

PROJECT DEVELOPMENT & ENVIRONMENT

NOISE STUDY REPORT

Turnpike to I-95 Interchange
Martin County, Florida

Financial Project ID Number: 446975-1-22-01



Prepared For:
FLORIDA'S TURNPIKE ENTERPRISE

July 2025

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

Executive Summary

Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (Enterprise) is conducting a PD&E Study for a new interchange along Florida's Turnpike (SR 91) in Martin County, Florida. The project will evaluate the addition of a new system-to-system interchange between Florida's Turnpike and Interstate 95 (I-95/SR 9) in the vicinity of the I-95/SE Bridge Road interchange.

Within the project limits, noise levels were predicted at 17 noise receptor locations representing one residence and various outdoor use areas at the Hobe Sound Farmers Market. Of these receptor locations, noise levels at 16 Special Land Use (SLU) receptor locations are predicted to approach or exceed the Noise Abatement Criteria (NAC) in the Design Year 2050 Build Condition. The noise barrier evaluation concluded that noise barriers are not a feasible or reasonable method to mitigate the traffic-related noise impacts associated with this project, as none of the evaluated barrier configurations satisfy FDOT's cost-effectiveness criteria.

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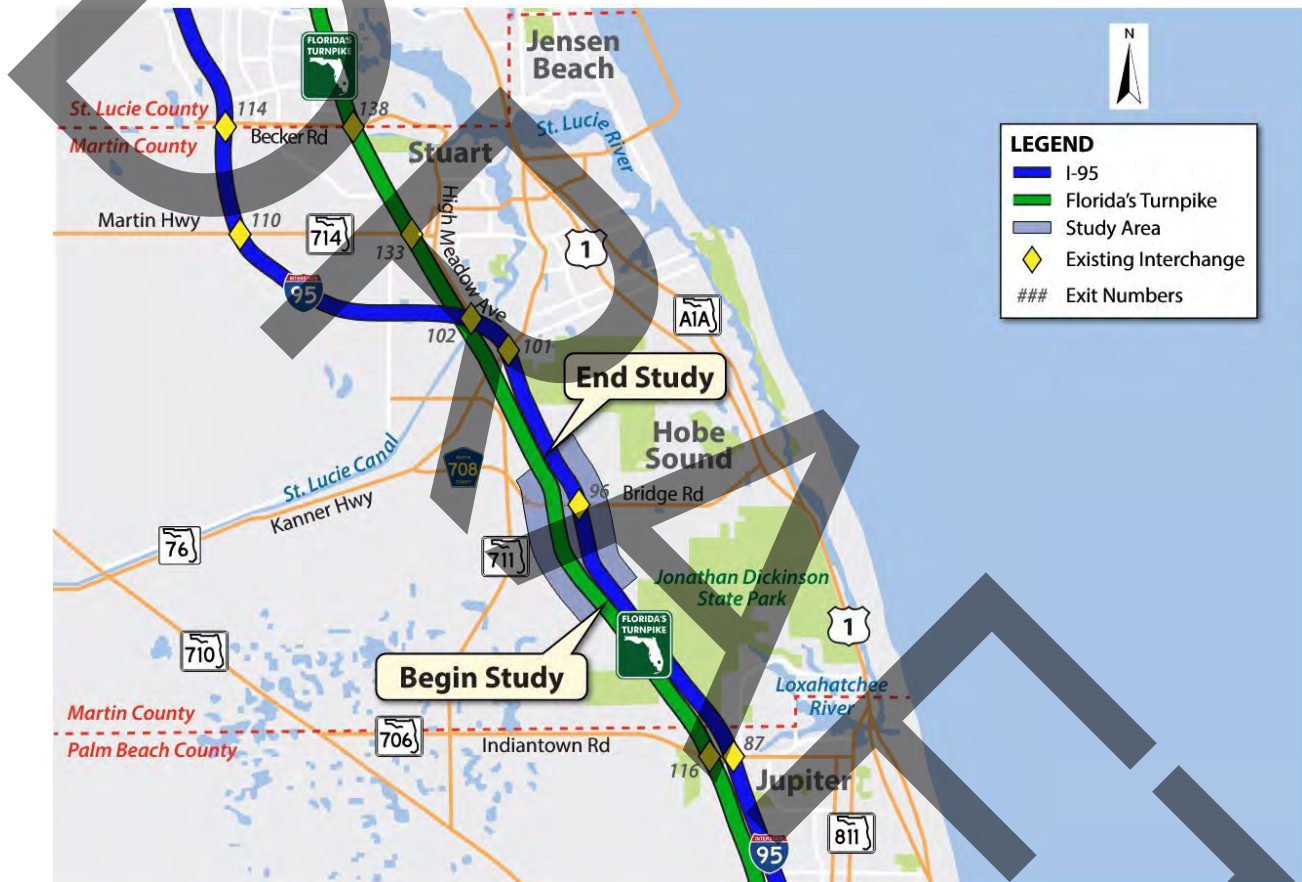
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1.0 INTRODUCTION

Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (Enterprise) is conducting a PD&E Study for a new interchange along Florida's Turnpike (SR 91) in Martin County, Florida. The project will evaluate the addition of a new system-to-system interchange between Florida's Turnpike and Interstate 95 (I-95/SR 9) in the vicinity of the I-95/SE Bridge Road interchange as shown in **(Figure 1)**.

Figure 1 - Project Location



1.1 Project Background

Florida's Turnpike (SR 91) within the project area consists of a four-lane limited access toll facility, two lanes in each direction. However, the recently completed Florida's Turnpike Widening PD&E study (FPID: 423374-1) calls for the Turnpike from Jupiter (Indiantown Road/SR 706) to Ft. Pierce (Okeechobee Road/SR 70) to be widened to an eight-lane facility, four lanes in each direction, throughout the project study area. The posted speed limit along Florida's Turnpike is 70 miles per hour (MPH).

I-95 within the project area consists of a six-lane limited access roadway, three lanes in each direction. The I-95 Multimodal Master Plan – Treasure Coast (FPID: 436577-1) recommends I-95 be widened to an

eight-lane facility, consisting of three general purpose lanes and one managed lane, throughout the project study area. The posted speed limit along I-95 is 70 MPH.

The purpose of this PD&E study is to develop and evaluate alternative designs for a new system-to-system interchange between Florida's Turnpike and I-95 at the SE Bridge Road crossing.

The purpose of this interchange is to:

- Improve system linkage
- Improve traffic operations and travel time reliability
- Enhance safety
- Enhance emergency response and evacuation

During the PD&E study, multiple opportunities will be scheduled for the community to provide input. The No-Build (No Action) alternative will also be analyzed and compared against the Build alternatives during the PD&E study.

2.0 METHODOLOGY

The traffic noise study was conducted in accordance with Title 23, Part 772 of the Code of Federal Regulations (23 CFR Part 772) *Procedures for Abatement of Highway Traffic Noise and Construction Noise*¹. The methodology follows guidelines established by FDOT in the *PD&E Manual*, Part 2, Chapter 18², and the *Traffic Noise Modeling and Analysis Practitioners Handbook*³. Predicted noise levels were generated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM), version 2.5.

2.1 Noise Metrics

Noise levels for this analysis are expressed in decibels (dB) using an A-weighted scale[dB(A)], which closely approximates the human ear's response. All reported values represent the hourly equivalent noise levels [Leq(h)]. The Leq is defined as "the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with Leq(h) being the hourly value of Leq."² Use of the dB(A) and Leq(h) metrics to evaluate traffic noise is consistent with 23 CFR 772¹.

2.2 Traffic Data

Traffic noise is primarily influenced by traffic speed and volume, with noise levels increasing as both vehicle speed and traffic density rise. The highest roadway noise levels typically occur under Level of Service (LOS) C conditions, where traffic volumes are maximized while maintaining free-flow speeds.

For this analysis, traffic volumes and vehicle mix (e.g., cars, medium trucks, heavy trucks, motorcycles, and buses) were projected for the 2050 Build Condition. LOS C hourly traffic volumes were compared with predicted design-year demand hourly volumes and used the lower of the two in the model, per Section 18.2.1.5 of the FDOT *PD&E Manual*². Traffic volumes and speeds used in the analysis are provided in **Appendix A**.

2.3 Noise Abatement Criteria and Considerations

A noise-sensitive site is any property where frequent exterior or interior human use occurs and where a reduction in noise would be beneficial. FHWA has established Noise Abatement Criteria (NAC) for several types of noise-sensitive sites. These criteria, adopted by FDOT for traffic noise evaluation, are shown in **Table 2-1**.

Noise abatement measures are considered when predicted noise levels approach or exceed the NAC. FDOT defines "approach" as being within one dB(A) of the applicable FHWA criterion. **Figure 2** provides a comparison of typical noise levels for common indoor and outdoor activities. Predicted traffic noise levels, NAC classification, and impact criteria for all receptors are documented in **Appendix B**.

Noise abatement must also be considered if a transportation project results in a substantial increase in traffic noise. According to the FDOT *PD&E Manual*², a substantial increase is defined as an increase of 15 dB(A) or more above existing conditions. This typically occurs in areas where traffic noise is currently a minor component of the environment but would become dominant after project completion (e.g., new alignment projects). Since the proposed project follows the existing alignment of Florida's Turnpike and I-95 is also present in the area, the maximum predicted increase is 4.4 dB(A), which does not result in a substantial increase in traffic noise as defined by FDOT guidance.

Table 2-1 – FHWA & FDOT Noise Abatement Criteria

NOISE ABATEMENT CRITERIA (NAC) [Hourly A-Weighted Sound Level-decibels (dB(A))]				
Activity Category	Activity Leq(h) ¹		Evaluation location	Description of activity category
	FHWA	FDOT		
A	57	56	Exterior	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.
B ²	67	66	Exterior	Residential
C ²	67	66	Exterior	Active sports areas, amphitheaters, 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.
D	52	51	Interior	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.
E ²	72	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
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.
(Based on Table 1 of 23 CFR Part 772) ¹ The Leq(h) Activity Criteria values are for impact determination only and are not design standards for noise abatement measures. ² Includes undeveloped lands permitted for this activity category. Note: FDOT defines that a substantial noise increase occurs when the existing noise level is predicted to be exceeded by 15 decibels or more as a result of the transportation improvement project. When this occurs, the requirement for abatement consideration will be followed.				

Figure 2 – Typical Noise Levels

Common Outdoor Activities	Noise Level dB(A)	Common Indoor Activities
Jet Fly-Over 1000 ft.	---110---	Rock Band
Gas Lawn Mower at 3 ft.	---100---	
Diesel Truck at 50 ft., at 50 mph	---90---	Food Blender at 3 ft.
Noise Urban Area (Daytime)	---80---	Garbage Disposal at 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)
Lowest Threshold of Human Hearing	---0---	Lowest Threshold of Human Hearing
Source: California Dept. of Transportation; Technical Noise Supplement; Oct 1998; Page 18.		

