

DRAFT LOCATION HYDRAULICS REPORT

Florida Department of Transportation

Florida's Turnpike Enterprise

Project Development and Environment (PD&E) Study to
Widen Florida's Turnpike from South of I-595 to Wiles Road (MP 53-70)
Broward County, Florida

Financial Management Number: 442212-1
ETDM Number: 14350

June 2023



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Howard County, Florida
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Prepared by RS&H, Inc. at the
direction of Florida's Turnpike Enterprise

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Professional Engineer Certification

Project: Widen Florida's Turnpike (SR 91) from South of I-595 to Wiles Road

ETDM Number: 14350

Financial Project ID: 442212-1-22-01

Federal Aid Project Number: TBD

This Location Hydraulics report contains engineering information that fulfills the purpose and need for the Project Development & Environment Study to Widen Florida's Turnpike (SR 91) from I-595 to Wiles Road (MP 43 to 70) in Broward County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with RS&H, Inc., and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice for this project.

This item has been digitally signed and sealed by *Robert M. Garrigues* on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Executive Summary

The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE), is evaluating alternatives to widen the Florida's Turnpike Mainline from south of I-595 (milepost [mp] 53) to Wiles Road (MP 70), approximately 17 miles. The project is located in Broward County, Florida and is contained within the following eleven municipalities Coconut Creek, Davie, Deerfield Beach, Fort Lauderdale, Lauderdale Lakes, Lauderhill, Margate, North Lauderdale, Plantation, Pompano Beach and Tamarac.

Currently, the Turnpike Mainline is typically eight to ten lanes (four lanes plus an auxiliary lane in each direction) from south of I-595 to south of Atlantic Boulevard and six lanes (three lanes in each direction) from south of Atlantic Boulevard to Wiles Road. This PD&E study is evaluating the widening of the Turnpike Mainline to ten lanes plus an auxiliary lane from south of I-595 (MP 53) to south of Atlantic Boulevard (MP 66) and widening to ten lanes from Atlantic Boulevard (MP 66) to Wiles Road (MP 70). In addition, six interchanges along the corridor are also under evaluation. Capacity expansion will improve travel time and reliability as well as enhancing emergency response and evacuation. One of the major project goals is to improve South Florida's economic and employment viability.

The proposed widening and associated interchange improvements will result in impacts to the adjacent Federal Emergency Management Agency (FEMA) floodplains. The anticipated 100-year floodplain impacts due to the proposed roadway widening were estimated and the resulting necessary compensation was also assessed. On-site floodplain compensation (FPC) sites, on-site swales, and infield storage basins were evaluated to provide compensation for the floodplain impacts. Two FPC site alternatives are identified for each floodplain impact location, where feasible.

There are 30 existing culverts within the study limits. There are no bridge culverts within the study limits but there are nine bridges over canals and five are proposed for modification through replacement or widening. The project will impact the 100-year floodplain through both longitudinal and transverse impacts. The longitudinal impacts are a result from filling the floodplain areas associated with proposed roadway widening within the project limits. Transverse impacts are a result from the extension and replacement of the existing cross drain culverts. The longitudinal impacts cannot be avoided since the floodplains associated with the water bodies and low areas extend both east and west of the Turnpike right-of-way. The floodplain encroachment areas were quantified based on the FEMA FIRMs' 100-year base flood elevations (BFEs) and the existing ground elevations using LiDAR and available survey.

The project will not affect existing floodplain elevations or extents. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes as the result of construction of this project. Therefore, it has been determined

that these encroachments are not significant. The FPC sites were evaluated based on several factors, including total cost of each alternative, wetland impacts, habitat and environmental impacts, and hydraulic connectivity to the FEMA flood zones. The preferred FPC alternatives were selected based on the sites that best met these parameters. The table below summarizes the preferred FPC alternatives.

Basin	Site Name	Area (ac.)	R/W Cost
C-11/N-4 – (Begin Project to I-595)	FPC-1	1.83	
North New River (NNR) – (I-595 to Peters)	FPC-1	1.65	
C-12 – (Peters to Oakland Park)	FPC-1A-1/1A-2	6.13	
	FPC-1B-1/1B-2	9.77	
C-13 – (Oakland Park to SR 7)	FPC-1	16.91	
C-14 (South) – (SR 7 to Atlantic)	FPC-2	7.25	
C-14 (North) – (Atlantic to Sample)	FPC-2A/2B/2C	1.58	
Hillsboro – (Sample to Wiles)	FPC-2	4.55	

1 Introduction

This PD&E study is evaluating a 10-lane typical section with modifications at six interchanges. Expansion of the existing corridor capacity is required to enhance safety and accommodate travel demands out to the year 2045. Capacity expansion will improve travel time and reliability as well as enhancing emergency response and evacuation. One of the major project goals is to improve South Florida's economic and employment viability.

2 Project Description

The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE), is evaluating alternatives to widen the Florida's Turnpike Mainline from south of I-595 (milepost [mp] 53) to Wiles Road (MP 70), approximately 17 miles. The project is located in Broward County, Florida and is contained within the following eleven municipalities Coconut Creek, Davie, Deerfield Beach, Fort Lauderdale, Lauderdale Lakes, Lauderhill, Margate, North Lauderdale, Plantation, Pompano Beach and Tamarac. **Figure 2-1** shows the limits of the PD&E Study.



Figure 2-1: Project Location Map

Currently, the Turnpike Mainline is typically eight to ten lanes (four lanes plus an auxiliary lane in each direction) from south of I-595 to south of Atlantic Boulevard and six lanes (three lanes in each direction) from south of Atlantic Boulevard to Wiles Road. The study consists of evaluating the widening of the Turnpike Mainline to ten lanes plus an auxiliary lane from south of I-595 (MP 53) to south of Atlantic Boulevard (MP 66) and widening to ten lanes from Atlantic Boulevard (MP 66) to Wiles Road (MP 70). **Figure 2-2** thru **Figure 2-5** illustrate the existing and proposed typical sections.

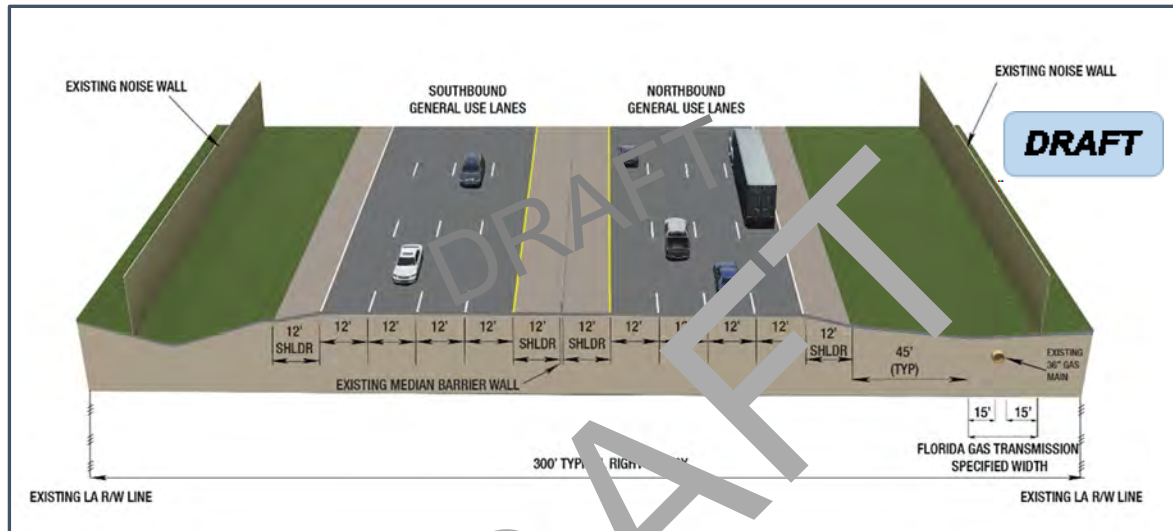


Figure 2-2: Existing Typical Section (I-595 to Atlantic Boulevard)

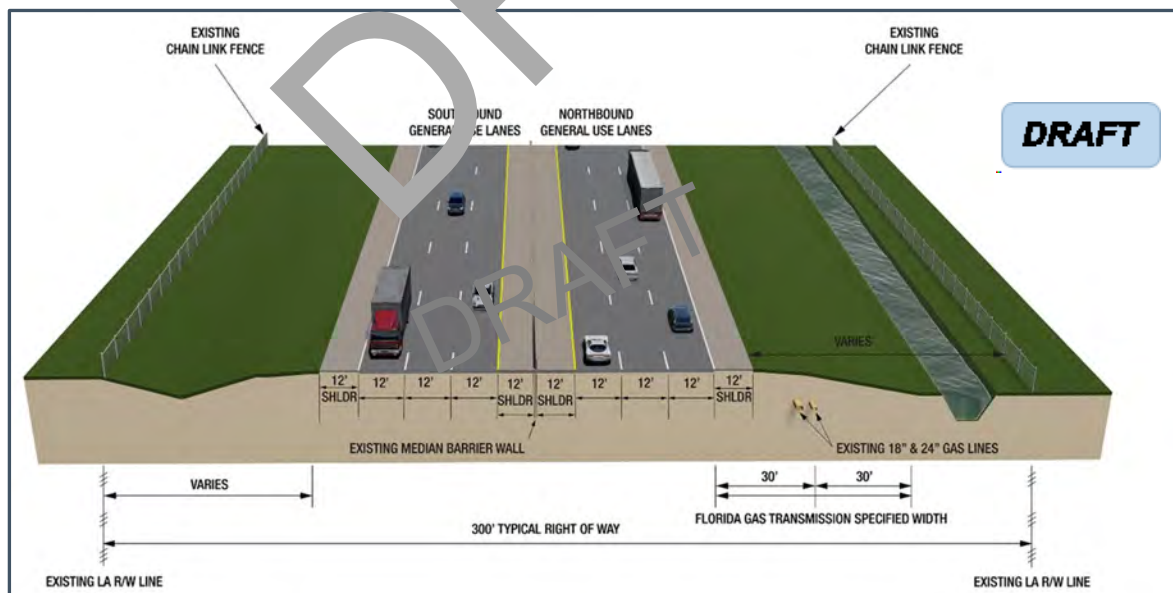


Figure 2-3: Existing Typical Section (Atlantic Boulevard to Wiles Road)

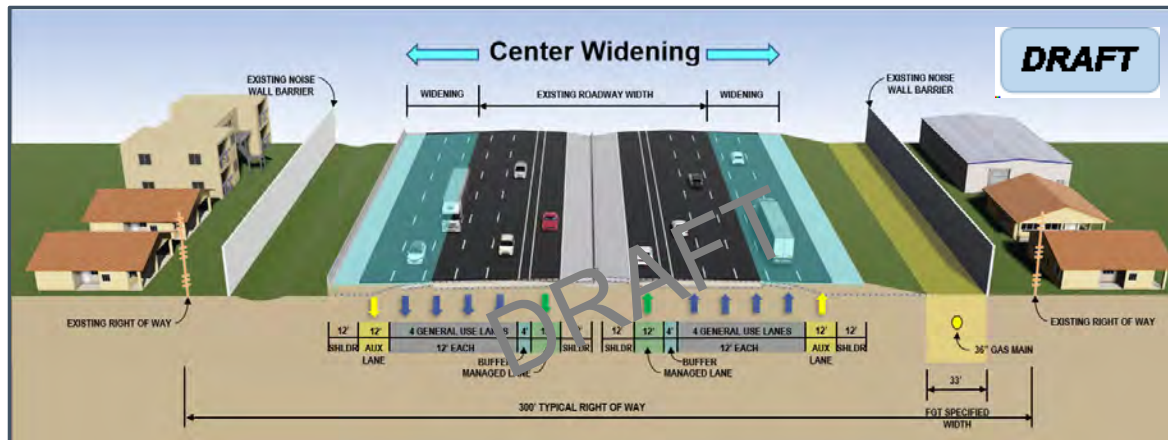


Figure 2-4: Proposed Typical Section (South of I-595 to South of Atlantic Boulevard)

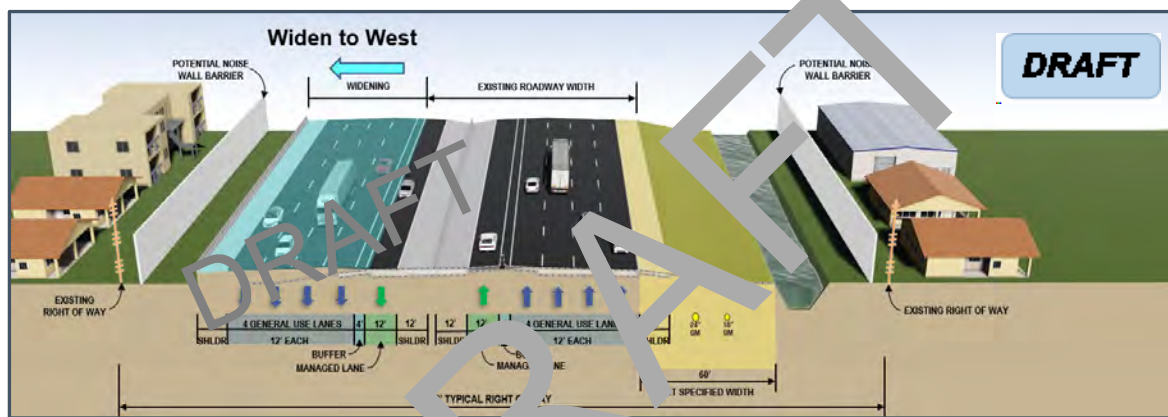


Figure 2-5: Proposed Typical Section (South of Atlantic Boulevard to Wiles Road)

Land use adjacent to the Turnpike Mainline within the project limits is predominately residential with areas of commercial and industrial land uses toward the northern end of the project. The improvements being evaluated also include milling and resurfacing, bridge construction and existing interchange improvements. The existing interchanges within the limits of the study include I-595, Sunrise Boulevard, Commercial Boulevard, Atlantic Boulevard, Coconut Creek Parkway and Sample Road. The evaluation for two potential new reliever interchanges, one at Cypress Creek Road/McNab Road and one at Oakland Park Boulevard, is also part of the PD&E Study. **Table 2-1** presents applicable Section Range and Township information.

Table 2-1: Section Township and Range

Section	Township	Range
16, 17, 20, 21, 28, 29, 32, 33	T 48 S	R 42 E
5, 6, 7	T 49 S	R 42 E
12, 13, 14, 23, 24, 25, 26, 35, 36	T 49 S	R 41 E
2, 11, 12, 13, 14, 23, 24	T 50 S	R 41 E

The vertical datum used for this project is the North American Vertical Datum of 1988 (NAVD88). Some existing plans reference the National Geodetic Vertical Datum of 1929 (NGVD29). Where applicable, elevations are converted using the vertical datum conversion formulas shown in **Table 2-2**:

Table 2-2: Datum Conversion Formulas

Location	Conversion Factor
Project Limits (MP 53) to Peters Road)	$\text{NAVD88} + 1.54 = \text{NGVD29}$
Peters Road to Wiles Road (MP 70)	$\text{NAVD88} + 1.57 = \text{NGVD29}$

3 Existing Conditions

Between Griffin Road and Atlantic Boulevard, the Turnpike includes four 12-foot lanes in each direction with a varying number of auxiliary lanes centered within a right-of-way width generally equal to or greater than 300 feet. North of Atlantic Boulevard, the Turnpike includes three 12-foot lanes in each direction centered within a right-of-way width between 200 and 300 feet.

As presented in **Table 3-1**, there are six major basins along the corridor. The outfall for each basin is generally one of the major canals that intersect the corridor.

Table 3-1: Corridor Basin Summary

Basin	Extents	Receiving Waterbody	Open/Closed
C-11	Orange Drive to I-595*	CBW and N-4 Canal	Open
North New River (NNR)	I-595 to Peters Road	North New River Canal	Open
C-12	Peters Road To Oakland Park Blvd.	C-12 Canal	Open
C-13	Oakland Park Blvd to SR 7	C-13 Canal	Open
C-14	SR 7 to Sample Road	C-14 Canal	Open
Hillsboro Canal	Sample Road to Wiles Road	Hillsboro Canal	Open

— *This PD&E study begins at MP 53 which is just north of Orange Drive at approximately Station 1248+00

As presented in **Table 3-2**, 20 cross drains are identified along the corridor. This includes pipes or box culverts that cross perpendicular beneath the Turnpike mainline as well as two locations where the major outfall for the interchange ponds discharges under the existing ramps away from the mainline. Pipes located parallel to the Turnpike that cross under major intersecting roads and serve as major conveyance structures for stormwater runoff were also included. The information included in the table was obtained from As-Built plans as well as the Straight-Line Diagram (SLD). Information related to the mile post was estimated from the SLD as accurately as possible including those pipes that were either off the Turnpike mainline or that were not documented as part of the SLD.

Table 3-2: Existing Cross Drains

Basin	Sub-Basin	Cross Drain	Mile Post	Station	Size
C-11	Orange Drive to I-595	CD-1	54.4		42" Pipe
		CD-2	54.6		24" Pipe
		CD-3	54.9		4' x 4' CBC
		CD-4	55.4		72" Pipe
NNR	I-595 to Peters Road	CD-5	56.4		5' x 5' CBC
		CD-6	56.5		72" Pipe
		CD-7	56.7		54" Pipe
C-12	Sunrise Blvd. to Oakland Park Blvd.	CD-8	59		42" Pipe
		CD-9	59.1		24" Pipe
		CD-10	59.1		48" Pipe
		CD-11	60		36" Pipe
C-13	Oakland Park Blvd. to Commercial Blvd.	CD-12	62		30" Pipe
		CD-13	62.5		24" Pipe
	Commercial Blvd. to SR 7	CD-14	62.8		2 @ 7' x 5' CBC
		CD-15	62.8		5' x 3' CBC
		CD-16	62.9		24" Pipe
C-14	SR 7 to Lyons Road	CD-17	63.7		48" Pipe
		CD-18	63.8		48" Pipe
		CD-19	63.8		54" Pipe
		CD-20	63.8		48" Pipe
		CD-21	64.9		72" Pipe
	Lyons Road to Atlantic Boulevard	CD-22	NA*		36" Pipe
		CD-23	NA*		36" Pipe
		CD-24	NA*		72" Pipe
	Coconut Creek Parkway to Copans Road	CD-25	67.3		60" Pipe
		CD-26	67.4		42" Pipe
		CD-27	67.3		3 @ 66" Pipe
	Copans Road to Sample Road	CD-28	68.7		30" Pipe
		CD-29	69.2		36" Pipe
		CD-30	69.3		36" Pipe

* These pipes are located within the Atlantic Blvd. interchange. No MP indicators are on the SLD

3.1 Soils

The soils along the corridor vary but are generally poorly drained fine sands. The major soil components are Immokalee Urban Land Complex, Immokalee Fine Sands or Margate Fine Sands.

There is also a smaller component of Udorthents, Matlacha Limestone and Hallendale Fine Sands. **Figure 3-1** illustrates the soils information along the corridor and **Table 3-3** presents the major soil components along the corridor.

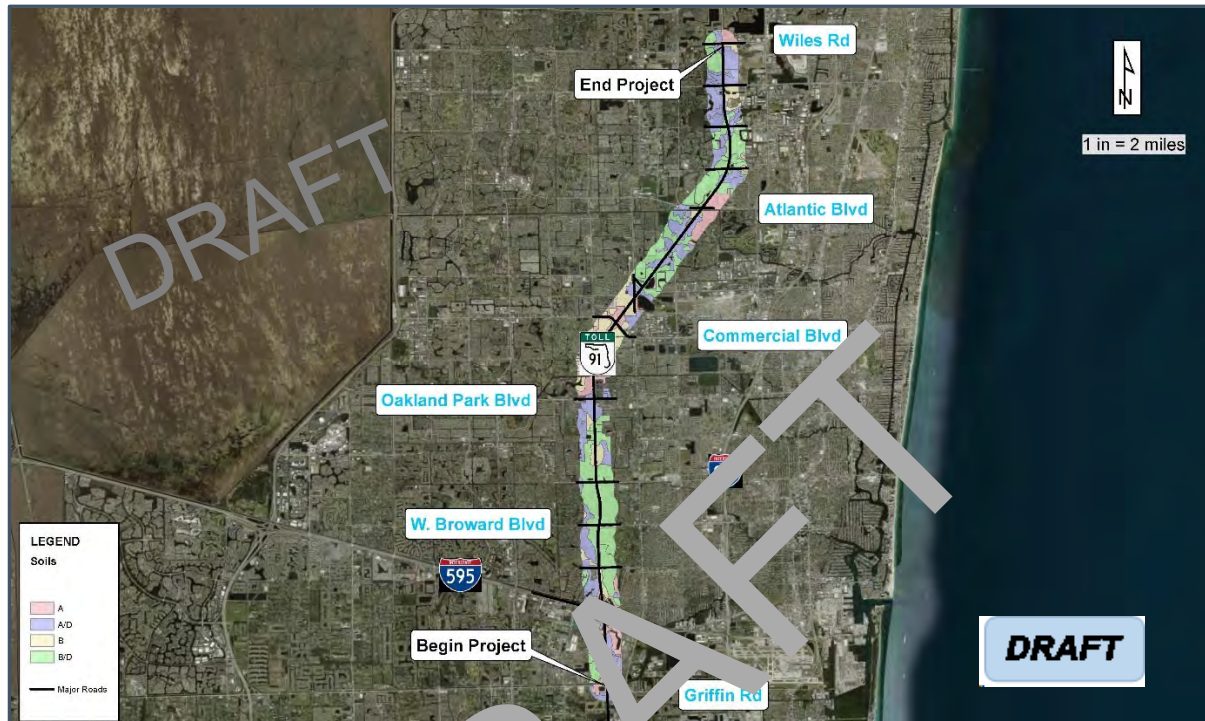


Figure 3-1: NRCS Soils Map

Table 3-3: Soil Summary

Limit	Soil Type	Soil Characteristics
Orange Drive to Peters Road	Margate Fine Sand	A/D - Poorly drained
	Udorthents	A – Somewhat poorly drained
Peters Road to Sunrise Blvd.	Immokalee-Urban Land Complex	B/D – Poorly drained
Sunrise Blvd. to Oakland Park Blvd.	Immokalee-Urban Land Complex	B/D – Poorly drained
	Matlacha, Limestone	B – Poorly drained
	Immokalee, Limestone	A/D – Poorly drained
Oakland Park Blvd. to Commercial Blvd.	Matlacha, Limestone	B- Poorly drained
	Udorthents	A – Somewhat poorly drained

Limits	Soil Type	Soil Characteristics
Commercial Blvd. to SR 7	Udorthents	A – Somewhat poorly drained
	Matlacha, Limestone	B- Poorly drained
SR 7 to Atlantic Blvd.	Margate, Fine Sand	A/D – Poorly drained
	Immokalee, Fine Sand	B/D – Poorly drained
	Basinger, Fine Sand	A/D – Poorly drained
	Hallendale, Fine Sand	B/D – Poorly drained
Atlantic to Coconut Creek Pkwy.	Immokalee, Fine Sand	B/D – Poorly drained
	Immokalee-Urban Land Complex	B/D – Poorly drained
Coconut Creek Pkwy. to Copans Road	Immokalee, Fine Sand	B/D – Poorly drained
	Hallendale, Fine Sand	B/D – Poorly drained
	Sanibel muck	A/D – Very poorly drained
Copans Road to Sample Road	Immokalee, Fine Sand	B/D – Poorly drained
	Margate, Fine Sand	A/D – Poorly drained
Sample Road to Wiles Road	Margate, Fine Sand	A/D – Poorly drained
	Immokalee, Fine Sand	B/D – Poorly drained
	Matlacha, Limestone	A/D – Very poorly drained

3.2 Land Use

With a few small exceptions, land use is highly urbanized with development of medium to density along almost the entire corridor. The only major areas that do not fit this characterization are the Ft. Lauderdale Country Club located south of Peters Road and The Hills of Inverrary golf course located just north of Oakland Park Boulevard. There are also two adjacent nature parks and one adjacent landfill. Fern Forest Natural Center is located south of Atlantic Boulevard and Tradewinds Park is located north of Copans Road. The existing Waste Management landfill is located north of Sample Road.

3.3 Cross Culverts

The cross drains listed previously in Table 3-2 do not all serve the same function. Many convey offsite stormwater runoff from one side of the Turnpike to the other. Others convey onsite runoff from one side of Turnpike to the other or serve as outfall control structures for the various existing linear extended detention systems. There are also cross drains that serve multiple functions. The following bullets describe the function of each of the cross drains included in Table 3-2.

Orange Drive to I-595

- CD-1 – Located south of the I-595 interchange, conveys offsite runoff from the east side of the Turnpike into the Central Broward Water Control District (CBWCD) C-4 Canal which is located parallel to the west side of the Turnpike.
- CD-2 – Located south of the I-595 interchange, is part of the outfall control structure that conveys stormwater runoff from linear extended detention system on the east side of the Turnpike into the N-4 Canal. The linear system provides treatment and attenuation for the Turnpike northbound lanes.
- CD-3 – Located south of the I-595 Interchange, functions the same as CD-1 and conveys offsite runoff from the eastside of the Turnpike into the Central Broward Water Control District (CBWCD) C-4 Canal which is located parallel to the west side of the Turnpike.
- CD-4 – Within the I-595 interchange there are multiple wet ponds that function as the main stormwater management system for both I-595 and the Turnpike between Griffin Road and I-595. This cross drain is the main connection between the wet ponds on the east side and west side of the Turnpike mainline within the I-595 interchange. It should be noted that the As-builts call out the pipe as a 72", but the SLD indicates a 6' x 6' CBC.

I-595 to Peters Road

- CD-5 – Conveys offsite runoff from the east side of the Turnpike into the existing triangular stormwater management pond located on the west side of the Turnpike just to the north of the North New River (NNR) Canal. The NNR Canal is the outfall for this pond.
- CD-6 – Conveys on-site runoff from the Turnpike northbound lanes into the triangular stormwater management pond located on the west side of the Turnpike just to the north of the NNR Canal.
- CD-7 – Conveys offsite runoff from Peters Road on the east side of the Turnpike into the triangular stormwater management pond located on the west side of the Turnpike just to the north of the NNR Canal.

Sunrise Boulevard to Oakland Park Boulevard

- CD-8 – Conveys stormwater runoff from the Turnpike and adjacent offsite areas on the west side of the Turnpike and into the existing stormwater pond located within the infield area of the Sunrise Boulevard interchange.
- CD-9 – This is one of two cross drains that discharge from the stormwater pond within the Sunrise Boulevard interchange, underneath the existing ramps, and into the closed system located on the east side of the Turnpike. This closed system discharges into the City of Lauderhill canal system and ultimately into the C-12 Canal.

- CD-10 – Along with CD-9, this is the other cross drain that conveys stormwater runoff from within the Sunrise Boulevard interchange pond and into the City of Lauderhill canal system.
- CD-11 – Located north of the Sunrise Boulevard Interchange, conveys, is part of the outfall control structure that conveys stormwater runoff from a linear extended detention system on the west side of the Turnpike into a closed collection system on the east side of the turnpike. The linear system provides treatment and attenuation for the Turnpike northbound lanes. The closed collection system discharges into the City of Lauderhill canal system and ultimately into the C-12 Canal.

Oakland Park Boulevard to Commercial Boulevard

- CD-12 – Located north of the C-13 Canal, is part of an outfall control structure that conveys stormwater runoff from a linear extended detention system on the east side of the Turnpike into the existing canal located adjacent to the southbound lanes.
- CD-13 – Also located north of the C-13 Canal, is part of a second outfall control structure located within the same linear system as CD-12. This system provides treatment and attenuation for the Turnpike northbound lanes.

Commercial Boulevard to SR 7

- CD-14 – Main conveyance underneath Commercial Boulevard. Conveys runoff from north to south into the C-13 Canal. This cross drain does not show up on the SLD since it does not cross underneath the Turnpike.
- CD-15 – Secondary conveyance beneath Commercial Boulevard. Appears to convey runoff from an offsite area south of Commercial Boulevard to the north. It is not located completely within Turnpike R/W. This pipe is also not on the SLD since it does not cross underneath the Turnpike.
- CD-16 – Located within the Commercial Boulevard Interchange, conveys runoff from the interchange to the west into the existing canal system that discharges south beneath Commercial Boulevard and ultimately into the C-13 Canal.

SR 7 to Lyons Road

- CD-17 – Part of the conveyance from the west side of the Turnpike to the east side and into the existing stormwater pond located just south of W. Cypress Creek Road adjacent to the northbound lanes. Ultimately part of the stormwater management system which provides treatment and attenuation for the Turnpike mainline in this location. The ultimate outfall for this system is a long weir control structure located north of the toll gantry and adjacent to the northbound lanes.
- CD-18 – Part of the conveyance from north to south underneath W. Cypress Creek Road. Located adjacent to the southbound lanes. The ultimate outfall for this system is a long weir control structure located north of the toll gantry and adjacent to the northbound lanes.

- CD-19 – Part of the conveyance from south to north underneath W. Cypress Creek Road. The ultimate outfall for this system is a long weir control structure located north of the toll gantry and adjacent to the northbound lanes.
- CD-20 – Located north of W. Cypress Creek Road, conveys runoff from the west side of the Turnpike to the east side.
- CD-21 – Located just south of Lyons Road, is part of an existing linear detention pond outfall structure that discharges runoff from the west side of Turnpike to the east side into an existing conveyance canal located adjacent to the southbound lanes. The existing linear pond provides treatment for the southbound lanes.

Lyons Road to Atlantic Boulevard

- CD-22 – Located within the service plaza area north of Lyons Road, conveys runoff from an extended linear detention pond adjacent to the southbound lanes into an existing pond within the interior area of the service plaza.
- CD-23 – This cross drain is the outfall control structure for the interior service plaza south pond. It discharges to the west underneath Lyons Road and into the Fern Forest Nature Center
- CD-24 – This is the major conveyance from the wet pond at the north end of the service plaza to the west into an undeveloped area between two existing ramps which is owned by FTE. The ultimate discharge from this undeveloped area is into the C-14 Canal.

Coconut Creek Parkway to Copans Road

- CD-25 – Located just south of Coconut Creek Parkway, conveys runoff from the west side of Turnpike to the east side and into an existing wet pond within the interchange. This pipe is partially shown in the RCD NO. 406-50 60% plan set. It is also discussed in the drainage design documentation, but it is unclear where this pipe daylights and the elevation of the downstream inverts.
- CD-26 – Discharges from the wet pond within the Coconut Creek Parkway Interchange, under the ramps and into the C-3 Canal.
- CD-27 – Major conveyance for the C-3 Canal underneath Coconut Creek Parkway.

Copans Road to Sample Road

- CD-28 – Located south of the Sample Road Interchange, serves as an equalizer pipe between the swales adjacent to the northbound and southbound lanes of Turnpike. This pipe does not show up on the SLD. This pipe does not show up on the SLD.
- CD-29 – Located within the Sample Road Interchange, conveys runoff from the interchange beneath the ramps and into a series of wet ponds that ultimately discharge to the C-3 Canal.

- CD-30 – Conveys runoff beneath the Turnpike mainline within the Sample Road Interchange to the east side of the interchange.

