

NOISE STUDY REPORT

Florida Department of Transportation

District 1

SR 70

Limits of Project: from Lorraine Road to CR 675/Waterbury Road

Manatee County, Florida

Financial Management Number: 414506-2

ETDM Number: 14263

Date: June 2019

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 December 14, 2016 and executed by FHWA and FDOT.

# **NOISE STUDY REPORT**

**FLORIDA DEPARTMENT OF TRANSPORTATION  
DISTRICT ONE  
State Road 70  
from Lorraine Road to County Road 675/Waterbury Road  
Manatee County, Florida**

Financial Project ID: 414506-2-22-01  
Federal Aid Project No.: To Be Determined  
Efficient Transportation Decision Making (EDTM) No.: 14263

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 Title 23, Section 327 of the United States Code (23 U.S.C. § 327) and a Memorandum of Understanding dated December 14, 2016 and executed by the Federal Highway Administration (FHWA) and FDOT.

**Prepared by:**  
KB Environmental Sciences, Inc.  
St. Petersburg, Florida

**Prepared for:**  
Kisinger, Campo & Associates  
Tampa, Florida

**JUNE 2019**

# Executive Summary

---

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the proposed widening of 6.1 miles of State Road (SR) 70 from Lorraine Road (Milepost (MP) 9.478) to County Road (CR) 675/Waterbury Road (MP 15.567) in Manatee County. The purpose of this project is to improve traffic operational conditions along the SR 70 corridor from Lorraine Road to CR 675/Waterbury Road to accommodate projected travel demand, specifically increased commuter and freight traffic.

The purpose of this Noise Study Report (NSR) is to identify land uses adjacent to the project corridor for which there are Noise Abatement Criteria (NAC), to evaluate future traffic noise levels at the properties with and without the proposed improvements, and to evaluate the need for, and effectiveness of, noise abatement measures. Additional objectives include the consideration of potential construction noise impacts and the identification of noise impact “contours” adjacent to the corridor.

The analysis was performed following FDOT procedures that comply with Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. The evaluation uses methodologies established by the FDOT’s traffic noise policy in the FDOT PD&E Manual, Part 2, Chapter 18 – *Highway Traffic Noise* (January 2019).

Ninety-six receptors (discrete/representative locations of a noise sensitive area) were evaluated. The receptors were evaluated for 88 residences, three active sports areas (a soccer field and two golf courses), two medical facilities, a place of worship, a recreational area, and a convenience store/gas station with an outdoor dining area. The residences were evaluated as an Activity Category B land use (an exterior NAC of 66 decibels on the “A”-weighted scale (dB(A))). The active sports areas, the place of worship, and the recreational area were evaluated as an Activity Category C land use (an exterior NAC of 66 dB(A)). Because there are no areas of frequent human use outside of the medical facilities, the medical facilities were evaluated as Activity Category D (an interior NAC of 51 dB(A)). Finally, the outdoor dining area of the convenience store/gas station was evaluated as Activity Category E (an exterior NAC of 71 dB(A)).

The results of the analysis indicate that existing (year 2018) exterior traffic noise levels range from 48.6 to 64.5 dB(A), and the interior traffic noise levels at the two medical facilities are predicted to be 40.6 and 40.9 dB(A). In the future (year 2045) without the proposed project improvements (the No Build Alternative), exterior traffic noise levels are predicted to range from 49.9 to 65.8 dB(A), and the interior levels at the medical facilities are predicted to be 40.6 and 40.9 dB(A). In the future with the proposed project improvements (the Build Alternative), exterior traffic noise levels are predicted to range from 52.3 to 65.0 dB(A), and the interior levels at the medical facilities are predicted to be 47.4 and 47.7 dB(A).

Based on these results, highway traffic noise levels do not approach or exceed the NAC in the future with the proposed project improvements at any of the evaluated receptors. The results of the analysis also indicate that when compared to existing conditions, traffic noise levels with the proposed improvements would not increase more than 7.4 dB(A) at any receptor. As such, the project would not substantially increase highway traffic noise (i.e., an increase of 15 dB(A) or more).

Based on the results of the PD&E Study, there are no highway traffic noise impacted land uses within the project that require abatement consideration. Should the proposed improvements change during the project's final design phase such that a re-analysis of highway traffic noise is warranted and impacts are identified in the analysis, an evaluation of noise abatement measures would be performed at that time. The FDOT is committed to the construction of feasible and reasonable noise abatement measures at noise-impacted locations contingent on the following:

1. Detailed noise analyses during the final design process support the need, feasibility, and reasonableness of providing abatement;
2. Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion;
3. Community input supporting types, heights, and locations of the noise barrier(s) is provided to the District Office; and
4. Safety and engineering aspects as related to the roadway user and the adjacent property owner have been reviewed and any conflicts or issues resolved.

The residences, medical facilities, and the place of worship within the project limits are considered to be construction noise and vibration sensitive sites. Implementing the proposed roadway improvements is not expected to have a significant noise or vibration impact on these sites because it is anticipated that application of the *FDOT Standard Specifications for Road and Bridge Construction* will minimize or eliminate the potential for such impacts. Should unanticipated noise or vibration issues arise during the construction process, the Project Engineer, in coordination with the District Noise Specialist and the Contractor, will investigate additional methods of controlling these impacts.

Land uses such as residences, motels, medical facilities, schools, churches, recreation areas, and parks are considered incompatible with highway traffic noise levels that approach or exceed the NAC. In order to reduce the possibility of noise-related impacts on land uses that may be approved for construction in the future, noise level contours were developed for the future improved roadway facility. Local officials will be provided a copy of the NSR that delineates/illustrates the contours to promote compatibility between land development and the proposed improvements to SR 70.

# Table of Contents

---

	<u>Page</u>
Executive Summary .....	i
Table of Contents .....	iii
Section 1.0 Introduction.....	1-1
1.1 Project Description.....	1-1
1.2 Purpose and Need.....	1-1
1.3 Purpose of Report.....	1-3
Section 2.0 Project Description.....	2-1
2.1 Existing Facility .....	2-1
2.2 Proposed Action .....	2-1
2.2.1 Project Alternatives .....	2-1
2.2.2 Typical Sections .....	2-2
Section 3.0 Methodology .....	3-1
3.1 Evaluation Process .....	3-1
3.2 Noise Model .....	3-1
3.3 Traffic Data .....	3-1
Section 4.0 Noise Analysis .....	4-1
4.1 Evaluation Process .....	4-1
4.2 Measured Noise Levels .....	4-2
4.3 Results of the Noise Analysis.....	4-3
Section 5.0 Conclusions.....	5-1
Section 6.0 Noise Contours.....	6-1
Section 7.0 Construction Noise and Vibration .....	7-1
Section 8.0 Public Involvement.....	8-1
Section 9.0 References.....	9-1

## List of Appendices

Appendix A	Project Aerials
Appendix B	Traffic Data for Noise Studies
Appendix C	Typical Noise Levels
Appendix D	Validation Documentation
Appendix E	Traffic Noise Model (TNM) Files (provided on CD)

**List of Figures**

1-1 Project Location Map ..... 1-1  
2-1 Existing Typical Roadway Section..... 2-1  
2-2 Project Location Map by Segment ..... 2-2  
2-3 Segment A Proposed Typical Roadway Section ..... 2-3  
2-4 Segment B Proposed Typical Roadway Section ..... 2-4  
2-5 Segment C Proposed Typical Roadway Section ..... 2-4  
6-1 Noise Contours .....6-2

**List of Tables**

3-1 Hourly Traffic Volumes/Speeds Used In TNM ..... 3-2  
4-1 FHWA/FDOT Noise Abatement Criteria [Leq(h) Expressed In dB(A)] .....4-1  
4-2 Validation Data..... 4-3  
4-3 Predicted Traffic Noise Levels..... 4-4  
6-1 Noise Contours ..... 6-1

# Section 1.0 Introduction

---

## *1.1 Project Description*

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the proposed widening of 6.1 miles of State Road (SR) 70 from Lorraine Road (Milepost (MP) 9.478) to County Road (CR) 675/Waterbury Road (MP 15.567) in Manatee County, as depicted in **Figure 1-1**.

The PD&E study evaluates the need for capacity improvements and provides engineering and environmental documentation and analysis to establish the optimal type and location of improvements to SR 70. The results of the study will aid Manatee County, FDOT and the FDOT Office of Environmental Management (OEM) in determining the type, preliminary design and location of the proposed improvements.

The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process (Project 14263). An ETDM *Programming Screen Summary Report* containing comments from the Environmental Technical Advisory Team (ETAT) was published on April 3, 2018. The ETAT evaluated the project's effects on natural, physical, cultural, social and economic resources.

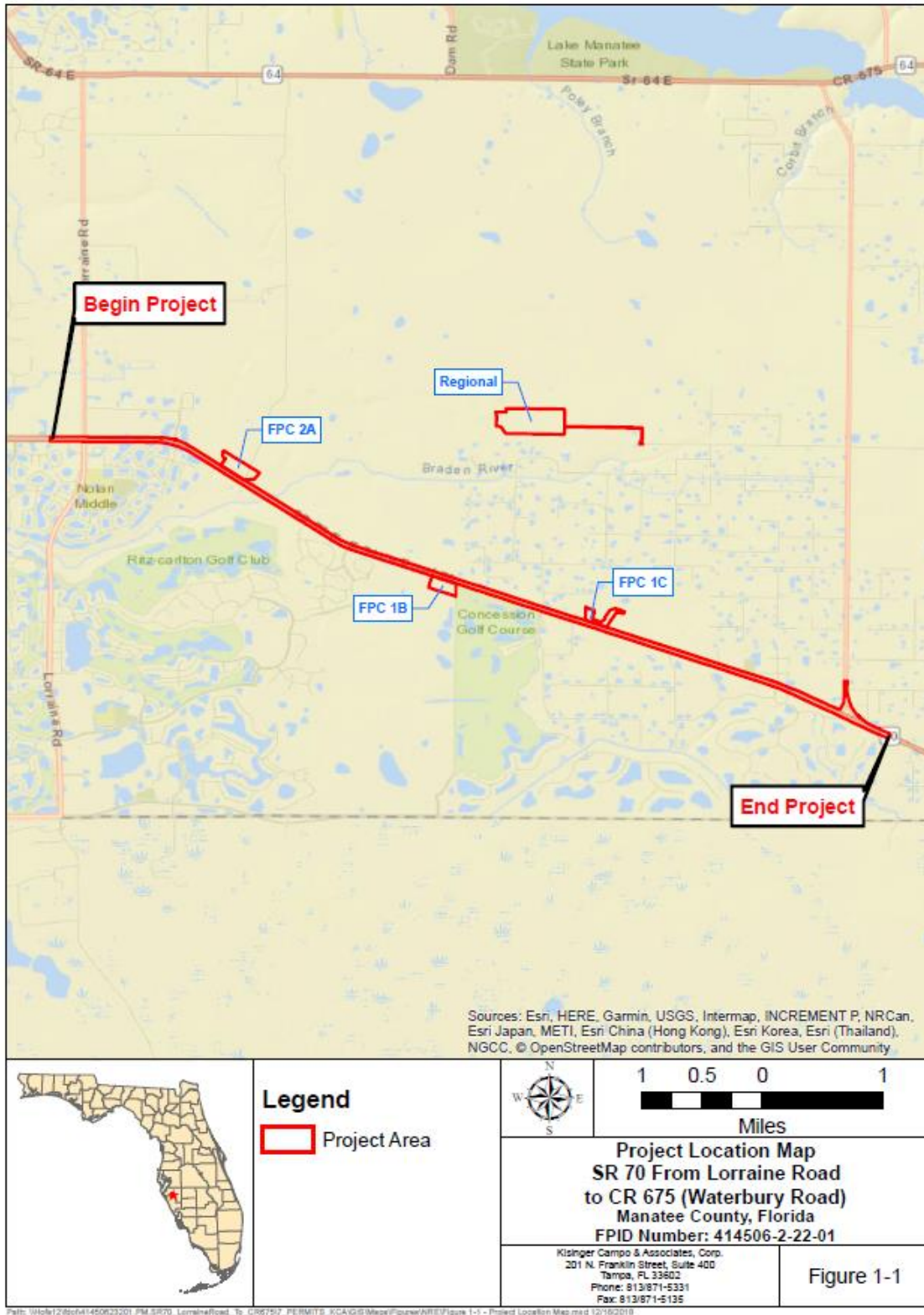
Upon completion, the PD&E study will meet all requirements of the National Environmental Policy Act of 1969 (NEPA) as administered by the FDOT OEM and the requirements of other federal and state laws so as to qualify the proposed project for federal-aid funding.

## *1.2 Purpose and Need*

The purpose of this project is to improve traffic operational conditions along the SR 70 corridor from Lorraine Road to CR 675/Waterbury Road to accommodate projected travel demand, specifically increased commuter and freight traffic. Traffic flow within the corridor is of particular concern given the high percentage of heavy trucks mixed with non-truck traffic. The unique acceleration and deceleration characteristics of the trucks cause vehicular travel delay and, ultimately, impact the movement of commuter and freight traffic on the two-lane undivided roadway.

Two Developments of Regional Impact (Cypress Banks and Northwest Sector) surround the western project terminus. Of the five Planned Unit Developments that are present, two are located at the western project terminus and three surround the eastern portion of the project corridor (two of these three are Panther Trace and Concession). Del Webb Lakewood Ranch is also present south of SR 70 near Uihlein Road. The corridor further abuts a master planned community, Lakewood Ranch, to the

**Figure 1-1 Project Location Map**





west. Lakewood Ranch is also identified by Manatee County as one of four major growth and focus areas of the county. Growth along the project corridor is anticipated to occur most heavily within the area surrounding the western half of the corridor as the area will continue to support residential and mixed use community activities with commercial uses concentrated at the intersection of SR 70 and Lorraine Road.

Due to the fact that it provides regional access to agriculture and ranching operations, industrial/commercial areas, and freight distribution facilities throughout central Florida, particularly with its connections to several major transportation facilities, SR 70 has been designated as part of the Strategic Intermodal System (SIS) network. Accordingly, the project segment of SR 70 currently carries significant truck traffic.

This project is anticipated to improve traffic operations and preserve operational capacity along SR 70 to address increased travel demand as a result of projected growth along the corridor and higher volumes of heavy trucks due to agricultural and ranching activities in the area. The proposed project is also anticipated to improve safety characteristics of the facility, which are particularly exacerbated by the high truck percentages, by enhancing overall traffic operations.

### ***1.3 Purpose of Report***

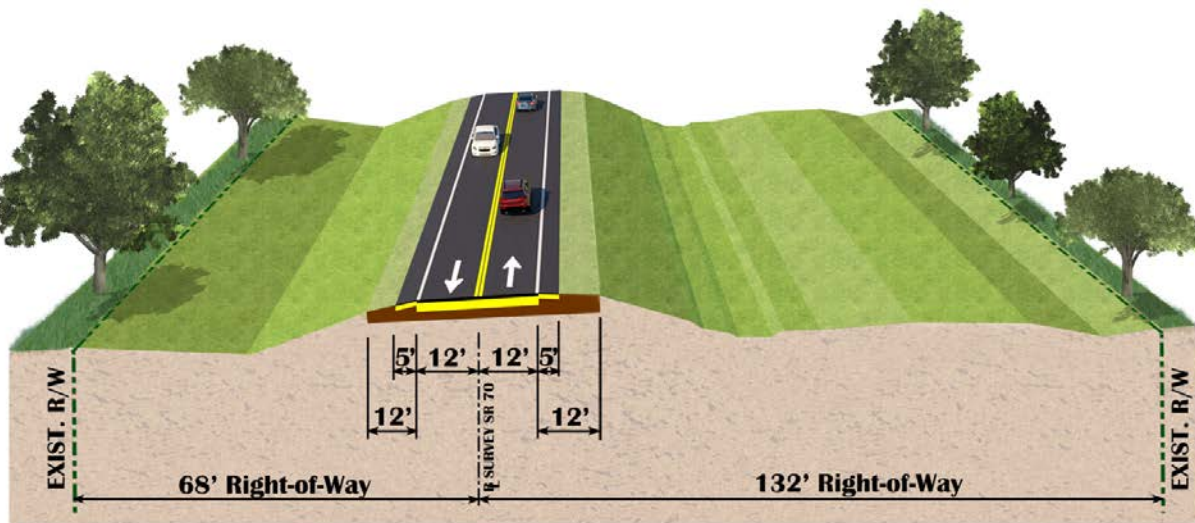
The purpose of this Noise Study Report (NSR) is to identify land uses adjacent to the project corridor for which there are Noise Abatement Criteria (NAC), to evaluate future traffic noise levels at the properties with and without the proposed improvements, and to evaluate the need for, and effectiveness of, noise abatement measures. Additionally, the NSR addresses the consideration of potential construction noise and vibration impacts and the identification of noise impact “contours” adjacent to the corridor.

# Section 2.0 Project Description

## 2.1 Existing Facility

Throughout the limits of the PD&E study SR 70 is designated as a rural principal arterial highway, a SIS highway, and an evacuation route. As defined by the FDOT Design Manual (FDM), Section 200, the context classification of the project is C3R – Suburban Residential. The existing SR 70 facility consists of a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5 feet paved) (**Figure 2-1**). Within the study limits the existing right-of-way width is approximately 200 feet throughout the majority of the project corridor and approximately 250 feet near the intersection of SR 70 and CR 675/Waterbury Road. There are 14 cross drains, ranging in size from 24-inch pipes to a quadruple 10 foot by 7 foot box culvert. The posted speed limit within the project area is 60 miles per hour (mph).

Figure 2-1 Existing Typical Roadway Section



## 2.2 Proposed Action

The proposed action is to increase the capacity of the existing two-lane undivided roadway by widening it to a four or six-lane divided roadway to accomplish the purpose and need described in the previous section.

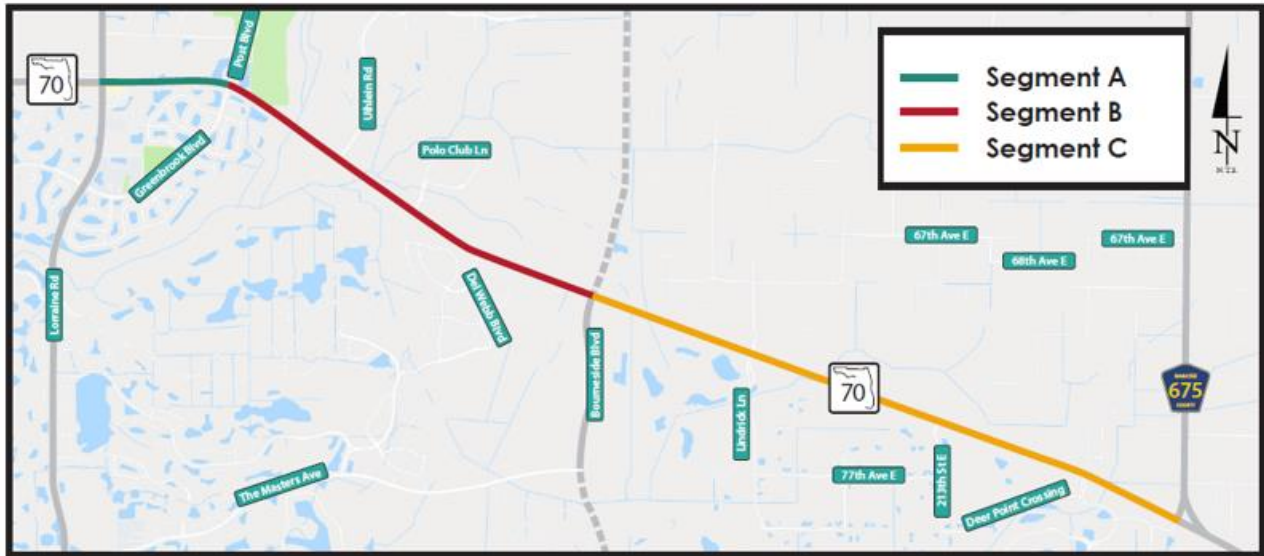
### 2.2.1 Project Alternatives

Within the limits of this study, FDOT is evaluating one project build alternative and three project segments. The three segments are separated for analysis to best address the local transportation needs. Segment A extends from Lorraine Road to east of Greenbrook Boulevard, Segment B extends from

east of Greenbrook Boulevard to Bourneside Boulevard, and Segment C extends from Bourneside Boulevard to the eastern project limit at CR 675 (**Figure 2-2**).

The No-Build alternative remains a viable alternative throughout the study process.