3.0 TRAFFIC NOISE ANALYSIS AND ABATEMENT ASSESSMENT

3.1 Model Verification

To verify the accuracy of the TNM 2.5 noise model, field measurements were conducted within the project limits, following procedures outlined in the FHWA *Noise Measurement Handbook*⁴. Noise monitoring was performed on June 30, 2025, using Larson Davis LxT noise monitors. Each monitoring event consisted of three intervals of 10 minutes, in accordance with the FDOT *PD&E Manual*². The monitor was calibrated with a CAL200 calibrator before and after each event to ensure accuracy. Typical vehicle speeds were found using a Decatur Scout handheld radar gun. Most vehicles traveled within ± 5 mph of the 70-mph posted speed limit on Florida's Turnpike. Traffic volumes, categorized by vehicle classification, were recorded during each monitoring event and extrapolated to one-hour equivalent volumes for input into the TNM model.

Due to the limited scale of this project, two validation locations were selected to assess the predictive accuracy of the TNM 2.5 model. These locations are shown on project aerials in **Appendix D** as receptor points VS-01 and VS-02. The results, summarized in **Table 3-1**, show that the variance between measured and predicted noise levels was less than 3.0 dB for all validation events. This finding confirms that the TNM model predicts traffic-related noise levels within the accuracy standard specified in the FDOT *PD&E Manual*². Additional details from the field data collection for model validation are provided in **Appendix E**.

Table 3-1 – TNM Validation Results Summary

Location	Validation Event	TNM Predicted (dB(A))	Field Measured (dB(A))	Variance (dB(A))
VS-01 ¹ (Location 1)	VS-01-R1	78.6	78.4	0.2
	VS-01-R2	77.8	77.7	0.1
	VS-01-R3	78.9	77.5	1.4
VS-02 ¹ (Location 2)	VS-02-R1	72.0	71.5	0.5
	VS-02-R2	72.0	70.5	1.5
	VS-02-R3	73.2	70.8	2.4

¹ Measurements Taken 6/30/2025.

3.2 Noise Sensitive Sites and Impact Analysis

Within the project limits, residential and non-residential sites were evaluated. Receptors representing noise-sensitive sites were digitized in the noise model following the FDOT *PD&E Manual*² as follows:

- **Residential receptors:** Placed at areas of frequent exterior use (e.g., patio or lanai) or at the corner of the residential building closest to the primary traffic noise source.
- **Special Land Use (SLU) receptors:** Located in areas with frequent outdoor human use. For large spaces, such as parks, receptors are arranged in a grid pattern.
- **Representative receptor:** For clusters of residences, a single representative receptor is analyzed for a group of similar sites.

- **Ground floor receptors:** Assumed to be 5 feet above ground elevation.

The locations of the receptors are shown on project aerials in **Appendix D**.

3.2.1 Receptor Naming System

Each receptor is identified by a unique code:

- **First Letter:** "R" for residential receptors or "N" for SLU receptors.
- **Next Two Letters:** indicate the roadway side (e.g., "NB" for northbound, "SB" for southbound).
- **Next Two-Digit Number:** Represents the Common Noise Environment (CNE) identifier.
- **Final Three-Digit Number:** Separated by a dash, this denotes the specific receptor (e.g., RNB01-001 is the 1st residential receptor in the 1st CNE on the northbound side).

A total of 17 receptors representing one residence and various outdoor use areas at the Hobe Sound Farmers Market were modeled. Noise levels are not predicted to approach or exceed the NAC for the 2050 Build Condition for the residence. Noise levels at 16 SLU receptors are predicted to approach or exceed the NAC for the 2050 Build Condition.

Predicted noise levels for the design year (2050) Build condition are included in **Appendix B** while receptor locations are illustrated in **Appendix D**.

3.3 Noise Abatement Analysis

Where noise impacts are identified, receptors were grouped into CNEs to evaluate the feasibility and reasonableness of noise abatement measures. Noise barriers mitigate traffic noise by blocking the sound path between the roadway and noise-sensitive sites. Effective noise barriers are sufficiently long, gap-free, and tall enough to be effective. For a noise barrier to be considered for construction, it must meet feasibility and reasonableness criteria:

Feasibility Criteria:

- Must provide at least a 5 dB(A) reduction in traffic noise to at least two impacted receptors.
- Must consider design, construction, safety, access, ROW constraints, maintenance, drainage, and utility factors.

Reasonableness Criteria:

- Must meet FDOT's Noise Reduction Design Goal (NRDG), by reducing noise at least 7 dB(A) for at least one benefited receptor.
- Must satisfy FDOT's cost threshold of \$64,000 per benefited receptor (defined as a receptor receiving at least a 5 dB(A) reduction). The current unit cost used to evaluate cost reasonableness is \$40 per square foot, covering materials and labor.
- Must incorporate community feedback from affected property owners and residents.

Within the project limits, noise barrier locations were assessed based on the following criteria:

- Non-shoulder noise barriers located outside the clear recovery zone but within the ROW were initially considered at heights ranging from 8 to 22 feet in 2-foot increments.
- If a non-shoulder noise barrier could not provide feasible and reasonable abatement for an impacted receptor, a shoulder noise barrier was evaluated.
 - When placed on a structure (e.g., bridge, retaining wall), a shoulder noise barrier was limited to a maximum height of 8 feet.
 - When located on an embankment or ground-mounted, the maximum height was 14 feet.
- In certain locations, shoulder noise barriers were also restricted to 8 feet as they were classified as "on-structure" barriers.

During the noise abatement evaluation, noise barriers for each CNE were analyzed to determine the maximum number of impacted receptors that could potentially receive at least a 5 dB(A) reduction in traffic-related noise. However, site-specific constraints, such as overhead utilities, could limit the effectiveness of these barriers, preventing all impacted receptors from achieving the full 5 dB(A) reduction. Additional details regarding receptor impacts are provided in subsequent sections.

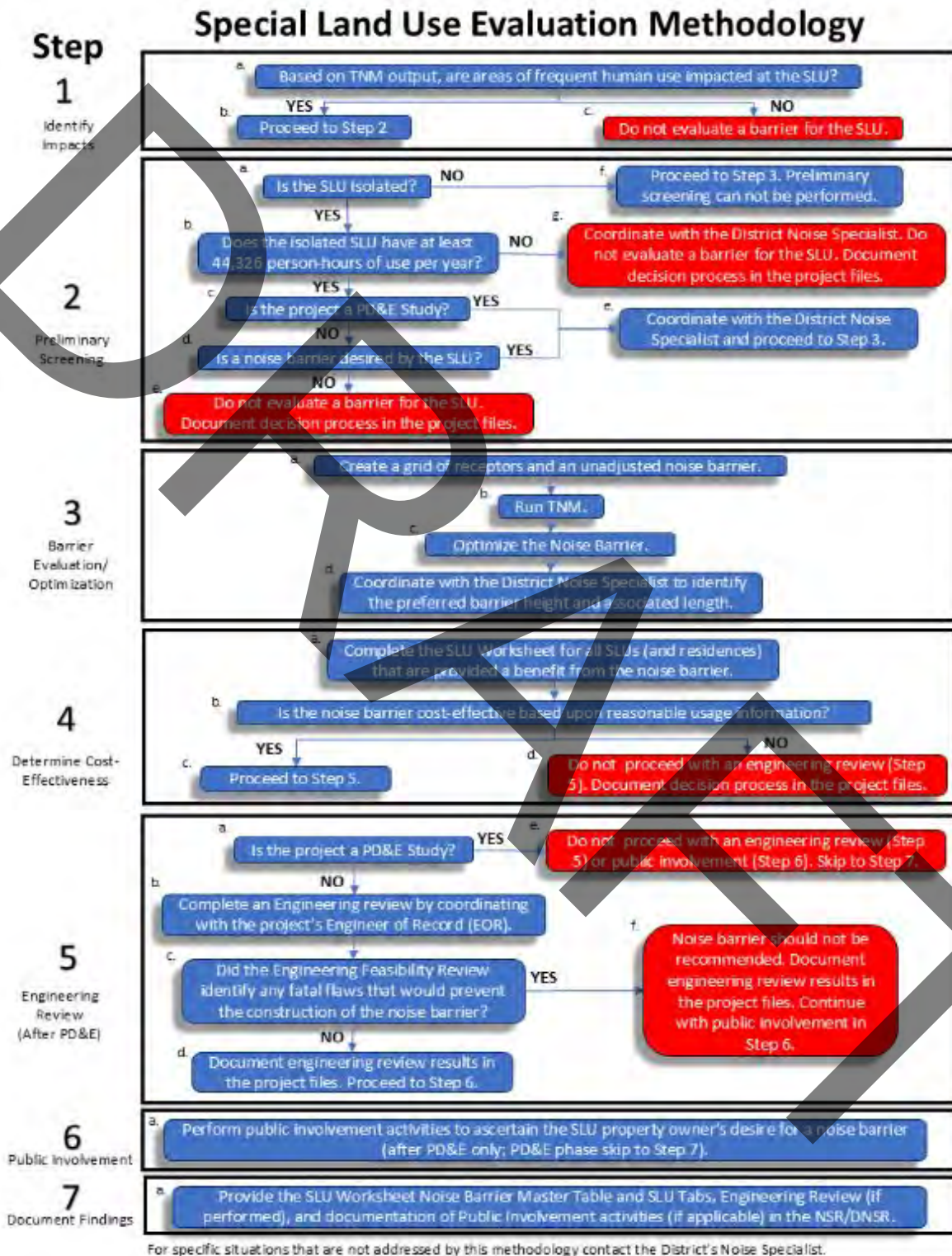
In some locations, noise barriers may also provide benefits to non-impacted receptors. Since noise abatement is not required for these receptors, barrier lengths or heights are not increased solely to enhance their benefits. However, if a non-impacted receptor receives noise reduction due to its proximity to an impacted receptor, it is included in the cost-reasonableness analysis based on cost per benefited receptor. This methodology aligns with FHWA policy and guidance.

3.4 Special Land Use (SLU) Site Analysis

The methodology used to evaluate noise barrier systems for Special Land Use (SLU) sites is different than the one used for residential locations. SLUs are non-residential properties that fall under FHWA's NAC Categories A, C, D and E, which includes a wide range of land use types. The most-encountered SLUs include parks, religious institutions, schools, and outdoor restaurant dining areas. Refer back to **Table 2-1** for land use types under NAC A, C, D and E that are SLUs.

FDOT's December 2024 *Methodology to Evaluate Highway Traffic Noise at Special Land Uses*⁵ replaces the previous 1997/2009 guidance and addresses several limitations in the former approach. This comprehensive seven-step process (as shown in **Figure 3**) begins with identifying impacts at non-residential SLU noise sensitive sites. There is also an optional preliminary screening process to reduce unnecessary analysis of isolated, low-usage SLUs that historically wouldn't qualify for noise abatement.