3.4 Bridge Structures

There are 10 bridge structures over water. **Table 3-4** presents each bridge structure location and the proposed improvements. Bridge Hydraulic Analysis will be required during design.

Table 3-4: Corridor Bridge Summary

Bridge Number	Water Crossing	Proposed Improvements
860533	NNR	I-595 Mainline Bridge – Preferred alternative required no structure modification.
861006	C-12 Canal	Sunrise Blvd. Interchange SB Ramp – Preferred alternative requires no structure modification.
860376	C-12 Canal	Sunrise Blvd. Interchange SB Mainline – Preferred alternative requires no structure modification.
860377	C-12 Canal	Sunrise Blvd. Interchange NB Mainline – Preferred alternative requires no structure modification.
861005	C-12 Canal	Sunrise Blvd. Interchange NB Ramp – Preferred alternative requires no structure modification.
860180	C-13 Canal	FT NB and SB Mainline – Preferred alternative requires no structure modification.
864106	C-13 Canal	Rock Island Road – Preferred alternative requires structure widening.
860082	C-14 Canal	Atlantic Boulevard Interchange SB Mainline – Preferred alternative requires structure replacement.
860182	C-14 Canal	Atlantic Boulevard Interchange NB Mainline – Preferred alternative requires structure replacement.
860590	C-14 Canal	Atlantic Boulevard Interchange NB Off-ramp – Preferred alternative requires minor structure widening.

3.5 Floodplains and Floodways

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMS) for Broward County were reviewed to determine the extents of the FEMA floodplains within the project limits. **Table 3-5** provides a summary of the relevant FIRMS including their effective dates. **Table 3-6** and **Table 3-7** present a summary of the floodplain areas within the project limits. **Figure 3-2** illustrates the limits of the floodplain along the corridor.

Table 3-5: FEMA Firm Map Summary

FEMA Panel Name	FIRM Panel No.	Effective Date
FIRM Broward County, Florida, and Incorporated Areas	12011C0166H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0170H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0354H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0355H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0356H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0358H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0361H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0362H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0363H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0364H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0551H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0552H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0553H	08-18-2014
FIRM Broward County, Florida, and Incorporated Areas	12011C0554H	08-18-2014

Table 3-6: Floodplain Area Summary (Griffin Road to SR-7)

Basin	Description	Stationing (feet)	Outfall	Elevation (NAVD)
N-4	Griffin Road to I-595	1333+00 to 1336+00	N-4 Canal	6.0
NNR	I-595 to Peters Rd.	1336+00 to 1394+00	NNR Canal	6.0
C-12	Peters Rd. to Sunrise Blvd.	1394+00 to 1505+00	C-12 Canal	7.0
	Sunrise Blvd. to Oakland Park Blvd.	1505+00 to 1606+50	C-12 Canal	7.0
C-13	Oakland Park Blvd. to C-13 Canal	1606+50 to 1636+00	C-13 Canal	8.0
				9.0
	C-13 Canal to Commercial Blvd.	1636+00 to 1714+00	C-13 Canal	7.0
				8.0
	Commercial Blvd. to SR-7	1714+00 to 1753+00	C-13 Canal	9.0
				8.0
				11.0

Table 3-7: Floodplain Area Summary (SR 7 to Wiles Road)

Basin	Description	Station Limits	Outfall	Elevation (NAVD)
C-14	SR-7 to Cypress Creek Rd.	1753+00 to 1770+00	C-14 Canal	5.0
	Cypress Creek Rd. to Lyons Rd.	1770+00 to 1838+00	C-14 Canal	8.0
				9.0
				10.0
				12.0
	Lyons Rd. to C-14 Canal	1838+00 to 1891+00	C-14 Canal	10.0
	C-14 Canal to Coconut Creek Pkwy.	1891+00 to 1955+00	C-14 Canal	11.0
				11.0
	Coconut Creek Pkwy. To Copans Rd.	1955+00 to 2009+00	C-14 Canal	12.0
				13.0
				14.0
Hillsboro	Copans Rd. to Sample Rd.	2009+00 to 2061+00	C-14 Canal	12.0
				13.0
				13.0
Hillsboro	Sample Rd. to Wiles Rd.	2061+00 to 2111+00	C-14 Canal	13.0
				14.0

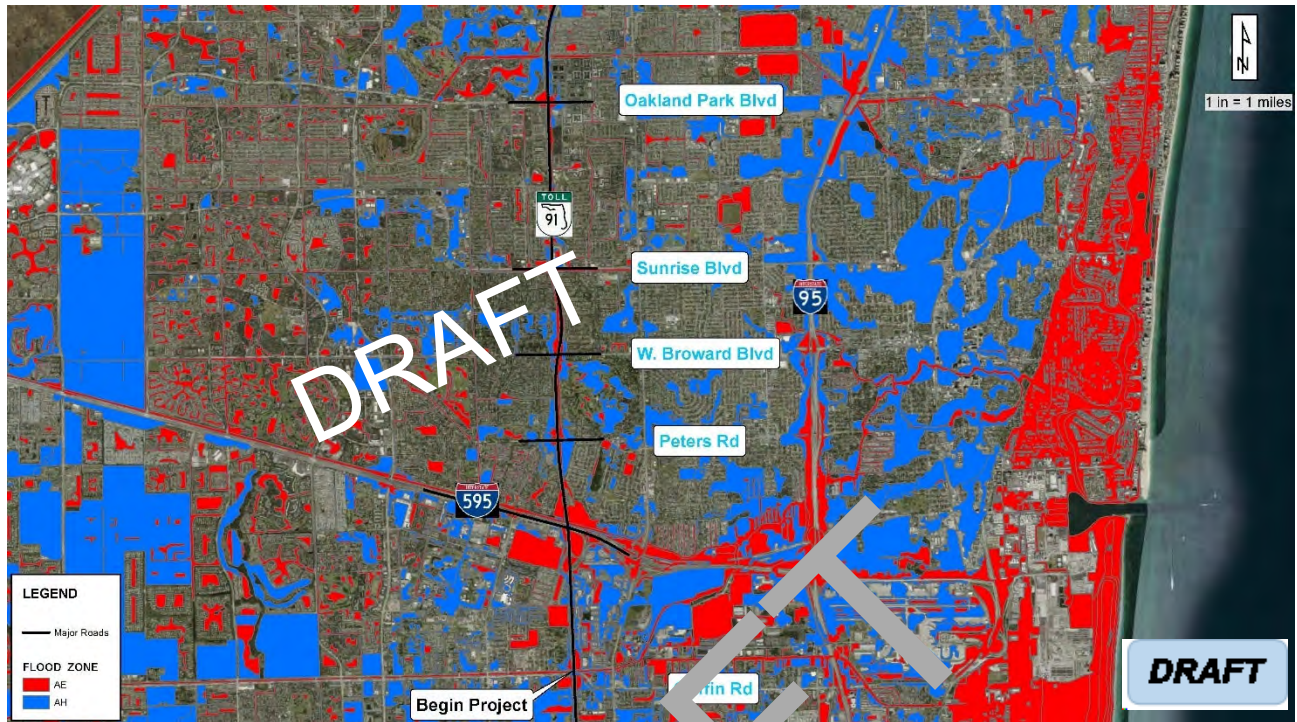


Figure 3-2: FEMA Map (South)

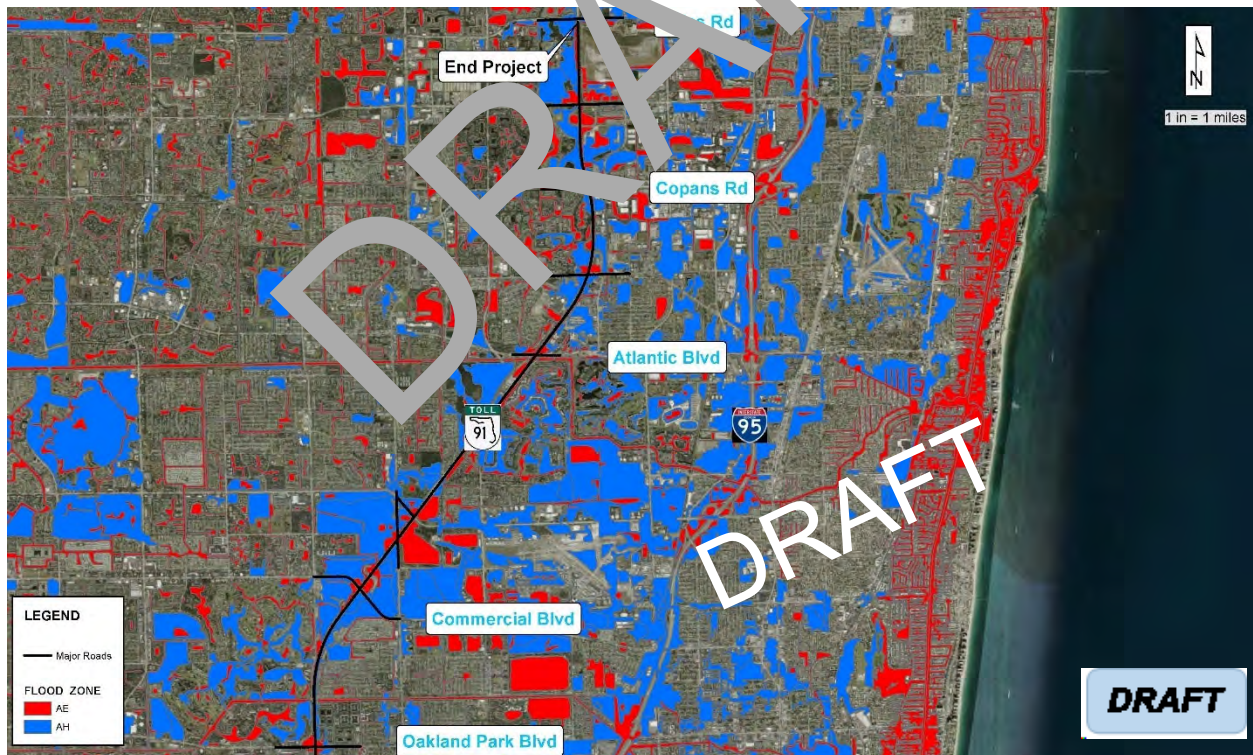


Figure 3-3: FEMA Map (North)

4 Proposed Conditions

4.1 Cross Culverts

The proposed roadway widening will require extensions to many of the pipes that extend underneath the Turnpike mainline. Although every pipe may not technically be considered a cross drain they are listed here for informational purposes. **Table 4-1** provides projected modifications and improvements to each including the approximate length of extension, and its current function within the existing corridor.

Table 4-1: Proposed Cross Drain Modifications

Number	MP	Size	Existing Length (ft)	Prop. Ext. (ft)	Notes
CD-1	54.4	42" Pipe	261	0	Incorporated into existing closed collection system
CD-2	54.6	24" Pipe	280	0	Incorporated into existing closed collection system
CD-3	54.9	4' x 4' CBC	318	0	Incorporated into existing closed collection system
CD-4	55.4	72" Pipe	350	0	Incorporated into existing closed collection system
CD-5	56.4	5' x 5' CBC	234	0	Shortened to accommodate proposed wall
CD-6	56.5	72" Pipe	233	0	Shortened to accommodate proposed wall
CD-7	56.7	54" Pipe	246	0	Incorporated into existing closed collection system
CD-8	59	42" Pipe	353	0	Shortened to accommodate pond expansion
CD-9	59.1	24" Pipe	226	0	Pond outfall control structure discharge located under ramp
CD-10	59.1	48" Pipe	189	3	Pond outfall control structure discharge located under ramp
CD-11	60	36" Pipe	214	25	Incorporated into existing closed collection system
CD-12	62	30" Pipe	200	41	Linear swale outfall control structure discharge pipe
CD-13	62.5	24" Pipe	232	15	Linear swale outfall control structure discharge pipe
CD-14	62.8	2 @ 7' x 5' CBC	21	27	Maintains flow of canal beneath Commercial Blvd.
CD-15	62.8	3' CBC	148	25	Located beneath Commercial Blvd. Appears to be most downstream pipe in existing closed collection system. Extension would occur on downstream side.
CD-16	62.9	24" Pipe	274	65	Pond outfall control structure discharge pipe
CD-17	63.7	48" Pipe	343	74	Pond outfall control structure discharge pipe
CD-18	63.8	48" Pipe	216	Unknown	Located under Cypress Creek Road. It will also be under longitudinal ramp in proposed condition and straight-line extension is not possible due to ramp configuration. Will likely be replaced or incorporated into existing closed collection system.
CD-19	63.8	54" Pipe	215	0	Located under Cypress Creek Road. Part of pond outfall control structure discharge system.
CD-20	63.8	48" Pipe	197	30	Internal linear swale stormwater management system equalizer pipe
CD-21	64.9	72" Pipe	212	45	Linear swale outfall control structure discharge pipe
CD-22	65.5	36" Pipe	155	10	Linear swale outfall pipe into service plaza wet pond
CD-23	65.5	36" Pipe	367	10	Pond outfall control structure discharge pipe
CD-24	65.9	72" Pipe	255	0	Pond outfall control structure discharge pipe. No extension required. Will ultimately be eliminated as part of service plaza truck parking expansion.
CD-25	67.3	60" Pipe	Unknown	60	This pipe was partially surveyed under FPID 406150. There is also no information on SLD. Downstream location, length and inverts are

Number	MP	Size	Existing Length (ft)	Prop. Ext. (ft)	Notes
					speculative. Length of extension shown is related to upstream end. Pipe serves as equalizer pipe across Coconut Creek interchange.
CD-26	67.4	42" Pipe	Unknown	Unknown	This is located under a Coconut Creek Interchange Ramp and will be replaced. The existing length and inverts were not included under FPID 406150
CD-27	67.3	3 @ 66" Pipe	128	10	Existing pipes underneath Coconut Creek Parkway. Maintains C-3 Canal conveyance underneath Coconut Creek.
CD-28	68.7	30" Pipe	193	0	This pipe will be placed out of service as part of the proposed improvements because the low area that it conveys runoff from will be eliminated.
CD-29	69.2	36" Pipe	188	0	Located under Sample Road interchange ramp. No extension required.
CD-30	69.3	36" Pipe	306	45	Connects existing ditch from one side of the road to an existing infield pond.

Many of the pipes listed in the previous table will not require extension, will be made shorter or are already incorporated into an existing closed collection system that will not change because of the proposed improvements. Other pipes function as existing outfall control structure discharge pipes. The ones associated with linear detention systems are assumed to be impacted and either removed from service or incorporated into a future closed collection system. However, CD-14, CD-27 and CD-30 are three locations where additional analysis will be required during design to determine what type of proposed improvement will be required to maintain the upstream existing hydraulic grade line.

CD-14 maintains the flow in the existing canal that discharges from an offsite subdivision under Commercial Boulevard and ultimately into the C-13 Canal. Any extension to this cross drain could result in an increase in the upstream hydraulic grade line. However, this increase can be mitigated by a wider canal section upstream or an increase in the size of upstream or downstream extension. CD-27 maintains the flow in the Broward County C-3 Canal beneath Coconut Creek Parkway which eventually discharges into the C-14 Canal downstream. Like the possible stormwater solution described for C-14, maintaining the existing hydraulic grade line can be accomplished by widening out the upstream canal which will be made easier because of the proposed floodplain compensation area on the upstream side. But since the extension is only estimated at 10-feet, it may not be necessary to do anything. CD-30 maintains the flow from upstream offsite areas through the Sample Road interchange. Because this interchange is proposed to be re-configured, this pipe should be further evaluated during design. Because it is located within the infield area of the interchange, if more capacity is needed, adding additional capacity via jack and bore should not be a concern.

4.2 Bridge Structures

Improvements are proposed for the bridges presented in **Table 4-2**. Hydraulic modeling will be required during the design phase to ensure no hydraulic or scour impacts to the existing canal and bridges. Focus must be paid to the improvements over the C-13 Canal as this location is already a constriction in the existing condition. If the currently proposed widening is converted to bridge replacement during the design phase, it is likely that SFWMD will desire a wider canal footprint along with the proposed bridge.

Table 4-2: Proposed Bridge Improvements

Bridge Number	Crossing	Proposed Improvement
860180	C-13 Canal	FTE NB and SB Mainline – Preferred alternative requires structure replacement
864106	C-13 Canal	Rock Island Road – No proposed improvements
860082	C-14 Canal	Atlantic Boulevard Interchange SB Mainline – Preferred alternative requires structure replacement
860182	C-14 Canal	Atlantic Boulevard Interchange NB Mainline – Preferred alternative requires structure replacement
860590	C-14 Canal	Atlantic Boulevard Interchange NB Off-ramp – Preferred alternative requires minor structure widening.

4.3 Floodplains & Floodway

There are no FEMA Regulated floodways within the limits of the corridor. FEMA floodplain designations vary between AE and AH depending on the location. The anticipated floodplain encroachment due to the proposed roadway widening were estimated to determine potential impacts to the 100-year floodplains and develop necessary compensation volumes. The exact impact volume from the proposed widening will need to be assessed during the design phase, when survey, geotechnical data, and complete proposed cross sections are available. For the purposes of this PD&E evaluation floodplain encroachment will be mitigated in offsite FPC sites, or within existing (to remain) or proposed infield storage areas. Floodplain compensation calculations were developed for each floodplain encroachment and each floodplain compensation (FPC) site provides compensation within the same basin/encroachment location.

The project will encroach the 100-year floodplain through both longitudinal and transverse impacts. The longitudinal impacts result from filling the floodplain areas associated with proposed roadway widening within the project limits. Transverse impacts result from the extension and replacement of the existing cross drain culverts. The longitudinal impacts cannot be avoided since the floodplains associated with existing canals, water bodies and depressional areas extend parallel to the Turnpike R/W along the entire length. The floodplain encroachment areas were quantified using the proposed profile grades, the FEMA 100-year base flood elevations and

quantified using the proposed profile grades, the FEMA 100-year base flood elevations and existing ground elevations using LiDAR contours. It should be noted that floodplain impacts may increase during the design phase if modifications to the profile are necessary. They may also be decreased through the use of additional MSE walls and a more in-depth analysis of opportunities within the existing R/W. During the design phase, available conveyance ditches should be optimized within the right-of-way to provide the maximum allowable floodplain compensation volume to reduce the need for off-site FPC sites. Additionally, stormwater management facilities should be designed to provide additional floodplain compensation, where possible. Since the roadway design is still conceptual and the location and capacity of roadside ditches has not been designed, off-site FPC sites were conservatively sized to compensate for the entire floodplain impact per encroachment area. These sites will likely be able to be reduced during the design phase, once survey and geotechnical data are available and the conveyance design is complete. Further reduction may occur due to the on-going FEMA established base flood elevation evaluation within Broward County that is being conducted by FTE. The focus of the evaluation will be to determine how and why floodplain elevations have changed between current and previous FEMA base flood maps.

During the analysis there were two areas along the corridor where flood complaints were identified by local stakeholders. One was at Oakes Road and SW 50th Avenue located at the southern end of the project near Station 1290+00. Email correspondence has been included in **Appendix A** detailing how this issue has been resolved between FTE and the Town of Davie, Florida. The other location is further north and generally on the east side of the Turnpike between Sunrise Boulevard and Oakland Park Boulevard. The City of Lauderhill has indicated that this area experiences nuisance flooding during the larger storm events. As of 11/16/2021 they were in the process of evaluating this area and would provide results to FTE when they were available.

There are eleven locations where offsite floodplain compensation sites are shown on the drainage map. At least one compensation location was identified within each basin and more than one location if undeveloped R/W was available. The bottom elevations for the proposed FPC sites were set using the seasonal high-water table or the control elevations of the adjacent longitudinal canals. The top was typically set at the same elevation as the existing ground. Floodplain calculations are provided in **Appendix B**. **Table 4-3** presents the floodplain encroachment volumes associated with each basin.

Table 4-3: Floodplain Encroachment Volume

Basin	Sub-Basin	Total Encroachment Volume (ac.ft.)
C-11/N-4	Project Begin to I-595	3.6
NNR (North New River)	I-595 to Peters Road	2.4
C-12	Peters Road to Sunrise Blvd.	17.9
	Sunrise Blvd. to Oakland Park Blvd.	28.9
C-13	Oakland Park Blvd. to C-13 Canal	19.6
	C-13 Canal to Commercial Blvd.	23.3
	Commercial Blvd. to SR 7	9.2
C-14	SR 7 to Cypress Creek Road	5.7
	Cypress Creek Road to Lyons Road	11.4
	Lyons Road to the C-14 Canal	5.0
	C-14 Canal to Coconut Creek Parkway	21.8
	Coconut Creek Parkway to Copans Road	12.8
	Copans Road to Sample Road	12.2
Hillsboro	Sample Road to Wiles Road	17.2

N-4/C-11 Canal Basin (Begin Project to I-595)

The floodplain encroachment volume within this basin is minimal because the proposed improvements are limited to a short distance of widening within the I-595 Interchange. Two floodplain sites have been identified as shown on the drainage maps. One site is within an industrial equipment parking lot and storage area and the other location is further north and located in the southwest quadrant of the I-595 Interchange.

NNR Canal Basin (I-595 to Peters Road)

Much like the basin south of the I-595 interchange, the floodplain encroachment volume within this basin is also minimal. Two compensation sites have been identified for this basin. FPC-1 is located within the FPL easement located east of the Turnpike. Depending on the need, this site could be made larger, or shifted within the FPL easement. FPC-2 is located on the north side of Butterfly Lake which is a ski lake located in the northeast quadrant of the I-595 interchange.

C-12 Canal Basin (Peters Road to Oakland Park)

There are three sub-basins within the larger basin. A single floodplain compensation site has been identified for the area between Peters Road and the C-12 Canal and between the C-12 Canal and Oakland Park Boulevard. This is because both areas discharge to different locations. The sub-basins south of Sunrise discharge to the Old Plantation Water Control District canal system which ultimately discharges into the C-12 Canal, but not directly. The sub-basin north of the C-12 Canal discharges directly into the C-12 Canal. These sub-basins Existing floodplain encroachment within this basin is one of the largest of any of the basins on this corridor. This is largely due to

the impacts to the existing canal between Broward and the C-13 canal and because the floodplain extends from one end of the basin to the other along both sides of the Turnpike which means that any roadway widening improvement, no matter how small, will result in floodplain encroachment.

South of the C-12 Canal, the compensation site is identified within the adjacent FPL easement. In the past it has been challenging for FTE to gain concurrence from the utility to place any type of stormwater management facility within this easement, but there is no other undeveloped parcel within this sub-basin. North of the C-12 Canal, the compensation site is identified at the north end of the basin within an area that appears to be somewhat undeveloped and without residential or business concerns associated with it. Although the southern section of the compensation area is located within a small county park area.

C-13 Canal Basin (Oakland Park Blvd. to SR 7)

This basin has the largest required floodplain compensation requirement of any of the other basins mainly due to the proposed interchange at Oakland Park Boulevard. There are two floodplain compensation options identified within this basin, the largest is located at the southern end of the basin within a section of The Hills of Inverrary golf course. This section of the course located wholly south of the C-13 Canal is large enough to provide floodplain compensation for the entire basin. The second option splits the required compensation area up into two smaller sections. The largest area of the two smaller sections is also located on the same section of the golf course as the first compensation option. The smaller area is located north on a vacant parcel located adjacent to the southbound lanes within the northwest quadrant of the Commercial Boulevard interchange. It is important to note that each of these options are also utilized in one of the stormwater management scenarios identified in the D&E study although these locations are not utilized for stormwater management and floodplain compensation at the same time.

C-14 Canal Basin (SR 7 to Sample Road)

Due to the size of this basin, it has been split into a southern section and a northern section for the purposes of this analysis. The southern section begins at SR 7 and extends to the C-14 Canal. The northern section begins at the C-14 Canal and extends to Sample Road. The greatest floodplain compensation requirement for the basin falls within the northern section due to the improvements proposed for the Coconut Creek interchange. Within the southern section, two floodplain compensation sites are located within the Fern Forest Nature Center area. Other than the Catholic cemetery and the Ft. Lauderdale wellfield area this is the only undeveloped area within the basin. As described in the Pond Siting Report, the Fern Forest area is comprised almost entirely of wetlands and these two alternatives will result in wetland impacts.

More opportunities for floodplain compensation exist in the northern section. Within this sub-basin area, two floodplain compensation options have been developed. Both options utilize vacant and remnant parcels in the vicinity of the coconut creek interchange as well as options at the north end of the basin within the Sample Road interchange infield area. It should be noted that these options may require some type of mechanism to control the seasonal high-water table at an elevation lower than the existing ground. This is because the FEMA flood elevations vary

significantly along the corridor and there are very few opportunities available that don't require relocations or present other challenges that may be difficult to overcome.

Hillsboro Basin (Sample Road to Wiles Road)

This is the smallest basin within the corridor and two floodplain compensation options have been identified on two undeveloped parcels at the north end of the basin. As described in the Pond Siting Report both options will impact wetlands.

4.4 Project Classification

The floodplain areas within the project limits in high density, urbanized areas; however, the encroachment areas are classified as minimal. Minimal encroachments on a floodplain occur when there is floodplain involvement but the impacts on human life, transportation facilities, and natural and beneficial floodplain values are not significant and can be resolved with minimal efforts. Normally, these minimal efforts to address the impacts will consist of applying FDOT's drainage design standards and following the Water Management Districts procedures to achieve results that will not increase or significantly change the flood elevations and/or limits.

4.5 Risk Evaluation

Replacement drainage structures for this project are limited to hydraulically equivalent structures which are not expected to increase the backwater surface elevations. The limitations to the hydraulic equivalency being proposed are basically due to restrictions imposed by the geometrics of design, existing development, cost feasibility, or practicability. An alternative encroachment location is not considered since it does not meet the project's purpose and need or is economically unfeasible. Since flooding conditions in the project area are inherent in the topography or are a result of other outside contributing sources, and there is no practical alternative to eradicate flooding problems in any significant amount, existing flooding will continue, but will not increase as the result of the construction of this project.

Furthermore, the project will not affect existing flood heights or floodplain limits. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes as the result of construction of this project. Therefore, it has been determined that this encroachment is not significant.

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 project and that the project will not support base floodplain development that is incompatible with existing floodplain management programs.

4.6 Coordination with Local Agencies

A joint pre-application meeting was held with SFWMD, USACE and USEPA on May 20, 2021. Meeting minutes are included in **Appendix A**.

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5 Recommendations and Conclusions

Project Improvements will encroach into the adjacent floodplain. A detailed analysis of the encroachment volumes resulting from roadway improvements and compensation for these encroachment volumes has been included in the Pond Siting Report which is under separate cover. Appendix B of this document includes the floodplain encroachment summary table and compensation sizing calculations. The limits of the floodplain have been outlined on the drainage maps and on Figure 3-2 and Figure 3-3. The location of the floodplain compensation sites has also been included on the drainage maps provided in Appendix B along with supporting matrix tables. **Table 5-1** identifies each FPC site within each basin as well as the preferred site and associated acreage.

Table 5-1: FPC Sites

Basin	Site Name	Area (ac.)	Preferred	Comment
C-11/N-4 – (Begin Project to I-595)	FPC-1	1.83	X	Heavy equipment Parking
	FPC-2	2.22		
North New River (NNR) – (I-595 to Peters)	FPC-1	1.65	X	Within FPL Easement
	FPC-2	1.76		On the edge of Butterfly Lake
C-12 – (Peters to Oakland Park)	FPC-1A-1/1A-2	6.13	X	Within FPL Easement
	FPC-1B-1/1B-2	9.77	X	Undeveloped Parcel / Park
C-13 – (Oakland Park to SR 7)	FPC-1	16.91	X	Located on abandoned golf course
	FPC-2A/2B	14.58		
C-14 (South) – (SR 7 to Atlantic)	FPC-1	7.30		
	FPC-2	7.25	X	Linear adjacent to Lyons Road
C-14 (North) – (Atlantic to Sample)	FPC-1A/1B/1C	15.47		
	FPC-2A/2B/2C	14.58	X	FTE owns R/W
Hillsboro – (Sample to Wiles)	FPC-1	5.24		
	FPC-2	4.55	X	Outside Tradewinds Park

Note: Areas shown on this table may be larger than the areas shown in the calculations. This is because the areas in the calculations are based on a uniform shape. The areas on this table reflect drainage map areas which include real property shapes and remnant areas that were incorporated after the initial calculation footprint was located.

6 References

(2023). *FDOT Drainage Design Guide*.

(2023). *FDOT Drainage Manual*.

(2020). *SFWMD ERP Applicant's Handbook Volume I*.

(2016). *SFWMD ERP Applicant's Handbook Volume II*.

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Appendix A: Correspondence

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KEVIN J. THIBAUT, P.E.
SECRETARY

FDOT/SFWMD/USACE/USEPA Interagency Meeting

PROJECT: Turnpike Mainline Widening PD&E Study (FPID 442212-1-22-01)
From South of I-595 to Wiles Road MP 53 to MP 70
Broward County

MEETING DATE: May 20, 2021

MEETING TIME: 11:20 AM

LOCATION: WebEx

ATTENDEES:

Dustin Wood, PE	SFWMD	Erin Yao, PE	FTE
Jesse Markle, PE	SFWMD	Fred Gaines, PE	FTE/Atkins
Beverly Miller	SFWMD	Jazlyn Heywood, PE	FTE/Atkins
Teri Swartz, PE	SFWMD	Lisa Stone, PE	Kimley Horn
Andrea Sanchez	SFWMD	Ron Garbino, PE	RS&H
Wayne Blythe	SFWMD	Chris Bailey	RS&H
Cynthia Ovdenk	USACE	Gin Nix, PE	Kimley Horn
Alya Singh-White	USEPA		

Introductions

Project Description

RS&H staff described the project limits and proposed improvements through the corridor. The attached slides were used to illustrate the proposed improvements. Below is a summary of the improvements discussed:

- North New River Basin
 - New bridge structure over SFWMD North New River Canal
 - North New River is tidal and includes navigational clearances.
- C-12 Canal Basin
 - Roadway shifts to the west
 - Existing Turnpike bridge over the SFWMD C-12 Canal can accommodate improvements.
 - Sunrise Blvd, east of Florida's Turnpike – additional eastbound thru-lane. Existing canal volume to be maintained.
- C-13 Canal Basin
 - New mainline and additional local bridges over the SFWMD C-13 Canal.
 - No changes to the existing canal volume are anticipated.