**Figure 2-2 Project Location Map by Segment**



### 2.2.2 Typical Sections

The designation of SR 70 as a SIS facility throughout the project limits presents a key variable for the design speeds for the project. The FDM, Part 2 Table 201.4.1 provides design speed controls for SIS facilities. For SIS facilities with a C3R context classification a minimum design speed of 50 mph is required. However, within the C3R context classification, if curbed roadways are proposed the design speed may be reduced to 45 mph. As designed, the proposed high-speed curbed typical sections proposed for Segment A meets the FDM criteria with a 45 mph design speed. In addition, the 50 mph design speed proposed for Segments B and meet the minimum design speed for an SIS facility.

Proposed build improvements for each of the three project segments include the follows:

#### Segment A

The proposed typical section for Segment A will provide a high-speed curbed roadway design with three 11-foot travel lanes in each direction, seven-foot paved outside shoulders (buffered bike lanes), a closed drainage system with curbs and gutters, and eight-foot sidewalks in both directions (**Figure 2-3**). The proposed improvements in this segment are anticipated to be accomplished within the existing 200-foot right-of-way.

### Segment B

The proposed typical section for Segment B will provide a high-speed curbed roadway design with two 12-foot lanes in each direction, five-foot paved outside shoulders, a closed drainage system with curbs and gutters, and eight-foot sidewalks in both directions (**Figure 2-4**). The proposed roadway has been designed with a 54-foot wide median such that it is expandable to a six-lane section in the future, when traffic needs merit an expansion, by adding a 12-foot lane in each direction on the inside. The proposed improvements in this segment are anticipated to be accomplished primarily within the existing 200-foot right-of-way; although minimal right-of-way will be needed to construct proposed roundabouts at Uihlein Road, Del Webb Boulevard, and Bourneside Boulevard.

### Segment C

The proposed typical section for Segment C will provide a high-speed curbed roadway design with two 12-foot lanes in each direction, 10-foot outside shoulders (five feet paved), an open drainage system, and eight-foot sidewalks in both directions (**Figure 2-5**). The proposed improvements in this segment are anticipated to be accomplished primarily within the existing 200-foot right-of-way; with minimal right-of-way needed to construct proposed roundabouts at 197<sup>th</sup> Street East/Lindrick Lane, 213<sup>th</sup> Street East, 225<sup>th</sup> Street East/Panther Ridge Trail, and CR 675.

**Figure 2-3 Segment A Proposed Typical Roadway Section**

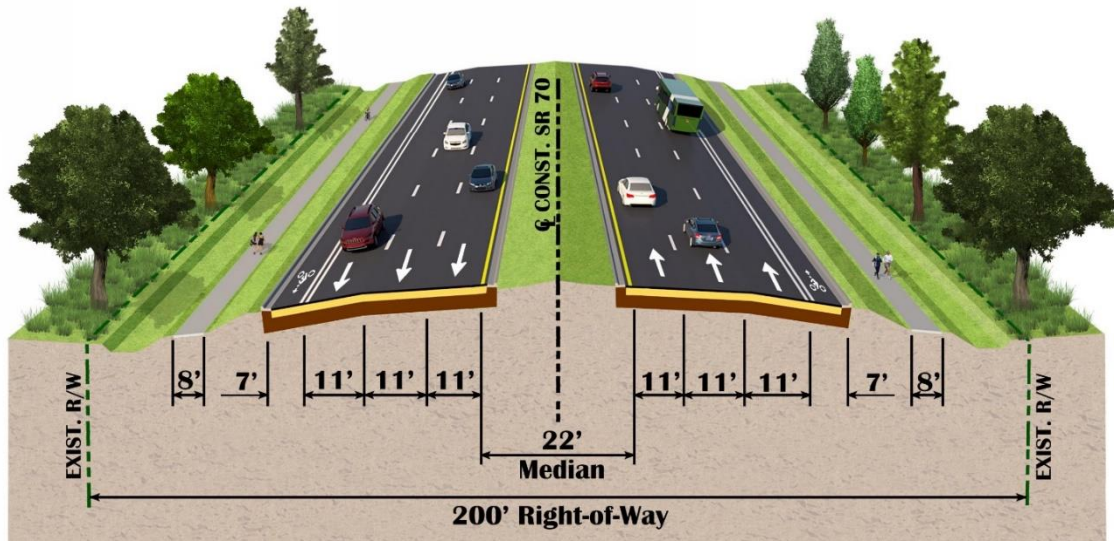


Figure 2-4 Segment B Proposed Typical Roadway Section

**\*Future Widening**

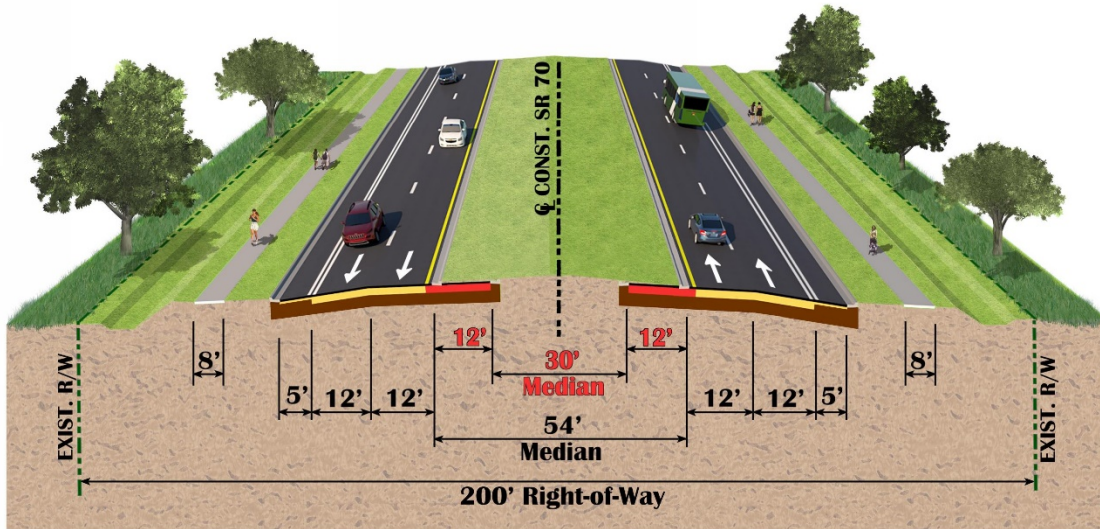
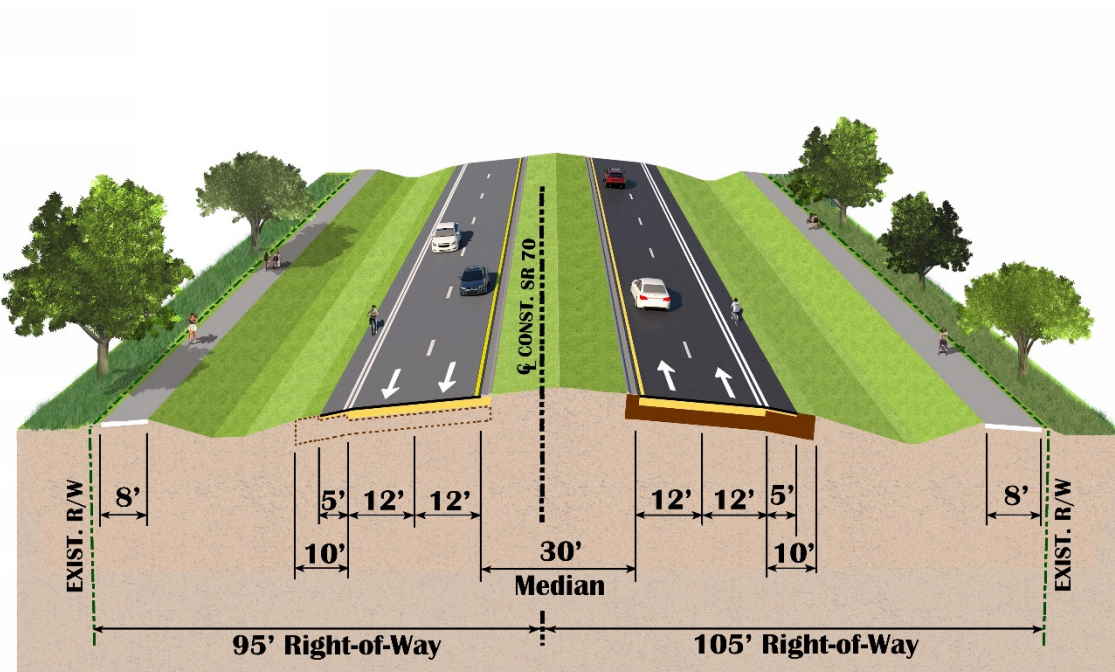


Figure 2-5 Segment C Proposed Typical Roadway Section



# Section 3.0 Methodology

---

## 3.1 Evaluation Process

The highway traffic noise analysis discussed in this NSR was prepared in accordance with Part 772 of Title 23 of the Code of Federal Regulations (23 CFR 772), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*; the policies/procedures documented in the FDOT’s PD&E Manual, Part 2, Chapter 18 (*Highway Traffic Noise*, January 14, 2019); and guidance from the FDOT’s *Traffic Noise Modeling and Analysis Practitioners Handbook*. The predicted highway traffic noise levels presented in this report are expressed in decibels on the “A”-weighted scale (dB(A)). This scale most closely approximates the response characteristics of the human ear to traffic noise. The noise levels in this NSR are reported as equivalent levels (Leq), which are equivalent steady-state sound levels that contain the same acoustic energy as time-varying sound levels over a period of one hour (Leq(h)).

## 3.2 Noise Model

The prediction of existing and future highway traffic noise levels with and without the roadway improvements was performed using the Federal Highway Administration’s (FHWA’s) computer model for highway traffic noise prediction and analysis – the Traffic Noise Model (TNM-Version 2.5). The TNM propagates sound energy, in one-third octave bands, between highways and nearby receptors taking the intervening ground’s acoustical characteristics/topography and rows of buildings into account.

## 3.3 Traffic Data

Traffic noise levels are low when traffic volumes are low (LOS A or B) and when traffic is so congested that movement is slow (LOS D, E, or F). For the purpose of a highway traffic noise assessment, it is assumed that the maximum hourly traffic noise level occurs between these two conditions—when operating conditions are considered to be LOS C. As such, the traffic volume characteristics used in the analysis reflect either the forecast demand volumes, if the level met the LOS A or B criteria, or the LOS C volume, whichever is less. The operating conditions used in TNM to predict existing (year 2018) highway traffic noise and future (year 2045) levels with and without the Build Alternative are summarized in **Table 3-1**. Detailed project-related traffic data are provided in **Appendix B**.

**Table 3-1 Hourly Traffic Volumes/Speeds Used In TNM**

<b>Project Segment</b>	<b>Roadway Segment</b>	<b>Scenario</b>	<b>Peak Direction Volume</b>	<b>Off-Peak Direction Volume</b>	<b>Demand or LOS C</b>	<b>Posted Speed (mph)</b>
A	Lorraine Road to Greenbrook Boulevard/Post Boulevard	Existing	850	850	LOS C	50
		No-Build	850	850	LOS C	50
		Build	2,478	2,478	LOS C	45
B	Greenbrook Boulevard/Post Boulevard to Uihlein Road	Existing	747	488	Demand	60
		No-Build	850	850	LOS C	60
		Build	1,530	1,530	LOS C	50
	Uihlein Road to Bourneside Drive	Existing	747	488	Demand	60
		No-Build	850	850	LOS C	60
		Build	1,379	901	Demand	50
C	Bourneside Drive to CR 675	Existing	747	488	Demand	60
		No-Build	850	850	LOS C	60
		Build	1,092	713	Demand	50

Source: *Final SR 70 Design Traffic Technical Memorandum* (Financial Project ID: 414506-2), October 17, 2018.

# Section 4.0 Noise Analysis

## 4.1 Evaluation Process

Noise-sensitive land uses occur where frequent human use occurs and where a lowered noise level would be of benefit. To evaluate traffic noise at these properties, the FHWA established Noise Abatement Criteria (NAC). As shown in **Table 4-1**, the criteria vary according to the activity category for the land use of a property. For comparative purposes, typical noise levels for common indoor and outdoor activities are provided in **Appendix C**.

**Table 4-1 FHWA/FDOT Noise Abatement Criteria [Leq(h) Expressed In dB(A)]**

Activity Category	Description of Activity Category	Activity Leq(h) <sup>1</sup>	
		FHWA	FDOT
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	57 (Exterior)	56 (Exterior)
B <sup>2</sup>	Residential.	67 (Exterior)	66 (Exterior)
C <sup>2</sup>	Active sports areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.	67 (Exterior)	66 (Exterior)
D	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.	52 (Interior)	51 (Interior)
E <sup>2</sup>	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.	72 (Exterior)	71 (Exterior)
F	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.	--	--
G	Undeveloped lands that are not permitted.	--	--

<sup>1</sup> The Leq(h) Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.

<sup>2</sup> Includes undeveloped lands permitted for this activity category.

Source: CFR, Title 23, Part 772.

When predicted traffic noise levels “approach” or exceed the NAC, or when predicted future noise levels increase substantially from existing levels, the FHWA requires that noise abatement measures be considered. FDOT defines the word “approach” to mean within one dB(A) of the NAC. The FDOT’s NAC are also shown in **Table 4-1**. Additionally, the FDOT criteria states that a substantial increase would occur if traffic noise levels are predicted to increase 15 dB(A) or more above existing conditions as a direct result of a transportation improvement project.



Within the project limits, 96 properties with noise sensitive land uses have the potential to be impacted by highway traffic noise as a result of the proposed project improvements. The land use review that identified these properties was performed on January 1, 2019. Note that another land use review will be conducted to identify noise sensitive land uses that were issued building permits after January 1, 2019 but before the Date of Public Knowledge, which is yet to be determined, and if any are identified, traffic noise impacts would be evaluated at those locations. The 96 sites are comprised of the following:

1. Activity Category B – 88 residences (19 at Greenbrook Village, 23 at Del Webb, 27 at Polo Run, four at Panther Ridge, two at Panther Ridge-Foxwood, four at the Preserve at Panther Ridge, eight at Panther Ridge Grand Oaks, and one at Pomello Park). The FDOT’s NAC for Activity Category B land uses is an exterior level of 66 dB(A).
2. Activity Category C – A total of five land uses, including three active sports areas (a soccer field at Premier Sports Campus, a golf course at Lakewood National, and a golf course at The Concession), a recreational area (TreeUmph!), and a place of worship (House of Fellowship). The FDOT’s NAC for Activity Category C land uses is an exterior level of 66 dB(A).
3. Activity Category D – Interior traffic noise levels were evaluated at two medical facilities (Smiles at Lakewood Ranch and First Harbour Medical Centers). The FDOT’s interior NAC for Activity Category D land uses is 51 dB(A). Interior traffic noise levels were predicted by applying the noise reduction factor for light frame buildings (20 dB(A)) to the predicted exterior noise levels as recommended by FHWA’s *Highway Traffic Noise: Analysis and Abatement Guidance*.
4. Activity Category E – One land use, a convenience store/gas station with an outdoor dining area (Wawa) was evaluated as Activity Category E. The FDOT’s exterior NAC for Activity Category E land uses is 71 dB(A).

The 96 properties were evaluated with 96 receptors (i.e., discrete or representative locations of a noise sensitive land use). For the active sports areas and the recreational area, a receptor was placed at an outdoor use location nearest SR 70 (e.g., the cart path at The Concession golf course).

Notably, there are existing privacy berms, walls, or combination berm/walls located between SR 70 and Greenbrook Village, the golf course at Lakewood National, Del Webb, and Polo Run. These berms and walls were included in the TNM input.

## **4.2 Measured Noise Levels**

As previously stated, existing and future noise levels with and without the Build Alternative were modeled using the TNM. To validate the TNM and verify that the model accurately predicts the existing traffic noise based on current conditions, measured sound levels were obtained within the project corridor. Traffic data including motor vehicle volumes, vehicle mix, vehicle speeds, and meteorological conditions were recorded during each measurement period.

The field measurements were conducted in accordance with the FHWA’s *Noise Measurement Field Guide*. The measurements were obtained using a Larson Davis 831 Type I integrating sound level meter (SLM) and a Larson Davis LxT Type II integrating SLM. The SLMs were calibrated before and after the measurement periods with a Larson Davis CAL200 calibrator.

The recorded traffic data were used as input for the TNM to determine if, given the topography and actual site conditions of the area, the computer model could “re-create” the measured levels with the existing roadway. Following FDOT policy, a noise prediction model is considered within an acceptable level of accuracy if the measured and predicted noise levels are within a tolerance standard of 3 dB(A).

**Table 4-2** presents the field measurements and the validation results. As shown, the ability of the model to predict noise levels within the FDOT limits of plus or minus 3 dB(A) for the project was confirmed. Periods for which the measured level is higher than the modeled could be the result of sources of sound other than motor vehicles, such as barking dogs. Periods for which the measured levels are lower than the modeled could be the result of variances in motor vehicle speeds that are not captured in the field measurements and the intermittent traffic flow on SR 70 at the time of the measurements. Documentation in support of the validation is provided in **Appendix D**.

**Table 4-2 Validation Data**

Location	Measurement Period	Modeled	Measured	Difference
200 feet from edge-of-pavement, north side of SR 70 across from Greenbrook Village	1	55.3	55.0	0.3
	2	57.3	56.6	0.7
	3	56.4	56.7	-0.3
250 feet from edge-of-pavement, north side of SR 70 across from Greenbrook Village	1	53.9	53.6	0.3
	2	55.9	55.1	0.8
	3	54.9	55.2	-0.3

Note: The field measurement locations are identified on the project aerials in **Appendix A** of this report.

### 4.3 Results of the Noise Analysis

**Table 4-3** presents the results of the traffic noise analysis for the proposed improvements. As shown, existing (2018) exterior traffic noise levels range from 48.6 to 64.5 dB(A), and the interior traffic noise levels at the two medical facilities are 40.6 and 40.9 dB(A). In the future (2045) without the proposed project improvements (No Build Alternative), exterior traffic noise levels are predicted to range from 49.9 to 65.8 dB(A) and the interior levels at the medical facilities are predicted to be 40.6 and 40.9 dB(A). Finally, in the future with the proposed project improvements (Build Alternative), exterior traffic noise levels are predicted to range from 52.3 to 65.0 dB(A) and the interior levels at the medical facilities are predicted to be 47.4 and 47.7 dB(A). As such, based on the results of the analysis, highway traffic noise levels in the future with the proposed

improvements are not predicted to approach, meet, or exceed the NAC at any of the evaluated receptors.

