

SR 400 (I-4) Project Development and Environment (PD&E) Study FM No.: 201210-2-22-01



Noise Study Report

Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line)

Polk County (16320)

April 2017

Stantec 300 Primera Drive Suite 300 Lake Mary, FL 32746 HNTB Corporation 610 Crescent Executive Court Suite 400 Lake Mary, FL 32746



TABLE OF CONTENTS

1.0 Summary of Project		2
1.1 Description of	Proposed Action	3
1.2 Purpose and N	leed	3
1.3 Existing Facility	y	7
2.0 Methodology		8
2.1 Noise Metrics.		
2.2 Traffic Noise N	1odeling	
2.3 Noise Model V	alidation	9
2.4 Traffic Data		9
2.5 Noise Abateme	ent Criteria	
3.0 Noise Sensitive Sites		11
4.0 Predicted Noise Levels	5	12
4.1 Model Validati	ion	
4.2 Future Noise II	mpact Analysis	
5.0 Noise Abatement	· · ·	
5.1 Alignment Sec	tion	
5.2 Property Acqu	isition	
5.3 Land Use Cont	rols	
5.4 Traffic Manage	ement	
5.5 Noise Barriers		
6.0 Conclusions		22
7.0 Commitments		22
8.0 Construction and Nois	e Vibration	22
9.0 Public Involvement		22
10.0 References		23
	FIGURES	
Figure 1.1		4
Figure 1.2	PROPOSED TYPICAL SECTION.	
Figure 4.1	NOISE SENSITIVE AREAS MAP	
	LIST OF TABLES	
Table 1 NOISE ABA	ATEMENT CRITERIA	
Table 2 TYPICAL N	OISE LEVELS	
Table 3 TNM VALIE	DATION RESULTS (dB(A))	
Table 4 TRAFFIC D	ATA FOR TNM MODELING	14
Table 5 NOISE SEN	SITIVE AREAS	14
Table 6 PREDICTED) NOISE RESULTS	
Table 7 BARRIER A	NALYSIS	21
	APPENDICES	
РНОТОЅ		APPENDIX I
PROJECT MAPS AND) FIGURES	APPENDIX II
• FIGURE A:	LAND USE AND HABITAT COVERAGE MAPS	
• FIGURE B:	NOISE ANALYSIS MAPS	
TNM RESULTS		APPENDIX II

1.0 Summary of Project

The Florida Department of Transportation (FDOT) is conducting an update/reevaluation for the Project Development and Environment (PD&E) studies for the extension of proposed express lanes for State Road 400 (SR 400)/Interstate 4 (I-4). The project limits in the original PD&E studies were:

- West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line, (29.5 miles)
- CR 532 (Polk/Osceola County Line) to West of SR 528 Beachline Expressway (13.7 miles)
- West of SR 528 Beachline Expressway to SR 472 (43 miles).

The corresponding environmental documents associated with these PD&E studies include: Environmental Assessment/Finding of No Significant Impact (EA/FONSI) for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line [Financial Project Number (FPN) 201210 (December 1998)] and from CR 532 (Polk/Osceola County Line) to West of SR 528 (Beachline Expressway) [FPN 242526 and 242483 (December 1999)] and Final Environmental Impact Statement (FEIS) for I-4 from SR 528 (Beachline Expressway) to SR 472 [FPN 242486, 242592 and 242703 (2002)].

The project limits of the current SR 400 (I-4) PD&E reevaluation, herein referred to as I-4 Beyond the Ultimate (BtU) PD&E Reevaluation Study, include a total of approximately 43 miles of roadway sections east and west of the 21-mile, I-4 Ultimate project. The I-4 Ultimate project consists of reconstruction, to include new express lanes, for the section of I-4 which extends from west of SR 435 (Kirkman Road) to east of SR 434, and began construction in early 2015. The current I-4 BtU project has been divided into the following five segments:

- Segment 1: SR 400 (I-4) from West of CR 532 (Polk/Osceola County Line) to West of SR 528 Beachline Expressway Osceola County (92130) and Orange County (75280)
- Segment 2: SR 400 (I-4) from West of SR 528 Beachline Expressway to West of SR 435 Kirkman Road -Orange County (75280)
- Segment 3: SR 400 (I-4) from 1 Mile East of SR 434 to East of SR 15-600/US 17-92 (Seminole/Volusia County Line) Seminole County (77160)
- Segment 4: SR 400 (I-4) from East of SR 15-600/US 17-92 (Seminole/Volusia County Line) to ½ Mile East of SR 472 Volusia County (79110)
- Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) Polk County (16320)

This Noise Study Report was prepared for Segment 5 of the SR 400 (I-4) BtU PD&E Reevaluation of the FONSI for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line (FPN 201210, December 1998). The purpose of this report is to update the original PD&E study by documenting any changes that have occurred since the PD&E study. This reevaluation includes environmental and engineering analysis of the original design concept, that showed six general use lanes (GUL) and four special use lanes (SUL) for high occupancy vehicles (HOV)/single occupant through vehicles (SOV), to the current proposed design that includes six GULs and four express lanes (EL) operating under a variable price toll plan. Other changes being reanalyzed include stormwater management, access plan and interchange configurations. There were no commitments related to traffic noise impacts or abatement within this segment of the project in the original PD&E Study.

1.1 Description of Proposed Action

FDOT is proposing to reconstruct and widen I-4 as part of the I-4 BtU concept. This involves the build-out of I-4 to its ultimate condition through Central Florida, including segments in Polk, Osceola, Orange, Seminole and Volusia Counties. The concept design proposes the addition of two new express lanes in each direction, resulting in a total of ten dedicated lanes. The project limits for the segment analyzed in this report are within an approximate 4.5-mile segment of I-4 which extends from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line), from Milepost (MP) 27.145 to MP 31.607 in Polk County (herein referred to as I-4 Segment 5) and as shown in **Figure 1.1**. Although, the interstate is a designated east-west corridor, the alignment follows a southwest to northeast orientation through the limits of Segment 5. The study area in this section from west of SR 25/US 27 to west of CR 532 includes only one interchange at US 27.