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- A maintenance access will be evaluated and coordinated with SFWMD.
- C-14 Canal Basin
 - Replacement of mainline bridges and ramp bridges over the SFWMD C-14 Canal.
 - No changes to the existing canal volume are anticipated.
 - A maintenance access will be evaluated and coordinated with SFWMD.
- Atlantic Avenue to Wiles Road
 - No additional canal crossings in this section

Discussion Items

- SFWMD staff noted that WBID 3277A is a verified impaired WBID and would have to provide 150% treatment in the nutrient analysis. FTE staff noted that it is unclear how the additional treatment would benefit the removal of copper. FTE staff indicated that FDOT is continuing to work with SFWMD on this issue relative to direct discharges to impaired waterbodies, and the comment is appreciated.
- SFWMD staff provided clarification that the improvement within the C-12, C-13 and C14 Canal Right of Ways will require a USACE S408 review. The North New River Canal at the project location is not a USACE S408 resource.
- SFWMD staff noted that the ROW permit drawings and documents should have the existing SFWMD canal right of way clearly shown as “SFWMD ROW”. FTE staff noted that SFWMD has provided existing ROW information, and that info will be passed along to the project team. SFWMD staff noted the following ROW Occupancy Permit numbers:
 - North New River – Permit # 8098
 - C-12 – Permit # 1100
 - C-13 – Permit # 448
 - C-14 – Permit # 1193
- FTE staff asked if there was Comprehensive Everglades Restoration Plan (CERP) information support that SFWMD could provide, especially for the C-12, C-13 and C-14 Canals. SFWMD staff noted that CERP information will be passed along. USACE noted that they will also provide any CERP information available to FTE.
- FTE staff asked if there was any guidance on retained waters. USACE noted that FDOT will work through the SFWMD for the S408 permits.
- RS&H staff asked if there were any ongoing projects that had any potential for joint-use stormwater. FTE noted that there will be some ongoing stakeholder meetings scheduled and joint-use will be a discussion item. SFWMD staff noted that as meetings are set, invite SFWMD staff as optional attendees.

Meeting concluded at approximately 11:57 am.

Action Items

Invite SFWMD staff to stakeholder meetings regarding joint-use stormwater opportunities.

Attachments: Detailed maps and slides



Florida Department of Transportation

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JARED W. PERDUE, P.E.
SECRETARY

PROJECT: Turnpike Mainline Widening PD&E Study
FPID#: 442212-1-22-01 From South of I-595 to Wiles Road MP 53 to MP 70
Broward County
Stormwater Stakeholders – Environmental Look Around Meeting No. 1
MEETING DATE: November 9th, 2021
MEETING TIME: 11:00 AM
LOCATION: Virtual Team Meeting

The following were in attendance:

Name	Organization	Phone #	E-mail
Annemarie Hammond	FTE Permits Coordinator	407-264-3293	annemarie.hammond@dot.state.fl.us
Erin Yao, PE	FTE Drainage	407-264-3479	erin.yao@dot.state.fl.us
Jazlyn Heywood, PE	FTE/Atkins PD&E Project Manager	407-264-3298	jazlyn.heywood@dot.state.fl.us
Kevin Stewart, PE	FTE/Atkins Drainage	407-264-3417	kevin.stewart@dot.state.fl.us
Fred Gaines, PWS	FTE/Atkins EMO	407-264-3689	fred.gaines@dot.state.fl.us
Rob Garrigues, PE	RS&H Drainage	813-289-2666	Robert.Garrigues@rsandh.com
Chris Dailey	RS&H Environmental	813-636-2722	chris.dailey@rsandh.com
Lisa Stone, PE	KHA PM	561-840-0826	lisa.stone@kimley-horn.com
Gin Ng, PE	KHA Project Lead	561-840-0872	gin.ng@kimley-horn.com
Carl Archie, PE	Broward County Stormwater WCD 2,3,4 and Cocomar		carchie@broward.org
Vilma Melendez, PE	Broward County Water Management Division		vmelendez@broward.org
Susan Bodmann, PG	Broward County Director of Water Management		sbodmann@broward.org

Background

As part of the PD&E study, FDOT, Florida's Turnpike Enterprise (FTE) conducts an Environmental Look Around within the corridor to identify potential shared stormwater opportunities between FTE and adjacent stormwater stakeholders. The PD&E team understands that there is a significant need for stormwater within this area of Broward County and the primary focus of this meeting is to coordinate with Broward County Water Control Districts (WCD) WCD-2, WCD-3, WCD-4 and Cocomar WCD to determine if and where those opportunities may exist.

Overall Project Information

- The Turnpike mainline project extends from just south of the I-595 interchange to Wiles Road which is just south of the Sawgrass Expressway. The PD&E study is evaluating a 10-lane typical section with modifications at six interchanges.
- Expansion of the existing corridor capacity is needed to enhance safety and accommodate travel demands out to the year 2045. Capacity expansion will improve travel time and reliability as well as

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enhancing emergency response and evacuation. One of the major goals is to improve South Florida's economic and employment viability.

- A public information meeting is scheduled for January 2022 and the PD&E component of the project is expected to wrap up by the end of 2022.
- The focus of this meeting today would be the northern segment of the project from SR 7 to Wiles Road. Other meetings focusing on the southern segment of the project would be held later. This second meeting would include the Tindall Hammock Irrigation and Soil Conservation District (THISCD), Old Plantation Water Control District (OPWCD), City of Plantation and City of Lauderdale. A third meeting was currently being scheduled to discuss the corridor as a whole and would include Broward County as well as the wellfield owners.

Note: The following descriptions are based on PowerPoint figures shared at the meeting and do not necessarily conform to the verbal presentation given.

Proposed Design

- The existing roadway will be widened to 10 lanes, 5 lane in each direction. Acceleration and deceleration in each direction and in some locations, there will be auxiliary lanes
- SR 7 – The existing bridge over SR 7 will be replaced as part of the proposed widening.
- Cypress Creek Road – A new interchange is being considered for this location and will include the addition of a new northbound on-ramp loop in the southeast quadrant and a southbound parallel off-ramp in the northwest quadrant.
- Atlantic Boulevard Interchange – The Pompano Service Plaza is just south of Atlantic Blvd. and FTE has recently constructed AET gentries. Additional improvements being considered include additional ramps to convert this existing interchange from partial access to full access. There is also an on-going study to increase the existing truck parking.
- Coconut Creek Parkway Interchange – Modifications under consideration at this interchange include the addition of a NB parallel off-ramp and SB on-ramp in the southeast and southwest quadrant, respectively, and realignment of the southbound off-ramp in the northwest quadrant. The most significant improvement under consideration is a crossing of the Broward County C-3 Canal between the interchange and NW 30th Avenue (Blount Road). This would require construction of pipes or a box culvert to maintain the existing canal hydraulics.
- Sample Road Interchange – The proposed improvements under consideration for this existing interchange include a slight realignment of Sample Road along with the potential removal of the existing loop ramp in the southwest quadrant and replacement with a parallel southbound on-ramp and off-ramp. What is being considered is very similar to what was previously presented to Broward County as part of the previous design that was shelved.
- FTE made it clear during the discussion that the proposed improvements presented as part of this meeting were only under consideration and that no final decisions had been made. More coordination is anticipated and the no-build option was always on the table.

Water Control District Stormwater Opportunities

- The SFWMD C-14 Basin along the Turnpike Mainline starts at SR 7 and extends to Sample Road. All discharge is into the SFWMD C-14 Canal which is just south of Atlantic Blvd. The area south of Atlantic Blvd. discharges to the north and ultimately into the SFWMD C-14 Canal. The northbound lanes discharge into an existing canal adjacent to the northbound lanes and are connected via pipe into the SFWMD C-14 Canal. The southbound lanes discharge to the west into the Fern Forest Nature Center. While there are existing stormwater management facilities within the interchange, FTE anticipates that a significant stormwater sharing opportunity may exist on the Fern Forest Nature Center.
- North of the C-14 Canal the major north south hydraulic conveyance is the Broward County C-3 Canal located east of the SR 91 northbound mainline. All stormwater runoff beginning at Sample Road discharges into the SFWMD C-14 Canal via the Broward County C-3 Canal or the existing canal/lake conveyance system located adjacent to the southbound lanes south of Coconut Creek Parkway.
- As mentioned previously a crossing of the Broward County C-3 Canal is under consideration with the potential improvements at the Coconut Creek Parkway interchange. The hydraulic connection from one side of the canal crossing to the other may be pipe or a box culvert. FTE understands that it will be necessary to maintain the existing conveyance through the C-3 Canal.
- The SFWMD Hillsboro Canal basin along the Turnpike Mainline begins north of Sample Road and all stormwater runoff between Sample Road and Wiles Road is ultimately conveyed into the SFWMD Hillsboro Canal.
- Tradewinds Park may be another opportunity for stormwater sharing. Tradewinds Park is located west of the SR 91 southbound lanes and stretches from Copens Road to Wiles Road. As part of the previous design, which was only filled to 60% and shelved, a stormwater sharing opportunity was proposed within the segment of Tradewinds Park located north of Sample Road. Stormwater treatment was provided in a shored drainage area adjacent to the southbound lanes and then stormwater was allowed to pop-off and discharge into existing wetlands located to the west. The design determined the volume of pop-off sent to the existing wetlands would provide wetland rehydration.
- A third option for stormwater sharing may exist on vacant parcels located on the east side of the Turnpike mainline south of Sample Road. FTE understands that part of this area may be landfill, and is requesting Broward County feedback.

Other Design Concerns

Representatives from Broward County expressed the following thoughts/concerns.

- Fern Forest Nature Center is always concerned about having enough water. Broward County will coordinate with Fern Forest Nature Center to take a closer look at what FTE is proposing (see attachment).
- The Ft. Lauderdale and the Pompano Beach Wellfields are also always looking for more water. Ft. Lauderdale Wellfield is recharged by the C-3 Canal. Broward County indicated that they could coordinate with the wellfield operators if necessary.
- The potential Broward County C-3 Canal crossing associated with proposed improvements at the Turnpike Coconut Creek Interchange is a significant concern for Broward County. The contributing drainage basin is large and stretches as far east as I-95. It is the only conveyance to the SFWMD C-14 Canal. Broward County will not allow the existing conveyance capacity to be reduced or otherwise impacted.

- The interchange at Sample Road is also a concern because Broward County sends a lot of water back and forth across SR91 R/W through a series of interconnected ponds and culverts.
- The canal parallel to the Turnpike north (C-3 Canal) and south of the C-14 Canal within Turnpike right-of-way are important conveyances for the county water management needs. While Turnpike constructed the canal, the county does perform maintenance and would like to continue coordination on maintenance access aspects in the future.
- FTE clarified that it wasn't necessary for Broward County to coordinate with the wellfield operators on behalf of FTE. FTE was working with SFWMD to plan a regional meeting with all stormwater stakeholders including the wellfield operators as well as the municipalities and Broward County.

Action Items

- Broward County will coordinate with Fern Forest Nature Center and review FTE improvements under consideration.
- FTE will continue to coordinate and schedule a regional meeting with Broward County and wellfield stakeholders to further discuss shared stormwater opportunities.

Attachments

- Agenda
- PowerPoint presentation
- Sign-in sheet

Garrigues, Robert

From: Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Sent: Tuesday, November 1, 2022 11:04 AM
To: Garrigues, Robert; Stone, Lisa; Gin.Ng
Subject: FW: DOT Maintenance - SW 50th AVE

FYI.

Jazlyn Heywood, P.E.
Senior Project Manager
(407) 264-3298 [Office](#)
(407) 235-2042 [Mobile](#)

PLEASE NOTE THAT FLORIDA HAS A BROAD PUBLIC RECORDS LAW, AND THAT ALL CORRESPONDENCE COME VIA EMAIL MAY BE SUBJECT TO DISCLOSURE

From: Boemler, Sandra <Sandra.Boemler@dot.state.fl.us>
Sent: Tuesday, November 1, 2022 10:51 AM
To: Yao, Erin <Erin.Yao@dot.state.fl.us>
Cc: Stewart, Kevin <Kevin.Stewart@dot.state.fl.us>; Gaines, Fred <Fred.Gaines@dot.state.fl.us>; Hammond, Annemarie <Annemarie.Hammond@dot.state.fl.us>; Soto, David <David.Soto@dot.state.fl.us>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>; Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>; May, Robert <Robert.May@dot.state.fl.us>
Subject: RE: DOT Maintenance - SW 50th AVE

Regarding the transfer, I'll coordinate with Bob May and we can reach out to Osdel. I think this may be more of a jurisdictional transfer than a surplus parcel conveyance.

Thank you,
Sandra

From: Yao, Erin <Erin.Yao@dot.state.fl.us>
Sent: Tuesday, November 1, 2022 10:46 AM
To: Boemler, Sandra <Sandra.Boemler@dot.state.fl.us>
Cc: Stewart, Kevin <Kevin.Stewart@dot.state.fl.us>; Gaines, Fred <Fred.Gaines@dot.state.fl.us>; Hammond, Annemarie <Annemarie.Hammond@dot.state.fl.us>; Soto, David <David.Soto@dot.state.fl.us>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>; Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Subject: FW: DOT Maintenance - SW 50th AVE

Hi Sandra, please see below. Would you be the best point of contact to coordinate with Osdel directly?

Thank you,

Erin T Yao, PE, CFM
Florida's Turnpike Enterprise
District Drainage Engineer

P.O.Box 613069
MP 263, Blg 5315
Ocoee, Florida 34761-3069

☎: Direct: (407) 264-3479
☎: Cell: (407) 756-7063
✉: erin.yao@dot.state.fl.us

From: Osdel Fernandez-Larrea <OFernandez-Larrea@davie-fl.gov>
Sent: Tuesday, November 1, 2022 10:43 AM
To: Soto, David <David.Soto@dot.state.fl.us>
Cc: Kossivi Asare <kasare@davie-fl.gov>; William Cahee <wcahee@davie-fl.gov>; Gomez, Ricardo <Ricardo.Gomez@dot.state.fl.us>; Yao, Erin <Erin.Yao@dot.state.fl.us>; bmaldonado@i595express.com; Carter, Jasmine <JCarter@davie-fl.gov>; Danielle Stallone <DaStallone@davie-fl.gov>; Natasha Alexander <NAlexander@davie-fl.gov>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>
Subject: DOT Maintenance - SW 50th AVE

Good Morning David,

Thank you for meeting with us this morning. As a summary, your team will be cleaning between the catch basin and the manhole, to include connecting pipe, that are located inside the fenced area. The Town will clean between the catch basin outside the fence area (located at the intersection of SW 50th Avenue and Oakes Road) and the first catch basin inside the fenced area. In addition, you will look at removing the excess silt at the edge of pavement along SW 50th AVE (within the Turnpike Authority's ROW) to allow the storm water runoff to enter the retention area along this roadway. Furthermore, you express the intention of the Turnpike Authority to transfer ownership of SW 50th Avenue to the Town. The Town is willing to accept the right of way including its

maintenance responsibility. Please assist by putting me in contact with the person within the Turnpike Authority that will be handling the ROW transfer to the Town.

You will also refer to I595 Express to complete the clean up of the debris near the drain structures mentioned above to include barb wires, posts, etc.

Please let me know if I missed anything or if you understood anything differently.

Sincerely,



Osdel F. Larrea

Public Works & Capital Projects Director

6901 Orange Drive

Davie, FL 33314

olarrea@davie-fl.gov

t: 954-797-2086



Please note: The Town of Davie is a public entity subject to Chapter 119 of the Florida Statutes concerning public records. E-mail messages are covered under such laws and thus subject to disclosure.

From: Soto, David <David.Soto@dot.state.fl.us>

Sent: Friday, October 28, 2022 9:17 AM

To: Natasha Alexander <NAlexander@davie-fl.gov>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>

Cc: Kossivi Asare <kasare@davie-fl.gov>; William Cahee <wcahee@davie-fl.gov>; Gomez, Ricardo <Ricardo.Gomez@dot.state.fl.us>; Yao, Erin <Erin.Yao@dot.state.fl.us>; Osdel Fernandez-Larrea <OFernandez-Larrea@davie-fl.gov>; bmaldonado@i595express.com

Subject: RE: DOT Maintenance

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good morning Natasha,

Yes, that will work. We can meet at the drainage site on Oakes Rd & 50th Ave.

Thanks,

David Soto
Turnpike Maintenance Zone 1 Manager
Florida Department of Transportation - Florida's Turnpike Enterprise
Office: 954-934-1241
Mobile: 954-444-8974

From: Natasha Alexander <NAlexander@davie-fl.gov>
Sent: Friday, October 28, 2022 8:34 AM
To: Soto, David <David.Soto@dot.state.fl.us>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>
Cc: Kossivi Asare <kasare@davie-fl.gov>; William Cahee <wcahee@davie-fl.gov>; Gomez, Ricardo <Ricardo.Gomez@dot.state.fl.us>; Yao, Erin <Erin.Yao@dot.state.fl.us>; Osdel Fernandez-Larrea <OFernandez-Larrea@davie-fl.gov>
Subject: RE: DOT Maintenance

Good morning,
Does Tuesday 9:30am work for you?

From: Soto, David <David.Soto@dot.state.fl.us>
Sent: Thursday, October 27, 2022 3:21 PM
To: Natasha Alexander <NAlexander@davie-fl.gov>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>
Cc: Kossivi Asare <kasare@davie-fl.gov>; William Cahee <wcahee@davie-fl.gov>; Gomez, Ricardo <Ricardo.Gomez@dot.state.fl.us>; Yao, Erin <Erin.Yao@dot.state.fl.us>
Subject: RE: DOT Maintenance

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good afternoon Natasha,

I'm open on Tuesday. Let me know what time and where you would like to meet.

Thank you,

David Soto
Turnpike Maintenance Zone 1 Manager
Florida Department of Transportation - Florida's Turnpike Enterprise
Office: 954-934-1241
Mobile: 954-444-8974

From: Natasha Alexander <NAlexander@davie-fl.gov>
Sent: Thursday, October 27, 2022 3:03 PM
To: Soto, David <David.Soto@dot.state.fl.us>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>
Cc: Kossivi Asare <kasare@davie-fl.gov>; William Cahee <wcahee@davie-fl.gov>; Gomez, Ricardo <Ricardo.Gomez@dot.state.fl.us>; Yao, Erin <Erin.Yao@dot.state.fl.us>
Subject: RE: DOT Maintenance

Hi David,
Are you available to meet next week Tuesday?

From: Soto, David <David.Soto@dot.state.fl.us>
Sent: Wednesday, October 26, 2022 3:06 PM
To: Natasha Alexander <NAlexander@davie-fl.gov>; Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>
Cc: Kossivi Asare <kasare@davie-fl.gov>; William Cahee <wcahee@davie-fl.gov>; Gomez, Ricardo <Ricardo.Gomez@dot.state.fl.us>; Yao, Erin <Erin.Yao@dot.state.fl.us>
Subject: RE: DOT Maintenance

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good afternoon Natasha,

In reference to coordinating a field meeting, I'm available tomorrow morning or Friday afternoon. Please let me know if you would like to meet on one of those days or sometime next week.

Thank you,

David Soto
Turnpike Maintenance Zone 1 Manager
Florida Department of Transportation - Florida's Turnpike Enterprise
Office: 954-934-1241

Mobile: 954-444-8974

From: Natasha Alexander <NAlexander@davie-fl.gov>

Sent: Wednesday, October 26, 2022 8:54 AM

To: Gutierrez, Kim <Kim.Gutierrez@dot.state.fl.us>; Soto, David <David.Soto@dot.state.fl.us>

Cc: Kossivi Asare <kasare@davie-fl.gov>; William Cahee <wcahee@davie-fl.gov>

Subject: DOT Maintenance

EXTERNAL SENDER: Use caution with links and attachments.

Good morning Dave and Kim,

Your information was given to us by Erin back in June pertaining to maintenance along a inaccessible fenced area owned by DOT (snapshot of structure location circled in red below).

We have a drainage inlet on your property and we know it is clogged and has not been maintained. The nearest address is 5000 Oakes Rd Davie, FL 33314 Is it possible to have you meet to discuss maintenance and/or access?



Draft/subject to change

Natasha Alexander
StormWater Coordinator

6901 Orange Drive

Davie, FL 33314

Natasha_Alexander@davie-fl.gov

(954) 797-1156 office

(954) 797-1246 fax



"Be the solution to stormwater pollution"!

DRAFT

Appendix B: Supporting Documentation

DRAFT

FPC Site Matrices

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

Begin Project to I-595 (C-11/N-4)	FPC-1		FPC-2		FPC-3	
Description of Alternative	Parking lot storage area		Existing Business		NA	
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.) ⁽³⁾	1.83		2.22		NA	NA
Construction ⁽¹⁾⁽²⁾	Wet Pond	\$187,107	Wet Pond	\$226,982	NA	NA
Potential Contamination	Low		High		NA	NA
Utilities	No FGT Impacts		No FGT Impacts		NA	NA
Listed Species	FBB-Low/EIS-Low/ WS-Moderate(4)		FBB-Low/EIS-Low/ WS-Moderate(4)		NA	NA
Wetland Impacts (acres)	0.00	\$0	0.00		NA	NA
Maintenance	Normal		Normal		NA	NA
Cultural Resources	Unknown		Unknown		NA	NA
Aesthetics	Small area. Need for efficient shape.		Unknown		NA	NA
Other					NA	NA
Total Cost	Unknown		Unknown		NA	NA
Advantages	Impacts existing business structures		Glenn's Automotive would be eliminated		NA	NA
Disadvantages, etc	Access through private parking lot and road system.		Access from public road (Reese Road)		NA	NA
Preferred Pond Alternative	X					

- \$31,000 per acre for clearing and grubbing
- \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one unit acre with a depth of six feet)
- R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
- FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstork



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

I-595 to Peters (NNR)	FPC-1		FPC-2		FPC-3	
Description of Alternative	FPL Easement		Butterfly Ski Lake		NA	
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.) ⁽³⁾	1.65		1.26		NA	NA
Construction ^{(1)/(2)}	Dry Storage	\$168,703	Wet Storage	\$128,827	NA	NA
Potential Contamination	Low		Medium		NA	NA
Utilities	Within Power Easement. No impacts to FGT.		No impacts to power or FGT		NA	NA
Listed Species	FBB-Low/EIS-Low/WS-Moderate(4)		FBB-Low/EIS-Low/WS-Moderate(4)		NA	NA
Wetland Impacts (acres)	0.00		0.00		NA	NA
Maintenance	Normal. Access through FPL easement		Normal. Access off SW 46th Avenue		NA	NA
Cultural Resources	Unknown		Unknown		NA	NA
Aesthetics	Unclear what opportunities exist		Fishing opportunities existing on edge of lake		NA	NA
Other	Unknown		Unknown		NA	NA
Total Cost	Unknown		Unknown		NA	NA
Advantages	Dry Storage				NA	NA
Disadvantages, etc	Requires Coord.		May require relocations		NA	NA
Preferred Pond Alternative	X					

1. \$31,000 per acre for clearing and grubbing
2. \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one acre with a depth of six feet)
3. R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
4. FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstock



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

Peters to Sunrise (C-12)	FPC-1 (1A-1)		FPC-2		FPC-3	
Description of Alternative	1A		NA		NA	
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.) ⁽³⁾	6.13		NA	NA	NA	NA
Construction ⁽¹⁾⁽²⁾	Dry Storage	\$626,756	NA	NA	NA	NA
Potential Contamination	Low		NA	NA	NA	NA
Utilities	Located within FPL easement		NA	NA	NA	NA
Listed Species	FBB-Low/EIS-Low/WS-Moderate(4)		NA	NA	NA	NA
Wetland Impacts (acres)	0.00		NA	NA	NA	NA
Maintenance	Normal maintenance		NA	NA	NA	NA
Cultural Resources	Unknown		NA	NA	NA	NA
Aesthetics	Unclear what opportunities exist.		NA	NA	NA	NA
Other			NA	NA	NA	NA
Total Cost	Unknown		NA	NA	NA	NA
Advantages	This is the only alternative developed due to dense residential corridor.		NA	NA	NA	NA
Disadvantages, etc	Located within FPL easement		NA	NA	NA	NA
Preferred Pond Alternative	X					

1. \$31,000 per acre for clearing and grubbing
2. \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one unit acre with a depth of six feet)
3. R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
4. FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstork



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

Sunrise to Oakland Park (C-12)	FPC-1 (1A-2)		FPC-2		FPC-3	
Description of Alternative	1B		NA		NA	
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.) ⁽³⁾	9.77		NA	NA	NA	NA
Construction ⁽¹⁾⁽²⁾	Wet Storage	\$998,924	NA	NA	NA	NA
Potential Contamination	Low		NA	NA	NA	NA
Utilities	No FGT or Power impacts		NA	NA	NA	NA
Listed Species	FBB-Low/EIS-Low/ WS-Moderate ⁽⁴⁾		NA	NA	NA	NA
Wetland Impacts (acres)	0.00		NA	NA	NA	NA
Maintenance	Normal		NA	NA	NA	NA
Cultural Resources	Unknown		NA	NA	NA	NA
Aesthetics	Some opportunities may exist for shaping storage area.		NA	NA	NA	NA
Other			NA	NA	NA	NA
Total Cost	Unknown		NA	NA	NA	NA
Advantages	This is the only alternative developed to dense residential corridor.		NA	NA	NA	NA
Disadvantages, etc	NA		NA	NA	NA	NA
Preferred Pond Alternative	X					

1. \$31,000 per acre for clearing and grubbing
2. \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one unit acre with a depth of six feet)
3. R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
4. FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstork



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

Oakland Park to SR 7 (C-13)	FPC-1		FPC-2A and 2B		FPC-3	
Description of Alternative	Inverrary Golf Course		Inverrary Golf Course and Commercial Blvd. Interchange		NA	
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.)⁽³⁾	16.91		18.93		NA	NA
Construction⁽¹⁾⁽²⁾	Wet Storage	\$1,728,946	Wet Storage	\$1,935,479	NA	NA
Potential Contamination	Low		2A-Low/2B-High		NA	NA
Utilities	No FGT or Power impacts		No FGT or Power impacts		NA	NA
Listed Species	FBB-Low/EIS-Low/WS-Moderate(4)		FBB-Low/EIS-Low/WS-Moderate(4)		NA	NA
Wetland Impacts (acres)	0.00		0.00		NA	NA
Maintenance	Normal		Normal		NA	NA
Cultural Resources	Unknown		Unknown		NA	NA
Aesthetics	Shaping opportunities existing on edge of lake.		Shaping opportunities existing on edge of lake.		NA	NA
Other					NA	NA
Total Cost	Unknown		Unknown		NA	NA
Advantages	Willing seller. All compensation can be accomplished on the same property.		Not as much R/W required due to available storage depths.		NA	NA
Disadvantages, etc	None		1B is located on property that local community wants to develop into a park.		NA	NA
Preferred Pond Alternative	X					

1. \$31,000 per acre for clearing and grubbing
2. \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one unit acre with a depth of six feet)
3. R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
4. FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstork



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

SR 7 to Atlantic (C-14)	FPC-1		FPC-2		FPC-3	
Description of Alternative	Fern Forest Nature Center (South)		Fern Forest Nature Center (North)		NA	
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.) ⁽³⁾	7.30		7.25		NA	NA
Construction ⁽¹⁾⁽²⁾	Wet Storage	\$746,381	Wet Storage	\$741,269	NA	NA
Potential Contamination	Low		Low		NA	NA
Utilities	No FGT or Power impacts		No FGT or Power Impacts		NA	NA
Listed Species	FBB-Low/EIS-Low/WS-Moderate(4)		FBB-Low/EIS-Low/WS-Moderate(4)		NA	NA
Wetland Impacts (acres)	7.30		7.25		NA	NA
Maintenance	Normal maintenance. Access off Lyons Road		Normal maintenance. Access off Lyons Road		NA	NA
Cultural Resources	Unknown		Unknown		NA	NA
Aesthetics	Opportunities exist for pond shaping		Opportunities exist for pond shaping		NA	NA
Other					NA	NA
Total Cost	Unknown		Unknown		NA	NA
Advantages	Unclear until natural resource information is available.		Unclear until natural resource information is available.		NA	NA
Disadvantages, etc	Unclear until natural resource information is available.		Unclear until natural resource information is available.		NA	NA
Preferred Pond Alternative			X			

- \$31,000 per acre for clearing and grubbing
- \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one unit acre with a depth of six feet)
- R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
- FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstork



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

Atlantic to Sample (C-14)	FPC-1		FPC-2		FPC-3	
Description of Alternative	1A/1B/1C		2A/2B/2C		NA	
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.)⁽³⁾	4.28		0.00		NA	NA
Construction⁽¹⁾⁽²⁾	15.47 ac. Total R/W	\$1,581,715	14.58 ac. Total R/W	\$490,718	NA	NA
Potential Contamination	1A-Low/1B-Low/1C-High		2A-Low/2B-Low/2C-High		NA	NA
Utilities	No FGT or Power impacts		No FGT or Power impacts		NA	NA
Listed Species	FBB-Low/EIS-Low/WS-Moderate(4)		FBB-Low/EIS-Low/WS-Moderate(4)		NA	NA
Wetland Impacts (acres)	0.00		0.00		NA	NA
Maintenance	Normal maintenanc. Access off NW 31st Avenue.		Normal maintenanc. Access off NW 31st Avenue.		NA	NA
Cultural Resources	Unknown		Unknown		NA	NA
Aesthetics	Small area, efficient shape required.		Small area, efficient shape required.		NA	NA
Other					NA	NA
Total Cost	Unknown		Unknown		NA	NA
Advantages	NA		FTE owned R/W		NA	NA
Disadvantages, etc	Offsite R/W required		NA		NA	NA
Preferred Pond Alternative			X			

- \$31,000 per acre for clearing and grubbing
- \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one unit acre with a depth of six feet)
- R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
- FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstork



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: FPC Evaluation Matrix

Prepared by: RMG
Checked by: JAB
Date: 5/20/2023

Sample to Wiles (Hillsboro)	Alternative 1		Alternative 2		Alternative 3	
Description of Alternative	Offsite at north end of basin adjacent to southbound lanes		Offsite at north end of basin adjacent to northbound lanes			
	Comments	Cost	Comments	Cost	Comments	Cost
Right of Way (ac.)⁽³⁾	5.25		4.56		NA	NA
Construction⁽¹⁾⁽²⁾	Wet Storage	\$536,781	Wet Storage	\$466,233	NA	NA
Potential Contamination	High		High		NA	NA
Utilities	No FGT or Power Impacts.		No FGT or Power Impacts.		NA	NA
Listed Species	Unknown		Unknown		NA	NA
Wetland Impacts (acres)	4.21		0.00		NA	NA
Maintenance	Normal. Access of Wiles Road.		Access of Wiles Road		NA	NA
Cultural Resources	Unknown		Unknown		NA	NA
Aesthetics	Opportunities for pond shaping exist		Opportunities for pond shaping exist		NA	NA
Other					NA	NA
Total Cost	Unknown		Unknown		NA	NA
Advantages	South of Wiles within limits of Corridor		Less wetland impacts		NA	NA
Disadvantages, etc	Within Tradewinds Park		North of Wiles just beyond limits of corridor		NA	NA
Preferred Pond Alternative			X			

- \$31,000 per acre for clearing and grubbing
- \$7.36 per cubic yard for excavation (Estimated at \$71,244 per acre assuming one unit acre with a depth of six feet)
- R/W line shows the offsite R/W not owned by FDOT. The Construction line shows the total area for which excavation is required.
- FBB - Florida Bonneted Bat / EIS - Eastern Indigo Snake / WS - Woodstork

Floodplain Compensation Calculations

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Project Name: FTE Widening from South of I-595 to Wiles Rd
 FPID: 44221212201
 County: Broward

Designer: JAB
 Checked by: RMG
 Date: 5/6/2023

Basin	Sub-Basin	Station Limits	Basin Outfall	Floodplain Elevation (NAVD)	Net Fill in Floodplain (ac.ft.)	Total (ac.ft.)
1	I-595 Interchange (south)	1318+00 to 1336+00	C-11 N-4	6.00	3.6	3.6
2	I-595 to Peters Rd.	1336+00 to 1394+00	NNR Canal	6.00	1.2	2.4
3	Peters Rd. to Sunrise Blvd.	1394+00 to 1505+00	C-12 Canal	7.00	17.9	17.9
	Sunrise Blvd. to Oakland Park Blvd.	1505+00 to 1606+50	C-12 Canal	7.00	3.0	28.9
				8.00	25.9	
4	Oakland Park Blvd. to C-13 Canal	1606+50 to 1636+00	C-13 Canal	8.00	4.0	19.6
				9.00	15.6	
	C-13 Canal to Commercial Blvd.	1636+00 to 1714+00	C-13 Canal	7.00	2.1	23.3
				8.00	20.5	
				9.00	0.7	
	Commercial Blvd. to SR-7	1714+00 to 1753+00	C-13 Canal	8.00	0.4	9.2
				9.00	7.8	
5	SR-7 to Cypress Creek Rd.	1753+00 to 1770+00	C-14 Canal	10.00	5.7	5.7
				11.00	2.2	
	Cypress Creek Rd. to Lyons Rd.	1770+00 to 1838+00	C-14 Canal	9.00	1.2	6.4
				10.00	2.3	
				12.00	0.7	
6	Lyons Rd. to C-14 Canal	1838+00 to 1891+00	C-14 Canal	10.00	2.9	5.0
				11.00	2.1	
	C-14 Canal to Coconut Creek Pkwy.	1891+00 to 1955+00	C-14 Canal	11.00	21.8	21.8
				11.00	0.9	
				12.00	0.7	
7	Coconut Creek Pkwy. To Copans Rd.	1955+00 to 2009+00	C-14 Canal	13.00	2.4	12.8
				14.00	8.8	
				12.00	11.3	
7	Copans Rd. to Sample Rd.	2009+00 to 2061+00	C-14 Canal	13.00	0.9	12.2
				13.00	0.9	
7	Sample Rd. to Wiles Rd.	2061+00 to 2112+00	C-14 Canal	13.00	3.5	17.2
				14.00	13.7	

C-11/N-4 Basin
Begin Project to I-595

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin C-11/N-4
FPC-1 Sizing Calculation
Flood Elevation - 6.0 NAVD88

Existing Ground at Pond site = 5.00 NAVD88 (Estimated From GIS Topographic Information)
Elev SHW = 1.40 NAVD88 (Based on control elevation of N-4 Canal)

Floodplain Comp Volume Required 3.60 AC-FT. Refer to Floodplain Summary Table
Pond Area Based on floodplain volume 1.00 AC

Storage Depth 3.60 FT.