Figure 3 – SLU Methodology Flowchart



A notable change in the current 2024 methodology is the Equivalent Residence (ER) approach, which allows for combined evaluation of impacted SLUs and adjacent impacted residential areas. This calculation converts SLU usage to residential equivalents based on person-hours of use. One ER equals 22,163 person-hours annually (calculated from an average Florida residence with 2.53 people available 24 hours daily year-round). The subsequent steps include TNM barrier evaluation and optimization, cost-effectiveness determination using the FDOT SLU Worksheet with a current reasonableness threshold of \$64,000 per benefited residence or ER, engineering feasibility review (during design phase), public involvement, and documentation of findings.

3.5 Common Noise Environments on Northbound Side of Florida's Turnpike

3.5.1 Single Family Residence (CNE NB01)

One single family residence is located on the northbound side of Florida's Turnpike (CNE NB01) south of Bridge Road. This area is shown on **Sheet 2** of the project aerials located in **Appendix D**. The noise model includes one NAC B receptor point representing one residence. Noise levels are not predicted to approach or exceed the NAC for the Build Condition in Design Year (2050). For this reason, noise barriers were not evaluated for CNE NB01. The predicted noise levels are provided in **Appendix B**.

3.5.2 Hobe Sound Farmers Market (CNE NB02)

Hobe Sound Farmers Market is located on the northbound side of Florida's Turnpike (CNE NB02) north of Bridge Road. This area is shown on **Sheet 2** of the project aerials located in **Appendix D**. The noise model includes 16 NAC C receptor points representing outdoor seating and recreation areas at the farmer's market. Noise levels at 16 SLU receptors are predicted to approach or exceed the NAC for the Build Condition in Design Year (2050). The predicted noise levels are provided in **Appendix B**.

Person-hours of use were calculated following FDOT SLU guidelines. Hours of use were estimated based on the total number of parking spaces, hours of operation, and an average occupancy of 1.5 visitors per car. Assuming 100% parking occupancy throughout all business hours, the total person-hours per year for the site is 772,200, exceeding FDOT's minimum threshold of 44,326 person-hours per year. This translates to an ER value of 35 for the entire site. Noise impacts are predicted at all 16 SLU receptors, which translates to an impacted ER value of 35.

Noise barriers were evaluated following FDOT's *Methodology to Evaluate Highway Traffic Noise at Special Land Uses*⁵. Barrier optimization modeling using TNM was conducted for a potential barrier along the northbound Florida's Turnpike ROW. This barrier configuration achieved the Noise Reduction Design Goal (NRDG) by providing a reduction of at least 7 dB(A) at one or more ERs and at least a 5 dB(A) reduction across part of the impacted area. However, the barrier's lowest evaluated cost was \$346,000 per benefited ER, significantly exceeding FDOT's allowable cost threshold of \$64,000 per ER. Therefore, the barrier is considered not cost reasonable, and no further evaluation of engineering feasibility or public involvement was necessary. Detailed results of evaluated noise barrier scenarios are summarized in **Table 3-2**.

Table 3-2 – Hobe Sound Farmers Market (CNE NB02)

Height (feet)	Length ¹ (feet)	Location	No. of Impacted ER's	Impacted and Benefited ERs	Benefited ERs	Maximum Reduction dB(A)	Total Cost ²	Cost per Benefited ER	Barrier Reasonable and Feasible?
22	1,730	ROW ³	35	4.36	4.36	8.8	\$1,522,400	\$349,174	No
20	1,730	ROW ³	35	2.18	2.18	8.4	\$1,384,000	\$634,862	No
18	1,730	ROW ³	35	2.18	2.18	8.1	\$1,245,600	\$571,376	No
16	1,730	ROW ³	35	2.18	2.18	7.6	\$1,107,200	\$507,890	No
14	1,730	ROW ³	35	2.18	2.18	7.0	\$968,800	\$444,404	No
12	1,730	ROW ³	35	2.18	2.18	6.0	n/a ⁴	n/a ⁴	n/a ⁴

¹ Full height is for the length indicated. If a shoulder noise barrier location is indicated, the length of vertical height tapers at the shoulder barrier's terminus (See FDOT Standard Plans) would be in addition to the length indicated.

² Unit cost of \$40/ft²

³ ROW – Right of Way noise barrier

⁴ Did not meet the Noise Reduction Design Goal (NRDG) of a 7 dB(A) reduction at any receptor.

4.0 CONCLUSIONS

Within the project limits, noise levels were predicted at 17 noise receptor locations representing one residence and various outdoor use areas at the Hobe Sound Farmers Market. Of these receptor locations, noise levels at 16 Special Land Use (SLU) receptor locations are predicted to approach or exceed the Noise Abatement Criteria (NAC) in the Design Year 2050 Build Condition. The noise barrier evaluation concluded that noise barriers are not a feasible or reasonable method to mitigate the traffic-related noise impacts associated with this project, as none of the evaluated barrier configurations satisfies FDOT's cost-effectiveness criteria.

5.0 CONSTRUCTION NOISE AND VIBRATION

During the construction phase of the proposed project, short-term noise may be generated by stationary and mobile construction equipment. The construction noise will be temporary at any location and will be controlled by adherence to the most recent edition of FDOT's *Standard Specifications for Road and Bridge Construction*⁶.

Using the listing of sensitive sites found in FDOT's *PD&E Manual*², residences were identified as the only land use potentially sensitive to vibration that could occur during construction. If during final design it is determined that measures to control vibration are necessary, the project's construction provisions can be modified as needed.

6.0 PUBLIC INVOLVEMENT

To promote compatibility between land use planning and Florida's Turnpike, the distance between the edge of Florida's Turnpike outside travel lane and the point where the roadway related noise is predicted to reach the NAC for each activity category was estimated. These estimates are referred to as

noise contours and are shown in **Appendix C**. These estimates provide the general distance at which the traffic noise will approach or exceed the NAC for each activity type.

Coordination with the public and local agencies and officials has been accomplished during the development of this project. In addition, local and community officials have had the opportunity to comment on the proposed project at the public meetings.

This section will be updated when all public involvement efforts have been concluded.

7.0 REFERENCES

1. **Federal Highway Administration.** *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. Title 23, Code of Federal Regulations, Part 772 (23 CFR Part 772). Washington, D.C.: FHWA, Oct. 18, 2024.
2. **Florida Department of Transportation.** *Project Development and Environment (PD&E) Manual – Part 2, Chapter 18*. Tallahassee, FL: FDOT, Jul. 31, 2024.
3. **Florida Department of Transportation.** *Traffic Noise Modeling and Analysis Practitioners Handbook*. Tallahassee, FL: FDOT, Dec. 2018.
4. **Federal Highway Administration.** *Noise Measurement Handbook*. Washington, D.C.: FHWA, Jun. 2018.
5. **Florida Department of Transportation.** *Methodology to Evaluate Highway Traffic Noise at Special Land Uses*. Tallahassee, FL: FDOT, Dec. 2024.
6. **Florida Department of Transportation.** *Standard Specifications for Road and Bridge Construction*. Tallahassee, FL: FDOT, Jul. 2023.

Appendix A

Traffic Data

Highway Traffic Noise: Traffic Data																
Project Name	Turnpike & I-95 Interchange PD&E Study															
Project Number	446975-1															
Condition	Existing															
Year	2023															
Roadway Details					Traffic Details											
Roadway Name	From	To	Roadway Type	Number of Lanes (in 1 direction)	Two-Way LOS C AADT (if applicable)	LOS C Peak Hour Peak Direction (PHPD)	Demand Two-Way AADT (if applicable)	Demand Hourly Volumes (DHV) Peak Hour Peak Direction (PHPD)	% Automobiles	% Medium Trucks	% Heavy Trucks	% Buses	% Motorcycles	Standard K-factor (if applicable)	D-factor (if applicable)	Posted Speed (mph)
Turnpike Mainline	North of SE Bridge Road	South of SE Bridge Road	Mainline	2	48,200	2,890	56,000	2,292	81%	5.05%	13.49%	0.56%	0.15%	10.5%	57.0%	70
I-95	North of SE Bridge Road	SE Bridge Road	Mainline	3	68,800	4,410	94,500	5,120	93%	2.36%	4.57%	0.09%	0.24%	10.5%	61.0%	70
I-95	SE Bridge Road	South of SE Bridge Road	Mainline	3	73,600	4,410	96,200	5,134	93%	2.36%	4.57%	0.09%	0.24%	10.5%	57.0%	70
I-95	I-95 southbound off to SE Bridge Road	-	Ramp	1	11,600	1,340	3,050	399	91%	2.46%	6.56%	0.27%	0.07%	11.5%	100.0%	50
I-95	I-95 northbound on from SE Bridge Road	-	Ramp	1	11,600	1,340	3,050	420	91%	2.36%	6.30%	0.26%	0.07%	11.5%	100.0%	50
I-95	I-95 southbound on from SE Bridge Road	-	Ramp	1	14,200	1,340	3,900	443	91%	2.46%	6.56%	0.27%	0.07%	9.50%	100.0%	50
I-95	I-95 northbound off to SE Bridge Road	-	Ramp	1	14,200	1,340	3,900	434	91%	2.36%	6.30%	0.26%	0.07%	9.50%	100.0%	50
SE Bridge Road	West of Turnpike	Turnpike	Arterial	1	11,000	730	6,300	362	91%	2.69%	5.21%	0.82%	0.75%	11.70%	56.6%	60
SE Bridge Road	Turnpike	I-95	Arterial	2	17,400	1,150	6,300	362	91%	2.69%	5.21%	0.82%	0.75%	11.70%	56.6%	60
SE Bridge Road	I-95	East of I-95	Arterial	2	18,000	1,150	14,000	694	91%	2.69%	5.21%	0.82%	0.75%	11.70%	54.9%	60

Notes:

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

Prepared By:

Signature

Date:

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

FDOT Reviewer:

Signature

Date:

