

**FINAL
LOCATION HYDRAULICS REPORT
(23 CFR 650A Section 650.111)**

**PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
SR 52 from East of McKendree Road to East of US 301
WPI Segment No: 435915-1**

Pasco County, Florida



**Florida Department of Transportation
11201 North McKinley Drive
Tampa, Florida 33612**

July 2015

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Tampa, FL 33607**

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District Seven, conducted a Project Development and Environment (PD&E) study to determine the engineering and environmental effects of the proposed realignment of State Road (SR) 52 from east of McKendree Road to east of US 301 within Pasco County, Florida.

2.0 PURPOSE

The purpose of this report is to provide a location hydraulic study for the above project, in accordance with 23 Code of Federal Regulation (CFR) 650 Subpart A, Section 650.111. The report utilized the National Flood Insurance Program (NFIP) maps and preliminary design plans to determine highway location encroachments. This report evaluated risks associated with the implementation of the project, impacts on natural and beneficial floodplain values, the support of incompatible floodplain development, and measures to minimize floodplain impacts. Local, State, and Federal water resources and floodplain management agencies were consulted to determine if the proposed project is consistent with existing floodplain management programs.

3.0 PROJECT DESCRIPTION

The realignment of SR 52 is proposed as a new four-lane urban controlled access facility within Pasco County, Florida, that will serve as an additional east-west route in the regional transportation network. The study limits extend from the existing SR 52 intersection with McKendree Road easterly to the Clinton Avenue intersection with US 301, as shown in **Figure 3-1**. The roadway will generally be constructed on new alignment south of the existing SR 52. The existing four-lane portion of Clinton Avenue between Fort King Road and US 301, recently constructed by Pasco County, will also be designated as SR 52, while the existing SR 52 from McKendree Road to US 301 will be transferred to Pasco County for ownership and maintenance purposes.

The total length of the proposed project is approximately 8 miles (mi). The study area is within the following United States Geological Survey (USGS) 1:24,000 scale quadrangle maps: San Antonio and Dade City. **Table 3-1** lists the Townships, Ranges, and Sections covering the study area. The existing SR 52 and CR 52A were both identified as evacuation routes by the State Emergency Response Team (SERT).

TABLE 3-1 – TOWNSHIP, RANGE, AND SECTION

Township	Range	Sections
25 South	20 East	9, 10, 11, 12,
	21 East	5, 6, 7, 8, 9

FIGURE 3-1: PROJECT LOCATION MAP



PROJECT LOCATION MAP

SR 52 PD&E Study
 From East of McKendree Road to East of US 301
 WPI Segment No. 435915-1



4.0 EXISTING CONDITIONS AND PROPOSED IMPROVEMENTS

Existing SR 52 is primarily a two-lane undivided rural roadway between its intersection with I-75 (SR 93) and US 301 in Dade City, Florida. Currently, there are limited bicycle and pedestrian facilities within the study area. The current access classification along SR 52 from I-75 to CR 41 (21st Street) is Access Class 3 and from CR 41 (21st Street) to US 301 it is Access Class 7.

Traffic analyses documented the need to provide increased capacity within the SR 52 corridor beyond those that could be achieved solely with transportation management and operation measures such as mass transit and ride-sharing. However, as identified in the Clinton Avenue Extension Route Study Report (June 2004), portions of SR 52 through downtown Dade City cannot be widened without significant cost and social impact to the land uses adjacent to this section of SR 52. The Clinton Avenue Extension Route Study evaluated the costs, engineering and environmental issues associated with the potential construction of four new alignment alternatives. The study ultimately recommended the proposed alignment alternative being evaluated in the Engineering and Environmental Technical Compendium (EETC) and the State Environmental Impact Report (SEIR).

The proposed improvement includes the realignment and construction of SR 52 on a new route, which will allow multiple lanes to be constructed without creating substantial impacts to the communities adjacent to the existing roadway. The proposed project begins on SR 52 at McKendree Road and it follows existing SR 52 for approximately 4,400 feet (ft) where it continues eastward on new alignment to CR 577 (Curley Road). At CR 577 (Curley Road), the project continues east along McCabe Road for approximately 1.25 mi, then travels northeast avoiding Williams Cemetery before tying into the existing Clinton Avenue roadway. The project follows existing Clinton Avenue from CR 579 (Prospect Road) to US 301. The total project length is approximately eight miles.

There are three proposed typical sections. The first, from McKendree Road to CR 577 (Curley Road), is a four-lane suburban typical section with a 44-ft depressed grass median expandable to an ultimate six-lane urban roadway with a 22-ft raised median. There is a 5-ft sidewalk on the south side and a 10-ft shared use path on the north side. The second typical section, from CR 577 (Curley Road) to CR 579 (Prospect Road) is the same as the first, except the sidewalks are 5-ft wide on both sides. The third proposed typical section, from CR 579 (Prospect Road) to Fort King Road, is a four-lane urban roadway with a 22-ft median and two 5-ft sidewalks. All three typical sections have 11-ft lanes, 7-ft bike lanes, and a 45 – 55 mph design speed.

