Interstate 20 Improvement Project

South Carolina Department of Transportation

Traffic Noise Analysis Report

Interstate 20 Improvement Project

Lexington County, South Carolina

Prepared by:

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TRAFFIC NOISE ANALYSIS SUMMARY REPORT
Interstate 20 Widening
(US Route 378 to Longs Pond Road)
Lexington County, South Carolina

EXECUTIVE SUMMARY

The Code of Federal Regulations (CFR) Section 23, Part 772 contains the Federal Highway Administration (FHWA) traffic noise standards. The South Carolina Department of Transportation (SCDOT) has implemented these standards in its Traffic Noise Abatement Policy. A traffic noise analysis is required for proposed Federal-aid highway projects that will construct a highway on new location or physically alter an existing highway, which will significantly change either the horizontal or vertical alignment of the road or increase the number of through-traffic lanes. Traffic noise impacts are predicted for this project. Noise abatement measures have been considered for reducing or eliminating the traffic noise impacts in accordance SCDOT's Traffic Noise Abatement Policy.

A noise analysis was completed for this project in February/March of 2015. The noise analysis has been prepared to comply with the SCDOT Traffic Noise Abatement Policy implemented in August of 2014.

An analysis was performed on Interstate 20 (I-20) from US Route 378 to Longs Pond Road in Lexington County, South Carolina to determine the effect of the project on traffic noise levels in the immediate area (Attachment 1). This investigation includes an inventory of existing noise sensitive land uses, and a field survey of background (existing) noise levels in the project study area. It also includes a comparison of the predicted noise levels and the background noise levels to determine if traffic noise impacts can be expected resulting from the proposed project. Traffic noise impacts are predicted for this project.

TNM version 2.5, a FHWA traffic noise prediction model, was used in the analysis to compare existing and future Leq(h) noise levels. Leq(h) is the average energy of a sound level over a one hour period. A-weighted decibels (dBa) are the units of measurement used in the study.

Existing noise measurements were taken in the vicinity of the project to quantify the existing acoustic environment and to provide a base for assessing the impact of noise level increases. Model inputs included existing and proposed roadway characteristics,

estimated traffic volumes, and receiver locations. Table 1 lists the traffic data used to estimate Leq(h) noise levels expected to occur in the project area by the year 2037.

Table 1 - Traffic Data for Noise Analysis

Roadway Section	Speed (mph)	Two Way Design Hourly Traffic	One Way Hourly Traffic	Hourly Volume Cars (vph)	Hourly Volume Medium Trucks (vph)	Hourly Heavy Trucks (vph)
2015 Traffic Computations						
US Route 378 to US Route 1	70	6240	3120	2683	94	343
US Route 1 to SC Route 6	70	6080	3040	2615	91	334
SC Route 6 to Longs Pond Road	70	4580	2290	1969	69	252
2037 Traffic Computations						
US Route 378 to US Route 1	70	9420	4710	4051	141	518
US Route 1 to SC Route 6	70	8750	4375	3763	131	481
SC Route 6 to Longs Pond Road	70	6230	3115	2679	93	343

Source: SCDOT Traffic Division

Table 2 shows the comparison of field measurements versus modeled noise levels. The calculated noise levels for the measurement sites range from 61.0 to 72.5 dBA. The difference between field measured and calculated noise levels at 10 of the 11 locations is less than 3 dBA, validating the results of the TNM model.

Table 2 - Existing TNM Calculated Noise Levels vs. Field Measurements

Site-Receiver	Location	Field Measurement Noise Level (dBA)	TNM Calculated Noise Level (dBA)	Difference (dBA)
1	222 Cromer Road	66.6	71.8	5.2
2	Meadow Glenn Elementary School	67.5	68.6	1.1
3	100 Chamfort Road	72.5	72.7	0.2
4	198 Woodside Road	72.2	70.7	-1.5
5	763 Cromer Road	69.3	68.7	-0.6
6	101 Winterberry Road	66.0	68.9	2.9
8	Gethsemane Baptist Church	64.8	67.0	2.2
9	136 Elvington Lane	69.0	67.9	-1.1
10	105 B Old Orangeburg Road	68.6	70.6	2.0
11	106 Hidden Springs Road	61.0	62.4	1.4
13	218 Glenforest Court	61.8	63.8	2.0

Difference = Measured Leq minus Modeled Leq

The FHWA has developed Noise Abatement Criteria (NAC) and procedures to be used in the planning and design of highways to determine whether highway noise levels are or

are not compatible with various land uses (Table 3). The abatement criteria and procedures are set forth in the aforementioned Federal reference (Title 23 CFR Part 772).

Table 3 – FHWA Noise Abatement Criteria

Activity Category	Activity Criteria\2\		Evaluation Location	Activity Description
	Leq(h)	L10(h)		
A	57	60	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 purpose.
B\3\	67	70	Exterior	Residential
C\3\	67	70	Exterior	Active sport 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, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52	55	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\3\	72	75	Exterior	Motels, hotels, offices, restaurant/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

\1\ Either Leq(h) or L10(h) (but not both) may be used on a project

\2\ The Leq(h) and L10(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures

\3\ Includes undeveloped lands permitted for this activity category

Traffic noise impacts occur when the predicted traffic noise levels either: (a) approach or exceed the FHWA noise abatement criteria ("approach" meaning within 1 dBA of the value listed in Table 3), or (b) substantially exceed the existing noise levels. According to the SCDOT Traffic Noise Abatement Policy, a 15 dBA increase is deemed to be a "substantial increase." Consideration for noise abatement measures must be given to receivers that fall in either category.

The results of the noise analysis indicate that traffic related noise impacts would occur to 192 receivers under the 2037 build alternative. However, 218 receivers would be impacted under 2037 no-build alternative. No receivers were found to substantially exceed the FHWA noise abatement criteria. Table 4 provides a summary of the noise analysis results.

Table 4: Summary of Noise Impact Analysis

ROADWAY LOCATION	TOTAL NO. OF RECEIVERS	APPROXIMATE # OF IMPACTED RECEIVERS ACCORDING TO TITLE 23 CFR PART 772 / SCDOT POLICY				
		A	B	C	D	E
2037 Year No-Build Alternative						
SC 6 to Longs Pond Road	88	---	48	---	---	---
US 1 to SC 6	89	---	89	---	---	---
US 378 to US 1	93	---	81	---	---	---
Total	270	**---**	**218**	**---**	**---**	**---**
2037 Year Build Alternative						
SC 6 to Longs Pond Road	88	---	58	---	---	---
US 1 to SC 6	89	---	68	---	---	---
US 378 to US 1	93	---	66	---	---	---
Total	**270**	**---**	**192**	**---**	**---**	**---**

Noise Barrier Analysis Areas

If traffic noise impacts are predicted, noise abatement measures for reducing or eliminating the noise impacts must be considered. Seven potential barrier locations were identified and were evaluated as part of the preliminary noise analysis. This barrier analysis was prepared in accordance with the SCDOT Traffic Abatement Noise Policy for feasibility and reasonableness. Six of seven barrier locations were found to meet the feasibility criteria for acoustics and engineering. However, these barrier locations were found not to be reasonable. Barrier 1 located near the US 378 Interchange at Meadow Glenn Middle School was found to be both reasonable and feasible.

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(U.S. ROUTE 378 TO LONGS POND ROAD)
LEXINGTON COUNTY, SOUTH CAROLINA

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I. HIGHWAY TRAFFIC NOISE ANALYSIS

A. Introduction

The Code of Federal Regulations (CFR) Section 23, Part 772 contains the FHWA traffic noise standards. The SCDOT has implemented these standards in its Traffic Noise Abatement Policy. A traffic noise analysis is required for proposed Federal-aid highway projects that will construct a highway on new location or physically alter an existing highway, which will significantly change either the horizontal or vertical alignment of the road or increase the number of through-traffic lanes. Traffic noise impacts are predicted for this project. Noise abatement measures have been considered for reducing or eliminating the traffic noise impacts in accordance SCDOT's Traffic Noise Abatement Policy.

An analysis was performed on Interstate 20 (I-20) from US Route 378 to Longs Pond Road in Lexington County, South Carolina to determine the effect of the project on traffic noise levels in the immediate area (Attachment 1). This investigation includes an inventory of existing noise sensitive land uses, and a field survey of background (existing) noise levels in the project study area. It also includes a comparison of the predicted noise levels and the background noise levels to determine if traffic noise impacts can be expected resulting from the proposed project. Traffic noise impacts are predicted for this project.

B. Project Description

The SCDOT proposes to widen I-20 from four to six travel lanes from mile point 60.2 (west of US 378) on the eastern terminus to approximately mile point 49 (west of Longs Pond Road) on the western terminus for a total distance of approximately 11 miles (Figure 1). The scope of the project includes adding a travel lane in each direction, improving various exit ramps, replacing or widening the parallel mainline bridges over Norfolk Southern Railroad near mile point 57, safety improvements at the intersections of US 1 and off ramps, and a potential noise wall along Ginny Lane. The proposed widening would occur within the existing median to minimize right-of-way impacts. Interchange improvements would include: extending the US 1 westbound off-ramp approximately 650 feet; extending the SC 6 eastbound on-ramp approximately 1400 feet and the westbound off-ramp approximately 1650 feet; extending the Longs Pond Road westbound off-ramp approximately 1000 feet and widening of the westbound off-ramp terminal to form a right turn lane and left turn lane. The project boundary includes a corridor of approximately 120 feet from the centerline of the eastbound and westbound lanes. This corridor extends to 220 feet along the US 1 interchange and the Longs Pond

Road interchange. The purpose of the project is to improve the operational efficiency of I-20 by increasing the capacity of the interstate.

For this noise analysis the project was divided into three sections based on the varying traffic counts identified throughout the corridor. The sections are listed below.

- Section 1 – US 378 to US 1 (Receivers 156-219, 252-285, 294)
- Section 2 – US 1 to SC 6 (Receivers 53-155)
- Section 3 – SC 6 to Longs Pond Road (Receivers 1-52, 220-251, 286-293)

C. Characteristics of Noise

Noise is basically defined as unwanted sound. It is emitted from many sources including airplanes, factories, railroads, commercial businesses, and highway vehicles. Highway traffic noise is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction. Of these sources, tire noise is typically the most offensive at unimpeded travel speeds.

The magnitude of noise is usually described by its sound pressure. Since the range of sound pressure varies greatly, a logarithmic scale is used to relate sound pressures to some common reference level, usually the decibel (dB). Sound pressures described in decibels are called sound pressure levels and are often defined in terms of frequency weighted scales (A, B, C, or D).

The weighted-A decibel scale is used almost exclusively in vehicle noise measurements because it places the most emphasis on the frequency range to which the human ear is most sensitive (1,000-6,000 Hertz). Sound levels measured using a weighted-A decibel scale are often expressed as dBA. Throughout this report, all noise levels will be expressed in dBA's.

Most individuals are exposed to fairly high noise levels from many sources as they go about their daily activities. Sound levels experienced by individuals on a daily basis are listed in Table 1.

Table 1 – Daily Sounds

DECIBELS		
140	Shotgun blast, jet 100' away at takeoff	PAIN
	Motor test chamber	HUMAN EAR PAIN THRESHOLD
130	---	---
	Firecrackers	
120	Severe thunder, pneumatic jackhammer	
	Hockey crowd	
	Amplified rock music	UNCOMFORTABLY LOUD
110	---	---
	Textile loom	
100	Subway train, elevated train, farm tractor	
	Power lawn mower, newspaper press	
	Heavy city traffic, noisy factory	LOUD
90	---	---
	Diesel truck 40 mph at 50' away	
80	Crowded restaurant, garbage disposal	
	Average factory, vacuum cleaner	
	Passenger car 50 mph at 50' away	MODERATELY LOUD
70	---	---
	Quiet typewriter	
60	Singing birds, window air-conditioner	
	Quiet automobile	
	Normal conversation, average office	QUIET
50	---	---
	Household refrigerator	
	Quiet office	VERY QUIET
40	---	---
	Average home	
30	Dripping faucet	
	Whisper at 5' away	
20	Light rainfall, rustle of leaves	
	AVERAGE PERSON'S THRESHOLD OF HEARING	
	Whisper	JUST AUDIBLE
10	---	---
0	THRESHOLD FOR ACUTE HEARING	

Sources: World Book, Rand McNally Atlas of the Human Body, Encyclopedia America, "Industrial Noise and Hearing Conversation" by J. B. Olishifski and E. R. Harford (Researched by N. Jane Hunt and published in the Chicago Tribune in an illustrated graphic by Tom Heinz.)

The degree of disturbance or annoyance of unwanted sound depends essentially on three things:

1. The amount and nature of the intruding noise.
2. The relationship between the background noise and the intruding noise.
3. The type of activity occurring when the noise is heard.

In considering the first of these factors, it is important to note that individuals have different sensitivity to noise. Loud noises disturb some individuals more than others and

some individuals become upset if an unwanted noise persists. The time patterns of noise also enter into an individual's judgment of whether or not a noise is offensive. For example, noises that occur during sleeping hours are usually considered to be more offensive than the same noises in the daytime.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). The blowing of a car horn at night when background noise levels are approximately 45 dBA would generally be more objectionable than the blowing in the afternoon when background noises might be 55 dBA.

The third factor is related to the interference of noise with activities of individuals. In a 60 dBA environment, normal conversation would be possible while sleep might be difficult. Work activities requiring high levels of concentration may be interrupted by loud noises while activities requiring manual effort may not be interrupted to the same degree.

Over time, particularly if the noises occur at predicted intervals and are expected, individuals tend to accept the noises that intrude into their lives. Attempts have been made to regulate many of these types of noises including airplane noise, factory noise, railroad noise, and highway noise. In relation to highway traffic noise, methods of analysis and control have developed rapidly over the past few years.

D. Noise Abatement Criteria

The FHWA has developed NAC and procedures to be used in the planning and design of highways to determine whether highway noise levels are or are not compatible with various land uses. The abatement criteria and procedures are set forth in the aforementioned Federal reference (Title 23 CFR Part 772). A summary of the noise abatement criteria for various land uses is presented in Table 2.

Table 2 – FHWA Noise Abatement Criteria

Activity Category	Activity Criteria\2\		Evaluation Location	Activity Description
	Leq(h)	L10(h)		
A	57	60	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 purpose.
B\3\	67	70	Exterior	Residential
C\3\	67	70	Exterior	Active sport 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, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52	55	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\3\	72	75	Exterior	Motels, hotels, offices, restaurant/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

\1\ Either Leq(h) or L10(h) (but not both) may be used on a project

\2\ The Leq(h) and L10(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures

\3\ Includes undeveloped lands permitted for this activity category

Activity Category A consists of tracts of land that are locally significant for their serenity and quiet surroundings. Activity Category B consists of residential properties. Activity Category C consists of exterior locations of public outdoor areas, places of worship, cemeteries, recreational areas, etc. Activity Category D consists primarily of the same activities as Activity Category C but is for interior locations. Activity Category E

consists of hotel/motels, offices, restaurants, and other developed land with activities not included in Activity Categories A-D. Activity F consists of agricultural lands, airports, and commercial/industrial facilities. Activity G is for undeveloped lands not presently permitted. Activity Categories adjacent to the project are mostly residential category (B).

Sound pressure levels in this report are referred to as Leq(h). The hourly Leq, or equivalent sound level, is the level of constant sound in a one-hour time period that would have the same energy as a time-varying sound. In other words, the fluctuating sound levels of traffic noise are represented in terms of a steady noise level with the same energy content.

E. Existing Noise Levels

Existing noise measurements were taken in the vicinity of the project to quantify the existing acoustic environment and to provide a base for assessing the impact of noise level increases. For all locations, the measurement device was set at approximately 60 inches above the existing ground elevation. There are 11 traffic noise measurement sites which are in Table 3:

The existing Leq(h) traffic noise levels, as measured at each site, and the type of ground conditions identified at each site can be found in Table 3.

Table 3 - Existing Noise Levels [Leq(h)]

Site-Rec.	Location	Description	Noise Level (dBA)
1	222 Cromer Road	Grass	66.6
2	Meadow Glenn Middle School	Grass	67.5
3	100 Chamfort Drive	Grass	72.7
4	198 Woodside Road	Grass	72.2
5	763 Cromer Road	Grass	69.3
6	101 Winterberry Drive	Grass	66.0
8	300 Alliance Road	Grass	64.8
9	136 Elvington Lane	Grass	69.0
10	105B Old Orangeburg Road	Dirt	68.6
11	106 Hidden Springs Road	Grass	61.0
13	218 Glenforest Court	Grass	61.8

Note: See Attachments for noise measurement data sheets.

The existing roadway and traffic conditions were used with the current traffic noise prediction model (TNM version 2.5, February 2004) to calculate existing noise levels for comparison with actual measured noise levels. Project-related traffic noise level increases are based upon the existing loudest-hour noise levels. See Table 4 for traffic

counts during field measurements. All measurements were performed on October 27, 2014.

Table 4 - Field Noise Measurements

Site-Rec.	Time Period	Hourly Traffic Based on Concurrent Traffic Counts										Measured Leq
		Eastbound Lanes					*Westbound Lanes*					
		Autos	MT	HT	Bus	MC	Autos	MT	HT	Bus	MC	
1	1:08PM-1:22PM	348	11	43	0	1	334	12	48	0	0	66.6
2	5:07PM-5:21PM	476	6	55	2	0	915	6	30	0	0	67.5
3	4:38PM-4:52PM	386	12	49	0	0	815	21	44	0	1	72.7
4	12:04PM-12:18PM	320	5	42	0	2	329	8	37	2	0	72.2
5	11:31AM-11:45AM	420	18	38	0	1	234	8	52	1	0	69.3
6	4:01PM-4:15PM	365	8	48	0	2	450	19	53	0	1	66.0
8	10:53AM-11:07AM	319	10	23	0	0	260	16	55	0	0	64.8
9	10:20AM-10:34AM	380	13	48	0	0	235	16	46	2	0	69.0
10	9:43AM-9:57AM	361	18	43	0	1	270	18	30	0	2	68.6
11	8:56AM-9:10AM	288	10	37	0	0	190	10	31	0	0	61.0
13	8:12AM-8:26AM	217	4	23	0	0	162	11	33	0	0	61.8

MT = Medium Trucks; HT = Heavy Trucks; MC = Motorcycles - Data was obtained on October 27-28, 2014.

Table 5 shows the comparison of field measurements versus modeled noise levels. The calculated noise levels for the measurement sites range from 45.4 to 63.1 dBA. The difference between field measured and calculated noise levels at 12 of the 13 locations is less than 3 dBA, validating the results of the TNM model.

Table 5 - Existing TNM Calculated Noise Levels vs. Field Measurements

Site-Receiver	Location	Field Measurement Noise Level (dBA)	TNM Calculated Noise Level (dBA)	Difference (dBA)
1	222 Cromer Road	66.6	71.8	5.2
2	Meadow Glenn Middle School	67.5	68.6	1.1
3	100 Chamfort Drive	72.5	72.7	0.2
4	198 Woodside Road	72.2	70.7	-1.5
5	763 Cromer Road	69.3	68.7	-0.6
6	101 Winterberry Drive	66.0	68.9	2.9

8	300 Alliance Road	64.8	67.0	2.2
9	136 Elvington Lane	69.0	67.9	-1.1
10	105B Old Orangeburg Road	68.6	70.6	2.0
11	106 Hidden Springs Road	61.0	62.4	1.4
13	218 Glenforest Court	61.8	63.8	2.0

Difference = Measured Leq minus Modeled Leq

F. Procedure for Predicting Future Noise Levels

Based on the SCDOT Traffic Noise Abatement Policy, a preliminary noise analysis is required for all build alternatives and under consideration in a project's NEPA document. The preliminary analysis models the most conservative noise environment to determine if there will be noise impacts, and if there are, the feasibility and reasonableness of noise abatement to mitigate the impacts. Once a preferred alternative has been identified, a detailed noise analysis is required for any noise abatement that was recommended for that alternative in the preliminary analysis.

Traffic noise is not constant; it varies in time depending upon the number, speed, type, and frequency of vehicles that pass by a given receiver. Furthermore, since traffic noise emissions are different for various types of vehicles, the TNM model distinguishes between the source emissions from the following vehicle types: automobiles, medium trucks, heavy trucks, buses, and motorcycles. The TNM traffic noise prediction model uses the number and type of vehicles on the planned roadway, their speeds, the physical characteristics of the road (curves, hills, depressed, elevated, etc.), receiver location and height, and, if applicable, barrier type, barrier ground elevation, and barrier top elevation.

Preliminary designs, aerial photography, and contour mapping were used to model the proposed roadway and receiver elevations and represent the topographical conditions. The noise predictions made in this report are highway-related noise predictions for the traffic conditions during the year 2037. They do not include other noises related to the excessive background noises (trains, airplanes and construction, etc.) that were measured during the existing conditions.

According to FHWA guidance, the predictions documented in this report are based upon the proposed roadway alignment design and traffic conditions for the year 2037 that result in the loudest predicted hourly-equivalent traffic noise levels for each receiver. Traffic noise level and location spreadsheets are included in the Attachments and contain a list of all receivers in close proximity to the project along with aerials showing the receiver locations, and summarize the loudest hour equivalent noise levels for the Existing, No-Build, and Build conditions in the year 2037 under traffic conditions within the project site. The land uses of receivers were determined by field observations and

reviewing available GIS parcel data. Table 6 lists the traffic data used in the analysis build conditions. This data is based on field observations and data obtained from SCDOT.

Table 6 - Traffic Data for Noise Analysis

Roadway Section	Speed (mph)	Two Way Design Hourly Traffic	One Way Hourly Traffic (vph)	Hourly Volume Cars (vph)	Hourly Volume Medium Trucks (vph)	Hourly Heavy Trucks (vph)
2015 Traffic Computations						
US Route 378 to US Route 1	70	6240	3120	2683	94	343
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SC Route 6 to Longs Pond Road	70	6230	3115	2679	93	343

- mph = miles per hour
- vph = vehicles per hour
- Design hourly traffic volumes were obtained using 10% of average daily traffic provided by SCDOT.

G. Traffic Noise Impacts and Noise Thresholds

Traffic noise impacts occur when the predicted traffic noise levels either: (a) approach or exceed the FHWA noise abatement criteria ("approach" meaning within 1 dBA of the value listed in Table 2), or (b) substantially exceed the existing noise levels. According to the SCDOT Traffic Noise Abatement Policy, a 15 dBA increase is deemed to be a "substantial increase." Consideration for noise abatement measures must be given to receivers that fall in either category. The results of the noise analysis indicate that traffic related noise impacts would occur to 192 receivers under the 2037 Build Alternative. However, 218 receivers would be impacted under the 2037 No-Build Alternative. No receivers in the project area would substantially exceed the FHWA noise abatement criteria. Predicted build-condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts; however, they can aid in future land use planning efforts in undeveloped areas. Table 7 summarizes the noise analysis results and lists the predicted distances to the 72, 67, and 66 dBA noise level contours for pertinent activity categories.

Table 7: Activity Category Critical Distances and Noise Impact Analysis

STUDY AREA	Leq(h) NOISE LEVELS[1]			ACTIVITY CATEGORY DISTANCES TO CENTERLINE		
	25 ft	50 ft	100 ft	72 dBA	67 dBA	66dBA
SC 6 to Longs Pond Road	80.5	78.5	75.8	246	417	467
US 1 to SC 6	80.7	78.4	75.6	232	451	502
US 378 to US 1	81.7	80	76.9	268	458	503

ROADWAY LOCATION	TOTAL NO. OF RECEIVERS	APPROXIMATE # OF IMPACTED RECEIVERS ACCORDING TO TITLE 23 CFR PART 772 / SCDOT POLICY				
		A	B	C	D	E
2037 Year No-Build Alternative						
SC 6 to Longs Pond Road	88	---	48	---	---	---
US 1 to SC 6	89	---	89	---	---	---
US 378 to US 1	93	---	81	---	---	---
Total	**270**	**---**	**218**	**---**	**---**	**---**
2037 Year Build Alternative						
SC 6 to Longs Pond Road	88	---	58	---	---	---
US 1 to SC 6	89	---	68	---	---	---
US 378 to US 1	93	---	66	---	---	---
Total	**270**	**---**	**192**	**---**	**---**	**---**

1. 50ft, 100 ft & 200 ft distances are measured from the outside edge of pavement
2. 72 dBA, 67 dBA and 66 dBA activity category distances are measured from the proposed centerline of the roadway

II. TRAFFIC NOISE ABATEMENT MEASURES

If traffic noise impacts are predicted, noise abatement measures for reducing or eliminating the noise impacts must be considered. Consideration for noise abatement measures have been given to impacted receivers along each alternative. The following discussion addresses the applicability of these measures to the proposed project.

A. Noise Barriers

Physical measures to abate anticipated traffic noise levels are often applied on fully controlled facilities using solid mass berms or walls strategically placed between the traffic sound source and the receivers to diffract, absorb, and reflect highway traffic noise emissions. To be effective, a noise barrier must be long enough and tall enough to shield the impacted receiver(s). Generally, the noise wall length must be eight times the distance from the barrier to the receiver. For example, if a receiver is 200 feet from the roadway, an effective barrier would be approximately 1,600 feet long – with the receiver in the horizontal center. Due to the requisite lengths for effectiveness, noise walls are

typically not economical for isolated or most low-density areas, or for most uncontrolled access facilities. On facilities where access is allowed for driveways, openings will be needed in the walls. An access opening of 40 feet in a 400-foot wall will make the wall ineffective.

According to the SCDOT's Traffic Noise Abatement Policy, a noise wall must be considered both reasonable and feasible. The feasibility of a wall is determined by constructability of the wall given the topography, presence of other dominant noise sources, and at least a 5 dBA noise reduction must be achieved for 75% of the impacted receivers. Construction of a noise wall is considered reasonable if the cost per benefited receiver is less than $30,000 and if other applicable criteria are met.

B. Highway Alignment Selection

Highway alignment selection involves the horizontal or vertical orientation of the proposed improvements in such a way as to minimize impacts and costs. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. For noise abatement, horizontal alignment selection is primarily a matter of constructing the proposed roadway at a sufficient distance from noise sensitive areas. The selected alternative has been located to minimize impacts to human and natural resources. Raising or lowering of the roadway grade is not feasible or practical as a change in grade would require additional new right-of-way and constitute a large cost versus small benefit in reduced noise levels. Alignment shifts are not practical due to safety considerations and potential displacements.

C. Traffic System Management Measures

Traffic system management (TSM) measures, which limit vehicle type, speed, volume and time of operations are often effective noise abatement measures. Past project experience has shown that a reduction in the speed limit of 10 mph would result in a noise level reduction of approximately 1 to 2 dBA. Further reducing the speed limit would not be appropriate for the functional classification for this project. Truck lane designation is not a viable alternative of noise abatement on this project, given the limited scope of the proposed improvements.

D. Other Mitigation Measures Considered

The acquisition of property in order to provide buffer zones to minimize noise impacts is not considered to be a feasible noise mitigation measure. The cost to acquire impacted receivers for buffer zones would exceed the abatement threshold of $30,000 per benefited receiver. The use of buffer zones to minimize impacts to future sensitive areas is not

recommended because this could be accomplished through land use controls and the noise critical distances as predicted in Table 7. The use of vegetation for noise mitigation is not considered reasonable for projects such as this one due to the substantial amount of right-of-way necessary to make vegetative barriers effective. FHWA research has shown that a vegetative barrier should be approximately 100 feet wide to provide a 3 dBA reduction in noise levels.

E. Barrier Analysis

Reasonable and Feasible Barrier

Barrier 1 (Meadow Glenn Elementary/Meadow Glenn Middle School/Wellesley Subdivision)

Barrier 1 was modeled to abate noise impacts at Meadow Glenn Elementary School (and day care), Meadow Glenn Middle School and the Wellesley subdivision. Under the future build scenario, a total of 28 receivers (representing 261 equivalent receivers) would be impacted. Barrier 1 would be located along the shoulder of westbound I-20. The barrier would begin 330 feet west of Northside Boulevard and extend to approximately 1,600 feet west of Allenbrooke Way. The total length of the barrier would be 5,476 feet with a uniform height of 19 feet and a total area of 104,044 square feet (see Attachments).

For the purpose of estimating barrier reasonableness, SCDOT has determined that each impacted single-family residence equals one receiver. Two schools are represented by multiple receivers based on student population and daily use. A total of 268 equivalent receivers would be benefited by Barrier 1. This includes 33 single-family residences, 128 equivalent receivers for Meadow Glenn Elementary School, and 107 equivalent receivers for Meadow Glenn Middle School.

Based on SCDOT policy for estimating barrier costs at $35/square foot, the total cost of this barrier would be $3,641,540 or $13,588 per benefited receiver. This cost per benefited receiver is within SCDOT's limit of $30,000 per benefited receiver and, therefore, meets the SCDOT reasonableness standard.

Barriers Not Reasonable or Feasible

Barrier 2 – Baskin Hills Road/ Hawthorne Subdivision

Barrier 2 was modeled to abate noise impacts in the vicinity of Baskin Hills Road and the Hawthorne subdivision. Under the future build scenario, a total of 18 receivers would be impacted.

Barrier 2 was modeled along the right of way and roadway shoulder of westbound I-20 from 620 feet west of Mineral Springs Road to 2,000 feet east of Augusta Road. The total of length of the modeled barrier was 3,998 feet, with height of 17 and 19 feet and a total area of 71,566 square feet. A barrier of these dimensions would benefit 30 receivers.

Barrier 2 would cost $2,504,810, resulting in an estimated cost of $83,494 per benefitted receiver. This cost per receiver exceeds the SCDOT allowable cost of $30,000 per benefitted receiver, and therefore, is not reasonable.

Barrier 3 - Elvington Lane

Barrier 3 was modeled to abate noise impacts in the vicinity of Elvington Lane. Under the future build scenario, a total of 25 receivers would be impacted.

Barrier 3 was modeled along the right of way line adjacent to eastbound I-20 from 660 feet west of Cedarcrest Drive to 3,100 feet west of Cedarcrest Drive. The length of the modeled barrier was 2,600 feet with heights of 15 and 17 feet and a total area of 41,001 square feet. A barrier with these dimensions would benefit a total of 25 receivers.

Barrier 3 would cost $1,435,035, resulting in an estimated cost of $57,401 per benefitted receiver. This cost per receiver exceeds the SCDOT allowable cost of $30,000 per benefitted receiver and therefore is not reasonable.

Barrier 4 - Pleasant Hill Subdivision

Barrier 4 was modeled to abate noise impacts in the vicinity of the Pleasant Hill subdivision. Under the future build scenario, a total of 21 receivers would be impacted.

Barrier 4 was modeled along I-20 westbound from 3,000 feet west of Long Pond Road to 5,200 feet east of Calks Ferry Road. The total length of this barrier was 3,995 feet with a height of 17 feet and a total area of 67,915 square feet. A barrier with these dimensions would benefit 38 receivers.

Barrier 4 would cost $2,377,025, resulting in an estimated cost of $62,553 per benefitted receiver. This cost per receiver exceeds the SCDOT allowable cost of $30,000 per benefitted receiver and therefore is not reasonable.

Barrier 5 - Larkin Woods Subdivision

Barrier 5 was modeled to abate noise in the vicinity of the Larkin Woods subdivision. Under the future Build scenario, a total of 12 receivers would be impacted.

Barrier 5 was modeled along I-20 eastbound from Mineral Springs Road to approximately 2,000 feet north of Mineral Springs Road. The total length of the barrier was 2,250 feet with a height varying between 17 and 25 feet and a total area of 52,340 square feet. A barrier of these dimensions would be benefit 12 receivers.

Barrier 5 would cost $1,831,935, resulting in an estimated cost of $152,660 per benefitted receiver. This cost per receiver exceeds the SCDOT allowable cost of $30,000 per benefitted receiver and therefore is not reasonable.

Barrier 6 - Hidden Springs Road

Barrier 6 was modeled to abate noise impacts on Hidden Springs Road. Under the future Build scenario, a total of 6 receivers would be impacted.

Barrier 6 was modeled along I-20 eastbound from approximately ¾-mile west of Two Notch Road to just south of Two Notch Road. The total length of this barrier was 2,400 feet with heights varying between 19 and 25 feet. This barrier has a total area of 57,583 square feet. A barrier with these dimensions would benefit 7 receivers.

Barrier 6 would cost $2,022,405, resulting in an estimated cost of $288,915 per benefitted receiver. This cost per receiver exceeds the SCDOT allowable cost of $30,000 per benefitted receiver and therefore is not reasonable.

Barrier 7 – South Brook Subdivision

Barrier 7 was modeled to abate noise in the South Brook Subdivision. Under the future Build scenario, a total of 15 receivers would be impacted.

Barrier 7 was modeled along I-20 eastbound and the I-20 on-ramp from Longs Pond Road. The total length of the barrier is 1,563 feet with heights varying between 19 and 25 feet. This barrier has a total area of 36,380 square feet. A barrier with these dimensions would benefit 17 receivers.

Barrier 7 would cost $1,273,300, resulting in an estimated cost of $74,900 per benefitted receiver. This cost per receiver exceeds the SCDOT allowable cost of $30,000 per benefitted receiver and therefore is not reasonable.

III. CONSTRUCTION NOISE

The major construction elements of this project are expected to be earth removal, hauling, grading, and paving. General construction noise impacts, such as temporary speech interference for passers-by and those individuals living or working near the project, can be expected particularly from paving operations, and earth moving equipment during construction. However, considering the relatively short-term nature of construction noise and the likely limitation of construction to daytime hours, these impacts are not expected to be substantial. The contractor would be required to comply with applicable local noise ordinances and OSHA regulations concerning noise attenuation devices on construction equipment.

IV. LEXINGTON COUNTY PLANNING OFFCIAL

Lexington County Planning Commission
212 South Lake Drive, Suite 302
Lexington, S.C. 29072\

V. PUBLIC INVOLVEMENT

A meeting was held at the Lexington County School District 1 (District 1) Headquarters to discuss the potential construction of a noise barrier wall in front of Meadow Glenn Middle School and Meadow Glenn Elementary School. These schools represent approximately 235 equivalent receivers that would be benefitted by a noise barrier wall. As per requirements listed in the SC Department of Transportation's (SCDOT) Traffic Noise Abatement Policy, the SCDOT is required to solicit the viewpoints of all of the benefited receivers and document a decision on either desiring or not desiring the noise abatement measure.

The meeting resulted in District 1 offering support for a noise barrier wall at this location. The Chief Operating Officer then presented the noise barrier wall to the District 1 School Board on May 19, 2015. The District 1 School Board was in favor of a noise barrier wall, and would like to incorporate green space behind the wall to maintain the aesthetics of the area surrounding the schools.

The noise barrier wall would also benefit approximately 33 residential receivers located in the Wellesley Subdivision just west of the two schools. A petition of support for the noise barrier wall was sent to the SCDOT by this subdivision. Based on the school

support (offering a majority vote in favor of the wall) a meeting was not scheduled with the Wellesley Subdivision.

VI. SUMMARY

The results of the noise analysis indicate that traffic related noise impacts would occur to 192 receivers under the 2037 Build Alternative and 218 receivers would be impacted under the 2037 No-Build Alternative. No receivers in the project area would substantially exceed the FHWA noise abatement criteria. Seven potential barrier locations were evaluated as part of the noise analysis. This barrier analysis was prepared in accordance with the SCDOT Traffic Abatement Noise Policy for feasibility and reasonableness. Six of seven barrier locations were found to meet the feasibility criteria for acoustics and engineering. However, these barrier locations were found not to be reasonable. Barrier 1 located near the US 378 Interchange at Meadow Glenn Middle School was found to be both reasonable and feasible.

This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772.

APPENDIX

Traffic Noise Impacts and Locations

Predicted Traffic Noise Levels - Interstate 20 - Lexington County - From US 378 to Longs Pond Road

RECEIVER INFORMATION					2015 EXISTING		2037 NO-BUILD ALTERNATIVE		2037 BUILD ALTERNATIVE		DIFFERENCE
Receiver ID #	LAND USE	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) CATEGORY	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) (dBA)	EQUIVALENT NO. OF RECEIVERS	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	2037 BUILD - 2015 EXIST [Leq (dBA)]
1	Residential	B	67	1	73	Yes	76	Yes	75	Yes	2
2	Residential	B	67	1	61	No	64	No	63	No	2
3	Residential	B	67	1	62	No	66	Yes	64	No	2
4	Residential	B	67	1	67	Yes	71	Yes	69	Yes	2
5	Residential	B	67	1	62	No	65	No	63	No	1
7	Residential	B	67	1	70	Yes	73	Yes	71	Yes	1
8	Residential	B	67	1	63	No	66	Yes	64	No	1
9	Residential	B	67	1	63	No	62	No	65	No	2
10	Residential	B	67	1	65	No	64	No	67	Yes	2
11	Residential	B	67	1	61	No	64	No	62	No	1
12	Residential	B	67	1	64	No	67	Yes	65	No	1
13	Residential	B	67	1	63	No	63	No	74	Yes	11
14	Residential	B	67	1	71	Yes	70	Yes	72	Yes	1
15	Residential	B	67	1	65	No	64	No	66	Yes	1
16	Residential	B	67	1	67	Yes	70	Yes	68	Yes	1
17	Residential	B	67	1	65	Yes	64	No	66	Yes	1
18	Residential	B	67	1	63	No	66	Yes	64	No	1
19	Residential	B	67	1	71	Yes	75	Yes	71	Yes	0
20	Residential	B	67	1	64	No	67	Yes	66	Yes	2
21	Residential	B	67	1	63	No	66	Yes	65	No	2
22	Residential	B	67	1	63	No	66	Yes	65	No	2
23	Residential	B	67	1	63	No	66	Yes	66	Yes	3
24	Residential	B	67	1	63	No	66	Yes	66	Yes	3
25	Residential	B	67	1	64	No	67	Yes	66	Yes	2
26	Residential	B	67	1	64	No	67	Yes	66	Yes	2
27	Residential	B	67	1	64	No	67	Yes	66	Yes	2
28	Residential	B	67	1	64	No	67	Yes	66	Yes	2
29	Residential	B	67	1	65	No	68	Yes	67	Yes	2
30	Residential	B	67	1	67	Yes	70	Yes	68	Yes	1
31	Residential	B	67	1	67	Yes	71	Yes	69	Yes	2
32	Residential	B	67	1	67	Yes	70	Yes	69	Yes	2
33	Residential	B	67	1	66	Yes	69	Yes	69	Yes	3
34	Residential	B	67	1	69	Yes	72	Yes	71	Yes	2
35	Residential	B	67	1	66	Yes	69	Yes	68	Yes	2
36	Residential	B	67	1	67	Yes	70	Yes	69	Yes	2
37	Residential	B	67	1	64	No	67	Yes	65	No	1
39	Residential	B	67	1	73	Yes	76	Yes	75	Yes	2
40	Residential	B	67	1	71	Yes	74	Yes	73	Yes	2
41	Residential	B	67	1	70	Yes	73	Yes	71	Yes	1
42	Commercial	E	72	1	75	Yes	78	Yes	77	Yes	2
43	Residential	B	67	1	68	Yes	71	Yes	70	Yes	2
44	Commercial	E	72	1	74	Yes	77	Yes	76	Yes	2
45	Commercial	E	72	1	70	Yes	73	Yes	73	Yes	3

Predicted Traffic Noise Levels - Interstate 20 - Lexington County - From US 378 to Longs Pond Road

RECEIVER INFORMATION					2015 EXISTING		2037 NO-BUILD ALTERNATIVE		2037 BUILD ALTERNATIVE		DIFFERENCE
Receiver ID #	LAND USE	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) CATEGORY	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) (dBA)	EQUIVALENT NO. OF RECEIVERS	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	2037 BUILD - 2015 EXIST [Leq (dBA)]
46	Residential	B	67	1	64	No	67	Yes	66	Yes	2
47	Commercial	E	72	1	74	Yes	77	Yes	75	Yes	1
48	Residential	B	67	1	66	Yes	69	Yes	68	Yes	3
49	Commercial	E	72	1	74	Yes	78	Yes	77	Yes	3
50	Residential	B	67	1	66	Yes	70	Yes	68	Yes	2
52	Residential	B	67	1	65	No	68	Yes	67	Yes	2
53	Commercial	E	72	1	69	Yes	71	Yes	70	Yes	1
54	Commercial	E	72	1	71	Yes	73	Yes	71	Yes	0
56	Commercial	E	72	1	74	Yes	75	Yes	74	Yes	0
58	Commercial	E	72	1	73	Yes	75	Yes	73	Yes	0
60	Commercial	E	72	1	73	Yes	74	Yes	73	Yes	0
61	Commercial	E	72	1	71	Yes	73	Yes	72	Yes	1
62	Commercial	E	72	1	69	Yes	71	Yes	71	Yes	2
63	Residential	B	67	1	70	Yes	72	Yes	72	Yes	2
65	Residential	B	67	1	68	Yes	69	Yes	69	Yes	1
67	Commercial	E	72	1	67	Yes	69	Yes	69	Yes	2
68	Commercial	E	72	1	65	No	67	Yes	67	Yes	2
70	Commercial	E	72	1	67	Yes	68	Yes	69	Yes	2
74	Residential	B	67	1	70	Yes	72	Yes	72	Yes	2
75	Residential	B	67	1	71	Yes	72	Yes	72	Yes	1
76	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
77	Residential	B	67	1	75	Yes	76	Yes	75	Yes	0
78	Residential	B	67	1	71	Yes	73	Yes	72	Yes	1
80	Commercial	E	72	1	74	Yes	76	Yes	75	Yes	1
82	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
83	Commercial	E	72	1	76	Yes	78	Yes	77	Yes	1
84	Commercial	E	72	1	69	Yes	70	Yes	70	Yes	1
85	Commercial	E	72	1	71	Yes	72	Yes	72	Yes	1
87	Residential	B	67	1	65	No	67	Yes	67	Yes	2
89	Commercial	E	72	1	77	Yes	78	Yes	77	Yes	0
90	Residential	B	67	1	69	Yes	71	Yes	70	Yes	1
91	Residential	B	67	1	66	Yes	68	Yes	68	Yes	2
92	Residential	B	67	1	76	Yes	77	Yes	76	Yes	0
93	Residential	B	67	1	74	Yes	75	Yes	74	Yes	0
95	Residential	B	67	1	66	Yes	68	Yes	68	Yes	2
96	Residential	B	67	1	71	Yes	72	Yes	71	Yes	0
97	Commercial	E	72	1	72	Yes	73	Yes	72	Yes	0
98	Residential	B	67	1	67	Yes	68	Yes	68	Yes	1
99	Commercial	E	72	1	73	Yes	74	Yes	74	Yes	1
100	Commercial	E	72	1	74	Yes	75	Yes	74	Yes	0
101	Residential	B	67	1	69	Yes	70	Yes	70	Yes	1
102	Commercial	E	72	1	72	Yes	73	Yes	73	Yes	1
103	Residential	B	67	1	66	Yes	68	Yes	67	Yes	1
104	Residential	B	67	1	72	Yes	74	Yes	72	Yes	0

Predicted Traffic Noise Levels - Interstate 20 - Lexington County - From US 378 to Longs Pond Road

RECEIVER INFORMATION					2015 EXISTING		2037 NO-BUILD ALTERNATIVE		2037 BUILD ALTERNATIVE		DIFFERENCE
Receiver ID #	LAND USE	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) CATEGORY	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) (dBA)	EQUIVALENT NO. OF RECEIVERS	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	2037 BUILD - 2015 EXIST [Leq (dBA)]
105	Commercial	E	72	1	68	Yes	70	Yes	68	Yes	0
106	Commercial	E	72	1	69	Yes	71	Yes	69	Yes	0
107	Residential	B	67	1	76	Yes	77	Yes	76	Yes	0
108	Residential	B	67	1	69	Yes	71	Yes	70	Yes	1
109	Residential	B	67	1	68	Yes	69	Yes	69	Yes	1
110	Residential	B	67	1	69	Yes	70	Yes	70	Yes	1
111	Residential	B	67	1	66	Yes	68	Yes	66	Yes	0
112	Residential	B	67	1	72	Yes	73	Yes	72	Yes	0
113	Residential	B	67	1	68	Yes	70	Yes	70	Yes	2
114	Residential	B	67	1	74	Yes	75	Yes	74	Yes	0
115	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
116	Residential	B	67	1	67	Yes	68	Yes	68	Yes	1
117	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
118	Residential	B	67	1	74	Yes	76	Yes	74	Yes	0
119	Residential	B	67	1	73	Yes	75	Yes	73	Yes	0
120	Residential	B	67	1	67	Yes	68	Yes	68	Yes	1
121	Residential	B	67	1	65	No	67	Yes	67	Yes	2
122	Residential	B	67	1	74	Yes	75	Yes	74	Yes	0
123	Residential	B	67	1	67	Yes	69	Yes	69	Yes	2
124	Residential	B	67	1	72	Yes	74	Yes	73	Yes	1
125	Residential	B	67	1	71	Yes	73	Yes	72	Yes	1
126	Residential	B	67	1	67	Yes	69	Yes	69	Yes	2
127	Residential	B	67	1	65	No	66	Yes	67	Yes	2
128	Residential	B	67	1	73	Yes	74	Yes	73	Yes	0
129	Residential	B	67	1	67	Yes	68	Yes	67	Yes	0
130	Residential	B	67	1	75	Yes	76	Yes	75	Yes	0
131	Residential	B	67	1	72	Yes	73	Yes	72	Yes	0
132	Residential	B	67	1	68	Yes	70	Yes	70	Yes	2
133	Commercial	E	72	1	74	Yes	76	Yes	75	Yes	1
134	Residential	B	67	1	66	Yes	67	Yes	67	Yes	1
135	Residential	B	67	1	66	Yes	68	Yes	68	Yes	2
136	Commercial	E	72	1	73	Yes	74	Yes	73	Yes	0
137	Residential	B	67	1	74	Yes	75	Yes	74	Yes	0
138	Residential	B	67	1	72	Yes	74	Yes	73	Yes	1
139	Residential	B	67	1	69	Yes	70	Yes	69	Yes	0
140	Residential	B	67	1	66	Yes	67	Yes	67	Yes	1
141	Residential	B	67	1	71	Yes	72	Yes	71	Yes	0
142	Residential	B	67	1	71	Yes	73	Yes	71	Yes	0
143	Residential	B	67	1	68	Yes	69	Yes	68	Yes	0
144	Residential	B	67	1	65	No	67	Yes	66	Yes	1
145	Residential	B	67	1	66	Yes	67	Yes	67	Yes	1
146	Commercial	E	72	1	75	Yes	77	Yes	77	Yes	2
147	Residential	B	67	1	72	Yes	73	Yes	72	Yes	0
148	Commercial	E	72	1	66	Yes	67	Yes	68	Yes	2

Predicted Traffic Noise Levels - Interstate 20 - Lexington County - From US 378 to Longs Pond Road

