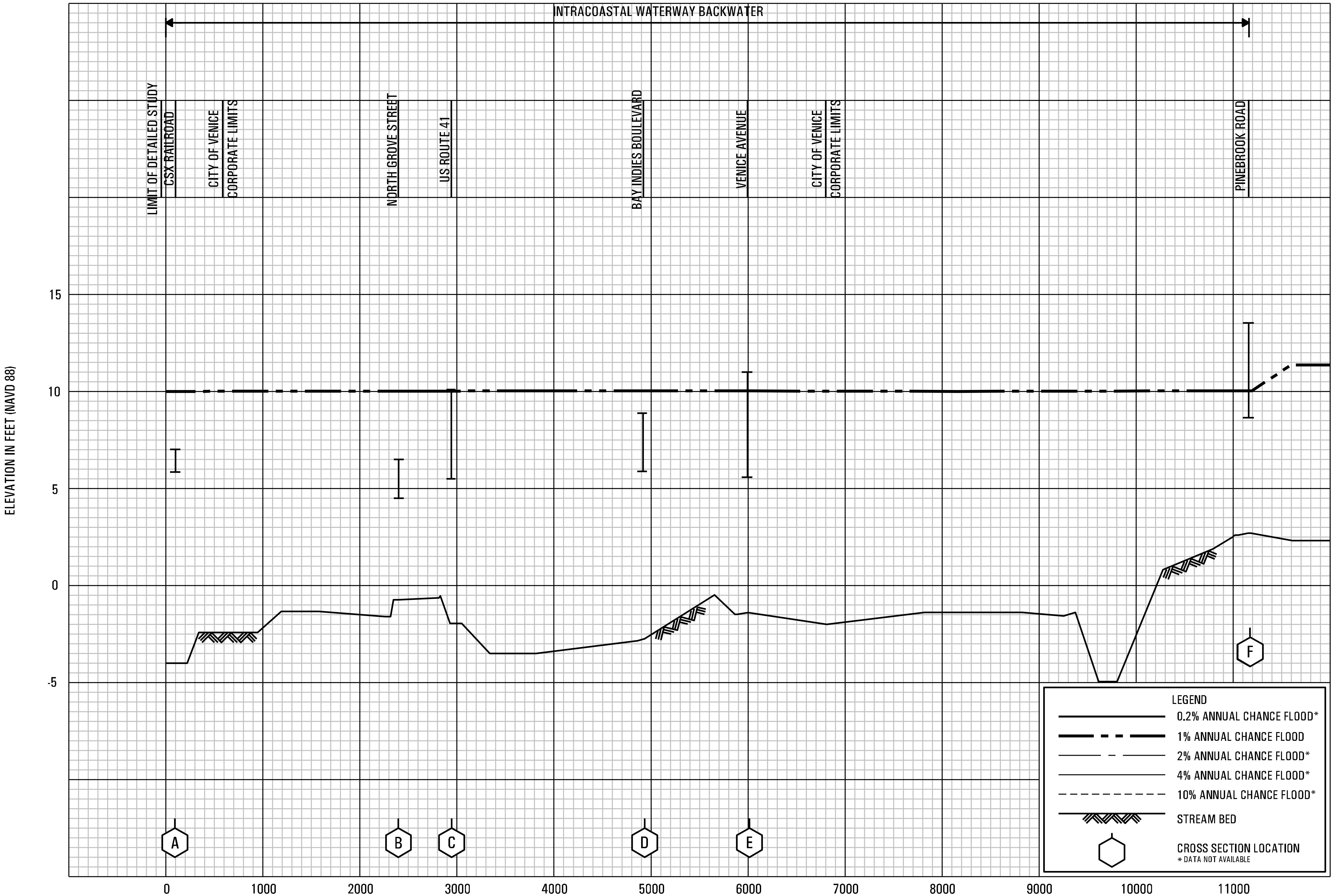


FLOOD PROFILES

CURRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS



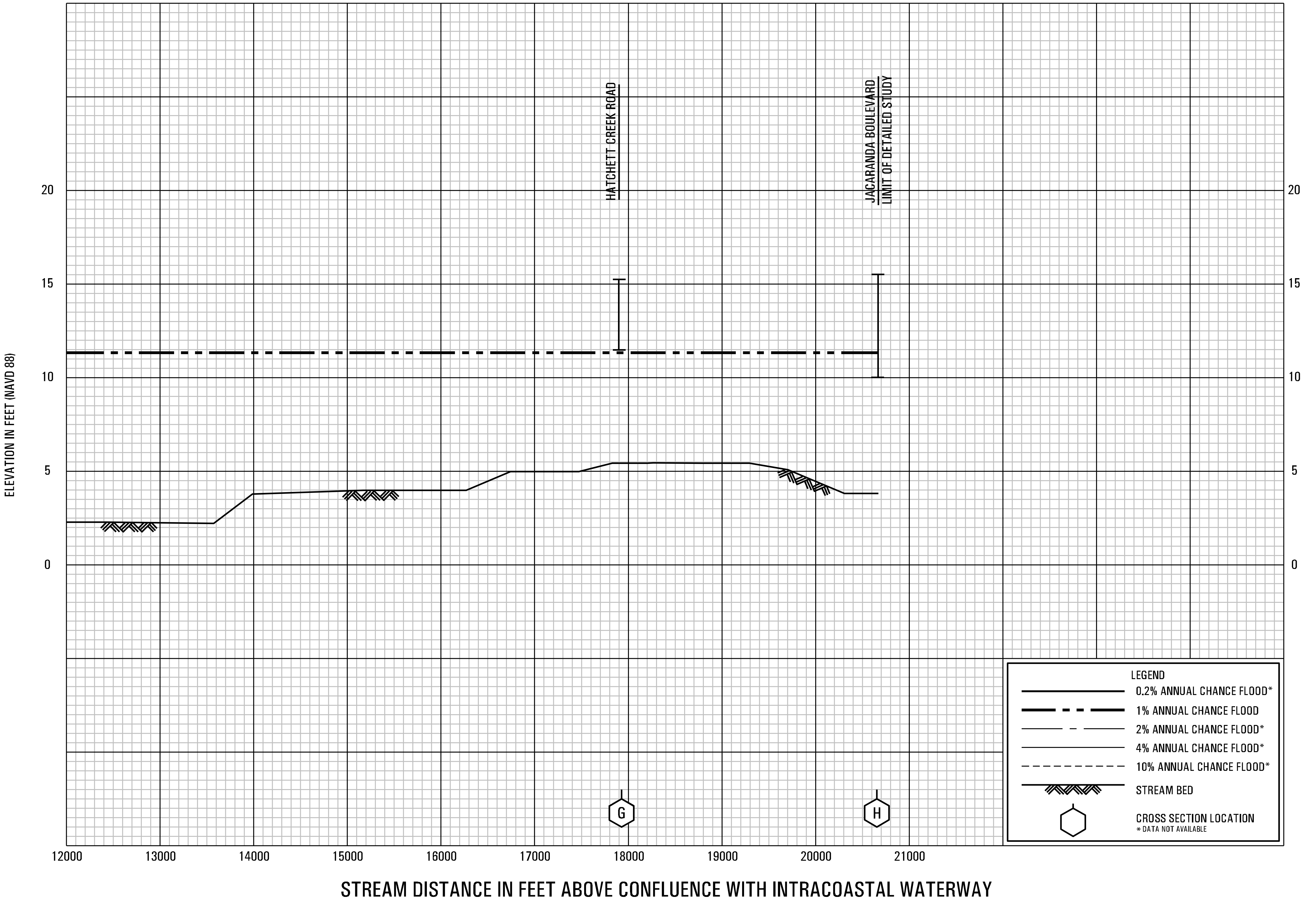
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH INTRACOASTAL WATERWAY

FLOOD PROFILES

HATCHETT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL AND INCORPORATED AREAS



