

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
WATER QUALITY IMPACT EVALUATION CHECKLIST

650-050-37
ENVIRONMENTAL
MANAGEMENT
08/22

PART 1: PROJECT INFORMATION

Project Name:	SR 29 from CR 846 to N. of New Market Road
County:	Collier
FM Number:	417540-5-52-01
Federal Aid Project No:	N/A
Brief Project Description:	Segment includes the construction of a new alignment for a section of SR 29 east of Immokalee.

PART 2: DETERMINATION OF WQIE SCOPE

Does project discharge to surface or ground water? Yes No

Does project alter the drainage system? Yes No

Is the project located within a permitted MS4? Yes No
Name: FLR04E037

If the answers to the questions above are no, complete the applicable sections of Part 3 and 4, and then check Box A in Part 5.

PART 3: PROJECT BASIN AND RECEIVING WATER CHARACTERISTICS

Surface Water

Receiving water names: Barron Canal

Water Management District: South Florida Water Management District (SFWMD)

Environmental Look Around meeting date: Various (See meeting minutes)
Attach meeting minutes/notes to the checklist.

Water Control District Name(s) (list all that apply): N/A

Groundwater

Sole Source Aquifer (SSA)? Yes No
Name _____

If yes, complete Part 5, D and complete SSA Checklist shown in Part 2, Chapter 11 of the PD&E Manual

Other Aquifer? Yes No
Name _____

Springs vents? Yes No
Name _____

Well head protection area? Yes No
Name Immokalee Wellfield

Groundwater recharge? Yes No
Name _____

Notify District Drainage Engineer if karst conditions are expected or if a higher level of treatment may be needed due to a project being located within a WBID verified as Impaired in accordance with Chapter 62-303, F.A.C.

Date of notification: N/A

PART 4: WATER QUALITY CRITERIA

List all WBIDs and all parameters for which a WBID has been verified impaired, or has a TMDL in [Table 1](#). This information should be updated during each re-evaluation as required.

Note: If BMAP or RAP has been identified in [Table 1](#), [Table 2](#) must also be completed. Attach notes or minutes from all coordination meetings identified in [Table 2](#).

EST recommendations confirmed with agencies? Yes No

BMAP Stakeholders contacted? Yes No

TMDL program contacted? Yes No

RAP Stakeholders contacted? Yes No

Regional water quality projects identified in the ELA? Yes No

If yes, describe:

High level regional options were explored for a regional treatment.

Potential direct effects associated with project construction and/or operation identified? Yes No

If yes, describe:

Discuss any other relevant information related to water quality including Regulatory Agency Water Quality Requirements.

PART 5: WQIE DOCUMENTATION

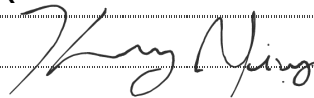
- A. No involvement with water quality
- B. No water quality regulatory requirements apply.
- C. Water quality regulatory requirements apply to this project (provide Evaluator's information below). Water quality and stormwater issues will be mitigated through compliance with the design requirements of authorized regulatory agencies.
- D. EPA Ground/Drinking Water Branch review required. Yes No
Concurrence received? Yes No
If Yes, Date of EPA Concurrence: [Click here to enter a date.](#)
Attach the concurrence letter

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (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.

Evaluator Name (print): Kenneth Yinger

Title: Drainage EOR

Signature:



Date: 12/7/2023

Table 1: Water Quality Criteria

Receiving Waterbody Name (list all that apply)	FDEP Group Number / Name	WBID(s) Numbers	Classification (I,II,III,IIIL,IV,V)	Special Designations*	NNC limits**	Verified Impaired (Y/N)	TMDL (Y/N)	Pollutants of concern	BMAP, RA Plan or SSAC
Silver Strand	Group 1 Everglades West Coast	3278W	IIIF	N/A	N/A	Yes	No	Metals (Iron)	-
Immokalee Basin	Group 1 Everglades West Coast	3278L	IIIF	N/A	N/A	No	No	None	-

* ONRW, OFW, Aquatic Preserve, Wild and Scenic River, Special Water, SWIM Area, Local Comp Plan, MS4 Area, Other

** Lakes, Spring vents, Streams, Estuaries

Note: If BMAP or RAP has been identified in [Table 1](#), [Table 2](#) must also be completed.



Project Number: 417540-1 thru 417540-5 and 434490-1
Project Description: SR 29 Corridor Improvements
Meeting Name: SR 29 Regional Treatment Partnering Meeting No. 1
Date/Time: 5.13.2019 – 10:00 AM
Location: FDOT – D1 SWAO
Minutes Prepared By: PGA

Attendees:

See Attached Sign-in Sheets

Exhibits: See attached.

The following notes reflect our understanding of the discussions and decisions made at this meeting. If you have any questions, additions, or comments, please contact us. We will consider the minutes to be accurate unless written notice is received within 5 working days of the date issued.

Meeting Minutes:

1. Introductions

- a. The meeting began with brief introductions

2. FDOT's planned improvement projects

- a. PD&E Study: 417540-1 - SR 29 North of Oil Well Road (Study on-going)
 - i. Design Segments:
 - ii. 417540-2 – SR 29 from Oil Well Road to Sunniland Nursery Road
 - iii. 417540-3 – SR 29 from Sunniland Nursery Road to Agricultural Way
 - iv. 417540-4 – SR 29 from Agricultural Way to CR 846 E
 - v. 417540-5 – SR 29 from CR 846 E to New Market Road
- b. PD&E Study: 434490-1 - SR 29 from I-75 (Alligator Alley) to Oil Well Road (underway)

3. Basin overview of proposed projects

- a. The noted design segments are all within the Silver Strand Basin.
- b. The flow is carried from north to south via the Barron River Canal that is adjacent to SR 29 on the east side of the roadway.

4. Regional stormwater treatment opportunities

Several opportunities were discussed amongst the stakeholders to provide regional stormwater treatment for the corridor. Below is a list of specific opportunities discussed and key highlights for each

- a. Repurpose existing borrow pits south of Oil Well Road
 - i. This would locate the regional facility furthest downstream to capture and treat the maximum amount of the stormwater runoff
 - ii. Per Russell Priddy, the borrow pits east of SR 29 are currently being used as a high-end fishing camp and would not be ideal
 - iii. The borrow pits west of SR 29 are potentially available, but culverts or a bridge would be needed to cross SR 29 and considerations for crossing the powerline easement along the west side of SR 29
 - iv. The Eastern Collier Habitat Conservation Plan (HCP) is within this area west of SR 29



- v. The HCP was recently updated and is expected to be finished in September
 - vi. The quadrants at the intersection of SR 29 and Oil Well Road are currently slated for development
 - b. Pregnant Snake
 - i. This would involve widening of the Barron canal along SR 29 to provide treatment of the stormwater.
 - ii. Ditch blocks and/or gates would be required to provide the required treatment and attenuation
 - iii. The land owners expressed concerns with this option since the burden would likely be on a single landowner
 - iv. There is the potential that the canal widening could be implemented at several locations along the canal
 - v. The widened canal option may be more difficult to maintain since equipment would have difficulty reaching the middle.
- 5. Permitting and water quality**
- a. SWFWMD district staff agreed that the regional approach would be acceptable for providing stormwater treatment
 - b. The hydraulics of any regional system would need to be explored to ensure no adverse impact
 - c. The department will develop a model to help demonstrate no adverse impact
 - d. The downstream end of the basin is considered an Outstanding Florida Water (OFW) and direct discharges require an additional 50% of the required treatment volume to be provided.
 - e. It was discussed that a single permit may be obtained for the regional facility in which water quality credits would be created. Each design segment would then modify the permit to deduct the water quality credits needed for each segment.
- 6. Cost sharing opportunities**
- a. The goal of the regional treatment is to create Win-Win-Win opportunities for all of the stakeholders.
 - b. FDOT is capable of providing initial capital cost to develop and construct a regional facility, but prefers the local government or other stakeholders participate in the maintenance of the facilities (regional treatment pond and Barron River Canal)
 - c. FDOT suggested a special taxing district or water control district could be created to provide funding for the maintenance of the regional facility and canals
 - i. The land owners expressed concern that the burden would be unfairly placed upon them.
 - ii. It was noted that the Immokalee area would be expected to participate since this area is part of the basin. Additionally, as the land owners hope to develop their land, the burden would be transferred to the new owners.
 - iii. The landowners are potentially open to this framework depending on the structure of the water control district/special taxing district and level of participation of all stakeholders
 - iv. It was noted that maintenance of the Barron Canal had been in flux for several years, until Collier County recently received easements and accepted responsibility for the maintenance of the canal.
- 7. Miscellaneous discussions**
- a. FEMA Floodplain
 - i. Collier County stated that current FEMA maps will be revised based on updated LIDAR
 - ii. The current model used to develop flood stages is based on a proprietary 2D surface water model
 - iii. Brent expressed concerns current trends in regional watershed modeling and inquired if the County had plans to ensure long term efficiency and vitality to the regional modeling.
 - b. County regional option within Immokalee
 - i. The County was exploring a potential regional pond for flood relief within the Immokalee area and to provide water quality
 - ii. This site was located at the confluence of the Madison Avenue Ditch and Eutopia Canal
 - iii. FDOT identified this site as a potential option for partnering



MEETING MINUTES

- iv. This site is currently proposed for development and the County/FDOT will need to explore other locations
- c. Other County improvements
 - i. The County is currently exploring other options to alleviate the flooding within Immokalee
 - 1. The County is exploring rerouting flow from Eutopia Canal to the north and east of the airport
 - 2. The county is currently designing the bridges along CR 846 to accommodate the additional flow
- d. Canal maintenance
 - i. The county recently received drainage easements to maintain the SR 29 Canal
 - ii. Access to the canal needs to be considered
 - iii. The canal accumulates a lot a floating debris (trash) and any improvements should include considerations for trash removal.









