



Project Development & Environment Study

I-75 (SR 93A)

From South of US 301 (SR 43) to North of Fletcher Avenue (CR 482A), Hillsborough County



Work Program Item Segment Number: 419235-3

DRAFT Pond Sizing Technical Memorandum

Prepared for
**Florida Department
of Transportation**
District Seven



Manuel Santos, E.I.
FDOT Project Manager

April 2010

INTERSTATE 75



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Prepared by
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In association with
PB Americas, Inc.

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INTRODUCTION

The Florida Department of Transportation (FDOT), District Seven, is conducting a Project Development and Environment (PD&E) Study to evaluate capacity improvements along 15.5 miles of Interstate 75 (I-75) (State Road (SR) 93A) from south of US 301 (SR 43) to north of Fletcher Avenue (CR 582A) in Hillsborough County, Florida. The design year for the improvements is 2035.

This PD&E Study is being conducted concurrently with the PD&E Study for the portion of I-75 that extends from Moccasin Wallow Road in Manatee County to south of US 301 (SR 43) in Hillsborough County (WPI Segment No. 419235-2).

The objective of this PD&E Study is to assist the FDOT and the Federal Highway Administration reach a decision on the type, location, and conceptual design of the necessary improvements for I-75 to safely and efficiently accommodate future travel demand. This study will document the need for the improvements as well as the procedures utilized to develop and evaluate various improvements including elements such as proposed typical sections, preliminary horizontal alignments, and interchange enhancement alternatives. The social, physical, and natural environmental effects and costs of these improvements will be identified. The alternatives will be evaluated and compared based on a variety of parameters utilizing a matrix format. This process will identify the alternative that will best balance the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs).

The PD&E Study satisfies all applicable requirements, including the National Environmental Policy Act, in order for this project to qualify for federal-aid funding of subsequent development phases (design, right of way acquisition, and construction).

The project was evaluated through the FDOT's Efficient Transportation Decision Making (ETDM) process. This project is designated as ETDM Project #8002. An ETDM *Programming Screen Summary Report* was published on March 29, 2007, containing comments from the Environmental Technical Advisory Team (ETAT) on the project's effects on various natural, physical, and social resources. Based on the ETAT comments, the FHWA has determined that this project qualifies as a Type 2 Categorical Exclusion.

This Draft Pond Sizing Technical Memorandum has been prepared as part of this PD&E Study. This memorandum is preliminary and is to be used as an engineering tool to estimate potential stormwater management facility (SMF) and floodplain compensation (FPC) sizes. The SMF and FPC sizes were generated using highly variable factors, assumptions and judgments. The conclusions presented in this report are preliminary and help in estimating the preliminary size of the SMF and FPC for each basin. The SMF and FPC sizes specified on the table included in this document are subject to change throughout the preliminary engineering and the project design phases (Phase I through Final).

SMF & FPC SIZING APPROACH

The project study area was divided into 30 mainline basins of which 25 were analyzed in this memorandum. The northern most five basins, Basin A through Basin EF, from Fowler Avenue to Bruce B. Downs have been previously designed and permitted as part of FPID 408459-2-52-01. Since these SMF and FPC sites have been permitted and are to be constructed beginning in 2011, no further sizes were estimated for that section of roadway.

One potential size of SMF for each of the study's 25 basins was determined for the recommended PD&E typical section/interchange designs and for a 324' wide impervious section. The SMF sites have been sized pursuant to the pending Statewide Stormwater Rule which is scheduled for implementation in October of 2010. At the time of the preparation of this document, the rules have not been finalized and are therefore still subject to revision.

Basins 4 and 19 are located within large interchange areas. It was assumed that stormwater attenuation and treatment of runoff from these interchanges can be achieved within the infield areas and without acquiring additional right-of-way. This will minimize costs through making use of the available right-of-way. Consequently, no SMFs or FPCs outside the existing right-of-way were sized.

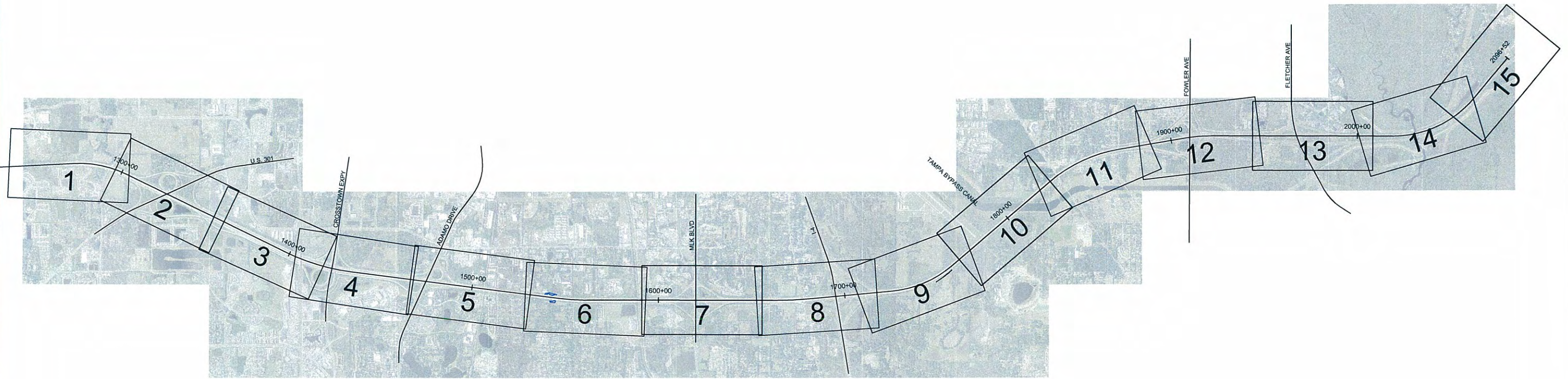
The pond areas identified include not only the storage area but also consider 15 foot maintenance berms, 1:4 side slopes, 1:4 transitional slopes to match existing grade outside the maintenance berms, ingress/egress access, and a dry pre-treatment cell, if necessary. Ponds were sized to be of varying depths, dependent upon the existing seasonal high water elevation and corresponding low edge of pavement.

The recommended PD&E typical section/interchange designs and the 324 foot wide impervious section are expected to impact all designated floodplain from right-of-way to right-of-way. Compensation sites were sized to provide "cup-for-cup" mitigation for the impact volume calculated.

POTENTIAL SMF AND FPC SIZE PER DRAINAGE BASIN

Basin Number	Basin Limits		Recommended PD&E Typical Section		324' Impervious Typical Section	
	From Station	To Station	SMF Size (acres)	FPC Size (acres)	SMF Size (acres)	FPC Size (acres)
1	1267+50	1293+50	4.5	0.15	5.1	0.15
2	1293+50	1302+00	1.5	0	1.5	0
3	1302+00	1327+00	5.1	0	5.4	0
4	1327+00	1354+00	infield	1.42	infield	1.42
5	1354+00	1376+00	4.7		5.0	
6	1376+00	1405+00	8.3	0	8.1	0
7	1405+00	1440+00	8.4	0.37	8.6	0.37
8	1440+00	1460+00	4.1	0	4.2	0
9	1460+00	1492+00	4.4	0	4.7	0
10	1492+00	1506+50	2.8	0	2.8	0
11	1506+50	1514+00	1.4	0	1.4	0
12	1514+00	1543+00	5.9	0.14	5.9	0.14
13	1543+00	1560+00	4.1		4.9	
14	1560+00	1590+00	2.9	1.78	3.9	1.78
15	1590+00	1603+00	2.0	0.62	2.2	0.62
16	1603+00	1643+00	6.8	0	6.7	0
17	1643+00	1668+00	6.8	0	5.2	0
18	1668+00	1678+50	2.5	2.38	2.1	2.38
19	1678+50	1725+00	infield	0	infield	0
20	1725+00	1754+00	5.0	3.47	5.0	3.47
21	1754+00	1784+00	7.1		8.2	
22	1784+00	1810+00	5.2		6.2	
23	1810+00	1835+00	3.1	0	4.0	0
24	1835+00	1847+00	1.2	0	1.6	0
25	1847+00	1876+00	5.0	0	6.9	0