RECEIVER INFORMATION					2015 EXISTING		2037 NO-BUILD ALTERNATIVE		2037 BUILD ALTERNATIVE		DIFFERENCE
Receiver ID #	LAND USE	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) CATEGORY	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) (dBA)	EQUIVALENT NO. OF RECEIVERS	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	2037 BUILD - 2015 EXIST [Leq (dBA)]
149	Commercial	E	72	1	67	Yes	69	Yes	69	Yes	2
150	Commercial	E	72	1	73	Yes	75	Yes	74	Yes	1
151	Commercial	E	72	1	66	Yes	68	Yes	67	Yes	1
152	Residential	B	67	1	70	Yes	71	Yes	71	Yes	1
153	Residential	B	67	1	66	Yes	68	Yes	68	Yes	2
154	Residential	B	67	1	75	Yes	77	Yes	76	Yes	1
155	Residential	B	67	1	69	Yes	70	Yes	69	Yes	0
156	Commercial	E	72	1	72	Yes	74	Yes	73	Yes	2
157	Residential	B	67	1	62	No	65	No	63	No	1
158	Residential	B	67	1	63	No	66	Yes	64	No	1
159	Residential	B	67	1	64	No	66	Yes	64	No	0
160	Residential	B	67	1	68	Yes	70	Yes	68	Yes	0
161	Commercial	E	72	1	70	Yes	71	Yes	71	Yes	1
162	Residential	B	67	1	64	No	66	Yes	64	No	0
163	Residential	B	67	1	64	No	65	No	64	No	0
164	Residential	B	67	1	65	No	67	Yes	65	No	0
165	Residential	B	67	1	72	Yes	74	Yes	72	Yes	0
166	Residential	B	67	1	64	No	66	Yes	64	No	0
167	Residential	B	67	1	67	Yes	68	Yes	66	Yes	1
168	Residential	B	67	1	64	No	66	Yes	64	No	0
169	Residential	B	67	1	68	Yes	69	Yes	68	Yes	0
170	Residential	B	67	1	65	No	67	Yes	65	No	0
171	Residential	B	67	1	69	Yes	71	Yes	69	Yes	0
172	Residential	B	67	1	65	No	66	Yes	64	No	1
173	Residential	B	67	1	69	Yes	71	Yes	69	Yes	0
174	Residential	B	67	1	74	Yes	76	Yes	73	Yes	1
175	Residential	B	67	1	63	No	65	No	63	No	0
176	Residential	B	67	1	71	Yes	73	Yes	71	Yes	0
177	Residential	B	67	1	65	No	67	Yes	65	No	0
178	Residential	B	67	1	68	Yes	70	Yes	68	Yes	0
179	Residential	B	67	1	73	Yes	75	Yes	73	Yes	0
180	Residential	B	67	1	63	No	65	No	63	No	0
181	Residential	B	67	1	64	No	66	Yes	64	No	0
182	Residential	B	67	1	69	Yes	70	Yes	69	Yes	0
183	Residential	B	67	1	73	Yes	75	Yes	73	Yes	0
184	Residential	B	67	1	71	Yes	72	Yes	71	Yes	0
185	Residential	B	67	1	69	Yes	70	Yes	70	Yes	1
186	Residential	B	67	1	67	Yes	69	Yes	68	Yes	1
189	Residential	B	67	1	68	Yes	70	Yes	68	Yes	0
190	Residential	B	67	1	75	Yes	77	Yes	75	Yes	0
191	Residential	B	67	1	68	Yes	70	Yes	68	Yes	0
192	Residential	B	67	1	70	Yes	71	Yes	71	Yes	1
193	Residential	B	67	1	68	Yes	70	Yes	71	Yes	3
194	Residential	B	67	1	71	Yes	73	Yes	71	Yes	0

Predicted Traffic Noise Levels - Interstate 20 - Lexington County - From US 378 to Longs Pond Road

RECEIVER INFORMATION					2015 EXISTING		2037 NO-BUILD ALTERNATIVE		2037 BUILD ALTERNATIVE		DIFFERENCE
Receiver ID #	LAND USE	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) CATEGORY	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) (dBA)	EQUIVALENT NO. OF RECEIVERS	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	2037 BUILD - 2015 EXIST [Leq (dBA)]
195	Residential	B	67	1	66	Yes	68	Yes	67	Yes	1
196	Residential	B	67	1	73	Yes	74	Yes	73	Yes	0
197	Residential	B	67	1	71	Yes	73	Yes	72	Yes	1
199	Residential	B	67	1	75	Yes	77	Yes	75	Yes	1
200	Residential	B	67	1	66	Yes	67	Yes	66	Yes	0
201	Residential	B	67	1	66	Yes	68	Yes	67	Yes	1
202	Residential	B	67	1	70	Yes	72	Yes	70	Yes	0
203	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
204	Residential	B	67	1	75	Yes	76	Yes	75	Yes	0
205	Commercial	E	72	1	71	Yes	72	Yes	72	Yes	1
206	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
207	Residential	B	67	1	64	No	66	Yes	64	No	0
208	Residential	B	67	1	66	Yes	67	Yes	66	Yes	0
209	Residential	B	67	1	65	No	67	Yes	65	No	0
210	Residential	B	67	1	65	No	67	Yes	66	Yes	1
211	Residential	B	67	1	64	No	66	Yes	66	Yes	2
212	Residential	B	67	1	66	Yes	67	Yes	67	Yes	1
213	Residential	B	67	1	69	Yes	71	Yes	70	Yes	1
214	Residential	B	67	1	65	No	67	Yes	66	Yes	1
215	Residential	B	67	1	67	Yes	68	Yes	68	Yes	1
218	Residential	B	67	1	70	Yes	72	Yes	70	Yes	0
219	Residential	B	67	1	70	Yes	72	Yes	67	Yes	3
221	Residential	B	67	1	69	Yes	68	Yes	70	Yes	1
222	Residential	B	67	1	68	Yes	67	Yes	69	Yes	1
223	Residential	B	67	1	68	Yes	67	Yes	69	Yes	1
224	Residential	B	67	1	67	Yes	66	Yes	68	Yes	1
225	Residential	B	67	1	66	Yes	66	Yes	68	Yes	2
226	Residential	B	67	1	66	Yes	65	No	68	Yes	2
227	Residential	B	67	1	66	Yes	65	No	67	Yes	1
228	Residential	B	67	1	65	No	65	No	67	Yes	2
229	Residential	B	67	1	64	No	64	No	66	Yes	2
230	Residential	B	67	1	64	No	63	No	65	No	1
231	Residential	B	67	1	62	No	61	No	65	No	3
232	Residential	B	67	1	68	Yes	67	Yes	69	Yes	1
233	Residential	B	67	1	65	No	64	No	67	Yes	2
234	Residential	B	67	1	63	No	63	No	65	No	2
235	Residential	B	67	1	66	Yes	65	No	67	Yes	1
236	Residential	B	67	1	65	No	65	No	67	Yes	2
237	Residential	B	67	1	65	No	64	No	66	Yes	1
238	Residential	B	67	1	65	No	64	No	66	Yes	1
239	Residential	B	67	1	63	No	63	No	65	No	2
240	Residential	B	67	1	63	No	63	No	65	No	2
241	Residential	B	67	1	62	No	62	No	64	No	1
242	Residential	B	67	1	62	No	61	No	64	No	2

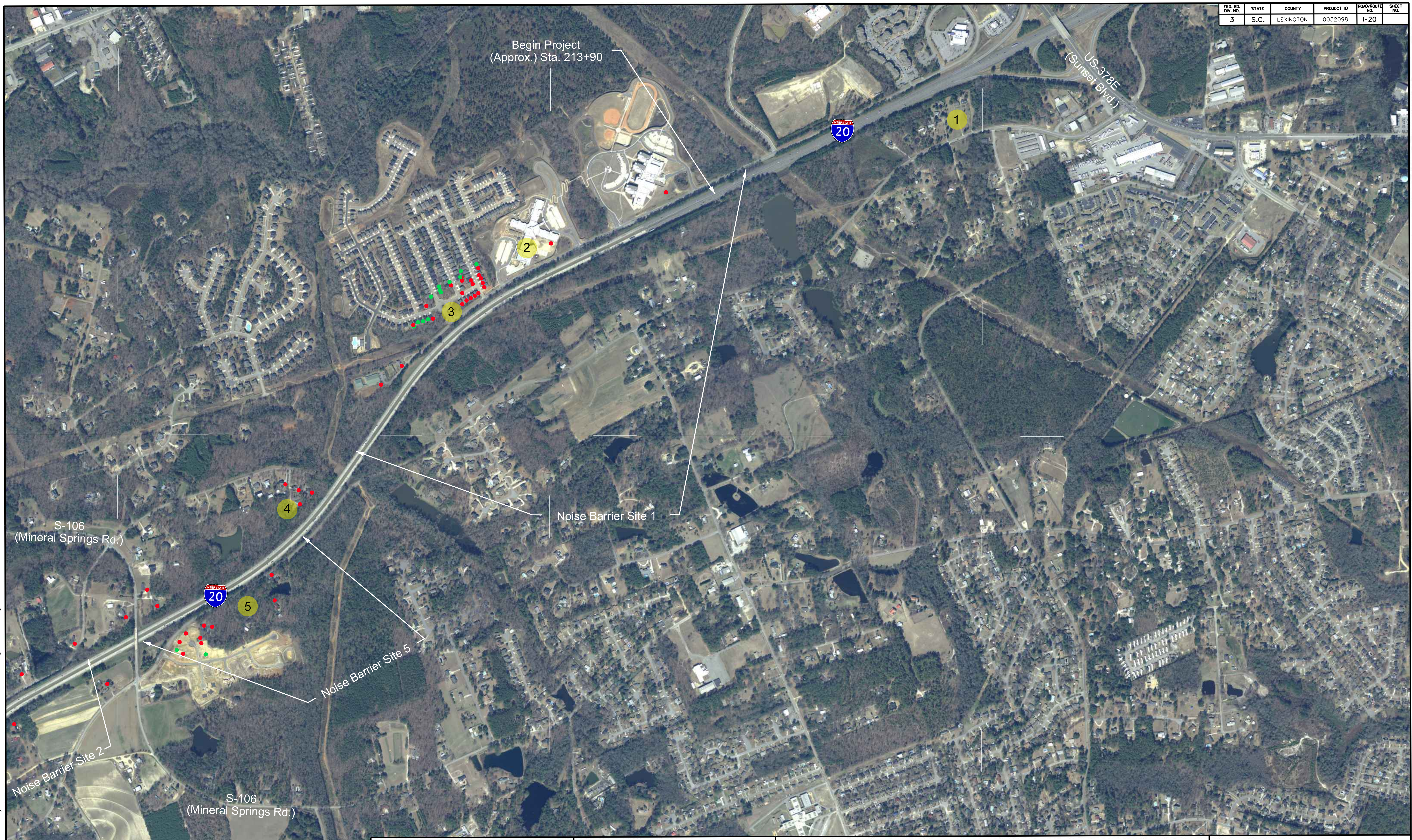
Predicted Traffic Noise Levels - Interstate 20 - Lexington County - From US 378 to Longs Pond Road

RECEIVER INFORMATION					2015 EXISTING		2037 NO-BUILD ALTERNATIVE		2037 BUILD ALTERNATIVE		DIFFERENCE
Receiver ID #	LAND USE	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) CATEGORY	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) (dBA)	EQUIVALENT NO. OF RECEIVERS	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	2037 BUILD - 2015 EXIST [Leq (dBA)]
243	Residential	B	67	1	62	No	61	No	64	No	2
244	Residential	B	67	1	61	No	61	No	63	No	2
245	Residential	B	67	1	61	No	60	No	63	No	2
246	Residential	B	67	1	60	No	60	No	62	No	2
247	Residential	B	67	1	59	No	59	No	61	No	2
248	Residential	B	67	1	59	No	58	No	61	No	2
249	Residential	B	67	1	59	No	58	No	61	No	2
250	Residential	B	67	1	61	No	60	No	63	No	2
251	Residential	B	67	1	62	No	62	No	64	No	2
253	Residential	B	67	1	68	Yes	72	Yes	67	Yes	1
254	Residential	B	67	1	68	Yes	70	Yes	67	Yes	1
255	Residential	B	67	1	68	Yes	70	Yes	64	No	4
256	Residential	B	67	1	64	No	66	Yes	64	No	0
257	Residential	B	67	1	65	No	66	Yes	65	No	0
258	Residential	B	67	1	65	No	67	Yes	66	Yes	1
259	Residential	B	67	1	66	Yes	68	Yes	67	Yes	1
260	Residential	B	67	1	68	Yes	70	Yes	73	Yes	5
261	Residential	B	67	1	72	Yes	74	Yes	74	Yes	2
262	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
263	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
264	Residential	B	67	1	73	Yes	75	Yes	74	Yes	1
265	Residential	B	67	1	73	Yes	74	Yes	73	Yes	0
266	Residential	B	67	1	71	Yes	72	Yes	72	Yes	1
267	Residential	B	67	1	69	Yes	71	Yes	70	Yes	1
268	Residential	B	67	1	67	Yes	69	Yes	69	Yes	2
269	Residential	B	67	1	69	Yes	71	Yes	70	Yes	1
270	Residential	B	67	1	68	Yes	69	Yes	69	Yes	1
271	Residential	B	67	1	66	Yes	68	Yes	67	Yes	1
272	Residential	B	67	1	65	No	67	Yes	66	Yes	1
273	Residential	B	67	1	66	Yes	68	Yes	66	Yes	0
274	Residential	B	67	1	65	No	67	Yes	66	Yes	1
275	Residential	B	67	1	65	No	67	Yes	65	No	0
276	Residential	B	67	1	64	No	66	Yes	64	No	0
277	Residential	B	67	1	64	No	65	No	69	Yes	5
278	Residential	B	67	1	66	Yes	67	Yes	68	Yes	2
279	Residential	B	67	1	64	No	66	Yes	65	No	1
280	Residential	B	67	1	67	Yes	69	Yes	69	Yes	2
281	Residential	B	67	1	66	Yes	68	Yes	68	Yes	2
282	Residential	B	67	1	69	Yes	71	Yes	71	Yes	2
283	Residential	B	67	1	72	Yes	73	Yes	73	Yes	1
284	Residential	B	67	1	68	Yes	70	Yes	66	Yes	2
285	Residential	B	67	1	67	Yes	69	Yes	70	Yes	3
286	Residential	B	67	1	60	No	62	No	68	Yes	8
287	Residential	B	67	1	67	Yes	68	Yes	69	Yes	2

Predicted Traffic Noise Levels - Interstate 20 - Lexington County - From US 378 to Longs Pond Road

RECEIVER INFORMATION					2015 EXISTING		2037 NO-BUILD ALTERNATIVE		2037 BUILD ALTERNATIVE		DIFFERENCE
Receiver ID #	LAND USE	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) CATEGORY	23 CFR PART 772 NOISE ABATEMENT CRITERIA (NAC) (dBA)	EQUIVALENT NO. OF RECEIVERS	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	ESTIMATED Leq (dBA)	NOISE IMPACT (YES/NO)	2037 BUILD - 2015 EXIST [Leq (dBA)]
288	Residential	B	67	1	68	Yes	70	Yes	70	Yes	2
289	Residential	B	67	1	69	Yes	71	Yes	71	Yes	2
290	Residential	B	67	1	70	Yes	71	Yes	72	Yes	2
291	Residential	B	67	1	70	Yes	71	Yes	71	Yes	1
292	Residential	B	67	1	67	Yes	69	Yes	69	Yes	2
293	Residential	B	67	1	66	Yes	67	Yes	68	Yes	2
294	Residential	B	67	1	71	Yes	73	Yes	70	Yes	1

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend	
● (red) -	Impacted Receiver
● (green) -	Non Impacted Receiver
○ (yellow) -	Noise Measurement Site

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET
Aerial Map Source - USDA 2013

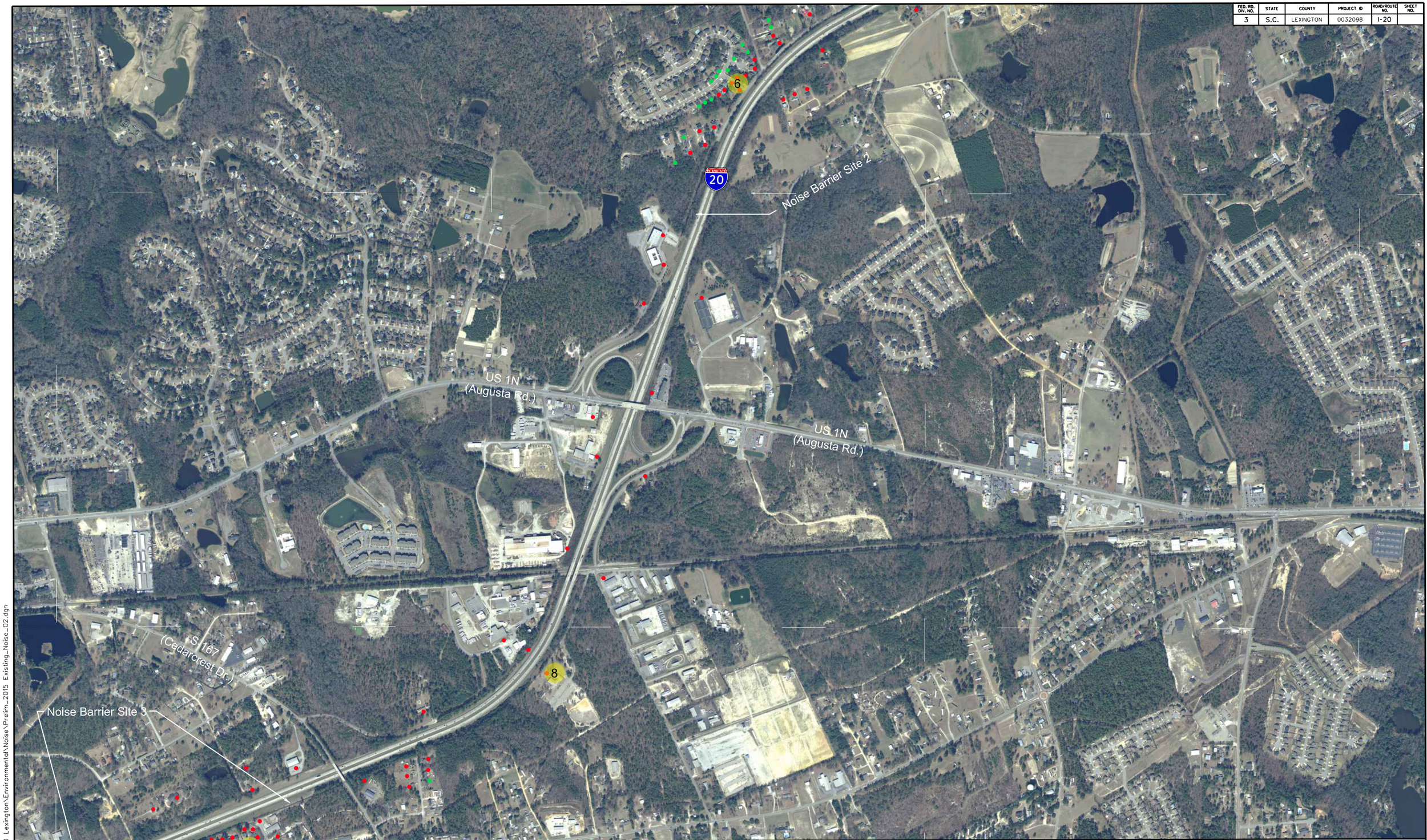
N

2015 EXISTING NOISE IMPACTS

SHEET: 1 OF 4

I-20 Lexington\Environmental\Noise\Prelim_2015 Existing_Noise_01.dgn
9/11/2015
L:\1404601

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver
- Noise Measurement Site

Interstate 20
Widening Project
Lexington County, S.C.

0 500 1000 FEET
SCALE
Aerial Map Source - USDA 2013

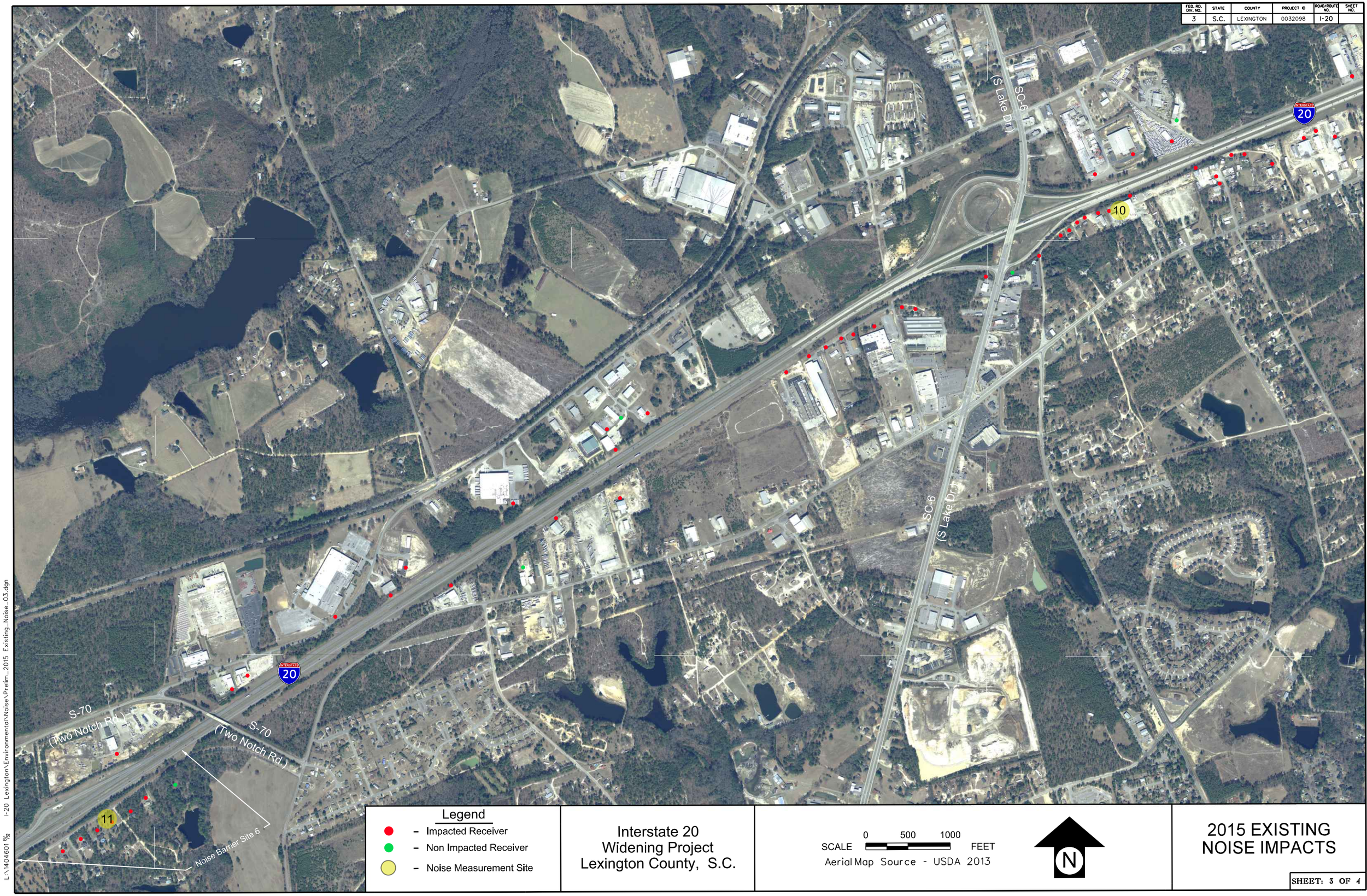
N

2015 EXISTING NOISE IMPACTS

SHEET: 2 OF 4

9/11/2015
L:\1404601 ®\2 I-20 Lexington\Environmental\Noise\Prelim_2015 Existing_Noise_02.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver
- Noise Measurement Site

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET

Aerial Map Source - USDA 2013

N

2015 EXISTING NOISE IMPACTS

SHEET: 3 OF 4

9/11/2015
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FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

Legend

- Impacted Receiver
- Non Impacted Receiver
- Noise Measurement Site

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET
Aerial Map Source - USDA 2013

N

2015 EXISTING NOISE IMPACTS

SHEET: 4 OF 4

9/11/2015
L:\1404601 13/32 I-20 Lexington\Environmental\Noise\Prelim_2015 Existing_Noise_04.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

Begin Project
(Approx.) Sta. 213+90

US-378E
(Sunset Blvd.)

INTERSTATE 20

Noise Barrier Site 1

S-106
(Mineral Springs Rd.)

Noise Barrier Site 5

Noise Barrier Site 2

S-106
(Mineral Springs Rd.)

Legend

- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET

Aerial Map Source - USDA 2013

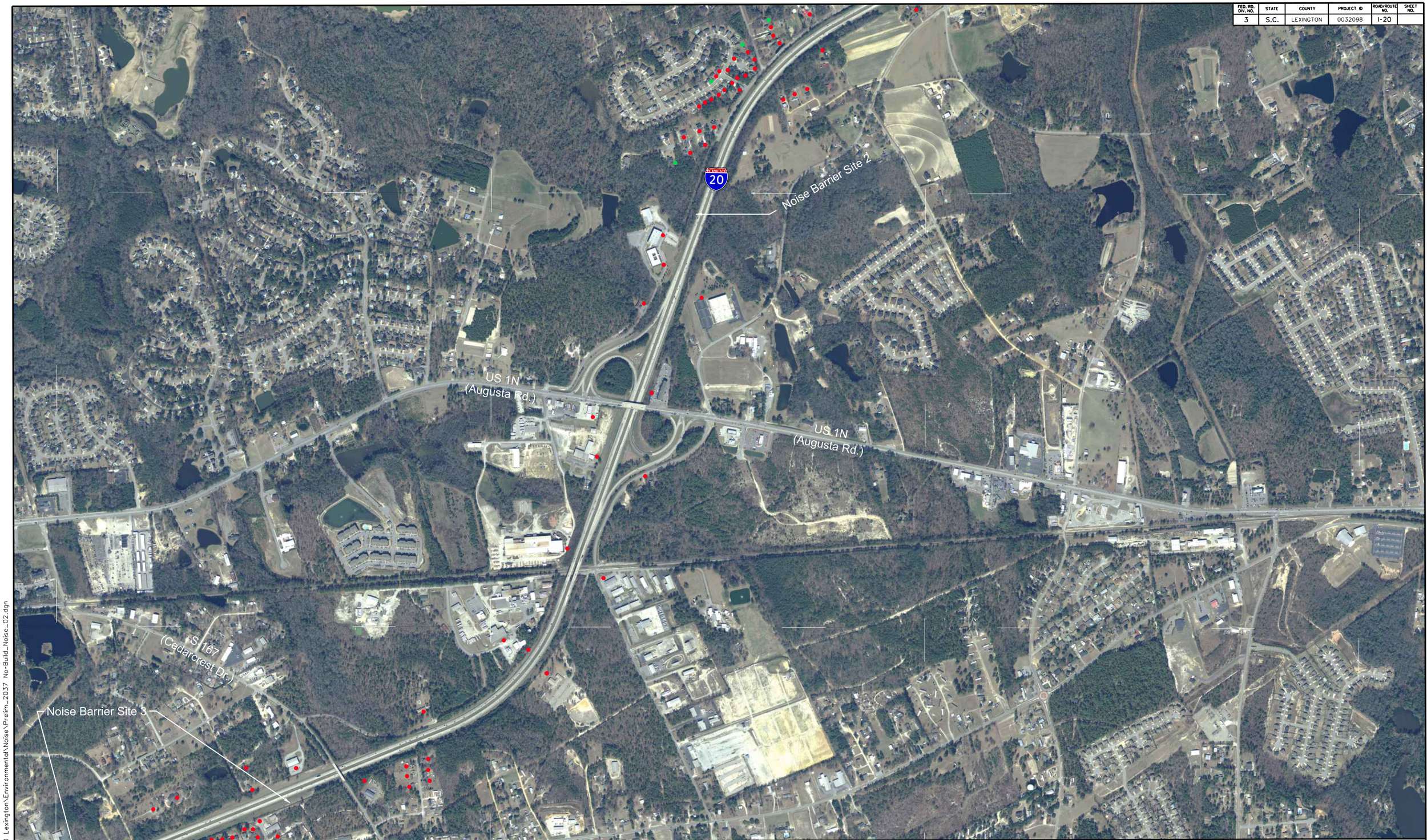
N

2037 NO-BUILD NOISE IMPACTS

SHEET: 1 OF 4

9/11/2015
L:\1404601 \I-20 Lexington\Environmental\Noise\Prelim_2037 No-Build_Noise_01.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET

Aerial Map Source - USDA 2013

2037 NO-BUILD NOISE IMPACTS

SHEET: 2 OF 4

9/11/2015
L:\1404601 \%2 I-20 Lexington\Environmental\Noise\Prelim_2037 No-Build_Noise_02.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

Legend
- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET
Aerial Map Source - USDA 2013

N

2037 NO-BUILD
NOISE IMPACTS

SHEET: 3 OF 4

9/11/2015
L:\1404601 13/32 I-20 Lexington\Environmental\Noise\Prelim_2037 No-Build_Noise_03.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

Legend
- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET
Aerial Map Source - USDA 2013

N

2037 NO-BUILD NOISE IMPACTS

SHEET: 4 OF 4

9/11/2015
L:\1404601\I-20 Lexington\Environmental\Noise\Prelim_2037 No-Build_Noise_04.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

Begin Project
(Approx.) Sta. 213+90

US-378E
(Sunset Blvd.)

INTERSTATE 20

Noise Barrier Site 1

S-106
(Mineral Springs Rd.)

INTERSTATE 20

Noise Barrier Site 5

Noise Barrier Site 2

S-106
(Mineral Springs Rd.)

Legend

- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET

Aerial Map Source - USDA 2013

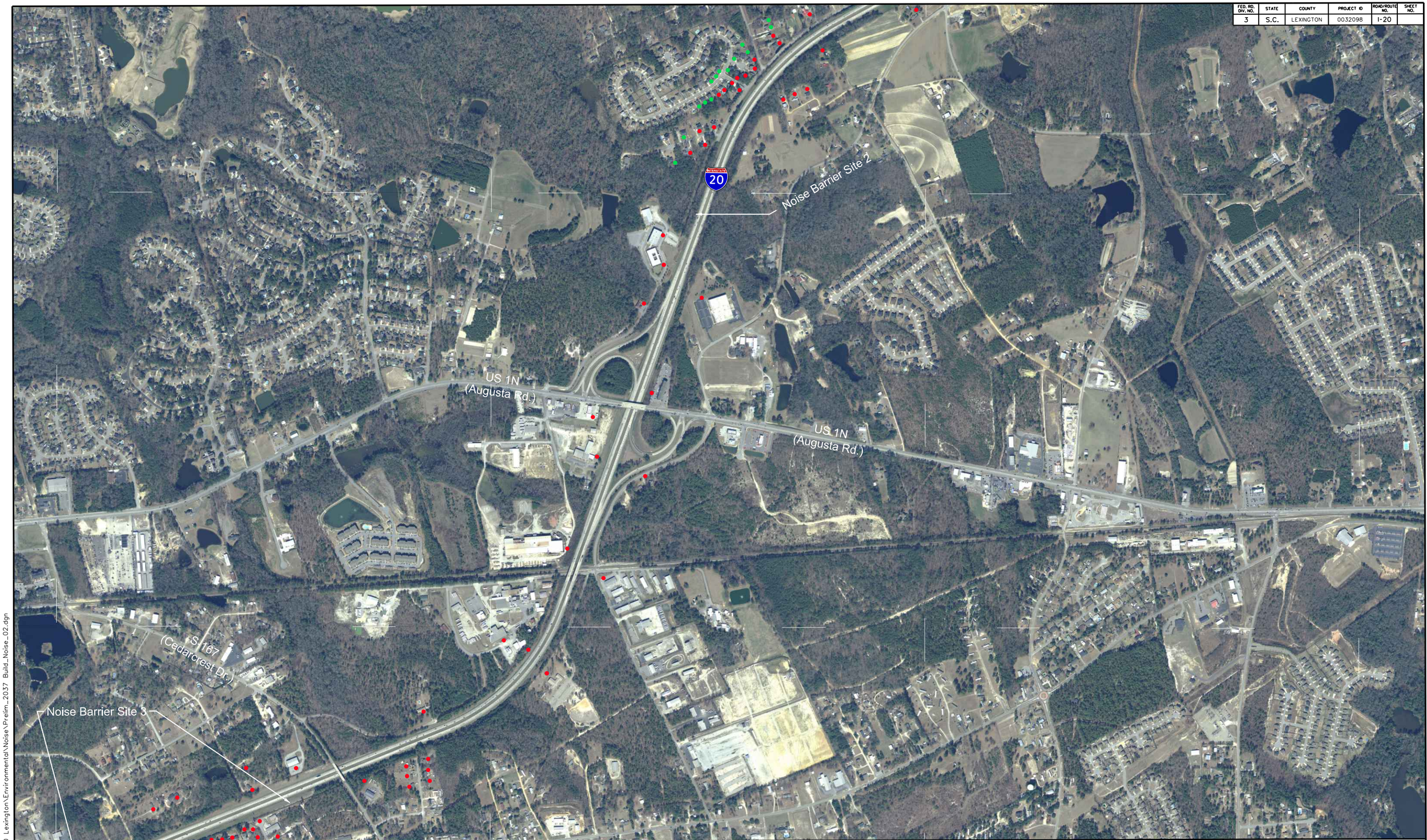
N

2037 BUILD NOISE IMPACTS

SHEET: 1 OF 4

9/11/2015
L:\1404601 \I-20 Lexington\Environmental\Noise\Prelim_2037 Build_Noise_01.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

0 500 1000
SCALE FEET
Aerial Map Source - USDA 2013

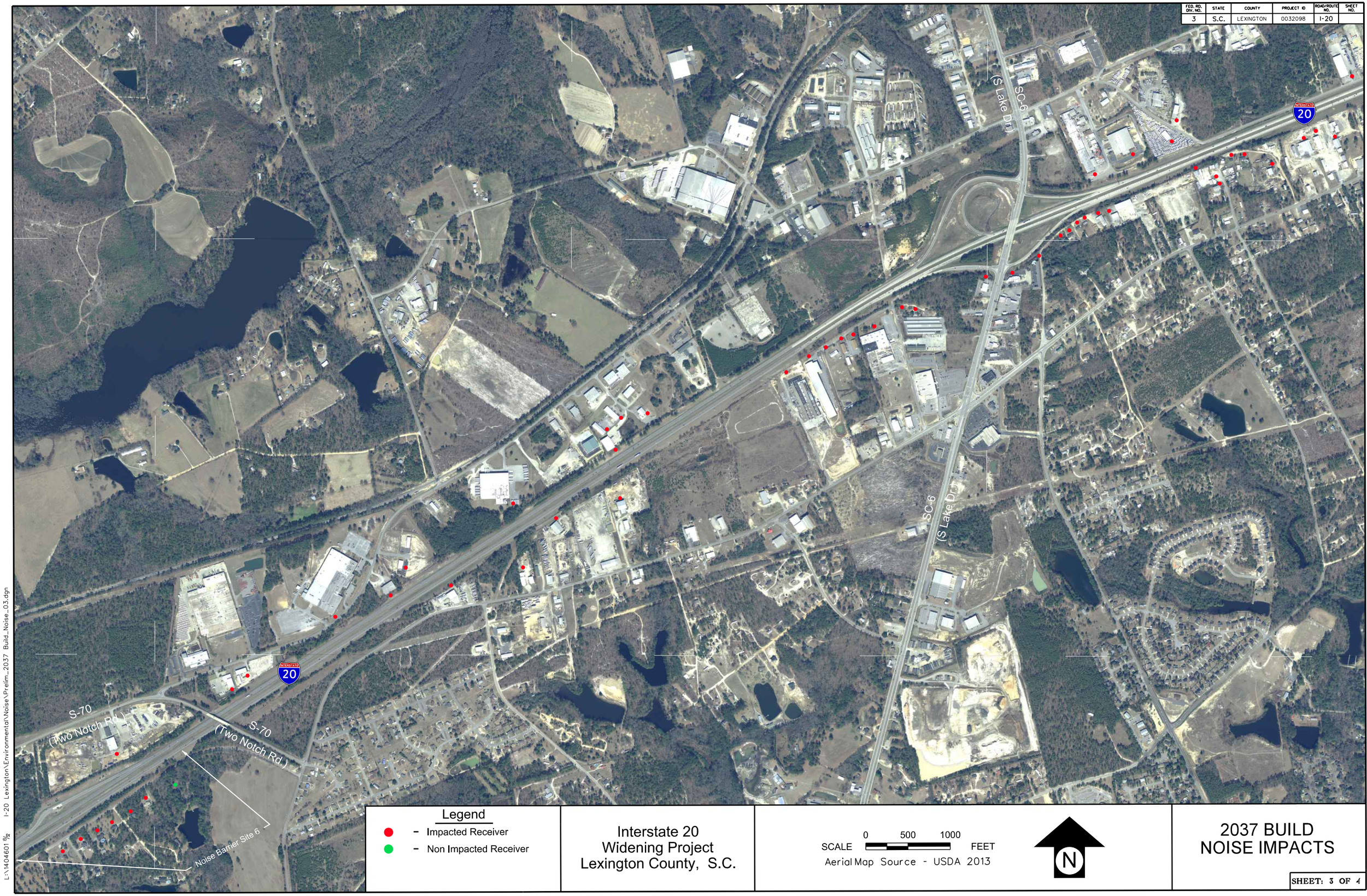
N

2037 BUILD NOISE IMPACTS

SHEET: 2 OF 4

9/11/2015
L:\1404601 \I-20 Lexington\Environmental\Noise\Prelim_2037 Build_Noise_02.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 500 1000 FEET

Aerial Map Source - USDA 2013

N

2037 BUILD NOISE IMPACTS

SHEET: 3 OF 4

9/11/2015
L:\1404601 I-20 Lexington\Environmental\Noise\Prelim_2037 Build_Noise_03.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

End Project
(Approx.) Sta. 770+80

Noise Barrier Site 7

Noise Barrier Site 4

S-204
(Longs Pond Rd.)

S-204
(Longs Pond Rd.)

I-20

I-20

Legend

- Impacted Receiver
- Non Impacted Receiver

Interstate 20
Widening Project
Lexington County, S.C.

0 500 1000
SCALE FEET
Aerial Map Source - USDA 2013

N

2037 BUILD NOISE IMPACTS

SHEET: 4 OF 4

9/11/2015
L:\1404601 I-20 Lexington\Environmental\Noise\Prelim_2037 Build_Noise_04.dgn

2015 Existing Noise Levels

ICA Engineering, Inc. 21 April 2015
Will Kerr/Wayne Hall TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: US 378 to US 1 Existing Conditions
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver2	2	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver3	3	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver4	4	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver5	5	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver7	7	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver8	8	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver9	9	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver10	10	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver11	11	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver12	12	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver13	13	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver14	14	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver15	15	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver16	16	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver17	17	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver18	18	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver19	19	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver20	20	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver21	21	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver22	22	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver23	23	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver24	24	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver25	25	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver124	124	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver125	125	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver126	126	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver127	127	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver128	128	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver129	129	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver130	130	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver131	131	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver132	132	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver133	133	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver134	134	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver135	135	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver136	136	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver137	137	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver138	138	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver139	139	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver140	140	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver141	141	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver142	142	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver143	143	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver144	144	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver145	145	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver146	146	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver147	147	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver148	148	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver149	149	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver150	150	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver151	151	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver152	152	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver153	153	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver154	154	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver155	155	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver156	156	1	0.0	72.3	66	72.3	15	Snd Lvl	72.3	0.0	8	-8.0
Receiver157	157	1	0.0	63.0	66	63.0	15	----	63.0	0.0	8	-8.0
Receiver158	158	1	0.0	64.4	66	64.4	15	----	64.4	0.0	8	-8.0
Receiver159	159	1	0.0	63.7	66	63.7	15	----	63.7	0.0	8	-8.0
Receiver160	160	1	0.0	68.0	66	68.0	15	Snd Lvl	68.0	0.0	8	-8.0
Receiver161	161	1	0.0	69.6	66	69.6	15	Snd Lvl	69.6	0.0	8	-8.0
Receiver162	162	1	0.0	64.4	66	64.4	15	----	64.4	0.0	8	-8.0
Receiver163	163	1	0.0	63.5	66	63.5	15	----	63.5	0.0	8	-8.0
Receiver164	164	1	0.0	65.2	66	65.2	15	----	65.2	0.0	8	-8.0

Receiver165	165	1	0.0	71.9	66	71.9	15	Snd Lvl	71.9	0.0	8	-8.0
Receiver166	166	1	0.0	63.9	66	63.9	15	----	63.9	0.0	8	-8.0
Receiver167	167	1	0.0	66.5	66	66.5	15	Snd Lvl	66.5	0.0	8	-8.0
Receiver168	168	1	0.0	63.8	66	63.8	15	----	63.8	0.0	8	-8.0
Receiver169	169	1	0.0	67.5	66	67.5	15	Snd Lvl	67.5	0.0	8	-8.0
Receiver170	170	1	0.0	65.1	66	65.1	15	----	65.1	0.0	8	-8.0
Receiver171	171	1	0.0	68.8	66	68.8	15	Snd Lvl	68.8	0.0	8	-8.0
Receiver172	172	1	0.0	64.5	66	64.5	15	----	64.5	0.0	8	-8.0
Receiver173	173	1	0.0	69.2	66	69.2	15	Snd Lvl	69.2	0.0	8	-8.0
Receiver174	174	1	0.0	73.8	66	73.8	15	Snd Lvl	73.8	0.0	8	-8.0
Receiver175	175	1	0.0	63.2	66	63.2	15	----	63.2	0.0	8	-8.0
Receiver176	176	1	0.0	71.2	66	71.2	15	Snd Lvl	71.2	0.0	8	-8.0
Receiver177	177	1	0.0	65.1	66	65.1	15	----	65.1	0.0	8	-8.0
Receiver178	178	1	0.0	68.3	66	68.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver179	179	1	0.0	73.1	66	73.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver180	180	1	0.0	62.9	66	62.9	15	----	62.9	0.0	8	-8.0
Receiver181	181	1	0.0	64.4	66	64.4	15	----	64.4	0.0	8	-8.0
Receiver182	182	1	0.0	68.5	66	68.5	15	Snd Lvl	68.5	0.0	8	-8.0
Receiver183	183	1	0.0	73.2	66	73.2	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver184	184	1	0.0	70.6	66	70.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver185	185	1	0.0	68.5	66	68.5	15	Snd Lvl	68.5	0.0	8	-8.0
Receiver186	186	1	0.0	66.8	66	66.8	15	Snd Lvl	66.8	0.0	8	-8.0
Receiver189	189	1	0.0	68.2	66	68.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver190	190	1	0.0	75.0	66	75.0	15	Snd Lvl	75.0	0.0	8	-8.0
Receiver191	191	1	0.0	67.8	66	67.8	15	Snd Lvl	67.8	0.0	8	-8.0
Receiver192	192	1	0.0	69.5	66	69.5	15	Snd Lvl	69.5	0.0	8	-8.0
Receiver193	193	1	0.0	68.2	66	68.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver194	194	1	0.0	70.7	66	70.7	15	Snd Lvl	70.7	0.0	8	-8.0
Receiver195	195	1	0.0	65.9	66	65.9	15	----	65.9	0.0	8	-8.0
Receiver196	196	1	0.0	72.6	66	72.6	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver197	197	1	0.0	71.0	66	71.0	15	Snd Lvl	71.0	0.0	8	-8.0
Receiver199	199	1	0.0	75.2	66	75.2	15	Snd Lvl	75.2	0.0	8	-8.0
Receiver200	200	1	0.0	65.6	66	65.6	15	----	65.6	0.0	8	-8.0
Receiver201	201	1	0.0	65.9	66	65.9	15	----	65.9	0.0	8	-8.0
Receiver202	202	1	0.0	70.1	66	70.1	15	Snd Lvl	70.1	0.0	8	-8.0
Receiver203	203	1	0.0	73.1	66	73.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver204	204	1	0.0	74.5	66	74.5	15	Snd Lvl	74.5	0.0	8	-8.0
Receiver205	205	1	0.0	70.6	66	70.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver206	206	1	0.0	73.3	66	73.3	15	Snd Lvl	73.3	0.0	8	-8.0
Receiver207	207	1	0.0	64.0	66	64.0	15	----	64.0	0.0	8	-8.0
Receiver208	208	1	0.0	65.5	66	65.5	15	----	65.5	0.0	8	-8.0

Receiver209	209	1	0.0	64.8	66	64.8	15	----	64.8	0.0	8	-8.0
Receiver210	210	1	0.0	65.3	66	65.3	15	----	65.3	0.0	8	-8.0
Receiver211	211	1	0.0	64.4	66	64.4	15	----	64.4	0.0	8	-8.0
Receiver212	212	1	0.0	65.5	66	65.5	15	----	65.5	0.0	8	-8.0
Receiver213	213	1	0.0	69.0	66	69.0	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver214	214	1	0.0	65.0	66	65.0	15	----	65.0	0.0	8	-8.0
Receiver215	215	1	0.0	66.5	66	66.5	15	Snd Lvl	66.5	0.0	8	-8.0
Receiver218	218	1	0.0	69.7	66	69.7	15	Snd Lvl	69.7	0.0	8	-8.0
Receiver219	219	1	0.0	69.8	66	69.8	15	Snd Lvl	69.8	0.0	8	-8.0
Receiver221	221	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver222	222	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver223	223	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver224	224	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver225	225	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver226	226	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver227	227	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver228	228	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver229	229	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver230	230	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver231	231	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver232	232	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver233	233	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver234	234	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver235	235	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver236	236	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver237	237	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver238	238	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver239	239	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver240	240	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver241	241	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver242	242	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver243	243	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver244	244	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver245	245	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver246	246	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver247	247	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver248	248	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver249	249	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver250	250	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver251	251	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver253	252	1	0.0	69.8	66	69.8	15	Snd Lvl	69.8	0.0	8	-8.0