SR 82

SR 29 Segments Exhibit

FDOT Design & Construction

Legend

-  417540-2 (FDOT In-House)
-  417540-3 (RS&H)
-  417540-4 (AIM)
-  417540-5 (PGA)
-  Feature 1
-  Road

N New Market Road

CR 846

Immokalee

Agriculture Way

Sunniland Nursery Road

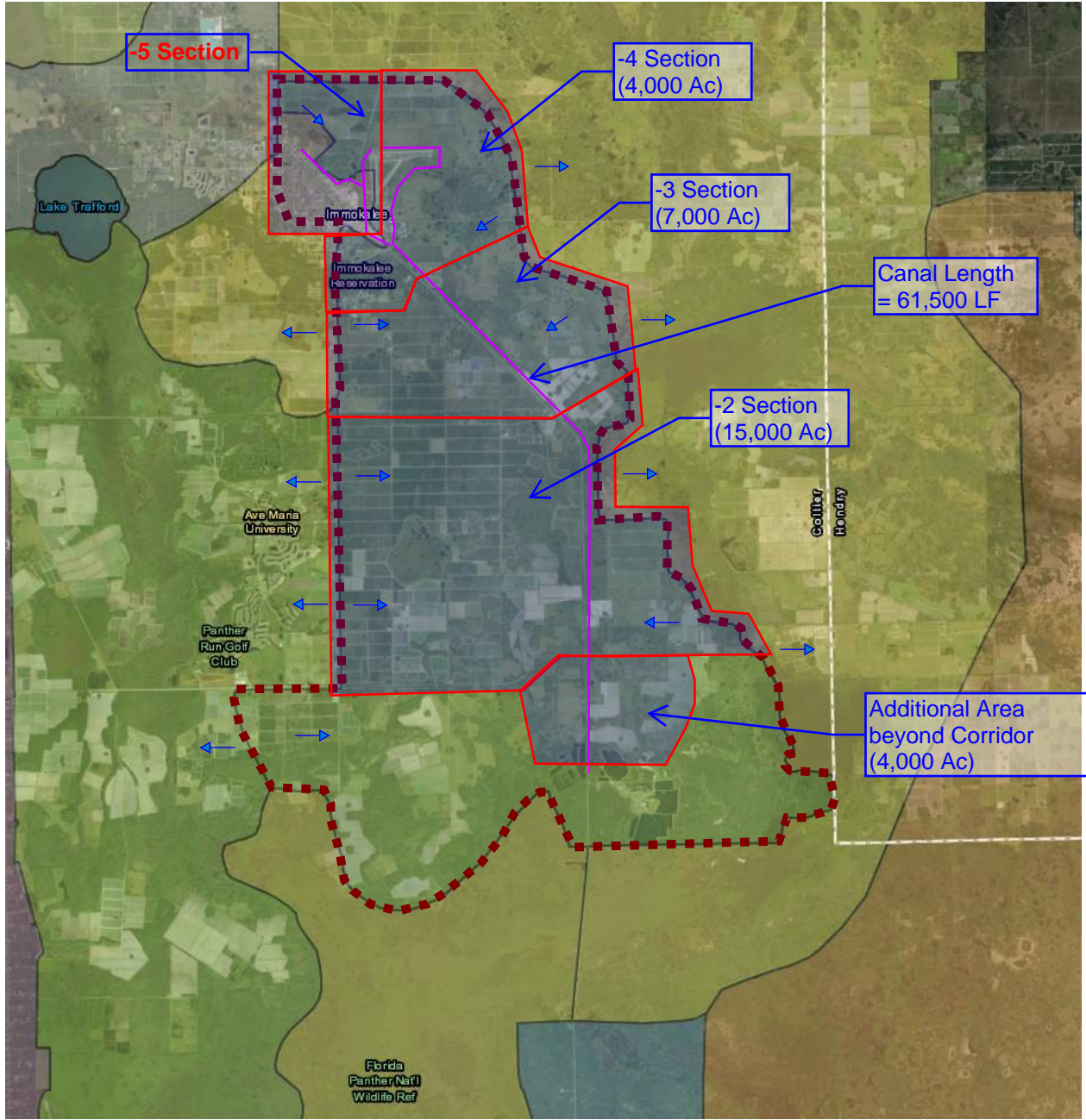
Ave Maria

Oil Well Road

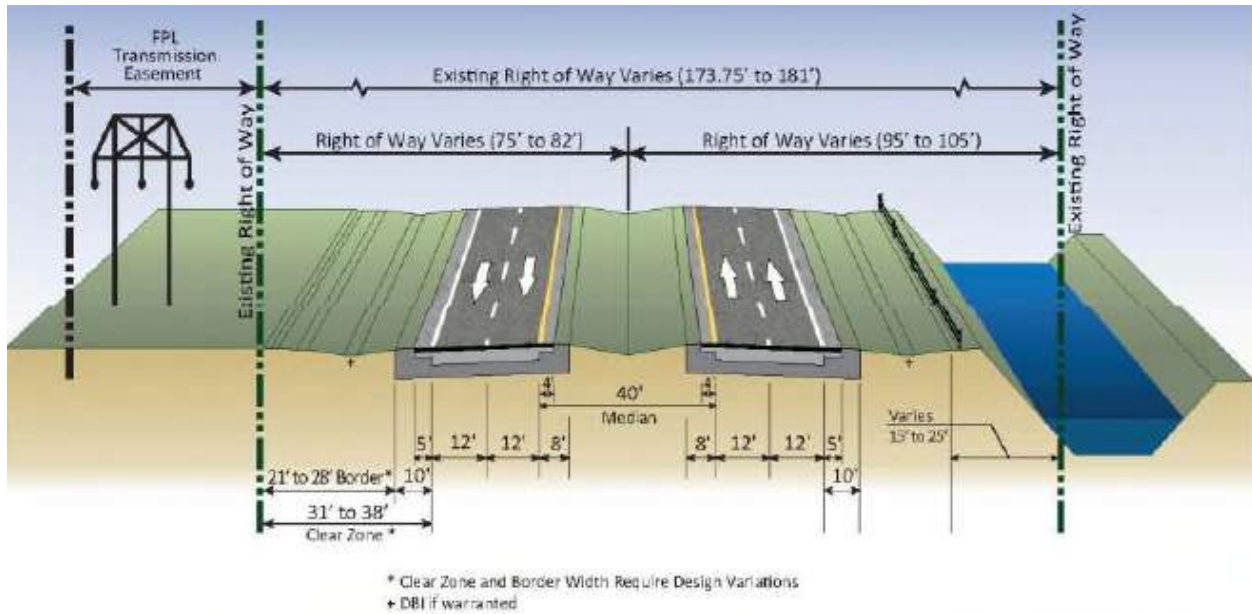
Sick Island



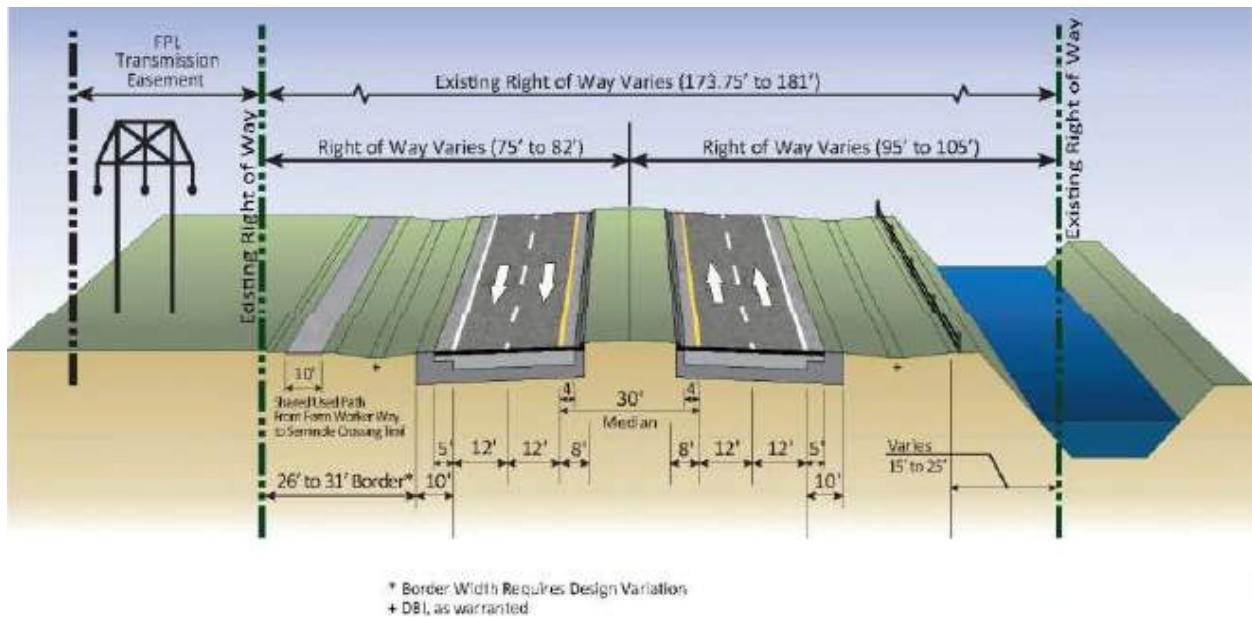
SR 29 BASIN OVERVIEW



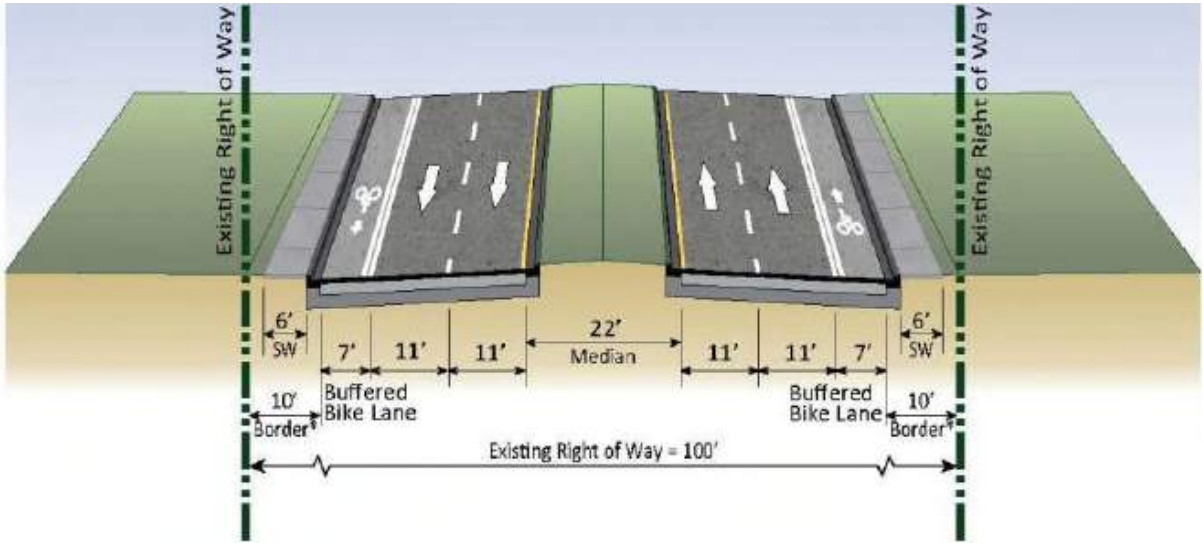
SR 29 ROADWAY TYPICAL SECTIONS



SEGMENTS: 417540-2 (FDOT IN-HOUSE), 417540-4 (RS&H), 417540-4 (AIM)

