

Noise Study Technical Memorandum

Florida Department of Transportation

District 6

NE 79<sup>th</sup> Street (SR 934) PD&E Study

Limits of Project: From West of Pelican Harbor Drive to East of Adventure Avenue

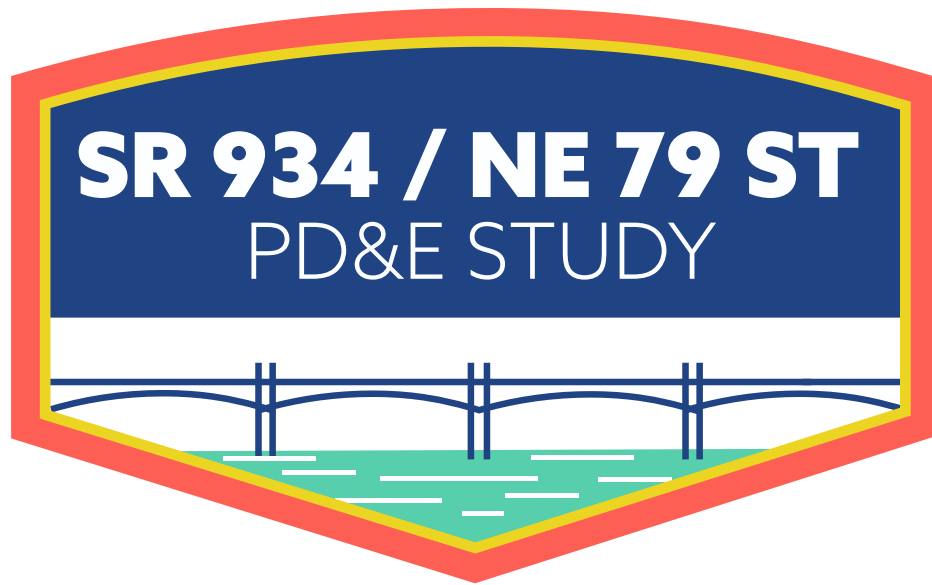
Miami-Dade County, Florida

Financial Management Number: 449007-1-22-01

ETDM Number: 14484

Date: April 2024

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.



# **Noise Study**

# **Technical**

# **Memorandum**

April 2024

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# 1 Introduction

This Noise Study Technical Memorandum has been prepared in accordance with the Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Manual Part 2, Chapter 18, effective July 1, 2023, which incorporates the requirements of the National Environmental Policy Act (NEPA) and related Federal and state laws. The purpose of this technical memorandum is to document the determination of applicability for a noise analysis or consideration of abatement measures based on Project Types as defined in the PD&E Manual Part 2, Chapter 18, effective July 1, 2023. It should be noted that the Project Type determination is independent of the Class of Action determination for the overall project.

## 1.1 Project Summary

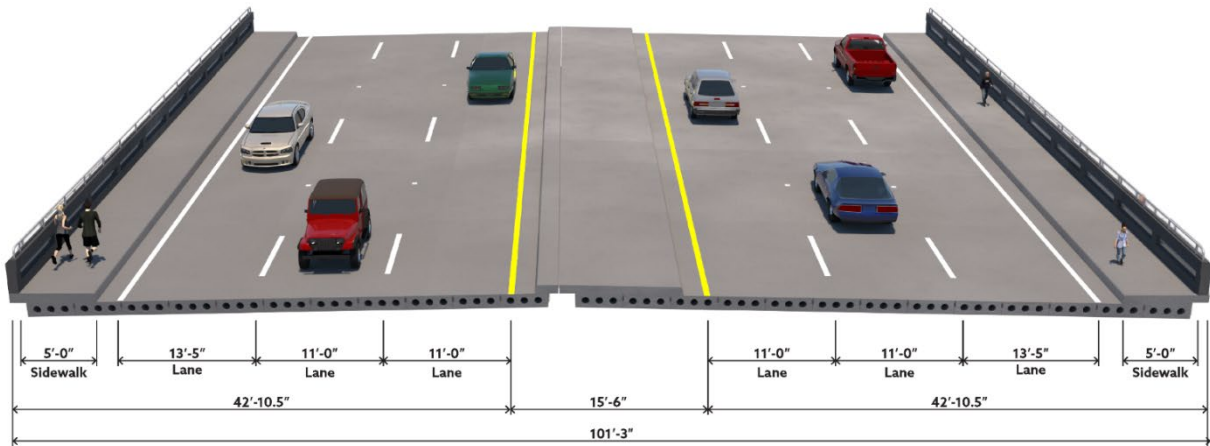
This project involves the potential replacement of four prestressed concrete slab (Sonovoid) bridges arranged in two locations as parallel bridge pairs connecting three islands within the City of Miami and North Bay Village in Miami-Dade County. The project also involves improvements to the roadway approaches within the limits of the study. The bridges are part of State Road (SR) 934/NE 79th Street (John F. Kennedy Causeway), a roadway classified as "Urban Principal Arterial - Other", which connects mainland Miami to Miami Beach and North Bay Village. The specific limits of the project extend from milepost (MP) 1.077 (west of Pelican Harbor Drive) to MP 1.947 (east of Adventure Avenue), as shown in **Figure 1.1**. The project's western study limits fall within the City of Miami, while the eastern study limits fall within North Bay Village. Outside the project limits, NE 79th Street is expected to remain as a six-lane urban principal arterial. Therefore, to align with the existing configuration and accommodate additional lanes being dropped or added at the intersections, the logical termini for this project involve NE 79th Street from west of Pelican Harbor Drive (western terminus) to east of Adventure Avenue (eastern terminus). These logical termini also allow for full inclusion of the intersection footprints. The western bridge pair, comprised of Bridge Identification (ID) Numbers 870083 (westbound) and 870549 (eastbound), is located just west of North Bay Island/Harbor Island. The eastern bridge pair, comprised of Bridge ID Numbers 870084 (westbound) and 870550 (eastbound), is located between North Bay Island/Harbor Island and Treasure Island. The project is approximately 0.8 mile in length.



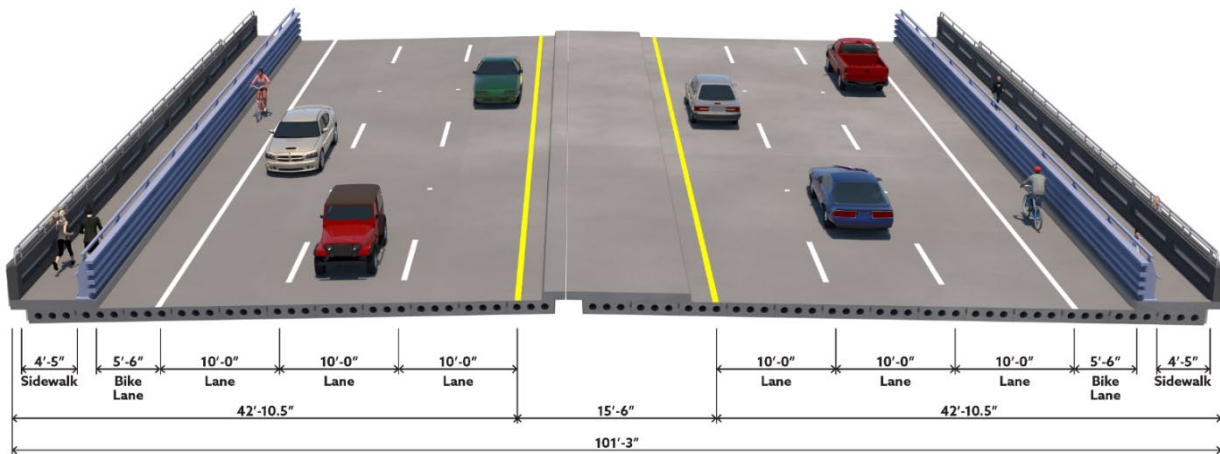
Figure 1.1: Study Area



The existing western bridge pair (**Figure 1.2**) consists of six lanes, including four 11-foot-wide travel lanes to the inside and two 13.5-foot-wide travel lanes to the outside, and a raised median connecting the two bridge structures. The outside travel lanes include shared-use markings to accommodate bicycles. In addition, a 5-foot-wide raised sidewalk is present on each side of the bridge pair to the outside. The existing eastern bridge pair (**Figure 1.3**) consists of six 10-foot-wide travel lanes with a raised median connecting the two bridge structures, as well as a 5.5-foot-wide dedicated bicycle lane and a sidewalk varying between 5 and 6 feet in width (separated by guardrail) on each side of the bridge pair to the outside. The bridge approaches are generally consistent with the typical section of the bridges, except for east of the western bridge pair which includes dedicated bicycle lanes. Crossing over the Biscayne Bay, the bridges have a maximum vertical clearance of 6.78 feet at Mean Low Water (MLW) and a minimum vertical clearance of 3.05 feet at Mean High Water (MHW). Biscayne Bay at the bridge crossings is not deemed a navigable waterway by the United States Coast Guard. The existing right-of-way varies along the project segment and ranges from approximately 100 to 130 feet.



**Figure 1.2: Western Pair Existing Bridge Configuration (Bridge ID 870083 and 870549)**



**Figure 1.3: Eastern Pair Existing Bridge Configuration (Bridge ID 870084 and 870550)**

## 1.2 Purpose and Need

### 1.2.1 Purpose

The purpose of this project is to evaluate bridge replacement alternatives to address the structural deficiencies of four existing bridges (arranged in two locations as parallel bridge pairs) along State Road 934/NE 79th Street (John F. Kennedy Causeway). The project limits extend from Pelican Harbor Drive to Adventure Avenue within the City of Miami and North Bay Village in Miami-Dade County. The western bridge pair, comprised of Bridge Identification (ID) Numbers 870083 (westbound) and 870549 (eastbound), is located just west of North Bay Island/Harbor Island. The eastern bridge pair, comprised of Bridge ID Numbers 870084 (westbound) and 870550 (eastbound), is located between North Bay Island/Harbor Island and Treasure Island.

An additional project goal is to maintain emergency evacuation capabilities.