PROJECT BASIN MAPS



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I-75 (SR 93A) PD&E Study
South of 301 to North of Fletcher Avenue
WPI Segment No.: 419235-3
Hillsborough County

**PROJECT
BASIN MAP**

KEY SHEET

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KEY



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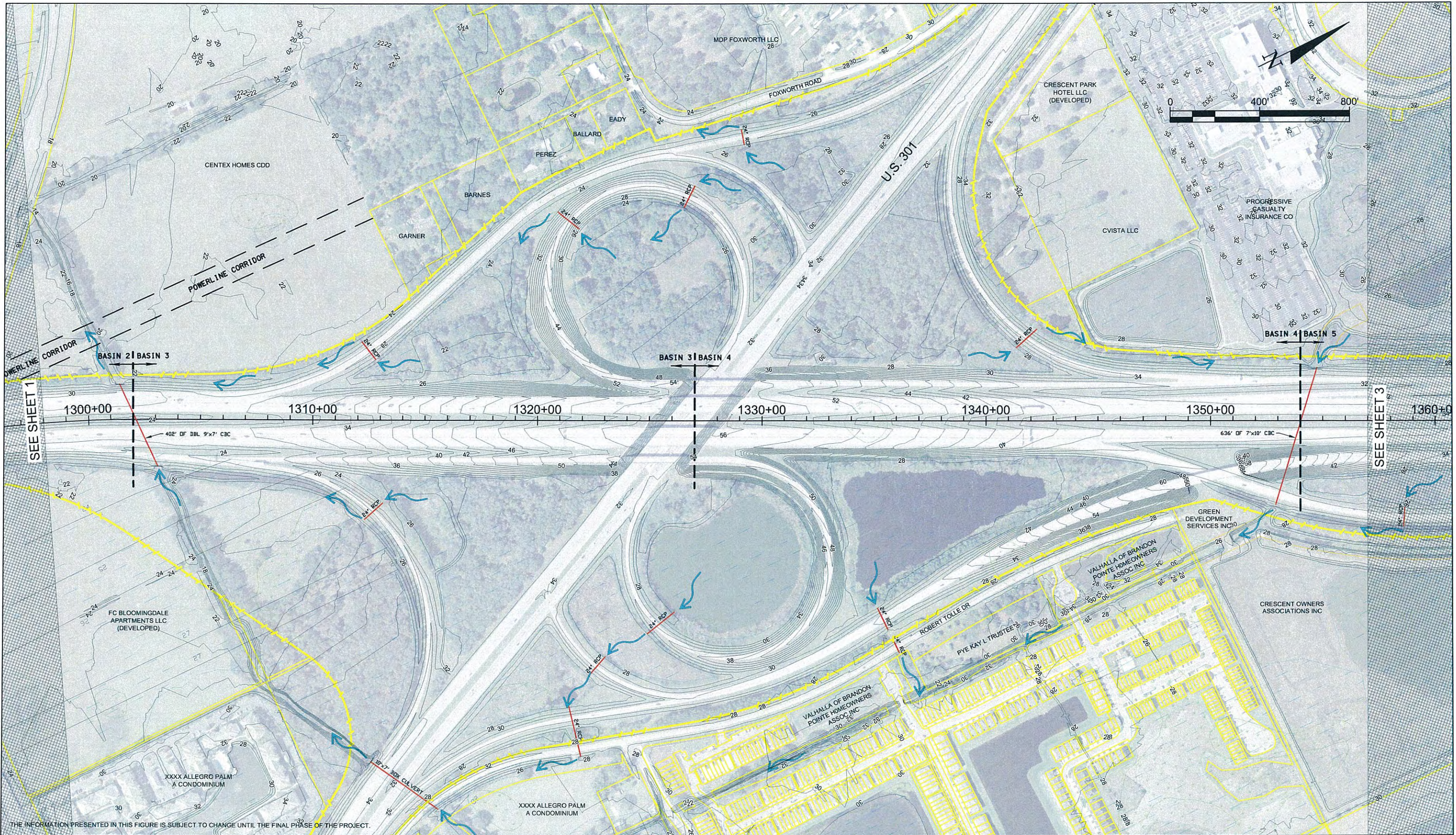
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**PROJECT
BASIN MAP**

LEGEND

- National Wetland Inventory
 - FEMA Flood Map
 - Cross Drain
 - Property/ROW Line
 - LA Right-of-Way
 - Proposed LA Right-of-Way
 - Flow Arrow
- Topographic Information: Constructed from 2003 source data provided by Hillsborough County Surveying Division (NAVD 88) Aerial Image: Hillsborough County 2006

