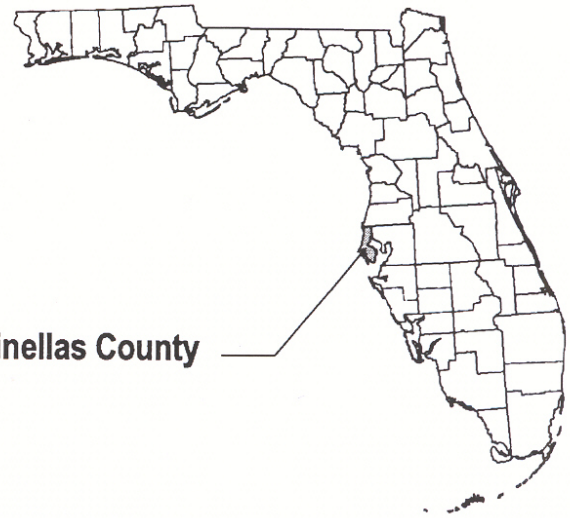
FLOOD INSURANCE STUDY

PINELLAS COUNTY, FLORIDA
AND INCORPORATED AREAS



COMMUNITY NAME	COMMUNITY NUMBER
BELLEAIR, TOWN OF	125088
BELLEAIR BEACH, CITY OF	125089
BELLEAIR BLUFFS, CITY OF	120239
BELLEAIR SHORE, TOWN OF	125090
CLEARWATER, CITY OF	125096
DUNEDIN, CITY OF	125103
GULFPORT, CITY OF	125108
INDIAN ROCKS BEACH, CITY OF	125117
INDIAN SHORES, TOWN OF	125118
KENNETH CITY, TOWN OF	120245
LARGO, CITY OF	125122
MADEIRA BEACH, CITY OF	125127
NORTH REDINGTON BEACH, TOWN OF	125133
OLDSMAR, CITY OF	120250
PINELLAS COUNTY (UNINCORPORATED AREAS)	125139
PINELLAS PARK, CITY OF	120251
REDINGTON BEACH, TOWN OF	125140
REDINGTON SHORES, TOWN OF	125141
SAFETY HARBOR, CITY OF	125143
SEMINOLE, CITY OF	120257
SOUTH PASADENA, CITY OF	125151
ST. PETE BEACH, CITY OF	125149
ST. PETERSBURG, CITY OF	125148
TARPON SPRINGS, CITY OF	120259
TREASURE ISLAND, CITY OF	125153

REVISED:
AUGUST 18, 2009

Federal Emergency Management Agency
FLOOD INSURANCE STUDY NUMBER
12103CV000C

NOTICE TO

FLOOD INSURANCE STUDY USERS

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

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

Initial Countywide FIS Effective Date: September 3, 2003

Revised Countywide FIS Date: May 17, 2005
August 18, 2009

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FLOOD INSURANCE STUDY
PINELLAS COUNTY, FLORIDA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) revises and updates a previous FIS/Flood Insurance Rate Map (FIRM) for the geographic area of Pinellas County, Florida, including: the Cities of Belleair Beach, Belleair Bluffs, Clearwater, Dunedin, Gulfport, Indian Rocks Beach, Largo, Madeira Beach, Oldsmar, Pinellas Park, Safety Harbor, Seminole, South Pasadena, St. Pete Beach, St. Petersburg, Tarpon Springs, Treasure Island; the Towns of Belleair, Belleair Shore, Indian Shores, Kenneth City, North Redington Beach, Redington Beach, Redington Shores; and the unincorporated areas of Pinellas County (hereinafter referred to collectively as Pinellas County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in their efforts to promote sound floodplain management. This information will be used by the Pinellas County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). The information will also be used by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

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.

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.

The original September 3, 2003, countywide FIS was prepared to include all jurisdictions within Pinellas County into a countywide format FIS. Information on the authority and acknowledgments for each jurisdiction included in the countywide FIS, as compiled from their previously printed FIS report narratives, is shown on the following pages.

Belleair, Town of:	the hydrologic and hydraulic analyses for the FIS report dated July 19, 1982, were prepared by Tetra Tech, Inc., for FEMA, under Contract No. H-4510. That work was completed in June 1979.

Belleair Beach, City of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for the Federal Emergency Management Agency (FEMA), under Contact No. H-4510. That work was completed in September 1979.
Belleair Bluffs, City of:	the hydrologic and hydraulic analyses for the FIS report dated July 19, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed June 1979.
Belleair Shore, Town of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed June 1979.
Clearwater, City of:	the hydrologic and hydraulic analyses for the FIS report dated August 19, 1991, for Alligator Creek Channels A, B, C, E, G, and H were performed by Gee and Jenson, Inc., for FEMA under Contract No. EMW-87-C-2459. That work was completed in September 1988. The hydrologic and hydraulic analyses for Stevenson Creek, upstream of Palmetto Street, were taken from a Summary Report for Stevenson Creek. The hydrologic and hydraulic analyses for the remaining flooding sources were completed in June 1979.
Dunedin, City of:	the hydrologic and hydraulic analyses for the FIS report dated September 1, 1983, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed June 1979.
Gulfport, City of:	the hydrologic and hydraulic analyses for the FIS report dated May 1, 1984, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed June 1979.
Indian Rocks Beach, City of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.

Indian Shores, Town of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Kenneth City, Town of:	the hydrologic and hydraulic analyses for the FIS report dated December 1, 1980, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Largo, City of:	the hydrologic and hydraulic analyses for the FIS report dated September 16, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Madeira Beach, City of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in September 1979.
North Redington Beach, Town of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Oldsmar, City of:	the hydrologic and hydraulic analyses for the FIS report dated December 1, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Pinellas County (Unincorporated Areas):	the hydrologic and hydraulic analyses for the FIS report dated December 1, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979. the hydrologic and hydraulic analyses for the FIS report dated May 6, 1996, were taken from the August 19, 1991, FIS for the City of Clearwater.

Pinellas Park, City of:	the hydrologic and hydraulic analyses for the FIS report dated February 17, 1989, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Redington Beach, Town of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Redington Shores, Town of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Safety Harbor, City of:	the hydrologic and hydraulic analyses for the FIS report dated December 1, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Seminole, City of:	the July 18, 1983, wave height analysis supplement to the FIS report was prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
South Pasadena, City of:	the hydrologic and hydraulic analyses for the FIS report dated May 1, 1984, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
St. Pete Beach, City of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
St. Petersburg, City of:	the hydrologic and hydraulic analyses for the FIS report November 2, 1994, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.

Tarpon Springs, City of:	the hydrologic and hydraulic analyses for the FIS report dated December 1, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.
Treasure Island, City of:	the hydrologic and hydraulic analyses for the FIS report dated September 2, 1982, were prepared by Tetra Tech, Inc., for FEMA under Contract No. H-4510. That work was completed in June 1979.

For the September 3, 2003, countywide FIS, the hydrologic and hydraulic analyses for Brooker Creek Tributary A, Brooker Creek Tributary B, Curlew Creek, Hollin Creek Tributary A, Hollin Creek Tributary A-2, Hollin Creek Tributary B, Jerry Branch, Joe's Creek, Joe's Creek Tributary No. 4, Joe's Creek Tributary No. 5, Miles Creek; and areas affected by Gulf of Mexico, St. Joseph Sound, Clearwater Harbor, and Boca Ciega Bay hurricane surge and waves, were prepared by Engineering Methods & Applications, Inc., for FEMA, under Contract No. EMW-94-C-4392. This work was completed in September 1996. Revised coastal analyses of wave heights and erosion were prepared by Dewberry & Davis LLC, for FEMA and completed in September 2002.

For this countywide revision, the hydrologic and hydraulic analyses for Stevenson Creek, Jeffords Street Tributary, Spring Branch, Flagler Drive Tributary, and Hammond Creek, were prepared by Parsons Engineering Science, for the City of Clearwater. This work was completed in September 2003.

Base map information shown on the September 3, 2003, FIRM and this countywide revision were provided in digital format by the Pinellas County Board of County Commissioners Information System (BCCIS). This information was compiled at a scale of 1:2,400 from tax parcel information dated November 2002. Users of this FIRM should be aware that in certain areas, roadway right-of-ways are shown rather than actual paved surfaces.

The coordinate system used for the production of the digital FIRMs is Universal Transverse Mercator referenced to the North American Datum of 1927 and the Clarke 1866 spheroid.

1.3 Coordination

An initial Consultation Coordination Officer's (CCO) meeting is held typically with representatives of the communities, FEMA, and the study contractors to explain the nature and purpose of the FIS and to identify the streams to be studied by detailed methods. A final CCO meeting is held typically with representatives of the communities, FEMA, and the study contractors to review the results of the study.

The dates of the initial and final CCO meetings held for Pinellas County and the incorporated communities within its boundaries are shown in Table 1, "Initial and Final CCO Dates."

TABLE 1 - INITIAL AND FINAL CCO DATES

Community Name	Initial CCO Date	Final CCO Date
Belleair, Town of	August 23, 1979	September 30, 1981
Belleair Beach, City of	August 23, 1979	September 30, 1981
Belleair Bluffs, City of	August 23, 1979	September 30, 1981
Belleair Shore, Town of	August 23, 1979	September 30, 1981
Clearwater, City of	November 24, 1986	September 24, 1990
Dunedin, City of	August 23, 1979	September 28, 1981
Gulfport, City of	August 23, 1979	October 1, 1981
Indian Rocks Beach, City of	August 23, 1979	October 1, 1981
Indian Shores, Town of	August 23, 1979	September 29, 1981
Kenneth City, Town of	August 23, 1979	July 23, 1980
Largo, City of	August 23, 1979	October 1, 1981
Madeira Beach, City of	August 23, 1979	September 30, 1981
North Redington Beach, Town of	August 23, 1979	September 29, 1981
Oldsmar, City of	August 23, 1979	September 29, 1981
Pinellas County (Unincorporated Areas)	*	*
Pinellas Park, City of	August 23, 1979	July 22, 1980
Redington Beach, Town of	August 23, 1979	September 29, 1981
Redington Shores, Town of	August 23, 1979	September 29, 1981
Safety Harbor, City of	August 23, 1979	September 29, 1981
Seminole, City of	**	**
South Pasadena, City of	August 23, 1979	October 1, 1981
St. Pete Beach, City of	August 23, 1979	October 1, 1981
St. Petersburg, City of	August 22, 1979	September 30, 1981
Tarpon Springs, City of	August 23, 1979	September 28, 1981
Treasure Island, City of	August 23, 1979	September 30, 1981

*Community notified by letter – no initial or final CCO meeting
**Data not available

For the September 3, 2003, countywide FIS, an initial CCO meeting was held on August 3, 1993, and a final CCO meeting was held on December 7, 1997. Both of these meetings were attended by representatives of the county; the incorporated communities with the county; DeGrove Surveyors, Inc.; Engineering Methods & Applications, Inc.; Dewberry & Davis LLC; Camp Dresser & McKee, Inc.; Tampa Bay Engineering; and FEMA. In addition, a public meeting was held on September 23, 2002, by Pinellas County. Representatives from FEMA, Dewberry & Davis LLC, and the community attended the meeting.

For this countywide revision, Pinellas County was notified by FEMA in a letter dated November 20, 2002, that its FIS would be revised using the analyses prepared by Parsons Engineering Science, Inc.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of the Pinellas County, Florida

For the September 3, 2003, countywide FIS, all or portions of the flooding sources listed in Table 2, "Flooding Sources Studied by Detailed Methods," were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

TABLE 2 - FLOODING SOURCES STUDIED BY DETAILED METHODS

Alligator Creek Channel A	Curlew Creek	Old Tampa Bay
Alligator Creek Channel B	Gulf of Mexico	Pinellas Park Ditch 1
Alligator Creek Channel C	Hollin Creek Tributary A	Pinellas Park Ditch 1A
Alligator Creek Channel E	Hollin Creek Tributary A-2	Pinellas Park Ditch 2
Alligator Creek Channel G	Hollin Creek Tributary B	Pinellas Park Ditch 2A
Alligator Creek Channel H	Jerry Branch	Pinellas Park Ditch 3
Alligator Lake	Joe's Creek	Pinellas Park Ditch 4
Anclote River	Joe's Creek Tributary No. 4	Pinellas Park Ditch 5
Boca Ciega Bay	Joe's Creek Tributary No. 5	St. Joseph Sound
Brooker Creek Tributary A	Lake Tarpon	Stevenson Creek
Brooker Creek Tributary B	Miles Creek	Tampa Bay
Clearwater Harbor		

The September 3, 2003, countywide FIS reflects the name change affecting the Town of Kenneth City and the City of St. Petersburg for a portion of Joe's Creek from a point approximately 400 feet downstream of U.S. Highway 19A to a point approximately 1,400 feet upstream of 58th Street North, to Miles Creek.

As part of the September 3, 2003, countywide FIS, updated analyses are included for the flooding sources shown in Table 3, "Scope of Revision for the September 3, 2003, Countywide FIS)."

TABLE 3 – SCOPE OF REVISION FOR THE SEPTEMBER 3, 2003, COUNTYWIDE FIS

Stream	Limits of Revised or New Detailed Study
Boca Ciega Bay	Backwater from Conch Key to Indian Key
Brooker Creek Tributary A	From Lake Tarpon to a point approximately 2,200 feet upstream of Ridgemoor Boulevard
Brooker Creek Tributary B	From confluence with Brooker Creek Tributary A to Eastlake Woodlands Parkway

TABLE 3 – SCOPE OF REVISION FOR THE SEPTEMBER 3, 2003, COUNTYWIDE FIS - continued

Stream	Limits of Revised or New Detailed Study
Clearwater Harbor	Backwater from Ward Island to Thompson Light
Curlew Creek	From the Intracoastal Waterway to a point approximately 1,700 feet upstream of County Road 1
Gulf of Mexico	Open coast from Rabbit Key to Mullet Key
Hollin Creek Tributary A	From Salt Lake to a point approximately 1,125 feet upstream of Crescent Oaks Boulevard
Hollin Creek Tributary A-2	From its confluence with Hollin Creek Tributary A to a dirt road approximately 3,600 feet upstream of the confluence with Hollin Creek Tributary A
Hollin Creek Tributary B	From golf cart path to Trinity Boulevard
Jerry Branch	From Oak Creek Drive to weir at north end of Indigo Drive
Joe's Creek	From a point approximately 1,250 feet upstream of CSX Transportation to 28th Street North
Joe's Creek Tributary No. 4	From a point approximately 1,000 feet upstream of the confluence with Joe's Creek to 28th Street North
Joe's Creek Tributary No. 5	From a point approximately 700 feet downstream of 54th Avenue North to a point approximately 1750 feet downstream of 53rd Avenue North
Miles Creek	From confluence with St. Joe's Creek to a point approximately 100 feet upstream of 22nd Avenue North and 58th Street North
St. Joseph Sound	From Rabbit Key to Ward Island

The September 3, 2003, countywide FIS incorporates the effects of annexations or deannexations by the following communities: Clearwater, Gulfport, Indian Shores, Oldsmar, Pinellas Park, Seminole, Tarpon Springs, and Treasure Island.

The September 3, 2003, countywide FIS also incorporates a previously issued Letter of Map Revision (LOMR) effective on November 14, 1996. The LOMR is an improved delineation of flood hazard boundaries in the vicinity of Spring Lake within the City of Clearwater.

For this countywide revision, updated analyses are included for Stevenson Creek, from Clearwater Harbor to a point approximately 400 feet upstream of Southridge Drive; Jeffords Street Tributary, from its confluence with Stevenson Creek to Lake Aline; Spring Branch, from its confluence with Stevenson Creek to a point approximately 250 feet southeast of the intersection of Powderhorn Drive and Huntington Lane; Flagler Drive Tributary, from its confluence with Stevenson Creek to Arcturus Avenue; and Hammond Creek, from its confluence with Stevenson Creek to a point approximately 200 feet upstream of Highland Avenue. Also, numerous ponding areas are added and now shown as detailed or approximate flood zones within the City of Clearwater, the unincorporated areas of Pinellas County, and the City of Largo.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

All or portions of numerous non-coastal flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Pinellas County.

2.2 Community Description

Pinellas County occupies an area of approximately 280 square miles in west-central Florida, of which approximately 140 square miles are unincorporated. It is bounded by Pasco County on the north, by Hillsborough County and Tampa Bay on the east, and the Gulf of Mexico on the south and west. The City of Clearwater, the county seat, is located approximately 265 miles northwest of Miami, approximately 205 miles southwest of Jacksonville, and approximately 235 miles southeast of Tallahassee.

According to the U.S. Census Bureau, the population of Pinellas County totaled 921,482 in 2000.

The Florida Department of Commerce reports that in 1977, more than 54 percent of all employment in Pinellas County was concentrated in the trade and service occupations (Pinellas Suncoast Chamber of Commerce, 1978). The major industries in the county include light manufacturing (such as electronic components, sailing crafts, and medical products and supplies), construction,

warehousing, and commercial fishing. Commercial forestry also contributes to the economy of the county.

Pinellas County has a subtropical climate 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 4-month period, the study area receives nearly two-thirds of its annual precipitation. The City of Clearwater has an annual average precipitation of approximately 53 inches and an annual average temperature of 72 degrees Fahrenheit (U.S. Department of Commerce, August 1973).

The subtropical climate promotes growth of many varieties of vegetation. Pinellas Ridge, in the northwestern part of the county, supports turkey oak, pine, and grasses, as well as groves of planted citrus. Saw palmetto and pine flatwoods are in central and northwestern Pinellas County. Cypress and water-tolerant hardwood trees, shrubs, and grasses grow in the swampy areas that dot many parts of the county. The low, broad coastal areas that are covered at high tide support tidal marsh and swamp vegetation such as mangrove trees and salt-tolerant grasses, rushes, sedges, and weeds. Except for sparse salt-tolerant grasses, coastal beaches are nearly devoid of vegetation.

The soils in the unincorporated areas of Pinellas County are poorly drained to moderately well-drained sandy soils with layers weakly cemented with organic matter. The land is modified by urban development. Over 50 percent of its area is urban structures that cause low infiltration rates and high runoff potential.

Most of Pinellas County occupies a peninsula that ranges in width from 4 to 15 miles. The county extends approximately 39 miles along the Gulf coast from the main entrance to Tampa Bay northward to the vicinity of the mouth of Anclote River. The coastline is broken by a chain of low islands that forms a barrier to the mainland and is connected to it by numerous causeways. The Gulf shore has approximately 35 miles of sandy beaches. Inland areas are pocked with sinkholes, many of which are filled with water. The elevation in the study area ranges from sea level along the coast and in the floodplains, where it ascends to coastal bluffs along Clearwater Harbor, to approximately 97 feet in the northwestern part of the county.

The major stream within the county is the Anclote River in the extreme northwest. A number of small creeks in the coastal portions of the county (Church, Stevenson, Joe's, and McKay Creeks on the Gulf side, and Alligator Creek Channel A and Allen, Mullet, Bishop, Long Branch, Roosevelt, and Bear Creeks on the Tampa Bay side) drain land several miles inland. Tidewaters can extend several miles into these coastal streams. An extensive network of canals and ditches has been constructed in the county. The Lake Tarpon Outfall Canal in the north-central region runs southward and empties into Safety Harbor. The Cross Bayou Canal runs southwestward in the central portion of the peninsula from Old Tampa Bay and empties into Boca Ciega Bay.

2.3 Principal Flood Problems

Flooding in Pinellas County results primarily from two major sources: heavy rainfall, which can affect the many areas in the county that have a high water table and are subject to ponding, and tidal surge caused by tropical storms and hurricanes. Not all storms that pass close to the study area produce extremely high tides. Similarly, storms that produce extreme conditions in one area may not necessarily produce critical conditions in other parts of the study area. However, with the condition of high winds directed onshore, the tides produced can inundate the low coastal islands and flood the coastal areas behind them for some distance inland. Wave action, which accompanies wind-generated tides, can cause floods, erosion, and structural damage, particularly on the offshore islands. The Anclote River is a broad estuary and, under certain conditions, tides generated at its mouth in the Gulf of Mexico can intrude far upstream. Rainfall, which usually accompanies hurricanes, can aggravate the tidal flood situation.

Storms passing Florida in the vicinity of Pinellas County have produced severe floods as well as structural damage. Brief descriptions of several significant tropical storms, which follow, provide historic information to which coastal and riverine flood hazards and the projected flood depths can be compared (U.S. Department of Commerce, April 1975; University of Florida, 1976; U.S. Army Corps of Engineers, 1961; U.S. Army Corps of Engineers, July 1956; Anderson, 1972; Pinellas County Engineering Department, 1973; U.S. Army Corps of Engineers, 1974).

October 21-31, 1921

This storm originated in the western Caribbean Sea and entered Florida north of Tarpon Springs. Flooding conditions were prolonged because of the slow forward movement of the storm. Minimum barometric pressure at Dunedin was 28.34 inches; wind speed at Tarpon Springs was estimated at 70 to 90 knots. The coast from Tarpon Springs south to Fort Myers experienced tides of 7 to 10 feet above sea level. The Keys from Anna Maria to Clearwater Beach were severely damaged. Haven Beach and Indian Rocks Beach sustained damage; the seawall at Haven Beach was washed away; many cottages at Clearwater Beach were damaged, and 500 feet of bridge was destroyed. Clearwater sustained damage to houses, piers, and boats. Tides at St. Petersburg, reached an elevation of 6.7 feet above sea level. The north end of Old Tampa Bay was badly damaged by a bore described as being 7 to 10 feet high.

August 31 – September 8, 1935

This storm, called the "Labor Day Hurricane," was one of the most severe tropical disturbances ever recorded. The storm was first located east of Turks Island, traveled toward the Florida Straits, recurved across the Florida Keys, and then passed up the west coast of Florida on a broad recurve that brought it inland near Cedar Key. Along the beach areas from Sarasota northward to Clearwater Beach, nine homes were undermined and badly damaged. Mass evacuation of those areas was accomplished before the storm.

September 1-7, 1950

The hurricane originated over the western Caribbean Sea, passed northwest over Cuba and the Gulf of Mexico, and then moved north-northwestward parallel to the Florida coastline. It made two loops near Cedar Key, moved inland southeastward, passed approximately 30 miles north of Tampa, recurved, and traveled northward. Pinellas County beach areas sustained heavy damage, principally from the long duration of high tides and waves that caused considerable erosion and recession of the shoreline. Serious flooding from the tides, estimated as reaching elevations between 6 and 8 feet above sea level, resulted in damage to homes along the beachfront. This small but severe storm was also accompanied by intense rainfall. A total of 12.7 inches of rain in 2 days was reported in Clearwater.

March and September, 1960

During March 15 through 18, thunderstorms and heavy rainfall averaging more than 10 inches over a 10,000-square-mile area occurred in central Florida, including the Lake Tarpon basin. The most intense rains occurred in the area between Tampa and Brooksville, where unofficial reports indicate that over 27 inches of rain fell during the 4-day period. Lake Tarpon reached a stage of 6.22 feet above sea level, causing damage to lakefront residences in the area. Lake stages gradually receded and remained near normal until the last week in July, when heavy rains began again and continued sporadically through September. The water level in Lake Tarpon peaked at an elevation of 7.08 feet above sea level on August 2, and caused extreme damage to lakefront property.

Two major storms in September, Hurricane Donna and tropical disturbance Florence, prolonged flooding in the basin. The most intense rainfall was associated with Hurricane Donna, which passed over central Florida on September 10 and 11. Lake Tarpon rose to an elevation of 6 feet, 8 inches above sea level. Damage in the Lake Tarpon basin was heavy, especially to the property around the lake. Roads, bridges, and utilities also sustained heavy damage. In the coastal areas of Pinellas County, tides were 1 to 3 feet above normal and tidal damage was relatively minor.

June 4-14, 1966

Hurricane Alma originated in the Gulf of Honduras, passed between the Dry Tortugas and Key West, and landed in the Apalachee Bay area, causing variable tides that were up to 10 feet above normal on the west coast of Florida. Besides structural damage in western Florida, the mango crop in southwestern Florida and the grapefruit crop in Pinellas County were severely damaged.

June 19, 1972

Hurricane Agnes originated on the northeastern tip of the Yucatan Peninsula and traveled eastward. The storm was of large diameter and, although the center of this storm passed approximately 150 miles west of the Florida Peninsula, it produced a high, damaging tidal surge. In Pinellas County, tides averaged 3 to 6

feet above normal in the coastal areas. Beaches and causeways were seriously flooded. Damage in Pinellas County from this storm was estimated at $12.5 million.

August 31 – September 2, 1985

Hurricane Elena formed in Caribbean waters and traveled westward over central Cuba. The storm moved toward the north-central Gulf until August 30 when a frontal trough moving in from the west caused Elena to shift northeast. The storm's eye moved within fifty-five miles of Cedar Key before stalling and subsequently moving northwest back across the Gulf. Most of the damage done to the Florida Gulf coast by Elena was a result of the 7-9 foot storm tide and wave activity. Helicopter surveys reported between twelve and fifteen homes destroyed along Florida's western coast and many more damaged by tides and winds.

2.4 Flood Protection Measures

Flood protection measures include strict development regulations enforced by the communities and by the Southwest Florida Water Management District.

The Lake Tarpon Outfall Canal, built in 1969, provides an outlet for the lake and is designed to reduce the freshwater flooding of Lake Tarpon. Water levels in the lake are controlled by a gated spillway. This structure completely protects Lake Tarpon from storm surges associated with a 1- to 15-year event. It provides partial protection for storm surges associated with events up to the 500-year frequency.

Nonstructural measures of flood protection are used to aid in preventing future flood damage, such as land-use regulations, conservation of mangrove and dunes, and construction of seawalls (U.S. Department of Housing and Urban Development, 1976).

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this FIS. Flood events of a magnitude which 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 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 which equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, 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 county at the time of completion of

this FIS. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Riverine Hydrologic Analysis

Hydrologic analyses were carried out to establish the peak discharge-frequency and peak elevation-frequency relationships for each flooding source studied in detail affecting the county.

Precountywide Analyses

Each community within Pinellas County had a previously printed FIS report describing each community's hydrologic analyses. Those analyses not revised in the countywide FIS have been compiled from the FIS reports and are summarized below.

The Anclote River was studied using procedures described in the U.S. Water Resources Council Guidelines Bulletin 17A (Water Resources Council, 1977).

Peak discharges for floods of selected frequencies on Alligator Creek Channel A upstream of the Alligator Lake gaging stations were developed using a calibrated rainfall/runoff model (Clark, 1945). Data used in the calibration included local hourly precipitation data, local detailed soil characteristics, and land use characteristics incorporated as recommended in the National Engineering Handbook and Technical Release No. 55 (U.S. Department of Commerce, Deck 488; U.S. Department of Agriculture, 1972; Pinellas County Planning Department, May 1978; Pinellas County Planning Department, January 1976; U.S. Department of Agriculture, August 1972; U.S. Department of Agriculture, January 1975). Comparisons were then made with data from U.S. Geological Survey (USGS) gage on Alligator Lake at Safety Harbor (23 years of record). The frequencies of floods were assumed to the same as those of the storms with rainfall depths consistent with U.S. Weather Bureau Technical Paper No. 49 (U.S. Department of Commerce, 1964).

Peak discharge-frequency relationships for Alligator Creek Channels B, C, E, G, and H were developed using a set of regression equations (U.S. Department of Interior, 1979). Log-Pearson Type III analysis was used to compute peak discharges at the USGS gaging station at Alligator Lake (U.S. Department of Interior, March 1982). These computed peak discharges were used in the adjustment of computational results using regression equations for ungaged sites. Topographic and contour maps were used in delineating drainage boundaries and in computations of hydrologic parameters used in regression equations such as slopes and lake areas of the basins.

A stream flow gaging station was maintained and monitored by the USGS at Alligator Lake, on Alligator Creek Channel A. Data were collected from 1950 to 1981, when it was discontinued. Estimated annual peak discharges from mean daily discharges before September 1974 and mean daily stages after that date were used for log-Pearson III Type analyses, as outlined in Bulletin 17B (U.S. Department of Interior, March 1982). Peak discharges for 1960 were unknown

because of loss of the weir structure, but were taken to equal the 1979 peak discharge, the worst flood of record. The computed peak discharges were used in the adjustment of computational results using regressional equations for the ungaged sites as outlined in the USGS Water Resources Investigations 79-1293 (U.S. Department of Interior, 1979).

Peak discharge-frequency relationships for Stevenson Creek were developed using the SCS TR-20 computer program (U.S. Department of Agriculture, 1983). In the City of Pinellas Park, drainage consists of two major systems which were constructed and are maintained by the city. The system that drains west to Cross Bayou Canal consists of three ditches (Ditches 1, 4, and 5) and their tributaries. Two more ditches (Ditches 2 and 3) and their tributaries drain the storm water east to Sawgrass Lake and then to Tampa Bay. Because of the relative flatness of the terrain, lower areas of the city adjacent to drainage ditches are subject to shallow flooding.

The determination of peak discharges for the floods of the selected recurrence intervals for all ditches was adopted from the 1977 FIS prepared by the USGS (U.S. Department of Housing and Urban Development, August 1977). In that study, station-frequency curves under natural conditions were developed for 9 streams (within the immediate area of Pinellas Park), with periods of station records available for 20 to 34 years, using observed peak discharges and the log-Pearson Type III method (U.S. Water Resources Council, December 1967). The station-frequency curves were extrapolated to include the 500-year flood.

Regional flood-frequency curves under natural conditions were developed for the 10-, 50-, 100-, and 500-year floods by plotting recurrence interval flood-peak discharges (obtained from the station frequency curves), versus drainage area. These curves were interpolated to include areas as small as 0.5 square mile.

Regional flood-frequency curves under urban conditions were developed from the natural curves by the application of urban adjustment factors (American Geophysical Union, 1965; U.S. Department of the Interior, 1974). These factors account for the increase in peak discharges due to paving of urbanized areas. Urban adjustment factors used for Pinellas Park are listed below.

Percent Impervious Area	Recurrence Interval (Years)			
	10	50	100	500
25	1.9	1.7	1.6	1.4

Adjustment factors are not available for flood-peak discharges having recurrence intervals greater than 100 years. Therefore, the adjustment factor shown for the 500-year recurrence interval was estimated from an extrapolation of a log-normal probability plot of data shown for the 10-, 50-, and 100-year recurrence intervals.

September 3, 2003, Countywide Analyses

Information on the methods used to determine peak discharge-frequency relationships for Brooker Creek Tributary A, Brooker Creek Tributary B, Curlew Creek, Hollin Creek Tributary A, Hollin Creek Tributary A-2, Hollin Creek Tributary B, Jerry Branch, Joe's Creek, Joe's Creek Tributary No. 4, Joe's Creek Tributary No. 5, and Miles Creek, which were restudied as part of the countywide FIS, is shown below.

Hydrology for this restudy was determined using the HEC-1 computer program (U.S. Army Corps of Engineers, 1984). Rainfall values were determined from data provided by the Southwest Florida Water Management District and the National Weather Service (U.S. Department of Commerce, Daily Precipitation Data; Southwest Florida Water Management District, 24-Hour Rainfall). A four-day storm was chosen based on historical patterns.

Times of concentration were determined using either the SCS velocity method or the SCS lag equation (U.S. Department of Agriculture, August 1972). Rainfall infiltration calculations were based on SCS curve number methods. Curve numbers were calculated based on SCS Pinellas County soil maps, land use as determined from 1993 Florida Department of Transportation aerials, and site visits (U.S. Department of Agriculture, 1972; Florida Department of Transportation, December 1993).

Snyder Unit hydrographs were used to determine basin runoff. Calibration was performed to determine peak rate factors for Brooker Creek Tributary A, Brooker Creek Tributary B, Joe's Creek, Joe's Creek Tributary No. 4, and Joe's Creek Tributary No. 5 (U.S. Geological Survey, WATSTORE).

This Revision

The advanced Interconnected Channel and Pond Routing Model (adICPR), Version 2.2, was used for the hydrologic analysis of Stevenson Creek, Jeffords Street Tributary, Spring Branch, Flagler Drive Tributary, and Hammond Creek.

A summary of the drainage area-peak discharge relationships for all of the streams studied by detailed methods is shown in Table 4, "Summary of Discharges."