### 1.2.2 Need

The need for the project is based on the following criteria:

#### 1.2.2.1 Bridge Deficiencies: Address Substandard Structural Elements

The existing bridges were constructed in the early 1970s and have been determined to be Structurally Deficient given the condition of each bridge's superstructure (beams), which is referred to as "Sonovoid" design. Due to the structure type, the number of structural deficiencies, and the low clearance from the water, the bridge superstructures cannot properly be repaired.

Based on FDOT Bridge Inspection Reports prepared in October 2020, each of the four bridges received a Sufficiency Rating of 48.7 (on a scale of 0-100). The Sufficiency Rating is essentially an overall rating of a bridge's fitness to remain in service. A Sufficiency Rating below 50.0 may qualify a bridge for replacement funds.

As part of the inspection process, several structural components were evaluated and assigned a rank or condition based on the NBI system. The ranks/conditions were based on a scale of zero through nine. A rank of zero generally means that the bridge is out of service, beyond corrective action, and in need of replacement; a rank of nine means the bridge is in excellent condition and no deficiencies have been identified. The ranks/conditions for the structural components examined in the reports are as follows:

Bridge ID Numbers 870083 (westbound) and 870549 (eastbound)

- Deck: 4 (Poor)
- Superstructure: 4 (Poor)
- Substructure: 6 (Satisfactory)

Bridge ID Numbers 870084 (westbound) and 870550 (eastbound)

- Deck: 4 (Poor)
- Superstructure: 4 (Poor)
- Substructure: 7 (Good)

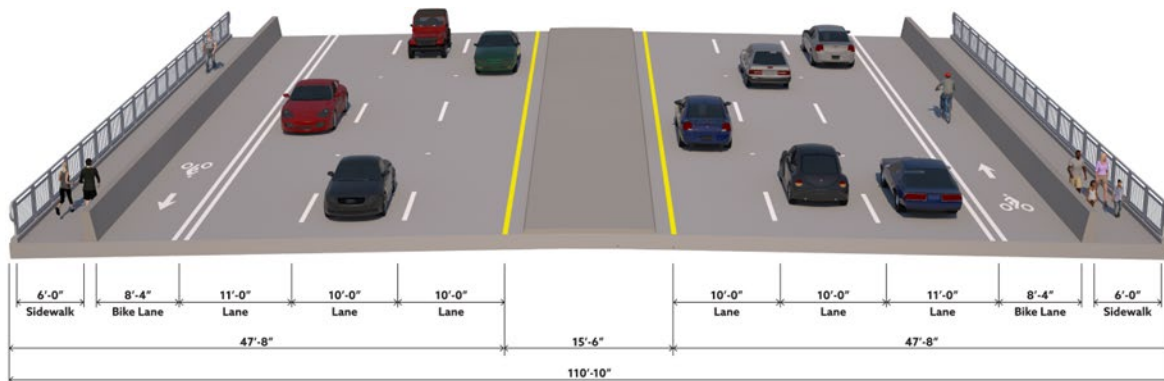
### 1.2.2.2 Safety: Maintain Evacuation and Emergency Response Times

Serving as part of the emergency evacuation route network designated by the Florida Division of Emergency Management (FDEM) and Miami-Dade County, NE 79th Street (including the bridges) plays a critical role in facilitating traffic between the beaches and the mainland of Miami during emergency evacuation periods. The project area is located in Storm Surge Planning Zone B, which is at risk for storm surge for Category 2 and higher storms. There is a need for the bridges to continue meeting emergency evacuation requirements.

## 1.3 Preferred Alternative

The PD&E Study evaluated multiple alternatives for addressing the existing bridge conditions. Alternatives evaluated include No-Build, minor and major rehabilitation, and full replacement. In addition, the PD&E Study also evaluated roadway typical section alternatives for improving pedestrian and bicycle facilities. The bridge analysis and roadway typical section evaluation is provided in the Bridge Analysis Report and Preliminary Engineering Report under separate cover.

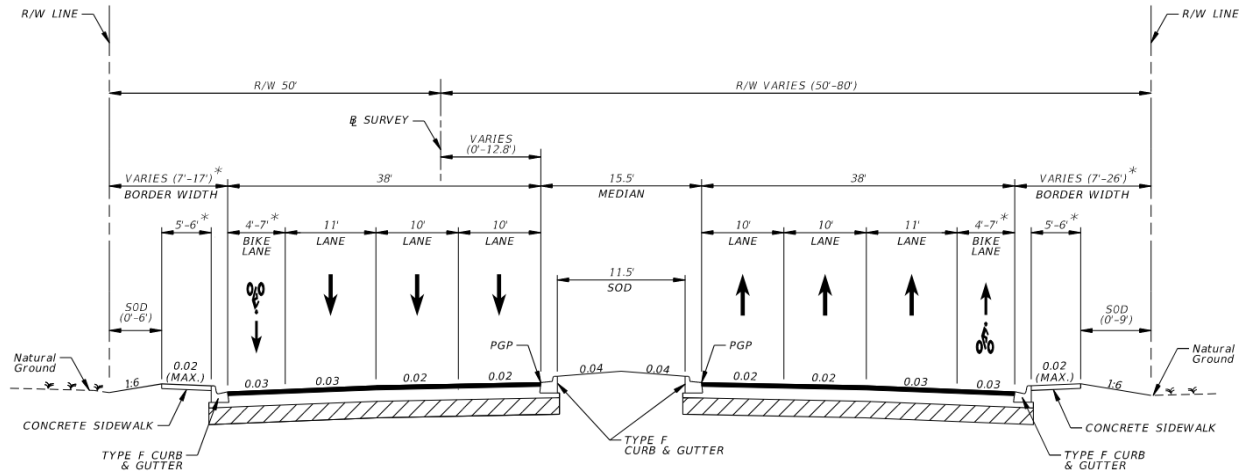
The preferred alternative for the bridge replacement is Alternative 2B: Replacement (Profile #2). In Alternative 2B, the four existing bridges are to be removed and replaced with two newly constructed bridge structures. The bridge profile for Alternative 2B is raised approximately 3.6 feet, for a maximum elevation of 12.2 feet North American Vertical Datum (NAVD) and minimum bridge low member elevation of 7.3 feet NAVD. The proposed bridge low member height provides a minimum vertical clearance of 6 feet above the projected MHW +1.3 feet NAVD for the bridge design year 2105. Due to the rise in elevation, driveway reconstruction and construction of gravity walls are necessary east and west of the bridge limits. The preferred bridge typical section upgrades the facility to FDOT standards, providing a raised median, six travel lanes (two 10-foot wide inside lanes and one 11-foot wide outside lane), 8-foot 4-inch bicycle lanes, and 6-foot barrier-separated sidewalks in each direction. The total bridge width is 110 feet 10 inches. **Figure 1.4** illustrates the preferred typical section. Alternative 2B fully complies with the minimum FDOT standards and would maximize the design life of the bridges.



**Figure 1.4 | Preferred Bridge Typical Section**

The preferred roadway typical section at the bridge approaches and Harbor Island/North Bay Island upgrades the facility to meet current FDOT design criteria, including providing a raised median, six travel lanes (two 10-foot inside lanes and one 11-foot outside lane), buffered bicycle lanes (7 feet), Type F curb

& gutter, and sidewalks (6-foot wide) in each direction, shown in **Figure 1.5**. The proposed roadway segment at Treasure Island transitions from the preferred roadway typical section at the bridge approaches to the existing typical section at the east project limit (4-foot wide bicycle lanes, 5-foot wide sidewalks). The proposed roadway segment west of the west bridge pair, along Pelican Harbor Marina park, is constrained and the preferred roadway typical section provides bicycle lanes (4-foot 3-inch wide), guardrail at the face of curb to shield the canal hazard (Biscayne Bay), and sidewalk (6-foot wide).



**Figure 1.5 | Preferred Roadway Typical Section**

The proposed drainage system is divided into four systems that will comply with all water quality and quantity requirements required by the permitting agencies having jurisdiction along the corridor. The stormwater runoff within each proposed system will be collected via curb inlets along both sides of the road and will be treated before discharging into Biscayne Bay. Due to right of way limitations, the use of dry retention swales, drainage wells and pump stations is limited. With these considerations and based on the existing permits available adjacent to the study area, the use of exfiltration trenches along the median of the project is being proposed. This method is the most widely used stormwater management system in South Florida that meets the stormwater quality and quantity criteria applicable to roadway projects and is preferred due to cost and maintenance. The exfiltration trenches are proposed at locations avoiding as much as possible conflicts with the existing underground utilities along the corridor.

The preferred roadway typical section upgrades the facility to FDOT standards at the bridge approaches and the roadway segment at North Bay Island/Harbor Island, including providing a raised median, six travel lanes (two 10-foot inside lanes and one 11-foot outside lane), buffered bicycle lanes (7-foot wide), and sidewalks (6-foot wide) in each direction. The proposed roadway segment at Treasure Island transitions from the preferred roadway typical section at the bridge approaches to the existing typical section at the east project limit (4-foot wide bicycle lanes, 5-foot wide sidewalks).

Following the Public Alternatives Meeting, several typical section options were evaluated for the roadway segment from Pelican Harbor Drive to the western bridge pair to provide continuity of the bicycle lanes,

upgrade the pedestrian facilities, and address roadside safety while minimizing right of way and environmental impacts. Options to add a Shared Use Path, Urban Side Path, or Separate Bicycle Lanes were considered and eliminated, because there are no existing paths along SR 934/NE 79th Street Causeway corridor outside the project limits and the on-street bicycle lanes provide continuity along the corridor. Based on the typical section evaluation, the preferred roadway typical section provides a raised median (15-foot 6-inch wide) with Type F curb & gutter, six travel lanes (two 10-foot wide inside lanes and one 11-foot wide outside lane), bicycle lanes (4-foot 3-inch wide), Type F curb & gutter, guardrail at the face of curb to shield the canal hazard (Biscayne Bay), and sidewalks (6-feet wide) in each direction. The preferred roadway typical section for this segment will require 0.136 acres in the form of a Fee Simple Purchase from Miami-Dade County for the new sidewalk and lighting. In addition, temporary construction easements will be needed for slope harmonization and bridge reconstruction. Additional details are provided in the Preliminary Engineering Report.