SHEET
1



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I-75 (SR 93A) PD&E Study
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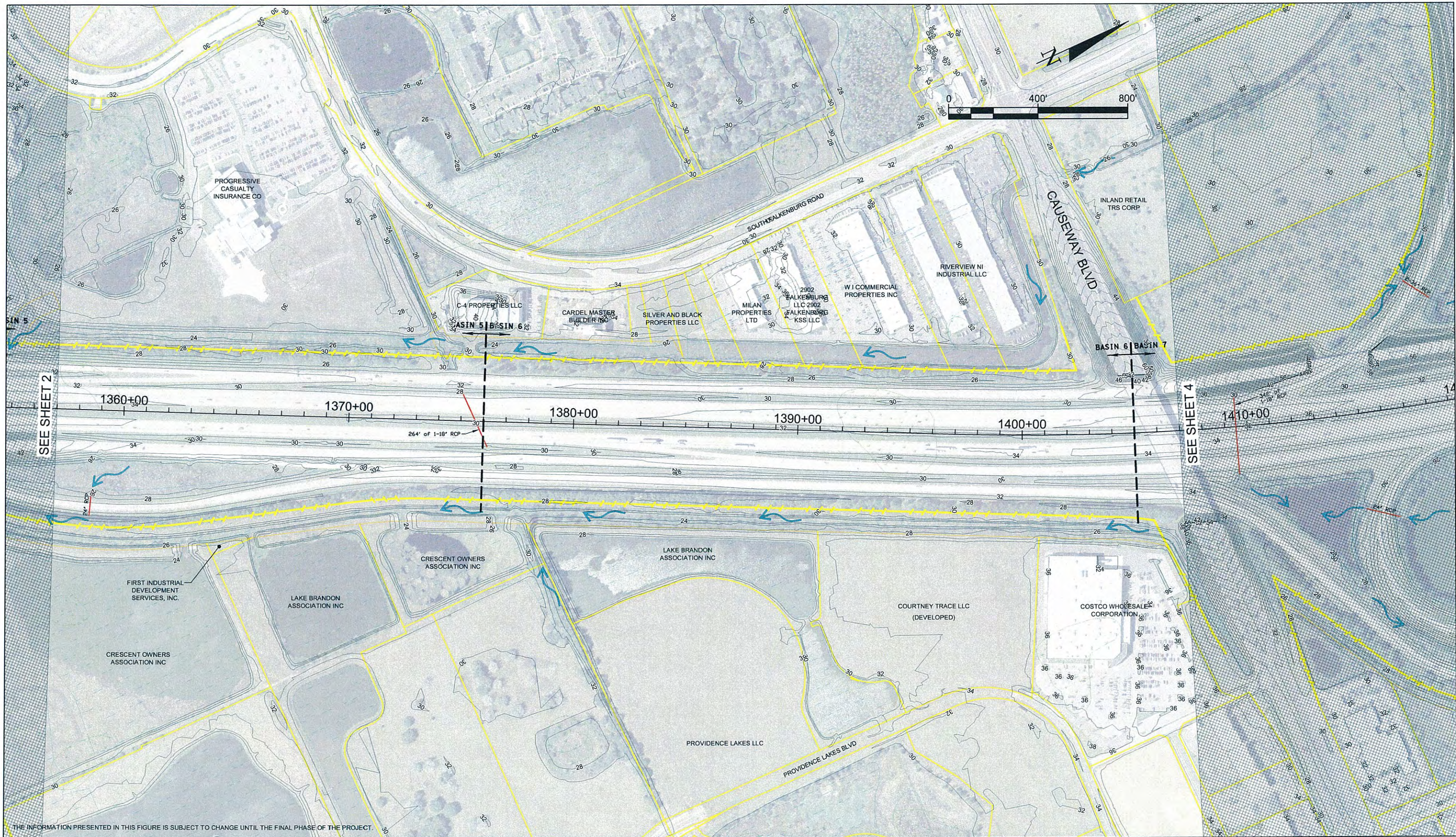
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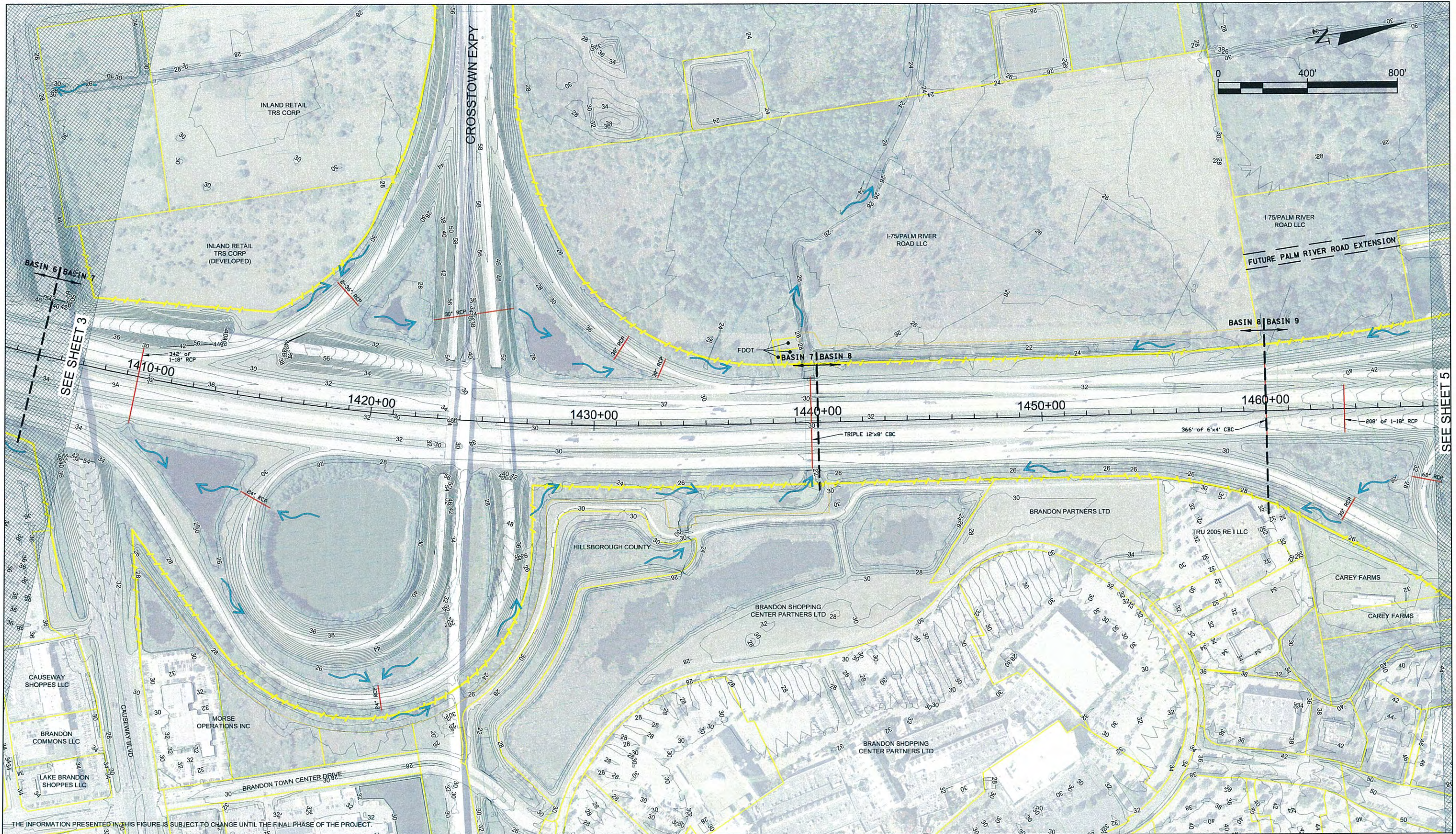
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SHEET
3



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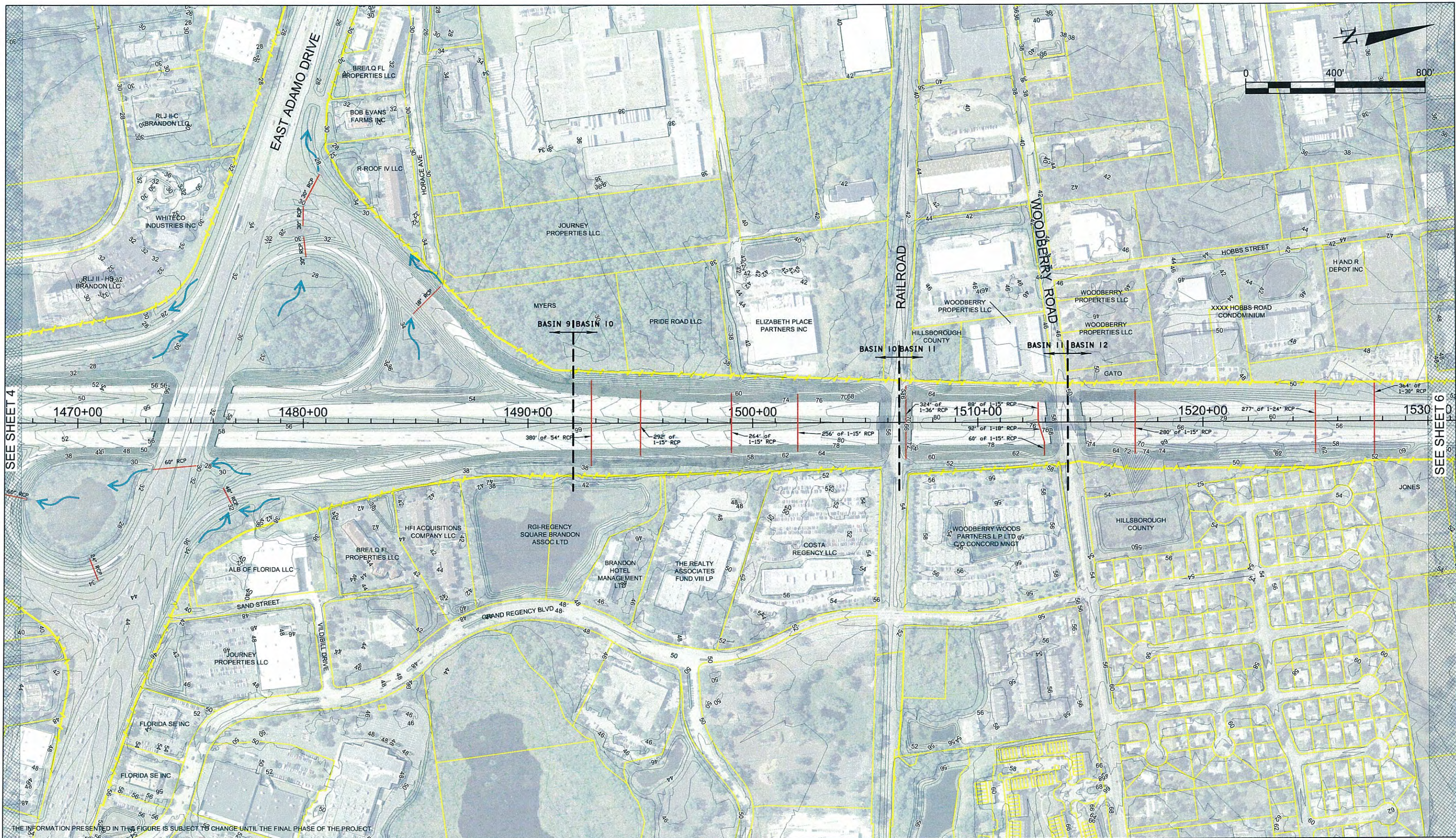
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PROJECT BASIN MAP