Elev SHW= 1.40 NAVD88
Top of Berm Elevation given a total depth = 5.00 NAVD88

Unit Length Based on L/W = 2 295 FT.
Unit Width Based on L/W = 2 148 FT.
Maintenance Berm Width of 15-ft 30 FT.
Grade Adjustment Width Assumed 1:2 0 FT.
Horizontal Distance Based on a 1:4 Slope and total Depth 29 FT.
Total Pond Length (including maintenance berm and adjustments) 354 FT.
Total Pond Width (including maintenance berm and adjustments) 206 FT.

Preliminary Property Size Required 1.68 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION 1.68 AC.

Note: Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.

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Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin C-11/N-4
FPC-2 Sizing Calculation
Flood Elevation - 6.0 NAVD88

Existing Ground at Pond site = 6.00 NAVD88 (Estimated From GIS Topographic Information)
Elev SHW = 1.40 NAVD88 (Based on control elevation of N-4 Canal)

Floodplain Comp Volume Required 3.60 AC-FT. Refer to Floodplain Summary Table
Pond Area Based on floodplain volume 0.78 AC

Storage Depth 4.60 FT.

Elev SHW= 1.40 NAVD88
Top of Berm Elevation given a total depth = 6.00 NAVD88

Unit Length Based on L/W = 2 261 FT.
Unit Width Based on L/W = 2 131 FT.
Maintenance Berm Width of 15-ft 30 FT.
Grade Adjustment Width Assumed 1:2 0 FT.
Horizontal Distance Based on a 1:4 Slope and total Depth 37 FT.
Total Pond Length (including maintenance berm and adjustments) 328 FT.
Total Pond Width (including maintenance berm and adjustments) 197 FT.

Preliminary Property Size Required 1.49 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION 1.49 AC.

Note: Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.

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Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

I-595 Interchange (South)

Floodplain elevation 6.00 Zone AE
Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1318+00	6.0	0.00	0.0
1320+00	6.0	10.00	500.0
1322+00	6.0	152.00	16700.0
1325+00	6.0	245.00	76250.0
1326+00	6.0	245.00	100750.0
1327+00	6.0	94.50	117725.0
1328+00	6.0	46.50	124775.0
1330+00	6.0	76.50	137075.0
1333+00	6.0	0.00	148550.0
1334+00	6.0	17.50	149425.0
1335+00	6.0	48.00	152700.0
1336+00	6.0	0.00	155100.0

Total Fill 155100.0 cubic feet

Net Fill in Floodplain 155100.0 cubic feet
5744.4 cubic yards
3.6 acre-feet

NNR Basin
I-595 to Peters Road

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin North New River (NNR)
FPC-1 Sizing Calculation
Flood Elevation - 6.0 NAVD88

Existing Ground at Pond site = 5.00 NAVD88 (Estimated From GIS Topographic Information)
Elev SHW = 2.50 NAVD88 (Estimated water surface elevation NNR Canal 1.4)

Floodplain Comp Volume Required 2.40 AC-FT. Refer to Floodplain Summary Table
Pond Area Based on floodplain volume 0.96 AC

Storage Depth 2.50 FT.

Elev Bottom of Storage Area = 2.50 NAVD88
Top of Berm Elevation given a total depth = 5.00 NAVD88

Unit Length Based on L/W = 2 289 FT.
Unit Width Based on L/W = 2 145 FT.
Maintenance Berm Width of 15-ft 30 FT.
Grade Adjustment Width Assumed 1:2 0 FT.
Horizontal Distance Based on a 1:4 Slope and total Depth 20 FT.
Total Pond Length (including maintenance berm and adjustments) 339 FT.
Total Pond Width (including maintenance berm and adjustments) 195 FT.

Preliminary Property Size Required 1.52 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION 1.52 AC. **Final Shape slightly larger on drainage map**
Note: Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin North New River (NNR)
FPC-2 Sizing Calculations
Flood Elevation - 6.0 NAVD88

Existing Ground at Pond site = 6.00 NAVD88 (Estimated From GIS Topographic Information)
Bottom Elev = 2.80 NAVD88 (Estimated water surface elevation of ski lake 2.8)

Floodplain Comp Volume Required 2.40 AC-FT. Refer to Floodplain Summary Table
Pond Area Based on floodplain volume 0.75 AC

Storage Depth 3.20 FT.

Elev SHW= 2.80 NAVD88
Top of Berm Elevation given a total depth = 6.00 NAVD88

Unit Length Based on L/W = 2 256 FT.
Unit Width Based on L/W = 2 128 FT.
Maintenance Berm Width of 15-ft 15 FT.
Grade Adjustment Width Assumed 1:2 0 FT.
Horizontal Distance Based on a 1:4 Slope and total Depth 26 FT.
Total Pond Length (including maintenance berm and adjustments) 296 FT.
Total Pond Width (including maintenance berm and adjustments) 168 FT.

Preliminary Property Size Required 1.15 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION 1.15 AC. **Final Shape slightly larger on drainage map**
Note: Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

I-595 Interchange (North)

Floodplain elevation 6.00 Zone AE
Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1344+00	6.0	0.00	0.0
1345+00	6.0	87.00	4350.0
1350+00	6.0	50.00	38600.0
1355+00	6.0	0.00	51100.0

Total Fill 51100.0 cubic feet

Net Fill in Floodplain 51100.0 cubic feet
1892.6 cubic yards
1.2 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

I-595 to Peters Rd ML

Floodplain elevation 6.00 **Zone AE**
Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1354+00	6.0	0.00	0.0
1355+00	6.0	14.00	700.0
1360+00	6.0	7.00	5950.0
1365+00	6.0	0.00	7700.0
1370+00	6.0	0.00	7700.0
1375+00	6.0	9.00	9950.0
1380+00	6.0	52.00	25200.0
1385+00	6.0	14.00	41700.0
1390+00	6.0	20.00	50200.0
1391+00	6.0	0.00	51200.0

Total Fill 51200.0 cubic feet

Net Fill in Floodplain 51200.0 cubic feet
1.2 acre-feet

C-12 Basin
Peters Road to Oakland Park Blvd.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin C-12

FPC-1A-1/1A-2 (OPWCD Canal System)

Floodplain Elevation - 7.0 NAVD88

Existing Ground at Pond site =
Bottom Elev =

6.00 NAVD 88 (Estimated From GIS Topographic Information)
2.20 NAVD 88 (OPWCD Canal control
elevation of 1.96 per FPID 406094-1)

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

17.90 AC-FT.
4.71 AC

Storage Depth
Total Depth from SHWL to Top of Berm

3.80 FT.
3.80 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

2.20 NAVD 88
6.00 NAVD 88

Unit Length Based on L/W = 2
Unit Width Based on L/W = 2
Maintenance Berm Width of 15-ft
Grade Adjustment Width Assumed 1:2
Horizontal Distance Based on a 1:4 Slope and total Depth
Total Pond Length (including maintenance berm and adjustments)
Total Pond Width (including maintenance berm and adjustments)

641 FT.
320 FT.
30 FT.
0 FT.
30 FT.
701 FT.
381 FT.

Preliminary Property Size Required

6.13 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

6.13 AC.

Note: Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.

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Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin C-12

FPC-1B-1/1B-2 (C-12 Canal System)

Floodplain Elevations Vary Between
Between 7.0 and 8.0 NAVD88

Existing Ground at Pond site =
Bottom Elev =

6.00 NAVD 88 (Estimated From GIS Topographic Information)
2.30 NAVD 88 (C-12 Control Elevation 1.93 taken from
FPID 406094-1)

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

28.90 AC-FT.
7.81 AC

Storage Depth
Total Depth from SHWL to Top of Berm

3.70 FT.
3.70 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

2.30 NAVD
6.00 NAVD

Unit Length Based on L/W = 2
Unit Width Based on L/W = 2
Maintenance Berm Width of 15-ft
Grade Adjustment Width Assumed 1:2
Horizontal Distance Based on a 1:4 Slope and total Depth
Total Pond Length (including maintenance berm and adjustments)
Total Pond Width (including maintenance berm and adjustments)

825 FT.
412 FT.
30 FT.
0 FT.
30 FT.
885 FT.
472 FT.

Preliminary Property Size Required

9.5 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

3.59 AC.

Note: Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.

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Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Peters Rd to W Broward Blvd ML

Floodplain elevation 7.00 Zone AE
Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1394+00	7.0	0.00	0.0
1395+00	7.0	10.00	500.0
1397+00	7.0	1.00	1600.0
1400+00	7.0	4.00	2350.0
1405+00	7.0	26.00	9850.0
1410+00	7.0	46.00	27850.0
1415+00	7.0	71.00	57100.0
1420+00	7.0	84.00	95850.0
1425+00	7.0	67.00	133600.0
1430+00	7.0	1.00	150600.0
1435+00	7.0	0.00	150850.0

Floodplain elevation 7.00 Zone AE
Southbound ML

Sta.	FEMA EL.	Cut s.f.	Cumulative Cut c.f.
1412+50	7.0	0.00	0.0
1415+00	7.0	58.00	7250.0
1420+00	7.0	93.50	45125.0
1425+00	7.0	83.00	89250.0
1428+50	7.0	0.00	103775.0

Floodplain elevation 7.00 Zone AE
Northbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1395+00	7.0	0.00	0.0
1397+00	7.0	17.00	1700.0
1400+00	7.0	16.00	6600.0
1405+00	7.0	13.00	19900.0
1410+00	7.0	2.00	21900.0
1415+00	7.0	38.00	27690.0
1416+00	7.0	0.00	29550.0

Floodplain elevation 7.00 Zone AE
Northbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1427+00	7.0	42.00	4200.0
1430+00	7.0	0.00	4200.0
1435+00	7.0	8.00	10400.0
1437+00	7.0	14.00	12600.0
1438+00	7.0	108.00	18700.0
1439+00	7.0	113.00	29750.0
1440+00	7.0	103.00	40550.0
1441+00	7.0	19.00	46650.0
1443+00	7.0	31.00	51650.0
1444+00	7.0	0.00	53200.0

Floodplain elevation 7.00 Zone AE
Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1443+00	7.0	0.00	0.0
1445+00	7.0	9.00	900.0
1448+00	7.0	0.00	2250.0

Total Fill 235850.0 cubic feet
Total Cut 103775.0 cubic feet

Net Fill in Floodplain 132075.0 cubic feet
4891.7 cubic yards
3.0 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

W Broward Blvd ML to Sunrise Blvd

Floodplain elevation 7.00 Zone AE

Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1448+00	7.0	0.0	0.0
1450+00	7.0	34.5	3450.0
1455+00	7.0	198.5	61700.0
1460+00	7.0	378.5	205950.0
1465+00	7.0	430.0	408075.0
1470+00	7.0	431.5	623450.0
1475+00	7.0	346.0	817825.0
1480+00	7.0	341.5	989700.0
1485+00	7.0	116.5	1104200.0
1489+00	7.0	0.0	1127500.0

Floodplain elevation 7.00 Zone AE

Northbound ML

Sta.	FEMA EL.	Cut s.f.	Cumulative Cut c.f.
1448+00	7.0	0.0	0.0
1450+00	7.0	107.0	10700.0
1455+00	7.0	121.0	2625.0
1460+00	7.0	149.0	138875.0
1465+00	7.0	210.0	238625.0
1470+00	7.0	250.0	363625.0
1475+00	7.0	191.0	473875.0
1480+00	7.0	110.0	549125.0
1485+00	7.0	97.0	600875.0
1481+00	7.0	0.0	581475.0

Sub-Total Fill 1127500.0 cubic feet

Sub- Total Cut 581475.0 cubic feet

Sub-Total Berm Fill** 104544.0 cubic feet

Net Fill in Floodplain 650569.0 cubic feet
24095.1 cubic yards
14.9 acre-feet

**This fill approximates the fill that will be required for the outside pond berm associated with preferred alternative 1A in the C-12 Basin between Broward and Sunrise.



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Sunrise Blvd to Oakland Park Blvd ML

Floodplain elevation 8.00 Zone AH

Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1538+00	8.0	0.00	0.0
1538+50	8.0	101.00	2525.0
1540+00	8.0	97.00	17375.0
1541+00	8.0	83.00	26375.0
1542+00	8.0	0.00	30525.0

Floodplain elevation 7.00 Zone AH

Northbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1523+00	7.0	0.00	0.0
1524+00	7.0	41.00	2050.0
1525+00	7.0	30.00	5600.0
1526+00	7.0	30.00	8600.0
1527+00	7.0	28.00	11500.0
1530+00	7.0	22.00	13700.0
1535+00	7.0	35.00	16250.0
1538+00	7.0	67.00	21350.0
1540+00	7.0	55.00	25550.0
1541+00	7.0	71.00	32650.0
1545+00	7.0	0.00	100050.0
1550+00	7.0	33.00	128300.0
1551+50	7.0	0.00	130775.0

Floodplain elevation 7.00 Zone AH

Northbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1550+00	8.0	0.00	0.0
1551+00	8.0	133.00	6650.0
1553+00	8.0	129.00	19750.0
1555+00	8.0	31.00	27750.0
1556+00	8.0	84.00	33500.0
1557+00	8.0	84.00	41900.0
1558+00	8.0	0.00	46100.0

Floodplain elevation

8.00

Zone AE

Northbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1556+00	8.0	0.00	0.0
1556+00	8.0	84.00	4200.0
1557+00	8.0	118.00	14300.0
1560+00	8.0	116.00	49400.0
1565+00	8.0	115.00	107150.0
1570+00	8.0	113.00	164150.0
1575+00	8.0	114.00	220900.0
1580+00	8.0	94.00	272900.0
1585+00	8.0	65.00	312650.0
1590+00	8.0	48.00	340900.0
1595+00	8.0	77.00	372150.0
1600+00	8.0	115.00	420150.0
1604+00	8.0	117.00	466550.0
1606+00	8.0	6.00	478850.0

Floodplain elevation

8.00

Zone AE

Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1559+00	8.0	0.00	0.0
1560+00	8.0	57.00	28350.0
1562+00	8.0	116.00	101500.0
1565+00	8.0	112.00	157700.0
1570+00	8.0	101.00	258700.0
1575+00	8.0	102.00	358700.0
1580+00	8.0	117.00	475700.0
1585+00	8.0	135.00	610700.0
1590+00	8.0	110.00	720700.0
1595+00	8.0	123.00	843700.0
1600+00	8.0	140.00	983700.0
1604+00	8.0	136.00	1119700.0
1606+50	8.0	80.00	1258300.0
1607+00	8.0	0.00	1258300.0

Total Fill

1258300.0 cubic feet

Net Fill in Floodplain

1258300.0 cubic feet

46603.7 cubic yards

28.9 acre-feet

C-13 Basin
Oakland Park Blvd. to St. 7

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FEMA ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin C-13

FPC-1 (Inverrary Golf Course)

Floodplain Elevations Vary
Between 7.0 and 11.0 NAVD 88

Existing Ground at Pond site = 7.00 NAVD 88 (Estimated From GIS Topographic Information)
Bottom Elev = 3.40 NAVD 88 (Control Elev. 2.93 taken from FPID 406094-1)

Floodplain Comp Volume Required 52.10 AC-FT.
Pond Area Based on floodplain volume 14.47 AC

Storage Depth 3.60 FT.
Total Depth from SHWL to Top of Berm 3.60 FT.

Elev SHW= 3.40 NAVD
Top of Berm Elevation given a total depth = 7.00 NAVD

Unit Length Based on L/W = 2 1123 FT.
Unit Width Based on L/W = 2 561 FT.
Maintenance Berm Width of 15-ft 30 FT.
Grade Adjustment Width Assumed 1:2 0 FT.
Horizontal Distance Based on a 1:4 Slope and total Depth 29 FT.
Total Pond Length (including maintenance berm and adjustments) 1182 FT.
Total Pond Width (including maintenance berm and adjustments) 620 FT.

Preliminary Property Size Required 16.83 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

16.83 AC.

Note: Encroachment volume calculated from floodplain elevation down to existing ground or original control elevation whichever is higher.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FEMA ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin C-13

FPC-2A (Inverrary Golf Course)

Floodplain Elevations Vary
Between 7.0 and 11.0 NAVD 88

Existing Ground at Pond site = 7.00 NAVD 88 (Estimated From GIS Topographic Information)
Bottom Elev = 3.50 NAVD 88 (Control Elev. 2.93 taken from FPID 406094-1)

Floodplain Comp Volume Required 42.90 AC-FT.
Pond Area Based on floodplain volume 12.26 AC

Storage Depth 3.50 FT.
Total Depth from SHWL to Top of Berm 3.50 FT.

Elev SHW= 3.50 NAVD
Top of Berm Elevation given a total depth = 7.00 NAVD

Unit Length Based on L/W = 2 1033 FT.
Unit Width Based on L/W = 2 517 FT.
Maintenance Berm Width of 15-ft 30 FT.
Grade Adjustment Width Assumed 1:2 0 FT.
Horizontal Distance Based on a 1:4 Slope and total Depth 28 FT.
Total Pond Length (including maintenance berm and adjustments) 1091 FT.
Total Pond Width (including maintenance berm and adjustments) 575 FT.

Preliminary Property Size Required 14 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION 4.40 AC.

Note: Encroachment volume calculated from floodplain elevation down to existing ground or final control elevation whichever is higher.

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FEMA ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

Basin C-13

FPC-2B (Adjacent to Commercial Blvd. Interchange)

Floodplain Elevations Vary

Between 7.0 and 11.0 NAVD 88

Existing Ground at Pond site =
Bottom Elev =

7.00 NAVD 88 (Estimated From GIS Topographic Information)
4.00 NAVD 88 (Control Elev. 2.93 taken from FPID 406094-1)

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

9.20 AC-FT.
3.07 AC

Storage Depth
Total Depth from SHWL to Top of Berm

3.00 FT.
3.00 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

4.00 NAVD
7.00 NAVD

Unit Length Based on L/W = 2
Unit Width Based on L/W = 2
Maintenance Berm Width of 15-ft
Grade Adjustment Width Assumed 1:2
Horizontal Distance Based on a 1:4 Slope and total Depth
Total Pond Length (including maintenance berm and adjustments)
Total Pond Width (including maintenance berm and adjustments)

517 FT.
258 FT.
30 FT.
0 FT.
24 FT.
571 FT.
312 FT.

Preliminary Property Size Required

4.09 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

4.09 AC.

Note: Encroachment volume calculated from floodplain elevation down to existing ground or original control elevation whichever is higher.



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Oakland Park Interchange

Floodplain elevation 8.00 Zone AE
NW 52nd Ave

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1609+00	8.0	0.00	0.0
1610+00	8.0	74.00	3700.0
1612+00	8.0	0.00	11100.0

Floodplain elevation 9.00 Zone AH
Rock Island Rd & On/off-ramps

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1613+00	9.0	0.00	0.0
1616+00	9.0	352.50	52875.0
1618+00	9.0	348.50	122975.0
1620+00	9.0	639.00	221725.0
1622+00	9.0	665.50	352175.0
1624+00	9.0	431.00	461825.0
1626+00	9.0	157.00	520625.0
1628+00	9.0	584.50	594775.0
1630+00	9.0	0.00	653225.0

Floodplain elevation 9.00 Zone AH
Ramp Overpass

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1622+00	9.0	0.00	0.0
1624+00	9.0	1750.0	17500.0
1625+00	9.0	0.00	17500.0

Total Fill 689825.0 cubic feet

Net Fill in Floodplain 689825.0 cubic feet
25549.1 cubic yards
15.8 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Oakland Park Blvd to C13 Canal

Floodplain elevation 8.00 Zone AE

Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1608+50	8.0	0.00	0.0
1610+00	8.0	223.00	16725.0
1612+00	8.0	281.00	67125.0
1614+00	8.0	334.00	128625.0
1615+50	8.0	0.00	153675.0

Floodplain elevation 8.00 Zone AE

Northbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1611+00	8.0	4.00	200.0
1612+00	8.0	15.00	1150.0
1614+00	8.0	54.00	4600.0
1616+00	8.0	0.00	7300.0
1618+00	8.0	0.00	7300.0
1620+00	8.0	0.00	7300.0
1622+00	8.0	0.00	7300.0
1624+00	8.0	0.00	7300.0
1625+00	8.0	0.00	7300.0

Total Fill 160975.0 cubic feet

Net Fill in Floodplain
160975.0 cubic feet
5962.0 cubic yards
3.7 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

C13 Canal to Commercial Blvd ML

Floodplain elevation 8.00 Zone AE
Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1637+00	8.0	0.00	0.0
1638+00	8.0	193.80	9690.0
1642+00	8.0	189.00	86250.0
1646+00	8.0	152.00	154450.0
1650+00	8.0	106.00	206050.0
1654+00	8.0	11.00	229450.0
1658+00	8.0	169.00	265450.0
1662+00	8.0	124.00	324050.0
1666+00	8.0	136.00	376050.0
1670+00	8.0	106.00	424450.0
1674+00	8.0	159.00	477450.0
1678+00	8.0	152.00	539650.0
1682+00	8.0	138.00	597650.0
1686+00	8.0	96.00	644450.0
1690+00	8.0	55.00	674450.0
1694+00	8.0	98.00	705250.0
1698+00	8.0	154.00	735650.0
1702+00	8.0	100.00	810650.0
1706+00	8.0	27.00	855650.0
1710+00	8.0	0.00	861250.0

Floodplain elevation 7.00 Zone AH
Northbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1625+00	7.0	0.00	0.0
1626+00	7.0	2.00	100.0
1628+00	7.0	4.00	700.0
1630+00	7.0	5.00	1600.0
1632+00	7.0	3.00	2400.0
1634+00	7.0	6.00	3300.0
1636+00	7.0	24.00	6300.0
1638+00	7.0	15.00	10200.0
1642+00	7.0	51.00	23400.0
1646+00	7.0	24.00	38400.0
1650+00	7.0	22.00	47600.0
1654+00	7.0	19.00	55800.0
1658+00	7.0	7.00	61000.0
1662+00	7.0	16.00	65600.0
1666+00	7.0	5.00	69800.0
1670+00	7.0	3.00	71400.0
1674+00	7.0	18.00	75600.0
1678+00	7.0	24.00	84000.0
1682+00	7.0	10.00	90800.0
1683+00	7.0	12.00	91900.0

Floodplain elevation 8.00 Zone AH
Northbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1683+00	8.0	0.00	0.0
1686+00	8.0	1.00	2100.0
1690+00	8.0	10.00	6900.0
1694+00	8.0	67.00	22300.0
1695+00	8.0	88.00	30050.0

Floodplain elevation 9.00 Zone AH
Northbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1695+00	9.0	88.00	4400.0
1698+00	9.0	70.00	28100.0
1699+00	9.0	0.00	31600.0

Total Fill 1014800.0

Net Fill in Floodplain cubic feet

1014800.0 cubic feet
37585.2 cubic yards
23.3 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 5/6/2023

Mainline from Commercial Blvd to SR 7

Floodplain elevation 11.00 Zone AE
SR 91 SB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1714+50	11.0	0.00	0.0
1715+00	11.0	70.00	1750.0
1717+50	11.0	157.00	30125.0
1718+00	11.0	125.00	37175.0
1719+00	11.0	0.00	43425.0

Floodplain elevation 9.00 Zone AE
SR 91 SB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1727+00	9.0	0.00	0.0
1728+00	9.0	52.00	2600.0
1730+00	9.0	71.00	14900.0
1732+00	9.0	0.00	22000.0

Total Fill 65425.0 cubic feet

Net Fill in Floodplain 65425.0 cubic feet
2423.1 cubic feet
1.5 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Commercial Blvd Interchange

Floodplain elevation 9.00 Zone AE
Southbound SR 91 On-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1720+00	9.0	0.00	0.0
1722+00	9.0	316.50	31650.0
1724+00	9.0	141.00	77400.0
1725+00	9.0	132.50	91075.0
1726+00	9.0	355.00	115450.0
1727+00	9.0	451.50	155775.0
1728+00	9.0	507.00	203700.0
1730+00	9.0	15.00	255900.0
1732+00	9.0	35.00	260900.0
1733+00	9.0	0.00	262650.0

Floodplain elevation 9.00 Zone AH
Southbound Off-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1733+00	9.0	0.00	0.0
1734+00	9.0	46.00	2300.0
1738+00	9.0	72.50	26000.0
1740+00	9.0	0.00	33250.0

Floodplain elevation 8.00 Zone AE
Northbound On-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1729+00	8.0	0.00	0.0
1730+00	8.0	1.50	75.0
1731+00	8.0	0.00	75.0

Floodplain elevation 8.00 Zone AH
Northbound On-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1730+00	8.0	0.00	0.0
1732+00	8.0	48.50	4850.0
1734+00	8.0	51.00	14800.0
1735+00	8.0	0.00	17350.0

Floodplain elevation 9.00 Zone AH
Northbound On-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1737+00	9.0	0.00	0.0
1738+00	9.0	6.50	325.0
1742+00	9.0	73.50	16325.0
1744+00	9.0	0.00	23675.0

Total Fill 337075.0 cubic feet

Net Fill in Floodplain 337075.0 cubic feet
12484.3 cubic yards
7.7 acre-feet

C-14 Basin (South)
SR 7 to C-14 Canal

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW Requirements C-14 Canal (SR 7 to Atlantic Blvd.)

FPC-1

Floodplain Elevations Vary
Between 5.0 and 12.0 NAVD88

Existing Ground at Pond site =
Bottom Elev =

10.00 NAVD 88 (Estimated From GIS Topographic Information)
6.50 NAVD 88 (C-14 Control Elevation 5.43 taken from
FPID 406097-1

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

17.70 AC-FT.
5.06 AC.

Storage Depth

3.50 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

6.50 NAVD
10.00 NAVD

Unit Length Based on L/W = 2

664 FT.

Unit Width Based on L/W = 2

332 FT.

Maintenance Berm Width of 15-ft

30 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

28 FT.

Total Pond Length (including maintenance berm and adjustments)

722 FT.

Total Pond Width (including maintenance berm and adjustments)

390 FT.

Preliminary Property Size Required

6.46 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

6.46 AC.

Note:

1. FPC Site significantly higher than lowest FEMA elevation. Minimum opportunities for sites may dictate need for liner to lower control elevation.
2. Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW Requirements C-14 Canal (SR 7 to Atlantic Blvd.)

FPC-2

Floodplain Elevations Vary
Between 5.0 and 12.0 NAVD88

Existing Ground at Pond site =
Bottom Elev =

10.00 NAVD (Estimated From GIS Topographic Information)
6.50 NAVD 88 (C-14 Control Elevation 5.43 taken from
FPID 406097-1

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

17.10 AC-FT.
4.89 AC.

Storage Depth

3.50 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

6.50 NAVD
10.00 NAVD

Unit Length Based on L/W = 2

652 FT.

Unit Width Based on L/W = 2

326 FT.

Maintenance Berm Width of 15-ft

30 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

28 FT.

Total Pond Length (including maintenance berm and adjustments)

710 FT.

Total Pond Width (including maintenance berm and adjustments)

384 FT.

Preliminary Property Size Required

6.27 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

6.27 AC.

Note:

1. FPC Site significantly higher than lowest FEMA elevation. Minimum opportunities for sites may dictate need for liner to lower control elevation.
2. Encroachment volume calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 5/6/2023

SR 7 to Toll Plaza

Floodplain elevation 12.00 Zone AE
SR 91 SB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1770+00	12.0	0.00	0.0
1774+00	12.0	46.00	9200.0
1777+00	12.0	72.00	26900.0
1778+00	12.0	0.00	30500.0

Floodplain elevation 8.00 Zone AE
SR 91 NB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1770+00	8.0	0.00	0.0
1774+00	8.0	118.00	23600.0
1778+00	8.0	76.50	62500.0
1782+00	8.0	52.00	88200.0
1785+00	8.0	0.00	96000.0

Floodplain elevation 10.00 Zone AH
SR 91 SB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1778+00	10.0	47.00	2350.0
1782+00	10.0	19.00	15550.0
1786+00	10.0	30.00	25350.0
1787+00	10.0	0.00	26850.0

Total Fill 153350.0 cubic feet

Net Fill in Floodplain 53350.0 cubic feet
5679.6 cubic yards
3.5 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 5/6/2023

Toll Plaza to Lyons Road

SR 91 SB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1820+00	11.0	71.00	3550.0
1826+00	11.0	36.50	35800.0
1830+00	10.0	27.00	48500.0
1835+00	10.0	6.00	56750.0
1840+00	10.0	18.00	62750.0
1841+00	10.0	1.00	63700.0

Floodplain elevation 8.00 Zone AH

SR 91 NB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1796+00	8.0	0.00	0.0
1797+00	8.0	0.00	0.0
1798+00	8.0	0.00	0.0
1799+00	8.0	0.00	0.0
1800+00	8.0	0.00	0.0

Floodplain elevation 9.00 Zone AE

SR 91 NB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1800+00	9.0	0.00	0.0
1802+00	9.0	92.00	9200.0
1805+00	9.0	75.00	34250.0
1806+00	9.0	11.00	38550.0
1810+00	9.0	19.00	44550.0
1814+00	9.0	17.00	51750.0
1815+00	9.0	11.00	53150.0
1816+00	9.0	0.0	53150.0

Floodplain elevation 10.00 Zone AE

SR 91 NB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1820+00	10.0	0.00	0.0
1821+00	10.0	17.00	1700.0
1822+00	10.0	6.00	2300.0
1826+00	10.0	0.00	2300.0
1830+00	10.0	0.00	2300.0
1834+00	10.0	0.00	2300.0
1835+00	10.0	44.00	5800.0
1836+00	10.0	0.00	8000.0

Total Fill 125400.0 cubic feet

Net Fill in Floodplain 125400.0 cubic feet
4644.4 cubic yards
2.9 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 5/6/2023

Lyons Road to Atlantic Blvd.

