



Florida Department of
TRANSPORTATION

LOCATION HYDRAULIC REPORT (LHR)
ATLANTIC AVENUE (SR 806)
FROM FLORIDA'S TURNPIKE (M.P. 1.748)
TO JOG ROAD (M.P. 3.560)

FINANCIAL PROJECT ID: 440575-3-22-02

EFFICIENT TRANSPORTATION DECISION MAKING (ETDM) NUMBER: 14423

PALM BEACH COUNTY, FLORIDA

This project has been developed without regard to race, color, national origin, age, sex, religion, disability, or family status.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

Prepared for:
FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 4

3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309



Revised March 2023

TABLE OF CONTENTS

SECTION 1	EXECUTIVE SUMMARY	3
SECTION 2	INTRODUCTION.....	3
2.1	BACKGROUND.....	3
SECTION 3	PURPOSE AND NEED	4
3.1	PROJECT DESCRIPTION	4
3.2	PROJECT LOCATION.....	5
SECTION 4	EXISTING CONDITIONS.....	7
4.1	LAND USES.....	7
4.2	SOILS AND GEOLOGY	7
4.3	FLOODPLAINS.....	8
4.4	EXISTING ADJACENT PROPERTY PERMITS.....	8
4.5	EXISTING ATLANTIC AVENUE PERMITS	8
4.6	PROPOSED PERMITS.....	9
SECTION 5	PROPOSED CONDITIONS.....	9
5.1	DRAINAGE	9
5.2	L-34 CANAL IMPACTS	9
SECTION 6	FLOODPLAIN STATEMENT.....	10
SECTION 7	CONCLUSIONS.....	11

LIST OF EXHIBITS

Figure 1	Location Map.....	6
-----------------	--------------------------	----------

LIST OF TABLES

Table 1	Summary of Land Use Within 0.5-mile of Project Corridor.....	7
Table 2	General Soil Conditions	7
Table 3	Summary of Existing Permit.....	8

LIST OF APPENDICES

- Appendix A Drainage Maps**
- Appendix B Soils and Geotechnical Data**
- Appendix C FEMA FIRM Maps**
- Appendix D L-34 Culvert Analysis**

SECTION 1 EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) District 4 has conducted a Project Development and Environment (PD&E) Study to determine the engineering and environmental effects of the proposed widening of Atlantic Avenue (SR 806), in Palm Beach County. The project involves widening a 1.8-mile segment of Atlantic Avenue from the Florida's Turnpike to east of Jog Road in unincorporated Palm Beach County. The proposed project would widen the existing four-lane roadway to a six-lane roadway with upgraded bicycle and pedestrian facilities. A project location map is shown in **Figure 1**.

This PD&E Study documents the need for the widening, and presents the procedures utilized to develop and evaluate various alternatives. Information relating to the engineering and environmental characteristics essential for development of alternatives and analytical decisions was collected. Design criteria were established, and preliminary alternatives were developed. The alternatives were analyzed using a variety of parameters utilizing a matrix format. This process was utilized to identify an alternative that minimizes natural, physical, and socio-economic impacts, while providing the necessary future improvements.

Stormwater is regionally managed by the South Florida Water Management District (SFWMD). The project corridor lies within the SFWMD C-15 watershed. The project is also within the Lake Worth Drainage District (LWDD) L-34 Canal watershed as part of the E-2 and E-3 Canal watersheds. The E-2 watershed is not impaired. The E-3 watershed is impaired for nutrients and Chlorophyll-a. The project is not within a TMDL, OFW or Aquatic Preserve.

The objective of this report is to provide a drainage analysis of the proposed widening and to determine any impacts to floodplains. Overall, the existing and proposed drainage will be maintained or enhanced based on the proposed drainage documented in the Preliminary Drainage Report (under separate cover).

The project falls into floodplain risk category: 5 - PROJECTS ON EXISTING ALIGNMENT INVOLVING REPLACEMENT OF DRAINAGE STRUCTURES IN HEAVILY URBANIZED FLOODPLAINS

SECTION 2 INTRODUCTION

2.1 BACKGROUND

This Location Hydraulic Report, prepared in accordance with FDOT procedures, is part of a collection of reports generated for the PD&E process of developing various alternatives. This report evaluates the preliminary stormwater management concepts for the proposed project. The drainage analysis takes into consideration the impacts on the environment. This includes limiting floodplain impacts associated with the proposed roadway construction.

The stormwater management systems for treatment and attenuation are documented in the Preliminary Drainage Report (under separate cover) and meets the requirements of both SFWMD and LWDD.

SECTION 3 PURPOSE AND NEED

The primary purpose of the project is to improve the local and regional transportation network while also providing enhanced multimodal interrelationships along Atlantic Avenue from Turnpike to Jog Road.

The project is located within the jurisdiction of the Palm Beach Planning Transportation Agency (TPA). The proposed widening is included in the Palm Beach TPA's 2045 Long Range Transportation Plan (LRTP), in the 2020-2040 Desires Plan, and within the Transportation Improvement Program (TIP) Fiscal Years (FY) 2022-2026 (adopted date: June 16, 2020). This project is also listed as number 16-1 in the List of Priority Projects FY 2023-2027 by the Palm Beach TPA. Funding for right-of-way is planned to be available in FY 2024-2025. Within the TIP, the total cost is listed for widening of Atlantic Avenue from west of Lyons Road to Jog Road.

The 2018 Annual Average Daily Traffic (AADT) within the project limits ranges from 38,900 to 46,700 vehicles per day (VPD). Based on the anticipated growth within the corridor, the future traffic volumes were projected from 57,100 to 70,400 VPD by 2045. The corridor with the existing capacity within the project limits is anticipated to operate at Level-of-Service (LOS) 'F' by design year 2045. Widening Atlantic Avenue will promote enhanced traffic flow and will help improve the LOS.

Atlantic Avenue intersects two major north-south roadways, Turnpike on the west and Jog Road on the east. The Turnpike is a part of the state's Strategic Intermodal System (SIS). The SIS includes Florida's important transportation facilities that support the state's economy and mobility. Currently, Atlantic Avenue is an inadequate link between these multilane roadways. Expanding Atlantic Avenue to six lanes will better serve the regional transportation network and the local collector roadways.

3.1 PROJECT DESCRIPTION

The project involves widening a 1.8-mile segment of Atlantic Avenue from Turnpike to Jog Road in unincorporated Palm Beach County. The proposed project would widen the existing four-lane roadway to a six-lane roadway with upgraded bicycle and pedestrian bicycle facilities. Additionally, stormwater management facilities were evaluated within the study area. Stormwater is regionally managed by the South Florida Water Management District (SFWMD). The project corridor lies within the SFWMD C-15 watershed. The project is also within the Lake Worth Drainage District (LWDD) L-34 Canal watershed as part of the E-2 and E-3 Canal watersheds. The E-2 watershed is not impaired. The E-3 watershed is impaired for nutrients and Chlorophyll-a. The project is not within a TMDL, OFW or Aquatic Preserve. Watershed maps are included in **Appendix A**.

3.2 PROJECT LOCATION

This project is in unincorporated Palm Beach County, Florida, in Sections 15, 16, 17, 20, 21, and 22 in Township 46 S and Range 42 E. The project involves a 1.8-mile segment of Atlantic Avenue that extends from Florida's Turnpike (M.P. 1.748) to Jog Road (M.P. 3.560). The limits of the project can be seen in **Figure 1: Project Location Map**.

Figure 1 Project Location Map



SECTION 4 EXISTING CONDITIONS

4.1 LAND USES

Land use designations for the project has been determined and calculated using the Florida Land Use, Cover, and Forms Classification System (FLUCCS). The following analysis and mapping of land use considers all land use within 0.5 mile of the project corridor (FDOT, 1999). The project is nearly completely an urban corridor in the vicinity of the project and any open land is maintained for a human purpose. There is no unaltered property in the project vicinity.

Table 1: Summary of Land Use Within 0.5-mile of Project Corridor

General Land Use	Acres	Percent
Residential (single and multi-family)	906.70	53.6%
Recreation (golf course)	209.00	12.3%
Commercial, Institutional, and Retail	145.70	8.6%
Artificial lakes and canals	137.30	8.1%
Roadways	122.90	7.3%
Open land	91.10	5.4%
Trees and ornamentals	80.30	4.7%

4.2 SOILS AND GEOLOGY

Based on the NRCS Soil Survey, the near surface soils in the project area are Myakka fine sands, 0 to 2 percent slopes, and Quartzipsamments, shaped, 0 to 5 percent slopes. An excerpt from the NRCS Soil Survey is included in **Appendix B**. Soil borings were also taken as part of the Roadway Soil Survey Report completed by TSF, Inc. The results of the soil classification completed by a Geotechnical engineer are summarized in Table 2 and an excerpt is included in **Appendix B**. Environmental corrosion tests were performed on select soil samples. These laboratory test results were used to determine the environmental classification in accordance with FDOT Structures Design Guidelines. Based on the laboratory test results, the environmental classification is moderately aggressive for steel and concrete substructures.

Table 2: General Soil Conditions

Stratum Number	Typical Soil Description	AASHTO Classification	FDOT Soil Designation
1	Topsoil	A-8	Unsuitable
2	Light brown to brown to dark brown slightly silty sand	A-3	Select
3	Light brown sandy limerock	A-1-b	Select
4	Brown silty sand	A-2-4	Select

4.3 FLOODPLAINS

The Federal Emergency Management Agency (FEMA) website was examined to locate the most up to date Floodplain Insurance Rate Map (FIRM) for the proposed project. The FIRM community show panel numbers 120099C0980F and 12099C0985F (not printed for this project) both dated October 5th, 2017. These panels demonstrate a Flood Zone X, an area of minimal flood hazard. As seen within and adjacent to the project, no 100-year (base) floodplain has been established, meaning no floodplain impacts will be encountered for this project. The FEMA Firmette is provided in **Appendix C**.

Potential fill impacts for the Canal L-34 will need to be considered. However, the project location is not listed in a floodplain with a base flood elevation.

4.4 EXISTING ADJACENT PROPERTY PERMITS

A review of the available SFWMD permits shows 29.1 acres of Atlantic Avenue is proposed to be taken in by six developments along the corridor (SFWMD permits: 50-08178-P-Atlantic Commons, 50-07775-P-Villaggio Isles, 50-03863-P-Vizcaya, 50-02529-S-Turnberry Lakes, 50-04083-P Atlantic Safety, and 50-01538-S-Lexington Club), as shown in Table 6-1. Only Atlantic Commons and Villaggio Isles have stub out pipes for the future connection of Atlantic Avenue. The rest have permit provisions but no infrastructure for future connections. Connection to Turnberry Lakes, Lexington Club, and Vizcaya will have to cross the L-34 Canal, which may prohibit connection due to excessive construction.

Table 3: Summary of Existing Permits

Developments	SFWMD Permit No.	Atlantic Avenue Acreage	Atlantic Avenue Impervious Area
Turnberry Lakes	50-02529-S	1.80	1.18
W Atlantic Safety	50-04083-P	1.31	1.31
Lexington Club	50-01538-S	9.40	8.95
Villaggio Isles	50-07775-P	7.13	6.22
Atlantic Commons	50-08178-P	5.75	4.42
Upjohn PUD (Vizcaya)	50-03863-P	3.69	2.80
TOTAL AREA		29.08	24.68

There are six developments involved in permitted treatment of the ROW at buildout. These permits have apportioned varying amounts of the proposed project ROW acreage with predetermined amounts of impervious area which limits the amount of attenuation allowed in these private ponds.

4.5 EXISTING ATLANTIC AVENUE PERMITS

A review of the available SFWMD permits shows an approximate total of 6.10 acres in four stormwater management projects along the corridor (SFWMD permits: 50-04463-P-five exfiltration trenches, 50-06865-P-exfiltration trench, 50-04083-P-swales and exfiltration trench, 50-04507-P-

three swales, and 50-02295-S-swales). The proposed improvements will impact the existing permits, which can be treated and replaced in kind, or abandoned. Further discussion on the existing and proposed water quality treatment is further discussed in Chapter 7. A permit modification to the SFWMD Environmental Resources Permit No. 50-06865-P will need to be acquired for the proposed project.

4.6 PROPOSED PERMITS

Canal impacts are anticipated on the south side of Atlantic Avenue for both the Best Fit Alignment and the South Alignment from the existing Turnpike bridge to Cumberland Drive. Therefore, the following permits will be required:

- Dredge and Fill permit (USACE or SFWMD)
- Right-of-Way Occupancy permit (LWDD)
- Irrigation Water Use permit (SFWMD)
- Dewatering permit (SFWMD)
- Drainage Outfall Connection Permit (LWDD)
- NPDES permit (FDEP)
- ERP Permit modification (50-06865-P)

SECTION 5 PROPOSED CONDITIONS

5.1 DRAINAGE

The South Florida Water Management District (SFWMD) has previously permitted six offsite ponds to handle the bulk of the water quality for the project area from the Florida's Turnpike to east of Jog Road. The area these offsite ponds were permitted for is 24.68 acres of impervious area and 5.6 acres of pervious area for a total area of 29.08 acres. All the permitted ponds are wet detention and have been constructed to include these offsite (roadway) flows. Noting that two of the permitted ponds would provide more than enough treatment for the project, SFWMD was contacted to inquire about compensatory treatment being utilized for this resurfacing and milling with widening to the outside project. The existing treatment provided in the two permits (number 50-07775-P and 50-08178-P, 10.64 acres of impervious area treated) would account for all the existing swale and exfiltration trench treatment provided in the project corridor and includes the lost volume in the ponds east of Jog Road. Both permits have stub out pipes for this project to tie into, so no offsite construction to the ponds will be needed.

5.2 L-34 CANAL IMPACTS

The initial analysis was for the design flow of 30 cfs determined from the LWDD Facilities Report. This analysis resulted in a single 54" equivalent pipe for each culvert. However, the response from LWDD indicated their concerns regarding the potential for reduced hydraulic capacity when converting from an open channel (trapezoidal cross-sectional area) to a piped cross-sectional area

(enclosed cross-sectional area). The requested a revised analysis based on the potential capacity of the canal.

The canal typical section LWDD provided has a bottom width of eleven feet and 1.5 to 1 side slopes with a four-foot stage at elevation 16.0 NGVD. A flow depth curve was generated based on a Manning's roughness of 0.035 and the data matched the flow curve from LWDD. The design stage for this canal is 16.3 NGVD with a design flow of 30 cfs based on data from the LWDD Facilities Report. The flow depth curve shows the open channel capacity at 63.8 cfs at 16.3 NGVD, which is more than double the design flow.

Several alternatives and iterations were proposed and review by LWDD included filling portions of the L-34 Canal with pipes ranging from 54" to dual 84" pipes. The result was a re-aligned canal and roadway where no additional piping is required. The L-34 Canal will be re-aligned and will maintain a minimum 10' access berm adjacent to the roadway, a 30' canal width (top of bank to top of bank) and a 35' maintenance berm on the south side of the canal. The canal itself will have a top of bank elevation of 20' NAVD, 1½:1 side slopes and a 6' bottom width. In areas where the right turn lanes squeeze into this canal R/W, a vertical bulkhead wall is proposed on the north side of the Canal. The calculations are provided in **Appendix D** along with copies of the technical memo documenting the analyses presented to LWDD.

SECTION 6 FLOODPLAIN STATEMENT

Floodplain in the area is not of concern as the entire project is in a Zone X floodplain with no base elevation, meaning no compensation will be required. The canal in the proposed condition will be impacted due to the realignment made necessary by the maintenance berm requirements of the LWDD. The facilities report dictated that the canal be able to flow 30 cfs in the proposed condition and as shown this is the case for most of the canal. In the areas where the cross section was unable to maintain the flow line or flow capabilities, the canal will need to be filled in with a culvert to provide the flow capacity. All the headwalls in the L-34 Canal will be required to be replaced as the centerline of the canal is shifting to the north.

There are no anticipated impacts to the 100-year base floodplain and calculations for compensation are not needed.

This project falls under the risk category:

5 - PROJECTS ON EXISTING ALIGNMENT INVOLVING REPLACEMENT OF DRAINAGE STRUCTURES IN HEAVILY URBANIZED FLOODPLAINS

These projects include work in flood sensitive, heavily urbanized floodplains, where the conditions of flooding are largely attributable to the low-lying terrain. The work does not include those replacement structures that will reduce the hydraulic performance of existing facilities or a change in the profile grade when the existing grade is overtopped by an event below the 100-year storm. Replacement drainage structures are limited to hydraulically equivalent structures in all instances.

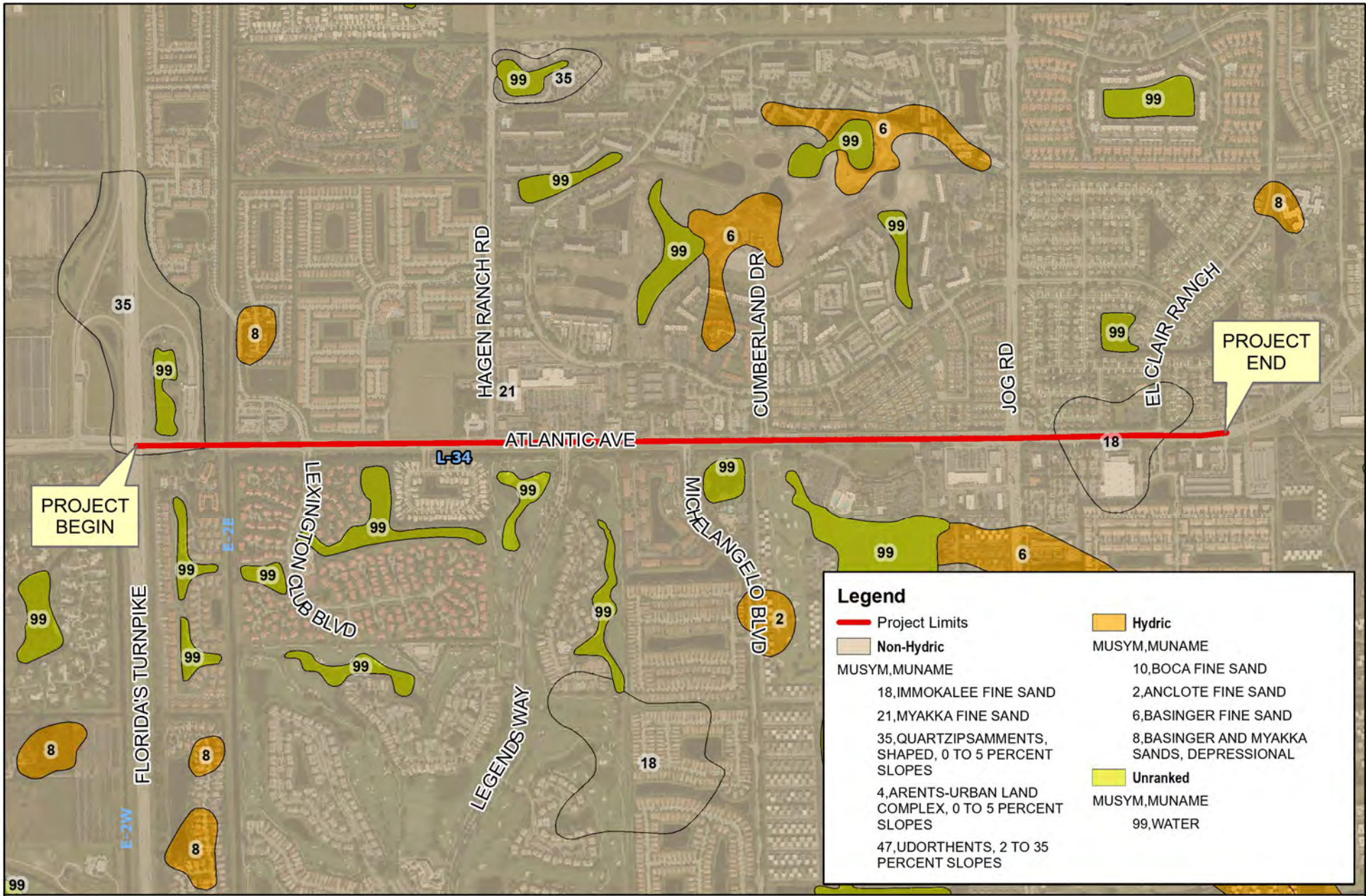
Replacement drainage structures for this project are limited to hydraulically equivalent structures. The limitations to the hydraulic equivalency being proposed are basically due to restrictions imposed by the geometrics of design, existing development, cost feasibility, or practicability. An alternative encroachment location is not considered in this category since it defeats the project purpose 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 totally eradicate flood impacts or even reduce them in any significant amount, existing flooding will continue, but not be increased.