LEGEND	National Wetland Inventory	Property/ROW Line
	FEMA Flood Map	LA Right-of-Way
	Flow Arrow	Proposed LA Right-of-Way
	Cross Drain	

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SEE SHEET 4

SEE SHEET 6

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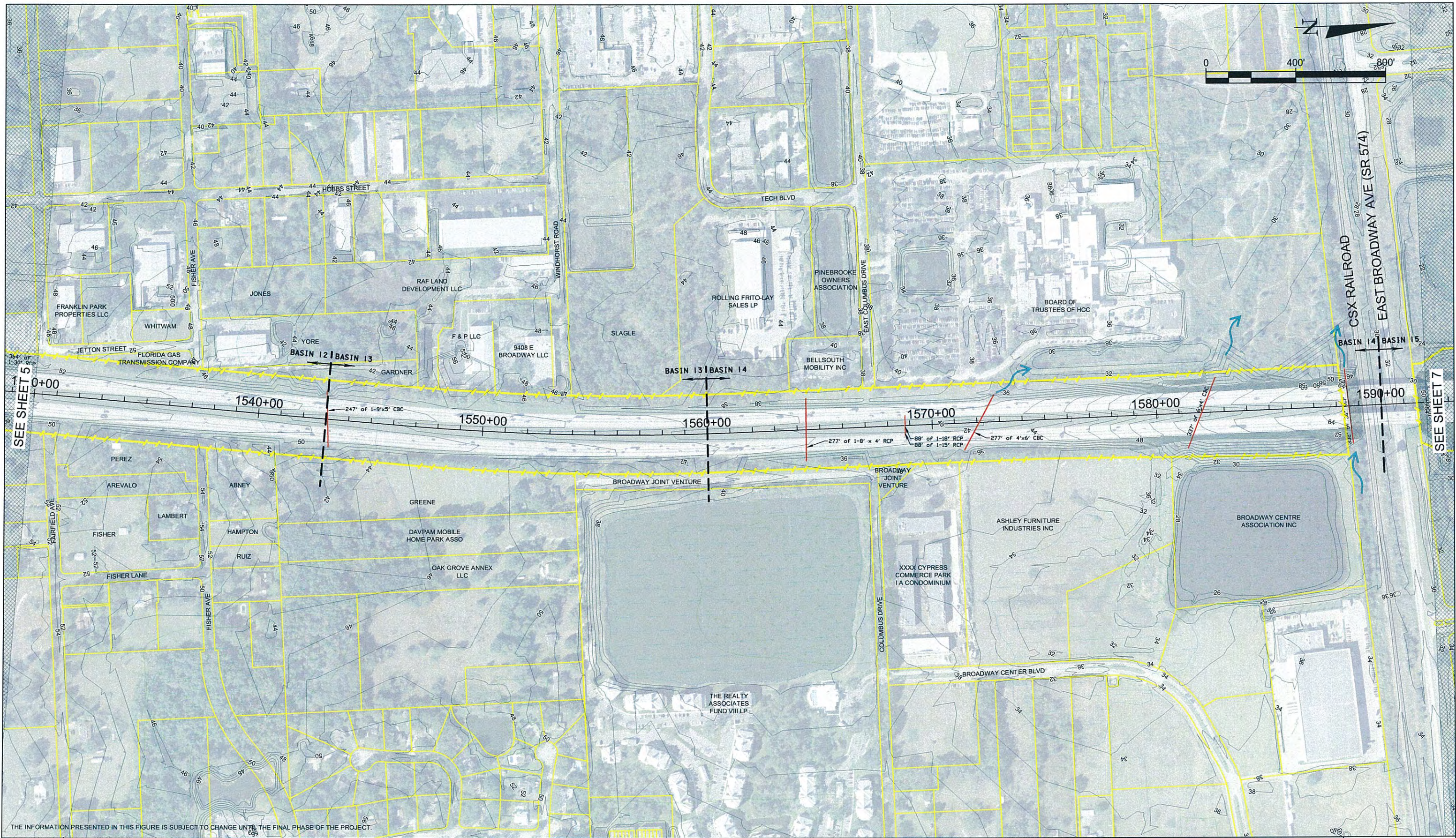
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SHEET
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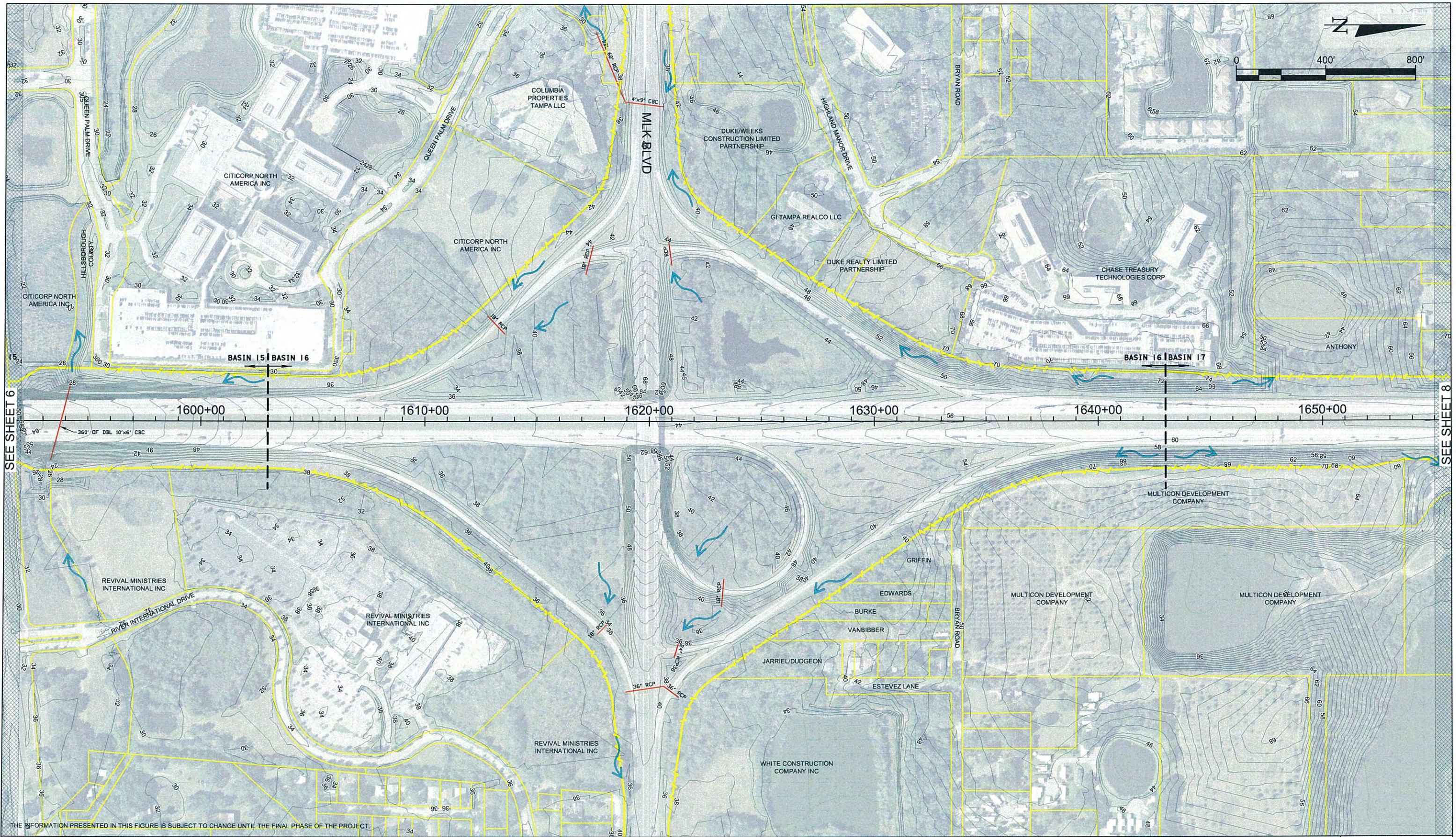
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SHEET
6