Receiver254	254	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
Receiver255	255	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
Receiver256	256	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
Receiver257	257	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
Receiver258	258	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
Receiver259	259	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
Receiver260	260	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
Receiver261	261	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
Receiver262	262	1	0.0	73.0	66	73.0	10	Snd Lvl	73.0	0.0	8	-8.0
Receiver263	263	1	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	8	-8.0
Receiver264	264	1	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	8	-8.0
Receiver265	265	1	0.0	72.5	66	72.5	10	Snd Lvl	72.5	0.0	8	-8.0
Receiver266	266	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
Receiver267	267	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
Receiver268	268	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
Receiver269	269	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
Receiver270	270	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
Receiver271	271	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
Receiver272	272	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
Receiver273	273	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
Receiver274	274	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
Receiver275	275	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
Receiver276	276	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
Receiver277	277	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
Receiver278	278	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
Receiver279	279	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
Receiver280	280	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
Receiver281	281	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
Receiver282	282	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
Receiver283	283	1	0.0	71.7	66	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
Receiver284	284	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
Receiver285	285	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
Receiver286	286	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver287	287	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver288	288	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver289	289	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver290	290	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver291	291	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver292	292	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver293	293	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver294	294	1	0.0	71.4	66	71.4	10	Snd Lvl	71.4	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	270	0.0	0.0	0.0
All Impacted	56	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

ICA Engineering, Inc.
Will Kerr/Wayne Hall

22 April 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: I-20 Widening
RUN: US 1 to SC 6 Existing Conditions
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existir		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver2	2	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver3	3	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver4	4	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver5	5	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver7	7	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver8	8	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver9	9	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver10	10	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver11	11	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver12	12	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver13	13	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver14	14	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver15	15	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver16	16	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver17	17	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver18	18	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver19	19	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver20	20	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver21	21	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver22	22	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver23	23	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver24	24	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver25	25	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver26	26	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver27	27	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver28	28	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver29	29	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver30	30	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver31	31	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver32	32	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver33	33	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver34	34	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver35	35	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver36	36	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver37	37	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver39	39	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver40	40	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver41	41	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver42	42	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver43	43	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver44	44	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver45	45	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver46	46	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver47	47	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver48	48	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver49	49	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver50	50	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver52	52	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver53	53	1	0.0	69.4	66	69.4	15	Snd Lvl	69.4	0.0	8	-8.0

Receiver54	54	1	0.0	71.2	66	71.2	15	Snd Lvl	71.2	0.0	8	-8.0
Receiver56	56	1	0.0	74.0	66	74.0	15	Snd Lvl	74.0	0.0	8	-8.0
Receiver58	58	1	0.0	73.1	66	73.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver60	60	1	0.0	72.6	66	72.6	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver61	61	1	0.0	71.0	66	71.0	15	Snd Lvl	71.0	0.0	8	-8.0
Receiver62	62	1	0.0	69.2	66	69.2	15	Snd Lvl	69.2	0.0	8	-8.0
Receiver63	63	1	0.0	70.4	66	70.4	15	Snd Lvl	70.4	0.0	8	-8.0
Receiver65	65	1	0.0	67.7	66	67.7	15	Snd Lvl	67.7	0.0	8	-8.0
Receiver67	67	1	0.0	67.4	66	67.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver68	68	1	0.0	65.4	66	65.4	15	----	65.4	0.0	8	-8.0
Receiver70	70	1	0.0	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver74	74	1	0.0	70.0	66	70.0	15	Snd Lvl	70.0	0.0	8	-8.0
Receiver75	75	1	0.0	70.7	66	70.7	15	Snd Lvl	70.7	0.0	8	-8.0
Receiver76	76	1	0.0	73.2	66	73.2	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver77	77	1	0.0	74.6	66	74.6	15	Snd Lvl	74.6	0.0	8	-8.0
Receiver78	78	1	0.0	71.3	66	71.3	15	Snd Lvl	71.3	0.0	8	-8.0
Receiver80	80	1	0.0	74.1	66	74.1	15	Snd Lvl	74.1	0.0	8	-8.0
Receiver82	82	1	0.0	73.0	66	73.0	15	Snd Lvl	73.0	0.0	8	-8.0
Receiver83	83	1	0.0	76.4	66	76.4	15	Snd Lvl	76.4	0.0	8	-8.0
Receiver84	84	1	0.0	68.9	66	68.9	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver85	85	1	0.0	70.5	66	70.5	15	Snd Lvl	70.5	0.0	8	-8.0
Receiver87	87	1	0.0	65.1	66	65.1	15	----	65.1	0.0	8	-8.0
Receiver89	89	1	0.0	76.9	66	76.9	15	Snd Lvl	76.9	0.0	8	-8.0
Receiver90	90	1	0.0	69.0	66	69.0	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver91	91	1	0.0	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver92	92	1	0.0	75.9	66	75.9	15	Snd Lvl	75.9	0.0	8	-8.0
Receiver93	93	1	0.0	73.6	66	73.6	15	Snd Lvl	73.6	0.0	8	-8.0
Receiver95	95	1	0.0	66.2	66	66.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver96	96	1	0.0	70.7	66	70.7	15	Snd Lvl	70.7	0.0	8	-8.0
Receiver97	97	1	0.0	71.6	66	71.6	15	Snd Lvl	71.6	0.0	8	-8.0
Receiver98	98	1	0.0	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver99	99	1	0.0	72.6	66	72.6	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver100	100	1	0.0	73.8	66	73.8	15	Snd Lvl	73.8	0.0	8	-8.0
Receiver101	101	1	0.0	68.9	66	68.9	15	Snd Lvl	68.9	0.0	8	-8.0

Receiver102	102	1	0.0	71.7	66	71.7	15	Snd Lvl	71.7	0.0	8	-8.0
Receiver103	103	1	0.0	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver104	104	1	0.0	72.4	66	72.4	15	Snd Lvl	72.4	0.0	8	-8.0
Receiver105	105	1	0.0	68.1	66	68.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver106	106	1	0.0	69.1	66	69.1	15	Snd Lvl	69.1	0.0	8	-8.0
Receiver107	107	1	0.0	75.7	66	75.7	15	Snd Lvl	75.7	0.0	8	-8.0
Receiver108	108	1	0.0	69.1	66	69.1	15	Snd Lvl	69.1	0.0	8	-8.0
Receiver109	109	1	0.0	67.7	66	67.7	15	Snd Lvl	67.7	0.0	8	-8.0
Receiver110	110	1	0.0	68.6	66	68.6	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver111	111	1	0.0	66.2	66	66.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver112	112	1	0.0	71.8	66	71.8	15	Snd Lvl	71.8	0.0	8	-8.0
Receiver113	113	1	0.0	68.2	66	68.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver114	114	1	0.0	73.6	66	73.6	15	Snd Lvl	73.6	0.0	8	-8.0
Receiver115	115	1	0.0	73.4	66	73.4	15	Snd Lvl	73.4	0.0	8	-8.0
Receiver116	116	1	0.0	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver117	117	1	0.0	73.2	66	73.2	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver118	118	1	0.0	74.2	66	74.2	15	Snd Lvl	74.2	0.0	8	-8.0
Receiver119	119	1	0.0	73.2	66	73.2	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver120	120	1	0.0	66.9	66	66.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver121	121	1	0.0	65.0	66	65.0	15	----	65.0	0.0	8	-8.0
Receiver122	122	1	0.0	73.9	66	73.9	15	Snd Lvl	73.9	0.0	8	-8.0
Receiver123	123	1	0.0	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver124	124	1	0.0	72.3	66	72.3	15	Snd Lvl	72.3	0.0	8	-8.0
Receiver125	125	1	0.0	71.4	66	71.4	15	Snd Lvl	71.4	0.0	8	-8.0
Receiver126	126	1	0.0	67.0	66	67.0	15	Snd Lvl	67.0	0.0	8	-8.0
Receiver127	127	1	0.0	64.9	66	64.9	15	----	64.9	0.0	8	-8.0
Receiver128	128	1	0.0	72.9	66	72.9	15	Snd Lvl	72.9	0.0	8	-8.0
Receiver129	129	1	0.0	66.7	66	66.7	15	Snd Lvl	66.7	0.0	8	-8.0
Receiver130	130	1	0.0	74.7	66	74.7	15	Snd Lvl	74.7	0.0	8	-8.0
Receiver131	131	1	0.0	71.5	66	71.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver132	132	1	0.0	68.1	66	68.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver133	133	1	0.0	74.1	66	74.1	15	Snd Lvl	74.1	0.0	8	-8.0
Receiver134	134	1	0.0	65.7	66	65.7	15	----	65.7	0.0	8	-8.0
Receiver135	135	1	0.0	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0

Receiver136	136	1	0.0	72.8	66	72.8	15	Snd Lvl	72.8	0.0	8	-8.0
Receiver137	137	1	0.0	73.7	66	73.7	15	Snd Lvl	73.7	0.0	8	-8.0
Receiver138	138	1	0.0	72.2	66	72.2	15	Snd Lvl	72.2	0.0	8	-8.0
Receiver139	139	1	0.0	68.9	66	68.9	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver140	140	1	0.0	65.7	66	65.7	15	----	65.7	0.0	8	-8.0
Receiver141	141	1	0.0	70.6	66	70.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver142	142	1	0.0	71.1	66	71.1	15	Snd Lvl	71.1	0.0	8	-8.0
Receiver143	143	1	0.0	67.9	66	67.9	15	Snd Lvl	67.9	0.0	8	-8.0
Receiver144	144	1	0.0	65.3	66	65.3	15	----	65.3	0.0	8	-8.0
Receiver145	145	1	0.0	65.9	66	65.9	15	----	65.9	0.0	8	-8.0
Receiver146	146	1	0.0	75.2	66	75.2	15	Snd Lvl	75.2	0.0	8	-8.0
Receiver147	147	1	0.0	71.5	66	71.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver148	148	1	0.0	65.5	66	65.5	15	----	65.5	0.0	8	-8.0
Receiver149	149	1	0.0	67.1	66	67.1	15	Snd Lvl	67.1	0.0	8	-8.0
Receiver150	150	1	0.0	73.2	66	73.2	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver151	151	1	0.0	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver152	152	1	0.0	69.5	66	69.5	15	Snd Lvl	69.5	0.0	8	-8.0
Receiver153	153	1	0.0	66.3	66	66.3	15	Snd Lvl	66.3	0.0	8	-8.0
Receiver154	154	1	0.0	75.4	66	75.4	15	Snd Lvl	75.4	0.0	8	-8.0
Receiver155	155	1	0.0	68.9	66	68.9	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver156	156	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver157	157	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver158	158	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver159	159	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver160	160	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver161	161	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver162	162	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver163	163	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver164	164	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver165	165	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver166	166	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver167	167	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver168	168	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver169	169	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver279	279	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver280	280	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver281	281	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver282	282	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver283	283	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver284	284	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver285	285	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver286	286	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver287	287	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver288	288	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver289	289	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver290	290	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver291	291	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver292	292	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver293	293	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver294	294	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	270	0.0	0.0	0.0
All Impacted	80	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

ICA Engineering, Inc. 23 April 2015
Will Kerr/Wayne Hall TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: SC 6 to LPR Existing Conditions
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	73.1	66	73.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver2	2	1	0.0	61.2	66	61.2	15	----	61.2	0.0	8	-8.0
Receiver3	3	1	0.0	62.4	66	62.4	15	----	62.4	0.0	8	-8.0
Receiver4	4	1	0.0	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver5	5	1	0.0	61.8	66	61.8	15	----	61.8	0.0	8	-8.0
Receiver7	7	1	0.0	69.5	66	69.5	15	Snd Lvl	69.5	0.0	8	-8.0
Receiver8	8	1	0.0	62.5	66	62.5	15	----	62.5	0.0	8	-8.0
Receiver9	9	1	0.0	63.0	66	63.0	15	----	63.0	0.0	8	-8.0
Receiver10	10	1	0.0	65.0	66	65.0	15	----	65.0	0.0	8	-8.0
Receiver11	11	1	0.0	61.0	66	61.0	15	----	61.0	0.0	8	-8.0
Receiver12	12	1	0.0	64.2	66	64.2	15	----	64.2	0.0	8	-8.0
Receiver13	13	1	0.0	63.4	66	63.4	15	----	63.4	0.0	8	-8.0
Receiver14	14	1	0.0	70.6	66	70.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver15	15	1	0.0	64.6	66	64.6	15	----	64.6	0.0	8	-8.0
Receiver16	16	1	0.0	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver17	17	1	0.0	65.0	66	65.0	15	----	65.0	0.0	8	-8.0
Receiver18	18	1	0.0	63.0	66	63.0	15	----	63.0	0.0	8	-8.0
Receiver19	19	1	0.0	71.4	66	71.4	15	Snd Lvl	71.4	0.0	8	-8.0
Receiver20	20	1	0.0	64.2	66	64.2	15	----	64.2	0.0	8	-8.0
Receiver21	21	1	0.0	62.6	66	62.6	15	----	62.6	0.0	8	-8.0
Receiver22	22	1	0.0	62.6	66	62.6	15	----	62.6	0.0	8	-8.0
Receiver23	23	1	0.0	63.2	66	63.2	15	----	63.2	0.0	8	-8.0
Receiver24	24	1	0.0	63.2	66	63.2	15	----	63.2	0.0	8	-8.0
Receiver25	25	1	0.0	63.5	66	63.5	15	----	63.5	0.0	8	-8.0

Receiver26	26	1	0.0	63.8	66	63.8	15	----	63.8	0.0	8	-8.0
Receiver27	27	1	0.0	64.1	66	64.1	15	----	64.1	0.0	8	-8.0
Receiver28	28	1	0.0	64.3	66	64.3	15	----	64.3	0.0	8	-8.0
Receiver29	29	1	0.0	64.8	66	64.8	15	----	64.8	0.0	8	-8.0
Receiver30	30	1	0.0	66.8	66	66.8	15	Snd Lvl	66.8	0.0	8	-8.0
Receiver31	31	1	0.0	67.4	66	67.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver32	32	1	0.0	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver33	33	1	0.0	66.3	66	66.3	15	Snd Lvl	66.3	0.0	8	-8.0
Receiver34	34	1	0.0	69.0	66	69.0	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver35	35	1	0.0	65.9	66	65.9	15	----	65.9	0.0	8	-8.0
Receiver36	36	1	0.0	66.9	66	66.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver37	37	1	0.0	64.0	66	64.0	15	----	64.0	0.0	8	-8.0
Receiver39	39	1	0.0	73.0	66	73.0	15	Snd Lvl	73.0	0.0	8	-8.0
Receiver40	40	1	0.0	71.0	66	71.0	15	Snd Lvl	71.0	0.0	8	-8.0
Receiver41	41	1	0.0	70.0	66	70.0	15	Snd Lvl	70.0	0.0	8	-8.0
Receiver42	42	1	0.0	75.2	66	75.2	15	Snd Lvl	75.2	0.0	8	-8.0
Receiver43	43	1	0.0	68.0	66	68.0	15	Snd Lvl	68.0	0.0	8	-8.0
Receiver44	44	1	0.0	74.2	66	74.2	15	Snd Lvl	74.2	0.0	8	-8.0
Receiver45	45	1	0.0	70.0	66	70.0	15	Snd Lvl	70.0	0.0	8	-8.0
Receiver46	46	1	0.0	64.2	66	64.2	15	----	64.2	0.0	8	-8.0
Receiver47	47	1	0.0	73.9	66	73.9	15	Snd Lvl	73.9	0.0	8	-8.0
Receiver48	48	1	0.0	65.7	66	65.7	15	----	65.7	0.0	8	-8.0
Receiver49	49	1	0.0	74.4	66	74.4	15	Snd Lvl	74.4	0.0	8	-8.0
Receiver50	50	1	0.0	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver52	52	1	0.0	64.9	66	64.9	15	----	64.9	0.0	8	-8.0
Receiver53	53	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver54	54	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver56	56	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver58	58	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver60	60	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver61	61	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver62	62	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver63	63	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver65	65	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver67	67	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver68	68	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver70	70	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver74	74	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver75	75	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver76	76	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver77	77	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver209	209	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver210	210	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver211	211	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver212	212	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver213	213	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver214	214	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver215	215	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver218	218	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver219	219	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver221	221	1	0.0	68.7	66	68.7	15	Snd Lvl	68.7	0.0	8	-8.0
Receiver222	222	1	0.0	67.8	66	67.8	15	Snd Lvl	67.8	0.0	8	-8.0
Receiver223	223	1	0.0	67.8	66	67.8	15	Snd Lvl	67.8	0.0	8	-8.0
Receiver224	224	1	0.0	67.0	66	67.0	15	Snd Lvl	67.0	0.0	8	-8.0
Receiver225	225	1	0.0	66.5	66	66.5	15	Snd Lvl	66.5	0.0	8	-8.0
Receiver226	226	1	0.0	66.0	66	66.0	15	Snd Lvl	66.0	0.0	8	-8.0
Receiver227	227	1	0.0	65.7	66	65.7	15	----	65.7	0.0	8	-8.0
Receiver228	228	1	0.0	65.1	66	65.1	15	----	65.1	0.0	8	-8.0
Receiver229	229	1	0.0	64.3	66	64.3	15	----	64.3	0.0	8	-8.0
Receiver230	230	1	0.0	63.5	66	63.5	15	----	63.5	0.0	8	-8.0
Receiver231	231	1	0.0	61.8	66	61.8	15	----	61.8	0.0	8	-8.0
Receiver232	232	1	0.0	67.5	66	67.5	15	Snd Lvl	67.5	0.0	8	-8.0
Receiver233	233	1	0.0	64.8	66	64.8	15	----	64.8	0.0	8	-8.0
Receiver234	234	1	0.0	63.4	66	63.4	15	----	63.4	0.0	8	-8.0
Receiver235	235	1	0.0	65.6	66	65.6	15	----	65.6	0.0	8	-8.0
Receiver236	236	1	0.0	65.3	66	65.3	15	----	65.3	0.0	8	-8.0
Receiver237	237	1	0.0	64.9	66	64.9	15	----	64.9	0.0	8	-8.0
Receiver238	238	1	0.0	64.5	66	64.5	15	----	64.5	0.0	8	-8.0
Receiver239	239	1	0.0	63.2	66	63.2	15	----	63.2	0.0	8	-8.0
Receiver240	240	1	0.0	63.1	66	63.1	15	----	63.1	0.0	8	-8.0
Receiver241	241	1	0.0	62.4	66	62.4	15	----	62.4	0.0	8	-8.0
Receiver242	242	1	0.0	62.0	66	62.0	15	----	62.0	0.0	8	-8.0
Receiver243	243	1	0.0	61.7	66	61.7	15	----	61.7	0.0	8	-8.0
Receiver244	244	1	0.0	61.4	66	61.4	15	----	61.4	0.0	8	-8.0
Receiver245	245	1	0.0	61.0	66	61.0	15	----	61.0	0.0	8	-8.0
Receiver246	246	1	0.0	60.0	66	60.0	15	----	60.0	0.0	8	-8.0
Receiver247	247	1	0.0	59.1	66	59.1	15	----	59.1	0.0	8	-8.0
Receiver248	248	1	0.0	58.7	66	58.7	15	----	58.7	0.0	8	-8.0
Receiver249	249	1	0.0	58.6	66	58.6	15	----	58.6	0.0	8	-8.0
Receiver250	250	1	0.0	60.7	66	60.7	15	----	60.7	0.0	8	-8.0
Receiver251	251	1	0.0	62.0	66	62.0	15	----	62.0	0.0	8	-8.0
Receiver253	252	1	0.0	68.4	66	68.4	15	Snd Lvl	68.4	0.0	8	-8.0

Receiver254	254	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver255	255	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver256	256	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver257	257	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver258	258	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver259	259	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver260	260	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver261	261	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver262	262	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver263	263	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver264	264	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver265	265	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver266	266	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver267	267	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver268	268	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver269	269	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver270	270	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver271	271	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver272	272	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver273	273	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver274	274	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver275	275	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver276	276	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver277	277	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver278	278	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver279	279	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver280	280	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver281	281	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver282	282	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver283	283	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver284	284	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver285	285	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver286	286	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0
Receiver287	287	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
Receiver288	288	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
Receiver289	289	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
Receiver290	290	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
Receiver291	291	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
Receiver292	292	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
Receiver293	293	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
Receiver294	294	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	270	0.0	0.0	0.0
All Impacted	36	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

2037 No-Build Noise Levels

ICA Engineering, Inc.
Will Kerr/Wayne Hall

22 April 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: I-20 Widening
RUN: US 378 to US 1 No Build Conditions
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existir		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver2	2	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver3	3	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver4	4	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver5	5	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver7	7	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver8	8	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver9	9	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver10	10	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver11	11	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver12	12	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver13	13	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver14	14	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver15	15	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver16	16	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver17	17	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver136	136	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver137	137	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver138	138	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver139	139	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver140	140	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver141	141	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver142	142	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver143	143	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver144	144	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver145	145	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver146	146	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver147	147	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver148	148	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver149	149	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver150	150	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver151	151	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver152	152	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver153	153	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver154	154	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver155	155	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver156	156	1	72.3	74.1	66	74.1	15	Snd Lvl	74.1	0.0	8	-8.0
Receiver157	157	1	63.0	64.8	66	64.8	15	----	64.8	0.0	8	-8.0
Receiver158	158	1	64.4	66.2	66	66.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver159	159	1	63.7	65.5	66	65.5	15	----	65.5	0.0	8	-8.0
Receiver160	160	1	68.0	69.8	66	69.8	15	Snd Lvl	69.8	0.0	8	-8.0
Receiver161	161	1	69.6	71.4	66	71.4	15	Snd Lvl	71.4	0.0	8	-8.0
Receiver162	162	1	64.4	66.2	66	66.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver163	163	1	63.5	65.2	66	65.2	15	----	65.2	0.0	8	-8.0
Receiver164	164	1	65.2	67.0	66	67.0	15	Snd Lvl	67.0	0.0	8	-8.0
Receiver165	165	1	71.9	73.7	66	73.7	15	Snd Lvl	73.7	0.0	8	-8.0
Receiver166	166	1	63.9	65.7	66	65.7	15	----	65.7	0.0	8	-8.0
Receiver167	167	1	66.5	68.2	66	68.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver168	168	1	63.8	65.6	66	65.6	15	----	65.6	0.0	8	-8.0
Receiver169	169	1	67.5	69.3	66	69.3	15	Snd Lvl	69.3	0.0	8	-8.0

Receiver170	170	1	65.1	66.9	66	66.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver171	171	1	68.8	70.6	66	70.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver172	172	1	64.5	66.3	66	66.3	15	Snd Lvl	66.3	0.0	8	-8.0
Receiver173	173	1	69.2	71.0	66	71.0	15	Snd Lvl	71.0	0.0	8	-8.0
Receiver174	174	1	73.8	75.6	66	75.6	15	Snd Lvl	75.6	0.0	8	-8.0
Receiver175	175	1	63.2	65.0	66	65.0	15	----	65.0	0.0	8	-8.0
Receiver176	176	1	71.2	73.0	66	73.0	15	Snd Lvl	73.0	0.0	8	-8.0
Receiver177	177	1	65.1	66.9	66	66.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver178	178	1	68.3	70.1	66	70.1	15	Snd Lvl	70.1	0.0	8	-8.0
Receiver179	179	1	73.1	74.8	66	74.8	15	Snd Lvl	74.8	0.0	8	-8.0
Receiver180	180	1	62.9	64.7	66	64.7	15	----	64.7	0.0	8	-8.0
Receiver181	181	1	64.4	66.2	66	66.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver182	182	1	68.5	70.3	66	70.3	15	Snd Lvl	70.3	0.0	8	-8.0
Receiver183	183	1	73.2	75.0	66	75.0	15	Snd Lvl	75.0	0.0	8	-8.0
Receiver184	184	1	70.6	72.4	66	72.4	15	Snd Lvl	72.4	0.0	8	-8.0
Receiver185	185	1	68.5	70.3	66	70.3	15	Snd Lvl	70.3	0.0	8	-8.0
Receiver186	186	1	66.8	68.6	66	68.6	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver189	189	1	68.2	70.0	66	70.0	15	Snd Lvl	70.0	0.0	8	-8.0
Receiver190	190	1	75.0	76.8	66	76.8	15	Snd Lvl	76.8	0.0	8	-8.0
Receiver191	191	1	67.8	69.6	66	69.6	15	Snd Lvl	69.6	0.0	8	-8.0
Receiver192	192	1	69.5	71.3	66	71.3	15	Snd Lvl	71.3	0.0	8	-8.0
Receiver193	193	1	68.2	70.0	66	70.0	15	Snd Lvl	70.0	0.0	8	-8.0
Receiver194	194	1	70.7	72.5	66	72.5	15	Snd Lvl	72.5	0.0	8	-8.0
Receiver195	195	1	65.9	67.7	66	67.7	15	Snd Lvl	67.7	0.0	8	-8.0
Receiver196	196	1	72.6	74.3	66	74.3	15	Snd Lvl	74.3	0.0	8	-8.0
Receiver197	197	1	71.0	72.7	66	72.7	15	Snd Lvl	72.7	0.0	8	-8.0
Receiver199	199	1	75.2	77.0	66	77.0	15	Snd Lvl	77.0	0.0	8	-8.0
Receiver200	200	1	65.6	67.4	66	67.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver201	201	1	65.9	67.7	66	67.7	15	Snd Lvl	67.7	0.0	8	-8.0
Receiver202	202	1	70.1	71.9	66	71.9	15	Snd Lvl	71.9	0.0	8	-8.0
Receiver203	203	1	73.1	74.9	66	74.9	15	Snd Lvl	74.9	0.0	8	-8.0
Receiver204	204	1	74.5	76.2	66	76.2	15	Snd Lvl	76.2	0.0	8	-8.0
Receiver205	205	1	70.6	72.4	66	72.4	15	Snd Lvl	72.4	0.0	8	-8.0
Receiver206	206	1	73.3	75.0	66	75.0	15	Snd Lvl	75.0	0.0	8	-8.0

Receiver207	207	1	64.0	65.8	66	65.8	15	----	65.8	0.0	8	-8.0
Receiver208	208	1	65.5	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver209	209	1	64.8	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver210	210	1	65.3	67.1	66	67.1	15	Snd Lvl	67.1	0.0	8	-8.0
Receiver211	211	1	64.4	66.1	66	66.1	15	Snd Lvl	66.1	0.0	8	-8.0
Receiver212	212	1	65.5	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver213	213	1	69.0	70.8	66	70.8	15	Snd Lvl	70.8	0.0	8	-8.0
Receiver214	214	1	65.0	66.8	66	66.8	15	Snd Lvl	66.8	0.0	8	-8.0
Receiver215	215	1	66.5	68.3	66	68.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver218	218	1	69.7	71.5	66	71.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver219	219	1	69.8	71.6	66	71.6	15	Snd Lvl	71.6	0.0	8	-8.0
Receiver221	221	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver222	222	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver223	223	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver224	224	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver225	225	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver226	226	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver227	227	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver228	228	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver229	229	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver230	230	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver231	231	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver232	232	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver233	233	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver234	234	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver235	235	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver236	236	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver237	237	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver238	238	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver239	239	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver240	240	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver241	241	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver242	242	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver243	243	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver244	244	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver245	245	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver246	246	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver247	247	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver248	248	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver249	249	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver250	250	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver251	251	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver253	252	1	0.0	71.6	66	71.6	15	Snd Lvl	71.6	0.0	8	-8.0
Receiver254	254	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
Receiver255	255	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
Receiver256	256	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
Receiver257	257	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
Receiver258	258	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
Receiver259	259	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
Receiver260	260	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
Receiver261	261	1	0.0	74.0	66	74.0	10	Snd Lvl	74.0	0.0	8	-8.0
Receiver262	262	1	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	8	-8.0
Receiver263	263	1	0.0	75.2	66	75.2	10	Snd Lvl	75.2	0.0	8	-8.0
Receiver264	264	1	0.0	75.2	66	75.2	10	Snd Lvl	75.2	0.0	8	-8.0
Receiver265	265	1	0.0	74.3	66	74.3	10	Snd Lvl	74.3	0.0	8	-8.0
Receiver266	266	1	0.0	72.3	66	72.3	10	Snd Lvl	72.3	0.0	8	-8.0
Receiver267	267	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
Receiver268	268	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
Receiver269	269	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
Receiver270	270	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
Receiver271	271	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
Receiver272	272	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
Receiver273	273	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
Receiver274	274	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
Receiver275	275	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver276	276	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
Receiver277	277	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
Receiver278	278	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0

Receiver279	279	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
Receiver280	280	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
Receiver281	281	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
Receiver282	282	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
Receiver283	283	1	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	8	-8.0
Receiver284	284	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
Receiver285	285	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
Receiver286	286	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver287	287	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver288	288	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver289	289	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver290	290	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver291	291	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver292	292	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver293	293	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver294	294	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	270	0.0	0.0	0.0
All Impacted	81	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

ICA Engineering, Inc.
Will Kerr/Wayne Hall

22 April 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: I-20 Widening
RUN: US 1 to SC 6 No Build Conditions
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existir		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver2	2	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver3	3	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver4	4	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver5	5	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver7	7	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver8	8	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver9	9	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver10	10	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver11	11	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver12	12	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver13	13	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver14	14	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver15	15	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver16	16	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver17	17	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver18	18	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver19	19	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver20	20	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver21	21	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver22	22	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver23	23	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver24	24	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver25	25	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver26	26	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver27	27	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver28	28	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver29	29	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver30	30	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver31	31	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver32	32	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver33	33	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver34	34	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver35	35	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver36	36	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver37	37	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver39	39	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver40	40	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver41	41	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver42	42	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver43	43	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver44	44	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver45	45	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver46	46	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver47	47	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver48	48	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver49	49	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver50	50	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver52	52	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver53	53	1	69.4	70.9	66	70.9	15	Snd Lvl	70.9	0.0	8	-8.0

Receiver54	54	1	71.2	72.7	66	72.7	15	Snd Lvl	72.7	0.0	8	-8.0
Receiver56	56	1	74.0	75.4	66	75.4	15	Snd Lvl	75.4	0.0	8	-8.0
Receiver58	58	1	73.1	74.6	66	74.6	15	Snd Lvl	74.6	0.0	8	-8.0
Receiver60	60	1	72.6	74.1	66	74.1	15	Snd Lvl	74.1	0.0	8	-8.0
Receiver61	61	1	71.0	72.5	66	72.5	15	Snd Lvl	72.5	0.0	8	-8.0
Receiver62	62	1	69.2	70.7	66	70.7	15	Snd Lvl	70.7	0.0	8	-8.0
Receiver63	63	1	70.4	71.9	66	71.9	15	Snd Lvl	71.9	0.0	8	-8.0
Receiver65	65	1	67.7	69.2	66	69.2	15	Snd Lvl	69.2	0.0	8	-8.0
Receiver67	67	1	67.4	68.9	66	68.9	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver68	68	1	65.4	67.0	66	67.0	15	Snd Lvl	67.0	0.0	8	-8.0
Receiver70	70	1	66.6	68.1	66	68.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver74	74	1	70.0	71.5	66	71.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver75	75	1	70.7	72.2	66	72.2	15	Snd Lvl	72.2	0.0	8	-8.0
Receiver76	76	1	73.2	74.8	66	74.8	15	Snd Lvl	74.8	0.0	8	-8.0
Receiver77	77	1	74.6	76.1	66	76.1	15	Snd Lvl	76.1	0.0	8	-8.0
Receiver78	78	1	71.3	72.8	66	72.8	15	Snd Lvl	72.8	0.0	8	-8.0
Receiver80	80	1	74.1	75.6	66	75.6	15	Snd Lvl	75.6	0.0	8	-8.0
Receiver82	82	1	73.0	74.5	66	74.5	15	Snd Lvl	74.5	0.0	8	-8.0
Receiver83	83	1	76.4	77.9	66	77.9	15	Snd Lvl	77.9	0.0	8	-8.0
Receiver84	84	1	68.9	70.4	66	70.4	15	Snd Lvl	70.4	0.0	8	-8.0
Receiver85	85	1	70.5	72.1	66	72.1	15	Snd Lvl	72.1	0.0	8	-8.0
Receiver87	87	1	65.1	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver89	89	1	76.9	78.4	66	78.4	15	Snd Lvl	78.4	0.0	8	-8.0
Receiver90	90	1	69.0	70.5	66	70.5	15	Snd Lvl	70.5	0.0	8	-8.0
Receiver91	91	1	66.4	68.0	66	68.0	15	Snd Lvl	68.0	0.0	8	-8.0
Receiver92	92	1	75.9	77.4	66	77.4	15	Snd Lvl	77.4	0.0	8	-8.0
Receiver93	93	1	73.6	75.1	66	75.1	15	Snd Lvl	75.1	0.0	8	-8.0
Receiver95	95	1	66.2	67.7	66	67.7	15	Snd Lvl	67.7	0.0	8	-8.0
Receiver96	96	1	70.7	72.2	66	72.2	15	Snd Lvl	72.2	0.0	8	-8.0
Receiver97	97	1	71.6	73.1	66	73.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver98	98	1	66.6	68.1	66	68.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver99	99	1	72.6	74.1	66	74.1	15	Snd Lvl	74.1	0.0	8	-8.0
Receiver100	100	1	73.8	75.3	66	75.3	15	Snd Lvl	75.3	0.0	8	-8.0
Receiver101	101	1	68.9	70.4	66	70.4	15	Snd Lvl	70.4	0.0	8	-8.0

Receiver102	102	1	71.7	73.3	66	73.3	15	Snd Lvl	73.3	0.0	8	-8.0
Receiver103	103	1	66.4	67.9	66	67.9	15	Snd Lvl	67.9	0.0	8	-8.0
Receiver104	104	1	72.4	73.9	66	73.9	15	Snd Lvl	73.9	0.0	8	-8.0
Receiver105	105	1	68.1	69.6	66	69.6	15	Snd Lvl	69.6	0.0	8	-8.0
Receiver106	106	1	69.1	70.6	66	70.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver107	107	1	75.7	77.2	66	77.2	15	Snd Lvl	77.2	0.0	8	-8.0
Receiver108	108	1	69.1	70.6	66	70.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver109	109	1	67.7	69.2	66	69.2	15	Snd Lvl	69.2	0.0	8	-8.0
Receiver110	110	1	68.6	70.1	66	70.1	15	Snd Lvl	70.1	0.0	8	-8.0
Receiver111	111	1	66.2	67.8	66	67.8	15	Snd Lvl	67.8	0.0	8	-8.0
Receiver112	112	1	71.8	73.3	66	73.3	15	Snd Lvl	73.3	0.0	8	-8.0
Receiver113	113	1	68.2	69.8	66	69.8	15	Snd Lvl	69.8	0.0	8	-8.0
Receiver114	114	1	73.6	75.1	66	75.1	15	Snd Lvl	75.1	0.0	8	-8.0
Receiver115	115	1	73.4	74.9	66	74.9	15	Snd Lvl	74.9	0.0	8	-8.0
Receiver116	116	1	66.6	68.2	66	68.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver117	117	1	73.2	74.7	66	74.7	15	Snd Lvl	74.7	0.0	8	-8.0
Receiver118	118	1	74.2	75.6	66	75.6	15	Snd Lvl	75.6	0.0	8	-8.0
Receiver119	119	1	73.2	74.7	66	74.7	15	Snd Lvl	74.7	0.0	8	-8.0
Receiver120	120	1	66.9	68.4	66	68.4	15	Snd Lvl	68.4	0.0	8	-8.0
Receiver121	121	1	65.0	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver122	122	1	73.9	75.4	66	75.4	15	Snd Lvl	75.4	0.0	8	-8.0
Receiver123	123	1	67.3	68.8	66	68.8	15	Snd Lvl	68.8	0.0	8	-8.0
Receiver124	124	1	72.3	73.8	66	73.8	15	Snd Lvl	73.8	0.0	8	-8.0
Receiver125	125	1	71.4	72.9	66	72.9	15	Snd Lvl	72.9	0.0	8	-8.0
Receiver126	126	1	67.0	68.5	66	68.5	15	Snd Lvl	68.5	0.0	8	-8.0
Receiver127	127	1	64.9	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver128	128	1	72.9	74.4	66	74.4	15	Snd Lvl	74.4	0.0	8	-8.0
Receiver129	129	1	66.7	68.2	66	68.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver130	130	1	74.7	76.2	66	76.2	15	Snd Lvl	76.2	0.0	8	-8.0
Receiver131	131	1	71.5	73.1	66	73.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver132	132	1	68.1	69.7	66	69.7	15	Snd Lvl	69.7	0.0	8	-8.0
Receiver133	133	1	74.1	75.5	66	75.5	15	Snd Lvl	75.5	0.0	8	-8.0
Receiver134	134	1	65.7	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver135	135	1	66.4	67.9	66	67.9	15	Snd Lvl	67.9	0.0	8	-8.0

Receiver136	136	1	72.8	74.3	66	74.3	15	Snd Lvl	74.3	0.0	8	-8.0
Receiver137	137	1	73.7	75.2	66	75.2	15	Snd Lvl	75.2	0.0	8	-8.0
Receiver138	138	1	72.2	73.7	66	73.7	15	Snd Lvl	73.7	0.0	8	-8.0
Receiver139	139	1	68.9	70.4	66	70.4	15	Snd Lvl	70.4	0.0	8	-8.0
Receiver140	140	1	65.7	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver141	141	1	70.6	72.2	66	72.2	15	Snd Lvl	72.2	0.0	8	-8.0
Receiver142	142	1	71.1	72.6	66	72.6	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver143	143	1	67.9	69.4	66	69.4	15	Snd Lvl	69.4	0.0	8	-8.0
Receiver144	144	1	65.3	66.9	66	66.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver145	145	1	65.9	67.4	66	67.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver146	146	1	75.2	76.8	66	76.8	15	Snd Lvl	76.8	0.0	8	-8.0
Receiver147	147	1	71.5	73.0	66	73.0	15	Snd Lvl	73.0	0.0	8	-8.0
Receiver148	148	1	65.5	67.0	66	67.0	15	Snd Lvl	67.0	0.0	8	-8.0
Receiver149	149	1	67.1	68.6	66	68.6	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver150	150	1	73.2	74.8	66	74.8	15	Snd Lvl	74.8	0.0	8	-8.0
Receiver151	151	1	66.4	67.9	66	67.9	15	Snd Lvl	67.9	0.0	8	-8.0
Receiver152	152	1	69.5	71.1	66	71.1	15	Snd Lvl	71.1	0.0	8	-8.0
Receiver153	153	1	66.3	67.9	66	67.9	15	Snd Lvl	67.9	0.0	8	-8.0
Receiver154	154	1	75.4	76.9	66	76.9	15	Snd Lvl	76.9	0.0	8	-8.0
Receiver155	155	1	68.9	70.4	66	70.4	15	Snd Lvl	70.4	0.0	8	-8.0
Receiver156	156	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver157	157	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver158	158	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver159	159	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver160	160	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver161	161	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver162	162	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver163	163	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver164	164	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver165	165	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver166	166	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver167	167	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver168	168	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver169	169	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver279	279	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver280	280	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver281	281	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver282	282	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver283	283	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver284	284	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver285	285	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver286	286	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver287	287	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver288	288	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver289	289	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver290	290	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver291	291	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver292	292	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver293	293	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver294	294	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	270	0.0	0.0	0.0
All Impacted	89	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

ICA Engineering, Inc. 23 April 2015
Will Kerr/Wayne Hall TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: SC 6 to LPR No Build Conditions
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	73.1	74.4	66	74.4	15	Snd Lvl	74.4	0.0	8	-8.0
Receiver2	2	1	61.2	62.5	66	62.5	15	----	62.5	0.0	8	-8.0
Receiver3	3	1	62.4	63.7	66	63.7	15	----	63.7	0.0	8	-8.0
Receiver4	4	1	67.3	68.7	66	68.7	15	Snd Lvl	68.7	0.0	8	-8.0
Receiver5	5	1	61.8	63.1	66	63.1	15	----	63.1	0.0	8	-8.0
Receiver7	7	1	69.5	70.8	66	70.8	15	Snd Lvl	70.8	0.0	8	-8.0
Receiver8	8	1	62.5	63.8	66	63.8	15	----	63.8	0.0	8	-8.0
Receiver9	9	1	63.0	64.3	66	64.3	15	----	64.3	0.0	8	-8.0
Receiver10	10	1	65.0	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver11	11	1	61.0	62.3	66	62.3	15	----	62.3	0.0	8	-8.0
Receiver12	12	1	64.2	65.5	66	65.5	15	----	65.5	0.0	8	-8.0
Receiver13	13	1	63.4	64.7	66	64.7	15	----	64.7	0.0	8	-8.0
Receiver14	14	1	70.6	72.0	66	72.0	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver15	15	1	64.6	65.9	66	65.9	15	----	65.9	0.0	8	-8.0
Receiver16	16	1	67.3	68.6	66	68.6	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver17	17	1	65.0	66.3	66	66.3	15	Snd Lvl	66.3	0.0	8	-8.0
Receiver18	18	1	63.0	64.4	66	64.4	15	----	64.4	0.0	8	-8.0
Receiver19	19	1	71.4	72.7	66	72.7	15	Snd Lvl	72.7	0.0	8	-8.0
Receiver20	20	1	64.2	65.5	66	65.5	15	----	65.5	0.0	8	-8.0
Receiver21	21	1	62.6	64.0	66	64.0	15	----	64.0	0.0	8	-8.0
Receiver22	22	1	62.6	63.9	66	63.9	15	----	63.9	0.0	8	-8.0
Receiver23	23	1	63.2	64.5	66	64.5	15	----	64.5	0.0	8	-8.0
Receiver24	24	1	63.2	64.6	66	64.6	15	----	64.6	0.0	8	-8.0
Receiver25	25	1	63.5	64.9	66	64.9	15	----	64.9	0.0	8	-8.0

Receiver26	26	1	63.8	65.1	66	65.1	15	----	65.1	0.0	8	-8.0
Receiver27	27	1	64.1	65.5	66	65.5	15	----	65.5	0.0	8	-8.0
Receiver28	28	1	64.3	65.6	66	65.6	15	----	65.6	0.0	8	-8.0
Receiver29	29	1	64.8	66.2	66	66.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver30	30	1	66.8	68.2	66	68.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver31	31	1	67.4	68.7	66	68.7	15	Snd Lvl	68.7	0.0	8	-8.0
Receiver32	32	1	66.6	67.9	66	67.9	15	Snd Lvl	67.9	0.0	8	-8.0
Receiver33	33	1	66.3	67.6	66	67.6	15	Snd Lvl	67.6	0.0	8	-8.0
Receiver34	34	1	69.0	70.3	66	70.3	15	Snd Lvl	70.3	0.0	8	-8.0
Receiver35	35	1	65.9	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver36	36	1	66.9	68.3	66	68.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver37	37	1	64.0	65.4	66	65.4	15	----	65.4	0.0	8	-8.0
Receiver39	39	1	73.0	74.3	66	74.3	15	Snd Lvl	74.3	0.0	8	-8.0
Receiver40	40	1	71.0	72.3	66	72.3	15	Snd Lvl	72.3	0.0	8	-8.0
Receiver41	41	1	70.0	71.3	66	71.3	15	Snd Lvl	71.3	0.0	8	-8.0
Receiver42	42	1	75.2	76.5	66	76.5	15	Snd Lvl	76.5	0.0	8	-8.0
Receiver43	43	1	68.0	69.3	66	69.3	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver44	44	1	74.2	75.5	66	75.5	15	Snd Lvl	75.5	0.0	8	-8.0
Receiver45	45	1	70.0	71.4	66	71.4	15	Snd Lvl	71.4	0.0	8	-8.0
Receiver46	46	1	64.2	65.6	66	65.6	15	----	65.6	0.0	8	-8.0
Receiver47	47	1	73.9	75.2	66	75.2	15	Snd Lvl	75.2	0.0	8	-8.0
Receiver48	48	1	65.7	67.1	66	67.1	15	Snd Lvl	67.1	0.0	8	-8.0
Receiver49	49	1	74.4	75.8	66	75.8	15	Snd Lvl	75.8	0.0	8	-8.0
Receiver50	50	1	66.4	67.7	66	67.7	15	Snd Lvl	67.7	0.0	8	-8.0
Receiver52	52	1	64.9	66.3	66	66.3	15	Snd Lvl	66.3	0.0	8	-8.0
Receiver53	53	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver54	54	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver56	56	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver58	58	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver60	60	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver61	61	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver62	62	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver63	63	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver65	65	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver67	67	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver68	68	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver70	70	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver74	74	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver75	75	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver76	76	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver77	77	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver209	209	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver210	210	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver211	211	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver212	212	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver213	213	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver214	214	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver215	215	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver218	218	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver219	219	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver221	221	1	68.7	70.0	66	70.0	15	Snd Lvl	70.0	0.0	8	-8.0
Receiver222	222	1	67.8	69.2	66	69.2	15	Snd Lvl	69.2	0.0	8	-8.0
Receiver223	223	1	67.8	69.1	66	69.1	15	Snd Lvl	69.1	0.0	8	-8.0
Receiver224	224	1	67.0	68.3	66	68.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver225	225	1	66.5	67.9	66	67.9	15	Snd Lvl	67.9	0.0	8	-8.0
Receiver226	226	1	66.0	67.3	66	67.3	15	Snd Lvl	67.3	0.0	8	-8.0
Receiver227	227	1	65.7	67.1	66	67.1	15	Snd Lvl	67.1	0.0	8	-8.0
Receiver228	228	1	65.1	66.4	66	66.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver229	229	1	64.3	65.6	66	65.6	15	----	65.6	0.0	8	-8.0
Receiver230	230	1	63.5	64.8	66	64.8	15	----	64.8	0.0	8	-8.0
Receiver231	231	1	61.8	63.1	66	63.1	15	----	63.1	0.0	8	-8.0
Receiver232	232	1	67.5	68.8	66	68.8	15	Snd Lvl	68.8	0.0	8	-8.0
Receiver233	233	1	64.8	66.1	66	66.1	15	Snd Lvl	66.1	0.0	8	-8.0
Receiver234	234	1	63.4	64.7	66	64.7	15	----	64.7	0.0	8	-8.0
Receiver235	235	1	65.6	67.0	66	67.0	15	Snd Lvl	67.0	0.0	8	-8.0
Receiver236	236	1	65.3	66.6	66	66.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver237	237	1	64.9	66.2	66	66.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver238	238	1	64.5	65.9	66	65.9	15	----	65.9	0.0	8	-8.0
Receiver239	239	1	63.2	64.5	66	64.5	15	----	64.5	0.0	8	-8.0
Receiver240	240	1	63.1	64.5	66	64.5	15	----	64.5	0.0	8	-8.0
Receiver241	241	1	62.4	63.7	66	63.7	15	----	63.7	0.0	8	-8.0
Receiver242	242	1	62.0	63.3	66	63.3	15	----	63.3	0.0	8	-8.0
Receiver243	243	1	61.7	63.0	66	63.0	15	----	63.0	0.0	8	-8.0
Receiver244	244	1	61.4	62.7	66	62.7	15	----	62.7	0.0	8	-8.0
Receiver245	245	1	61.0	62.3	66	62.3	15	----	62.3	0.0	8	-8.0
Receiver246	246	1	60.0	61.4	66	61.4	15	----	61.4	0.0	8	-8.0
Receiver247	247	1	59.1	60.4	66	60.4	15	----	60.4	0.0	8	-8.0
Receiver248	248	1	58.7	60.0	66	60.0	15	----	60.0	0.0	8	-8.0
Receiver249	249	1	58.6	59.9	66	59.9	15	----	59.9	0.0	8	-8.0
Receiver250	250	1	60.7	62.1	66	62.1	15	----	62.1	0.0	8	-8.0
Receiver251	251	1	62.0	63.4	66	63.4	15	----	63.4	0.0	8	-8.0
Receiver253	252	1	0.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver254	254	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver255	255	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver256	256	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver257	257	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver258	258	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver259	259	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver260	260	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver261	261	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver262	262	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver263	263	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver264	264	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver265	265	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver266	266	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver267	267	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver268	268	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver269	269	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver270	270	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver271	271	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver272	272	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver273	273	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver274	274	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver275	275	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver276	276	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver277	277	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver278	278	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver279	279	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver280	280	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver281	281	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver282	282	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver283	283	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver284	284	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver285	285	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver286	286	1	60.3	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
Receiver287	287	1	66.9	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
Receiver288	288	1	68.4	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
Receiver289	289	1	69.2	70.5	66	70.5	10	Snd Lvl	70.5	0.0	8	-8.0
Receiver290	290	1	69.8	71.2	66	71.2	10	Snd Lvl	71.2	0.0	8	-8.0
Receiver291	291	1	69.9	71.2	66	71.2	10	Snd Lvl	71.2	0.0	8	-8.0
Receiver292	292	1	67.4	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
Receiver293	293	1	65.5	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver294	294	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	270	0.0	0.0	0.0
All Impacted	48	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