## 1.4 Project Area Description

The project is located along SR 934 on three islands and associated bridges over Biscayne Bay (**Figure 1.1**). The westernmost island is owned predominantly by Miami-Dade County and includes the Pelican Harbor Marina and Boat Ramp as well as a causeway extending to the east. Two bridges (one in each direction) extend from this causeway to North Bay Island. From North Bay Island the project includes two bridges (one in each direction) extending to Treasure Island. North Bay Island and Treasure Island make up the City of North Bay Village, a small municipality with an approximate population of about 8,000 people.

The term “project corridor” is used in this document to represent a smaller area that encompasses the existing and proposed S.R. 934 right-of-way within the project study limits, covering the entire footprint of the Build Alternative. The term “study area” represents a larger expanse that encompasses the project corridor as well as all a buffer of 500 feet from the project corridor.

## 1.5 Land Use

Land use cover descriptions provided for both uplands and wetlands are classified utilizing the Florida Land Cover Classifications System (FLUCCS) designations. Previous and existing land uses in the project area were initially determined utilizing US Geological Survey maps, historical images, aerial photographs, and land use mapping from the South Florida Water Management District (SFWMD) (2017-2019). Land use categories in the project area reported by SFWMD were verified in the field. Field reviews generally confirmed the SFWMD land use mapping with no major adjustments or corrections. Land use categories in the project area as mapped by SFWMD are shown in **Figure 1.6** and each land use category in the project area is described below. Pelican Harbor Marina and Boat Ramp are public parks located both north and south of SR 934, along Pelican Harbor Drive. Most of the causeway is occupied by the SR 934 travel lanes, with some vegetation and rip-rap along the waterline. On North Bay Island, privacy walls and landscaping vegetation line much of SR 934, and a gas station and large high-rise condominium complex are located immediately north of SR 934. On Treasure Island, the bridges connecting to North Bay Island touch down next to a multi-story commercial building to the south and a gated entrance to a WSVN Channel 7 News building and parking lot. On the westernmost island in the project area, natural vegetation and rip-rap line most of the area between the SR 934 ROW and Biscayne Bay.

The predominant land use in the project area is residential and commercial and services, including condominium and vacation rentals, retail strip malls, restaurants, and gas stations. The project area includes North Bay Island, a private gated community. Commercial services, including shopping centers, condominiums, and a gas station are located north of SR 934 along East and West Dr. The southern end of North Bay Island includes a residential neighborhood with single-family homes. Within the eastern portion of the project area, the predominant land use is commercial and services including restaurants, a preschool, a television station, and a gas station. The westernmost portion of the project area includes a marina located north of SR 934 and a park located to the south.

**Residential, Medium Density (FLUCCS – 1210)**

This category refers to residential areas with a dwelling density of two to five per acre. This land use type occurs along and immediately south of Northeast 79<sup>th</sup> Street Parkway on North Bay Island.

**Residential High Density, Multiple Dwelling Units (FLUCCS – 1340)**

This category refers to a density of six or more dwelling units per acre. This land use category includes multi-story town homes, duplexes, and other high-rise residential structures. This class is found immediately north of John F Kennedy Causeway on North Bay Island.

**Recreational, Marinas and Fish Camps (FLUCCS – 1840)**

The recreational land use category is used for those whose physical structure indicates that active user-oriented recreation is or could be occurring within the given physical area. This includes golf courses, parks, swimming beaches and shoreline, marinas, fairgrounds, etc. The Marinas and Fish Camps land use is a type of recreational use and is mapped in one location in the study area covering the northern part of Pelican Harbor Park.

**Recreational, Parks and Zoos (FLUCCS – 1850)**

The recreational land use category is used for those whose physical structure indicates that active user-oriented recreation is or could be occurring within the given physical area. This includes golf courses, parks, swimming beaches and shoreline, marinas, fairgrounds, etc. The Parks and Zoos land use is a type of recreational use and is mapped in one location in the study area covering the southern part of Pelican Harbor Park.

**Bays and Estuaries, Embayments Opening Directly to Gulf or Ocean (FLUCCS – 5410)**

Embayments are inlets or arms of the sea that extend into the land. Water bodies in this class are those which have a direct connection to the open Gulf of Mexico or the Atlantic Ocean and do not meander great distances up or down the interior of the coast. This land use type is found surrounding all land masses in the project area.

**Roads and Highways (FLUCCS – 8140)**

This class includes those highways exceeding 100 feet in width, with four or more lanes and median strips. The intent of this data layer is to include only the major transportation corridors. This land use type is mapped for NE 79<sup>th</sup> Street.



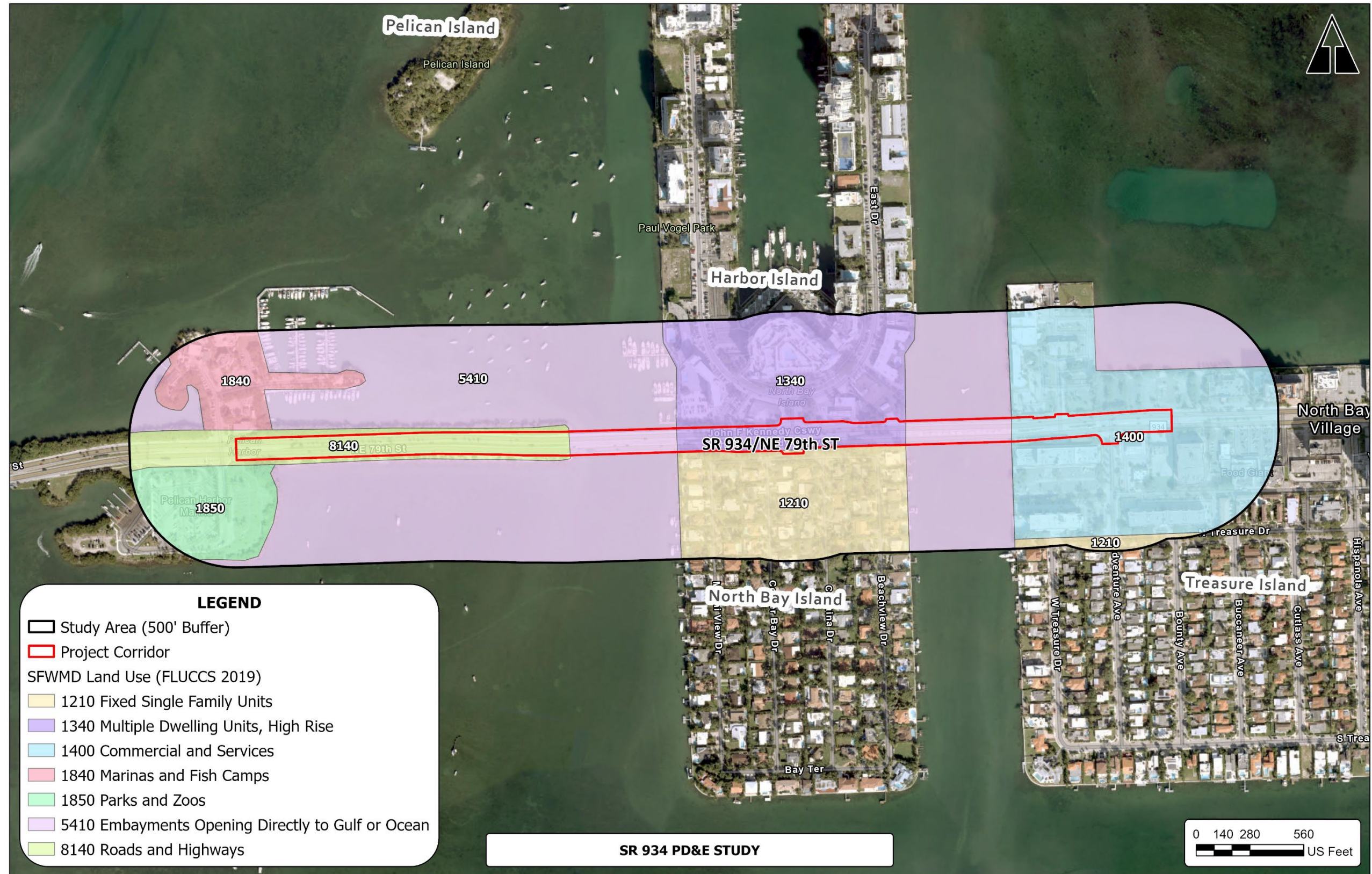


Figure 1.6 Land Use in the Project Area



## 1.6 Elevation, Hydrology, and Drainage

The project area is located on flat land with a ground elevation ranging between approximately zero and eight feet. Elevation is relatively constant throughout the project corridor, with the highest elevations found on the northern portion of North Bay Island. **Figure 1.7** shows an elevation map created with data collected by NOAA and the U.S. Department of Commerce in 2007 using Light Detection and Ranging in North American Datum 1983 (NAD 83).

Major hydrologic features and wetlands mapped by the USFWS National Wetlands Inventory (NWI) in the project area are shown in **Figure 1.8**. The only hydrology present within the project area is estuarine and marine deepwater of Biscayne Bay that are classified as Outstanding Florida Waters (OFW). No wetlands are present within the project area. The project is not underlain by the Biscayne Sole Source Aquifer, as mapped by the USEPA. The existing bridges drain into Biscayne Bay through scuppers and the remaining portions of the project area contain curb and gutter systems, which similarly drain into the Bay via catch basins and outfalls.

This project is located within the SFWMD's Biscayne Bay Basin. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (updated September 11, 2009), the entirety of the project area is located within the 100-year floodplain (Zone AE) with varying elevation requirements from 8 to 10 feet.