SEE SHEET 6

SEE SHEET 8

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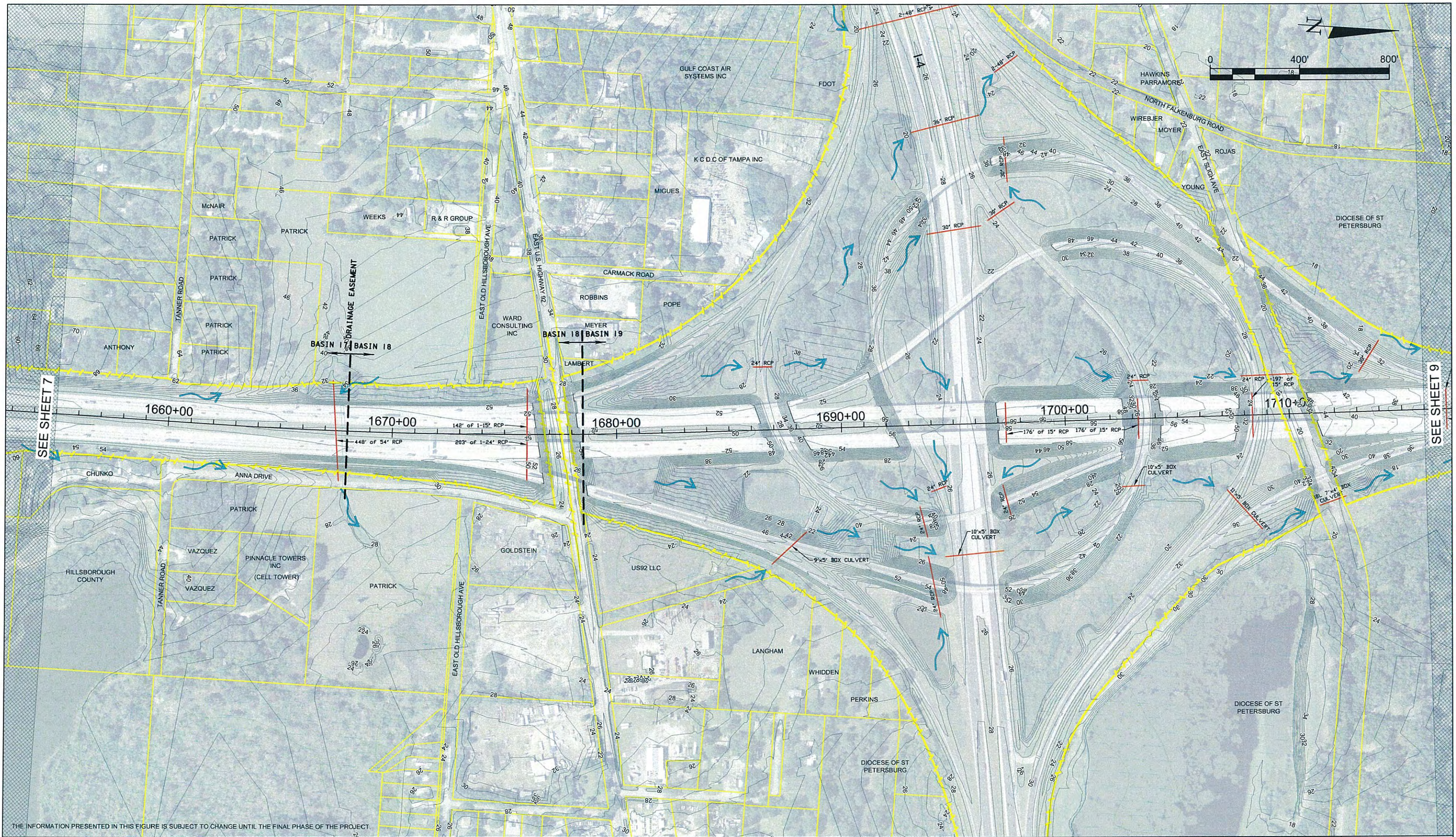
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SHEET
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**PROJECT
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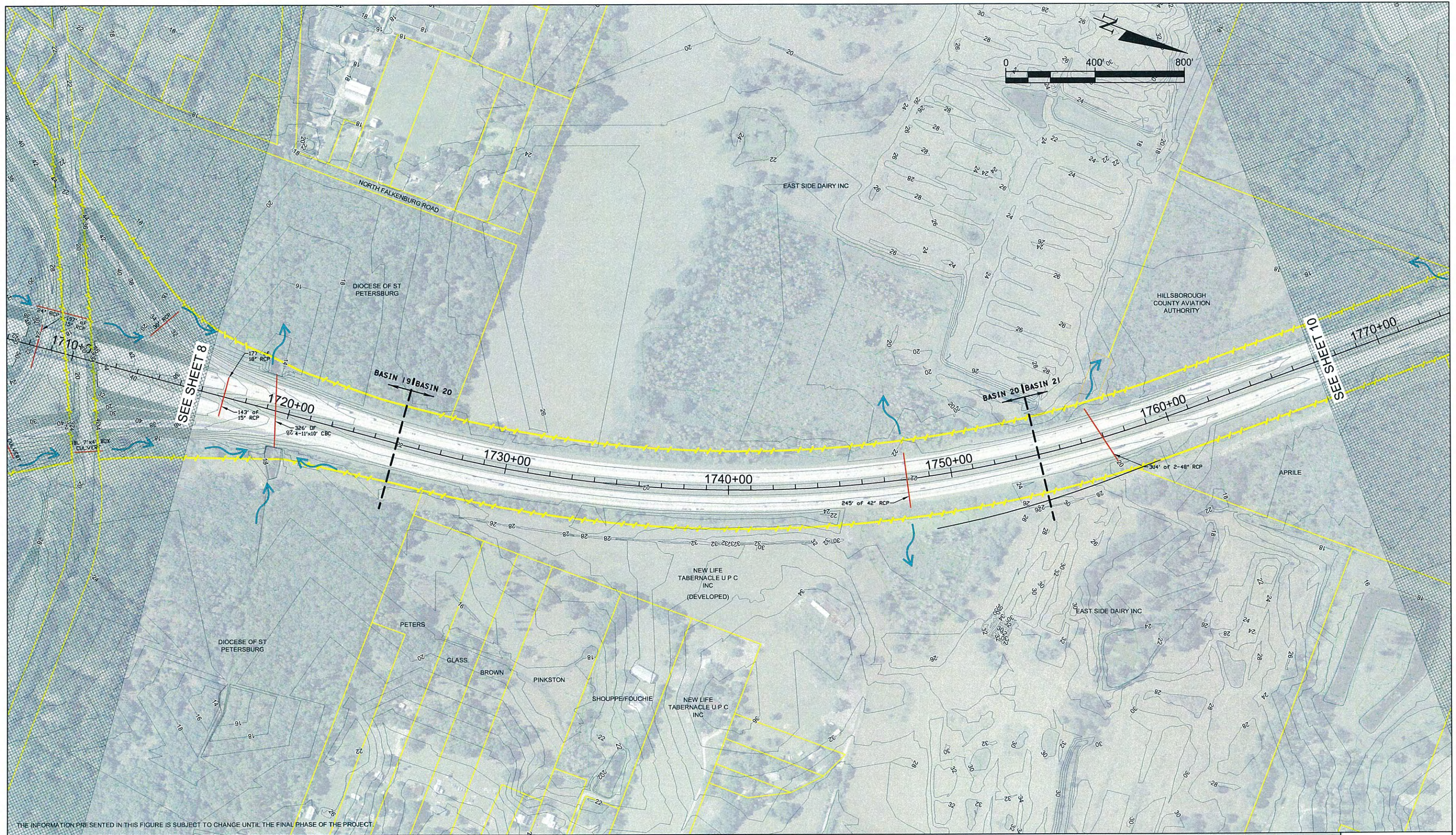
LEGEND