Highway Traffic Noise: Traffic Data																	
Project Name	Turnpike & I-95 Interchange PD&E Study																
Project Number	446975-1																
Condition	No-Build																
Year	2050																
Roadway Details					Traffic Details												
Roadway Name	From	To	Roadway Type	Number of Lanes (in 1 direction)	Two-Way LOS C AADT (if applicable)	LOS C Peak Hour Peak Direction (PHPD)	Demand Two- Way AADT (if applicable)	Demand Hourly Volumes (DHV) Peak Hour Peak Direction (PHPD)	% Automobil es	% Medium Trucks	% Heavy Trucks	% Buses	% Motorcycles	Standard K- factor (if applicable)	D-factor (if applicable)	Posted Speed (mph)	
Turnpike Mainline	North of SE Bridge Road	South of SE Bridge Road	Mainline	2	49,200	2,950	86,200	5,270	75%	6.48%	17.31%	0.72%	0.19%	10.5%	57.0%	70	
I-95	North of SE Bridge Road	SE Bridge Road	Mainline	3	75,200	4,820	147,600	7,350	91%	3.07%	5.93%	0.11%	0.31%	10.5%	61.0%	70	
I-95	SE Bridge Road	South of SE Bridge Road	Mainline	3	80,600	4,820	151,400	7,400	91%	3.07%	5.93%	0.11%	0.31%	10.5%	57.0%	70	
I-95	I-95 southbound off to SE Bridge Road	-	Ramp	1	12,400	1,430	7,200	1,110	87%	3.53%	9.43%	0.39%	0.10%	11.5%	100.0%	50	
I-95	I-95 northbound on from SE Bridge Road	-	Ramp	1	12,400	1,430	7,200	1,110	88%	3.21%	8.57%	0.36%	0.10%	11.5%	100.0%	50	
I-95	I-95 southbound on from SE Bridge Road	-	Ramp	1	15,000	1,430	9,100	1,160	87%	3.53%	9.43%	0.39%	0.10%	9.50%	100.0%	50	
I-95	I-95 northbound off to SE Bridge Road	-	Ramp	1	15,000	1,430	9,100	1,160	88%	3.21%	8.57%	0.36%	0.10%	9.50%	100.0%	50	
SE Bridge Road	West of Turnpike	Turnpike	Arterial	1	11,400	710	21,600	1,350	86%	4.05%	7.83%	1.23%	1.13%	11.70%	53.6%	60	
SE Bridge Road	Turnpike	I-95	Arterial	2	18,000	1,130	21,600	1,350	86%	4.05%	7.83%	1.23%	1.13%	11.70%	53.6%	60	
SE Bridge Road	I-95	East of I-95	Arterial	2	18,200	1,130	28,200	1,750	86%	4.05%	7.83%	1.23%	1.13%	11.70%	53.0%	60	

Notes:

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

Prepared By:

Signature

Date:

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

FDOT Reviewer:

Signature

Date:

Highway Traffic Noise: Traffic Data																
Project Name	Turnpike & I-95 Interchange PD&E Study															
Project Number	446975-1															
Condition	Build															
Year	2050															
Roadway Details					Traffic Details											
Roadway Name	From	To	Roadway Type	Number of Lanes (in 1 direction)	Two-Way LOS C AADT (if applicable)	LOS C Peak Hour Peak Direction (PHPD)	Demand Two-Way AADT (if applicable)	Demand Hourly Volumes (DHV) Peak Hour Peak Direction (PHPD)	% Automobiles	% Medium Trucks	% Heavy Trucks	% Buses	% Motorcycles	Standard K-factor (if applicable)	D-factor (if applicable)	Posted Speed (mph)
Turnpike Mainline	South of Stuart (Martin Downs Blvd./SR 714)	Turnpike Southbound to I-95 Direct Connection	Mainline	3	72,600	4,340	87,600	5,410	75%	6.48%	17.31%	0.72%	0.19%	10.5%	57.0%	70
Turnpike Mainline	I-95 Southbound to Turnpike Direct Connection	Turnpike Northbound to I-95 Direct Connect	Mainline	3	75,200	4,340	78,000	4,610	75%	6.48%	17.31%	0.72%	0.19%	11.0%	52.5%	70
Turnpike Mainline	Turnpike Northbound to I-95 Direct Connect	North of Jupiter Interchange	Mainline	3	72,600	4,340	83,600	4,820	75%	6.48%	17.31%	0.72%	0.19%	10.5%	57.0%	70
Turnpike CD Road	Northbound Turnpike Direct Connection	I-95 Northbound Direct Connection	Frontage Road	2	25,200	3,000	13,200	1,890	75%	6.48%	17.31%	0.72%	0.19%	11.9%	100.0%	55
I-95	South of Kanner Hwy	To/from Turnpike South Direct Connect	Mainline	4	99,400	6,370	146,600	7,250	91%	3.07%	5.93%	0.11%	0.31%	10.5%	61.0%	70
I-95	To/from Turnpike South Direct Connect	SE Bridge Road to/from South Ramps	Mainline	4	99,400	6,370	121,000	6,600	91%	3.07%	5.93%	0.11%	0.31%	10.5%	61.0%	70
I-95	SE Bridge Road to/from South Ramps	To/from Turnpike North Direct Connect	Mainline	4	106,400	6,370	139,200	6,650	91%	3.07%	5.93%	0.11%	0.31%	10.5%	57.0%	70
I-95	To/from Turnpike North Direct Connect	North of Jupiter Interchange	Mainline	4	106,400	6,370	154,400	7,890	91%	3.07%	5.93%	0.11%	0.31%	10.5%	57.0%	70
Direct Connect	I-95 southbound off to Turnpike southbound	-	Ramp	1	13,600	1,500	5,600	800	75%	6.48%	17.31%	0.72%	0.19%	11.0%	100.0%	55
Direct Connect	I-95 northbound On from Turnpike northbound CD Road	-	Ramp	1	13,600	1,500	5,600	650	75%	6.48%	17.31%	0.72%	0.19%	11.0%	100.0%	55
Direct Connect	I-95 southbound on from Turnpike southbound	-	Ramp	1	10,800	1,500	7,600	1,410	75%	6.48%	17.31%	0.72%	0.19%	14.0%	100.0%	55
Direct Connect	I-95 northbound off to northbound Turnpike	-	Ramp	1	10,800	1,500	7,600	1,240	75%	6.48%	17.31%	0.72%	0.19%	14.0%	100.0%	55
I-95	I-95 southbound off to SE Bridge Road	-	Ramp	1	12,400	1,430	7,200	1,110	87%	3.53%	9.43%	0.39%	0.10%	11.5%	100.0%	50
I-95	I-95 northbound on from SE Bridge Road	-	Ramp	1	12,400	1,430	7,200	1,110	88%	3.21%	8.57%	0.36%	0.10%	11.5%	100.0%	50
I-95	I-95 southbound on from SE Bridge Road	-	Ramp	1	15,000	1,430	9,100	1,160	87%	3.53%	9.43%	0.39%	0.10%	9.50%	100.0%	50
I-95	I-95 northbound off to SE Bridge Road	-	Ramp	1	15,000	1,430	9,100	1,160	88%	3.21%	8.57%	0.36%	0.10%	9.50%	100.0%	50
SE Bridge Road	West of Turnpike	Turnpike	Arterial	1	11,200	710	21,400	1,350	86%	4.05%	7.83%	1.23%	1.13%	11.80%	53.6%	60
SE Bridge Road	Turnpike	I-95	Arterial	2	17,800	1,130	21,400	1,350	86%	4.05%	7.83%	1.23%	1.13%	11.80%	53.6%	60
SE Bridge Road	I-95	East of I-95	Arterial	2	18,000	1,130	28,000	1,750	86%	4.05%	7.83%	1.23%	1.13%	11.80%	53.0%	60

Notes:

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

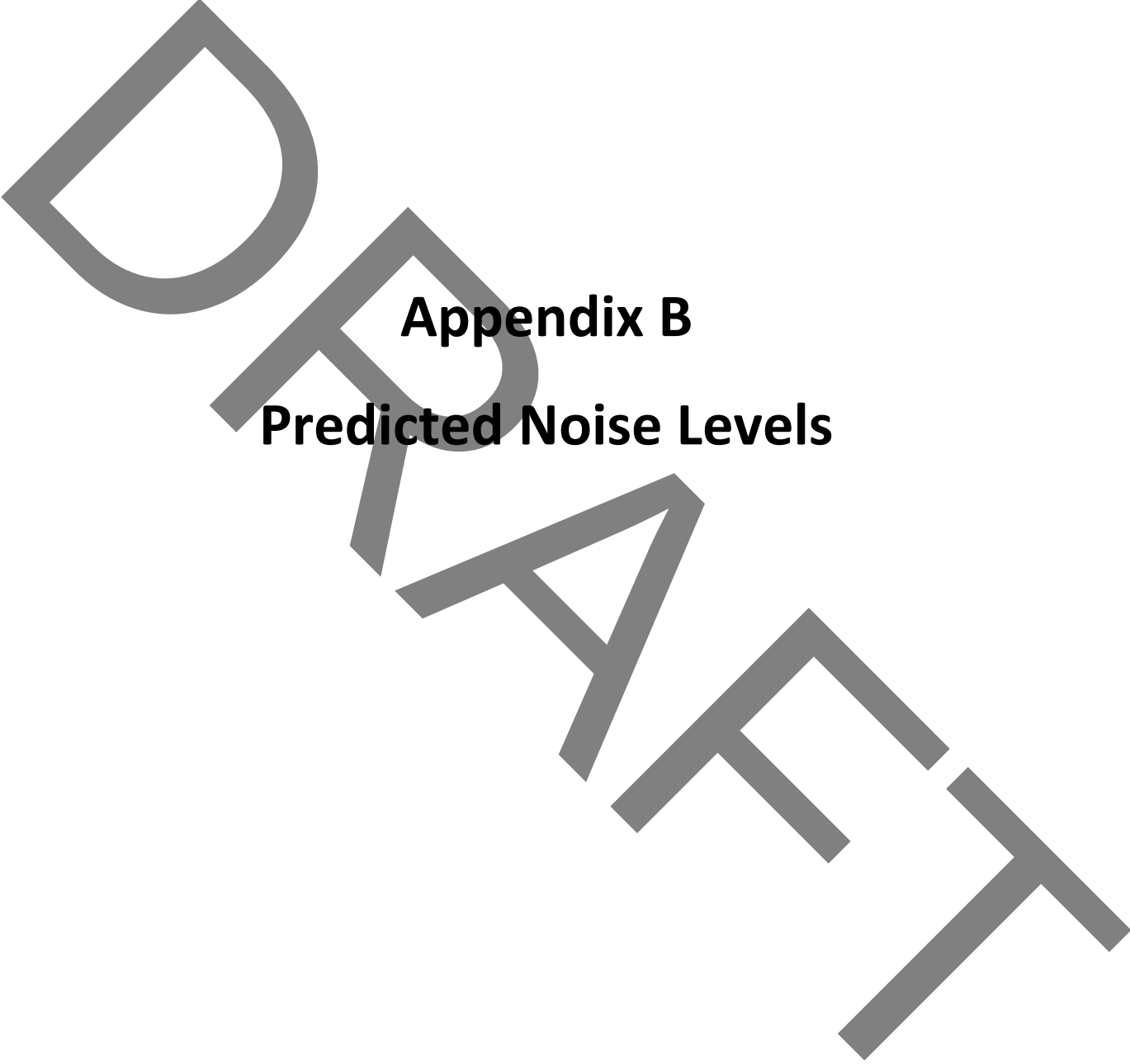
Prepared By:

Signature
Date:

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

FDOT Reviewer:

Signature
Date:



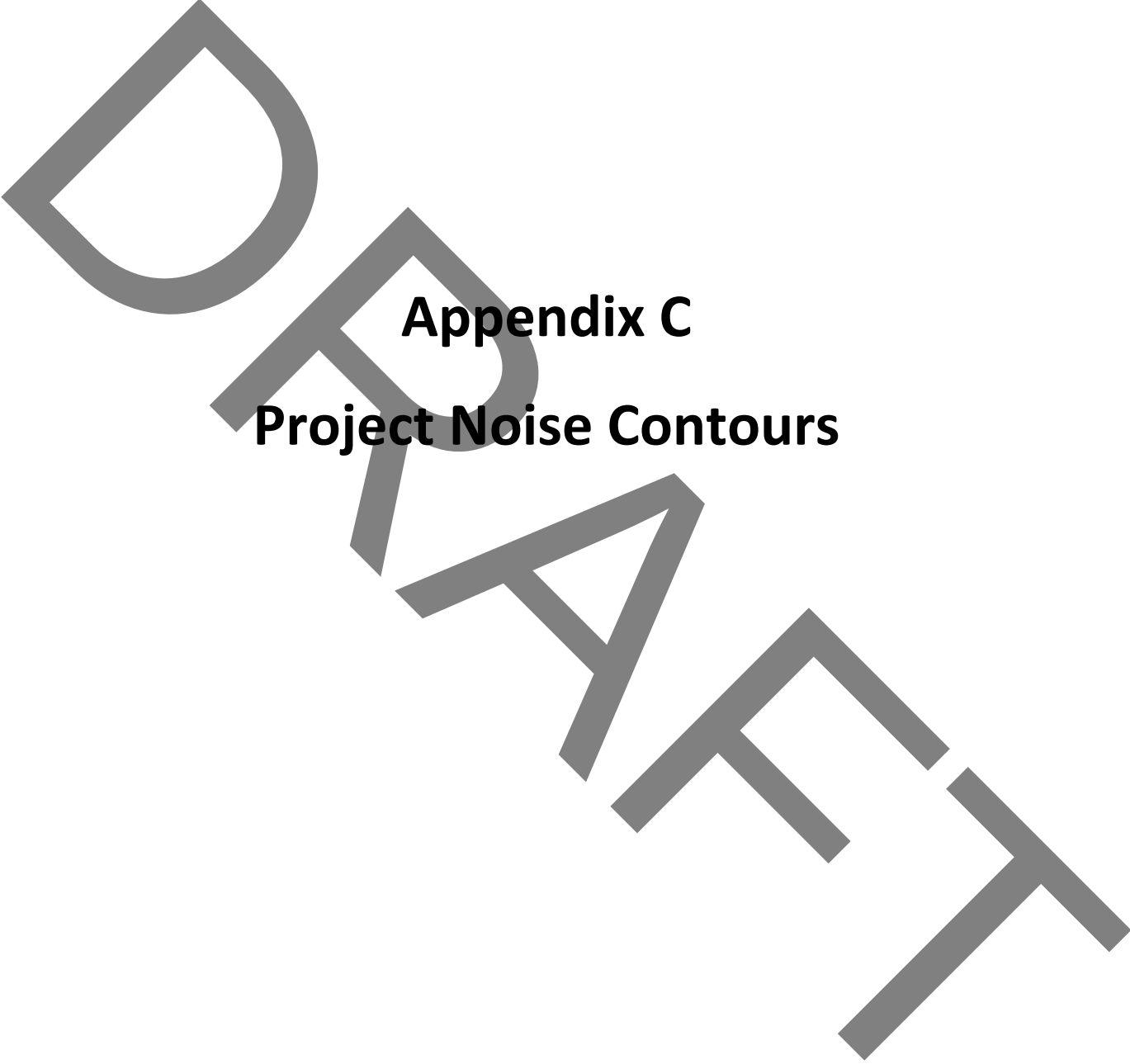
Appendix B

Predicted Noise Levels

Predicted Noise Levels

Appendix B

Noise Sensitive Area (NSA)	Rec. Point	Equivalent Residences	NAC	NAC Criteria (dBA)	FDOT Criteria (dBA)	2023 Existing LAeq1h (dBA)	2050 No-Build LAeq1h (dBA)	2050 Build LAeq1h (dBA)	Increase	NAC Approach or Exceeded	Subst. Increase (>15dB(A))	Description
XX.X	Impacted Receptor											
NB01	RNB01-001	1	B	67	66	62.1	65.2	65.6	3.5	No	No	Single Family Residence
NB02	NNB02-001	2.18	C	67	66	67.2	70.0	70.4	3.2	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-002	2.18	C	67	66	67.1	70.6	71.2	4.1	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-003	2.18	C	67	66	63.8	67.4	67.8	4.0	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-004	2.18	C	67	66	63.8	67.0	67.4	3.6	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-005	2.18	C	67	66	65.5	69.5	69.9	4.4	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-006	2.18	C	67	66	64.8	68.5	69.0	4.2	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-007	2.18	C	67	66	64.8	68.5	69.0	4.2	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-008	2.18	C	67	66	64.0	67.0	67.4	3.4	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-009	2.18	C	67	66	70.4	74.6	75.2	4.8	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-010	2.18	C	67	66	63.9	67.2	67.5	3.6	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-011	2.18	C	67	66	64.0	67.4	67.8	3.8	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-012	2.18	C	67	66	64.4	67.4	67.6	3.2	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-013	2.18	C	67	66	65.5	67.9	68.3	2.8	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-014	2.18	C	67	66	66.1	68.6	68.8	2.7	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-015	2.18	C	67	66	67.1	71.3	71.8	4.7	Yes	No	Hobe Sound Farmers Market
NB02	NNB02-016	2.18	C	67	66	65.6	69.3	69.5	3.9	Yes	No	Hobe Sound Farmers Market