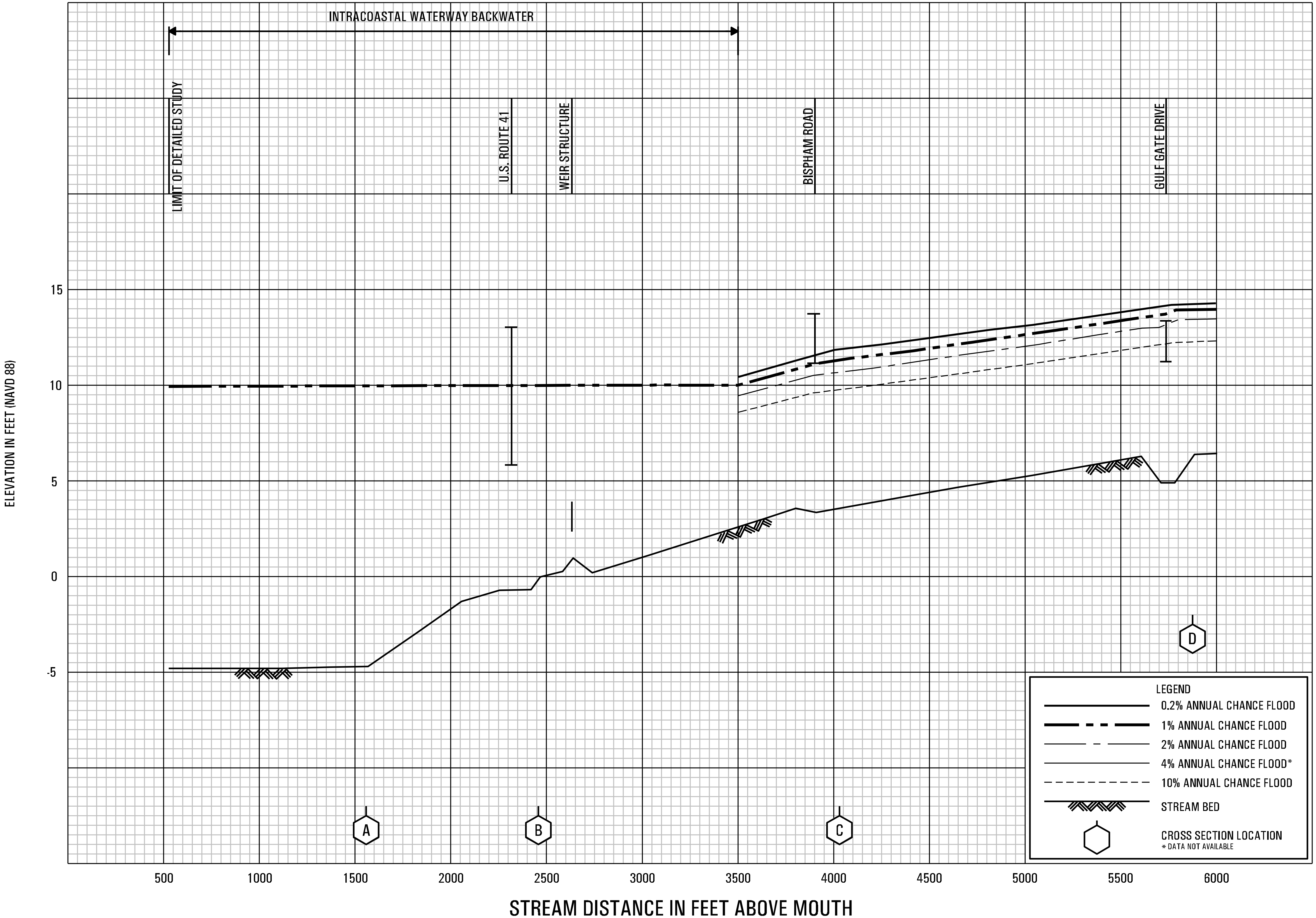
FLOOD PROFILES

HATCHETT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

07P



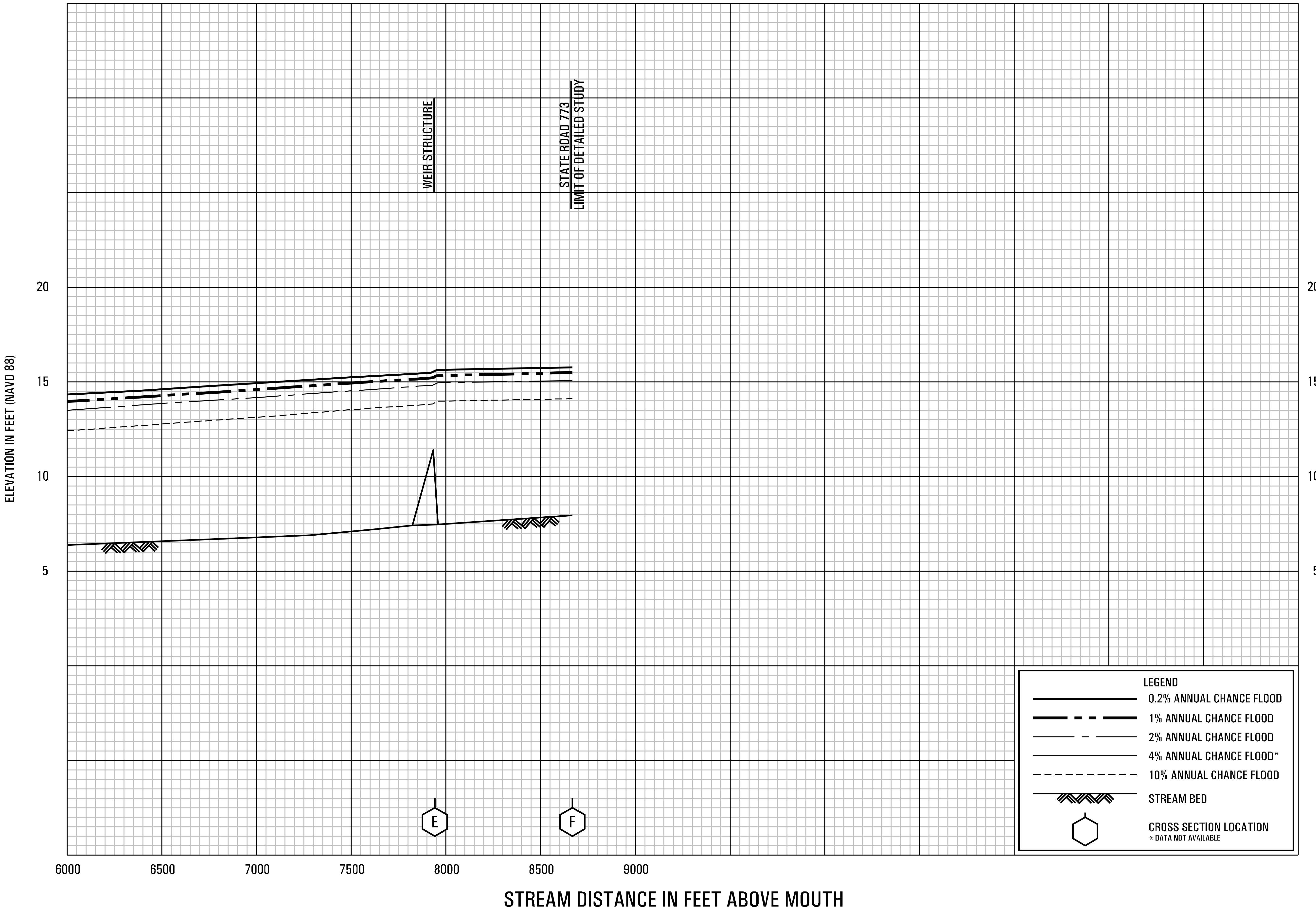
FLOOD PROFILES

MATHENY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

08P



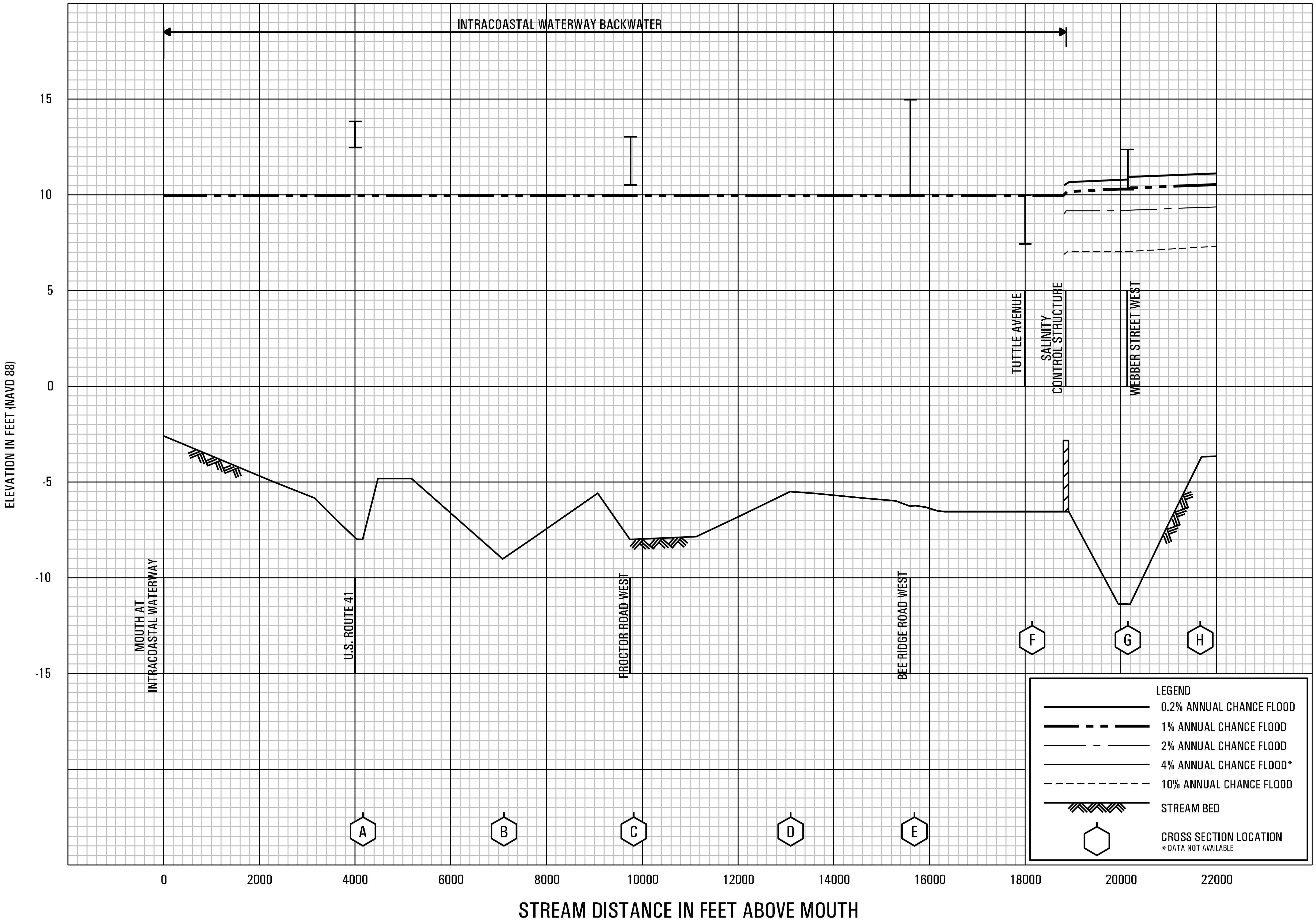
FLOOD PROFILES

MATHENY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

09P

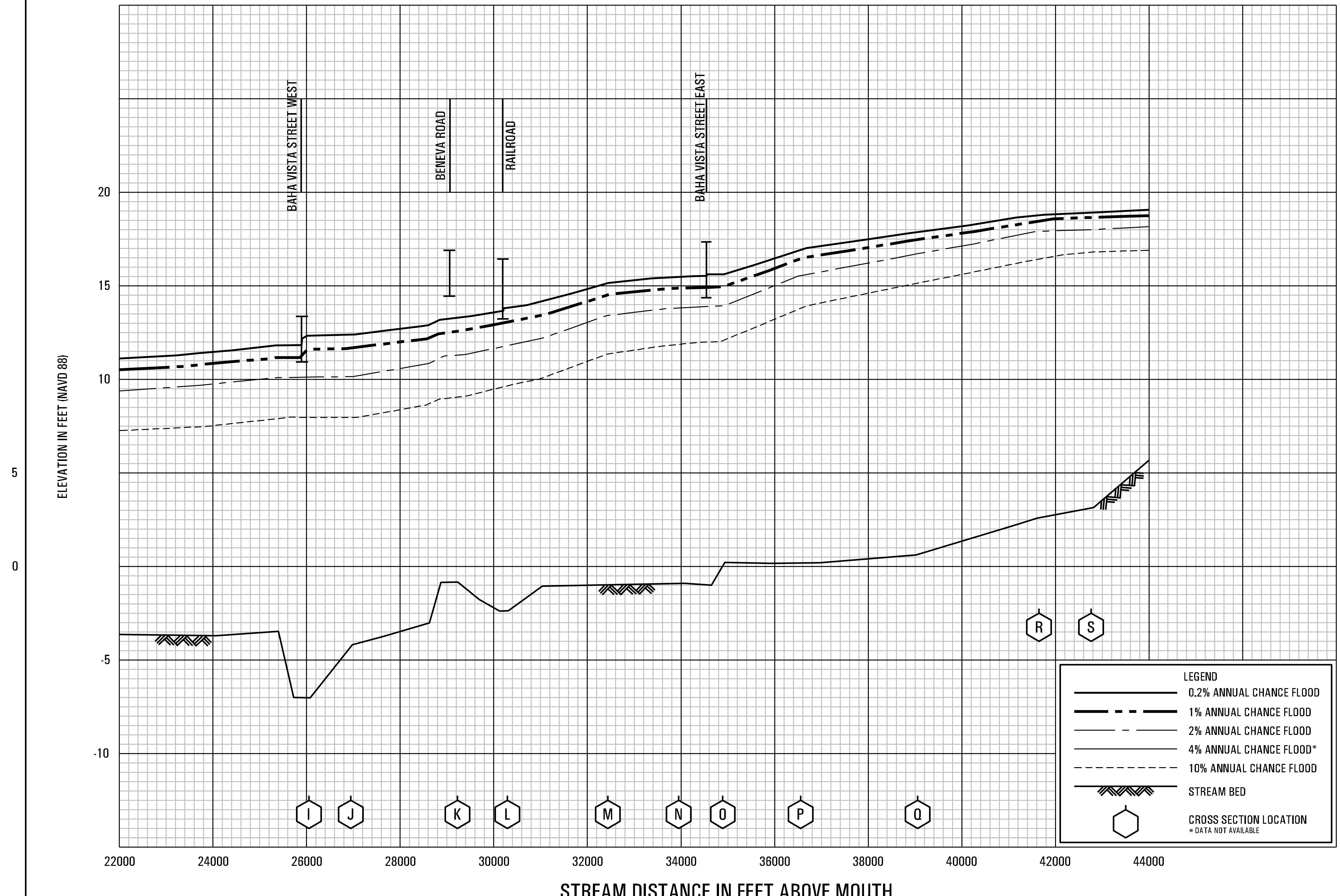


FLOOD PROFILES

PHILLIPPI CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL AND INCORPORATED AREAS