2037 Build Noise Levels

ICA Engineeriing
11 May 2015
Will Kerr/Wayne Hall
TNM 2.5
Calculated with TNM 2.5
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC 378 to US 1
BARRIER DESIGN: INPUT HEIGHTS
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver152	152	1	70.0	70.7	66	0.7	15	Snd Lvl	70.7	0.0	8	-8.0
Receiver155	155	1	69.0	69.3	66	0.3	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver156	156	1	72.0	73.1	66	1.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver157	157	1	62.0	63.1	66	1.1	15	----	63.1	0.0	8	-8.0
Receiver158	158	1	63.0	64.3	66	1.3	15	----	64.3	0.0	8	-8.0
Receiver159	159	1	64.0	63.8	66	-0.2	15	----	63.8	0.0	8	-8.0
Receiver160	160	1	68.0	68.3	66	0.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver161	161	1	70.0	70.5	66	0.5	15	Snd Lvl	70.5	0.0	8	-8.0
Receiver162	162	1	64.0	64.4	66	0.4	15	----	64.4	0.0	8	-8.0
Receiver163	163	1	64.0	63.5	66	-0.5	15	----	63.5	0.0	8	-8.0
Receiver164	164	1	65.0	65.3	66	0.3	15	----	65.3	0.0	8	-8.0
Receiver165	165	1	72.0	72.4	66	0.4	15	Snd Lvl	72.4	0.0	8	-8.0
Receiver166	166	1	64.0	64.0	66	0.0	15	----	64.0	0.0	8	-8.0
Receiver167	167	1	67.0	66.3	66	-0.7	15	Snd Lvl	66.3	0.0	8	-8.0
Receiver168	168	1	64.0	64.0	66	0.0	15	----	64.0	0.0	8	-8.0
Receiver169	169	1	68.0	67.6	66	-0.4	15	Snd Lvl	67.6	0.0	8	-8.0
Receiver170	170	1	65.0	65.2	66	0.2	15	----	65.2	0.0	8	-8.0
Receiver171	171	1	69.0	68.9	66	-0.1	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver172	172	1	65.0	64.4	66	-0.6	15	----	64.4	0.0	8	-8.0
Receiver173	173	1	69.0	68.9	66	-0.1	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver174	174	1	74.0	73.4	66	-0.6	15	Snd Lvl	73.4	0.0	8	-8.0
Receiver175	175	1	63.0	63.1	66	0.1	15	----	63.1	0.0	8	-8.0
Receiver176	176	1	71.0	70.9	66	-0.1	15	Snd Lvl	70.9	0.0	8	-8.0
Receiver177	177	1	65.0	64.9	66	-0.1	15	----	64.9	0.0	8	-8.0

Receiver178	178	1	68.0	68.2	66	0.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver179	179	1	73.0	72.6	66	-0.4	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver180	180	1	63.0	62.5	66	-0.5	15	----	62.5	0.0	8	-8.0
Receiver181	181	1	64.0	64.2	66	0.2	15	----	64.2	0.0	8	-8.0
Receiver182	182	1	69.0	68.6	66	-0.4	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver183	183	1	73.0	72.8	66	-0.2	15	Snd Lvl	72.8	0.0	8	-8.0
Receiver184	184	1	71.0	71.2	66	0.2	15	Snd Lvl	71.2	0.0	8	-8.0
Receiver185	185	1	69.0	69.6	66	0.6	15	Snd Lvl	69.6	0.0	8	-8.0
Receiver186	186	1	67.0	68.3	66	1.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver189	189	1	68.0	67.8	66	-0.2	15	Snd Lvl	67.8	0.0	8	-8.0
Receiver190	190	1	75.0	75.4	66	0.4	15	Snd Lvl	75.4	0.0	8	-8.0
Receiver191	191	1	68.0	67.5	66	-0.5	15	Snd Lvl	67.5	0.0	8	-8.0
Receiver192	192	1	70.0	70.6	66	0.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver193	193	1	68.0	70.5	66	2.5	15	Snd Lvl	70.5	0.0	8	-8.0
Receiver194	194	1	71.0	71.4	66	0.4	15	Snd Lvl	71.4	0.0	8	-8.0
Receiver195	195	1	66.0	67.4	66	1.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver196	196	1	73.0	73.3	66	0.3	15	Snd Lvl	73.3	0.0	8	-8.0
Receiver197	197	1	71.0	72.0	66	1.0	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver199	199	1	75.0	75.4	66	0.4	15	Snd Lvl	75.4	0.0	8	-8.0
Receiver200	200	1	66.0	65.7	66	-0.3	15	----	65.7	0.0	8	-8.0
Receiver201	201	1	66.0	66.9	66	0.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver202	202	1	70.0	70.3	66	0.3	15	Snd Lvl	70.3	0.0	8	-8.0
Receiver203	203	1	73.0	73.5	66	0.5	15	Snd Lvl	73.5	0.0	8	-8.0
Receiver204	204	1	75.0	74.5	66	-0.5	15	Snd Lvl	74.5	0.0	8	-8.0
Receiver205	205	1	71.0	71.5	66	0.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver206	206	1	73.0	73.9	66	0.9	15	Snd Lvl	73.9	0.0	8	-8.0
Receiver207	207	1	64.0	64.2	66	0.2	15	----	64.2	0.0	8	-8.0
Receiver208	208	1	66.0	66.0	66	0.0	15	Snd Lvl	66.0	0.0	8	-8.0
Receiver209	209	1	65.0	65.1	66	0.1	15	----	65.1	0.0	8	-8.0
Receiver210	210	1	65.0	65.8	66	0.8	15	----	65.8	0.0	8	-8.0
Receiver211	211	1	64.0	65.6	66	1.6	15	----	65.6	0.0	8	-8.0
Receiver212	212	1	66.0	66.9	66	0.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver213	213	1	69.0	69.8	66	0.8	15	Snd Lvl	69.8	0.0	8	-8.0
Receiver214	214	1	65.0	66.4	66	1.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver215	215	1	67.0	67.9	66	0.9	15	Snd Lvl	67.9	0.0	8	-8.0
Receiver218	218	1	70.0	70.4	66	0.4	15	Snd Lvl	70.4	0.0	8	-8.0
Receiver219	219	1	70.0	67.0	66	-3.0	15	Snd Lvl	67.0	0.0	8	-8.0
Receiver253	226	1	68.0	66.8	66	-1.2	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver254	227	1	68.0	66.8	66	-1.2	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver255	228	1	68.0	64.0	66	-4.0	10	----	64.0	0.0	8	-8.0
Receiver256	229	1	64.0	64.4	66	0.4	10	----	64.4	0.0	8	-8.0

Receiver257	230	1	65.0	65.1	66	0.1	10	----	65.1	0.0	8	-8.0
Receiver258	231	1	65.0	65.5	66	0.5	10	----	65.5	0.0	8	-8.0
Receiver259	232	1	66.0	66.7	66	0.7	10	Snd Lvl	66.7	0.0	8	-8.0
Receiver260	233	1	68.0	73.1	66	5.1	10	Snd Lvl	73.1	0.0	8	-8.0
Receiver261	234	1	72.0	73.5	66	1.5	10	Snd Lvl	73.5	0.0	8	-8.0
Receiver262	235	1	73.0	73.8	66	0.8	10	Snd Lvl	73.8	0.0	8	-8.0
Receiver263	236	1	73.0	74.0	66	1.0	10	Snd Lvl	74.0	0.0	8	-8.0
Receiver264	237	1	73.0	73.9	66	0.9	10	Snd Lvl	73.9	0.0	8	-8.0
Receiver265	238	1	73.0	73.4	66	0.4	10	Snd Lvl	73.4	0.0	8	-8.0
Receiver266	239	1	71.0	71.7	66	0.7	10	Snd Lvl	71.7	0.0	8	-8.0
Receiver267	240	1	69.0	69.9	66	0.9	10	Snd Lvl	69.9	0.0	8	-8.0
Receiver268	241	1	67.0	68.9	66	1.9	10	Snd Lvl	68.9	0.0	8	-8.0
Receiver269	242	1	69.0	69.9	66	0.9	10	Snd Lvl	69.9	0.0	8	-8.0
Receiver270	243	1	68.0	68.8	66	0.8	10	Snd Lvl	68.8	0.0	8	-8.0
Receiver271	244	1	66.0	67.4	66	1.4	10	Snd Lvl	67.4	0.0	8	-8.0
Receiver272	245	1	65.0	66.4	66	1.4	10	Snd Lvl	66.4	0.0	8	-8.0
Receiver273	246	1	66.0	66.2	66	0.2	10	Snd Lvl	66.2	0.0	8	-8.0
Receiver274	247	1	65.0	65.5	66	0.5	10	----	65.5	0.0	8	-8.0
Receiver275	248	1	65.0	65.4	66	0.4	10	----	65.4	0.0	8	-8.0
Receiver276	249	1	64.0	64.5	66	0.5	10	----	64.5	0.0	8	-8.0
Receiver277	250	1	64.0	69.3	66	5.3	10	Snd Lvl	69.3	0.0	8	-8.0
Receiver278	251	1	66.0	67.5	66	1.5	10	Snd Lvl	67.5	0.0	8	-8.0
Receiver279	252	1	64.0	64.9	66	0.9	10	----	64.9	0.0	8	-8.0
Receiver280	253	1	67.0	68.9	66	1.9	10	Snd Lvl	68.9	0.0	8	-8.0
Receiver281	254	1	66.0	67.5	66	1.5	10	Snd Lvl	67.5	0.0	8	-8.0
Receiver282	255	1	69.0	71.2	66	2.2	10	Snd Lvl	71.2	0.0	8	-8.0
Receiver283	256	1	72.0	73.0	66	1.0	10	Snd Lvl	73.0	0.0	8	-8.0
Receiver284	257	1	68.0	66.1	66	-1.9	10	Snd Lvl	66.1	0.0	8	-8.0
Receiver285	258	1	67.0	70.2	66	3.2	10	Snd Lvl	70.2	0.0	8	-8.0
Receiver294	267	1	71.0	69.9	66	-1.1	10	Snd Lvl	69.9	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	95	0.0	0.0	0.0
All Impacted	68	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

ICA Engineeriing
Will Kerr/Wayne Hall
11 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - US1 to SC6
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver54	54	1	71.0	71.3	66	0.3	15	Snd Lvl	71.3	0.0	8	-8.0
Receiver56	56	1	74.0	73.9	66	-0.1	15	Snd Lvl	73.9	0.0	8	-8.0
Receiver58	58	1	73.0	73.2	66	0.2	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver60	60	1	73.0	73.1	66	0.1	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver61	61	1	71.0	72.0	66	1.0	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver62	62	1	69.0	70.6	66	1.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver63	63	1	70.0	71.6	66	1.6	15	Snd Lvl	71.6	0.0	8	-8.0
Receiver65	65	1	68.0	69.3	66	1.3	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver67	67	1	67.0	69.0	66	2.0	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver68	68	1	65.0	67.4	66	2.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver70	70	1	67.0	69.0	66	2.0	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver74	74	1	70.0	71.5	66	1.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver75	75	1	71.0	72.0	66	1.0	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver76	76	1	73.0	73.8	66	0.8	15	Snd Lvl	73.8	0.0	8	-8.0
Receiver77	77	1	75.0	75.0	66	0.0	15	Snd Lvl	75.0	0.0	8	-8.0
Receiver78	78	1	71.0	72.3	66	1.3	15	Snd Lvl	72.3	0.0	8	-8.0
Receiver80	80	1	74.0	74.7	66	0.7	15	Snd Lvl	74.7	0.0	8	-8.0
Receiver82	82	1	73.0	73.6	66	0.6	15	Snd Lvl	73.6	0.0	8	-8.0
Receiver83	83	1	76.0	76.8	66	0.8	15	Snd Lvl	76.8	0.0	8	-8.0
Receiver84	84	1	69.0	69.8	66	0.8	15	Snd Lvl	69.8	0.0	8	-8.0
Receiver85	85	1	71.0	71.6	66	0.6	15	Snd Lvl	71.6	0.0	8	-8.0
Receiver87	87	1	65.0	66.9	66	1.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver89	89	1	77.0	77.0	66	0.0	15	Snd Lvl	77.0	0.0	8	-8.0
Receiver90	90	1	69.0	70.4	66	1.4	15	Snd Lvl	70.4	0.0	8	-8.0

Receiver91	91	1	66.0	68.3	66	2.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver92	92	1	76.0	76.1	66	0.1	15	Snd Lvl	76.1	0.0	8	-8.0
Receiver93	93	1	74.0	74.0	66	0.0	15	Snd Lvl	74.0	0.0	8	-8.0
Receiver95	95	1	66.0	68.0	66	2.0	15	Snd Lvl	68.0	0.0	8	-8.0
Receiver96	96	1	71.0	71.4	66	0.4	15	Snd Lvl	71.4	0.0	8	-8.0
Receiver97	97	1	72.0	72.0	66	0.0	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver98	98	1	67.0	68.2	66	1.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver99	99	1	73.0	74.4	66	1.4	15	Snd Lvl	74.4	0.0	8	-8.0
Receiver100	100	1	74.0	74.3	66	0.3	15	Snd Lvl	74.3	0.0	8	-8.0
Receiver101	101	1	69.0	70.0	66	1.0	15	Snd Lvl	70.0	0.0	8	-8.0
Receiver102	102	1	72.0	73.4	66	1.4	15	Snd Lvl	73.4	0.0	8	-8.0
Receiver103	103	1	66.0	66.7	66	0.7	15	Snd Lvl	66.7	0.0	8	-8.0
Receiver104	104	1	72.0	72.4	66	0.4	15	Snd Lvl	72.4	0.0	8	-8.0
Receiver105	105	1	68.0	68.3	66	0.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver106	106	1	69.0	69.3	66	0.3	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver107	107	1	76.0	75.9	66	-0.1	15	Snd Lvl	75.9	0.0	8	-8.0
Receiver108	108	1	69.0	70.3	66	1.3	15	Snd Lvl	70.3	0.0	8	-8.0
Receiver109	109	1	68.0	69.1	66	1.1	15	Snd Lvl	69.1	0.0	8	-8.0
Receiver110	110	1	69.0	69.7	66	0.7	15	Snd Lvl	69.7	0.0	8	-8.0
Receiver111	111	1	66.0	66.2	66	0.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver112	112	1	72.0	72.4	66	0.4	15	Snd Lvl	72.4	0.0	8	-8.0
Receiver113	113	1	68.0	69.5	66	1.5	15	Snd Lvl	69.5	0.0	8	-8.0
Receiver114	114	1	74.0	74.2	66	0.2	15	Snd Lvl	74.2	0.0	8	-8.0
Receiver115	115	1	73.0	73.8	66	0.8	15	Snd Lvl	73.8	0.0	8	-8.0
Receiver116	116	1	67.0	68.1	66	1.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver117	117	1	73.0	73.6	66	0.6	15	Snd Lvl	73.6	0.0	8	-8.0
Receiver118	118	1	74.0	74.2	66	0.2	15	Snd Lvl	74.2	0.0	8	-8.0
Receiver119	119	1	73.0	73.4	66	0.4	15	Snd Lvl	73.4	0.0	8	-8.0
Receiver120	120	1	67.0	68.3	66	1.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver121	121	1	65.0	66.5	66	1.5	15	Snd Lvl	66.5	0.0	8	-8.0
Receiver122	122	1	74.0	74.1	66	0.1	15	Snd Lvl	74.1	0.0	8	-8.0
Receiver123	123	1	67.0	68.7	66	1.7	15	Snd Lvl	68.7	0.0	8	-8.0
Receiver124	124	1	72.0	72.7	66	0.7	15	Snd Lvl	72.7	0.0	8	-8.0
Receiver125	125	1	71.0	71.9	66	0.9	15	Snd Lvl	71.9	0.0	8	-8.0
Receiver126	126	1	67.0	68.5	66	1.5	15	Snd Lvl	68.5	0.0	8	-8.0
Receiver127	127	1	65.0	66.5	66	1.5	15	Snd Lvl	66.5	0.0	8	-8.0
Receiver128	128	1	73.0	73.3	66	0.3	15	Snd Lvl	73.3	0.0	8	-8.0
Receiver129	129	1	67.0	67.2	66	0.2	15	Snd Lvl	67.2	0.0	8	-8.0
Receiver130	130	1	75.0	75.1	66	0.1	15	Snd Lvl	75.1	0.0	8	-8.0
Receiver131	131	1	72.0	72.2	66	0.2	15	Snd Lvl	72.2	0.0	8	-8.0
Receiver132	132	1	68.0	69.5	66	1.5	15	Snd Lvl	69.5	0.0	8	-8.0

Receiver133	133	1	74.0	74.5	66	0.5	15	Snd Lvl	74.5	0.0	8	-8.0
Receiver134	134	1	66.0	67.4	66	1.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver135	135	1	66.0	68.1	66	2.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver136	136	1	73.0	73.2	66	0.2	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver137	137	1	74.0	74.3	66	0.3	15	Snd Lvl	74.3	0.0	8	-8.0
Receiver138	138	1	72.0	72.6	66	0.6	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver139	139	1	69.0	69.4	66	0.4	15	Snd Lvl	69.4	0.0	8	-8.0
Receiver140	140	1	66.0	66.6	66	0.6	15	Snd Lvl	66.6	0.0	8	-8.0
Receiver141	141	1	71.0	71.1	66	0.1	15	Snd Lvl	71.1	0.0	8	-8.0
Receiver142	142	1	71.0	71.0	66	0.0	15	Snd Lvl	71.0	0.0	8	-8.0
Receiver143	143	1	68.0	68.1	66	0.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver144	144	1	65.0	65.6	66	0.6	15	----	65.6	0.0	8	-8.0
Receiver145	145	1	66.0	66.7	66	0.7	15	Snd Lvl	66.7	0.0	8	-8.0
Receiver146	146	1	75.0	77.0	66	2.0	15	Snd Lvl	77.0	0.0	8	-8.0
Receiver147	147	1	72.0	71.8	66	-0.2	15	Snd Lvl	71.8	0.0	8	-8.0
Receiver148	148	1	66.0	68.1	66	2.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver149	149	1	67.0	68.6	66	1.6	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver150	150	1	73.0	74.2	66	1.2	15	Snd Lvl	74.2	0.0	8	-8.0
Receiver151	151	1	66.0	66.9	66	0.9	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver153	153	1	66.0	68.2	66	2.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver154	154	1	75.0	76.3	66	1.3	15	Snd Lvl	76.3	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	86	0.0	0.0	0.0
All Impacted	85	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

ICA Engineeriing
Will Kerr/Wayne Hall
11 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC6 to Longs Pond
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	73.0	74.9	66	1.9	15	Snd Lvl	74.9	0.0	8	-8.0
Receiver2	2	1	61.0	62.6	66	1.6	15	----	62.6	0.0	8	-8.0
Receiver3	3	1	62.0	63.5	66	1.5	15	----	63.5	0.0	8	-8.0
Receiver4	4	1	67.0	68.5	66	1.5	15	Snd Lvl	68.5	0.0	8	-8.0
Receiver5	5	1	62.0	62.9	66	0.9	15	----	62.9	0.0	8	-8.0
Receiver7	7	1	70.0	70.6	66	0.6	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver8	8	1	63.0	63.8	66	0.8	15	----	63.8	0.0	8	-8.0
Receiver9	9	1	63.0	64.7	66	1.7	15	----	64.7	0.0	8	-8.0
Receiver10	10	1	65.0	66.5	66	1.5	15	Snd Lvl	66.5	0.0	8	-8.0
Receiver11	11	1	61.0	62.1	66	1.1	15	----	62.1	0.0	8	-8.0
Receiver12	12	1	64.0	65.2	66	1.2	15	----	65.2	0.0	8	-8.0
Receiver13	13	1	63.0	73.9	66	10.9	15	Snd Lvl	73.9	0.0	8	-8.0
Receiver14	14	1	71.0	71.5	66	0.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver15	15	1	65.0	65.9	66	0.9	15	----	65.9	0.0	8	-8.0
Receiver16	16	1	67.0	68.4	66	1.4	15	Snd Lvl	68.4	0.0	8	-8.0
Receiver17	17	1	65.0	66.4	66	1.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver18	18	1	63.0	64.0	66	1.0	15	----	64.0	0.0	8	-8.0
Receiver19	19	1	71.0	72.6	66	1.6	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver20	20	1	64.0	66.1	66	2.1	15	Snd Lvl	66.1	0.0	8	-8.0
Receiver21	21	1	63.0	65.1	66	2.1	15	----	65.1	0.0	8	-8.0
Receiver22	22	1	63.0	65.3	66	2.3	15	----	65.3	0.0	8	-8.0
Receiver23	23	1	63.0	65.7	66	2.7	15	----	65.7	0.0	8	-8.0
Receiver24	24	1	63.0	65.8	66	2.8	15	----	65.8	0.0	8	-8.0
Receiver25	25	1	64.0	65.8	66	1.8	15	----	65.8	0.0	8	-8.0

Receiver26	26	1	64.0	66.1	66	2.1	15	Snd Lvl	66.1	0.0	8	-8.0
Receiver27	27	1	64.0	66.2	66	2.2	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver28	28	1	64.0	66.4	66	2.4	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver29	29	1	65.0	66.8	66	1.8	15	Snd Lvl	66.8	0.0	8	-8.0
Receiver30	30	1	67.0	68.3	66	1.3	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver31	31	1	67.0	68.9	66	1.9	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver32	32	1	67.0	68.9	66	1.9	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver33	33	1	66.0	68.6	66	2.6	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver34	34	1	69.0	70.9	66	1.9	15	Snd Lvl	70.9	0.0	8	-8.0
Receiver35	35	1	66.0	68.2	66	2.2	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver36	36	1	67.0	68.7	66	1.7	15	Snd Lvl	68.7	0.0	8	-8.0
Receiver37	37	1	64.0	64.7	66	0.7	15	----	64.7	0.0	8	-8.0
Receiver39	39	1	73.0	74.7	66	1.7	15	Snd Lvl	74.7	0.0	8	-8.0
Receiver40	40	1	71.0	72.7	66	1.7	15	Snd Lvl	72.7	0.0	8	-8.0
Receiver41	41	1	70.0	71.3	66	1.3	15	Snd Lvl	71.3	0.0	8	-8.0
Receiver42	42	1	75.0	77.0	66	2.0	15	Snd Lvl	77.0	0.0	8	-8.0
Receiver43	43	1	68.0	69.9	66	1.9	15	Snd Lvl	69.9	0.0	8	-8.0
Receiver44	44	1	74.0	75.8	66	1.8	15	Snd Lvl	75.8	0.0	8	-8.0
Receiver45	45	1	70.0	72.6	66	2.6	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver46	46	1	64.0	66.5	66	2.5	15	Snd Lvl	66.5	0.0	8	-8.0
Receiver47	47	1	74.0	75.1	66	1.1	15	Snd Lvl	75.1	0.0	8	-8.0
Receiver48	48	1	66.0	68.1	66	2.1	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver49	49	1	74.0	77.1	66	3.1	15	Snd Lvl	77.1	0.0	8	-8.0
Receiver50	50	1	66.0	68.4	66	2.4	15	Snd Lvl	68.4	0.0	8	-8.0
Receiver52	52	1	65.0	67.1	66	2.1	15	Snd Lvl	67.1	0.0	8	-8.0
Receiver53	53	1	69.0	70.3	66	1.3	15	Snd Lvl	70.3	0.0	8	-8.0
Receiver54	54	1	71.0	71.1	66	0.1	15	Snd Lvl	71.1	0.0	8	-8.0
Receiver56	56	1	74.0	73.7	66	-0.3	15	Snd Lvl	73.7	0.0	8	-8.0
Receiver58	58	1	73.0	73.0	66	0.0	15	Snd Lvl	73.0	0.0	8	-8.0
Receiver60	60	1	73.0	73.0	66	0.0	15	Snd Lvl	73.0	0.0	8	-8.0
Receiver61	61	1	71.0	71.9	66	0.9	15	Snd Lvl	71.9	0.0	8	-8.0
Receiver62	62	1	69.0	70.5	66	1.5	15	Snd Lvl	70.5	0.0	8	-8.0
Receiver63	63	1	70.0	71.5	66	1.5	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver65	65	1	68.0	69.3	66	1.3	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver67	67	1	67.0	69.0	66	2.0	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver68	68	1	65.0	67.4	66	2.4	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver70	70	1	67.0	68.9	66	1.9	15	Snd Lvl	68.9	0.0	8	-8.0
Receiver221	221	1	69.0	69.6	66	0.6	10	Snd Lvl	69.6	0.0	8	-8.0
Receiver222	222	1	68.0	68.8	66	0.8	10	Snd Lvl	68.8	0.0	8	-8.0
Receiver223	223	1	68.0	68.9	66	0.9	10	Snd Lvl	68.9	0.0	8	-8.0
Receiver224	224	1	67.0	68.1	66	1.1	10	Snd Lvl	68.1	0.0	8	-8.0

Receiver225	225	1	66.0	67.9	66	1.9	10	Snd Lvl	67.9	0.0	8	-8.0
Receiver226	226	1	66.0	67.5	66	1.5	10	Snd Lvl	67.5	0.0	8	-8.0
Receiver227	227	1	66.0	67.3	66	1.3	10	Snd Lvl	67.3	0.0	8	-8.0
Receiver228	228	1	65.0	66.8	66	1.8	10	Snd Lvl	66.8	0.0	8	-8.0
Receiver229	229	1	64.0	66.1	66	2.1	10	Snd Lvl	66.1	0.0	8	-8.0
Receiver230	230	1	64.0	65.4	66	1.4	10	----	65.4	0.0	8	-8.0
Receiver231	231	1	62.0	64.5	66	2.5	10	----	64.5	0.0	8	-8.0
Receiver232	232	1	68.0	69.0	66	1.0	10	Snd Lvl	69.0	0.0	8	-8.0
Receiver233	233	1	65.0	66.5	66	1.5	10	Snd Lvl	66.5	0.0	8	-8.0
Receiver234	234	1	63.0	65.2	66	2.2	10	----	65.2	0.0	8	-8.0
Receiver235	235	1	66.0	66.9	66	0.9	10	Snd Lvl	66.9	0.0	8	-8.0
Receiver236	236	1	65.0	66.6	66	1.6	10	Snd Lvl	66.6	0.0	8	-8.0
Receiver237	237	1	65.0	66.2	66	1.2	10	Snd Lvl	66.2	0.0	8	-8.0
Receiver238	238	1	65.0	66.0	66	1.0	10	Snd Lvl	66.0	0.0	8	-8.0
Receiver239	239	1	63.0	64.9	66	1.9	10	----	64.9	0.0	8	-8.0
Receiver240	240	1	63.0	65.0	66	2.0	10	----	65.0	0.0	8	-8.0
Receiver241	241	1	62.0	64.2	66	2.2	10	----	64.2	0.0	8	-8.0
Receiver242	242	1	62.0	63.9	66	1.9	10	----	63.9	0.0	8	-8.0
Receiver243	243	1	62.0	63.7	66	1.7	10	----	63.7	0.0	8	-8.0
Receiver244	244	1	61.0	63.4	66	2.4	10	----	63.4	0.0	8	-8.0
Receiver245	245	1	61.0	62.9	66	1.9	10	----	62.9	0.0	8	-8.0
Receiver246	246	1	60.0	61.8	66	1.8	10	----	61.8	0.0	8	-8.0
Receiver247	247	1	59.0	61.1	66	2.1	10	----	61.1	0.0	8	-8.0
Receiver248	248	1	59.0	60.6	66	1.6	10	----	60.6	0.0	8	-8.0
Receiver249	249	1	59.0	60.5	66	1.5	10	----	60.5	0.0	8	-8.0
Receiver250	250	1	61.0	62.5	66	1.5	10	----	62.5	0.0	8	-8.0
Receiver251	251	1	62.0	63.8	66	1.8	10	----	63.8	0.0	8	-8.0
Receiver252	252	1	64.0	67.2	66	3.2	10	Snd Lvl	67.2	0.0	8	-8.0
Receiver286	254	1	60.0	68.3	66	8.3	10	Snd Lvl	68.3	0.0	8	-8.0
Receiver287	255	1	67.0	68.7	66	1.7	10	Snd Lvl	68.7	0.0	8	-8.0
Receiver288	256	1	68.0	70.1	66	2.1	10	Snd Lvl	70.1	0.0	8	-8.0
Receiver289	257	1	69.0	70.7	66	1.7	10	Snd Lvl	70.7	0.0	8	-8.0
Receiver290	258	1	70.0	71.5	66	1.5	10	Snd Lvl	71.5	0.0	8	-8.0
Receiver291	259	1	70.0	71.3	66	1.3	10	Snd Lvl	71.3	0.0	8	-8.0
Receiver292	260	1	67.0	69.1	66	2.1	10	Snd Lvl	69.1	0.0	8	-8.0
Receiver293	261	1	66.0	67.5	66	1.5	10	Snd Lvl	67.5	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	101	0.0	0.0	0.0
All Impacted	70	0.0	0.0	0.0

All that meet NR Goal		0	0.0	0.0	0.0							

Noise Measurement Data Sheets

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 1	Date: 10-27-14
Site Description: Single-Family Residential		Site Location: 222 Cromer Road	
Start Time:	1:08 pm	Sound Metric:	Level:
End Time:	1:22 pm	L_{eq}:	66.6
Temperature:	75	L_{min}:	51.9
Wind Speed:	1 mph	L_{max}:	81.6
Cloud Cover:	None		

Road Name: I-20 Notes: This is a second measurement period. The first ended early due to battery failure.	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	348	334
Typical Section: 3 lanes each direction	Medium Trucks:	11	12
	Heavy Trucks:	43	48
	Buses:	0	0
Speed Limit: 60 mph	Motorcycles:	1	0

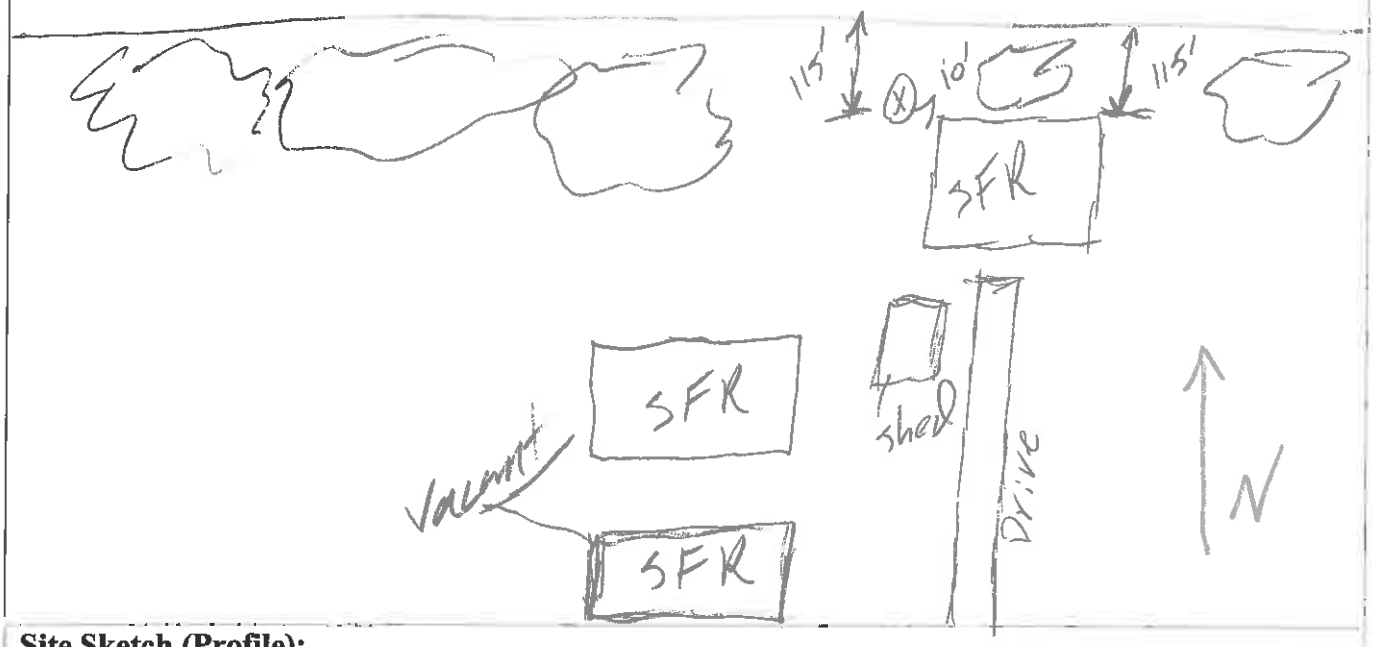
ICA Engineering, Inc.

Field Personnel: Will Kerr / Wayne Hall

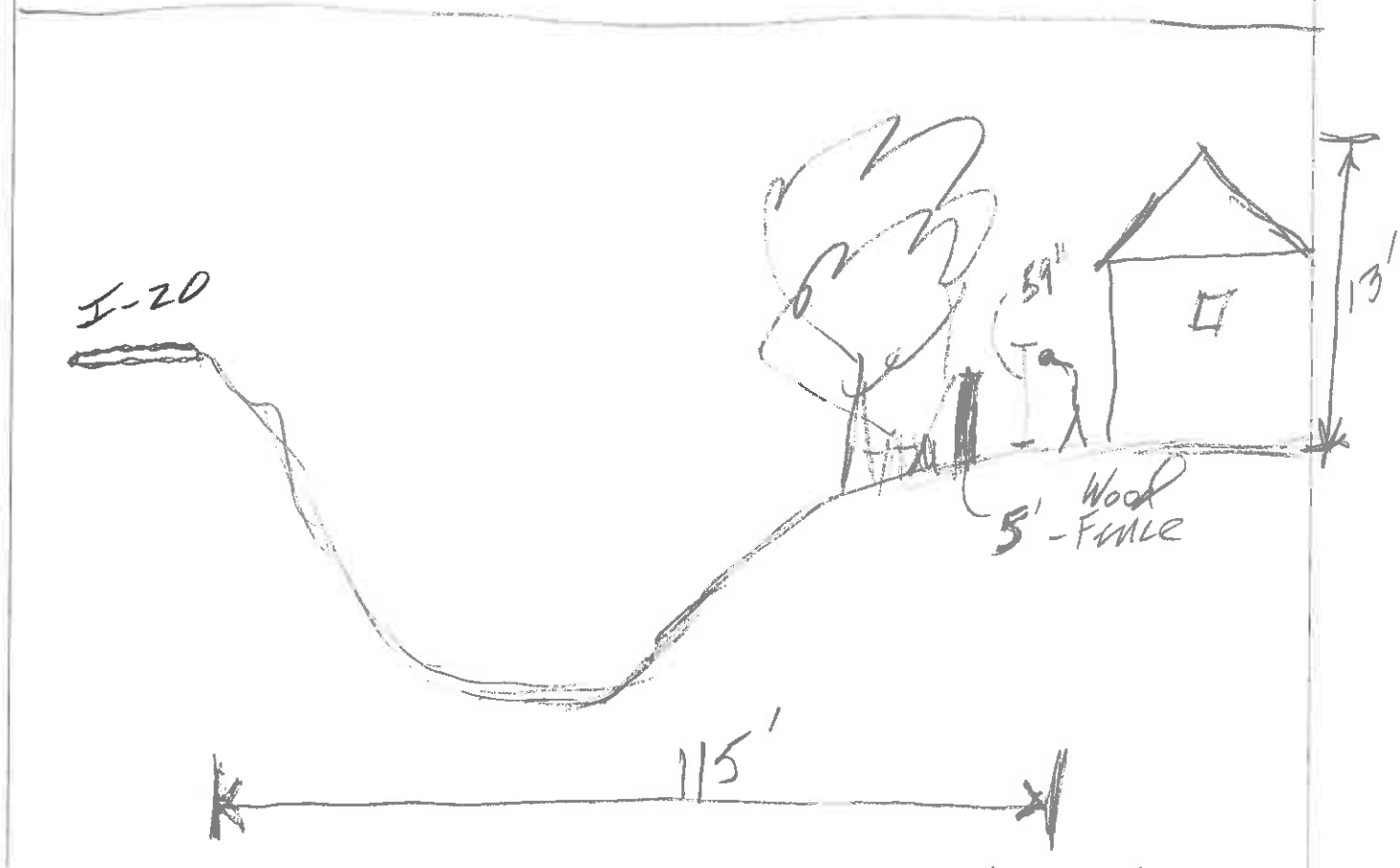
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 10-27-14 **Project:** I-20 Improvements **Location:** ST-222 Cromer Road

Site Sketch (Plan View):



Site Sketch (Profile):



ICA Engineering, Inc.

Field Personnel: Will Kerr/Wayne Ha

SITE 1

		SITE 1					
		218 Glenforest Court (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		66.6			81.6	81.6	
0	(2014-10-27 13:08:39.000)	65.2		3311311.21	72.9	72.9	91.6
1	(2014-10-27 13:09:39.000)	65.6		3630780.55	73.6	73.6	92.6
2	(2014-10-27 13:10:39.000)	64.9		3090295.43	72.1	72.1	91.2
3	(2014-10-27 13:11:39.000)	69.7		9332543.01	81.6	81.6	96.5
4	(2014-10-27 13:12:39.000)	66.5		4466835.92	75.7	75.7	91.7
5	(2014-10-27 13:13:39.000)	66.4		4365158.32	74.0	74.0	94.3
6	(2014-10-27 13:14:39.000)	65.7		3715352.29	75.6	75.6	91.0
7	(2014-10-27 13:15:39.000)	66.8		4786300.92	73.6	73.6	96.6
8	(2014-10-27 13:16:39.000)	66		3981071.71	77.4	77.4	93.9
9	(2014-10-27 13:17:39.000)	67.1		5128613.84	74.5	74.5	92.0
10	(2014-10-27 13:18:39.000)	66.6		4570881.9	74.3	74.3	91.8
11	(2014-10-27 13:19:39.000)	64.8		3019951.72	70.6	70.6	86.8
12	(2014-10-27 13:20:39.000)	68.2		6606934.48	78.1	78.1	93.4
13	(2014-10-27 13:21:39.000)	67.2		5248074.6	73.3	73.3	91.4
14	(2014-10-27 13:22:39.000)	65.3		3388441.56	72.0	72.0	88.9

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 2	Date: 10-27-14
Site Description: School		Site Location: Meadow Glen Elementary School, 510 Ginny Lane	
Start Time:	5:07 pm	Sound Metric:	Level:
End Time:	5:21 pm	L_{eq}:	67.5
Temperature:	73	L_{min}:	63.4
Wind Speed:	0	L_{max}:	72.7
Cloud Cover:	Clear		

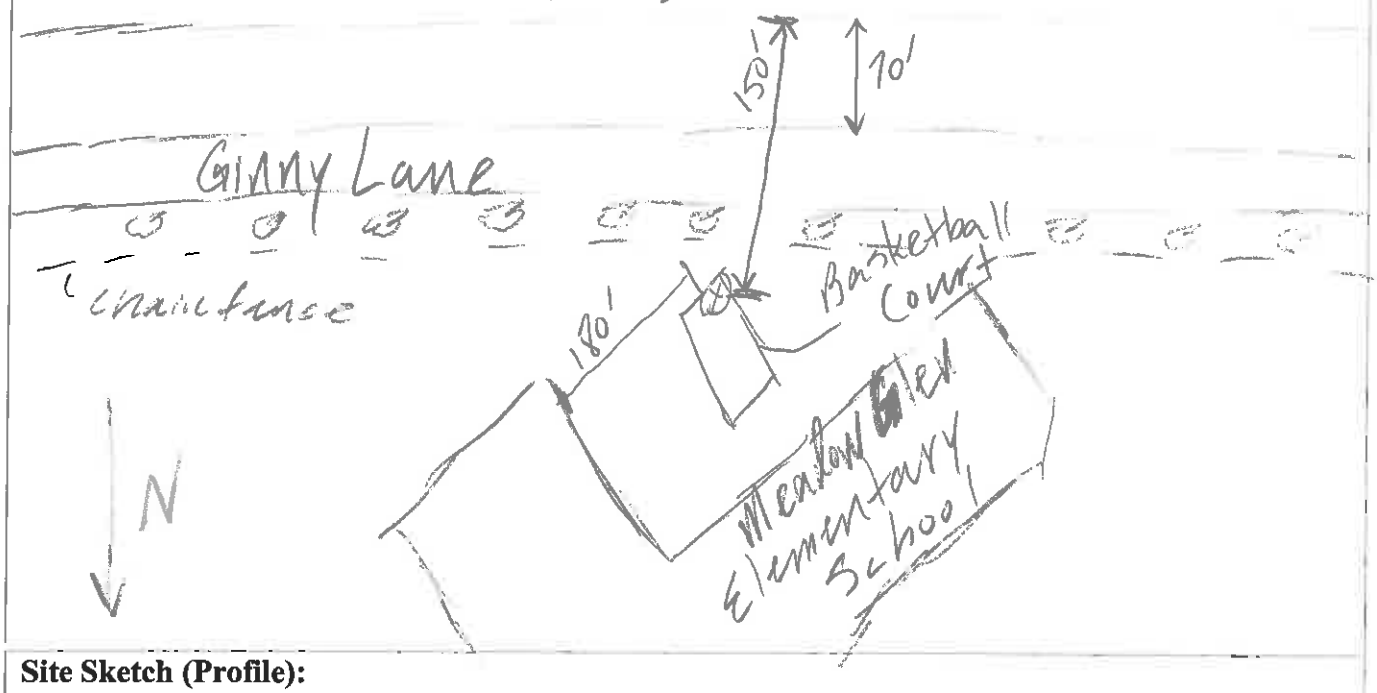
Road Name: I-20	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	476	915
Typical Section: 2 lanes each direction	Medium Trucks:	6	6
	Heavy Trucks:	55	30
	Buses:	2	0
Speed Limit: 60 mph	Motorcycles:	0	0

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

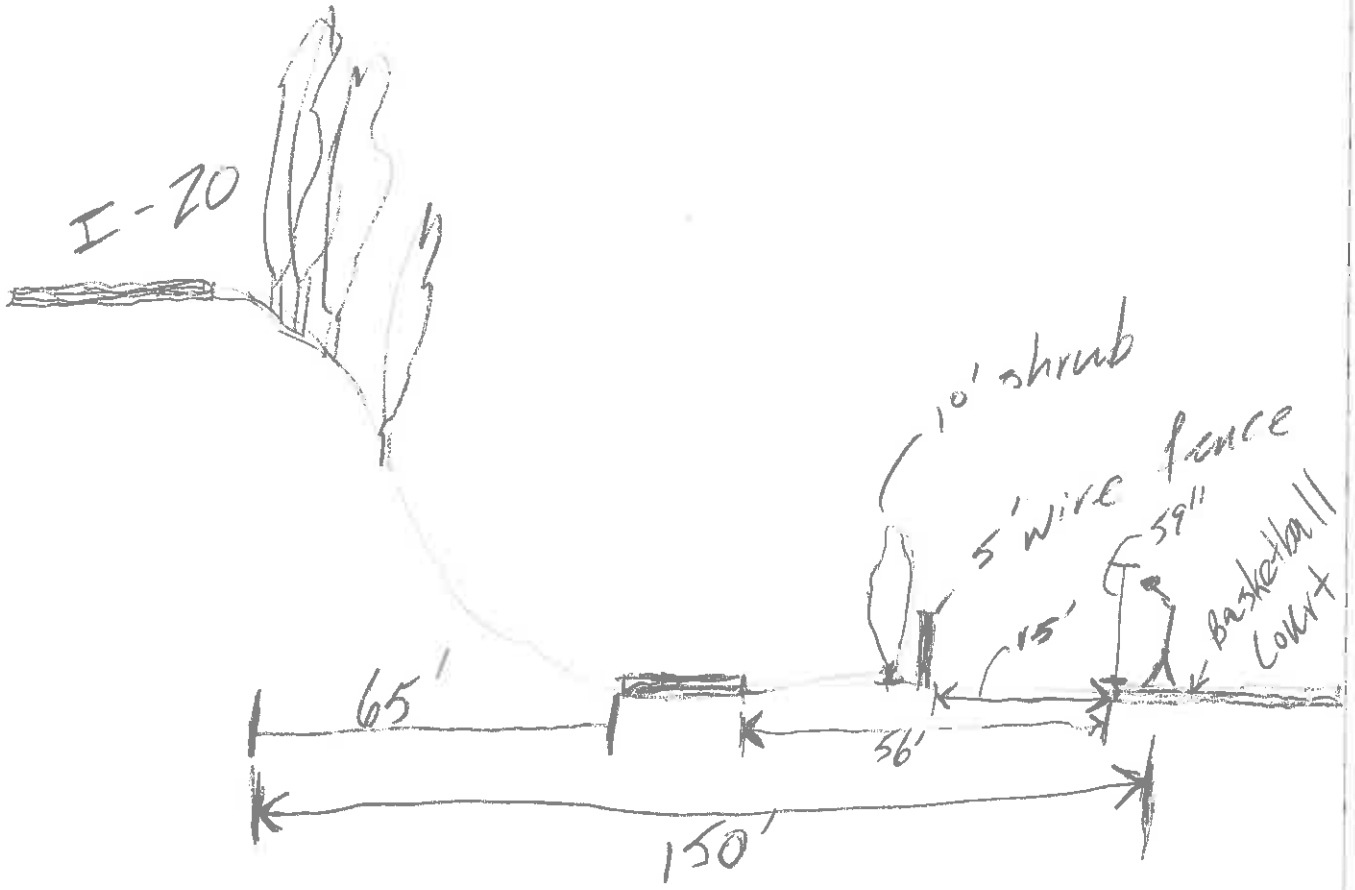
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 10-27-14 **Project:** I-20 Improvements **Location:** ST2 - Meadow Glen Elem. School

Site Sketch (Plan View):



Site Sketch (Profile):



ICA Engineering, Inc.