Floodplain elevation 10.00 Zone AE
SR 91 NB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1838+00	10.0	0.00	0.0
1842+00	10.0	94.50	18900.0
1846+00	10.0	54.00	48600.0
1850+00	10.0	76.00	74600.0
1851+00	10.0	0.00	78400.0

Floodplain elevation 10.00 AE
SR 91 NB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1854+00	10.0	0.00	0.0
1858+00	10.0	15.50	3100.0
1862+00	10.0	0.00	6200.0
1866+00	10.0	19.50	10100.0
1868+00	10.0	15.50	13600.0
1870+00	10.0	32.00	18350.0
1871+00	10.0	0.00	19950.0

Floodplain elevation 11.00 Zone AH
SR 91 SB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1848+00	11.0	0.00	0.0
1849+00	11.0	50.00	2500.0
1850+00	11.0	26.00	6300.0
1854+00	11.0	4.00	12300.0
1858+00	11.0	1.00	13300.0
1860+00	11.0	0.00	13300.0

Floodplain elevation 10.00 Zone AE
SR 91 NB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1879+00	10.0	0.00	0.0
1880+00	10.0	34.00	1700.0
1882+00	10.0	19.50	7050.0
1883+00	10.0	0.00	7050.0
1884+00	10.0	10.00	8050.0
1885+00	10.0	7.00	10675.0
1886+00	10.0	0.00	11025.0

Floodplain elevation 10.00 Zone AE
SR 91 SB ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1879+00	10.0	0.00	0.0
1880+00	10.0	0.00	0.0
1882+00	10.0	14.00	1400.0
1883+00	10.0	5.00	2350.0
1884+00	10.0	6.00	2900.0
1885+00	10.0	2.00	3300.0
1886+00	10.0	0.00	3400.0
1888+00	10.0	0.00	3400.0

Total Fill 126175.0 cubic feet

Net Fill in Floodplain 126175.0 cubic feet
4673.1 cubic yards
2.9 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Atlantic Blvd Interchange

Floodplain elevation 11.00 Zone AH

SR 91 SB On-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1865+00	11.0	0.00	0.0
1866+00	11.0	2.00	100.0
1870+00	11.0	27.50	6000.0
1874+00	11.0	20.50	15600.0
1878+00	11.0	19.50	23600.0
1882+00	11.0	37.50	35000.0
1883+00	11.0	17.50	37750.0
1884+00	11.0	0.00	38625.0

Floodplain elevation 10.00 Zone AE

SR 91 NB On-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1883+00	10.0	0.00	0.0
1884+00	10.0	201.00	10050.0
1885+00	10.0	100.00	20100.0
1886+00	10.0	156.00	45700.0
1887+00	10.0	0.00	53700.0

Total Fill 92325.0 cubic feet

Net Fill in Floodplain
92325.0 cubic feet
3419.4 cubic yards
2.1 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Cypress Creek Rd Interchange

Floodplain elevation 5.00 Zone AE

Loop Ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
0010+00	5.0	0.00	0.0
0018+00	5.0	548.00	219200.0
0019+00	5.0	0.00	246600.0

Total Fill 246600.0 cubic feet

Net Fill in Floodplain 246600.0 cubic feet
9133.3 cubic yards
5.7 acre feet

C-14 Basin (North)
C-14 Canal to Sample Road

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW Requirements C-14 Canal (Atlantic Blvd. to Sample Road)

FPC-1A & 1B

Floodplain Elevations Vary

Between 11.0 and 14.0 NAVD88

Existing Ground at Pond site =
Elev SHW =

10.00 NAVD 88 (Estimated From GIS Topographic Information)
5.43 NAVD 88 (C-14 Control Elevation 5.43 taken from
FPID 406097-1

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

31.50 AC-FT.
6.89 AC.

Storage Depth

4.57 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

5.43 NAVD
10.00 NAVD

Unit Length Based on L/W = 2

775 FT.

Unit Width Based on L/W = 2

387 FT.

Maintenance Berm Width of 15-ft

15 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

37 FT.

Total Pond Length (including maintenance berm and adjustments)

826 FT.

Total Pond Width (including maintenance berm and adjustments)

439 FT.

Preliminary Property Size Required

8.33 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

8.33 AC.

Note: Encroachment calculated from floodplain elevation down to existing ground or canal control elevation whichever is high.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW Requirements C-14 Canal (Atlantic Blvd. to Sample Road)

FPC-1C

Floodplain Elevations Vary

Between 11.0 and 14.0 NAVD88

Existing Ground at Pond site =
Elev SHW =

12.00 NAVD (Estimated From GIS Topographic Information)
7.50 NAVD 88 (Control Elevation 7.50 taken from
FPID 406150-1

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

15.30 AC-FT.
3.40 AC.

Storage Depth

4.50 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

7.50 NAVD
12.00 NAVD

Unit Length Based on L/W = 2

544 FT.

Unit Width Based on L/W = 2

272 FT.

Maintenance Berm Width of 15-ft

15 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

36 FT.

Total Pond Length (including maintenance berm and adjustments)

595 FT.

Total Pond Width (including maintenance berm and adjustments)

323 FT.

Preliminary Property Size Required

4.42 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

2 AC.

Note: Encroachment calculated from floodplain elevation down to existing ground or canal control elevation whichever is high.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW Requirements C-14 Canal (Atlantic Blvd. to Sample Road)

FPC-2A

Floodplain Elevations Vary

Between 11.0 and 14.0 NAVD88

Existing Ground at Pond site =
Elev SHW =

10.00 NAVD (Estimated From GIS Topographic Information)
5.43 NAVD 88 (C-14 Control Elevation 5.43 taken from
FPID 406097-1

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

17.00 AC-FT.
3.72 AC.

Storage Depth

4.57 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

5.43 NAVD
10.00 NAVD

Unit Length Based on L/W = 2

569 FT.

Unit Width Based on L/W = 2

285 FT.

Maintenance Berm Width of 15-ft

15 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

37 FT.

Total Pond Length (including maintenance berm and adjustments)

621 FT.

Total Pond Width (including maintenance berm and adjustments)

336 FT.

Preliminary Property Size Required

4.79 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

9 AC.

Note: Encroachment calculated from floodplain elevation down to existing ground or canal control elevation whichever is high.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW Requirements C-14 Canal (Atlantic Blvd. to Sample Road)

FPC-2B

Floodplain Elevations Vary

Between 11.0 and 14.0 NAVD88

Existing Ground at Pond site =
Elev SHW =

10.00 NAVD (Estimated From GIS Topographic Information)
5.43 NAVD 88 (C-14 Control Elevation 5.43 taken from
FPID 406097-1

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

10.00 AC-FT.
2.19 AC.

Storage Depth

4.57 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

5.43 NAVD
10.00 NAVD

Unit Length Based on L/W = 2

437 FT.

Unit Width Based on L/W = 2

218 FT.

Maintenance Berm Width of 15-ft

15 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

37 FT.

Total Pond Length (including maintenance berm and adjustments)

488 FT.

Total Pond Width (including maintenance berm and adjustments)

270 FT.

Preliminary Property Size Required

3.02 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

2 AC.

Note: Encroachment calculated from floodplain elevation down to existing ground or canal control elevation whichever is high.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW Requirements C-14 Canal (Atlantic Blvd. to Sample Road)

FPC-2C

Floodplain Elevations Vary

Between 11.0 and 14.0 NAVD88

Existing Ground at Pond site =
Elev SHW =

12.00 NAVD (Estimated From GIS Topographic Information)
7.50 NAVD 88 (Control Elevation 7.50 taken from
FPID 406150-1

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

19.80 AC-FT.
4.40 AC.

Storage Depth

4.50 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

7.50 NAVD
12.00 NAVD

Unit Length Based on L/W = 2

619 FT.

Unit Width Based on L/W = 2

310 FT.

Maintenance Berm Width of 15-ft

15 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

36 FT.

Total Pond Length (including maintenance berm and adjustments)

670 FT.

Total Pond Width (including maintenance berm and adjustments)

361 FT.

Preliminary Property Size Required

5.55 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

5.55 AC.

Note: Encroachment calculated from floodplain elevation down to existing ground or canal control elevation whichever is high.



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 5/6/2023

Atlantic (C-14 Canal) to Coconut Creek Blvd.

Floodplain elevation 11.00 Zone AE
Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1894+50	11.0	0.00	0.0
1897+00	11.0	0.00	0.0
1901+00	11.0	63.00	12600.0
1905+00	11.0	97.00	44600.0
1909+00	11.0	112.00	86400.0
1913+00	11.0	111.00	131000.0
1917+00	11.0	148.00	182800.0
1921+00	12.0	111.00	234600.0
1925+00	11.0	168.00	290400.0
1929+00	11.0	199.00	363800.0
1933+00	11.0	204.00	444400.0
1937+00	11.0	198.00	524800.0
1941+00	11.0	224.00	609200.0
1945+00	11.0	146.00	683200.0
1949+00	11.0	148.00	742000.0
1953+00	11.0	61.00	838000.0
1955+00	11.0	0.00	742000.0

0060+50

Floodplain elevation 12.00 Zone AH
Northbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1941+00	11.0	0.00	0.0
1943+00	11.0	151.00	7550.0
1945+00	11.0	234.00	46050.0
1949+00	11.0	98.00	112450.0
1953+00	11.0	98.00	151650.0
1955+00	11.0	2.00	161650.0
1956+00	11.0	0.00	161750.0

Total Fill 951650.0 cubic feet

Net Fill in Floodplain
951650.0 cubic feet
35246.3 cubic yards
21.8 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Coconut Creek Interchange

Floodplain elevation 11.00 Zone AE
Northbound Off-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1957+00	11.0	0.00	0.0
1958+00	11.0	153.00	7650.0
1962+00	11.0	0.00	38250.0

Floodplain elevation 14.00 Zone AH
Northbound On-ramp (toll plaza/roundabout area)

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1958+00	14.0	0.00	0.0
1962+00	14.0	495.00	99000.0
1966+00	14.0	72.50	212500.0
1970+00	14.0	61.50	239300.0
1972+00	14.0	131.50	258600.0
1974+00	14.0	63.50	265000.0
1976+00	14.0	49.50	269400.0
1978+00	14.0	0.00	269350.0

Floodplain elevation 12.00 Zone AE
Northbound On-ramp (toll plaza/roundabout area)

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1978+00	12.0	0.00	0.0
1978+00	12.0	6.00	600.0
1982+00	12.0	8.50	3500.0
1986+00	12.0	1.00	5400.0
1988+00	12.0	0.00	5500.0

Floodplain elevation 14.00 Zone AH
Southbound OFF-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
0000+00	14.0	0.00	0.0
0000+41	14.0	36.00	738.0
0002+72	14.0	18.50	7032.8
0003+30	14.0	0.00	7569.3

Total Fill 345669.3 cubic feet

Net Fill in Floodplain 345669.3 cubic feet
12802.6 cubic yards
7.9 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Dr MLK to Copans Rd

Floodplain elevation 14.00 Zone AE
Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1955+00	14.0	0.00	0.0
1958+00	14.0	158.00	23700.0
1960+00	14.0	149.00	54400.0
1962+00	14.0	129.00	82200.0

Floodplain elevation 13.00 Zone AH
Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1960+00	13.0	149.00	7450.0
1962+00	13.0	129.00	35250.0
1966+00	13.0	91.00	79250.0
1968+00	13.0	72.00	85500.0
1970+00	13.0	0.00	102750.0

Floodplain elevation 12.00 Zone AH
Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1970+00	12.0	0.00	0.0
1972+00	12.0	0.00	0.0
1974+00	12.0	0.00	0.0
1976+00	12.0	44.00	4400.0
1978+00	12.0	0.00	8800.0

Floodplain elevation 12.00 Zone AH
Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
1993+00	12.0	38.00	1900.0
1994+00	12.0	29.00	5250.0
1998+00	12.0	17.00	14450.0
2002+00	12.0	5.00	18850.0

Total Fill 212600.0 cubic feet

Net Fill in Floodplain 212600.0 cubic feet
7874.1 cubic yards
4.9 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Copans Rd to Sample Rd

Floodplain elevation 12.00 Zone AH
SR 91 Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2017+00	12.0	0.00	0.0
2020+00	12.0	41.00	6150.0
2025+00	12.0	96.00	40400.0
2030+00	12.0	94.00	87900.0
2035+00	12.0	98.00	135900.0
2039+00	12.0	123.00	180100.0
2040+00	12.0	122.00	192350.0
2041+00	12.0	251.00	211000.0
2045+00	12.0	274.00	316000.0
2049+00	12.0	0.00	370800.0

Floodplain elevation 12.00 Zone AE
SR 91 Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2049+00	12.0	0.00	0.0
2050+84	12.0	203.00	18776.0
2051+55	12.0	200.00	33018.0
2053+41	12.0	210.00	71241.0
2054+22	12.0	28.00	82070.0
2055+36	12.0	28.00	84670.0
2056+00	12.0	314.00	95422.0
2056+70	12.0	0.00	103272.0

Total Fill 474072.0 cubic feet

Net Fill in Floodplain
474072.0 cubic feet
17558.2 cubic yards
10.9 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Sample Rd Interchange

Floodplain elevation 12.00 Zone AH

Bike Path

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
0000+00	12.0	0.00	0.0
0000+80	12.0	168.00	6720.0
0001+80	12.0	45.00	17370.0
0002+80	12.0	0.00	19620.0

Floodplain elevation 11.00 Zone AE

Sample Rd Eastbound to SR 91 On-ramp

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
0000+00	11.0	0.00	0.0
0000+10	11.0	20.50	102.5
0001+05	11.0	9.00	1503.8
0004+05	11.0	4.00	3453.8
0006+20	11.0	5.00	4421.3
0007+10	11.0	0.00	4421.3

Floodplain elevation 11.00 Zone AE

Sample Rd On-ramp to SR 91 Northbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
0000+00	11.0	0.00	450.0
0002+00	11.0	15.00	2850.0
0003+90	11.0	24.00	6555.0
0005+00	11.0	5.00	7055.0
0005+00	11.0	0.00	11475.0
0007+30	11.0	5.00	15375.0
0007+50	11.0	0.00	15635.0

Floodplain elevation 12.00 Zone AE

Sample Rd Eastbound On-ramp to SR 91 Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2050+84	12.0	0.00	0.0
2051+55	12.0	64.00	2272.0
2053+41	12.0	124.00	19756.0
2054+15	12.0	69.50	26938.7
2054+32	12.0	184.00	29063.1
2055+36	12.0	0.00	38631.1

Total Fill 78532.3 cubic feet

Net Fill in Floodplain

78532.3 cubic feet
2908.6 cubic yards
1.8 acre-feet



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Floodplain elevation 12.00 Zone AE

Sample Rd Eastbound On-ramp to SR 91 Southbound

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2062+00	12.0	0.00	0.0
2063+00	12.0	64.00	3200.0
2067+00	12.0	0.00	16000.0

Floodplain elevation 13.00 Zone AH

SR 91 Southbound Off-ramp at Sample Rd

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2067+00	13.0	0.00	0.0
2068+00	13.0	24.50	1225.0
2069+00	13.0	32.00	4050.0
2070+00	13.0	40.00	7650.0
2071+00	13.0	56.50	12475.0
2072+00	13.0	44.00	17500.0
2073+00	13.0	84.50	23925.0
2074+00	13.0	88.50	32575.0
2075+00	13.0	25.50	35125.0
2076+00	13.0	0.00	35125.0

Total Fill 55550.0 cubic feet

Net Fill in Floodplain
55550.0 cubic feet
2057.4 cubic yards
1.3 acre-feet

Hillsboro Basin
Sample Road to Wiles Road

DRAFT



Project Name: FTE Widening from South of I-595 to Wiles Rd

Project Number: 44221212201

Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB

Checked by: RMG

Date: 6/5/2023

FPC ROW REQUIREMENTS - Basin Hillsboro Canal (Sample Road to Wiles Road)

FPC-1

Floodplain Elevations Vary

Between 13.0 and 14.0 NAVD88

Existing Ground at Pond site =
Elev SHW =

13.00 NAVD 88 (Estimated From GIS Topographic Information)
8.90 NAVD 88 (SHW Elev taken from FPID 406150)

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

17.20 AC-FT.
4.20 AC.

Storage Depth

4.10 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

8.90 NAVD
13.00 NAVD

Unit Length Based on L/W = 2

605 FT.

Unit Width Based on L/W = 2

302 FT.

Maintenance Berm Width of 15-ft

15 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

33 FT.

Total Pond Length (including maintenance berm and adjustments)

652 FT.

Total Pond Width (including maintenance berm and adjustments)

350 FT.

Preliminary Property Size Required

5.24 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

4 AC.

Note: Encroachment calculated from floodplain elevation down to existing ground or canal control elevation whichever is high.



Project Name: FTE Widening from South of I-595 to Wiles Rd
Project Number: 44221212201
Task Description: Estimation of FPC ROW Requirements

Prepared by: JAB
Checked by: RMG
Date: 6/5/2023

FPC ROW REQUIREMENTS - Basin Hillsboro Canal (Sample Road to Wiles Road)

FPC-2

Floodplain Elevations Vary

Between 13.0 and 14.0 NAVD88

Existing Ground at Pond site =
Elev SHW =

14.00 NAVD 88 (Estimated From GIS Topographic Information)
9.00 NAVD 88 (SHW Elev taken from FPID 406150)

Floodplain Comp Volume Required
Pond Area Based on floodplain volume

17.20 AC-FT.
3.44 AC.

Storage Depth

5.00 FT.

Elev SHW=
Top of Berm Elevation given a total depth =

9.00 NAVD
14.00 NAVD

Unit Length Based on L/W = 2

547 FT.

Unit Width Based on L/W = 2

274 FT.

Maintenance Berm Width of 15-ft

15 FT.

Grade Adjustment Width Assumed 1:2

0 FT.

Horizontal Distance Based on a 1:4 Slope and total Depth

40 FT.

Total Pond Length (including maintenance berm and adjustments)

602 FT.

Total Pond Width (including maintenance berm and adjustments)

329 FT.

Preliminary Property Size Required

4.55 AC.

MINIMUM PROPERTY SIZE FOR TREATMENT & ATTENUATION

4.55 AC.

Note: Encroachment calculated from floodplain elevation down to existing ground or canal control elevation whichever is higher.



Project Name: I-595 TO WILES
FPID: 44221212201
County: Broward

Designer: JAB
Checked by: RMG
Date: 4/22/2023

Sample Rd to Wiles Rd

Floodplain elevation 13.00 Zone AE

SR 91 Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2062+00	13.0	10.00	500.0
2063+00	13.0	70.00	4500.0
2064+00	13.0	72.00	11600.0
2065+00	13.0	88.00	19600.0
2066+00	13.0	81.00	28050.0
2067+00	13.0	100.00	37100.0
2068+00	13.0	96.00	46900.0
2067+50	13.0	0.00	44500.0

Floodplain elevation 13.00 Zone AH

SR 91 Southbound ML

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2067+00	13.0	100.00	500.0
2068+00	13.0	96.00	480.0
2069+00	13.0	100.00	580.0
2070+00	13.0	115.00	695.0
2071+00	13.0	96.00	791.0
2072+00	13.0	100.00	891.0
2073+00	13.0	102.00	993.0
2074+00	13.0	100.00	1093.0
2075+00	13.0	101.00	1194.0
2076+00	13.0	159.00	1353.0
2075+50	13.0	0.00	98675.0

Floodplain elevation 14.00 Zone AH

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2075+00	14.0	101.00	5050.0
2076+00	14.0	159.00	18050.0
2078+00	14.0	224.00	56350.0
2080+00	14.0	172.00	95950.0
2082+00	14.0	174.00	130550.0
2083+00	14.0	168.00	147650.0
2084+00	14.0	153.00	163700.0
2083+50	14.0	0.00	159875.0

Floodplain elevation

14.00

Zone AE

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2084+00	14.0	153.00	7650.0
2085+00	14.0	150.00	22800.0
2089+00	14.0	167.00	86200.0
2093+00	14.0	151.00	149800.0
2097+00	14.0	146.00	209200.0
2101+00	14.0	152.00	268800.0
2105+00	14.0	122.00	323600.0
2109+00	14.0	149.00	377800.0
2113+00	14.0	134.00	434400.0
2113+50	14.0	0.00	437750.0

Floodplain elevation

13.00

Zone AE

Sta.	FEMA EL.	Fill s.f.	Cumulative Fill c.f.
2111+00	13.0	0.00	0.0
2113+31	13.0	75.50	8729.0
2114+00	13.0	0.00	11325.0

Total Fill

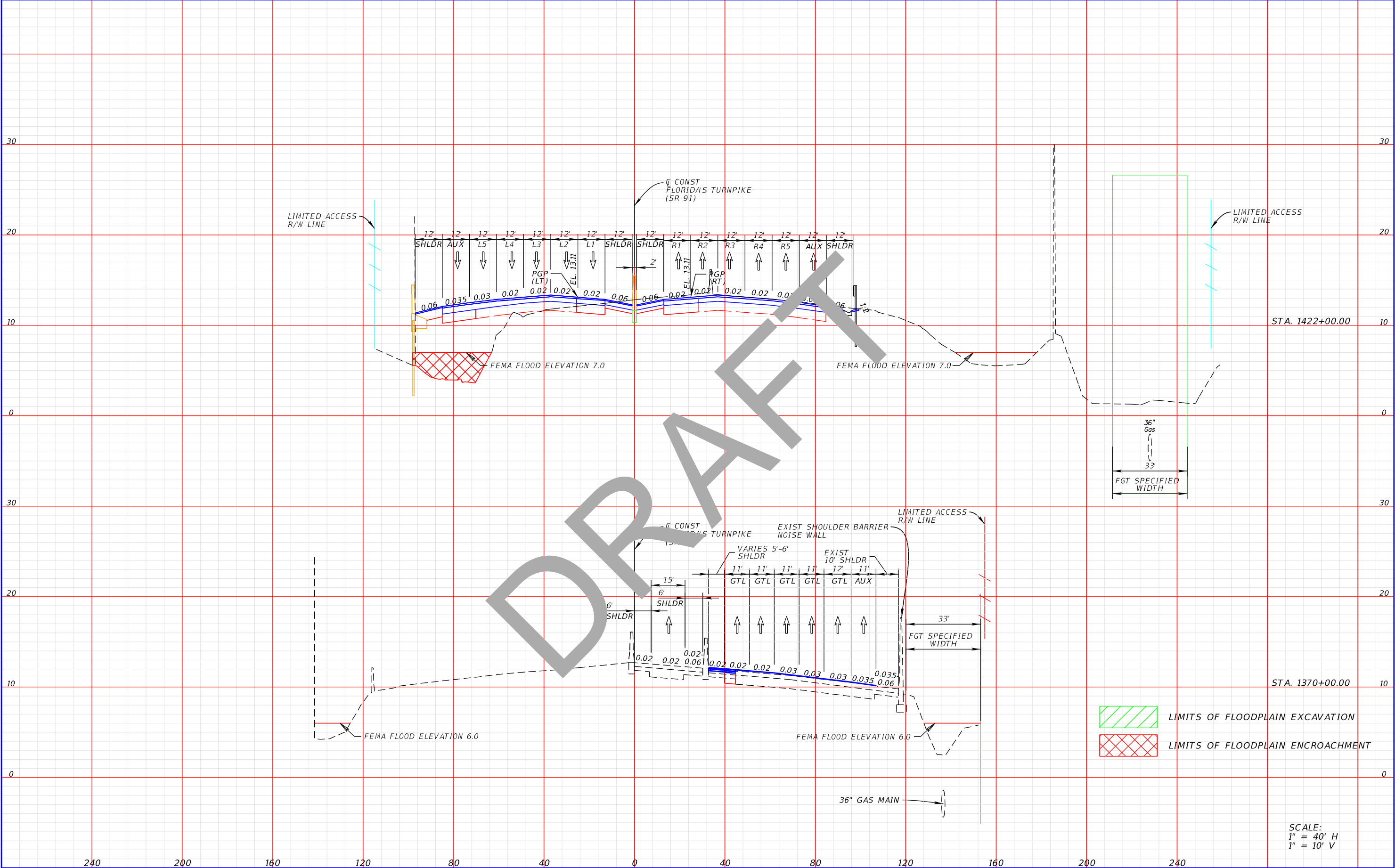
752125.0 cubic feet

Net Fill in Floodplain

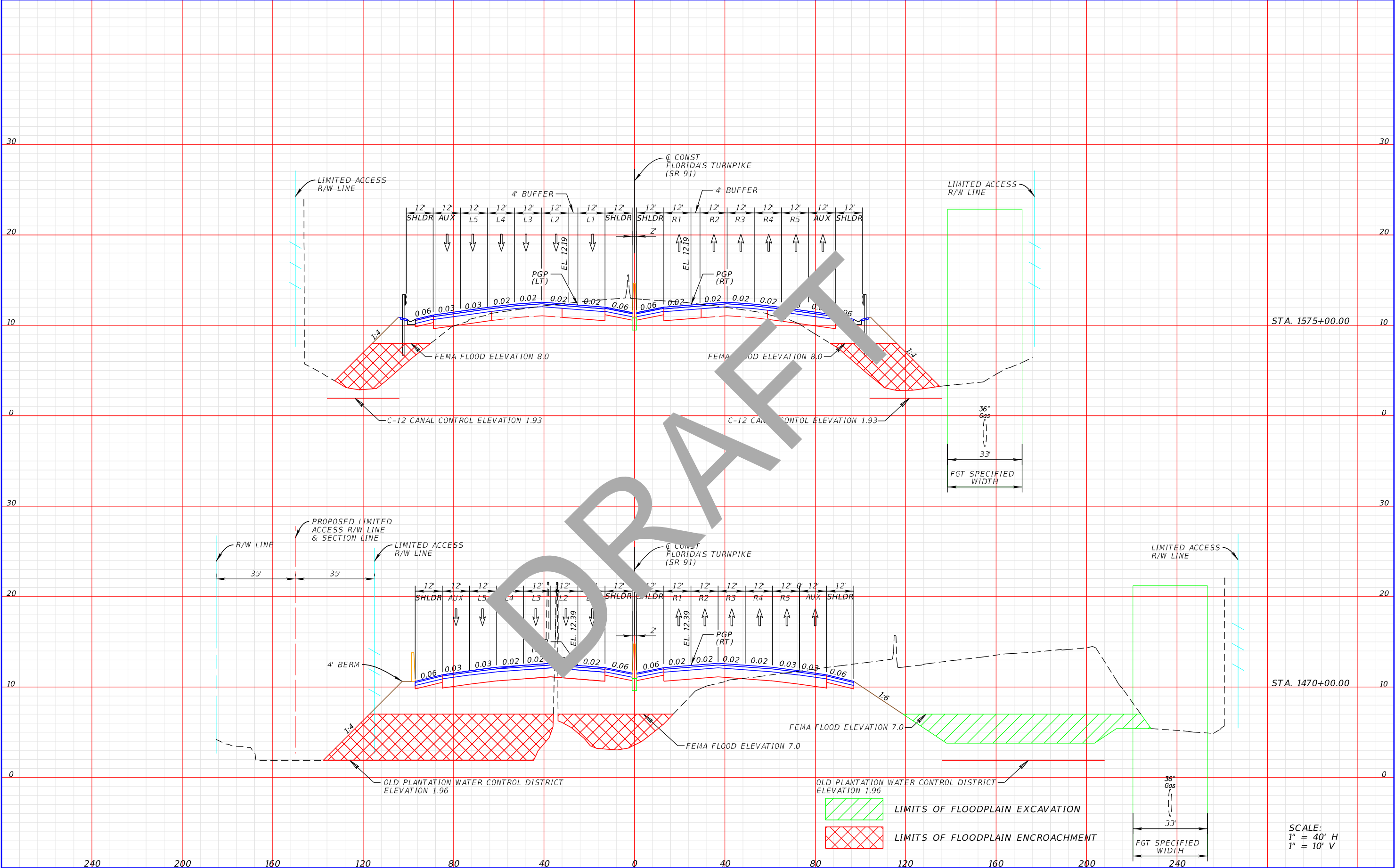
752125.0 cubic feet

27856.5 cubic yards

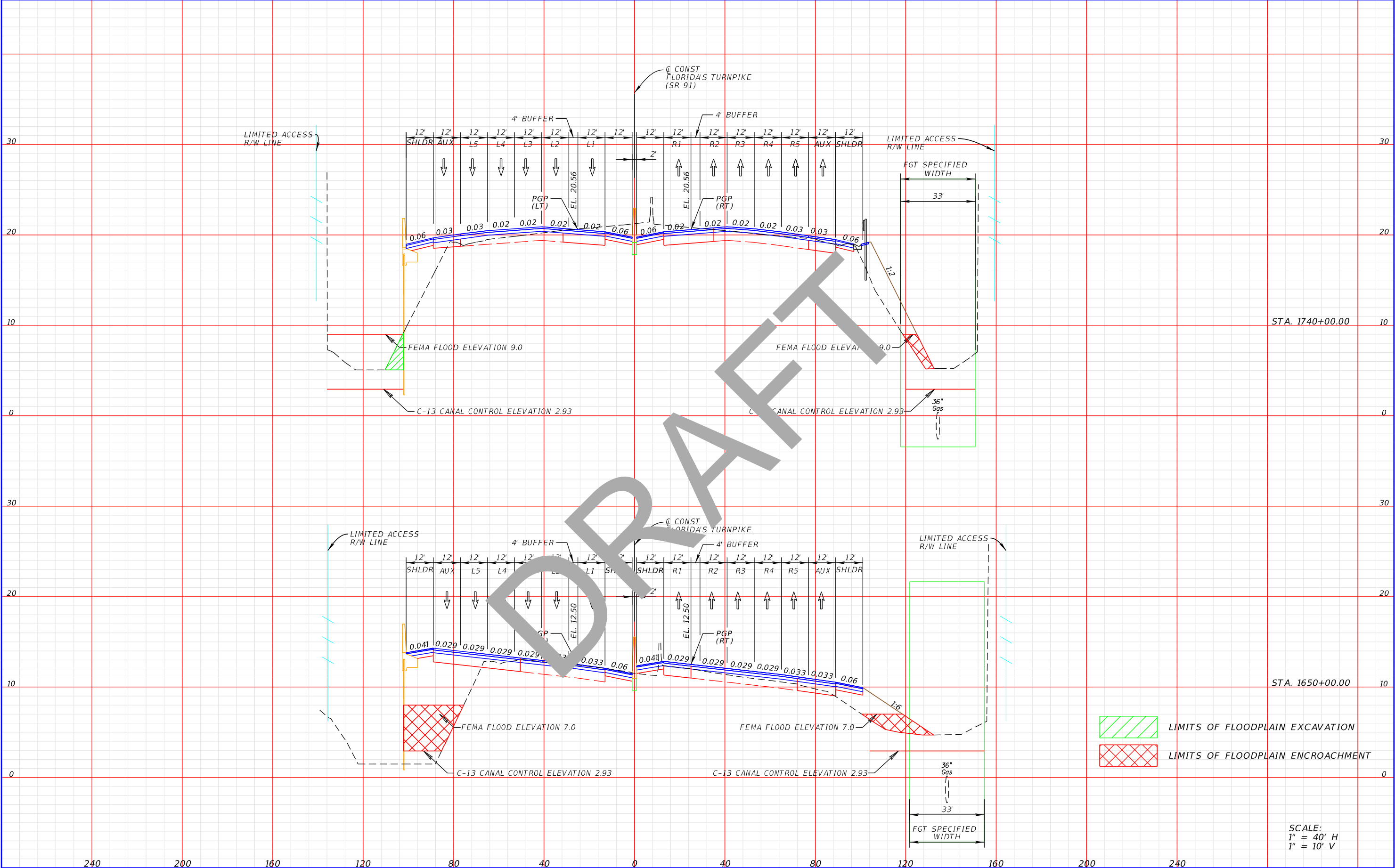
17.3 acre-feet





REVISIONS				<div>DRAFT</div>	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
Draft/subject to change								