**Table 4-3 Predicted Traffic Noise Levels**

Project Segment	Site ID	Activity Category	Description	Location	Leq(h) (dB(A))				Approaches, Meets, or Exceeds the NAC? (Y/N)
					Existing (2018)	No-Build (2045)	Build (2045)	Increase from Existing	
A	1	E	Outdoor eating area	Wawa convenience store/gas station	58.9	58.9	65.0	6.1	N
	2	D	Medical facility	Smiles at Lakewood Ranch	40.9	40.9	47.7	6.8	N
	3	D	Medical facility	First Harbour Medical Centers	40.6	40.6	47.4	6.8	N
	4	B	Residential	Greenbrook Village	51.8	51.8	57.7	5.9	N
	5	B	Residential	Greenbrook Village	51.3	51.4	57.4	6.1	N
	6	B	Residential	Greenbrook Village	51.7	51.7	57.6	5.9	N
	7	B	Residential	Greenbrook Village	51.8	51.9	57.8	6.0	N
	8	E	Restaurant	Greenbrook Village	51.2	51.3	57.2	6.0	N
	9	B	Residential	Greenbrook Village	51.6	51.6	57.5	5.9	N
	10	B	Residential	Greenbrook Village	51.5	51.6	57.5	6.0	N
	11	B	Residential	Greenbrook Village	51.3	51.4	57.3	6.0	N
	12	B	Residential	Greenbrook Village	51.2	51.3	57.1	5.9	N
	13	B	Residential	Greenbrook Village	51.0	51.2	57.0	6.0	N
	14	B	Residential	Greenbrook Village	51.1	51.3	57.2	6.1	N
	15	B	Residential	Greenbrook Village	50.9	51.1	57.0	6.1	N
	16	B	Residential	Greenbrook Village	51.3	51.5	57.7	6.4	N
	17	B	Residential	Greenbrook Village	51.4	51.6	57.9	6.5	N
	18	B	Residential	Greenbrook Village	51.3	51.5	57.9	6.6	N
	19	B	Residential	Greenbrook Village	51.5	51.9	58.1	6.6	N
	20	B	Residential	Greenbrook Village	51.3	52.0	58.7	7.4	N
	21	B	Residential	Greenbrook Village	51.6	52.4	58.3	6.7	N
	22	B	Residential	Greenbrook Village	52.9	54.2	57.3	4.4	N
	23	C	Active sports area	Soccer field at the Premier Sports Campus	61.0	62.6	63.0	2.0	N
B	24	C	Active sports area	Golf course at Lakewood National	55.6	57.1	58.4	2.8	N
	25	B	Residential	Del Webb	50.0	51.5	53.9	3.9	N
	26	B	Residential	Del Webb	52.3	53.7	56.1	3.8	N
	27	B	Residential	Del Webb	51.3	52.6	55.1	3.8	N
	28	B	Residential	Del Webb	51.3	52.6	55.1	3.8	N
	29	B	Residential	Del Webb	51.6	52.8	55.3	3.7	N

Project Segment	Site ID	Activity Category	Description	Location	Leq(h) (dB(A))				Approaches, Meets, or Exceeds the NAC? (Y/N)
					Existing (2018)	No-Build (2045)	Build (2045)	Increase from Existing	
	30	B	Residential	Del Webb	51.6	52.9	55.5	3.9	N
	31	B	Residential	Del Webb	51.5	52.8	55.5	4.0	N
	32	B	Residential	Del Webb	51.7	53.0	55.6	3.9	N
	33	B	Residential	Del Webb	51.5	52.8	55.6	4.1	N
	34	B	Residential	Del Webb	51.3	52.6	55.4	4.1	N
	35	B	Residential	Del Webb	51.8	53.1	55.8	4.0	N
	36	B	Residential	Del Webb	50.8	52.0	54.8	4.0	N
	37	B	Residential	Del Webb	51.4	52.6	55.3	3.9	N
	38	B	Residential	Del Webb	49.8	51.0	53.7	3.9	N
	39	B	Residential	Del Webb	48.9	50.2	52.8	3.9	N
	40	B	Residential	Del Webb	48.6	49.9	52.3	3.7	N
	41	B	Residential	Del Webb	53.5	54.9	56.8	3.3	N
	42	B	Residential	Del Webb	53.1	54.5	57.1	4.0	N
	43	B	Residential	Del Webb	52.4	53.8	56.8	4.4	N
	44	B	Residential	Del Webb	52.4	53.8	56.5	4.1	N
	45	B	Residential	Del Webb	52.5	54.0	56.3	3.8	N
	46	B	Residential	Del Webb	53.2	54.7	56.6	3.4	N
	47	B	Residential	Del Webb	53.2	54.7	56.4	3.2	N
	48	B	Residential	Polo Run	56.9	58.4	59.0	2.1	N
	49	B	Residential	Polo Run	56.6	58.0	58.6	2.0	N
	50	B	Residential	Polo Run	56.2	57.7	58.3	2.1	N
	51	B	Residential	Polo Run	56.3	57.7	58.2	1.9	N
	52	B	Residential	Polo Run	55.5	56.9	57.6	2.1	N
	53	B	Residential	Polo Run	55.6	57.0	57.7	2.1	N
	54	B	Residential	Polo Run	54.8	56.2	56.9	2.1	N
	55	B	Residential	Polo Run	54.8	56.2	57.0	2.2	N
	56	B	Residential	Polo Run	54.1	55.5	56.3	2.2	N
	57	B	Residential	Polo Run	53.5	54.9	55.8	2.3	N
	58	B	Residential	Polo Run	58.1	59.6	59.6	1.5	N
	59	B	Residential	Polo Run	59.2	60.7	60.7	1.5	N
	60	B	Residential	Polo Run	59.6	61.0	61.4	1.8	N
	61	B	Residential	Polo Run	60.4	61.7	62.2	1.8	N
	62	B	Residential	Polo Run	56.6	58.0	58.2	1.6	N
	63	B	Residential	Polo Run	57.4	58.8	58.8	1.4	N
	64	B	Residential	Polo Run	58.4	59.8	59.6	1.2	N
	65	B	Residential	Polo Run	59.2	60.5	60.2	1.0	N

Project Segment	Site ID	Activity Category	Description	Location	Leq(h) (dB(A))				Approaches, Meets, or Exceeds the NAC? (Y/N)
					Existing (2018)	No-Build (2045)	Build (2045)	Increase from Existing	
	66	B	Residential	Polo Run	59.7	61.0	60.6	0.9	N
	67	B	Residential	Polo Run	60.1	61.4	60.7	0.6	N
	68	B	Residential	Polo Run	60.2	61.5	60.5	0.3	N
	69	B	Residential	Polo Run	60.2	61.6	60.3	0.1	N
	70	B	Residential	Polo Run	60.0	61.3	59.7	-0.3	N
	71	B	Residential	Polo Run	59.6	61.0	59.2	-0.4	N
	72	B	Residential	Polo Run	59.2	60.6	58.8	-0.4	N
	73	B	Residential	Polo Run	58.6	60.0	58.3	-0.3	N
	74	B	Residential	Polo Run	57.8	59.2	57.8	0.0	N
C	75	C	Active sports area	Golf course at The Concession	60.4	62.0	62.5	2.1	N
	76	B	Residential	Panther Ridge	58.2	59.6	59.3	1.1	N
	77	B	Residential	Panther Ridge	55.4	56.8	56.9	1.5	N
	78	B	Residential	Panther Ridge	53.4	54.8	55.2	1.8	N
	79	B	Residential	Panther Ridge	54.8	56.3	55.0	0.2	N
	80	B	Residential	Panther Ridge-Foxwood	53.3	54.8	56.1	2.8	N
	81	B	Residential	Panther Ridge-Foxwood	53.3	54.8	54.6	1.3	N
	82	B	Residential	Preserve at Panther Ridge	55.5	57.0	57.8	2.3	N
	83	B	Residential	Preserve at Panther Ridge	52.9	54.4	54.9	2.0	N
	84	B	Residential	Preserve at Panther Ridge	52.6	54.1	54.4	1.8	N
	85	B	Residential	Preserve at Panther Ridge	52.4	53.9	54.1	1.7	N
	86	C	Recreational area	TreeUmph!	63.1	64.5	63.8	0.7	N
	87	B	Residential	Panther Ridge Grand Oaks	64.5	65.8	64.8	0.3	N
	88	B	Residential	Panther Ridge Grand Oaks	62.4	63.9	62.1	-0.3	N
	89	B	Residential	Panther Ridge Grand Oaks	59.5	61.1	58.3	-1.2	N
	90	B	Residential	Panther Ridge Grand Oaks	56.9	58.4	57.9	1.0	N
	91	B	Residential	Panther Ridge Grand Oaks	54.5	56.0	55.4	0.9	N
	92	B	Residential	Panther Ridge Grand Oaks	64.1	65.3	63.1	-1.0	N
	93	B	Residential	Panther Ridge Grand Oaks	56.6	58.2	56.0	-0.6	N
	94	B	Residential	Panther Ridge Grand Oaks	54.8	56.3	55.0	0.2	N
	95	B	Residential	Pomello Park	61.5	63.2	60.1	-1.4	N
	96	C	Place of worship	House of Fellowship	59.1	60.7	58.8	-0.3	N

Note: Site locations are identified on the project aerals in **Appendix A** of this report.

The results of the analysis also indicate that when compared to existing conditions, traffic noise levels would not increase more than 7.4 dB(A) with the proposed project improvements. As such,

the project would not substantially increase traffic noise (i.e., increase traffic noise 15 dB(A) or more) at any of the evaluated receptors.

The degree of change in predicted traffic noise levels with the project improvements when compared to existing levels varies depending on project segment as a result of the following:

- In Project Segment A the project would improve the existing two-lane roadway to a six-lane roadway. In Project Segments B and C, the project would improve the existing two-lane roadway to a four-lane roadway.
- In Project Segment A, the posted speed limit with the improvements would be five mph lower than the existing limit. In Project Segments B and C, the posted speed limit with the improvements would be 10 mph lower than the existing limit.
- The proposed additional travel lanes would generally be located south of the existing lanes. Therefore, traffic noise levels at the receptors on the southside of SR 70 would experience a greater change in levels than those on the northside.

Notably, for certain receptors (70-73, 88, 89, 92, 93, 95, and 96), the predicted traffic noise levels with the project improvements would be lower than the existing levels due to lower vehicle speeds on SR 70 as a result of the proposed roundabouts and the lower posted speed limits.

## Section 5.0 Conclusions

---

Based on the results of the noise analysis, there are no highway traffic noise impacted land uses within the project that require abatement consideration. Should the proposed improvements change during the project's final design phase such that a re-analysis of highway traffic noise is warranted and impacts are identified in the analysis, an evaluation of noise abatement measures would be performed at that time. The Florida Department of Transportation is committed to the construction of feasible and reasonable noise abatement measures at noise-impacted locations contingent on the following:

1. Detailed noise analyses during the final design process support the need, feasibility, and reasonableness of providing abatement;
2. Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion;
3. Community input supporting types, heights, and locations of the noise barrier(s) is provided to the District Office; and
4. Safety and engineering aspects as related to the roadway user and the adjacent property owner have been reviewed and any conflicts or issues resolved.

# Section 6.0 Noise Contours

Land uses such as residences, motels, medical facilities, schools, churches, recreation areas, and parks are considered incompatible with highway noise levels approaching or exceeding the NAC. In order to reduce the possibility of additional traffic noise-related impacts, noise level contours were developed for the future improved roadway facility to estimate where an “approach” of the NAC is predicted to occur. Specifically, these noise contours delineate the distance from the improved roadway’s edge-of-pavement to where 56, 66, and 71 dB(A) (FDOT and FHWA Activity Categories A, B/C, and E, respectively) are expected to occur in the future (2045) with the proposed project improvements.

The contours are shown in **Table 6-1** and in **Figure 6-1**. Within the project limits, the contours extend from 35 to 560 feet from the improved roadway’s edge-of-pavement. Local officials will be provided a copy of the NSR to promote compatibility between land development and the proposed improvements to SR 70.

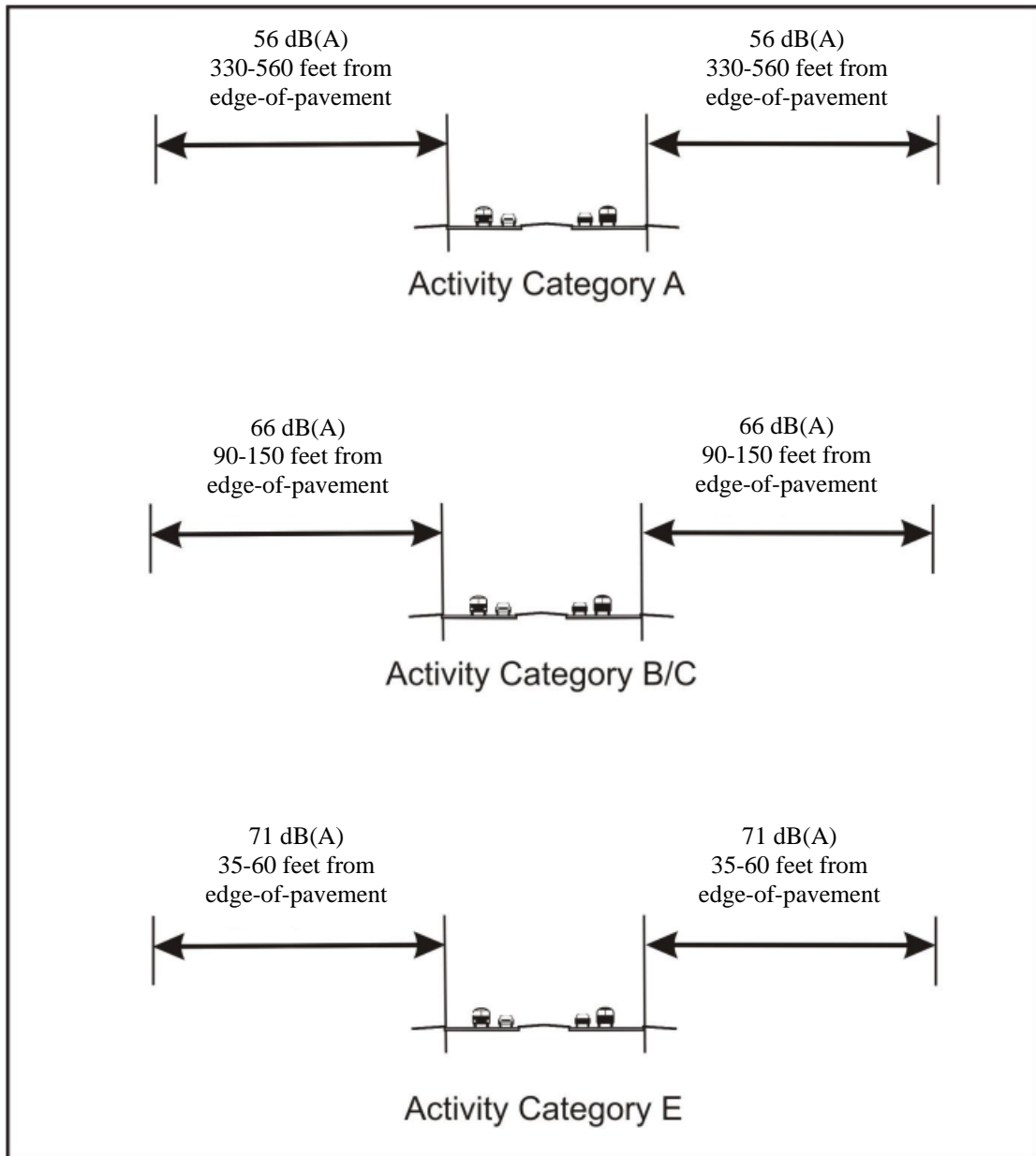
**Table 6-1 Noise Contours**

Distance From Improved Roadway’s Edge-of-Pavement (feet)*			
Roadway Segment	Activity Category A 56 dB(A)	Activity Category B/C 66 dB(A)	Activity Category E 71 dB(A)
Lorraine Road to Greenbrook Boulevard/Post Boulevard	560	150	60
Greenbrook Boulevard/Post Boulevard to Uihlein Road	390	120	45
Uihlein Road to Bourneside Drive	350	110	45
Bourneside Drive to CR 675	330	90	35

\*See **Table 4-1** for a description of the activities that occur within each category. Distances do not reflect any reduction in noise levels that would occur from existing structures (shielding) and should be used for planning purposes only.



**Figure 6-1. Noise Contours**



## **Section 7.0 Construction Noise and Vibration**

The residences, medical facilities, and the place of worship within the project limits are construction noise and vibration sensitive sites. Construction of the proposed roadway improvements is not expected to have any significant noise or vibration impacts on these properties. If sensitive land uses develop adjacent to the roadway prior to construction, increased potential for noise or vibration impacts could result. It is anticipated that the application of the *FDOT Standard Specifications for Road and Bridge Construction* will minimize or eliminate potential construction noise and vibration impacts. However, should unanticipated noise or vibration issues arise during the construction process, the Project Engineer, in coordination with the District Noise Specialist and the Contractor, will investigate additional methods of controlling these impacts.

## **Section 8.0 Public Involvement**

---

The FDOT conducted a Public Information Meeting for the SR 70 PD&E Study on December 18, 2018 at the Risen Savior Lutheran Church in Bradenton. A Public Hearing/Design Workshop is also planned during the spring of 2019. The hearing will inform the public of the results of the PD&E Study and provide the opportunity for the public to express their views regarding specific location, design, socio-economic effects, and environmental impacts associated with the No-Build and recommended Build Alternative. This section of the report will be updated after the hearing.

## Section 9.0 References

---

Federal Highway Administration. U.S. Department of Transportation. July 13, 2010. Title 23 CFR, Part 772. *Procedures for Abatement of Highway Traffic Noise and Construction Noise*.

Federal Highway Administration. February 2004. *Traffic Noise Model, Version 2.5*.

Federal Highway Administration. December 2011. *Highway Traffic Noise: Analysis and Abatement Guidance*.

Federal Highway Administration. June 2018. *Noise Measurement Field Guide*. FHWA-HEP-18-066.

Florida Department of Transportation. January 14, 2019. Project Development and Environment Manual, Part 2, Chapter 18 – Highway Traffic Noise.

Florida Department of Transportation. July 22, 2009. *A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations*.

Florida Department of Transportation. January 1, 2019. *FDOT Design Manual*.

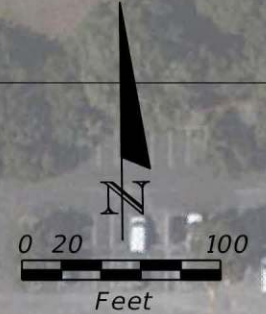
Florida Department of Transportation. 2019. *Standard Specifications for Road and Bridge Construction*.

Florida Department of Transportation. January 1, 2016. *Traffic Noise Modeling and Analysis Practitioners Handbook*.

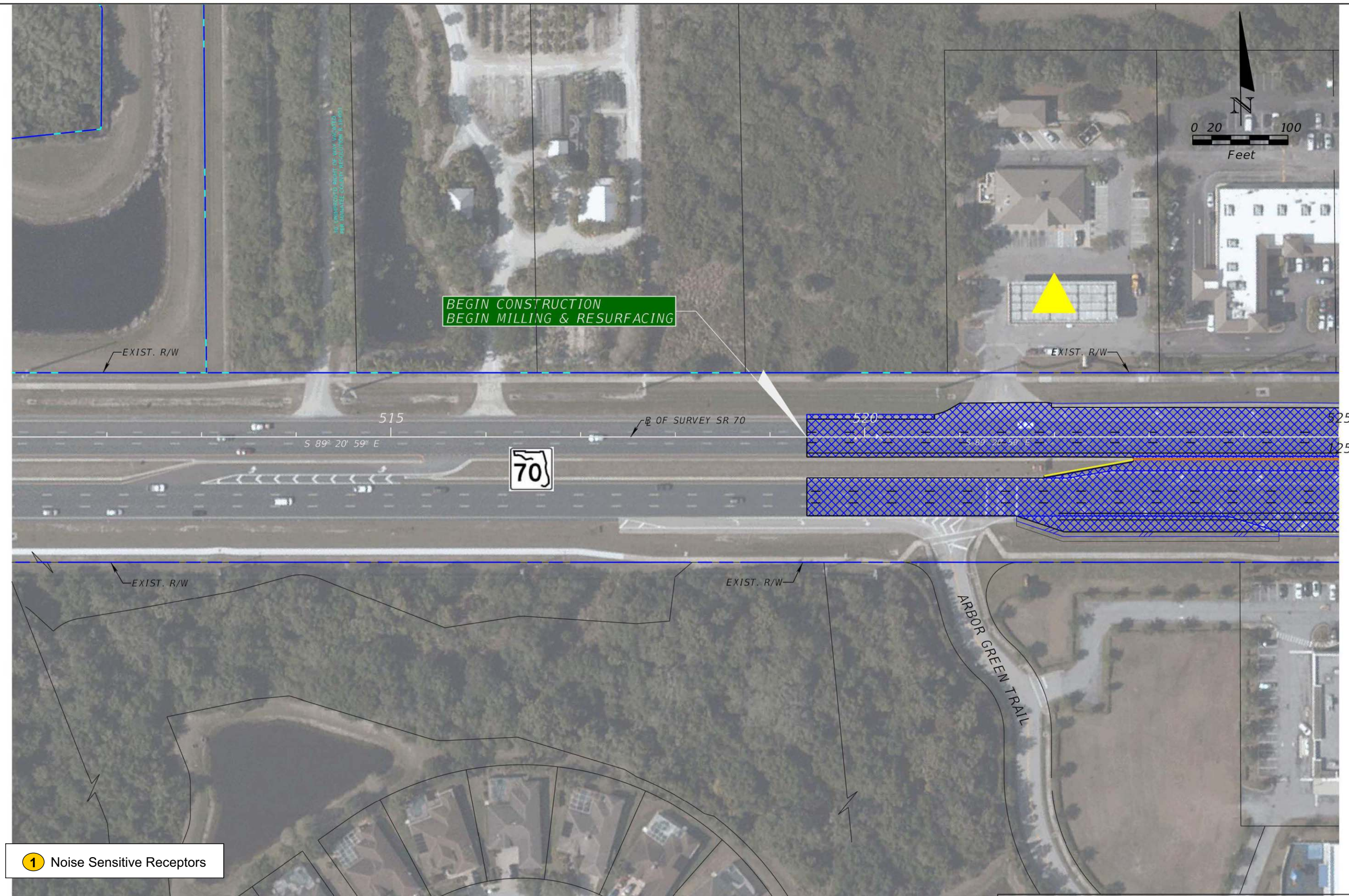
Florida Department of Transportation. October 17, 2018. *Final SR 70 Design Traffic Technical Memorandum* (Financial Project ID: 414506-2).