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SHEET
8

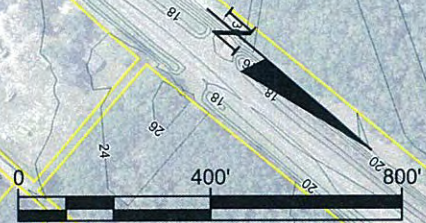
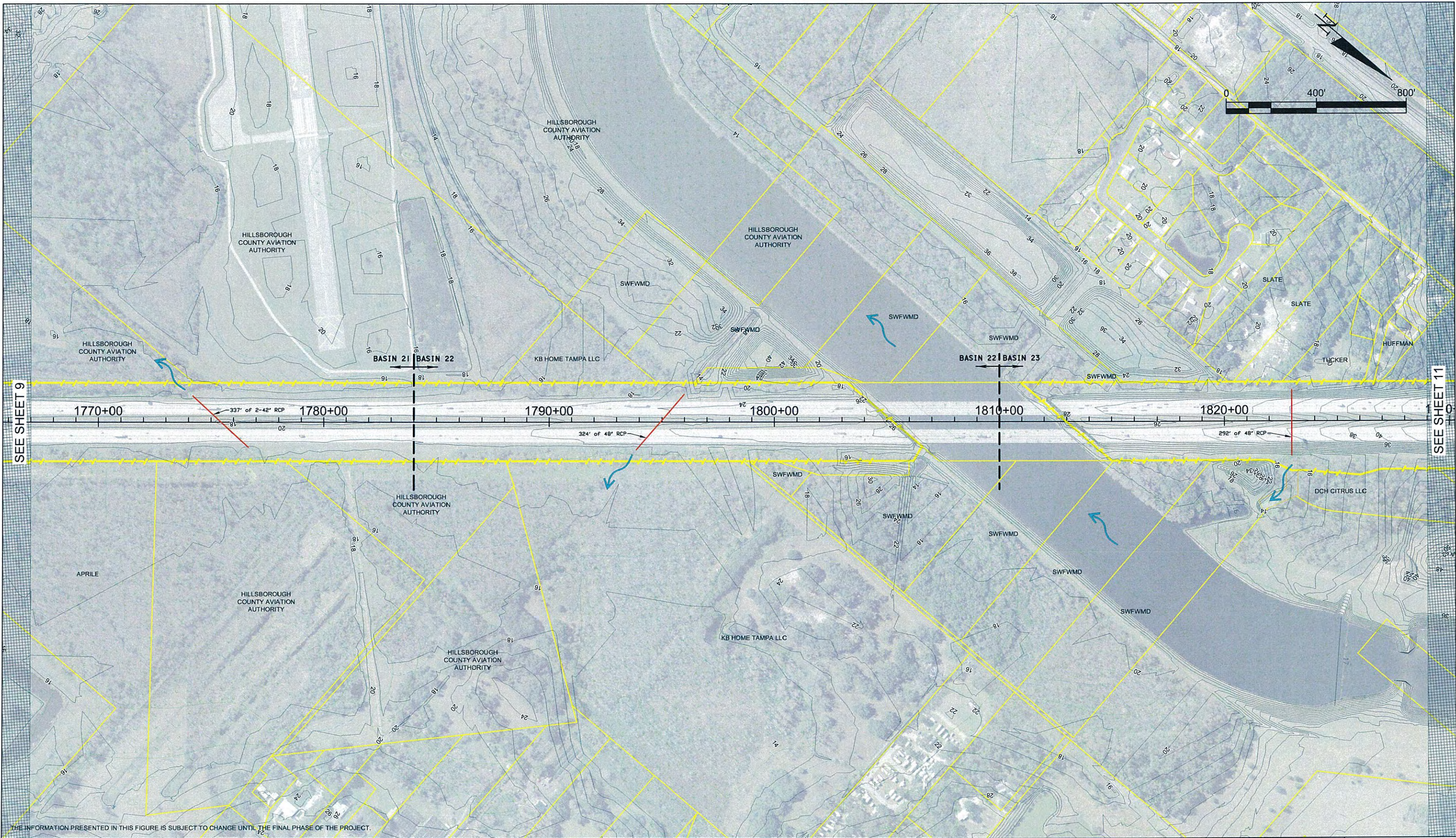
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 10006 N. Dale Mabry Hwy., Suite 201 Tampa, Florida 33618 Phone: 813.962.8689 Fax: 813.963.1610	 I-75 (SR 93A) PD&E Study South of 301 to North of Fletcher Avenue WPI Segment No.: 419235-3 Hillsborough County	<h2 style="margin: 0;">PROJECT BASIN MAP</h2>	LEGEND Flow Arrow National Wetland Inventory FEMA Flood Map Cross Drain	Property/ROW Line LA Right-of-Way Proposed LA Right-of-Way	SHEET 9
Topographic Information: Constructed from 2003 source data provided by Hillsborough County Surveying Division (NAVD 88) Aerial Image: Hillsborough County 2006					