Any proposed structure will be hydraulically equivalent to or greater than the existing structure, and backwater surface elevations are not expected to increase. As a result, 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. Therefore, it has been determined that this encroachment is not significant.

SECTION 7 CONCLUSIONS

The purpose of location hydraulic analysis is to identify the current permitting and drainage criteria, drainage impacts and floodplain impacts. As described above, the proposed project is expected to have minimal impacts to the existing drainage systems. Also, the floodplain impacts are expected to be none as the corridor is outside the FEMA floodplain.

APPENDIX A
DRAINAGE MAPS



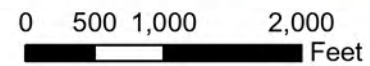
Legend

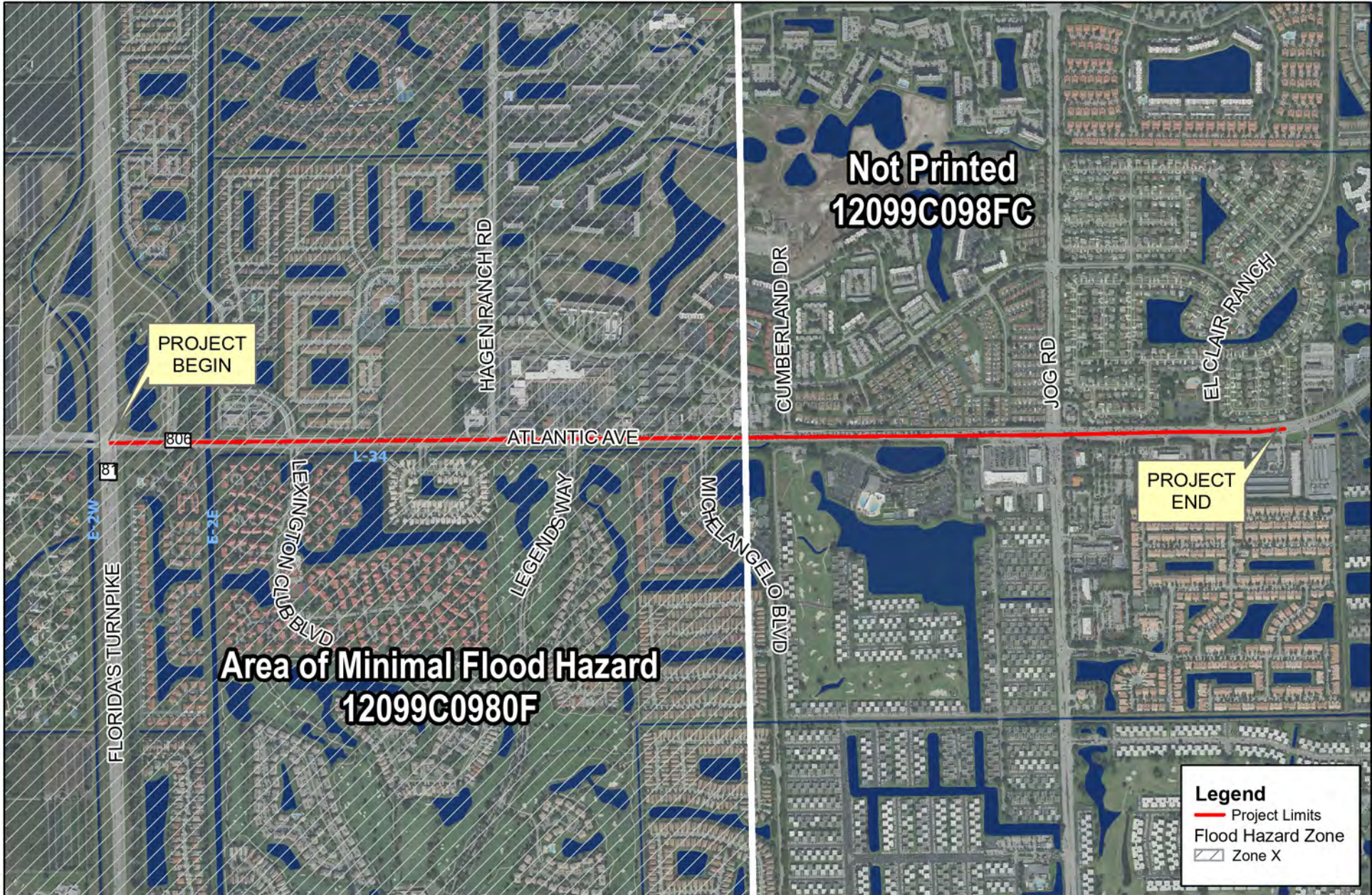
Project Limits	Hydric
Non-Hydric	MUSYM,MUNAME
MUSYM,MUNAME	10,BOCA FINE SAND
18,IMMOKALEE FINE SAND	2,ANCLOTE FINE SAND
21,MYAKKA FINE SAND	6,BASINGER FINE SAND
35,QUARTZIPSAMMENTS, SHAPED, 0 TO 5 PERCENT SLOPES	8,BASINGER AND MYAKKA SANDS, DEPRESSIONAL
4,ARENDS-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES	Unranked
47,UDORTHENTS, 2 TO 35 PERCENT SLOPES	MUSYM,MUNAME
	99,WATER



NRCS Soil Map
 Atlantic Avenue (SR 806) from Florida's Turnpike
 (MP 1.748) to Jog Road (MP 3.560)
 FPID No.440575-3-22-02
 Palm Beach County

Image Source: FDOT
 Imagery Date:2019





**Not Printed
12099C098FC**

**PROJECT
BEGIN**

**PROJECT
END**

**Area of Minimal Flood Hazard
12099C0980F**

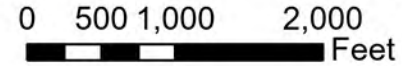
Legend

- Project Limits
- Flood Hazard Zone
- Zone X

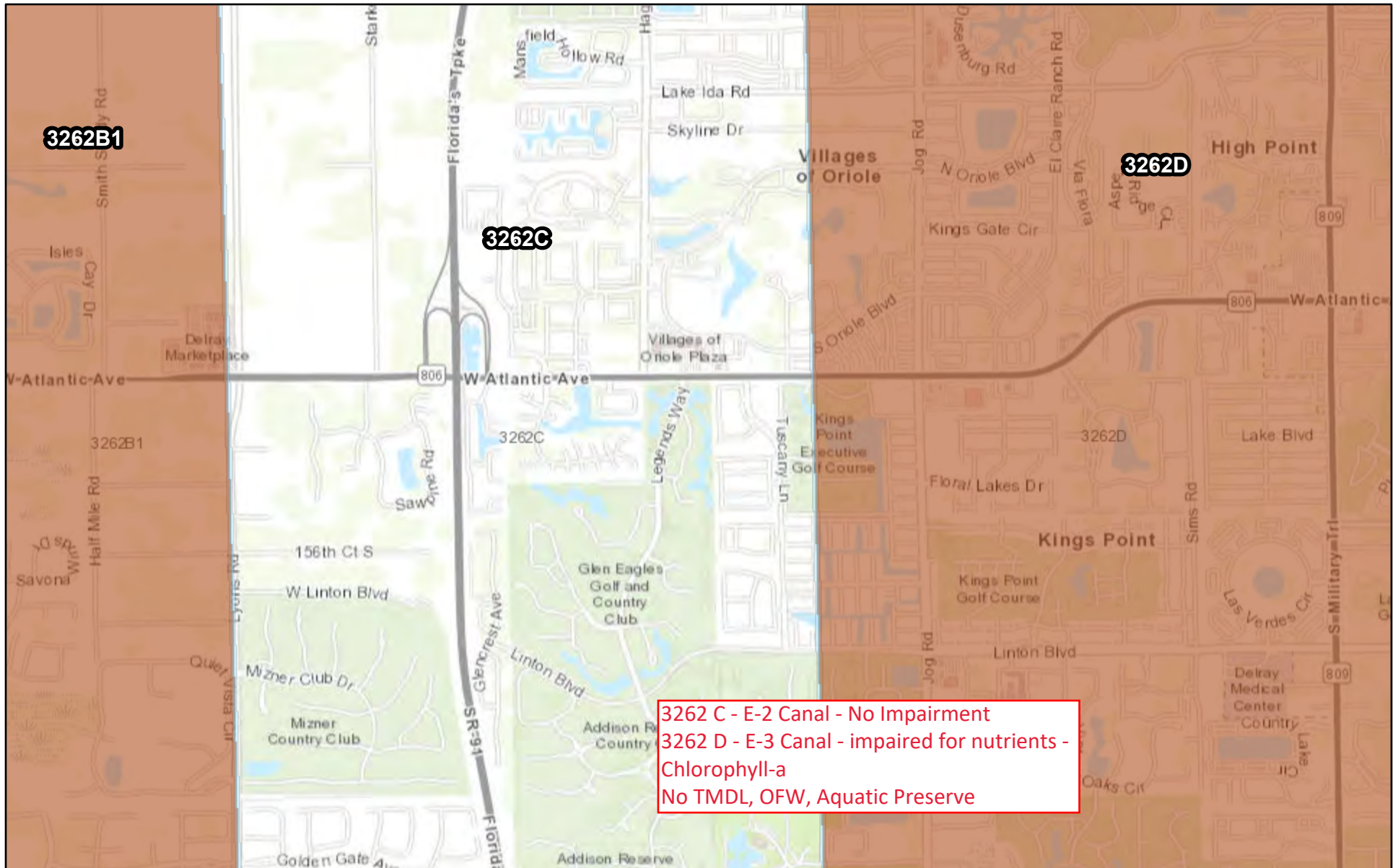


Floodplain Map
 Atlantic Avenue (SR 806) from Florida's Turnpike
 (MP 1.748) to Jog Road (MP 3.560)
 FPID No.440575-3-22-02
 Palm Beach County

Image Source: FDOT
 Imagery Date:2019



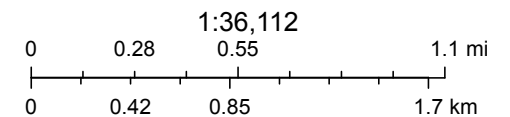
Verified List WBIDs



3262 C - E-2 Canal - No Impairment
 3262 D - E-3 Canal - impaired for nutrients - Chlorophyll-a
 No TMDL, OFW, Aquatic Preserve

September 27, 2019

Waterbody IDs (WBIDs)

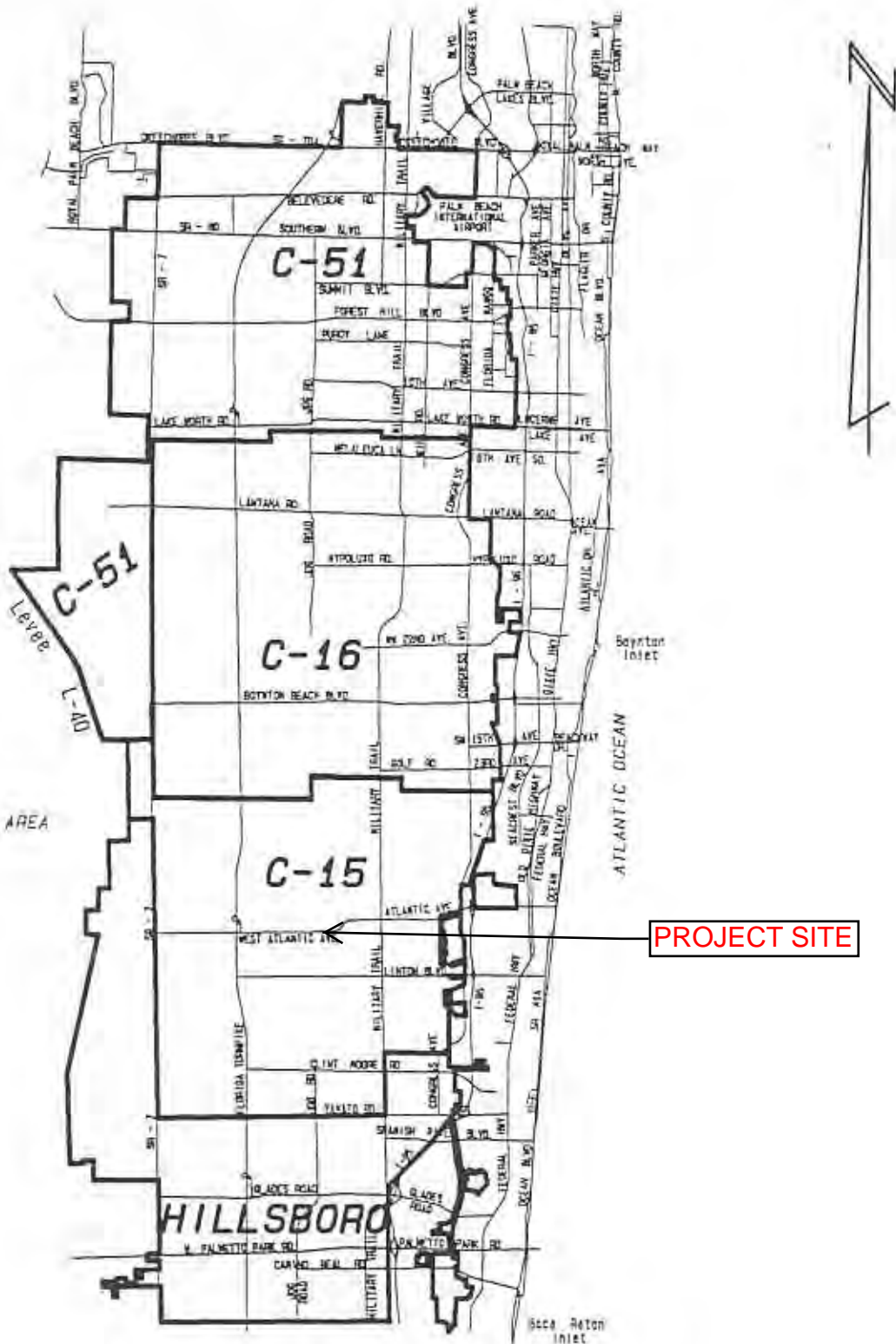


FDEP, DEAR, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL,

Map created by Map Direct, powered by ESRI.