TABLE 4 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
ALLIGATOR CREEK CHANNEL A					
At McMullen Booth Road	7.40	680	1,340	1,710	2,820
At U.S. Route 19					
At Old Coachman Road	3.59	500	960	1,380	2,300
At CSX Transportation	3.27	460	910	1,160	1,950

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
ALLIGATOR CREEK CHANNEL A (continued)					
At Belcher Road	1.43	260	510	680	1,150
At Sunshine Drive	0.59	150	290	420	680
At Sunset Point Road	0.13	90	180	270	400
ALLIGATOR CREEK CHANNEL B					
At mouth	1.72	290	570	760	1,300
Approximately 1,600 feet downstream of State Road 590	1.54	280	530	700	1,220
At Evans Drive	1.23	230	450	620	1,050
At Main Street	1.01	210	400	540	920
Approximately 1,300 feet upstream of Main Street at 4th Avenue South	0.62	160	310	430	720
ALLIGATOR CREEK CHANNEL C					
At mouth	0.60	170	290	420	690
At Sunset Point Road	0.33	120	230	340	530
Approximately 1,300 feet upstream of Sunset Point Road	0.27	110	210	320	490
ALLIGATOR CREEK CHANNEL E					
At mouth	0.82	180	360	490	820
At State Road 590	0.70	170	320	450	750
At McMullen Booth Road	0.34	120	230	340	530
ALLIGATOR CREEK CHANNEL G					
At mouth	0.49	140	270	380	630
At Drew Street	0.13	90	180	280	400
ALLIGATOR CREEK CHANNEL H					
At mouth	0.55	150	290	410	670
At Drew Street	0.17	90	180	280	430
ANCLOTE RIVER					
At U.S. Route 19	107.0	3,480	6,320	7,770	11,800

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
BROOKER CREEK TRIBUTARY A					
At confluence with Lake Tarpon	33.1	1,921	2,678	3,471	4,967
At Tarpon Woods Boulevard	28.3	1,432	2,056	2,689	3,915
At Ridgemoor Boulevard	27.5	1,413	2,040	2,653	3,864
BROOKER CREEK TRIBUTARY B					
At Woodlands Boulevard	4.0	561	869	1,053	1,455
At golf course road	0.8	162	209	305	530
CURLEW CREEK					
At mouth	10.6	4,343	6,694	7,592	9,848
Approximately 1,100 feet downstream of County Road 1	9.8	4,252	6,539	7,379	9,548
FLAGLER DRIVE TRIBUTARY					
Just downstream of Palmetto Street	0.88	215	376	455	594
HAMMOND CREEK					
At the confluence with Stevenson Creek	0.43	632	1,229	1,546	2,113
HOLLIN CREEK TRIBUTARY A					
Approximately 280 feet downstream of Old East Lake Drive	6.6	921	1,497	1,735	2,485
Approximately 800 feet upstream of confluence with Hollin Creek Tributary B	4.0	590	948	1,084	1,589
At East Lake Road	3.5	427	794	1,002	1,499
HOLLIN CREEK TRIBUTARY A-2					
Approximately 750 feet upstream of confluence with Hollin Creek Tributary A	0.4	132	210	237	301

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
HOLLIN CREEK TRIBUTARY B					
Approximately 400 feet upstream of confluence with Hollin Creek Tributary A	3.1	382	636	736	962
At East Lake Road	2.4	359	591	688	895
At Trinity Boulevard	2.1	308	507	589	768
Just north of Kimberly Lake	1.5	192	313	361	547
At Trinity Boulevard	1.2	107	262	325	509
JEFFORDS STREET TRIBUTARY					
At Highland Avenue	0.9	294	512	620	891
JERRY BRANCH					
At Oak Creek Drive	3.9	1,373	2,408	2,862	3,888
At Laurelwood Lane	3.5	1,108	2,202	2,611	3,528
At Main Street	2.5	676	1,176	1,655	2,275
Weir at north end of Indigo Drive	2.3	605	1,230	1,480	2,035
JOE'S CREEK					
At mouth	15.1	5,775	8,251	8,985	10,622
Upstream of Joe's Creek Tributary No. 4 near 52nd Avenue North	10.4	3,538	5,390	5,883	6,815
At 66th Street North	4.4	1,842	2,517	2,685	3,151
At 62nd Street North	4.2	1,689	2,315	2,475	2,905
At 58th Street North	3.2	1,112	1,655	1,859	2,250
At 46th Avenue North and 46th Street North	2.6	758	1,035	1,156	1,440
At CSX Transportation bridge near 40th Street North	1.7	291	391	543	917
At U.S. Route 19 (34th Street North)	1.3	697	1,035	1,156	1,440
At 28th Street North	0.8	360	561	608	764
JOE'S CREEK TRIBUTARY NO. 4					
At mouth	2.9	1,457	1,925	2,082	2,447
At footbridge near Applecross Street	2.0	924	1,165	1,272	1,476
Approximately 1,640 feet upstream of 62nd Avenue North	0.9	417	558	584	716
At 58th Street North	0.5	176	312	337	465

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
JOE'S CREEK TRIBUTARY NO. 5					
At mouth	1.0	682	994	1,103	1,347
At Park Boulevard	0.5	338	460	505	600
At 66th Street North	0.2	206	263	280	308
Approximately 430 feet downstream of 63rd Street North	0.1	85	86	90	160
MILES CREEK					
At mouth	5.3	1,823	2,801	3,048	3,445
At 62nd Street North	4.8	1,638	2,528	2,746	3,071
At 58th Street North	3.9	643	1,139	1,314	1,703
At 22nd Avenue North and 58th Street North	3.0	317	357	395	428
SPRING BRANCH					
Just downstream of Overbrook Road	2.19	674	827	884	1,010
Just downstream of King's Highway	1.73	641	973	1,105	1,325
STEVENSON CREEK					
At Douglas Avenue	6.35	3,071	4,150	4,716	5,841
At CSX Transportation	4.52	2,125	2,908	3,260	3,986
At Court Street	3.81	1,647	2,289	2,602	3,266
At Belleair Road	0.52	235	374	460	612
PINELLAS PARK DITCH 1					
At mouth	3.2	340	440	480	550
PINELLAS PARK DITCH 2					
At mouth	2.0	200	260	280	320
PINELLAS PARK DITCH 3					
At mouth	1.6	160	205	220	255
PINELLAS PARK DITCH 4					
At mouth	2.3	220	285	310	355
PINELLAS PARK DITCH 5					
At mouth	0.6	61	78	83	96

A summary of stillwater elevations are shown in Table 4 A, "Summary of Stillwater Elevations."

TABLE 4 A - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE	ELEVATION (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
Crest Lake	67.85	68.83	69.03	69.76
Highland Lake	46.23	46.58	46.61	46.81
Lake Rhonda	34.08	34.95	35.21	36.22
Hobart Lake	64.89	66.04	66.54	67.32
Lake Lucille	59.49	59.98	60.21	60.59
Clear View Lake	55.31	59.07	56.48	57.28
St. Andrews Lake	66.36	67.50	68.06	68.93
Lake Bellevue Area No. 1	33.4	38.49	38.91	39.57
Lake Bellevue Area No. 2	37.7	39.27	39.85	40.71
Lake Bellevue Area No. 3	39.54	40.22	40.5	41.01
Lake Bellevue Area No. 4	41.46	42.11	42.36	42.79
Lake Bellevue Area No. 5	41.48	42.26	42.6	43.2
Lake Bellevue Area No. 6	42.10	43.25	43.71	44.44
Lake Bellevue Area No. 7	42.72	44.26	44.82	45.68
Lake Bellevue Area No. 8	43.34	45.25	45.93	46.92
Lake Bellevue Area No. 9	43.97	46.25	47.04	48.14
Lake Bellevue Area No. 10	48.45	49.41	49.68	50.36
Lake Bellevue Area No. 11	49.66	50.68	51.39	52.44
Lake Bellevue Area No. 12	51.7	52.45	52.79	53.35
Lake Bellevue Area No. 13	52.25	53.45	53.84	54.48
Lake Bellevue Area No. 14	53.39	54.45	54.89	55.62

TABLE 4 A - SUMMARY OF STILLWATER ELEVATIONS - continued

FLOODING SOURCE	ELEVATION (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
Lake Bellevue Area No. 15	54.24	55.46	55.94	56.77
Lake Bellevue Area No. 16	55.95	56.8	57.12	57.65
Ponding Area No. 1	19.92	20.75	21.00	21.39
Ponding Area No. 2	60.91	61.21	61.33	61.53
Ponding Area No. 3	44.11	45.01	45.47	46.28
Ponding Area No. 4	40.09	41.26	42.63	41.78
Ponding Area No. 5	40.52	41.78	42.29	43.13
Ponding Area No. 6	44.9	46.3	46.72	47.54
Ponding Area No. 7	58.99	60.23	60.81	61.8
Ponding Area No. 8	34.7	35.46	35.78	36.26
Ponding Area No. 9	17.8	20.18	20.45	20.29
Ponding Area No. 10	65.66	66.19	66.25	66.36
Ponding Area No. 11	63.79	63.94	64.00	64.12
Ponding Area No. 12	20.54	20.95	21.09	21.29
Ponding Area No. 13	12.65	15.59	15.90	16.39
Ponding Area No. 14	22.32	23.32	23.70	24.17
Ponding Area No. 15	61.10	61.66	61.90	62.32
Ponding Area No. 16	66.29	67.17	67.74	68.45
Ponding Area No. 17	68.76	68.90	68.95	96.02
Ponding Area No. 18	43.51	44.6	44.99	45.69

3.2 Riverine Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the riverine 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. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

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 was computed (Section 4.2) selected cross-section locations are also shown of the FIRM (Exhibit 2).

Flood profiles were drawn showing computed water-surface elevations for floods on the selected recurrence intervals.

The riverine hydraulic analyses for this FIS 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 are referenced to the North American Vertical Datum of 1988 (NAVD 88). Elevation reference marks (ERMs) used in this FIS, and their descriptions, are shown on the maps. ERMs shown on the FIRM represent those used during the preparation of this and previous FISs. The elevations associated with each ERM were obtained and/or developed during FIS production to establish vertical control for determination of flood elevations and floodplain boundaries shown on the FIRM. Users should be aware that these ERM elevations may have changed since the publication of this FIS. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Precountywide Analyses

Each community within Pinellas County had a previously printed FIS report describing each community's hydraulic analyses. Those analyses not revised in this countywide FIS have been compiled from the FIS reports and are summarized below.

Cross sections for Alligator Creek Channels A, B, C, E, G, and H, and Stevenson Creek were obtained from the county and the USACE. Aerial photographs were used to extend some of the cross sections. Cross sections for all other flooding sources studied by detailed methods, including the Anclote River and all ditches within the City of Pinellas Park, were obtained from field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (U.S. Army Corps of Engineers, 1991), except where otherwise noted. Lake Tarpon

elevations were taken from the 1974 FIS for Lake Tarpon, prepared by the USACE (U.S. Army Corps of Engineers, 1974). Elevations for Alligator Lake were determined by using a standard reservoir routing model using records and photography provided by the Southwest Florida Water Management District (U.S. Army Corps of Engineers, 1984; Southwest Florida Water Management District, March 1977). Water-surface elevations for Stevenson Creek, upstream of Palmetto Street, were developed using the SCS WSP-2 computer program (U.S. Department of Agriculture, May 1976).

Water-surface elevations of the ditches in Pinellas Park were computed using the E-431 step-backwater computer program (U.S. Department of the Interior, 1975). Flooding caused by backwater from the ditches is usually less than one-foot deep. In some areas, adjacent to the ditches, backwater may pond within low-lying depression areas. Flood profiles are not applicable for shallow flooding areas and are, therefore, not shown.

Known starting water-surface elevations were used for Alligator Creek Channels A and E and Stevenson Creek. Alligator Creek Channels B, C, G, and H used the slope/area method. Surge levels in the Anclote River were computed with the aid of a one-dimensional unsteady flow model. The values for the mouth were taken from the results of the coastal model.

Roughness factors (Manning's "n" values) were chosen by engineering judgment, aerial photographs of the overbank, and based on field observations of the stream and floodplain areas and from actual floods. The channel and overbank "n" values for the streams studied by detailed methods are shown in Table 5, "Manning's "n" Values" in the Countywide Analyses section.

Approximate water-surface elevations for Bishop and Mullet Creek were determined using engineering judgment and topographic maps.

September 3, 2003, Countywide Analyses

Information on the methods used to determine water-surface elevation data for the restudied areas as part of this countywide FIS is shown below.

Cross sections for Brooker Creek Tributary A, Brooker Creek Tributary B, Curlew Creek, Hollin Creek Tributary A, Hollin Creek Tributary A-2, Hollin Creek Tributary B, Jerry Branch, Joe's Creek, Joe's Creek Tributary No. 4, Joe's Creek Tributary No. 5, and Miles Creek were obtained from new surveys by DeGrove Surveyors, Inc., Pinellas County, and Pinellas Park Water Management District. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (U.S. Army Corps of Engineers, May 1991). Starting water-surface elevations were taken to be normal depth or mean high tide, whichever was the greater.

This Revision

The adICPR model, Version 2.2, was used for the hydraulic analysis of Stevenson Creek, Jeffords Street Tributary, Spring Branch, Flagler Drive Tributary, and Hammond Creek.

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by field observations, engineering judgment, and aerial photographs of the overbank. The channel and overbank "n" values for the streams studied by detailed methods are shown in Table 5, "Manning's "n" Values."

TABLE 5 - MANNING'S "n" VALUES

Stream	Channel "n"	Overbank "n"
Alligator Creek Channel A	0.035-0.060	0.050-0.180
Alligator Creek Channel B	0.035-0.080	0.060-0.150
Alligator Creek Channel C	0.035-0.050	0.060-0.100
Alligator Creek Channel E	0.030-0.080	0.070-0.150
Alligator Creek Channel G	0.045-0.055	0.150
Alligator Creek Channel H	0.012-0.060	0.060-0.150
Anclote River	0.050-0.130	0.170-0.500
Brooker Creek Tributary A	0.04-0.12	0.03-0.25
Brooker Creek Tributary B	0.03-0.12	0.03-0.12
Curlew Creek	0.03-0.065	0.1-0.2
Flagler Drive Tributary	0.03-0.1	0.04-0.15
Hammond Creek	0.03-0.1	0.04-0.15
Hollin Creek Tributary A	0.03-0.1	0.1-0.12
Hollin Creek Tributary A-2	0.03-0.06	0.03-0.12
Hollin Creek Tributary B	0.04-0.12	0.03-0.12
Jeffords Street Tributary	0.04-0.09	0.06-0.15
Jerry Branch	0.03-0.06	0.1-0.2
Joe's Creek	0.03-0.035	0.03-0.15
Joe's Creek Tributary No. 4	0.02-0.03	0.04-0.5
Joe's Creek Tributary No. 5	0.02-0.03	0.1-0.15
Miles Creek	0.03-0.035	0.07-0.10
Pinellas Park Ditches 1, 1A, 2, 2A 3, 4, and 5	0.013-0.050	0.027-0.070
Spring Branch	0.035-0.1	0.07-0.15
Stevenson Creek	0.015-0.080	0.005-0.15

3.3 Coastal Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail affecting the county.

Precountywide Analyses

The determination of coastal inundation caused by passage of a hurricane storm surge was approached by the joint probability distributions of five parameters that

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. These characteristics were described statistically based on an analysis of observed storms in the vicinity of Pinellas County. Primary sources of data for this were the National Climatic Center; Cry, Ho, Schwerdt, and Goodyear; the National Hurricane Research Project, and the Monthly Weather Review (U.S. Department of Commerce, 1975; U.S. Department of Agriculture, January 1975; U.S. Department of Commerce, 1965; U.S. Department of Commerce, May 1975; U.S. Department of Commerce, March 1957; U.S. Department of Commerce, 1964-1977). Digitized information for all storms from 1886 through 1977 was used to correlate statistics (U.S. Department of Commerce, Tape of digitized). A summary of the parameters for Pinellas County are presented on Table 6, "Parameter Values for Surge Elevation."

The determination of maximum wave crest elevations associated with the 10- and 100-year events was approached by the method recommended by the National Academy of Sciences (National Academy of Sciences, 1977). Further details are included in Section 3.4 of this study.

The stillwater elevations for the 10-, 50-, 100-, and 500-year storms for the flooding sources studied by detailed methods and are summarized in Table 7, "Summary of Coastal Stillwater Elevations." Table 7 is based on stillwater elevations, without wave setup, in the FIS for Pinellas County and incorporated areas, prior to this countywide revision.

TABLE 7 - SUMMARY OF COASTAL STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet NAVD*) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
ALLIGATOR LAKE				
At mouth	6.6	**	9.0	**
LAKE TARPON				
At shoreline	3.3	**	6.1	**
At mouth	3.3	5.3	6.1	7.0
TAMPA BAY				
At Booth Point	4.6	7.8	9.2	12.3
At Safety Harbor Boulevard	4.7	7.7	9.0	11.9
Tampa Bay/Safety Harbor at Lake Tarpon Outfall Canal to Old Tampa Bay south of Alligator Lake	4.6	**	9.2	**
Tampa Bay/Old Tampa Bay south of Alligator Lake to east of St. Petersburg-Clearwater Airport	4.4	**	8.7	**

*North American Vertical Datum of 1988
** Data not available

CENTRAL PRESSURE DEPRESSION (MILLIBARS)	85	75	65	55	45	35	25	15	5
ASSIGNED PROBABILITIES									
Entering	0.02	0.02	0.03	0.04	0.05	0.09	0.25	0.25	0.25
Exiting	0.04	0.04	0.05	0.07	0.09	0.11	0.20	0.20	0.20
Parallel	0.06	0.06	0.08	0.11	0.13	0.13	0.14	0.15	0.14
STORM RADIUS TO MAXIMUM WINDS (NAUTICAL MILES)			15			30			
PROBABILITY			0.55			0.45			
FORWARD SPEED (KNOTS)			8		14	20			
PROBABILITIES:									
Entering			0.26		0.46	0.28			
Exiting			0.55		0.41	0.04			
Parallel			0.62		0.34	0.04			
DIRECTION OF STORM PATH (DEGREES FROM TRUE NORTH)			ENTERING			ALONGSHORE		EXITING	
			66	21		-24		-69	-114
PROBABILITY			0.30	0.26		0.22		0.17	0.05
FREQUENCY OF STORM OCCURRENCE (STORM/NAUTICAL MILE/YEAR)	4.08×10^{-3} storms/nm/year								

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

PARAMETER VALUES FOR SURGE ELEVATIONS

TABLE 7 - SUMMARY OF COASTAL STILLWATER ELEVATIONS - continued

FLOODING SOURCE AND LOCATION	ELEVATION (feet NAVD*) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
TAMPA BAY (continued)				
At Courtney Campbell Causeway	4.4	7.4	8.7	11.6
At mouth of Allen Creek and Old Tampa Bay	4.4	7.4	8.7	11.6
At St. Petersburg-Clearwater Airport	4.3	7.3	8.7	11.7
At Bunker Hill Island	4.3	7.3	8.7	11.7
Tampa Bay/Old Tampa Bay east of St. Petersburg-Clearwater Airport to south of Gandy Boulevard	4.3	**	8.7	**
Tampa Bay/Old Tampa Bay from south of Gandy Boulevard to Weedons Island	4.1	**	8.5	**
At Weedons Island	4.1	7.1	8.5	11.3
At Carolina Avenue	4.1	7.0	8.4	11.2
At South Yacht Basin	4.1	7.0	8.3	11.1
At Little Bayou	3.8	6.5	7.8	10.3
East of Sunshine Skyway to south of Mullet Key	3.4	**	7.6	**
At Bird Key	3.8	6.9	8.5	12.0
At Mullet Key	3.4	6.3	7.6	10.3
Gulf of Mexico open coast from south of Pass-a-Grille channel to south of Mullet Key	3.6	**	8.1	**
GULF OF MEXICO/ST. JOSEPH SOUND				
From Sponge Point Harbor to a point approximately 500 feet west of the intersection of Castleworks Avenue and Florida Avenue	5.3	8.7	10.5	13.5
From a point approximately 500 feet west of the intersection of Castleworks Avenue and Florida Avenue to Danenman Point	5.2	**	10.4	**
From Danenman Point to Crystal Beach	5.1	**	10.3	**
From Crystal Beach to Ward Island	5.0	8.5	10.2	13.3
From Ward Island to Cedar Creek	4.9	8.3	9.8	12.9
GULF OF MEXICO				
From Pelican Point to Dunedin Beach	4.8	8.2	9.7	12.8
From Dunedin Beach to Hurricane Pass	5.0	8.4	10.0	13.0
From Hurricane Pass Lookout Tower	5.0	**	9.9	**
From Lookout Tower to Bird Key	4.8	**	9.7	**
From Bird Key to Dunedin Pass	4.6	**	9.6	**
From Dunedin Pass to 5th Street	4.7	8.0	9.5	12.5

*North American Vertical Datum of 1988
** Data not available

TABLE 7 - SUMMARY OF COASTAL STILLWATER ELEVATIONS - continued

FLOODING SOURCE AND LOCATION	ELEVATION (feet NAVD*) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
GULF OF MEXICO (continued)				
From 5th Street to Clearwater Pass	4.5	8.0	9.5	12.5
From Clearwater Pass to a point approximately 1,250 feet north of the intersection of Belle Isle Avenue and Gulf Boulevard	4.5	7.9	9.1	12.4
West of Gulf Boulevard between Harrison Avenue and 27th Avenue	4.1	7.2	8.6	12.5
West of Gulf Boulevard between 27th Avenue and 200th Avenue	4.1	7.2	8.6	11.5
West of Gulf Boulevard between 200th Avenue and 186th Avenue	4.2	7.3	8.8	11.7
West of Gulf Boulevard between 186th Avenue and 183rd Avenue	4.3	7.4	9.0	11.9
West of Gulf Boulevard between 183rd Avenue and 163rd Avenue	4.3	7.4	9.1	11.9
West of Gulf Boulevard between 163rd Avenue and 156th Avenue	4.3	7.4	9.3	12.0
West of Gulf Boulevard between 156th Avenue and 143rd Avenue	4.3	7.7	9.4	12.1
West of Gulf Boulevard between 143rd Avenue and 99th Avenue	4.4	7.9	9.6	12.4
From a point approximately 500 feet west of the intersection of Gulf Boulevard and 99th Avenue to Upham Beach	4.6	8.1	9.8	12.6
From Upham Beach to a point approximately 1,000 feet west of the intersection of 55th Avenue and Gulf Boulevard	4.6	**	9.6	**
West of Gulf Boulevard between 55th Avenue and 46th Avenue	4.4	**	9.3	**
West of Gulf Boulevard between 46th Avenue and 36th Avenue	4.3	**	9.2	**
West of Gulf Boulevard between 36th Avenue and 24th Avenue	4.1	7.3	8.9	11.9
From Passe-A-Grille Beach to Egmont Channel	4.2	7.2	8.7	11.8

*North American Vertical Datum of 1988
** Data not available

TABLE 7 - SUMMARY OF COASTAL STILLWATER ELEVATIONS - continued

FLOODING SOURCE AND LOCATION	ELEVATION (feet NAVD*) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
BOCA CIEGA BAY				
From a point approximately 1,000 feet south of the intersection of 74th Avenue and 137th Street to a point approximately 0.4 mile west of the intersection of Evergreen Avenue and Irving Street	4.3	7.6	9.2	12.0
From a point approximately 0.4 mile west of the intersection of Evergreen Avenue and Irving Street to a point approximately 1.1 miles west of the intersection of 115th Lane and 62nd Avenue	4.3	**	9.3	**
From a point approximately 1.1 miles west of the intersection of 115th Lane and 62nd Avenue to the south end of Bayview Drive	4.4	**	9.4	**
From the south end of Bayview Drive to the south end of Boca Ciega Point Drive North	4.4	**	9.5	**
From the south end of Boca Ciega Point Drive North to the intersection of 48th Avenue and 47th Avenue	4.4	**	9.6	**
From the intersection of 48th Avenue and 47th Avenue to Tom Stuart Causeway	4.5	**	9.7	**
From Tom Stuart Causeway to a point approximately 750 feet west of the intersection of Bryson Circle and Bill Young Boulevard	4.7	8.1	9.9	12.8
From a point approximately 750 feet west of the intersection of Bryson Circle and Bill Young Boulevard to the south end of 42nd Avenue	4.6	8.1	9.9	12.6
From the south end of 42nd Avenue to Sunset Beach	4.8	8.3	10.0	12.9
From Sunset Beach to Blind Pass	4.8	8.1	10.0	12.9
From Blind Pass to the canal between Kipps Colony and Bayview Circle	4.8	8.3	10.0	12.9
From the canal between Kipps Colony and Bayview Circle to Cats Point	4.3	7.6	9.5	12.4
From Cats Point to Frenchman Creek	3.8	**	8.8	**

*North American Vertical Datum of 1988
** Data not available

TABLE 7 - SUMMARY OF COASTAL STILLWATER ELEVATIONS - continued

FLOODING SOURCE AND LOCATION	ELEVATION (feet NAVD*) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
CLEARWATER HARBOR				
From Cedar Creek to a point approximately 1,000 feet west of the intersection of Bayshore Boulevard and Cedar Street	4.8	**	9.7	**
From a point approximately 1,000 feet west of the intersection of Bayshore Boulevard and Cedar Street to a point approximately 200 feet west of the intersection of Edgewater Drive and Florida Avenue	4.8	8.1	9.6	12.7
From a point approximately 200 feet west of the intersection of Edgewater Drive and Florida Avenue to Memorial Causeway	4.7	8.0	9.5	12.5
From Memorial Causeway to the west end of Jeffords Street	4.6	8.0	9.3	12.5
From the west end of Jeffords Street to the south end of Sunset Bay Drive	4.5	7.7	9.1	12.6
From the south end of Sunset Bay Drive to Belleair Beach Causeway	4.4	7.5	8.9	12.8
CLEAR WATER HARBOR/THE NARROWS				
From Belleair Beach Causeway to Church Creek Point	4.2	7.3	8.8	12.7
From Church Creek Point to Indian Rocks Causeway	4.2	7.3	8.8	11.7
THE NARROWS/INTRACOASTAL WATERWAY				
From Indian Rocks Causeway to Conch Key	4.3	7.4	9.0	11.9

*North American Vertical Datum of 1988
** Data not available

3.4 Coastal Hydraulic 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 each of the shorelines. Users of the FIRM should also be aware that coastal flood elevations are provided in the Summary of Stillwater Elevations table in this report. If the elevation on the FIRM is higher than the elevation shown in this table, a wave height, wave runup and/or wave setup component likely exists, in

which case, the higher elevation should be used for construction and/or floodplain management purposes.

Precountywide Analyses

For areas subject to flooding directly from Tampa Bay, FEMA's 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 previously defined). Performing such simulations for a large number of storms, each of known probability, permits one to establish the frequency distribution of surge height as a function of coastal location. These distributions incorporate large-scale surge behavior, but do not include an analysis of the added effects associated with much finer scale wave phenomenon such as wave height, wave setup, or wave runup. The standard coastal surge model uses a grid pattern approximating the geographical features of the study area and the adjoining areas. Surges were computed using grids of 5 nautical miles, 1 nautical mile, and 2,000 feet, depending on the resolution required.

Underwater depths and land heights for the model grid systems were obtained from USGS topographic maps and National Oceanic and Atmospheric Administration nautical charts (U.S. Department of Interior, 1974; U.S. Department of Commerce, September 1977; U.S. Department of Commerce, March 1977; U.S. Department of Commerce, February 1977; U.S. Department of the Interior, 1974).

The methodology for analyzing the effects of wave heights associated with coastal storm surge flooding is described in a report prepared by the National Academy of Sciences (NAS) (National Academy of Sciences, 1977). The NAS wave height methodology is based on three major physical concepts. First, depth-limited waves in shallow water reach a maximum breaking height that is equal to 78 percent of the stillwater depth and the wave crest elevation is equal to 70 percent of the wave height plus the stillwater elevation. Second, the wave height may be diminished by dissipation of energy due to the presence of obstructions such as sand dunes, dikes, seawalls, buildings, and vegetation. The physical characteristics of the obstruction dictate that amount of wave energy dissipation. The third major concept is that the wave height can be regenerated in open fetch areas due to the transfer of wind energy to the water. The resultant wave height is a function of both fetch and stillwater depth.

Countywide Analyses

For the September 3, 2003, countywide FIS, new analyses of wave setup, wave heights, storm induced erosion, and primary frontal dune were performed using the existing stillwater elevations for the Gulf of Mexico, St. Joseph Sound, Clearwater Harbor, and Boca Ciega Bay.

The usual wave setup calculation is based upon wave behavior over a simple slope. The slope offshore of Pinellas County is characterized by a broad shallow shelf offshore of low islands which are fully submerged during peak surge. Since the islands are fully submerged wave setup is reduced at the barrier islands.

Using methods described by the Shore Protection Manual (U.S. Army Corps of Engineers, 1984) a maximum wave setup at the islands was determined to over estimate potential wave setup during the base flood. Considering dissipation as a result of the barrier island inundation during the base flood, a more appropriate setup value of 1 ft was added to the 100-year stillwater levels at the barrier islands. Wave regeneration across the bays, landward of these islands, results in an additional setup component on the mainland shore. A reasonable addition to the stillwater level was made to reflect the additional hazard due to setup. This additional setup component was determined to be 0.6 ft, resulting in a total setup of 1.6 ft at the shoreline of the Pinellas County mainland from Clearwater Harbor through Boca Ciega Bay.

In many areas of the Pinellas County shoreline existing dunes were found to be insufficient in size to sustain wave attack. Frontal dunes with reservoirs exceeding 540 square feet are considered to experience dune retreat, while those with reservoirs of less than 540 square feet are considered to experience dune removal. Therefore, using standard erosion analysis procedures as outlined in the Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping, the protection afforded by the dunes with less than 540 square feet of reservoir was removed from the coastal analysis, resulting in a low beach profile slope (Federal Emergency Management Agency, March 1995). For open coastal areas with nonstructural seawalls, a scour analysis was performed to erode and adjust beach profiles. This, combined with complete inundation of the barrier island during the 100-year coastal flood, does not allow for the development of wave runup. As a result, wave runup was not considered in the coastal base flood elevations.

Wave heights were added to stillwater storm surge elevations using the methodology recommended by the National Academy of Sciences (Federal Emergency Management Agency, 1995). This methodology considers maximum conditions associated with the 100-year flood and uses transects that were oriented perpendicularly to the shoreline to deduce wave crest elevations from the coast and inland bays to the limits of the 100-year floodplain. The transects used in this study are shown on the FIRM and were chosen based on topography, vegetation, and cultural development.

Wave heights were computed along transects (cross-section lines) that were located along the coastal areas in accordance with the Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping (Federal Emergency Management Agency, 1995). The transects were located with consideration given to the physical and cultural characteristics of the land so that they would closely represent conditions of 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. Figure 1, "Transect Location Map," illustrates the location of the transects for the county. Calculations along the transects were continued inland until the waves were substantially dissipated, or until flooding from another source with an equal water-surface elevation could be reached. Figure 2, "Transect Schematic," is a profile for a typical transect illustrating the effects of energy dissipation and regeneration of a wave as it moves inland.

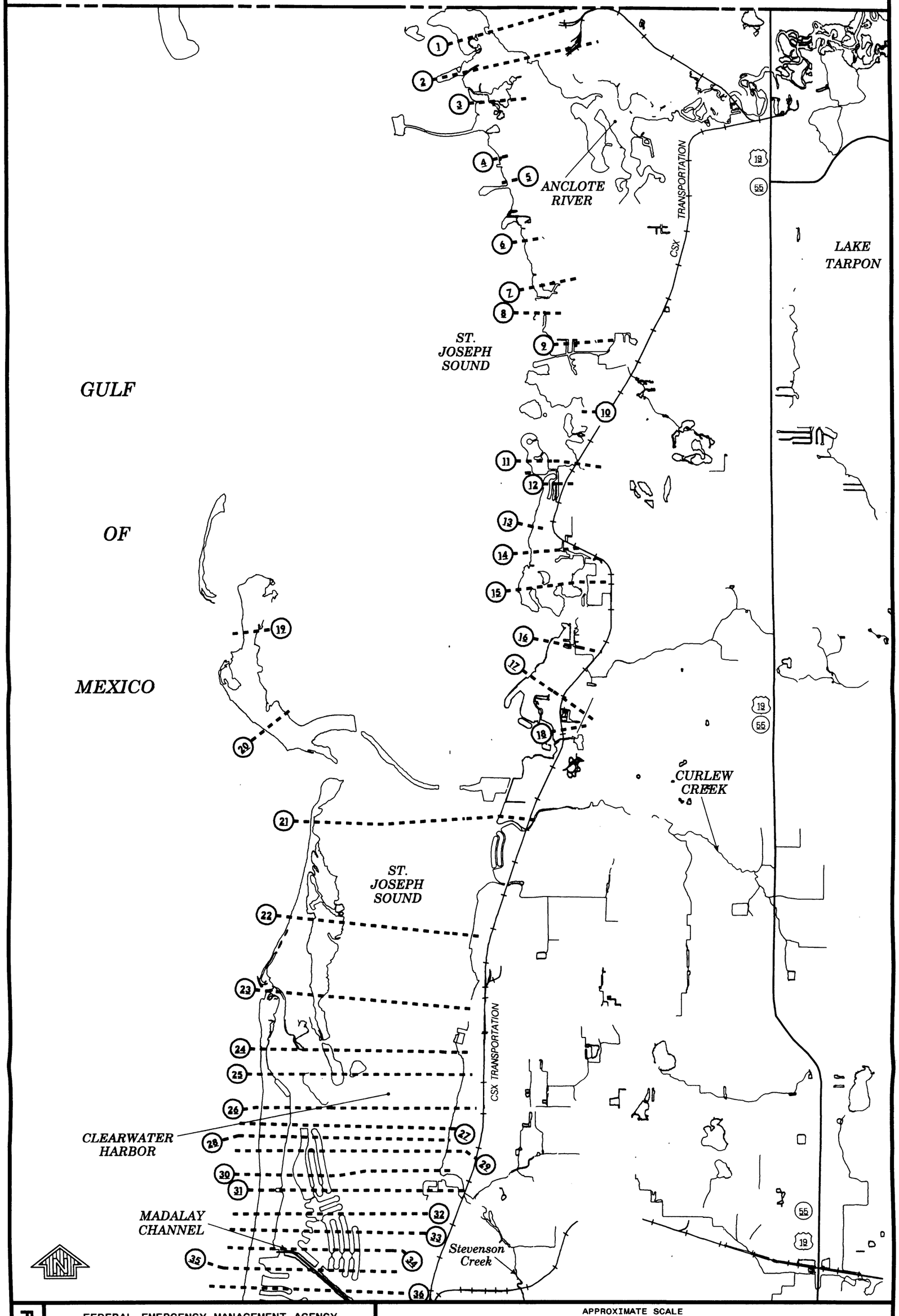


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
(AND INCORPORATED AREAS.)