The proposed improvements to I-4 include widening the existing six lane divided urban interstate to a ten lane divided highway. Generally, the typical section will be consistent throughout Segment 5 and will have three 12-foot general use travel lanes with 12-foot inside and outside shoulders and two 12-foot express lanes with 10-foot inside and 12-foot outside shoulders in each direction. A 2-foot barrier wall between the adjacent shoulders will separate the express lanes from the general use lanes. The typical section includes a 44-foot rail envelope in the median within a minimum 300 foot right of way (ROW). **Figure 1.2** illustrates the proposed mainline typical section for I-4 Segment 5.

1.2 Purpose and Need

The proposed improvements to I-4 include widening the existing six lane divided urban interstate to a ten lane divided highway in order to improve traffic operations, enhance connectivity and improve mobility by providing travel choices to the motoring public. I-4 is an east-west limited access freeway which links the west and east coasts of Florida, from I-275 in Tampa to I-95 in Daytona Beach. I-4 spans across six counties in Central Florida, traversing many cities including Lakeland, Orlando, Altamonte Springs, Sanford and DeLand. I-4 is a critical component of Florida's Strategic Intermodal System (SIS) which links seaports, rail, airports and other intermodal facilities. This aspect of I-4's significance is evidenced through connectivity provided by major junctions with I-275 and I-75 in the Tampa Bay area, SR 429 (Daniel Webster Western Beltway), SR 417 (Southern Connector/Central Florida Greenway/Seminole Expressway), SR 528 (Martin Andersen Beachline Expressway), SR 91 (Florida's Turnpike), SR 408 (Spessard Lindsay Holland East-West Expressway) in Central Florida, and I-95 on the east coast.

I-4 serves as the primary corridor in the movement of people and freight between major population, employment and activity centers in the Central Florida region. When the entire Interstate was fully opened in the early 1960's, it was designed to serve intrastate and interstate travel by providing a critical link between the east and west coasts of Central Florida. Although this role continues to be a crucial transportation function of I-4, the highway also serves large volumes of local and commuter traffic with shorter trip distances.

Today, the highway serves as the primary link between hotel/resort complexes and tourist attractions such as Walt Disney World, Universal Studios, Sea World, the International Drive Resort Area and downtown Orlando. Since I-4 is the only north-south limited access facility that is centrally located between the predominant employment centers and the major suburbs to the north, it has become the primary commuting corridor in the Central Florida metropolitan area.



Figure 1.1 – Project Location Map



Figure 1.2 – SR 400 (I -4) Segment 5 Proposed Typical Section (6+4 with rail envelope)

Growth in Central Florida over the past decades has made it difficult for the transportation system to accommodate travel demand. Traffic congestion and crash incidents have resulted in major delays on the Interstate as well as other arterials surrounding the corridor. Increased congestion levels are experienced outside of the typical morning and afternoon rush-hour periods, affecting mobility levels for more hours of the day and impacting other non-commuter/non-weekday travel. The congestion on I-4 is further evidenced by the less than desirable levels of service on the Interstate as well as the crossroads.

Projections of future population and employment in the region indicate that travel demand will continue to increase well into the future. The ability to accommodate the new travel patterns resulting from growth must be provided to sustain the region's economy. Without the improvements, extremely congested conditions are expected to occur for extended periods of time in both the morning and evening peak periods. Due to these congested conditions, user travel times will continue to increase, the movement of goods through the urban area will be slower, and the deliveries of goods within the urban area will be forced to other times throughout the day. The need for improvements to I-4 is illustrated by the important transportation role I-4 serves to the Central Florida region and the State of Florida. If no improvements are made to the Interstate, a loss in mobility for the area's residents, visitors, and commuters can be expected, resulting in a severe threat to the continued viability of the economy and the quality of life.

This reevaluation involves revising the original design concept showing 6 GUL + 4 SUL from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line, as recommended in the FONSI for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line (FPN 201210, December 1998), to the current proposed design of six general use and four express lanes. The Express Lanes are tolled lanes and will extend the full length of the project. The access to/from the tolled lanes will be evaluated as part of this effort to determine if changes are needed from the previously approved concept for access to/from the SUL/HOV Lanes.

The original I-4 PD&E Studies involved physical separation between the general use lanes and the SUL/HOV lanes on I-4, with demand management in the HOV lanes. The original demand management strategy was to control the use of the HOV lanes by requiring a minimum number of occupants per vehicle to maintain an acceptable level of service (Level of Service D). This reevaluation also addresses revising the demand management tool to convert the HOV lanes to tolled express lanes. The express lanes will be separated from the general use travel lanes by two shoulders with a barrier wall between the shoulders. A variable pricing tolling plan is proposed for the express lanes. The tolls will vary by time of day and day of week to maintain acceptable levels of service in the express lanes. The tolls will be collected electronically through existing E-Pass, SunPass and other systems currently in place in the Orlando metropolitan area. The conversion to Express Lanes will maintain the same right of way limits as documented previously and will not change the impacts to the social, natural or physical environment. An update to the Systems Access Modification Report (SAMR) prepared in January, 2013 is being completed in conjunction with this effort.