5.0 ENCROACHMENTS ON 100-YEAR FLOODPLAIN

The Federal Emergency Management Agency (FEMA) current effective Flood Insurance Study (FIS) for Pasco County is Flood Insurance Study Number 12101CV000A, effective September 26, 2014. The FEMA FIS is based on the Southwest Florida Water Management District (SWFWMD) Cypress Creek Watershed ICPR model and the SWFWMD Withlacoochee River Watershed ICPR model. There are no designated floodways within the project limits.

Portions of the study area for the proposed SR 52 widening are located within the floodplain limits shown on the Flood Insurance Rate Map (FIRM) Community Panels 12101C0258F, 12101C0259F, and 12101C0280F. The predominate floodplains on the west end of the project are from Bayou Branch and Karney Lake, which are part of the Cypress Creek watershed. The remaining FEMA floodplains adjacent to the project are closed basins. East of Prospect Road there is a FEMA Zone AE closed basin floodplain with a BFE of 81.6. The FEMA flood map panels are included in **Appendix A** of this report.

The existing and proposed SR 52 alignment is a transverse encroachment to freshwater floodplains. Floodplain storage compensation will be required for any encroachment into the floodplain or historical storage by the SWFWMD. The remaining corridor within the project limits either lies in Zone C (areas of minimal flooding) or Zone B (areas between the limits of the 100-year flood plain and the 500-year flood plain; or certain areas subject to 100-year flooding with average depths less than one foot; or areas protected by levees from the base flood).

The existing cross drain information for the length of the project is provided in **Table 5-2**. The proposed Clinton Avenue cross drains in Basins B, C, D, E, F, G, H, I, J, and K are currently in design. The Cannon Ranch Development cross drains are preliminary and will need to be reevaluated in the design phase of the project. The existing cross drains to be extended on SR 52 from McKendree Road to east of Bayou Branch will need to be evaluated in the design phase.

TABLE 5-2 - EXISTING CROSS DRAIN INFORMATION

STR	STA	Flow Direction	Size
Proposed Clinton Avenue Basins B, C, D, E, F, G, H, I, J, K			
CD-1	110+60	N-S	(2) 48"
CD-2	134+00	N-S	(2) 24" X 38"
CD-3	137+50	N-S	(5) 38" X 60"
CD-4	159+00	N-S	36"
unknown	162+50	N-S	unknown
unknown	168+00	N-S	unknown
CD-15	173+00	N-S	unknown
CD-5	178+50	N-S	18"
CD-6	186+70	N-S	(2) 24"
CD-7	202+50	S-N	24"
CD-9	261+20	S-N	(3) 24" X 38"
CD-10	279+50	equalizer	48"
CD-12	311+80	S-N	(3) 36"
CD-14	368+70	S-N	48"
Proposed Cannon Ranch Development Basin A, Bayou Branch			
unknown	unknown	N-S	6' X 6'
unknown	unknown	N-S	5' X 6'
unknown	unknown	N-S	6' X 7'
Existing SR 52 from McKendree Road (MP 24.17)			
	MP 24.30	S-N	24" X 63'
	MP 24.38	S-N	24" X 63'
	MP 24.6	S-N	(4) 10' X 10'

A more detailed modeling effort of the cross drains and floodplain encroachments will be part of the design phase. The SWFWMD may require that many of these cross drains be evaluated with the Cypress Creek ICPR model. It is anticipated that some existing structures will be found to be adequately sized and any that are not will only require one size increment increase.

The Bridge at Bayou Branch is within the FEMA/SFWMD Cypress Creek ICPR model. The existing quadruple 10-ft by 10-ft concrete box structure (CBC) will be evaluated to determine whether to extend the CBC or to replace with a bridge structure. Soil borings will need to be performed to determine whether the soils are suitable for the CBC headwall foundation. The existing CBC was originally constructed in 1951 and the 2013 Bridge Inspection Report (BIS) gave the bridge a Sufficiency Rating of 95.1 and a Health Index of 62.3. Further corrosion and structural analysis may be necessary in the design phase to determine whether the structure should be replaced or extended.

6.0 DRAINAGE PATTERNS

The existing drainage patterns were determined using the United States Geological Survey (USGS) quadrangle maps, SWFWMD LiDAR data, Cannon Ranch Master Drainage Plan, and preliminary drainage maps for the Clinton Road Extension.

Some of the proposed alignment is over existing roads. The stormwater runoff from the existing lanes and outside shoulders sheet flows to adjacent properties or to roadside ditches.