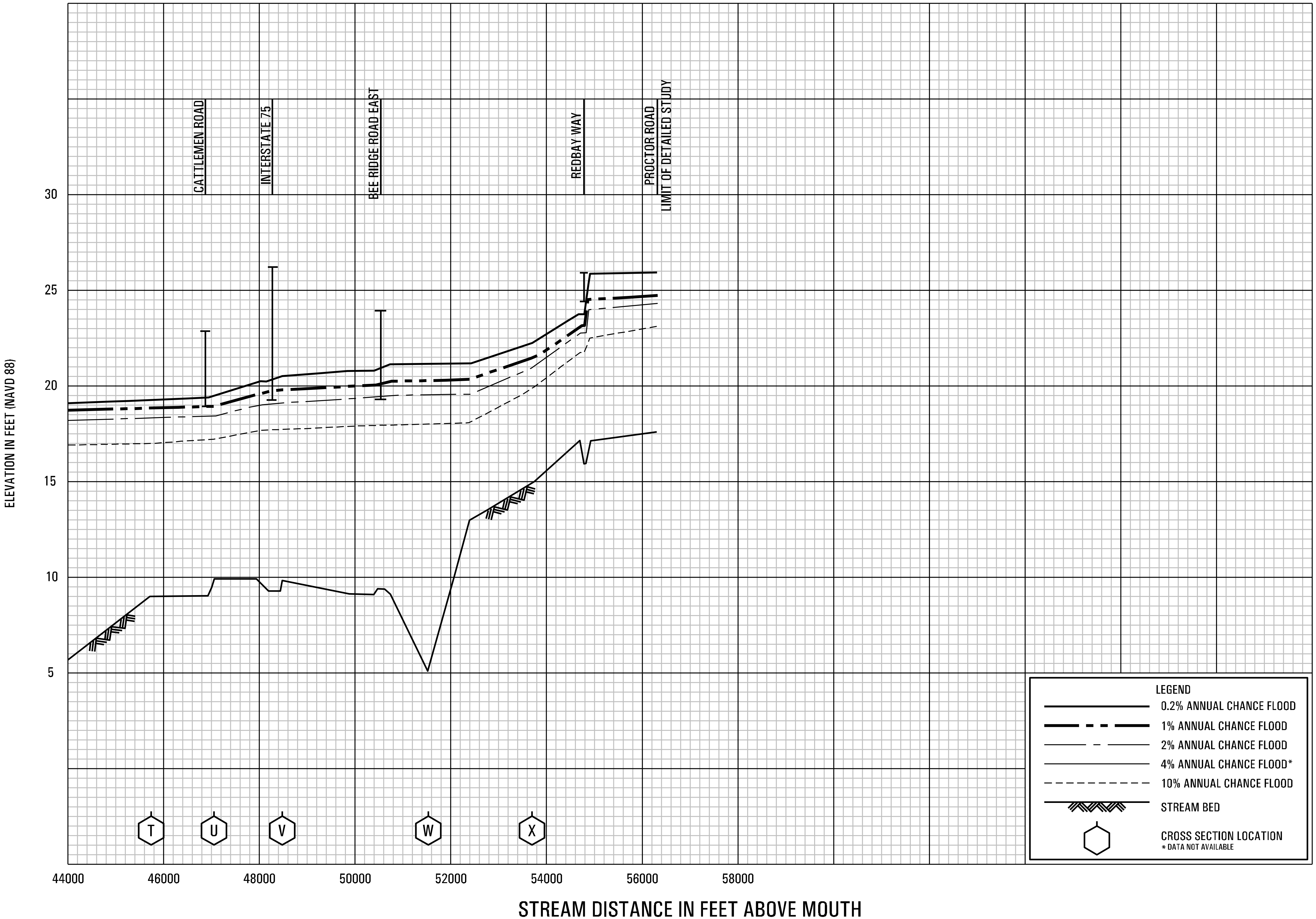


FLOOD PROFILES

PHILLIPPI CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

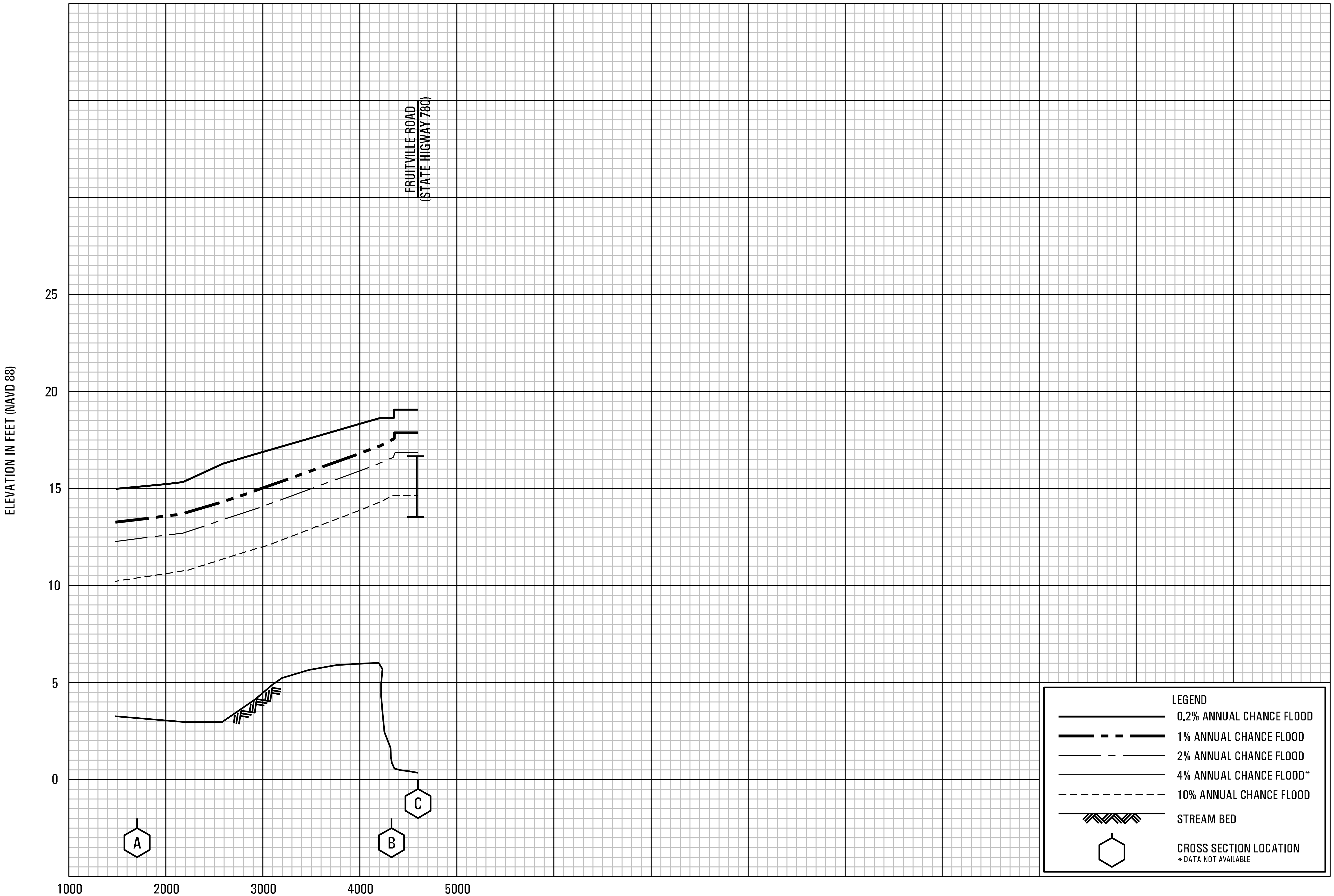


FLOOD PROFILES

PHILLIPPI CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS



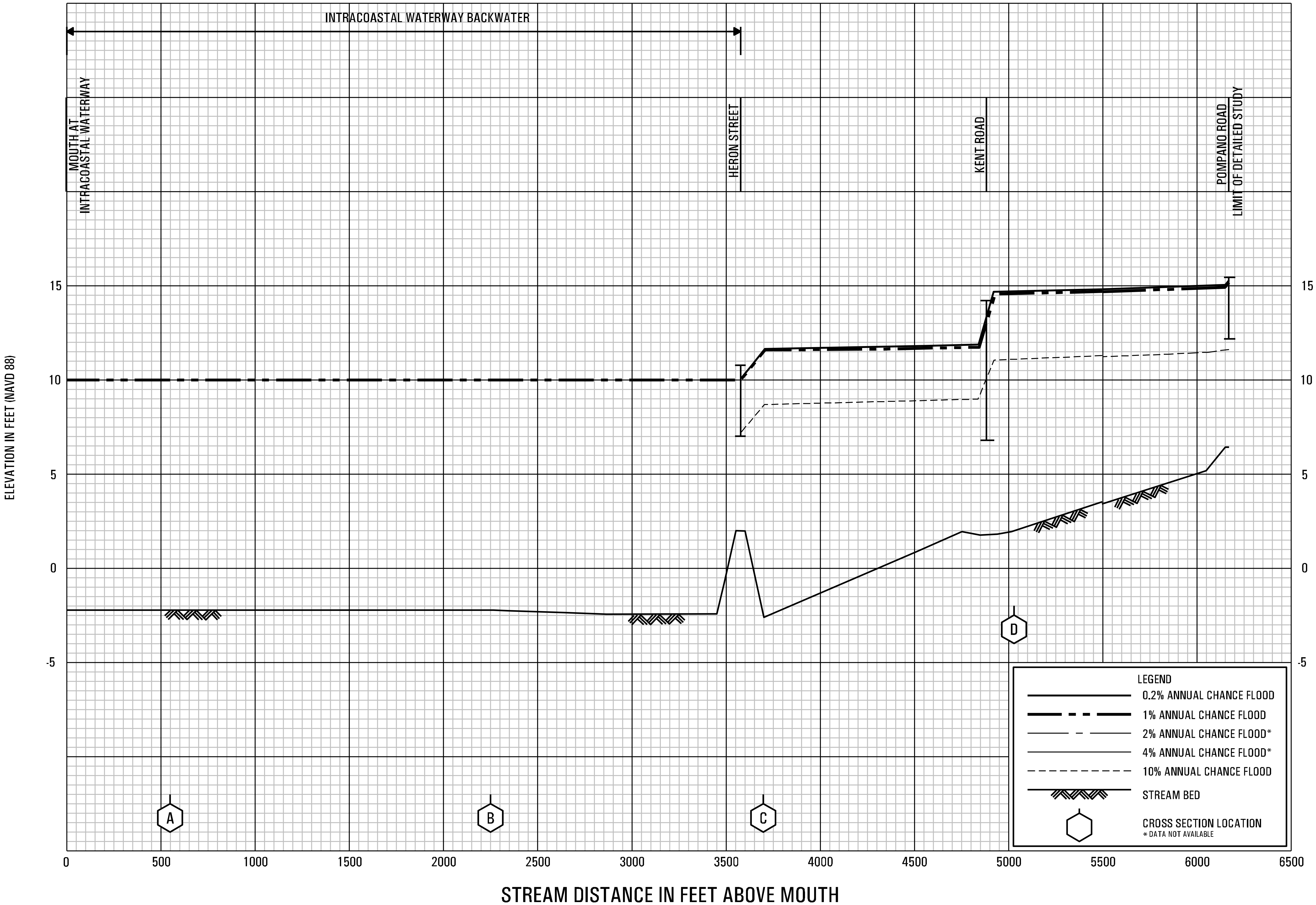
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH PHILLIPPI CREEK