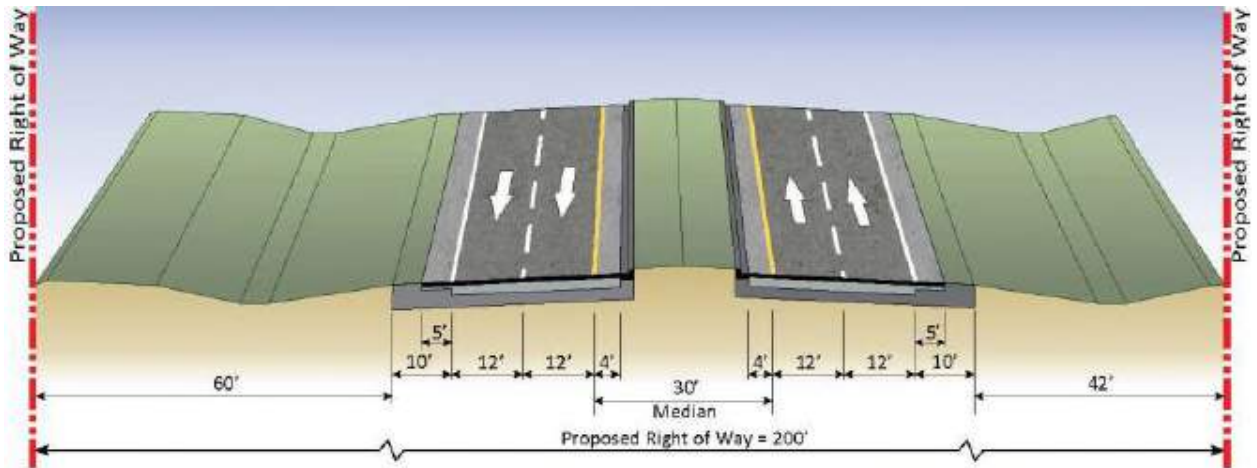


SEGMENTS: 417540-4 (AIM)



* 10' Border Width Requires Design Variation Where Constrained by 100' Existing ROW

SEGMENTS: 417540-4 (AIM), 417540-5 (PGA)



SEGMENTS: 417540-5 (PGA)



SR 29 Regional Treatment Partnering Meeting

5/13/2019

Name	Initials	Organization	Phone Number	E-mail
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Kenny Yinger		PGA	863-978-3100 Ext. 327	Kenny.Yinger@patelgreene.com
Russell Priddy		Sunniland Family		rpjbranch@gmail.com
Tom Jones		Barron Collier		Tjones@barroncollier.com
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Laura Layman		SFWMD	239-338-2929 Ext. 7725	llayman@sfwmd.gov
Lisa Koehler		SFWMD	239-263-7615	lkoehler@sfwmd.gov
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Christian Spilker	CA	COLLIER ENTERPRISES	(239) 261-4455	

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List of Call-in Attendees:

- Alan Eldridge
- Amy Perez
- Gabriela Garcia
- Bradley Jackson
- Jerry Kurtz
- Kaylene Johnson
- Laura Layman
- Lisa Koehler
- Rob Myers
- Robert Garrigues
- Melissa Roberts
- Scott Ellis



Project Number: 417540-1 thru 417540-5 and 434490-1
Project Description: SR 29 Corridor Improvements
Meeting Name: SR 29 Regional Treatment Partnering Meeting No. 2
Date/Time: 2.11.2020 – 10:00 AM
Location: FDOT – D1 SWAO
Minutes Prepared By: PGA

Attendees:

See Attached Sign-in Sheets

The following notes reflect our understanding of the discussions and decisions made at this meeting. If you have any questions, additions, or comments, please contact us. We will consider the minutes to be accurate unless written notice is received within 5 working days of the date issued.

Meeting Minutes:

1. Introductions

a. The meeting began with brief introductions

2. FDOT's planned improvement projects – FDOT provided a status update on the current planned projects. A detailed account of the items discussed are listed below.

a. PD&E Study: 417540-1 - SR 29 North of Oil Well Road (LDCA expected in March)

b. PD&E Study: 434490-1 - SR 29 from I-75 (Alligator Alley) to Oil Well Road (PD&E phase)

c. Design Segments (-2 to -5) Updates:

i. Survey Status

1. Survey Complete

2. Canal Survey still outstanding (March)

ii. Typical Sections Approved

1. There were brief discussions for the approved typical sections and the components of the typical sections

2. Several local landowners present noted the significant use of bicycles south of Immokalee along SR 29 and Oil Well Road

iii. Upcoming Major Milestones

1. Line & Grade Meetings (Summer 2020)

2. Pond Siting Report (Fall 2020)

3. Floodplain Model

a. The development of the floodplain model will utilize ICPR V4

b. It was discussed that the floodplain would focus on the Immokalee Area and Barron River Canal, but could be expanded to incorporate offsite areas if needed

c. It was requested that local landowners / agriculture operators provide input in development of the exact drainage basin for the Barron River Canal

d. The private landowners stated they would be willing to share existing data and provide input

e. The county is currently not managing any gage data for this area



- f. The County stated that there is wide range of flow depths experienced in the Barron River Canal
 - g. There was discussion about the installation of a data logger to aid in the calibration of the model
 - i. The FDOT does not have a system in place for installing and collecting this information
 - h. Russell Priddy noted that the Barron River Canal will breach the east side of the canal bank at times of high flow
- 3. Regional stormwater treatment opportunities – The FDOT prepared some potential options for regional treatment for review at the meeting. See Attachment 1 for potential options reviewed during the meeting. A discussion for each option is detailed below.**
- a. Option 1 – Borrow Pits
 - i. This option involves using the existing borrow pits west of SR 29 and south of Oil Well Road
 - ii. Tom Jones stated that there is currently a Collier family house located west of this proposed option
 - iii. Tom Jones also stated that the area west of SR 29 is proposed for personal use
 - iv. Brent explained that a bridge or culvert would be proposed on SR 29 to allow for the diversion of the Barron River Canal water into the borrow pits
 - v. Brent explained some options about the discharging the regional pond to the south
 - 1. One option was to allow natural sheet flow to the wetlands in the southwest, which was not favorably received by the property owner representatives
 - 2. Another option was discussed that would require a ditch outfall that would connect south to the Panther Refuge
 - vi. There was concern about accepting “dirty” water into the borrow pits and concerns about sheet flow discharges
 - vii. Russell Priddy briefly discussed the potential of using some of the borrow pits to the east of SR 29 located at the southern end of his property
 - 1. The borrow pit evaluated was about 20 acres
 - 2. Russell mentioned that the OK slough comes in from the east and that the borrow pit could discharge south to OK slough and to Big Cypress National Preserve
 - b. Option 2 - Pregnant Snake
 - i. This option involves providing a series of smaller sites along the eastside of the Barron River Canal
 - ii. Brent explained that this option has the benefit of “treating as we” go thus helping with permitting requirements
 - iii. There was concern about the impacts these options may have on the developable property
 - iv. These ponds could be adjusted to accommodate future development and perhaps used to accept adjacent stormwater runoff from future developments
 - v. The landowner representatives asked for specific locations and they may request areas to avoid
 - c. Option 3 – North Site
 - i. This option is located just south of Immokalee and would likely not provide the required treatment for the entire corridor and would have to be used in combination with other alternatives
 - ii. This option would be located downstream of the confluence of two canals that exit the Immokalee area
 - d. Option 4 – Southwest Florida Comprehensive Plan
 - i. This option was identified as part of larger study by SFWMD and USACE
 - ii. This is currently not an active project per recent correspondence with SFWMD and USACE
 - iii. There is a potential of involving additional partners to achieve the goal of regional treatment

4. Cost sharing opportunities

- a. FDOT is interested in providing initial capital cost to develop and construct a regional treatment facility, but prefers other stakeholders participate in the maintenance of the facilities
- b. The County is concerned that funds are limited for maintenance of the canal
- c. A special taxing district or water control district could be created to provide funding for the maintenance of the regional facility and canals
 - i. This option was not well received amongst the landowners

5. Miscellaneous discussions

- a. Canal Maintenance
 - i. The County has now received the easements to perform maintenance of the Barron River Canal
 - 1. The County is currently developing boat ramps to allow for equipment to maintain the Barron River Canal
 - 2. Russell requested that the County coordinate with him about the exact location of proposed boat ramps
- b. -5 PGA (PGA Segment)
 - i. There was concern on exact alignment on the SR 29 corridor
 - ii. PGA mentioned that there is a preferred corridor alignment identified in the PD&E study
 - iii. A separate meeting will be scheduled to discuss the particulars of the -5 alignment
- c. Landowner coordination
 - i. It was discussed that moving forward that landowners would be open to meet or coordinate with individual segments for proposed improvements within their property

6. Action Items

- a. PGA to schedule a meeting with the landowners to discuss the alignment within the -5 segment
- b. PGA to coordinate with landowners to help define the drainage basin for the Barron River Canal
- c. PGA to coordinate with landowners / agricultural operations within the area to define offsite drainage
- d. The County to coordinate the placement of the boat ramps within the Barron River Canal
- e. FDOT will coordinate with the County and SFWMD about the placement of data logger within the Barron River Canal



SIGN-IN SHEET

Project Number: 417540-1 thru 417540-5

Project Description: SR 29 Corridor Improvements

Meeting Name: SR 29 Regional Treatment Partnering Meeting No. 2

Date/Time: 2.11.2020 – 10:00 AM

Location: FDOT – D1 SWAO

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SIGN-IN SHEET

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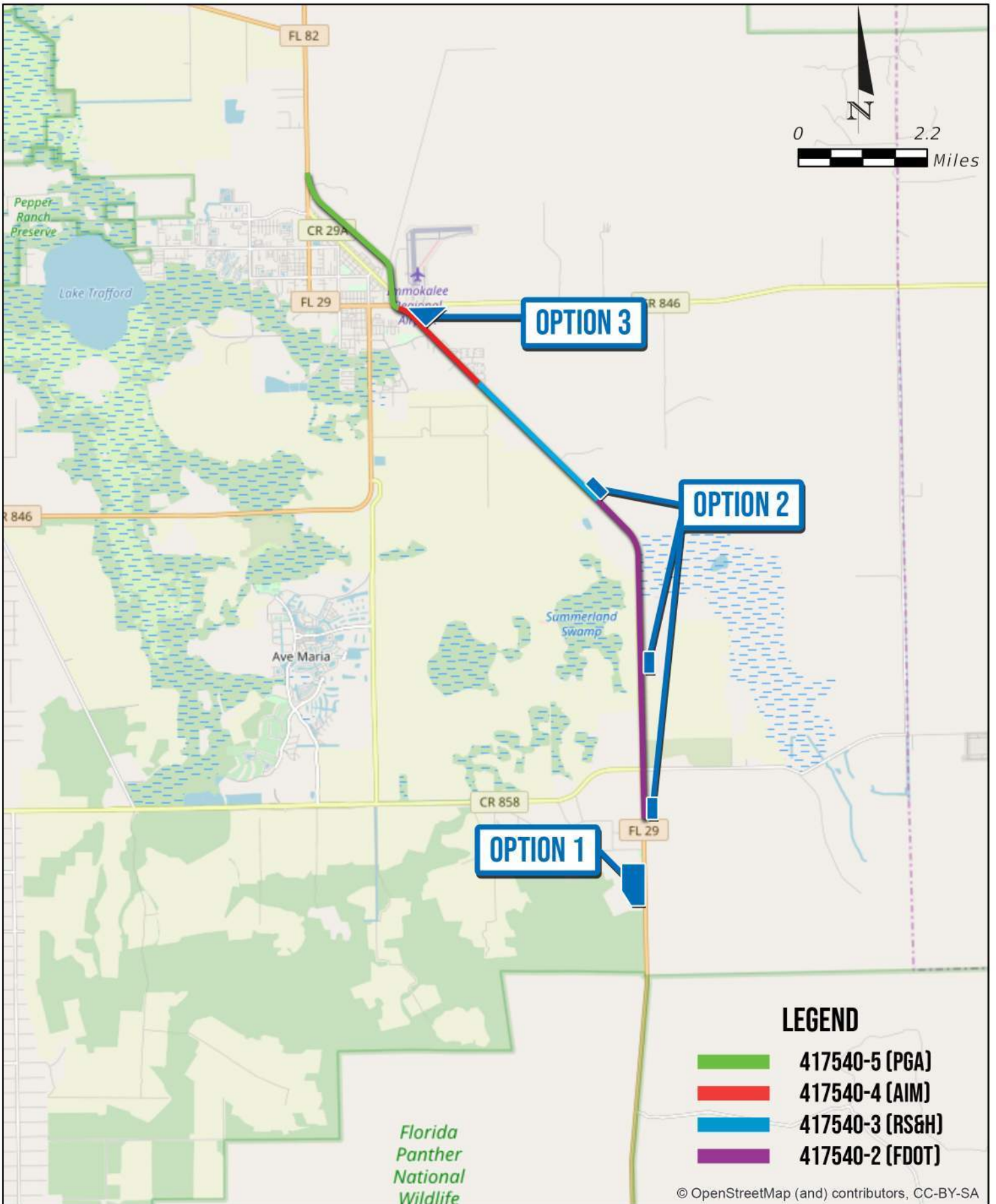
Alan Eldridge