Environmental Protection makes no warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

CONSERVATION AREA
No. 1



PROJECT SITE

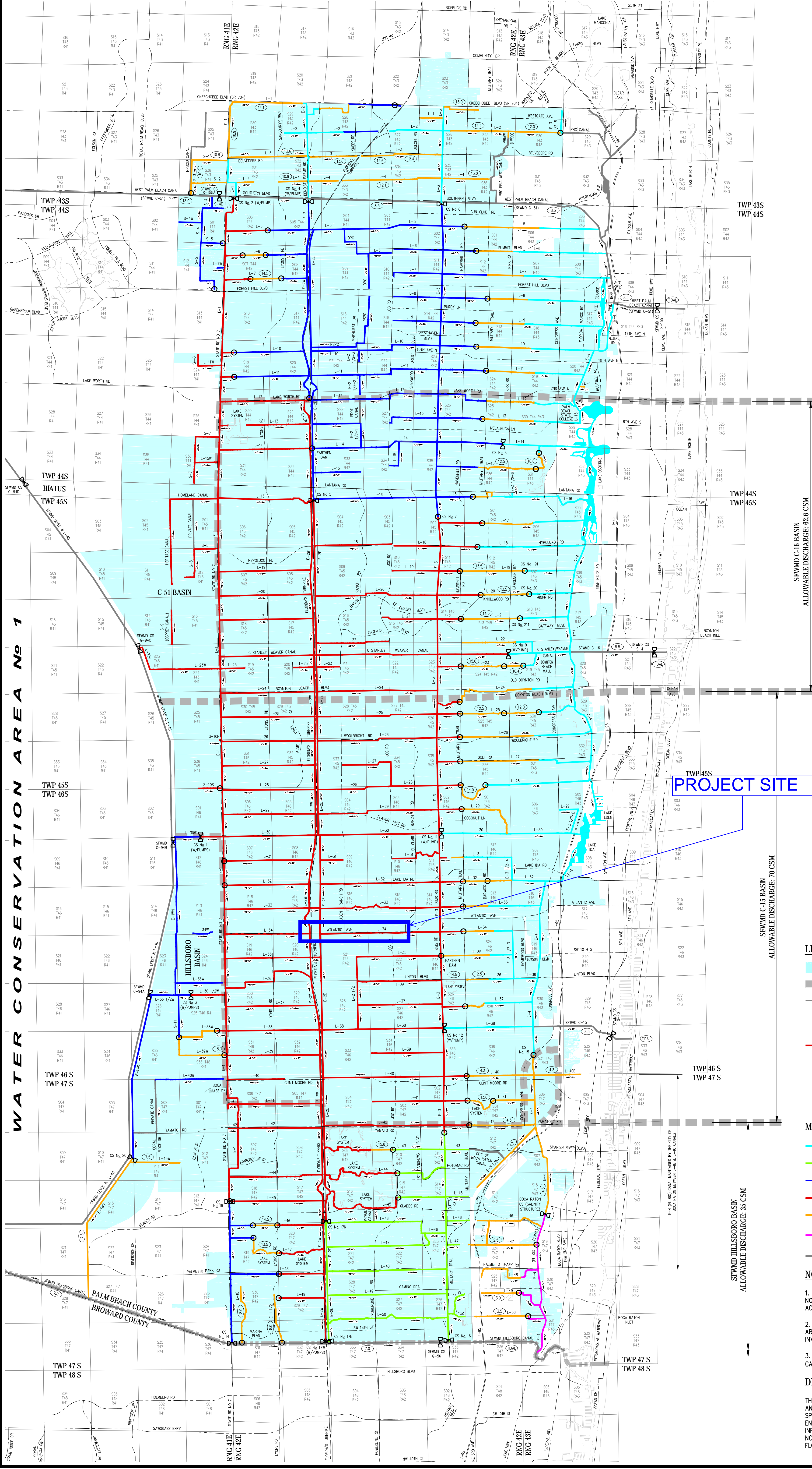
MOCK, ROOS & ASSOCIATES, INC.
ENGINEERS • SURVEYORS • PLANNERS
5720 CORPORATE WAY
WEST PALM BEACH, FLORIDA 33407
Phone: 407 683-3113 Fax: 407 478-7248



LAKE WORTH DRAINAGE DISTRICT
MAJOR DRAINAGE BASIN BOUNDARIES

FIGURE No. 3

LAKE WORTH DRAINAGE DISTRICT MAINTAINED CANAL ELEVATIONS MAP



SRWMD C-51 BASIN
ALLOWABLE DISCHARGE: 35 CSM (EAST OF TURNPIKE) & 27 CSM (WEST OF TURNPIKE)

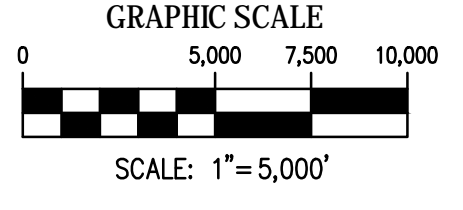
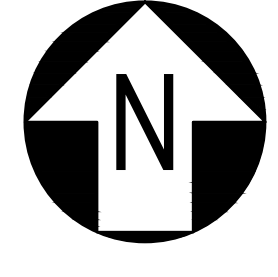
SRWMD C-16 BASIN
ALLOWABLE DISCHARGE: 62.6 CSM

SRWMD C-15 BASIN
ALLOWABLE DISCHARGE: 70 CSM

SRWMD HILLSBORO BASIN
ALLOWABLE DISCHARGE: 35 CSM

ATLANTIC OCEAN

WATER CONSERVATION AREA NO. 1



LEGEND

- LWDD SERVICE AREA
- BOUNDARY LINE FOR SRWMD BASIN AREAS
- PRINCIPAL ROADWAY
- DENOTES SOME SPECIFIC CANAL MAINTENANCE ELEVATIONS
- LWDD CANAL DESIGNATIONS (UNLESS OTHERWISE NOTED)
- DIRECTION OF FLOW
- MAJOR LWDD (UNLESS OTHERWISE NOTED)
- DRAINAGE CONTROL STRUCTURE
- LWDD MINOR CONTROL STRUCTURE

MAINTAINED CANAL ELEVATIONS:

- CANAL ELEVATION = 8.5' NGVD (SEE NOTE No. 1)
- CANAL ELEVATION = 9.3' NGVD (SEE NOTE No. 1)
- CANAL ELEVATION = 13.0' NGVD (SEE NOTE No. 1)
- CANAL ELEVATION = 16.0' NGVD (SEE NOTE No. 1)
- CANAL ELEVATION VARIES (SEE NOTES No. 1 & 2)
- DENOTES AREAS WHERE CANAL ELEVATIONS ARE AFFECTED BY TIDAL CURRENT
- OTHER CANALS (NOT MAINTAINED BY LWDD)

NOTES:

1. MAINTENANCE ELEVATION OF THE CONTROL STRUCTURE AND NOT NECESSARILY THE CANAL WATER SURFACE ELEVATION. ACTUAL WATER ELEVATION IN THE CANAL WILL VARY.
2. IF UNSPECIFIED, THE MAINTENANCE ELEVATIONS IN THESE AREAS ARE DEPENDENT ON CANAL BOTTOM ELEVATIONS, CULVERT INVERT ELEVATIONS OR GROUNDWATER INTRUSION.
3. ALL ELEVATIONS ARE SUBJECT TO VERIFICATION BY A CURRENT CANAL CROSS SECTION(S) TO LWDD SPECIFICATIONS.

DISCLAIMER:

THIS MAP SHOWS THE MAINTAINED ELEVATIONS OF LWDD CANALS AND IS TO BE USED FOR INFORMATIONAL PURPOSES ONLY. FOR SPECIFIC DESIGN REQUIREMENTS, PLEASE CONTACT THE LWDD ENGINEERING DEPARTMENT DIRECTLY. CANAL RIGHT-OF-WAY INFORMATION IS NOT SHOWN ON THIS MAP. ALSO, THIS MAP DOES NOT DISTINGUISH CONVEYANCE METHODS BETWEEN OPEN CHANNEL FLOW OR FLOW THROUGH CLOSED CULVERTS.

APPENDIX B

SOILS AND GEOTECHNICAL DATA

TSF, INC.

March 11, 2021, Revision 3

Florida Department of Transportation
3400 W Commercial Blvd
Fort Lauderdale, FL 33309

Attn: Alexander Estrada, P.E.
FDOT Project Manager

RE: **Roadway Soil Survey Report**
PD&E Services for SR-806/Atlantic Ave from Turnpike to Jog Rd
Palm Beach County, Florida
FPID No. 440575-3-22-02
TSF Project No: 7111-20-119

Dear Mr. Estrada:

Tierra South Florida, Inc. (TSF) has completed a roadway soil survey for the subject project. This geotechnical study was performed in general accordance with FDOT procedures. The results of our exploration program and geotechnical recommendations are presented in this report

If you have any questions or comments regarding this report, please contact our office at your earliest convenience.

Sincerely,

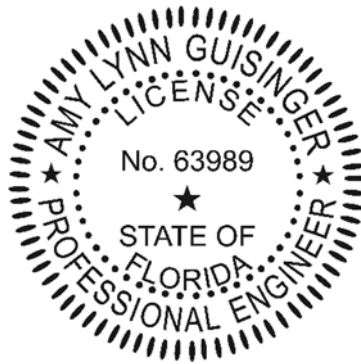
TSF, INC.

This document has been digitally signed and sealed by:

Amy L. Guisinger, P.E.
Principal Engineer
FL Registration No. 63989

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.*



Ramakumar Vedula, P.E.
Principal Engineer
FL Registration No. 54873

in boring B-2 within the depth of the boring. Encountered groundwater depths are presented on the Roadway Soil Profiles provided in the Appendix.

Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences (i.e. existing canals, swells, drainage ponds, under drains, and areas of covered soils, like paved parking lots and sidewalks). Fluctuations should be anticipated. We recommend that the contractor determine the actual groundwater levels at the time of construction to determine the groundwater impact on construction procedures.

5.2 Seasonal High Groundwater Estimates (SHGWT)

Seasonal high groundwater levels are expected to be controlled by existing drainage features present in the project vicinity. Estimated seasonal high groundwater table levels are expected at elevation about +14 feet, NGVD 1929 (+12.5 feet, NAVD 1988). This estimate is based on the Altitude of Water Table, Surficial Aquifer, Shallow Zone, in Eastern Palm Beach County, Florida, May 16-19, 1988, published by USGS.

6.0 FIELD PERMEABILITY TESTING

6.1 Exfiltration Tests

Exfiltration tests were performed at three locations using the South Florida Water Management District (SFWMD) usual open-hole constant head method. The test locations are shown on the boring location plan in the Appendix. The tests were performed at depths of 10, 15, and 20 feet at each location. Each borehole was drilled using a hollow stem auger (about 6-inches in diameter) to retrieve soil samples for visual classification. The results of the exfiltration tests are attached in the Appendix.

7.0 ENGINEERING EVALUATIONS AND RECOMMENDATIONS

7.1 General

In general, the existing shallow subsurface soils encountered in the borings are suitable for supporting the proposed improvements after proper subgrade preparation. Site preparation should consist of normal clearing and grubbing followed by compactions of subgrade soils.

The removal of topsoil where required should be accomplished in accordance with the Florida Department of Transportation (FDOT) Standard Specifications Section 110 – Clearing and Grubbing. Backfill should consist of materials conforming to FDOT Standard Plans Index 120-001 and compacted in accordance with Section 120-9 of the current Standard Specification for Road and Bridge Construction.

7.2 Permanent Cut and Fill Slopes

If fill or cuts are required for the proposed roadway improvements, we recommend that all proposed permanent side slopes be constructed on a 2H:1V slope or flatter. To prevent minor sloughing at the surface, we recommend that the slopes be seeded, mulched and maintained to enhance slope stability soon after being completed.

7.3 Excavations

All excavations should be performed in accordance with FDOT Standard Plans Index 120-002, the latest Standard Specifications for Road and Bridge Construction, and in accordance with OSHA Standards. We recommend that sides of temporary excavations be sloped to 2H:1V or flatter or supported by temporary shorings.

**SR-806/ATLANTIC AVENUE FROM TURNPIKE TO JOG ROAD
PALM BEACH COUNTY, FLORIDA
FPID 440575-3-22-02
TSF PROJECT. NO. 7111-20-119**

SUMMARY OF BORING AND TEST LOCATIONS

BORING/ TEST NO.	APPROXIMATE TEST LOCATION (FEET)							GROUND SURFACE ELEVATION
	LATITUDE	LONGITUDE	EASTING	NORTHING	STATION	OFFSET	REFERENCE	
B-1	26.45360	-80.17636	582111	2926181	121+40	11 RT	B/L Survey	N/A
B-2	26.45407	-80.17482	582264	2926235	126+64	159.5 LT	B/L Survey	N/A
AB-3	26.45373	-80.17321	582424	2926198	131+69	31 LT	B/L Survey	N/A
B-4	26.45354	-80.17156	582590	2926179	137+11	39 RT	B/L Survey	N/A
AB-5	26.45371	-80.17038	582707	2926197	140+97	19 LT	B/L Survey	N/A
B-6	26.45358	-80.16836	582908	2926185	147+56	30 RT	B/L Survey	N/A
AB-7	26.45375	-80.16674	583069	2926205	182+86	30 LT	B/L Survey	N/A
B-8	26.45358	-80.16511	583232	2926186	158+20	36 RT	B/L Survey	N/A
B-9	26.45395	-80.16362	583381	2926229	163+00	99 LT	B/L Survey	N/A
AB-10	26.45377	-80.16239	583503	2926209	167+10	27 LT	B/L Survey	N/A
B-11	26.45390	-80.15973	583769	2926225	175+82	65 LT	B/L Survey	N/A
AB-12	26.45380	-80.15870	583871	2926215	179+18	25 LT	B/L Survey	N/A
B-13	26.45392	-80.15711	584030	2926229	184+40	62.5 LT	B/L Survey	N/A
B-14	26.45366	-80.15603	584138	2926202	187+93	34 RT	B/L Survey	N/A
AB-15	26.45393	-80.15368	584372	2926233	195+62	59.5 LT	B/L Survey	N/A
AB-16	26.45370	-80.15224	584516	2926208	200+33	27 RT	B/L Survey	N/A
B-17	26.45394	-80.15060	584679	2926236	205+70	59 LT	B/L Survey	N/A
B-18	26.45366	-80.14901	584838	2926206	210+90	45 RT	B/L Survey	N/A
BHP-1	26.45362	-80.16056	583686	2926195	173+09	31.5 RT	B/L Survey	N/A
BHP-2	26.45382	-80.15120	584618	2926223	203+71	17.5 LT	B/L Survey	N/A
MR-1	26.45352	-80.17346	582399	2926174	130+87	44.5 RT	B/L Survey	N/A
MR-2	26.45396	-80.16622	583122	2926228	154+59	105 LT	B/L Survey	N/A
MR-3	26.45363	-80.15951	583790	2926196	176+54	35 RT	B/L Survey	N/A
MR-4	26.45406	-80.15440	584300	2926247	193+30	105 LT	B/L Survey	N/A
MR-5	26.45367	-80.14918	584820	2926207	210+30	40 RT	B/L Survey	N/A

LATITUDE/LONGITUDE, REFERENCE WGS 84
NORTHING/EASTING, REFERENCE UTM WGS 84

TIERRA SOUTH FLORIDA

SUMMARY OF CORROSION TEST RESULTS

Atlantic Blvd PD&E
Palm Beach County, Florida
TSF Project No. 7111-20-119

Boring Number	Depth (ft)	pH (FM 5-550)	Resistivity (ohm-cm) (FM 5-551)	Chlorides (ppm) (FM 5-552)	Sulfates (ppm) (FM 5-553)	Environmental Classification* (Soil)	
						Steel	Concrete
B-4	8.0 - 10.0	8.1	18,000	45	87.0	Slightly Aggressive	Slightly Aggressive
B-9	6.0 - 8.0	7.0	2,800	30	0.0	Moderately Aggressive	Moderately Aggressive
B-14	6.0 - 8.0	7.6	5,100	45	0.0	Slightly Aggressive	Slightly Aggressive
B-17	6.0 - 8.0	7.0	12,000	30	228.0	Moderately Aggressive	Slightly Aggressive

* As per FDOT Structures Design Guidelines, Table 1.1, Updated January, 2019

** Any reading represented as "0.0" is below the detection limit of 4.8 ppm

Structures Design Guidelines
1 - General Requirements

Topic No. 625-020-018
January 2019

Table 1.3.2-1 Criteria for Substructure Environmental Classifications

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO ₄	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	< 500		< 500	
	SO ₄	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					

pH = acidity (-log₁₀H⁺; potential of Hydrogen), Cl = chloride content, SO₄ = Sulfate content.

2. Superstructure: Any superstructure located within 2,500 feet of any coal burning

Summary of Borehole Permeability Test Results
PD&E Services for SR-806/Atlantic Ave from Turnpike to Jog Rd
Palm Beach County, Florida

TSF Project No. 7111-20-119

Test Location	Date Performed	Diameter		Depth of Hole (Feet)	Depth to Groundwater Level Below Ground Surface (Feet)		Hydraulic Head, H ₂ (Feet)	Saturated Hole Depth, Ds (Feet)	Average Flow Rate, Q (gpm)	Hydraulic Conductivity (K)
		Hole (Inches)	Casing (Inches)		Prior to Test	During Test				(ft ³ /sec/ft ² -ft Head)
BHP-1	5/22/2020	6	4	10.0	5.3	0.0	5.3	4.8	1.10	5.98E-05
BHP-1	5/29/2020	6	4	15.0	5.5	0.0	5.5	9.5	6.00	1.88E-04
BHP-1	5/29/2020	6	4	20.0	5.5	0.0	5.5	14.5	7.00	1.56E-04
BHP-2	5/22/2020	6	4	10.0	6.0	0.0	6.0	4.0	1.20	6.01E-05
BHP-2	5/29/2020	6	4	15.0	5.5	0.0	5.5	9.5	5.00	1.57E-04
BHP-2	5/29/2020	6	4	20.0	5.5	0.0	5.5	14.5	6.00	1.34E-04

Note:

- (1) The above hydraulic conductivity values represent an ultimate value. The designer should decide on the required factor of safety
- (2) The hydraulic conductivity values were calculated based on the South Florida Water Management Districts's USUAL OPEN HOLE CONSTANT HEAD percolation test procedure.
- (3) Casing diameter was used for the calculation of hydraulic conductivity values.

Field Exploration Plan

PD&E SR-806/Atlantic Avenue
from Turnpike to Jog Road
FPID 440575-3-22-02

Legend

- Borehole Percolation Test
- △ Mr Sample Location
- SPT Boring (10 ft)



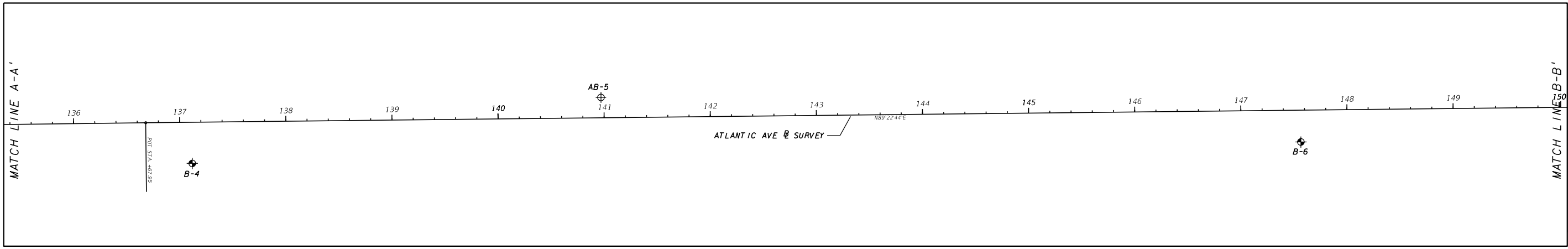
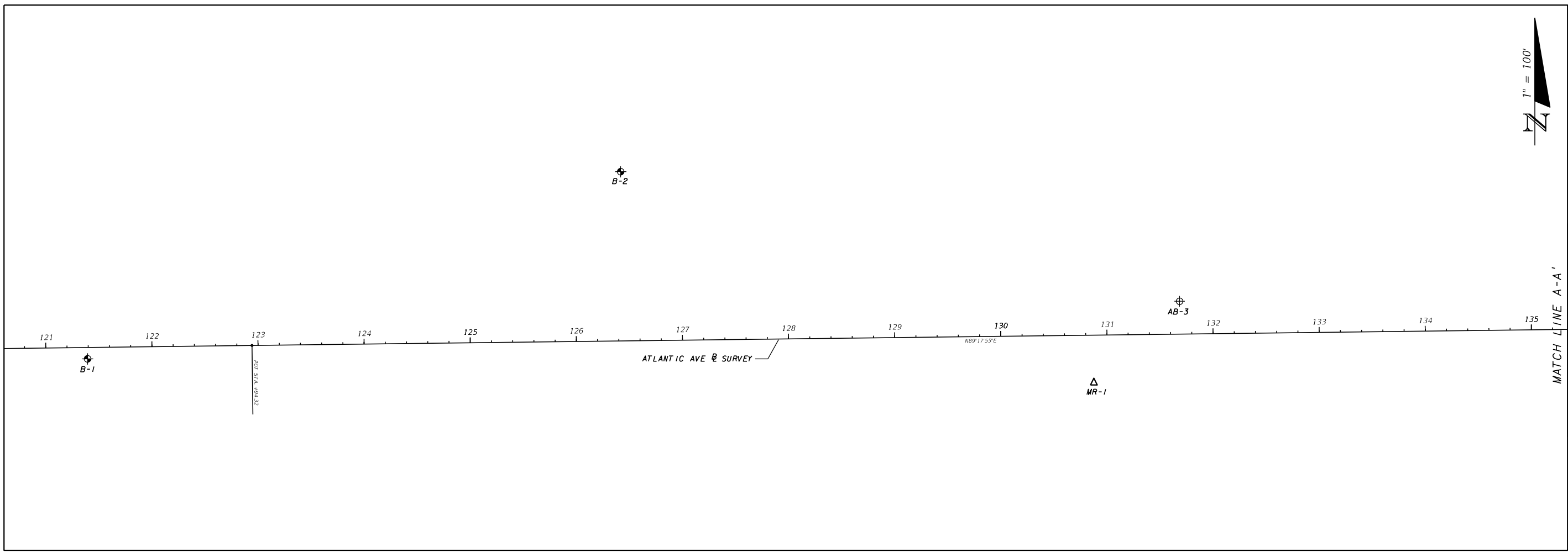
Field Exploration Plan