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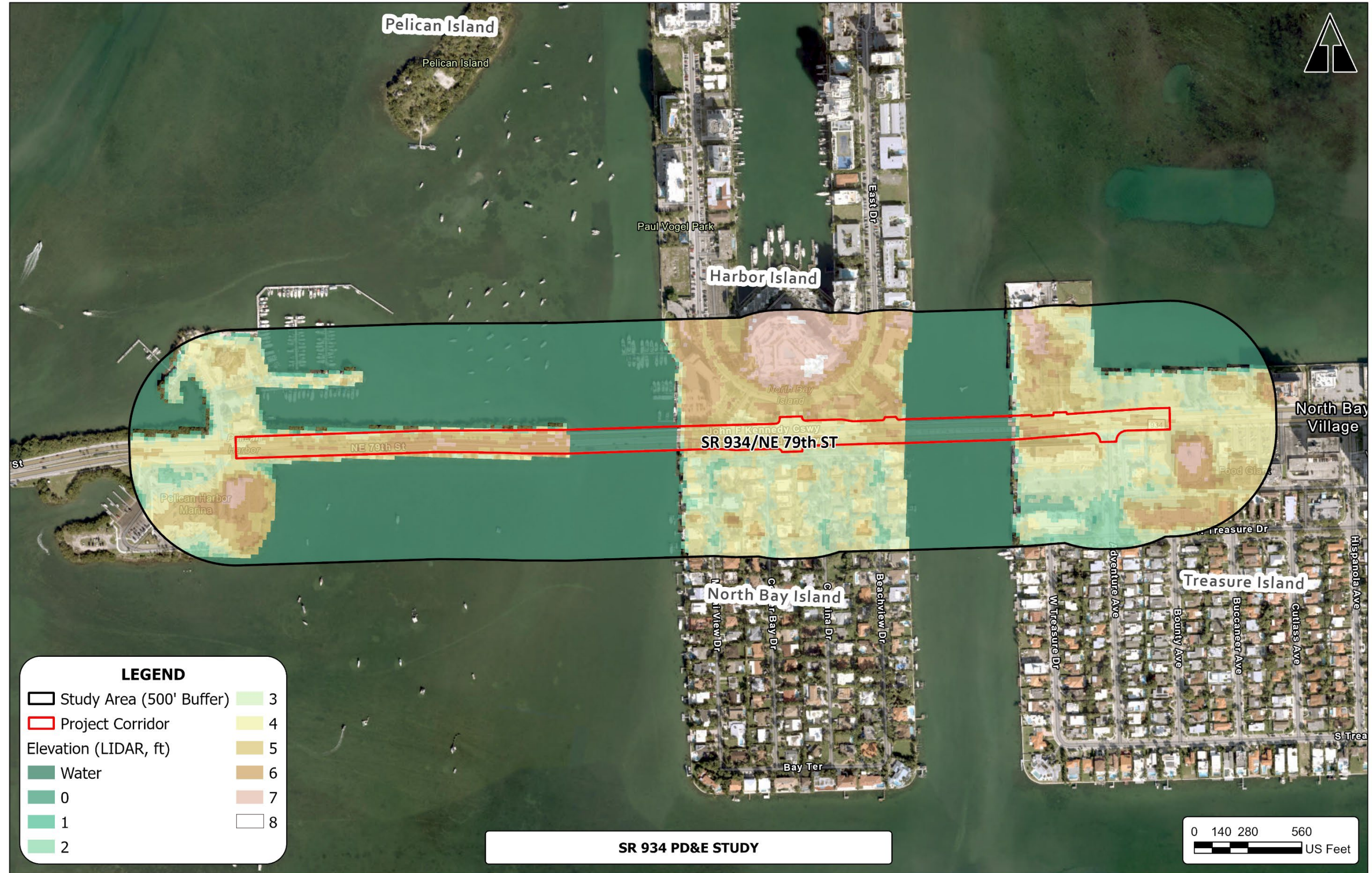


Figure 1.7 Elevation in the Project Area





Figure 1.8 Wetlands in the Project Area



## 1.7 Soils

The Natural Resources Conservation Service (NRCS) (2017) indicates two soil types occur in the project area (**Table 1.1, Figure 1.9**). The urban land soil type consists of residential, industrial, commercial, and institutional land; construction sites; public administration sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks within urban and built-up areas; and highways, railroads, and other transportation facilities if they are surrounded by urban areas. The other soil type, Udorthents, consists of moderately well drained to excessively drained soils that have been disturbed by capping or filling, and areas that are covered by buildings and pavement.

**Table 1-1 Soils in the Project Area**

Soil Type	Environmental Association	Approximate Percent of Project Area
Udorthents	This soil type consists of moderately well drained to excessively drained soils that have been disturbed by capping or filling, and areas that are covered by buildings and pavement. The areas are mostly larger than five acres. This is not a hydric soil.	<b>8.4%</b>
Urban Land	This soil type is for residential, industrial, commercial, and institutional land; construction sites; public administration sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks within urban and built-up areas; and highways, railroads, and other transportation facilities.	<b>39.8%</b>
Water	-	<b>51.8%</b>

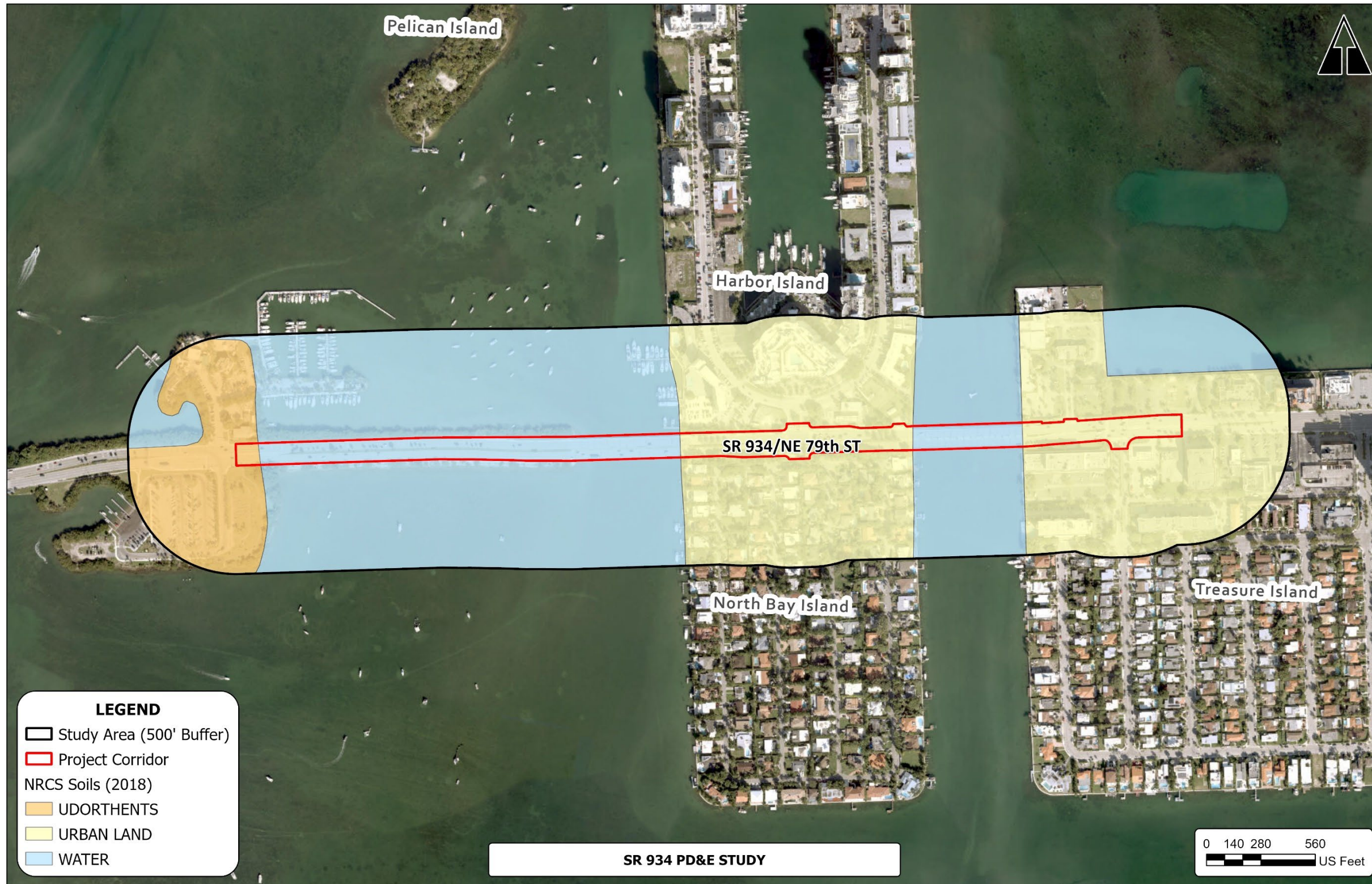


Figure 1.9 Soils in the Project Area



## 2 Applicability

### 2.1 Determination of Applicability

In accordance with FDOT PD&E Manual, Part 2, Chapter 18 Effective July 1, 2023, a Noise Study is mandatory for Type I projects, not mandatory for Type II projects, and not required for Type III Projects. Figure 18-2 of PD&E Manual provides a Type I Project Matrix to assist with the Project Type determination decision-making process based on the proposed improvements. **Table 2-1** evaluates the Preferred Alternative, Full Replacement Alternative 2B, based on the Type I Project Matrix from the PD&E Manual.

As shown in **Table 2-1**, the Preferred Alternative consists of only “Not Type I” characteristics with the potential exception of Item #8 “alteration of vertical alignment” as the improvements consist of modifying the bridge profile, see **Appendix A**. Concept Plans for the Preferred Alternative are provided in **Appendix B**.

Item #8 is defined as, “Alteration of the vertical alignment, or the surrounding topography, where existing shielding is removed and the line of sight between the noise source and the receptor is now direct.” The following defines the noise source and receptor for the analysis:

- **Noise Source:** Traffic noise from the nearest travel lane. Noise sources from the nearest travel lane are emitted at three different heights including:
  1. From the pavement (passenger cars and trucks)
  2. From the engine at 5 ft. above the pavement (trucks only)
  3. From the truck stack exhaust at 12 ft. above the pavement (heavy trucks only)
- **Receptor:** Areas of frequent human use, modeled at height of 5 ft. above ground elevation.