7.0 DRAINAGE RELATED PROBLEMS

The proposed project alignment traverses through Karst conditions. There appears to be an existing relic sink hole east of Curley Road on the north side of McCabe Road north of Karney Lake. SWFWMD requires additional treatment volume for any stormwater that discharges to this sink, and requires encroachments into the storage around the sink to be compensated. An alternative to discharging to this sink could be to bypass the sink and discharge to the Karney Lake basin. This issue will be further reviewed in the design phase.

The proposed project is consistent with the local Comprehensive Plan. The proposed project will not encourage floodplain development due to local FEMA floodplain and SWFWMD regulations. The projects drainage design will be consistent with local FEMA, FDOT, and SWFWMD design guidelines. Therefore, no significant changes in the base flood elevation or limits will occur, and no natural and beneficial floodplain values will be significantly affected.

8.0 PROJECT CATEGORY

Based on the information collected during this study, the proposed improvement is categorized as a modification of CATEGORY 6: PROJECTS ON NEW AND EXISTING ALIGNMENT INVOLVING REPLACEMENT OF EXISTING DRAINAGE

STRUCTURES WITH NO RECORD OF DRAINAGE PROBLEMS, as defined in Part 2, Chapter 24 (01-07-08) of the FDOT PD&E Manual.

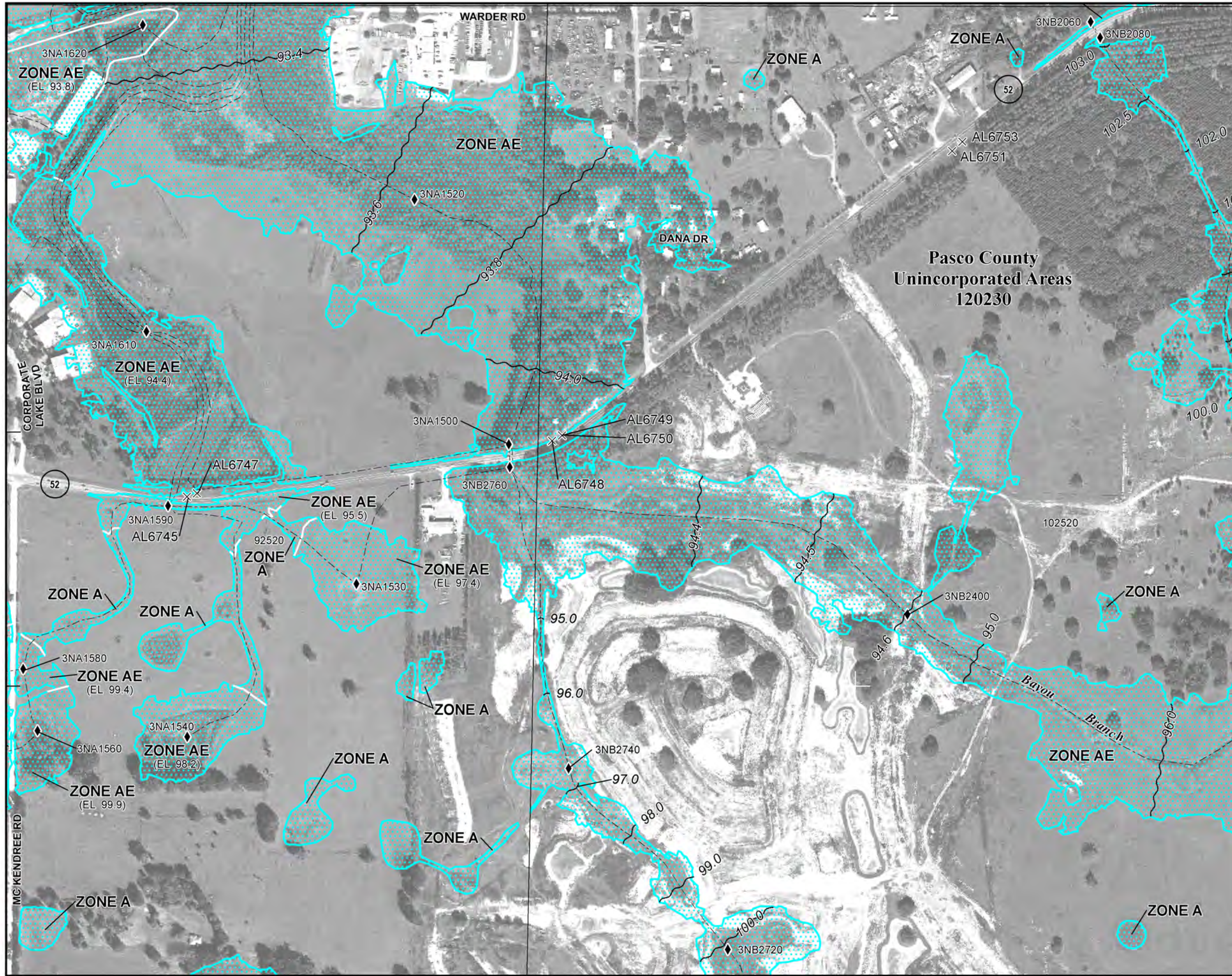
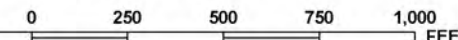
“It has been determined, through consultation with local, state, and federal water resources and floodplain management agencies that there is no regulatory floodway involvement on the proposed project and that the project will not support base floodplain development that is incompatible with existing floodplain management programs.”