# **Appendix A Project Aerials**

---



BEGIN CONSTRUCTION  
BEGIN MILLING & RESURFACING



1 Noise Sensitive Receptors

RECOMMENDED ALTERNATIVE

LEGEND

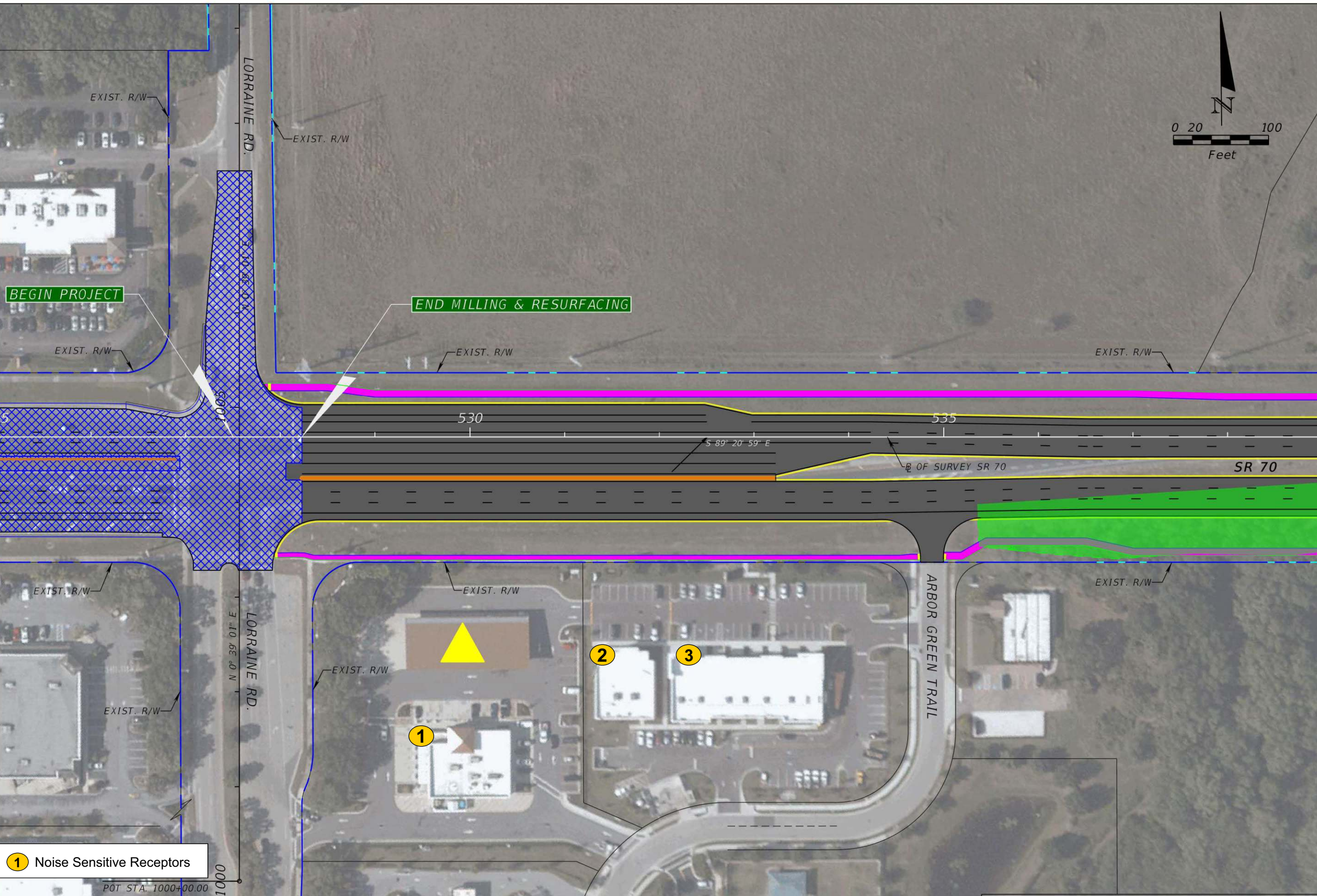
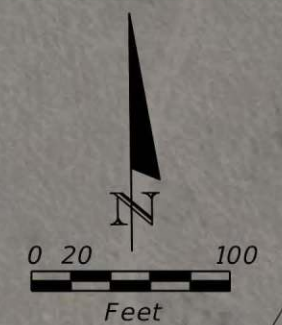
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
201 E. Franklin Street, Suite 400  
Tampa, Florida 33602  
Florida Certificate of Authorization No. 02317  
Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

CONCEPT PLAN (1)  
STA. 119+39 TO STA. 125+00

SHEET NO.  
2



**1** Noise Sensitive Receptors

LEGEND

	EXISTING R/W LINE		PROPOSED ROADWAY		MILLING & RESURFACING
	PROPOSED R/W LINE		TRAFFIC SEPARATOR		WETLANDS
	PROPERTY LINE		ROUNDBOUT APRON		PUBLIC LANDS
	POTENTIAL CONTAMINATION SITE		PROPOSED SIDEWALK		SURFACE WATERS
			PROPOSED BRIDGE		

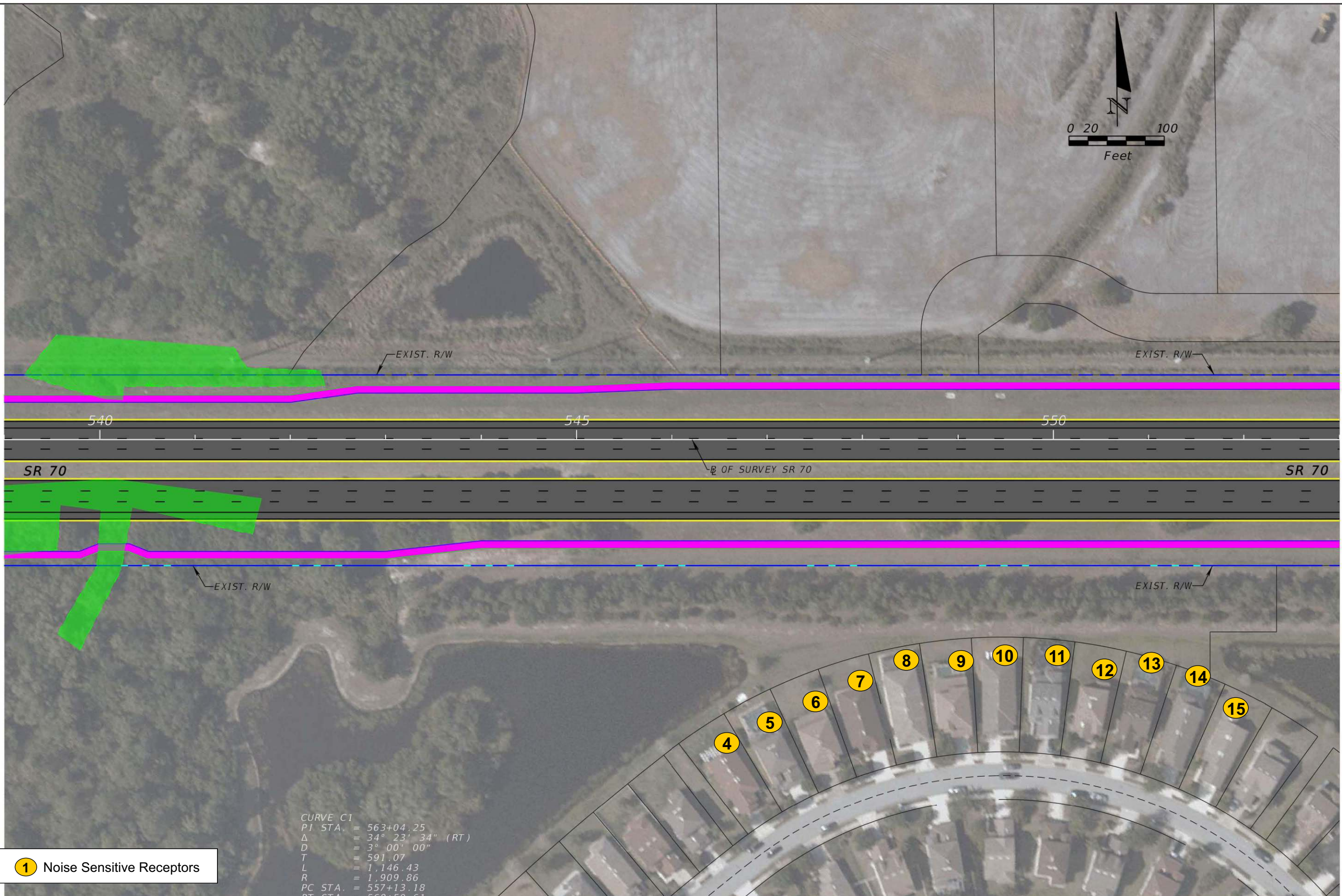
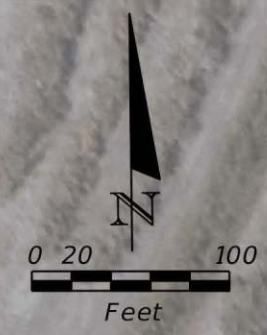
Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE

**CONCEPT PLAN (2)**  
**STA. 125+00 TO STA. 139+00**

SHEET NO.
3



CURVE C1  
 PI STA. = 563+04.25  
 $\Delta$  = 34° 23' 34" (RT)  
 D = 3° 00' 00"  
 T = 591.07  
 L = 1,146.43  
 R = 1,909.86  
 PC STA. = 557+13.18  
 PT STA. = 568+59.61

1 Noise Sensitive Receptors

LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

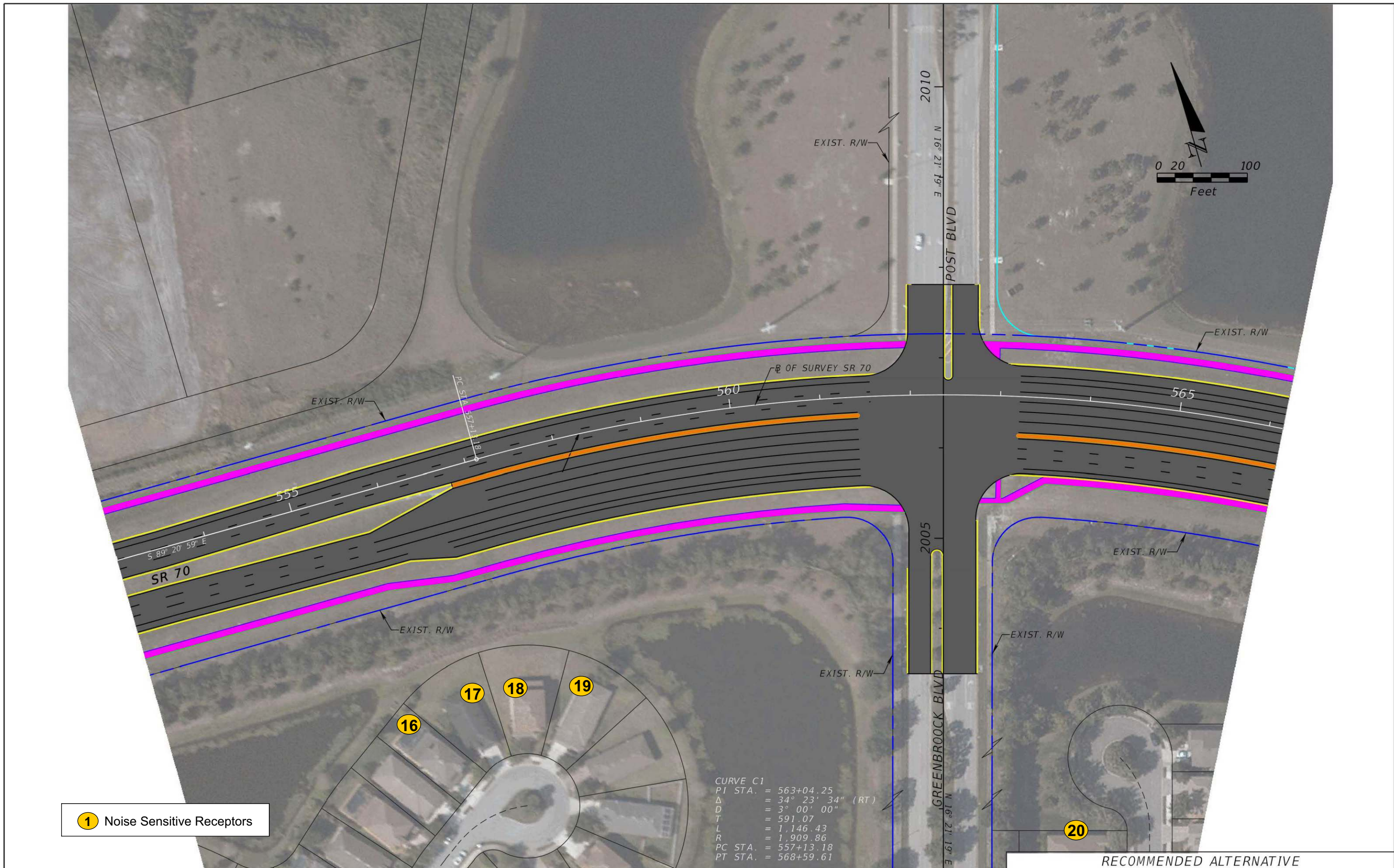
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE

**CONCEPT PLAN (3)**  
**STA. 139+00 TO STA. 153+00**

SHEET NO.	4
-----------	---





**1** Noise Sensitive Receptors

CURVE C1  
 PI STA. = 563+04.25  
 $\Delta$  = 34° 23' 34" (RT)  
 D = 3° 00' 00"  
 T = 591.07  
 L = 1,146.43  
 R = 1,909.86  
 PC STA. = 557+13.18  
 PT STA. = 568+59.61

RECOMMENDED ALTERNATIVE

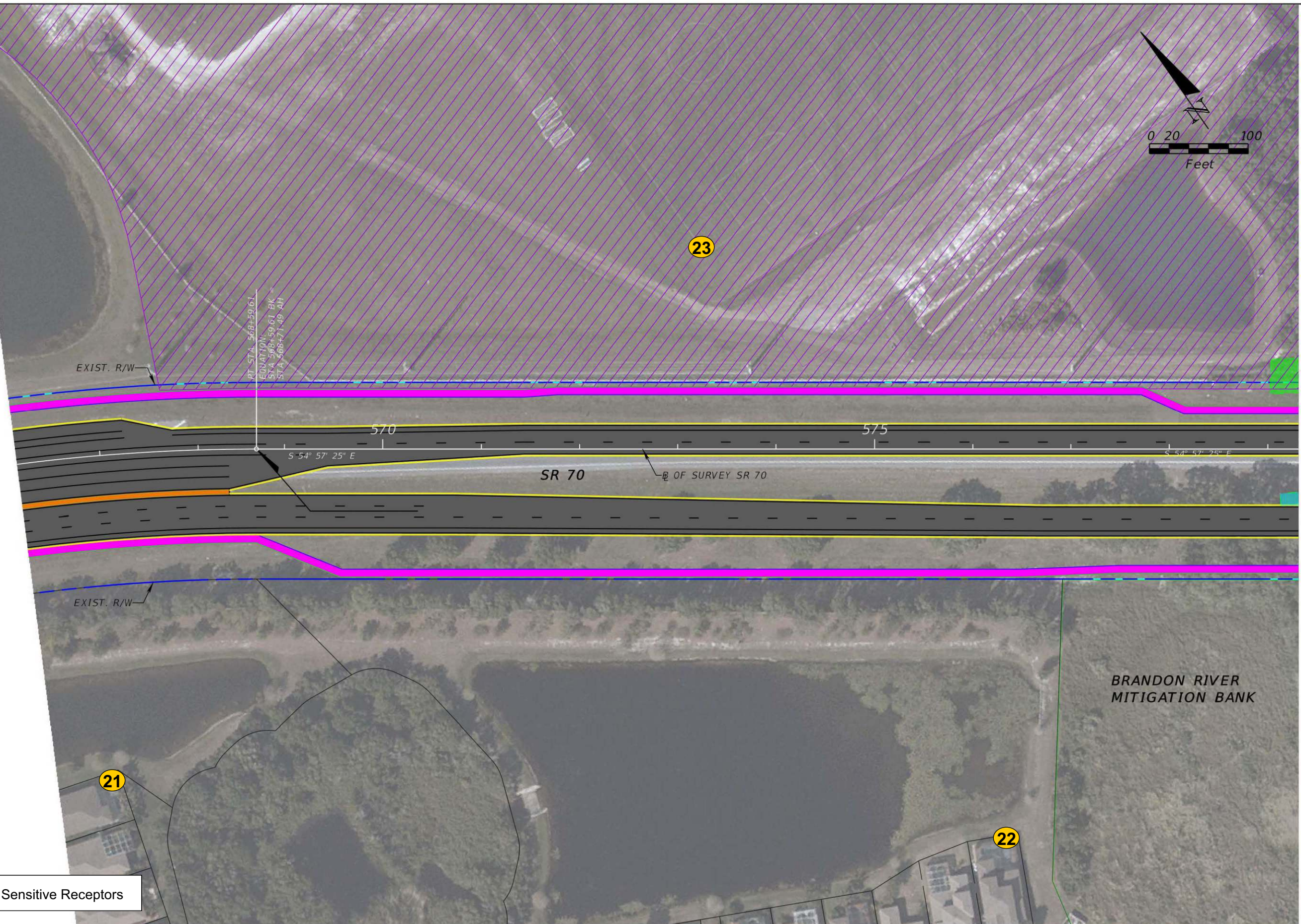
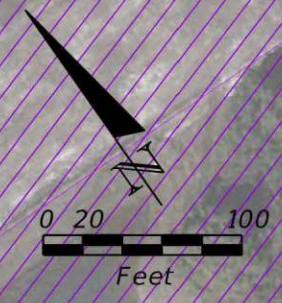
LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

<b>CONCEPT PLAN (4)</b>		SHEET NO.  5
<b>STA. 153+00 TO STA. 166+00</b>		



1 Noise Sensitive Receptors

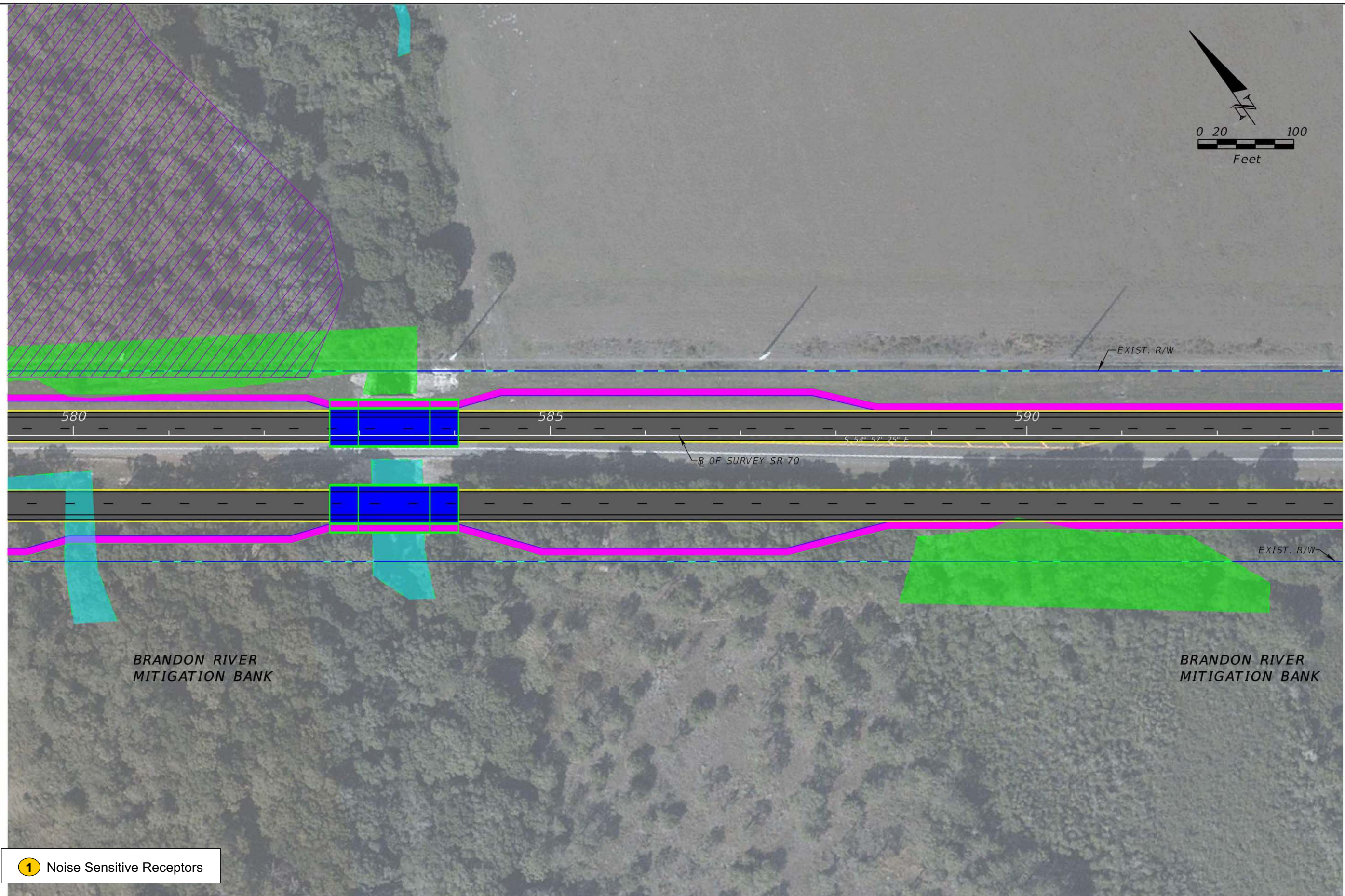
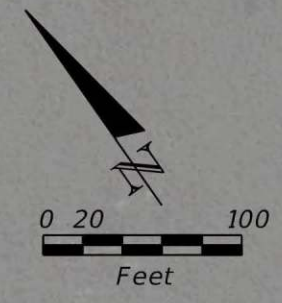
LEGEND