If future design-year noise levels at noise-sensitive receptors approach, meet, or exceed the Noise Abatement Criteria established by FHWA in 23 CFR 772 or increase 15 dB(A) over existing noise levels as a direct result of the transportation improvement project, noise abatement must be considered. If noise levels reach or exceed 66 decibels (dB(A)), or increase 15 dB(A) over existing noise, noise abatement must be considered. The Federal Highway Administration's (FHWA) Traffic Noise Modeling (TNM) Version 2.5 computer program was used to determine if noise abatement was warranted, and, if so, considered reasonable and feasible for any noise-sensitive sites. The format and content of this report are based on the procedures and policy established in Part 2, Chapter 17 "Noise", of the FDOT PD&E Manual.

The noise analysis procedures used are based on the regulatory material found in 23 Code of Federal Regulations (CFR), Part 772, and entitled "Procedures for Abatement of Highway Traffic Noise and Construction Noise". This regulation is available from the FHWA and FDOT.

1.3 Existing Facility

The land use adjacent to I-4 within the proposed project limits consists primarily of commercial and services, retail, residential, and natural lands. The commercial, and retail development is concentrated around the interchange with US 27. Some undeveloped natural areas are located along both sides of I-4 south of the Ronald Reagan Parkway overpass and along the western limits of the project area. Some areas to the southeast of the US 27 interchange are classified as open land, and are not currently developed. The remaining land use within the corridor is primarily pine tree plantations and citrus groves with some areas of pasture (see Land Use and Habitat Coverage maps, **Figure A** in **Appendix II**).

Residential (1200-1300) – These land use codes consist of areas containing medium and high density residential housing. Low density housing was not observed in the project corridor. These areas are found along adjacent roads at the US 27 and I-4 interchange, as well as along Ronald Reagan Parkway.

<u>Commercial and Services (1400)</u> – This land use includes numerous types of businesses in malls, strip malls and as standalone establishments along the corridor. It was primarily observed at the US 27 and I-4 interchange and along the adjacent roadways.

<u>Retail Sales and Services (1410)</u> – This land use consists of office complexes, shopping centers, and other service/retail oriented businesses, which was observed at the US 27 and I-4 interchange and along the adjacent roadways.

<u>Professional Services (1430)</u> – Several medical offices, dental offices, veterinary offices, and other professional offices are located along US 27 in the project corridor.

Tourist Services (1450) – There are several hotels and resorts located in the vicinity of the US 27 and I-4 interchange.

Institutional (1700) – This land use consists of schools and institutions. The only example of this land use was the Oak Hill Baptist Church on Osceola Polk Line Road at the eastern end of the project corridor.

Open Land (1900) – This land use consists of undeveloped land within urban areas and inactive land with street patterns but without structures. Several examples of this land use were observed in the vicinity of the US 27 and I-4 interchange.

Improved Pasture (2110) – This category of land use consists of land which has been cleared, tilled, reseeded with specific grass types and periodically improved with brush control and fertilizer application. Several small areas of this land use were observed along the project corridor.

<u>Unimproved Pasture (2120)</u> – This category of land use consists of land which has been cleared, with major stands of trees and brush where native grasses have been allowed to develop. Several small areas of this land use were observed along the project corridor.

<u>Citrus Groves (2210)</u> – Some citrus groves are located along Home Run Boulevard and US 27.

<u>Other Open Lands <Rural> (2600)</u> – This category of land use consists of agricultural lands whose intended usage cannot be determined. Several areas of this land use were observed along the project corridor.

Shrub and Brushland (3200) – This land use consists of primarily shrubs and brush species. A few small areas of this land use were observed along the project corridor.

Pine Flatwoods (4110) – This land use consists of natural pine flatwoods, a small area is located at the southern end of the project corridor.

<u>Coniferous Plantations (4410)</u> – Some small areas of planted pine were observed along the right-of-way.

<u>Reservoirs</u> (5300) – This land use designates all retention ponds and other artificial impoundments used for irrigation and flood control along the project corridor and within residential developments.

Mixed Wetland Hardwoods (6170) – This land use is reserved for those wetland hardwood communities which are composed of a large variety of hardwood species tolerant of hydric conditions yet exhibit an ill-defined mixture of species. This habitat type was observed in a small area within the median at the western end of the project area.

Cypress (6210) – Dominant vegetation consisted of cypress is present at the southern end of the project corridor.

<u>Wetland Forested Mixed (6300)</u> – This land use is defined as mixed wetlands forest communities in which neither hardwoods or conifers achieve a 66 percent dominance of the crown canopy composition. This habitat type was observed adjacent to I-4 eastbound east of US 27.

<u>Freshwater Marsh (6410)</u> – This land use designates vegetated non-forested wetlands usually defined as low-lying areas or depressions in the landscape. Several of these marshes can be found adjacent to the roadway, as well as in isolated areas within the project corridor.

Emergent Aquatic Vegetation (6440) – This land use is defined as being wetland areas where floating vegetation and vegetation which is found either partially or completely above the surface. Small areas of this land use were observed in the western portion of the project corridor.

<u>Roads and Highways (8140)</u> – This land use designates all major and minor roads throughout the project corridor.

Sewage Treatment Facilities (8340) – There is a sewage treatment facility south of I-4 at Westview Road.

2.0 Methodology

2.1 Noise Metrics

The noise levels documented in this report are based upon the hourly equivalent sound level [Leq(h)]. The Leq(h) represents the steady-state sound level, which contains the same amount of acoustic energy as the actual time-varying sound level over a one hour period. Sound levels are measured and calculated in decibels (dB(A)), which is a unit of measure used to determine sound intensities. Leq(h) is measured on an A-weighted decibel scale (dB(A)), which is the scale that most closely approximates the response characteristics of the human ear to typical traffic noise levels.