“The proposed structures will perform hydraulically in a manner equal to or greater than the existing structures, and backwater surface elevations are not expected to increase. Proposed structures will discharge in a similar condition as much as feasible and changes will be reviewed by the appropriate regulatory authorities who will concur with the determination that there will be no significant impacts. As a result, there will be no significant adverse impacts on natural and beneficial floodplain values, there will be no significant change in flood risk, and there will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.”

Appendix A
Flood Insurance Rate Map (FIRM) Community Panels



MAP SCALE 1" = 500'



Pasco County
Unincorporated Areas
120230

NFIP PANEL 0258F

FIRM
FLOOD INSURANCE RATE MAP
PASCO COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 258 OF 500
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PASCO COUNTY	120230	0258	F
SAN ANTONIO, CITY OF	120634	0258	F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

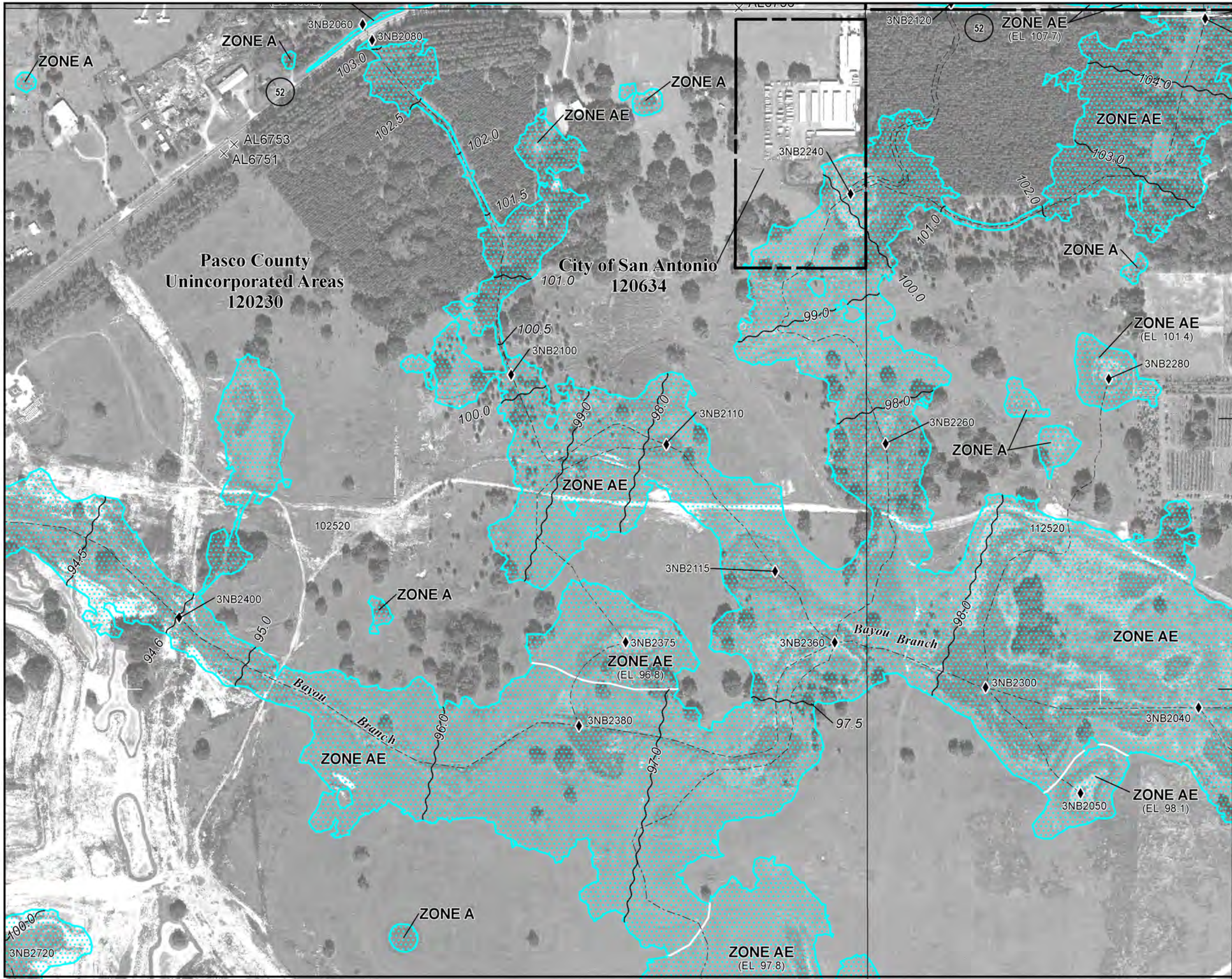
MAP NUMBER
12101C0258F

EFFECTIVE DATE
SEPTEMBER 26, 2014

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Program at 1-800-638-6620.