FLOOD PROFILES

PHILLIPPI CREEK BRANCH B

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL
AND INCORPORATED AREAS

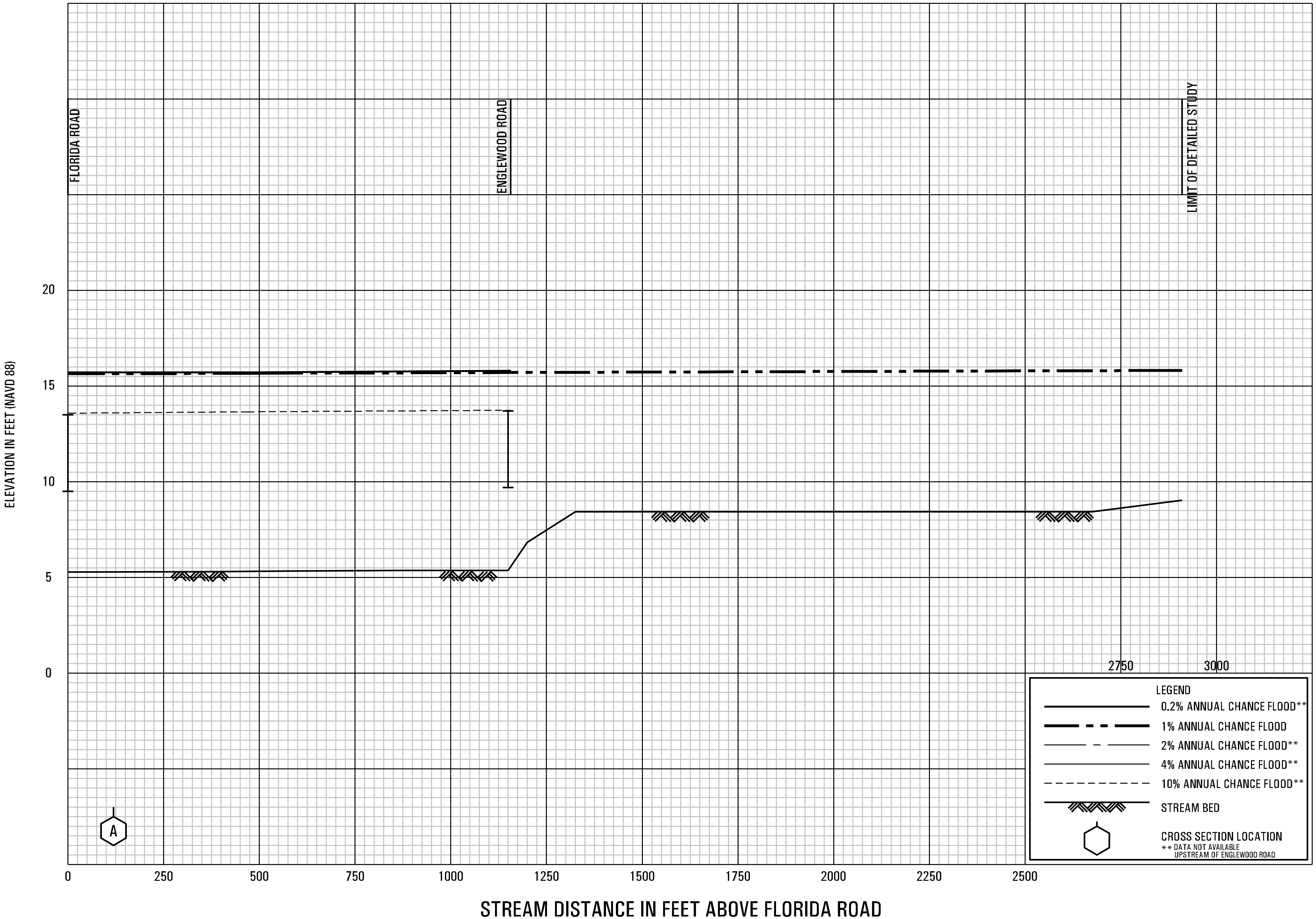


FLOOD PROFILES

WOODMERE CREEK WEST

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL AND INCORPORATED AREAS



FLOOD PROFILES

WOODMERE CREEK EAST

FEDERAL EMERGENCY MANAGEMENT AGENCY

SARASOTA COUNTY, FL AND INCORPORATED AREAS

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	11680	211680	14.08
Alligator Creek	2	11688	211688	13.26
Alligator Creek	2	11883	211883	12.71
Alligator Creek	2	11887	211887	11.93
Alligator Creek	2	11889	211889	11.91
Alligator Creek	2	12000	(c)	1.42
Alligator Creek	2	12001	212001	3.40
Alligator Creek	2	12002	212002	5.21
Alligator Creek	2	12003	212003	4.00
Alligator Creek	2	12004	212004	1.70
Alligator Creek	2	12005	212005	8.68
Alligator Creek	2	12006	212006	5.21
Alligator Creek	2	12007	212007	3.62
Alligator Creek	2	12008	212008	4.35
Alligator Creek	2	12009	212009	6.48
Alligator Creek	2	12010	212010	7.89
Alligator Creek	2	12011	212011	4.11
Alligator Creek	2	12013	212013	4.91
Alligator Creek	2	12014	212014	6.21
Alligator Creek	2	12016	212016	6.69
Alligator Creek	2	12017	212017	7.47
Alligator Creek	2	12018	212018	7.76
Alligator Creek	2	12019	212019	8.14
Alligator Creek	2	12020	212020	8.65
Alligator Creek	2	12021	212021	8.65
Alligator Creek	2	12022	212022	8.73
Alligator Creek	2	12023	212023	9.55
Alligator Creek	2	12024	212024	10.10
Alligator Creek	2	12025	212025	10.46
Alligator Creek	2	12026	212026	11.53
Alligator Creek	2	12027	212027	11.34
Alligator Creek	2	12028	212028	12.70
Alligator Creek	2	12029	212029	11.11
Alligator Creek	2	12030	212030	11.65
Alligator Creek	2	12031	212031	11.68
Alligator Creek	2	12032	212032	11.68
Alligator Creek	2	12033	212033	11.86
Alligator Creek	2	12034	212034	12.04
Alligator Creek	2	12035	212035	12.15
Alligator Creek	2	12036	212036	12.31

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12037	212037	12.55
Alligator Creek	2	12038	212038	12.64
Alligator Creek	2	12039	212039	12.64
Alligator Creek	2	12040	212040	12.64
Alligator Creek	2	12041	212041	12.64
Alligator Creek	2	12042	212042	3.98
Alligator Creek	2	12043	212043	4.96
Alligator Creek	2	12044	212044	6.54
Alligator Creek	2	12045	212045	3.69
Alligator Creek	2	12046	212046	8.14
Alligator Creek	2	12048	212048	3.48
Alligator Creek	2	12049	212049	6.58
Alligator Creek	2	12050	212050	3.72
Alligator Creek	2	12051	212051	7.39
Alligator Creek	2	12052	212052	3.72
Alligator Creek	2	12053	212053	9.04
Alligator Creek	2	12054	212054	3.72
Alligator Creek	2	12055	212055	10.04
Alligator Creek	2	12056	212056	3.97
Alligator Creek	2	12057	212057	10.54
Alligator Creek	2	12058	212058	10.91
Alligator Creek	2	12059	212059	11.92
Alligator Creek	2	12060	212060	11.94
Alligator Creek	2	12061	212061	11.94
Alligator Creek	2	12062	212062	4.21
Alligator Creek	2	12063	212063	12.98
Alligator Creek	2	12064	212064	6.33
Alligator Creek	2	12065	212065	6.58
Alligator Creek	2	12066	212066	3.98
Alligator Creek	2	12067	212067	4.40
Alligator Creek	2	12068	212068	4.40
Alligator Creek	2	12069	212069	4.15
Alligator Creek	2	12070	212070	5.70
Alligator Creek	2	12072	212072	5.70
Alligator Creek	2	12073	212073	6.01
Alligator Creek	2	12074	212074	7.53
Alligator Creek	2	12075	212075	8.21
Alligator Creek	2	12076	212076	10.04
Alligator Creek	2	12077	212077	10.04
Alligator Creek	2	12078	212078	10.61

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12079	212079	11.92
Alligator Creek	2	12080	212080	9.87
Alligator Creek	2	12081	212081	13.62
Alligator Creek	2	12082	212082	13.48
Alligator Creek	2	12083	212083	13.41
Alligator Creek	2	12084	212084	13.10
Alligator Creek	2	12085	212085	12.87
Alligator Creek	2	12086	212086	12.49
Alligator Creek	2	12087	212087	11.87
Alligator Creek	2	12088	212088	11.08
Alligator Creek	2	12089	212089	10.82
Alligator Creek	2	12090	212090	9.94
Alligator Creek	2	12091	212091	9.15
Alligator Creek	2	12092	212092	7.65
Alligator Creek	2	12094	212094	11.81
Alligator Creek	2	12095	212095	11.92
Alligator Creek	2	12096	212096	11.94
Alligator Creek	2	12097	212097	12.04
Alligator Creek	2	12098	212098	12.29
Alligator Creek	2	12099	212099	12.36
Alligator Creek	2	12100	212100	6.46
Alligator Creek	2	12101	212101	9.96
Alligator Creek	2	12102	212102	7.33
Alligator Creek	2	12103	212103	10.63
Alligator Creek	2	12104	212104	10.64
Alligator Creek	2	12105	212105	8.13
Alligator Creek	2	12106	212106	9.80
Alligator Creek	2	12107	212107	10.62
Alligator Creek	2	12108	212108	11.21
Alligator Creek	2	12109	212109	11.30
Alligator Creek	2	12110	212110	11.31
Alligator Creek	2	12111	212111	8.87
Alligator Creek	2	12112	212112	12.22
Alligator Creek	2	12113	212113	9.45
Alligator Creek	2	12114	212114	12.22
Alligator Creek	2	12115	212115	10.07
Alligator Creek	2	12116	212116	13.44
Alligator Creek	2	12117	212117	10.59
Alligator Creek	2	12118	212118	13.94
Alligator Creek	2	12119	212119	13.54