2.2 Traffic Noise Modeling

The Federal Highway Administration's (FHWA) Traffic Noise Modeling (TNM) Version 2.5 computer program was used to determine if noise abatement was warranted, and, if so, considered reasonable and feasible for any noise-sensitive sites. This model is the latest version of TNM and was used as required by 23 CFR 772. The model estimates the acoustic intensity

at noise receptor sites based upon the roadway design and is influenced by vehicle speed and type. TNM 2.5 predicted noise levels are reported in dB(A) Leq(h). To validate TNM, potential noise receptor sites were identified throughout the project corridor. Information that was loaded into the noise model to predict existing and projected noise levels includes: roadway geometry; vehicle types, volumes, and speeds; existing barrier and buffer information, propagation path; and, climatic conditions. The results of the validation are shown in Section 4.1.

2.3 Noise Model Validation

The primary purpose of field measuring existing traffic noise levels is to ensure that traffic noise is the main source of noise, and to validate the TNM input values and verify that the model accurately predicts the existing traffic noise based upon the current conditions. In order to collect data required, field monitoring was conducted by four noise monitoring specialists in accordance with the FHWA's guidance document "Measurement of Highway-Related Noise" on June 3, 2014. QuestTM Model M-28 Noise Logging Dosimeters were used to collect sound levels at the location. Sound measurements were collected in decibels (dB), which is a unit of measure used to determine sound intensities. The decibel levels were measured on an A-weighted scale (dB(A)), which is the frequency of sound that is heard by a human ear. The average sound level over a one-hour period is considered the Level Equivalent Hourly (Leq(h)), and is used in the noise modeling process. The dosimeter was calibrated on site just prior to the onset of sampling to ensure accuracy and mounted on a tripod at a height of approximately 5 feet which is standard and equivalent to the average height of the human ear. Noise readings were taken 3 separate times at 15-minute intervals during both the morning (9:00 – 11:30 AM) and afternoon (1:00 – 4:00 PM), periods of non-peak traffic activity along the project corridor.

One location was used for the collection of noise levels for the purpose of model validation: adjacent to the westbound lanes of I-4 east of the US 27 interchange between the 1 ¼ mile exit signpost and the overhead cantilever sign, with the meter placed at the right-of-way fence line. The location provided clear sight lines to observe traffic in both directions of I-4. Vegetation was grass or low weedy vegetation, with no trees or any natural or man-made obstructions to affect the noise readings. Additional data collected included any unusual noises (aircraft, trains, barking dogs), and all input parameters necessary to run the computer model such as distance to the edge of the nearest travel lane, roadway width, paved shoulder widths, and local terrain.

Design files supplied by HNTB were used to establish the input parameters for modeling the roadway, including vertical and horizontal geometry and ground elevations.

2.4 Traffic Data

In order to gauge traffic volumes during the monitoring periods, traffic counts of the number and type of vehicles traveling in each direction at the monitoring station were recorded. Traffic counts were taken simultaneously during each of the 3 noise recording events. Vehicles were categorized as either 1) passenger cars or light trucks, 2) medium trucks (box or panel trucks with one double-axle) or 3) heavy trucks (two or more double-axles) and motorcycles. Field notes were collected to record general weather and environmental conditions, and all unusual or otherwise noteworthy sound events. Traffic speeds for passing vehicles were determined by the use of a radar gun and recording the resulting speeds during timed monitoring runs.

The speeds used in the TNM modeling program for the model validation were based on the average observed speeds of 65 mph for both cars and trucks during the data collection. Level of Service C volume at speeds of 65 mph was utilized to model the existing / no-build and build (worst case scenario) for future noise projections (See **Table 4**).

2.5 Noise Abatement Criteria

The FHWA has established seven land use categories that are used to assess the impact of noise on these activities, of which five of these have Noise Abatement Criteria (NAC) to consider. If predicted noise levels approach or exceed the NAC levels, or a substantial noise increase is predicted, noise abatement must be considered. A substantial noise increase occurs when the existing noise level is predicted to be exceeded by 15 dB(A) or more by the project. FDOT defines 'approach' as within 1.0 dB(A) of the FHWA criteria.

Noise sensitive receptor sites include areas where frequent exterior human use occurs. Included are lands which require quiet (Activity Category A), residential areas (Activity Category B), a variety of non-residential land uses such as parks, schools, places of worship, and medical facilities (Activity Category C), and commercial properties with areas of exterior use such as restaurants, hotels, and other places of business (Activity Category E) (see Table 1 - Noise Abatement Criteria [NAC]). Activity Category D includes noise sensitive sites that have interior uses but no exterior activities such as hospitals, libraries, recording studios, television studios, and public meeting rooms. Activity Categories F includes developed lands that are not sensitive to highway traffic noise such as agriculture, airports, and industrial and retail facilities. Retail facilities, warehouses, maintenance facilities, utilities and agriculture were noted within the project area as Activity Category G) were noted in the project corridor. There is not an NAC level for this category, though FDOT must document highway traffic noise levels and provide it to local officials. A land use review will be performed during the Design phase of the project to ensure that all noise-sensitive land uses that have received a building permit prior to the project's Date of Public Knowledge are evaluated. The only site of construction noted during the noise study was at the Festival Resort Orlando along the westbound side of I-4 south of CR 54. The land uses occurring within the project study area were described previously in Section 1.3.

	NOISE	ABATEME	ENT CRITERIA	[Hourly A-Weighted Sound Level-decibels (dB(A))]
Activity	Activity	Leq(h)1	Evaluation	Description of activity category
Category	FHWA	FDOT	location	
А	57	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ²	67	66	Exterior	Residential
C ²	67	66	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E ²	72	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.