Field Personnel: Will Kerr/Wayne Hall

SITE 2

		SITE 2					
		Meadow Glen Elementary School (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		67.5			72.7	72.7	
0	(2014-10-27 17:07:33.000)	68.6		7244359.6	72.7	72.7	90.7
1	(2014-10-27 17:08:33.000)	67.4		5495408.74	69.5	69.5	88.7
2	(2014-10-27 17:09:33.000)	67.6		5754399.37	69.5	69.5	91.0
3	(2014-10-27 17:10:33.000)	67.5		5623413.25	69.7	69.7	88.9
4	(2014-10-27 17:11:33.000)	67.8		6025595.86	70.7	70.7	90.1
5	(2014-10-27 17:12:33.000)	67.3		5370317.96	70.2	70.2	90.9
6	(2014-10-27 17:13:33.000)	67.6		5754399.37	69.4	69.4	89.8
7	(2014-10-27 17:14:33.000)	67.0		5011872.34	69.4	69.4	90.5
8	(2014-10-27 17:15:33.000)	67.7		5888436.55	70.7	70.7	90.8
9	(2014-10-27 17:16:33.000)	67.5		5623413.25	70.5	70.5	88.8
10	(2014-10-27 17:17:33.000)	68.1		6456542.29	71.2	71.2	90.9
11	(2014-10-27 17:18:33.000)	67.7		5888436.55	70.9	70.9	91.1
12	(2014-10-27 17:19:33.000)	67.3		5370317.96	70.2	70.2	89.5
13	(2014-10-27 17:20:33.000)	66.1		4073802.78	67.9	67.9	88.3
14	(2014-10-27 17:21:33.000)	67.0		5011872.34	69.1	69.1	91.6

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 3	Date: 10-27-14
Site Description: Single Family Residence		Site Location: 100 Chamfort Drive	
Start Time:	4:38 pm	Sound Metric:	Level:
End Time:	4:52 pm	L_{eq}:	72.7
Temperature:	84	L_{min}:	67.5
Wind Speed:	0	L_{max}:	82.8
Cloud Cover:	Clear		

Road Name: I-20	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	386	815
Typical Section: 2 lanes each direction	Medium Trucks:	12	21
	Heavy Trucks:	49	44
	Buses:	0	0
Speed Limit: 60 mph	Motorcycles:	0	1

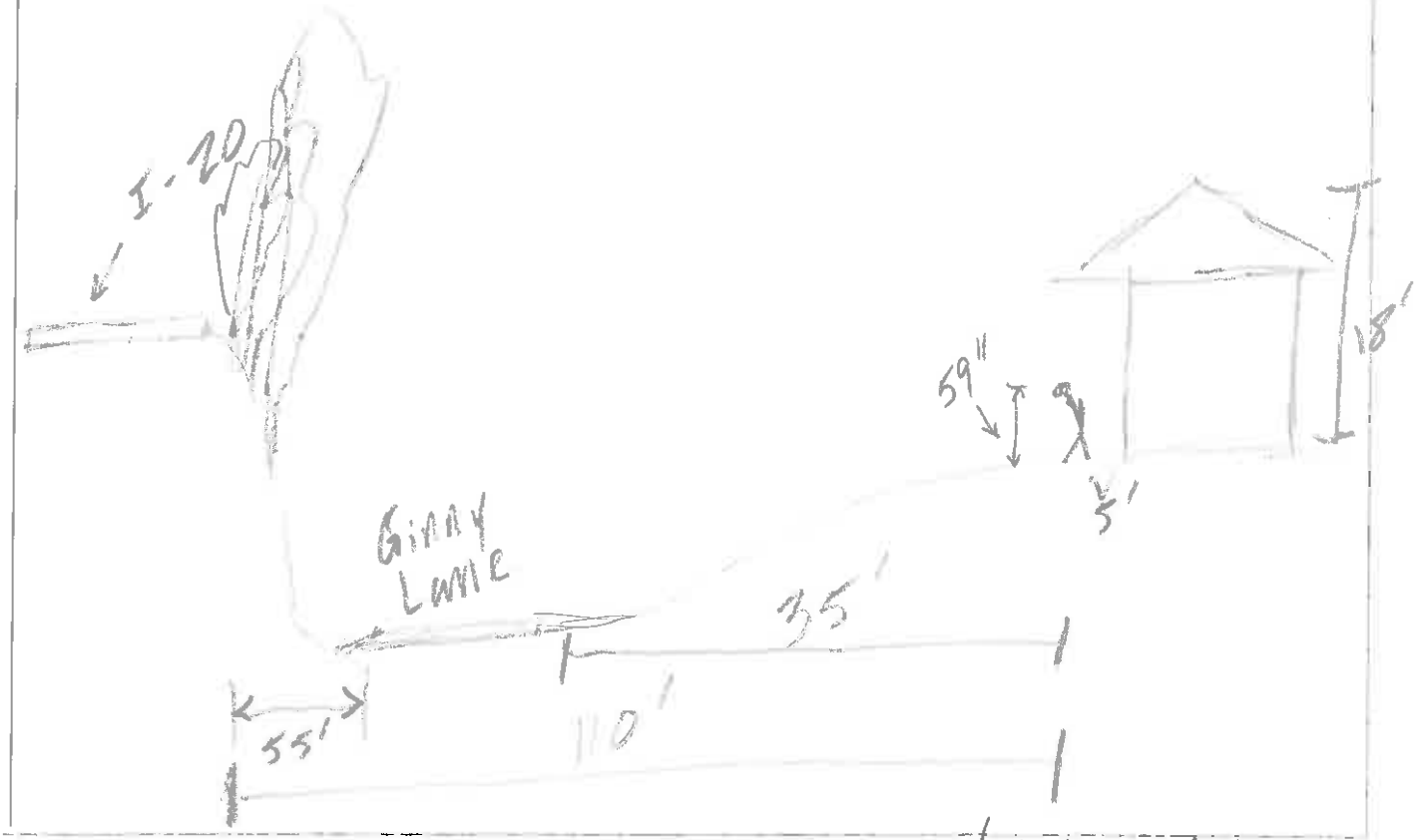
ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:	Project:	Location:
10-27-14	I-20 Improvements	ST3- 100 Chamberl Drive

Site Sketch (Plan View):

Site Sketch (Profile):



ICA Engineering, Inc.

Field Personnel: Will Kerr/Wayne Hall

SITE 3							
		SITE 3					
		100 Chamfort Drive (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		72.7			82.8	82.8	
0	(2014-10-27 16:38:02.000)	73.6		22908676.5	82.8	82.8	94.3
1	(2014-10-27 16:39:02.000)	73.2		20892961.3	75.6	75.6	95.2
2	(2014-10-27 16:40:02.000)	72.0		15848931.9	74.4	74.4	93.0
3	(2014-10-27 16:41:02.000)	73.4		21877616.2	76.0	76.0	93.6
4	(2014-10-27 16:42:02.000)	72.9		19498446	75.3	75.3	95.9
5	(2014-10-27 16:43:02.000)	72.3		16982436.5	74.9	74.9	92.4
6	(2014-10-27 16:44:02.000)	73.0		19952623.1	75.3	75.3	94.1
7	(2014-10-27 16:45:02.000)	72.3		16982436.5	74.7	74.7	91.4
8	(2014-10-27 16:46:02.000)	72.5		17782794.1	74.8	74.8	92.6
9	(2014-10-27 16:47:02.000)	72.8		19054607.2	76.2	76.2	94.2
10	(2014-10-27 16:48:02.000)	72.9		19498446	75.6	75.6	93.6
11	(2014-10-27 16:49:02.000)	72.6		18197008.6	77.4	77.4	93.2
12	(2014-10-27 16:50:02.000)	72.1		16218101	74.5	74.5	91.0
13	(2014-10-27 16:51:02.000)	72.0		15848931.9	75.1	75.1	95.0
14	(2014-10-27 16:52:02.000)	71.8		15135612.5	74.5	74.5	91.2

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 4	Date: 10-27-14
Site Description: Single Family Residence		Site Location: 198 Woodside Road	
Start Time:	12:04 pm	Sound Metric:	Level:
End Time:	12:18 pm	L_{eq}:	72.2
Temperature:	73	L_{min}:	63.4
Wind Speed:	0	L_{max}:	79.8
Cloud Cover:	Clear		

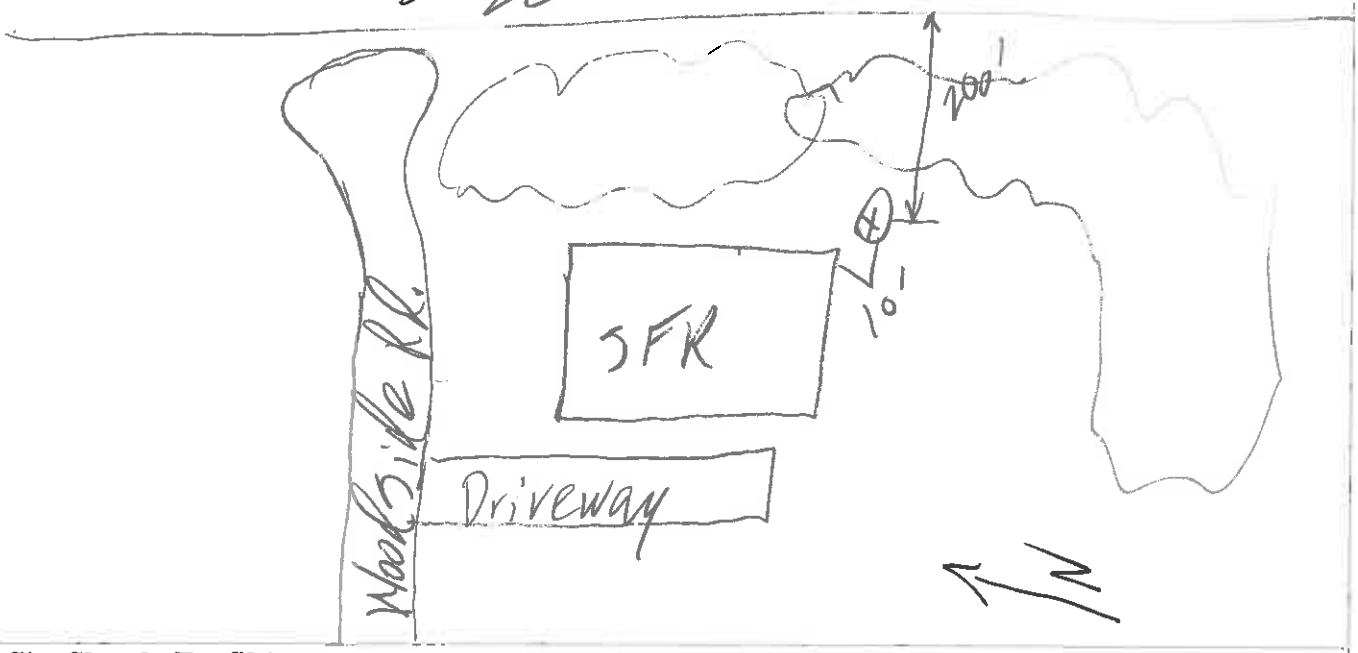
Road Name: I-20	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	320	329
Typical Section: 2 lanes each direction	Medium Trucks:	5	8
	Heavy Trucks:	42	37
	Buses:	0	2
Speed Limit: 70 mph	Motorcycles:	2	0

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

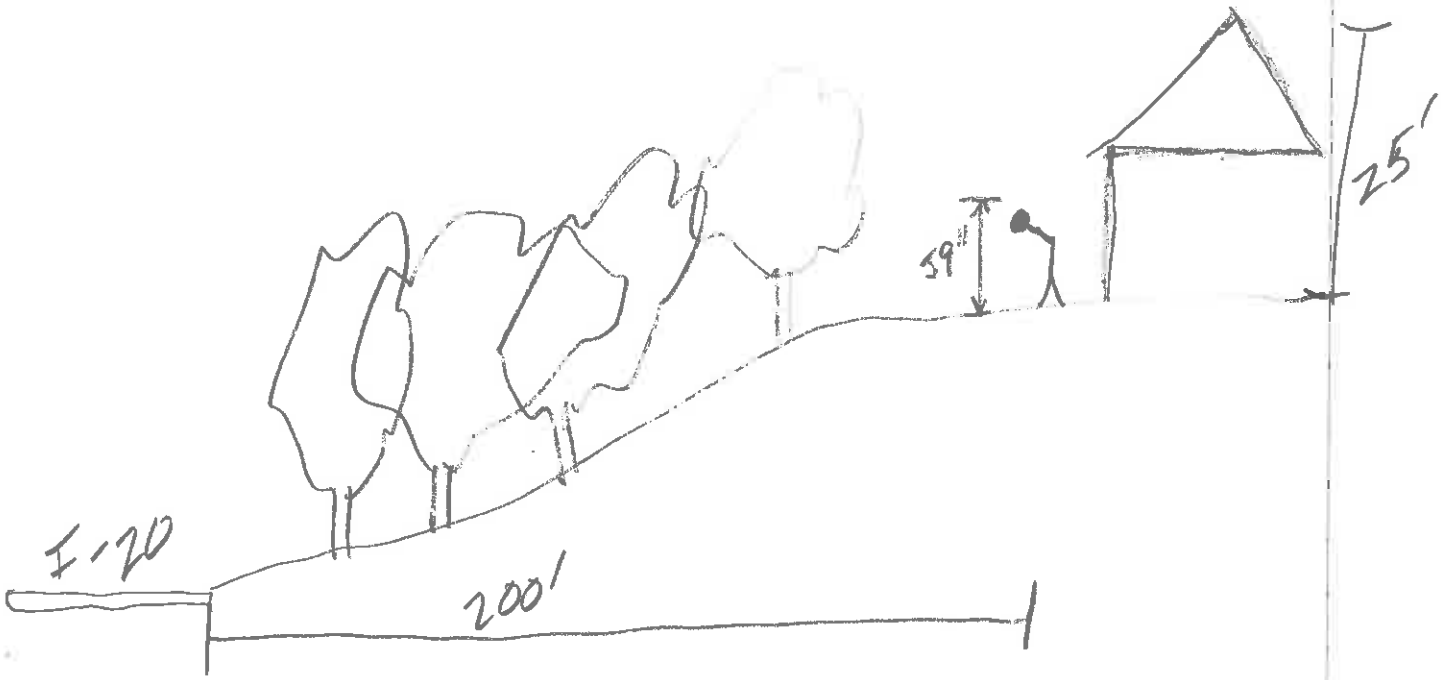
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 10-27-14 **Project:** I-20 Improvements **Location:** STA-198 Woodside Rd.

Site Sketch (Plan View):



Site Sketch (Profile):



ICA Engineering, Inc.

Field Personnel: Will Kerr/Wayne Hall

SITE 4

		SITE 4					
		198 Woodside Road (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		72.2			79.8	79.8	
0	(2014-10-27 12:04:08.000)	72.4		17378008.3	75.6	75.6	93.8
1	(2014-10-27 12:05:08.000)	71.2		13182567.4	76.5	76.5	95.4
2	(2014-10-27 12:06:08.000)	72.4		17378008.3	76.5	76.5	95.6
3	(2014-10-27 12:07:08.000)	72.5		17782794.1	76.4	76.4	92.5
4	(2014-10-27 12:08:08.000)	71.6		14454397.7	74.9	74.9	94.1
5	(2014-10-27 12:09:08.000)	72.3		16982436.5	75.6	75.6	90.3
6	(2014-10-27 12:10:08.000)	71.1		12882495.5	75.3	75.3	95.0
7	(2014-10-27 12:11:08.000)	71.4		13803842.6	76.4	76.4	91.3
8	(2014-10-27 12:12:08.000)	73.0		19952623.1	76.6	76.6	93.4
9	(2014-10-27 12:13:08.000)	72.9		19498446	77.4	77.4	93.7
10	(2014-10-27 12:14:08.000)	73.8		23988329.2	79.8	79.8	96.8
11	(2014-10-27 12:15:08.000)	71.0		12589254.1	75.8	75.8	90.2
12	(2014-10-27 12:16:08.000)	73.2		20892961.3	77.6	77.6	96.1
13	(2014-10-27 12:17:08.000)	71.2		13182567.4	75.7	75.7	89.3
14	(2014-10-27 12:18:08.000)	71.7		14791083.9	75.2	75.2	95.3

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 5	Date: 10-27-14
Site Description: Single Family Residence		Site Location: 763 Cromer Road	
Start Time:	11:30 am	Sound Metric:	Level:
End Time:	11:45 am	L_{eq}:	69.3
Temperature:	69	L_{min}:	59.7
Wind Speed:	0	L_{max}:	77.7
Cloud Cover:	Clear		

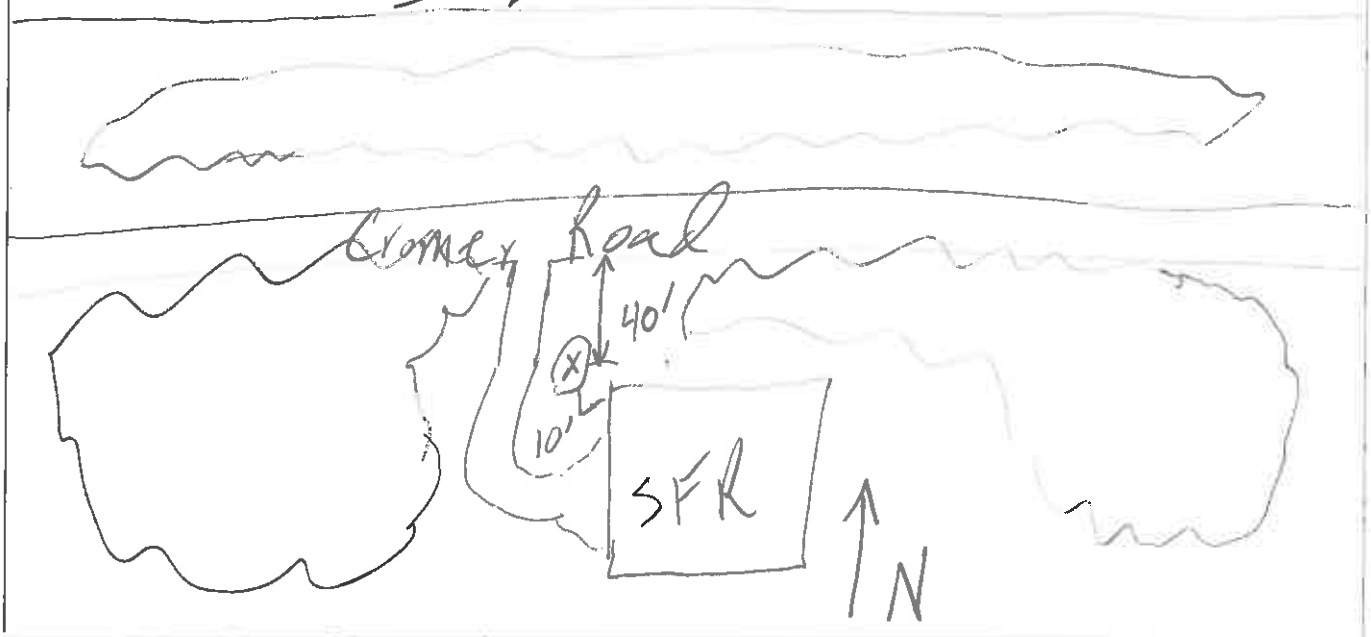
Road Name: I-20	Traffic Counts	I-20 Direction (EB)	I-20 Direction (WB)	Cromer Road (EB)	Cromer Road (WB)
	Autos:	420	234	18	12
Typical Section: 2 lanes each direction	Medium Trucks:	18	8	0	1
	Heavy Trucks:	38	52	1	0
	Buses:	0	1	0	0
Speed Limit: 70 mph (I-20) 35 mph (Cromer Road)	Motorcycles:	1	0	0	0

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

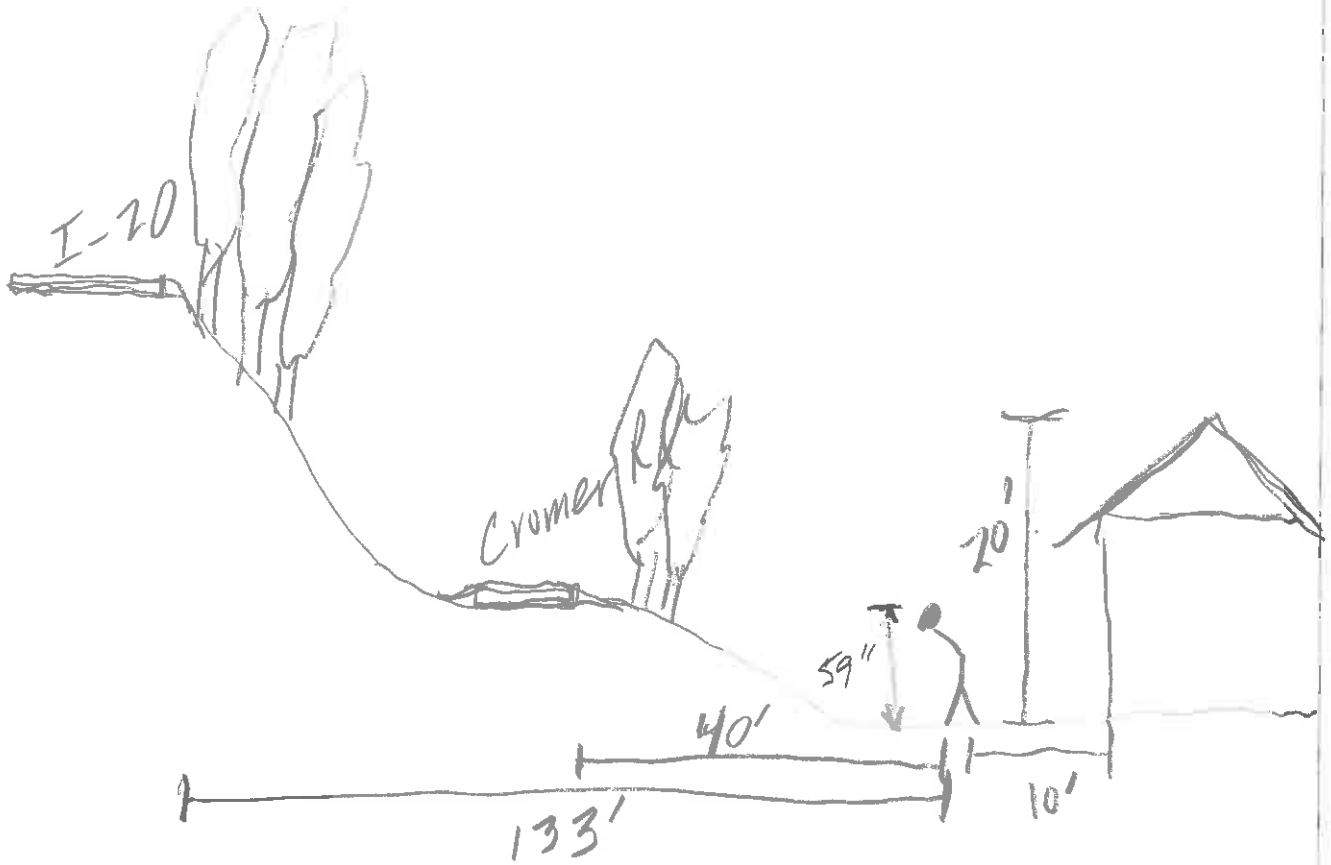
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 10-27-14 **Project:** I-20 Improvements **Location:** STS-763 Cromer Rd.

Site Sketch (Plan View):



Site Sketch (Profile):



ICA Engineering, Inc.

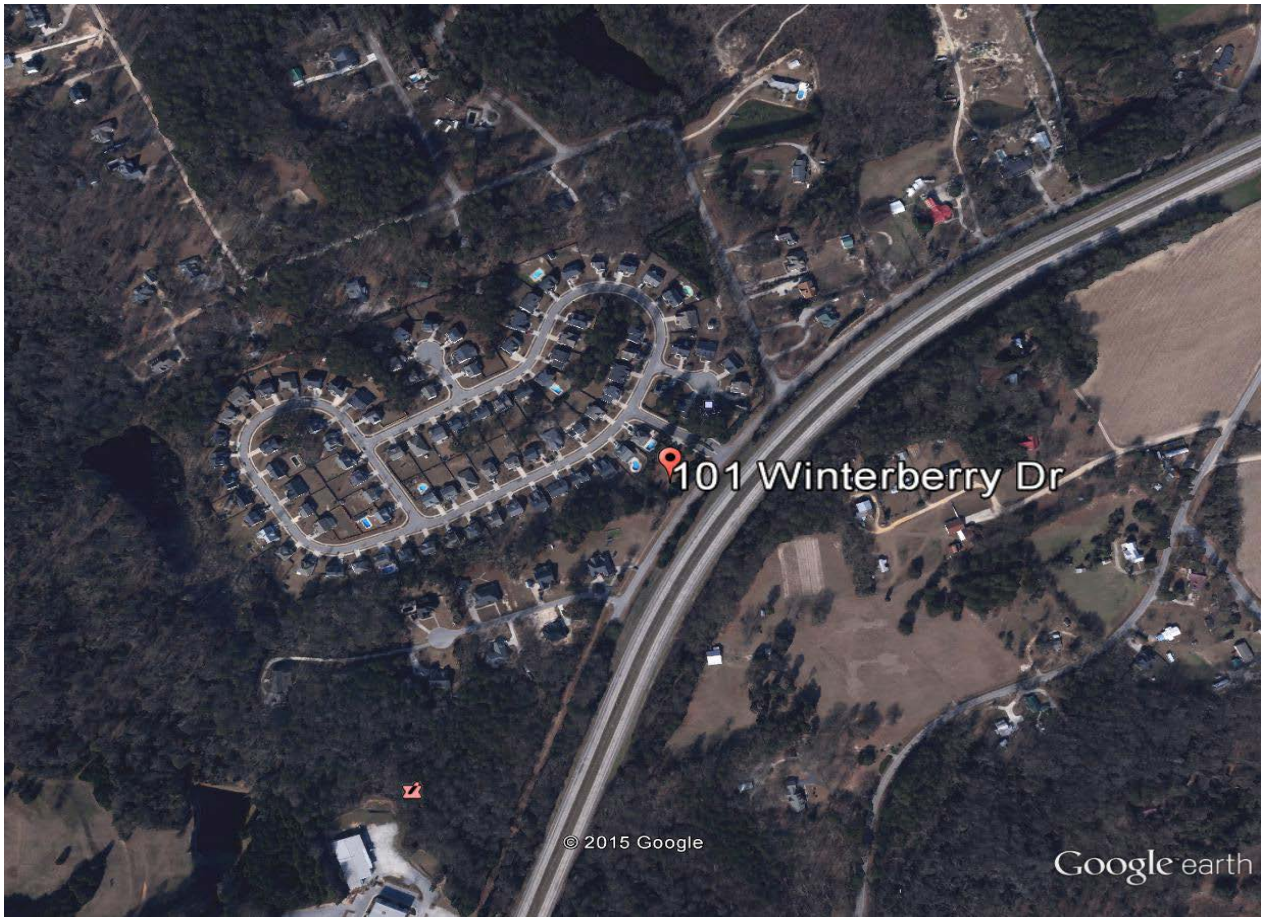
Field Personnel: Will Kerr / Wayne Hall

SITE 5

		SITE 5					
		763 Cromer Road (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		69.3			77.7	77.7	
0	(2014-10-27 11:31:23.000)	69.5		8912509.38	75.5	75.5	94.9
1	(2014-10-27 11:32:23.000)	70.1		10232929.9	73.9	73.9	91.1
2	(2014-10-27 11:33:23.000)	67.9		6165950.02	73.0	73.0	94.6
3	(2014-10-27 11:34:23.000)	68.5		7079457.84	74.8	74.8	93.5
4	(2014-10-27 11:35:23.000)	66.8		4786300.92	72.3	72.3	91.8
5	(2014-10-27 11:36:23.000)	71		12589254.1	75.4	75.4	93.0
6	(2014-10-27 11:37:23.000)	70.1		10232929.9	73.1	73.1	92.4
7	(2014-10-27 11:38:23.000)	69.8		9549925.86	73.7	73.7	94.3
8	(2014-10-27 11:39:23.000)	70.1		10232929.9	73.4	73.4	92.6
9	(2014-10-27 11:40:23.000)	69.9		9772372.21	77.7	77.7	93.2
10	(2014-10-27 11:41:23.000)	69.7		9332543.01	73.3	73.3	95.5
11	(2014-10-27 11:42:23.000)	70.2		10471285.5	76.2	76.2	92.9
12	(2014-10-27 11:43:23.000)	68.5		7079457.84	73.4	73.4	91.5
13	(2014-10-27 11:44:23.000)	69.4		8709635.9	72.4	72.4	88.8
14	(2014-10-27 11:45:23.000)	65.9		3890451.45	71.8	71.8	90.4

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 6	Date: 10-27-14
Site Description: Single Family Residence		Site Location: 101 Winterberry Drive	
Start Time:	4:02 pm	Sound Metric:	Level:
End Time:	4:17 pm	L_{eq}:	66.0
Temperature:	84	L_{min}:	60.1
Wind Speed:	1 mph	L_{max}:	77.5
Cloud Cover:	Clear		



Road Name: I-20	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	365	450
Typical Section: 2 lanes each direction	Medium Trucks:	8	19
	Heavy Trucks:	48	53
	Buses:	0	0
Speed Limit: 70 mph	Motorcycles:	2	1

ICA Engineering, Inc.

Field Personnel: Will Kerr / Wayne Hall

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 10-27-14 **Project:** I-20 Improvements **Location:** ST6 - Winter Berry Dr.

Site Sketch (Plan View):

Site Sketch (Profile):

ICA Engineering, Inc.

Field Personnel: Will Kerr / Wayne Hall

SITE 6

		SITE 6					
		101 Winterberry Drive (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		66			77.5	77.5	
0	(2014-10-27 16:01:54.000)	66.2		4168693.83	77.5	77.5	91.3
1	(2014-10-27 16:02:54.000)	66.1		4073802.78	70.4	70.4	94.2
2	(2014-10-27 16:03:54.000)	65.8		3801893.96	68.6	68.6	89.6
3	(2014-10-27 16:04:54.000)	66.2		4168693.83	70.4	70.4	92.1
4	(2014-10-27 16:05:54.000)	66.3		4265795.19	69.1	69.1	91.8
5	(2014-10-27 16:06:54.000)	66.6		4570881.9	71.2	71.2	94.2
6	(2014-10-27 16:07:54.000)	65.1		3235936.57	69.4	69.4	93.0
7	(2014-10-27 16:08:54.000)	65.7		3715352.29	70.1	70.1	90.8
8	(2014-10-27 16:09:54.000)	66.7		4677351.41	71.6	71.6	94.4
9	(2014-10-27 16:10:54.000)	65.6		3630780.55	68.7	68.7	90.5
10	(2014-10-27 16:11:54.000)	65.8		3801893.96	69.1	69.1	91.4
11	(2014-10-27 16:12:54.000)	65.8		3801893.96	68.5	68.5	90.8
12	(2014-10-27 16:13:54.000)	66.2		4168693.83	68.6	68.6	92.1
13	(2014-10-27 16:14:54.000)	65.5		3548133.89	68.6	68.6	90.1
14	(2014-10-27 16:15:54.000)	66.0		3981071.71	75.3	75.3	90.7

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 8	Date: 10-27-14
Site Description: Church		Site Location: Gethsemane Baptist Church, Alliance Road	
Start Time:	10:53 am	Sound Metric:	Level:
End Time:	11:07 am	L_{eq}:	64.8
Temperature:	66	L_{min}:	42.5
Wind Speed:	None	L_{max}:	76.1
Cloud Cover:	Clear		

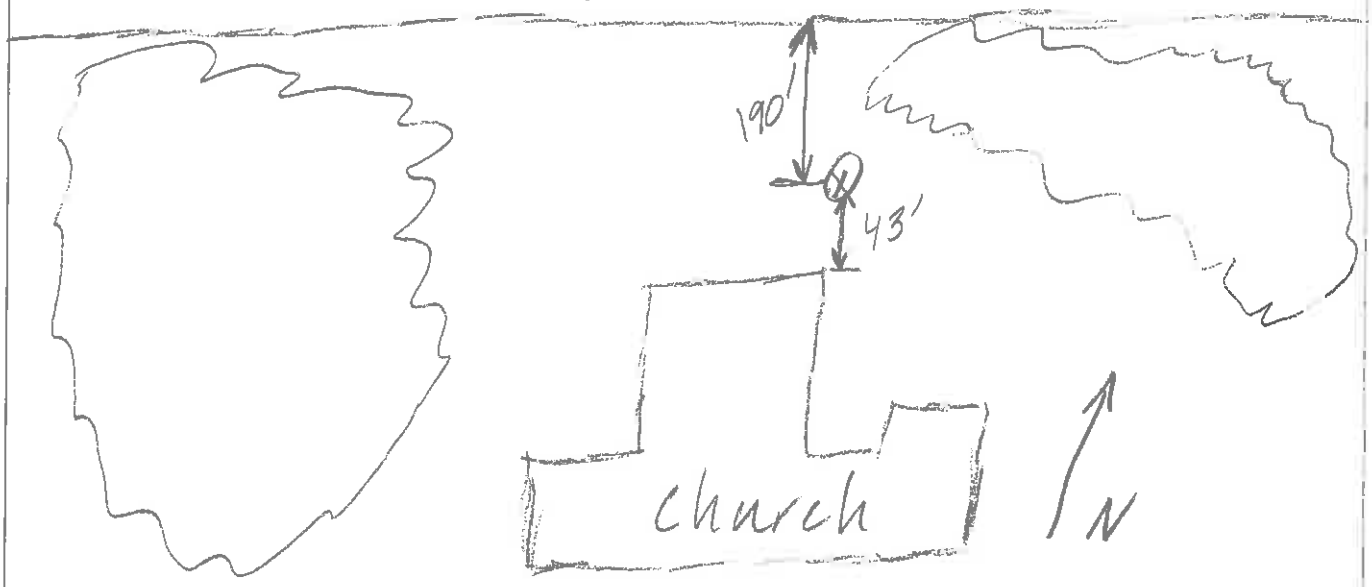
Road Name: I-20	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	319	260
Typical Section: 2 lanes each direction	Medium Trucks:	10	16
	Heavy Trucks:	23	55
	Buses:	0	0
Speed Limit: 70 mph	Motorcycles:	0	0

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

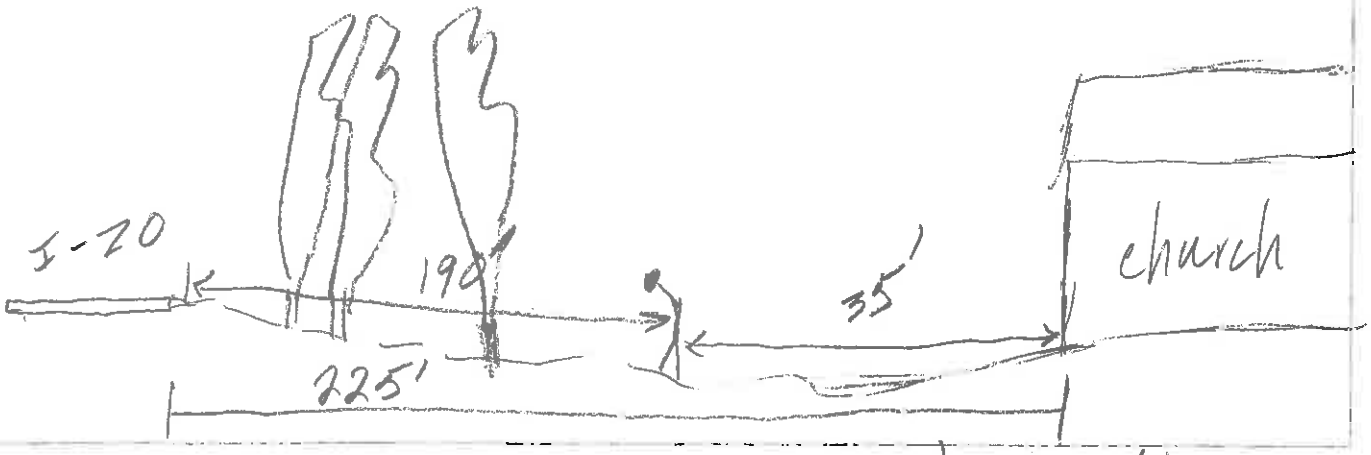
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:	Project:	Location:
10-27-14	I-20 Improvements	ST 8-Gethsemane Baptist Church

Site Sketch (Plan View):



Site Sketch (Profile):



ICA Engineering, Inc.

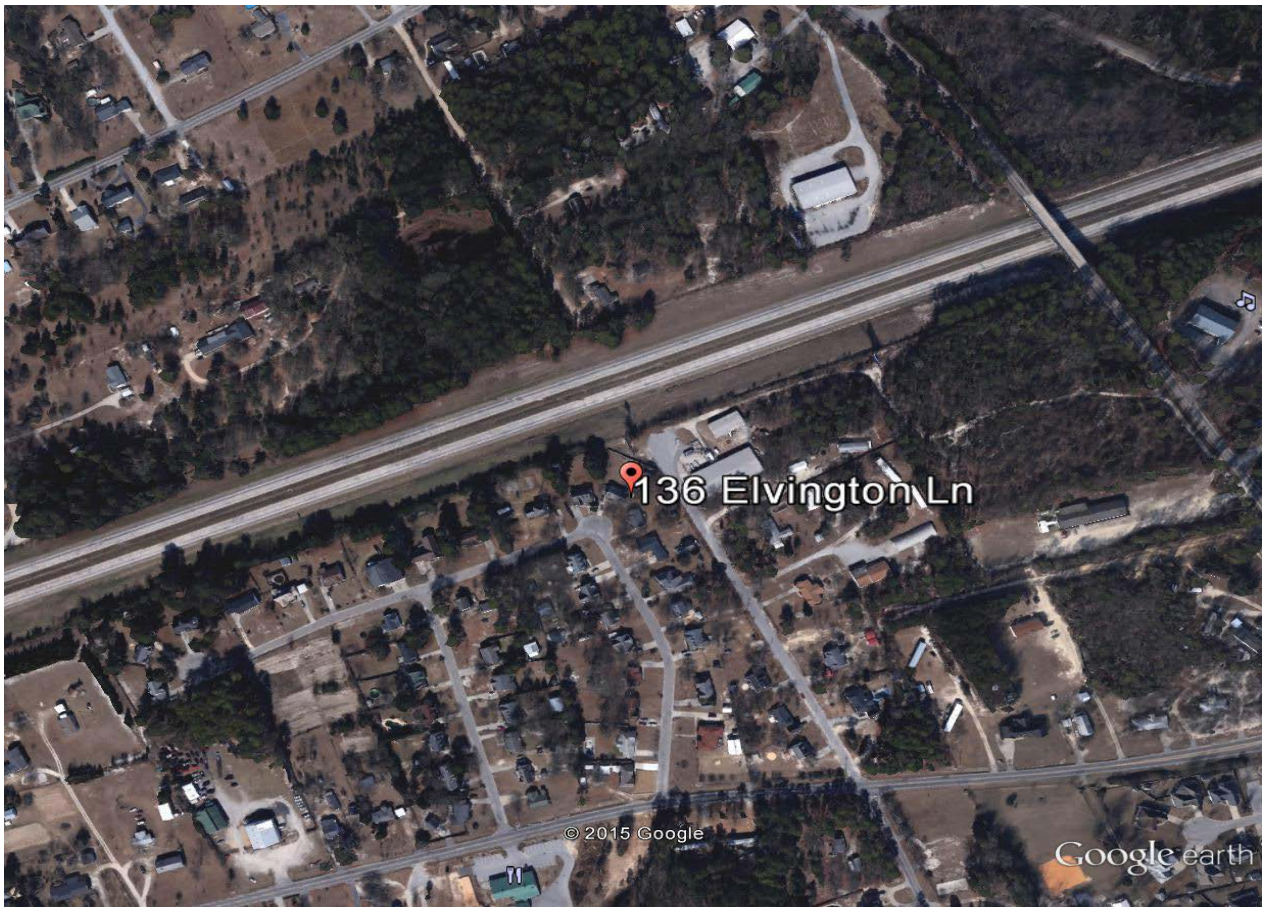
Field Personnel: Will Kerr/Wayne Hall

SITE 8

		SITE 8					
		Gethesemane Baptist Church (SN#30596-Nor118)					
Period:	Time:	LAeq	Despike?	SPL	LAS(max)	Lmax	LCpeak
		64.8			76.1	76.1	
0	(2014-10-27 10:53:59.000)	65.9		3890451.45	73.4	73.4	94.6
1	(2014-10-27 10:54:59.000)	66.3		4265795.19	73.7	73.7	92.5
2	(2014-10-27 10:55:59.000)	64.8		3019951.72	69.5	69.5	89.6
3	(2014-10-27 10:56:59.000)	62.9		1949844.6	68.0	68.0	92.9
4	(2014-10-27 10:57:59.000)	64.4		2754228.7	70.8	70.8	93.2
5	(2014-10-27 10:58:59.000)	64.7		2951209.23	68.9	68.9	94.9
6	(2014-10-27 10:59:59.000)	65		3162277.66	70.0	70.0	95.9
7	(2014-10-27 11:00:59.000)	64.8		3019951.72	70.7	70.7	92.4
8	(2014-10-27 11:01:59.000)	65.6		3630780.55	69.2	69.2	94.8
9	(2014-10-27 11:02:59.000)	61.5		1412537.54	65.6	65.6	90.1
10	(2014-10-27 11:03:59.000)	66		3981071.71	70.1	70.1	94.8
11	(2014-10-27 11:04:59.000)	64.4		2754228.7	69.4	69.4	92.2
12	(2014-10-27 11:05:59.000)	64.3		2691534.8	67.8	67.8	91.1
13	(2014-10-27 11:06:59.000)	65.1		3235936.57	69.4	69.4	91.8
14	(2014-10-27 11:07:59.000)	63.5		2238721.14	76.1	76.1	90.4

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 9	Date: 10-27-14
Site Description: Residence		Site Location: 136 Elvington Lane	
Start Time:	10:20 am	Sound Metric:	Level:
End Time:	10:34 am	L_{eq}:	69.0
Temperature:	64	L_{min}:	45.6
Wind Speed:	None	L_{max}:	74.0
Cloud Cover:	Clear		



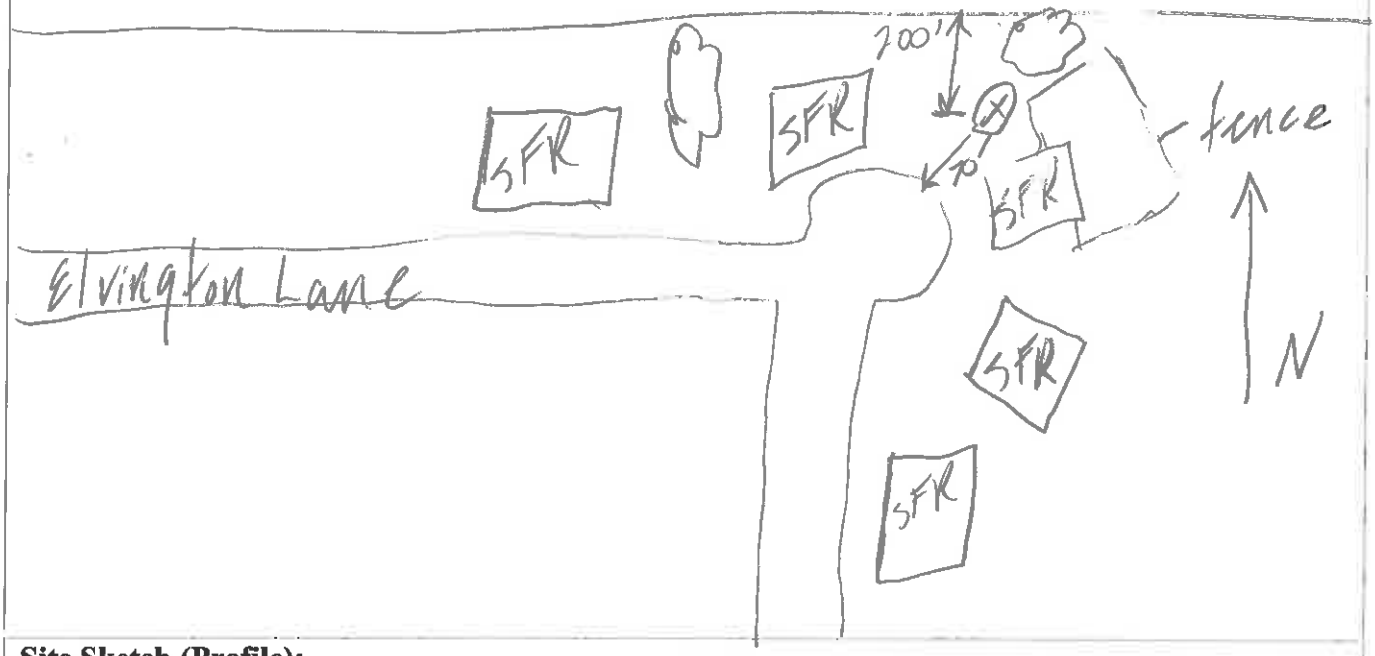
Road Name: I-20 Note: Man hammering 2 houses away, sprinkler next door.	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	380	235
Typical Section: 2 lanes each direction	Medium Trucks:	13	16
	Heavy Trucks:	48	46
	Buses:	0	2
Speed Limit: 70 mph	Motorcycles:	0	0

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

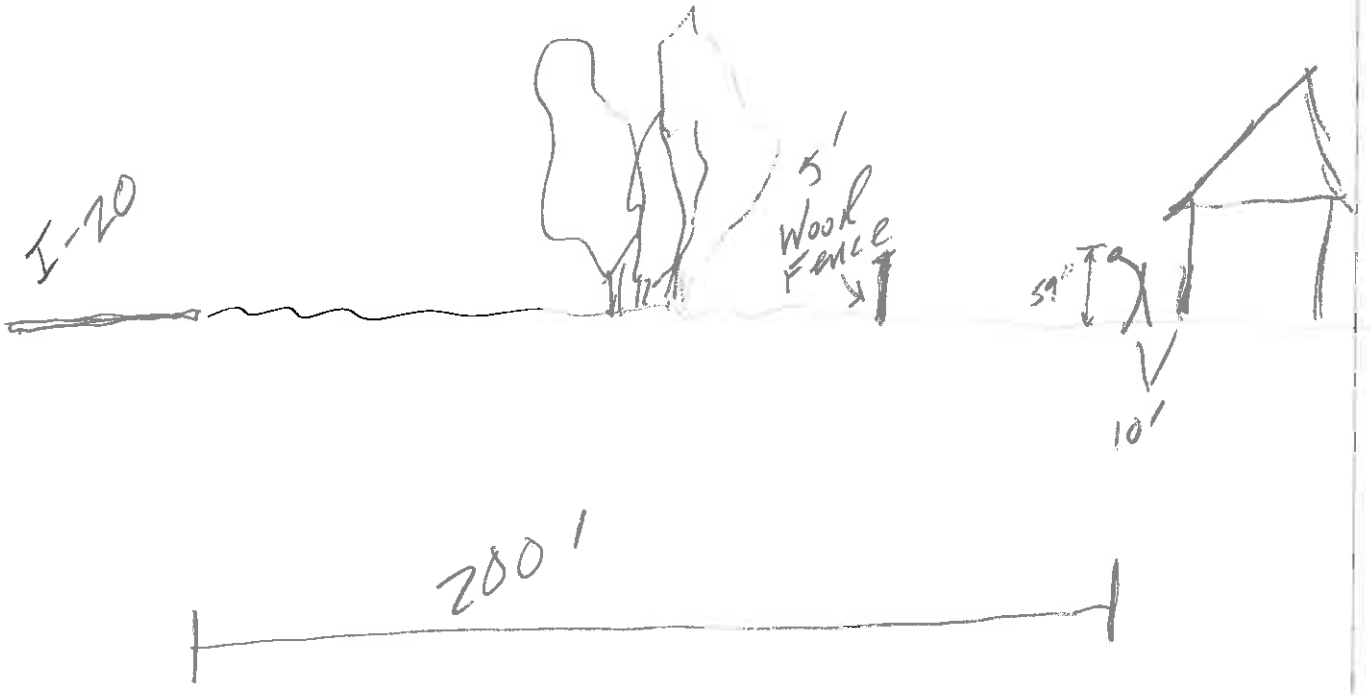
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 10-27-14 **Project:** **Location:** ST9-136 Elvington Lane

Site Sketch (Plan View):



Site Sketch (Profile):



ICA Engineering, Inc.