PD&E SR-806/Atlantic Avenue
from Turnpike to Jog Road
FPID 440575-3-22-02

Legend

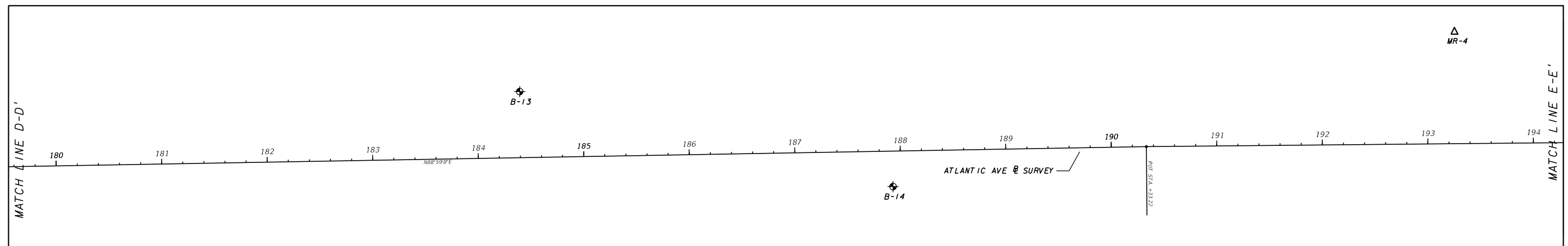
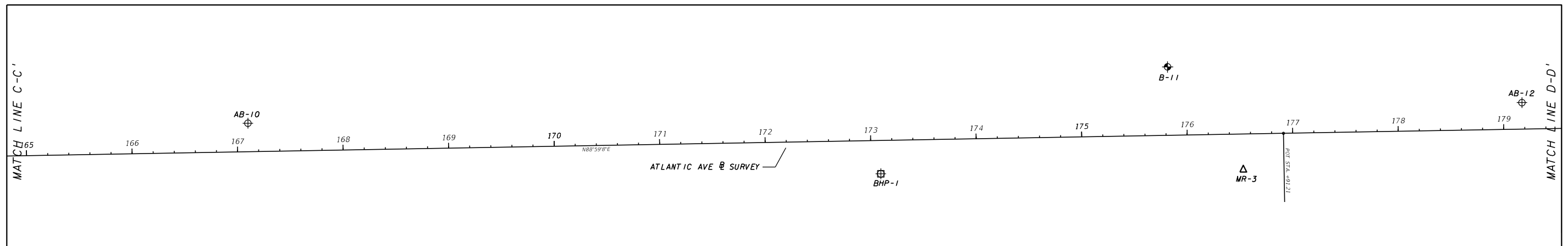
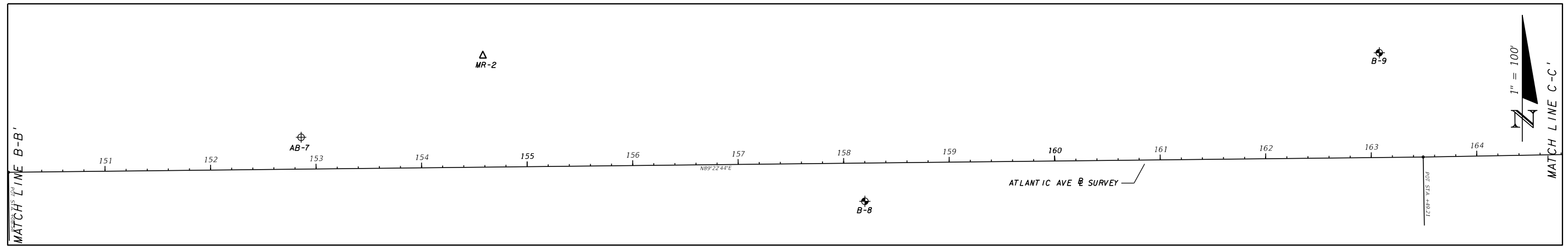
- Borehole Percolation Test
- △ Mr Sample Location
- SPT Boring (10 ft)





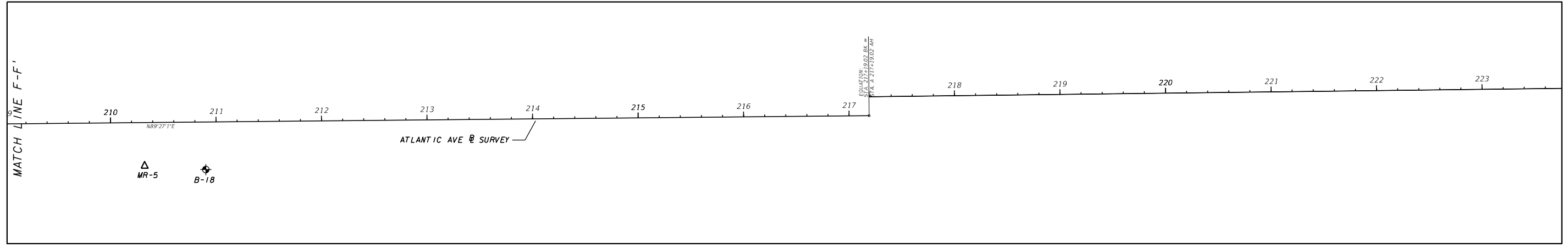
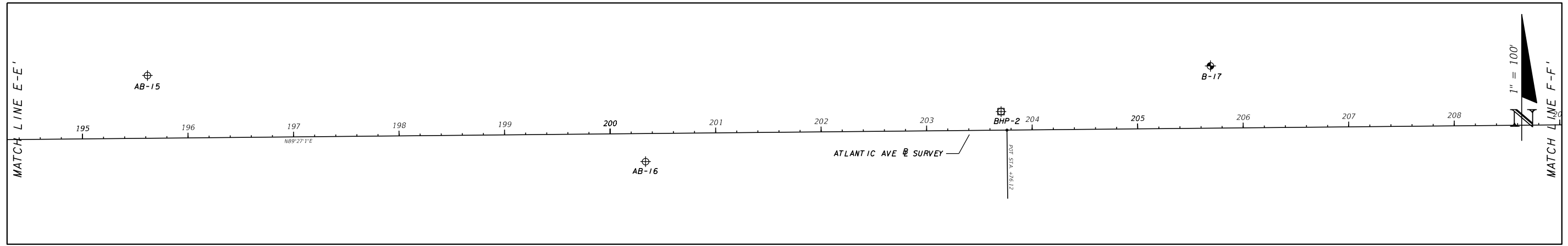
-  **Approximate Location of SPT Test**
-  **Approximate Location of Auger Boring Test**
-  **Approximate Location of MR Test**
-  **Approximate Location of BHP Test**

REVISIONS				AMY GUISSINGER, P.E. P.E. LICENSE NUMBER 63989 TIERRA SOUTH FLORIDA, INC. 2765 VISTA PARKWAY, SUITE 10 WEST PALM BEACH, FL 33411	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			BORINGS LOCATION PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 806	PALM BEACH	440575-3-22-02		



-  **Approximate Location of SPT Test**
-  **Approximate Location of Auger Boring Test**
-  **Approximate Location of MR Test**
-  **Approximate Location of BHP Test**

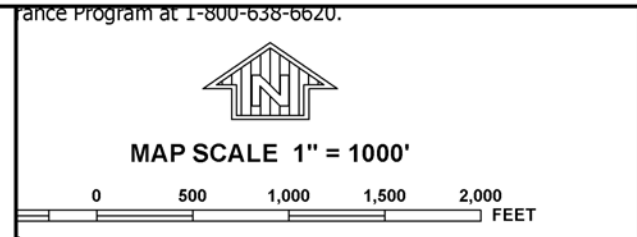
REVISIONS				AMY GUISSINGER, P.E. P.E. LICENSE NUMBER 63989 TIERRA SOUTH FLORIDA, INC. 2765 VISTA PARKWAY, SUITE 10 WEST PALM BEACH, FL 33411	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			BORINGS LOCATION PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 806	PALM BEACH	440575-3-22-02			



-  **Approximate Location of SPT Test**
-  **Approximate Location of Auger Boring Test**
-  **Approximate Location of MR Test**
-  **Approximate Location of BHP Test**

REVISIONS				AMY GUISSINGER, P.E. P.E. LICENSE NUMBER 63989 TIERRA SOUTH FLORIDA, INC. 2765 VISTA PARKWAY, SUITE 10 WEST PALM BEACH, FL 33411	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			BORINGS LOCATION PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 806	PALM BEACH	440575-3-22-02		

APPENDIX C
FEMA FIRM MAPS



THIS AREA SHOWN ON MAP

This Panel - 959 is not printed.

ANCE Program at 1-800-638-6620.

NFIP

PANEL 0960F

FIRM
FLOOD INSURANCE RATE MAP
PALM BEACH COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 960 OF 1200
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PALM BEACH COUNTY	120192	0960	F

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

MAP NUMBER
12099C0960F

EFFECTIVE DATE
OCTOBER 5, 2017

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

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

APPENDIX D

L-34 CULVERT ANALYSIS

DRAINAGE DOCUMENTATION MEMORANDUM

Date: September 27, 2022
To: Tommy Strowd, PE, LWDD Executive Director/District Engineer
From: David M. Boyer, PE, CFM, Scalar Drainage Engineer
Reference: Atlantic Avenue PD&E from Florida's Turnpike to Jog Road, Palm Beach County
FM No. 440575-3-22-02
Scalar Project No. FL20006.00
CC: Project File

The project involves widening a 1.8-mile segment of Atlantic Avenue from the Florida's Turnpike to east of Jog Road in unincorporated Palm Beach County. The proposed project would widen the existing four-lane roadway to a six-lane roadway with upgraded bicycle and pedestrian facilities. Impacts to LWDD Canal L-34 are required to provide for the proposed typical section. Portions of the canal will be culverted. This memo demonstrates that the proposed culverts meet the hydraulic requirements specified by LWDD.

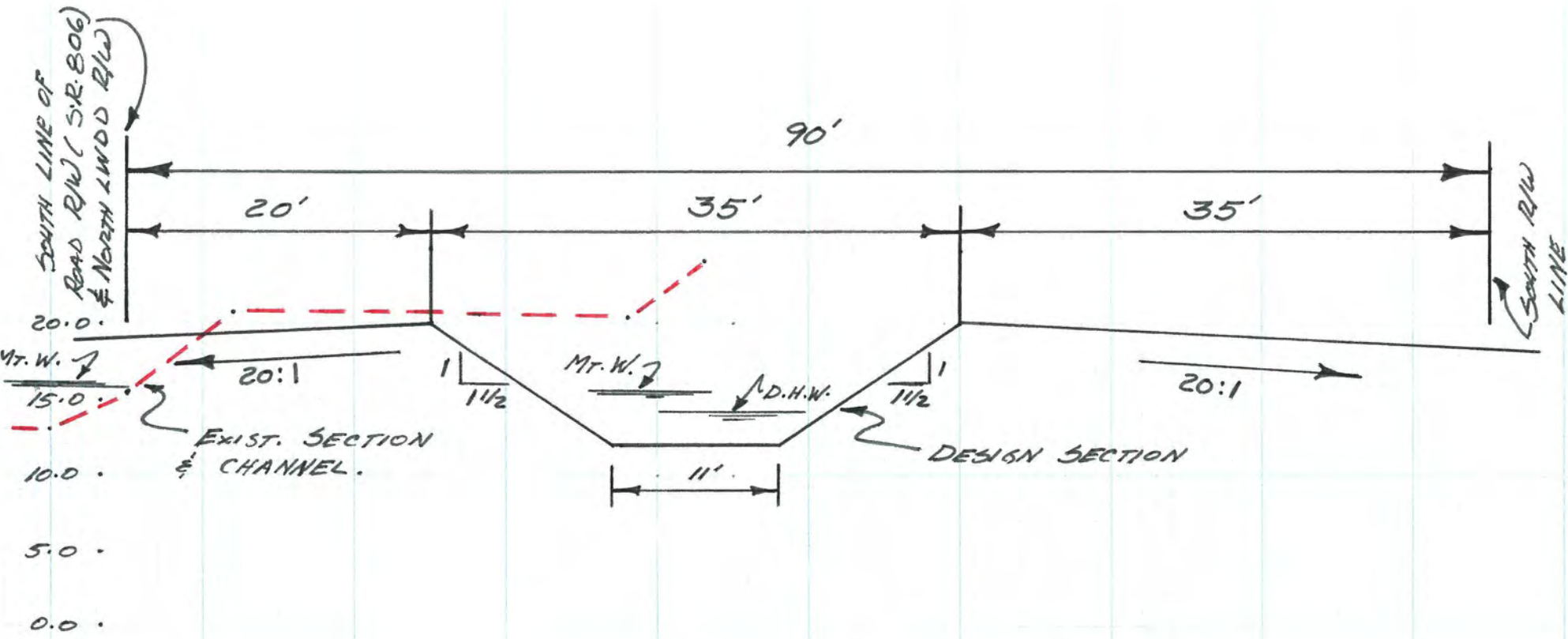
As described in the Preliminary Drainage Report, the canal impacts involve shifting the canal and, in some places, culverting the canal for short stretches. From approximately station 1022+20 to station 1037+85 the channel will be filled by a double 84" culvert. Also, from 1045+75 to about station 1050+20, and the channel will be filled by a double 78" culvert. Both culverts exceed the existing design of 30 cfs. To demonstrate the hydraulic capacity of the proposed culverts, an HY-8 analysis was performed and submitted to LWDD for review.

The response from LWDD indicated their concerns regarding the potential for reduced hydraulic capacity when converting from an open channel (trapezoidal cross-sectional area) to a piped cross-sectional area (enclosed cross-sectional area). In other words, the existing open channel provides significantly more conveyance capacity (due to larger cross-sectional area) than what is required to pass the typical design flow (open channel results in a much larger factor of safety) used in a more conventional modeling approach.

Based on this, and the design section and analysis provided by LWDD, the culverts were re-analyzed to address LWDD's concerns. First, the canal typical section at the LWDD provided has a bottom width of eleven feet and 1.5 to 1 side slopes with a four-foot stage at elevation 16.0 NGVD. A flow depth curve was generated based on a Manning's roughness of 0.035 and the data matched the flow curve from LWDD. The design stage for this canal is 16.3 NGVD with a design flow of 30 cfs based on data from the LWDD Facilities Report. The flow depth curve shows the open channel capacity at 63.8 cfs at 16.3 NGVD, which is more than double the design flow.


The previous results showed that the double 84" and double 78" culverts passed the 63.8 cfs flow with less than 0.1' rise in the headwater.

Another analysis was conducted, where vertical walls were installed in the reduced right-of-way (R/W) areas. Two typical sections were analyzed, the first with the north side of the canal being a vertical wall, with a 20' bottom width at elevation 12 NGVD and 1.5:1 south side slope. This section leaves a 35' maintenance area south of the canal top of bank and the south LWDD R/W. At the design stage of 16.3, this section will pass 88.3 cfs, much greater than the original channel. Another analysis looked at 2 vertical walls, with a bottom width of 30' (assumes 1' walls). This section leaves a 35' maintenance area south of the canal top of bank and the south LWDD R/W. This section passes 122.4 cfs, much greater than the original channel. **Both alternatives would provide greater capacity than the dual culverts.**



LATERAL CANAL No. 34

(JOB/POWERLINE TO E-L-E)

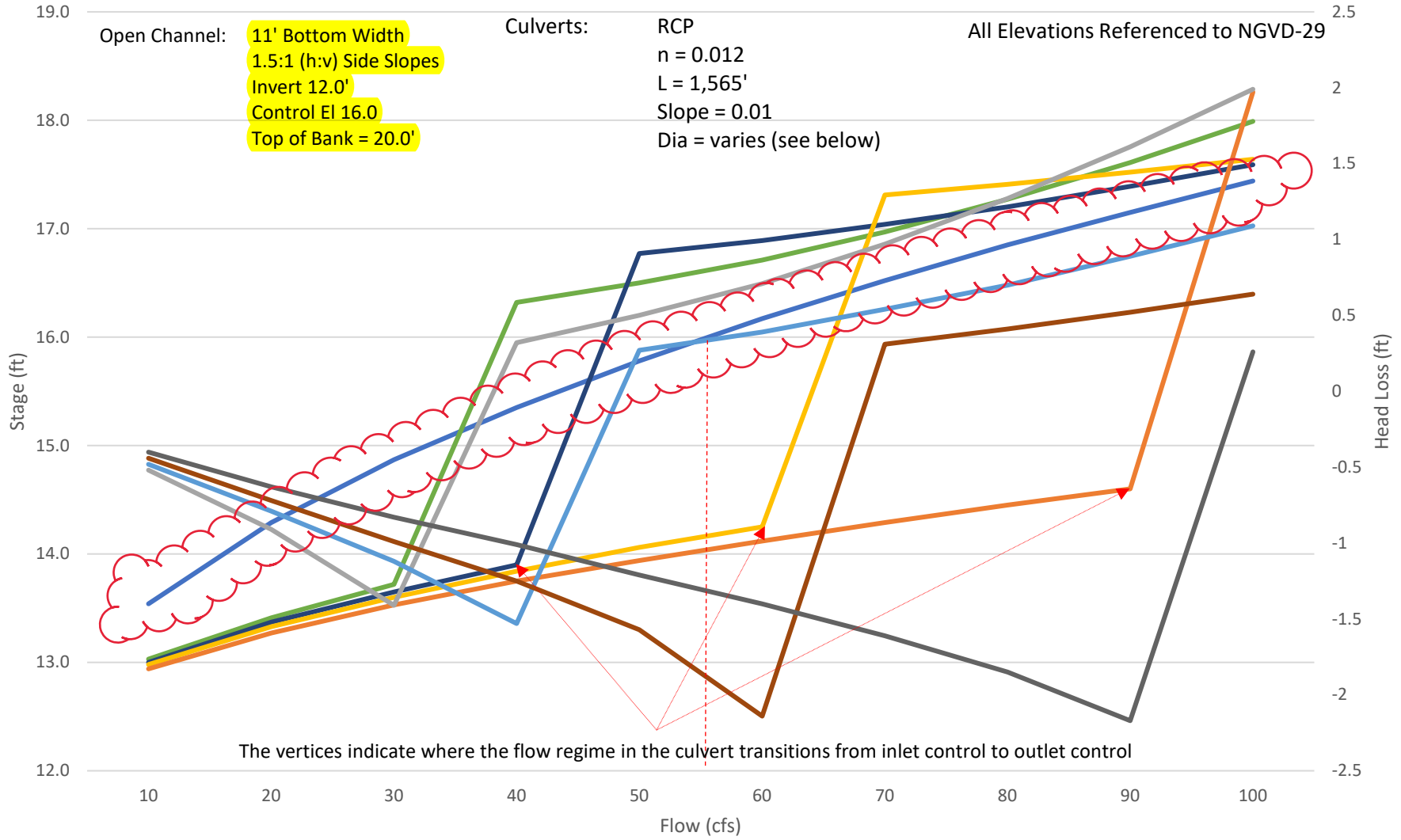
SER. No. 194
 DATE: 4/30/84


Stage vs Flow - Culvert 1

Open Channel: 11' Bottom Width
 1.5:1 (h:v) Side Slopes
 Invert 12.0'
 Control El 16.0
 Top of Bank = 20.0'