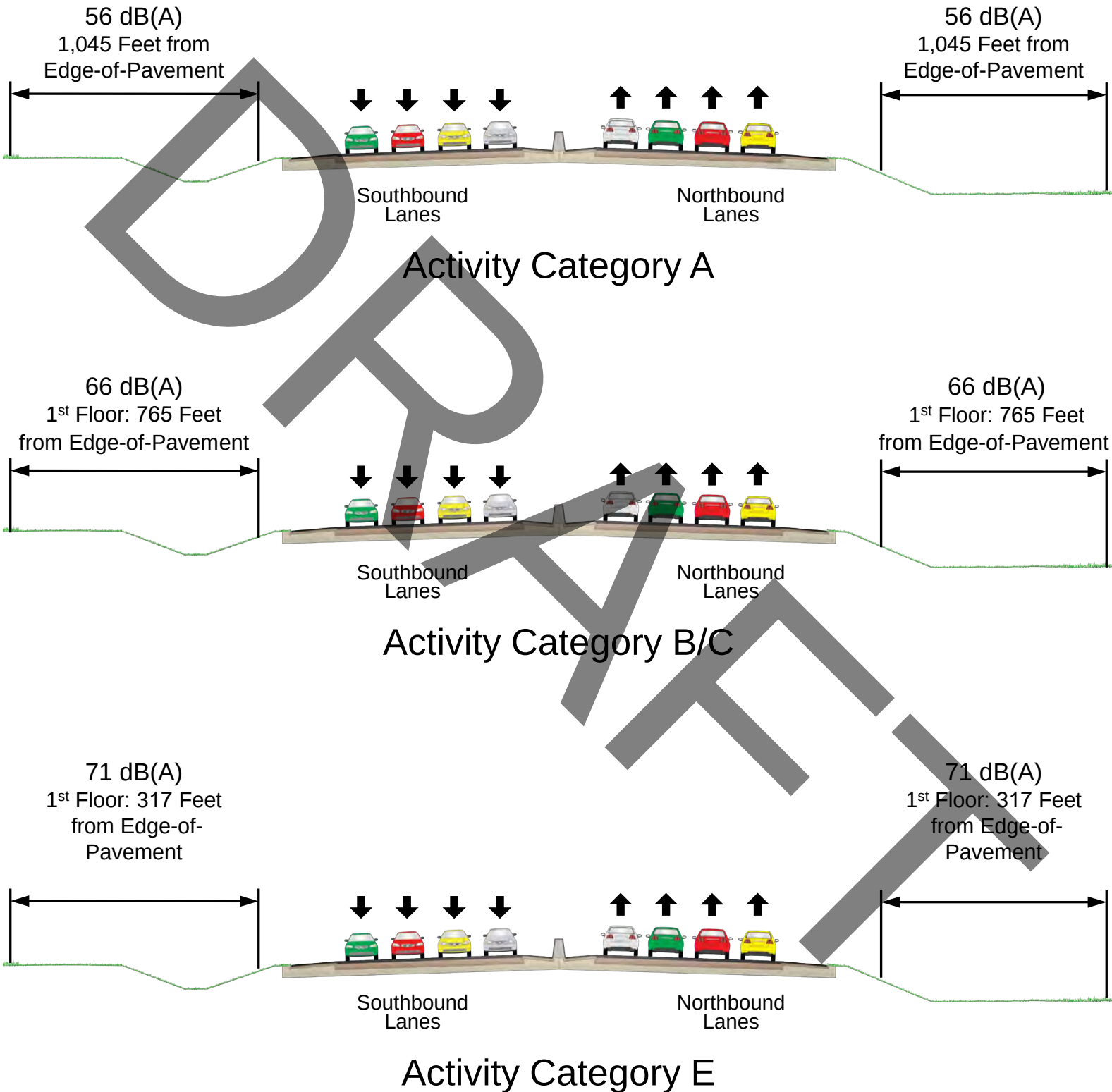


Appendix C

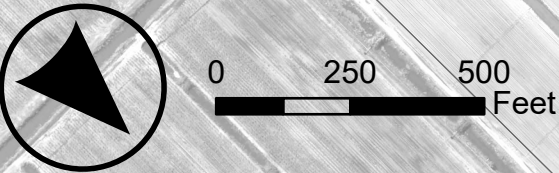
Project Noise Contours

Florida's Turnpike Noise Contours

at Bridge Road



Appendix D
Project Aerials



START PROJECT

- Impacted
- Not Impacted
- Validation Site

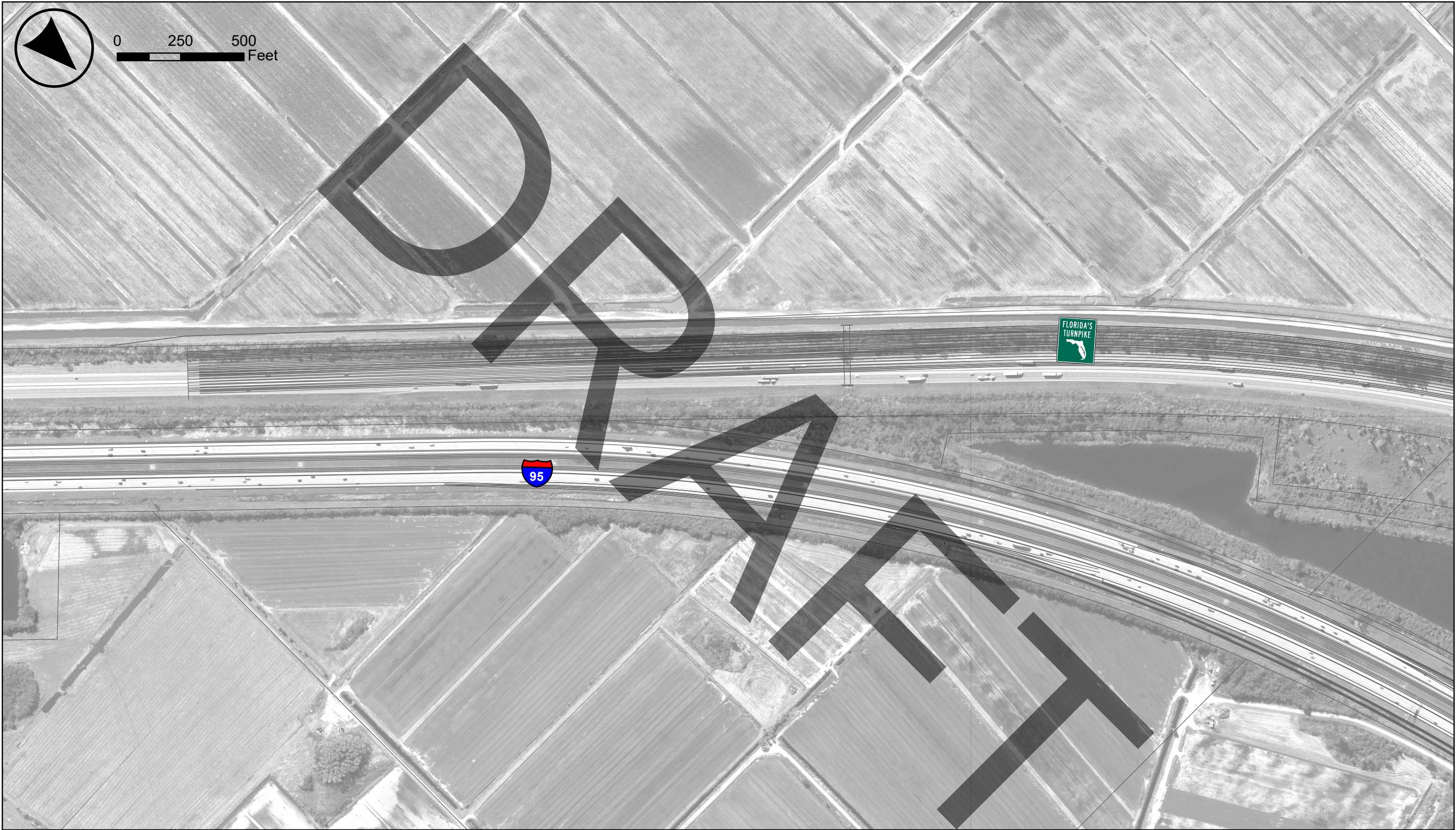
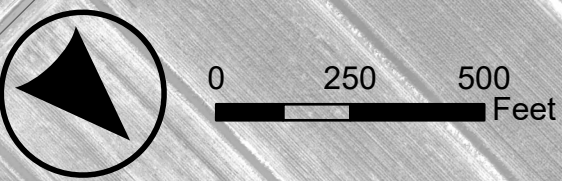
- Design Lines
- Common Noise Environment
- Parcels

NOISE SPECIALIST
Jeff Jones, GISP.
Ardurra
3452 Lake Lynda Dr,
Oviedo, Florida 32717
P 407.971.8850

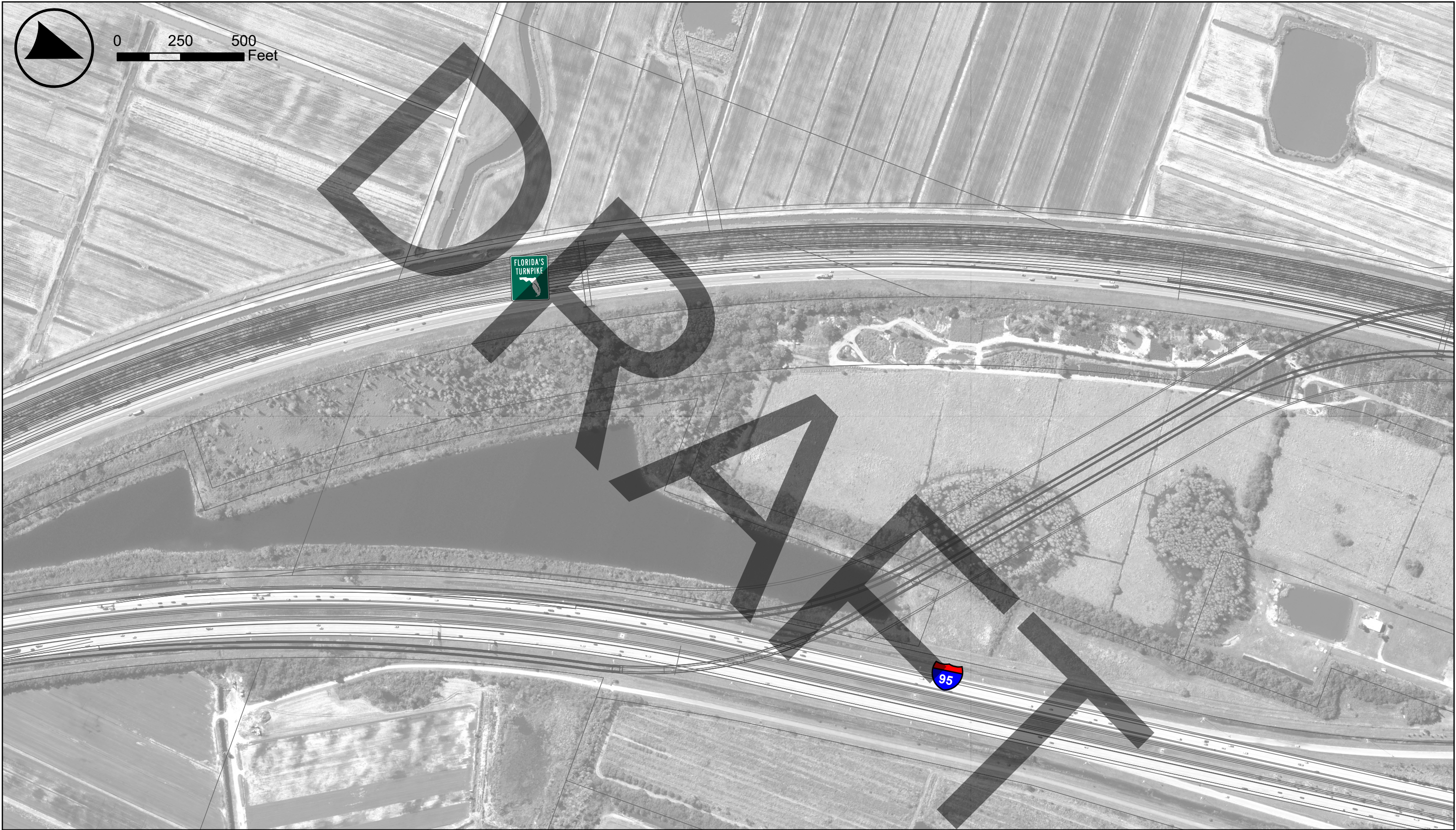
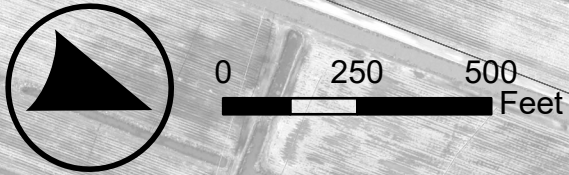
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD	COUNTY	FINANCIAL PROJECT ID
91	MARTIN	446975-1-22-01

PROJECT AERIALS
Florida's Turnpike to I-95
PD&E Study

Sheet
No.
1



Impacted Not Impacted Validation Site	Design Lines Common Noise Environment Parcels	NOISE SPECIALIST	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROJECT AERIALS Florida's Turnpike to I-95 PD&E Study	Sheet No.
		Jeff Jones, GISP. Ardurra 3452 Lake Lynda Dr, Oviedo, Florida 32717 P 407.971.8850	ROAD	COUNTY	FINANCIAL PROJECT ID		2
			91	MARTIN	446975-1-22-01		



- Impacted
- Not Impacted
- Validation Site

- Design Lines
- Common Noise Environment
- Parcels

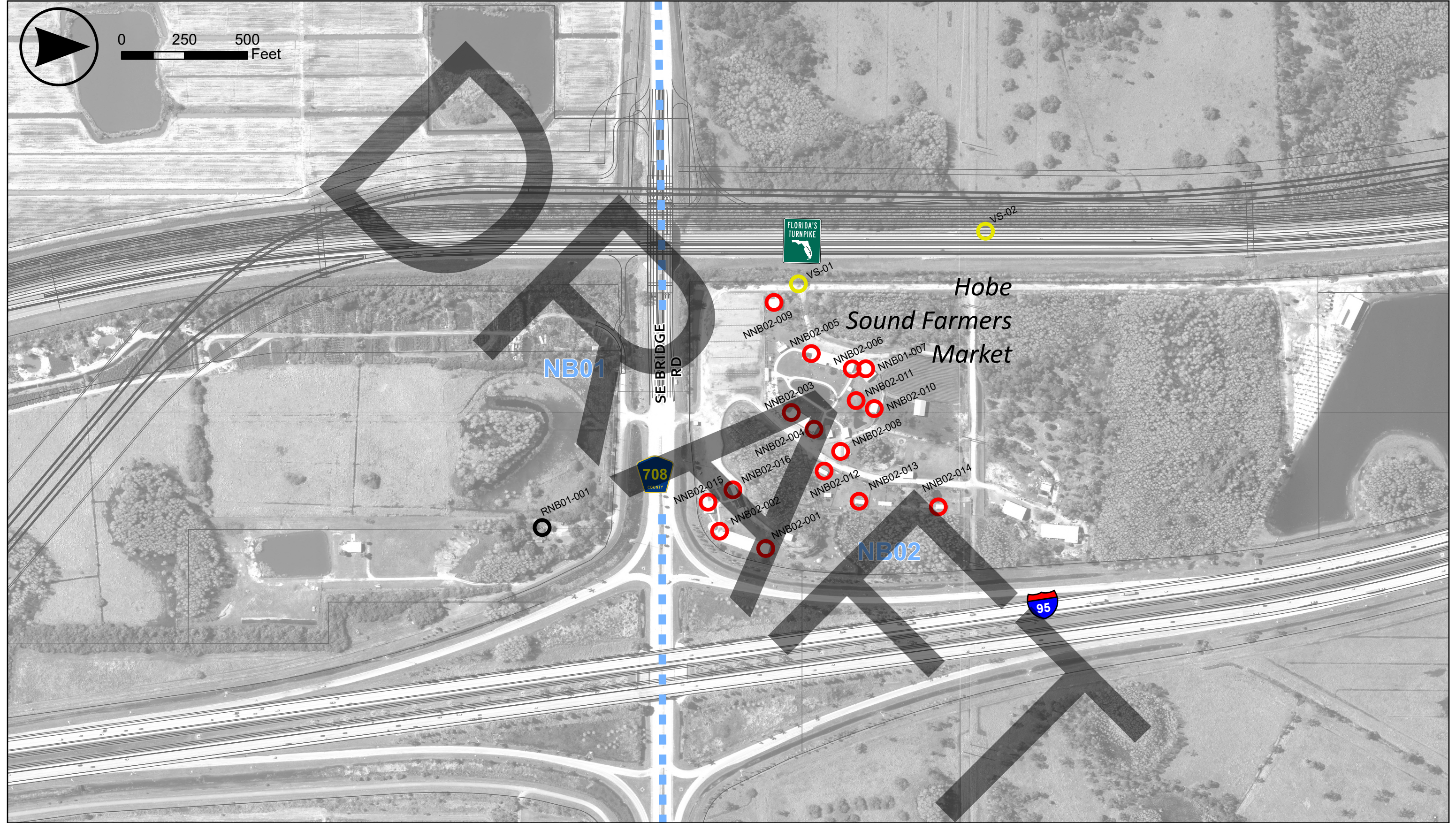
NOISE SPECIALIST
Jeff Jones, GISP. Ardurra 3452 Lake Lynda Dr, Oviedo, Florida 32717 P 407.971.8850