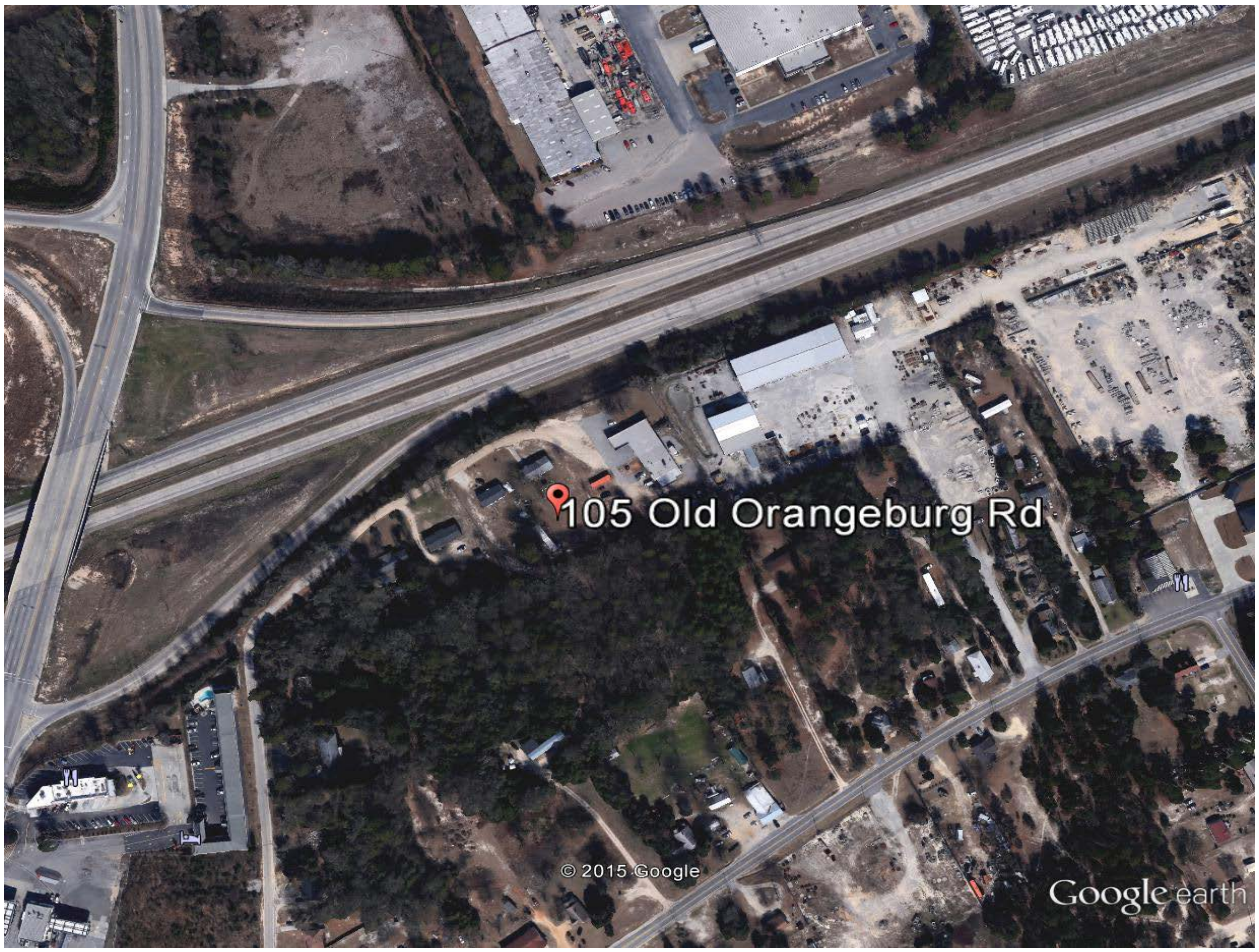
Field Personnel: Will Kerr / Wayne Hall

SITE 9

		SITE 9					
		136 Elvington Lane (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		67.5			83.3	83.3	
0	(2014-10-27 10:20:38.000)	69.3		8511380.38	83.3	83.3	96.5
1	(2014-10-27 10:21:38.000)	68.3		6760829.75	71.7	71.7	93.6
2	(2014-10-27 10:22:38.000)	68.9		7762471.17	71.8	71.8	90.0
3	(2014-10-27 10:23:38.000)	69.2		8317637.71	72.4	72.4	89.8
4	(2014-10-27 10:24:38.000)	69.0		7943282.35	73.7	73.7	89.9
5	(2014-10-27 10:25:38.000)	66.7		4677351.41	69.8	69.8	93.0
6	(2014-10-27 10:26:38.000)	64.3		2691534.8	68.5	68.5	87.0
7	(2014-10-27 10:27:38.000)	66.8		4786300.92	71.6	71.6	91.1
8	(2014-10-27 10:28:38.000)	65.7		3715352.29	70.6	70.6	90.4
9	(2014-10-27 10:29:38.000)	66.1		4073802.78	70.3	70.3	90.6
10	(2014-10-27 10:30:38.000)	65.5		3548133.89	71.4	71.4	90.6
11	(2014-10-27 10:31:38.000)	67.2		5248074.6	71.3	71.3	90.6
12	(2014-10-27 10:32:38.000)	67.7		5888436.55	72.2	72.2	91.9
13	(2014-10-27 10:33:38.000)	67.2		5248074.6	75.4	75.4	92.3
14	(2014-10-27 10:34:38.000)	67.7		5888436.55	70.3	70.3	91.2

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 10	Date: 10-27-14
Site Description: Residential Duplex		Site Location: 105B Old Orangeburg Road	
Start Time:	9:43 am	Sound Metric:	Level:
End Time:	9:57 am	L_{eq}:	68.6
Temperature:	63	L_{min}:	60.4
Wind Speed:	None	L_{max}:	75.2
Cloud Cover:	Clear		



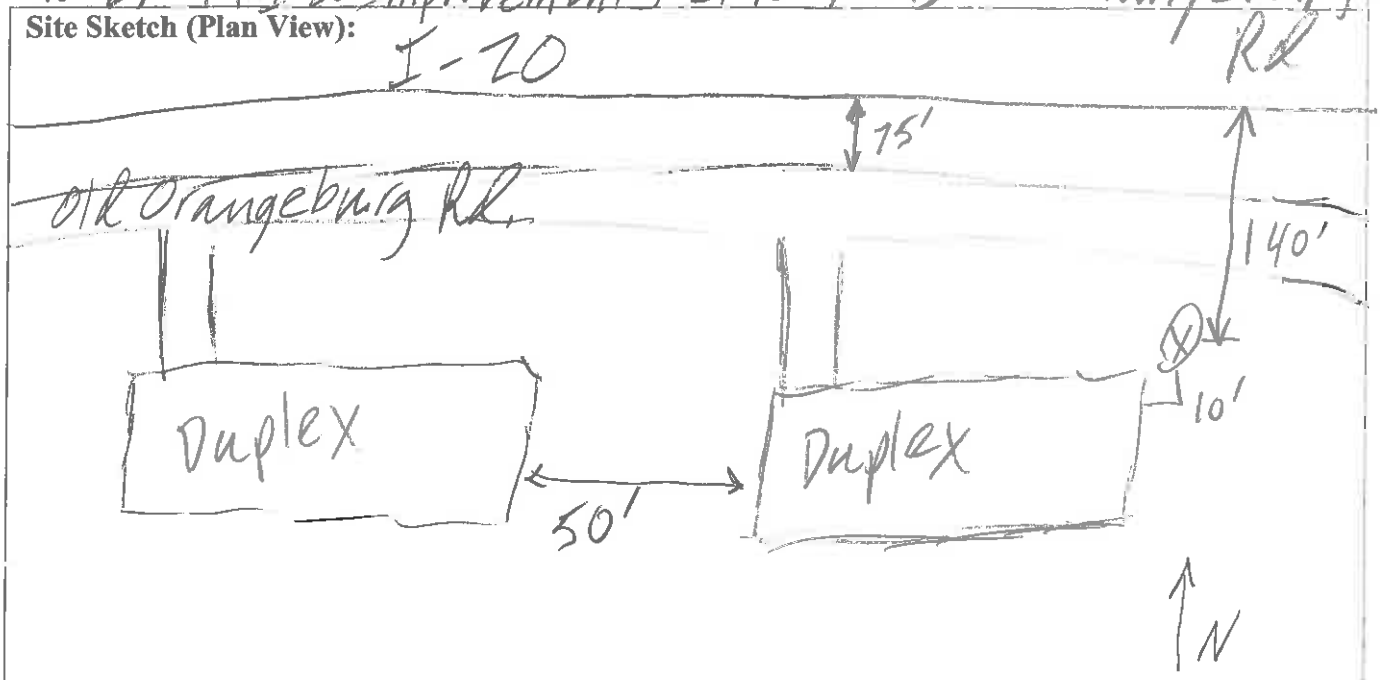
Road Name: I-20 Note: Siren at minute 10.	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	361	270
Typical Section: 2 lanes each direction with ramp.	Medium Trucks:	18	18
	Heavy Trucks:	43	30
	Buses:	0	0
Speed Limit: 70 mph	Motorcycles:	1	2

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

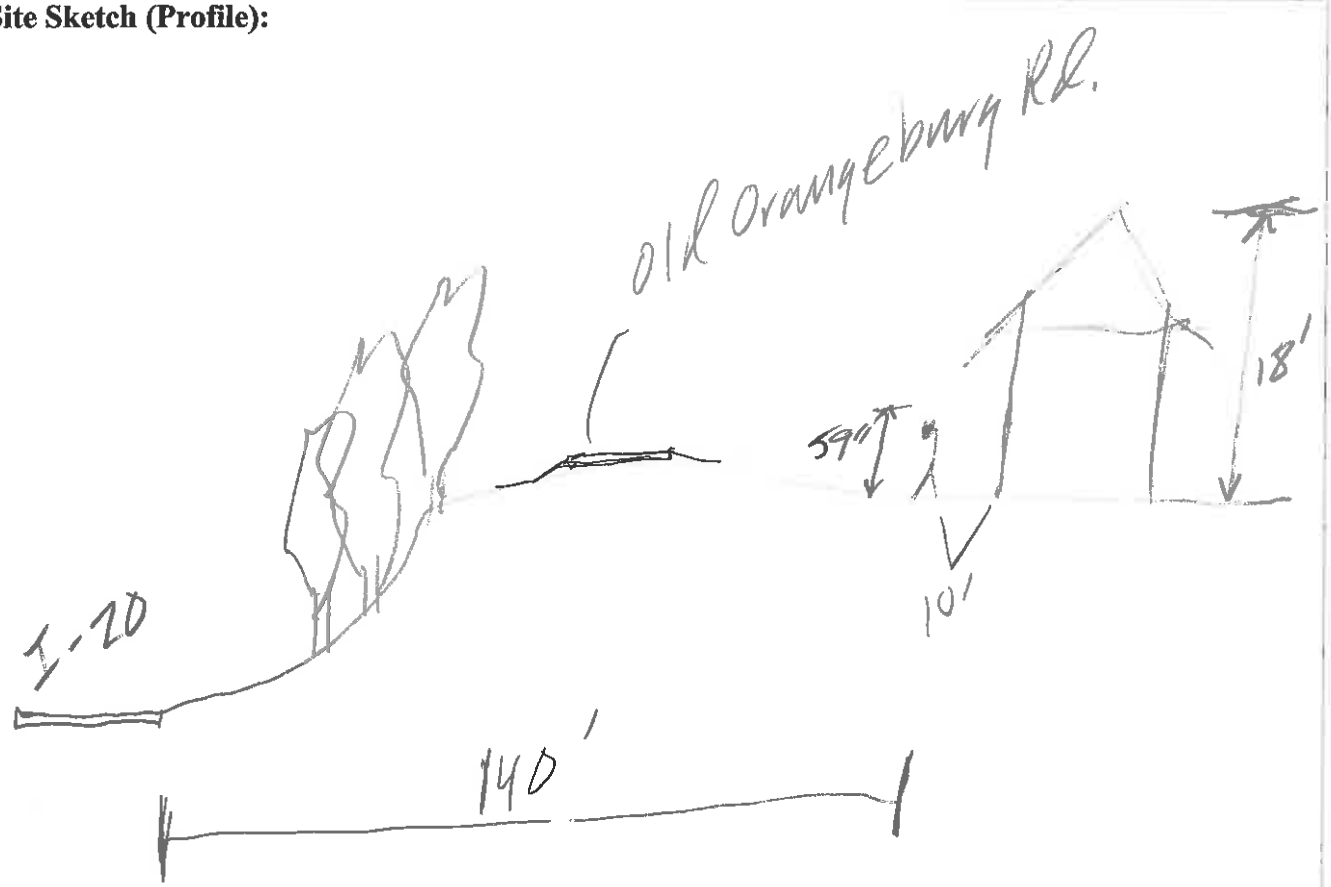
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:	Project:	Location:
10-27-14	I-20 Improvements	ST 10-105 B Old Orangeburg Rd

Site Sketch (Plan View):



Site Sketch (Profile):



ICA Engineering, Inc.

Field Personnel: Will Kerr / Wayne Hall

SITE 10

		SITE 10					
		105B Orangeburg Road (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		68.6			75.2	75.2	
0	(2014-10-27 09:43:51.000)	71.0		12589254.1	74.1	74.1	93.4
1	(2014-10-27 09:44:51.000)	70.1		10232929.9	74.6	74.6	94.9
2	(2014-10-27 09:45:51.000)	67.2		5248074.6	71.4	71.4	90.8
3	(2014-10-27 09:46:51.000)	67.8		6025595.86	71.3	71.3	92.0
4	(2014-10-27 09:47:51.000)	67.3		5370317.96	71.3	71.3	91.5
5	(2014-10-27 09:48:51.000)	68.3		6760829.75	74.2	74.2	93.8
6	(2014-10-27 09:49:51.000)	68.4		6918309.71	72.3	72.3	92.6
7	(2014-10-27 09:50:51.000)	67.6		5754399.37	70.7	70.7	90.1
8	(2014-10-27 09:51:51.000)	67.7		5888436.55	72.7	72.7	90.2
9	(2014-10-27 09:52:51.000)	68.0		6309573.44	72	72.0	90.6
10	(2014-10-27 09:53:51.000)	68.6		7244359.6	73.1	73.1	91.2
11	(2014-10-27 09:54:51.000)	68.6		7244359.6	72.7	72.7	89.8
12	(2014-10-27 09:55:51.000)	70.2		10471285.5	75.2	75.2	97.5
13	(2014-10-27 09:56:51.000)	68.9		7762471.17	72.6	72.6	94.4
14	(2014-10-27 09:57:51.000)	67.5		5623413.25	71.4	71.4	88.9

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 11	Date: 10-27-14
Site Description: Single Family Residence		Site Location: 106 Hidden Springs Road	
Start Time:	8:56 am	Sound Metric:	Level:
End Time:	9:10 am	L_{eq}:	61.0
Temperature:	63	L_{min}:	53.8
Wind Speed:	None	L_{max}:	65.6
Cloud Cover:	Hazy		

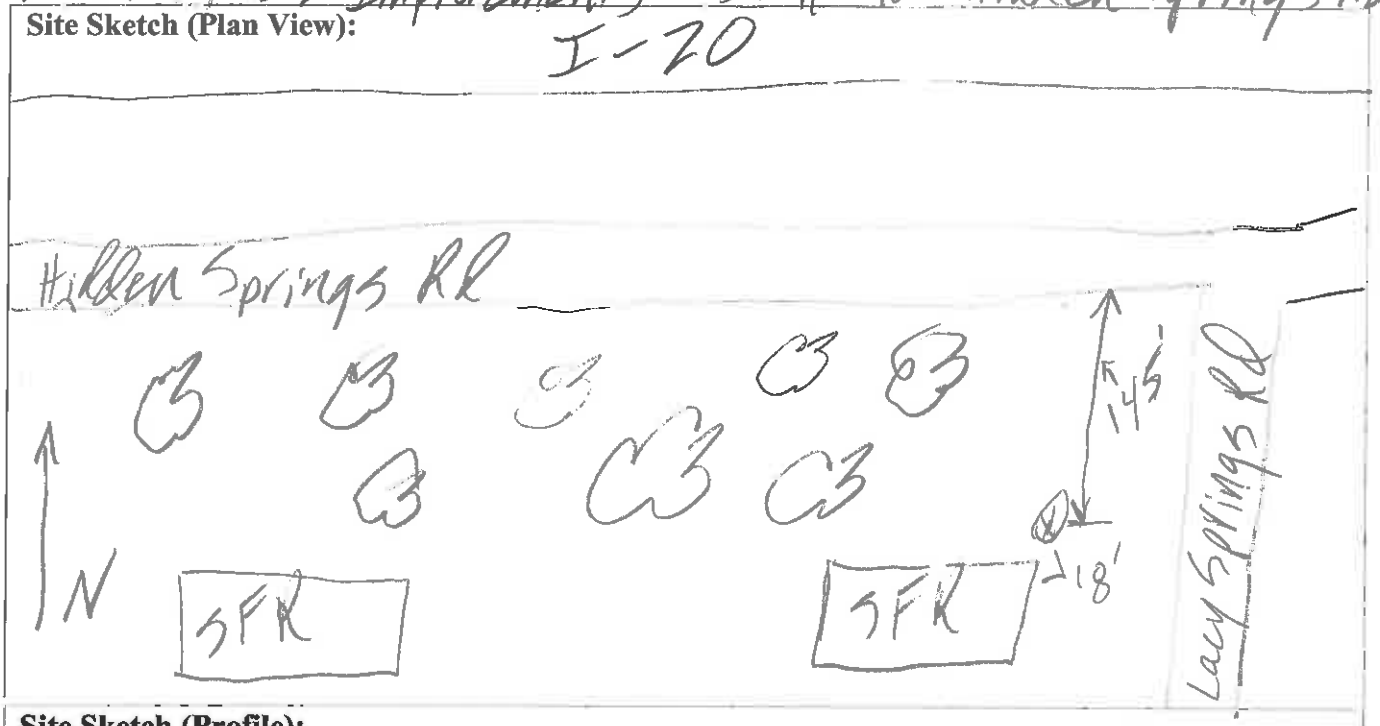
Road Name: I-20 Notes: Waste recycling plant with heavy equipment across the street.	Traffic Counts	Direction (EB)	Direction (WB)
	Autos:	288	190
Typical Section: 2 lanes each direction	Medium Trucks:	10	10
	Heavy Trucks:	37	31
	Buses:	0	0
Speed Limit: 70 mph	Motorcycles:	0	0

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:	Project:	Location:
10-27-14	I-20 Improvements	ST 11 - 106 Hillen Springs Rd.

Site Sketch (Plan View):



Site Sketch (Profile):

ICA Engineering, Inc.

Field Personnel: Will Kerr/Wayne Hall

SITE 11

		SITE 11					
		106 Springs Road (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		61			65.6	65.6	
0	(2014-10-27 08:56:16.000)	62.1		1621810.1	63.9	63.9	85.1
1	(2014-10-27 08:57:16.000)	60.7		1174897.55	64	64.0	83.0
2	(2014-10-27 08:58:16.000)	61.3		1348962.88	64	64.0	81.7
3	(2014-10-27 08:59:16.000)	59.8		954992.586	62.1	62.1	85.8
4	(2014-10-27 09:00:16.000)	60.2		1047128.55	63.6	63.6	83.9
5	(2014-10-27 09:01:16.000)	59.4		870963.59	62	62.0	87.4
6	(2014-10-27 09:02:16.000)	62.4		1737800.83	65.6	65.6	87.3
7	(2014-10-27 09:03:16.000)	61.0		1258925.41	63.9	63.9	86.5
8	(2014-10-27 09:04:16.000)	60.6		1148153.62	64.8	64.8	84.4
9	(2014-10-27 09:05:16.000)	61.5		1412537.54	65	65.0	86.2
10	(2014-10-27 09:06:16.000)	60.3		1071519.31	64.6	64.6	83.1
11	(2014-10-27 09:07:16.000)	61.7		1479108.39	64.7	64.7	87.9
12	(2014-10-27 09:08:16.000)	61.3		1348962.88	65	65.0	84.6
13	(2014-10-27 09:09:16.000)	60.4		1096478.2	63.8	63.8	84.2
14	(2014-10-27 09:10:16.000)	61.3		1348962.88	63.9	63.9	84.6

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: **I-20 Widening, Lexington County**		Site #: 13	Date: 10-27-14
Site Description: Single Family Residence		Site Location: 218 Glenforest Court	
Start Time:	8:56 am	Sound Metric:	Level:
End Time:	9:10 am	L_{eq}:	61.8
Temperature:	48	L_{min}:	48.6
Wind Speed:	None	L_{max}:	72.5
Cloud Cover:	Hazy		

Road Name: I-20	Traffic Counts	Direction (EB)	Direction (WB)
Notes: Birds in background.	Autos:	217	162
Typical Section: 2 lanes each direction	Medium Trucks:	4	11
	Heavy Trucks:	23	33
	Buses:	0	0
Speed Limit: 70 mph	Motorcycles:	0	0

ICA Engineering, Inc. Field Personnel: Will Kerr / Wayne Hall

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:	Project:	Location:
10-27-14	I-26 Improvements	5713-218 Glenforest Ct.

Site Sketch (Plan View):

Site Sketch (Profile):

ICA Engineering, Inc.

Field Personnel: Will Kerr/Wayne Hall

SITE 13

		SITE 13					
		218 Glenforest Court (SN#30596-Nor118)					
Period:	Time:	**LAeq**	Despike?	SPL	LAS(max)	Lmax	LCpeak
		61.8			72.5	72.5	
0	(2014-10-27 08:56:16.000)	63.6		2290867.65	70.9	70.9	87.7
1	(2014-10-27 08:57:16.000)	62.3		1698243.65	69	69.0	87.6
2	(2014-10-27 08:58:16.000)	61.8		1513561.25	69.9	69.9	90.6
3	(2014-10-27 08:59:16.000)	60.2		1047128.55	67.3	67.3	84.7
4	(2014-10-27 09:00:16.000)	62.9		1949844.6	72.5	72.5	90.5
5	(2014-10-27 09:01:16.000)	63.7		2344228.82	72.2	72.2	93.0
6	(2014-10-27 09:02:16.000)	61.2		1318256.74	69.4	69.4	86.5
7	(2014-10-27 09:03:16.000)	60.1		1023292.99	66.6	66.6	86.2
8	(2014-10-27 09:04:16.000)	61.1		1288249.55	67	67.0	87.8
9	(2014-10-27 09:05:16.000)	61.7		1479108.39	70.1	70.1	88.1
10	(2014-10-27 09:06:16.000)	61.2		1318256.74	68.3	68.3	87.8
11	(2014-10-27 09:07:16.000)	58.1		645654.229	64.6	64.6	85.1
12	(2014-10-27 09:08:16.000)	61.7		1479108.39	68.3	68.3	89.7
13	(2014-10-27 09:09:16.000)	62.9		1949844.6	69.6	69.6	89.5
14	(2014-10-27 09:10:16.000)	60.5		1122018.45	66.8	66.8	86.8

Traffic Data

PROJECT
I-20 Widening

TIP
####

Date	10.27.14		10.27.14		10.27.14		10.27.14		10.27.14			
Setup	ST1 - (SN#30596-Nor118)		ST2 - (SN#30596-Nor118)		ST3 - (SN#30596-Nor118)		ST4 - (SN#30596-Nor118)		ST5 - (SN#30596-Nor118)			
Time	ST1 - 1:08 - 1:22		ST2 - 5:07 - 5:21		ST3 - 4:38 - 4:52		ST4 - 12:04 - 12:18		ST5 - 11:31 - 11:45			
Location	222 Cromer Road		Meadow Glen Elementary School		100 Chamfort Drive		198 Woodside Road		763 Cromer Road			
Count Duration (Mins)	15		15		15		15		15			

LANE(s)	I-20 EB		I-20 WB		I-20 EB		I-20 WB		I-20 EB		I-20 WB		I-20 EB		I-20 WB		I-20 EB		I-20 WB		Cromer Road EB		Cromer Road WB	
	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY
AUTOS	348	1392	334	1336	476	1904	915	3660	386	1544	815	3260	320	1280	329	1316	420	1680	234	936	18	72	12	48
DT / MED TRUCKS	11	44	12	48	6	24	6	24	12	48	21	84	5	20	8	32	18	72	8	32	0	0	1	4
TTST / HEAVY TRUCKS	43	172	48	192	55	220	30	120	49	196	44	176	42	168	37	148	38	152	52	208	1	4	0	0
BUSES	0	0	0	0	2	8	0	0	0	0	0	0	0	0	2	8	0	0	1	4	0	0	0	0
MOTORCYCLES	1	4	0	0	0	0	0	0	0	0	1	4	2	8	0	0	1	4	0	0	0	0	0	0
SPEED	60		60		60		60		60		60		70		70		70		70		35		35	

DIR DT / MED TRUCKS PCT	2.7%	3.0%	1.1%	0.6%	2.7%	2.4%	1.4%	2.1%	3.8%	2.7%	0.0%	7.7%
DIR TTST / HEAVY TRUCKS PCT	10.7%	12.2%	10.2%	3.2%	11.0%	5.0%	11.4%	9.9%	8.0%	17.7%	5.3%	0.0%
TOTAL DIR TRUCKS PCT	13.4%	15.2%	11.4%	3.8%	13.6%	7.4%	12.8%	12.0%	11.8%	20.4%	5.3%	7.7%

TOTAL RDY DT / MED TRUCKS PCT	2.9%	0.8%	2.5%	1.8%	3.4%	3.1%
TOTAL RDY TTST / HEAVY TRKS PCT	11.4%	5.7%	7.0%	10.7%	11.7%	3.1%
TOTAL RDY TRUCKS PCT	14.3%	6.5%	9.5%	12.4%	15.1%	6.3%

PROJECT
I-20 Widening

TIP
####

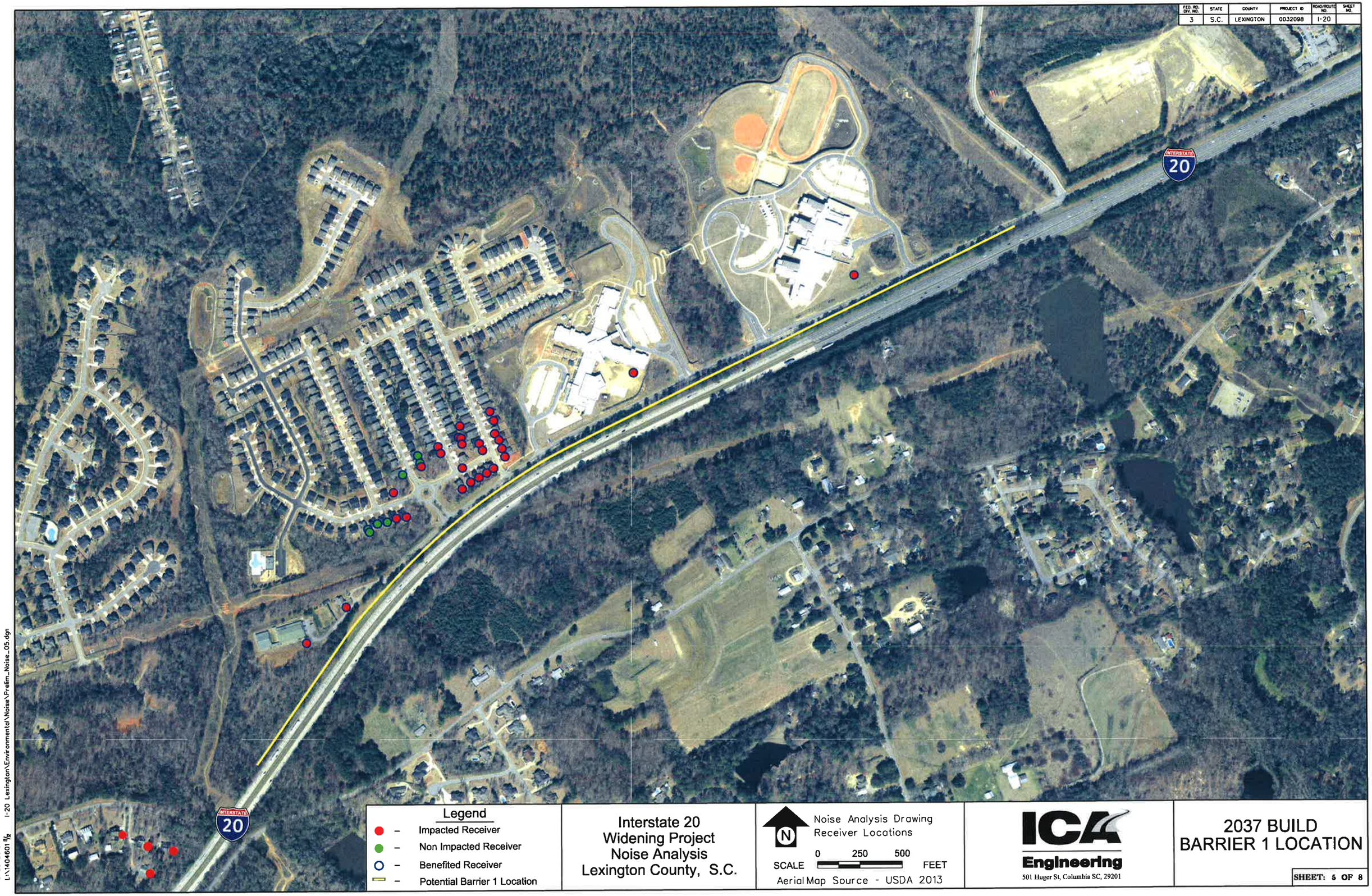
Date	10.27.14				10.27.14				10.27.14				10.27.14				10.27.14				10.27.14			
Setup	ST6 - (SN#30596-Nor118)				ST8 - (SN#30596-Nor118)				ST9 - (SN#30596-Nor118)				ST10 - (SN#30596-Nor118)				ST11 - (SN#30596-Nor118)				ST13 - (SN#30596-Nor118)			
Time	ST6 - 4:01 - 4:15				ST8 - 10:53 - 11:07				ST9 - 10:20 - 10:34				ST10 - 9:43 - 9:57				ST11 - 8:56 - 9:10				ST13 - 8:56 - 9:10			
Location	101 Winterberry Drive				Gethsemene Baptist Church, Alliance Road				136 Elvington Lane				105B Orangeburg Road				106 Hidden Springs Road				218 Glenforest Court			
Count Duration (Mins)	15				15				15				15				15				15			
LANE(s)	I-20 EB		I-20 WB		I-20 EB		I-20 WB		I-20 EB		I-20 WB		I-20 EB		I-20 WB		I-20 EB		I-20 WB		I-20 EB		I-20 WB	
	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY	COUNT	HOURLY
AUTOS	365	1460	450	1800	319	1276	260	1040	380	1520	235	940	361	1444	270	1080	288	1152	190	760	217	868	162	648
DT / MED TRUCKS	8	32	19	76	10	40	16	64	13	52	16	64	18	72	18	72	10	40	10	40	4	16	11	44
TTST / HEAVY TRUCKS	48	192	53	212	23	92	55	220	48	192	46	184	43	172	30	120	37	148	31	124	23	92	33	132
BUSES	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0
MOTORCYCLES	2	8	1	4	0	0	0	0	0	0	0	0	1	4	2	8	0	0	0	0	0	0	0	0
SPEED	70		70		70		70		70		70		70		70		70		70		70		70	
DIR DT / MED TRUCKS PCT	1.9%		3.6%		2.8%		4.8%		2.9%		5.4%		4.3%		5.7%		3.0%		4.3%		1.6%		5.3%	
DIR TTST / HEAVY TRUCKS PCT	11.4%		10.2%		6.5%		16.6%		10.9%		15.5%		10.2%		9.4%		11.0%		13.4%		9.4%		16.0%	
TOTAL DIR TRUCKS PCT	13.3%		13.8%		9.4%		21.5%		13.8%		20.9%		14.5%		15.1%		14.0%		17.7%		11.1%		21.4%	
TOTAL RDY DT / MED TRUCKS PCT	2.9%				3.8%				3.9%				4.9%				3.5%				3.3%			
TOTAL RDY TTST / HEAVY TRKS PCT	10.7%				11.4%				12.7%				9.9%				12.0%				12.4%			
TOTAL RDY TRUCKS PCT	13.6%				15.2%				16.7%				14.7%				15.5%				15.8%			

TNM Validation

Model Validation: Measured vs. Calculated Noise Levels					
Site	**Meter Location**	**Measured dBA Leq**	**Modeled Leq**	**Difference Measured - Model**	**Validation Notes**
ST1	Rear of residence at 222 Cromer Road	66.6	71.8	5.2	SCDOT validation standard not achieved.
ST2	Basketball Court at Meadow Glen Elementary School	67.5	68.6	1.1	SCDOT validation standard achieved.
ST3	Side yard of residence at 100 Chamfort Drive	72.5	72.7	0.2	SCDOT validation standard achieved.
ST4	Front yard of residence at 198 Woodside Road	72.2	70.7	-1.5	SCDOT validation standard achieved.
ST5	Side yard of residence at 763 Cromer Road	69.3	68.7	-0.6	SCDOT validation standard achieved.
ST6	Side yard of residence at 101 Winterberry Drive	66.0	68.9	2.9	SCDOT validation standard achieved.
ST8	Rear yard of Gethsemane Baptist Church	64.8	67.0	2.2	SCDOT validation standard achieved.
ST9	Side yard of residence at 136 Elvington Lane	69.0	67.9	-1.1	SCDOT validation standard achieved.
ST10	Front yard of residence at 105B Old Orangeburg Road	68.6	70.6	2.0	SCDOT validation standard achieved.
ST11	Front yard of residence at 106 Hidden Springs Road	61.0	62.4	1.4	SCDOT validation standard achieved.
ST13	Side yard of residence at 218 Glenforest Court	61.8	63.8	2.0	SCDOT validation standard achieved.

Barrier Analysis and Locations

FED. ROD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver
- Benefited Receiver
- Potential Barrier 1 Location

Interstate 20
Widening Project
Noise Analysis
Lexington County, S.C.

N

Noise Analysis Drawing
Receiver Locations

SCALE 0 250 500 FEET

Aerial Map Source - USDA 2013

ICA Engineering
501 Huger St, Columbia SC, 29201

2037 BUILD BARRIER 1 LOCATION

SHEET: 5 OF 8

3/20/2015
L:\1404601 \I-20 Lexington\Environmental\Noise\Prelim_Noise_05.dgn

SCDOT Feasibility and Reasonableness Worksheet

Date: Mar 18, 2015

Project Name I-20 Widening, Lexington, SC

Highway Traffic Noise Abatement Measure Noise Barrier 1

Feasibility

Number of Impacted Receivers: 261

Number of Benefited Receivers: 268

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 100

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 268

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 265

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 99

Does the proposed noise abatement measure meet the noise reduction design goal? ☒ Yes ☐ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 3,641,540

Estimated cost per Benefited Receiver: 13,588

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? ☒ Yes ☐ No
NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

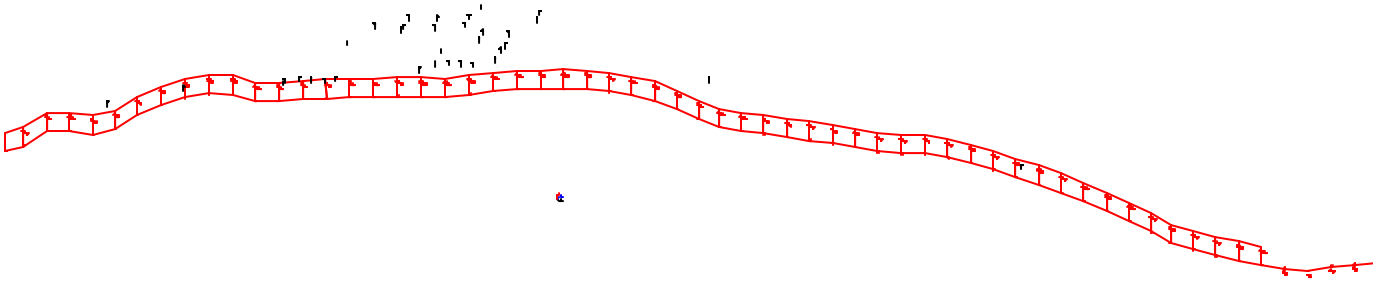
Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure



2037 SC 6 to Longs Pond Road - Wall 1	Sheet 1 of 1	20 Apr 2015
	ICA Engineeriing	
Barrier View-Barrier 1	Project/Contract No. I-20 Widening	
Run name: Wall 1 - Schools	TNM Version 2.5, Feb 2004	
Scale: <DNA - due to perspective>	Analysis By: Will Kerr/Wayne Hall	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
Will Kerr/Wayne Hall
11 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: 2037 SC 6 to Longs Pond Road - Wall 1
BARRIER DESIGN: Barrier 1
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver205	205	1	71.0	71.3	66	0.3	15	Snd Lvl	64.0	7.3	8	-0.7
Receiver206	206	1	73.0	72.2	66	-0.8	15	Snd Lvl	62.6	9.6	8	1.6
Receiver207	207	1	64.0	63.0	66	-1.0	15	----	57.0	6.0	8	-2.0
Receiver208	208	1	66.0	64.3	66	-1.7	15	----	57.0	7.3	8	-0.7
Receiver209	209	1	65.0	64.4	66	-0.6	15	----	56.7	7.7	8	-0.3
Receiver210	210	1	65.0	64.9	66	-0.1	15	----	57.0	7.9	8	-0.1
Receiver211	211	1	64.0	64.8	66	0.8	15	----	56.9	7.9	8	-0.1
Receiver212	212	1	66.0	66.3	66	0.3	15	Snd Lvl	57.8	8.5	8	0.5
Receiver213	213	1	69.0	69.1	66	0.1	15	Snd Lvl	59.3	9.8	8	1.8
Receiver214	214	1	65.0	65.0	66	0.0	15	----	57.4	7.6	8	-0.4
Receiver215	215	1	67.0	66.9	66	-0.1	15	Snd Lvl	58.7	8.2	8	0.2
Receiver218	218	1	70.0	68.4	66	-1.6	15	Snd Lvl	58.8	9.6	8	1.6
Receiver219	219	1	70.0	63.2	66	-6.8	15	----	58.4	4.8	8	-3.2
Receiver255	223	1	68.0	62.7	66	-5.3	10	----	56.9	5.8	8	-2.2
Receiver256	224	1	64.0	63.3	66	-0.7	10	----	57.0	6.3	8	-1.7
Receiver257	225	1	65.0	64.1	66	-0.9	10	----	57.3	6.8	8	-1.2
Receiver258	226	1	65.0	64.6	66	-0.4	10	----	57.4	7.2	8	-0.8
Receiver259	227	1	66.0	65.9	66	-0.1	10	----	57.7	8.2	8	0.2
Receiver260	228	1	68.0	72.7	66	4.7	10	Snd Lvl	60.7	12.0	8	4.0
Receiver261	229	1	72.0	73.3	66	1.3	10	Snd Lvl	61.5	11.8	8	3.8
Receiver262	230	1	73.0	73.7	66	0.7	10	Snd Lvl	62.1	11.6	8	3.6
Receiver263	231	1	73.0	73.9	66	0.9	10	Snd Lvl	62.2	11.7	8	3.7
Receiver264	232	1	73.0	73.7	66	0.7	10	Snd Lvl	62.0	11.7	8	3.7
Receiver265	233	1	73.0	72.9	66	-0.1	10	Snd Lvl	61.6	11.3	8	3.3

Receiver266	234	1	71.0	71.0	66	0.0	10	Snd Lvl	60.7	10.3	8	2.3
Receiver267	235	1	69.0	68.5	66	-0.5	10	Snd Lvl	59.3	9.2	8	1.2
Receiver268	236	1	67.0	68.0	66	1.0	10	Snd Lvl	59.6	8.4	8	0.4
Receiver269	237	1	69.0	69.4	66	0.4	10	Snd Lvl	59.9	9.5	8	1.5
Receiver270	238	1	68.0	68.2	66	0.2	10	Snd Lvl	59.2	9.0	8	1.0
Receiver271	239	1	66.0	66.8	66	0.8	10	Snd Lvl	58.0	8.8	8	0.8
Receiver272	240	1	65.0	65.8	66	0.8	10	----	57.4	8.4	8	0.4
Receiver273	241	1	66.0	65.4	66	-0.6	10	----	57.1	8.3	8	0.3
Receiver274	242	1	65.0	64.7	66	-0.3	10	----	56.8	7.9	8	-0.1
Receiver275	243	1	65.0	64.5	66	-0.5	10	----	56.7	7.8	8	-0.2
Receiver276	244	1	64.0	63.7	66	-0.3	10	----	56.3	7.4	8	-0.6

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	35	4.8	8.6	12.0
All Impacted	18	7.3	9.9	12.0
All that meet NR Goal	20	8.2	9.8	12.0

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

S-106
(Mineral Springs Rd.)

INTERSTATE 20

S-106
(Mineral Springs Rd.)

INTERSTATE 20

Legend
- Impacted Receiver
- Non Impacted Receiver
- Benefited Receiver
- Potential Barrier 2 Location

Interstate 20
Widening Project
Noise Analysis
Lexington County, S.C.