TRANSECT LOCATION MAP

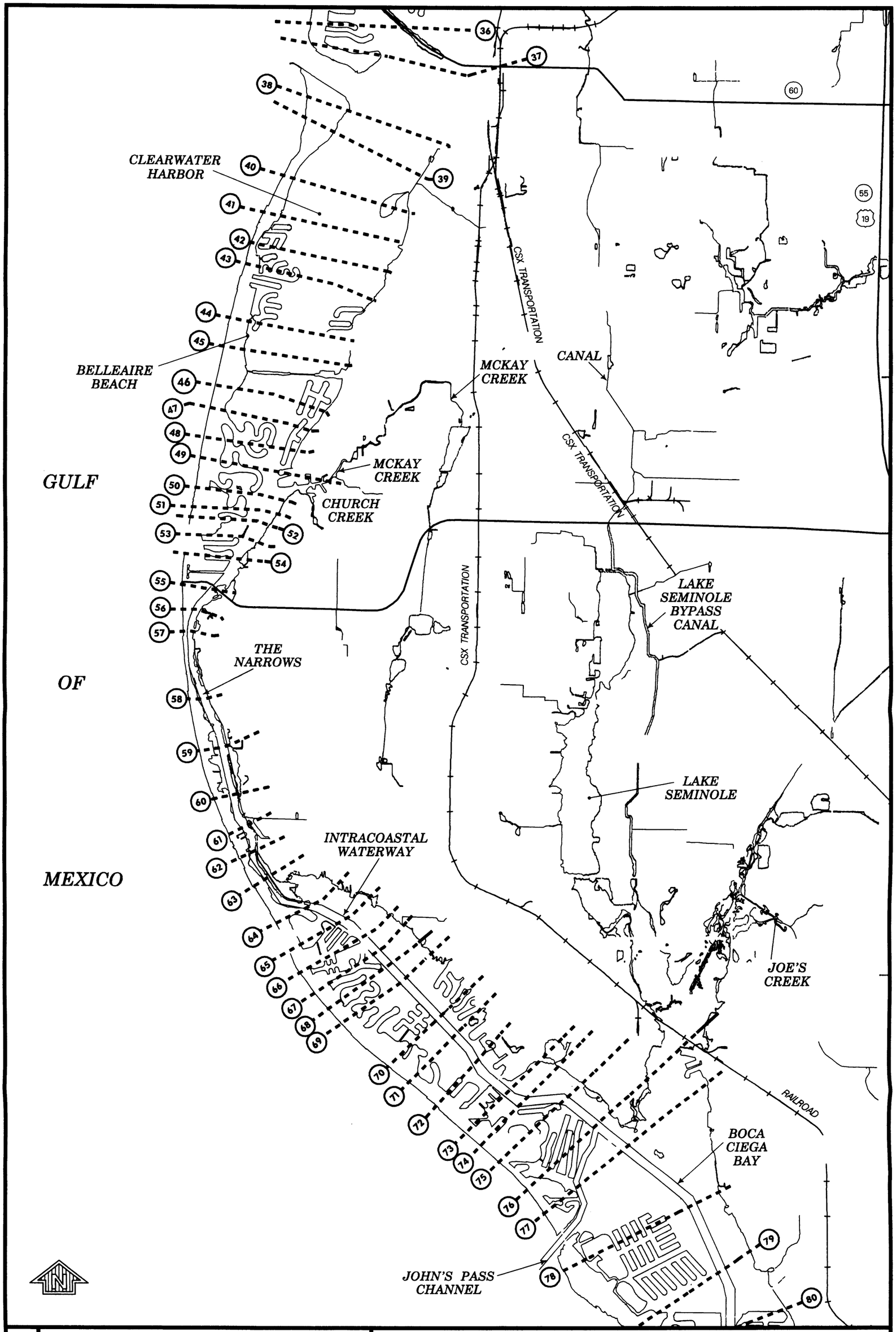


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
(AND INCORPORATED AREAS.)

TRANSECT LOCATION MAP

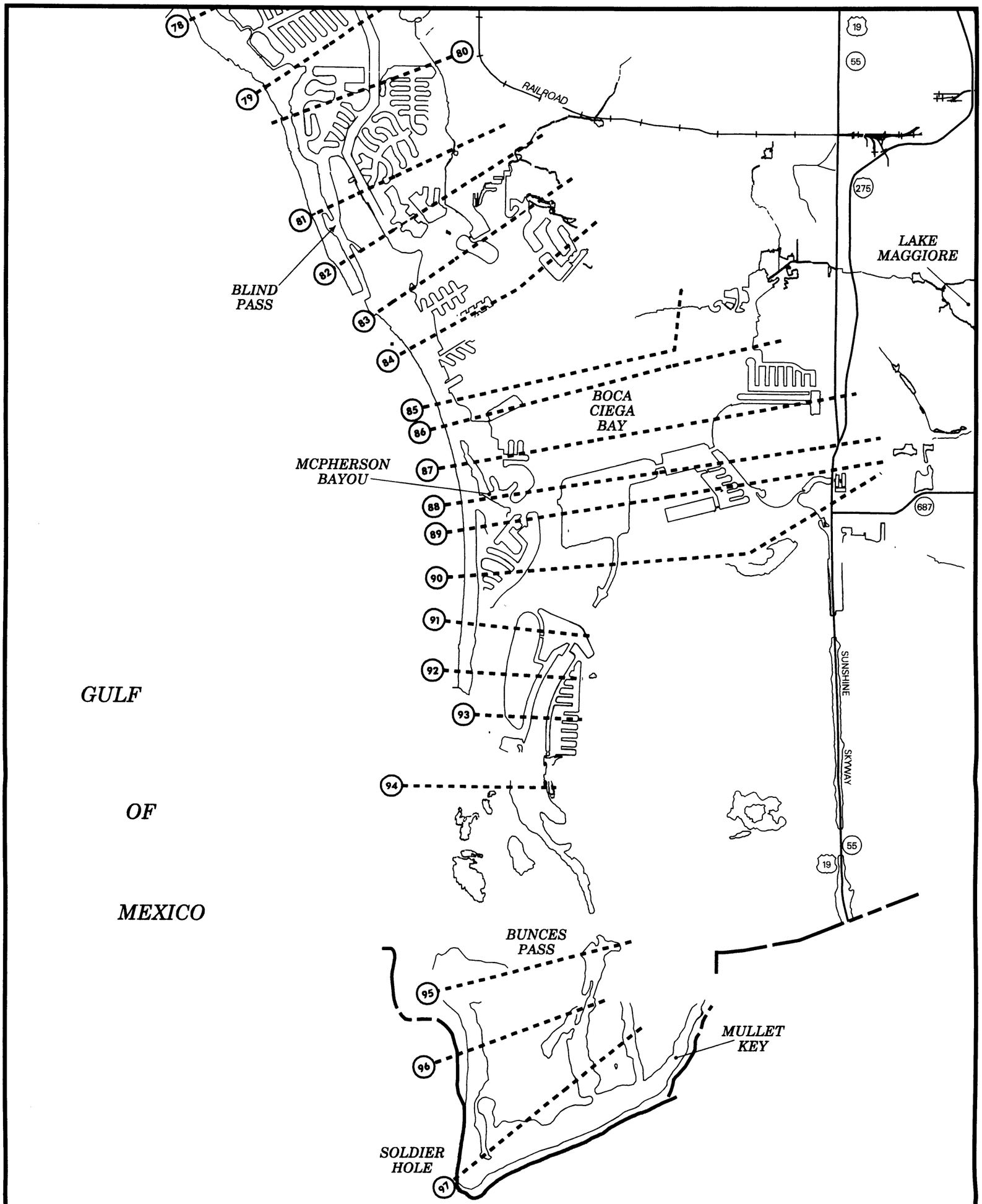


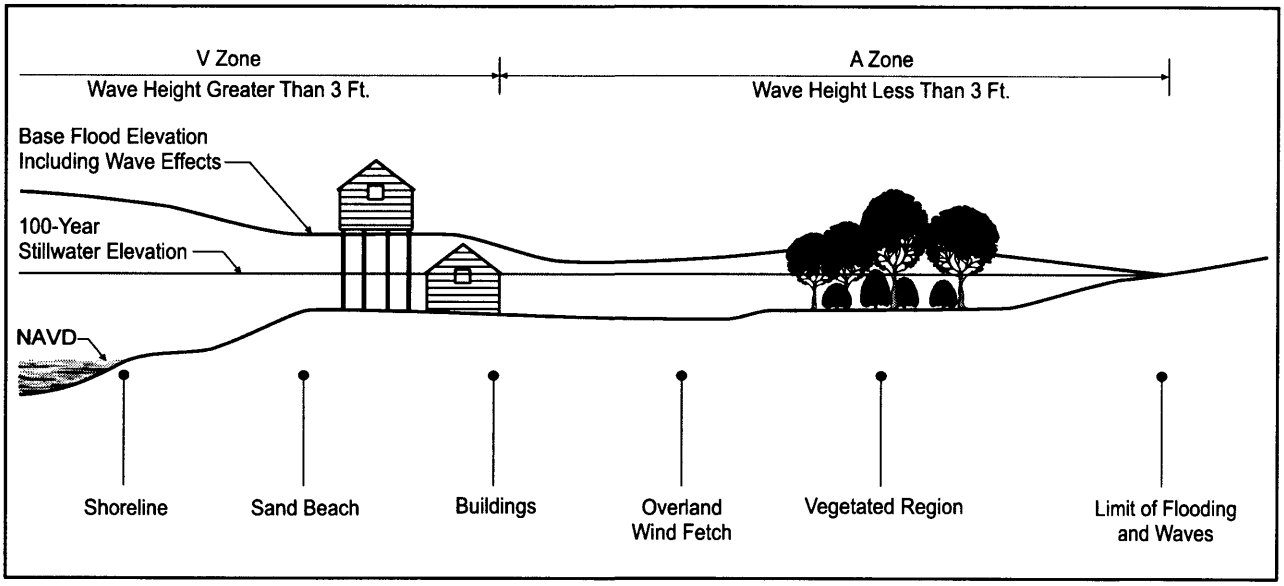
FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
(AND INCORPORATED AREAS.)

APPROXIMATE SCALE
1 0 1 2 4 MILES

TRANSECT LOCATION MAP



TRANSECT SCHEMATIC Figure 2

Each transect was taken perpendicular to the shoreline and extended inland to a point where wave action ceased. Along each transect, wave heights and crest elevations were computed considering the combined effects of changes in ground elevation, vegetation, and physical features. The stillwater elevations for the 100-year 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, the terminus of the V-Zone (coastal high hazard area), was computed at each transect.

As of 1989, FEMA defines a "coastal high hazard area" as an area of special flood hazards extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action (i.e., wave heights greater than or equal to 3 feet) from storms or seismic sources. The "primary frontal dune" is defined as a continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject of erosion and overtopping from high tides and waves during major coastal storms, such as hurricanes. The inland limit of the primary frontal dune occurs at the point which there is a distinct change from a relatively steep slope to a relatively mild slope.

Table 8 "Transect Descriptions," describes the location of each transect. Additional descriptions of the location of transects in relation to the Florida Department of Environmental Protection (FDEP) reference monuments are available for transects 19 through 97, as shown in Table 8. In addition, Table 8 provides the 100-year stillwater and maximum 100-year wave crest elevations for each transect.

TABLE 8 - TRANSECT DESCRIPTIONS

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
1	Beginning at the shoreline of Gulf of Mexico and extending across the Anclote River towards Anclote Boulevard	11.52	18.1
2	Beginning at the shoreline of Piney Point and extending across Gulf of Mexico and the Anclote River towards L&R Industrial Boulevard	11.52	18.1
3	Beginning at the shoreline of Gulf of Mexico and extending across Lake Avoca towards Riverside Drive	11.52	18.1
4	Beginning at the shoreline of Tarpon Springs and extending towards Seaside Drive	11.52	18.1
5	Beginning at the shoreline of Tarpon Springs and extending towards Mexico Avenue	11.52	18.1
6	Beginning at the shoreline of Tarpon Springs and extending towards Florida Avenue	11.52	18.1
7	Beginning at the shoreline of St. Joseph Sound and extending towards Carlton Road	11.42	18.0
8	Beginning at the shoreline of St. Joseph Sound and extending towards Bay Street	11.42	18.0
9	Beginning at the shoreline of Klosterman Bayou and extending towards Pinellas Avenue	11.42	18.0
10	Beginning at the shoreline of Boggy Bayou towards Pinellas Avenue	11.32	17.8

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS – continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	MAXIMUM 100-YEAR WAVE CREST[2]
11	Beginning at the shoreline of Indian Bluff Island and extending across St. Joseph Sound and Curlew Creek towards Bee Pond Road	11.32	17.8
12	Beginning at the shoreline of Greens Bayou and extending towards Pinellas Avenue	11.32	17.8
13	Beginning at the shoreline of St. Joseph Sound and extending towards Crystal Beach Avenue	11.32	17.8
14	Beginning at the shoreline of St. Joseph Sound and extending across Avery Bayou and towards 10th Street	11.22	17.7
15	Beginning at the shoreline of Seaside Point and extending across Sutherland Bayou towards 10th Street	11.22	17.6
16	Beginning at the shoreline of St. Joseph Sound and extending towards Virginia Avenue	11.22	17.6
17	Beginning at the shoreline of St. Joseph Sound and extending towards Woodvale Avenue	11.22	17.6
18	Beginning at the shoreline of Smith Bayou and extending towards Daventry Square	11.22	17.6
19	Located approximately 513 feet south of FDEP R-04 and 537 feet north of FDEP R-05. Beginning at the shoreline of Pelican Point and extending across Honeymoon Island	10.72	16.9

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
20	Located approximately 560 feet south of FDEP R-10 and 461 feet north of FDEP R-11. Beginning at the shoreline of Dunedin and extending across Honeymoon Island	11.02	17.3
21	Located approximately 600 feet south of FDEP R-18 and 445 feet north of FDEP R-19. Beginning at the shoreline of Caladesi Island and extending across Lone Oak Point, St. Joseph Sound, Curlew Creek towards Ben Hogan Drive	10.92	17.2
22	Located approximately 85 feet south of FDEP R-24 and 880 feet north of FDEP R-25. Beginning at the shoreline of Caladesi Island and extending across St. Joseph Sound towards Pasadena Drive	10.72	16.9
23	Located approximately 1,117 feet south of FDEP R-28 and 25 feet north of FDEP R-29. Beginning at the shoreline of Caladesi Island and extending across St. Joseph Sound towards Douglas Avenue	10.62	16.7
24	Located approximately 390 feet south of FDEP R-32 and 575 feet north of FDEP R-33. Beginning at the shoreline of Clearwater Beach Island, extending across Malone Island, and Clearwater Harbor towards Douglas Avenue	10.52	16.6

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
25	Located approximately 893 feet south of FDEP R-33 and 131 feet north of FDEP R-34. Beginning at the shoreline of Clearwater Beach Island, extending across Moonshine Island, Malone Island, Core Island, and Clearwater Harbor towards Douglas Avenue	10.52	16.6
26	Located approximately 805 feet south of FDEP R-35 and 170 feet north of FDEP R-36. Beginning at the shoreline of Clearwater Beach Island and extending across Clearwater Harbor towards Broadway	10.52	16.6
27	Located approximately 850 feet south of FDEP R-36 and 150 feet north of FDEP R-37. Beginning at the shoreline of Clearwater Beach Island and extending across Mandalay Channel and Clearwater Harbor towards Broadway	10.52	16.6
28	Located approximately 500 feet south of FDEP R-37 and 480 feet north of FDEP R-38. Beginning at the shoreline of Clearwater Beach Island and extending across Mandalay Channel, and Clearwater Harbor towards Broadway	10.52	16.6
29	Located approximately 427 feet south of FDEP R-38 and 592 feet north of FDEP R-39. Beginning at the shoreline of Clearwater Beach Island, extending across Mandalay Channel, and Clearwater Harbor towards Douglas Avenue	10.52	16.6

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
30	Located approximately 660 feet south of FDEP R-39 and 375 feet north of FDEP R-40. Beginning at the shoreline of Clearwater Beach Island and extending across Mandalay Channel and Clearwater Harbor towards Douglas Avenue	10.52	16.6
31	Located approximately 505 feet south of FDEP R-40 and 545 feet north of FDEP R-41. Beginning at the shoreline of Clearwater Beach Island and extending across Mandalay Channel and Clearwater Harbor towards Washington Avenue	10.52	16.6
32	Located approximately 800 feet south of FDEP R-41 and 170 feet north of FDEP R-42. Beginning at the shoreline of Clearwater Beach Island and extending across Mandalay Channel and Clearwater Harbor towards North Myrtle Avenue.	10.52	16.6
33	Located approximately 760 feet south of FDEP R-42 and 342 feet north of FDEP R-43. Beginning at the shoreline of Clearwater Beach Island and extending across Midway Island, Mandalay Channel, and Clearwater Harbor towards North Osceola Avenue	10.52	16.6
34	Located approximately 660 feet south of FDEP R-43 and 310 feet north of FDEP R-44. Beginning at the shoreline of Clearwater Beach Island, extending across Mandalay Channel, Midway Island, and Clearwater Harbor towards North Osceola Avenue	10.52	16.6

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
35	Located approximately 825 feet south of FDEP R-44 and 154 feet north of FDEP R-45. Beginning at the shoreline of Clearwater Beach Island and extending across Midway Island and Clearwater Harbor towards North Fort Harrison Avenue	10.52	16.6
36	Located approximately 909 feet south of FDEP R-45 and 90 feet north of FDEP R-46. Beginning at the shoreline of Clearwater Beach Island and extending across Clearwater Harbor towards North Garden Avenue	10.52	16.6
37	Located approximately 800 feet south of FDEP R-46 and 240 feet north of FDEP R-47. Beginning at the shoreline of Clearwater Beach Island and extending across Clearwater Harbor towards Pierce Street	10.52	16.6
38	Located approximately 2,305 feet south of FDEP R-50 and 80 feet north of FDEP R-52. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Drud Road	10.12	16.0
39	Located approximately 460 feet south of FDEP R-53 and 540 feet north of FDEP R-54. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Coe Road	10.12	16.0

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
40	Located approximately 830 feet south of FDEP R-56 and 190 feet north of FDEP R-57. Beginning at the shoreline of Sand Key, extending across Clearwater Harbor and Belleview Island, towards Indian Rocks Road	10.12	16.0
41	Located approximately 120 feet south of FDEP R-59 and 890 feet north of FDEP R-60. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Belleair	10.12	16.0
42	Located approximately 950 feet south of FDEP R-60 and 90 feet north of FDEP R-61. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Bayview Drive	10.12	16.0
43	Located approximately 203 feet south of FDEP R-62 and 650 feet north of FDEP R-63. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Magnolia Road	9.62	15.2
44	Located approximately 650 feet south of FDEP R-65 and 360 feet north of FDEP R-66. Beginning at the shoreline of Sand Key and extending across Belleair Beach and Clearwater Harbor towards Bluff View Drive	9.62	15.2
45	Located approximately 220 feet south of FDEP R-67 and 710 feet north of FDEP R-68. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Bluff View Drive	9.62	15.2

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
46	Located approximately 600 feet south of FDEP R-69 and 410 feet north of FDEP R-70. Beginning at the shoreline of Belleair Shores and extending across Clearwater Harbor towards Orangewood Lane	9.62	15.2
47	Located approximately 930 feet south of FDEP R-70 and 75 feet north of FDEP R-71. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Cedar Lane	9.62	15.2
48	Located approximately 500 feet south of FDEP R-72 and 550 feet north of FDEP R-73. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Bamboo Lane	9.62	15.2
49	Located approximately 655 feet south of FDEP R-73 and 410 feet north of FDEP R-74. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Indian Rocks Road	9.62	15.2
50	Located approximately 370 feet south of FDEP R-75 and 560 feet north of FDEP R-76. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Indian Rocks Road	9.62	15.2
51	Located approximately 497 feet south of FDEP R-76 and 345 feet north of FDEP R-77. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Indian Rocks Road	9.62	15.2

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
52	Located approximately 270 feet south of FDEP R-77 and 735 feet north of FDEP R-78. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Indian Rocks Road	9.62	15.2
53	Located approximately 290 feet south of FDEP R-78 and 705 feet north of FDEP R-79. Beginning at the shoreline of Sand Key and extending across Clearwater Harbor towards Jeff Road	9.62	15.2
54	Located approximately 406 feet south of FDEP R-79 and 610 feet north of FDEP R-80. Beginning at the shoreline of Sand Key and extending across The Narrows towards Valentine Trail.	9.62	15.2
55	Located approximately 230 feet south of FDEP R-81 and 766 feet north of FDEP R-82. Beginning at the shoreline of Sand Key and extending across The Narrows towards 120th Avenue North	9.62	15.2
56	Located approximately 630 feet south of FDEP R-82 and 369 feet north of FDEP R-83. Beginning at the shoreline of Sand Key and extending across The Narrows towards Ship Watch Drive	9.62	15.2
57	Located approximately 825 feet south of FDEP R-83 and 210 feet north of FDEP R-84. Beginning at the shoreline of Sand Key and extending across The Narrows towards 113th Avenue	9.62	15.2

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
58	Located approximately 620 feet south of FDEP R-87 and 401 feet north of FDEP R-88. Beginning at the shoreline of Indian Shores and extending across The Narrows towards Hamlin Boulevard	9.82	15.5
59	Located approximately 730 feet south of FDEP R-90 and 210 feet north of FDEP R-91. Beginning at the shoreline of Indian Shores and extending across The Narrows towards Commodore Drive	9.82	15.5
60	Located approximately 580 feet south of FDEP R-93 and 400 feet north of FDEP R-94. Beginning at the shoreline of Indian Shores and extending across The Narrows towards 140th Way	9.82	15.5
61	Located approximately 613 feet south of FDEP R-95 and 465 feet south of FDEP R-96. Beginning at the shoreline of Indian Shores and extending across The Narrows towards 141st Street North	9.82	15.5
62	Located approximately 70 feet south of FDEP R-97 and 977 feet north of FDEP R-98. Beginning at the shoreline of Indian Shores and extending across The Narrows towards 80th Avenue North	9.82	15.5
63	Located approximately 860 feet south of FDEP R-98 and 140 feet north of FDEP R-99. Beginning at the shoreline of Indian Shores extending across The Narrows towards Oakhurst Road	10.02	15.8

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
64	Located approximately 130 feet south of FDEP R-101 and 910 feet north of FDEP R-102. Beginning at the shoreline of Redington Shores and extending across Boca Ciega Bay towards 131st Street	10.12	16.0
65	Located approximately 820 feet south of FDEP R-102 and 130 feet north of FDEP R-103. Beginning at the shoreline of Redington Shores and extending across Boca Ciega Bay towards 74th Avenue	10.12	16.0
66	Located approximately 50 feet south of FDEP R-104 and 1,020 feet north of FDEP R-105. Beginning at the shoreline of Redington Shores and extending across Boca Ciega Bay towards 123rd Street North	10.12	16.0
67	Located approximately 370 feet south of FDEP R-105 and 610 feet north of FDEP R-106. Beginning at the shoreline of North Redington Beach and extending across Boca Ciega Bay towards 122nd Street North	10.12	16.0
68	Located approximately 692 feet south of FDEP R-106 and 383 feet north of FDEP R-107. Beginning at the shoreline of North Redington Beach and extending across Boca Ciega Bay towards Exeter Street	10.12	16.0
69	Located approximately 620 feet south of FDEP R-107 and 400 feet north of FDEP R-108. Beginning at the shoreline of North Redington Beach and extending across Boca Ciega Bay towards Evergreen Avenue	10.12	16.0

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
70	Located approximately 15 feet south of FDEP R-111 and 1,000 feet north of FDEP R-112. Beginning at the shoreline of Redington Beach and extending across Boca Ciega Bay towards Ridge Road	10.32	16.3
71	Located approximately 510 feet south of FDEP R-112 and 440 feet north of FDEP R-113. Beginning at the shoreline of Redington Beach and extending across Boca Ciega Bay towards 54th Avenue North	10.32	16.3
72	Located approximately 400 feet south of FDEP R-114 and 310 feet north of FDEP R-115. Beginning at the shoreline of Madeira Beach and extending across Boca Ciega Bay towards 51st Avenue North	10.42	16.4
73	Located approximately 1,000 feet south of FDEP R-116 and 145 feet north of FDEP R-117. Beginning at the shoreline of Madeira Beach and extending across Boca Ciega Bay towards 100th Way North	10.42	16.4
74	Located approximately 970 feet south of FDEP R-117 and 45 feet north of FDEP R-118. Beginning at the shoreline of Madeira Beach and extending across Boca Ciega Bay towards 48th Avenue North	10.42	16.4

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
75	Located approximately 350 feet south of FDEP R-119 and 710 feet north of FDEP R-120. Beginning at the shoreline of Madeira Beach extending across Boca Ciega Bay towards 95th Street	10.62	16.7
76	Located approximately 500 feet south of FDEP R-121 and 600 north of FDEP R-122. Beginning at the shoreline of Madeira Beach extending across Boca Ciega Bay and Long Bayou, towards Park Street North	10.62	16.7
77	Located approximately 210 feet south of FDEP R-123 and 760 feet north of FDEP R-124. Beginning at the shoreline of Madeira Beach extending across Little Bird Key and Boca Ciega Bay towards Park Street North	10.62	16.7
78	Located approximately 150 feet south of FDEP R-127 and 919 feet north of FDEP R-128. Beginning at the shoreline of Treasure Island extending across Boca Ciega Bay towards 81st Street	10.62	16.7
79	Located approximately 880 feet south of FDEP R-131 and 284 feet north of FDEP R-132. Beginning at the shoreline of Treasure Island and extending across Boca Ciega Bay towards Park Street	10.62	16.7
80	Located approximately 523 feet south of FDEP R-523 and 133 feet north of FDEP R-134. Beginning at the shoreline of Treasure Island and extending across Paradise Island and Boca Ciega Bay towards 74th Street North	10.62	16.7

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
81	Located approximately 390 feet south of FDEP R-138 and 617 feet north of FDEP R-139. Beginning at the shoreline of Treasure Island and extending across Boca Ciega Bay towards Mango Avenue South	10.82	17.0
82	Located approximately 252 feet south of FDEP R-141 and 859 feet north of FDEP R-142. Beginning at the shoreline of Treasure Island and extending across Long Key towards 7th Avenue	10.82	17.0
83	Located approximately 15 feet south of FDEPR-145 and 1,029 feet north of FDEP R-146. Beginning at the shoreline of St. Pete Beach and extending across Long Key and Boca Ciega Bay towards 62nd Street South	10.82	17.0
84	Located approximately 709 feet south of FDEP R-147 and 277 feet north of FDEP R-148. Beginning at the shoreline of St. Pete Beach and extending across Long Key and Boca Ciega Bay towards Gulfport Boulevard	10.62	16.7
85	Located approximately 800 feet south of FDEP R-150 and 275 feet north of FDEP R-151. Beginning at the shoreline of St. Pete Beach and extending across Long Key and Boca Ciega Bay towards 30th Avenue South	10.32	16.3

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
86	Located approximately 900 feet south of FDEP R-151 and 85 feet north of FDEP R-152. Beginning at the shoreline of St. Pete Beach, extending across Long Key, Boca Ciega Isle, and Boca Ciega Bay towards 37th Street South	10.22	16.1
87	Located approximately 995 feet south of FDEP R-153 and 29 feet north of FDEP R-154. Beginning at the shoreline of St. Pete Beach, extending across Long Key, Boca Ciega Bay, and Cats Point towards 31st Street South	9.92	15.7
88	Located approximately 895 feet south of FDEP R-155 and 118 feet north of FDEP R-156. Beginning at the shoreline of St. Pete Beach, extending across Long Key, Isla Del Sol and Point Brittany towards Cordova Way	9.92	15.7
89	Located approximately 256 feet south of FDEP R-157 and 780 feet north of FDEP R-158. Beginning at the shoreline of St. Pete Beach, extending across Long Key, Mud Key, and Isla Del Sol towards 28th Street South	9.92	15.7
90	Located approximately 617 feet south of FDEP R-159 and 413 feet north of FDEP R-160. Beginning at the shoreline of St. Pete Beach extending across Long Key, Mud Key, and Maximo Channel towards 28th Street South	9.72	15.4

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
91	Located approximately 161 feet south of FDEP R-162 and 836 feet north of FDEP R-163. Beginning at the shoreline of St. Pete Beach and extending across Long Key and Pine Key, beyond the Pinellas Bayway towards Tampa Bay	9.72	15.4
92	Located approximately 678 feet south of FDEP R-164 and 271 feet north of FDEP R-165. Beginning at the shoreline of St. Pete Beach and extending across Long Key, Pass-A-Grille Channel, and Pine Key towards 1st Avenue South	9.72	15.4
93	Located approximately 2,700 feet south of FDEP R-166 and 8,500 feet north of FDEP R-168. Beginning at the shoreline of Pine Key, extending across Cabbage Key and Mud Bayou, beyond the Pinellas Bayway towards Tampa Bay	9.72	15.4
94	Located approximately 5,616 feet south of FDEP R-166 and 8,622 feet north of FDEP R-168. Beginning at the shoreline of Cabbage Key and extending beyond the Pinellas Bayway towards Tampa Bay	9.72	15.4
95	Located approximately 67 feet south of FDEP R-170 and 1,018 feet north of FDEP R-171. Beginning at the shoreline of For DeSoto County Park on Mullet Key extending across Mullett Key Bayou towards Pinellas Bayway	9.72	15.4

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 8 - TRANSECT DESCRIPTIONS - continued

TRANSECT	LOCATION	STARTING ELEVATION (feet NAVD) 100-YEAR STILLWATER[1]	STARTING ELEVATION (feet NAVD) MAXIMUM 100-YEAR WAVE CREST[2]
96	Located approximately 100 feet south of FDEP R-173 and 894 feet north of FDEP R-174. Beginning at the shoreline of Mullett Key (Ft. Desoto County Park), extending across Mullet Key Bayou, St. Christopher Key, St. Jean Key, beyond the Pinellas Bayway towards Tampa Bay	9.72	15.4
97	Located approximately 440 feet south of FDEP R-179 and 465 feet north of FDEP R-180. Beginning at the shoreline of Mullet Key and extending towards Bonnie Fortune Key	9.72	15.4

[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

For the September 3, 2003, countywide FIS, transects were determined using Pinellas County Light Detection and Ranging (LIDAR) data converted to the North American Vertical Datum of 1988 (NAVD 88), collected in April 2000 (Pinellas County Public Works Department, April, 2000) and high resolution color aerial imagery for Pinellas County from 2000 (Pinellas County Public Works Department, 2000).

Based on the eroded profiles and the effective FIS stillwater elevations (adjusted to include wave setup), the wave envelope was computed for each transect. The wave envelope represents the maximum vertical landward limit of wave activity and included the wave crest and wave setup elevations. The computer program "Wave Height Analysis for Flood Insurance Studies," or WHAFIS, (FEMA, 1995) provided the maximum expected wave crest elevation along each transect. This methodology accounted for fetch length, submerged bathymetry, and type and extent of land cover along each transect. Density, type, and physical dimensions of rigid and flexible vegetation, buildings, and other structures were considered based on field inspection.

Table 9, "Transect Data," includes the flooding source, 10-, 50-, 100-, 500-year stillwater elevations, flood hazard zone designation, and base flood elevation.