	EXISTING R/W LINE		PROPOSED ROADWAY		MILLING & RESURFACING
	PROPOSED R/W LINE		TRAFFIC SEPARATOR		WETLANDS
	PROPERTY LINE		ROUNDBOUT APRON		PUBLIC LANDS
	POTENTIAL CONTAMINATION SITE		PROPOSED SIDEWALK		SURFACE WATERS
			PROPOSED BRIDGE		

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2- 22-01

RECOMMENDED ALTERNATIVE		SHEET NO.
CONCEPT PLAN (5)		6
STA. 166+00 TO STA. 179+00		



1 Noise Sensitive Receptors

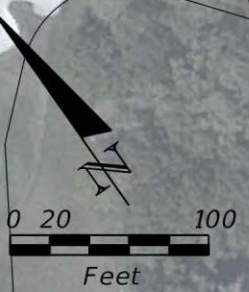
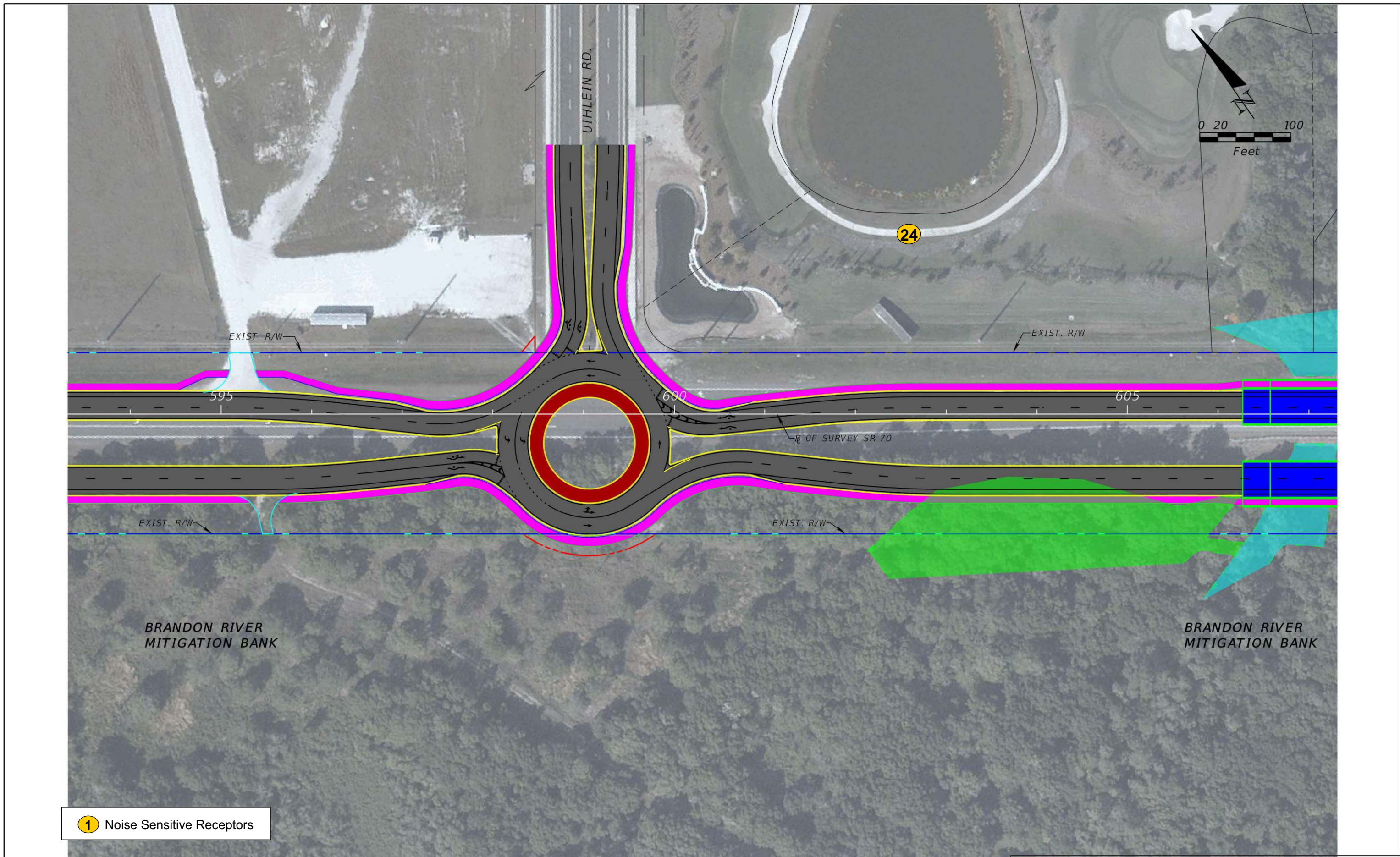
LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (6)</b>	
<b>STA. 179+00 TO STA. 193+00</b>	
SHEET NO.	7



1 Noise Sensitive Receptors

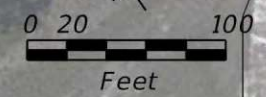
LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (7)</b>	
<b>STA. 193+00 TO STA. 207+00</b>	
SHEET NO.	8



1 Noise Sensitive Receptors

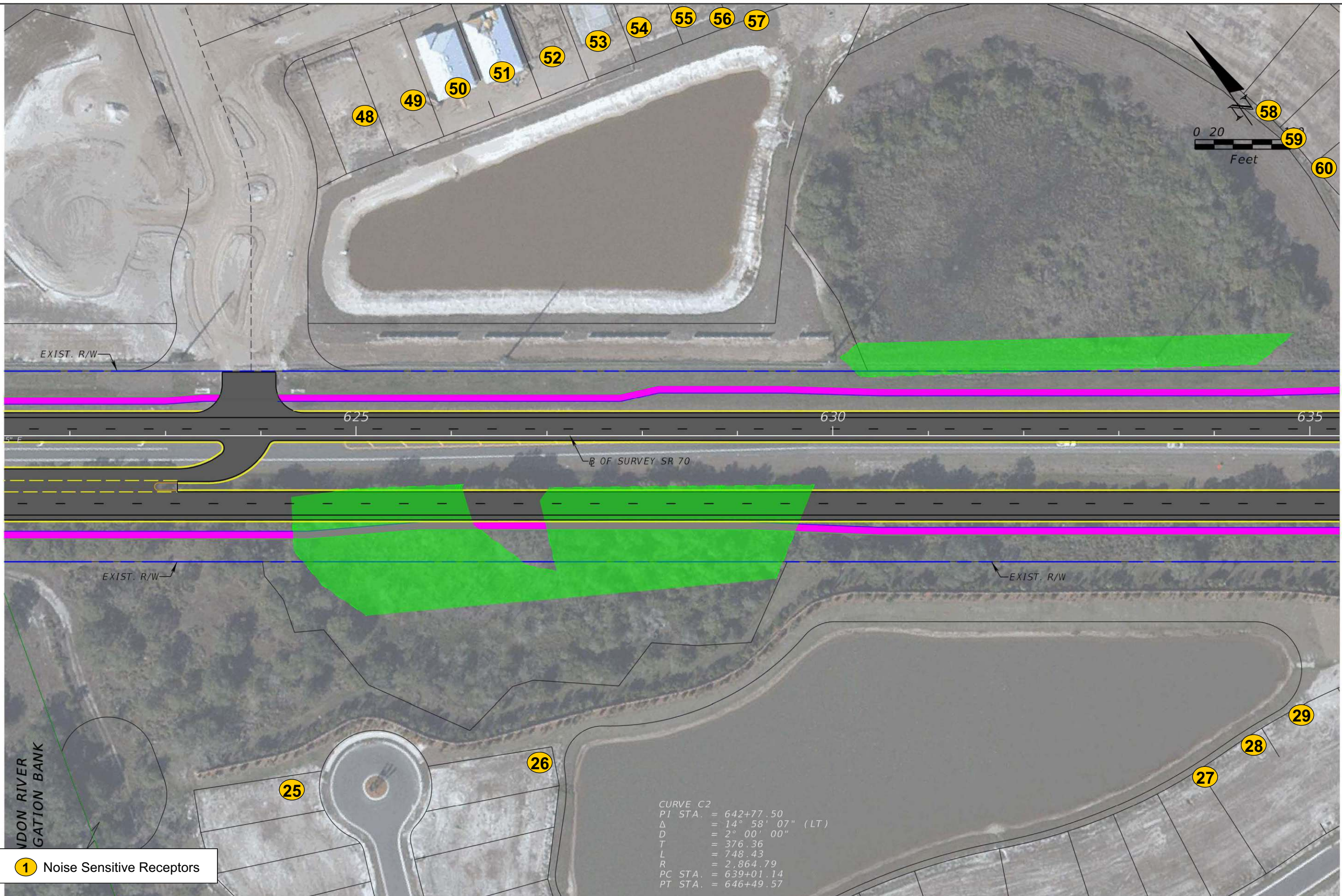
LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (8)</b>	
<b>STA. 207+00 TO STA. 221+00</b>	
SHEET NO.	9



1 Noise Sensitive Receptors

CURVE C2  
 PI STA. = 642+77.50  
 $\Delta$  = 14° 58' 07" (LT)  
 D = 2° 00' 00"  
 T = 376.36  
 L = 748.43  
 R = 2,864.79  
 PC STA. = 639+01.14  
 PT STA. = 646+49.57

RECOMMENDED ALTERNATIVE

LEGEND

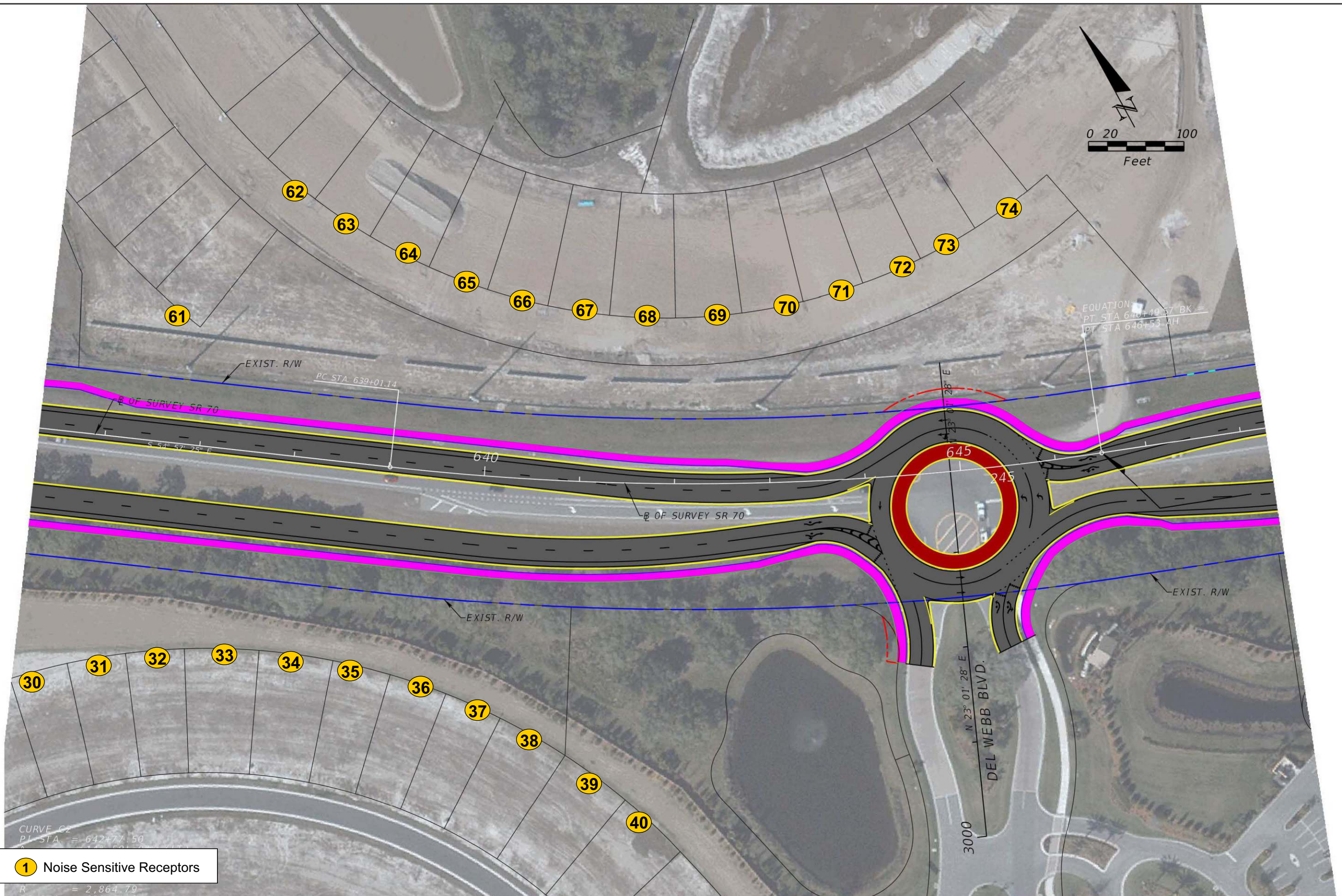
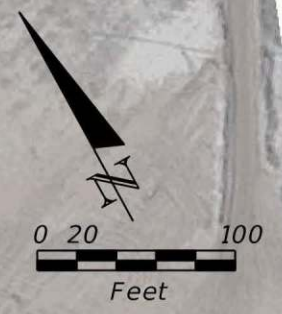
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

CONCEPT PLAN (9)  
 STA. 221+00 TO STA. 235+00

SHEET NO. 10



1 Noise Sensitive Receptors

R = 2,864.79  
 PC STA. = 642+77.50  
 PT STA. = 646+49.57

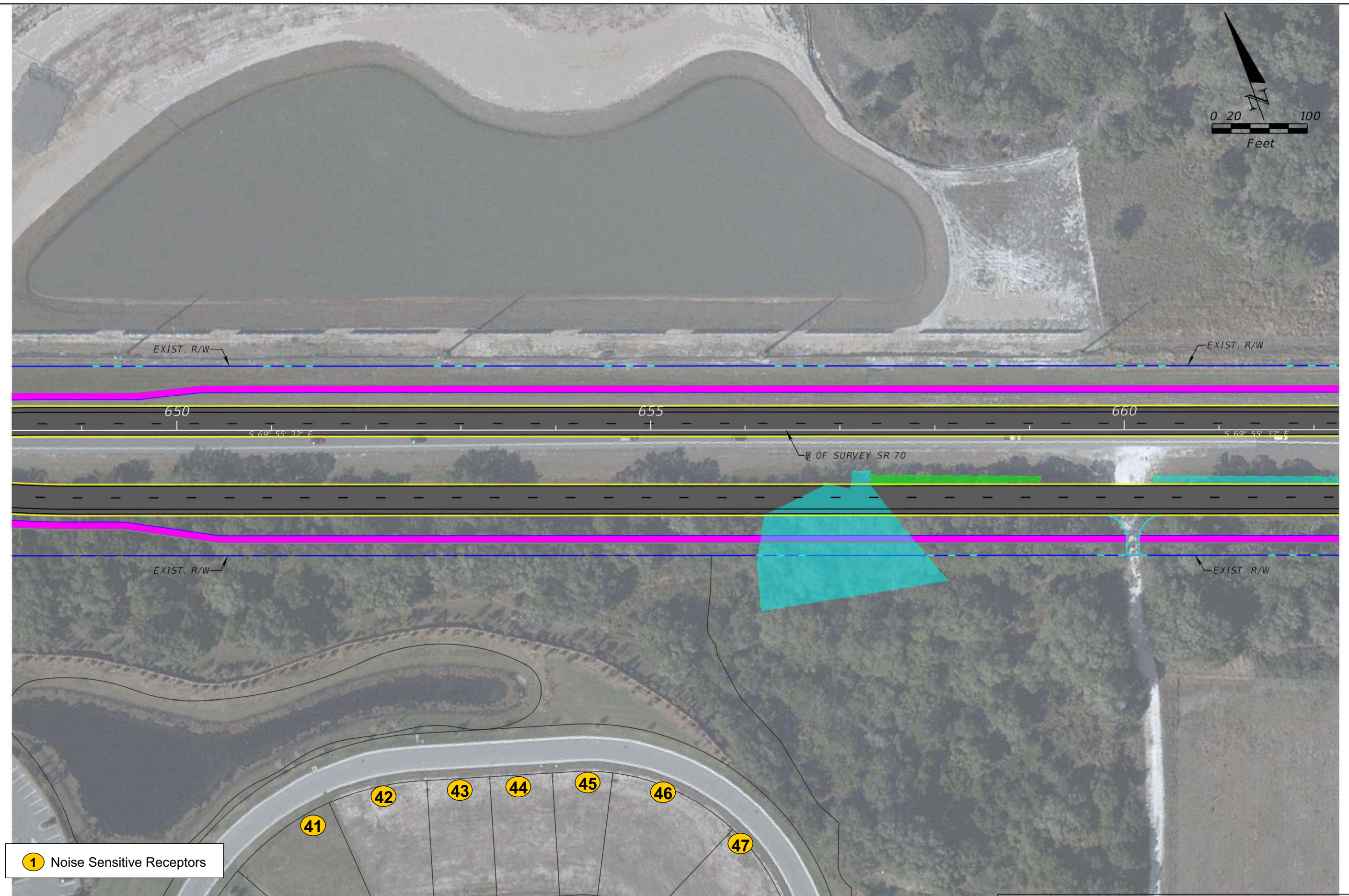
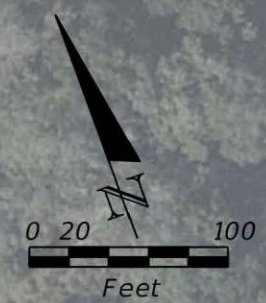
RECOMMENDED ALTERNATIVE

LEGEND	
	EXISTING R/W LINE
	PROPOSED R/W LINE
	PROPERTY LINE
	POTENTIAL CONTAMINATION SITE
	PROPOSED ROADWAY
	TRAFFIC SEPARATOR
	ROUNDBOUT APRON
	PROPOSED SIDEWALK
	PROPOSED BRIDGE
	MILLING & RESURFACING
	WETLANDS
	PUBLIC LANDS
	SURFACE WATERS

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

<b>CONCEPT PLAN (10)</b>		SHEET NO.  11
<b>STA. 235+00 TO STA. 248+00</b>		



1 Noise Sensitive Receptors

LEGEND

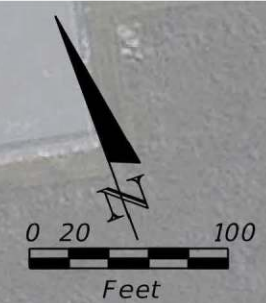
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