MAP SCALE 1" = 500'

0 250 500 750 1,000 FEET

NFIP PANEL 0258F

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
PASCO COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 258 OF 500
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PASCO COUNTY	120230	0258	F
SAN ANTONIO, CITY OF	120634	0258	F

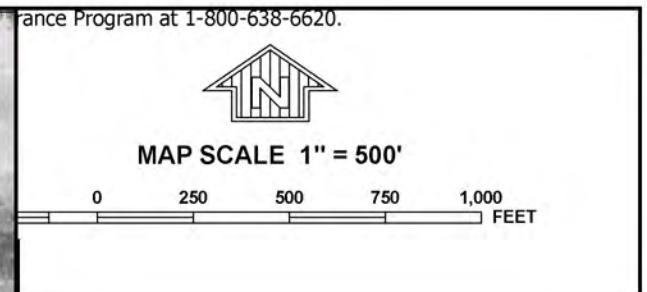
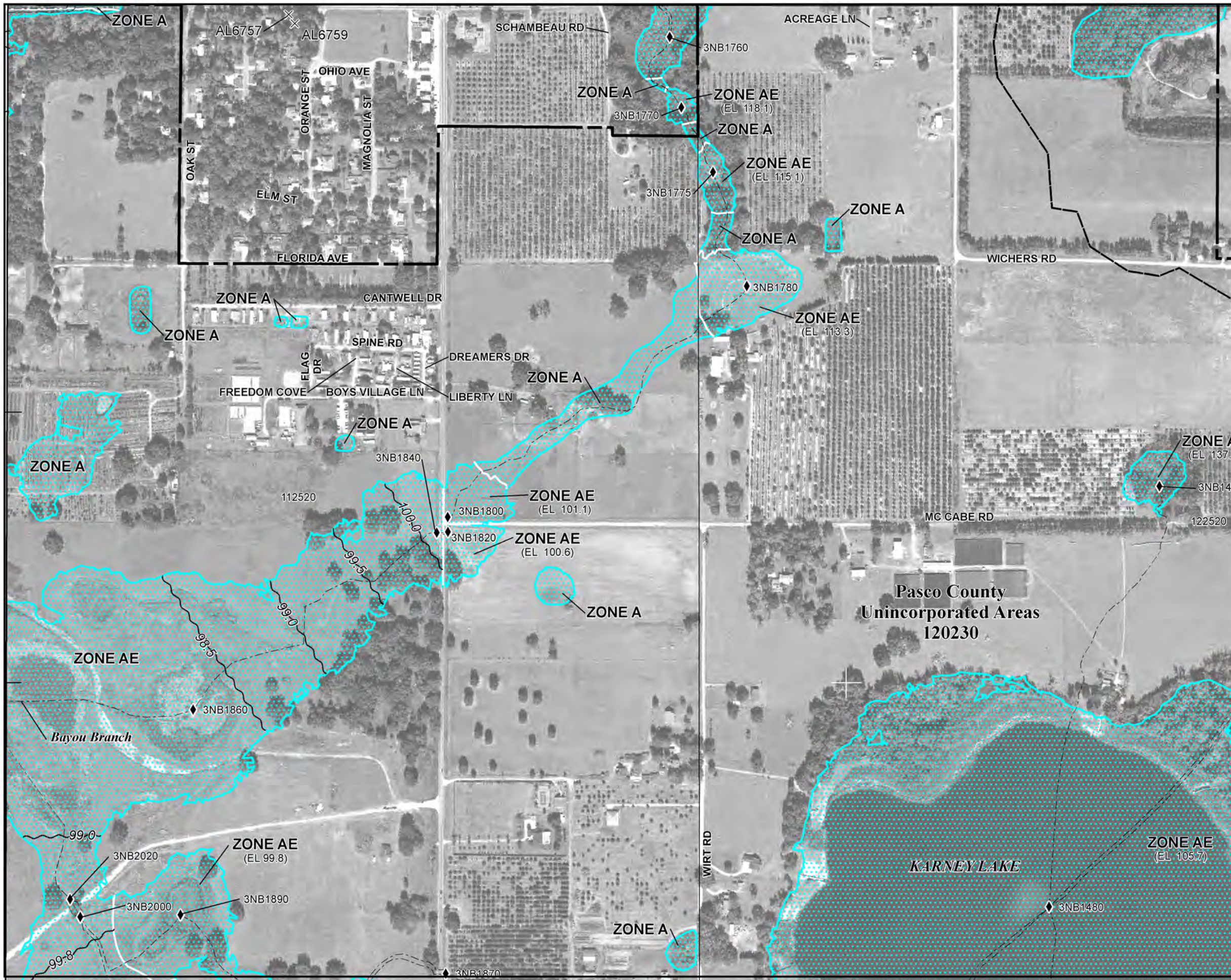
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EFFECTIVE DATE
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NFIP PANEL 0259F