Culverts: RCP
 n = 0.012
 L = 1,565'
 Slope = 0.01
 Dia = varies (see below)

All Elevations Referenced to NGVD-29



The vertices indicate where the flow regime in the culvert transitions from inlet control to outlet control

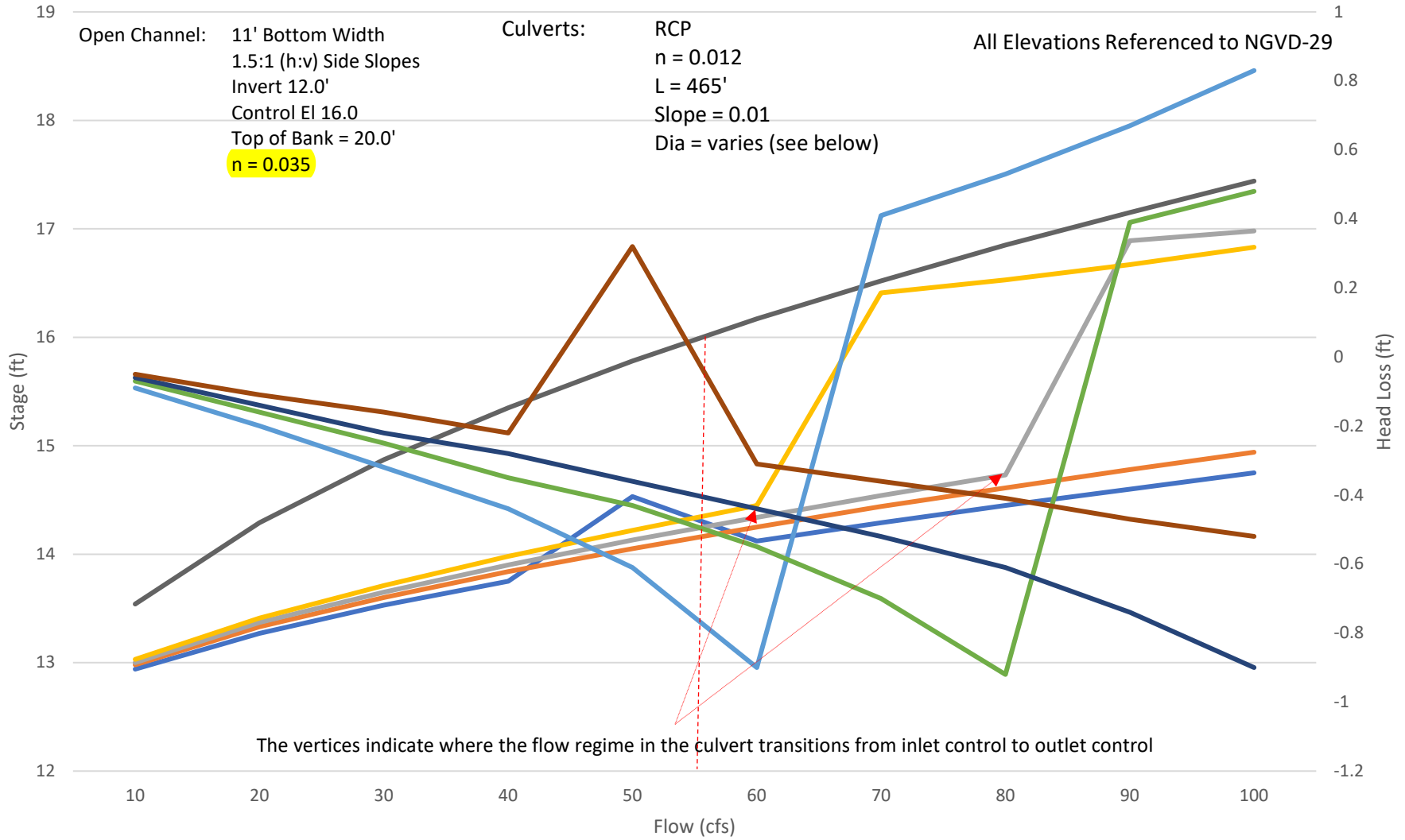
- HGL (ft) - 11x4_Open_Channel
- HGL Hw (ft) - Double 48 in
- HGL Hw (ft) - Double 54 in
- HGL Hw (ft) - Double 60 in
- HGL Hw (ft) - Double 72 in
- HL (ft) - Double 48 in
- HL (ft) - Double 54 in
- HL (ft) - Double 60 in
- HL (ft) - Double 72 in

Stage vs Flow - Culvert 2

Open Channel: 11' Bottom Width
 1.5:1 (h:v) Side Slopes
 Invert 12.0'
 Control El 16.0
 Top of Bank = 20.0'
n = 0.035

Culverts: RCP
 n = 0.012
 L = 465'
 Slope = 0.01
 Dia = varies (see below)

All Elevations Referenced to NGVD-29



The vertices indicate where the flow regime in the culvert transitions from inlet control to outlet control

- HGL (ft) - 11x4_Open_Channel
- HGL Hw (ft) - Double 72 in
- HGL Hw (ft) - Double 60 in
- HGL Hw (ft) - Double 54 in
- HGL Hw (ft) - Double 48 in
- HL (ft) - Double 48 in
- HL (ft) - Double 54 in
- HL (ft) - Double 60 in
- HL (ft) - Double 72 in

Ditch Capacity Calculator

using Manning's Formula

Data Entry (fill in underlined blanks)

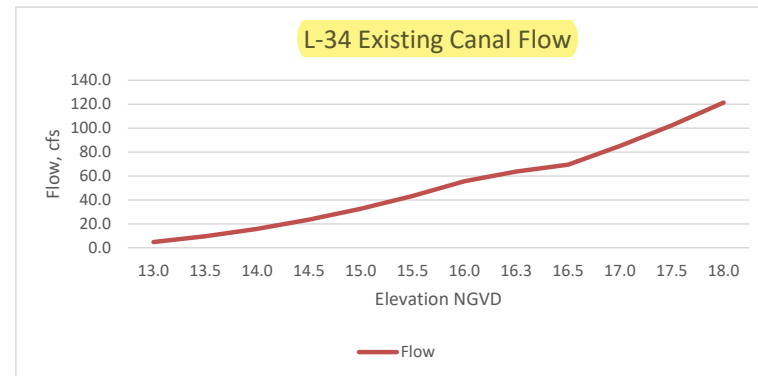
Top Width = 23.9 feet 11' Bottom and 1.5:1 side slopes
Bottom Width = 11 feet
Depth = 4.3 feet
Fall = 0.01 feet per 100 feet of distance
Grade = 0.0001, or 0.01%
n Factor = 0.035

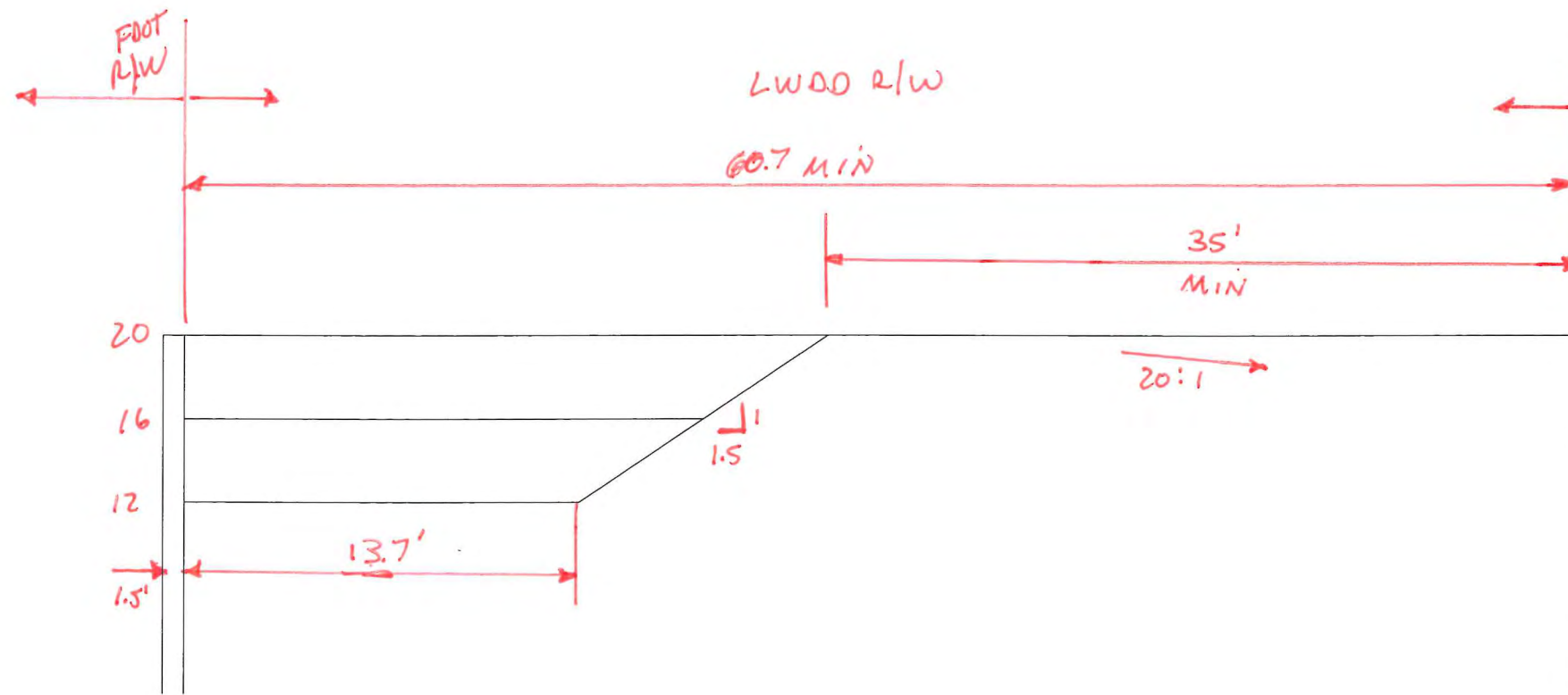
Results calculated

Area of cross-section = 75.04 square feet
Wetted Perimeter = 26.50387 feet
Hydraulic Radius = 2.831096
Velocity = 0.850 feet per second

Calculated Ditch Capacity = 63.756 cubic feet per second

L-34 Canal Data		
Depth	Elevation	Flow
1.0	13.0	4.8
1.5	13.5	9.6
2.0	14.0	15.8
2.5	14.5	23.5
3.0	15.0	32.7
3.5	15.5	43.4
4.0	16.0	55.6
4.3	16.3	63.8
4.5	16.5	69.5
5.0	17.0	85.0
5.5	17.5	102.3
6.0	18.0	121.4





ORIGINAL CANAL Flow @ DESIGN STAGE
= 63.8 cfs

VERTICAL WALL Flow @ Design Stage
= 63.94 cfs
With 13.7' Bottom width

Ditch Capacity Calculator

using Manning's Formula

Data Entry (fill in underlined blanks)

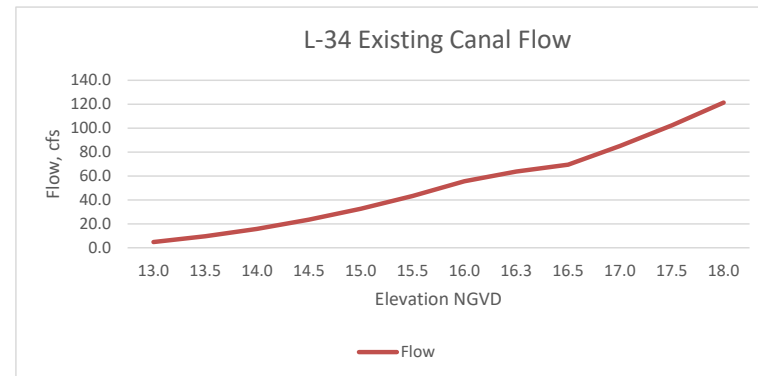
Top Width = 23.9 feet 11' Bottom and 1.5:1 side slopes
Bottom Width = 11 feet
Depth = 4.3 feet
Fall = 0.01 feet per 100 feet of distance
Grade = 0.0001 , or 0.01%
n Factor = 0.035

Results calculated

Area of cross-section = 75.04 square feet
Wetted Perimeter = 26.50387 feet
Hydraulic Radius = 2.831096
Velocity = 0.850 feet per second

Calculated Ditch Capacity = 63.756 cubic feet per second

L-34 Canal Data		
Depth	Elevation	Flow
1.0	13.0	4.8
1.5	13.5	9.6
2.0	14.0	15.8
2.5	14.5	23.5
3.0	15.0	32.7
3.5	15.5	43.4
4.0	16.0	55.6
4.3	16.3	63.8
4.5	16.5	69.5
5.0	17.0	85.0
5.5	17.5	102.3
6.0	18.0	121.4



Ditch Capacity Calculator

using Manning's Formula

Data Entry (fill in underlined blanks)

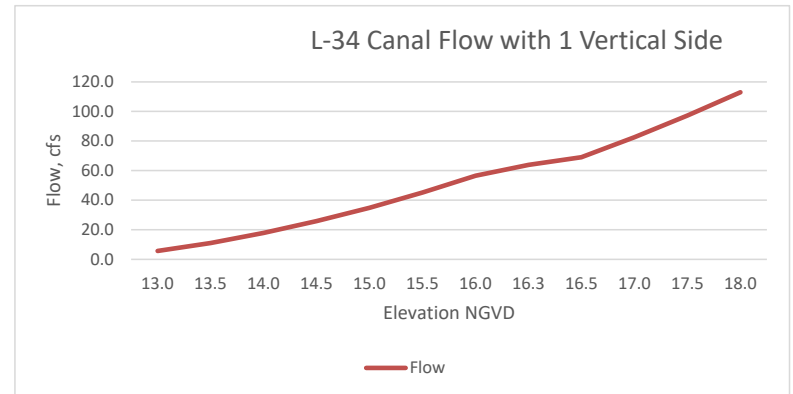
Top Width = 22.7 feet 1 vertical wall, 1.5:1 south side
Bottom Width = 13.7 feet
Depth = 6 feet
Fall = 0.01 feet per 100 feet of distance
Grade = 0.0001 , or 0.01%
n Factor = 0.035

Results calculated

Area of cross-section = 109.20 square feet
Wetted Perimeter = 28.7 feet
Hydraulic Radius = 3.80487805
Velocity = 1.035 feet per second

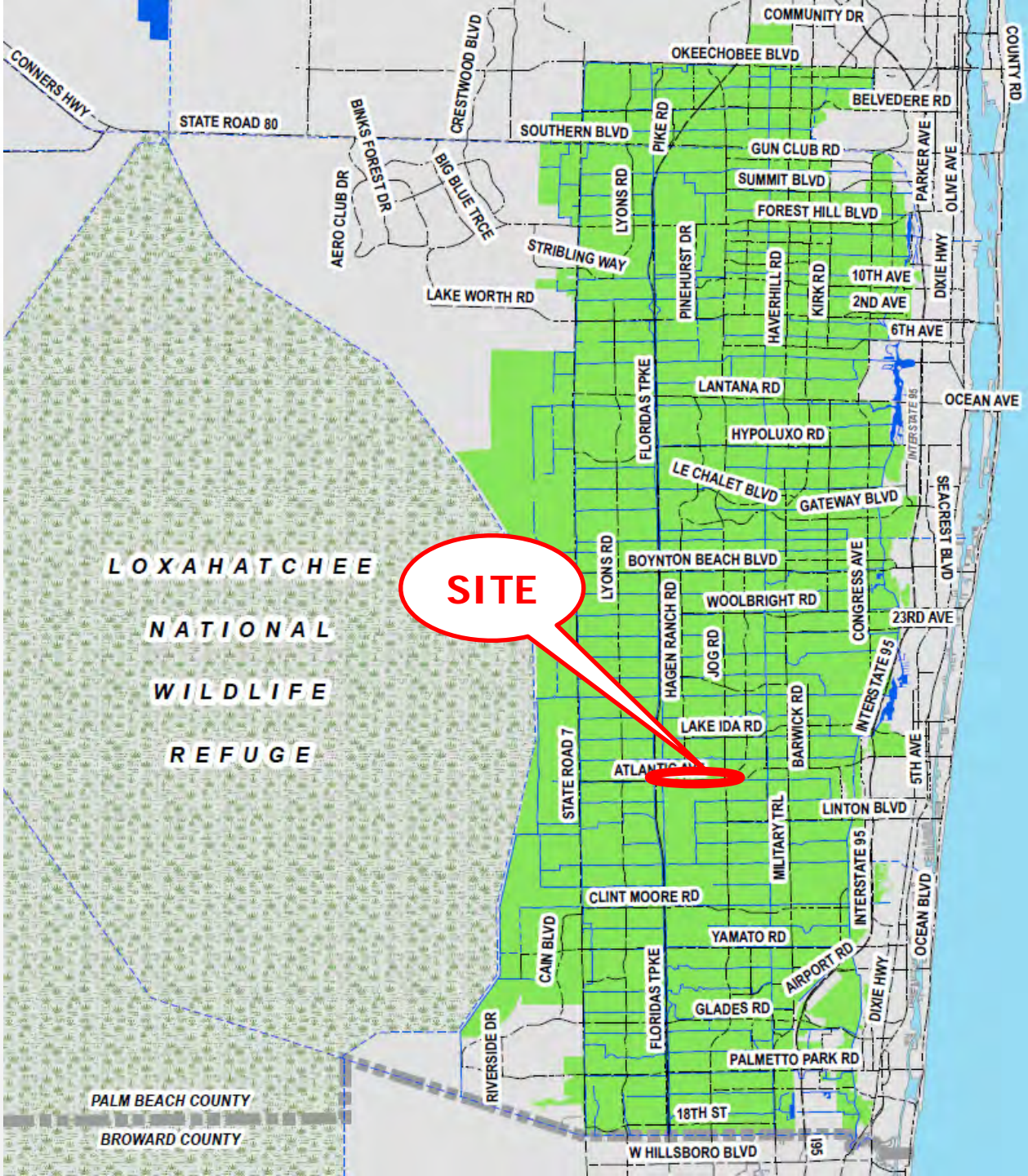
Calculated Ditch Capacity = 112.998 cubic feet per second