TABLE 1 – NOISE ABATEMENT CRITERIA

	NOISE	ABATEMEN	IT CRITERIA	[Hourly A-Weighted Sound Level-decibels (dB(A))]	
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.	
Part 2, Chapter 17 of PD&E Manual (5/24/2011) (Based on Table 1 of 23 CFR Part 772) ¹ The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures. ² Includes undeveloped lands permitted for this activity category.					
Note: FDOT de a result of	fines that a su the transport	Ibstantial noise ation improver	increase occu nent project.	rs when the existing noise level is predicted to be exceeded by 15 decibels or more as When this occurs, the requirement for abatement consideration will be followed.	

For reference, the relationship between typical noise levels and common indoor/outdoor activities is provided in Table 2.

COMMON OUTDOOR ACTIVITIES	NOISE LEVEL dB(A)	COMMON INDOOR ACTIVITIES
	110	Rock Band
Jet Fly-over at 1000 ft		
	100	
Gas Lawn Mower at 3 ft		
	90	
Diesel Truck at 50 ft, at 50 mph		Food Blender at 1 m (3 ft)
	80	Garbage Disposal at 1 m (3 ft)
Noise Urban Area (Daytime)	70	Manual Classical at 40 ft
Gas Lawn Mower at 100 ft	70	Vacuum Cleaner at 10 π
Commercial Area	60	Normal Speech at 3 ft
neavy frame at 500 ft	00	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
	50	
Ouiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	-	Library
	30	Bedroom at Night, Concert Hall (Background)
Quiet Rural Nighttime		
	20	
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing
Source: California Dept. of Transportat	tion Technical N	Ioise Supplement, Oct. 1998, Page 18.

Table 2 – Typical Noise Levels

3.0 Noise-Sensitive Sites

A noise-sensitive receptor is defined as "any property (owner occupied, rented, or leased) where frequent exterior human use occurs." The project was broken up into geographic noise sensitive areas to facilitate the analysis of traffic related noise impacts. Three (3) noise sensitive areas that have the potential to be impacted by the project were identified (see **Figure**

4.1, Noise Sensitive Area Map). The potentially impacted noise-sensitive sites identified for this segment consist of single family residences, multi-family vacation residences, hotels, and a campground. The Polk County Building Department was contacted for all approved building permits within the developments along the project corridor. The properties identified during this search were all modeled as existing receptors in the TNM runs. The noise sensitive areas within the study area present several different types of sites to model within TNM: multi-family buildings with external balconies were modeled using several points to represent similar receptors at different locations in the building, while single family residences were modeled using a point to represent each site. Hotels with no external balconies were represented only by areas of common outdoor usage (pools, outdoor recreation areas).

Following is a description of each Noise Sensitive Area:

Noise Sensitive Area A

This area is located south of I-4 and west of US 27 adjacent to the eastbound lanes of I-4 and includes the Themeworld RV Resort, Fort Summit KOA Campground, Ramada Inn Hotel, and Days Inn and Suites.

Noise Sensitive Area B

This area is located north of I-4 and east of US 27 adjacent to the westbound lanes of I-4 and includes the Comfort Inn & Suites Maingate South, Holiday Inn Express and Suites Orlando, Hampton Inn Orlando Maingate South, and Travelodge Hotel.

Noise Sensitive Area C

This area is located north of I-4 adjacent to the westbound lanes of I-4 south of Ronald Reagan Parkway and consists of the Festival Orlando Resort Vacation Residences.

4.0 Predicted Noise Levels

4.1 Model Validation and Background Noise Levels

The TNM model was validated at the field sampling location along I-4 in one location as described in Section 2.3. Field recorded noise levels varied slightly from TNM predictions. As seen in **Table 3**, TNM Version 2.5 predictions were within 3 decibels (dB(A)) of the field recorded noise levels. Therefore, the model was validated.

Table 3. TNM Validation Results (dB(A))							
Field Recording Station	Field Recorded	TNM Predicted	Δ	Threshold	Validate		
Location 1	69.2	72.0	2.8	3	YES		

12





4.2 Future Noise Impact Analysis

Future noise was modeled for the proposed project at potential noise receptor areas for the future build conditions in the design year 2040 (TNM results are included in Appendix II). Traffic data utilized was based upon Level of Service (LOS) C as obtained from the generalized tables of FDOT's Level of Service Handbook (December 2012) and shown in Table 4 below. Based upon the design traffic forecasted for the design year, I-4 is expected to operate at a low level of service (D or E), which precipitated the use of LOS C for the TNM model. LOS C was also used for the existing / No-Build model as shown in Table 4.

Table 4. Traffic Data for TNM Modeling							
Scenario	Roadway Segment	Level of Service "C" Volume	Cars	Medium Trucks	Heavy Trucks	Speed	
Evicting / No	Outside	4,580	1429	49	98	65	
Existing / NO-	Middle	4,580	1429	49	97	65	
Bullu	Inside	4,580	1429	0	0	65	
	General Use		1429	49	98	65	
	Outside	4 590					
Puild	General Use Middle	4,560	1429	49	97	65	
Bulla	General Use Inside		1429	0	0	65	
	Express Inside	2 220	1660	0	0	65	
	Express Outside	5,320	1660	0	0	65	

Note: trucks will not be permitted in the Express Lanes, and for the purpose of the TNM model, trucks were only spread into the middle and outside General Use lanes.

Noise Sensitive Area A

This area represents Activity Categories B, C, and E and has **14** sites predicted to be impacted.

Noise Sensitive Area B

This area represents Activity Category E and has **1** site predicted to be impacted.

Noise Sensitive Area C

This area represents Activity Category B and has **90** sites predicted to be impacted.

Table 5 shows the results of the TNM analysis of noise sensitive sites in locations most likely to be impacted and those predicted to exceed the Noise Abatement Criteria threshold in the future build scenarios. Table 6 shows the TNM analysis of the existing / No-Build scenario versus the build scenario and demonstrates that there is no "Significant Increase" of 15 dB(A) over existing noise levels as a result of the project. The existing condition has impacts to 16 receptors representing 23 total sites, while the future scenario has impacts to 19 receptors representing 47 total sites. The complete set of results for all TNM runs for potential noise sensitive sites can be found in **Appendix III**.