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12120	212120	13.94
Alligator Creek	2	12121	212121	13.58
Alligator Creek	2	12122	212122	14.53
Alligator Creek	2	12123	212123	14.53
Alligator Creek	2	12124	212124	13.60
Alligator Creek	2	12125	212125	13.60
Alligator Creek	2	12126	212126	13.60
Alligator Creek	2	12128	212128	13.74
Alligator Creek	2	12129	212129	13.95
Alligator Creek	2	12130	212130	13.80
Alligator Creek	2	12131	212131	13.83
Alligator Creek	2	12132	212132	12.70
Alligator Creek	2	12133	212133	13.83
Alligator Creek	2	12135	212135	13.83
Alligator Creek	2	12136	212136	13.83
Alligator Creek	2	12137	212137	14.09
Alligator Creek	2	12138	212138	12.61
Alligator Creek	2	12139	212139	14.77
Alligator Creek	2	12140	212140	11.09
Alligator Creek	2	12141	212141	12.82
Alligator Creek	2	12142	212142	13.24
Alligator Creek	2	12144	212144	12.27
Alligator Creek	2	12145	212145	14.92
Alligator Creek	2	12146	212146	13.83
Alligator Creek	2	12147	212147	13.80
Alligator Creek	2	12149	212149	13.74
Alligator Creek	2	12150	212150	4.81
Alligator Creek	2	12151	212151	7.98
Alligator Creek	2	12153	212153	8.06
Alligator Creek	2	12157	212157	9.51
Alligator Creek	2	12159	212159	12.21
Alligator Creek	2	12160	212160	12.96
Alligator Creek	2	12161	212161	12.23
Alligator Creek	2	12162	212162	13.19
Alligator Creek	2	12163	212163	12.25
Alligator Creek	2	12164	212164	13.76
Alligator Creek	2	12165	212165	13.72
Alligator Creek	2	12170	212170	5.36
Alligator Creek	2	12171	212171	14.03
Alligator Creek	2	12172	212172	14.10

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12173	212173	14.47
Alligator Creek	2	12174	212174	14.57
Alligator Creek	2	12175	212175	14.63
Alligator Creek	2	12176	212176	14.53
Alligator Creek	2	12177	212177	14.63
Alligator Creek	2	12178	212178	13.71
Alligator Creek	2	12179	212179	6.19
Alligator Creek	2	12180	212180	5.03
Alligator Creek	2	12181	212181	8.89
Alligator Creek	2	12182	212182	6.51
Alligator Creek	2	12183	212183	12.67
Alligator Creek	2	12184	212184	5.31
Alligator Creek	2	12185	212185	12.65
Alligator Creek	2	12186	212186	5.87
Alligator Creek	2	12187	212187	10.34
Alligator Creek	2	12188	212188	5.45
Alligator Creek	2	12190	212190	5.65
Alligator Creek	2	12191	212191	7.65
Alligator Creek	2	12193	212193	7.79
Alligator Creek	2	12194	212194	8.33
Alligator Creek	2	12195	212195	13.27
Alligator Creek	2	12196	212196	13.27
Alligator Creek	2	12197	212197	7.38
Alligator Creek	2	12198	212198	9.31
Alligator Creek	2	12199	212199	10.91
Alligator Creek	2	12200	212200	8.07
Alligator Creek	2	12202	212202	7.64
Alligator Creek	2	12203	212203	7.68
Alligator Creek	2	12204	212204	10.26
Alligator Creek	2	12205	212205	8.02
Alligator Creek	2	12210	212210	15.50
Alligator Creek	2	12211	212211	7.53
Alligator Creek	2	12212	212212	5.19
Alligator Creek	2	12240	212240	8.46
Alligator Creek	2	12241	212241	10.14
Alligator Creek	2	12242	212242	11.67
Alligator Creek	2	12243	212243	12.31
Alligator Creek	2	12244	212244	12.09
Alligator Creek	2	12245	212245	12.10
Alligator Creek	2	12246	212246	12.26

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12247	212247	12.44
Alligator Creek	2	12248	212248	12.51
Alligator Creek	2	12249	212249	13.56
Alligator Creek	2	12250	212250	13.58
Alligator Creek	2	12251	212251	13.60
Alligator Creek	2	12252	212252	13.59
Alligator Creek	2	12253	212253	13.60
Alligator Creek	2	12254	212254	13.60
Alligator Creek	2	12256	212256	13.79
Alligator Creek	2	12257	212257	13.78
Alligator Creek	2	12258	212258	14.01
Alligator Creek	2	12259	212259	13.80
Alligator Creek	2	12260	212260	14.44
Alligator Creek	2	12261	212261	14.01
Alligator Creek	2	12262	212262	14.04
Alligator Creek	2	12263	212263	14.01
Alligator Creek	2	12264	212264	10.46
Alligator Creek	2	12265	212265	11.17
Alligator Creek	2	12266	212266	12.84
Alligator Creek	2	12267	212267	13.30
Alligator Creek	2	12268	212268	13.25
Alligator Creek	2	12269	212269	13.91
Alligator Creek	2	12270	212270	13.44
Alligator Creek	2	12271	212271	14.27
Alligator Creek	2	12272	212272	14.10
Alligator Creek	2	12273	212273	14.27
Alligator Creek	2	12274	212274	14.27
Alligator Creek	2	12275	212275	14.27
Alligator Creek	2	12276	212276	14.28
Alligator Creek	2	12277	212277	14.30
Alligator Creek	2	12278	212278	14.43
Alligator Creek	2	12280	212280	14.45
Alligator Creek	2	12281	212281	14.45
Alligator Creek	2	12282	212282	14.51
Alligator Creek	2	12283	212283	13.81
Alligator Creek	2	12284	212284	13.81
Alligator Creek	2	12285	212285	14.47
Alligator Creek	2	12286	212286	13.82
Alligator Creek	2	12287	212287	15.01
Alligator Creek	2	12288	212288	15.02

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12289	212289	13.84
Alligator Creek	2	12300	212300	6.70
Alligator Creek	2	12301	212301	6.92
Alligator Creek	2	12302	212302	7.14
Alligator Creek	2	12303	212303	9.41
Alligator Creek	2	12304	212304	7.44
Alligator Creek	2	12305	212305	7.43
Alligator Creek	2	12306	212306	7.70
Alligator Creek	2	12307	212307	7.70
Alligator Creek	2	12308	212308	7.44
Alligator Creek	2	12309	212309	7.97
Alligator Creek	2	12310	212310	7.97
Alligator Creek	2	12311	212311	8.20
Alligator Creek	2	12312	212312	8.20
Alligator Creek	2	12313	212313	8.42
Alligator Creek	2	12314	212314	9.39
Alligator Creek	2	12317	212317	10.52
Alligator Creek	2	12319	212319	8.54
Alligator Creek	2	12320	212320	10.60
Alligator Creek	2	12321	212321	8.67
Alligator Creek	2	12323	212323	11.44
Alligator Creek	2	12325	212325	8.86
Alligator Creek	2	12326	212326	11.45
Alligator Creek	2	12327	212327	8.87
Alligator Creek	2	12329	212329	8.89
Alligator Creek	2	12330	212330	9.85
Alligator Creek	2	12331	212331	12.57
Alligator Creek	2	12332	212332	11.12
Alligator Creek	2	12333	212333	11.66
Alligator Creek	2	12334	212334	11.91
Alligator Creek	2	12335	212335	11.12
Alligator Creek	2	12336	212336	12.57
Alligator Creek	2	12337	212337	12.57
Alligator Creek	2	12338	212338	12.30
Alligator Creek	2	12339	212339	12.30
Alligator Creek	2	12340	212340	12.58
Alligator Creek	2	12341	212341	12.31
Alligator Creek	2	12342	212342	12.31
Alligator Creek	2	12343	212343	12.31
Alligator Creek	2	12344	212344	12.31

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12345	212345	12.31
Alligator Creek	2	12346	212346	12.32
Alligator Creek	2	12347	212347	12.34
Alligator Creek	2	12348	212348	12.34
Alligator Creek	2	12349	212349	12.60
Alligator Creek	2	12350	212350	12.39
Alligator Creek	2	12351	212351	12.63
Alligator Creek	2	12352	212352	12.39
Alligator Creek	2	12353	212353	12.39
Alligator Creek	2	12354	212354	12.73
Alligator Creek	2	12355	212355	13.02
Alligator Creek	2	12357	212357	13.32
Alligator Creek	2	12358	212358	13.35
Alligator Creek	2	12359	212359	13.44
Alligator Creek	2	12360	212360	13.54
Alligator Creek	2	12361	212361	13.80
Alligator Creek	2	12362	212362	13.92
Alligator Creek	2	12364	212364	12.79
Alligator Creek	2	12365	212365	12.83
Alligator Creek	2	12366	212366	12.87
Alligator Creek	2	12367	212367	12.91
Alligator Creek	2	12368	212368	12.97
Alligator Creek	2	12370	212370	12.93
Alligator Creek	2	12371	212371	12.40
Alligator Creek	2	12372	212372	13.04
Alligator Creek	2	12373	212373	13.04
Alligator Creek	2	12374	212374	13.10
Alligator Creek	2	12375	212375	13.10
Alligator Creek	2	12376	212376	13.82
Alligator Creek	2	12377	212377	13.11
Alligator Creek	2	12378	212378	13.15
Alligator Creek	2	12379	212379	13.23
Alligator Creek	2	12380	212380	13.11
Alligator Creek	2	12381	212381	13.23
Alligator Creek	2	12382	212382	13.26
Alligator Creek	2	12383	212383	13.27
Alligator Creek	2	12384	212384	13.40
Alligator Creek	2	12387	212387	13.44
Alligator Creek	2	12388	212388	13.69
Alligator Creek	2	12389	212389	14.18