The section that follows evaluates the line of sight between the noise source and the receptor for the proposed bridges profile of the Preferred Alternative to determine if Item #8 is satisfied.

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Table 2-1 Type I Project Matrix

Type I Project Activities (Noise Study Required)		Not Type I (No Noise Study Required)	Preferred Alternative
1	Construction of highway on new location		
2	New or relocated interchanges		
3	Addition of new interchange ramps (add a ramp where no ramps existed). Viewed as a new location.		
4	Relocation of an interchange ramp where the edge of the outside lane on any segment of the ramp reduces the distance to the closest receptor by one-half. (See #6 for realignment of ramps)		
5	Increasing capacity to an existing on or off interchange ramp (by adding lanes) including associated merge lanes. Viewed as a new location.		
6	Lengthening an existing interchange ramp's acceleration or deceleration lane and associated merging into the mainline to a total of more than 2500 feet (from the gore to the end of the lane), or re-aligning where any segment of the ramp reduces the distance to the closest receptor by one-half.	Lengthening an existing interchange ramp's acceleration or deceleration lane and associated merging into the mainline (total length less than 2500 feet), or re-aligning where any segment of the ramp DOES NOT REDUCE the distance to the closest receptor by one-half.	
7	Alteration of the horizontal alignment of an existing highway such that the edge of the outside lane reduces the distance to the closest receptor by one-half.	Alteration of the horizontal alignment of an existing highway such that the edge of the outside lanes DOES NOT REDUCE the distance to the closest receptor by one-half.	Horizontal alignment is not altered as defined by Type I Projects.
8	Alteration of the vertical alignment, or the surrounding topography, where existing shielding is removed and the line of sight between the noise source and the receptor is now direct. (Activity does not include removal of vegetation).		Vertical alignment is not altered as defined by Type I Projects and as per the detailed line of sight analysis of the proposed profile, see Section 2.1.1.
9	Addition of new through-lanes that increase capacity to an existing highway. (Noise analysis required on both sides of the highway whether the lanes are all in one direction or both directions of travel.)		
10	Restriping existing pavement to add a through-lane or auxiliary lane (See #13, #14 and #15 for auxiliary lanes).		
11	Addition of new or substantially altered weight station, rest stop, ride share lot or toll plaza.		
12	Addition of ramps or new lanes serving as climbing lanes for buses and trucks.		
13	Addition of auxiliary lanes used as through lanes on local roads.		
14	Auxiliary lanes on freeways and expressways connecting two or more interchanges (continuous lanes longer than 2500 feet from gore to gore).	Auxiliary lanes on freeways and expressways connecting two closely spaced interchanges (less than 2500 feet from gore to gore) to accommodate weaving traffic.	
15		Turn lanes at intersections associated with arterial highways	Minor extension of existing left turn lanes at intersections.
16		Bicycle and Pedestrian paths	Project widens approximately 6-ft north to accommodate 7-ft bicycle lanes.
17		Safety activities (23 USC § 402)	
18		Landscaping	
19		Installation of fencing, signs, pavement marking, small passenger shelters, traffic signals, railroad warning signals (that don't disrupt traffic patterns)	Project includes pavement marking enhancements such as High-Emphasis Crosswalks.
20		Deployment of electronics, photonics, communications, information processing to improve safety and security	
21		Re-surfacing, restoration, rehabilitation or reconstruction of an existing facility (unless there is a change in horizontal or vertical alignment per 7 & 8 above).	Project resurfaces the roadway and reconstructs existing bridges with no alterations to the horizontal or vertical alignment as per 7 & 8 above.
22		Electronic toll collection facilities that do not disrupt traffic patterns.	

### 2.1.1 Preferred Alternative Line of Sight Analysis

As per Item #8 in **Table 2-1**, further review of the Preferred Alternative profile was performed to identify if existing shielding is removed and the line of sight between the noise source and the receptor is now direct. This analysis consisted of evaluating the critical sightlines for the worst-case noise sensitive site (backyard of residential single-family home receptor located at Station (STA) 63+40 [western bridge] immediately south of SR 934) and the noise source (nearest travel lane, SR 934 outside eastbound lane).

**Figure 2.1** graphically depicts the western bridge concept plan along with the existing and proposed profiles. The largest increase in roadway elevation occurs at STA 61+00 where the line of sight will increase by 5.6 ft. from the existing 6.8 ft. to a new elevation of 12.4 ft. Lines of sight were traced to evaluate the line of sight between the nearest travel lane noise source (at the three heights) and the receptor. The following describes the two (2) critical lines of sight:

**Sightline #1:** Line of sight from the receptor to the highest elevation point, inside eastbound lane, of the bridge (STA 61+00). Under this condition, the line of sight will increase by 5.6 ft. from the existing 6.8 ft. to a new elevation of 12.4 ft. Based on the sightline cross section, direct line of sight between the receptor and noise source is an existing condition and anticipated to remain under the proposed improvements. It should be noted that the existing bridge concrete barrier is open and will be replaced with a 3 ft. high closed concrete barrier.

**Sightline #2:** An 8 ft. high privacy wall exists between the nearest lane (noise source) and receptor. At STA 63+40, the line of sight will increase by 3.8 ft. from the existing 6.0 ft. to a new elevation of 9.8 ft. Line of sight analysis shows that the pavement and engine noise source is expected to remain shielded by the privacy wall and not have direct line of sight. The line of sight to the truck stack exhaust noise source remains direct to the receptor under existing and proposed conditions.

Based on the line of sight analysis and sightline cross sections depicted in **Figure 2.1**, the vertical alignment is not being altered in which existing shielding is being removed and the line of sight between the noise sources and the receptor is now direct. As previously mentioned, this analysis was performed for the worst-case scenario. The eastern bridge is proposed to have a nearly identical profile as well as similar surrounding elevations. In addition, the existing privacy wall terminates approximately 95-ft west of the eastern bridge. Therefore, for the eastern bridge, all sightlines will remain direct between the noise source and the receptor under both existing and build conditions.