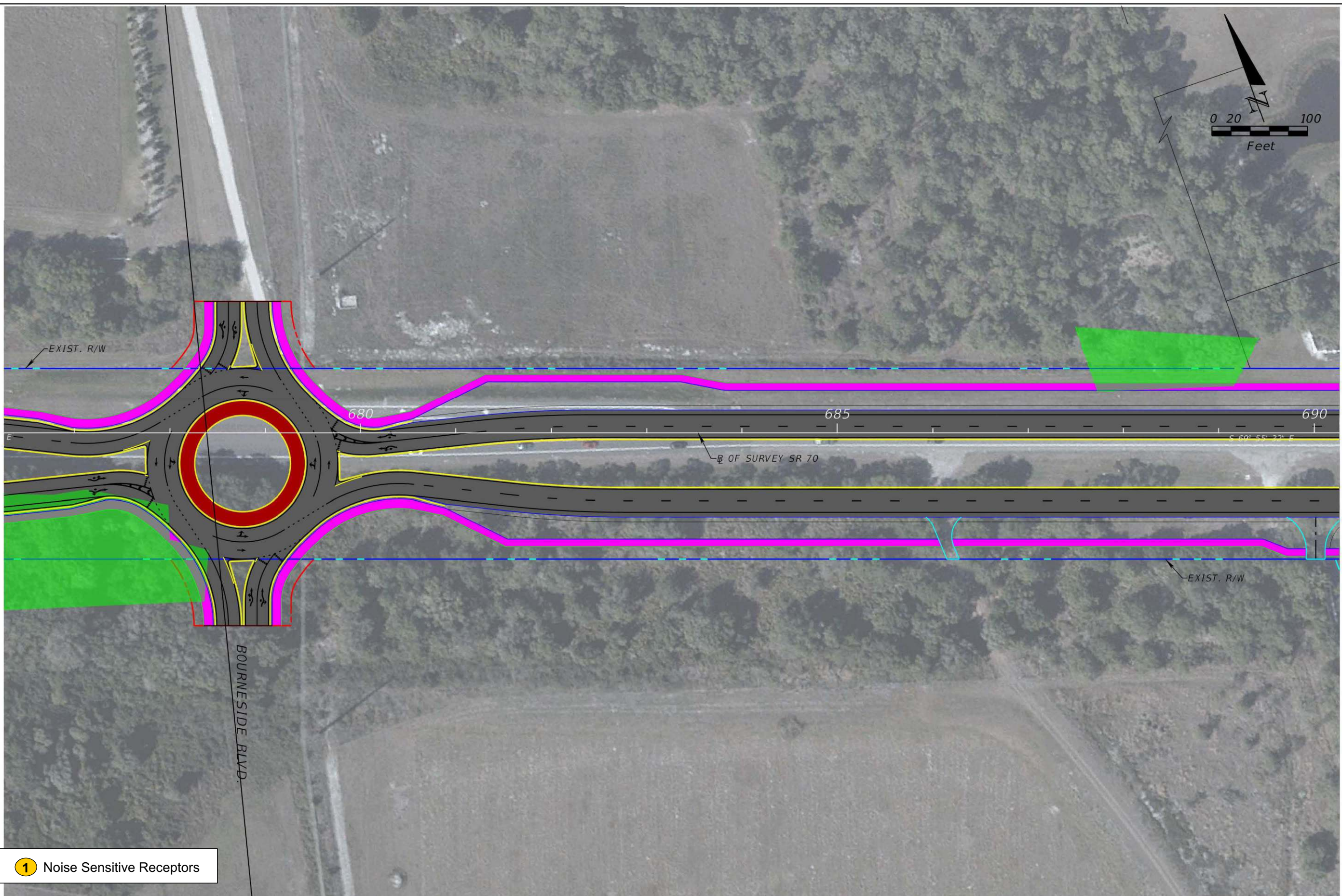
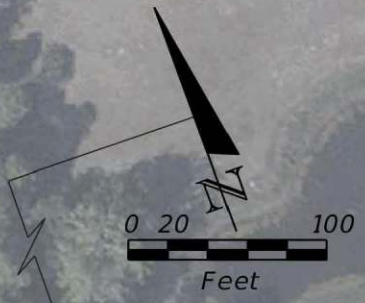
RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (11)</b>	
<b>STA. 248+00 TO STA. 262+00</b>	
SHEET NO.	12





1 Noise Sensitive Receptors

LEGEND			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			RECOMMENDED ALTERNATIVE	
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	<b>CONCEPT PLAN (12)</b> <b>STA. 262+00 TO STA. 276+00</b>	
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS	SR 70	MANATEE	414506-2-22-01		
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS	Kisinger Campo & Associates Corp. 201 E. Franklin Street, Suite 400 Tampa, Florida 33602 Florida Certificate of Authorization No. 02317 Engineer of Record: Deborah Hernandez-Cedeno, P.E. P.E. No.: 74754			13	
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS					
PROPOSED BRIDGE							



1 Noise Sensitive Receptors

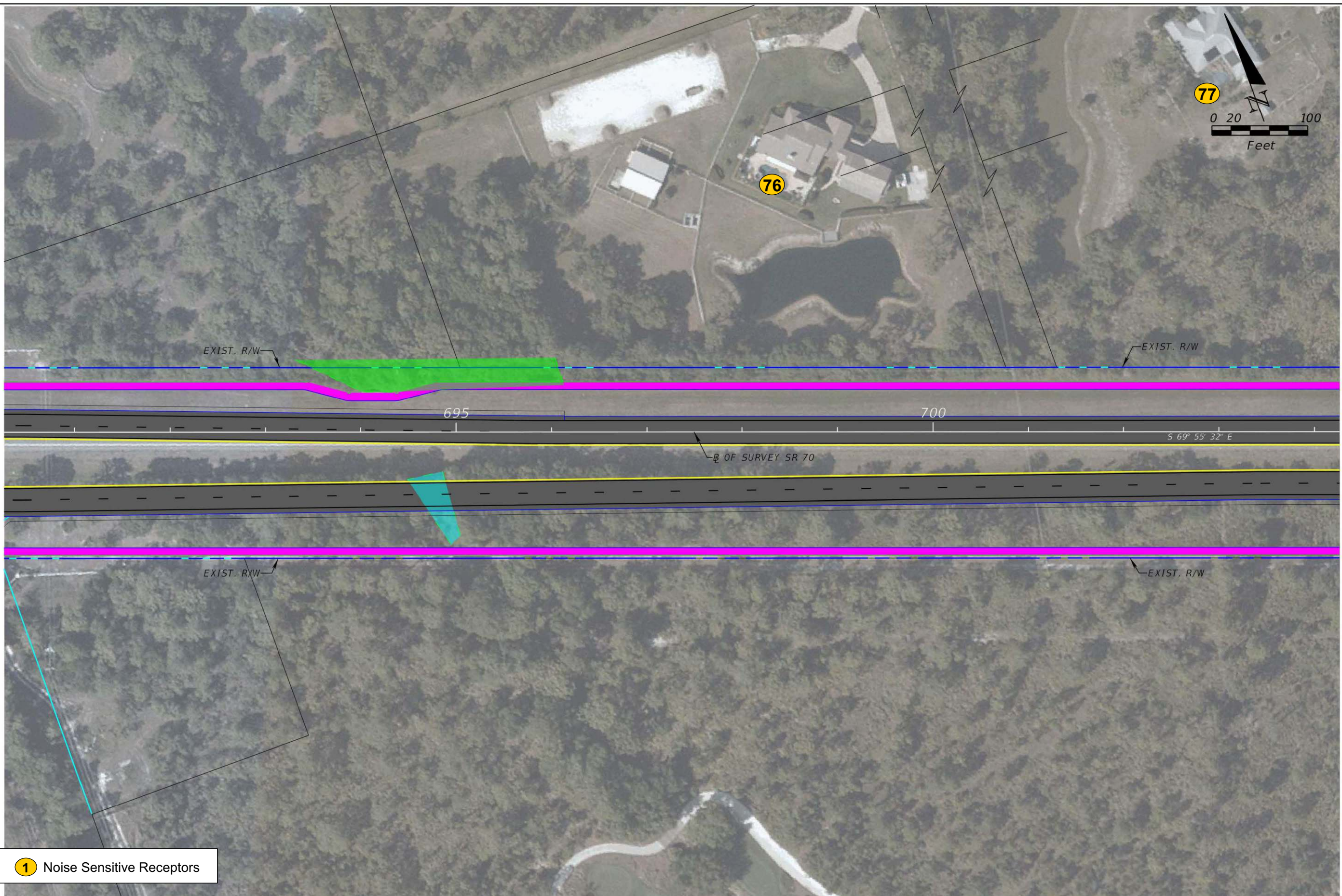
LEGEND

	EXISTING R/W LINE		PROPOSED ROADWAY		MILLING & RESURFACING
	PROPOSED R/W LINE		TRAFFIC SEPARATOR		WETLANDS
	PROPERTY LINE		ROUNDBOUT APRON		PUBLIC LANDS
	POTENTIAL CONTAMINATION SITE		PROPOSED SIDEWALK		SURFACE WATERS
			PROPOSED BRIDGE		

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (13)</b>	
<b>STA. 276+00 TO STA. 290+00</b>	
SHEET NO.	14



1 Noise Sensitive Receptors

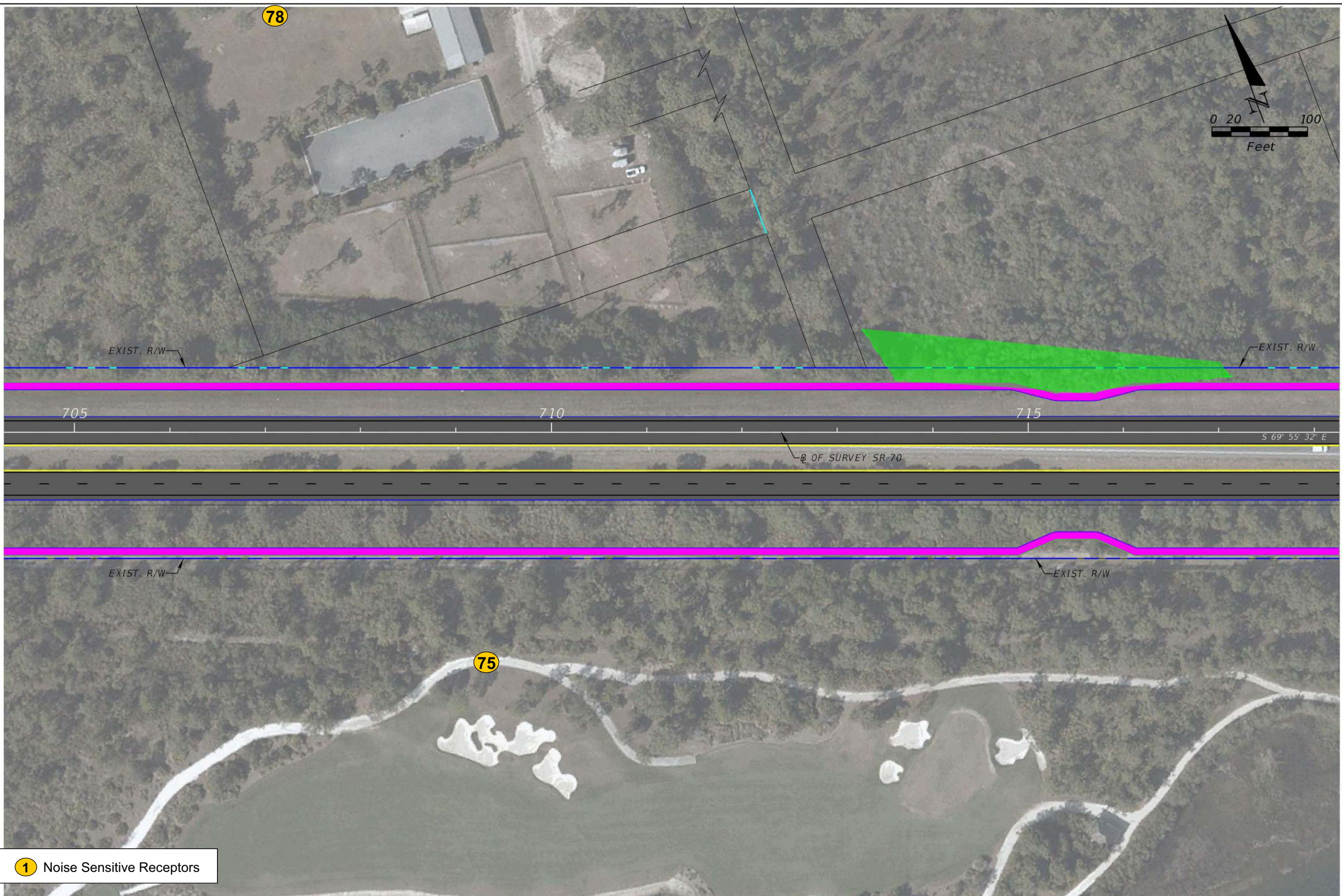
LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (14)</b>	
<b>STA. 290+00 TO STA. 304+00</b>	
SHEET NO.	15



1 Noise Sensitive Receptors

RECOMMENDED ALTERNATIVE

LEGEND

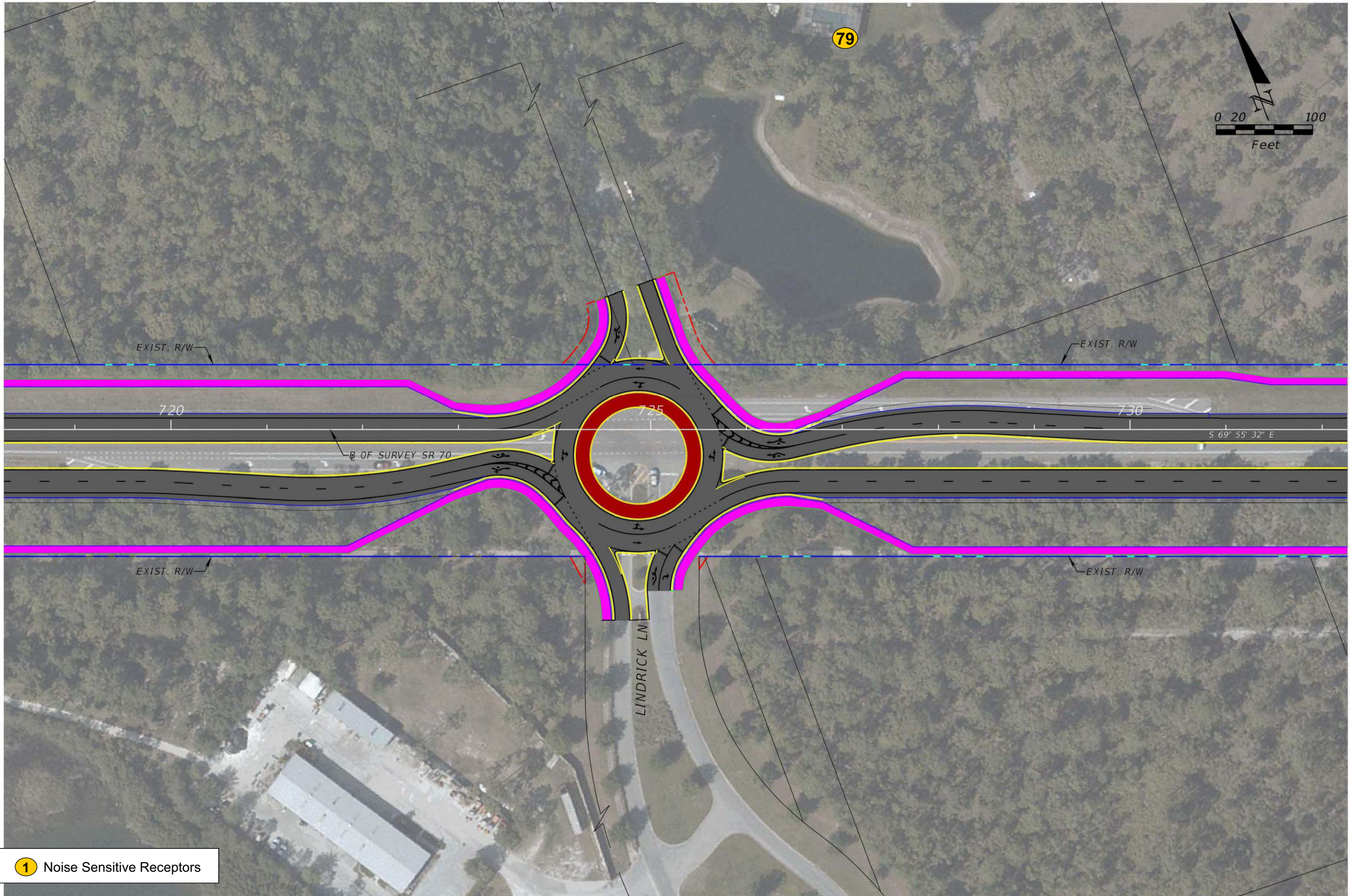
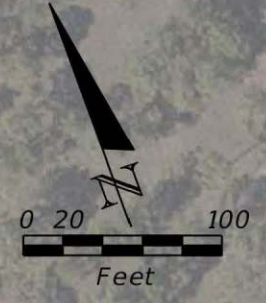
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2- 22-01

CONCEPT PLAN (15)  
 STA. 304+00 TO STA. 318+00

SHEET NO.  
 16



**1** Noise Sensitive Receptors

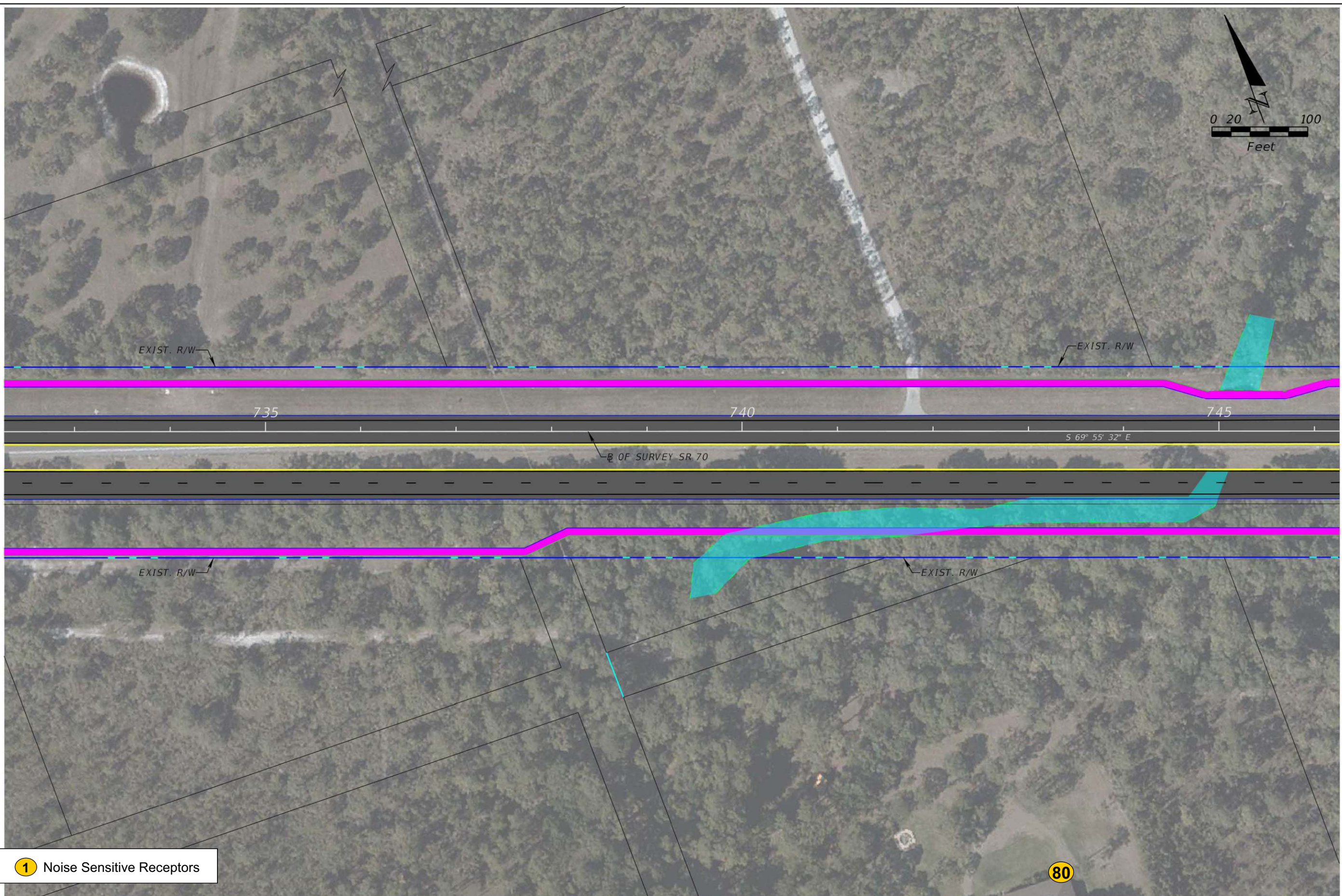
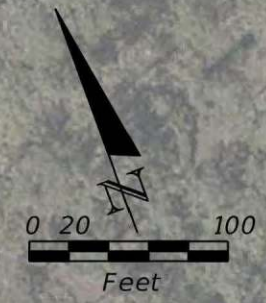
LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE		SHEET NO.
<b>CONCEPT PLAN (16)</b> <b>STA. 318+00 TO STA. 332+00</b>		17