TABLE 9 - TRANSECT DATA

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[2]
GULF OF MEXICO						
1	5.32	8.72	11.52[1]	13.52	VE	14-18
					AE	12-14
2	5.32	8.72	11.52[1]	13.52	VE	14-18
					AE	12-14
3	5.32	8.72	11.52[1]	13.52	VE	14-18
					AE	12-14
4	5.32	8.72	11.52[1]	13.52	VE	14-18
					AE	12-14
5	5.32	8.72	11.52[1]	13.52	VE	14-18
					AE	12-14
6	5.32	8.72	11.52[1]	13.52	VE	14-18
					AE	12-14
7	5.22	*	11.42[1]	*	VE	14-18
					AE	11-14
8	5.22	*	11.42[1]	*	VE	14-18
					AE	11-14
9	5.22	*	11.42[1]	*	VE	14-18
					AE	11-14
10	5.12	*	11.32[1]	*	VE	13-18
					AE	11-13
11	5.12	*	11.32[1]	*	VE	13-18
					AE	11-13
12	5.12	*	11.32[1]	*	VE	13-18
					AE	11-13

*Data Not Available
[1]Includes wave setup of 1.0 foot
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ ST. JOSEPH SOUND (continued)						
13	5.12	*	11.32[1]	*	VE	13-18
					AE	11-13
14	5.02	8.52	11.22[1]	13.32	VE	13-18
					AE	11-13
15	5.02	8.52	11.22[1]	13.32	VE	13-18
					AE	11-13
16	5.02	8.52	11.22[1]	13.32	VE	13-18
					AE	11-13
17	5.02	8.52	11.22[1]	13.32	VE	13-18
					AE	11-13
18	5.02	8.52	11.22[1]	13.32	VE	13-18
					AE	11-13
19	4.82	8.22	10.72[1]	12.82	VE	13-17
					AE	11-13
20	5.02	8.42	11.02[1]	13.02	VE	14-17
21	5.02	*	10.92[1]	*	VE	13-17
					AE	11-13
	4.92	8.32	11.42[2]	12.93	VE	14-17
					AE	11-14
22	4.82	*	10.72[1]	*	VE	13-17
					AE	11-13
	4.92	*	11.32[2]	*	VE	13-16
					AE	11-14

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ CLEARWATER HARBOR						
23	4.62	*	10.62[1]	*	VE	13-17
					AE	11-13
	4.82	8.32	11.22[2]	12.72	VE	13-16
					AE	11-13
24	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.82	8.12	11.22[2]	12.72	VE	13-16
					AE	11-13
25	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.82	8.12	11.22[2]	12.72	VE	13-16
					AE	11-13
26	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.82	8.12	11.22[2]	12.72	VE	13-16
					AE	11-13
27	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-16
					AE	11-13
28	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13
29	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ CLEARWATER HARBOR (continued)						
30	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13
31	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13
32	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13
33	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13
34	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-14
					AE	11-13
35	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-14
					AE	11-13
36	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ CLEARWATER HARBOR (continued)						
37	4.72	8.02	10.52[1]	12.52	VE	13-17
					AE	11-13
	4.72	8.02	11.12[2]	12.52	VE	13-15
					AE	11-13
38	4.52	7.92	10.12[1]	12.42	VE	12-16
					AE	10-13
	4.52	7.72	10.72[2]	12.62	VE	13-14
					AE	11-13
39	4.52	7.92	10.12[1]	12.42	VE	12-16
					AE	10-12
	4.52	7.72	10.72[2]	12.62	VE	13-15
					AE	11-13
40	4.52	7.92	10.12[1]	12.42	VE	12-16
					AE	10-12
	4.52	7.72	10.72[2]	12.62	VE	13-15
					AE	11-13
41	4.52	7.92	10.12[1]	12.42	VE	12-16
					AE	10-12
	4.52	7.72	10.72[2]	12.62	VE	13-15
					AE	11-13
42	4.52	7.92	10.12[1]	12.42	VE	12-16
					AE	10-12
	4.52	7.72	10.72[2]	12.62	VE	13-15
					AE	11-13
43	4.12	7.22	9.62[1]	12.52	VE	12-15
					AE	10-12
	4.52	7.72	10.72[2]	12.62	VE	13-14
					AE	11-13

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ CLEARWATER HARBOR (continued)						
44	4.12	7.22	9.62[1]	12.52	VE	12-15
					AE	10-12
	4.52	7.72	10.72[2]	12.62	VE	13-14
					AE	11-13
45	4.12	7.22	9.62[1]	12.52	VE	12-15
					AE	10-12
	4.42	7.52	10.52[2]	12.82	VE	12-14
					AE	11-13
46	4.12	7.22	9.62[1]	12.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	12.72	VE	12-13
					AE	10-12
47	4.12	7.22	9.62[1]	12.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	12.72	VE	12-14
					AE	10-12
48	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	12.72	AE	10-12
49	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	12.72	VE	12-13
					AE	10-12
50	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	11.72	VE	13-14
					AE	10-12

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ CLEARWATER HARBOR (continued)						
51	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	11.72	VE	12-13
					AE	10-12
52	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	11.72	VE	12-13
					AE	10-12
53	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	11.72	VE	12-13
					AE	10-12
GULF OF MEXICO/ THE NARROWS						
54	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	11.72	AE	10-12
55	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.22	7.32	10.42[2]	11.72	AE	10-12
56	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	10-12
	4.32	7.42	10.62[2]	11.92	AE	11
57	4.12	7.22	9.62[1]	11.52	VE	12-15
					AE	11-12
	4.22	7.42	10.62[2]	11.92	AE	11-12
58	4.22	7.32	9.82[1]	11.72	VE	12-16
					AE	11-12
	4.22	7.42	10.62[2]	11.92	AE	11-12

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ THE NARROWS (continued)						
59	4.22	7.32	9.82[1]	11.72	VE	12-16
					AE	10-12
	4.22	7.42	10.62[2]	11.92	AE	11-12
60	4.32	7.32	9.82[1]	11.72	VE	12-16
					AE	10-12
	4.22	7.42	10.62[2]	11.92	AE	11-12
61	4.22	7.32	9.82[1]	11.72	VE	12-16
					AE	10-12
	4.22	7.42	10.62[2]	11.92	AE	11-12
62	4.22	7.32	9.82[1]	11.72	VE	12-16
					AE	11-12
	4.22	7.42	10.62[2]	11.92	AE	11-12
63	4.32	7.42	10.02[1]	11.92	VE	12-16
					AE	10-12
	4.32	7.42	10.62[2]	11.92	AE	11
GULF OF MEXICO/ BOCA CIEGA BAY						
64	4.32	7.42	10.12[1]	11.92	VE	12-16
					AE	10-12
	4.32	7.62	10.82[2]	12.02	VE	13-14
					AE	11-13
65	4.32	7.42	10.12[1]	11.92	VE	12-16
					AE	10-12
	4.32	7.62	10.82[2]	12.02	VE	13
					AE	11-13
66	4.32	7.42	10.12[1]	11.92	VE	12-16
					AE	10-12
	4.32	7.62	10.82[2]	12.02	VE	13
					AE	11-13

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ BOCA CIEGA BAY (continued)						
67	4.32	7.42	10.12[1]	11.92	VE	12-16
					AE	10-12
	4.32	*	10.92[2]	*	VE	13-14
					AE	11-13
68	4.32	7.42	10.12[1]	11.92	VE	12-16
					AE	10-12
	4.32	*	10.92[2]	*	VE	13-15
					AE	11-13
69	4.32	7.42	10.12[1]	11.92	VE	12-16
					AE	10-12
	4.42	*	11.02[2]	*	VE	13-14
					AE	11-13
70	4.32	7.42	10.32[1]	12.02	VE	12-16
					AE	10-12
	4.42	*	11.12[2]	*	VE	13-14
					AE	11-13
71	4.32	7.42	10.32[1]	12.02	VE	12-16
					AE	10-12
	4.42	*	11.22[2]	*	VE	13-15
					AE	11-13
72	4.32	7.72	10.42[1]	12.12	VE	13-16
					AE	10-13
	4.52	*	11.32[2]	*	VE	13-14
					AE	11-13
73	4.32	7.72	10.42[1]	12.12	VE	13-16
					AE	10-13
	4.72	8.12	11.52[2]	12.82	VE	14-15
					AE	12-14

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ BOCA CIEGA BAY (continued)						
74	4.32	7.72	10.42[1]	12.12	VE	13-16
					AE	10-13
	4.62	8.12	11.52[2]	12.62	VE	14-15
					AE	12-14
75	4.32	7.92	10.62[1]	12.42	VE	13-17
					AE	11-13
	4.62	8.12	11.52[2]	12.62	VE	14
					AE	12-14
	4.62	8.12	9.92	12.62	AE	10
76	4.32	7.92	10.62[1]	12.42	VE	13-17
					AE	11-13
	4.62	8.12	11.52[2]	12.62	VE	13-14
					AE	12-13
					VE	12
	4.62	8.12	10.02	12.62	AE	10-12
77	4.32	7.92	10.62[1]	12.42	VE	13-17
					AE	11-13
	4.82	8.32	11.62[2]	12.92	VE	13-16
					AE	12-14
78	4.42	7.92	10.62[1]	12.42	VE	13-17
					AE	11-13
	4.82	8.32	11.62[2]	12.92	VE	14-15
					AE	12-14
79	4.42	7.92	10.62[1]	12.42	VE	13-17
					AE	11-13
	4.82	8.32	11.62[2]	12.92	VE	14-16
					AE	12-14
80	4.42	7.92	10.62[1]	12.42	VE	13-17
					AE	11-13
	4.82	8.32	11.62[2]	12.92	VE	13-14
					AE	12-14

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ BOCA CIEGA BAY (continued)						
81	4.62	8.12	10.82[1]	12.62	VE	13-17
					AE	11-13
	4.82	8.12	11.62[2]	12.92	VE	13-15
					AE	12-14
82	4.62	8.12	10.82[1]	12.62	VE	13-17
					AE	11-13
	4.82	8.12	11.62[2]	12.92	VE	14
					AE	12-14
83	4.62	8.12	10.82[1]	12.62	VE	13-17
					AE	11-13
	4.82	8.32	11.62[2]	12.92	VE	13-15
					AE	12-14
84	4.62	*	10.62[1]	*	VE	13-17
					AE	11-13
	4.82	8.32	11.62[2]	12.92	VE	13-15
					AE	12-14
85	4.42	*	10.32[1]	*	VE	12-16
					AE	10-12
	4.32	7.62	11.12[2]	12.42	VE	13-16
					AE	11-13
86	4.32	*	10.22[1]	*	VE	12-16
					AE	10-12
	4.32	7.62	11.12[2]	12.42	VE	13-16
					AE	11-13
87	4.12	7.32	9.92[1]	11.92	VE	12-16
					AE	10-12
	4.32	7.32	11.12[2]	12.42	VE	12-15
					AE	11-13

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[3]
GULF OF MEXICO/ BOCA CIEGA BAY (continued)						
88	4.12	7.32	9.92[1]	11.92	VE	12-16
					AE	10-12
	3.82	*	10.42[2]	*	VE	12
					AE	10-13
89	4.12	7.32	9.92[1]	11.82	VE	12-16
					AE	10-12
	3.82	*	10.42[2]	*	VE	12-14
					AE	10-13
GULF OF MEXICO						
90	4.22	7.22	9.72[1]	11.82	VE	12-15
					AE	10-12
	3.82	*	10.42[2]	*	VE	12-15
					AE	10-13
91	4.22	7.22	9.72[1]	11.82	VE	12-15
					AE	10-12
	3.82	6.92	8.52	11.92	VE	11-12
					AE	9-11
92	4.22	7.22	9.72[1]	11.82	VE	12-15
					AE	10-12
	3.82	6.92	8.52	11.92	VE	11-12
					AE	9-11
93	4.22	7.22	9.72[1]	11.82	VE	12-15
					AE	10-12
	3.82	6.92	8.52	11.92	AE	9-10
94	4.22	7.22	9.72[1]	11.82	VE	13-15
	3.82	6.92	8.52	11.92	VE	11-13
					AE	9-11
95	4.22	7.22	9.72[1]	11.82	VE	12-15
					AE	10-12
	3.82	6.92	8.52	11.92	VE	11-13
					AE	9-11

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Includes wave setup of 1.6 feet
[3]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

TABLE 9 - TRANSECT DATA - continued

FLOODING SOURCE	STILLWATER ELEVATIONS (feet NAVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR	ZONE	BASE FLOOD ELEVATION (feet NAVD)[2]
GULF OF MEXICO (continued)						
96	4.22	7.22	9.72[1]	11.82	VE	12-15
					AE	10-12
	3.82	6.92	8.52	11.92	VE	11-13
					AE	9-11
97	4.22	7.22	9.72[1]	11.82	VE	12-15
					AE	10-12
	3.82	6.92	8.52	11.92	VE	11-13
					AE	9-11

*Data Not Available
[1]Includes wave setup of 1.0 feet
[2]Because of map scale limits, the maximum wave elevation may not be shown of the FIRM

3.5 Vertical Datum

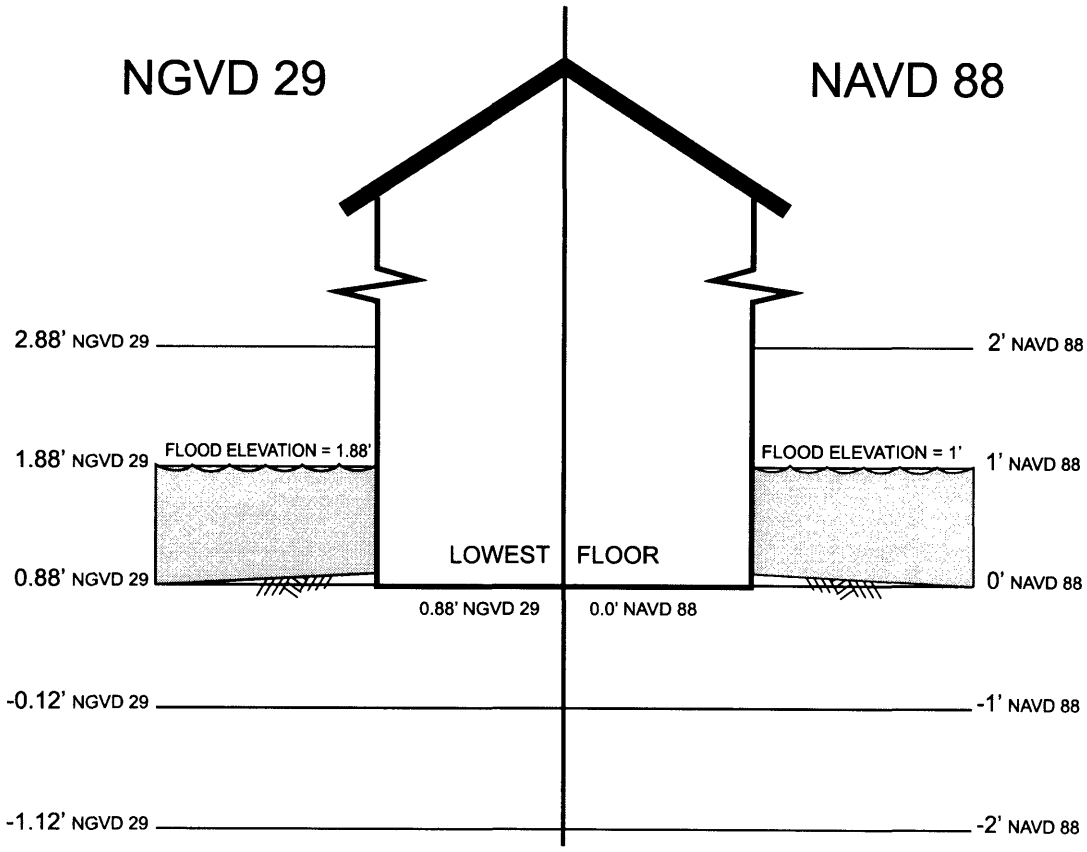
All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD 88. Structure and ground elevations in the community must, therefore, be referenced to NAVD 88. It is important to note that adjacent communities may be referenced to NGVD 29. This may result in differences in base flood elevations across the corporate limits between communities. Elevation reference marks used in this FIS, and their descriptions, are shown on the maps.

Prior versions of the FIS report and FIRM were referenced to NGVD 29. When a datum conversion is effected for an FIS report and FIRM, the flood profiles, base flood elevations (BFEs), and Elevation Reference Marks reflect the new datum values. To compare structure and ground elevations to 1% annual chance (100-year) flood elevations shown in the FIS and on the FIRM, the subject structure and ground elevations must be referenced to the new datum values.

As noted above, the elevations shown in the FIS report and on the FIRM for Pinellas County are referenced to NAVD 88. Ground, structure, and flood

elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. To get the conversion from NAVD 88 to NGVD 29, add 0.88 foot to the NAVD 88 elevation. The 0.88 foot value is an average for the entire county. Figure 3, "Datum Conversion Schematic," illustrates this conversion. The BFEs shown on the FIRM represent whole-foot rounded values. For example, a BFE of 12.4 will appear as 12 on the FIRM and 12.6 will appear as 13. Therefore, users that wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor(s) 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.



DATUM CONVERSION SCHEMATIC Figure 3

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 100-year floodplain data, which may include a combination of the following: 10-, 50-, 100-, and 500-year flood elevations; delineations of the 100-year and 500-year floodplains; and 100-year floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the county. For the flooding sources studied in detail, the 100- and 500-year floodplains have been delineated using the flood elevations determined at each cross section.

For the September 3, 2003, countywide FIS, the floodplain boundaries between cross sections along Alligator Creek Channels A, B, C, E, and H, were interpolated using topographic maps at a scale of 1:24,000 and 1:2,400 with a 5-foot contour interval and aerial photography. Boundaries along Anclote River and Stevenson Creek were determined using topographic maps at a scale of 1:24,000 with a 5-foot contour interval and aerial photography at scales of 1:2,400, 1:3,600, 1:4,800, 1:7,200, and 1:12,000.

For the September 3, 2003, countywide FIS, floodplain boundaries between cross sections along Brooker Creek Tributary A, Brooker Creek Tributary B, Curlew Creek, Hollin Creek Tributary A, Hollin Creek Tributary A-2, Hollin Creek Tributary B, Jerry Branch, Joe's Creek, Joe's Creek Tributary No. 4, Joe's Creek Tributary No. 5, and Miles Creek, were interpolated using topographic maps at a scale of 1:24,000 with a 2-foot contour interval, Southwest Florida Water Management District topographic maps at a scale of 1:1,200 with a 1-foot contour interval, aerial photography by the Florida Department of Transportation, and USGS topographic maps at a scale of 1:24,000 with 5-foot contour intervals (Florida Department of Environmental Protection, 1990; Federal Emergency Management Agency, August 15, 1989; and Federal Emergency Management Agency, February 17, 1989). For coastal areas, in this revision, the boundaries and hazard zones between transects were interpolated using the Pinellas County LIDAR data (Pinellas County Public Works Department, April, 2000) and high resolution aerial color images (Pinellas County Public Works Department, 2000).

For this revision, floodplain boundaries between cross sections along Stevenson Creek, Jeffords Street Tributary, Spring Branch, Flagler Drive Tributary, and Hammond Creek, and stillwater ponding areas, were interpolated using Southwest Florida Water Management District topographic maps at a scale of 1:1,200 with a

1-foot contour interval (Southwest Florida Water Management District, December 1985).

For the streams studied by approximate methods, the 100-year floodplain boundaries were taken from the previously printed FIRMs for the communities within Pinellas County. For these streams, the flood boundaries were determined using aerial photographs (Southwest Florida Water Management District, March 1977) and topographic maps (U.S. Department of the Interior, 1974).

The 100- and 500-year floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, VE, and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year 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.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the FIRM (Exhibit 2).

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 100-year 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 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS 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 are tabulated for selected cross sections (Table 10). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Alligator Creek Channel A								
A	1,045	75	257	6.6	9.2	9.2	10.2	1.0
B	1,715	55	583	2.9	11.7	11.7	12.5	0.8
C	2,685	95	734	2.3	13.4	13.4	14.3	0.9
D	3,435	56	460	3.7	16.6	16.6	17.3	0.7
E	4,505	55	357	4.8	16.7	16.7	17.7	1.0
F	5,215	176	2,552	0.7	19.2	19.2	19.7	0.5
G	9,510	167	2,440	0.7	19.5	19.5	20.1	0.6
H	11,890	87	509	2.7	21.6	21.6	22.6	1.0
I	13,540	361	2,253	0.6	25.4	25.4	26.4	1.0
J	14,005	266	1,502	0.8	26.1	26.1	27.0	0.9
K	16,285	82	371	3.2	28.7	28.7	29.5	0.8
L	16,845	29	245	4.7	30.6	30.6	31.4	0.8
M	18,045	26	152	7.7	36.1	36.1	37.0	0.9
N	20,170	25	95	7.2	44.9	44.9	45.9	1.0
O	21,090	75	235	1.8	49.8	49.8	50.8	1.0
P	21,960	143	896	0.5	50.1	50.1	51.1	1.0
Q	22,450	34	281	1.5	51.0	51.0	51.9	0.9
R	23,270	30	226	1.9	52.2	52.2	53.1	0.9
S	23,775	42	258	1.6	53.0	53.0	53.3	0.3
T	26,455	76	284	0.9	53.0	53.0	54.0	1.0

[1]Feet above mouth

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

ALLIGATOR CREEK CHANNEL A

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Alligator Creek Channel B								
A	340	27	104	7.3	19.4	17.9[2]	18.7	0.8
B	2,540	55	67	10.5	30.8	30.8	30.8	0.0
C	3,880	36	252	2.7	50.1	50.1	50.1	0.0
D	5,270	25	107	5.8	53.4	53.4	53.4	0.0
E	7,220	205	853	0.7	55.5	55.5	56.5	1.0
F	8,290	75	327	1.9	58.7	58.7	59.2	0.5
G	8,940	110	1,075	0.5	62.4	62.4	63.1	0.7
H	10,155	37	172	2.9	62.3	62.3	63.0	0.7
I	11,270	50	229	2.2	74.5	74.5	75.2	0.7
J	11,870	60	97	5.2	86.4	86.4	86.6	0.2
K	12,700	145	532	0.8	87.7	87.7	88.5	0.8
Alligator Creek Channel C								
A	220	45	58	7.3	37.6	36.7[2]	37.2	0.5
B	1,015	38	200	2.1	44.7	44.7	45.7	1.0
C	1,520	18	62	6.6	44.7	44.7	45.8	1.1
D	3,825	94	577	0.7	58.9	58.9	59.9	1.0
E	4,305	36	151	2.3	64.1	64.1	64.1	0.0
F	5,605	60	88	3.9	65.0	65.0	65.4	0.4

[1]Feet above mouth
[2]Elevation computed without consideration of backwater effects from Alligator Creek Channel A

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

ALLIGATOR CREEK CHANNEL B – ALLIGATOR CREEK CHANNEL C

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Alligator Creek Channel E								
A	200	81	409	1.2	9.0	7.9[2]	8.9	1.0
B	565	65	410	1.2	11.6	11.6	12.2	0.6
C	835	65	412	1.2	17.6	17.6	18.4	0.8
D	2,000	144	262	1.7	19.6	19.6	19.7	0.1
E	2,590	371	1,290	0.3	19.7	19.7	20.0	0.3
F	3,730	79	296	1.5	19.8	19.8	20.2	0.4
G	4,045	184	489	0.9	20.7	20.7	21.7	1.0
Alligator Creek Channel G								
A	860	160	591	0.6	19.5	19.3[3]	20.3	1.0
B	2,290	20	90	3.1	20.1	20.1	20.9	0.8
Alligator Creek Channel H								
A	1,560	54	416	1.0	25.6	24.5[3]	25.5	1.0
B	2,645	39	159	2.5	28.8	28.8	29.4	0.6
C	2,760	100	994	0.4	33.6	33.6	34.6	1.0
D	3,150	188	1,383	0.3	33.6	33.6	34.6	1.0
E	3,915	21	37	7.6	39.5	39.5	39.5	0.0
Anclote River								
A	31,750	2,107	14,202	0.5	8.9	6.6[4]	7.6	1.0

[1]Feet above mouth
[2]Elevation computed without consideration of backwater effects from Alligator Lake
[3]Elevation computed without consideration of backwater effects from Alligator Creek Channel A
[4]Elevation computed without consideration of backwater effects from Gulf of Mexico

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

ALLIGATOR CREEK CHANNEL E – ALLIGATOR CREEK CHANNEL G - ALLIGATOR CREEK CHANNEL H – ANCLOTE RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Brooker Creek Tributary A								
A	4,467[1]	562	3,363	0.7	8.0	8.0	8.8	0.8
B	6,554[1]	375	1,423	1.1	8.9	8.9	9.6	0.7
C	7,668[1]	350	1,173	2.0	11.0	11.0	11.5	0.5
D	9,149[1]	560	1,791	1.3	12.8	12.8	13.8	1.0
E	10,699[1]	318	1,336	1.7	13.6	13.6	14.4	0.8
F	13,696[1]	895	5,274	0.5	15.5	15.5	16.2	0.7
Brooker Creek Tributary B								
A	1,100[2]	156	651	1.6	7.8	5.0[4]	6.0	1.0
B	3,660[2]	572	2,130	0.1	7.8	6.9[4]	7.7	0.8
C	4,650[2]	602	2,580	0.1	7.8	7.6	8.3	0.7
D	7,360[2]	640	1,815	0.2	7.8	7.6	8.3	0.7
Curlew Creek								
A	2,079[3]	190	1,499	5.1	11.4[6]	6.5[5]	7.4	0.9
B	2,879[3]	161	1,206	6.3	11.4[6]	7.2[5]	8.1	0.9
C	3,765[3]	136	1,353	5.6	11.4[6]	8.7[5]	9.7	1.0
D	5,805[3]	320	2,940	2.6	12.7	12.7	13.5	0.8
E	7,655[3]	339	2,786	2.6	15.2	15.2	15.6	0.4
F	9,900[3]	320	2,876	2.6	17.3	17.3	18.3	1.0
G	11,797[3]	153	1,465	5.0	20.9	20.9	21.8	0.9

[1]Feet above confluence with Lake Tarpon
[2]Feet above confluence with Brooker Creek Tributary A
[3]Feet above mouth
[4]Elevation computed without consideration of backwater effects from Brooker Creek Tributary A
[5]Elevation computed without consideration of backwater effects from St. Joseph Sound
[6]Elevation computed with wave setup added but without consideration of wave effects from coastal flooding

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

BROOKER CREEK TRIBUTARY A – BROOKER CREEK TRIBUTARY B - CURLEW CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hollin Creek Tributary A								
A	5,880[1]	69	524	3.3	9.0	7.9[3]	8.8	0.9
B	8,993[1]	242	1,351	0.9	13.6	13.6	14.6	1.0
C	10,483[1]	201	1,137	1.1	14.8	14.8	15.7	0.9
D	12,292[1]	146	658	1.5	17.5	17.5	18.2	0.7
E	14,112[1]	604	2,850	0.3	18.5	18.5	19.3	0.8
F	18,596[1]	273	347	0.7	21.1	21.1	21.2	0.1
G	19,461[1]	311	447	0.5	21.7	21.7	22.0	0.3
Hollin Creek Tributary A-2								
A	3,020[2]	117	465	1.1	18.5	17.5[4]	18.2	0.7
Hollin Creek Tributary B								
A	1,581[2]	39	116	5.0	13.1	13.1	13.5	0.4
B	4,842[2]	220	791	0.9	18.3	18.3	19.0	0.7
C	5,664[2]	457	2,187	0.3	19.6	19.6	20.3	0.7
D	7,919[2]	730	3,080	0.2	19.6	19.6	20.3	0.7
E	9,129[2]	65	71	5.1	19.7	19.7	20.1	0.4
F	10,139[2]	167	520	0.7	20.3	20.3	21.2	0.9

[1]Feet above confluence with Salt Lake
[2]Feet above confluence with Hollin Creek Tributary A
[3]Elevation computed without consideration of backwater effects from Salt Lake
[4]Elevation computed without consideration of backwater effects from Hollin Creek Tributary A

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

HOLLIN CREEK TRIBUTARY A – HOLLIN CREEK TRIBUTARY A-2 - HOLLIN CREEK TRIBUTARY B

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Jerry Branch								
A	1,100	42	279	8.7	24.7	21.1[2]	21.8	0.7
B	2,153	139	771	3.1	28.7	28.7	29.2	0.5
C	4,045	198	782	2.7	33.5	33.5	34.0	0.5
D	4,615	80	337	6.2	35.0	35.0	35.2	0.2
E	5,124	75	414	5.1	36.4	36.4	37.3	0.9
F	5,314	60	434	4.9	36.7	36.7	37.5	0.8
G	5,579	92	749	2.8	37.3	37.3	38.0	0.7
H	6,648	70	391	5.4	38.5	38.5	39.3	0.8
I	7,093	64	280	7.5	39.4	39.4	39.9	0.5
J	8,425	200	2,245	0.9	42.0	42.0	42.3	0.3
K	10,070	171	1,613	0.7	44.2	44.2	45.2	1.0
L	10,998	52	346	3.3	45.2	45.2	46.2	1.0

[1]Feet above Curlew Creek
[2]Elevation computed without consideration of backwater effects from Curlew Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

JERRY BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Joe's Creek								
A	1,300	1,637	6,499	1.0	9.9	5.0[2]	5.3	0.3
B	2,800	227	1,932	4.7	10.0	5.0[2]	6.0	1.0
C	4,150	220	2,165	3.9	10.0	5.9[2]	6.8	0.9
D	6,880	212	2,021	4.2	10.0	7.9[2]	8.6	0.7
E	8,432	147	1,171	5.0	10.0	8.9[2]	9.4	0.5
F	10,202	105	1,074	5.5	10.2	10.2	10.5	0.3
G	11,080	114	985	6.0	10.9	10.9	11.2	0.3
H	13,142	124	1,475	4.0	12.3	12.3	12.5	0.2
I	13,762	122	1,511	3.9	12.5	12.5	12.7	0.2
J	14,994	70	602	4.5	14.7	14.7	14.9	0.2
K	16,379	58	495	5.0	15.6	15.6	15.7	0.1
L	17,447	64	539	4.6	17.5	17.5	18.1	0.6
M	19,082	54	433	5.7	18.8	18.8	19.2	0.4
N	20,578	50	366	5.1	20.0	20.0	20.3	0.3
O	21,698	44	311	6.0	21.3	21.3	21.5	0.2
P	22,398	47	326	5.7	22.4	22.4	22.5	0.1
Q	23,058	50	315	5.9	23.5	23.5	23.6	0.1
R	24,285	59	501	3.7	31.4	31.4	31.4	0.0
S	24,770	51	393	4.7	31.8	31.8	31.8	0.0
T	27,097	61	361	3.2	33.7	33.7	33.7	0.0
U	28,557	240	2,375	0.5	34.1	34.1	34.1	0.0
V	29,991	37	233	2.3	34.6	34.6	34.6	0.0
W	30,391	171	856	0.6	34.7	34.7	35.7	1.0
X	31,822	171	856	0.6	45.2	45.2	46.2	1.0
Y	33,611	90	857	1.3	45.4	45.4	46.4	1.0
Z	34,411	80	878	0.7	45.4	45.4	46.4	1.0

[1]Feet above confluence with Cross Bayou Canal
[2]Elevation computed without consideration of backwater effects from Boca Ciega Bay

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

JOE'S CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Joe's Creek Tributary No. 4								
A	890	33	253[2]	10.8	10.0	10.0	10.0	0.0
B	1,370	49	353[2]	8.6	10.1	10.1	10.1	0.0
C	2,200	47	351[2]	6.3	11.8	11.8	11.8	0.0
D	3,035	47	364[2]	5.6	12.0	12.0	12.0	0.0
E	4,626	46	413[2]	6.7	12.5	12.5	12.5	0.0
F	5,406	45	285[2]	5.5	13.8	13.8	13.8	0.0
G	5,801	43	327[2]	5.1	14.0	14.0	14.6	0.6
H	7,226	39	269[2]	4.8	14.3	14.3	14.8	0.5
I	8,451	90	321[2]	4.6	14.6	14.6	15.3	0.7
J	10,201	34	245[2]	3.5	15.0	15.0	15.4	0.4
K	10,406	28	344[2]	5.2	15.8	15.8	16.1	0.3
L	11,779	75	305[2]	4.9	16.6	16.6	16.6	0.0
M	13,072	70	185[2]	7.2	17.5	17.5	17.8	0.3
N	13,612	80	539[2]	6.0	18.2	18.2	18.7	0.5
O	14,577	34	214[2]	2.8	18.4	18.4	19.2	0.8
Joe's Creek Tributary No. 5								
A	1,340	106	513	2.2	10.0	5.0[3]	6.0	1.0
B	4,748	22	83	6.1	10.0	8.5[3]	8.9	0.4
C	7,327	27	163	0.6	13.6	13.6	14.0	0.4
D	7,677	36	145	0.6	13.6	13.6	14.0	0.4
E	8,850	50	131	0.7	14.0	14.0	14.3	0.3
F	9,992	15	53	0.8	15.2	15.2	15.7	0.5

[1] Feet above confluence with Joe's Creek
[2] From HEC-RAS run
[3] Elevation computed without consideration of backwater effects from Joe's Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

JOE'S CREEK TRIBUTARY NO. 4 – JOE'S CREEK TRIBUTARY NO. 5

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Miles Creek								
A	880	57	342	8.9	12.8	8.3[2]	8.6	0.3
B	2,762	56	442	6.2	14.0	14.0	14.1	0.1
C	4,128	108	567	4.8	16.5	16.5	16.6	0.1
D	5,469	100	692	4.0	17.2	17.2	17.7	0.5
E	6,865	58	603	2.2	17.7	17.7	18.6	0.9
F	7,650	95	587	1.5	17.9	17.9	18.9	1.0
G	8,100	93	456	1.9	17.9	17.9	18.9	1.0
H	9,420	47	337	1.2	18.4	18.4	19.4	1.0
I	11,351	94	416	1.0	18.5	18.5	19.5	1.0

[1]Feet above Joe's Creek
[2]Elevation computed without consideration of backwater effects from Joe's Creek

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

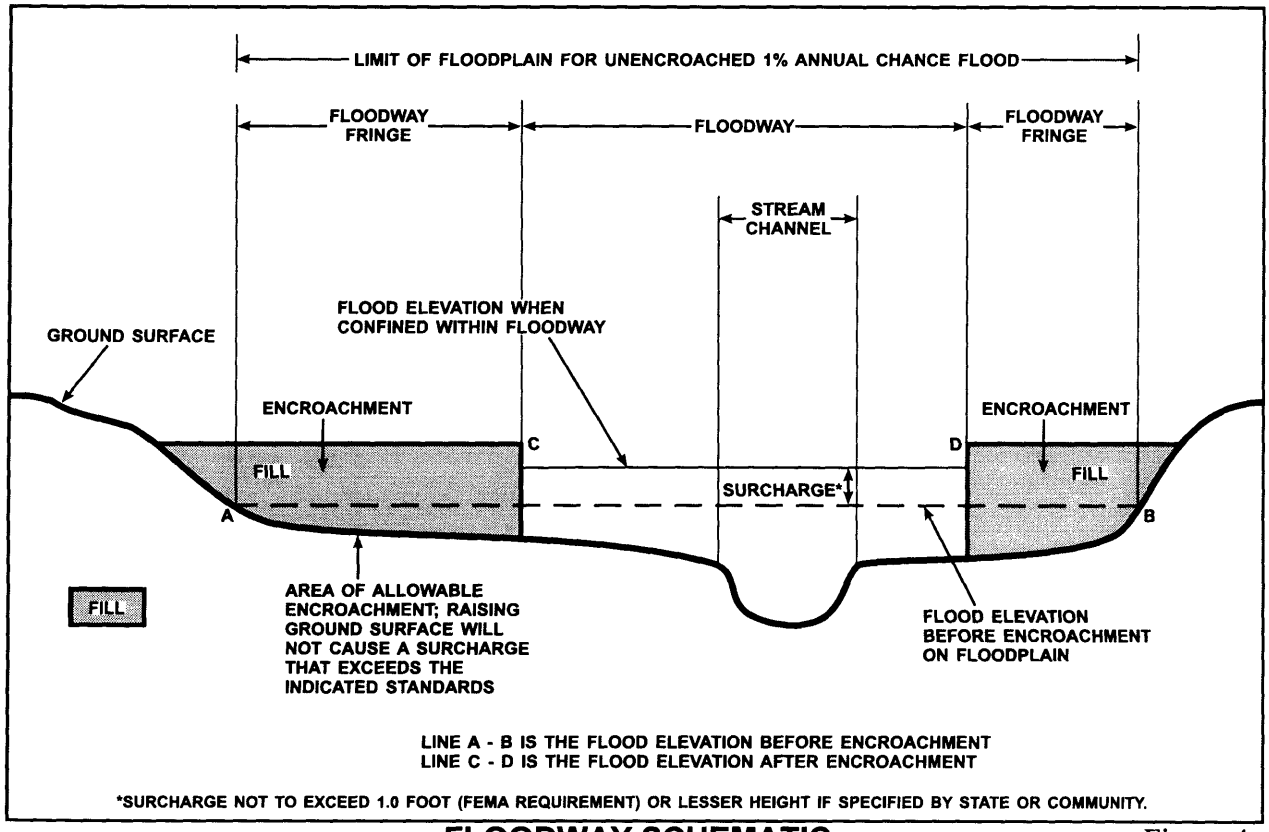
MILES CREEK

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 10, "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.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 10 for certain downstream cross sections of Alligator Creek Channels B, C, E, G, and H; Anclote River; Brooker Creek Tributary B; Curlew Creek; Hollin Creek Tributary A; Hollin Creek Tributary A-2; Jerry Branch; Joe's Creek; Joe's Creek Tributary No. 4; Joe's Creek Tributary No. 5; and Miles Creek are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplains will not cause more than a 1.0-foot increase in the base flood elevations at any point within the community.