SEE SHEET 9

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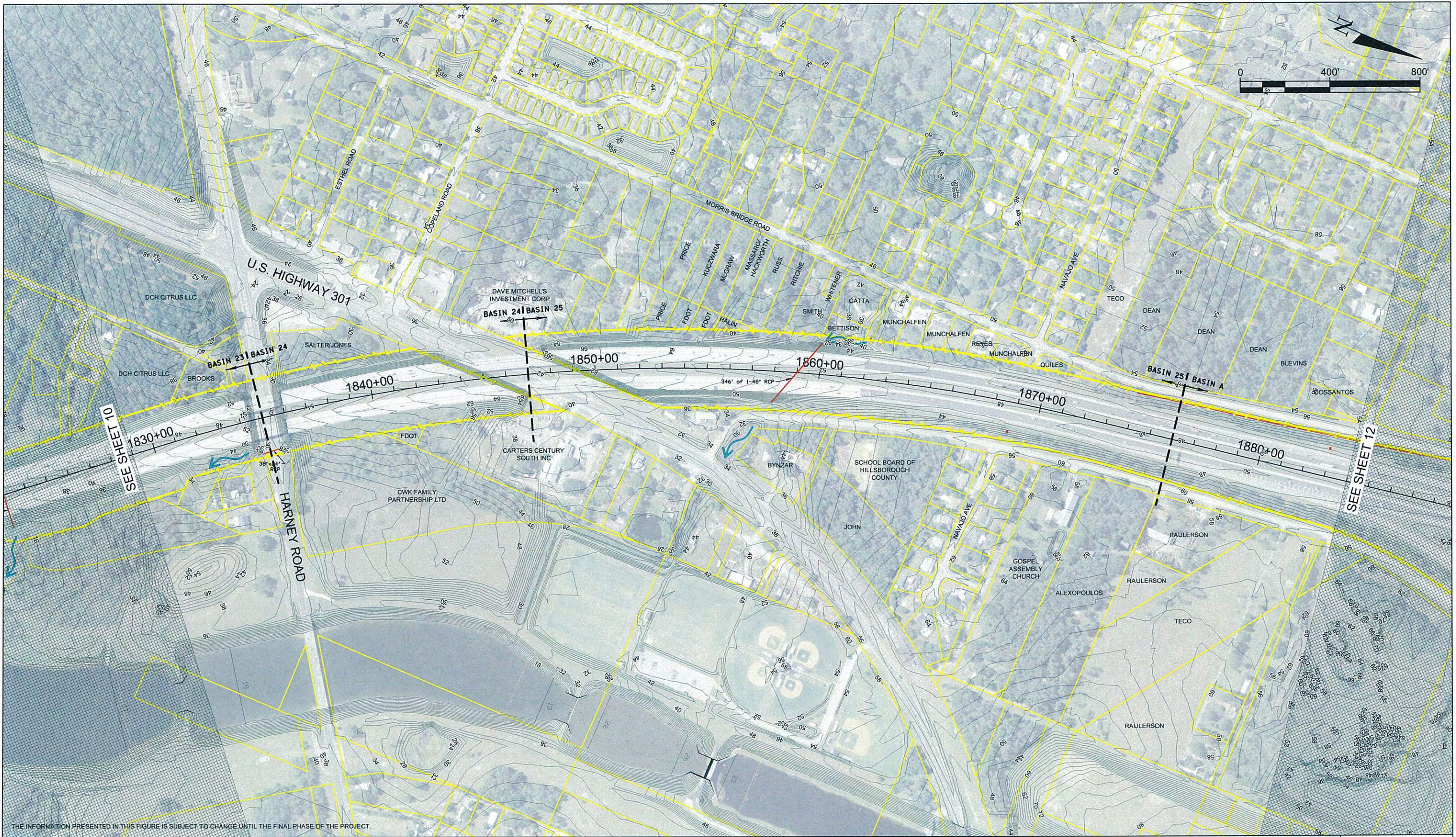
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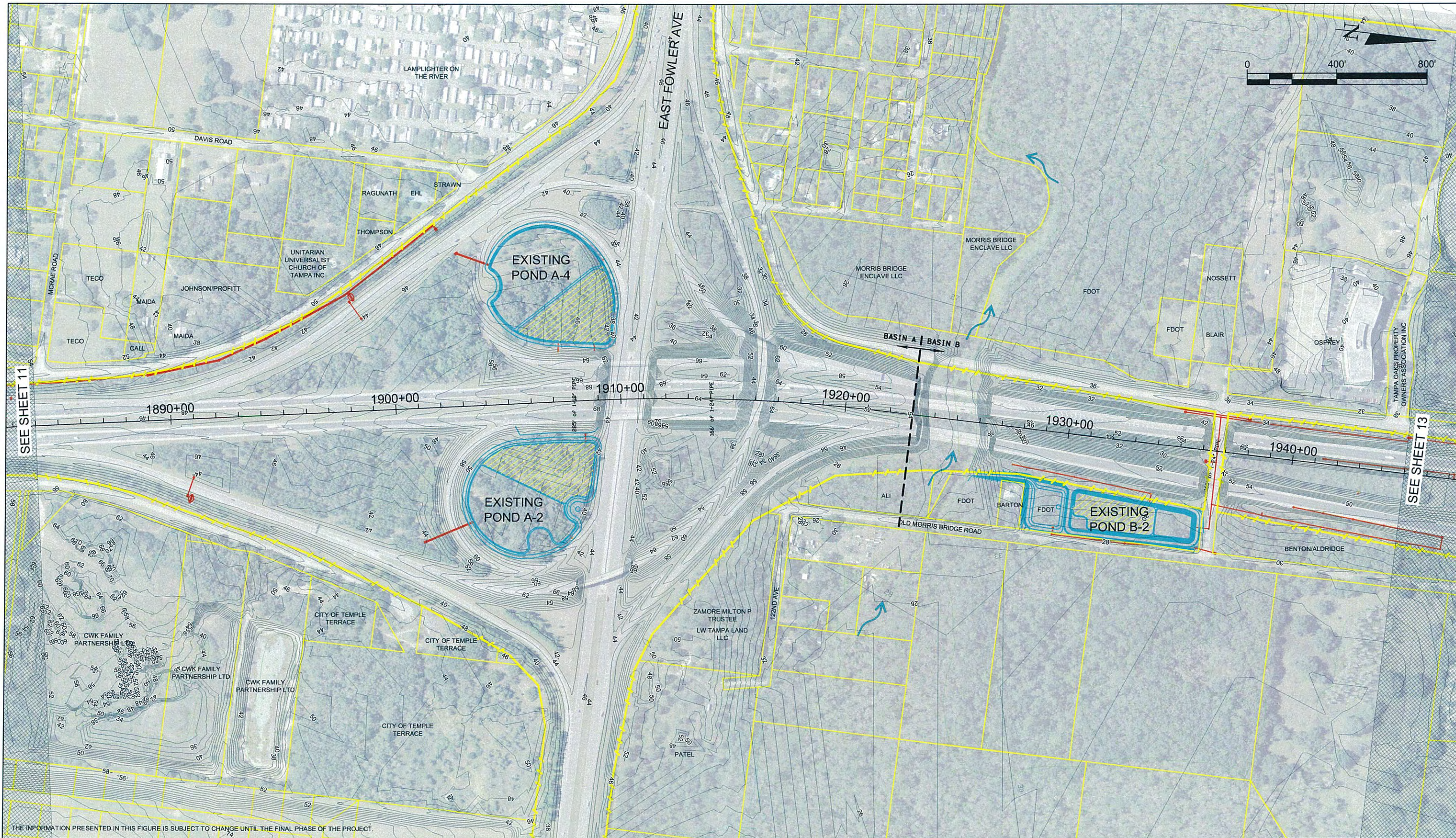
PROJECT BASIN MAP

LEGEND

National Wetland Inventory	Property/ROW Line
FEMA Flood Map	LA Right-of-Way
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Cross Drain	

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SHEET
11



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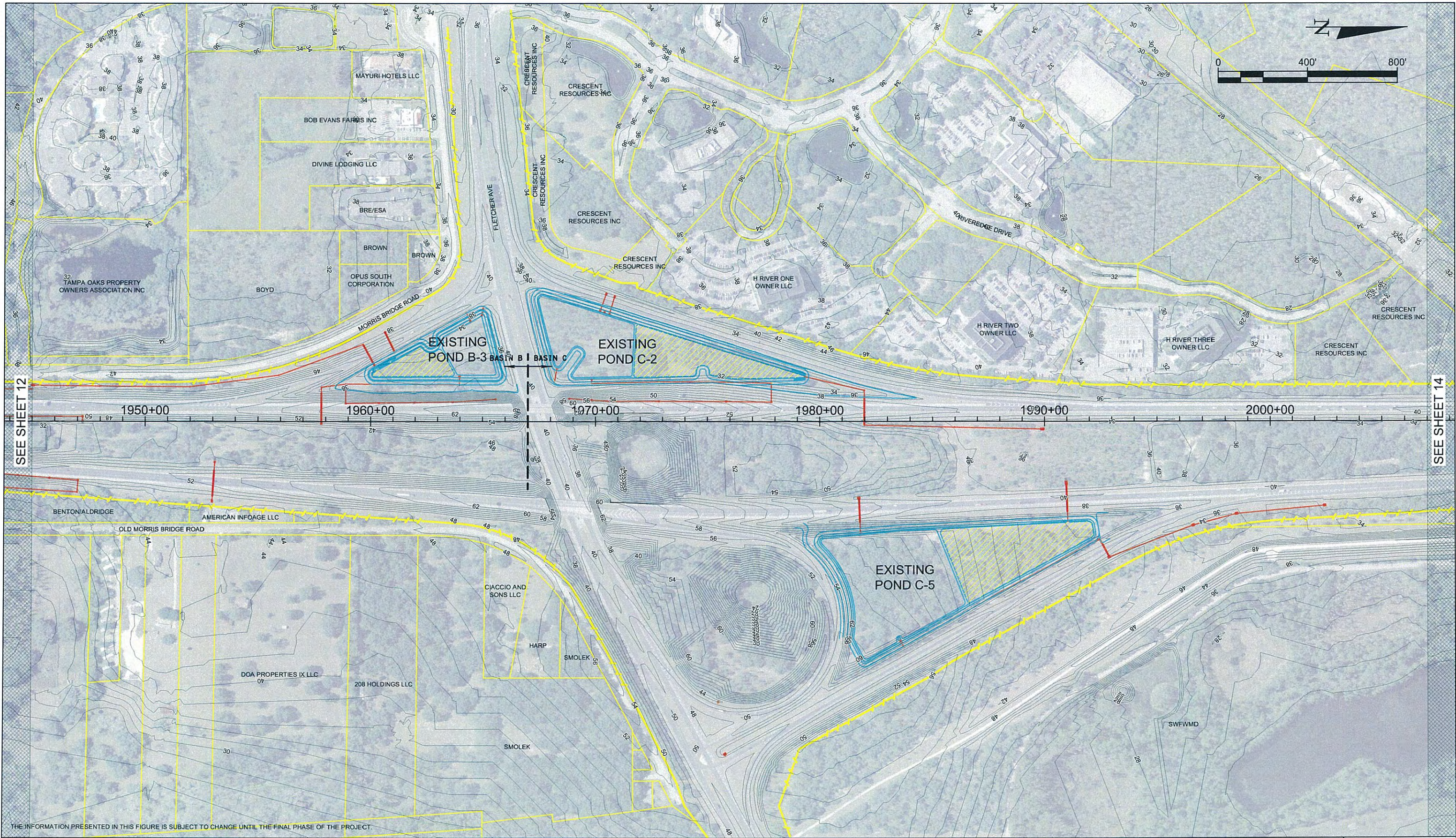
**PROJECT
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LEGEND