Table 5. Noise Sensitive Areas							
Noise Sensitive Area	Activity Category	Number of Impacted Sites					
A	B, C, E	14					
В	E	1					
С	В	90					

Table C. Naise Consisting Areas

Recentor	NSA Location	Existing/No-Build	Build	Change
heceptor		(Leq)	(Leq)	(Leq)
Themeworld 1a	Α	65.0	65.0	0.0
Themeworld 1b	Α	64.1	64.1	0.0
Themeworld 1c	Α	64.1	64.1	0.0
Themeworld 1d	Α	64.1	64.0	-0.1
Themeworld 1e	Α	65.0	64.2	-0.8
Themeworld 1f	Α	64.7	64.6	-0.1
Themeworld 1g	Α	65.2	64.4	-0.8
Themeworld 1h	Α	67.2	66.5	-0.7
Themeworld 1i	Α	66.8	68.0	1.2
Themeworld 1j	Α	66.4	67.9	1.5
Themeworld 1k	Α	66.6	68.1	1.5
Themeworld 1	Α	66.8	68.1	1.3
Themeworld 1m	Α	66.7	68.0	1.3
Themeworld 1n	Α	66.4	67.7	1.3
Themeworld 1o	Α	66.3	67.7	1.4
Themeworld 1p	Α	66,2	67.3	1.1
Themeworld 1q	Α	68.0	67.9	-0.1
Themeworld 2a	Α	64.4	64.9	0.5
Themeworld 2b	Α	61.8	62.4	0.6
Themeworld 2c	Α	62.0	62.5	0.5
Themeworld 2d	Α	62.0	62.2	0.2
Themeworld 2e	Α	62.6	62.6	0.0
Themeworld 2f	Α	62.7	62.7	0.0
Themeworld 2g	A	64.3	65.3	1.0
Themeworld 2h	Α	62.8	64.0	1.2
Themeworld 2i	Α	62.4	63.5	1.1
Themeworld 2j	Α	62.1	63.4	1.3
Themeworld 2k	Α	62.7	63.3	0.6
Themeworld 2I	Α	63.1	63.2	0.1
Themeworld 2m	Α	64.0	63.6	-0.4
Themeworld 2n	Α	66.6	65.4	-1.2
Themeworld 3a	Α	62.9	63.8	0.9
Themeworld 3b	Α	60.1	60.9	0.8
Themeworld 3c	Α	59.8	60.4	0.6
Themeworld 3d	Α	59.8	60.1	0.3
Themeworld 3e	Α	59.7	60.0	0.3

Table 6. Predicted Noise Results

SR 400 (I-4) Project Development and Environment (PD&E) Study | FM No.: 201210-2-22-01

Noise Study Report

Segment 5: from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line)

Receptor	NSA Location	Existing/No-Build	Build	Change
		(Leq)	(Leq)	(Leq)
Themeworld 3f	Α	60.0	60.3	0.3
Themeworld 3g	Α	64.3	64.8	0.5
Themeworld 4a	Α	59.5	61.5	2.0
Themeworld 4b	Α	57.8	59.4	1.6
Themeworld 4c	Α	57.2	58.8	1.6
Themeworld 4d	Α	57.1	58.6	1.5
Themeworld 4e	Α	57.2	58.3	1.1
Themeworld 4f	Α	57.6	58.3	0.7
Themeworld 4g	Α	57.7	58.3	0.6
Themeworld 4h	Α	58.1	58.4	0.3
Themeworld 4i	Α	59.5	59.6	0.1
Themeworld 5a	Α	67.5	67.9	0.4
Themeworld 5b	Α	66.1	66.9	0.8
Themeworld 5c	Α	65.1	66.3	1.2
Themeworld 5d	Α	64.3	65.7	1.4
Themeworld RV Pool	Α	64.2	65.0	0.8
Themeworld Playground	А	69.0	67.4	
Fort Summit KOA 1	Α	63.6	64.0	0.4
Fort Summit KOA 2	Α	61.3	61.3	0.0
Fort Summit KOA 3	Α	61.6	61.8	0.2
Fort Summit KOA 4	Α	60.5	60.7	0.2
Fort Summit KOA Pool	Α	63.1	63.7	0.6
Festival 1	С	63.7	66.7	3.0
Festival 2	С	64.5	68.4	3.9
Festival 3	С	67.1	66.5	-0.5
Festival 4	С	65.2	67.5	2.3
Festival 5	С	63.3	63.9	0.6
Festival 6	C	63.1	65.0	0.4
Festival 2nd a	С	57.6	59.8	2.2
Festival 2nd b	С	57.6	59.0	1.4
Festival 2nd c	С	58.5	60.0	1.5
Festival Phase II a	С	66.1	67.4	1.3
Festival Phase II b	С	66.1	68.4	2.3
Festival Phase II c	С	65.9	68.3	2.4
Festival Phase II d	С	65.6	67.6	2.0
Festival Phase II e	С	64.6	66.3	1.7
Festival Phase II f	С	64.6	65.9	1.3
Festival Phase II g	С	70.5	74.4	3.9
Festival Phase II h	С	70.3	74.7	4.4
Festival Phase II i	С	64.6	64.7	0.3
SR 40 <u>0 (I-4)</u> P	roject Develop <u>ment</u>	and Environment (PD&E) St	udy FM No.: <u>2012</u> 1	10-2-22-01 1

Segment 5: from west of SR 25/US 27 to west of CR 532 (Polk/Osceola County Line)