N

Noise Analysis Drawing
Receiver Locations

SCALE 0 250 500 FEET

Aerial Map Source - USDA 2013

ICA Engineering
501 Iluger St, Columbia SC, 29201

2037 BUILD BARRIER 2 LOCATION

SHEET: 6 OF 8

3/20/2015
L:\1404601\g I-20 Lexington\Environmental\Noise\Prelim_Noise_06.dgn

SCDOT Feasibility and Reasonableness Worksheet

Date: Mar 18, 2015

Project Name I-20 Widening, Lexington, SC

Highway Traffic Noise Abatement Measure Noise Barrier 2

Feasibility

Number of Impacted Receivers: 18

Number of Benefited Receivers: 30

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 89

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 30

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 16

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 89

Does the proposed noise abatement measure meet the noise reduction design goal? ☒ Yes ☐ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 2,504,810

Estimated cost per Benefited Receiver: 83,494

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

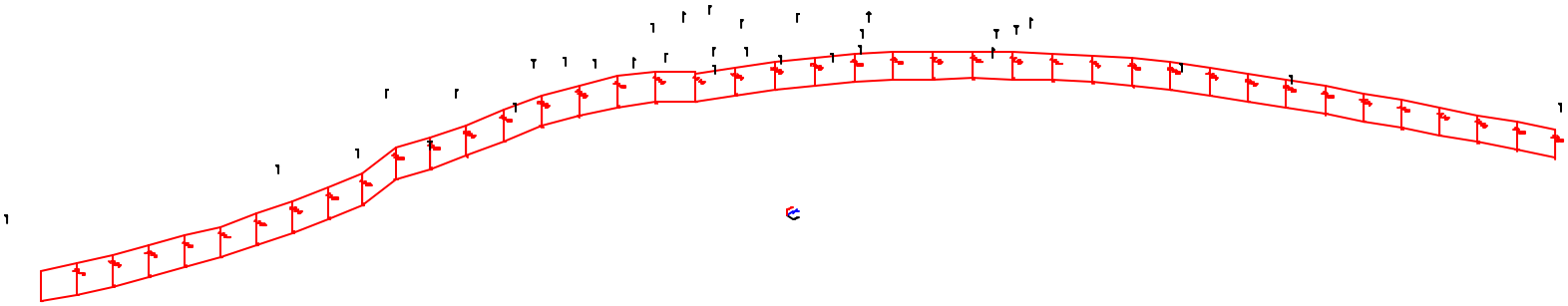
Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure



2037 SC 6 to Longs Pond Road - Wall 2		Sheet 1 of 1	20 Apr 2015
		ICA Engineeriing	
Barrier View-Barrier 2		Project/Contract No. I-20 Widening	
Run name: Wall 2 - Baskin Hills		TNM Version 2.5, Feb 2004	
Scale: <DNA - due to perspective>		Analysis By: Will Kerr/Wayne Hall	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
Will Kerr/Wayne Hall
11 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: 2037 SC 6 to Longs Pond Road - Wall 2
BARRIER DESIGN: Barrier 2
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver155	155	1	69.0	69.5	66	0.5	15	Snd Lvl	66.4	3.1	8	-4.9
Receiver157	157	1	62.0	62.4	66	0.4	15	----	56.2	6.2	8	-1.8
Receiver158	158	1	63.0	63.1	66	0.1	15	----	57.2	5.9	8	-2.1
Receiver159	159	1	64.0	62.0	66	-2.0	15	----	56.4	5.6	8	-2.4
Receiver160	160	1	68.0	66.1	66	-1.9	15	Snd Lvl	59.0	7.1	8	-0.9
Receiver162	162	1	64.0	62.5	66	-1.5	15	----	56.8	5.7	8	-2.3
Receiver163	163	1	64.0	61.7	66	-2.3	15	----	56.1	5.6	8	-2.4
Receiver164	164	1	65.0	63.1	66	-1.9	15	----	57.3	5.8	8	-2.2
Receiver165	165	1	72.0	69.7	66	-2.3	15	Snd Lvl	60.9	8.8	8	0.8
Receiver166	166	1	64.0	62.4	66	-1.6	15	----	56.4	6.0	8	-2.0
Receiver167	167	1	67.0	64.2	66	-2.8	15	----	58.0	6.2	8	-1.8
Receiver168	168	1	64.0	62.4	66	-1.6	15	----	56.4	6.0	8	-2.0
Receiver169	169	1	68.0	65.0	66	-3.0	15	----	58.5	6.5	8	-1.5
Receiver170	170	1	65.0	63.3	66	-1.7	15	----	57.2	6.1	8	-1.9
Receiver171	171	1	69.0	65.9	66	-3.1	15	----	59.2	6.7	8	-1.3
Receiver172	172	1	65.0	62.7	66	-2.3	15	----	56.7	6.0	8	-2.0
Receiver173	173	1	69.0	66.1	66	-2.9	15	Snd Lvl	59.1	7.0	8	-1.0
Receiver174	174	1	74.0	73.2	66	-0.8	15	Snd Lvl	61.6	11.6	8	3.6
Receiver175	175	1	63.0	61.8	66	-1.2	15	----	55.9	5.9	8	-2.1
Receiver176	176	1	71.0	67.7	66	-3.3	15	Snd Lvl	60.0	7.7	8	-0.3
Receiver177	177	1	65.0	63.5	66	-1.5	15	----	57.2	6.3	8	-1.7
Receiver178	178	1	68.0	66.3	66	-1.7	15	Snd Lvl	59.1	7.2	8	-0.8
Receiver179	179	1	73.0	69.1	66	-3.9	15	Snd Lvl	61.0	8.1	8	0.1
Receiver180	180	1	63.0	61.7	66	-1.3	15	----	55.8	5.9	8	-2.1

Receiver181	181	1	64.0	63.2	66	-0.8	15	----	56.9	6.3	8	-1.7
Receiver182	182	1	69.0	65.7	66	-3.3	15	----	58.8	6.9	8	-1.1
Receiver183	183	1	73.0	69.1	66	-3.9	15	Snd Lvl	61.0	8.1	8	0.1
Receiver189	189	1	68.0	66.7	66	-1.3	15	Snd Lvl	59.5	7.2	8	-0.8
Receiver191	191	1	68.0	66.8	66	-1.2	15	Snd Lvl	59.9	6.9	8	-1.1
Receiver192	192	1	70.0	70.6	66	0.6	15	Snd Lvl	67.2	3.4	8	-4.6
Receiver284	252	1	68.0	65.1	66	-2.9	10	----	58.3	6.8	8	-1.2
Receiver285	253	1	67.0	68.1	66	1.1	10	Snd Lvl	60.1	8.0	8	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	32	3.1	6.6	11.6
All Impacted	13	3.1	7.2	11.6
All that meet NR Goal	5	8.0	8.9	11.6

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

S-167 (Cedarcrest Dr.)

S-167 (Cedarcrest Dr.)

INTERSTATE 20

INTERSTATE 20

Legend

- Impacted Receiver
- Non Impacted Receiver
- Benefited Receiver
- Potential Barrier 3 Location

Interstate 20
Widening Project
Noise Analysis
Lexington County, S.C.

N

Noise Analysis Drawing
Receiver Locations

SCALE 0 250 500 FEET

Aerial Map Source - USDA 2013

ICA Engineering
501 Huger St, Columbia SC, 29201

2037 BUILD BARRIER 3 LOCATION

SHEET: 7 OF 8

3/20/2015
I:\1404601\g I-20 Lexington\Environmental\Noise\Prelim_Noise_07.dgn

SCDOT Feasibility and Reasonableness Worksheet

Date: Mar 18, 2015

Project Name I-20 Widening, Lexington, SC

Highway Traffic Noise Abatement Measure Noise Barrier 3

Feasibility

Number of Impacted Receivers: 25

Number of Benefited Receivers: 25

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 100

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 25

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 17

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 81

Does the proposed noise abatement measure meet the noise reduction design goal? ☒ Yes ☐ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 1,435,035

Estimated cost per Benefited Receiver: 57,401

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

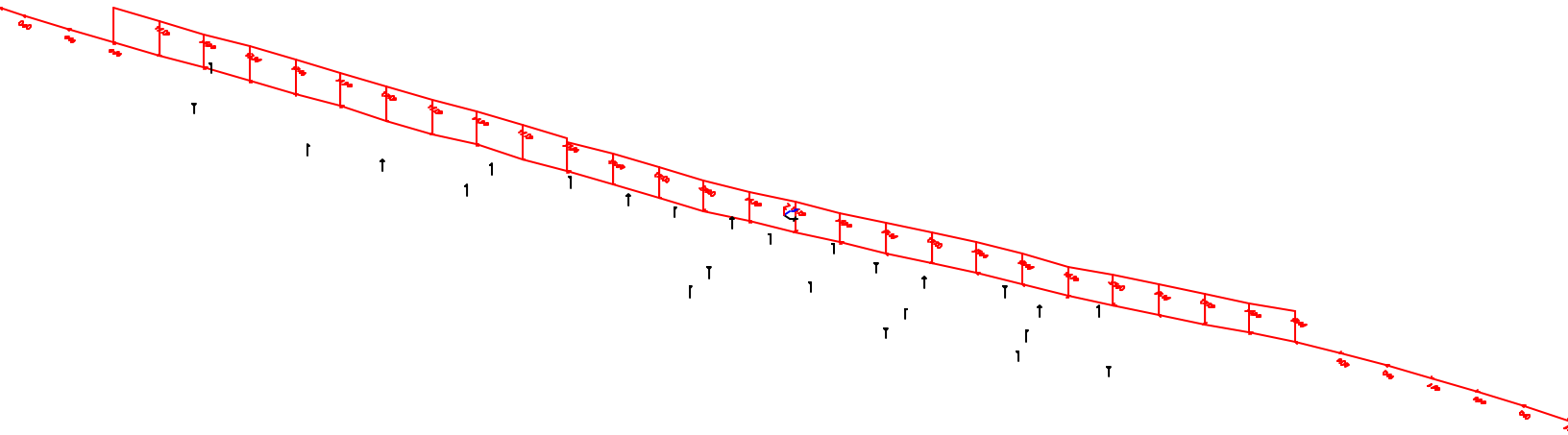
Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure



2037 SC 6 to Longs Pond Road - Wall 3	Sheet 1 of 1	20 Apr 2015
	ICA Engineeriing	
Barrier View-Barrier 3	Project/Contract No. I-20 Widening	
Run name: Wall3-Elvington	TNM Version 2.5, Feb 2004	
Scale: <DNA - due to perspective>	Analysis By: Will Kerr/Wayne Hall	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
20 April 2015
Will Kerr/Wayne Hall
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: 2037 SC 6 to Longs Pond Road - Wall 3
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver54	54	1	74.6	71.3	66	-3.3	15	Snd Lvl	71.3	0.0	8	-8.0
Receiver56	56	1	75.6	73.9	66	-1.7	15	Snd Lvl	73.9	0.0	8	-8.0
Receiver58	58	1	75.2	73.2	66	-2.0	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver60	60	1	74.9	73.1	66	-1.8	15	Snd Lvl	73.1	0.0	8	-8.0
Receiver61	61	1	74.2	72.0	66	-2.2	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver62	62	1	73.5	70.6	66	-2.9	15	Snd Lvl	70.6	0.0	8	-8.0
Receiver63	63	1	74.0	71.6	66	-2.4	15	Snd Lvl	71.6	0.0	8	-8.0
Receiver65	65	1	72.9	69.3	66	-3.6	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver67	67	1	72.7	69.0	66	-3.7	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver68	68	1	71.4	67.4	66	-4.0	15	Snd Lvl	67.4	0.0	8	-8.0
Receiver70	70	1	72.3	69.0	66	-3.3	15	Snd Lvl	69.0	0.0	8	-8.0
Receiver74	74	1	74.5	71.5	66	-3.0	15	Snd Lvl	71.5	0.0	8	-8.0
Receiver75	75	1	74.7	72.0	66	-2.7	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver76	76	1	75.4	73.8	66	-1.6	15	Snd Lvl	73.8	0.0	8	-8.0
Receiver77	77	1	75.7	75.0	66	-0.7	15	Snd Lvl	75.0	0.0	8	-8.0
Receiver78	78	1	74.3	72.3	66	-2.0	15	Snd Lvl	72.3	0.0	8	-8.0
Receiver80	80	1	75.3	74.7	66	-0.6	15	Snd Lvl	74.7	0.0	8	-8.0
Receiver82	82	1	74.8	73.6	66	-1.2	15	Snd Lvl	73.6	0.0	8	-8.0
Receiver83	83	1	76.5	76.8	66	0.3	15	Snd Lvl	76.8	0.0	8	-8.0
Receiver84	84	1	72.8	69.8	66	-3.0	15	Snd Lvl	69.8	0.0	8	-8.0
Receiver85	85	1	73.8	71.6	66	-2.2	15	Snd Lvl	71.6	0.0	8	-8.0
Receiver87	87	1	71.0	66.9	66	-4.1	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver89	89	1	77.1	77.0	66	-0.1	15	Snd Lvl	77.0	0.0	8	-8.0
Receiver90	90	1	73.2	70.4	66	-2.8	15	Snd Lvl	70.4	0.0	8	-8.0

Receiver91	91	1	71.9	68.3	66	-3.6	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver92	92	1	76.5	76.1	66	-0.4	15	Snd Lvl	76.1	0.0	8	-8.0
Receiver93	93	1	75.1	74.0	66	-1.1	15	Snd Lvl	74.0	0.0	8	-8.0
Receiver95	95	1	71.8	68.0	66	-3.8	15	Snd Lvl	68.0	0.0	8	-8.0
Receiver96	96	1	73.8	71.4	66	-2.4	15	Snd Lvl	71.4	0.0	8	-8.0
Receiver97	97	1	74.2	72.0	66	-2.2	15	Snd Lvl	72.0	0.0	8	-8.0
Receiver98	98	1	72.2	68.2	66	-4.0	15	Snd Lvl	68.1	0.1	8	-7.9
Receiver99	99	1	75.2	74.4	66	-0.8	15	Snd Lvl	74.4	0.0	8	-8.0
Receiver100	100	1	75.4	74.3	66	-1.1	15	Snd Lvl	74.2	0.1	8	-7.9
Receiver101	101	1	73.2	70.0	66	-3.2	15	Snd Lvl	69.7	0.3	8	-7.7
Receiver102	102	1	74.9	73.4	66	-1.5	15	Snd Lvl	73.4	0.0	8	-8.0
Receiver103	103	1	71.4	66.7	66	-4.7	15	Snd Lvl	66.7	0.0	8	-8.0
Receiver104	104	1	75.3	72.4	66	-2.9	15	Snd Lvl	72.4	0.0	8	-8.0
Receiver105	105	1	72.4	68.3	66	-4.1	15	Snd Lvl	68.3	0.0	8	-8.0
Receiver106	106	1	73.3	69.3	66	-4.0	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver107	107	1	76.4	75.9	66	-0.5	15	Snd Lvl	55.4	20.5	8	12.5
Receiver108	108	1	73.2	70.3	66	-2.9	15	Snd Lvl	60.6	9.7	8	1.7
Receiver109	109	1	72.7	69.1	66	-3.6	15	Snd Lvl	59.6	9.5	8	1.5
Receiver110	110	1	73.1	69.7	66	-3.4	15	Snd Lvl	59.5	10.2	8	2.2
Receiver111	111	1	71.0	66.2	66	-4.8	15	Snd Lvl	66.2	0.0	8	-8.0
Receiver112	112	1	74.5	72.4	66	-2.1	15	Snd Lvl	60.2	12.2	8	4.2
Receiver113	113	1	73.0	69.6	66	-3.4	15	Snd Lvl	59.4	10.2	8	2.2
Receiver114	114	1	75.4	74.2	66	-1.2	15	Snd Lvl	60.1	14.1	8	6.1
Receiver115	115	1	75.2	73.8	66	-1.4	15	Snd Lvl	60.3	13.5	8	5.5
Receiver116	116	1	72.3	68.1	66	-4.2	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver117	117	1	75.1	73.6	66	-1.5	15	Snd Lvl	60.5	13.1	8	5.1
Receiver118	118	1	75.6	74.2	66	-1.4	15	Snd Lvl	59.9	14.3	8	6.3
Receiver119	119	1	75.1	73.3	66	-1.8	15	Snd Lvl	60.1	13.2	8	5.2
Receiver120	120	1	72.4	68.2	66	-4.2	15	Snd Lvl	58.7	9.5	8	1.5
Receiver121	121	1	71.0	66.4	66	-4.6	15	Snd Lvl	57.8	8.6	8	0.6
Receiver122	122	1	75.6	74.1	66	-1.5	15	Snd Lvl	59.8	14.3	8	6.3
Receiver123	123	1	72.6	68.7	66	-3.9	15	Snd Lvl	58.9	9.8	8	1.8
Receiver124	124	1	74.7	72.6	66	-2.1	15	Snd Lvl	59.9	12.7	8	4.7
Receiver125	125	1	74.3	71.8	66	-2.5	15	Snd Lvl	59.8	12.0	8	4.0
Receiver126	126	1	72.5	68.1	66	-4.4	15	Snd Lvl	58.7	9.4	8	1.4
Receiver127	127	1	70.9	66.0	66	-4.9	15	Snd Lvl	57.9	8.1	8	0.1
Receiver128	128	1	75.0	73.2	66	-1.8	15	Snd Lvl	60.1	13.1	8	5.1
Receiver129	129	1	71.3	67.2	66	-4.1	15	Snd Lvl	67.2	0.0	8	-8.0
Receiver130	130	1	76.0	75.1	66	-0.9	15	Snd Lvl	75.1	0.0	8	-8.0
Receiver131	131	1	74.3	71.8	66	-2.5	15	Snd Lvl	59.5	12.3	8	4.3
Receiver132	132	1	73.0	68.3	66	-4.7	15	Snd Lvl	58.9	9.4	8	1.4

Receiver133	133	1	75.5	74.1	66	-1.4	15	Snd Lvl	59.8	14.3	8	6.3
Receiver134	134	1	71.5	66.2	66	-5.3	15	Snd Lvl	58.2	8.0	8	0.0
Receiver135	135	1	71.9	66.0	66	-5.9	15	Snd Lvl	58.6	7.4	8	-0.6
Receiver136	136	1	75.1	73.2	66	-1.9	15	Snd Lvl	73.2	0.0	8	-8.0
Receiver137	137	1	75.1	74.2	66	-0.9	15	Snd Lvl	74.2	0.0	8	-8.0
Receiver138	138	1	74.6	72.6	66	-2.0	15	Snd Lvl	72.6	0.0	8	-8.0
Receiver139	139	1	73.2	69.3	66	-3.9	15	Snd Lvl	69.3	0.0	8	-8.0
Receiver140	140	1	71.5	66.4	66	-5.1	15	Snd Lvl	66.4	0.0	8	-8.0
Receiver141	141	1	74.1	71.1	66	-3.0	15	Snd Lvl	71.1	0.0	8	-8.0
Receiver142	142	1	73.5	71.0	66	-2.5	15	Snd Lvl	71.0	0.0	8	-8.0
Receiver143	143	1	72.7	68.1	66	-4.6	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver144	144	1	71.0	65.4	66	-5.6	15	----	65.4	0.0	8	-8.0
Receiver145	145	1	71.9	66.7	66	-5.2	15	Snd Lvl	66.7	0.0	8	-8.0
Receiver146	146	1	77.9	77.0	66	-0.9	15	Snd Lvl	77.0	0.0	8	-8.0
Receiver147	147	1	73.7	71.8	66	-1.9	15	Snd Lvl	71.8	0.0	8	-8.0
Receiver148	148	1	71.3	68.1	66	-3.2	15	Snd Lvl	68.1	0.0	8	-8.0
Receiver149	149	1	72.4	68.6	66	-3.8	15	Snd Lvl	68.6	0.0	8	-8.0
Receiver150	150	1	75.1	74.2	66	-0.9	15	Snd Lvl	74.2	0.0	8	-8.0
Receiver151	151	1	70.9	66.9	66	-4.0	15	Snd Lvl	66.9	0.0	8	-8.0
Receiver153	153	1	71.9	68.2	66	-3.7	15	Snd Lvl	68.2	0.0	8	-8.0
Receiver154	154	1	76.3	76.3	66	0.0	15	Snd Lvl	76.3	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	86	0.0	3.4	20.5
All Impacted	85	0.0	3.4	20.5
All that meet NR Goal	23	8.1	11.9	20.5

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

Legend

- Impacted Receiver
- Non Impacted Receiver
- Benefited Receiver
- Potential Barrier 4 Location

Interstate 20
Widening Project
Noise Analysis
Lexington County, S.C.

N

Noise Analysis Drawing
Receiver Locations

SCALE 0 250 500 FEET

Aerial Map Source - USDA 2013

ICA Engineering
501 Huger St, Columbia SC, 29201

2037 BUILD
BARRIER 4 LOCATION

SHEET: 8 OF 8

3/20/2015
L:\1404601 \I-20 Lexington\Environmental\Noise\Prelim_Noise_08.dgn

SCDOT Feasibility and Reasonableness Worksheet

Date: Mar 18, 2015

Project Name I-20 Widening, Lexington, SC

Highway Traffic Noise Abatement Measure Noise Barrier 4

Feasibility

Number of Impacted Receivers: 21

Number of Benefited Receivers: 38

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 89

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 38

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 24

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 89

Does the proposed noise abatement measure meet the noise reduction design goal? ☒ Yes ☐ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 2,377,025

Estimated cost per Benefited Receiver: 62,553

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

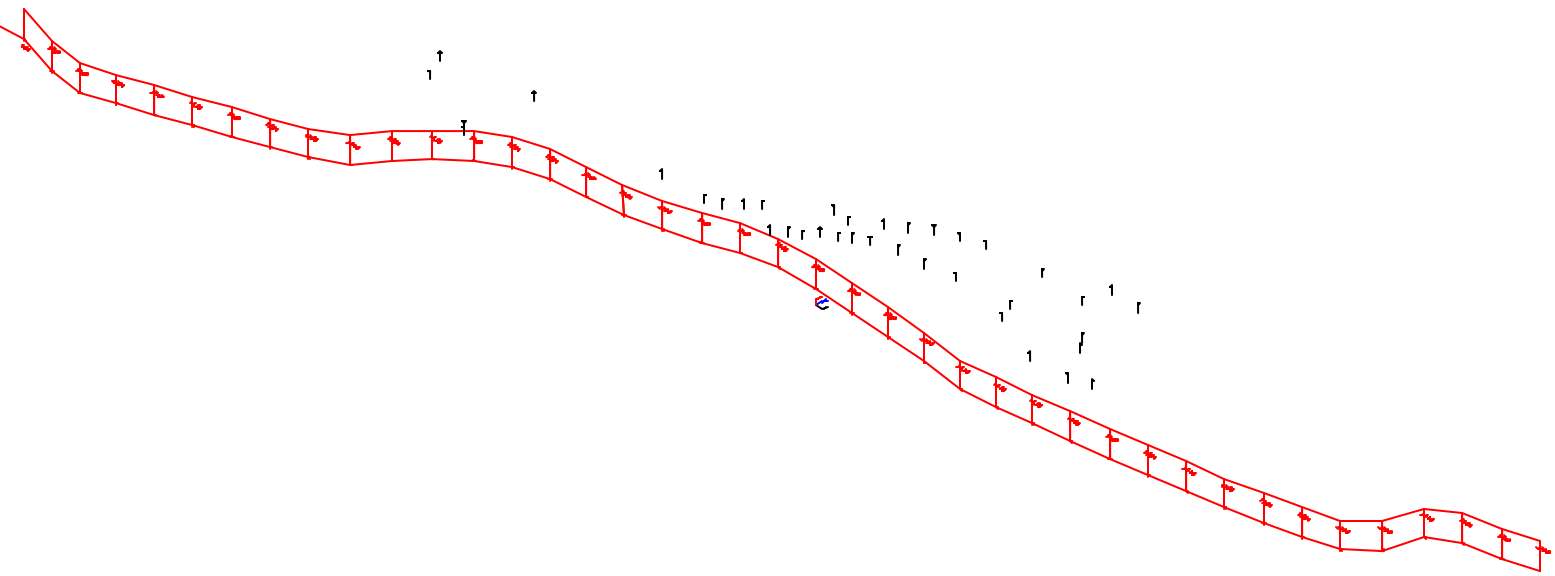
Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure



2037 SC 6 to Longs Pond Road - Wall 4	Sheet 1 of 1	20 Apr 2015
	ICA Engineeriing	
Barrier View-Barrier 4	Project/Contract No. I-20 Widening	
Run name: Wall4-Pleasant	TNM Version 2.5, Feb 2004	
Scale: <DNA - due to perspective>	Analysis By: Will Kerr/Wayne Hall	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
11 May 2015
Will Kerr/Wayne Hall
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: 2037 SC 6 to Longs Pond Road - Wall 4
BARRIER DESIGN: Barrier 4
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver9	9	1	63.0	63.8	66	0.8	15	----	58.2	5.6	8	-2.4
Receiver10	10	1	65.0	65.9	66	0.9	15	----	59.6	6.3	8	-1.7
Receiver13	13	1	63.0	74.0	66	11.0	15	Snd Lvl	64.5	9.5	8	1.5
Receiver14	14	1	71.0	71.0	66	0.0	15	Snd Lvl	62.2	8.8	8	0.8
Receiver15	15	1	65.0	64.2	66	-0.8	15	----	58.7	5.5	8	-2.5
Receiver17	17	1	65.0	60.2	66	-4.8	15	----	57.5	2.7	8	-5.3
Receiver221	221	1	69.0	64.3	66	-4.7	10	----	59.9	4.4	8	-3.6
Receiver222	222	1	68.0	63.6	66	-4.4	10	----	59.5	4.1	8	-3.9
Receiver223	223	1	68.0	64.4	66	-3.6	10	----	59.8	4.6	8	-3.4
Receiver224	224	1	67.0	64.8	66	-2.2	10	----	59.6	5.2	8	-2.8
Receiver225	225	1	66.0	64.7	66	-1.3	10	----	59.5	5.2	8	-2.8
Receiver226	226	1	66.0	64.8	66	-1.2	10	----	59.4	5.4	8	-2.6
Receiver227	227	1	66.0	65.0	66	-1.0	10	----	59.4	5.6	8	-2.4
Receiver228	228	1	65.0	64.8	66	-0.2	10	----	59.2	5.6	8	-2.4
Receiver229	229	1	64.0	63.9	66	-0.1	10	----	58.5	5.4	8	-2.6
Receiver230	230	1	64.0	63.3	66	-0.7	10	----	57.8	5.5	8	-2.5
Receiver231	231	1	62.0	62.7	66	0.7	10	----	56.6	6.1	8	-1.9
Receiver232	232	1	68.0	68.6	66	0.6	10	Snd Lvl	60.4	8.2	8	0.2
Receiver233	233	1	65.0	66.2	66	1.2	10	Snd Lvl	59.0	7.2	8	-0.8
Receiver234	234	1	63.0	64.8	66	1.8	10	----	57.9	6.9	8	-1.1
Receiver235	235	1	66.0	60.0	66	-6.0	10	----	57.8	2.2	8	-5.8
Receiver236	236	1	65.0	59.8	66	-5.2	10	----	57.6	2.2	8	-5.8
Receiver237	237	1	65.0	60.0	66	-5.0	10	----	57.6	2.4	8	-5.6
Receiver238	238	1	65.0	60.4	66	-4.6	10	----	57.5	2.9	8	-5.1

Receiver239	239	1	63.0	61.2	66	-1.8	10	----	57.3	3.9	8	-4.1
Receiver240	240	1	63.0	60.9	66	-2.1	10	----	56.8	4.1	8	-3.9
Receiver241	241	1	62.0	60.9	66	-1.1	10	----	56.6	4.3	8	-3.7
Receiver242	242	1	62.0	61.1	66	-0.9	10	----	56.5	4.6	8	-3.4
Receiver243	243	1	62.0	61.4	66	-0.6	10	----	56.6	4.8	8	-3.2
Receiver244	244	1	61.0	61.3	66	0.3	10	----	56.3	5.0	8	-3.0
Receiver245	245	1	61.0	61.0	66	0.0	10	----	56.0	5.0	8	-3.0
Receiver246	246	1	60.0	60.4	66	0.4	10	----	55.2	5.2	8	-2.8
Receiver247	247	1	59.0	59.8	66	0.8	10	----	54.6	5.2	8	-2.8
Receiver248	248	1	59.0	59.5	66	0.5	10	----	54.6	4.9	8	-3.1
Receiver249	249	1	59.0	59.5	66	0.5	10	----	54.4	5.1	8	-2.9
Receiver250	250	1	61.0	61.7	66	0.7	10	----	55.9	5.8	8	-2.2
Receiver251	251	1	62.0	63.2	66	1.2	10	----	56.8	6.4	8	-1.6
Receiver252	253	1	64.0	66.3	66	2.3	10	Snd Lvl	59.3	7.0	8	-1.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	38	2.2	5.2	9.5
All Impacted	5	7.0	8.1	9.5
All that meet NR Goal	3	8.2	8.8	9.5

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	

INTERSTATE 20

S-106
(Mineral Springs Rd.)

INTERSTATE 20

Legend
- Impacted Receiver
- Non Impacted Receiver
- Benefited Receiver
- Potential Barrier 5 Location

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 250 500 FEET
Aerial Map Source - USDA 2013

N

2037 BUILD BARRIER 5 LOCATION

SHEET: 5 OF 7

9/11/2015
L:\1404601 %g I-20 Lexington\Environmental\Noise\Barrier 5 Location.dgn

SCDOT Feasibility and Reasonableness Worksheet

Date: Sep 2, 2015

Project Name I-20 Widening, Lexington, SC

Highway Traffic Noise Abatement Measure Noise Barrier

Feasibility

Number of Impacted Receivers: 12

Number of Benefited Receivers: 12

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 92

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☒ Yes	☐ No
Safety	☒ Yes	☐ No
Drainage	☒ Yes	☐ No
Utilities	☒ Yes	☐ No
Maintenance	☒ Yes	☐ No
Access	☒ Yes	☐ No
Exposed Height of Wall	☒ Yes	☐ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 12

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 6

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 55

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 1,831,935

Estimated cost per Benefited Receiver: 152,661

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

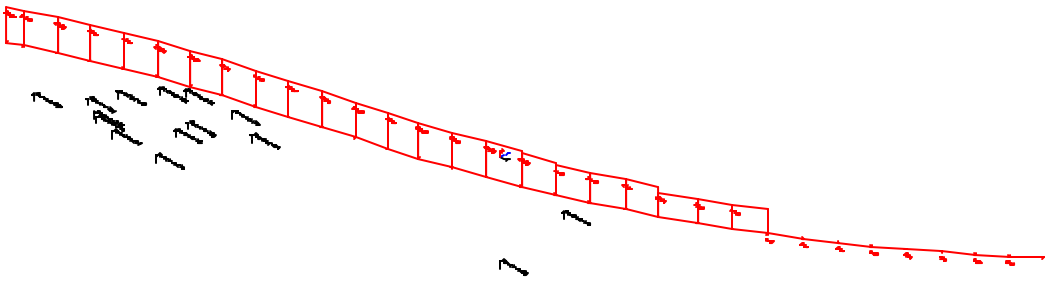
Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure



Build - SC 378 to US 1		Sheet 1 of 1	2 Sep 2015
		ICA Engineeriing	
Barrier View-Wall Larkin Woods		Project/Contract No. I-20 Widening	
Run name: Wall Larkin Woods		TNM Version 2.5, Feb 2004	
Scale: <DNA - due to perspective>		Analysis By: Will Kerr/Wayne Hall	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
2 September 2015
Will Kerr/Wayne Hall
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC 378 to US 1
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver152	152	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver155	155	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver156	156	1	72.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver157	157	1	62.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver158	158	1	63.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver159	159	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver160	160	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver161	161	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver162	162	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver163	163	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver164	164	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver165	165	1	72.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver166	166	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver167	167	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver168	168	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver169	169	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver170	170	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver171	171	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver172	172	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver173	173	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver174	174	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver175	175	1	63.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver176	176	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver177	177	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver178	178	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver179	179	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver180	180	1	63.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver181	181	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver182	182	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver183	183	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver184	184	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver185	185	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver186	186	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver189	189	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver190	190	1	75.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver191	191	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver192	192	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver193	193	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver194	194	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver195	195	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver196	196	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver197	197	1	71.0	72.1	66	1.1	15	Snd Lvl	61.1	11.0	8	3.0
Receiver199	199	1	75.0	75.5	66	0.5	15	Snd Lvl	60.2	15.3	8	7.3
Receiver200	200	1	66.0	65.6	66	-0.4	15	----	56.4	9.2	8	1.2
Receiver201	201	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver202	202	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver203	203	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver204	204	1	75.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver205	205	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver206	206	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver207	207	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver208	208	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver209	209	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver210	210	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver211	211	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver212	212	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver213	213	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver214	214	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver215	215	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver218	218	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver219	219	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver253	226	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver254	227	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver255	228	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver256	229	1	64.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Receiver257	230	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver258	231	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver259	232	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver260	233	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver261	234	1	72.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver262	235	1	73.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver263	236	1	73.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver264	237	1	73.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver265	238	1	73.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver266	239	1	71.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver267	240	1	69.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver268	241	1	67.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver269	242	1	69.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver270	243	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver271	244	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver272	245	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver273	246	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver274	247	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver275	248	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver276	249	1	64.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver277	250	1	64.0	69.3	66	5.3	10	Snd Lvl	62.5	6.8	8	-1.2
Receiver278	251	1	66.0	67.5	66	1.5	10	Snd Lvl	61.3	6.2	8	-1.8
Receiver279	252	1	64.0	64.9	66	0.9	10	----	58.6	6.3	8	-1.7
Receiver280	253	1	67.0	68.9	66	1.9	10	Snd Lvl	60.3	8.6	8	0.6
Receiver281	254	1	66.0	67.5	66	1.5	10	Snd Lvl	59.8	7.7	8	-0.3
Receiver282	255	1	69.0	71.2	66	2.2	10	Snd Lvl	62.5	8.7	8	0.7
Receiver283	256	1	72.0	73.1	66	1.1	10	Snd Lvl	62.2	10.9	8	2.9
Receiver284	257	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver285	258	1	67.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver294	267	1	71.0	69.9	66	-1.1	10	Snd Lvl	59.9	10.0	8	2.0
Receiver295	306	1	0.0	67.8	66	67.8	10	Snd Lvl	63.4	4.4	8	-3.6
Receiver296	307	1	0.0	66.8	66	66.8	10	Snd Lvl	60.8	6.0	8	-2.0
Receiver297	308	1	0.0	66.2	66	66.2	10	Snd Lvl	60.0	6.2	8	-1.8
Receiver298	309	1	0.0	74.0	66	74.0	10	Snd Lvl	62.2	11.8	8	3.8

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	99	0.0	1.3	15.3
All Impacted	13	4.4	8.7	15.3
All that meet NR Goal	8	8.6	10.7	15.3

ICA Engineeriing 2 September 2015
Will Kerr/Wayne Hall TNM 2.5

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC 378 to US 1
BARRIER DESIGN: INPUT HEIGHTS

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Barrier1	W	point39	39	25.00	25.00	25.00	50	1254				0
		299+00.00	2	25.00	25.00	25.00	100	2510				0
		298+00.00	3	25.00	25.00	25.00	100	2509				0
		297+00.00	4	25.00	25.00	25.00	100	2511				0
		296+00.00	5	25.00	25.00	25.00	100	2510				0
		295+00.00	6	25.00	25.00	25.00	100	2509				0
		294+00.00	7	25.00	25.00	25.00	93	2332				0
		293+00.00	8	25.00	25.00	25.00	101	2520				0
		292+00.00	9	25.00	25.00	25.00	99	2463				0
		291+00.00	10	25.00	25.00	25.00	101	2524				0
		290+00.00	11	25.00	25.00	25.00	98	2456				0
		289+00.00	12	25.00	25.00	25.00	100	2505				0
		288+00.00	13	25.00	25.00	25.00	90	2257				0
		287+00.00	15	25.00	25.00	25.00	100	2510				0
		286+00.00	16	25.00	25.00	25.00	100	2500				0
		285+00.00	17	25.00	25.00	25.00	101	2519				0
		284+00.00	18	25.00	25.00	25.00	102	2540				0
		283+00.00	19	25.00	25.00	25.00	98	2452				0
		282+00.00	20	25.00	25.00	25.00	104	2588				0
		281+00.00	21	25.00	25.00	25.00	97	2417				0
		280+00.00	22	25.00	25.00	25.00	111	2779				0
		279+00.00	23	25.00	25.00	25.00	102	2542				0
		278+00.00	24	25.00	25.00	25.00	102	2548				0
		277+00.00	25	25.00	25.00	25.00	101	2525				0
		276+00.00	26	25.00	25.00	25.00	103	2567				0
		275+00.00	27	25.00	25.00	25.00	98	2440				0

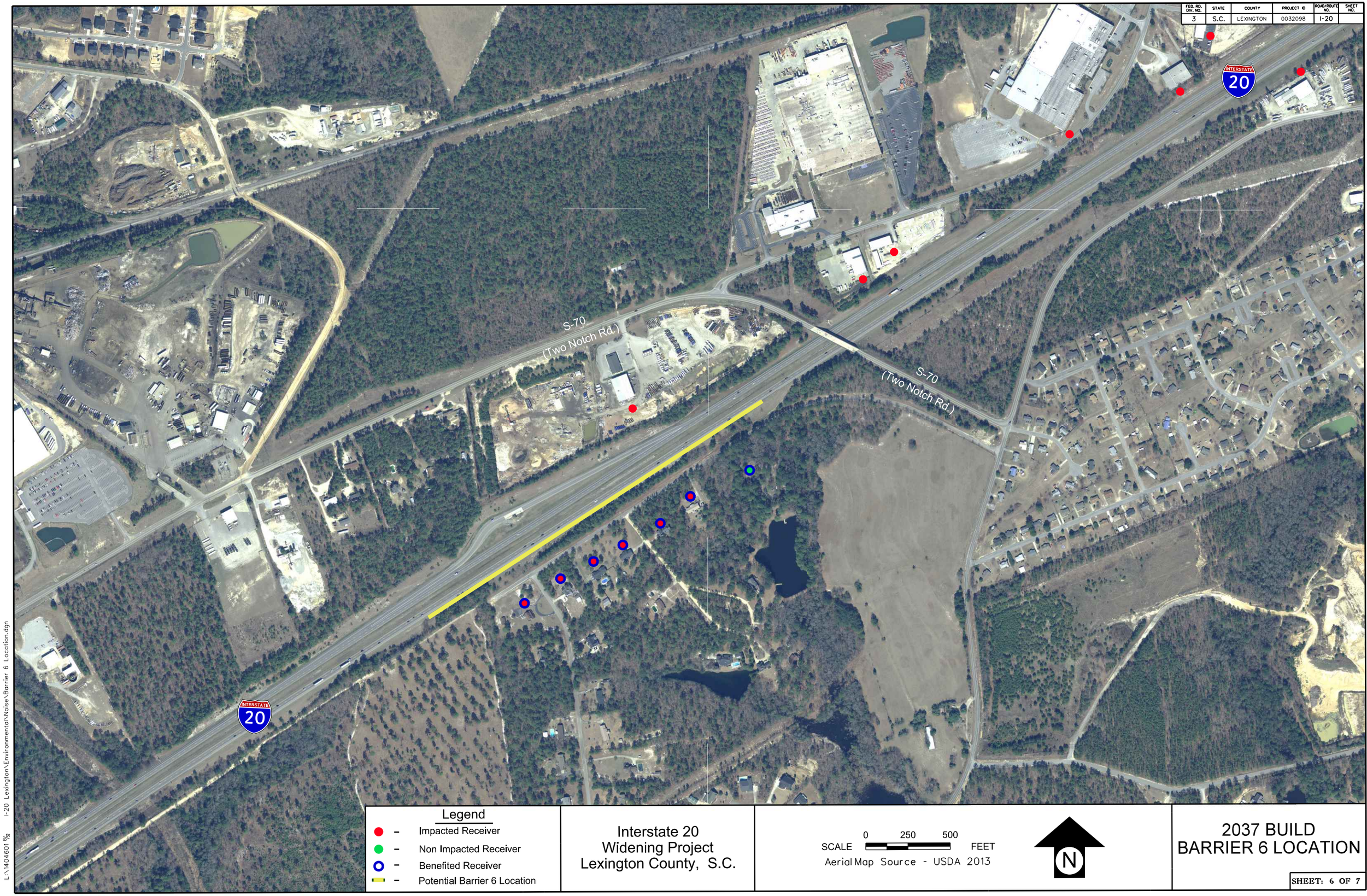
		274+00.00	28	25.00	25.00	25.00	99	2484				0
		273+00.00	29	25.00	25.00	25.00	101	2532				0
		272+00.00	30	25.00	25.00	25.00	100	2511				0
		271+00.00	31	25.00	25.00	25.00	98	2449				0
		270+00.00	32	25.00	25.00	25.00	101	2528				0

ICA Engineeriing 2 September 2015
Will Kerr/Wayne Hall TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC 378 to US 1

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht Perturbs			On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier1	W	0.00	99.99	0.00				0.00	point39	39	1,944,475.4	785,418.1	358.95	25.00	2.00	0	7		
									299+00.00	2	1,944,519.4	785,442.2	358.40	25.00	2.00	0	7		
									298+00.00	3	1,944,607.4	785,490.6	357.40	25.00	2.00	0	7		
									297+00.00	4	1,944,695.4	785,538.8	356.10	25.00	2.00	0	7		
									296+00.00	5	1,944,783.4	785,587.2	354.50	25.00	2.00	0	7		
									295+00.00	6	1,944,871.4	785,635.6	352.50	25.00	2.00	0	7		
									294+00.00	7	1,944,959.4	785,683.8	349.80	25.00	2.00	0	7		
									293+00.00	8	1,945,040.0	785,730.8	346.80	25.00	2.00	0	7		
									292+00.00	9	1,945,128.8	785,778.6	343.30	25.00	2.00	0	7		
									291+00.00	10	1,945,214.4	785,827.3	339.60	25.00	2.00	0	7		
									290+00.00	11	1,945,302.1	785,877.2	335.90	25.00	2.00	0	7		
									289+00.00	12	1,945,388.8	785,923.6	332.30	25.00	2.00	0	7		
									288+00.00	13	1,945,476.5	785,971.9	328.80	25.00	2.00	0	7		
									287+00.00	15	1,945,554.9	786,016.8	325.40	25.00	2.00	0	7		
									286+00.00	16	1,945,640.6	786,068.9	321.80	25.00	2.00	0	7		
									285+00.00	17	1,945,723.8	786,124.6	318.10	25.00	2.00	0	7		
									284+00.00	18	1,945,807.1	786,181.1	314.40	25.00	2.00	0	7		
									283+00.00	19	1,945,889.6	786,240.4	310.70	25.00	2.00	0	7		
									282+00.00	20	1,945,967.8	786,299.8	307.00	25.00	2.00	0	7		
									281+00.00	21	1,946,046.4	786,367.1	303.30	25.00	2.00	0	7		
									280+00.00	22	1,946,120.5	786,429.1	299.70	25.00	2.00	0	7		
									279+00.00	23	1,946,205.2	786,501.1	295.90	25.00	2.00	0	7		
									278+00.00	24	1,946,278.8	786,571.3	292.20	25.00	2.00	0	7		
									277+00.00	25	1,946,348.9	786,645.2	288.50	25.00	2.00	0	7		
									276+00.00	26	1,946,418.9	786,718.1	284.80	25.00	2.00	0	7		
									275+00.00	27	1,946,486.5	786,795.3	281.00	25.00	2.00	0	7		
									274+00.00	28	1,946,548.6	786,870.6	277.20	25.00	2.00	0	7		
									273+00.00	29	1,946,610.1	786,948.6	273.50	25.00	2.00	0	7		
									272+00.00	30	1,946,670.8	787,029.8	269.70	25.00	2.00	0	7		
									271+00.00	31	1,946,730.8	787,110.3	265.70	25.00	2.00	0	7		
									270+00.00	32	1,946,786.4	787,190.9	261.80	25.00	2.00	0	7		
									269+00.00	33	1,946,845.4	787,273.1	258.40	25.00					

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver
- Benefited Receiver
- Potential Barrier 6 Location

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 250 500 FEET

Aerial Map Source - USDA 2013

N

2037 BUILD BARRIER 6 LOCATION

SHEET: 6 OF 7

9/11/2015
I-20 Lexington\Environmental\Noise\Barrier 6 Location.dgn
L:\1404601 %g

SCDOT Feasibility and Reasonableness Worksheet

Date: Sep 2, 2015

Project Name I-20 Widening, Lexington, SC

Highway Traffic Noise Abatement Measure Noise Barrier

Feasibility

Number of Impacted Receivers: 6

Number of Benefited Receivers: 7

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 100

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 7

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 6

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 86

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 2,022,405

Estimated cost per Benefited Receiver: 288,915

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

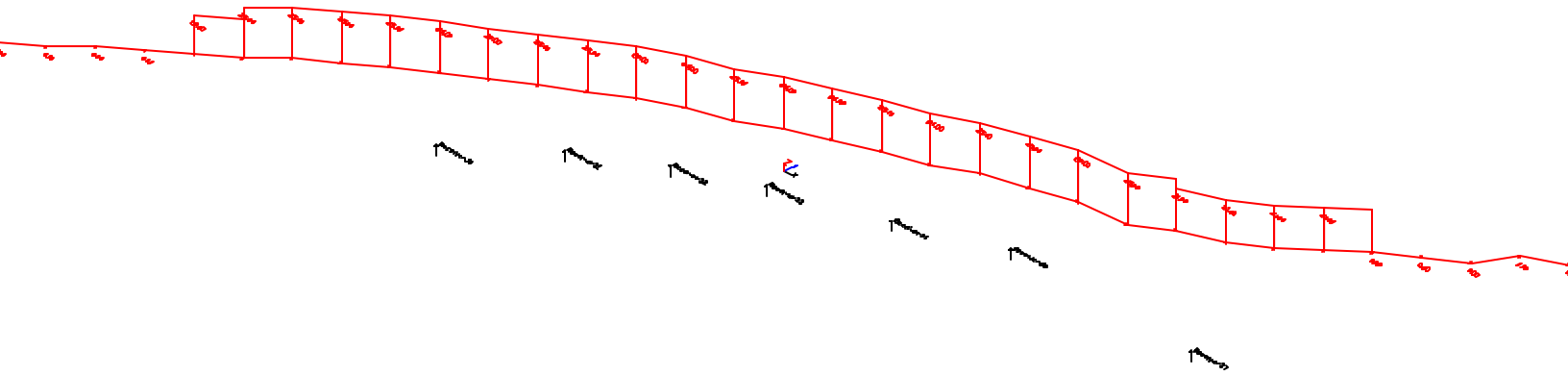
Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure



Build - SC6 to Longs Pond	Sheet 1 of 1	2 Sep 2015
	ICA Engineeriing	
Barrier View-Hidden Springs Barrier	Project/Contract No. I-20 Widening	
Run name: Wall Hidden Springs	TNM Version 2.5, Feb 2004	
Scale: <DNA - due to perspective>	Analysis By: Will Kerr/Wayne Hall	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
2 September 2015
Will Kerr/Wayne Hall
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC6 to Longs Pond
BARRIER DESIGN: Hidden Springs Barrier
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver37	37	1	64.0	64.8	66	0.8	15	----	59.5	5.3	8	-2.7
Receiver36	36	1	67.0	69.0	66	2.0	15	Snd Lvl	60.9	8.1	8	0.1
Receiver35	35	1	66.0	68.4	66	2.4	15	Snd Lvl	60.3	8.1	8	0.1
Receiver33	33	1	66.0	68.8	66	2.8	15	Snd Lvl	59.9	8.9	8	0.9
Receiver32	32	1	67.0	69.0	66	2.0	15	Snd Lvl	59.8	9.2	8	1.2
Receiver31	31	1	67.0	69.1	66	2.1	15	Snd Lvl	59.7	9.4	8	1.4
Receiver30	30	1	67.0	67.4	66	0.4	15	Snd Lvl	60.5	6.9	8	-1.1

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	7	5.3	8.0	9.4
All Impacted	6	6.9	8.4	9.4
All that meet NR Goal	5	8.1	8.7	9.4

ICA Engineeriing 2 September 2015
Will Kerr/Wayne Hall TNM 2.5

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC6 to Longs Pond
BARRIER DESIGN: INPUT HEIGHTS