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD	COUNTY	FINANCIAL PROJECT ID
91	MARTIN	446975-1-22-01

PROJECT AERIALS Florida's Turnpike to I-95 PD&E Study	Sheet No.
	3



0 250 500 Feet



- Impacted
- Not Impacted
- Validation Site

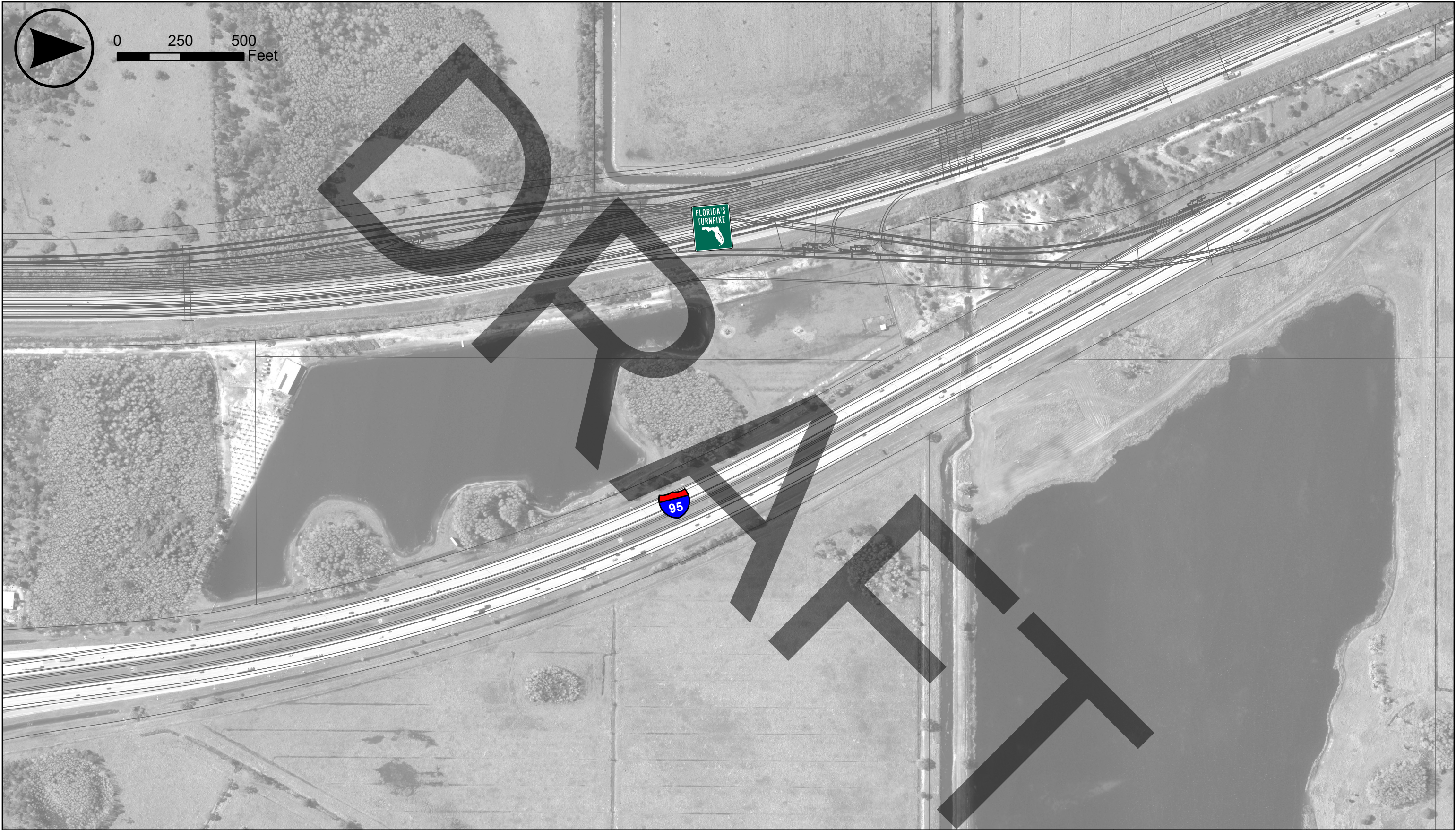
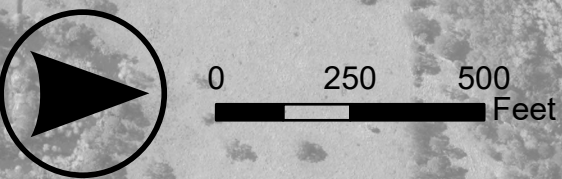
- Design Lines
- Common Noise Environment
- Parcels

NOISE SPECIALIST
Jeff Jones, GISP.
Ardurra
3452 Lake Lynda Dr,
Oviedo, Florida 32717
P 407.971.8850

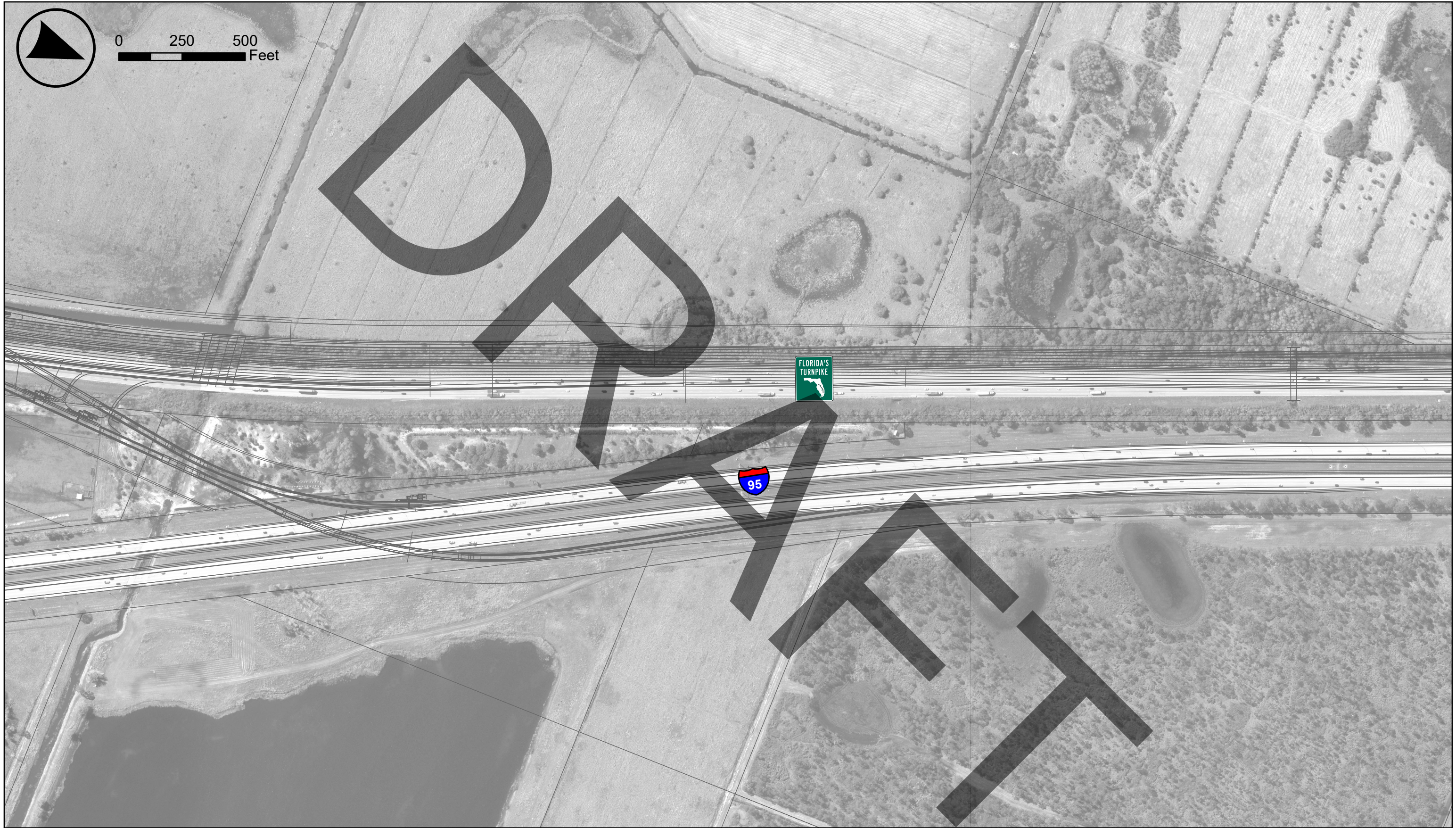
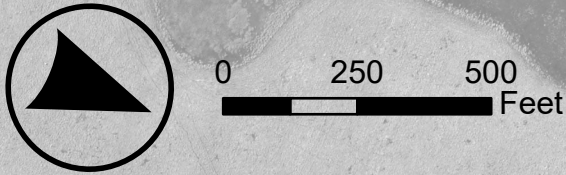
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD	COUNTY	FINANCIAL PROJECT ID
91	MARTIN	446975-1-22-01

PROJECT AERIALS
Florida's Turnpike to I-95
PD&E Study

Sheet No.
4



Impacted Not Impacted Validation Site	Design Lines Common Noise Environment Parcels	NOISE SPECIALIST	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROJECT AERIALS Florida's Turnpike to I-95 PD&E Study	Sheet No.
		Jeff Jones, GISP. Ardurra 3452 Lake Lynda Dr, Oviedo, Florida 32717 P 407.971.8850	ROAD	COUNTY	FINANCIAL PROJECT ID		5
			91	MARTIN	446975-1-22-01		



- Impacted
- Not Impacted
- Validation Site

- Design Lines
- Common Noise Environment
- Parcels

NOISE SPECIALIST

Jeff Jones, GISP.
Ardurra
3452 Lake Lynda Dr,
Oviedo, Florida 32717
P 407.971.8850