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [a]	DFIRM NODE ID [b]	ELEVATION (NAVD88)
Alligator Creek	2	12400	212400	7.70
Alligator Creek	2	12401	212401	8.83
Alligator Creek	2	12402	212402	9.18
Alligator Creek	2	12403	212403	7.76
Alligator Creek	2	12404	212404	7.77
Alligator Creek	2	12405	212405	7.98
Alligator Creek	2	12406	212406	10.55
Alligator Creek	2	12407	212407	7.81
Alligator Creek	2	12408	212408	7.83
Alligator Creek	2	12409	212409	7.84
Alligator Creek	2	12410	212410	8.68
Alligator Creek	2	12411	212411	9.04
Alligator Creek	2	12412	212412	9.38
Alligator Creek	2	12413	212413	9.41
Alligator Creek	2	12414	212414	10.22
Alligator Creek	2	12415	212415	7.83
Alligator Creek	2	12416	212416	8.00
Alligator Creek	2	12417	212417	8.42
Alligator Creek	2	12418	212418	8.42
Alligator Creek	2	12419	212419	9.15
Alligator Creek	2	12420	212420	9.32
Alligator Creek	2	12421	212421	9.51
Alligator Creek	2	12422	212422	10.35
Alligator Creek	2	12423	212423	10.38
Alligator Creek	2	12424	212424	11.21
Alligator Creek	2	12425	212425	11.18
Alligator Creek	2	12426	212426	11.43
Alligator Creek	2	12427	212427	11.62
Alligator Creek	2	12428	212428	13.00
Alligator Creek	2	12429	212429	12.71
Alligator Creek	2	12430	212430	12.97
Alligator Creek	2	12431	212431	12.04
Alligator Creek	2	12432	212432	12.44
Alligator Creek	2	12433	212433	12.94
Alligator Creek	2	12434	212434	13.36
Alligator Creek	2	12435	212435	11.62
Alligator Creek	2	12436	212436	13.48
Alligator Creek	2	12437	212437	13.49
Alligator Creek	2	12438	212438	13.50
Alligator Creek	2	12439	212439	13.57

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12440	212440	14.34
Alligator Creek	2	12441	212441	13.04
Alligator Creek	2	12442	212442	11.24
Alligator Creek	2	12443	212443	9.15
Alligator Creek	2	12444	212444	9.35
Alligator Creek	2	12445	212445	10.51
Alligator Creek	2	12446	212446	10.79
Alligator Creek	2	12447	212447	10.93
Alligator Creek	2	12448	212448	11.24
Alligator Creek	2	12449	212449	11.32
Alligator Creek	2	12450	212450	11.32
Alligator Creek	2	12451	212451	11.33
Alligator Creek	2	12452	212452	11.43
Alligator Creek	2	12453	212453	11.45
Alligator Creek	2	12454	212454	11.68
Alligator Creek	2	12455	212455	11.72
Alligator Creek	2	12456	212456	11.73
Alligator Creek	2	12457	212457	13.93
Alligator Creek	2	12458	212458	11.81
Alligator Creek	2	12459	212459	12.05
Alligator Creek	2	12460	212460	13.05
Alligator Creek	2	12461	212461	13.42
Alligator Creek	2	12462	212462	14.92
Alligator Creek	2	12463	212463	14.92
Alligator Creek	2	12464	212464	13.45
Alligator Creek	2	12465	212465	13.65
Alligator Creek	2	12466	212466	13.72
Alligator Creek	2	12467	212467	12.21
Alligator Creek	2	12468	212468	12.57
Alligator Creek	2	12469	212469	12.58
Alligator Creek	2	12470	212470	12.79
Alligator Creek	2	12471	212471	13.68
Alligator Creek	2	12472	212472	12.89
Alligator Creek	2	12473	212473	12.89
Alligator Creek	2	12474	212474	12.35
Alligator Creek	2	12475	212475	12.62
Alligator Creek	2	12476	212476	12.74
Alligator Creek	2	12477	212477	12.90
Alligator Creek	2	12478	212478	12.92
Alligator Creek	2	12479	212479	12.97

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12480	212480	11.39
Alligator Creek	2	12481	212481	11.64
Alligator Creek	2	12482	212482	7.90
Alligator Creek	2	12483	212483	8.03
Alligator Creek	2	12484	212484	9.02
Alligator Creek	2	12485	212485	9.02
Alligator Creek	2	12486	212486	9.03
Alligator Creek	2	12487	212487	9.03
Alligator Creek	2	12488	212488	9.03
Alligator Creek	2	12489	212489	9.08
Alligator Creek	2	12490	212490	9.30
Alligator Creek	2	12491	212491	10.54
Alligator Creek	2	12492	212492	10.65
Alligator Creek	2	12493	212493	9.03
Alligator Creek	2	12494	212494	9.03
Alligator Creek	2	12495	212495	9.03
Alligator Creek	2	12496	212496	10.29
Alligator Creek	2	12497	212497	10.76
Alligator Creek	2	12498	212498	11.99
Alligator Creek	2	12499	212499	12.28
Alligator Creek	2	12500	212500	10.77
Alligator Creek	2	12501	212501	11.06
Alligator Creek	2	12502	212502	9.22
Alligator Creek	2	12503	212503	8.04
Alligator Creek	2	12504	212504	9.22
Alligator Creek	2	12506	212506	10.01
Alligator Creek	2	12508	212508	9.24
Alligator Creek	2	12510	212510	9.75
Alligator Creek	2	12512	212512	9.85
Alligator Creek	2	12514	212514	9.62
Alligator Creek	2	12516	212516	10.26
Alligator Creek	2	12518	212518	10.35
Alligator Creek	2	12519	212519	11.33
Alligator Creek	2	12520	212520	10.35
Alligator Creek	2	12522	212522	10.35
Alligator Creek	2	12524	212524	11.86
Alligator Creek	2	12526	212526	11.86
Alligator Creek	2	12528	212528	11.86
Alligator Creek	2	12530	212530	11.59
Alligator Creek	2	12534	212534	9.22

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12536	212536	10.20
Alligator Creek	2	12538	212538	10.78
Alligator Creek	2	12540	212540	10.81
Alligator Creek	2	12542	212542	10.81
Alligator Creek	2	12544	212544	9.22
Alligator Creek	2	12546	212546	10.21
Alligator Creek	2	12548	212548	10.40
Alligator Creek	2	12550	212550	10.82
Alligator Creek	2	12552	212552	10.81
Alligator Creek	2	12554	212554	10.70
Alligator Creek	2	12560	212560	10.35
Alligator Creek	2	12562	212562	10.47
Alligator Creek	2	12564	212564	10.54
Alligator Creek	2	12566	212566	10.59
Alligator Creek	2	12568	212568	10.61
Alligator Creek	2	12570	212570	10.68
Alligator Creek	2	12572	212572	10.93
Alligator Creek	2	12574	212574	10.03
Alligator Creek	2	12576	212576	10.20
Alligator Creek	2	12578	212578	10.29
Alligator Creek	2	12600	212600	9.74
Alligator Creek	2	12602	212602	10.56
Alligator Creek	2	12604	212604	10.57
Alligator Creek	2	12606	212606	10.57
Alligator Creek	2	12608	212608	10.57
Alligator Creek	2	12610	212610	10.69
Alligator Creek	2	12612	212612	10.05
Alligator Creek	2	12614	212614	10.31
Alligator Creek	2	12615	212615	10.50
Alligator Creek	2	12617	212617	10.50
Alligator Creek	2	12618	212618	10.59
Alligator Creek	2	12619	212619	10.94
Alligator Creek	2	12620	212620	11.03
Alligator Creek	2	12622	212622	11.13
Alligator Creek	2	12624	212624	14.07
Alligator Creek	2	12626	212626	11.06
Alligator Creek	2	12628	212628	11.67
Alligator Creek	2	12630	212630	11.03
Alligator Creek	2	12632	212632	11.05
Alligator Creek	2	12634	212634	11.18

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12636	212636	11.20
Alligator Creek	2	12638	212638	11.29
Alligator Creek	2	12640	212640	11.26
Alligator Creek	2	12641	212641	13.10
Alligator Creek	2	12642	212642	11.55
Alligator Creek	2	12644	212644	11.75
Alligator Creek	2	12645	212645	11.98
Alligator Creek	2	12646	212646	11.78
Alligator Creek	2	12647	212647	11.78
Alligator Creek	2	12648	212648	12.01
Alligator Creek	2	12650	212650	12.05
Alligator Creek	2	12652	212652	12.33
Alligator Creek	2	12654	212654	12.34
Alligator Creek	2	12655	212655	12.54
Alligator Creek	2	12656	212656	12.01
Alligator Creek	2	12658	212658	12.54
Alligator Creek	2	12660	212660	11.78
Alligator Creek	2	12662	212662	11.78
Alligator Creek	2	12664	212664	12.50
Alligator Creek	2	12666	212666	13.19
Alligator Creek	2	12668	212668	12.02
Alligator Creek	2	12700	212700	9.30
Alligator Creek	2	12702	212702	10.51
Alligator Creek	2	12704	212704	12.17
Alligator Creek	2	12706	212706	11.55
Alligator Creek	2	12708	212708	12.88
Alligator Creek	2	12710	212710	12.17
Alligator Creek	2	12712	212712	9.33
Alligator Creek	2	12714	212714	13.52
Alligator Creek	2	12716	212716	9.37
Alligator Creek	2	12718	212718	9.63
Alligator Creek	2	12720	212720	9.64
Alligator Creek	2	12722	212722	9.67
Alligator Creek	2	12723	212723	12.42
Alligator Creek	2	12724	212724	11.76
Alligator Creek	2	12725	212725	12.42
Alligator Creek	2	12727	212727	12.79
Alligator Creek	2	12728	212728	13.38
Alligator Creek	2	12730	212730	9.67
Alligator Creek	2	12731	212731	9.83

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12732	212732	12.78
Alligator Creek	2	12733	212733	12.69
Alligator Creek	2	12734	212734	9.92
Alligator Creek	2	12735	212735	11.25
Alligator Creek	2	12736	212736	12.61
Alligator Creek	2	12737	212737	12.78
Alligator Creek	2	12738	212738	12.85
Alligator Creek	2	12739	212739	13.43
Alligator Creek	2	12740	212740	13.79
Alligator Creek	2	12741	212741	13.99
Alligator Creek	2	12742	212742	13.23
Alligator Creek	2	12744	212744	14.61
Alligator Creek	2	12745	212745	14.62
Alligator Creek	2	12746	212746	14.62
Alligator Creek	2	12747	212747	14.62
Alligator Creek	2	12748	212748	13.14
Alligator Creek	2	12749	212749	14.36
Alligator Creek	2	12750	212750	12.90
Alligator Creek	2	12751	212751	12.94
Alligator Creek	2	12752	212752	12.92
Alligator Creek	2	12753	212753	12.93
Alligator Creek	2	12754	212754	12.93
Alligator Creek	2	12755	212755	12.94
Alligator Creek	2	12756	212756	13.05
Alligator Creek	2	12757	212757	12.94
Alligator Creek	2	12758	212758	12.93
Alligator Creek	2	12761	212761	13.56
Alligator Creek	2	12762	212762	14.62
Alligator Creek	2	12763	212763	14.63
Alligator Creek	2	12764	212764	13.56
Alligator Creek	2	12765	212765	13.47
Alligator Creek	2	12766	212766	13.68
Alligator Creek	2	12767	212767	13.85
Alligator Creek	2	12768	212768	13.92
Alligator Creek	2	12769	212769	13.92
Alligator Creek	2	12770	212770	14.20
Alligator Creek	2	12771	212771	10.73
Alligator Creek	2	12772	212772	13.14
Alligator Creek	2	12773	212773	13.23
Alligator Creek	2	12774	212774	12.12