ASE

Faller, Davis & Associates

aldridge@fallerdavis.com

Attachment 1



LEGEND

	417540-5 (PGA)
	417540-4 (AIM)
	417540-3 (RS&H)
	417540-2 (FDOT)

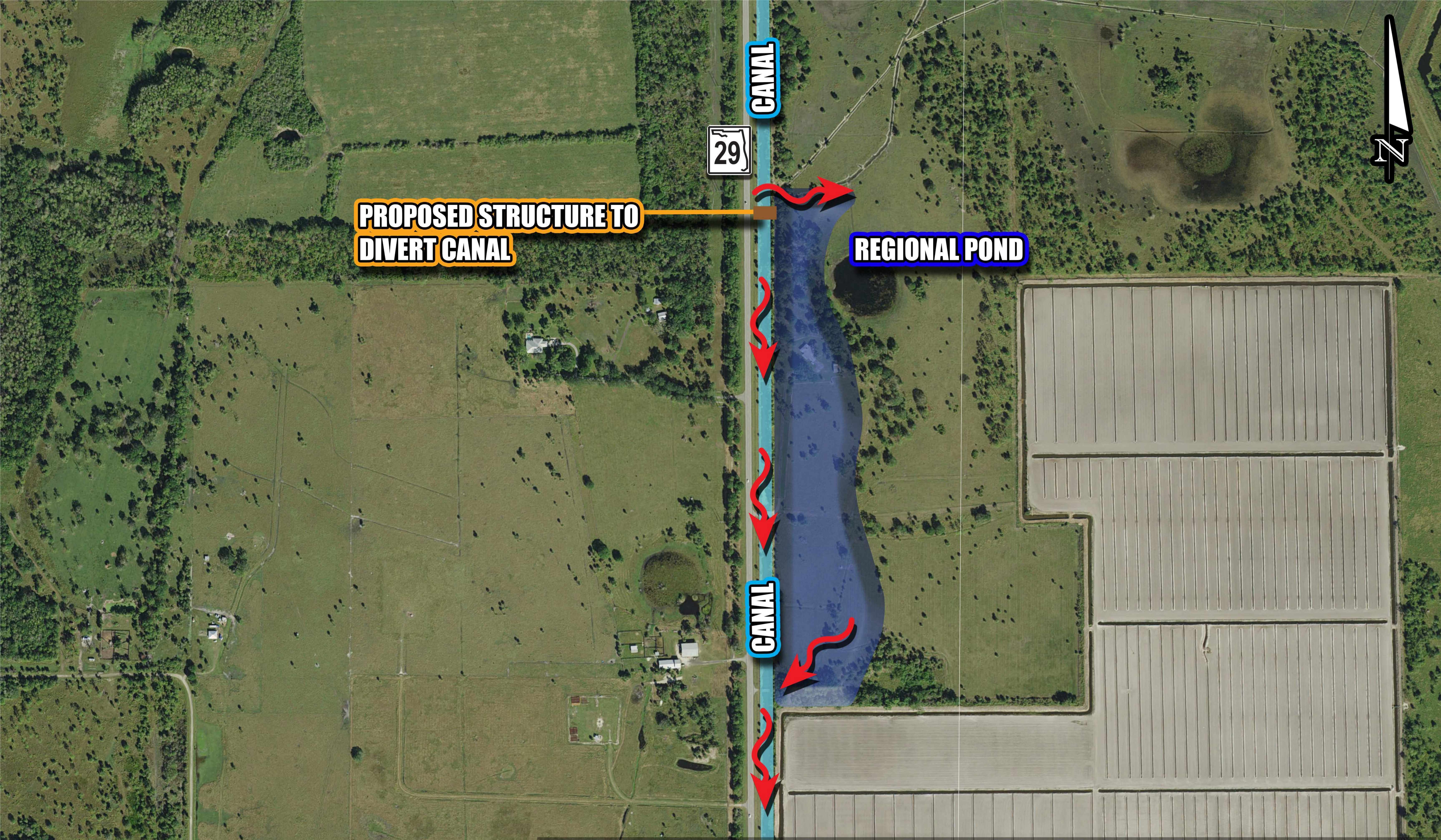
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SR 29 Regional Option Overview



REGIONAL OPTION 1 - BORROW PITS



**PROPOSED STRUCTURE TO
DIVERT CANAL**

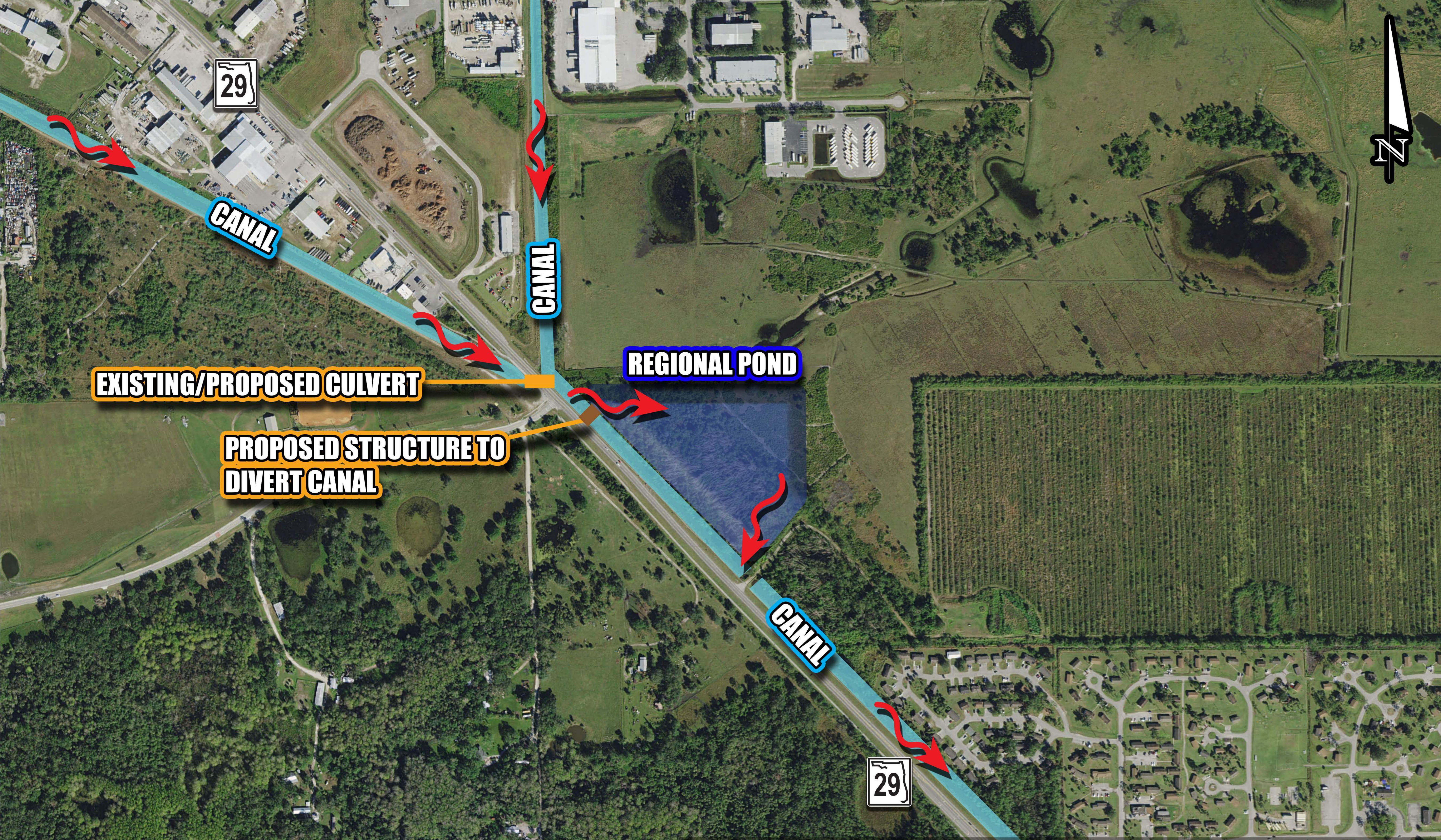
CANAL

29

REGIONAL POND

CANAL

REGIONAL OPTION 2 - PREGNANT SNAKE



EXISTING/PROPOSED CULVERT

PROPOSED STRUCTURE TO DIVERT CANAL

REGIONAL POND

29

CANAL

CANAL

CANAL

29

REGIONAL OPTION 3 - NORTH SITE

SOUTHWEST

SOUTHWEST

FLORIDA

COMPREHENSIVE

WATERSHED PLAN

a habitat quilt tied by

THREADS OF WATER

reconnecting a

sustainable

landscape



Table ES-1. The 13 Functional Groups in the Southwest Florida Comprehensive Watershed Plan