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
PASCO COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 259 OF 500
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PASCO COUNTY	120230	0259	F
SAN ANTONIO, CITY OF	120634	0259	F
ST. LEO, TOWN OF	120166	0259	F

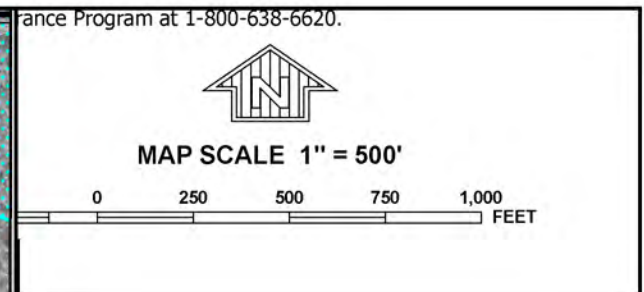
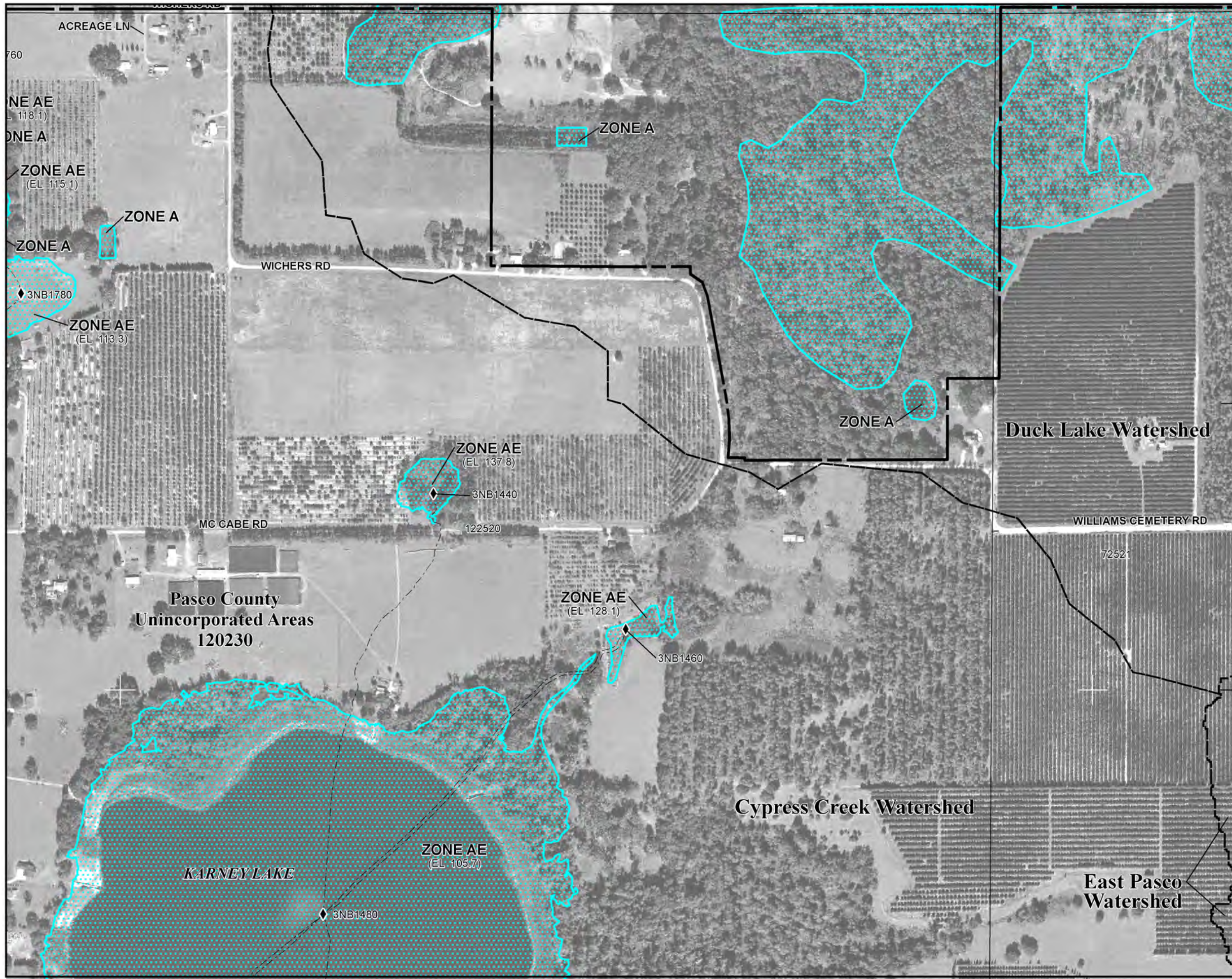
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EFFECTIVE DATE
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Federal Emergency Management Agency