The area between the floodway and 100-year 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 of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4, "Floodway Schematic."



FLOODWAY SCHEMATIC Figure 4

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. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations 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 the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations 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 the areas of 100-year 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 AR

Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations 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 500-year floodplain, areas within the 500-year floodplain, and areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

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 rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations 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 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The current FIRM presents flooding information for the entire geographic area of Pinellas County. Previously, separate Flood Hazard Boundary Maps and/or FIRMs were prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. 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, up to and including the September 3, 2003, countywide FIS, are presented in Table 11, "Community Map History."

7.0 OTHER STUDIES

FISs have been prepared for the unincorporated areas of Hillsborough (Federal Emergency Management Agency, August 15, 1989) and Pasco Counties (Federal Emergency Management Agency, February 17, 1989).

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Pinellas County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS reports, FIRMs, and Supplemental Wave Height Analysis reports for all of the jurisdictions within Pinellas County.

8.0 LOCATION OF DATA

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

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Belleair, Town of	July 17, 1970	None	May 14, 1971	July 1, 1974 August 18, 1976 January 19, 1983 September 3, 2003
Belleair Beach, City of	May 14, 1971	None	May 14, 1971	July 1, 1974 November 28, 1975 March 2, 1983 September 3, 2003
Belleair Bluffs, City of	June 28, 1974	June 11, 1976	August 15, 1977	January 19, 1983 September 3, 2003
Belleair Shore, Town of	May 14, 1971	None	May 14, 1971	July 1, 1974 October 17, 1975 March 2, 1983 September 3, 2003
Clearwater, City of	June 9, 1971	None	June 9, 1971	July 1, 1974 July 8, 1977 June 1, 1983 August 19, 1991 July 2, 1992 August 18, 1992 September 3, 2003
Dunedin, City of	May 14, 1971	None	May 14, 1971	July 1, 1974 October 22, 1976 March 1, 1984 July 2, 1992 September 3, 2003

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Gulfport, City of	August 6, 1970	None	May 21, 1971	July 1, 1974 December 26, 1975 December 17, 1976 November 1, 1984 September 3, 2003
Indian Rocks Beach, City of	July 17, 1970	None	May 7, 1971	July 1, 1974 August 13, 1976 March 2, 1983 September 3, 2003
Indian Shores, Town of	May 22, 1970	None	May 21, 1971	July 9, 1971 July 1, 1974 June 6, 1975 March 2, 1983 September 3, 2003
Kenneth City, Town of	June 28, 1974	February 6, 1976	January 16, 1981	September 1, 1983 September 3, 2003 August 18, 2009
Largo, City of	May 28, 1971	None	May 28, 1971	July 1, 1974 October 22, 1976 April 7, 1978 March 16, 1983 September 3, 2003
Madeira Beach, City of	June 5, 1970	None	May 7, 1971	July 1, 1974 October 17, 1975 March 2, 1983 September 3, 2003

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
North Redington Beach, Town of	May 22, 1970	None	May 14, 1971	July 1, 1974 October 31, 1975 January 7, 1977 March 2, 1983 September 3, 2003
Oldsmar, City of	September 8, 1970	None	May 21, 1971	July 1, 1974 November 12, 1976 June 1, 1983 September 3, 2003
Pinellas County (Unincorporated Areas)	June 18, 1971	None	June 18, 1971	July 1, 1974 July 8, 1977 June 1, 1983 October 1, 1983 July 2, 1992 May 6, 1996 September 3, 2003 August 18, 2009
Pinellas Park, City of	June 7, 1974	March 28, 1975	August 15, 1977	June 15, 1982 May 15, 1984 February 17, 1989 September 3, 2003 August 18, 2009
Redington Beach, Town of	May 15, 1970	None	May 7, 1971	July 1, 1974 September 26, 1975 March 2, 1983 September 3, 2003

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Redington Shores, Town of	May 8, 1971	None	May 8, 1971	July 1, 1974 October 17, 1975 March 2, 1983 September 3, 2003
Safety Harbor, City of	May 14, 1971	None	May 14, 1971	July 1, 1974 October 22, 1976 June 1, 1983 September 3, 2003
Seminole, City of	November 29, 1974	July 30, 1976	June 1, 1981	January 18, 1984 September 3, 2003
South Pasadena, City of	June 16, 1970	None	May 14, 1971	July 1, 1974 May 23, 1975 May 23, 1975 October 31, 1975 November 1, 1984 September 3, 2003
St. Pete Beach, City of	May 22, 1970	None	May 22, 1970	July 1, 1974 October 17, 1975 March 2, 1983 September 3, 2003

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
St. Petersburg, City of	June 17, 1970	None	May 28, 1971	July 16, 1971 July 1, 1974 June 10, 1977 September 30, 1983 July 2, 1992 November 2, 1994 September 3, 2003 August 8, 2009
Tarpon Springs, City of	August 6, 1970	None	May 14, 1971	July 1, 1974 January 7, 1977 June 1, 1983 September 3, 2003
Treasure Island, City of	May 8, 1971	None	May 8, 1971	July 1, 1974 September 26, 1975 March 2, 1983 September 3, 2003

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

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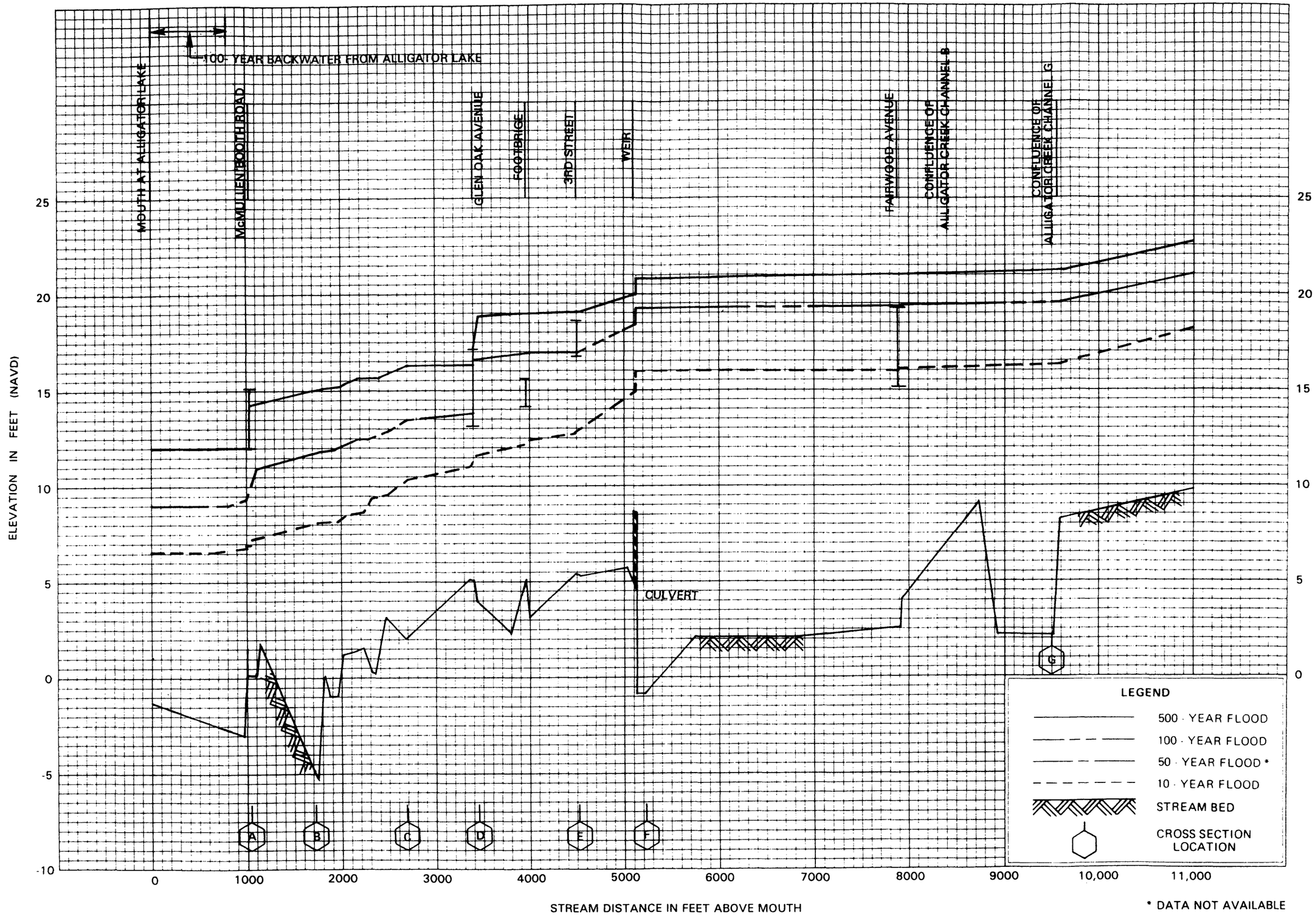
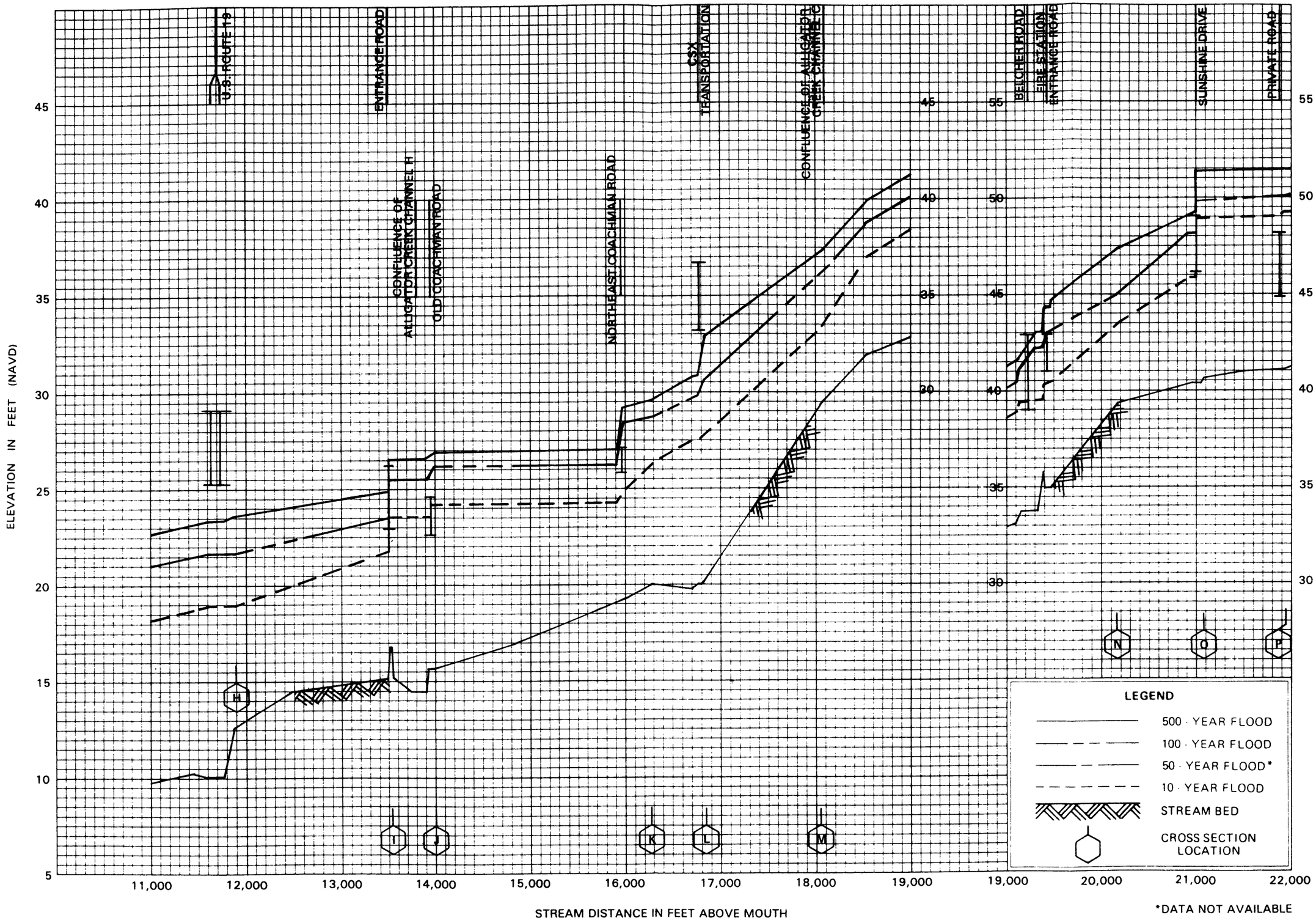


FLOOD PROFILES

ALLIGATOR CREEK CHANNEL A

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS



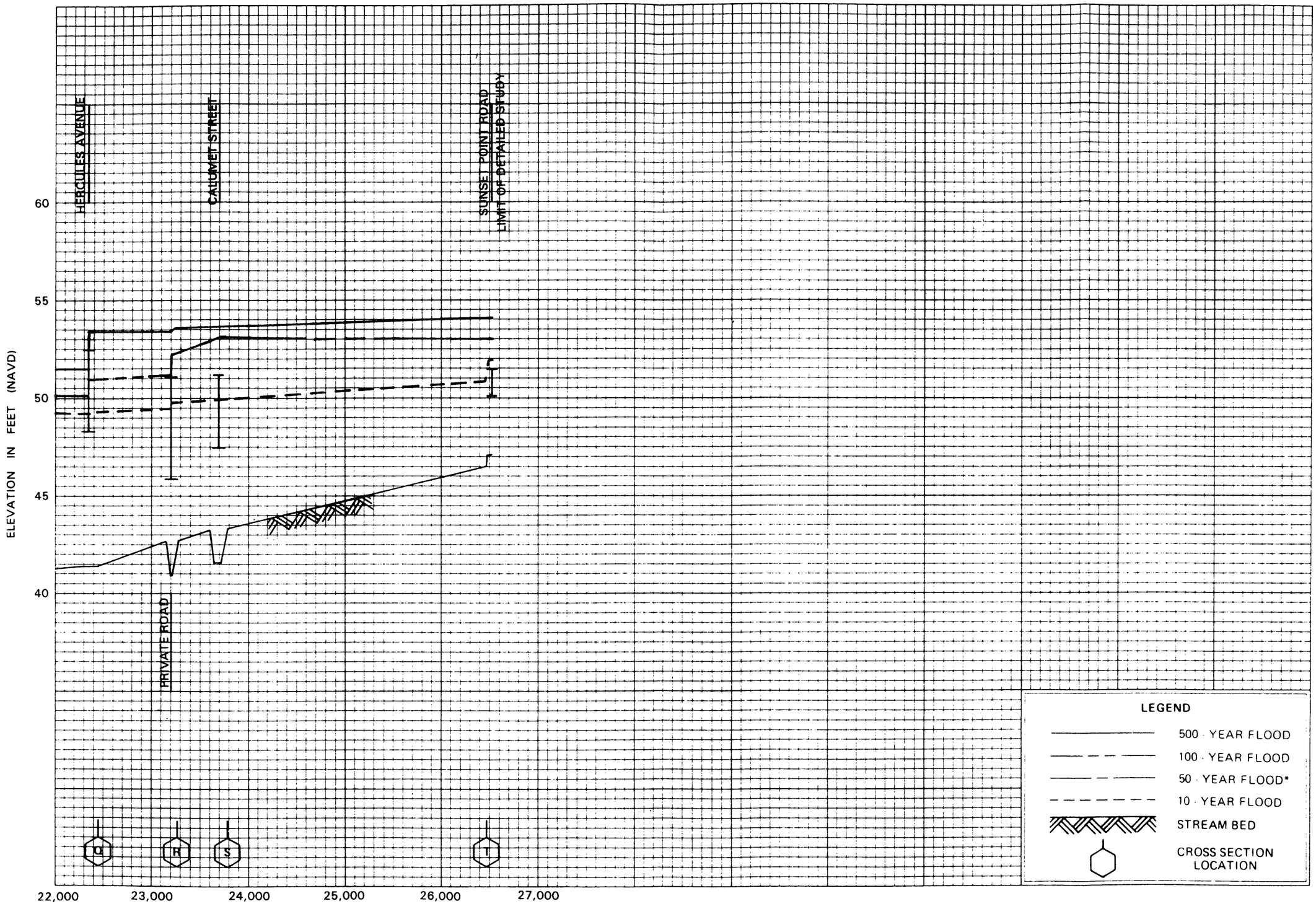
FLOOD PROFILES

ALLIGATOR CREEK CHANNEL A

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

02P



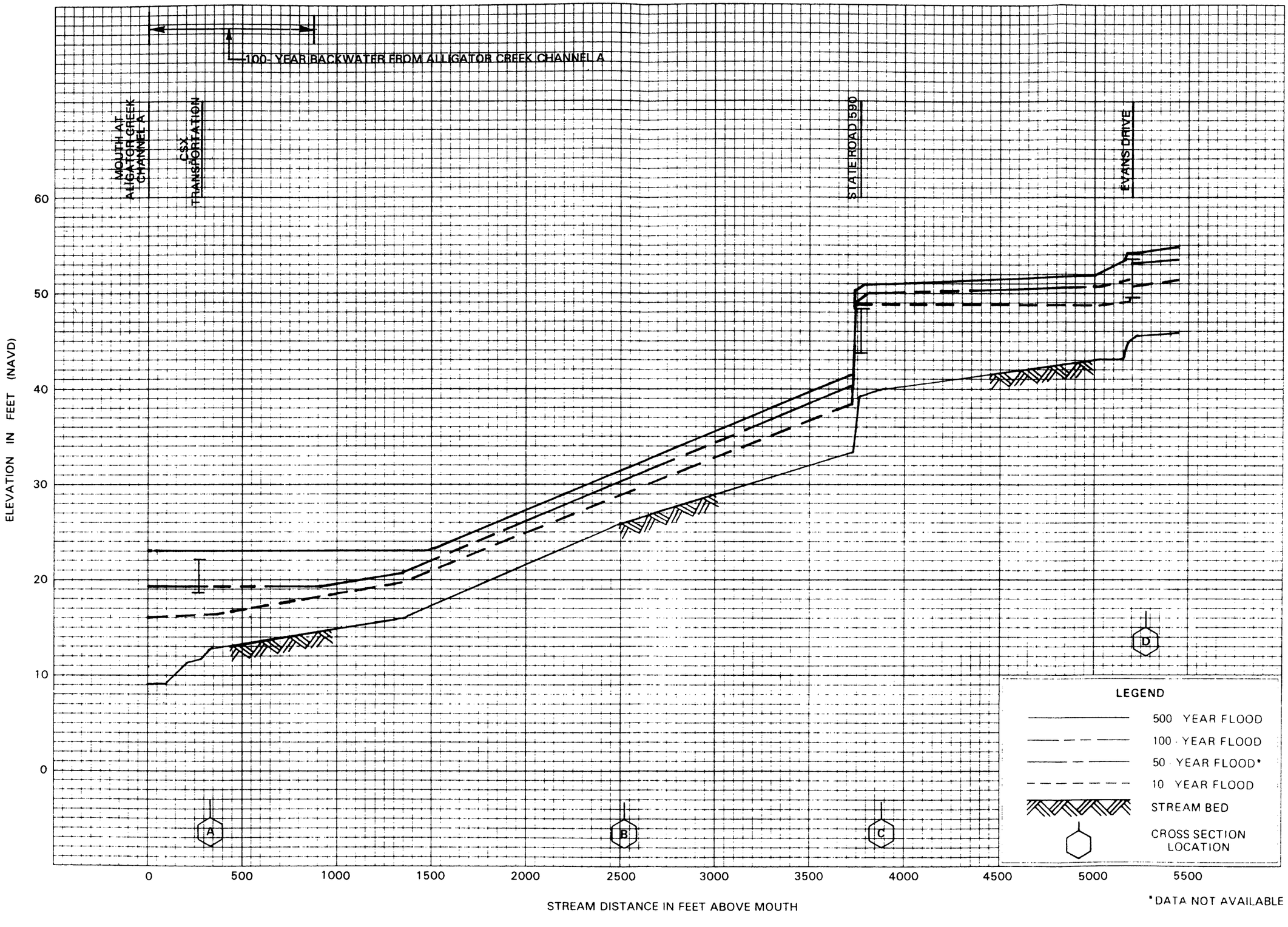
* DATA NOT AVAILABLE

FLOOD PROFILES

ALLIGATOR CREEK CHANNEL A

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS



FLOOD PROFILES

ALLIGATOR CREEK CHANNEL B

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD)

40 50 60 70

STREAM DISTANCE IN FEET ABOVE MOUTH

5500 6000 6500 7000 7500 8000 8500 9000 9500 10,000 10,500 11,000

SOUTH DRIVE

MAIN STREET

E

F

G

B

LEGEND

500 - YEAR FLOOD

100 - YEAR FLOOD

50 - YEAR FLOOD *

10 - YEAR FLOOD

STREAM BED

CROSS SECTION LOCATION

* DATA NOT AVAILABLE

40 50 60 70

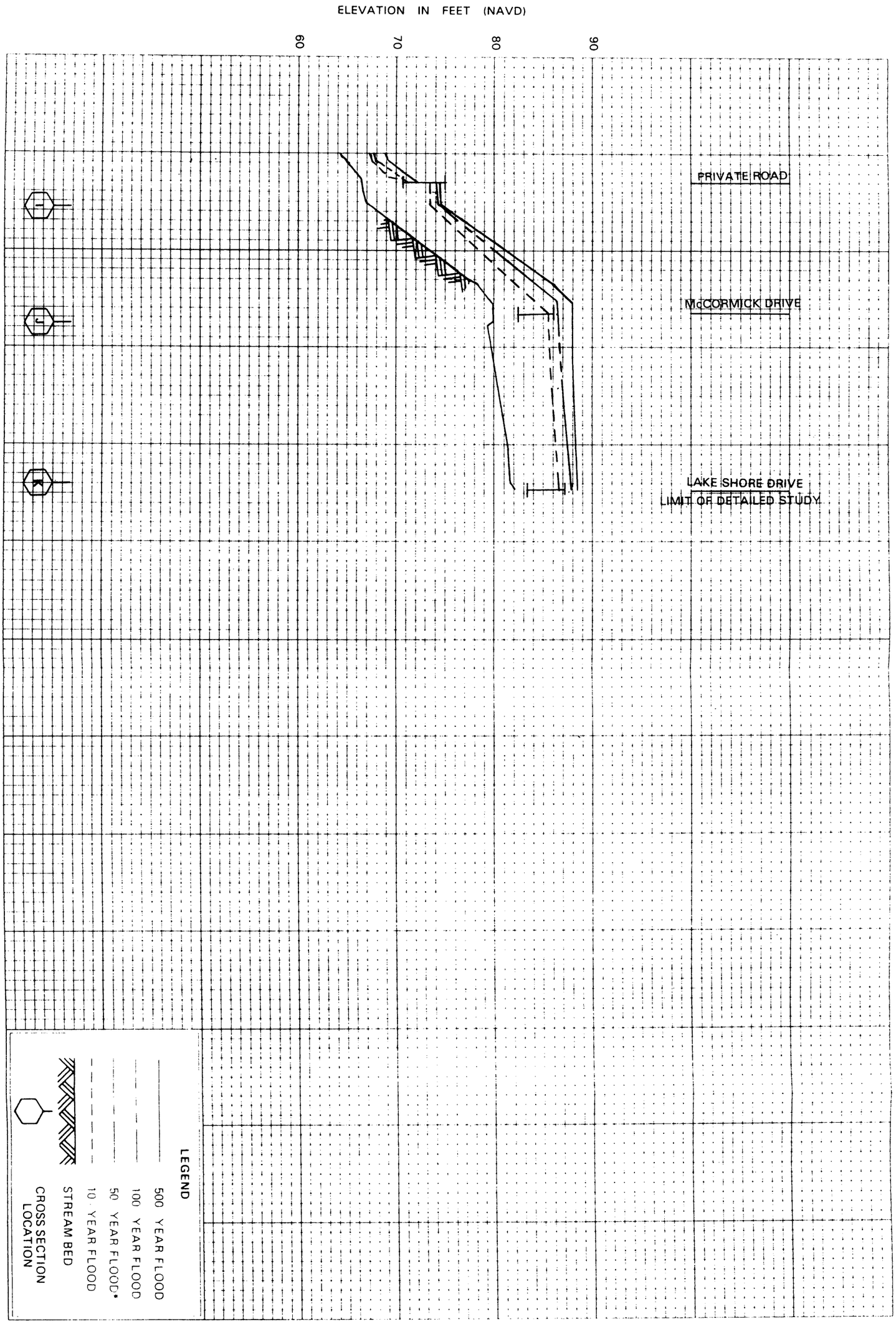
FEDERAL EMERGENCY MANAGEMENT AGENCY

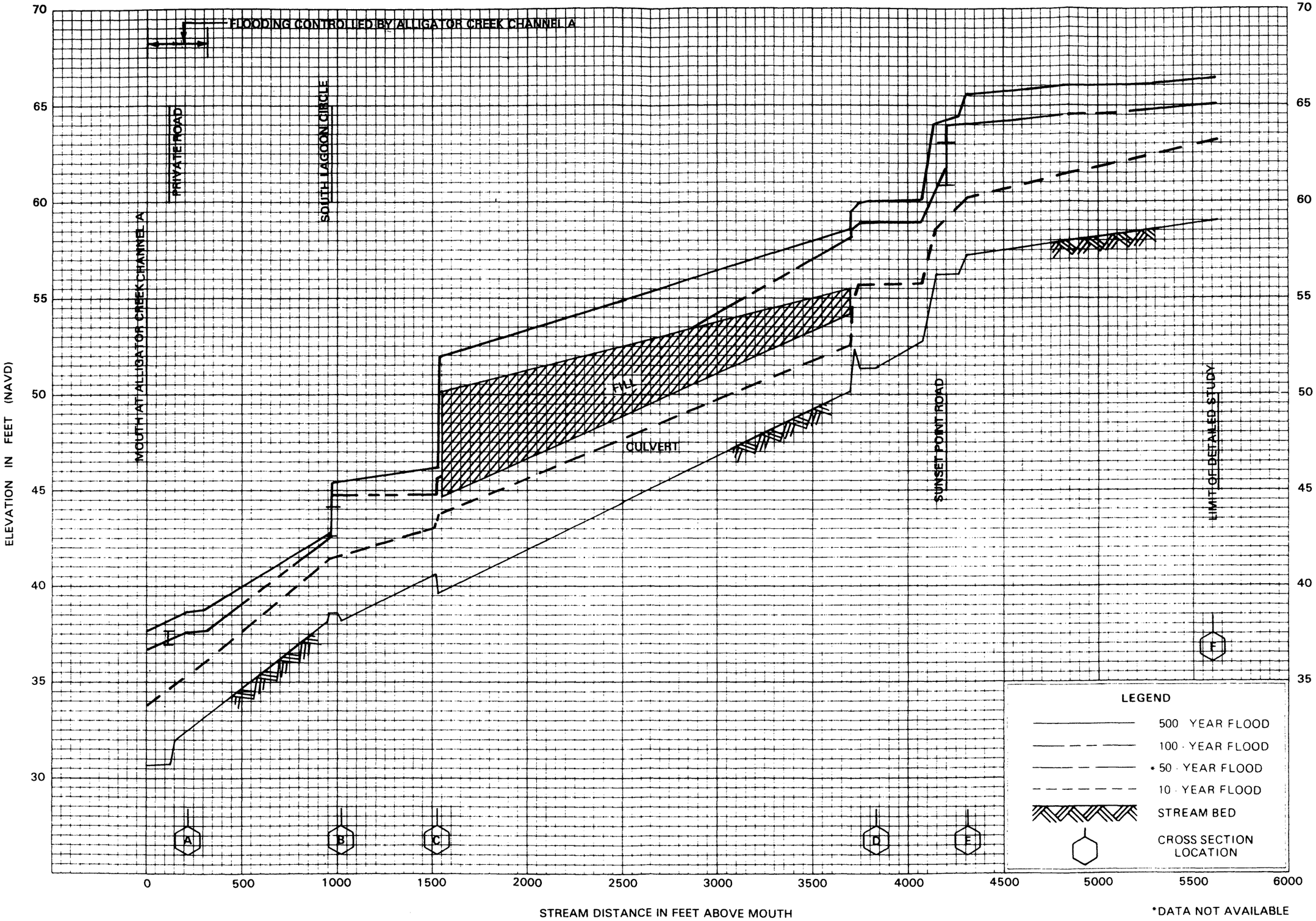
PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOOD PROFILES

ALLIGATOR CREEK CHANNEL B

05P


ELEVATION IN FEET (NAVD)
60
70
80
90
11,000
11,500
12,000
12,500
13,000
STREAM DISTANCE IN FEET ABOVE MOUTH
PRIVATE ROAD
McCORMICK DRIVE
LAKE SHORE DRIVE
LIMIT OF DETAILED STUDY
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD*
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
*DATA NOT AVAILABLE