Receptor	NSA Location	Existing/No-Build	Build	Change
		(Led)	(Leq)	(Leq)
Festival Phase II j	C	64.6	65.3	0.7
Festival Phase II k	С	64.8	64.5	-0.3
Festival Phase II I	С	70.3	74.8	4.5
Festival Phase II m	С	70.0	74.9	4.9
Festival Phase II n	С	70.1	74.8	4.7
Festival Phase II o	С	69.9	75.1	5.2
Festival Phase II p	С	70.1	74.6	4.5
Festival Phase II q	С	70.2	75.0	4.8
Festival Phase II r	С	70.2	74.8	4.6
Festival Phase II s	С	70.0	74.9	4.9
Festival Phase II t	С	64.3	65.1	0.8
Festival Phase II u	С	61.9	62.4	0.5
Festival Phase II v	С	62.8	64.1	1.3
Festival Phase II w	С	61.5	61.7	0.2
Festival Phase II x	С	60.0	60.0	0.0
Ramada Pool	Α	61.0	62.9	1.8
Quality Pool	Α	57.0	58.4	1.4
Holiday Inn Express Pool	В	61.1	64.2	3.1
Home Suites	В	53.1	56.2	3.1
Comfort Inn Pool	В	67.5	71.5	4.0

5.0 Noise Abatement

The FHWA requires that noise abatement measures be considered for a proposed project when the predicted noise levels approach, equal, or exceed noise abatement criteria, or, will increase substantially over existing levels. If none of the potential receptors approach, equal, or exceed the abatement criteria or show a substantial increase over existing levels, noise abatement will not be required for the project. The most common and effective noise abatement measure is the construction of a noise barrier. As noted in 23 CFR 772.13(c)(1), the FHWA requires that, at a minimum, FDOT shall consider noise abatement in the form of a noise barrier. FHWA also considers the following activities as acceptable noise abatement measures.

5.1 Alignment Selection

Alignment selection involves the orientation of the project location in such a way as to minimize impacts and costs. For noise abatement, alignment selection is primarily a matter of (a) positioning the roadway at a sufficient distance from the noise-sensitive sites, and, (b) positioning the roadway at a location where other noise abatement techniques such as a noise abatement wall could be implemented. The project is constrained as a widening of an existing roadway and the existing alignment cannot be altered without substantial changes to the surrounding land uses.

5.2 Property Acquisition

Property acquisition for buffer zones alone is considered to be costly. Buffer zones can provide relief from noise impacts by creating added distance between the noise generator and the noise receptor. Methods of applying land use controls to maintain and establish buffered areas through zoning may be established by local jurisdiction. No acquisition for noise abatement is proposed for this project.

5.3 Land Use Controls

One of the most effective noise abatement measures is the proper implementation of land use controls to minimize future noise impacts. Local jurisdictions with zoning control can implement policies to limit the growth on noise-sensitive land uses adjacent to the roadway. Development planned for the study area includes additional residential and commercial areas in this heavily developed urban area. Noise contours for the Activity Categories within the study area were predicted using the TNM model, and both a 66dB(A) and 71 dB(A) line is shown on the Noise Analysis Maps (**Figure B in Appendix II**). No potential land use controls are available to assist in noise abatement in this corridor.

5.4 Traffic Management

Traffic management measures that limit vehicle type, speed, volume, and time of operations can be effective noise abatement measures. No traffic management measures will be utilized as I-4 is a heavily traveled interstate highway and the only direct north-south Interstate through the greater Orlando area.

5.5 Noise Barriers

Noise barriers reduce noise levels by blocking the sound path between a roadway and noise-sensitive sites. To be effective, barriers have to be continuous, sufficiently long and tall, shield a reasonably sized impacted area or a number of people, and provide appreciable noise level reduction. Noise barriers are to be modeled at locations where noise increases exceeded abatement criteria during the design year, and evaluated for feasibility and reasonableness. A wide range of factors are used to evaluate noise abatement measures as reasonable and feasible. Feasibility deals with engineering considerations such as the ability to construct a barrier using standard construction techniques and methods to provide a reduction of at least 5 dB(A) to an impacted receptor site. Additionally, in order for a noise barrier to be considered acoustically feasible, at least two impacted receptor sites must achieve a 5 dB(A) reduction or greater.

When a noise abatement measure such as a sound barrier is determined to be feasible, the reasonableness is then evaluated. Three reasonableness factors must be collectively achieved in order for the noise abatement measure to be deemed reasonable: the achievement of the noise reduction design goal (7 dB(A)) for at least one receptor per FDOT criteria), the cost effectiveness of the noise abatement measure, and the consideration of the viewpoints of the benefited property owners and residents. As specified by 23 CFR 772, when examining the cost reasonableness of a modeled noise barrier design for a residential area, the upper limit of \$42,000 per benefited receptor has been set by FDOT using the standard construction cost of \$30.00 per square foot. A benefited receptor is defined as a noise sensitive site that will obtain a minimum of 5 dB(A) of noise reduction as a result of a specific noise abatement measure whether or not they are predicted as having a noise impact. Only benefited receptor sites can be included in the calculation of a barrier being cost reasonable.

No Noise Barriers were deemed reasonable and feasible during the original PD&E study completed for this segment [Environmental Assessment/Finding of No Significant Impact (EA/FONSI) for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line [Financial Project Number (FPN) 201210 (December 1998)]. Noise barriers were modeled for Noise Sensitive Areas with multiple impacted sites along the corridor during this analysis as described below. For each area, barriers were modeled as either ground-mounted at the edge of the right-of-way, and/or as a traffic railing

noise barrier that is ground-mounted along the edge of the shoulder. For the ground-mounted barriers, barrier heights were analyzed from 16 feet to 22 feet tall, while the heights of the barriers at the edge of shoulder were limited to 14 feet. The optimal barrier design for each analysis (See **Figure B**, Noise Analysis Maps in **Appendix II**) is described below and detailed in **Table 7**.