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0259F

FIRM
FLOOD INSURANCE RATE MAP
PASCO COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 259 OF 500
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PASCO COUNTY	120230	0259	F
SAN ANTONIO, CITY OF	120634	0259	F
ST. LEO, TOWN OF	120166	0259	F

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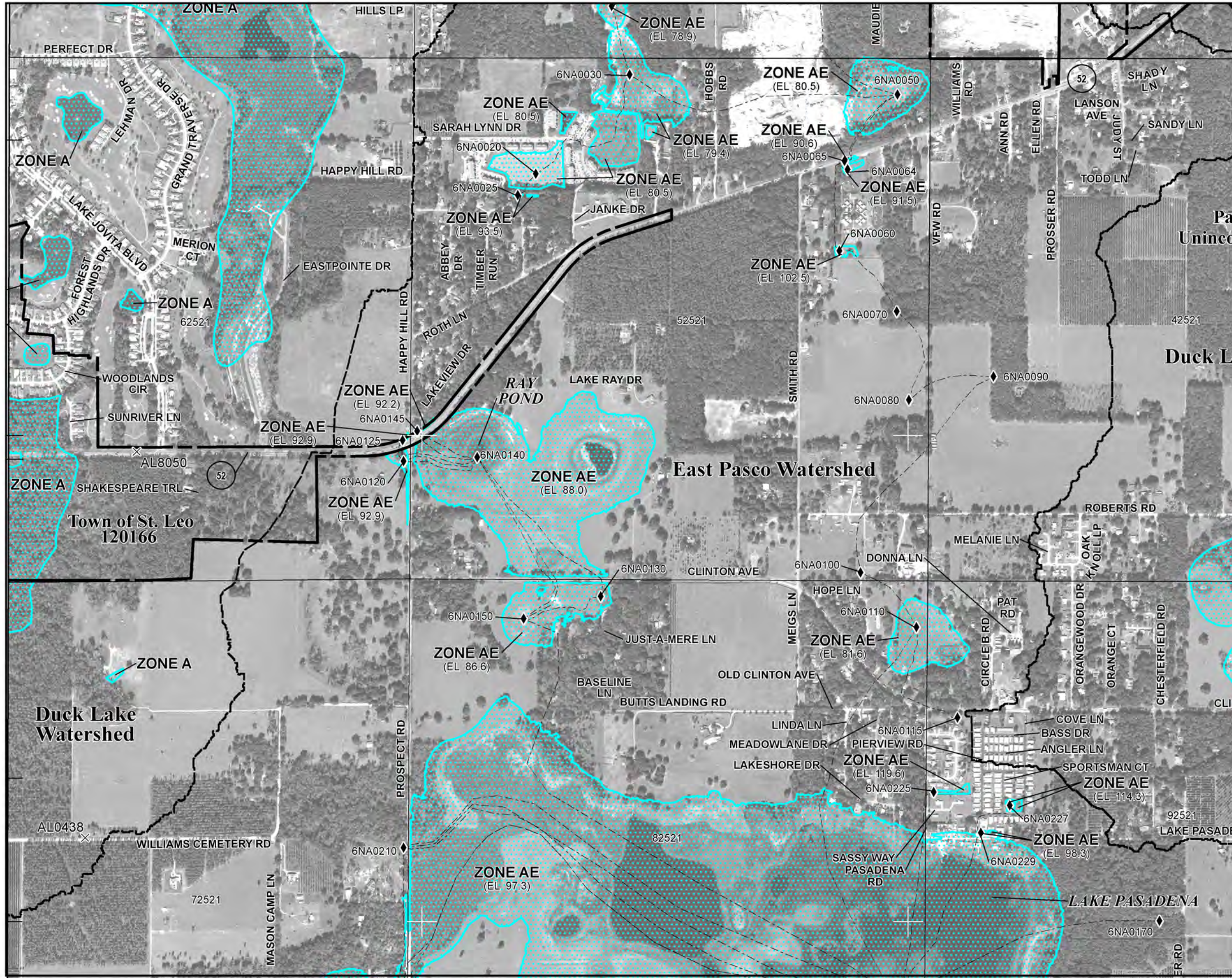
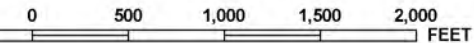
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MAP SCALE 1" = 1000'



NFIP PANEL 0280F

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
PASCO COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 280 OF 500
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DADE CITY, CITY OF	120231	0280	F
PASCO COUNTY	120230	0280	F
ST. LEO, TOWN OF	120166	0280	F