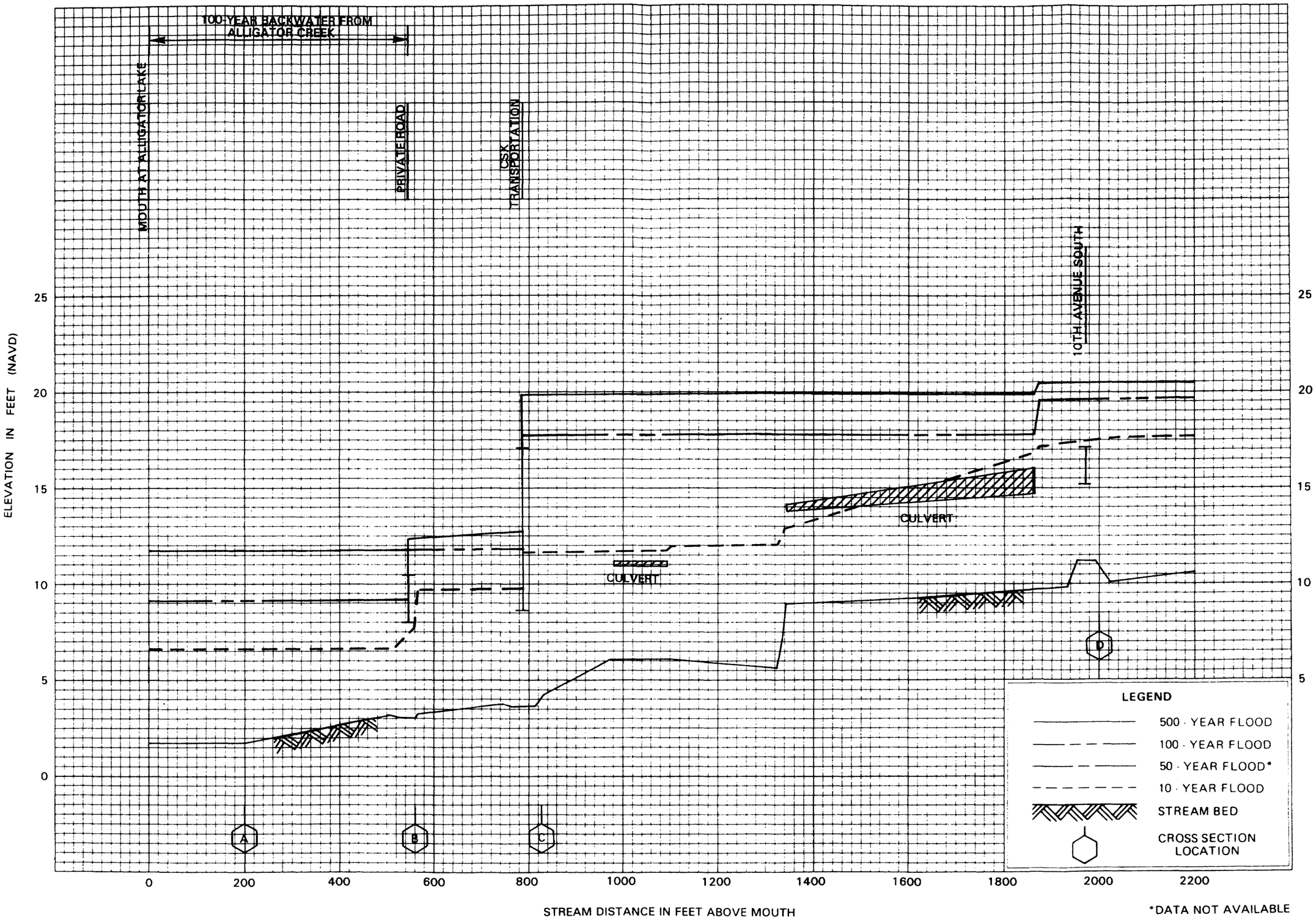
FLOOD PROFILES

ALLIGATOR CREEK CHANNEL C

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

07P



FLOOD PROFILES

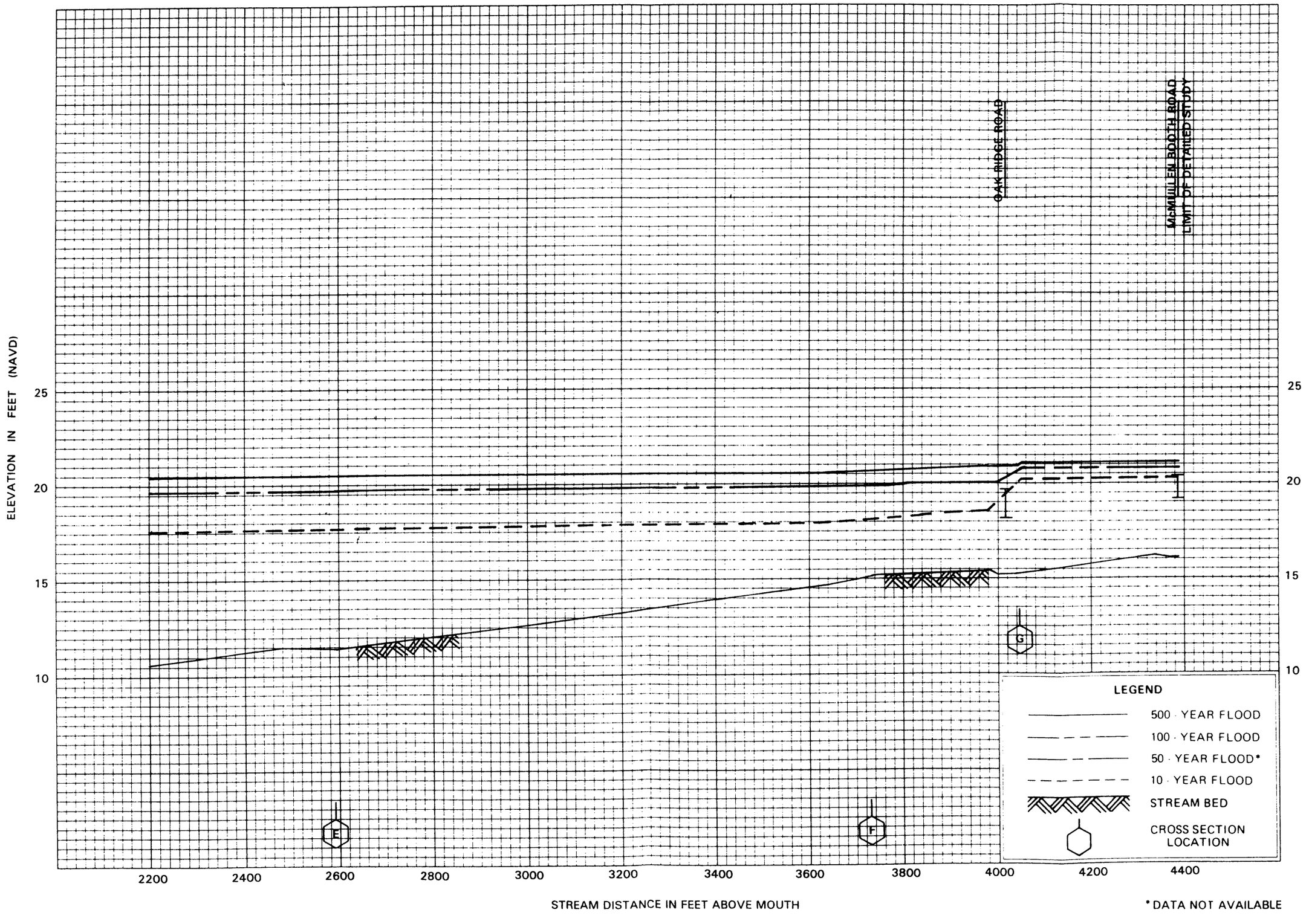
ALLIGATOR CREEK CHANNEL E

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

FLOOD PROFILES

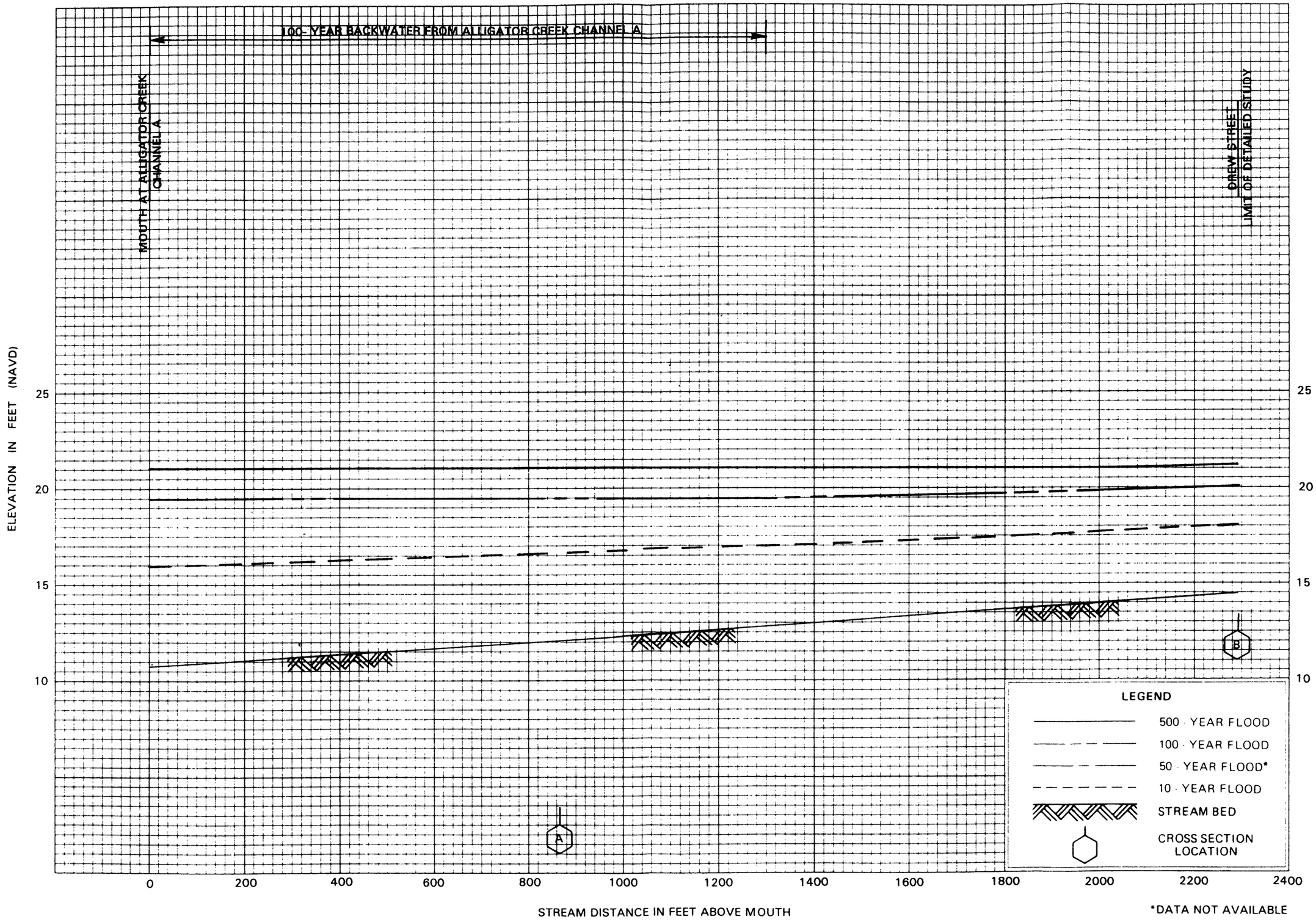
ALLIGATOR CREEK CHANNEL E



FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

09P



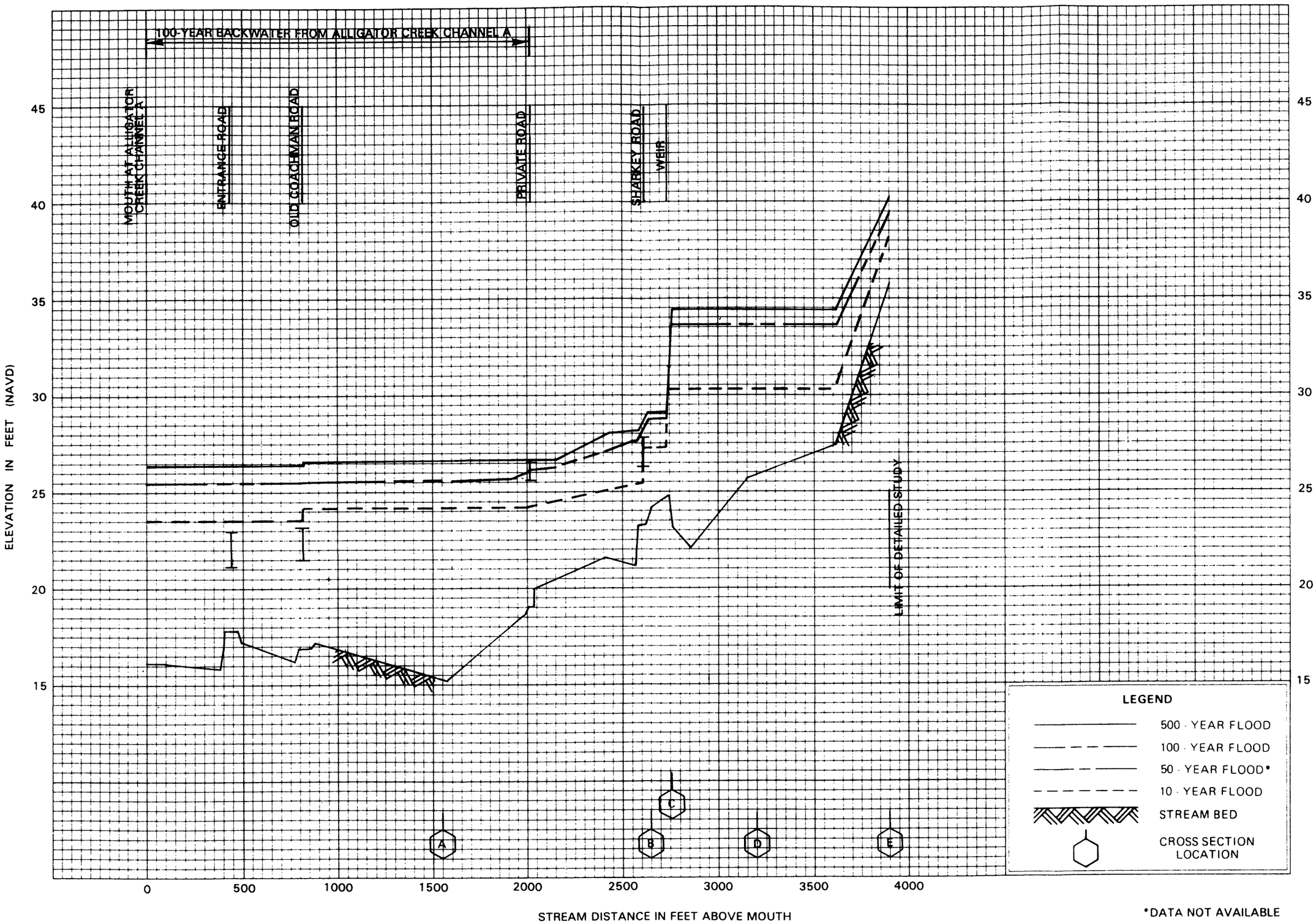
FLOOD PROFILES

ALLIGATOR CREEK CHANNEL G

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

10P



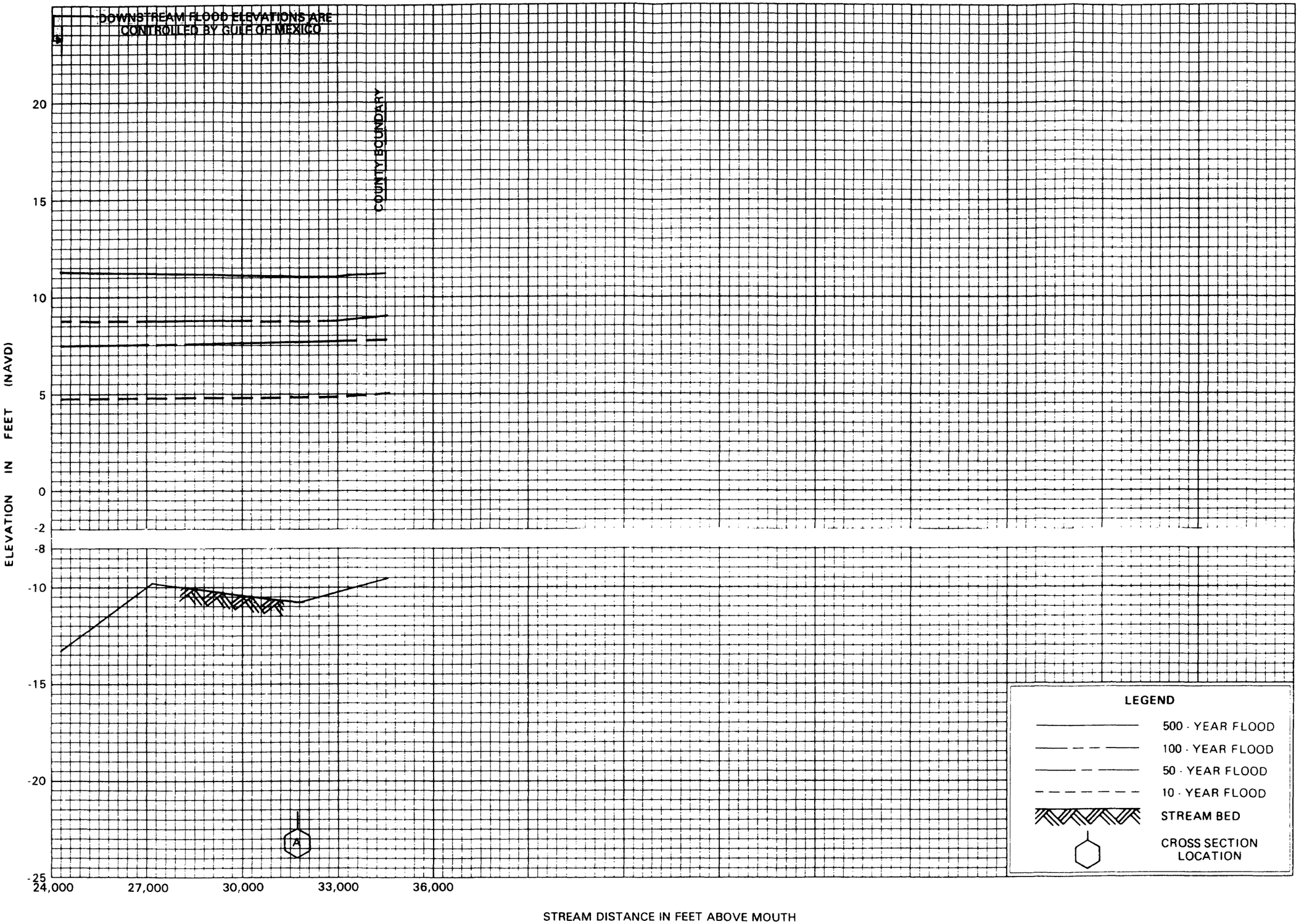
*DATA NOT AVAILABLE

FLOOD PROFILES

ALLIGATOR CREEK CHANNEL H

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS



FLOOD PROFILES

ANCLOTE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

12P

ELEVATION IN FEET (NAVD)

-15 -10 -5 0 5 10 15 20 25 30

STREAM DISTANCE IN FEET FROM ABOVE CONFLUENCE WITH LAKE TARPON

1500 2500 3500 4500 5500 6500 7500 8500 9500 10500 11500 12500 13500 14500

DOWNSTREAM FLOOD ELEVATIONS ARE CONTROLLED BY LAKE TARPON

100-YEAR BACKWATER FROM LAKE TARPON

EAST LAKE ROAD

PIPELINE

CONFLUENCE OF BROOKER CREEK TRIBUTARY B

TARPON WOODS BLVD.

GOLF CART BRIDGE

GOLF CART BRIDGE

WOOD AND STEEL BRIDGE

FOOTBRIDGE

RIDGEMOOR BLVD.

LIMIT OF DETAILED STUDY

A B C D E F G H I J

LEGEND

500 YEAR FLOOD

100 YEAR FLOOD

50 YEAR FLOOD

10 YEAR FLOOD

STREAM BED

CROSS SECTION LOCATION

-5 0 5 10 15 20 25 30

FEDERAL EMERGENCY MANAGEMENT AGENCY

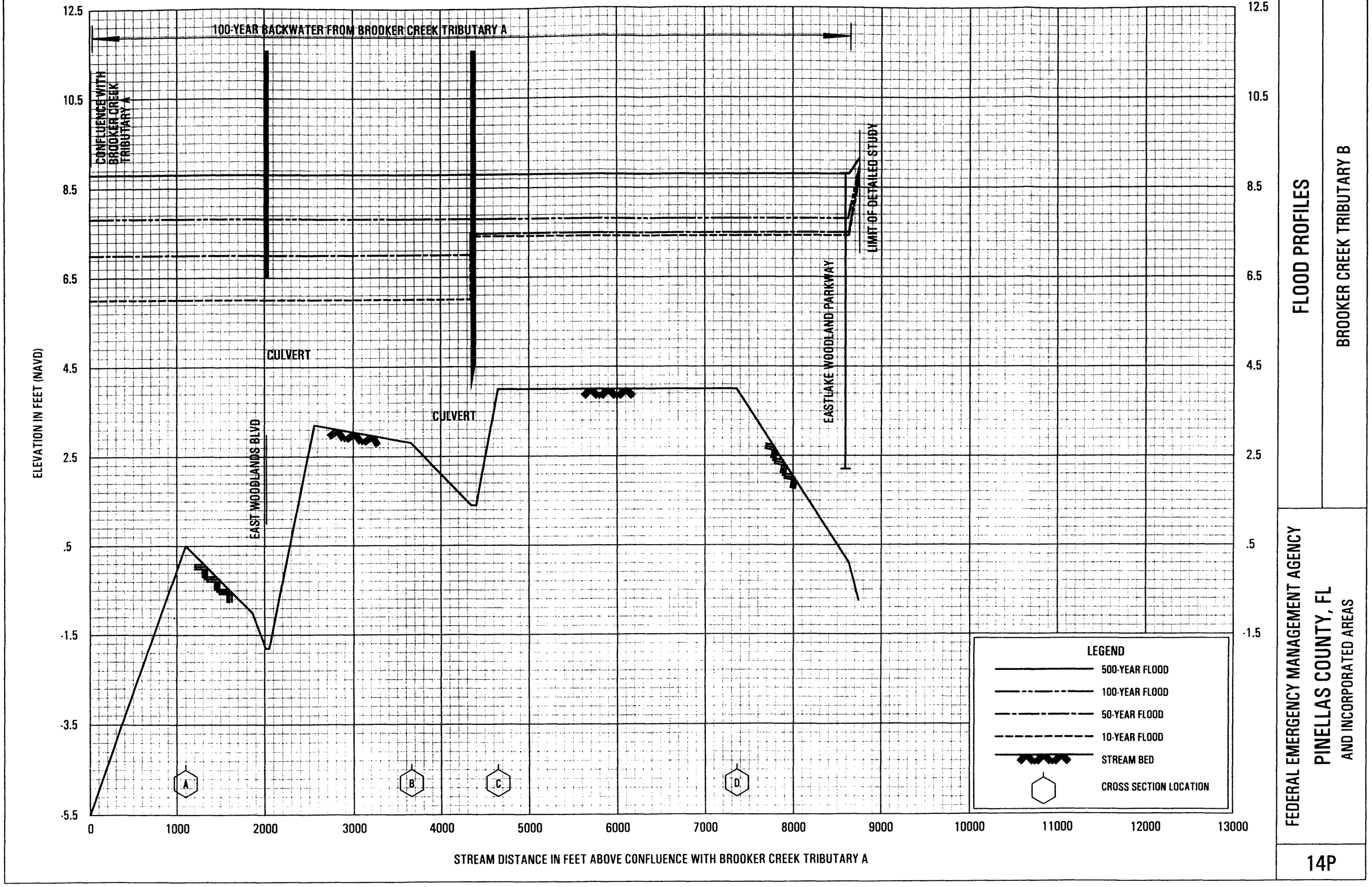
PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

BROOKER CREEK TRIBUTARY A

13P



FLOOD PROFILES

BROOKER CREEK TRIBUTARY B

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD 88)

30
25
20
15
10
5
0
−5
−10
−15

0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000 13000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH JOE'S CREEK (FEET)

A B C D E F G H I J K L

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

CHANNEL 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

15P

FLOOD PROFILES

CHANNEL 1

ELEVATION IN FEET (NAVD 88)

35
30
25
20
15
10
5
0
−5
−10

13000 14000 15000 16000 17000 18000 19000 20000 21000 22000 23000 24000 25000 26000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH JOE'S CREEK (FEET)