1 Noise Sensitive Receptors

80

RECOMMENDED ALTERNATIVE

LEGEND

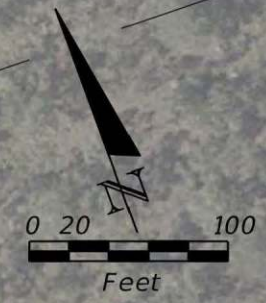
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

CONCEPT PLAN (17)  
 STA. 332+00 TO STA. 346+00

SHEET NO.  
18



**1** Noise Sensitive Receptors

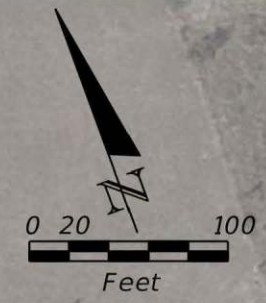
LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (18)</b>	
<b>STA. 346+00 TO STA. 360+00</b>	
SHEET NO.	19



1 Noise Sensitive Receptors

LEGEND

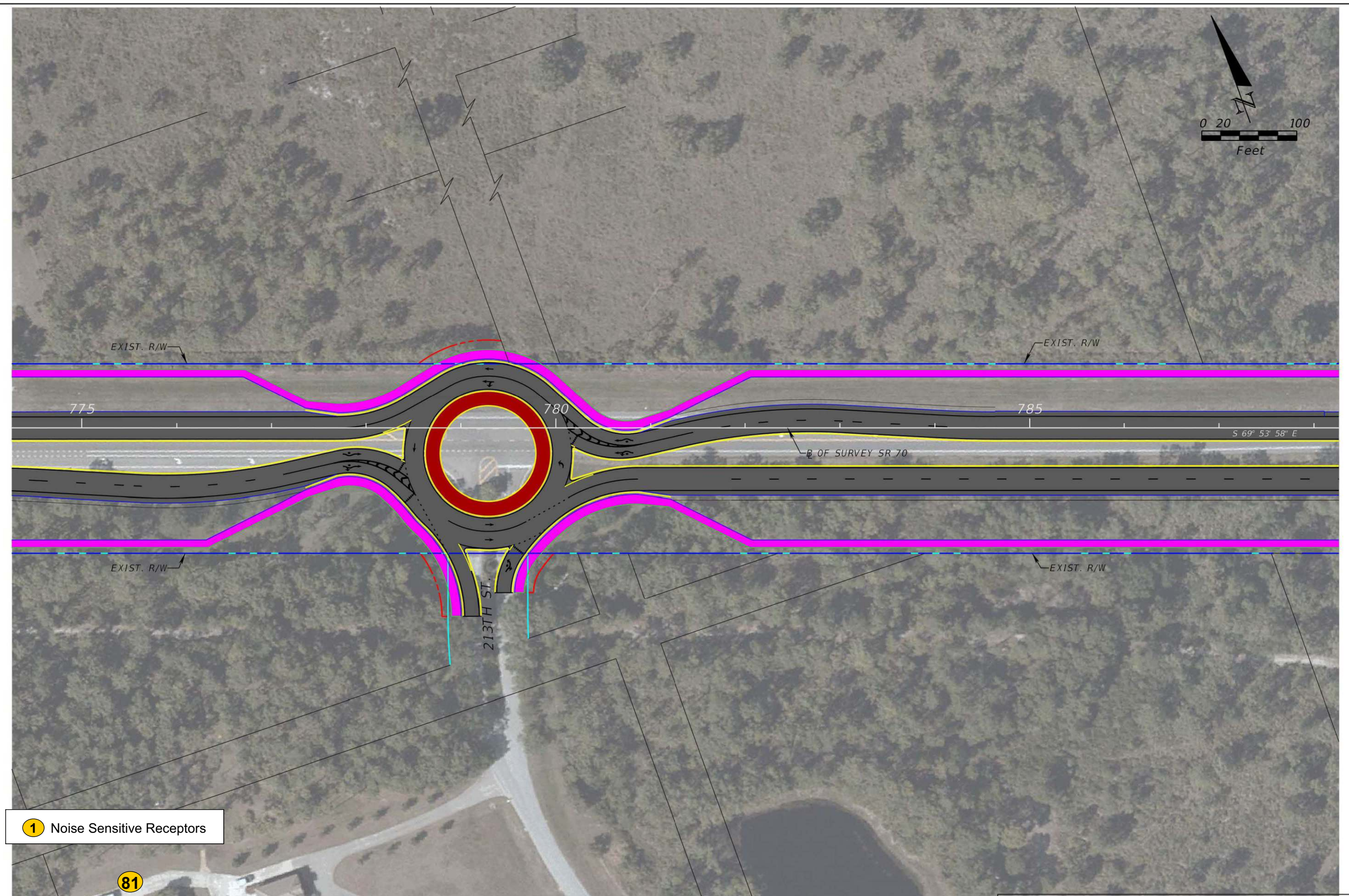
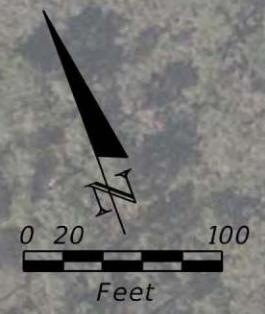
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (19)</b>	
<b>STA. 360+00 TO STA. 374+00</b>	
SHEET NO.	20





1 Noise Sensitive Receptors

81

RECOMMENDED ALTERNATIVE

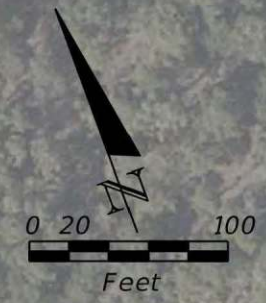
LEGEND		
	EXISTING R/W LINE	
	PROPOSED R/W LINE	
	PROPERTY LINE	
	POTENTIAL CONTAMINATION SITE	
	PROPOSED ROADWAY	
	TRAFFIC SEPARATOR	
	ROUNDBOUT APRON	
	PROPOSED SIDEWALK	
	PROPOSED BRIDGE	
	MILLING & RESURFACING	
	WETLANDS	
	PUBLIC LANDS	
	SURFACE WATERS	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

CONCEPT PLAN (20)  
 STA. 374+00 TO STA. 388+00

SHEET NO.  
 21



86

82

EXIST. R/W

EXIST. R/W

EXIST. R/W

EXIST. R/W

790

795

800

☉ OF SURVEY SR 70

S 69° 53' 58" E

1 Noise Sensitive Receptors

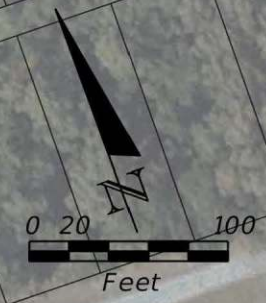
LEGEND

	EXISTING R/W LINE		PROPOSED ROADWAY		MILLING & RESURFACING
	PROPOSED R/W LINE		TRAFFIC SEPARATOR		WETLANDS
	PROPERTY LINE		ROUNDBABOUT APRON		PUBLIC LANDS
	POTENTIAL CONTAMINATION SITE		PROPOSED SIDEWALK		SURFACE WATERS
			PROPOSED BRIDGE		

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (21)</b>	
<b>STA. 388+00 TO STA. 402+00</b>	
SHEET NO.	22



90

87

EXIST. R/W

EXIST. R/W

805

810

815

E OF SURVEY SR 70

EXIST. R/W

EXIST. R/W

CURVE C3  
 PI STA. = 823+69.14  
 $\Delta$  = 7° 21' 04" (RT)  
 D = 1° 00' 00"  
 T = 368.06  
 L = 735.10  
 R = 5,729.58  
 PC STA. = 820+01.08  
 PT STA. = 827+36.18

1 Noise Sensitive Receptors

LEGEND

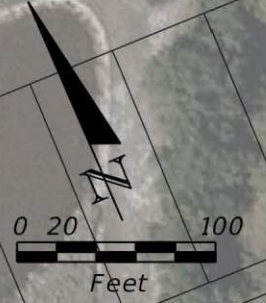
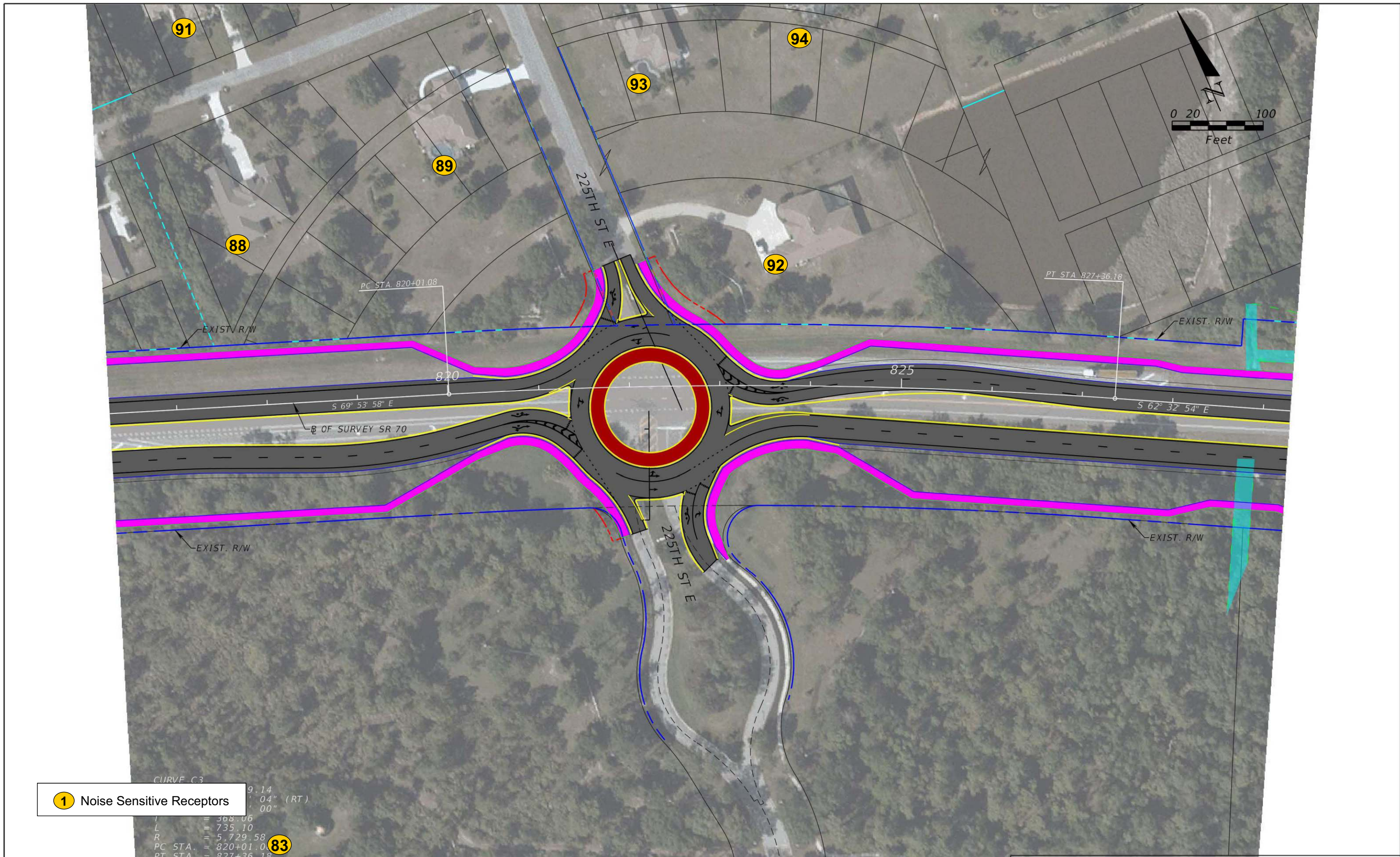
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

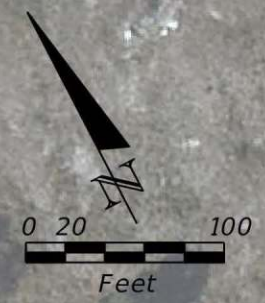
RECOMMENDED ALTERNATIVE

<b>CONCEPT PLAN (22)</b>		SHEET NO.  23
<b>STA. 402+00 TO STA. 416+00</b>		



**1** Noise Sensitive Receptors  
 CURVE C3  
 T = 9.14  
 L = 735.10  
 R = 5,729.58  
 PC STA. = 820+01.08  
 PT STA. = 827+36.18

<b>LEGEND</b> EXISTING R/W LINE PROPOSED R/W LINE PROPERTY LINE POTENTIAL CONTAMINATION SITE PROPOSED ROADWAY TRAFFIC SEPARATOR ROUNDABOUT APRON PROPOSED SIDEWALK PROPOSED BRIDGE MILLING & RESURFACING WETLANDS PUBLIC LANDS SURFACE WATERS		Kisinger Campo & Associates Corp. 201 E. Franklin Street, Suite 400 Tampa, Florida 33602 Florida Certificate of Authorization No. 02317 Engineer of Record: Deborah Hernandez-Cedeno, P.E. P.E. No.: 74754	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION <table border="1"> <tr> <th>ROAD NO.</th> <th>COUNTY</th> <th>FINANCIAL PROJECT ID</th> </tr> <tr> <td>SR 70</td> <td>MANATEE</td> <td>414506-2-22-01</td> </tr> </table>	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	SR 70	MANATEE	414506-2-22-01	RECOMMENDED ALTERNATIVE <b>CONCEPT PLAN (23)</b> STA. 416+00 TO STA. 429+00 SHEET NO. 24
ROAD NO.	COUNTY	FINANCIAL PROJECT ID								
SR 70	MANATEE	414506-2-22-01								



1 Noise Sensitive Receptors

RECOMMENDED ALTERNATIVE

LEGEND

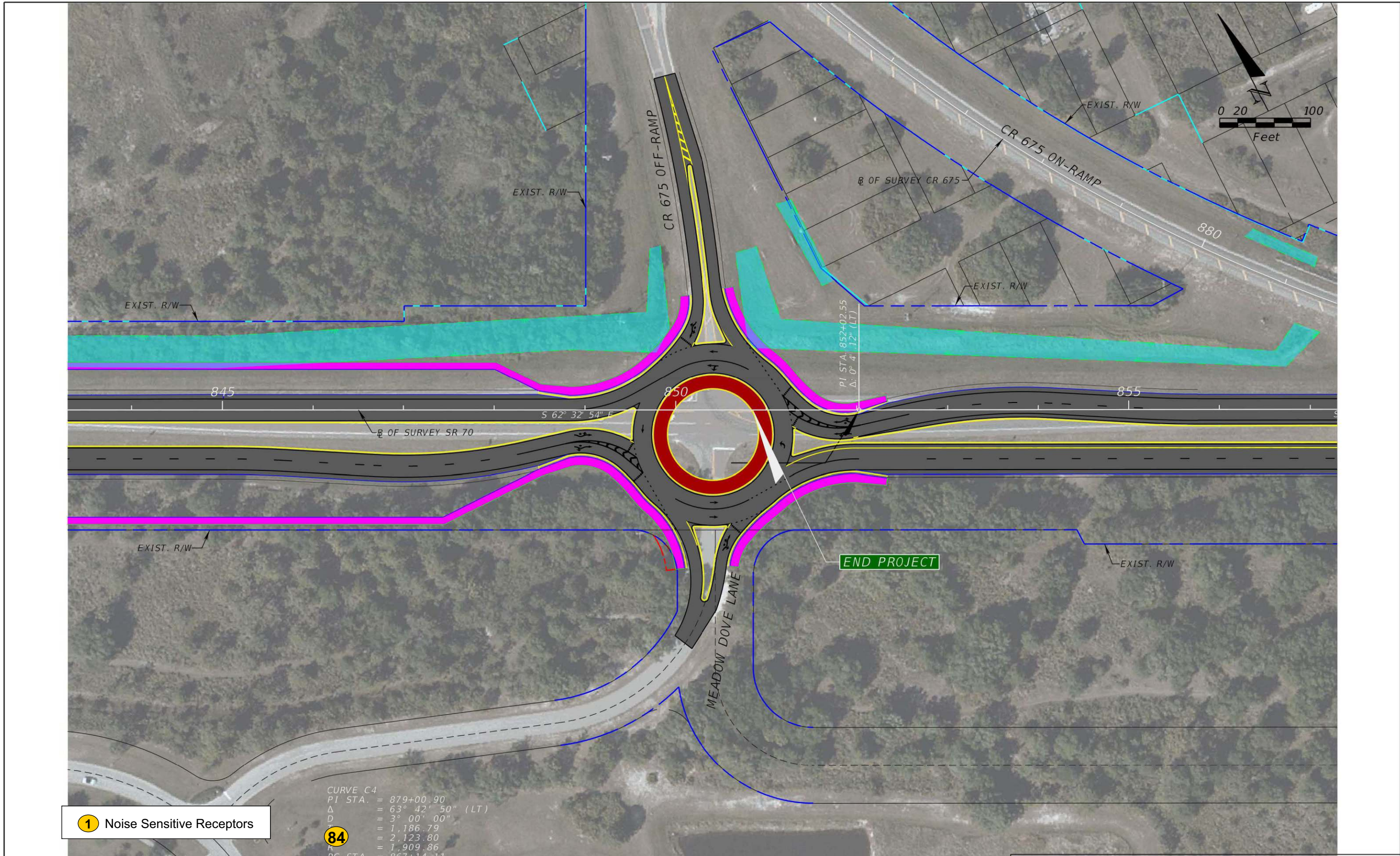
EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

CONCEPT PLAN (24)  
 STA. 429+00 TO STA. 443+00

SHEET NO.  
 25



1 Noise Sensitive Receptors

CURVE C4  
 PI STA. = 879+00.90  
 $\Delta$  = 63° 42' 50" (LT)  
 D = 3° 00' 00"  
 T = 1,186.79  
 L = 2,123.80  
 K = 1,909.86  
 PC STA. = 867+14.11  
 PT STA. = 888+37.91

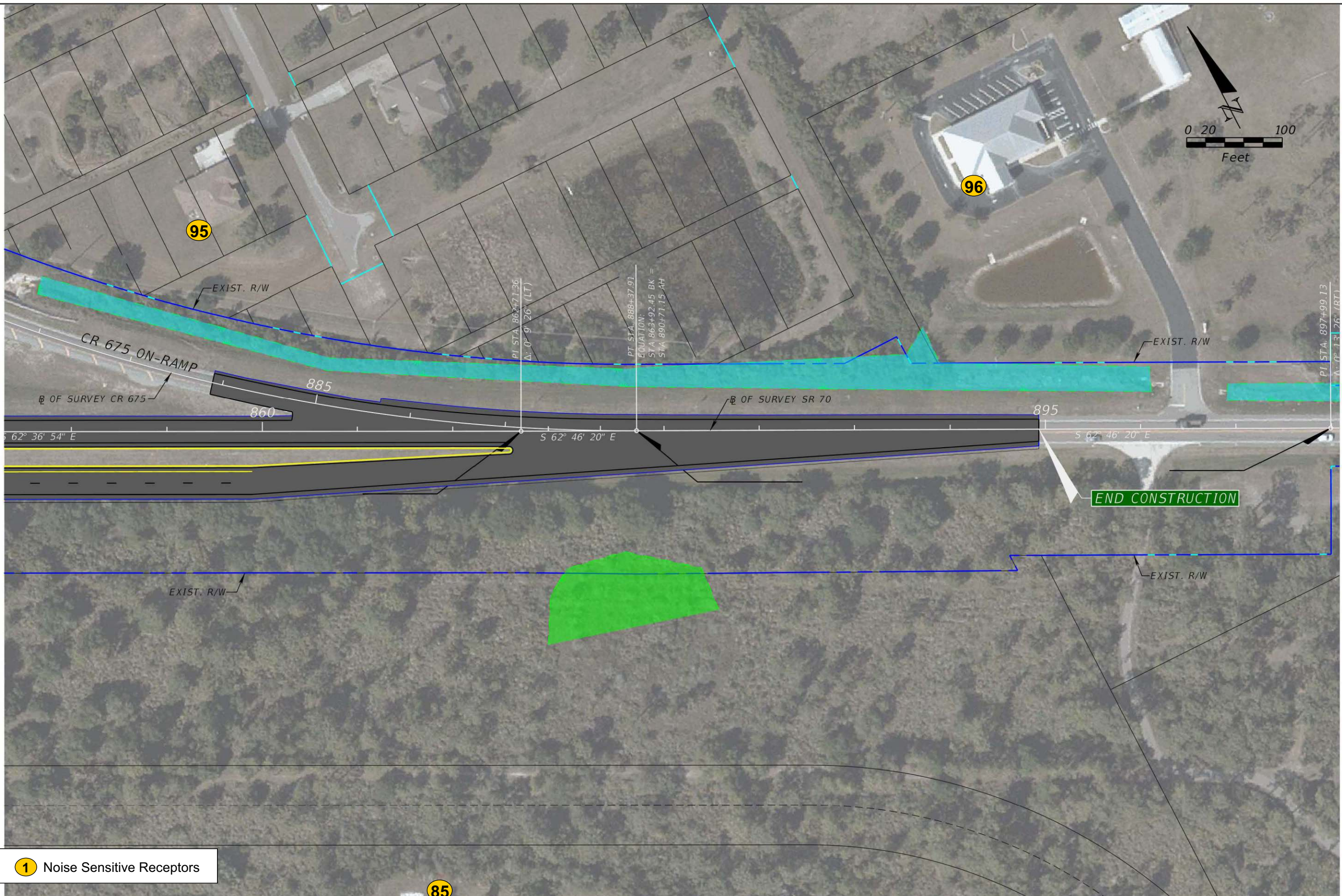
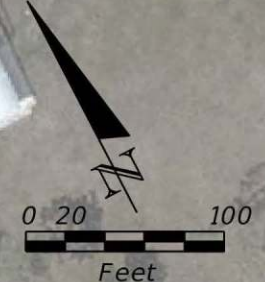
84