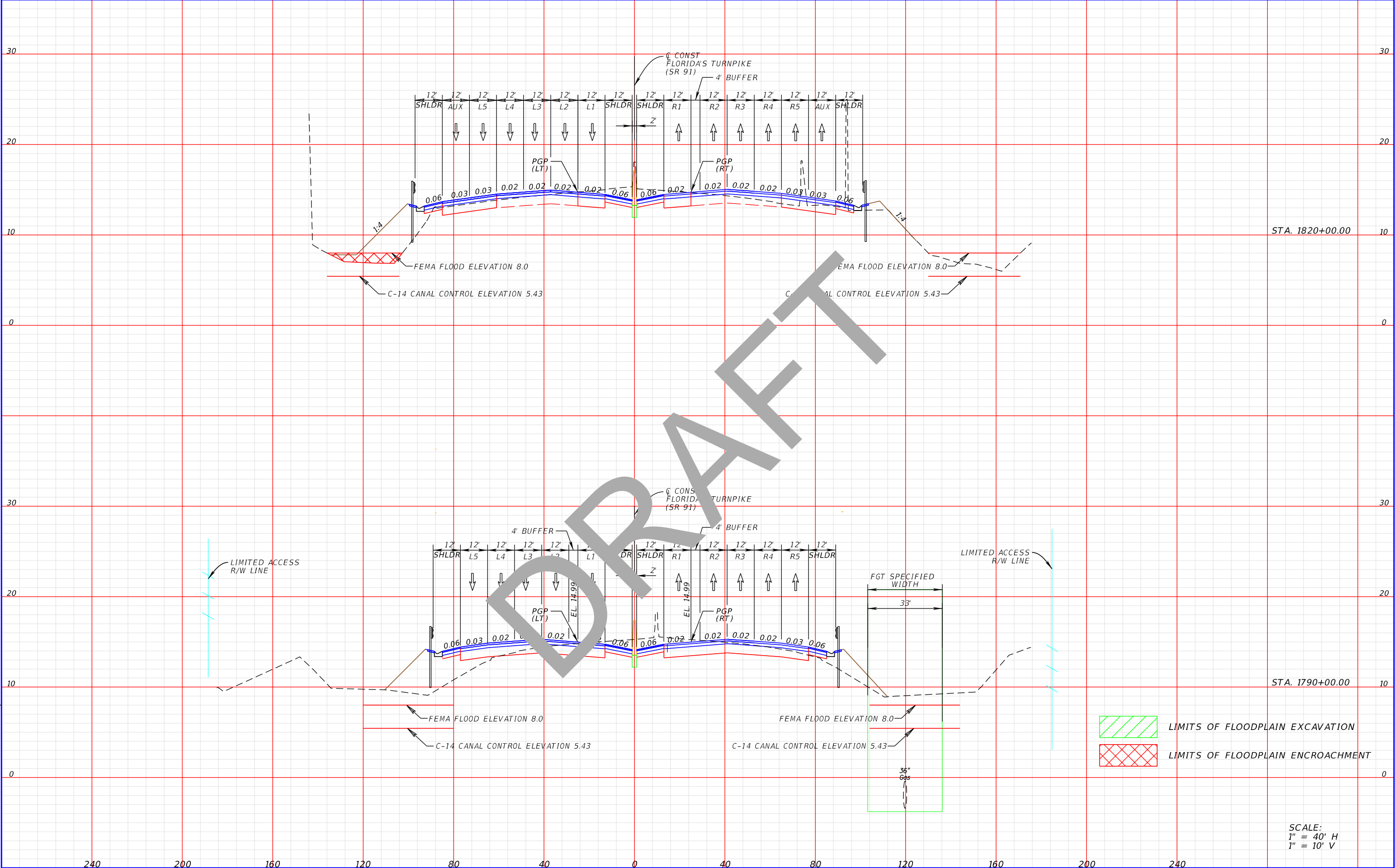
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
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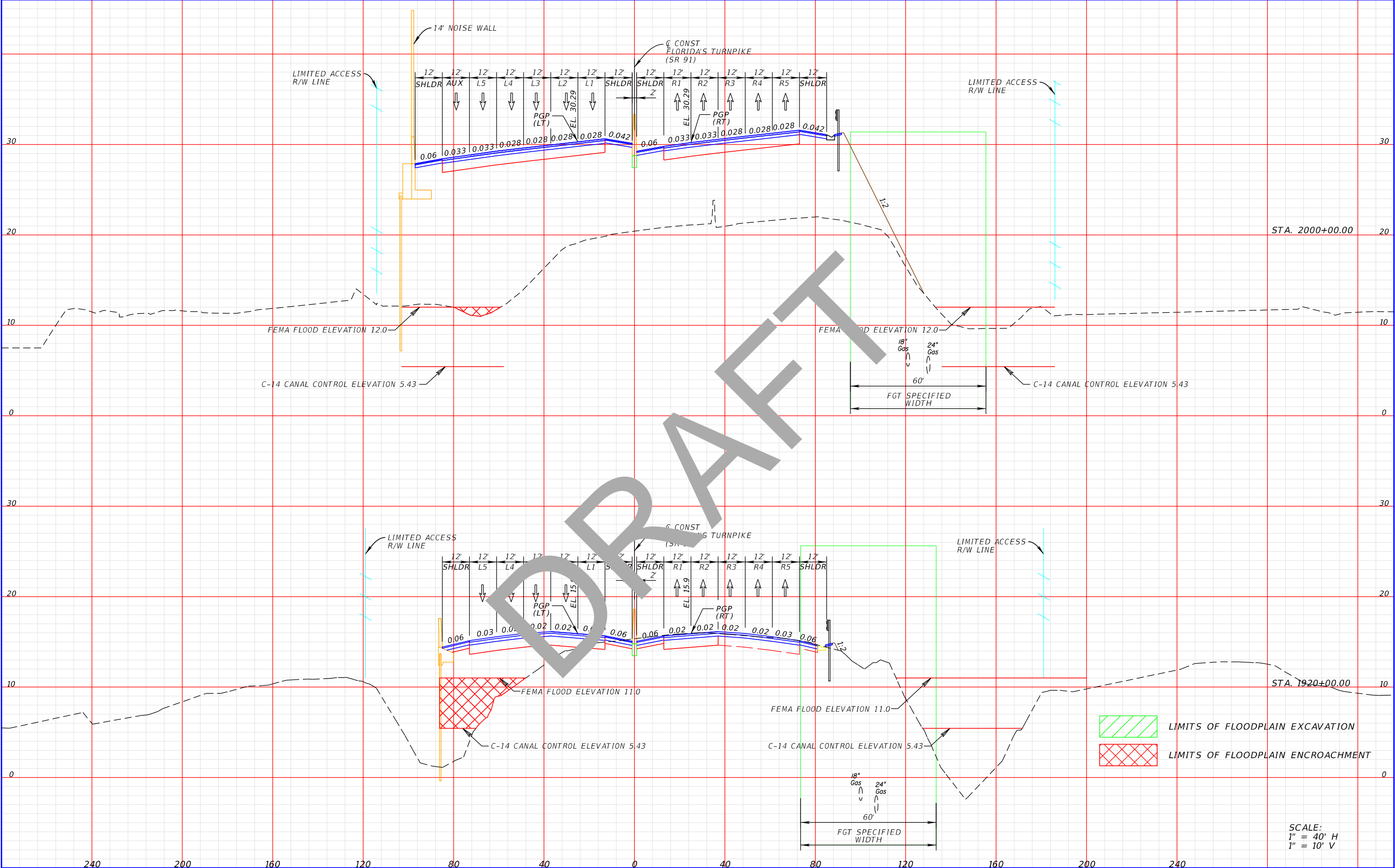
-  LIMITS OF FLOODPLAIN EXCAVATION
-  LIMITS OF FLOODPLAIN ENCROACHMENT

SCALE:
1" = 40' H
1" = 10' V

REVISIONS				DRAFT	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
	Draft/subject to change							



REVISIONS				<div>DRAFT</div>	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
Draft/subject to change								



REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION				
	Draft/subject to change			DRAFT			
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Straight Line Diagrams

DRAFT



DRAFT

DRAFT

DRAFT

DRAFT

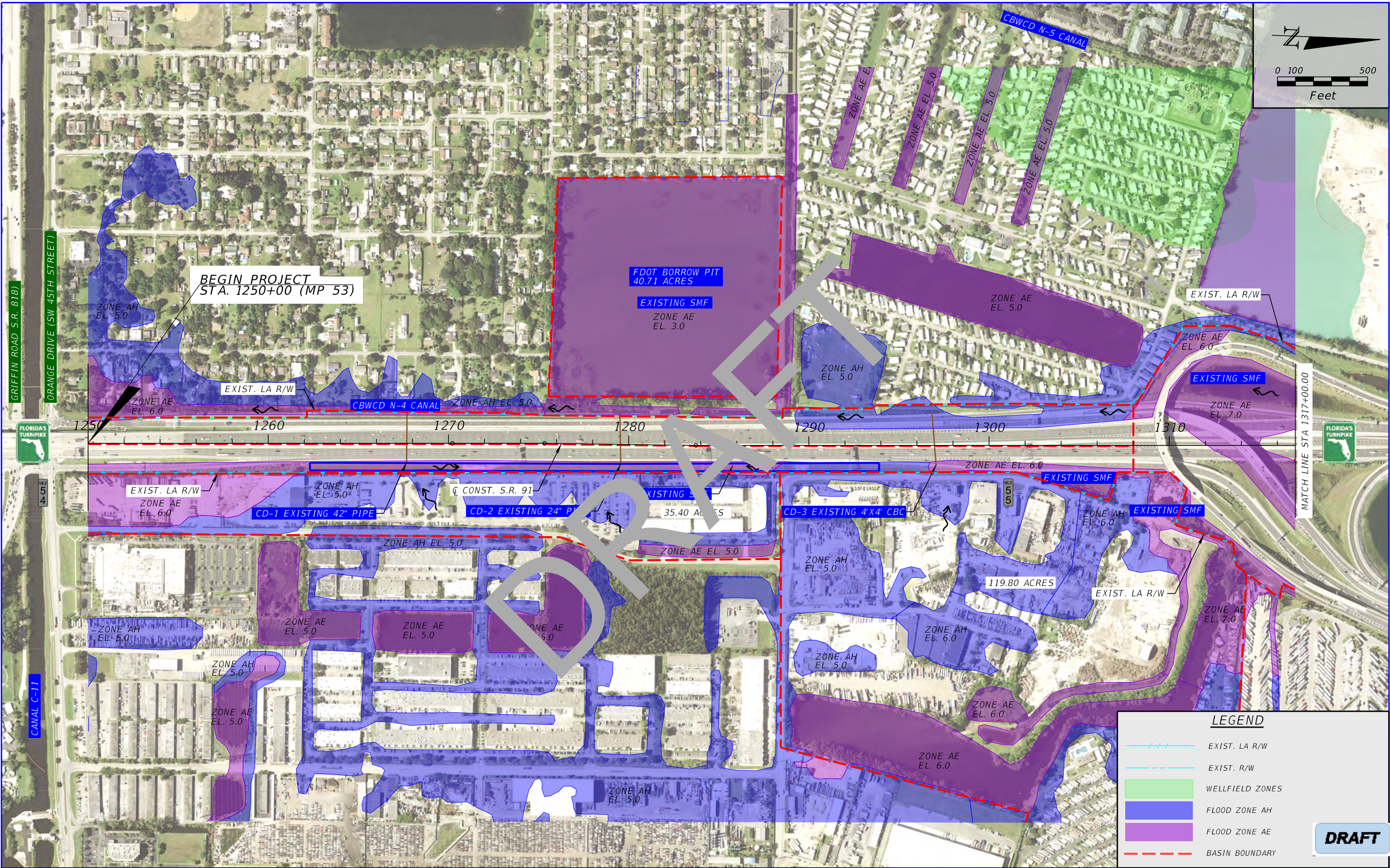
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Existing Drainage Maps

DRAFT

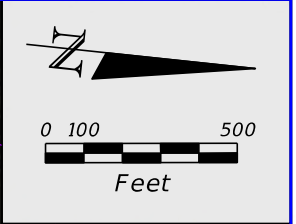
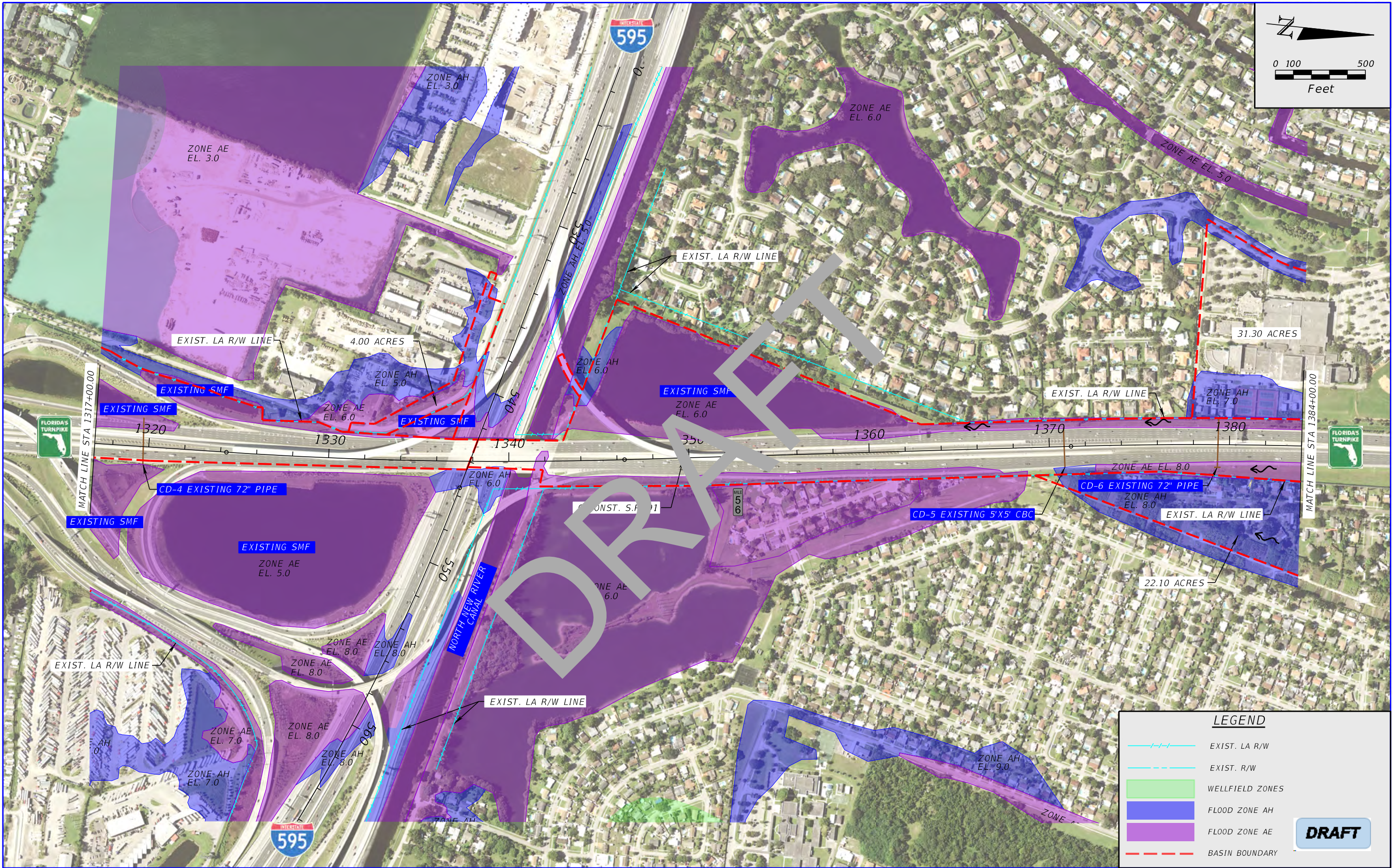


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DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
	Draft/subject to change			91	BROWARD	442212-1-22-01		

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LEGEND

- EXIST. LA R/W
- EXIST. R/W
- WELLFIELD ZONES
- FLOOD ZONE AH
- FLOOD ZONE AE
- BASIN BOUNDARY

DRAFT

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			EXISTING DRAINAGE MAP	SHEET NO. (2)
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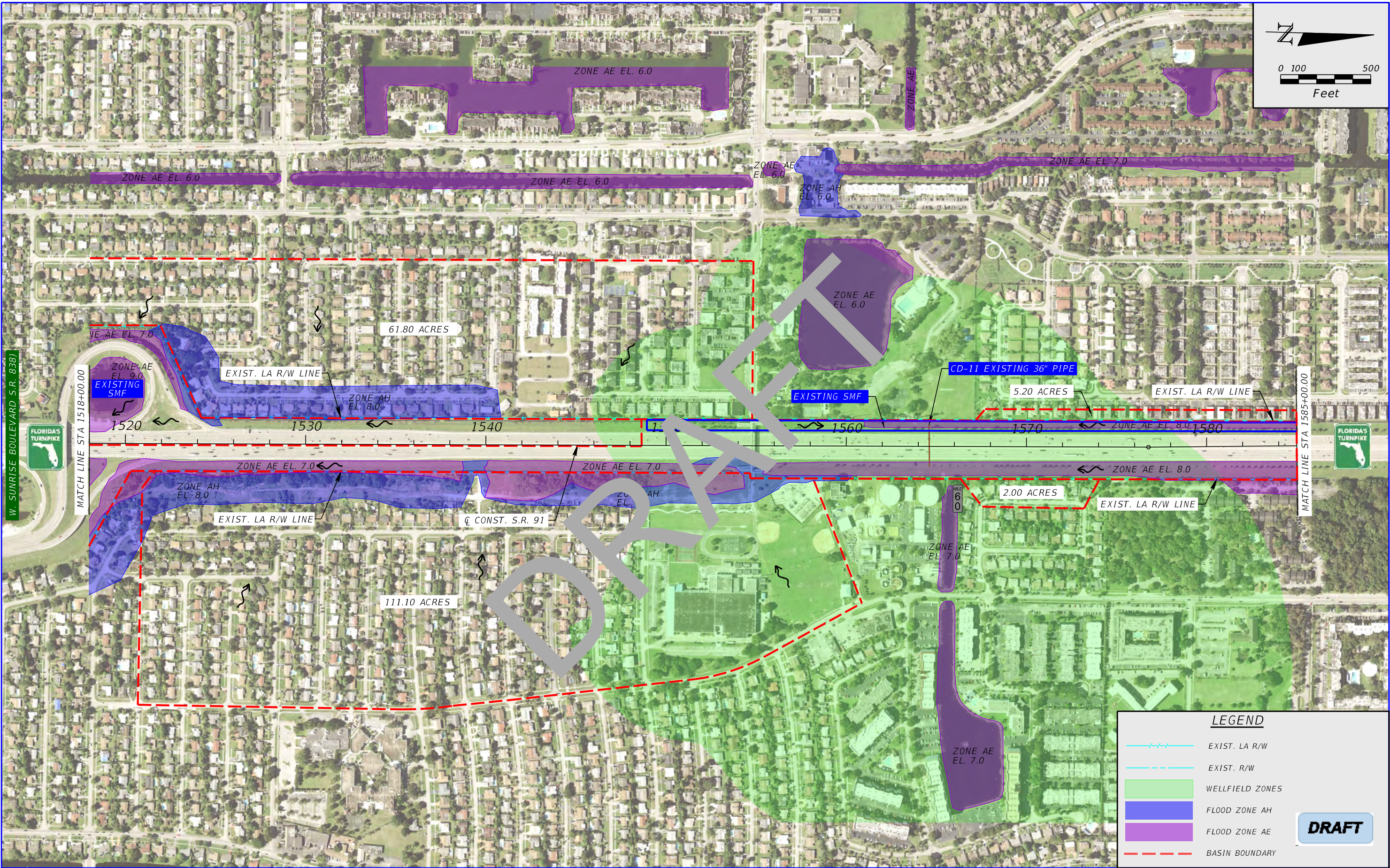


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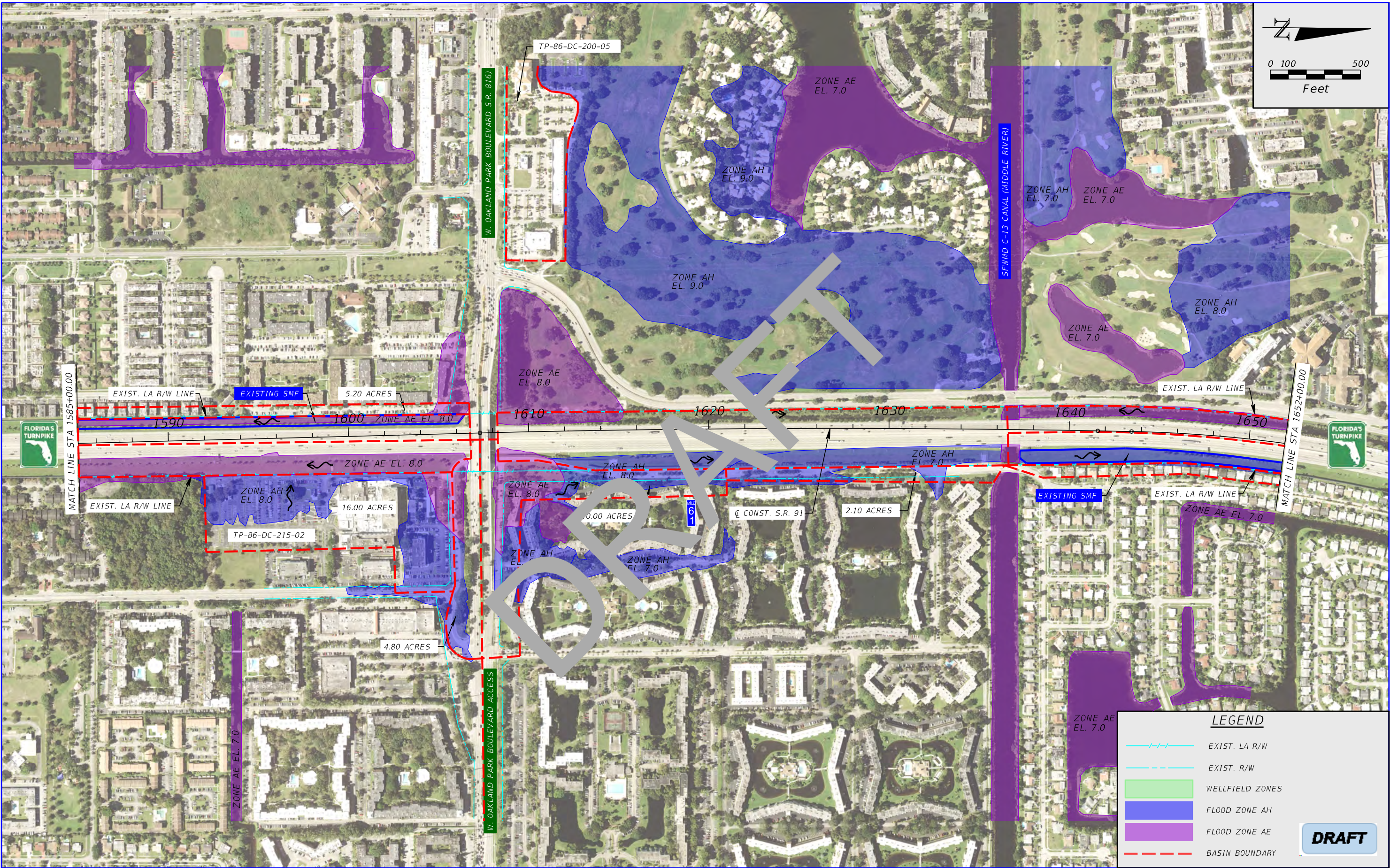


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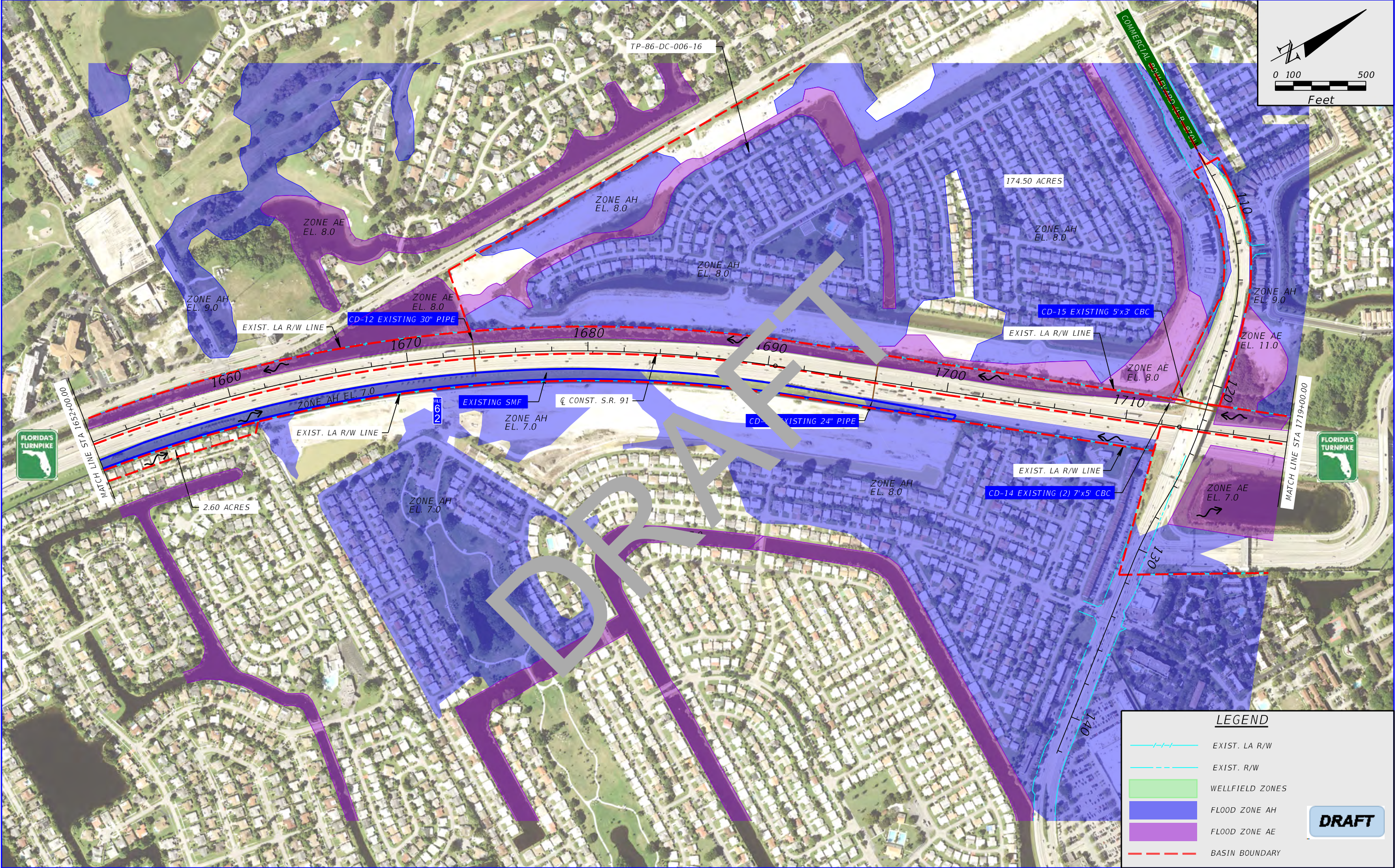


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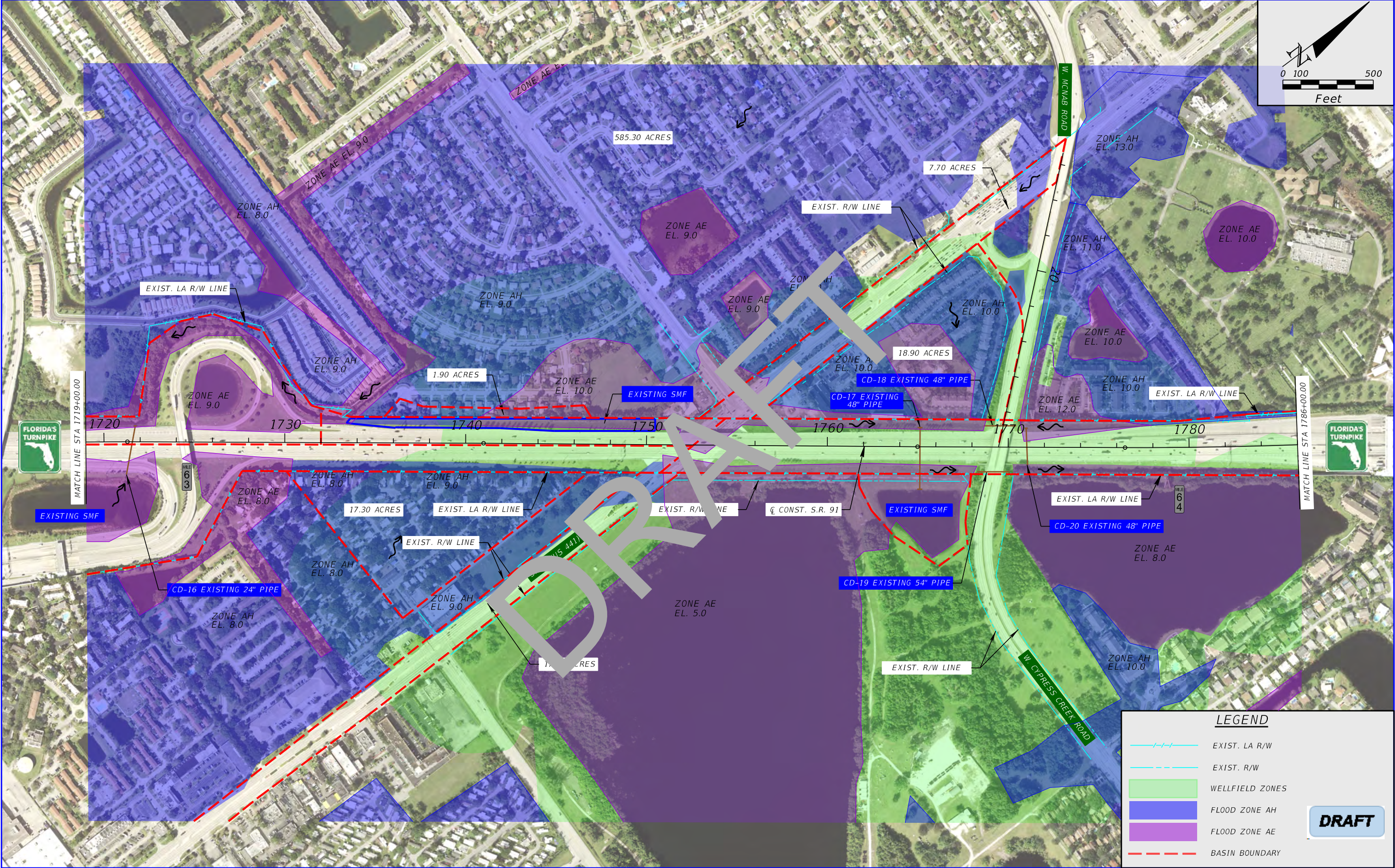


REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			EXISTING DRAINAGE MAP	SHEET NO. (7)
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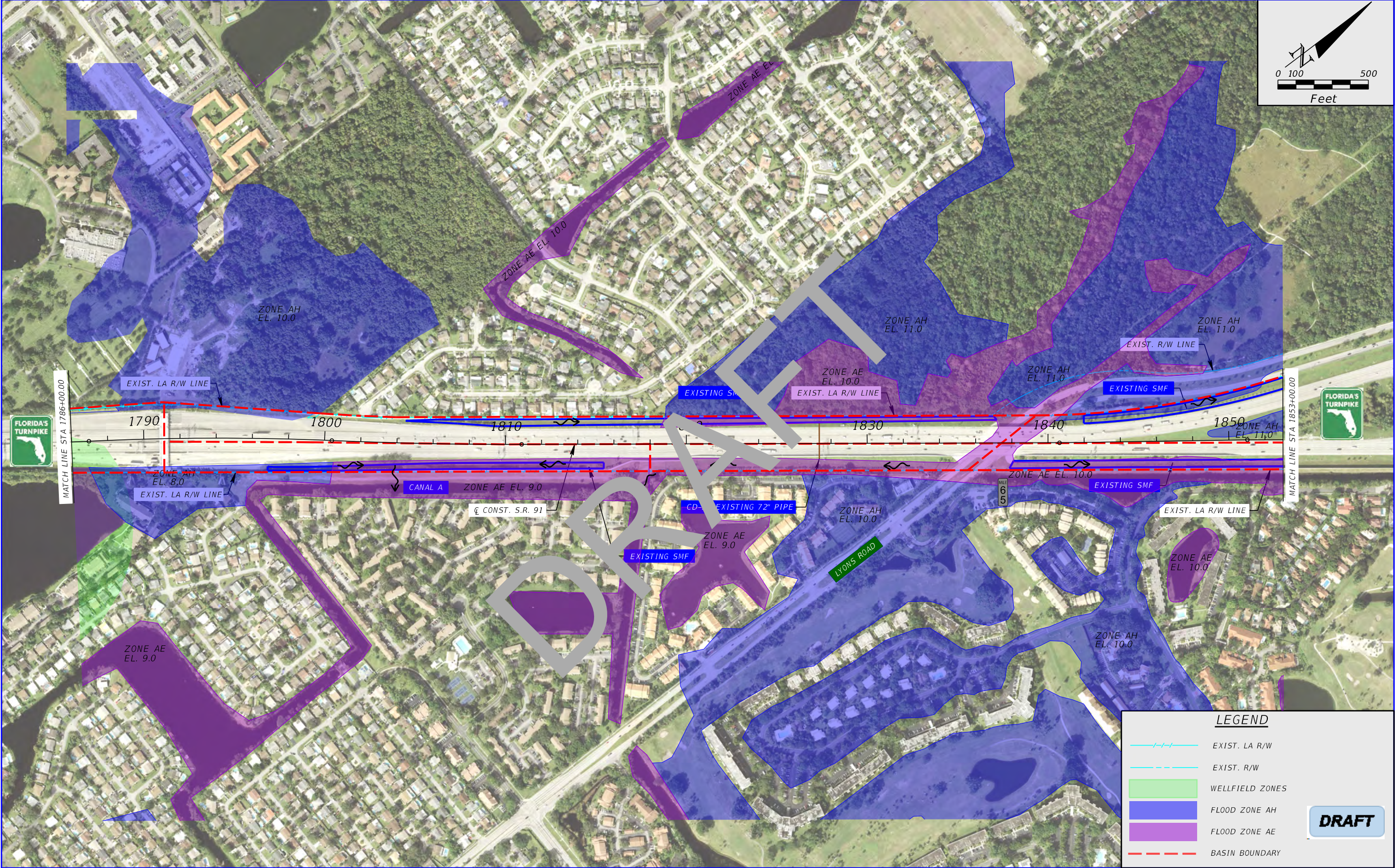


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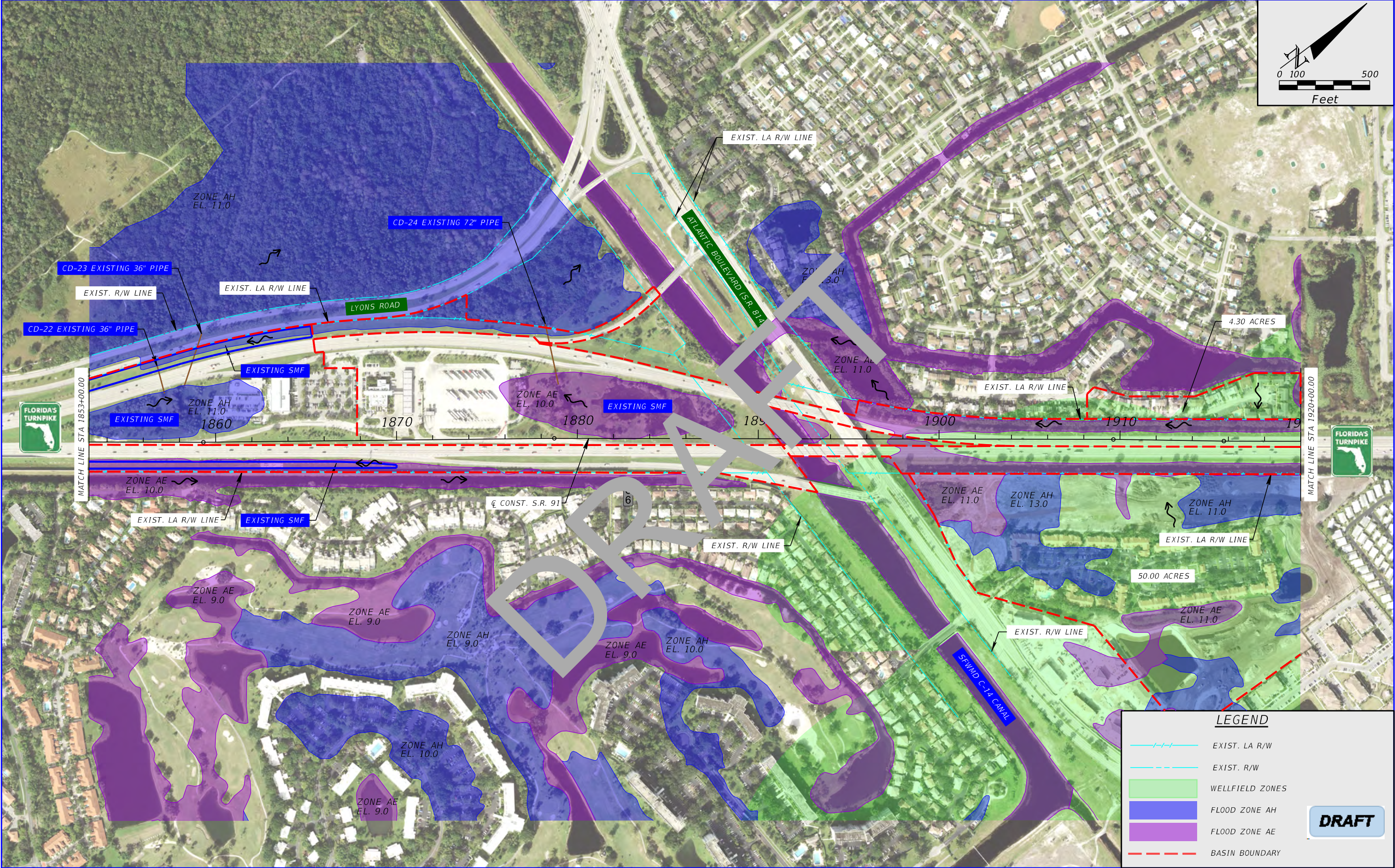


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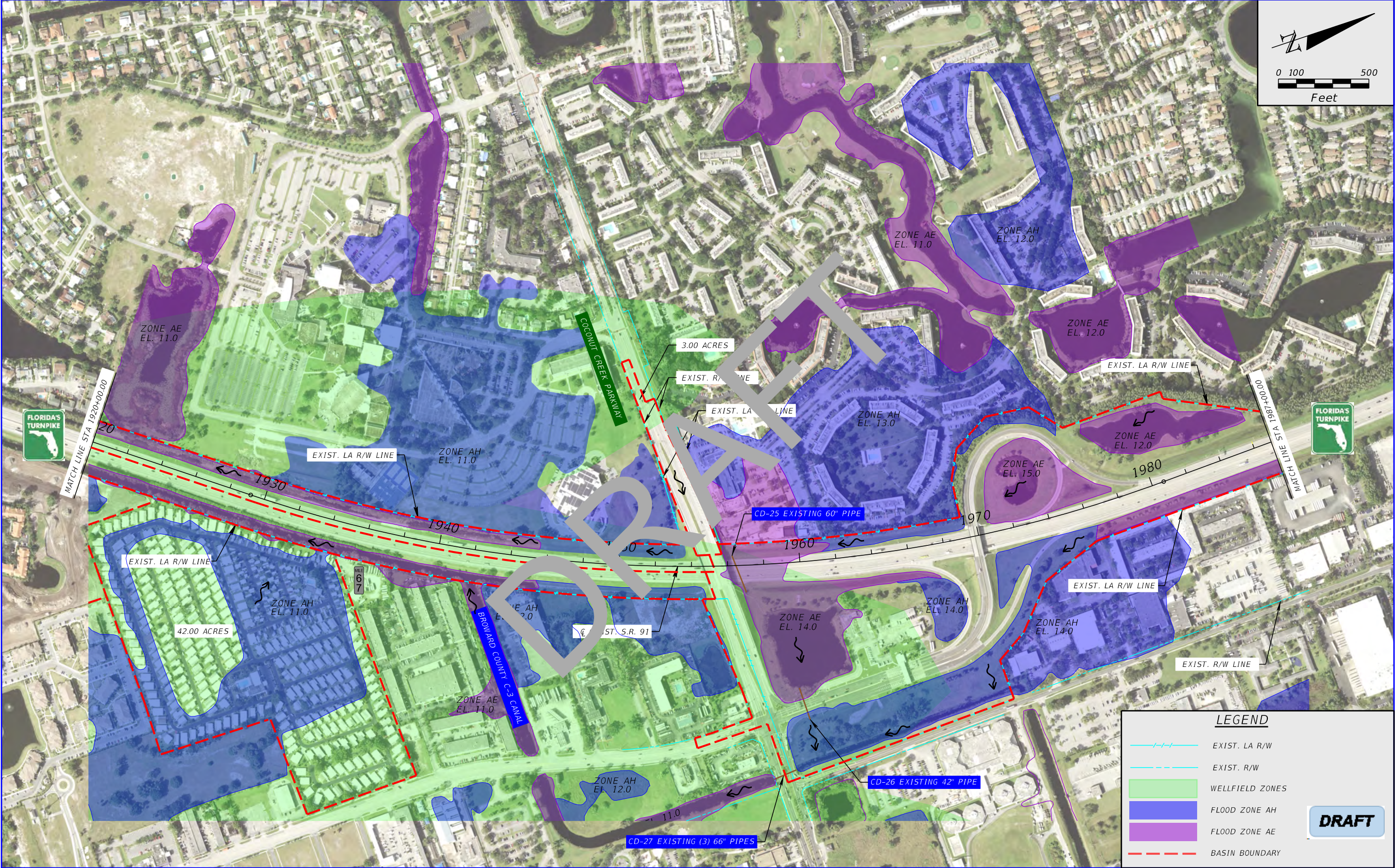
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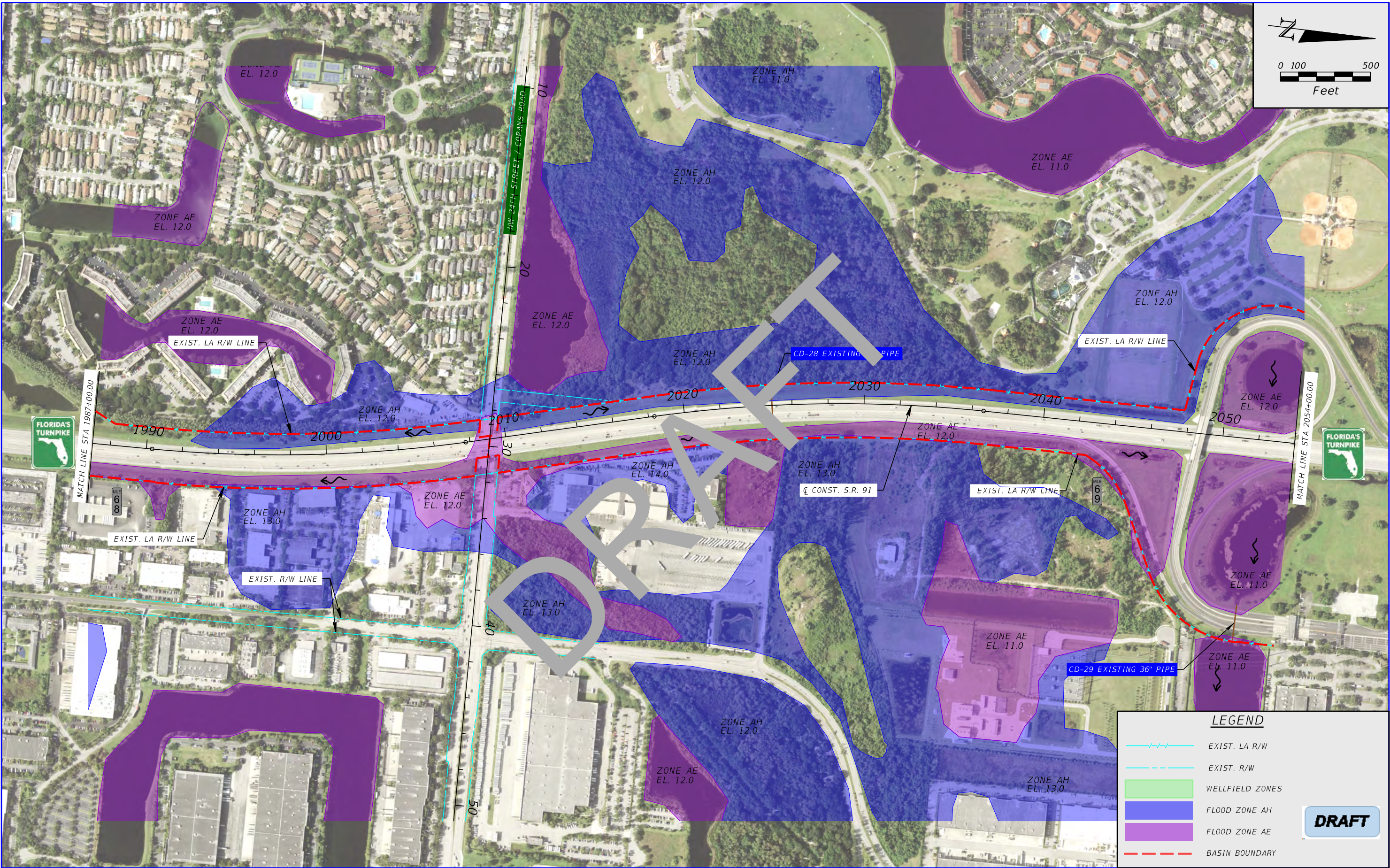


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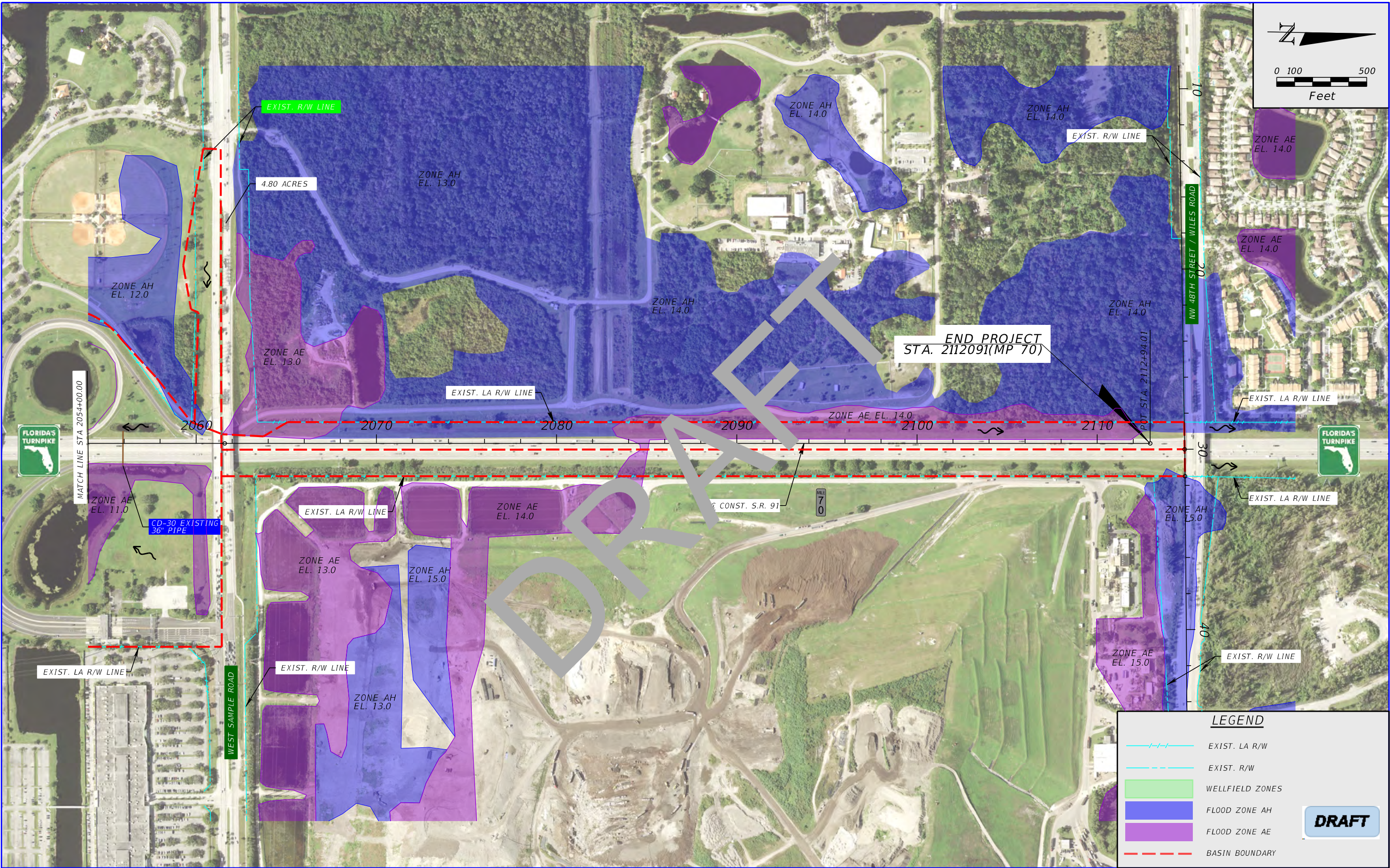


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REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			EXISTING DRAINAGE MAP	SHEET NO. (13)
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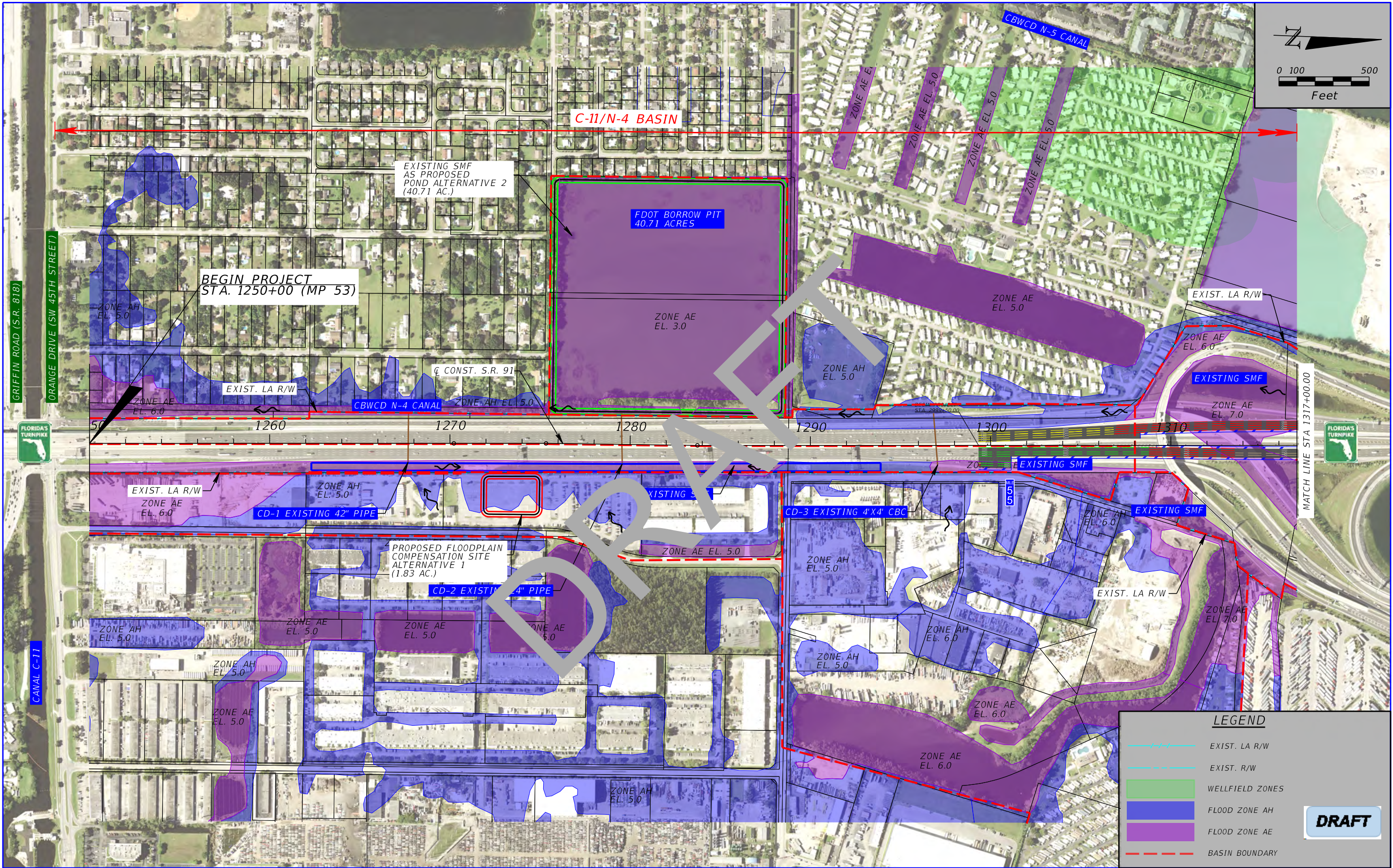
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Proposed Drainage Maps

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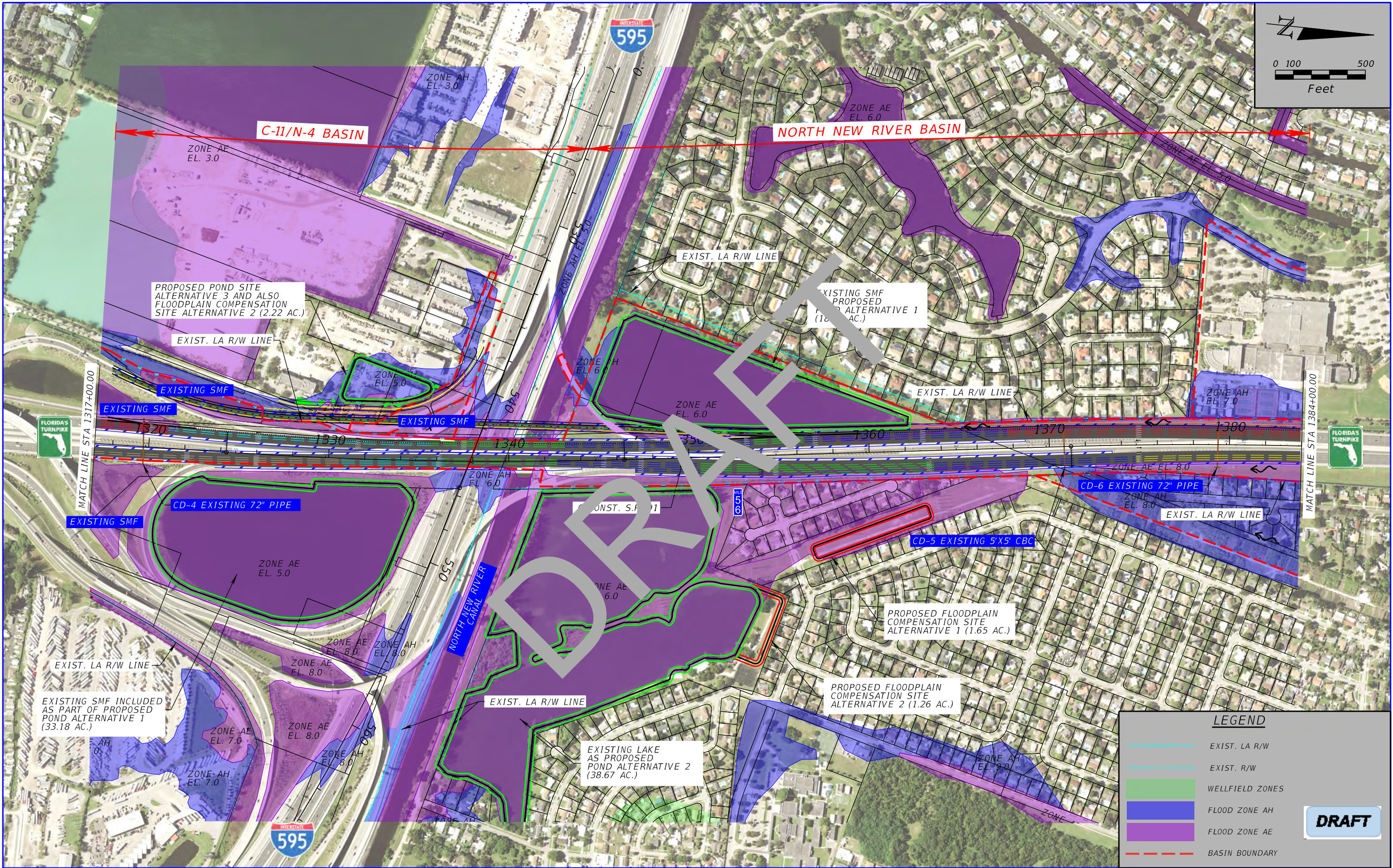


REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROPOSED DRAINAGE MAP	SHEET NO. (1)
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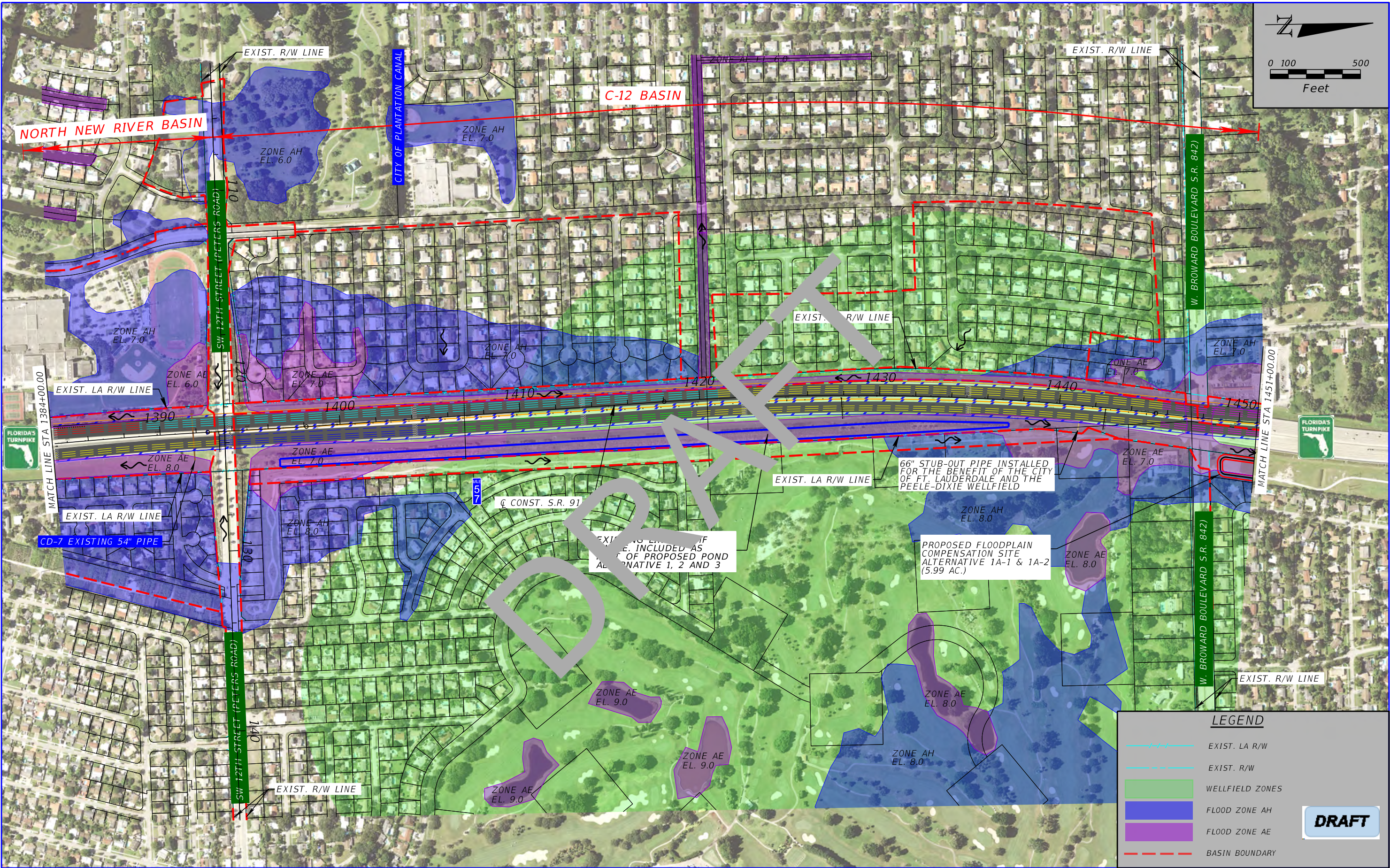