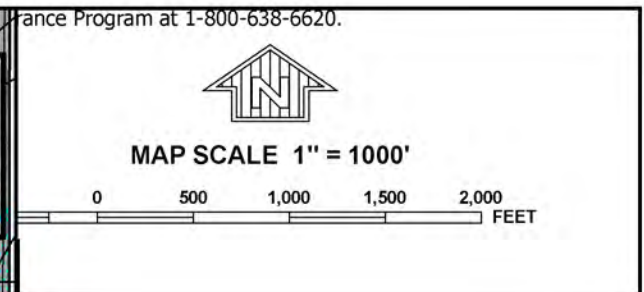
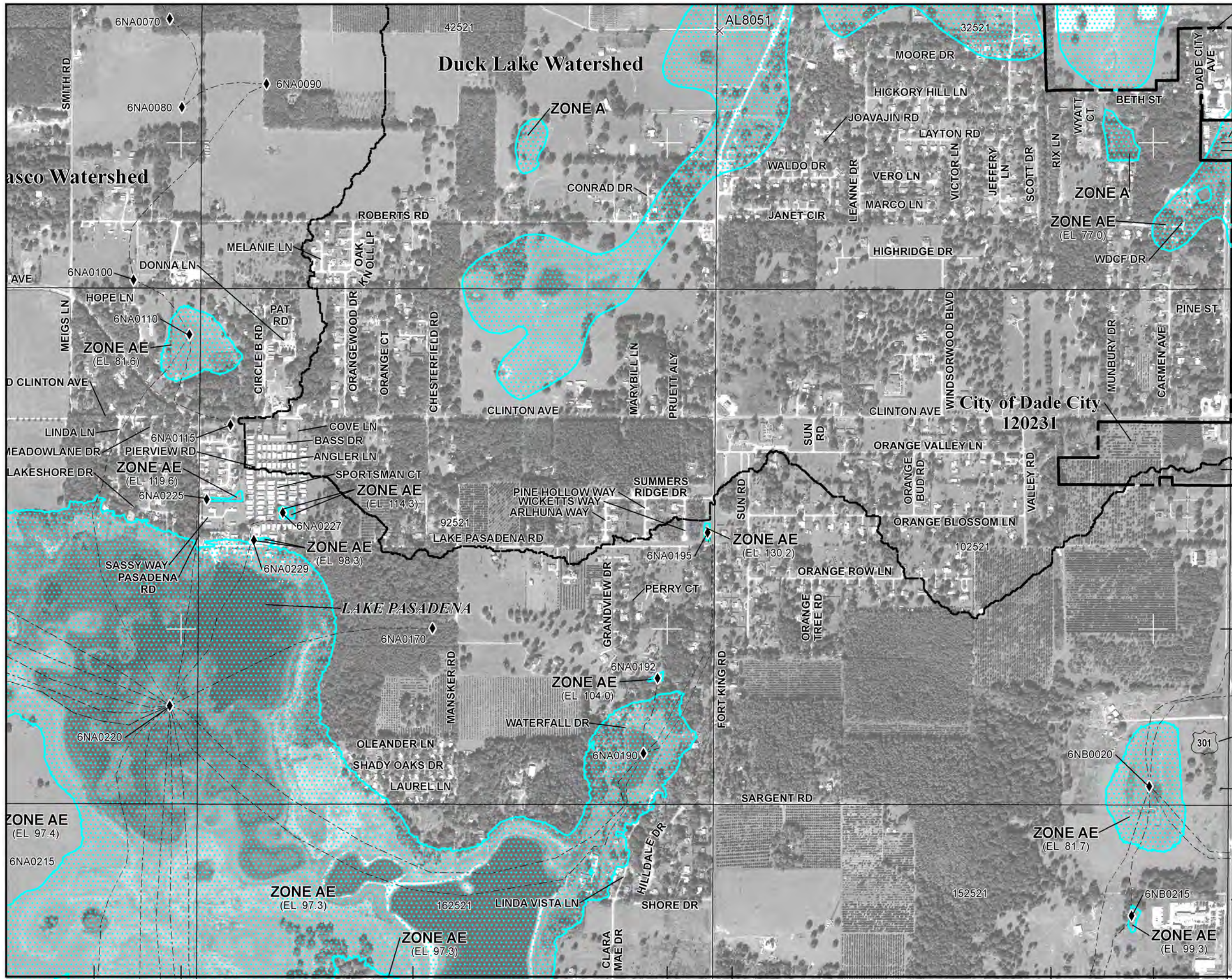
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MAP NUMBER
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EFFECTIVE DATE
SEPTEMBER 26, 2014

Federal Emergency Management Agency

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ANCE Program at 1-800-638-6620.

NFIP

PANEL 0280F

FIRM
FLOOD INSURANCE RATE MAP
PASCO COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 280 OF 500
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DADE CITY, CITY OF	120231	0280	F
PASCO COUNTY	120230	0280	F
ST. LEO, TOWN OF	120166	0280	F

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