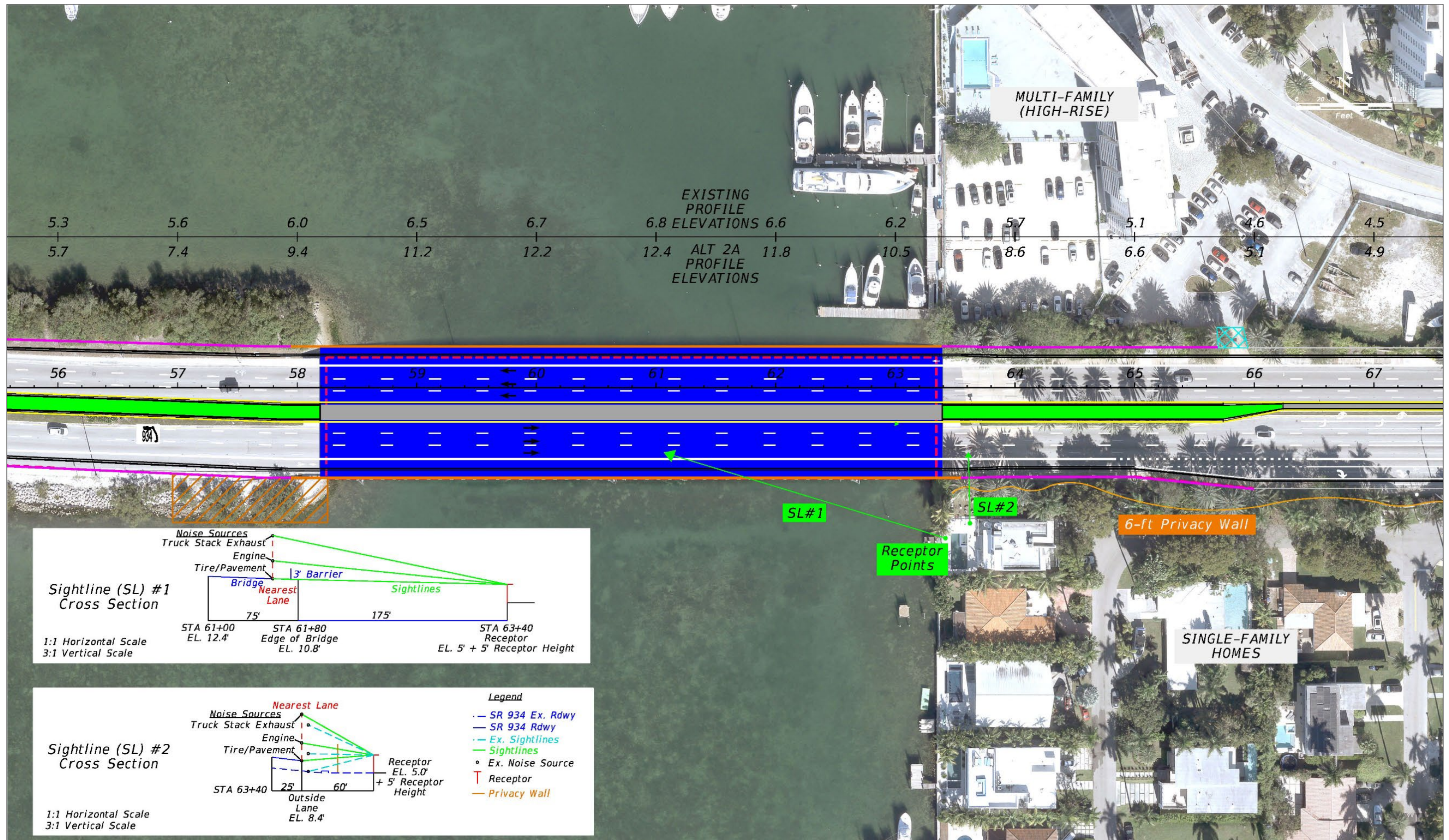


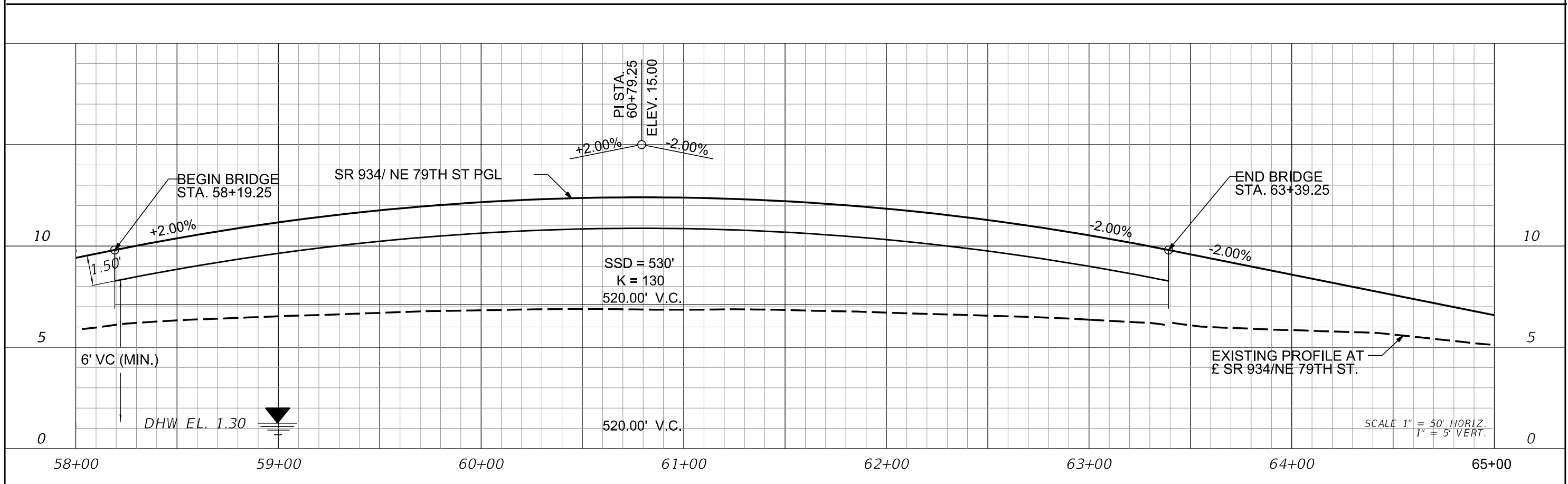
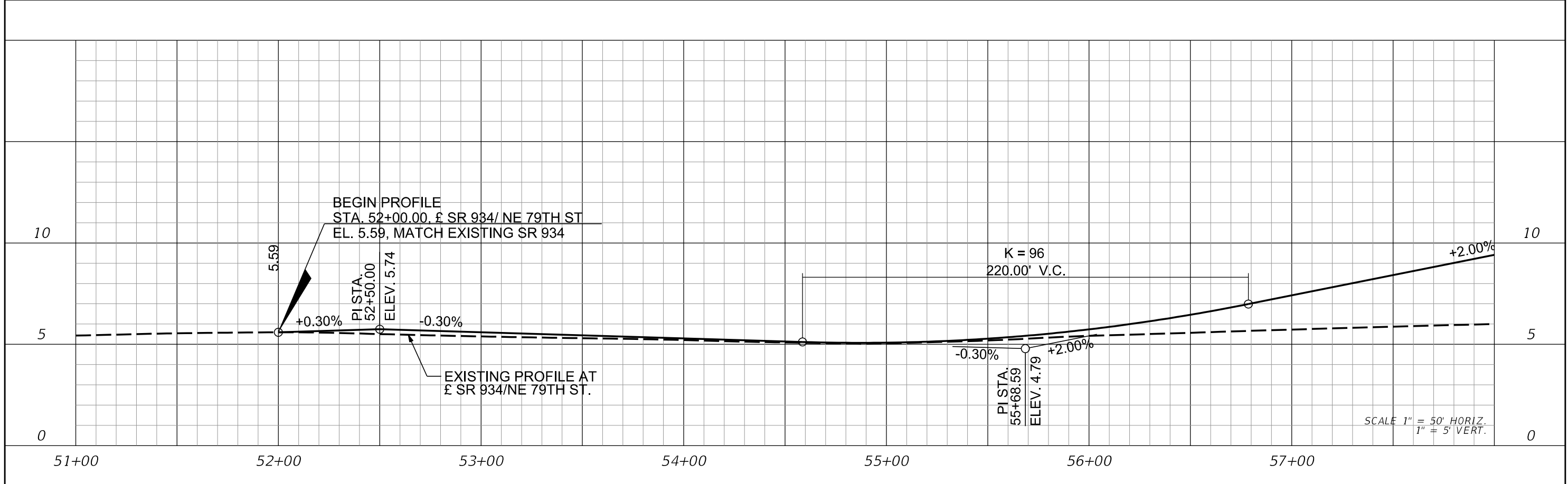
Figure 2.1 Preferred Alternative Profile Review (Western Bridge)



### **3 Conclusion**

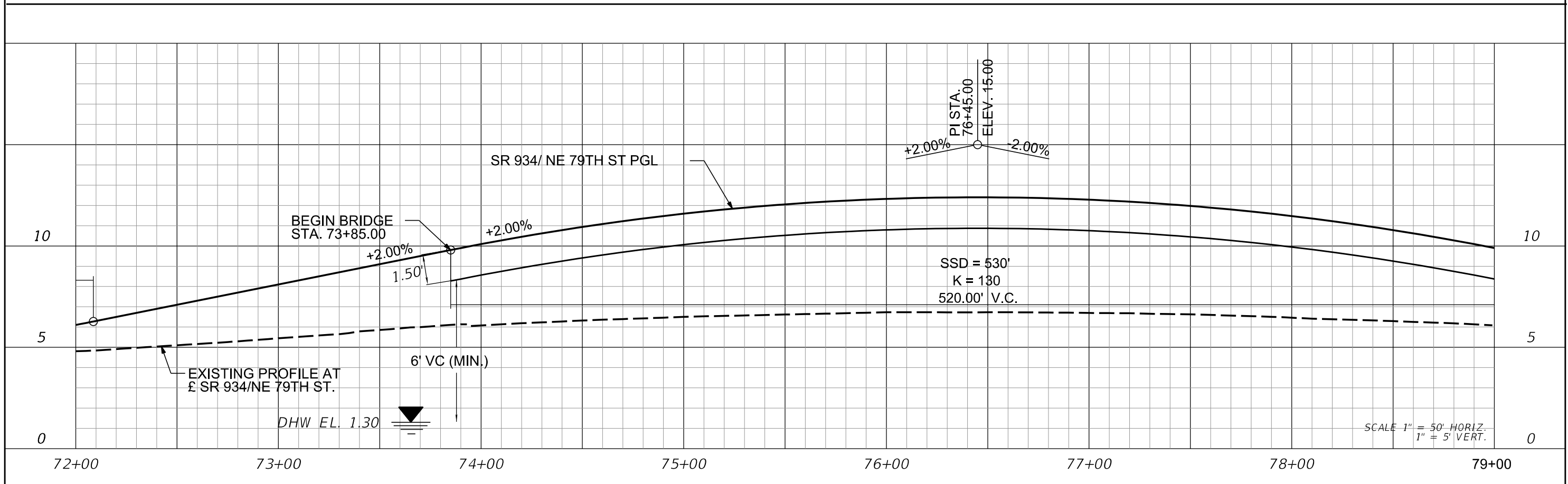
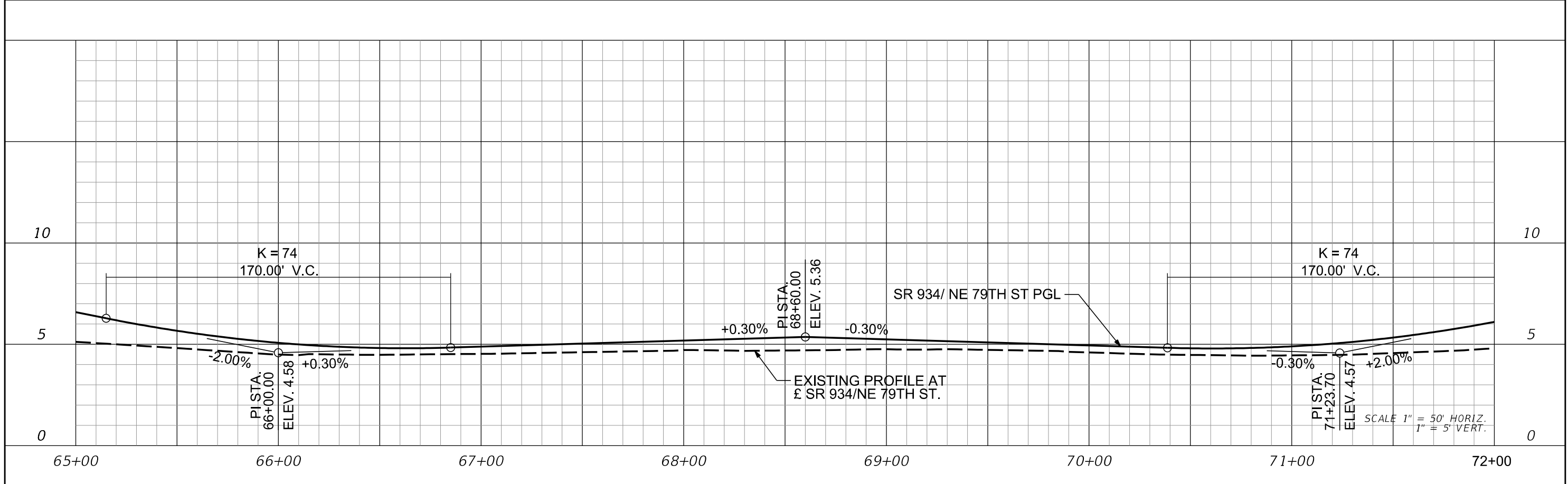
Based on the comparison of the proposed project improvements and Figure 18-2 Type I Project Matrix of PD&E Manual, the build improvements are categorized as “NOT a Type I Project”, therefore a noise study is not required. The applicability for this project is a Type III Project as defined in Chapter 18 of the PD&E Manual.