FG #	Functional Group Name	Total # of Individual Projects within FG	Tier 1 Projects	Tier 2 Projects	Tier 3 Projects	Full Footprint (Acres)	Rough Order of Magnitude Cost Estimate (Detailed Field Work and Design Needed for Construction Cost Estimates)	Location	Restoration Intent / Qualitative Benefits Description	Potential NFS*
6	SR 29 / Barron River Flow-way Restoration	7	3	4	0	15,595	\$279,270,000	Extends from Immokalee in northern Collier County south to the Gulf of Mexico as a narrow band through the center of the County along SR 29.	Reduce SR 29 Canal drainage impacts with a mix of weirs and canal plugs that will restore hydrologic and fire regimes in adjacent portions of Big Cypress National Preserve, Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park, and Everglades National Park, as well as the biological connectivity between and productivity within these lands and their downstream estuaries.	Tier 1: SWFWMD, FDEP Tier 2: FWCC, FDACS, (State Forest Service) DOI, NPS, FDOT
56	Yucca Pens	8	6	2	0	14,548	\$149,470,000	Covers 14,500 acres, located in northwestern Lee County, bordered by Gator Slough Canal to the south, Lee County / Charlotte County line to the north, US 41 to the east and Burnt Store Road (CR 765) to the west.	Restore sheetflow in the largest remaining hydric pine flatwoods west of US 41, reduce damaging flows to Matlacha Pass and contribute to a wildlife corridor between Charlotte Harbor and Lake Okeechobee.	Tier 1: SWFWMD, FDEP Tier 2: FWCC, FDACS, (State Forest Service)
70	Coastal Fakahatchee	8	5	1	2	50,524	\$57,920,000	South central Collier County extending from just north of I-75, south to the Gulf of Mexico.	Improve sheet flow from within Fakahatchee Strand to Everglades National Park and through Picayune Strand to Ten Thousand Islands National Wildlife Refuge.	Tier 1: SWFWMD, FDEP Tier 2: FWCC, FDACS, (State Forest Service) DOI, NPS, ENP Tier 3: Naples Pathways Coalition, River of Grass Greenway, Lee County, Arthur R. Marshall Foundation & Florida Environmental Institute
34	Estero Creeks and Headwater Flow-ways	38	21	8	9	47,899	\$2,132,760,000	Lee County, bordered to the north by the Caloosahatchee River watershed, to the west by San Carlos and Estero Bays, and to the south by the Lee County line, extending inland east of I-75 to the Corkscrew Watershed Functional Group (5).	Restore and protect headwater and tributary flows to Florida's first aquatic preserve, the Estero Bay Aquatic Preserve, while connecting the inland Corkscrew Swamp (5) and Tidal Caloosahatchee (29T) Functional Groups.	Tier 1: SWFWMD, FDEP Tier 2: FWCC Tier 3: Charlotte Harbor National Estuary Program, Friends of Estero Bay.
73	South Caloosahatchee Ecoscape	7	5	2	0	29,641	\$779,380,000	Narrow corridor extending east, west and south of LaBelle, bordered on the north by the Caloosahatchee River and south by the Okaloocoochee Slough Functional Group (11).	Protect the Florida panther dispersal corridor connecting primary southwest Florida panther habitat across the southern portion of the Caloosahatchee watershed to northern dispersal areas; restore hydrology and plant communities along this corridor.	Tier 1: SWFWMD, FDEP Tier 2: FWCC, FDACS, (State Forest Service) DOI, NPS, ENP
29 T	Tidal Caloosahatchee Creeks	53	4	14	35	105,446	\$149,780,000	Includes oxbows and tidal creeks entering the Caloosahatchee River and estuary from the northwest corner of Cape Coral and extending east to the S-79 navigation lock, including numerous creeks on the north side of the Caloosahatchee River and Billy Creek, Orange River and its tributaries on the south side of the Caloosahatchee River.	Restore natural hydrology, water quality and habitat continuity of major tidal tributaries and recreate a series of oxbows to slow flows and provide littoral habitat in the tidal portion of the Caloosahatchee River.	Tier 1: SWFWMD, FDEP Tier 2: FWCC, FDACS, (State Forest Service) DOI, NPS, ENP Tier 3: Naples Pathways Coalition, River of Grass Greenway, Lee County, Arthur R. Marshall Foundation & Florida Environmental Institute
29 F	Freshwater Caloosahatchee Creeks	55	6	43	6	248,448	\$375,380,000	At the intersection of the Glades, Lee and Hendry counties along both the north and south sides of the Caloosahatchee River with S-79 navigation lock as the western boundary and the city of LaBelle approximating the eastern boundary.	Restore natural hydrology, water quality and habitat continuity of major tributaries and recreate a series of oxbows to slow flows and provide littoral habitat in the freshwater portion of the Caloosahatchee River.	Tier 1: SWFWMD, FDEP Tier 2: FWCC, FDACS, (State Forest Service) DOI, NPS, ENP Tier 3: Naples Pathways Coalition, River of Grass Greenway, Lee County, Charlotte Harbor NEP
15	Belle Meade Flow-way	13	11	2	0	49,932	\$2,055,800,000	Southwestern Collier County, includes a large swath of land extending from I-75 south to US 41, bordered to the east by the Picayune Strand Restoration Project and to the west by CR 951.	Restore hydrologic and fire regimes; control a severe invasion of exotic vegetation in a major flow-way; protect a large area of important habitat for wading birds and wide-ranging wildlife.	Tier 1: SWFWMD, FDEP Tier 2: FWCC, FDACS, (State Forest Service)
28	Babcock Ranch	6	6	0	0	119,338	\$2,806,550,000	At the intersection of the Lee, Charlotte, and Glades counties north of the Caloosahatchee River along the boundary between the Caloosahatchee River watershed and watersheds outside the SWFCWP study area to the north.	Secure a connection between Cecil Webb Wildlife Management Area and the North Caloosahatchee Ecoscape Functional Group (41) in the east-west corridor from Charlotte Harbor to Lake Okeechobee, including Telegraph Swamp.	Tier 1: SWFWMD, FDEP

SR 29 BARRON RIVER FLOWWAY RESTORATION

STATEMENT OF INTENT

Reduce SR 29 Canal drainage impacts with a mix of weirs and canal plugs that will restore hydrologic and fire regimes in adjacent portions of Big Cypress National Preserve, Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park, and Everglades National Park. In addition, restore the biological connectivity between, and productivity within these lands and their downstream estuaries.

GEOGRAPHIC LOCATION

The SR 29/Barron River Flow-way Restoration functional group (FG) extends from Immokalee in northern Collier County south to the Gulf of Mexico as a narrow band through the center of the county along SR 29.

ENVIRONMENTAL CONCERNS

This landscape was originally dominated by hydric pine flatwoods and herbaceous wetlands, with cypress wetlands becoming more widespread to the south. Near the coast, the freshwater wetlands graded first into brackish herbaceous marshes and then dense mangrove forests in the Ten Thousand Islands. Shallow overland water flows occurred for much of the wet season and into the dry season in the deeper strands and sloughs, generally moving in a south-southwesterly direction. As a result of development, much of the original landscape in the northern portion of this area has been converted to intensive agriculture, drained via the SR 29 canal. Much of the southern portion of the area remains ecologically intact and has been brought into public ownership for conservation purposes. Although under conservation ownership, overdrainage and channelization of flows associated with the SR 29 Canal and the subsequent loss of natural sheet flow have negatively impacted the Florida Panther National Wildlife Refuge (FPNWR), Fakahatchee Strand Preserve State Park (FSPSP), Big Cypress National Preserve (BCNP), and Everglades National Park (ENP). Disruption of the local hydrology has led to changes in both plant and animal communities, as well as the natural fire regime. The canal has caused groundwater drawdowns in the adjacent public lands, potentially out to a mile from the canal during drier periods. Existing canal structures, in varying states of repair, are ineffectual in maintaining groundwater levels. Culverts and bridges along SR 29, although adequate to protect the road from flooding, are not sufficiently frequent to allow equalization of shallow surface water levels on most of the lands along each side of the road. Wildlife mortality is also a major concern in this area due to high speed traffic on SR 29. Due to its location in a tidally influenced area, this FG is likely to be impacted by climate change (refer to **Section 2**).



ENVIRONMENTAL SOLUTIONS

Hydrologic restoration would be achieved primarily through alterations to the SR 29 Canal. Overdrainage of lands north of the conservation lands would be addressed through the installation of step-down weirs at approximately 0.5 to 1 foot topographic contour intervals along the canal. The primary advantage of the weirs is increased dry season groundwater levels and aquifer recharge without increasing flooding. Increased groundwater levels reduce fire hazards during dry periods due to the higher moisture content of soils and vegetation, and would also buffer against freeze damage to tropical vegetation and agricultural crops during winter cold spells. To restore sheetflow through the conservation lands, the SWFCWP proposes filling at least 50% of the SR 29 canal with a series of long plugs placed in locations that would promote flows through the historic sloughs. Maintenance of existing levels of flood control north of the filled portion of the canal would be achieved by construction of a pump station and spreader system at the north end of the FPNWR and BCNP, similar to those currently being constructed as part of the Picayune Strand Restoration Project. The spreader system, coupled with improved conveyance under SR 29, would facilitate the rapid reestablishment of sheetflow below the pump station. In addition, construction of wildlife crossings at key locations along SR 29 and CR 858 would significantly reduce mortality of the larger, wide-ranging mammals in this area.

IMPLEMENTATION STRATEGY

This FG is designed to restore the area's natural hydrologic and fire regimes, which are the dominant natural ecological processes sustaining the landscape. This will involve restoration of hydrologic and landscape connectivity between the FPNWR, FSPSP, BCNP, and ENP, which in turn will facilitate overland sheetflows, the elimination of point discharges to the Ten Thousand Islands, a more natural fire regime, and help to minimize the occurrence of exotic species. The parks provide refuge to numerous unique and/or listed species, including the Everglades mink and a large number of species of orchids and bromeliads, all of which are expected to benefit from the implementation of the recommended components. Several wide-ranging large mammals will particularly benefit from the landscape connectivity provided by this FG. The primary importance of the SR 29 Barron River Flow-way Restoration is to reconnect conservation lands on the two sides of SR 29. In addition, to the benefits associated with improved hydrologic and fire regimes as a result of filling the canal in these areas and the elimination of point discharges to the coastal waters, a reduced level of development along this corridor will facilitate wildlife movements across this connector and control of invasive native and exotic vegetation within the FG as well as on adjacent public lands.

IMAGES

Clockwise from top left: Great blue heron and young (*Ardea herodias*), courtesy of Kevin T. Edwards, Charlotte County; Looking south along the SR 29 Canal, courtesy of Ali Rezaie, U.S. Army Corps of Engineers; Florida panther (*Puma concolor coryi*) in the Florida panther NWR, courtesy of Larry W. Richardson; String lily (*Crinum americanum*), courtesy of Jean McCollom, Florida Fish and Wildlife Conservation Commission. Bottom: Aerial view of flatwoods and hardwood hammock plant communities and agricultural lands in the vicinity of the SR 29 Canal, courtesy of Angie Dunn, U.S. Army Corps of Engineers.