Depth	Elevation	Flow
1.0	13.0	5.7
1.5	13.5	11.1
2.0	14.0	17.8
2.5	14.5	25.8
3.0	15.0	35.0
3.5	15.5	45.2
4.0	16.0	56.6
4.3	16.3	63.9
4.5	16.5	69.1
5.0	17.0	82.6
5.5	17.5	97.3
6.0	18.0	113.0



FDOT Revised Conceptual Design for Atlantic Avenue Roadway Widening and L-34 Canal Modifications Including Sale of Surplus & Reduction of Canal Right-of- Way from West of Florida's Turnpike to just East of Jog Road (RI-19-0123)

David Bends, P.S.M., Right-of-Way Interest Supervisor
Governing Board Meeting – March 15, 2023
Agenda Item #8



LOXAHATCHEE
NATIONAL
WILDLIFE
REFUGE

PALM BEACH COUNTY
BROWARD COUNTY



ATLANTIC OCEAN

West Atlantic Ave Project Limits



Background



- April 2022 – Motion for approval of conceptual design failed due to concerns regarding drainage impacts
 - Reduction in hydraulic capacity
 - Right-of-way necessary for canal maintenance and emergency operations

- July 2022 – TPA & FDOT presented same proposed design; Board motion to defer action and directed staffs to meet to address ongoing concerns

Background

LWDD Required Canal Cross Section



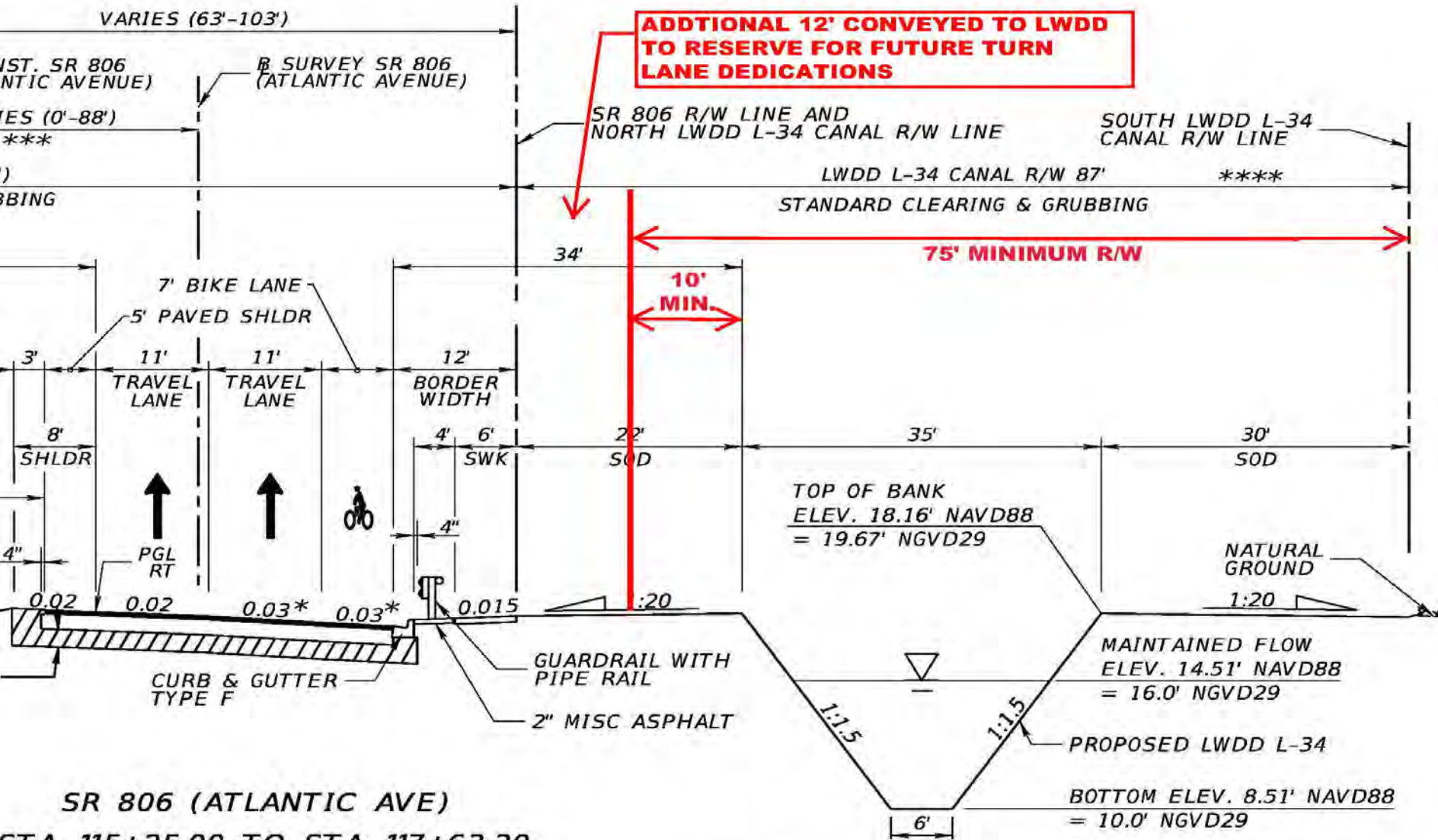
- LWDD & TPA staff met and discuss required canal cross section:
 - Open Channel
 - 80'+ right-of-way maintained
 - Minimum 75' minimum right-of-way accepted if border variation applied but unable to meet 80'
 - Piped Canal
 - Where 75' minimum right-of-way is not possible even with application of border variation, limited piping accepted; must maintain minimum 70' right-of-way

Revised Design



- FDOT reduced required border width from 14' to 12', and revised the conceptual design to provide a 75 ft minimum ROW from E-2E Canal to just west of Cumberland Drive
- Exception of two pinch points at Legends Way and Michelangelo Blvd to accommodate right turn lanes where the ROW will be reduced to 67-69 ft.
 - In these areas, FDOT proposing to construct bulkhead walls within their R/W rather than piping canal
 - Bulkhead walls are preferable alternative – maintains open channel for hydraulic capacity

Typical Section Previously approved by LWDD West Atlantic Ave - S.R. 7 to Florida's Turnpike

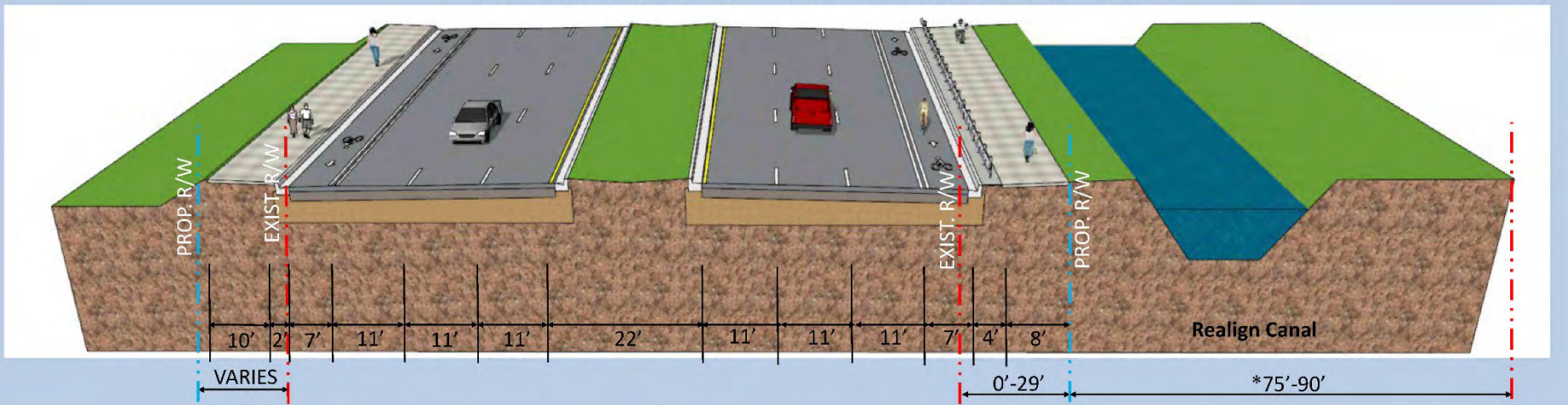


SR 806 (ATLANTIC AVE)
STA. 115+25.00 TO STA. 117+63.30
STA. 118+65.16 TO STA. 172+74.96

*PAVT. SLOPE BASED ON ACCOMMODATIONS IN THE MEDIAN FOR FUTURE ULTIMATE 6-LANE URBAN TYPICAL

FDOT Proposed Typical Cross Section

ATLANTIC AVENUE E2-E CANAL TO CUMBERLAND DRIVE



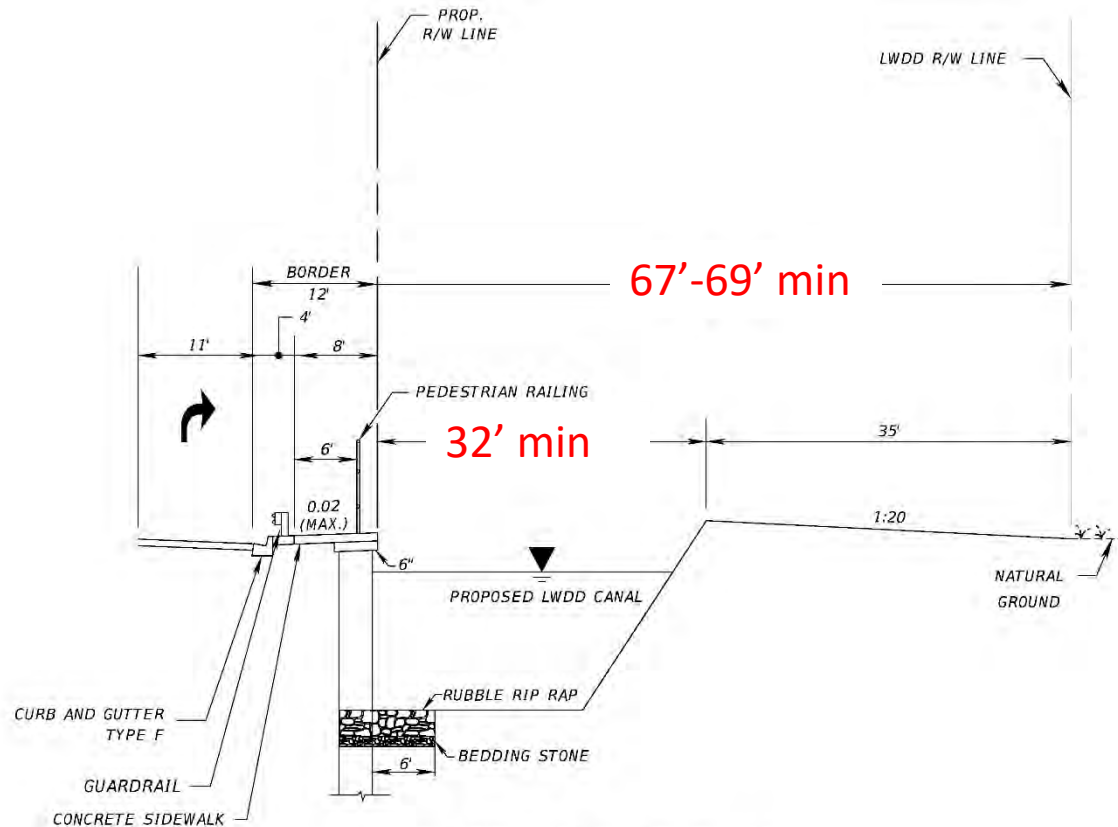
65' min. at right turns into Legends Way and Michelangelo Blvd. w/bulkhead walls (approximately 300' for each wall – to be maintained by FDOT)

BASED ON LWDD STAFF MEETING W/ FDOT and TPA:

1. Border width reduced to 12-ft on south side to minimize R/W impacts to L-34 Canal
2. TPA Staff concurrence for reduction of sidewalk width

67' – 69' min at right turn lanes as presented in FDOT plans submitted on January 30, 2023

Revised Design (Bulkhead Wall Detail)



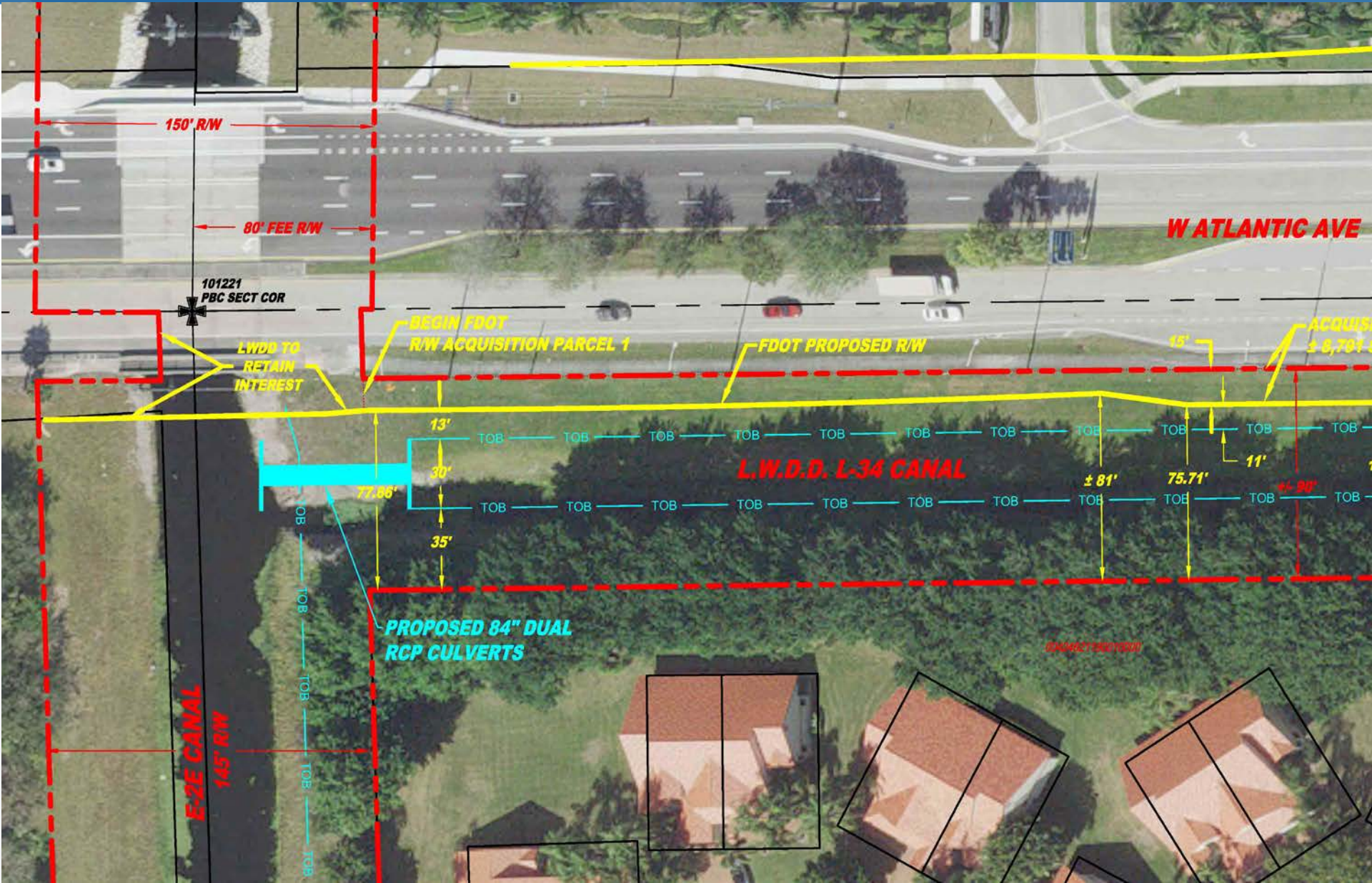
SR 806 (ATLANTIC AVE)

AT RIGHT TURN INTO LEGENDS WAY AND AT MICHELANGELO BOULEVARD
(WITH BULKHEAD WALL)