## **Appendix A: Preferred Alternative Profiles**



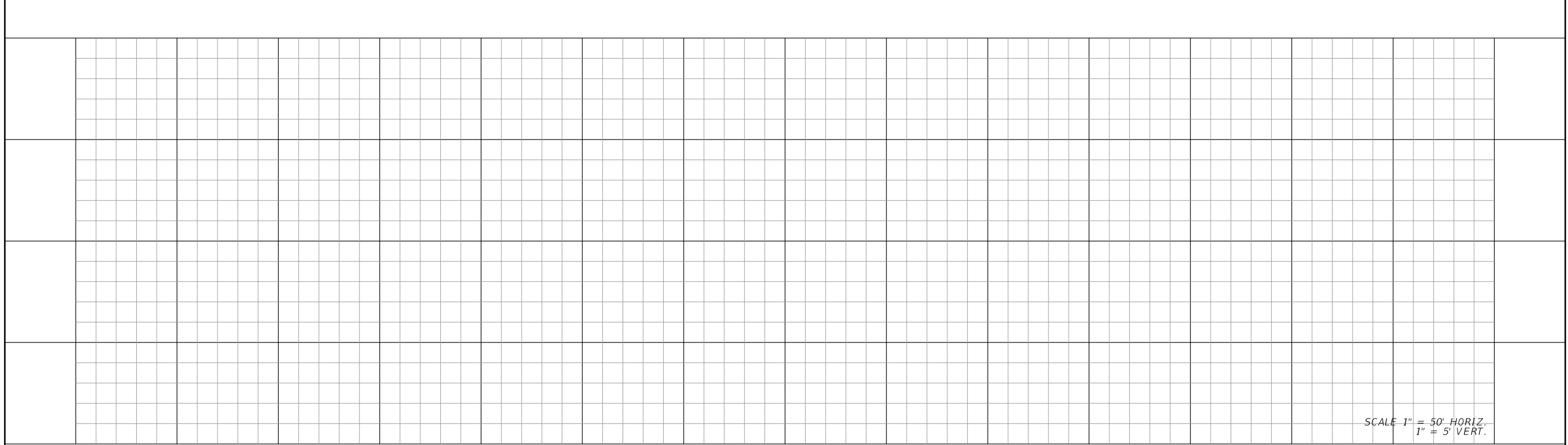
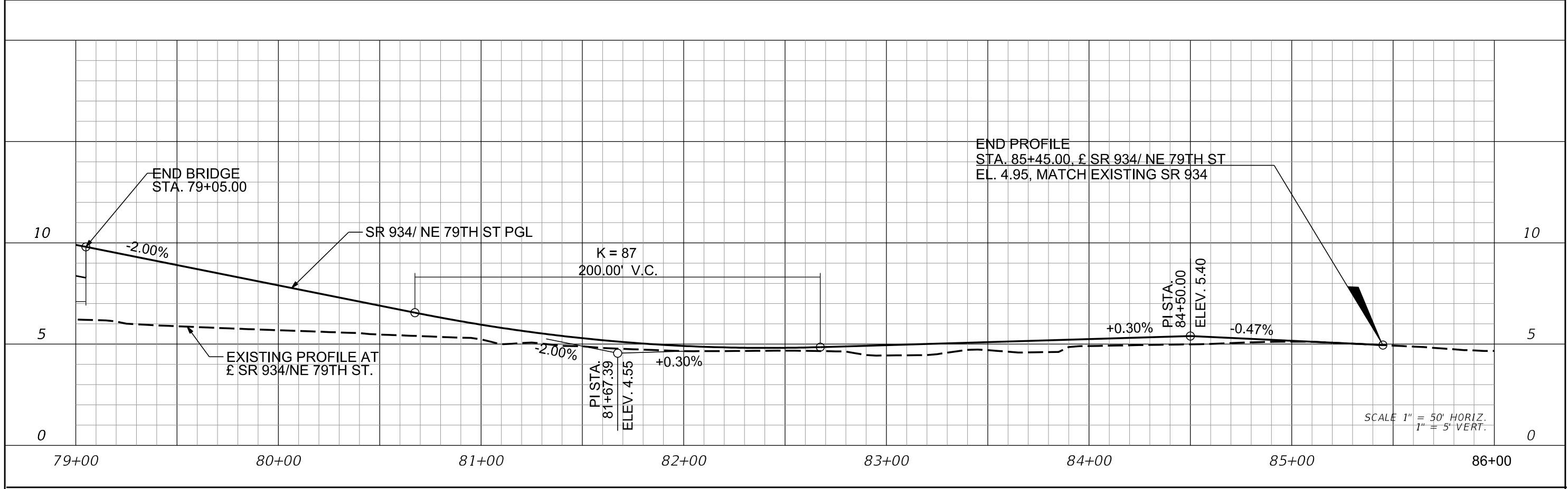
REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ROADWAY PROFILE (ALTERNATIVE 2B: PROFILE 2)	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 934	MIAMI-DADE	449007-1-22-01		12

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## **Appendix B: Preferred Alternative Concept Plans**





MATCHLINE 45+00.00

**LEGEND:**

- ROADWAY PAVEMENT
- PROPOSED SOD
- PROPOSED EMBANKMENT
- PROPOSED GUARDRAIL
- EASEMENT LINE

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		5
					SR 934	MIAMI-DADE	449007-1-22-01		





PELICAN HARBOR  
MARINA

BISCAYNE BAY  
(OUTSTANDING  
FLORIDA WATERS)



R/W LINE

Ⓢ SURVEY




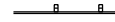

SR 934/NE 79TH STREET/  
JOHN F. KENNEDY CAUSEWAY

R/W LINE

PELICAN HARBOR  
BOAT RAMP

BISCAYNE BAY  
(OUTSTANDING  
FLORIDA WATERS)

**LEGEND:**

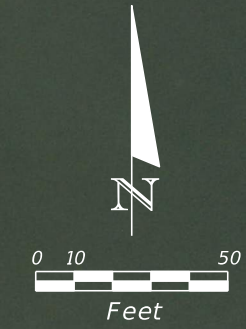
	ROADWAY PAVEMENT
	PROPOSED SOD
	PROPOSED EMBANKMENT
	PROPOSED GUARDRAIL
	EASEMENT LINE

MATCHLINE 45+00.00

MATCHLINE 52+00.00

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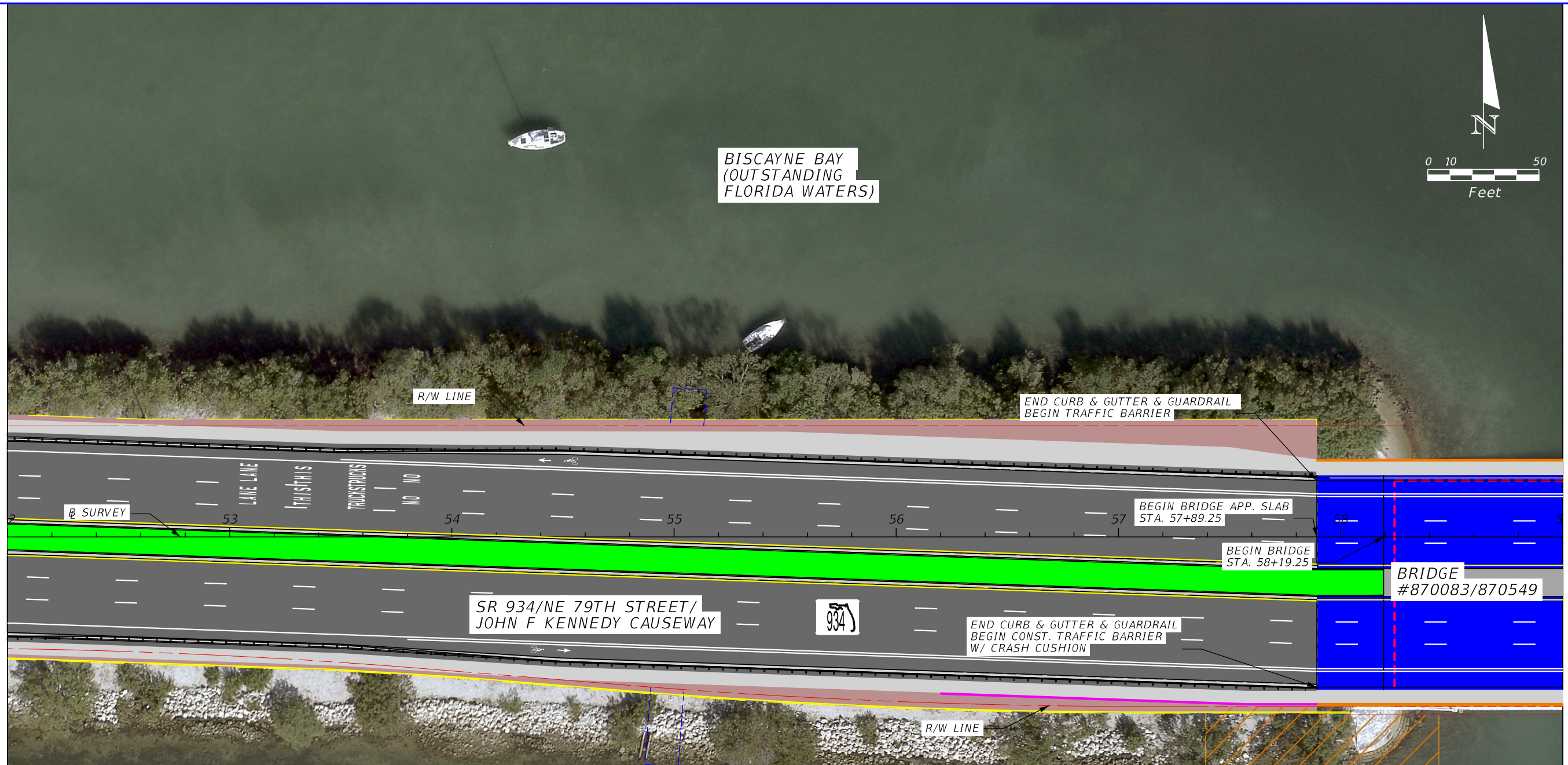