LEGEND			
	EXISTING R/W LINE		PROPOSED ROADWAY
	PROPOSED R/W LINE		TRAFFIC SEPARATOR
	PROPERTY LINE		ROUNDBOUT APRON
	POTENTIAL CONTAMINATION SITE		PROPOSED SIDEWALK
			PROPOSED BRIDGE
	MILLING & RESURFACING		WETLANDS
	PUBLIC LANDS		SURFACE WATERS

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

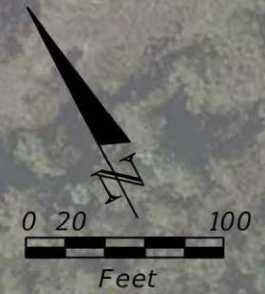
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

RECOMMENDED ALTERNATIVE	
<b>CONCEPT PLAN (25)</b>	
<b>STA. 443+00 TO STA. 457+00</b>	
SHEET NO.	26



1 Noise Sensitive Receptors

LEGEND			Kisinger Campo & Associates Corp. 201 E. Franklin Street, Suite 400 Tampa, Florida 33602 Florida Certificate of Authorization No. 02317 Engineer of Record: Deborah Hernandez-Cedeno, P.E. P.E. No.: 74754	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			RECOMMENDED ALTERNATIVE  <b>CONCEPT PLAN (26)</b> <b>STA. 457+00 TO STA. 471+00</b>	SHEET NO.
EXISTING R/W LINE	PROPOSED R/W LINE	PROPERTY LINE		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		27
				SR 70	MANATEE	414506-2-22-01		



① Noise Sensitive Receptors

RECOMMENDED ALTERNATIVE

LEGEND

EXISTING R/W LINE	PROPOSED ROADWAY	MILLING & RESURFACING
PROPOSED R/W LINE	TRAFFIC SEPARATOR	WETLANDS
PROPERTY LINE	ROUNDABOUT APRON	PUBLIC LANDS
POTENTIAL CONTAMINATION SITE	PROPOSED SIDEWALK	SURFACE WATERS
	PROPOSED BRIDGE	

Kisinger Campo & Associates Corp.  
 201 E. Franklin Street, Suite 400  
 Tampa, Florida 33602  
 Florida Certificate of Authorization No. 02317  
 Engineer of Record: Deborah Hernandez-Cedeno, P.E.  
 P.E. No.: 74754

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	MANATEE	414506-2-22-01

<b>CONCEPT PLAN (27)</b>		SHEET NO.  28
<b>STA. 471+00 TO STA. 482+66</b>		



# **Appendix B Traffic Data for Noise Studies**

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT**  
**FDOT DISTRICT 1**

Federal Aid Number(s): \_\_\_\_\_  
 FPID Number(s): 414506-2  
 State/Federal Route No.: \_\_\_\_\_  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Lorraine Rd to Post Blvd  
 Section Number: 13160000  
 Mile Post To/From: 9.476 - 10.137

Existing Facility:		D =	<u>60.50%</u>	%
Year:	<u>2016</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>850</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>862</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>50</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

No Build Alternative (Design Year):		D =	<u>60.50%</u>	%
Year:	<u>2045</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>850</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>2529</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>50</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

Build Alternative (Design Year):		D =	<u>60.50%</u>	%
Year:	<u>2045</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>2478</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>2816</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>45</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Srinivas Kandala V. S. N. Van Date: 4/15/2019  
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron C. L. Simpron Date: 3/15/19  
 Print Name Signature

**FDOT TRAFFIC DATA FOR NOISE STUDIES - DETAILED OUTPUT**

Prepared By: VHB Date: 6/5/2017 Approved for Use By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Federal Aid Number(s): 0 Section Number: 13160000  
 FPID Number(s): 414506-2 Mile Post To/From: 9.476 - 10.137  
 State/Federal Route No.: 0  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Lorraine Rd to Post Blvd

Note: Data sheets are to be completed for each segment having a change in traffic parameters (i.e., volume posted speed, typical section)

Demand Peak Hour/LOS C	Peak or Off-Peak Direction	Vehicle Type	Existing		No Build (Design Year)		Build (Design Year)	
			Year:	2016	Year:	2045	Year:	2045
			Posted Speed:	50	Posted Speed:	50	Posted Speed:	45
			Number of Travel Lanes:	2	Number of Travel Lanes:	2	Number of Travel Lanes:	6
			Number of Vehicles		Number of Vehicles		Number of Vehicles	
			Use LOS C		Use LOS C		Use LOS C	
Demand Peak Hour	Peak Direction	Autos	797	2340	2606			
		Med Trucks	17	50	55			
		Heavy Trucks	44	128	143			
		Buses	1	2	2			
		Motorcycles	3	9	10			
		<b>Total</b>	<b>862</b>	<b>2529</b>	<b>2816</b>			
	Off-Peak Direction	Autos	520	1528	1702			
		Med Trucks	11	32	36			
		Heavy Trucks	29	84	93			
		Buses	1	1	1			
Motorcycles		2	6	7				
	<b>Total</b>	<b>563</b>	<b>1651</b>	<b>1839</b>				
LOS C	Peak Direction	Autos	786	786	2292			
		Med Trucks	17	17	49			
		Heavy Trucks	43	43	126			
		Buses	1	1	2			
		Motorcycles	3	3	9			
		<b>Total</b>	<b>850</b>	<b>850</b>	<b>2478</b>			
	Off-Peak Direction	Autos	786	786	2292			
		Med Trucks	17	17	49			
		Heavy Trucks	43	43	126			
		Buses	1	1	2			
Motorcycles		3	3	9				
	<b>Total</b>	<b>850</b>	<b>850</b>	<b>2478</b>				

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT**  
**FDOT DISTRICT 1**

Federal Aid Number(s): \_\_\_\_\_  
 FPID Number(s): 414506-2  
 State/Federal Route No.: \_\_\_\_\_  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Post Blvd to Uihlein Rd  
 Section Number: 13160000  
 Mile Post To/From: 10.137 - 10.850

<b>Existing Facility:</b>		D =	<b>60.50%</b>	%
Year:	<b>2016</b>	T24 =	<b>14.20%</b>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<b>850</b>	Tpeak =	<b>7.10%</b>	% of Design Hour Volume
Demand Peak Hour Volume:	<b>747</b>	MT =	<b>1.96%</b>	% of Design Hour Volume
Posted Speed:	<b>60</b>	HT =	<b>5.07%</b>	% of Design Hour Volume
		B =	<b>0.07%</b>	% of Design Hour Volume
		MC =	<b>0.37%</b>	% of Design Hour Volume

<b>No Build Alternative (Design Year):</b>		D =	<b>60.50%</b>	%
Year:	<b>2045</b>	T24 =	<b>14.20%</b>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<b>850</b>	Tpeak =	<b>7.10%</b>	% of Design Hour Volume
Demand Peak Hour Volume:	<b>1667</b>	MT =	<b>1.96%</b>	% of Design Hour Volume
Posted Speed:	<b>60</b>	HT =	<b>5.07%</b>	% of Design Hour Volume
		B =	<b>0.07%</b>	% of Design Hour Volume
		MC =	<b>0.37%</b>	% of Design Hour Volume

<b>Build Alternative (Design Year):</b>		D =	<b>60.50%</b>	%
Year:	<b>2045</b>	T24 =	<b>14.20%</b>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<b>1530</b>	Tpeak =	<b>7.10%</b>	% of Design Hour Volume
Demand Peak Hour Volume:	<b>1954</b>	MT =	<b>1.96%</b>	% of Design Hour Volume
Posted Speed:	<b>50</b>	HT =	<b>5.07%</b>	% of Design Hour Volume
		B =	<b>0.07%</b>	% of Design Hour Volume
		MC =	<b>0.37%</b>	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Srinivas Kandala *S. Kandala* Date: 4/15/2019  
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron *C. Simpron* Date: 4/15/19  
 Print Name Signature

**FDOT TRAFFIC DATA FOR NOISE STUDIES - DETAILED OUTPUT**

Prepared By: VHB Date: 6/5/2017 Approved for Use By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Federal Aid Number(s): 0 Section Number: 13160000  
 FPID Number(s): 414506-2 Mile Post To/From: 10.137 - 10.850  
 State/Federal Route No.: 0  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Post Blvd to Uihlein Rd

Note: Data sheets are to be completed for each segment having a change in traffic parameters (i.e., volume posted speed, typical section)

Demand Peak Hour/LOS C	Peak or Off-Peak Direction	Vehicle Type	Existing		No Build (Design Year)		Build (Design Year)	
			Year:	2016	Year:	2045	Year:	2045
			Posted Speed:	60	Posted Speed:	60	Posted Speed:	50
			Number of Travel Lanes:	2	Number of Travel Lanes:	2	Number of Travel Lanes:	4
See Columns to Right > for Which Volumes To Use (Demand or LOS C)			Number of Vehicles		Number of Vehicles		Number of Vehicles	
			Use Demand Volumes		Use LOS C		Use LOS C	
Demand Peak Hour	Peak Direction	Autos	690	1542	1809			
		Med Trucks	15	33	38			
		Heavy Trucks	38	85	99			
		Buses	1	1	1			
		Motorcycles	3	6	7			
		Total	747	1667	1954			
	Off-Peak Direction	Autos	450	1007	1180			
		Med Trucks	10	21	25			
		Heavy Trucks	25	55	65			
		Buses	1	1	1			
Motorcycles		2	4	5				
	Total	488	1088	1276				
LOS C	Peak Direction	Autos	786	786	1415			
		Med Trucks	17	17	30			
		Heavy Trucks	43	43	78			
		Buses	1	1	1			
		Motorcycles	3	3	6			
		Total	850	850	1530			
	Off-Peak Direction	Autos	786	786	1415			
		Med Trucks	17	17	30			
		Heavy Trucks	43	43	78			
		Buses	1	1	1			
Motorcycles		3	3	6				
	Total	850	850	1530				

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT**  
**FDOT DISTRICT 1**

Federal Aid Number(s): \_\_\_\_\_  
 FPID Number(s): 414506-2  
 State/Federal Route No.: \_\_\_\_\_  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Uihlein Rd to Bourneside Dr  
 Section Number: 13160000  
 Mile Post To/From: 10.850 - 11.97

<b>Existing Facility:</b>		D =	<u>60.50%</u>	%
Year:	<u>2016</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>850</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>747</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>60</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

<b>No Build Alternative (Design Year):</b>		D =	<u>60.50%</u>	%
Year:	<u>2045</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>850</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>1092</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>60</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

<b>Build Alternative (Design Year):</b>		D =	<u>60.50%</u>	%
Year:	<u>2045</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>1607</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>1379</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>50</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Srinivas Kandala *Srinivas Kandala* Date: 4/15/2019  
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron *Chris Simpron* Date: 4/15/19  
 Print Name Signature

**FDOT TRAFFIC DATA FOR NOISE STUDIES - DETAILED OUTPUT**

Prepared By: VHB Date: 6/5/2017 Approved for Use By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Federal Aid Number(s): 0 Section Number: 13160000  
 FPID Number(s): 414506-2 Mile Post To/From: 10.850 - 11.97  
 State/Federal Route No.: 0  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Uihlein Rd to Bourneside Dr

Note: Data sheets are to be completed for each segment having a change in traffic parameters (i.e., volume posted speed, typical section)

Demand Peak Hour/LOS C	Peak or Off-Peak Direction	Vehicle Type	Existing		No Build (Design Year)		Build (Design Year)	
			Year:	2016	Year:	2045	Year:	2045
			Posted Speed:	60	Posted Speed:	60	Posted Speed:	50
			Number of Travel Lanes:	2	Number of Travel Lanes:	2	Number of Travel Lanes:	4
See Columns to Right > for Which Volumes To Use (Demand or LOS C)			Number of Vehicles	Use Demand Volumes	Number of Vehicles	Use LOS C	Number of Vehicles	Use Demand Volumes
Demand Peak Hour	Peak Direction	Autos	690		1011		1276	
		Med Trucks	15		21		27	
		Heavy Trucks	38		55		70	
		Buses	1		1		1	
		Motorcycles	3		4		5	
		Total	747		1092		1379	
	Off-Peak Direction	Autos	450		659		833	
		Med Trucks	10		14		18	
		Heavy Trucks	25		36		46	
		Buses	1		1		1	
Motorcycles		2		3		3		
	Total	488		713		901		
LOS C	Peak Direction	Autos	786		786		1488	
		Med Trucks	17		17		31	
		Heavy Trucks	43		43		81	
		Buses	1		1		1	
		Motorcycles	3		3		6	
		Total	850		850		1607	
	Off-Peak Direction	Autos	786		786		1488	
		Med Trucks	17		17		31	
		Heavy Trucks	43		43		81	
		Buses	1		1		1	
Motorcycles		3		3		6		
	Total	850		850		1607		

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT**  
**FDOT DISTRICT 1**

Federal Aid Number(s): \_\_\_\_\_  
 FPID Number(s): 414506-2  
 State/Federal Route No.: \_\_\_\_\_  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Bournside Dr to CR 675  
 Section Number: 13160000  
 Mile Post To/From: 11.97 - 15.567

Existing Facility:		D =	<u>60.50%</u>	%
Year:	<u>2016</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>850</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>747</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>60</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

No Build Alternative (Design Year):		D =	<u>60.50%</u>	%
Year:	<u>2045</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>850</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>862</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>60</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

Build Alternative (Design Year):		D =	<u>60.50%</u>	%
Year:	<u>2045</u>	T24 =	<u>14.20%</u>	% of 24 Hour Volume
LOS C Peak Hour Directional Volume:	<u>2120</u>	Tpeak =	<u>7.10%</u>	% of Design Hour Volume
Demand Peak Hour Volume:	<u>1092</u>	MT =	<u>1.96%</u>	% of Design Hour Volume
Posted Speed:	<u>50</u>	HT =	<u>5.07%</u>	% of Design Hour Volume
		B =	<u>0.07%</u>	% of Design Hour Volume
		MC =	<u>0.37%</u>	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Srinivas Kandala V.S. Kandala Date: 4/15/2019  
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron [Signature] Date: 04/15/19  
 Print Name Signature



**FDOT TRAFFIC DATA FOR NOISE STUDIES - DETAILED OUTPUT**

Prepared By: VHB Date: 6/5/2017 Approved for Use By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Federal Aid Number(s): 0 Section Number: 13160000  
 FPID Number(s): 414506-2 Mile Post To/From: 11.97 - 15.567  
 State/Federal Route No.: 0  
 Road Name: SR 70  
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report  
 Segment Description: SR 70 from Bourneside Dr to CR 675

Note: Data sheets are to be completed for each segment having a change in traffic parameters (i.e., volume posted speed, typical section)

Demand Peak Hour/LOS C	Peak or Off-Peak Direction	Vehicle Type	Existing		No Build (Design Year)		Build (Design Year)	
			Year:	2016	Year:	2045	Year:	2045
			Posted Speed:	60	Posted Speed:	60	Posted Speed:	50
			Number of Travel Lanes:	2	Number of Travel Lanes:	2	Number of Travel Lanes:	4
See Columns to Right > for Which Volumes To Use (Demand or LOS C)			Number of Vehicles	Number of Vehicles	Number of Vehicles	Number of Vehicles	Number of Vehicles	Number of Vehicles
			Use Demand Volumes	Use LOS C	Use Demand Volumes	Use Demand Volumes	Use Demand Volumes	Use Demand Volumes
Demand Peak Hour	Peak Direction	Autos	690	797	1011			
		Med Trucks	15	17	21			
		Heavy Trucks	38	44	55			
		Buses	1	1	1			
		Motorcycles	3	3	4			
		Total	747	862	1092			
	Off-Peak Direction	Autos	450	520	659			
		Med Trucks	10	11	14			
		Heavy Trucks	25	29	36			
		Buses	1	1	1			
Motorcycles		2	2	3				
	Total	488	563	713				
LOS C	Peak Direction	Autos	786	786	1962			
		Med Trucks	17	17	42			
		Heavy Trucks	43	43	107			
		Buses	1	1	1			
		Motorcycles	3	3	8			
		Total	850	850	2120			
	Off-Peak Direction	Autos	786	786	1962			
		Med Trucks	17	17	42			
		Heavy Trucks	43	43	107			
		Buses	1	1	1			
Motorcycles		3	3	8				
	Total	850	850	2120				

# **Appendix C Typical Noise Levels**

---

COMMON OUTDOOR ACTIVITIES	NOISE LEVEL dB(A)	COMMON INDOOR ACTIVITIES
Jet Fly-over at 1000 ft	---110---	Rock Band
Gas Lawn Mower at 3 ft	---100---	
Diesel Truck at 50 ft, at 50 mph	---90---	Food Blender at 1 m (3 ft)
Noise Urban Area (Daytime)	---80---	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower at 100 ft	---70---	Vacuum Cleaner at 10 ft
Commercial Area	---60---	Normal Speech at 3 ft
Heavy Traffic at 300 ft	---50---	Large Business Office
Quiet Urban Daytime	---40---	Dishwasher Next Room
Quiet Urban Nighttime	---30---	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	---20---	Library
Quiet Rural Nighttime	---10---	Bedroom at Night, Concert Hall (Background)
	---0---	
Lowest Threshold of Human Hearing		Lowest Threshold of Human Hearing

Source: California Dept. of Transportation Technical Noise Supplement, Oct. 1998, Page 18.

# **Appendix D Validation Documentation**

NOISE MEASUREMENT DATA SHEET

Date: January 1, 2019  
 Time Study Started: 1035 Time Study Ended: 1200

Project Identification:  
 Financial Project ID: 414506-2-22-01  
 Project Location: SR 70 from Lorraine Road to CR 675

Site Identification: Open field north side of SR 70 across from Greenbrook Village,  
 200 and 250 feet from edge-of-pavement.

Weather Conditions:  
 Sky: Clear  Partly Cloudy  Cloudy  Other   
 Temperature 77F Wind Speed 1.5 mph Wind Direction SE Humidity 80%

Equipment:  
 Sound Level Meter:  
 Type: Larson Davis 831 & LxT Serial Number(s): 1285 & 1843  
 Did you check the batteries? Yes  No   
 Calibration Readings: Start 114.0 & 114.0 End 113.9 & 113.8  
 Response Settings: Fast  Slow   
 Weighting: A  Other

Calibrator:  
 Type: Larson Davis CAL 200 Serial Number: 5592  
 Did you check the battery? Yes  No

TRAFFIC DATA

Roadway Identification	SR 70 Westbound		SR 70 Eastbound	
	Volume (10min)	Speed (mph)	Volume (10min)	Speed (mph)
Autos	50-57-71	53-55-54	45-76-71	57-52-53
Medium Trucks	2-1-1	62-52-57	0-0-4	NA-NA-37
Heavy Trucks	0-1-0	NA-53-NA	0-2-0	NA-45-NA
Buses	0-0-0	NA-NA-NA	0-0-2	NA-NA-37
Motorcycles	1-1-1	52-55-65	2-2-0	52-57-NA
Duration	Three 10 minute runs		Three 10 minute runs	

RESULTS [dB(A)]

LEQ 831: 55.0-56.6-56.7 LEQ LxT: 53.6-55.1-55.2

Background Noise: Barking dog, insect noise, and sprinklers.

Major Sources: Traffic on SR 70.

Unusual Events: Intermittent traffic during all three runs.

**Appendix E Traffic Noise Model (TNM) Files**  
**(provided on CD)**