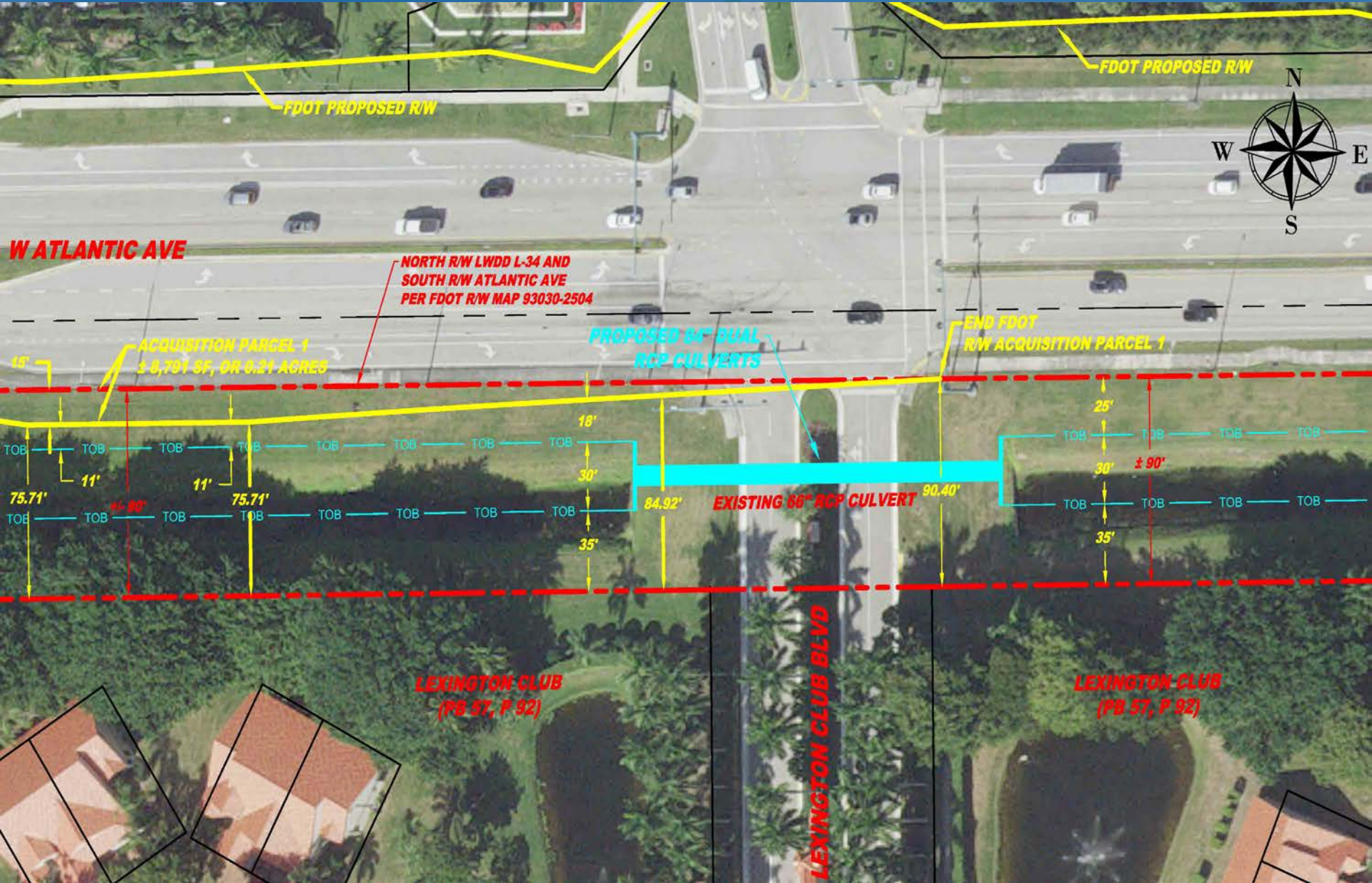
- FDOT to provide rubble rip rap at the base of the wall to prevent over-excavation and damage

- Approval to surplus and sell a portion of the L-34 Canal right-of-way as presented for the roadway widening at fair market value from E-2E Canal to east of Jog Road, Containing 3.84 Acres, more/less
- Approval to abandon the L-34 Canal necessary for the roadway widening from the west line of King's Point Plat No. 1 to the eastern terminus of the L-34 Canal (500' west of Jog Road)
 - FDOT to assume ownership and all maintenance obligations of the existing culverts and drainage system and continue to accept existing drainage from surrounding properties.
 - FDOT & LWDD to extinguish Maintenance Agreement in ORB 11868, Page 301

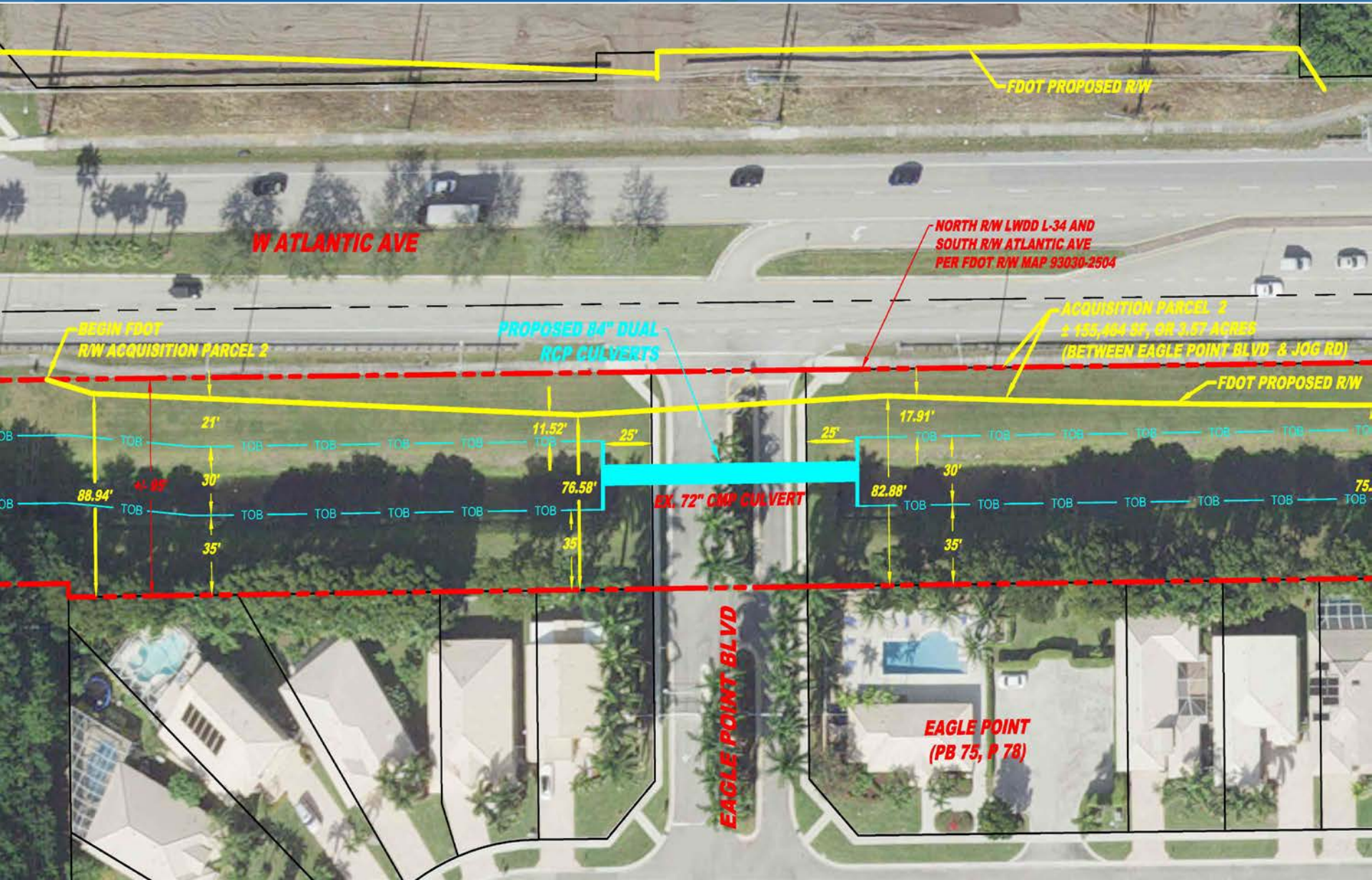
L-34 Canal @ E-3



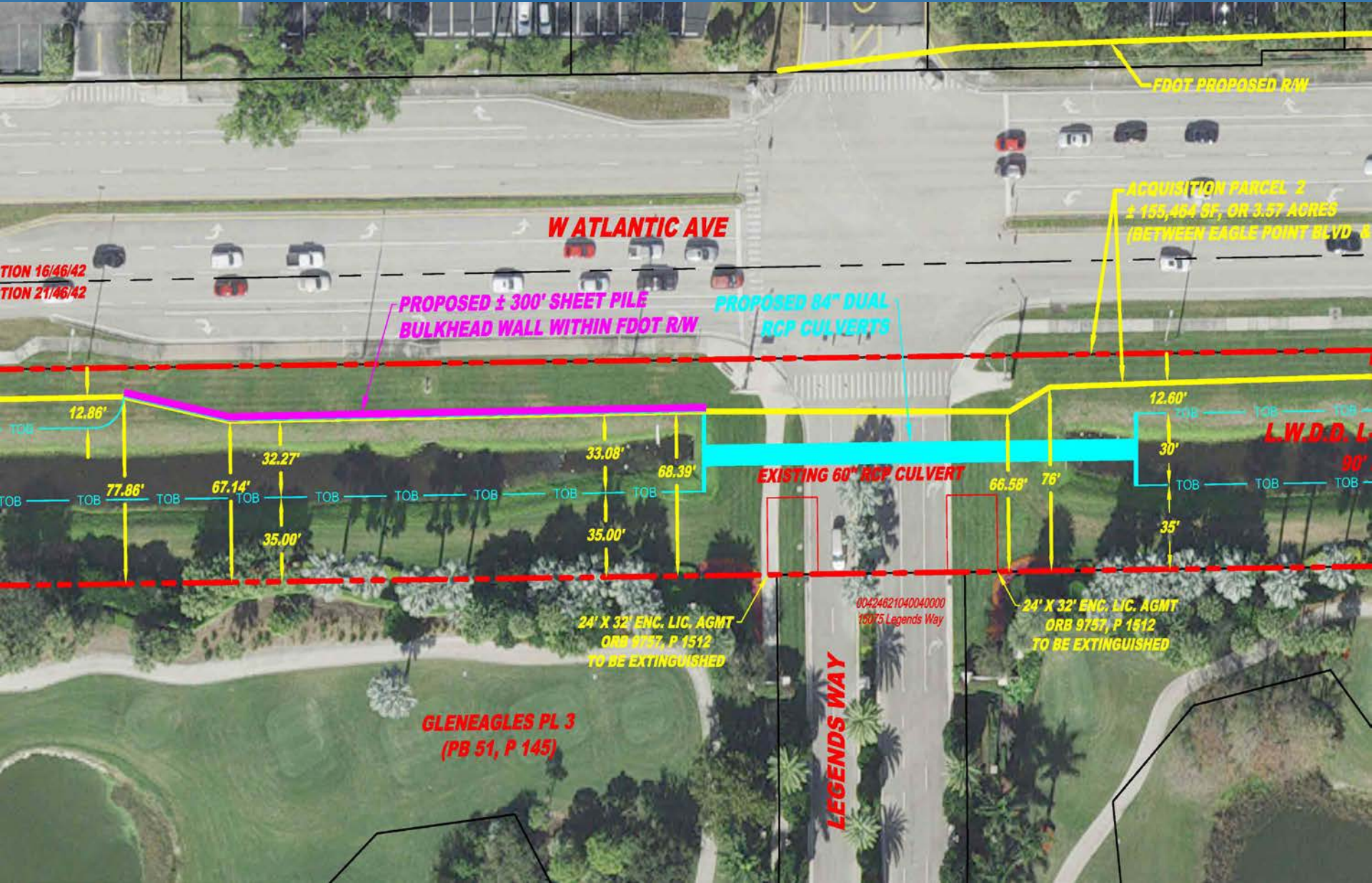
L-34 Canal @ Lexington Club Blvd



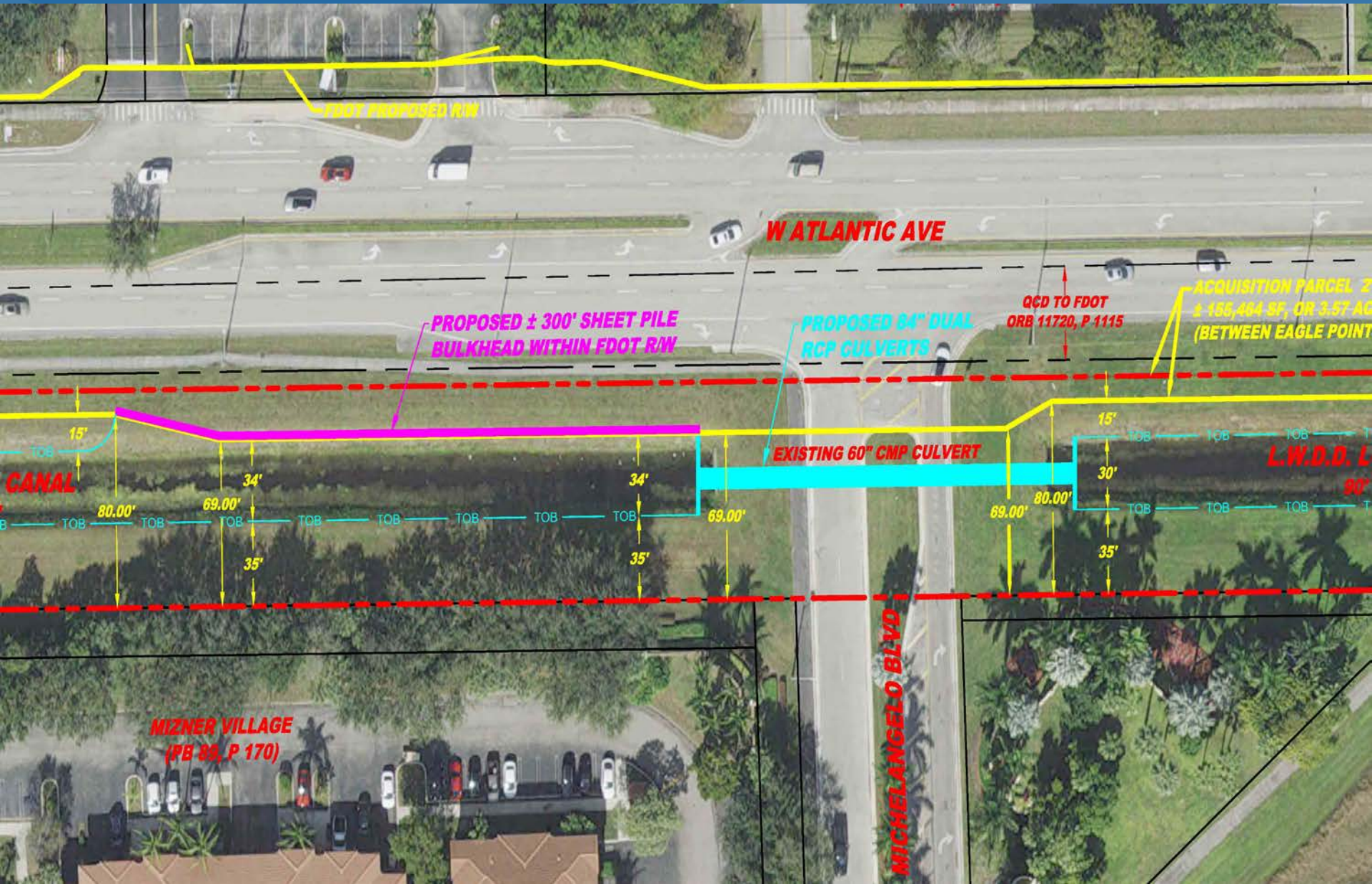
L-34 Canal @ Eagle Point Dr.