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12775	212775	13.04
Alligator Creek	2	12776	212776	13.43
Alligator Creek	2	12777	212777	13.52
Alligator Creek	2	12778	212778	13.58
Alligator Creek	2	12779	212779	14.25
Alligator Creek	2	12780	212780	12.98
Alligator Creek	2	12781	212781	12.98
Alligator Creek	2	12782	212782	13.31
Alligator Creek	2	12783	212783	13.96
Alligator Creek	2	12784	212784	10.98
Alligator Creek	2	12786	212786	10.58
Alligator Creek	2	12787	212787	10.83
Alligator Creek	2	12788	212788	10.95
Alligator Creek	2	12791	212791	10.98
Alligator Creek	2	12792	212792	14.25
Alligator Creek	2	12800	212800	8.30
Alligator Creek	2	12801	212801	9.15
Alligator Creek	2	12802	212802	10.92
Alligator Creek	2	12803	212803	12.66
Alligator Creek	2	12804	212804	12.71
Alligator Creek	2	12805	212805	12.50
Alligator Creek	2	12806	212806	12.56
Alligator Creek	2	12807	212807	10.96
Alligator Creek	2	12808	212808	10.11
Alligator Creek	2	12809	212809	10.79
Alligator Creek	2	12810	212810	11.44
Alligator Creek	2	12811	212811	12.50
Alligator Creek	2	12812	212812	12.29
Alligator Creek	2	12813	212813	12.59
Alligator Creek	2	12814	212814	11.60
Alligator Creek	2	12815	212815	12.60
Alligator Creek	2	12816	212816	12.19
Alligator Creek	2	12817	212817	12.85
Alligator Creek	2	12818	212818	12.24
Alligator Creek	2	12820	212820	11.80
Alligator Creek	2	12821	212821	12.87
Alligator Creek	2	12822	212822	11.92
Alligator Creek	2	12823	212823	13.27
Alligator Creek	2	12824	212824	12.47
Alligator Creek	2	12825	212825	13.06

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12826	212826	12.67
Alligator Creek	2	12827	212827	13.33
Alligator Creek	2	12828	212828	15.25
Alligator Creek	2	12829	212829	13.33
Alligator Creek	2	12830	212830	12.98
Alligator Creek	2	12832	212832	12.22
Alligator Creek	2	12833	212833	13.39
Alligator Creek	2	12834	212834	15.42
Alligator Creek	2	12835	212835	14.66
Alligator Creek	2	12837	212837	14.35
Alligator Creek	2	12838	212838	14.63
Alligator Creek	2	12840	212840	14.69
Alligator Creek	2	12842	212842	14.36
Alligator Creek	2	12844	212844	14.69
Alligator Creek	2	12850	(c)	14.37
Alligator Creek	2	12852	(c)	14.36
Alligator Creek	2	12854	(c)	14.33
Alligator Creek	2	12858	(c)	14.42
Alligator Creek	2	12863	212863	14.38
Alligator Creek	2	12864	212864	14.35
Alligator Creek	2	12865	212865	12.87
Alligator Creek	2	12890	212890	14.34
Alligator Creek	2	12891	212891	14.35
Alligator Creek	2	12892	212892	14.69
Alligator Creek	2	12893	212893	14.73
Alligator Creek	2	12900	212900	10.12
Alligator Creek	2	12901	212901	10.90
Alligator Creek	2	12902	212902	11.38
Alligator Creek	2	12903	212903	12.03
Alligator Creek	2	12904	212904	12.10
Alligator Creek	2	12905	212905	12.04
Alligator Creek	2	12906	212906	12.07
Alligator Creek	2	12907	212907	12.64
Alligator Creek	2	12908	212908	12.65
Alligator Creek	2	12909	212909	12.71
Alligator Creek	2	12910	212910	12.64
Alligator Creek	2	12913	212913	12.68
Alligator Creek	2	12915	212915	12.07
Alligator Creek	2	12916	212916	12.09
Alligator Creek	2	12917	212917	12.56

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12918	212918	12.71
Alligator Creek	2	12919	212919	13.14
Alligator Creek	2	12920	212920	13.28
Alligator Creek	2	12921	212921	13.46
Alligator Creek	2	12922	212922	13.61
Alligator Creek	2	12923	212923	13.58
Alligator Creek	2	12924	212924	13.51
Alligator Creek	2	12939	212939	11.22
Alligator Creek	2	12986	(c)	14.01
Alligator Creek	2	13040	213040	5.24
Alligator Creek	2	13050	213050	8.22
Alligator Creek	2	13060	(c)	8.37
Alligator Creek	2	13070	213070	9.6
Alligator Creek	2	13080	213080	9.83
Alligator Creek	2	13091	213091	11.12
Alligator Creek	2	13092	213092	12.58
Alligator Creek	2	13094	213094	11.12
Alligator Creek	2	13095	(c)	11.24
Alligator Creek	2	13120	213120	12.41
Alligator Creek	2	13130	213130	13.14
Alligator Creek	2	13140	213140	12.49
Alligator Creek	2	13150	(c)	12.95
Alligator Creek	2	13160	213160	13.53
Alligator Creek	2	13180	213180	14.86
Alligator Creek	2	13190	213190	12.85
Alligator Creek	2	13290	(c)	13.57
Alligator Creek	2	14351	(c)	13.13
Alligator Creek	2	14370	214370	13.61
Alligator Creek	2	14371	214371	13.60
Alligator Creek	2	14373	214373	14.69
Alligator Creek	2	17009	217009	11.91
Alligator Creek	2	121006	2121006	10.08
Alligator Creek	2	121007	2121007	10.11
Alligator Creek	2	121008	2121008	10.47
Alligator Creek	2	121009	2121009	10.11
Alligator Creek	2	127101	2127101	9.82
Alligator Creek	2	181150	(c)	12.54
Alligator Creek	2	181151	2181151	12.93
Alligator Creek	2	181159	(c)	12.34
Alligator Creek	2	181165	(c)	13.03

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	181175	(c)	12.97
Alligator Creek	2	181176	(c)	12.21
Alligator Creek	2	181177	2181177	12.21
Alligator Creek	2	181191	(c)	11.35
Alligator Creek	2	181197	(c)	11.23
Alligator Creek	2	181198	(c)	11.23
Alligator Creek	2	181199	2181199	11.22
Alligator Creek	2	181205	(c)	8.43
Alligator Creek	2	181206	2181206	11.22
Alligator Creek	2	181209	(c)	9.59
Alligator Creek	2	181210	2181210	11.22
Alligator Creek	2	181213	(c)	10.05
Alligator Creek	2	181214	2181214	10.11
Alligator Creek	2	181281	(c)	10.52
Alligator Creek	2	181411	(c)	10.56
Alligator Creek	2	181415	(c)	10.57
Alligator Creek	2	181600	2181600	10.59
Alligator Creek	2	181601	(c)	10.62
Alligator Creek	2	11688A	211688A	13.26
Alligator Creek	2	12000N	(c)	1.42
Alligator Creek	2	12003F	212003F	9.69
Alligator Creek	2	12005F	212005F	9.26
Alligator Creek	2	12005G	212005G	10.95
Alligator Creek	2	12005N	212005N	11.51
Alligator Creek	2	12013F	212013F	12.09
Alligator Creek	2	12013N	212013N	12.09
Alligator Creek	2	12014N	212014N	12.08
Alligator Creek	2	12016N	212016N	11.99
Alligator Creek	2	12017N	212017N	12.08
Alligator Creek	2	12018N	212018N	12.06
Alligator Creek	2	12019N	212019N	10.96
Alligator Creek	2	12020F	212020F	8.73
Alligator Creek	2	12020N	212020N	10.37
Alligator Creek	2	12024N	212024N	11.67
Alligator Creek	2	12027B	212027B	12.47
Alligator Creek	2	12027C	212027C	12.08
Alligator Creek	2	12027F	212027F	10.85
Alligator Creek	2	12028F	212028F	12.81
Alligator Creek	2	12028N	212028N	12.81
Alligator Creek	2	12030F	212030F	11.65

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12030N	212030N	12.55
Alligator Creek	2	12031N	212031N	11.70
Alligator Creek	2	12032N	212032N	11.87
Alligator Creek	2	12032S	212032S	11.73
Alligator Creek	2	12033N	212033N	12.44
Alligator Creek	2	12037F	212037F	12.83
Alligator Creek	2	12038N	212038N	13.09
Alligator Creek	2	12046F	212046F	10.22
Alligator Creek	2	12048C	212048C	2.86
Alligator Creek	2	12048F	212048F	6.19
Alligator Creek	2	12048G	212048G	4.83
Alligator Creek	2	12048H	212048H	4.86
Alligator Creek	2	12050F	212050F	7.27
Alligator Creek	2	12050N	212050N	3.79
Alligator Creek	2	12051N	212051N	9.99
Alligator Creek	2	12052F	212052F	5.03
Alligator Creek	2	12052N	212052N	9.72
Alligator Creek	2	12054F	212054F	4.47
Alligator Creek	2	12074N	212074N	4.83
Alligator Creek	2	12075N	212075N	6.09
Alligator Creek	2	12076N	212076N	6.72
Alligator Creek	2	12077N	212077N	9.42
Alligator Creek	2	12078N	212078N	10.53
Alligator Creek	2	12079N	212079N	11.91
Alligator Creek	2	12095N	212095N	11.92
Alligator Creek	2	12097A	212097A	12.08
Alligator Creek	2	12098N	212098N	12.32
Alligator Creek	2	12099N	212099N	12.64
Alligator Creek	2	12100N	212100N	11.45
Alligator Creek	2	12109A	212109A	11.29
Alligator Creek	2	12109F	212109F	15.45
Alligator Creek	2	12110F	212110F	15.45
Alligator Creek	2	12111N	212111N	12.87
Alligator Creek	2	12117A	212117A	13.09
Alligator Creek	2	12119A	212119A	13.44
Alligator Creek	2	12123F	212123F	16.36
Alligator Creek	2	12123G	212123G	15.51
Alligator Creek	2	12123H	212123H	14.65
Alligator Creek	2	12125N	212125N	14.11
Alligator Creek	2	12127A	212127A	13.61

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12127F	212127F	14.26
Alligator Creek	2	12127G	212127G	14.26
Alligator Creek	2	12127N	212127N	14.22
Alligator Creek	2	12145F	212145F	15.17
Alligator Creek	2	12151F	212151F	8.65
Alligator Creek	2	12151G	212151G	8.91
Alligator Creek	2	12151H	212151H	9.48
Alligator Creek	2	12151N	212151N	10.82
Alligator Creek	2	12159N	212159N	13.40
Alligator Creek	2	12161F	212161F	12.85
Alligator Creek	2	12161N	212161N	13.00
Alligator Creek	2	12180C	212180C	4.99
Alligator Creek	2	12182A	212182A	5.33
Alligator Creek	2	12183A	212183A	12.87
Alligator Creek	2	12183C	212183C	13.28
Alligator Creek	2	12184A	212184A	5.30
Alligator Creek	2	12185A	212185A	13.25
Alligator Creek	2	12185B	212185B	13.34
Alligator Creek	2	12186B	212186B	10.85
Alligator Creek	2	12186C	212186C	12.50
Alligator Creek	2	12187A	212187A	12.96
Alligator Creek	2	12188F	212188F	5.82
Alligator Creek	2	12188G	212188G	7.64
Alligator Creek	2	12188N	212188N	5.83
Alligator Creek	2	12191N	212191N	7.10
Alligator Creek	2	12193A	212193A	12.28
Alligator Creek	2	12193B	212193B	13.15
Alligator Creek	2	12193C	212193C	12.73
Alligator Creek	2	12193N	212193N	6.76
Alligator Creek	2	12195A	212195A	9.52
Alligator Creek	2	12197N	212197N	7.45
Alligator Creek	2	12210B	212210B	14.77
Alligator Creek	2	12210C	212210C	15.44
Alligator Creek	2	12210D	212210D	15.35
Alligator Creek	2	12210F	212210F	14.76
Alligator Creek	2	12210NN	212210NN	14.36
Alligator Creek	2	12211A	212211A	11.80
Alligator Creek	2	12211B	212211B	13.13
Alligator Creek	2	12211C	212211C	13.90
Alligator Creek	2	12211D	212211D	8.45