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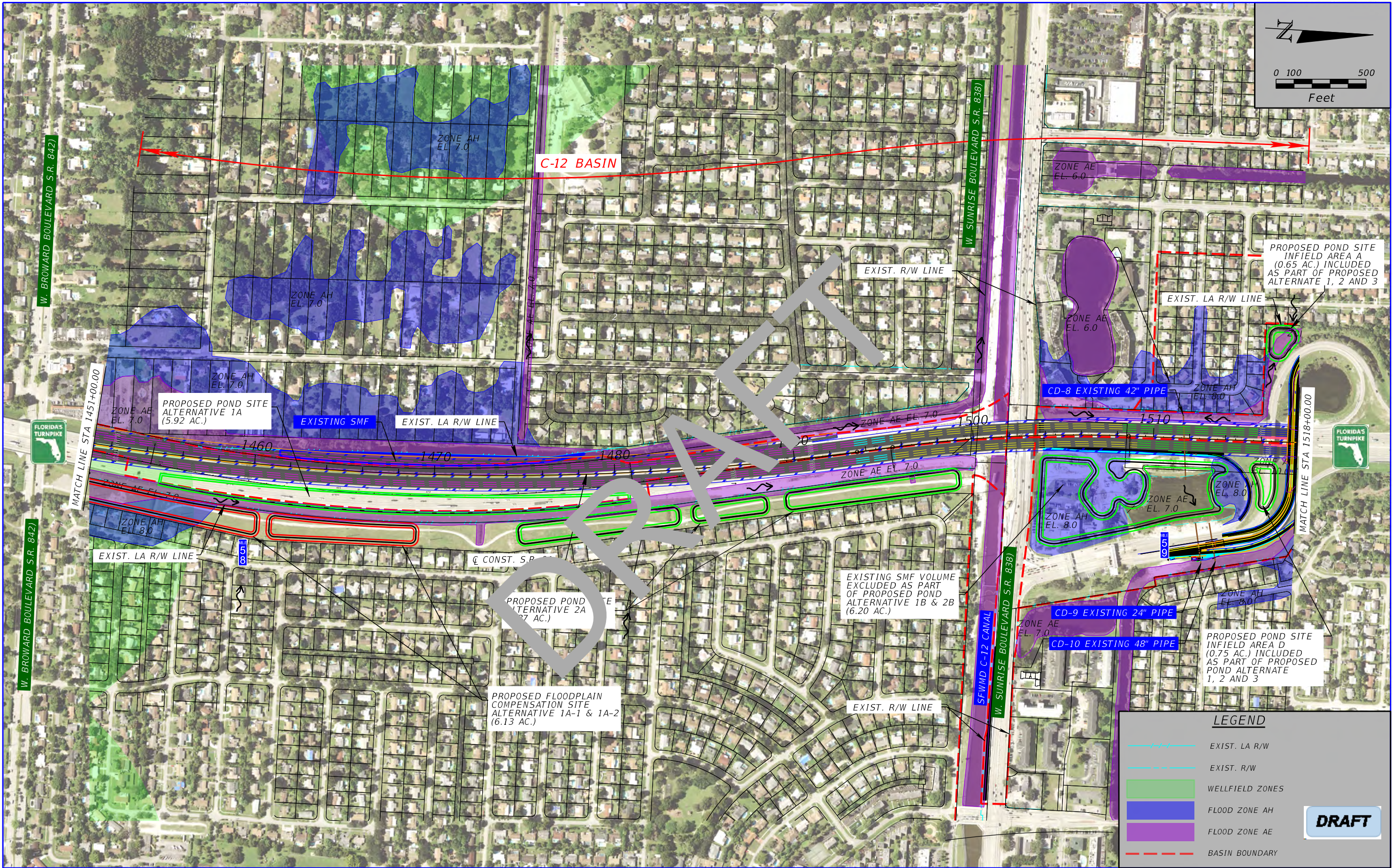


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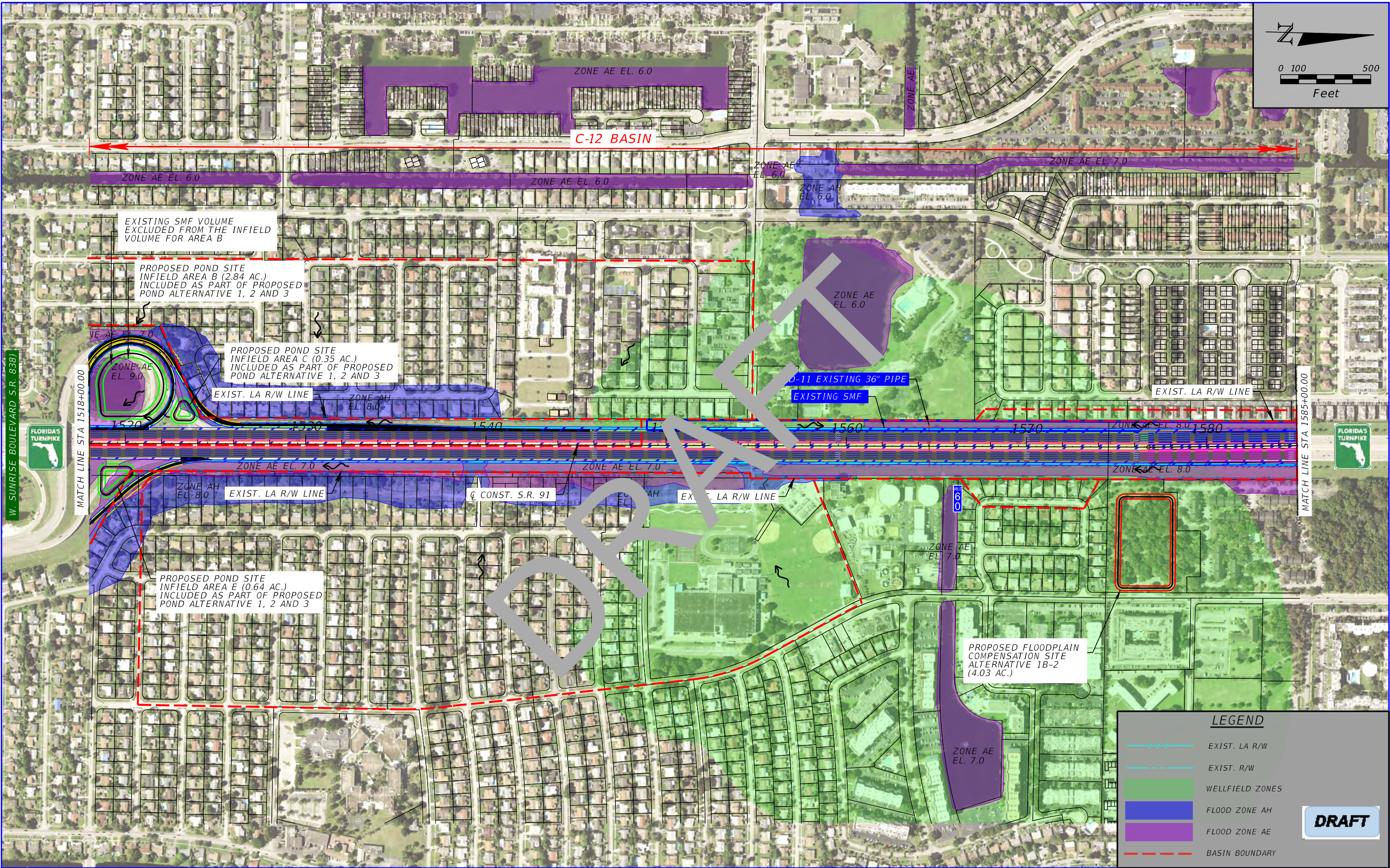
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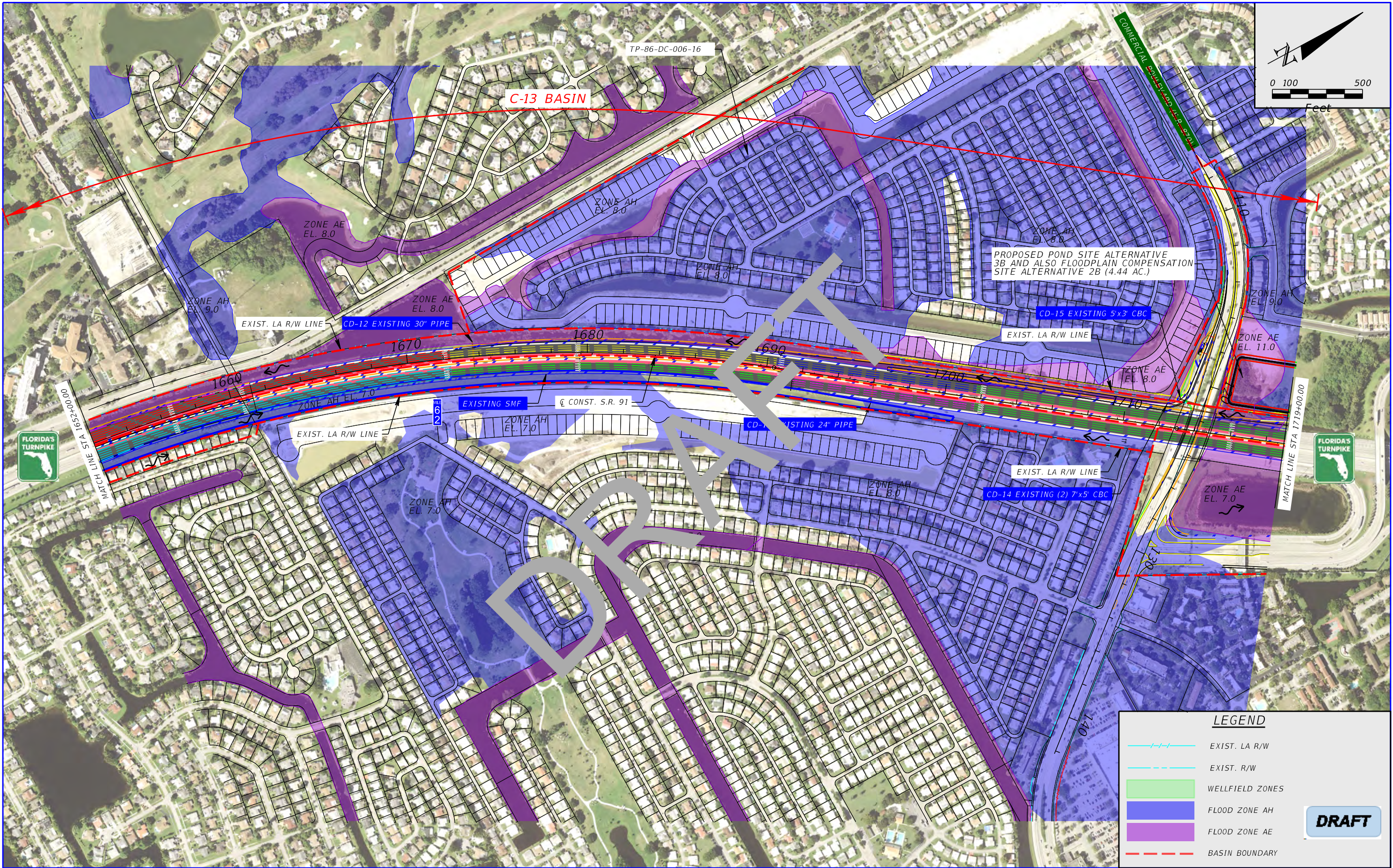


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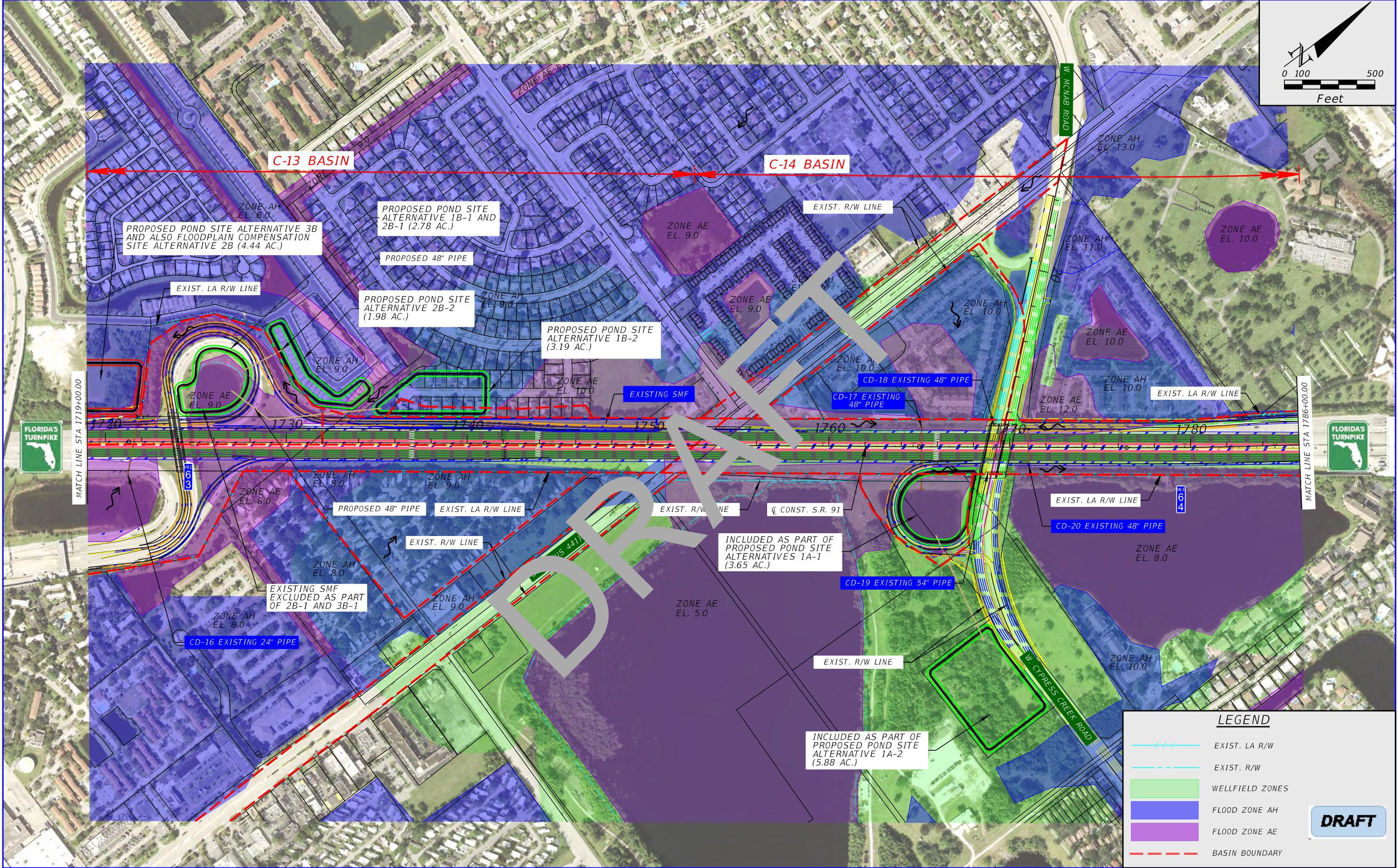


REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROPOSED DRAINAGE MAP	SHEET NO. (7)
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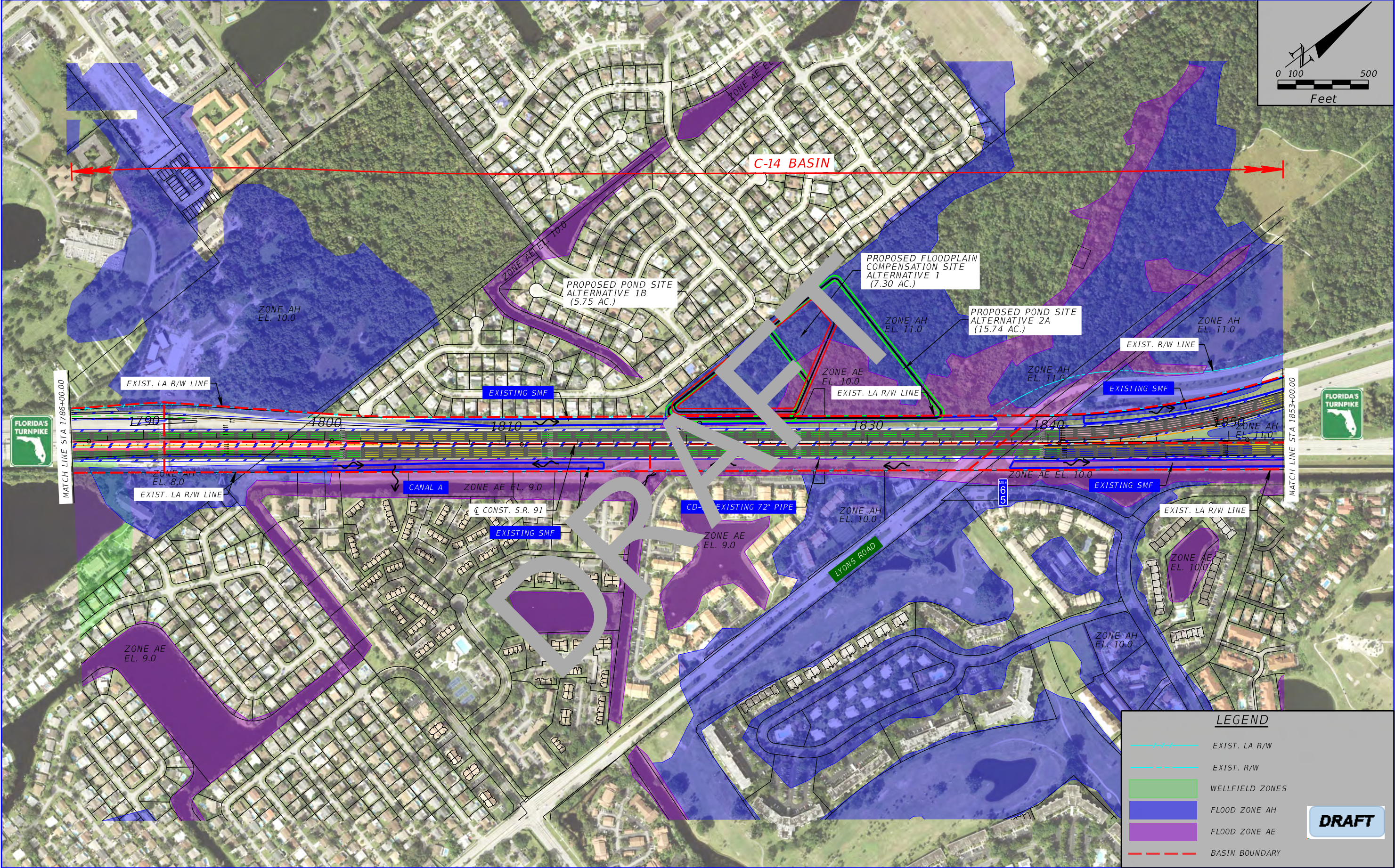


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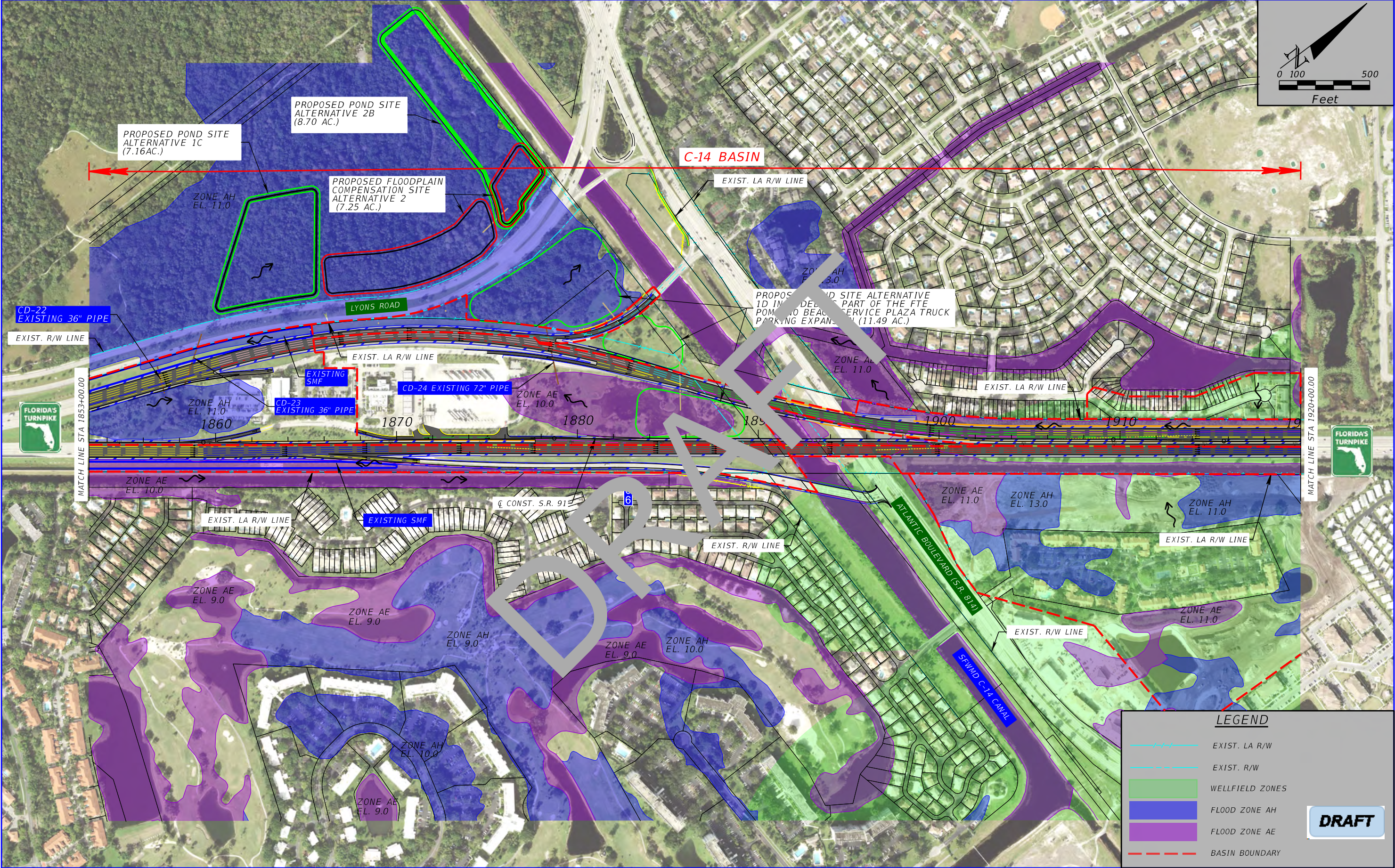


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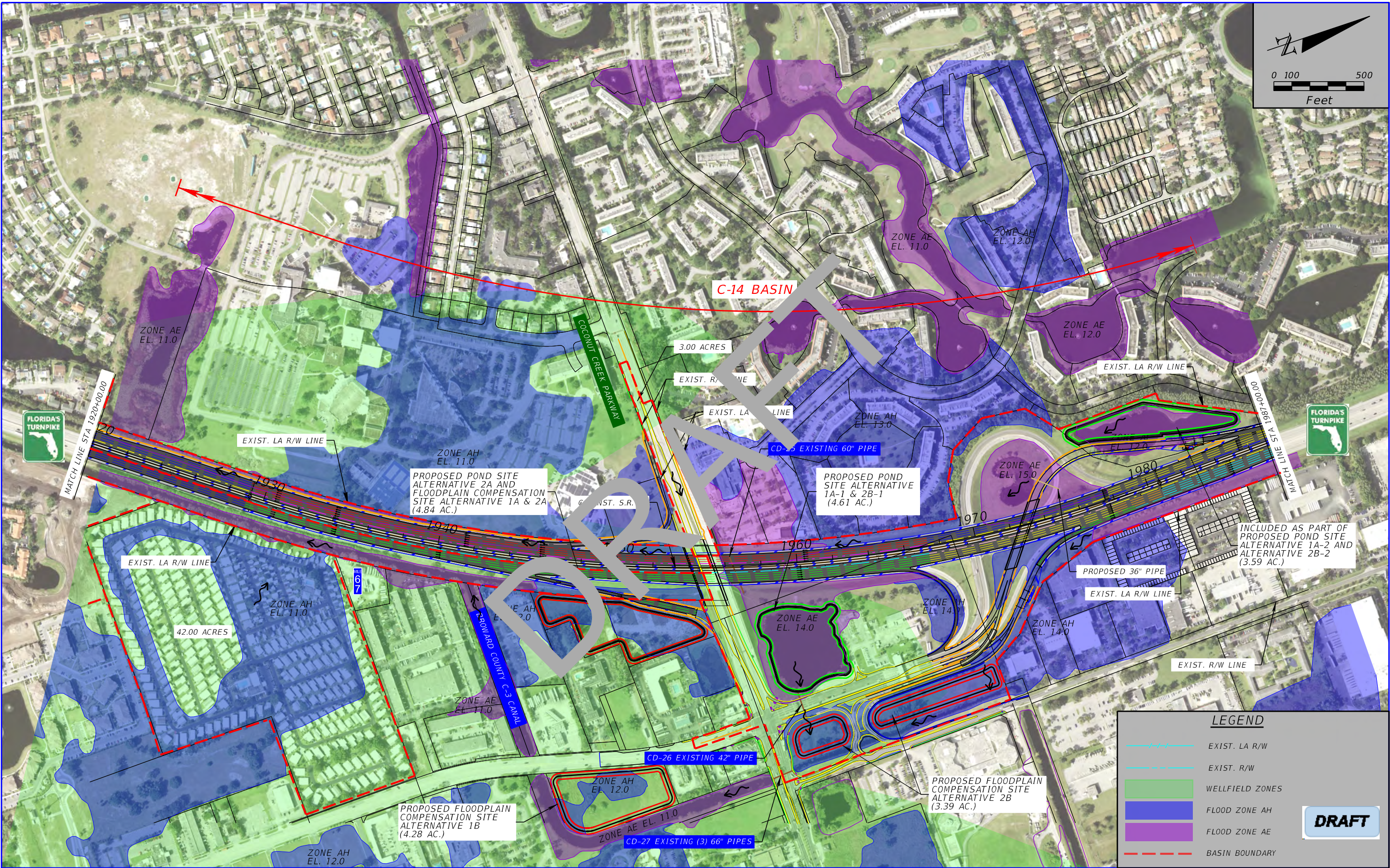


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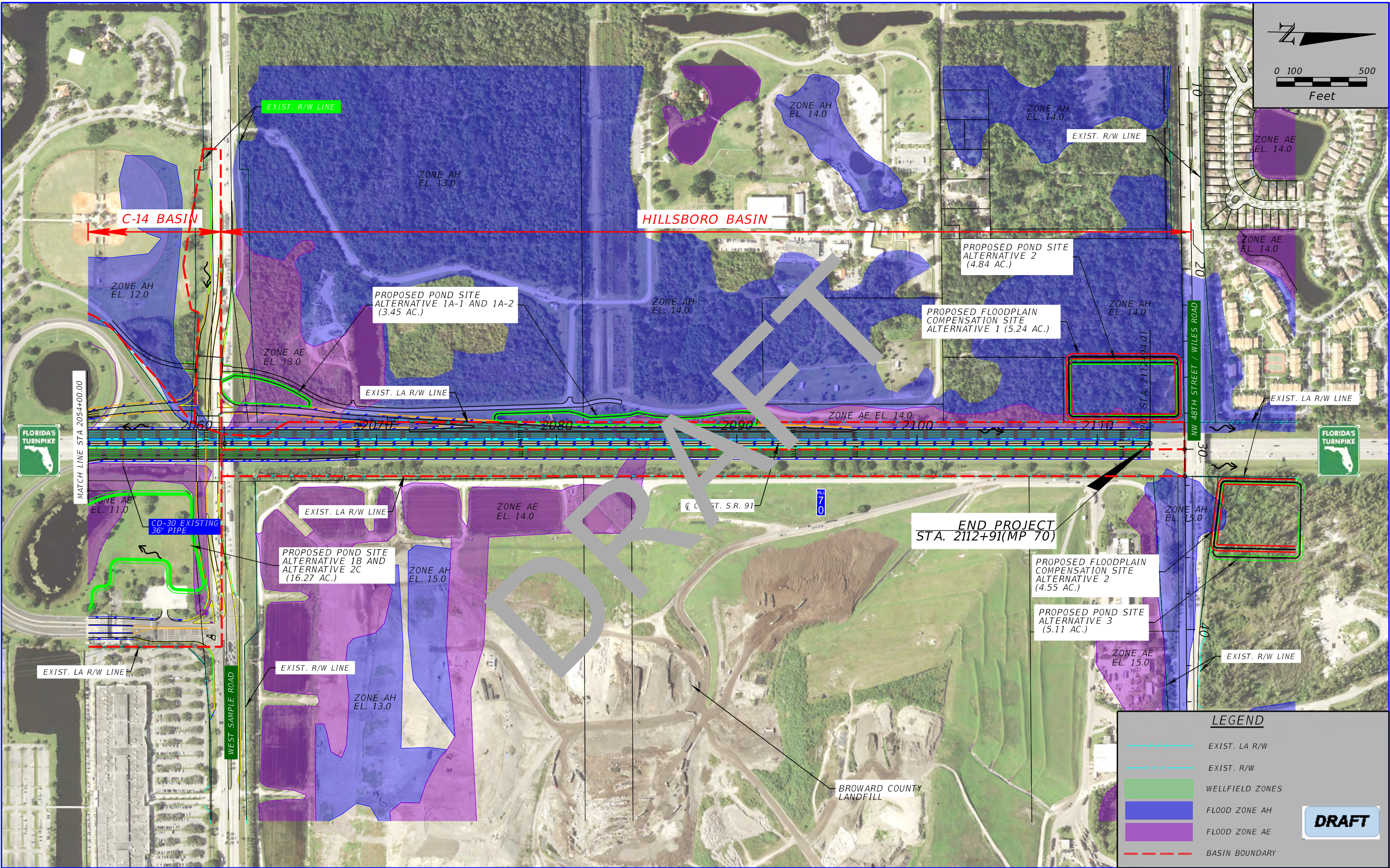


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REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROPOSED DRAINAGE MAP	SHEET NO. (13)
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