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Barr 2	W	655+00.00	1	25.00	25.00	25.00	100	2496				0
		654+00.00	3	25.00	25.00	25.00	100	2499				0
		653+00.00	4	25.00	25.00	25.00	100	2501				0
		652+00.00	5	25.00	25.00	25.00	100	2496				0
		651+00.00	6	25.00	25.00	25.00	100	2501				0
		650+00.00	7	25.00	25.00	25.00	100	2498				0
		649+00.00	8	25.00	25.00	25.00	100	2496				0
		648+00.00	9	25.00	25.00	25.00	100	2501				0
		647+00.00	10	25.00	25.00	25.00	100	2498				0
		646+00.00	11	25.00	25.00	25.00	100	2502				0
		645+00.00	12	25.00	25.00	25.00	100	2503				0
		644+00.00	13	25.00	25.00	25.00	100	2501				0
		643+00.00	14	25.00	25.00	25.00	100	2504				0
		642+00.00	15	25.00	25.00	25.00	100	2502				0
		641+00.00	16	25.00	25.00	25.00	100	2502				0
		640+00.00	17	25.00	25.00	25.00	100	2503				0
		639+00.00	18	25.00	25.00	25.00	100	2502				0
		638+00.00	19	25.00	25.00	25.00	100	2504				0
		637+00.00	20	25.00	25.00	25.00	100	2500				0
		636+00.00	21	25.00	25.00	25.00	100	2504				0
		635+00.00	22	25.00	25.00	25.00	100	2502				0
		634+00.00	23	25.00	25.00	25.00	100	2495				0
		633+00.00	24	25.00	25.00	25.00	100	2497				0
		632+00.00	25	25.00	25.00	25.00	100	2495				0
		631+00.00	26	25.00	25.00	25.00	100	2497				0
		630+00.00	27	25.00	25.00	25.00	100	2495				0

		629+00.00	28	25.00	25.00	25.00	100	2495				0
		628+00.00	29	25.00	25.00	25.00	100	2497				0
		627+00.00	30	25.00	25.00	25.00	100	2498				0
		626+00.00	31	25.00	25.00	25.00	100	2495				0
		625+00.00	32	25.00	25.00	25.00	100	2497				0
		624+00.00	33	25.00	25.00	25.00	100	2495				0
		623+00.00	34	25.00	25.00	25.00	100	2495				0
		622+00.00	35	25.00	25.00	25.00	100	2497				0
		621+00.00	36	25.00	25.00	25.00	100	2495				0
		620+00.00	37	25.00	25.00	25.00	100	2496				0
		619+00.00	38	25.00	25.00	25.00	100	2495				0
		618+00.00	41	25.00	25.00	25.00	100	2501				0

ICA Engineeriing
2 September 2015
Will Kerr/Wayne Hall
TNM 2.5

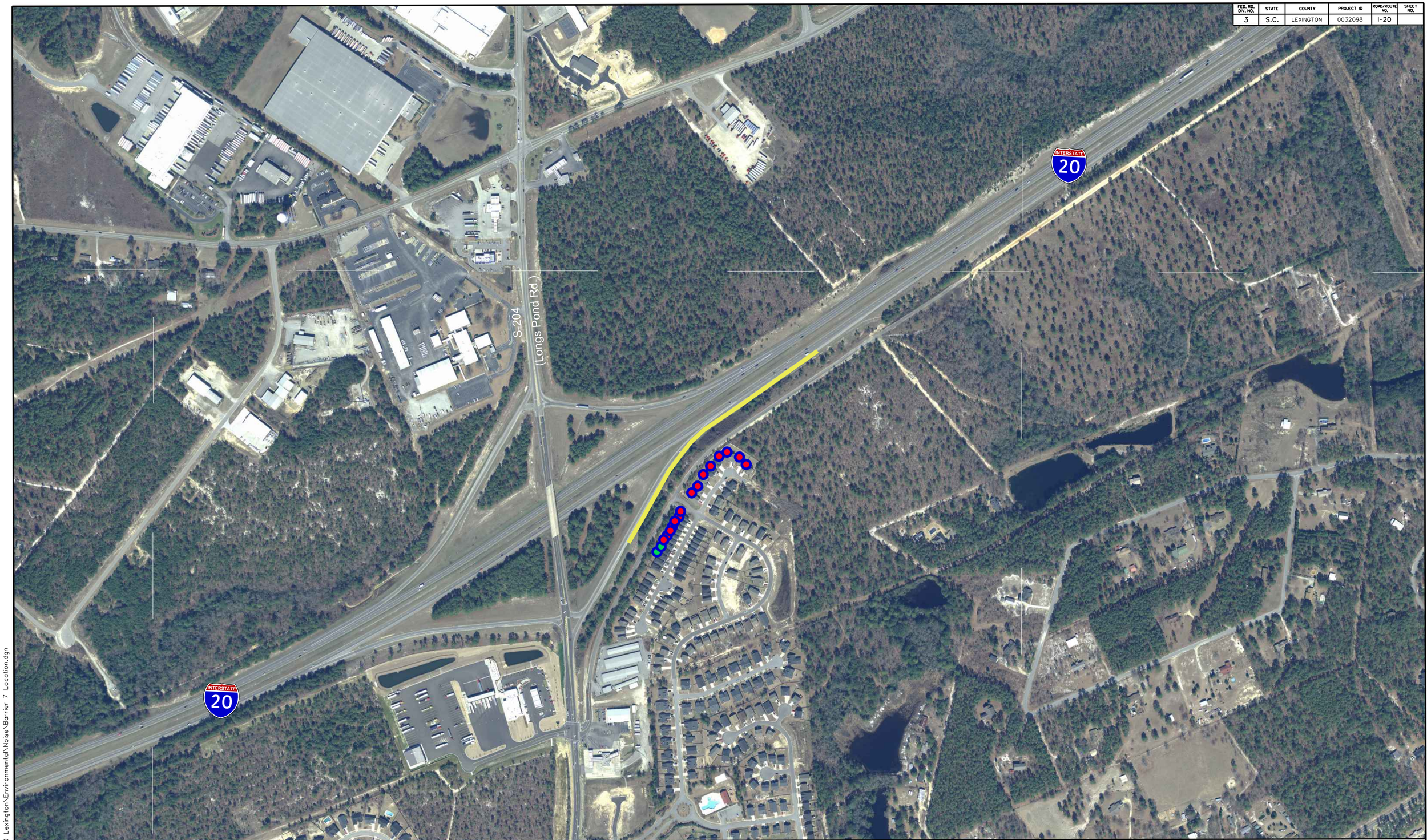
INPUT: BARRIERS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC6 to Longs Pond

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht Perturbs			On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barr 2	W	0.00	99.99	0.00				0.00	655+00.00	1	1,917,179.8	765,171.9	387.80	25.00	2.00	0	7		
									654+00.00	3	1,917,263.4	765,226.4	389.40	25.00	2.00	0	7		
									653+00.00	4	1,917,347.0	765,281.2	391.10	25.00	2.00	0	7		
									652+00.00	5	1,917,430.8	765,335.9	392.70	25.00	2.00	0	7		
									651+00.00	6	1,917,514.4	765,390.4	394.30	25.00	2.00	0	7		
									650+00.00	7	1,917,598.1	765,445.2	393.00	25.00	2.00	0	7		
									649+00.00	8	1,917,681.8	765,499.9	394.00	25.00	2.00	0	7		
									648+00.00	9	1,917,765.4	765,554.4	397.00	25.00	2.00	0	7		
									647+00.00	10	1,917,849.1	765,609.2	398.00	25.00	2.00	0	7		
									646+00.00	11	1,917,932.8	765,663.9	399.00	25.00	2.00	0	7		
									645+00.00	12	1,918,017.0	765,717.9	400.00	25.00	2.00	0	7		
									644+00.00	13	1,918,101.4	765,771.8	403.00	25.00	2.00	0	7		
									643+00.00	14	1,918,185.6	765,825.7	404.00	25.00	2.00	0	7		
									642+00.00	15	1,918,270.0	765,879.7	405.00	25.00	2.00	0	7		
									641+00.00	16	1,918,354.2	765,933.7	405.00	25.00	2.00	0	7		
									640+00.00	17	1,918,438.5	765,987.7	405.00	25.00	2.00	0	7		
									639+00.00	18	1,918,522.9	766,041.6	405.00	25.00	2.00	0	7		
									638+00.00	19	1,918,607.1	766,095.6	405.00	25.00	2.00	0	7		
									637+00.00	20	1,918,691.5	766,149.6	404.80	25.00	2.00	0	7		
									636+00.00	21	1,918,775.8	766,203.4	403.20	25.00	2.00	0	7		
									635+00.00	22	1,918,860.1	766,257.4	400.00	25.00	2.00	0	7		
									634+00.00	23	1,918,944.4	766,311.4	399.00	25.00	2.00	0	7		
									633+00.00	24	1,919,028.1	766,365.8	396.50	25.00	2.00	0	7		
									632+00.00	25	1,919,111.9	766,420.2	394.00	25.00	2.00	0	7		
									631+00.00	26	1,919,195.6	766,474.4	390.00	25.00	2.00	0	7		
									630+00.00	27	1,919,279.4	766,528.9	389.00	25.00	2.00	0	7		
									629+00.00	28	1,919,363.1	766,583.2	385.00	25.00	2.00	0	7		
									628+00.00	29	1,919,446.9	766,637.4	381.00	25.00	2.00	0	7		
									627+00.00	30	1,919,530.6	766,691.9	373.00	25.00	2.00	0	7		
									626+00.00	31	1,919,614.5	766,746.2	373.00	25.00	2.00	0	7		
									625+00.00	32	1,919,698.2	766,800.4	370.00	25.00	2.00	0	7		
									624+00.00	33	1,919,782.0	766,854.9	370.00	25.00	2.00	0	7		
									623+00.00	34	1,919,865.8	766,909.2	372.00	25.00	2.00	0	7		
									622+00.00	35	1,919,949.5	766,963.4	374.00	25.00	2.00	0	7		
									621+00.00	36	1,920,033.2	767,017.9	374.70	25.00	2.00	0	7		

									620+00.00	37	1,920,117.0	767,072.2	375.00	25.00	2.00	0	7		
									619+00.00	38	1,920,200.8	767,126.6	381.00	25.00	2.00	0	7		
									618+00.00	41	1,920,284.5	767,180.9	380.00	25.00	2.00	0	7		
									617+00.00	39	1,920,368.5	767,235.2	380.00	25.00					

ICA Engineeriing				**2 September 2015**						
Will Kerr/Wayne Hall				**TNM 2.5**						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	**I-20 Widening**									
RUN:	**Build - SC6 to Longs Pond**									
BARRIER DESIGN:	**INPUT HEIGHTS**									
Barriers										
Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Barr 2	W	25.00	25.00	25.00	3798	94953				0
									Total Cost:	0

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	LEXINGTON	0032098	I-20	



Legend

- Impacted Receiver
- Non Impacted Receiver
- Benefited Receiver
- Potential Barrier 7 Location

Interstate 20
Widening Project
Lexington County, S.C.

SCALE 0 250 500 FEET

Aerial Map Source - USDA 2013

N

2037 BUILD
BARRIER 7 LOCATION

SHEET: 7 OF 7

9/11/2015
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SCDOT Feasibility and Reasonableness Worksheet

Date: Sep 2, 2015

Project Name I-20 Widening, Lexington, SC

Highway Traffic Noise Abatement Measure Noise Barrier

Feasibility

Number of Impacted Receivers: 15

Number of Benefited Receivers: 17

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 100

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 17

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 16

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 17

Does the proposed noise abatement measure meet the noise reduction design goal? ☒ Yes ☐ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 1,273,300

Estimated cost per Benefited Receiver: 74,900

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☒ No
NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

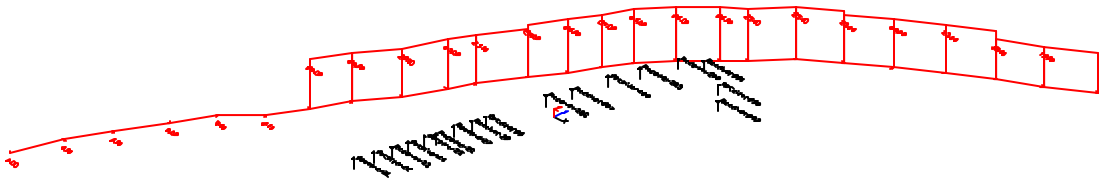
Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure



Build - SC6 to Longs Pond		Sheet 1 of 1	2 Sep 2015
		ICA Engineeriing	
Barrier View-Wall South Brook		Project/Contract No. I-20 Widening	
Run name: Wall South Brook		TNM Version 2.5, Feb 2004	
Scale: <DNA - due to perspective>		Analysis By: Will Kerr/Wayne Hall	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
2 September 2015
Will Kerr/Wayne Hall
TNM 2.5
Calculated with TNM 2.5
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC6 to Longs Pond
BARRIER DESIGN: INPUT HEIGHTS
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver2	2	1	61.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver3	3	1	62.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver4	4	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver5	5	1	62.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver7	7	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver8	8	1	63.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver9	9	1	63.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver10	10	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver11	11	1	61.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver12	12	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver13	13	1	63.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver14	14	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver15	15	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver16	16	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver17	17	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver18	18	1	63.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver19	19	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver20	20	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver21	21	1	63.0	62.4	66	-0.6	15	----	56.0	6.4	8	-1.6
Receiver22	22	1	63.0	63.6	66	0.6	15	----	56.4	7.2	8	-0.8
Receiver23	23	1	63.0	64.3	66	1.3	15	----	56.7	7.6	8	-0.4
Receiver24	24	1	63.0	65.2	66	2.2	15	----	57.0	8.2	8	0.2
Receiver25	25	1	64.0	66.0	66	2.0	15	Snd Lvl	57.4	8.6	8	0.6

Receiver26	26	1	64.0	66.3	66	2.3	15	Snd Lvl	57.5	8.8	8	0.8
Receiver27	27	1	64.0	66.4	66	2.4	15	Snd Lvl	57.9	8.5	8	0.5
Receiver28	28	1	64.0	66.7	66	2.7	15	Snd Lvl	58.3	8.4	8	0.4
Receiver29	29	1	65.0	67.2	66	2.2	15	Snd Lvl	58.5	8.7	8	0.7
Receiver30	30	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver31	31	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver32	32	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver33	33	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver34	34	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver35	35	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver36	36	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver37	37	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver39	39	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver40	40	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver41	41	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver42	42	1	75.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver43	43	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver44	44	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver45	45	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver46	46	1	64.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver47	47	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver48	48	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver49	49	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver50	50	1	66.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver52	52	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver53	53	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver54	54	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver56	56	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver58	58	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver60	60	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver61	61	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver62	62	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver63	63	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver65	65	1	68.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver67	67	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver68	68	1	65.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver70	70	1	67.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver221	221	1	69.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver222	222	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver223	223	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver224	224	1	67.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Receiver225	225	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver226	226	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver227	227	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver228	228	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver229	229	1	64.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver230	230	1	64.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver231	231	1	62.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver232	232	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver233	233	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver234	234	1	63.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver235	235	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver236	236	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver237	237	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver238	238	1	65.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver239	239	1	63.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver240	240	1	63.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver241	241	1	62.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver242	242	1	62.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver243	243	1	62.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver244	244	1	61.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver245	245	1	61.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver246	246	1	60.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver247	247	1	59.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver248	248	1	59.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver249	249	1	59.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver250	250	1	61.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver251	251	1	62.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver252	252	1	64.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver286	254	1	60.0	69.3	66	9.3	10	Snd Lvl	59.8	9.5	8	1.5
Receiver287	255	1	67.0	69.7	66	2.7	10	Snd Lvl	60.2	9.5	8	1.5
Receiver288	256	1	68.0	70.9	66	2.9	10	Snd Lvl	61.0	9.9	8	1.9
Receiver289	257	1	69.0	71.6	66	2.6	10	Snd Lvl	61.6	10.0	8	2.0
Receiver290	258	1	70.0	72.2	66	2.2	10	Snd Lvl	62.3	9.9	8	1.9
Receiver291	259	1	70.0	72.1	66	2.1	10	Snd Lvl	62.2	9.9	8	1.9
Receiver292	260	1	67.0	69.7	66	2.7	10	Snd Lvl	60.9	8.8	8	0.8
Receiver293	261	1	66.0	68.2	66	2.2	10	Snd Lvl	60.2	8.0	8	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	101	0.0	1.5	10.0
All Impacted	13	8.0	9.1	10.0

All that meet NR Goal		13	8.2	9.1	10.0							

ICA Engineeriing 2 September 2015
Will Kerr/Wayne Hall TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC6 to Longs Pond

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht Perturbs			On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier1	W	0.00	99.99	0.00				0.00	point1	1	1,912,156.5	761,094.9	435.00	25.00	2.00	0	7		
									point2	2	1,912,201.1	761,200.7	435.00	25.00	2.00	0	7		
									point3	3	1,912,250.4	761,287.6	435.00	25.00	2.00	0	7		
									point4	4	1,912,304.5	761,386.2	435.00	25.00	2.00	0	7		
									point5	5	1,912,353.8	761,470.9	435.00	25.00	2.00	0	7		
									point6	6	1,912,400.8	761,555.4	431.00	25.00	2.00	0	7		
									point7	7	1,912,443.1	761,632.9	431.00	25.00	2.00	0	7		
									point8	8	1,912,485.4	761,705.8	431.00	25.00	2.00	0	7		
									point9	9	1,912,537.0	761,792.7	430.00	25.00	2.00	0	7		
									point10	10	1,912,579.4	761,874.9	430.00	25.00	2.00	0	7		
									point11	11	1,912,608.0	761,926.2	430.00	25.00	2.00	0	7		
									point12	12	1,912,662.0	762,013.1	430.00	25.00	2.00	0	7		
									point13	13	1,912,706.6	762,078.9	430.00	25.00	2.00	0	7		
									point14	14	1,912,746.6	762,135.2	431.00	25.00	2.00	0	7		
									point15	15	1,912,784.2	762,182.2	432.00	25.00	2.00	0	7		
									point16	16	1,912,843.0	762,241.0	433.00	25.00	2.00	0	7		
									point17	17	1,912,908.8	762,297.4	434.00	25.00	2.00	0	7		
									point18	18	1,912,953.0	762,329.1	435.00	25.00	2.00	0	7		
									point25	25	1,913,029.5	762,383.8	438.10	25.00	2.00	0	7		
									point19	19	1,913,106.1	762,438.3	438.40	25.00	2.00	0	7		
									point20	20	1,913,186.0	762,494.7	438.40	25.00	2.00	0	7		
									point21	21	1,913,270.5	762,553.4	438.40	25.00	2.00	0	7		
									point22	22	1,913,352.8	762,609.8	438.10	25.00	2.00	0	7		
									point23	23	1,913,432.6	762,661.5	437.50	25.00	2.00	0	7		
									point24	24	1,913,519.5	762,724.9	436.80	25.00					

ICA Engineeriing				**2 September 2015**						
Will Kerr/Wayne Hall				**TNM 2.5**						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	**I-20 Widening**									
RUN:	**Build - SC6 to Longs Pond**									
BARRIER DESIGN:	**INPUT HEIGHTS**									
Barriers										
Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Barrier1	W	25.00	25.00	25.00	2173	54329				0
									Total Cost:	0

ICA Engineeriing 2 September 2015
Will Kerr/Wayne Hall TNM 2.5

RESULTS: BARRIER-SEGMENT DESCRIPTIONS
PROJECT/CONTRACT: I-20 Widening
RUN: Build - SC6 to Longs Pond
BARRIER DESIGN: INPUT HEIGHTS

Barriers		Segments										
Name	Type	Name	No.	Heights			Length	If Wall			If Berm	Cost
				First Point	Average	Second Point		Area	On Struc?	Important Reflections?	Volume	
				ft	ft	ft	ft	sq ft			cu yd	$
Barrier1	W	point1	1	25.00	25.00	25.00	115	2870				0
		point2	2	25.00	25.00	25.00	100	2498				0
		point3	3	25.00	25.00	25.00	113	2813				0
		point4	4	25.00	25.00	25.00	98	2448				0
		point5	5	25.00	25.00	25.00	97	2419				0
		point6	6	25.00	25.00	25.00	88	2208				0
		point7	7	25.00	25.00	25.00	84	2105				0
		point8	8	25.00	25.00	25.00	101	2528				0
		point9	9	25.00	25.00	25.00	93	2313				0
		point10	10	25.00	25.00	25.00	59	1468				0
		point11	11	25.00	25.00	25.00	102	2557				0
		point12	12	25.00	25.00	25.00	80	1988				0
		point13	13	25.00	25.00	25.00	69	1728				0
		point14	14	25.00	25.00	25.00	60	1505				0
		point15	15	25.00	25.00	25.00	83	2077				0
		point16	16	25.00	25.00	25.00	87	2165				0
		point17	17	25.00	25.00	25.00	54	1362				0
		point18	18	25.00	25.00	25.00	94	2350				0
		point25	25	25.00	25.00	25.00	94	2352				0
		point19	19	25.00	25.00	25.00	98	2444				0
		point20	20	25.00	25.00	25.00	103	2573				0
		point21	21	25.00	25.00	25.00	100	2493				0
		point22	22	25.00	25.00	25.00	95	2378				0
		point23	23	25.00	25.00	25.00	108	2689				0

Table 1 – Barrier Analysis Areas

Location	Number of Predicted Impacted Receptors	Predicted Receptor Benefits	Potential Mitigation Specifications				Reasonable Mitigation Possible?	Comments
			Barrier Length (ft)	Area (ft^2)	Barrier Height (ft)	Barrier Cost/ Cost Per Benefit		
Barrier 1 **Meadow Glen Elementary/ Meadow Glen Middle School/ Wellesley Subdivision**	35 locations (268 Equivalent receptors)	268	5,476	104,044	19	$3,641,540/ $13,588	Yes	Cost of barrier meets SCDOT feasibility and reasonableness standards.
Barrier 2 **Baskin Hills Road/ Hawthorne Subdivision**	18	30	3,998	71,566	17 to 19	$2,504,810/ $83,494	No	Cost of barrier exceeds SCDOT reasonableness standards.
Barrier 3 **Elvington Lane**	25	25	2,600	41,001	15 to 17	$1,435,035/ $57,401	No	Cost of barrier exceeds SCDOT reasonableness standards.
Barrier 4 **Pleasant Hill Subdivision**	21	38	3,995	67,915	17	$2,377,025/ $62,553	No	Cost of barrier exceeds SCDOT reasonableness standards.
Barrier 5 **Larkin Woods Subdivision**	12	12	2,250	52,340	17 to 25	$1,831,935/ $152,661	No	Cost of barrier exceeds SCDOT reasonableness standards.
Barrier 6 **Hidden Springs Road**	6	7	2,400	57,583	19 to 25	$2,022,405/ $288,915	No	Cost of barrier exceeds SCDOT reasonableness standards.

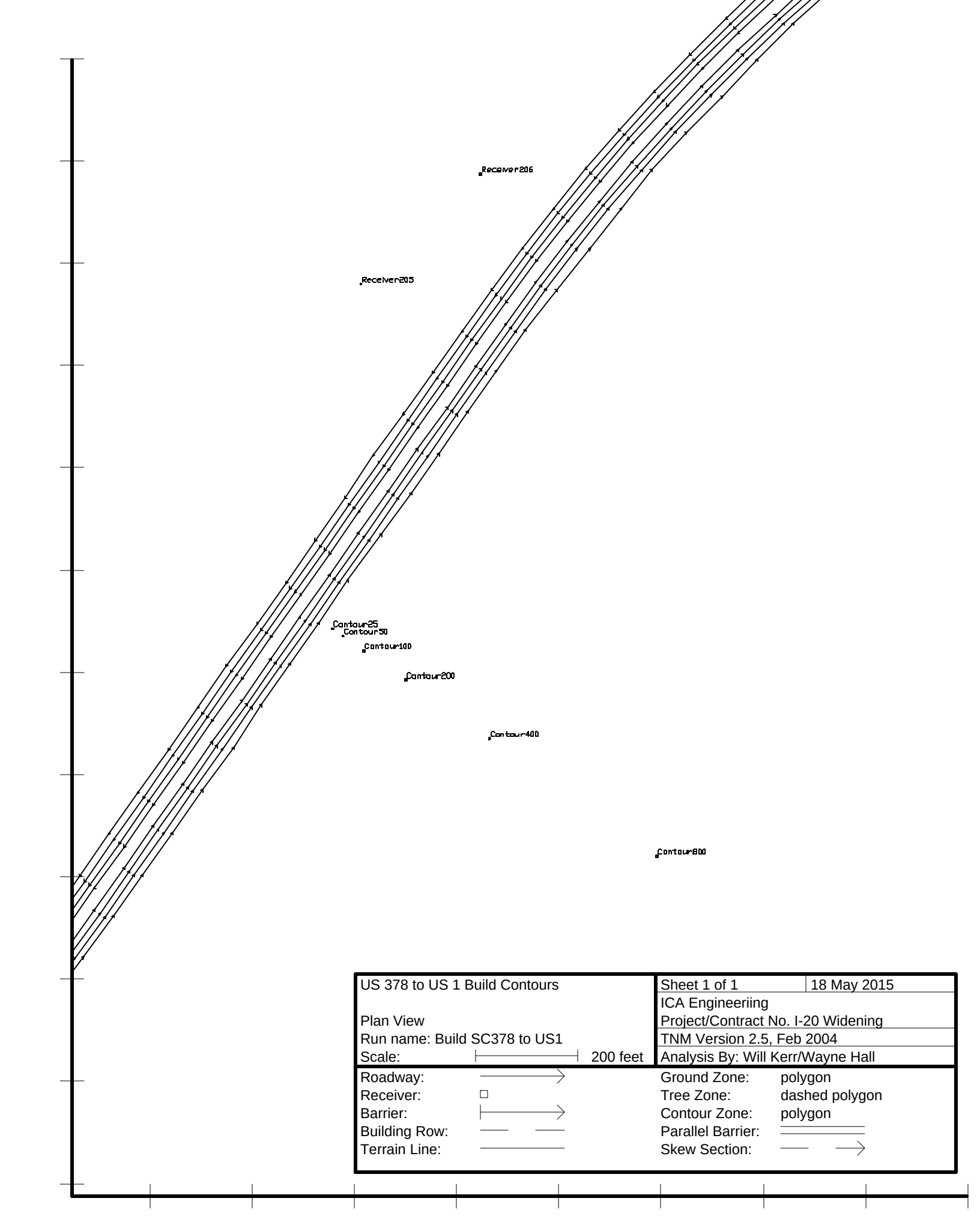
Table 1 – Barrier Analysis Areas

Location	Number of Predicted Impacted Receptors	Predicted Receptor Benefits	Potential Mitigation Specifications				Reasonable Mitigation Possible?	Comments
			Barrier Length (ft)	Area (ft^2)	Barrier Height (ft)	Barrier Cost/ Cost Per Benefit		
Barrier 7 **South Brook Subdivision**	15	17	1,563	36,380	19 to 25	$1,273,300/ $74,900	No	Cost of barrier exceeds SCDOT reasonableness standards.

Notes:

1. The mitigation measures assessed in conjunction with this analysis are in accordance with the SCDOT Traffic Noise Abatement Policy reasonableness criteria.
2. Reasonableness is based on the SCDOT policy of $30,000 per Benefited Receptor.
3. SCDOT Policy states that the preliminary noise barrier cost analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.

Sound Planning Contours



US 378 to US 1 Build Contours	Sheet 1 of 1 | 18 May 2015
	ICA Engineeriing
Plan View	Project/Contract No. I-20 Widening
Run name: Build SC378 to US1	TNM Version 2.5, Feb 2004
Scale: 200 feet	Analysis By: Will Kerr/Wayne Hall

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
Will Kerr/Wayne Hall
18 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: US 378 to US 1 Build Contours
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver152	152	1	73.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver155	155	1	73.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver156	156	1	73.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver157	157	1	66.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver158	158	1	68.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver159	159	1	67.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver160	160	1	70.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver161	161	1	72.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver162	162	1	68.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver163	163	1	67.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver164	164	1	68.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver165	165	1	72.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver166	166	1	67.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver167	167	1	69.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver168	168	1	67.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver169	169	1	70.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver170	170	1	68.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver171	171	1	71.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver172	172	1	67.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver173	173	1	71.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver174	174	1	73.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver175	175	1	66.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver176	176	1	72.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver177	177	1	68.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver178	178	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver179	179	1	73.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver180	180	1	66.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver181	181	1	68.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver182	182	1	70.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver183	183	1	73.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver184	184	1	72.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver185	185	1	72.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver186	186	1	71.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver189	189	1	71.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver190	190	1	74.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver191	191	1	70.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver192	192	1	72.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver193	193	1	72.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver194	194	1	72.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver195	195	1	70.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver196	196	1	73.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver197	197	1	73.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver199	199	1	74.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver200	200	1	68.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver201	201	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver202	202	1	72.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver203	203	1	74.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver204	204	1	74.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver205	205	1	72.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver206	206	1	74.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver207	207	1	67.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver208	208	1	68.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver209	209	1	68.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver210	210	1	69.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver211	211	1	69.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver212	212	1	70.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver213	213	1	72.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver214	214	1	68.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver215	215	1	70.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver218	218	1	72.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver219	219	1	72.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver253	226	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver254	227	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver255	228	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver256	229	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

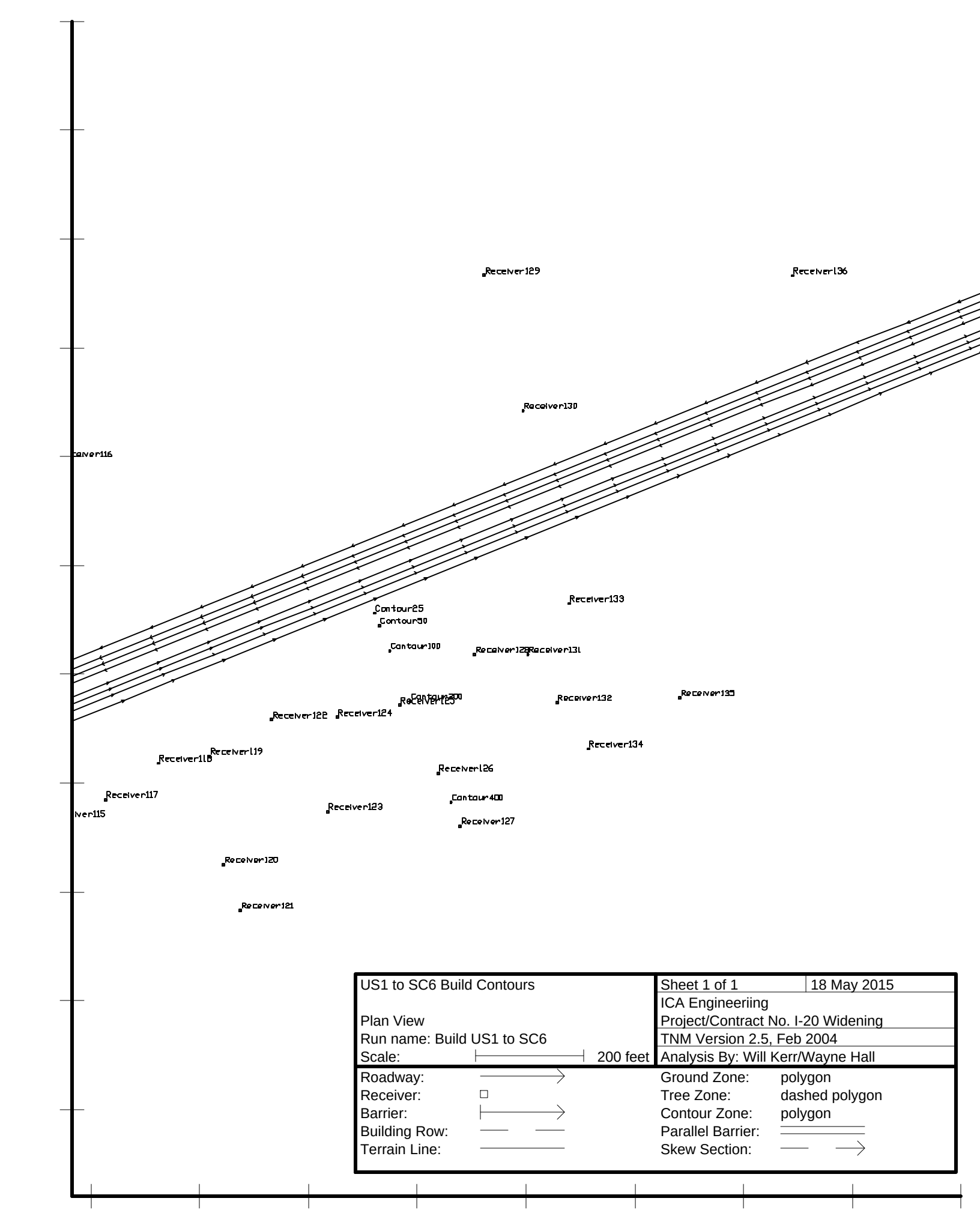
Receiver257	230	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver258	231	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver259	232	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver260	233	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver261	234	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver262	235	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver263	236	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver264	237	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver265	238	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver266	239	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver267	240	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver268	241	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver269	242	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver270	243	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver271	244	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver272	245	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver273	246	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver274	247	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver275	248	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver276	249	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver277	250	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver278	251	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver279	252	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver280	253	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver281	254	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver282	255	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver283	256	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver284	257	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver285	258	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver294	267	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Contour25	271	1	0.0	81.7	66	81.7	10	Snd Lvl	81.7	0.0	8	-8.0
Contour50	272	1	0.0	80.0	66	80.0	10	Snd Lvl	80.0	0.0	8	-8.0
Contour100	273	1	0.0	76.9	66	76.9	10	Snd Lvl	76.9	0.0	8	-8.0
Contour200	274	1	0.0	73.0	66	73.0	10	Snd Lvl	73.0	0.0	8	-8.0
Contour400	276	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
Contour800	277	1	0.0	60.6	66	60.6	10	----	60.6	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	101	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0

All that meet NR Goal		0	0.0	0.0	0.0							

INPUTS FOR FUTURE NOISE LEVELS	2037 Build		NOISE	DISTANCE
I-20 Lexington County, SC	US 378-US 1		CONTOURS	TO CL (Ft)
Distance From Proposed I-20 EOP	PRD # 1	PRD # 2	72	268
25	81.7	0.0		268.00
50	80	0.0	67	458
100	76.9	0.0	66	503
200	73	0.0		
400	67.4	0.0	71	297
800	60.6	0.0	DESIRED	
1600		0.0	60	847
R0	41.0	0.0	dBA ^	

R0= Distance from Centerline to Edge of Pavement



US1 to SC6 Build Contours	Sheet 1 of 1 | 18 May 2015
	ICA Engineeriing
Plan View	Project/Contract No. I-20 Widening
Run name: Build US1 to SC6	TNM Version 2.5, Feb 2004
Scale: 200 feet	Analysis By: Will Kerr/Wayne Hall

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
18 May 2015
Will Kerr/Wayne Hall
TNM 2.5
Calculated with TNM 2.5
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: US1 to SC6 Build Contours
BARRIER DESIGN: INPUT HEIGHTS
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver54	54	1	74.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver56	56	1	75.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver58	58	1	75.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver60	60	1	74.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver61	61	1	74.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver62	62	1	73.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver63	63	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver65	65	1	72.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver67	67	1	72.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver68	68	1	71.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver70	70	1	72.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver74	74	1	74.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver75	75	1	74.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver76	76	1	75.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver77	77	1	75.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver78	78	1	74.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver80	80	1	75.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver82	82	1	74.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver83	83	1	76.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver84	84	1	72.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver85	85	1	73.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver87	87	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver89	89	1	77.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver90	90	1	73.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

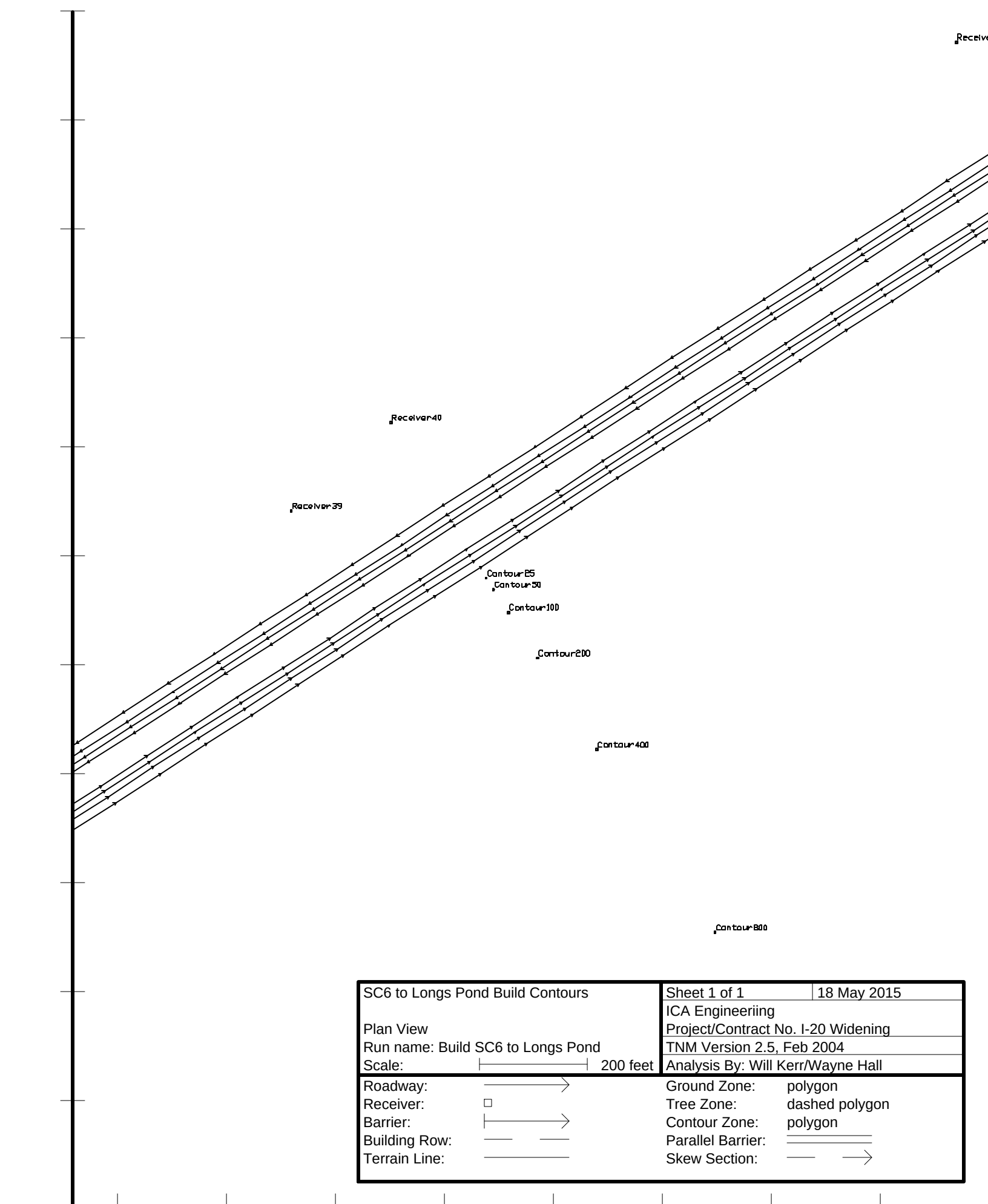
Receiver91	91	1	71.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver92	92	1	76.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver93	93	1	75.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver95	95	1	71.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver96	96	1	73.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver97	97	1	74.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver98	98	1	72.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver99	99	1	75.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver100	100	1	75.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver101	101	1	73.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver102	102	1	74.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver103	103	1	71.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver104	104	1	75.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver105	105	1	72.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver106	106	1	73.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver107	107	1	76.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver108	108	1	73.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver109	109	1	72.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver110	110	1	73.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver111	111	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver112	112	1	74.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver113	113	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver114	114	1	75.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver115	115	1	75.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver116	116	1	72.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver117	117	1	75.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver118	118	1	75.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver119	119	1	75.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver120	120	1	72.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver121	121	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver122	122	1	75.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver123	123	1	72.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver124	124	1	74.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver125	125	1	74.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver126	126	1	72.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver127	127	1	70.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver128	128	1	75.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver129	129	1	71.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver130	130	1	76.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver131	131	1	74.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver132	132	1	73.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver133	133	1	75.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver134	134	1	71.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver135	135	1	71.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver136	136	1	75.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver137	137	1	75.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver138	138	1	74.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver139	139	1	73.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver140	140	1	71.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver141	141	1	74.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver142	142	1	73.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver143	143	1	72.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver144	144	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver145	145	1	71.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver146	146	1	77.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver147	147	1	73.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver148	148	1	71.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver149	149	1	72.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver150	150	1	75.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver151	151	1	70.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver153	153	1	71.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver154	154	1	76.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Contour25	221	1	0.0	80.7	66	80.7	10	Snd Lvl	80.7	0.0	8	-8.0
Contour50	222	1	0.0	78.4	66	78.4	10	Snd Lvl	78.4	0.0	8	-8.0
Contour100	223	1	0.0	75.6	66	75.6	10	Snd Lvl	75.6	0.0	8	-8.0
Contour200	224	1	0.0	71.9	66	71.9	10	Snd Lvl	71.9	0.0	8	-8.0
Contour400	227	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
Contour800	228	1	0.0	61.4	66	61.4	10	----	61.4	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	92	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

INPUTS FOR FUTURE NOISE LEVELS	2037 Build		NOISE	DISTANCE
I-20 Lexington County, SC	US 1-SC 6		CONTOURS	TO CL (Ft)
Distance From Proposed I-20 EOP	PRD # 1	PRD # 2	72	232
25	80.7	0.0		-
50	78.4	0.0	67	451
100	75.6	0.0	66	502
200	71.9	0.0		
400	67.3	0.0	71	265
800	61.4	0.0	DESIRED	
1600		0.0	60	849
R0	36.0	0.0	dBA ^	

R0= Distance from Centerline to Edge of Pavement



SC6 to Longs Pond Build Contours	Sheet 1 of 1 | 18 May 2015
	ICA Engineeriing
Plan View	Project/Contract No. I-20 Widening
Run name: Build SC6 to Longs Pond	TNM Version 2.5, Feb 2004
Scale: 200 feet	Analysis By: Will Kerr/Wayne Hall

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

ICA Engineeriing
Will Kerr/Wayne Hall

18 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-20 Widening
RUN: SC6 to Longs Pond Build Contours
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existir		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	75.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver2	2	1	67.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver3	3	1	68.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver4	4	1	72.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver5	5	1	67.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver7	7	1	73.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver8	8	1	68.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver9	9	1	70.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver10	10	1	72.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver11	11	1	67.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver12	12	1	69.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver13	13	1	70.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver14	14	1	74.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver15	15	1	71.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver16	16	1	72.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver17	17	1	71.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver18	18	1	69.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver19	19	1	74.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver20	20	1	71.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver21	21	1	70.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver22	22	1	70.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver23	23	1	70.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver24	24	1	71.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver25	25	1	71.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver26	26	1	71.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver27	27	1	71.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver28	28	1	71.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver29	29	1	72.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver30	30	1	72.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver31	31	1	73.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver32	32	1	73.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver33	33	1	73.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver34	34	1	73.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver35	35	1	73.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver36	36	1	73.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver37	37	1	69.1	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver39	39	1	75.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver40	40	1	74.8	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver41	41	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver42	42	1	77.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver43	43	1	73.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver44	44	1	76.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver45	45	1	74.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver46	46	1	71.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver47	47	1	76.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver48	48	1	72.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver49	49	1	77.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver50	50	1	72.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver52	52	1	72.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver53	53	1	73.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0

Receiver54	54	1	74.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver56	56	1	75.6	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver58	58	1	75.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver60	60	1	74.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver61	61	1	74.2	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver62	62	1	73.5	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver63	63	1	74.0	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver65	65	1	72.9	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver67	67	1	72.7	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver68	68	1	71.4	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver70	70	1	72.3	0.0	66	0.0	15	inactive	0.0	0.0	8	0.0
Receiver221	221	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver222	222	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver223	223	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver224	224	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver225	225	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver226	226	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver227	227	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver228	228	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver229	229	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver230	230	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver231	231	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver232	232	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver233	233	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver234	234	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver235	235	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver236	236	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver237	237	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver238	238	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver239	239	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver240	240	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver241	241	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver242	242	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver243	243	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Receiver244	244	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver245	245	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver246	246	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver247	247	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver248	248	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver249	249	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver250	250	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver251	251	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver252	252	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver286	254	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver287	255	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver288	256	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver289	257	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver290	258	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver291	259	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver292	260	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Receiver293	261	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
Contour25	263	1	0.0	80.5	66	80.5	10	Snd Lvl	80.5	0.0	8	-8.0
Contour50	264	1	0.0	78.5	66	78.5	10	Snd Lvl	78.5	0.0	8	-8.0
Contour100	265	1	0.0	75.8	66	75.8	10	Snd Lvl	75.8	0.0	8	-8.0
Contour200	266	1	0.0	71.5	66	71.5	10	Snd Lvl	71.5	0.0	8	-8.0
Contour400	268	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
Contour800	269	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	107	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

INPUTS FOR FUTURE NOISE LEVELS	2037 Build		NOISE	DISTANCE
I-20 Lexington County, SC	SC 6-LPR		CONTOURS	TO CL (Ft)
Distance From Proposed I-20 EOP	PRD # 1	PRD # 2	72	246
25	80.5	0.0		-
50	78.5	0.0	67	417
100	75.8	0.0	66	467
200	71.5	0.0		
400	66.1	0.0	71	274
800	60.7	0.0	DESIRED	
1600		0.0	60	868
R0	61.0	0.0	dBA ^	

R0= Distance from Centerline to Edge of Pavement