Flow Arrow	National Wetland Inventory	Property/ROW Line
FEMA Flood Map	Cross Drain	LA Right-of-Way
	Proposed LA Right-of-Way	

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SHEET
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SEE SHEET 12

SEE SHEET 14

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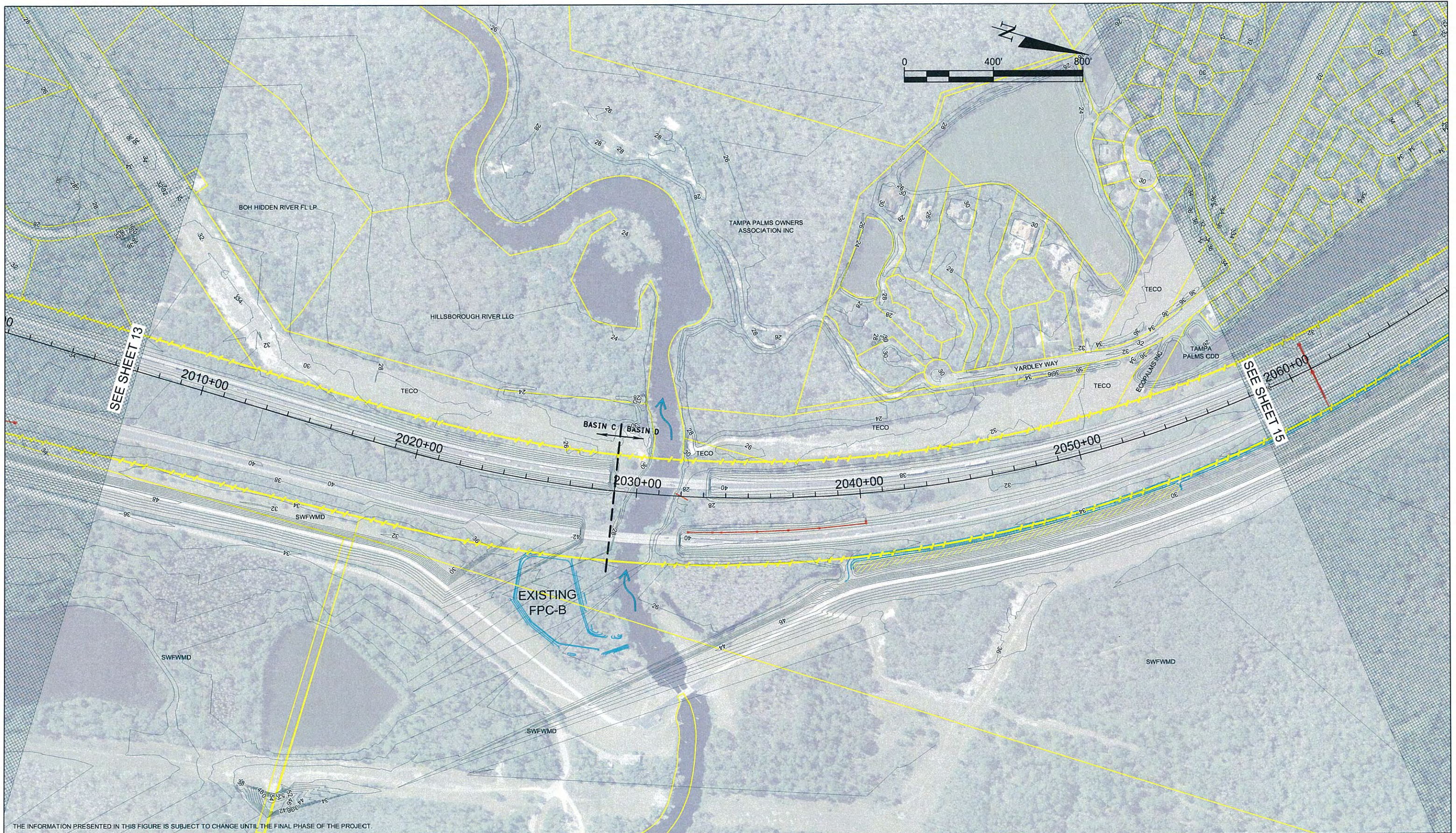
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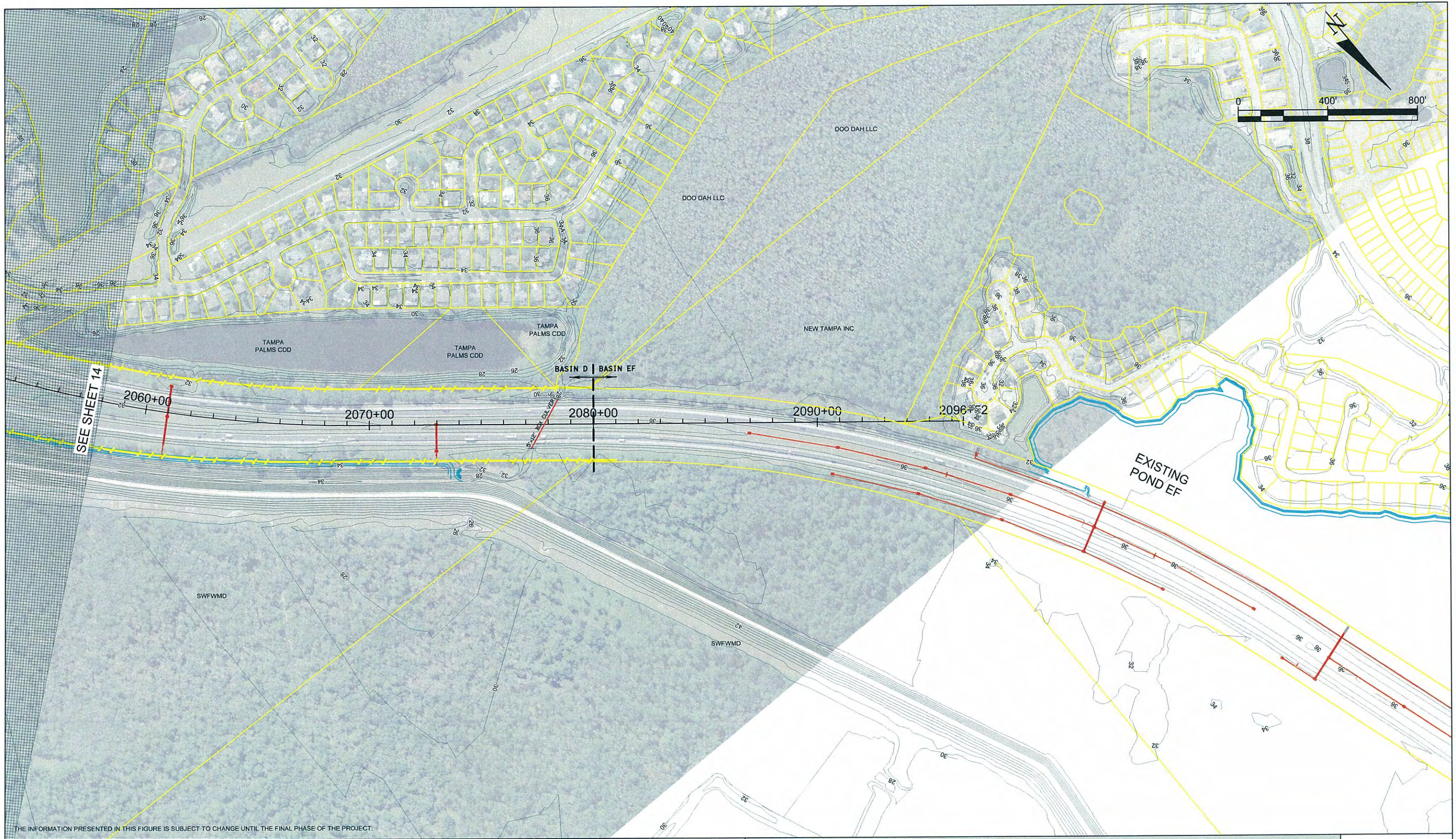
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SHEET
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SEE SHEET 14

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**SHEET
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