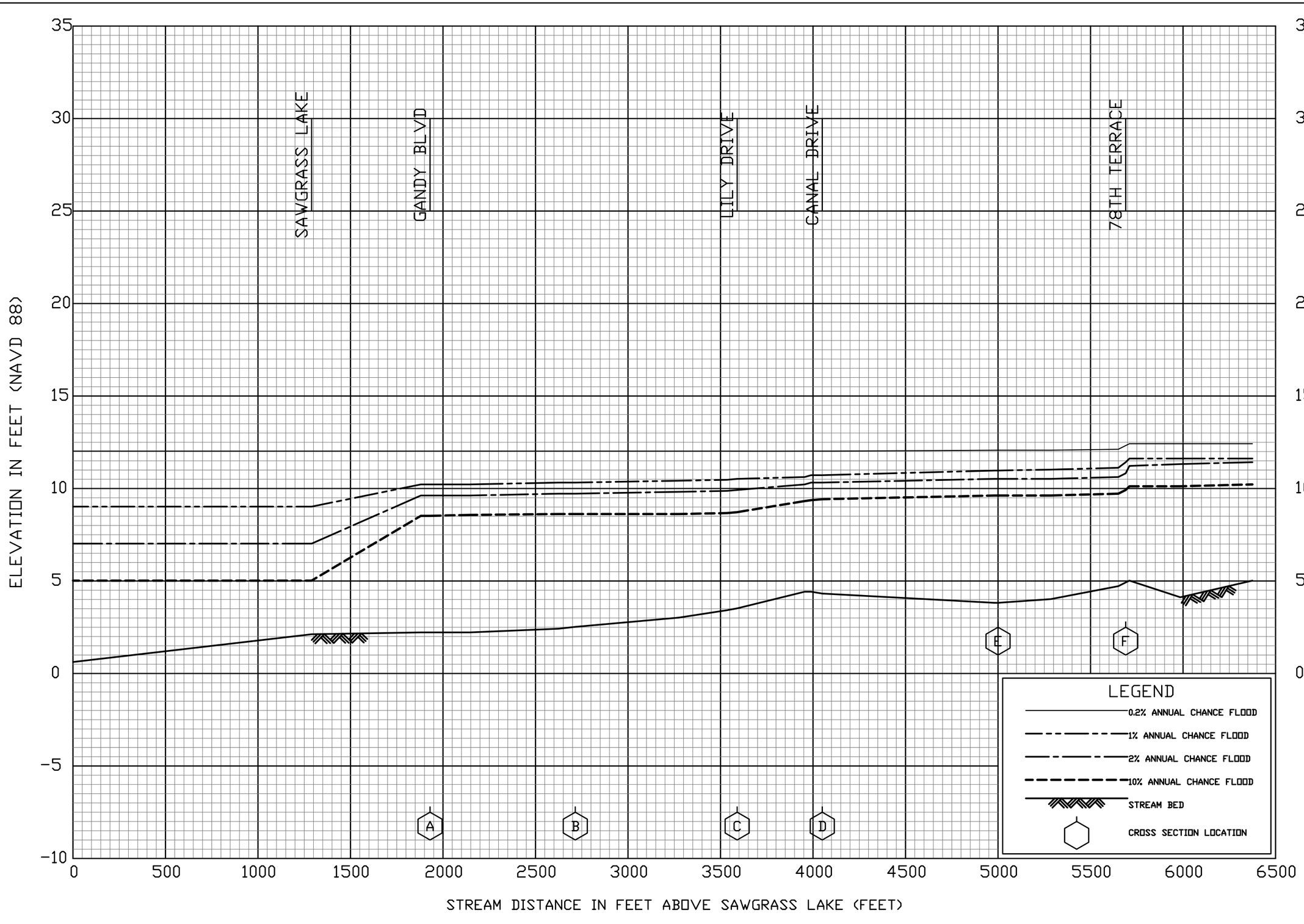
M N O

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS



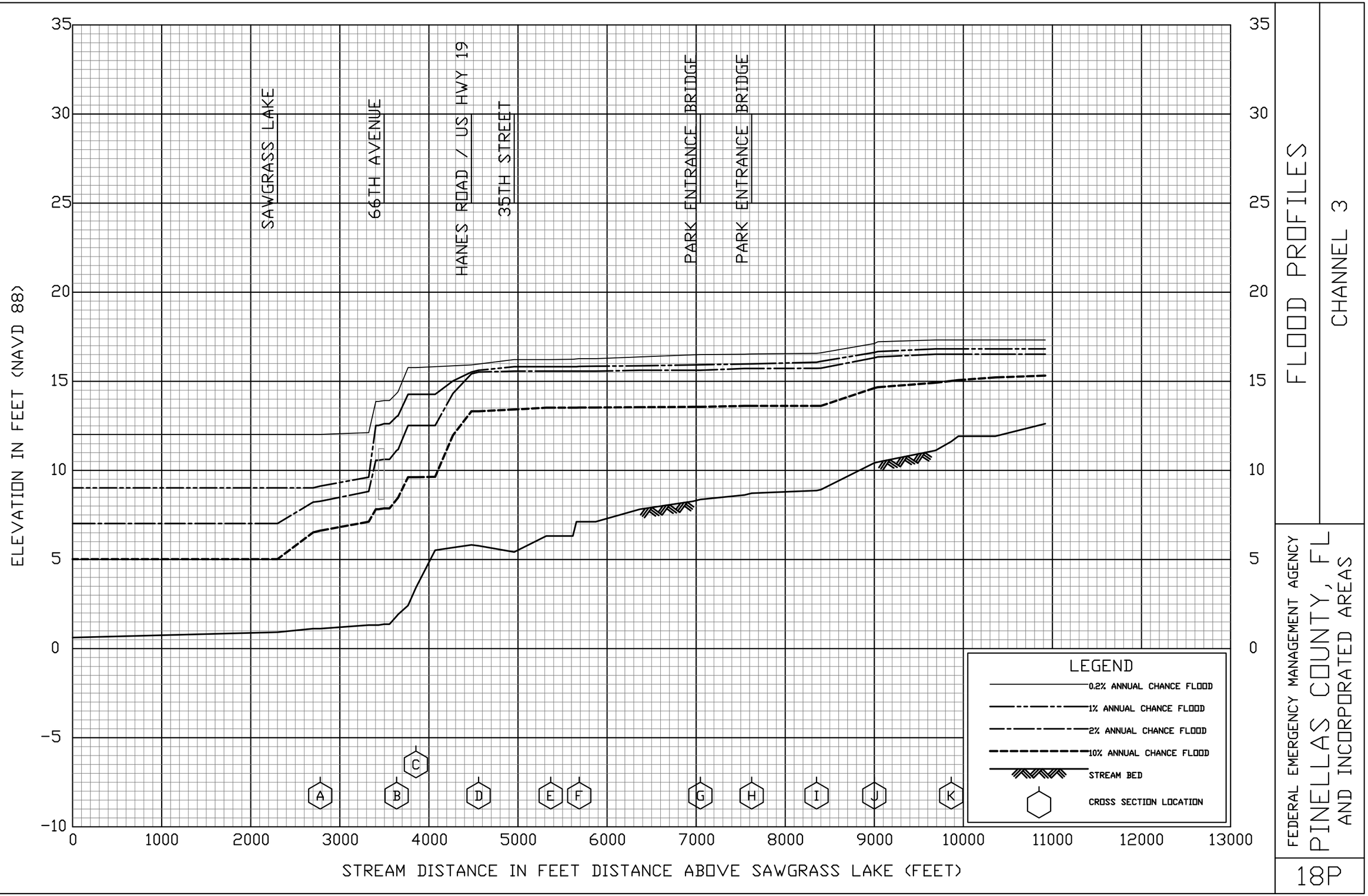
FLOOD PROFILES

CHANNEL 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

17P



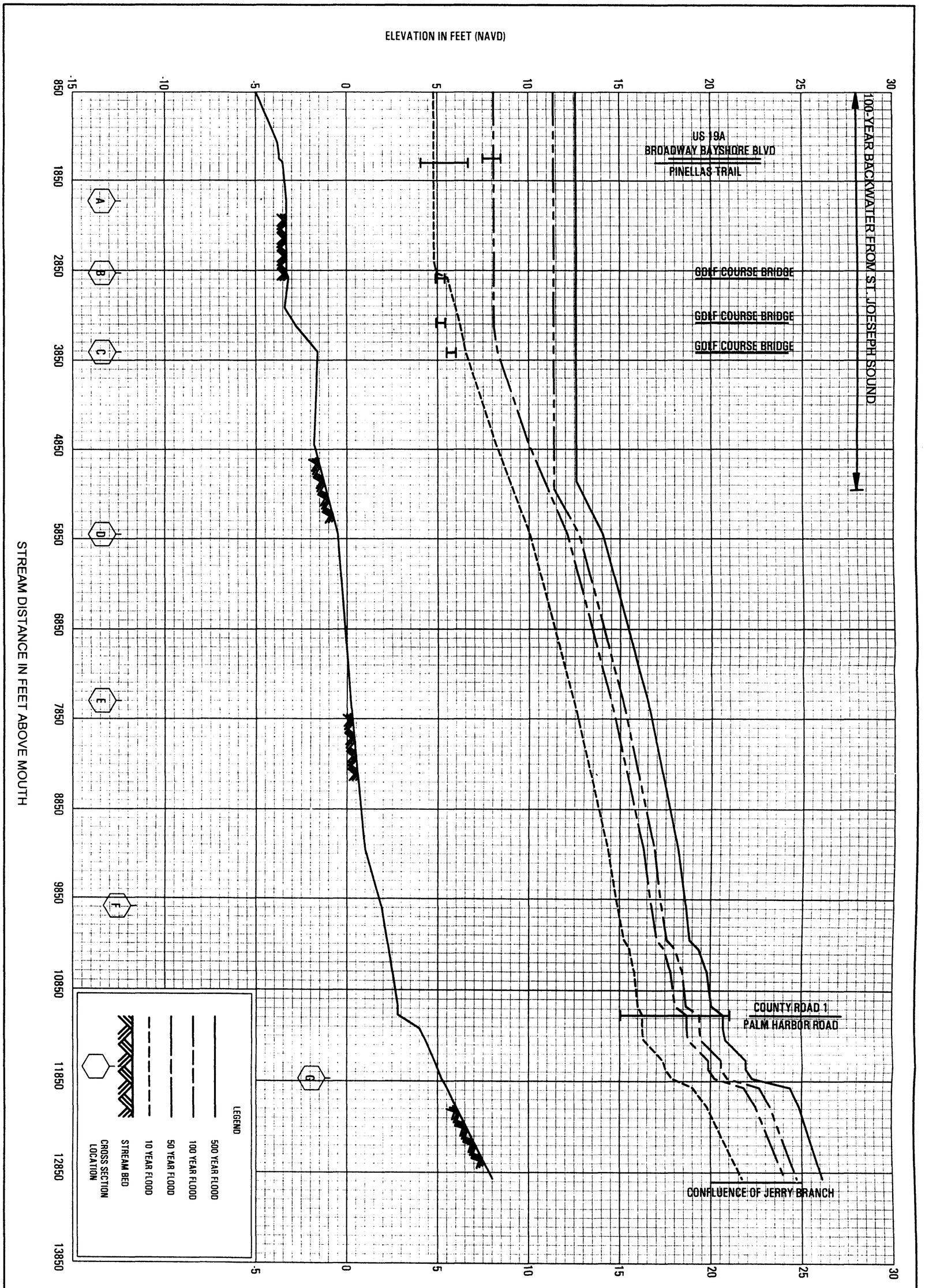
FLOOD PROFILES

CHANNEL 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

18P



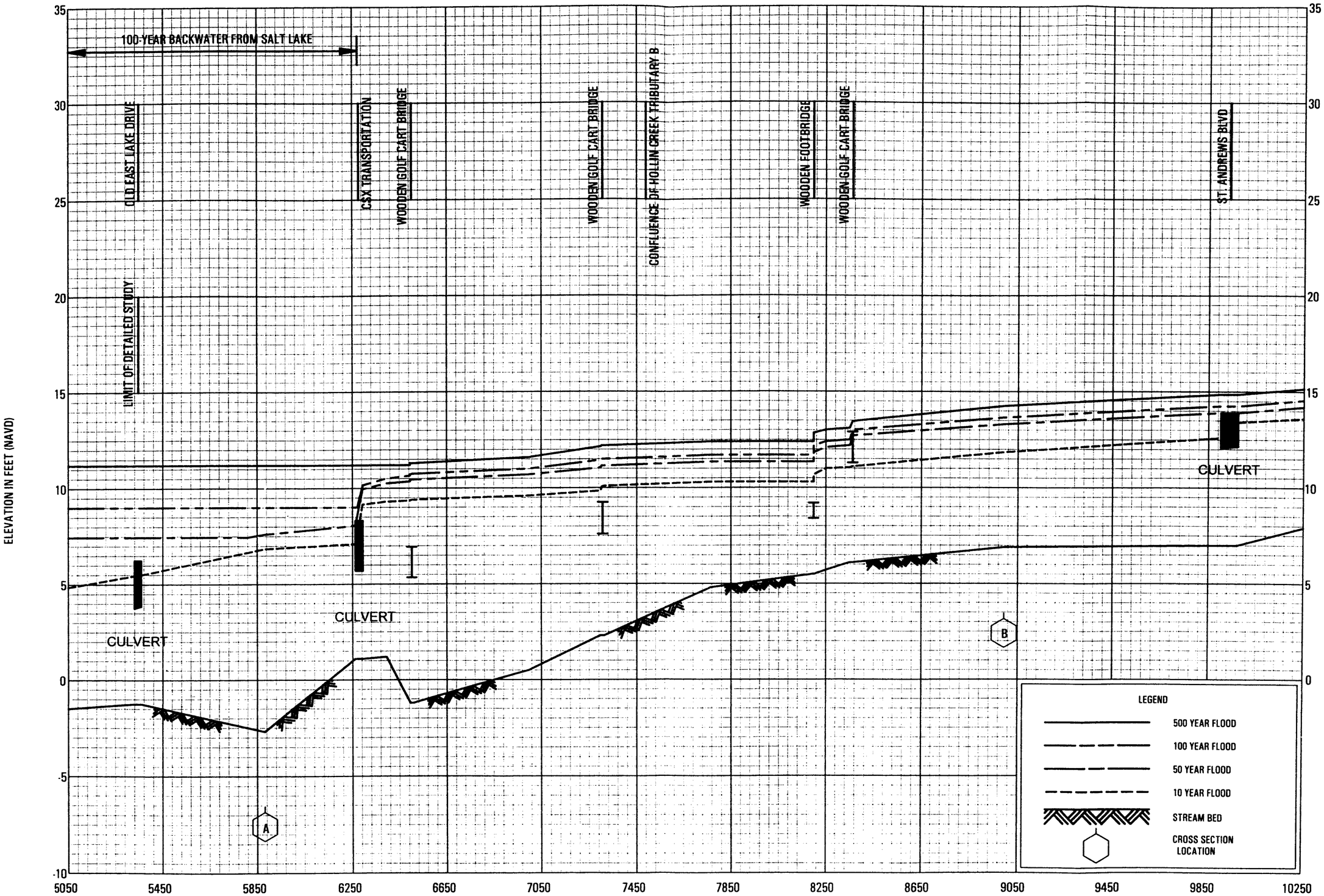
FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

CURLEW CREEK



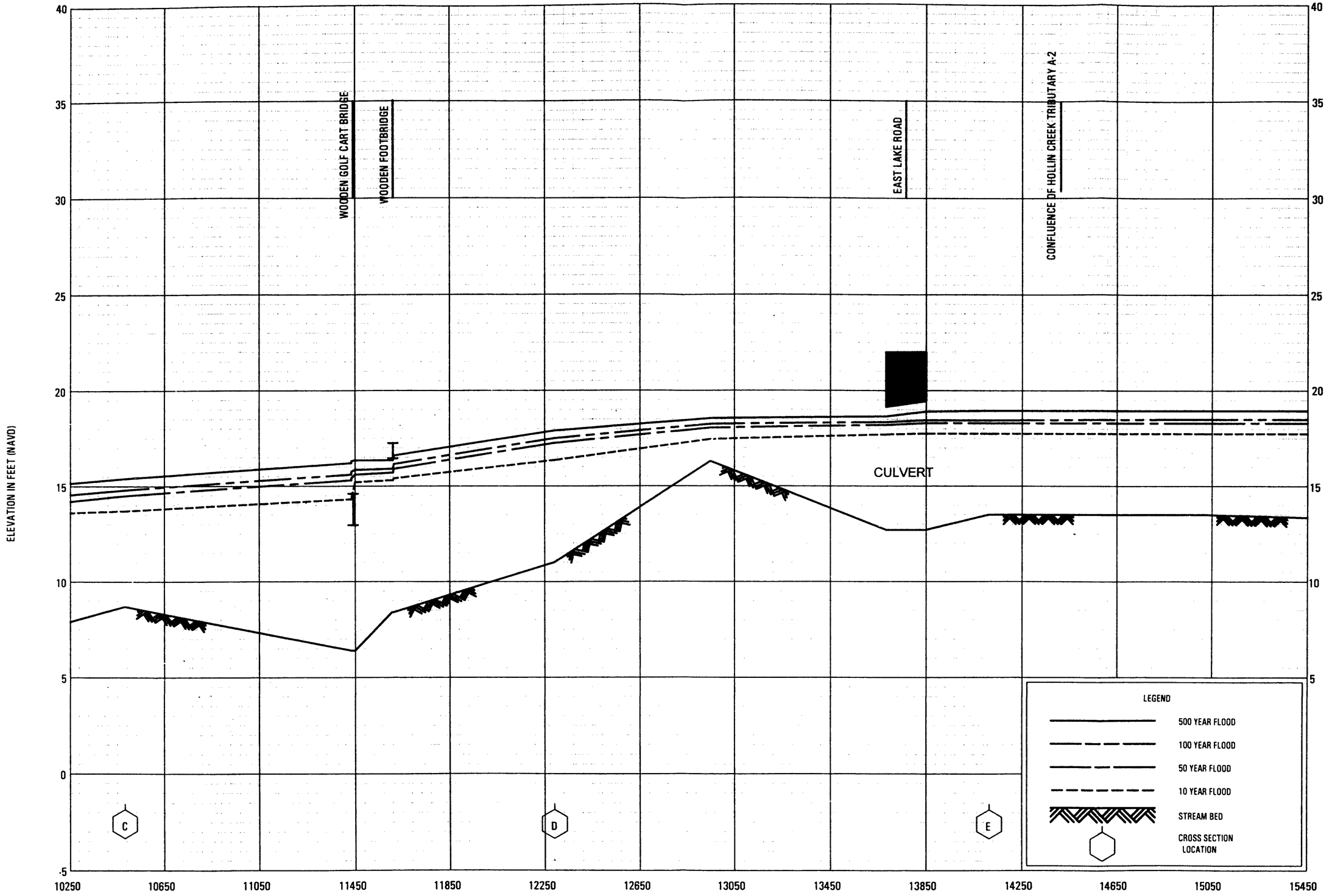
FLOOD PROFILES

HOLLIN CREEK TRIBUTARY A

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

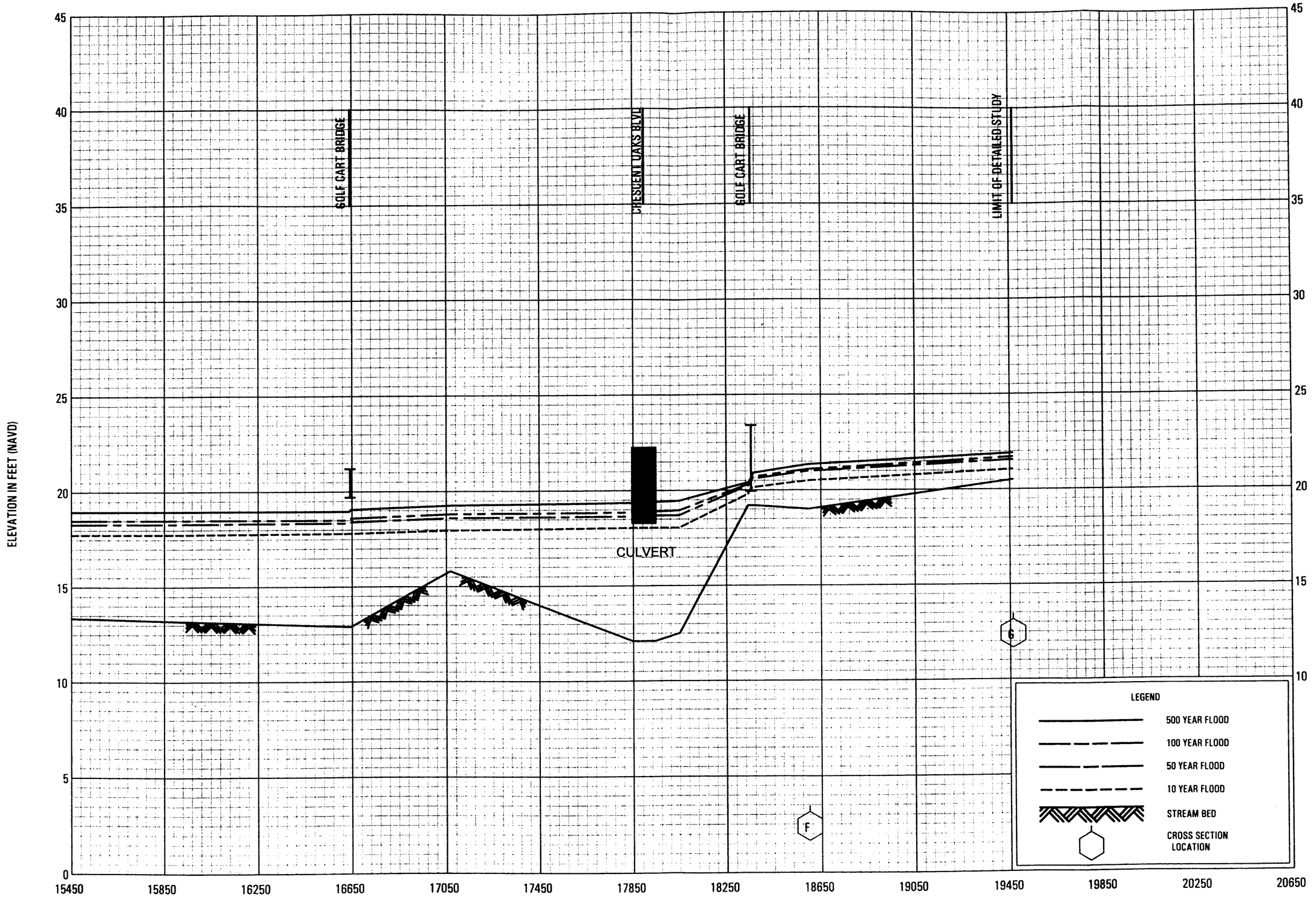
HOLLIN CREEK TRIBUTARY A

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

21P



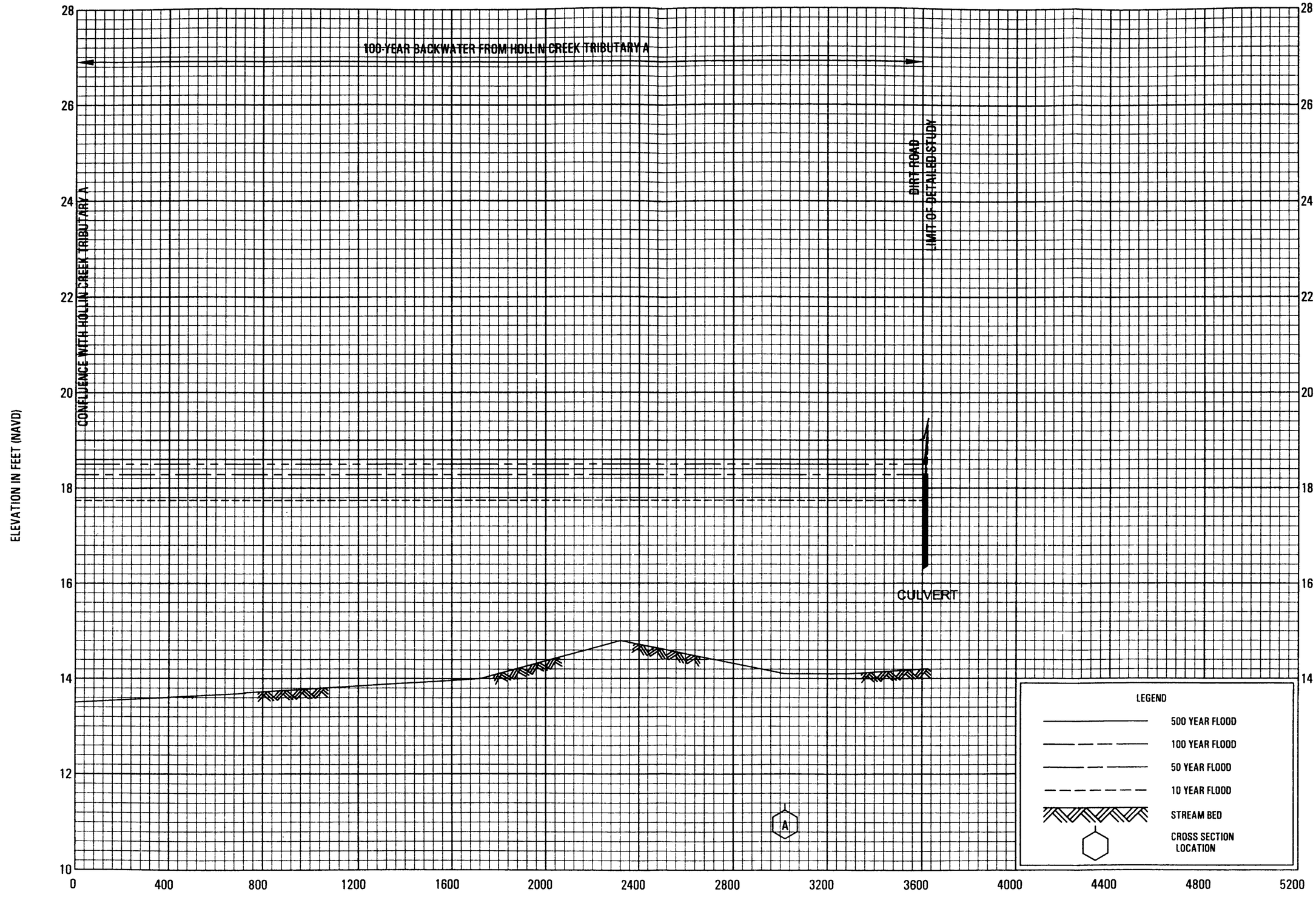
FLOOD PROFILES

HOLLIN CREEK TRIBUTARY A

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

HOLLIN CREEK TRIBUTARY A-2

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

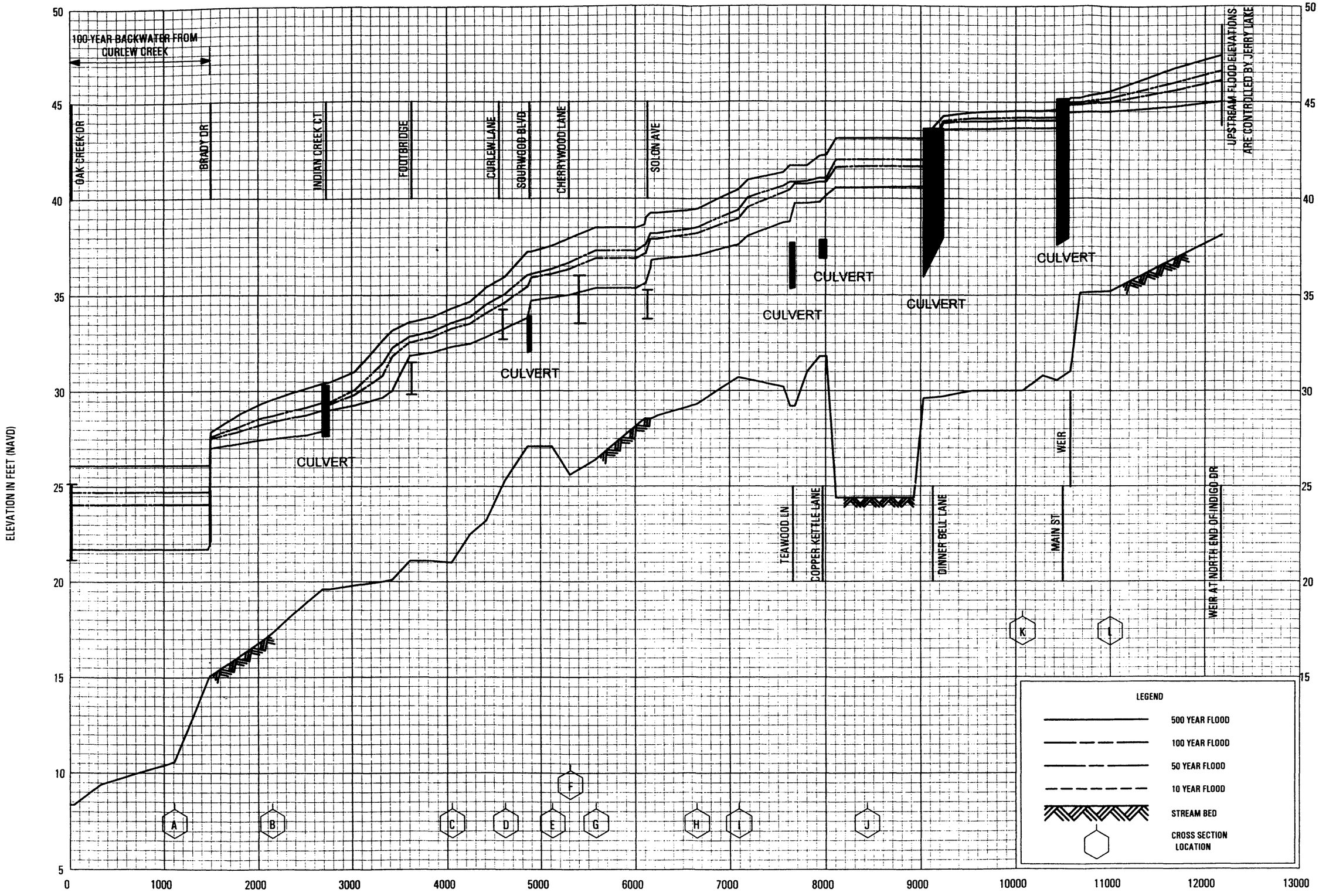
FLOOD PROFILES

HOLLIN CREEK TRIBUTARY B

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS



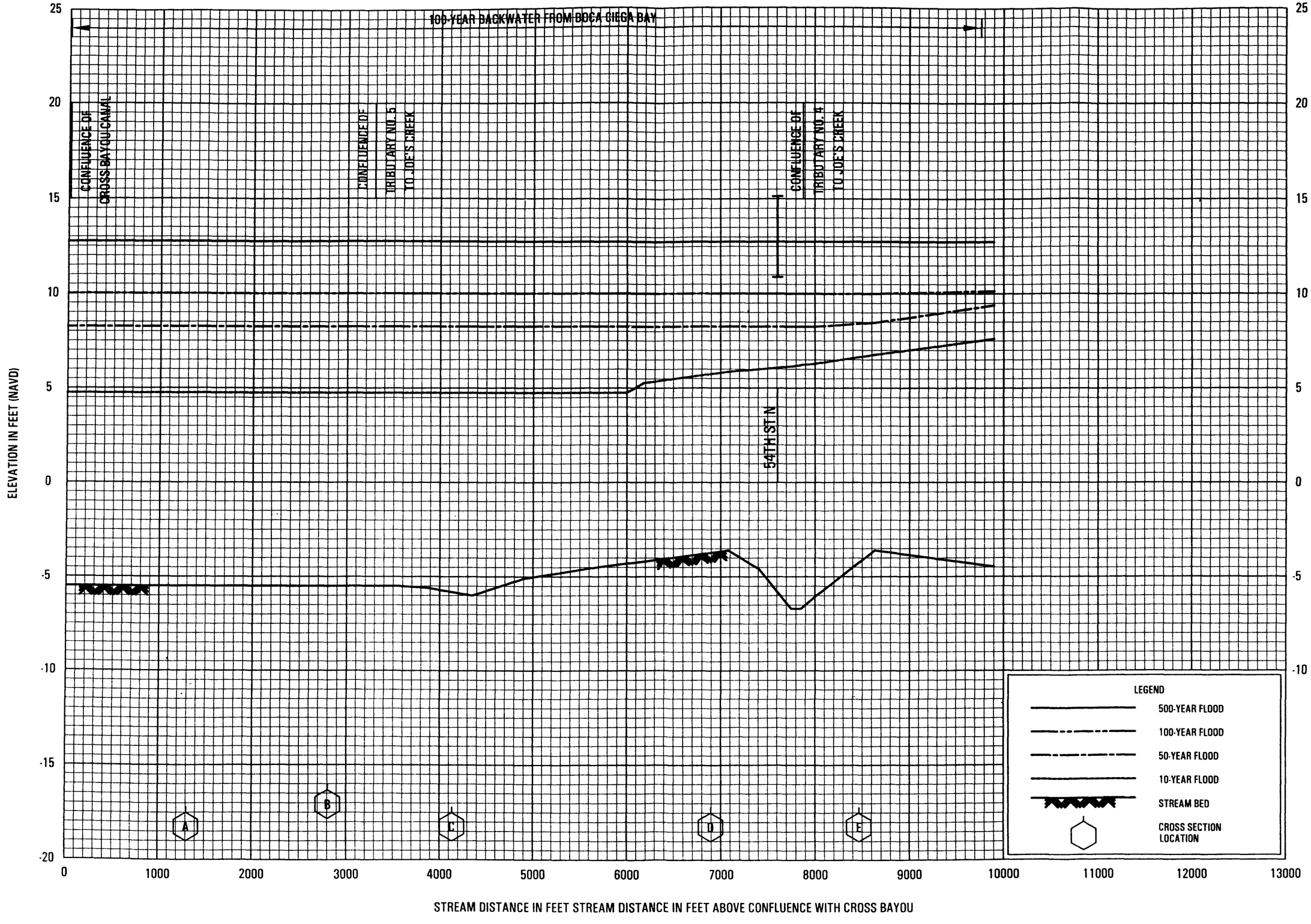
FLOOD PROFILES

JERRY BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD)

25
20
15
10
5
0
-5
-10
-15
-20

CULVERT

46TH AVE N
71ST ST N
MILES CREEK CONFLUENCE
PIPE CROSSING
66TH ST N

F
G
H
I
J

LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION

8000 9000 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000 20000 21000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CROSS BAYOU CANAL

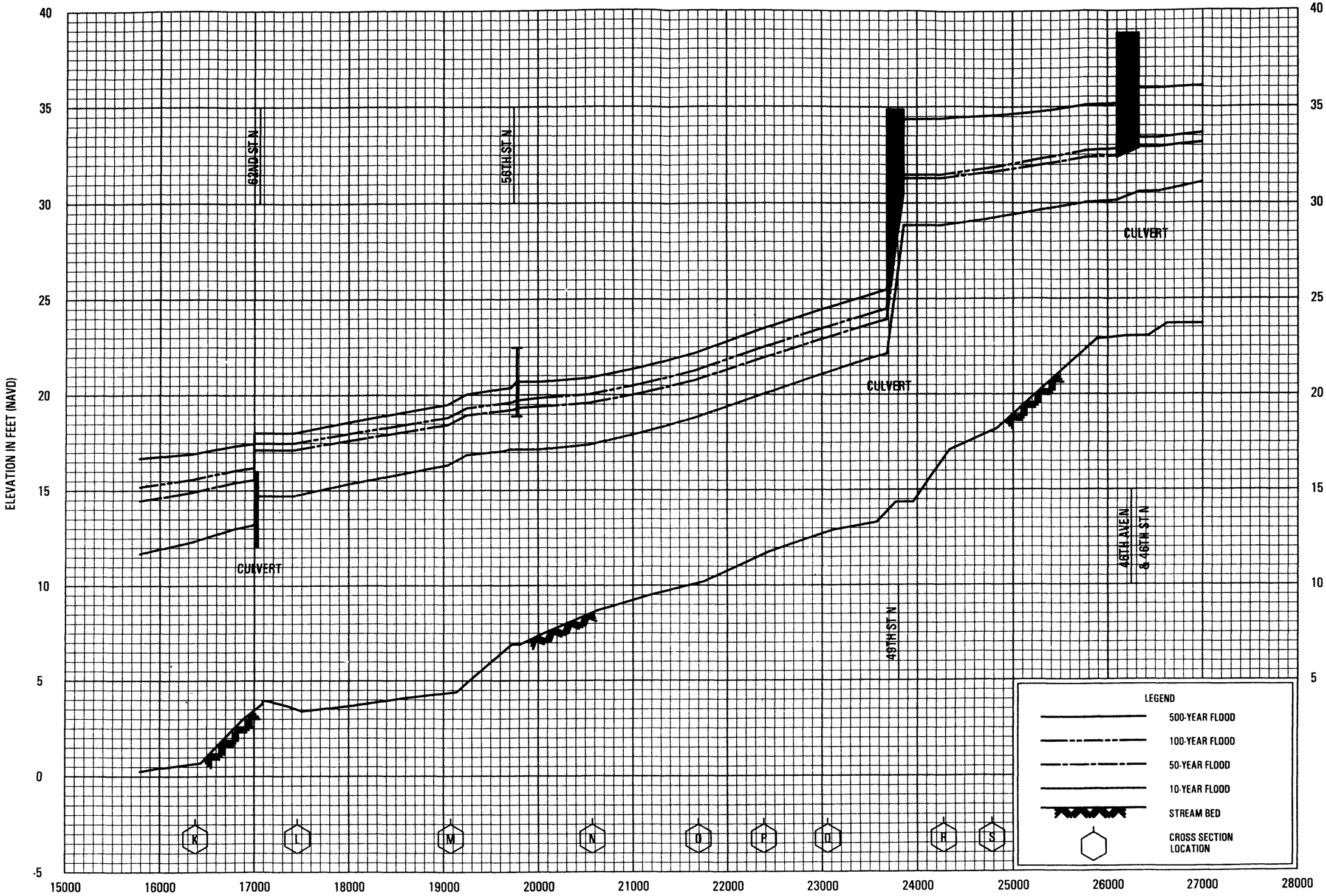
FLOOD PROFILES

JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS



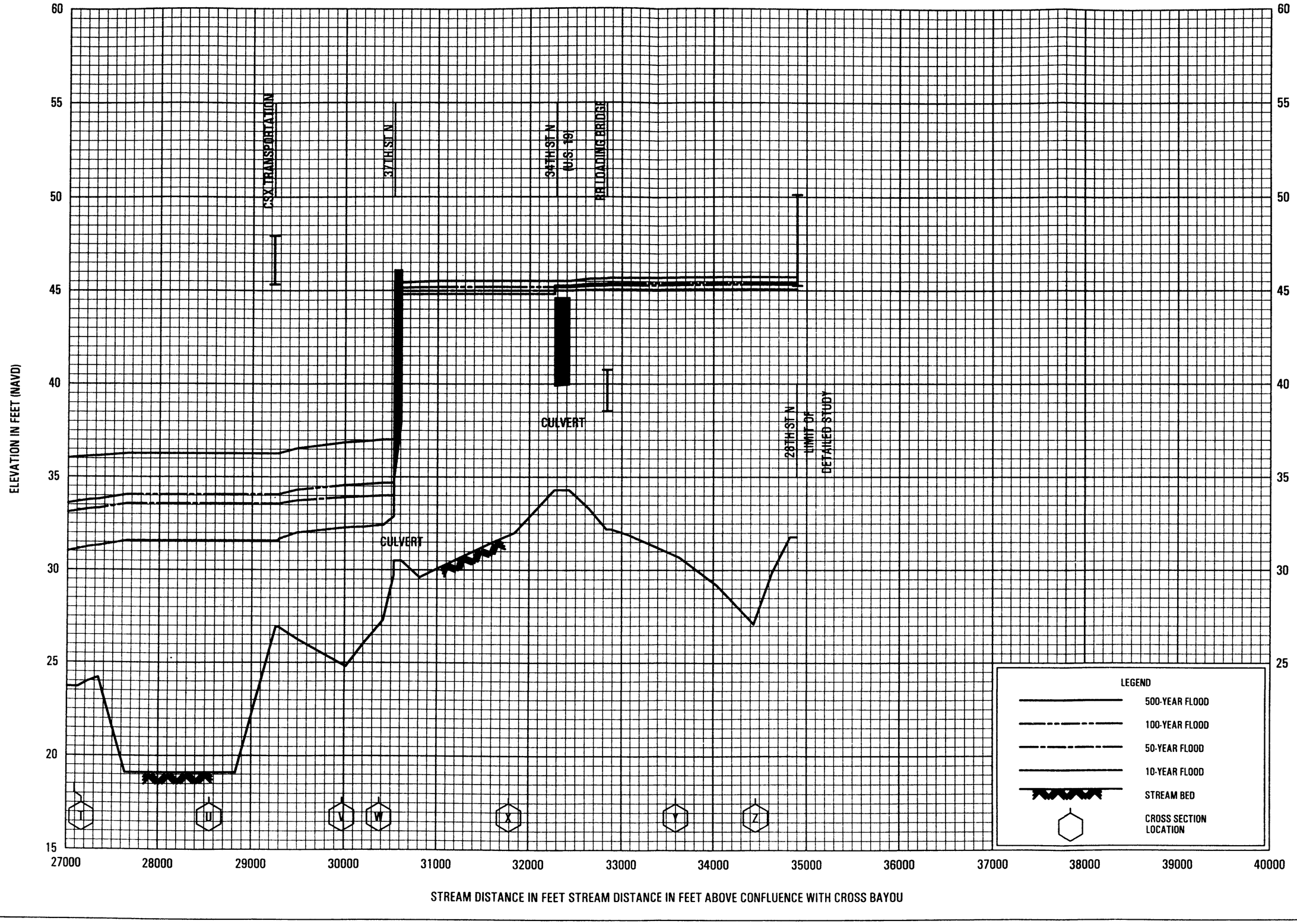
FLOOD PROFILES

JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

29P

FLOOD PROFILES

JOE'S CREEK TRIBUTARY NO.4 (CHANNEL 4)