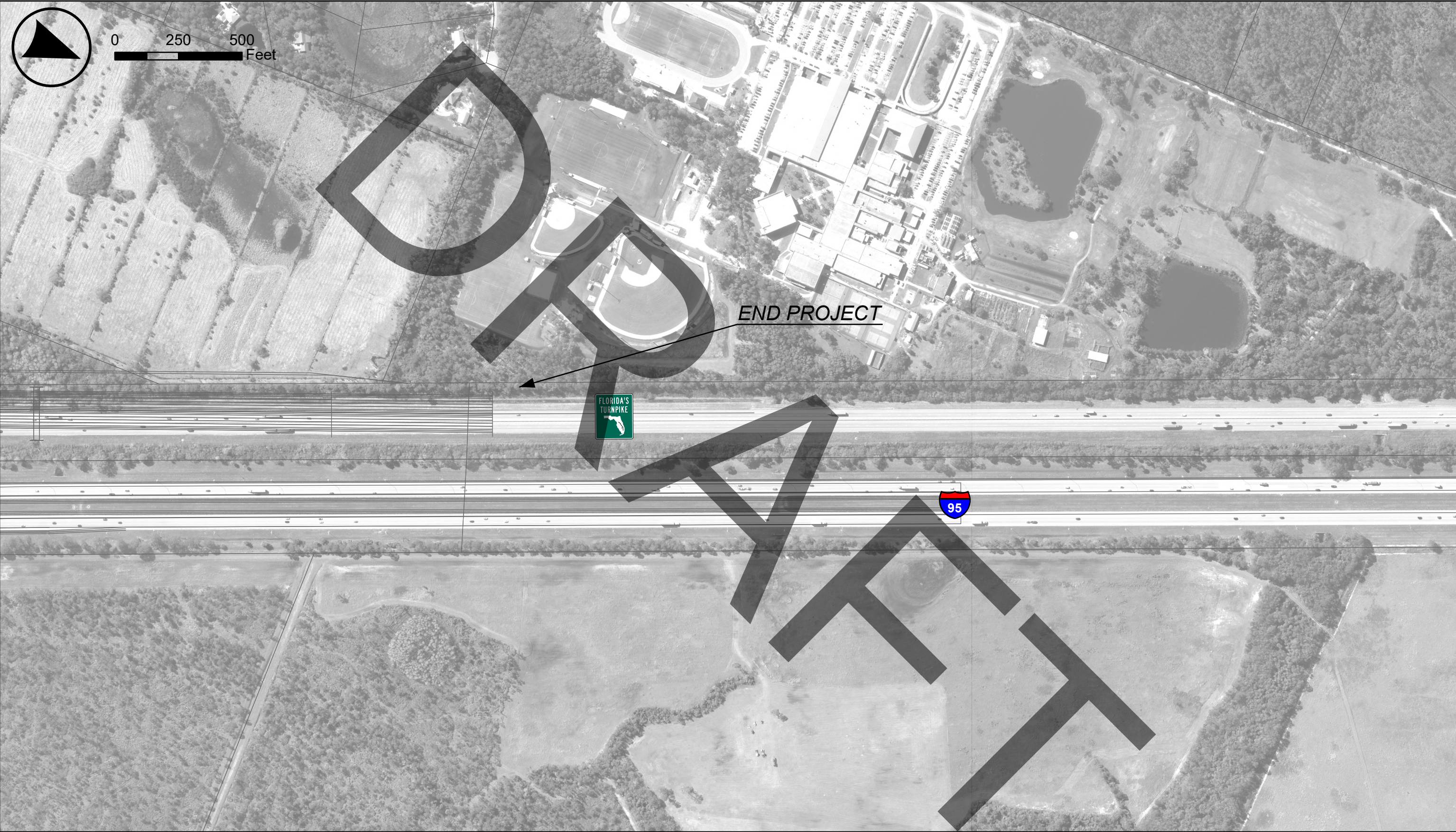
**STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION**

ROAD	COUNTY	FINANCIAL PROJECT ID
91	MARTIN	446975-1-22-01

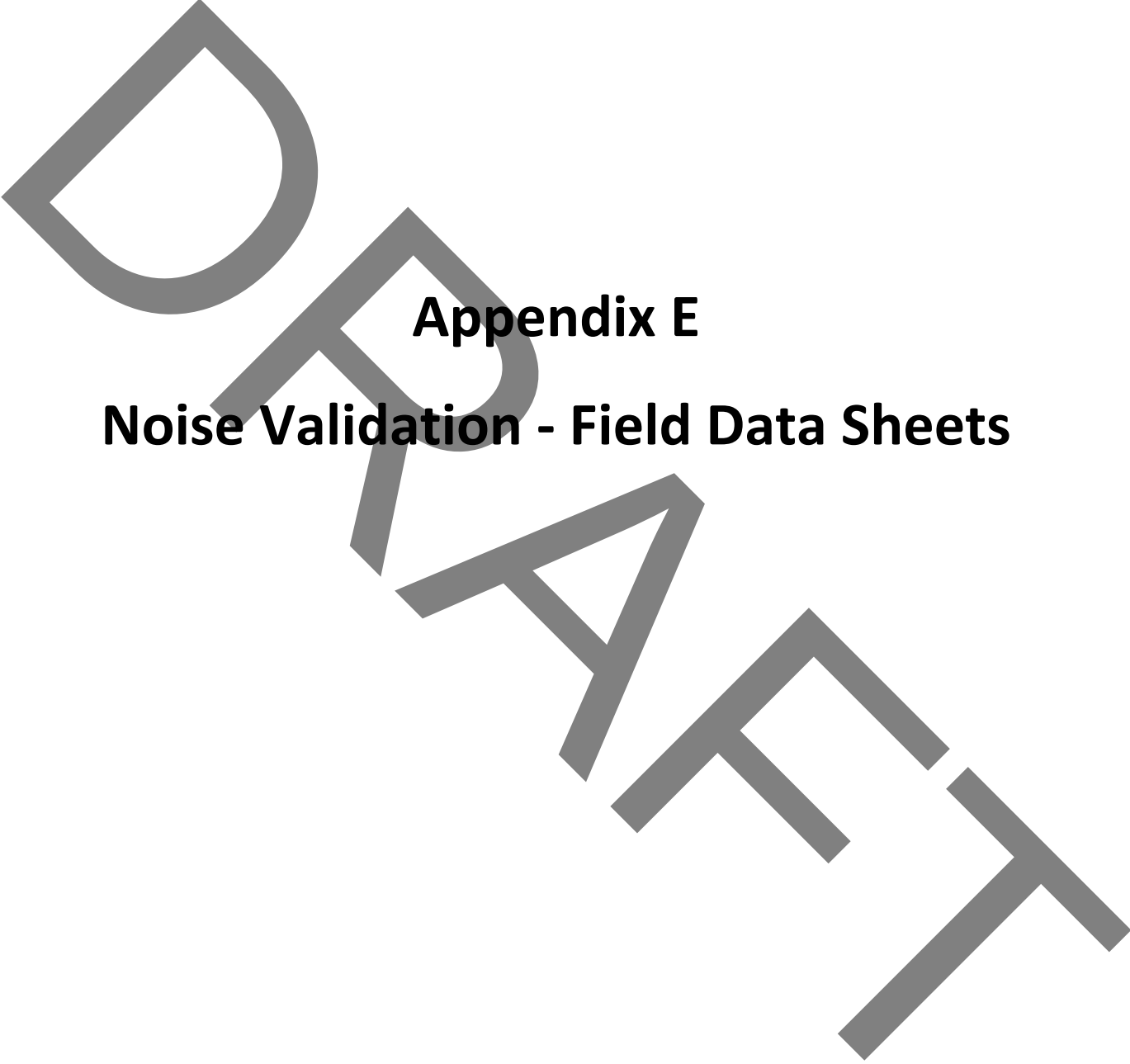
PROJECT AERIALS
Florida's Turnpike to I-95
PD&E Study

**Sheet
No.**

6



Impacted Not Impacted Validation Site	Design Lines Common Noise Environment Parcels	NOISE SPECIALIST	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROJECT AERIALS Florida's Turnpike to I-95 PD&E Study	Sheet No.
		Jeff Jones, GISP. Ardurra 3452 Lake Lynda Dr, Oviedo, Florida 32717 P 407.971.8850	ROAD	COUNTY	FINANCIAL PROJECT ID		7
			91	MARTIN	446975-1-22-01		



Appendix E

Noise Validation - Field Data Sheets

Site/Run#: 1/Runs 1,2,3

Field Validation Data Sheet

Date: 6/30/2025

Measurement Taken By: Jeff Jones

Project: Turnpike to I-95 Interchange

Site Id: VS-01

Weather Conditions:

Clear:

Partly Cloudy:

Cloudy: ☒

Other:

Temperature:

Start:

86°

End:

88°

(°F)

Wind Direction:

Start:

ESE

End:

ESE

Wind Speed (Start):

Min:

—

Max:

8

Average:

2

(mph)

Wind Speed (End):

Min:

—

Max:

9

Average:

3

(mph)

Humidity:

Start:

67%

End:

62%

Equipment Data:

Sound Level Meter:

SoundTrack LXT

Serial Number:

0003153

Date of Last Traceable Calibration:

2-13-25

Calibration:

Start:

0.09

End:

-0.08

Battery:

Start:

32%

End:

28%

Weighting Scale:

Leg A

Response:

slow

Calibrator:

L-D CAL200

Serial Number:

9342

Notes:

Major Noise Sources:

TPK traffic noise

Background Noise Sources:

N/A

Other Notes/Observations:

N/A

Location:

Hobe Sound Farmers Market

Run 1 - 78.4dB

Run 2 - 77.7dB

Run 3 - 77.5dB

←N

Turnpike

100 ft

10 ft
X

Bridge Road

Site/Run#: 2 / Runs 1, 2, 3

Field Validation Data Sheet

Date: 6/30/2025

Measurement Taken By: Jeff Jones

Project: Turnpike to I-95 Interchange

Site Id: VS-02

Weather Conditions: Clear: Partly Cloudy: Cloudy: ☒ Other:

Temperature: Start: 86° End: 88° (°F)

Wind Direction: Start: ESE End: ESE

Wind Speed (Start): Min: - Max: 8 Average: (mph)

Wind Speed (End): Min: - Max: 8 Average: (mph)

Humidity: Start: 67% End: 62%

Equipment Data:

Sound Level Meter: SoundTrack LXT Serial Number: 0003154

Date of Last Traceable Calibration: 2-13-25

Calibration: Start: -0.01 End: 0.08

Battery: Start: 50% End: 35%

Weighting Scale: Leg A Response: slow

Calibrator: L-D CAL200 Serial Number: 9542

Notes:

Major Noise Sources: TPK traffic noise

Background Noise Sources: N/A

Other Notes/Observations: N/A

Location:

← N

Hobe Sound Farmer Market

105 ft

Turnpike

Bridge Road

Run 1 - 71.5 dB
Run 2 - 70.5 dB
Run 3 - 70.8 dB