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12211E	212211E	13.21
Alligator Creek	2	12211F	212211F	7.53
Alligator Creek	2	12211G	212211G	9.44
Alligator Creek	2	12211H	212211H	13.46
Alligator Creek	2	12211N	212211N	4.40
Alligator Creek	2	12241A	212241A	10.33
Alligator Creek	2	12241N	212241N	9.29
Alligator Creek	2	12242F	212242F	10.32
Alligator Creek	2	12243F	212243F	8.53
Alligator Creek	2	12243G	212243G	12.43
Alligator Creek	2	12243N	212243N	10.41
Alligator Creek	2	12244A	212244A	12.09
Alligator Creek	2	12248S	212248S	12.85
Alligator Creek	2	12255A	212255A	13.75
Alligator Creek	2	12256B	212256B	13.99
Alligator Creek	2	12256C	212256C	14.00
Alligator Creek	2	12257B	212257B	13.60
Alligator Creek	2	12259B	212259B	13.91
Alligator Creek	2	12259N	212259N	13.81
Alligator Creek	2	12260N	212260N	14.51
Alligator Creek	2	12264NN	212264NN	15.07
Alligator Creek	2	12265N	212265N	15.07
Alligator Creek	2	12265NN	212265NN	14.61
Alligator Creek	2	12268F	212268F	14.22
Alligator Creek	2	12271N	212271N	13.63
Alligator Creek	2	12283N	212283N	14.44
Alligator Creek	2	12284N	212284N	14.32
Alligator Creek	2	12285N	212285N	14.78
Alligator Creek	2	12303N	212303N	7.44
Alligator Creek	2	12306NN	212306NN	6.72
Alligator Creek	2	12313NN	212313NN	8.96
Alligator Creek	2	12321NN	212321NN	10.66
Alligator Creek	2	12322A	212322A	11.15
Alligator Creek	2	12337N	212337N	12.57
Alligator Creek	2	12338N	212338N	12.37
Alligator Creek	2	12343N	212343N	12.59
Alligator Creek	2	12345B	212345B	12.31
Alligator Creek	2	12345C	212345C	12.45
Alligator Creek	2	12345D	212345D	13.14
Alligator Creek	2	12345E	212345E	13.23

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12345F	212345F	12.29
Alligator Creek	2	12347N	212347N	12.59
Alligator Creek	2	12349A	212349A	13.55
Alligator Creek	2	12355A	212355A	13.24
Alligator Creek	2	12357A	212357A	13.38
Alligator Creek	2	12361N	212361N	13.80
Alligator Creek	2	12362B	212362B	13.81
Alligator Creek	2	12362C	212362C	13.42
Alligator Creek	2	12367N	212367N	12.90
Alligator Creek	2	12372N	212372N	13.01
Alligator Creek	2	12400C	212400C	7.69
Alligator Creek	2	12401NN	212401NN	9.64
Alligator Creek	2	12402A	212402A	9.18
Alligator Creek	2	12417N	212417N	10.34
Alligator Creek	2	12430N	212430N	12.71
Alligator Creek	2	12431A	212431A	11.74
Alligator Creek	2	12431N	212431N	13.20
Alligator Creek	2	12432NN	212432NN	13.39
Alligator Creek	2	12433N	212433N	13.52
Alligator Creek	2	12433NN	212433NN	13.63
Alligator Creek	2	12434N	212434N	13.58
Alligator Creek	2	12434NN	212434NN	13.42
Alligator Creek	2	12438NN	212438NN	13.47
Alligator Creek	2	12439NN	212439NN	13.50
Alligator Creek	2	12440N	212440N	14.35
Alligator Creek	2	12442N	212442N	13.59
Alligator Creek	2	12442NN	212442NN	13.57
Alligator Creek	2	12445N	212445N	10.58
Alligator Creek	2	12461S	212461S	14.07
Alligator Creek	2	12482A	212482A	9.15
Alligator Creek	2	12482N	212482N	10.29
Alligator Creek	2	12483N	212483N	10.99
Alligator Creek	2	12484A	212484A	10.05
Alligator Creek	2	12484B	212484B	12.15
Alligator Creek	2	12484C	212484C	13.55
Alligator Creek	2	12484D	212484D	11.64
Alligator Creek	2	12484E	212484E	10.39
Alligator Creek	2	12484F	212484F	12.02
Alligator Creek	2	12484G	212484G	13.56
Alligator Creek	2	12484N	212484N	13.21

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12485N	212485N	11.65
Alligator Creek	2	12492N	212492N	8.82
Alligator Creek	2	12494N	212494N	10.52
Alligator Creek	2	12496N	212496N	10.83
Alligator Creek	2	12497N	212497N	12.28
Alligator Creek	2	12498N	212498N	11.78
Alligator Creek	2	12499N	212499N	12.85
Alligator Creek	2	12499NN	212499NN	12.60
Alligator Creek	2	12501N	212501N	11.82
Alligator Creek	2	12506F	212506F	10.21
Alligator Creek	2	12506NN	212506NN	9.87
Alligator Creek	2	12570NN	212570NN	11.10
Alligator Creek	2	12572NN	212572NN	10.93
Alligator Creek	2	12612N	212612N	9.74
Alligator Creek	2	12624A	212624A	14.08
Alligator Creek	2	12641A	212641A	13.10
Alligator Creek	2	12652N	212652N	11.81
Alligator Creek	2	12666A	212666A	13.91
Alligator Creek	2	12666B	212666B	13.22
Alligator Creek	2	12666C	212666C	13.14
Alligator Creek	2	12666D	212666D	13.77
Alligator Creek	2	12700NN	212700NN	10.80
Alligator Creek	2	12702F	212702F	10.31
Alligator Creek	2	12702N	212702N	11.51
Alligator Creek	2	12710F	212710F	11.75
Alligator Creek	2	12723N	212723N	13.62
Alligator Creek	2	12733N	212733N	12.78
Alligator Creek	2	12737N	212737N	9.83
Alligator Creek	2	12739N	212739N	13.78
Alligator Creek	2	12742N	212742N	14.05
Alligator Creek	2	12749N	212749N	14.70
Alligator Creek	2	12751N	212751N	12.95
Alligator Creek	2	12758N	212758N	13.80
Alligator Creek	2	12761N	212761N	14.62
Alligator Creek	2	12762N	212762N	14.63
Alligator Creek	2	12763N	212763N	14.62
Alligator Creek	2	12764N	212764N	14.62
Alligator Creek	2	12765N	212765N	14.62
Alligator Creek	2	12767NN	212767NN	13.98
Alligator Creek	2	12770NN	212770NN	13.32

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [(a)]	DFIRM NODE ID [(b)]	ELEVATION (NAVD88)
Alligator Creek	2	12772N	212772N	13.59
Alligator Creek	2	12775N	212775N	11.00
Alligator Creek	2	12782NN	212782NN	13.97
Alligator Creek	2	12800N	212800N	8.39
Alligator Creek	2	12803F	212803F	12.89
Alligator Creek	2	12803N	212803N	11.57
Alligator Creek	2	12807N	212807N	12.57
Alligator Creek	2	12808N	212808N	12.42
Alligator Creek	2	12810A	212810A	12.29
Alligator Creek	2	12823F	212823F	13.44
Alligator Creek	2	12825F	212825F	12.26
Alligator Creek	2	12828F	212828F	12.82
Alligator Creek	2	12830N	212830N	13.34
Alligator Creek	2	12831N	212831N	14.36
Alligator Creek	2	12832N	212832N	14.36
Alligator Creek	2	12833N	212833N	14.36
Alligator Creek	2	12833S	212833S	13.88
Alligator Creek	2	12835A	212835A	14.66
Alligator Creek	2	12835N	212835N	14.66
Alligator Creek	2	12837N	212837N	14.35
Alligator Creek	2	12838A	212838A	14.91
Alligator Creek	2	12838N	212838N	15.11
Alligator Creek	2	12840N	212840N	14.63
Alligator Creek	2	12842N	212842N	14.63
Alligator Creek	2	12843N	212843N	14.69
Alligator Creek	2	12844N	212844N	14.69
Alligator Creek	2	12845N	212845N	14.69
Alligator Creek	2	12852N	212852N	14.36
Alligator Creek	2	12864N	212864N	13.61
Alligator Creek	2	12890N	212890N	13.88
Alligator Creek	2	12891A	212891A	14.67
Alligator Creek	2	12891N	212891N	14.35
Alligator Creek	2	12892N	212892N	14.35
Alligator Creek	2	12901A	212901A	10.91
Alligator Creek	2	12901B	212901B	11.14
Alligator Creek	2	12901C	212901C	16.03
Alligator Creek	2	12901D	212901D	12.89
Alligator Creek	2	12905NN	212905NN	12.28
Alligator Creek	2	12906A	212906A	12.70
Alligator Creek	2	12906NN	212906NN	13.15

WATERSHED NAME	WATERSHED NUMBER	MODEL NODE ID [a]	DFIRM NODE ID [b]	ELEVATION (NAVD88)
Alligator Creek	2	12907NN	212907NN	12.84
Alligator Creek	2	12908NN	212908NN	12.98
Alligator Creek	2	12909NN	212909NN	12.31
Alligator Creek	2	12915A	212915A	12.07
Alligator Creek	2	12916NN	212916NN	12.49
Alligator Creek	2	12918NN	212918NN	13.03
Alligator Creek	2	12919NN	212919NN	13.03
Alligator Creek	2	12923N	212923N	12.78
Alligator Creek	2	13070F	213070F	12.68
Alligator Creek	2	13070N	213070N	12.34
Alligator Creek	2	13080F	213080F	12.68
Alligator Creek	2	13080G	213080G	11.06
Alligator Creek	2	13080N	213080N	13.84
Alligator Creek	2	13094F	213094F	13.22
Alligator Creek	2	13095A	(c)	11.18
Alligator Creek	2	13180A	213180A	13.53
Alligator Creek	2	13180NN	213180NN	13.58
Alligator Creek	2	RB1377	2RB1377	14.42

(a) Node identification numbers used in hydrologic and hydraulic models.

(b) Node identification numbers as illustrated on DFIRM panel.

(c) Node identification number not illustrated on DFIRM panel.