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS

30P

ELEVATION IN FEET (NAVD 88)

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH JOE'S CREEK (FEET)

CONFLUENCE WITH JOE'S CREEK
54TH AVE
71ST STREET
66TH STREET
62ND AVE
62ND STREET
58TH STREET
PRIVATE ENTRANCE RD
56TH STREET
55TH STREET
53RD STREET

LEGEND

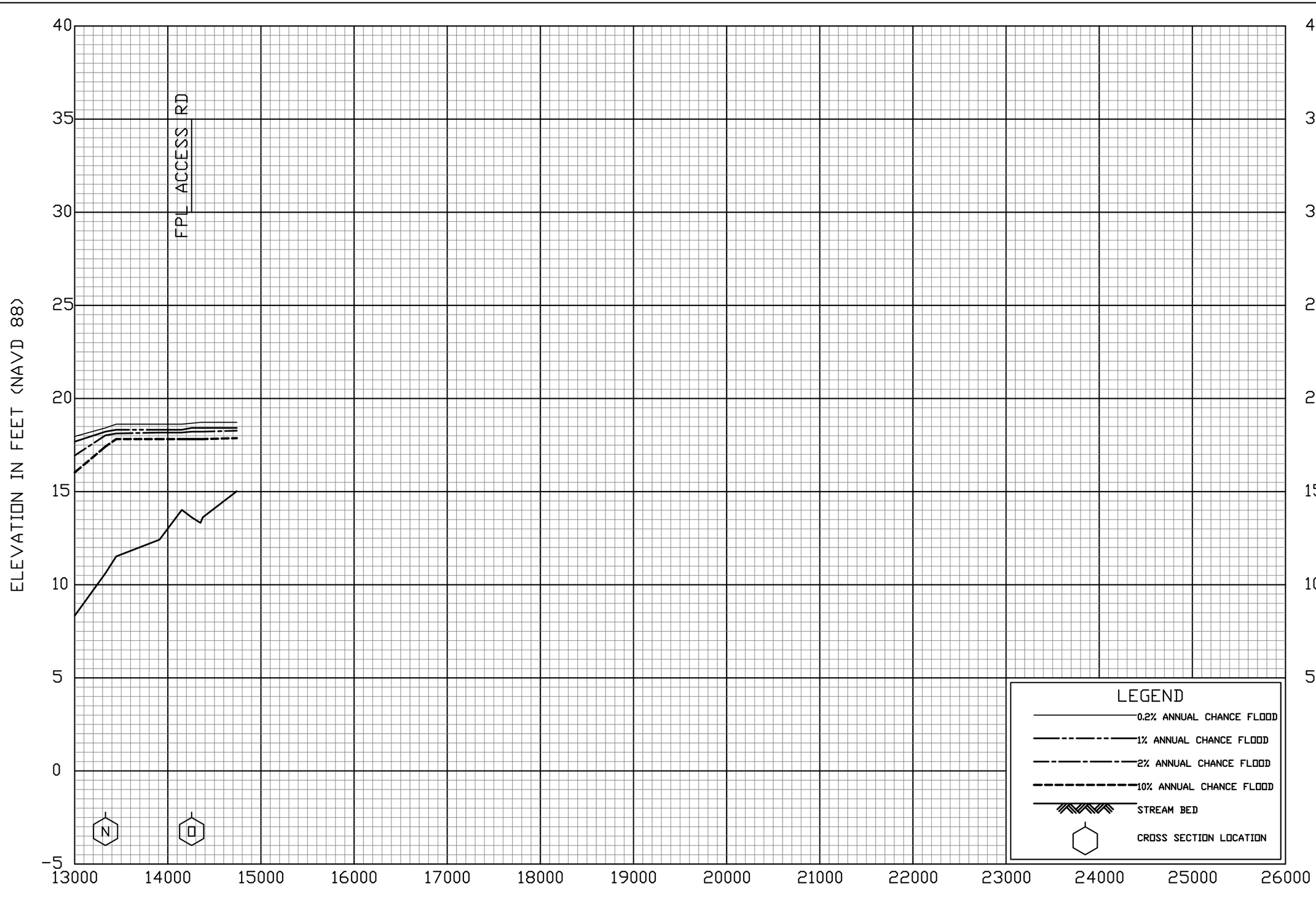
- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

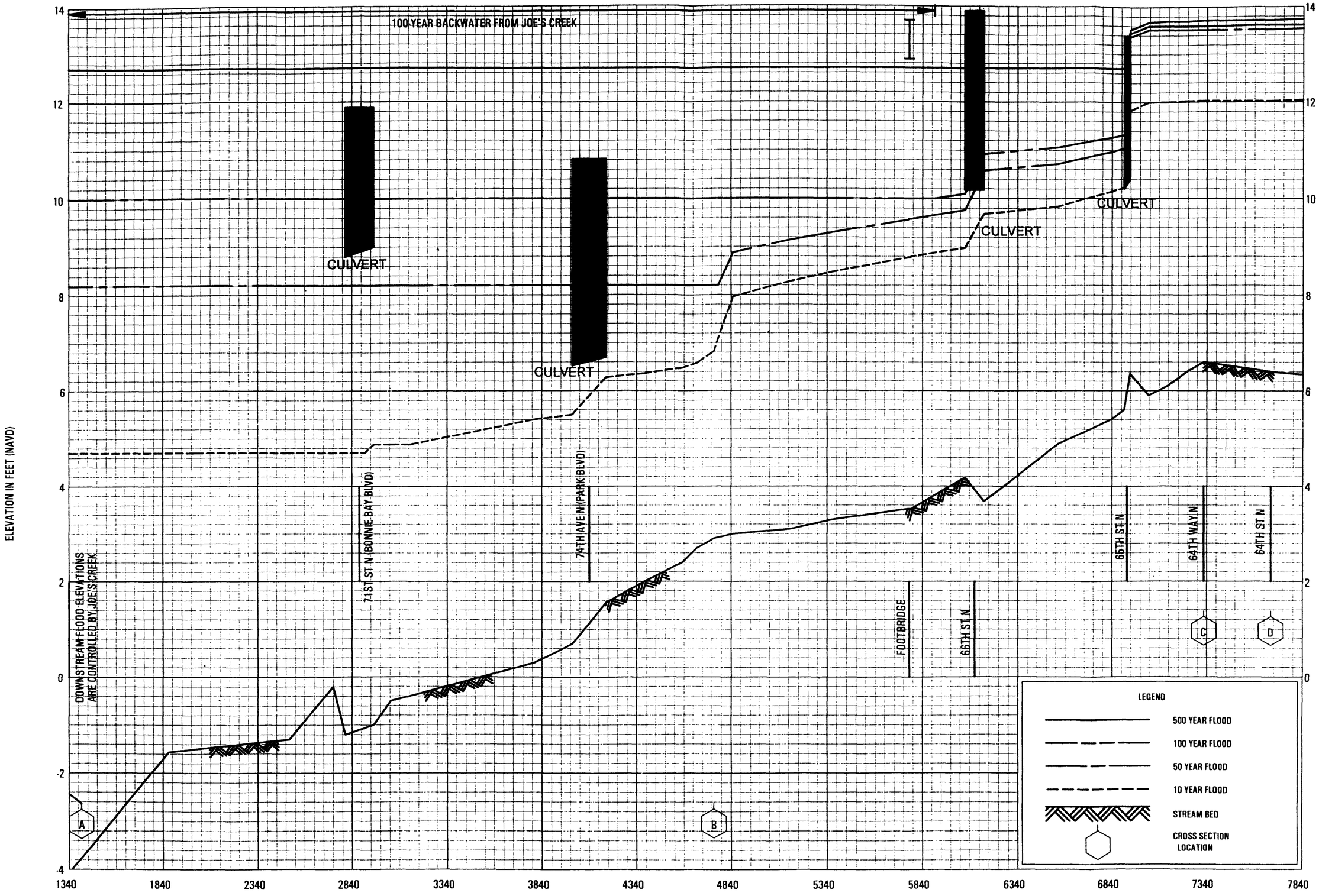
FLOOD PROFILES

JOE'S CREEK TRIBUTARY NO.4 (CHANNEL 4)

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL AND INCORPORATED AREAS





FLOOD PROFILES

JOE'S CREEK TRIBUTARY NO. 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD)

2 4 6 8 10 12 14 16 18 20

7840 8340 8840 9340 9840 10340 10840

63RD ST N

62ND WAY N

DIRT ROAD

62ND WAY & 76TH AVE N

62ND ST N

PAVED DRIVEWAY

61ST ST N

LIMIT OF DETAILED STUDY

CULVERT

CULVERT

CULVERT

CULVERT

F

F

LEGEND

500 YEAR FLOOD

100 YEAR FLOOD

50 YEAR FLOOD

10 YEAR FLOOD

STREAM BED

CROSS SECTION LOCATION

6 8 10 12 14 16 18 20

STREAM DISTANCE IN FEET FROM MOUTH

33P

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

JOE'S CREEK TRIBUTARY NO. 5

ELEVATION IN FEET (NAVD)

-16 -11 -6 -1 4 9 14 19 24 29

STREAM DISTANCE IN FEET ABOVE JOE'S CREEK

0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000

A B C D E F G H I

CONFLUENCE WITH JOE'S CREEK

MOBILE HOME PARK ENTRANCE

100-YEAR BACKWATER FROM JOE'S CREEK

40TH AVE N

38TH AVE N

66TH ST (SR 693)

PIPE CROSSING

CULVERT

CULVERT

64TH ST N

62ND ST N

60TH ST N

58TH ST N

30TH AVE N

26TH AVE N

CULVERT

22ND AVE N & 58TH ST N

LIMIT OF DETAILED STUDY

LEGEND

500 YEAR FLOOD

100 YEAR FLOOD

50 YEAR FLOOD

10 YEAR FLOOD

STREAM BED

CROSS SECTION LOCATION

-6 -1 4 9 14 19 24 29

34P

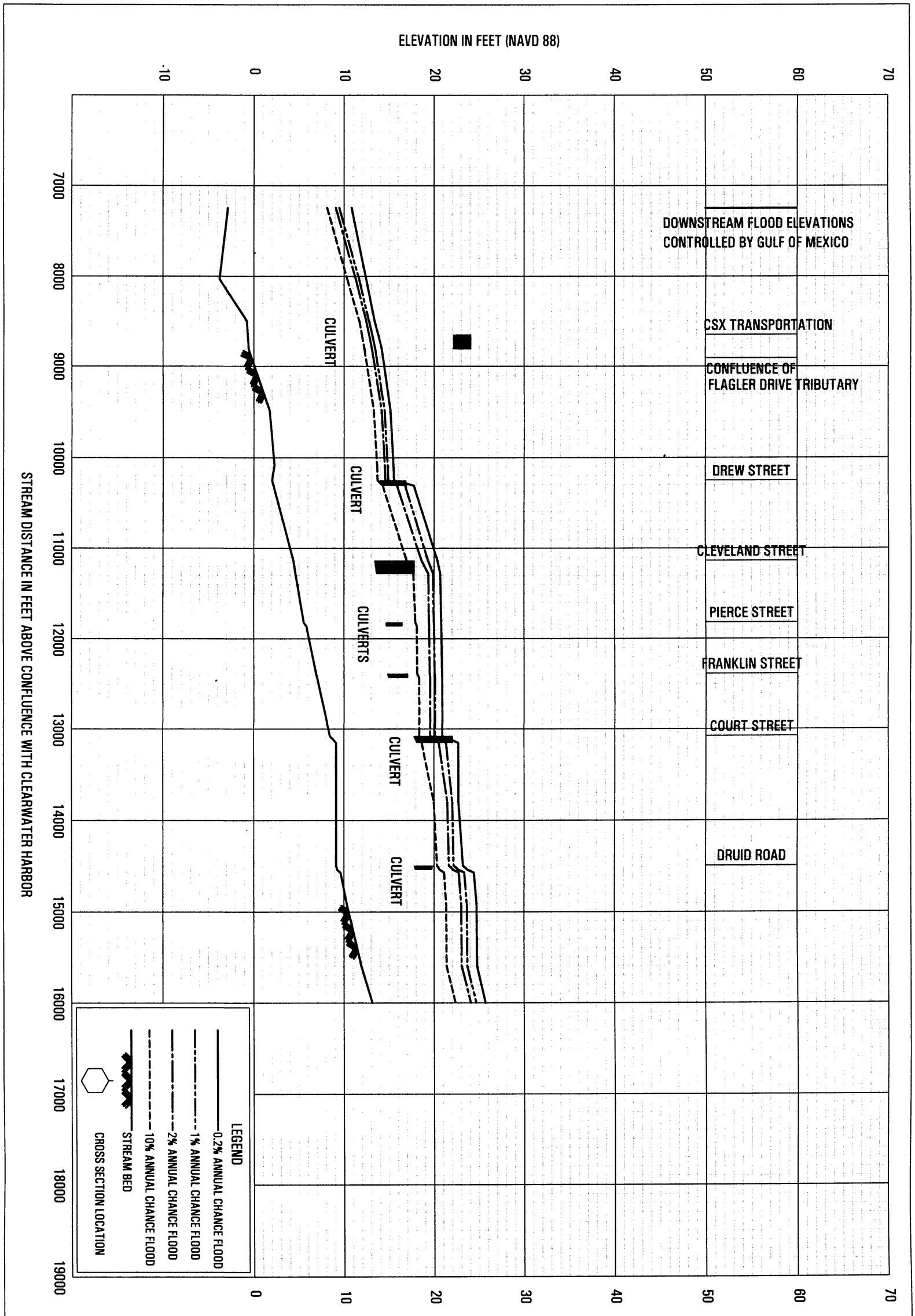
FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

MILES CREEK



35P

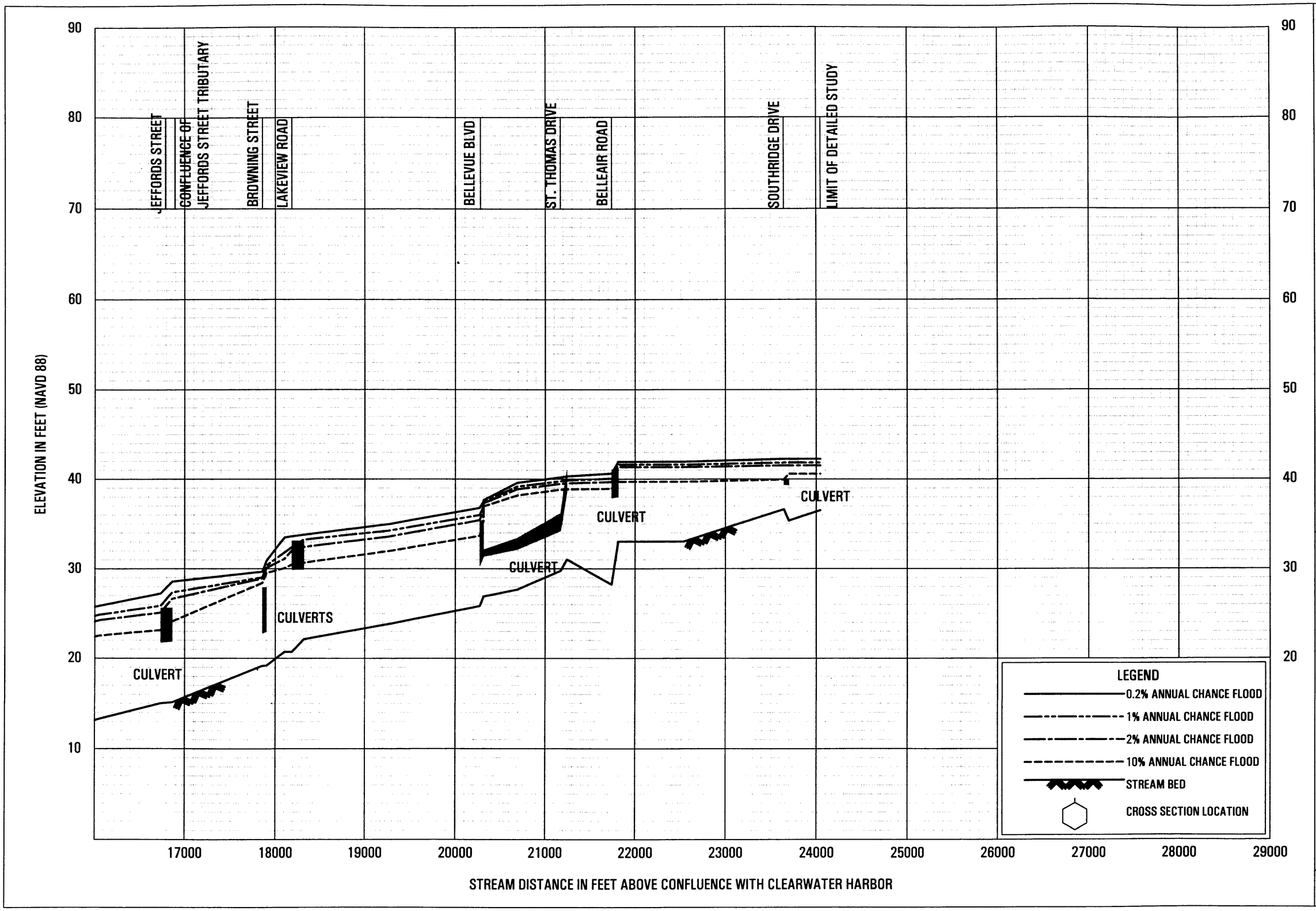
FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

STEVENSON CREEK



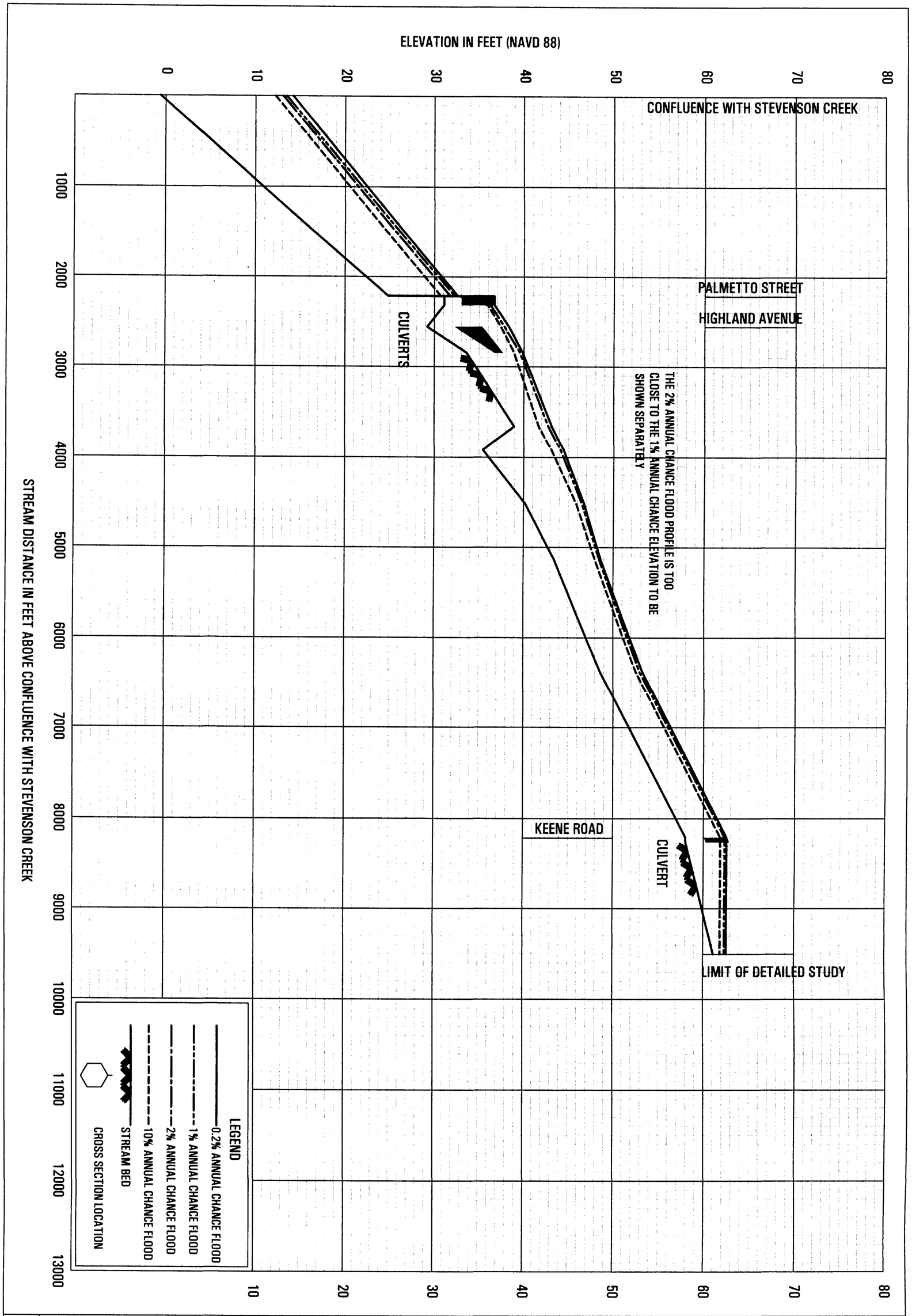
FLOOD PROFILES

STEVENSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS



37P

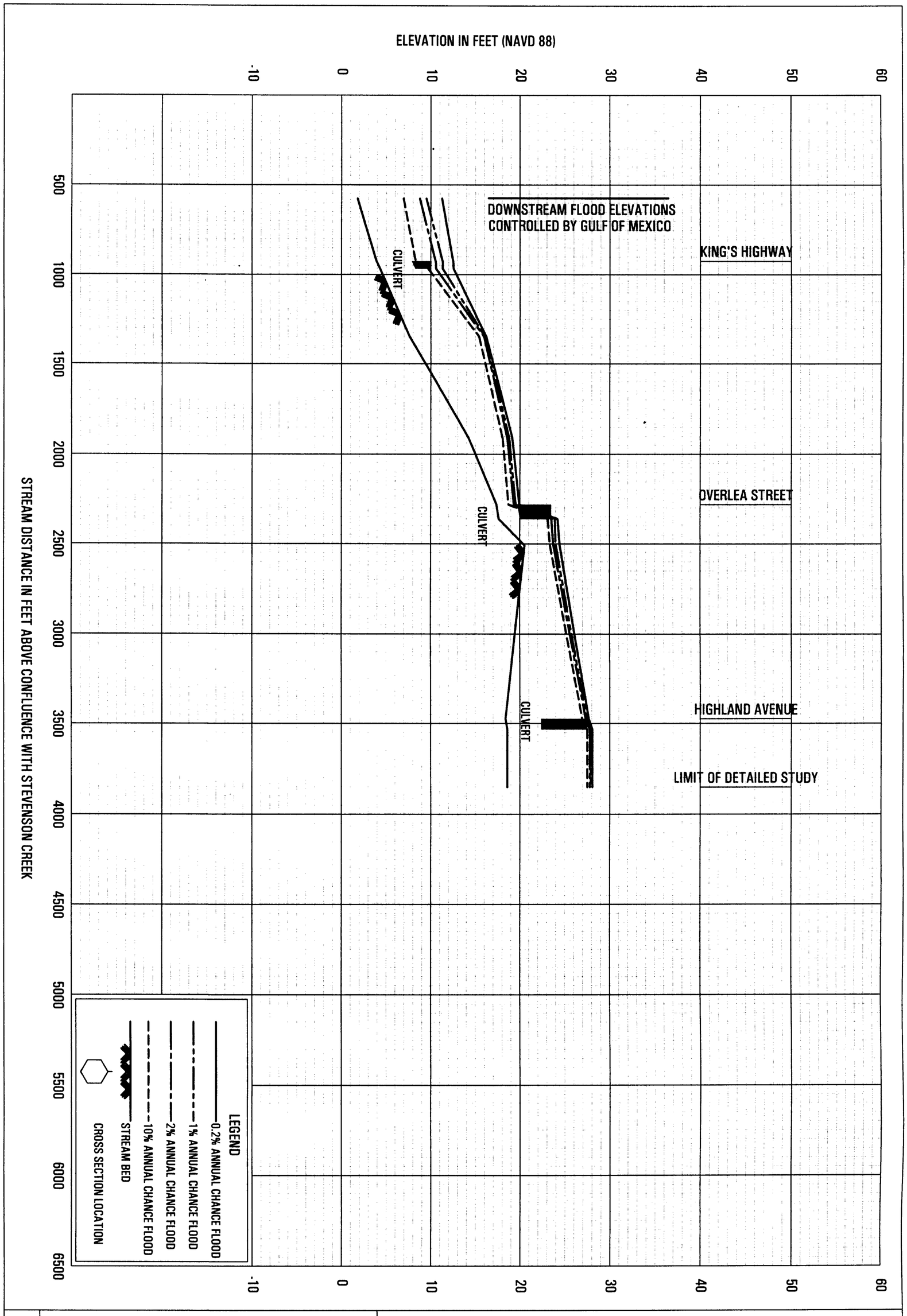
FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

FLAGLER DRIVE TRIBUTARY



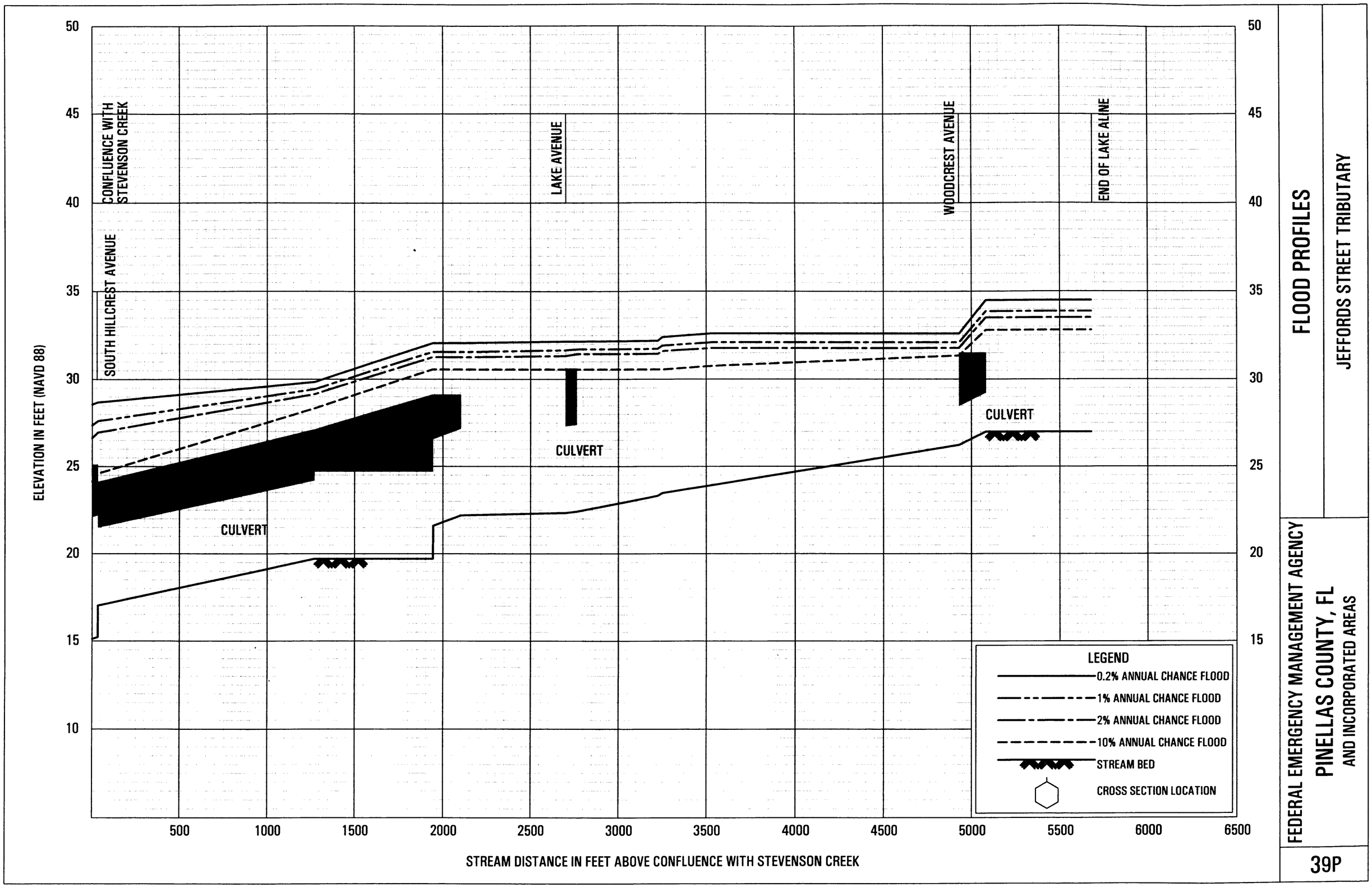
FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

HAMMOND CREEK



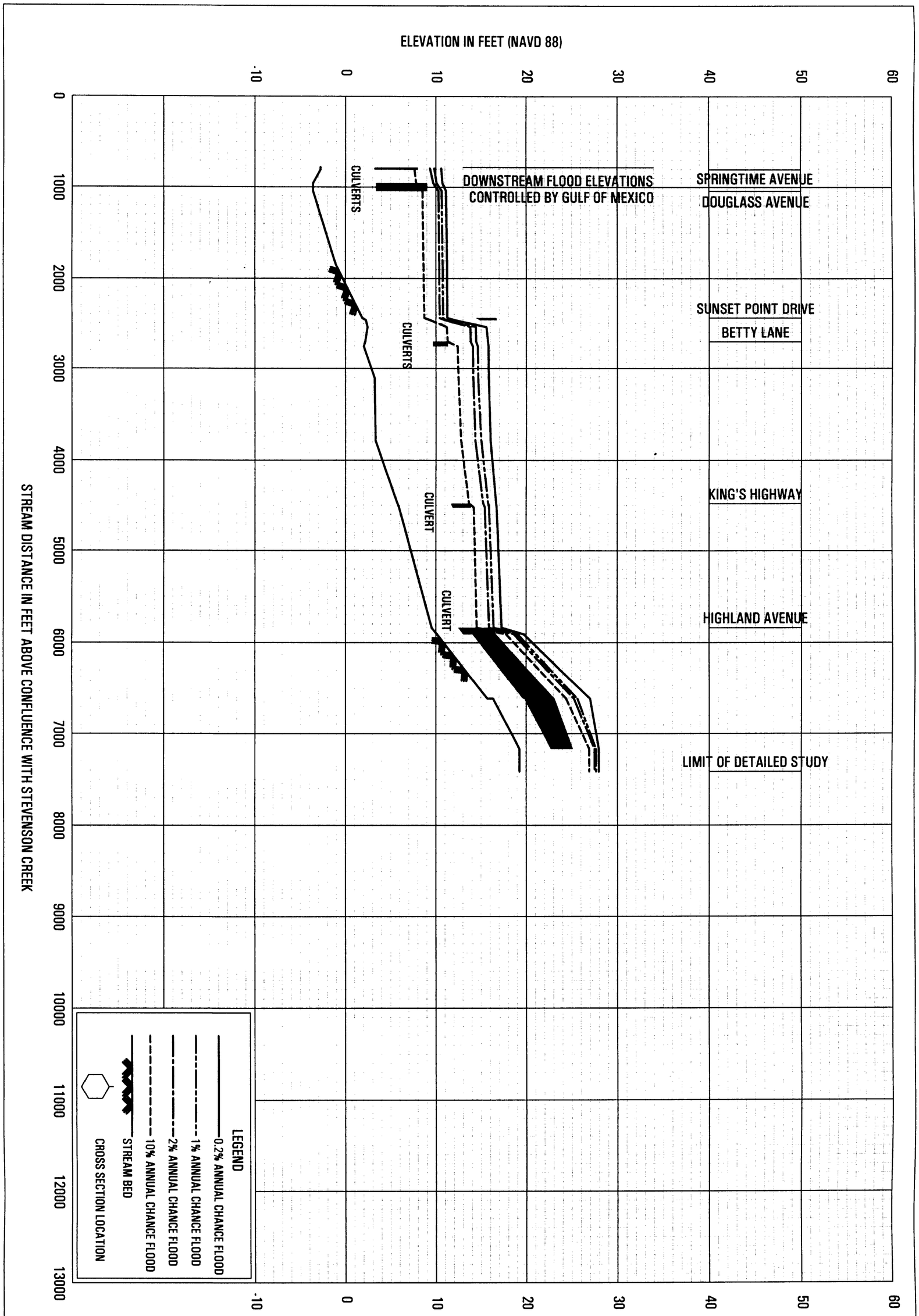
FLOOD PROFILES

JEFFORDS STREET TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL
AND INCORPORATED AREAS

39P



40P

FEDERAL EMERGENCY MANAGEMENT AGENCY

PINELLAS COUNTY, FL

AND INCORPORATED AREAS

FLOOD PROFILES

SPRING BRANCH