BISCAYNE BAY  
(OUTSTANDING  
FLORIDA WATERS)

MATCHLINE 52+00.00

MATCHLINE 59+00.00



SR 934/NE 79TH STREET/  
JOHN F KENNEDY CAUSEWAY



BRIDGE  
#870083/870549

**LEGEND:**

	EXISTING BRIDGE		TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED BRIDGE		PROPOSED GRAVITY WALL & PED. RAILING
	PROPOSED SIDEWALK		PROPOSED PED. & BICYCLE RAILING
	ROADWAY PAVEMENT		PROPOSED GUARDRAIL
	PROPOSED SOD		EASEMENT LINE
	PROPOSED EMBANKMENT		

BISCAYNE BAY  
(OUTSTANDING  
FLORIDA WATERS)

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		7
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MATCHLINE 59+00.00

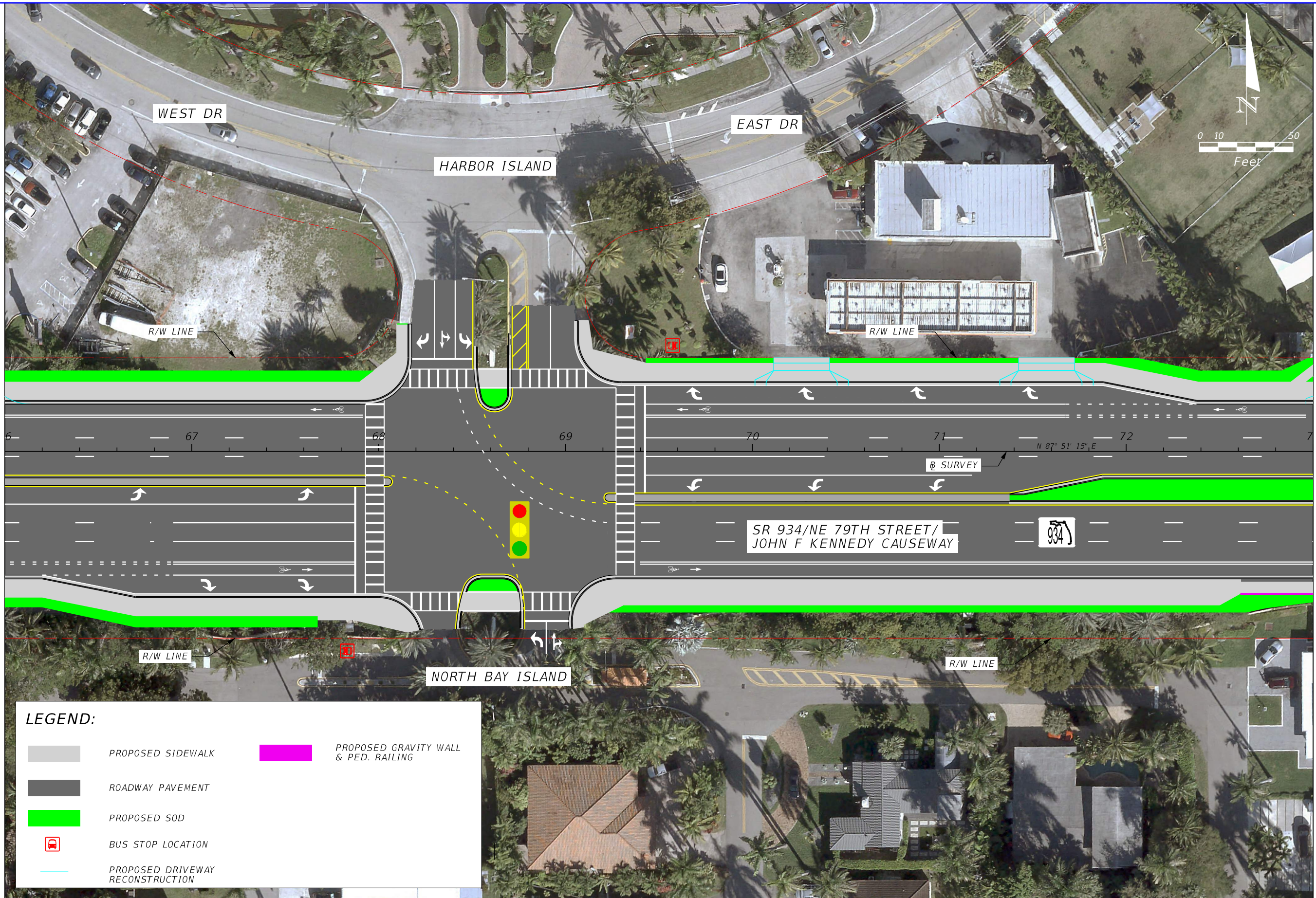
MATCHLINE 66+00.00

**LEGEND:**





- |   |                   |   |                                      |
|---|-------------------|---|--------------------------------------|
|  | EXISTING BRIDGE   |  | PROPOSED GRAVITY WALL & PED. RAILING |
|  | PROPOSED BRIDGE   |  | PROPOSED PED. & BICYCLE RAILING      |
|  | PROPOSED SIDEWALK |  | PROPOSED SOD                         |
|  | ROADWAY PAVEMENT  |  | PROPOSED GUARDRAIL                   |

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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**LEGEND:**

	PROPOSED SIDEWALK		PROPOSED GRAVITY WALL & PED. RAILING
	ROADWAY PAVEMENT		
	PROPOSED SOD		
	BUS STOP LOCATION		
	PROPOSED DRIVEWAY RECONSTRUCTION		

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

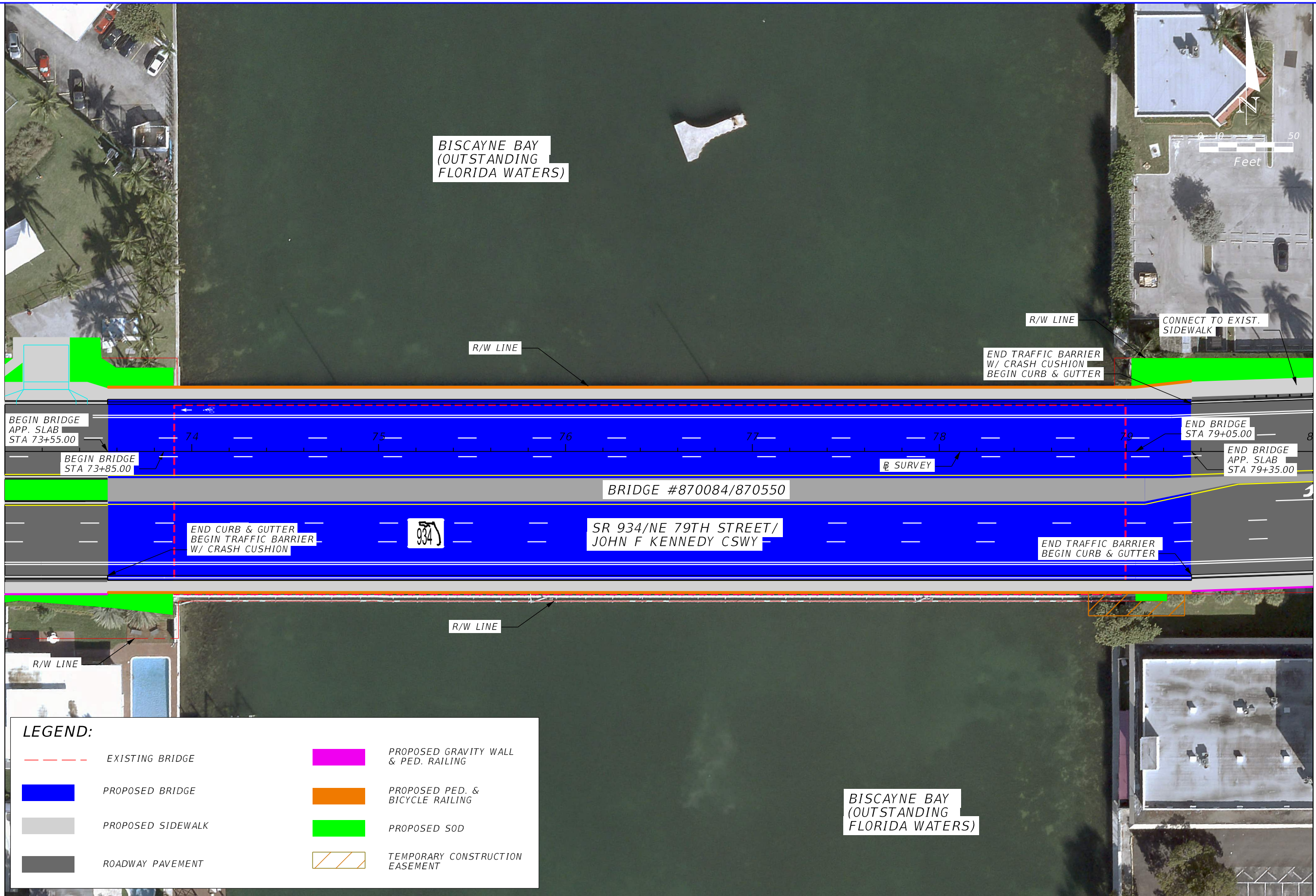
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 P.E. LICENSE NUMBER 83790  
 HDR ENGINEERING, INC.  
 3250 W. COMMERCIAL BLVD., SUITE 100  
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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**PRELIMINARY CONCEPT  
PLANS**

SHEET NO.  
9












MATCHLINE 73+00.00

MATCHLINE 80+00.00

**LEGEND:**

- |   |                   |   |                                      |
|---|-------------------|---|--------------------------------------|
|  | EXISTING BRIDGE   |  | PROPOSED GRAVITY WALL & PED. RAILING |
|  | PROPOSED BRIDGE   |  | PROPOSED PED. & BICYCLE RAILING      |
|  | PROPOSED SIDEWALK |  | PROPOSED SOD                         |
|  | ROADWAY PAVEMENT  |  | TEMPORARY CONSTRUCTION EASEMENT      |

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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