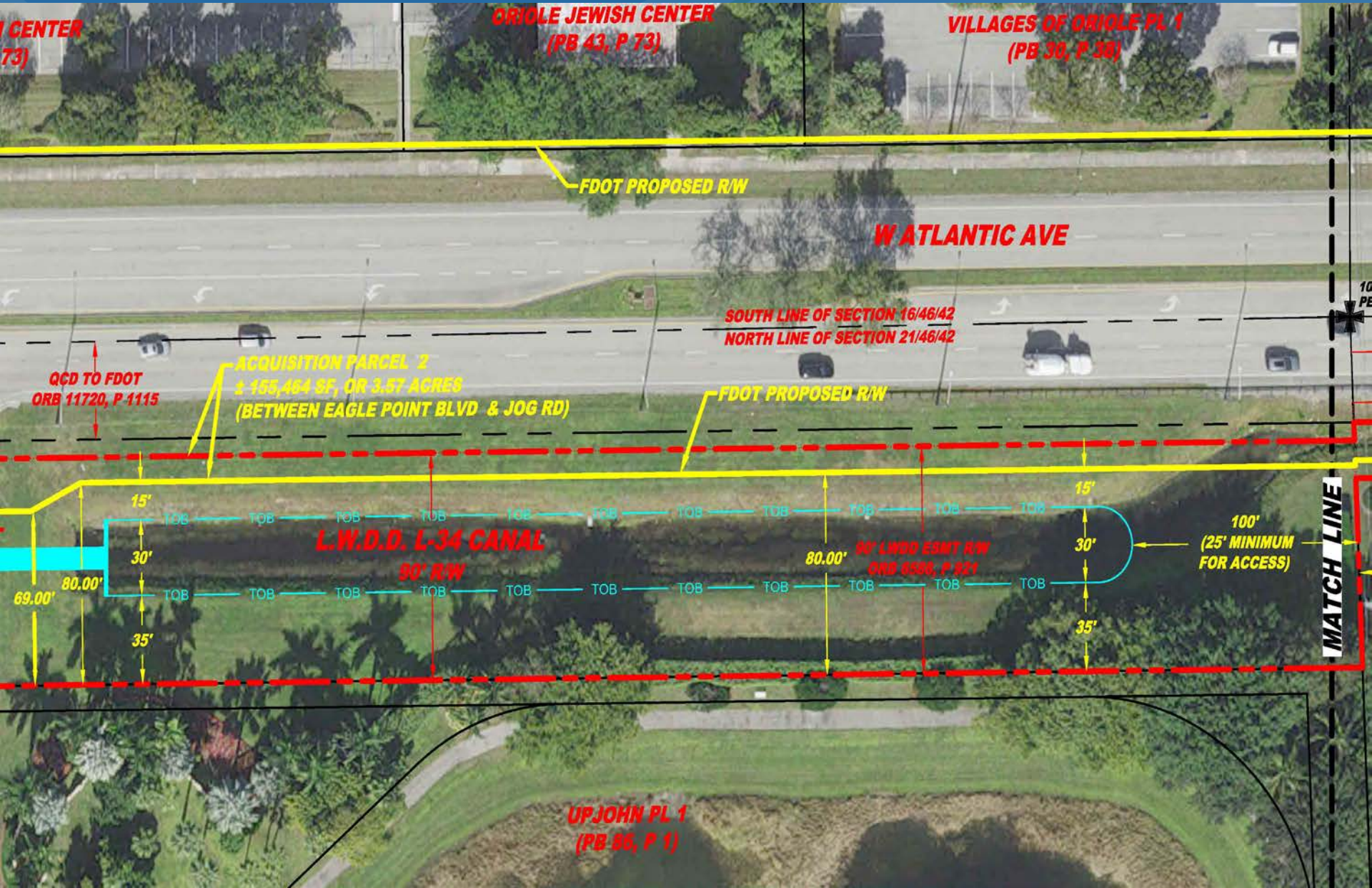
L-34 Canal @ Legends Way



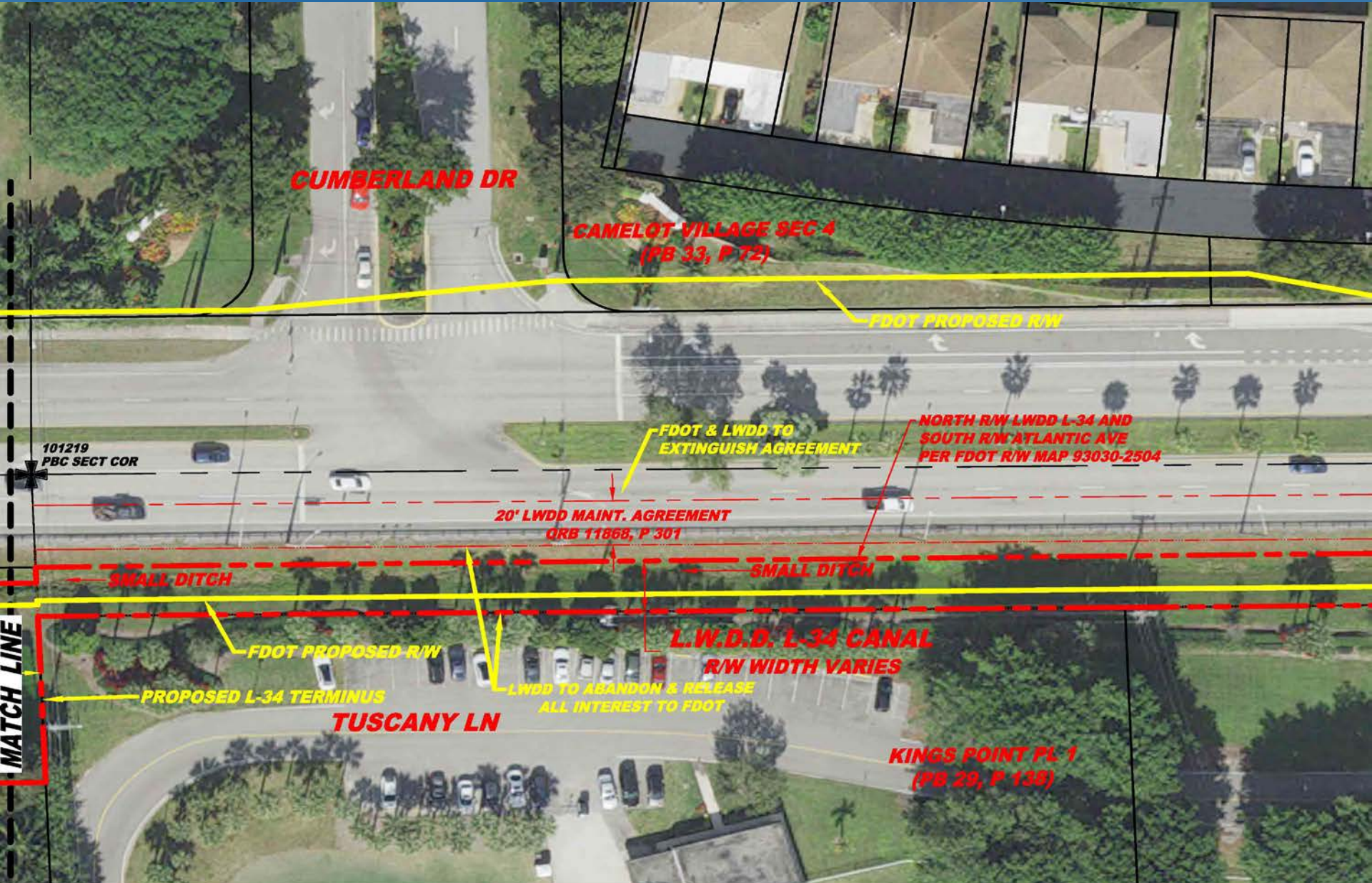
L-34 Canal @ Michelangelo Blvd



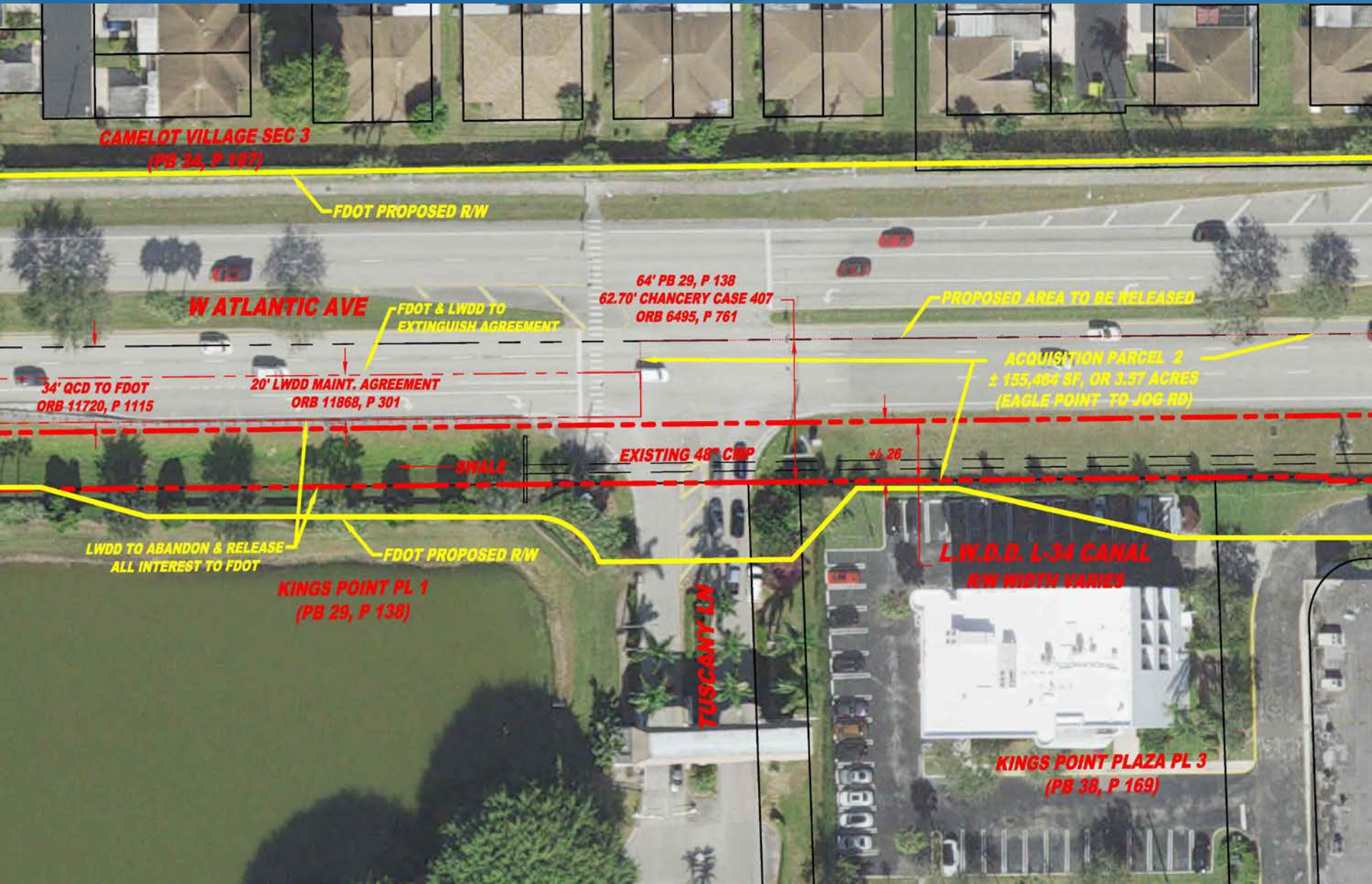
L-34 Canal @ Proposed East Terminus



L-34 Canal adjacent to Kings Point



L-34 Canal @ Tuscany Lane



CAMELOT VILLAGE SEC 3
(PB 34, P 197)

FDOT PROPOSED R/W

W ATLANTIC AVE

FDOT & LWDD TO EXTINGUISH AGREEMENT

64' PB 29, P 138
62.70' CHANCERY CASE 407
ORB 6495, P 761

PROPOSED AREA TO BE RELEASED

34' QCD TO FDOT
ORB 11720, P 1115

20' LWDD MAINT. AGREEMENT
ORB 11868, P 301

ACQUISITION PARCEL 2
± 135,404 SF, OR 3.57 ACRES
(EAGLE POINT TO JOE RS)

SIDWALK

EXISTING 48" CMP

+/- 26'

LWDD TO ABANDON & RELEASE
ALL INTEREST TO FDOT

FDOT PROPOSED R/W

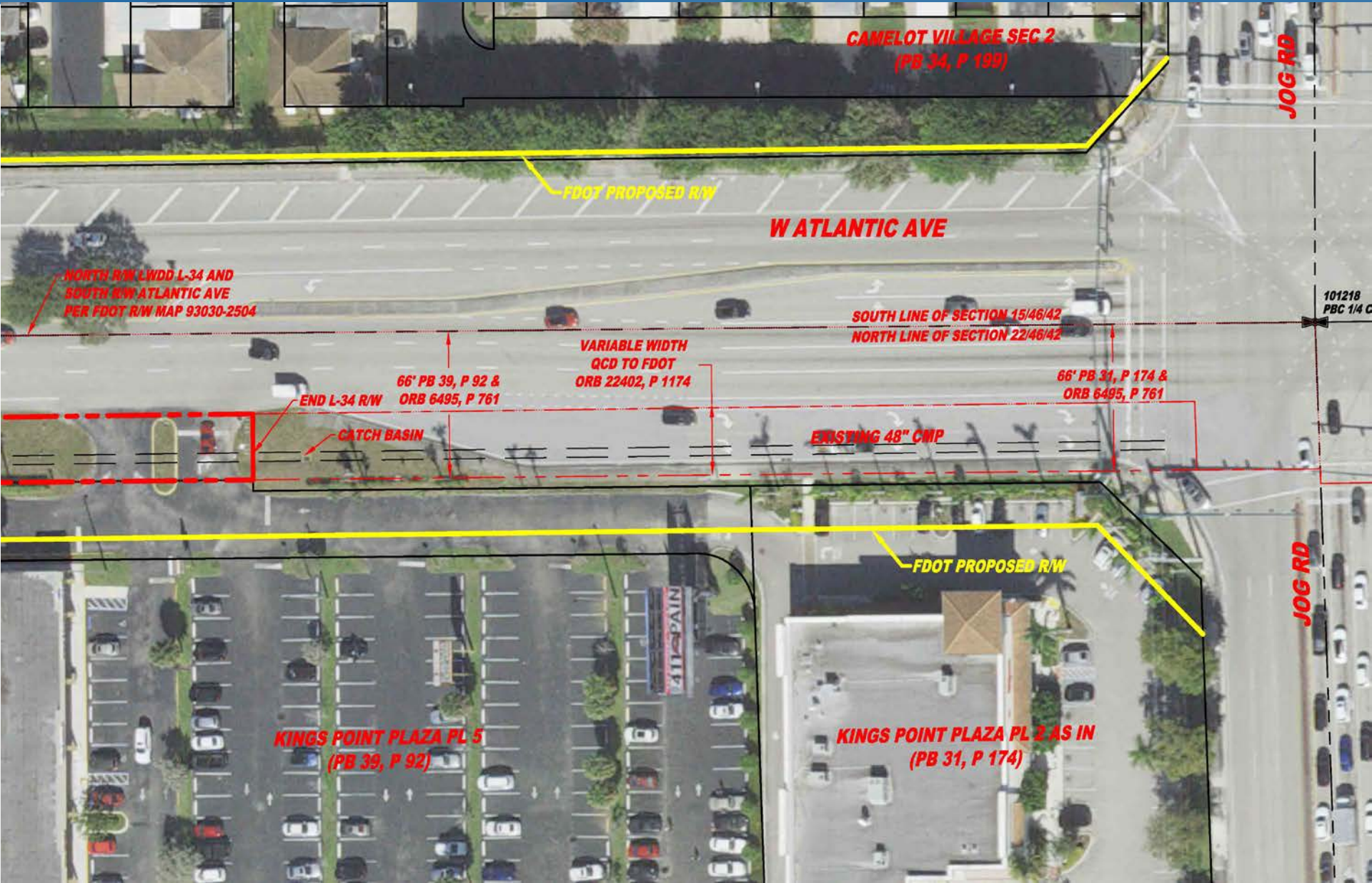
KINGS POINT PL 1
(PB 29, P 138)

TUSCANY LN

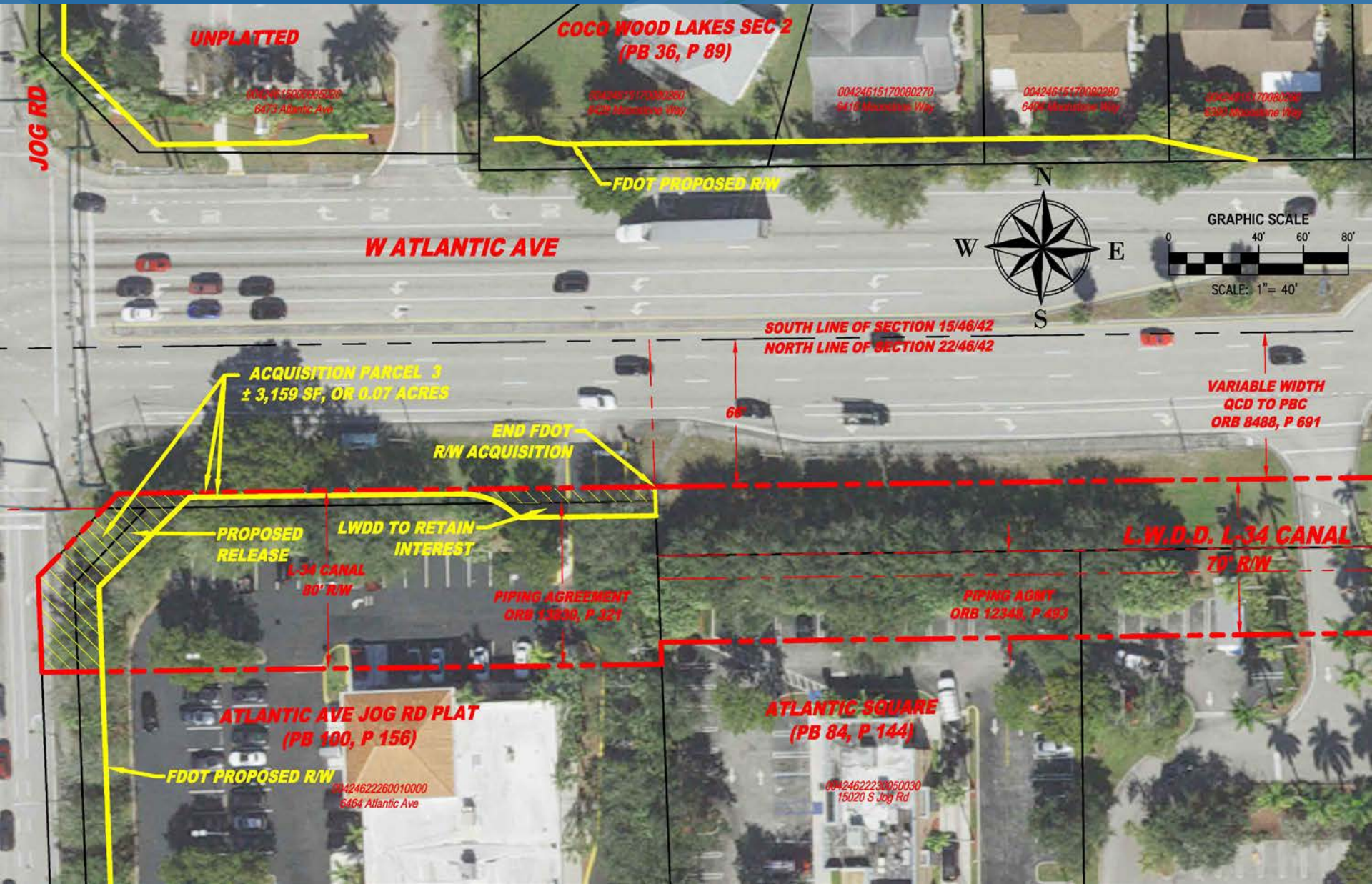
L.W.D.D. L-34 CANAL
R/W WIDTH VARIES

KINGS POINT PLAZA PL 3
(PB 38, P 169)

L-34 Canal West of Jog Rd



L-34 Canal East of Jog Rd



FDOT Canal Modification Requirements



- Shift the heavy maintenance berm currently on the north side of the channel to the south side and provide a 35' continuous maintenance berm
- Rip-Rap or other permitted material that may be required to armor the canal bank to prevent scour where the canal transitions and 25' beyond headwalls
- Drop curb (14' in width) centered on maintenance berms on north and south sides of canal at road crossings and through medians; sidewalks (6" thick) through canal right-of-way
- A minimum of 15' clear unobstructed access at all four (4) quadrants of any crossing
- Vegetative side trimming (25-foot vertically) along the south canal right-of-way line and removal of all vegetation on the south side of the canal that may exist throughout the project limits to provide 35' unencumbered access
- Removal of all above-ground encroachments on the south side of the canal that may exist to provide 35' unencumbered access
- The existing utility transmission line and poles parallel with and adjacent to the existing north right-of-way line of the L-34 Canal will be required to be relocated within FDOT's right-of-way for Atlantic Avenue
- At road crossings, culvert size and length to be approved by LWDD to ensure no impacts to drainage and sufficient access

Memorandum of Agreement

- FDOT and LWDD to enter into Memorandum of Agreement for construction coordination
 - FDOT shall control the L-34 Canal right-of-way during the construction of the Project
 - FDOT shall grant access to LWDD to maintain the canal in the event of an emergency
 - FDOT will include in the construction contract, the proposed permit to be issued by LWDD which contains conditions set forth in the agreement
 - LWDD shall execute conveyance and other documentation to transfer ownership of the canal right-of-way to FDOT prior to construction
 - The project shall be complete within 10 years of MOA execution, or as extended by the parties

- Approval of FDOT's revised conceptual design for Atlantic Ave roadway widening and L-34 Canal modifications
- Approval to surplus and sell that portion of the L-34 Canal right-of-way for roadway widening at fair market value, containing approximately 3.84 acres, more/less, as specifically presented in plans submitted by FDOT on January 30, 2023
- Approval to abandon that portion of the L-34 Canal right-of-way (+/- 22' to 29' in width) from the west line of King's Point Plat No. One to the eastern terminus and turn over maintenance responsibilities to FDOT
- Approval for staff to formalize a Memorandum of Agreement (MOA) with the FDOT to be approved by the Board at a future date

- Subject to:
 - Permittee shall be responsible for all costs associated with the proposed canal improvements and modifications
 - Board approval of Memorandum of Agreement and final design
 - Board approval of fair market value based on an appraisal to be provided by FDOT
 - An analysis confirming sufficient hydraulic capacity
 - FDOT and its consultants seeking approval from staff for all modifications within the approved canal right-of-way prior to the final design