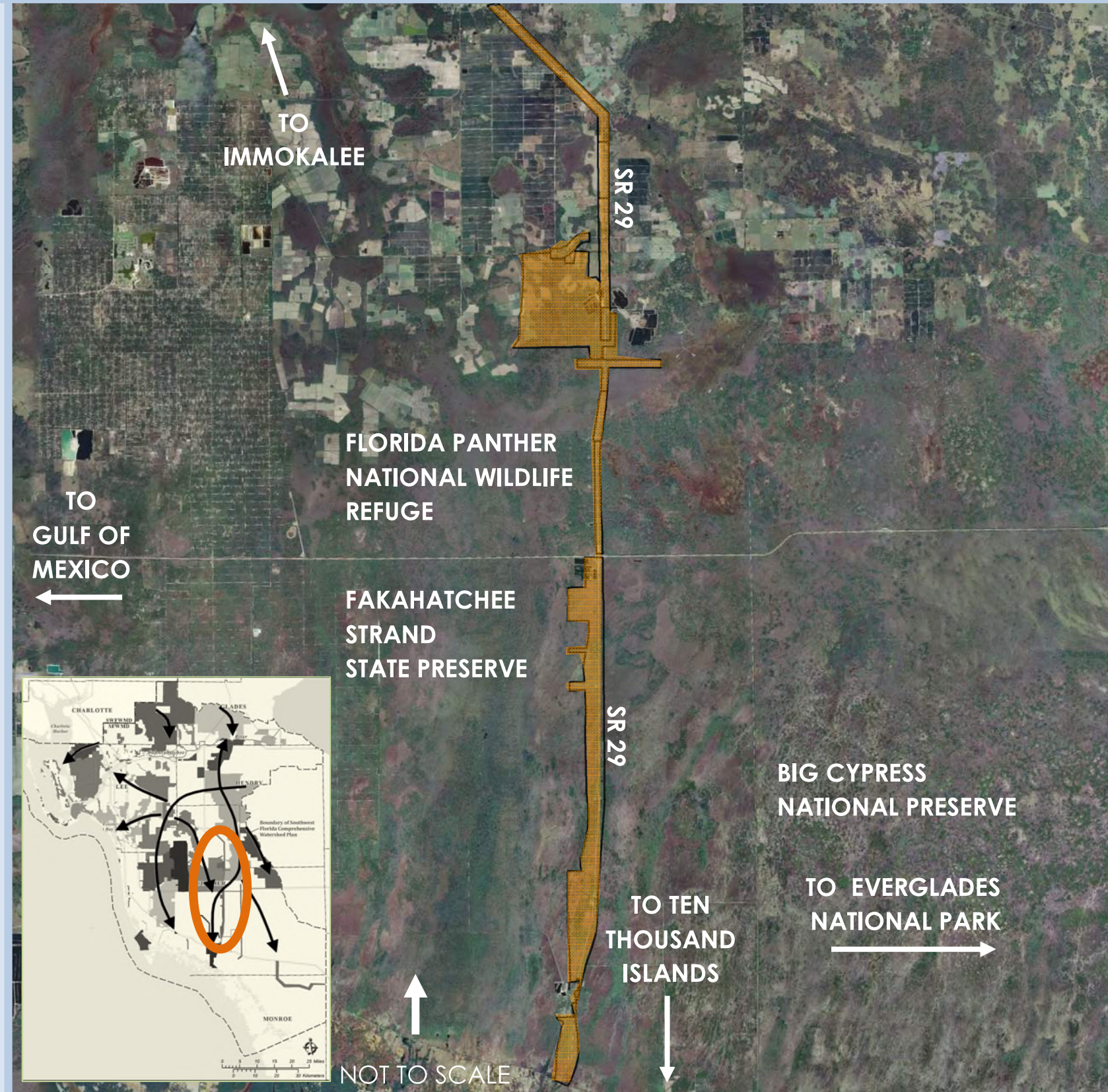


TABLE 9-1: FUNCTIONAL GROUP SUMMARY

FG #	TITLE	FULL FOOTPRINT (ACRES)	BARE FOOTPRINT, EXCLUDING AGRICULTURAL AND URBAN LANDS (ACRES)	LOCATION	RESTORATION INTENT
6	SR 29 / Barron River Flow-way Restoration	15,595	15,595	Extends from Immokalee in northern Collier County south to the Gulf of Mexico as a narrow band through the center of the county along SR 29.	Reduce SR 29 Canal drainage impacts with a mix of weirs and canal plugs that will restore hydrologic and fire regimes in adjacent portions of Big Cypress National Preserve, Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park, and Everglades National Park, as well as the biological connectivity between and productivity within these lands and their downstream estuaries.
56	Yucca Pens	14,548	14,548	Covers 14,500 acres, located in northwestern Lee County, bordered by Gator Slough Canal to the south, Lee County / Charlotte County line to the north, US 41 to the east and Burnt Store Road (CR 765) to the west.	Restore sheetflow in the largest remaining hydric pine flatwoods west of US 41, reduce damaging flows to Matlacha Pass, and contribute to a wildlife corridor between Charlotte Harbor and Lake Okeechobee.
70	Coastal Fakahatchee	50,524	13,234	South central Collier County extending from just north of I-75, south to the Gulf of Mexico.	Improve sheet flow from within Fakahatchee Strand to Everglades National Park and through Picayune Strand to Ten Thousand Islands National Wildlife Refuge.
34	Estero Creeks and Headwater Flow-ways	47,899	44,973	Lee County, bordered to the north by the Caloosahatchee River watershed, to the west by San Carlos and Estero Bays, and to the south by the Lee County line, extending inland east of I-75 to the Corkscrew Watershed Functional Group (5).	Restore and protect headwater and tributary flows to Florida's first aquatic preserve, the Estero Bay Aquatic Preserve, while connecting the inland Corkscrew Swamp (5) and Tidal Caloosahatchee (29T) Functional Groups.
73	South Caloosahatchee Ecoscape	29,641	29,641	Narrow corridor extending east, west and south of LaBelle, bordered on the north by the Caloosahatchee River and south by the Okaloacoochee Slough Functional Group (11).	Protect the Florida panther dispersal corridor connecting primary southwest Florida panther habitat across the southern portion of the Caloosahatchee watershed to northern dispersal areas; restore hydrology and plant communities along this corridor.
29T	Tidal Caloosahatchee Creeks	105,446	10,731	Includes oxbows and tidal creeks entering the Caloosahatchee River and estuary from the northwest corner of Cape Coral and extending east to the S-79 navigation lock, including numerous creeks on the north side of the Caloosahatchee River and Billy Creek, and Orange River and its tributaries on the south side of the Caloosahatchee River.	Restore natural hydrology, water quality and habitat continuity of major tidal tributaries and recreate a series of oxbows to slow flows and provide littoral habitat in the tidal portion of the Caloosahatchee River.
29F	Freshwater Caloosahatchee Creeks	248,448	11,343	At the intersection of the Glades, Lee, and Hendry counties along both the north and south sides of the Caloosahatchee River with S-79 navigation lock as the western boundary and the City of LaBelle approximating the eastern boundary.	Restore natural hydrology, water quality, and habitat continuity of major tributaries and recreate a series of oxbows to slow flows and provide littoral habitat in the freshwater portion of the Caloosahatchee River.
15	Belle Meade Flow-way	49,932	49,932	Southwestern Collier County includes a large swath of land extending from I-75 south to US 41, bordered to the east by the Picayune Strand Restoration Project and to the west by CR 951.	Restore hydrologic and fire regimes; control a severe invasion of exotic vegetation in a major flow-way; protect a large area of important habitat for wading birds and wide-ranging wildlife.
28	Babcock Ranch	119,338	119,338	At the intersection of the Lee, Charlotte, and Glades counties north of the Caloosahatchee River along the boundary between the Caloosahatchee River watershed and watersheds outside the SWFCWP study area to the north.	Secure a connection between Cecil Webb Wildlife Management Area and the North Caloosahatchee Ecoscape Functional Group (41) in the east-west corridor from Charlotte Harbor to Lake Okeechobee, including Telegraph Swamp.
11	Okaloacoochee Slough	184,848	137,198	Originates in western Hendry County in a low gap on a ridgeline dividing the Caloosahatchee and Big Cypress Swamp watersheds, extending south through central Collier County to Fakahatchee Strand and other smaller strands flowing to the Ten Thousand Islands and Gulf of Mexico.	Restore the largest headwaters flow-way of the Big Cypress Swamp; protect one of the largest expanses of intact pine flatwoods and herbaceous wetlands remaining in southwest Florida; create a landscape corridor between the South Caloosahatchee Ecoscape Functional Group (73) and Big Cypress Swamp.

Attachment 2

Support Information

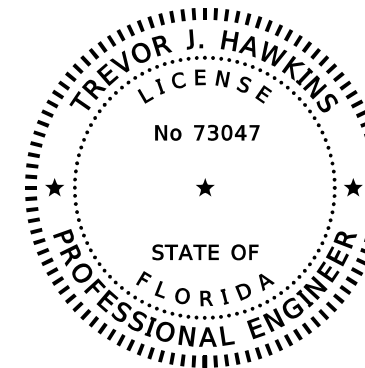
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 417540-5-52-01
COLLIER COUNTY (03080)
STATE ROAD NO. 29
FROM CR 846 E TO N OF NEW MARKET ROAD N

APPROVED BY:

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SIGNED AND SEALED BY



ON THE DATE ADJACENT TO THE SEAL

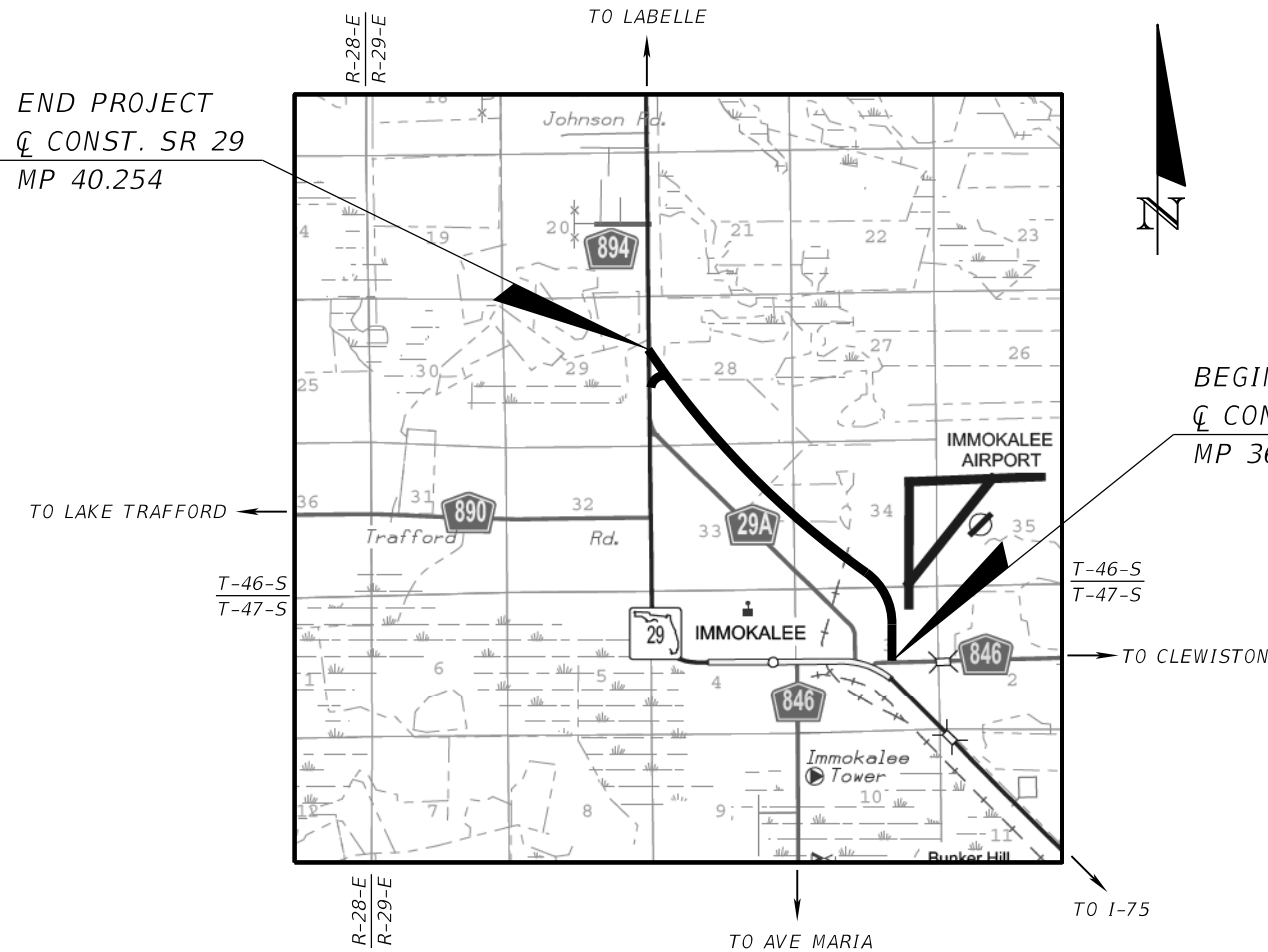
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TEMPLE TERRACE, FLORIDA 33637
TREVOR J. HAWKINS, P.E. NO. 73047

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TYPICAL SECTION PACKAGE

SHEET NO	SHEET DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTION NO. 1
3	TYPICAL SECTION NO. 2



BEGIN PROJECT
& CONST. SR 29
MP 36.770

END PROJECT
& CONST. SR 29
MP 40.254

TYPICAL SECTION CONCURRENCE

FDOT DISTRICT DESIGN ENGINEER

FDOT DISTRICT STRUCTURES
DESIGN ENGINEER

FHWA TRANSPORTATION ENGINEER

DESIGN SPEED AND POSTED
SPEED CONCURRENCE:

FDOT DISTRICT TRAFFIC OPERATIONS
ENGINEER

FDOT DISTRICT DESIGN ENGINEER

CONTEXT CLASSIFICATION
CONCURRENCE:

FDOT DISTRICT INTERMODAL SYSTEMS
DEVELOPMENT MANAGER

SHEET
NO.

1

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL (X) C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
- () C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

- () INTERSTATE () MAJOR COLLECTOR
- () FREEWAY/EXPWY. () MINOR COLLECTOR
- (X) PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- () NATIONAL HIGHWAY SYSTEM
- (X) STRATEGIC INTERMODAL SYSTEM
- () STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

- () 1 - FREEWAY
- () 2 - RESTRICTIVE w/Service Roads
- (X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

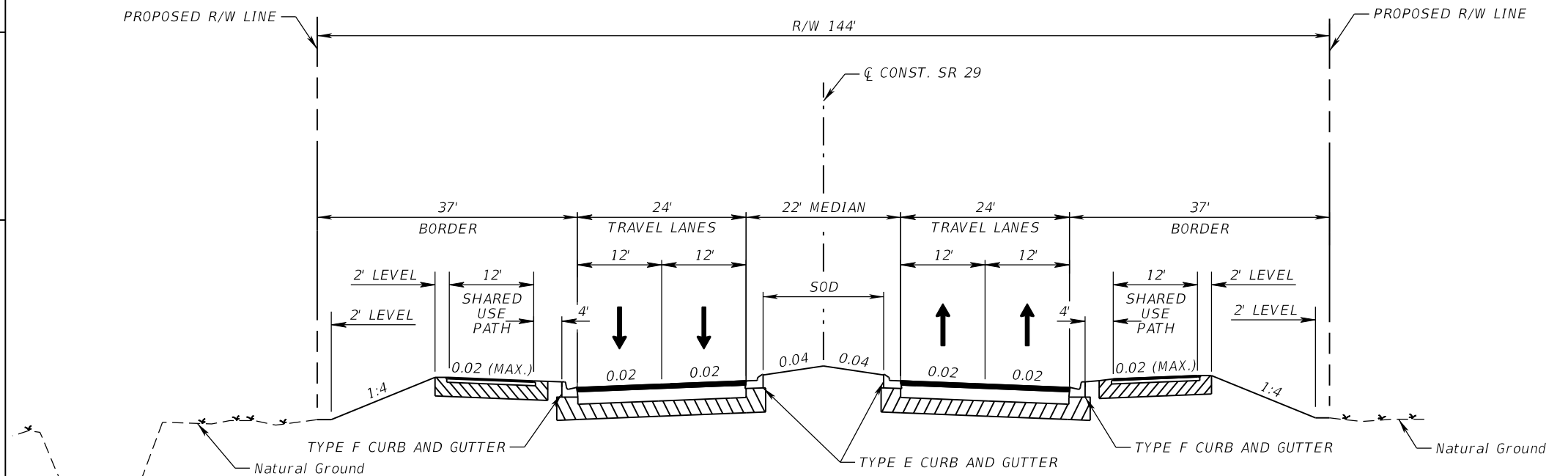
CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

BASE CLEARANCE VARIATION

TYPICAL SECTION No. 1



TYPICAL SECTION NO. 1
SR 29
MP 36.770 TO MP 37.684

TRAFFIC DATA

CURRENT YEAR= 2020 AADT = 21000
ESTIMATED OPENING YEAR = 2025 AADT = 25000
ESTIMATED DESIGN YEAR = 2045 AADT = 41000
K = 9% D = 59% T = 16% (24 HOUR)
DESIGN HOUR T = 8%
DESIGN SPEED = 45 MPH
POSTED SPEED = 45 MPH

NOT TO SCALE

FINANCIAL PROJECT ID	SHEET NO.
417540-5-52-01	2

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL () C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
- (X) C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

- () INTERSTATE () MAJOR COLLECTOR
- () FREEWAY/EXPWY. () MINOR COLLECTOR
- (X) PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- () NATIONAL HIGHWAY SYSTEM
- (X) STRATEGIC INTERMODAL SYSTEM
- () STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

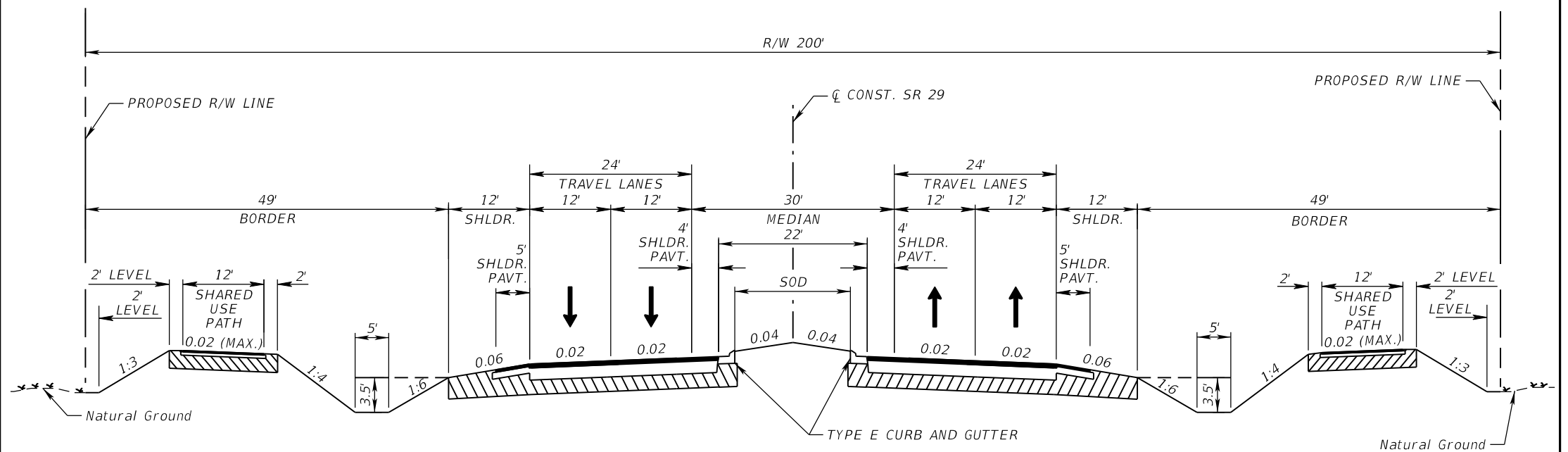
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- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 2



TYPICAL SECTION NO. 2
SR 29
MP 37.684 TO MP 40.254

TRAFFIC DATA

CURRENT YEAR= 2020 AADT = 21000
 ESTIMATED OPENING YEAR = 2025 AADT = 25000
 ESTIMATED DESIGN YEAR = 2045 AADT = 41000
 K = 9% D = 59% T = 16% (24 HOUR)
 DESIGN HOUR T = 8%
 DESIGN SPEED = 50 MPH / 55 MPH
 POSTED SPEED = 50 MPH / 55 MPH

NOT TO SCALE

FINANCIAL PROJECT ID	SHEET NO.
417540-5-52-01	3

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 417540-4-52-01

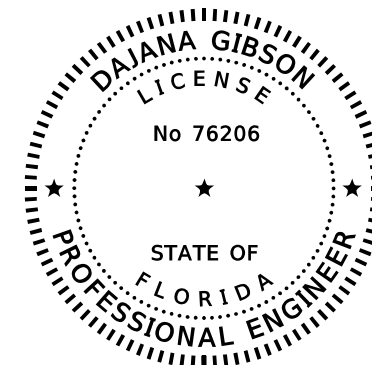
COLLIER COUNTY (03080)

STATE ROAD NO. 29

RECONSTRUCTION OF SR 29 FROM 2-LANE TO 4-LANE
FROM S. OF AGRICULTURE WAY TO CR 846 E

APPROVED BY:

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SIGNED AND SEALED BY



ON THE DATE ADJACENT TO THIS SEAL

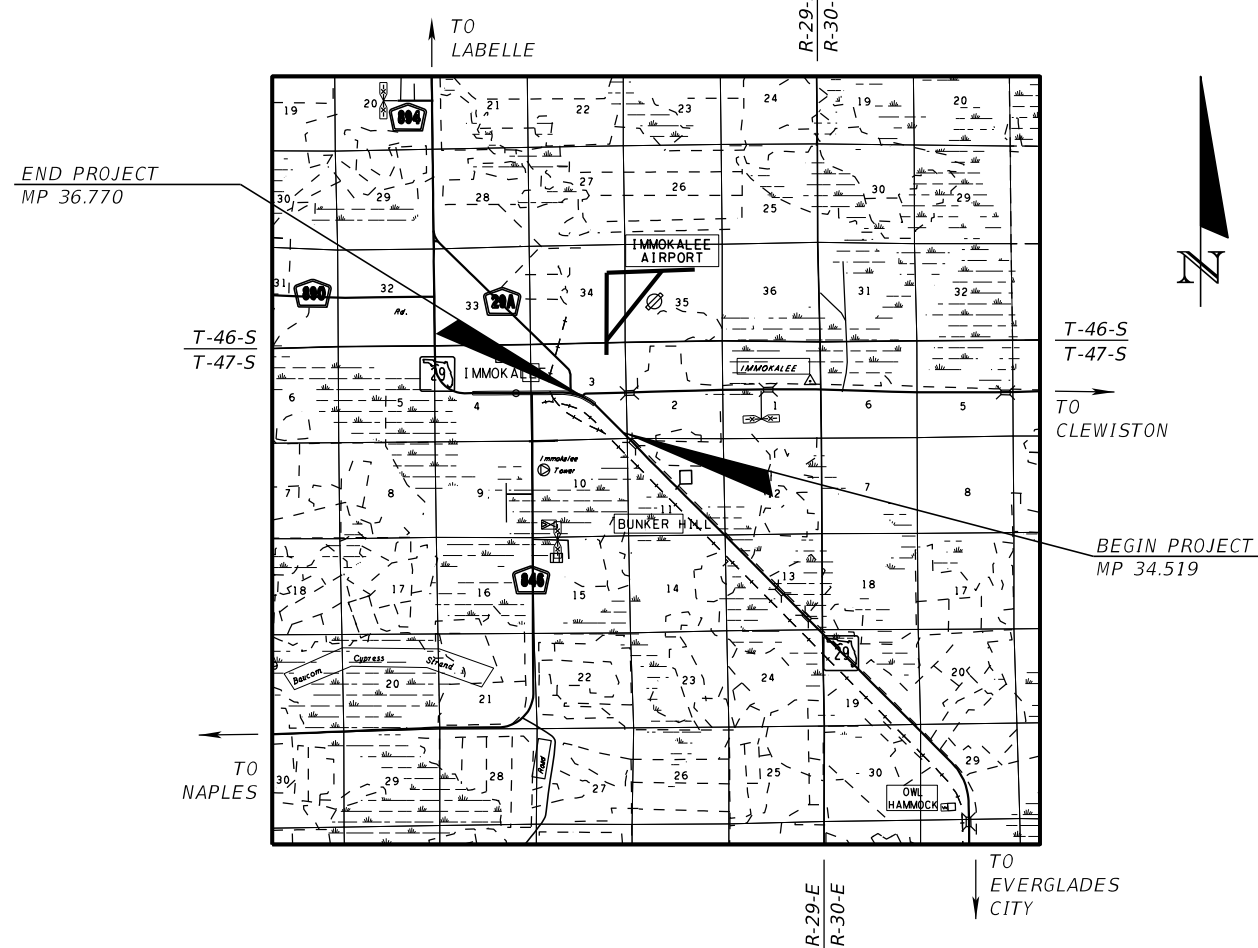
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3802 CORPOREX PARK DRIVE, STE. 225
TAMPA, FLORIDA 33619
TELEPHONE (888) 627-4144
CERTIFICATE OF AUTHORIZATION NO. 3114

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TYPICAL SECTION PACKAGE

SHEET NO	SHEET DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTION NO. 1
3	TYPICAL SECTION NO. 2



TYPICAL SECTION CONCURRENCE

FDOT DISTRICT DESIGN ENGINEER	FDOT DISTRICT STRUCTURES DESIGN ENGINEER	FHWA TRANSPORTATION ENGINEER
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DESIGN SPEED AND POSTED SPEED CONCURRENCE:

FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER	FDOT DISTRICT DESIGN ENGINEER
---	-------------------------------

CONTEXT CLASSIFICATION CONCURRENCE:

FDOT DISTRICT INTERMODAL SYSTEMS DEVELOPMENT MANAGER
--

SHEET NO.

1

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL () C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
- (X) C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

- () INTERSTATE () MAJOR COLLECTOR
- () FREEWAY/EXPWY. () MINOR COLLECTOR
- (X) PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- () NATIONAL HIGHWAY SYSTEM
- (X) STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

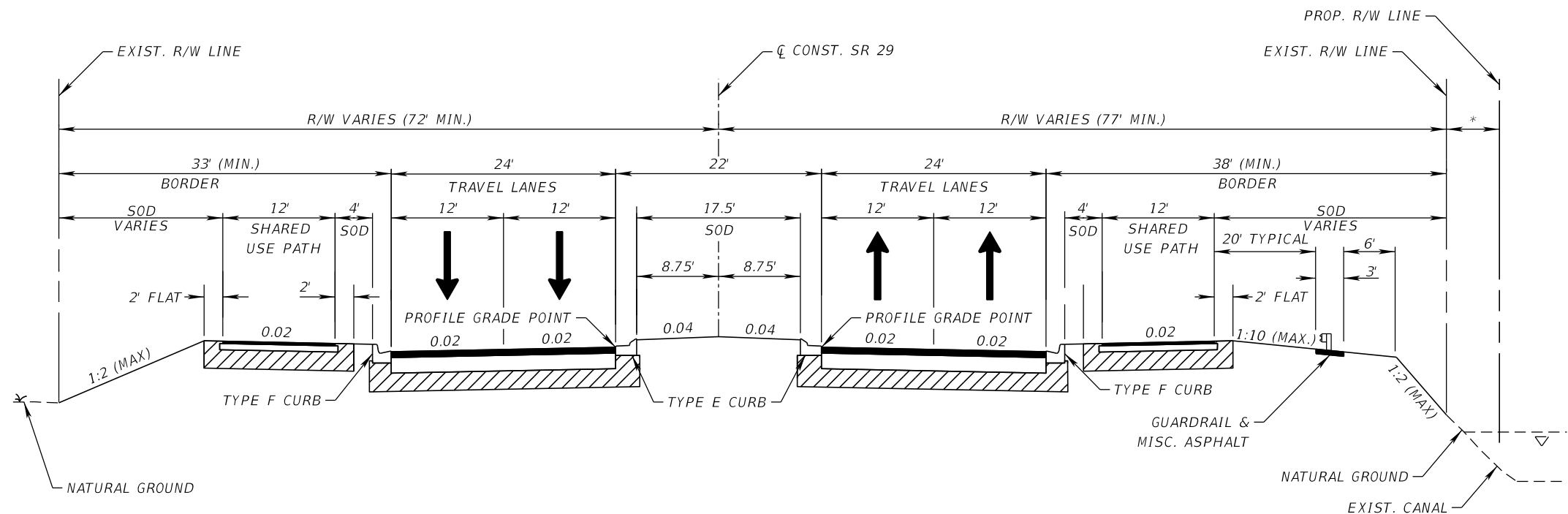
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- (X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 1



SR 29
MP 34.519 TO MP 36.096

* PROP R/W VARIES FROM MP 36.000 TO MP 36.069 THROUGH TRANSITION

NOT TO SCALE

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 9,600
 ESTIMATED OPENING YEAR = 2026 AADT = 15,900
 ESTIMATED DESIGN YEAR = 2046 AADT = 34,000
 K = 9.0% D = 58.5% T = 18.3% (24 HOUR)
 DESIGN HOUR T = 9.15%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
417540-4-52-01	2

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
- () C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

- () INTERSTATE () MAJOR COLLECTOR
- () FREEWAY/EXPWY. () MINOR COLLECTOR
- (X) PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- () NATIONAL HIGHWAY SYSTEM
- (X) STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

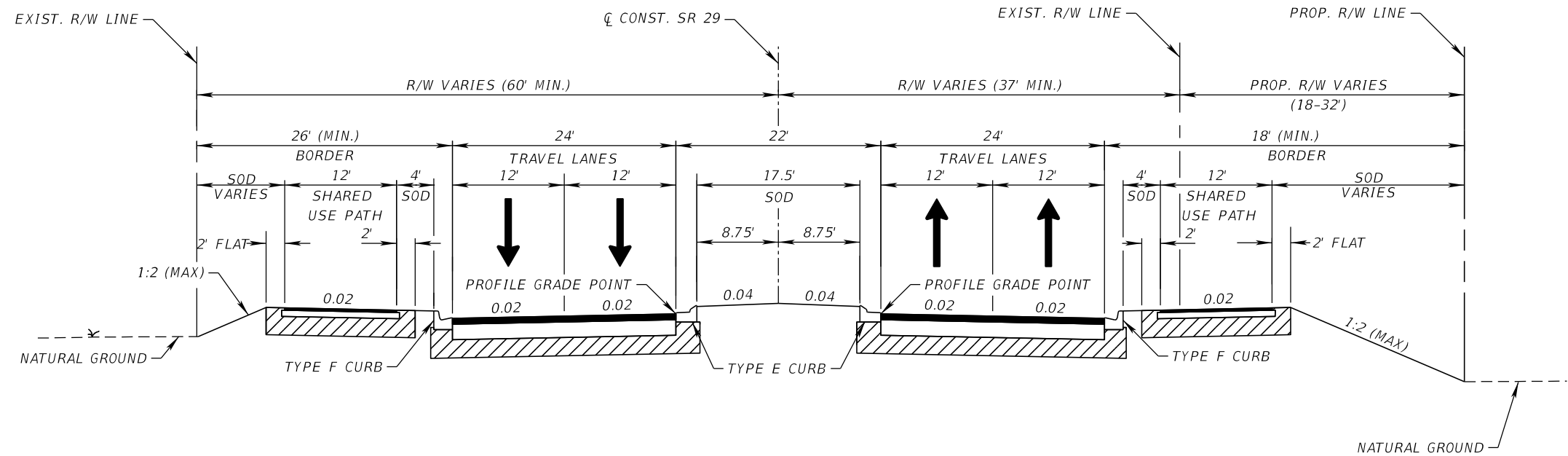
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- () 7 - BOTH MEDIAN TYPES

CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 2



SR 29
MP 36.096 TO MP 36.770

NOT TO SCALE

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 9,600
 ESTIMATED OPENING YEAR = 2026 AADT = 15,900
 ESTIMATED DESIGN YEAR = 2046 AADT = 34,000
 K = 9.0% D = 58.5% T = 18.3% (24 HOUR)
 DESIGN HOUR T = 9.15%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
417540-4-52-01	3