Noise Sensitive Area A

Noise barriers were modeled for the Themeworld RV Resort within Noise Sensitive Area A. Due to the topography in this area, there is an existing retaining wall adjacent to the I-4 eastbound shoulder from the approximately mid-point of the Themeworld RV Resort to US 27 (see photos in Appendix I). The wall gradually increases in height from ground level to approximately 25 feet at the US 27 overpass. This barrier wall and the overhead power lines that run adjacent to it along the ROW line provide potential problems with any barrier being constructed at this location. There were sites with predicted noise impacts at the Themeworld RV Resort, so barriers were modeled along the edge of shoulder and at the right-of-way adjacent to / on top of the retaining wall. A barrier design combining both a wall located at the edge of shoulder and one at the right-of-way was also modeled. The best case scenario for traffic railing barrier located at the edge of shoulder was for a 14-foot tall, 902-foot long barrier, which provided an insertion loss of at least 5dB(A) for three receptors at an average cost of \$126,270 per benefited receptor. This barrier design did not meet the design criteria of providing at least 7dB(A) for one receptor and exceeds the \$42,000 cost per benefited receptor threshold set forth in Chapter 17 of the PD&E Manual. The best case scenario for the ground-mounted barrier placed at the right-of-way was for a 22-foot-tall, 1,455-foot long ground mounted wall at a total cost of \$960,096 provided an insertion loss of at least 5dB(A) to 21 receptors at an average cost of \$45,719 per benefited receptor. The 22-foot tall barrier cost average also exceeds the \$42,000 per benefited receptor threshold and is therefore is not cost reasonable. Alternate barrier heights of 16, 18, and 20 feet tall were modeled as described in **Table 7**, though the 22-foot tall barrier provided the best abatement. Combination barrier designs were also modeled utilizing both 14-foot tall barriers located at the edge of shoulder and various heights of ground-mounted barriers located at the edge of right-of-way (see Table 7 for all designs). The best case scenario was for a 992 foot-long, 14-foot tall barrier placed at the shoulder along with an 828-foot long, 22-foot tall barrier placed at the right-of-way. This design, at a total cost of \$963,078, provided an insertion loss of at least 5dB(A) for 25 receptors, at an average cost of \$38,523 per benefited receptor. This barrier design does meet the cost reasonable criteria of \$42,000 per benefited receptor.

However, it is not likely feasible to construct the right-of-way wall as it is modeled. The location at the edge of the right-ofway is within 2 feet of the existing retaining wall (or directly on top of it) and may either affect the structural integrity of the existing wall and any tiebacks that may be utilized. If the barrier were located on top of the existing retaining wall, it would exceed the height limits allowed. Additionally, there are existing overhead power lines that run along the edge of the rightof-way here that would conflict with the construction and placement of a wall at this location (see photos in **Appendix I**). Moving the barrier slightly away from the edge of the right-of-way would require the purchase of right-of-way for the wall, and require a right of entry or an easement for construction from the Themeworld RV resort for construction. Therefore, any barrier design located at the right-of-way is not reasonable and feasible for construction.

Noise Sensitive Area B

No noise barriers were modeled for this area as only a single receptor was predicted to be impacted by the project. Under FDOT policy, a noise barrier must benefit two or more impacted receptors at least a 5dB(A) or greater, therefore a noise barrier could not be feasible at this location.

Noise Sensitive Area C

Barriers were modeled at the Festival Orlando Resort within Noise Sensitive Area C. Two separate phases of the Festival Orlando were modeled: Phase I which is currently under construction and Phase II which is in the planning stages but does have an approved site plan. Various heights of ground-mounted barriers were modeled along the right-of-way adjacent to westbound I-4, and traffic railing noise barriers were modeled at the edge of the shoulder (see **Table 7** for barrier design details).

For Phase I, the best case scenario for the Ground Mounted Barrier was for an 898-foot long, 16-foot high wall at a total cost of \$430,862 that provided an insertion loss of 5 dB(A) or greater to 32 receptors for an average cost of \$13,464 per benefited receptor. A 954-foot long, 14-foot tall shoulder mounted barrier at a total cost of \$400,523 provided an insertion loss of 5 dB(A) or greater to 32 receptors. A 954-foot long, 14-foot tall shoulder mounted barrier at a total cost of \$400,523 provided an insertion loss of 5 dB(A) or greater to 32 receptors. Both barriers cost average is less than the \$42,000 per benefited receptor threshold set forth in Chapter 17 of the PD&E Manual and are <u>therefore cost reasonable</u>.

For Phase II, the best case scenario for the Ground Mounted Barrier was for a 1,157-foot long, 16-foot high wall at a total cost of \$555,597 that provided an insertion loss of 5 dB(A) or greater to 48 receptors for an average cost of \$11,575 per benefited receptor. A 1,552-foot long, 12-foot tall shoulder mounted barrier at a total cost of \$558,711 provided an insertion loss of 5 dB(A) or greater to 74 receptors for an average cost of \$7,550 per benefited receptor. Both barriers cost average is less than the \$42,000 per benefited receptor threshold and are <u>therefore cost reasonable</u>.

	Table 7 – Barrier Analysis												
Noise Sensitive Locations	Barrier Type	Barrier Name	Barrier Location	Height (feet)	Length (feet)	# of Impacted Receptors	# of Impacted Benefited Receptors	# of Non-Impacted Benefited Receptors	Total # of Benefited Receptors	Avg. Noise Reduction (dB(A))	Cost (\$30.00 per square foot)	Average Cost per Benefited Receptor	Comment
	Traffic railing	BW A1	I-4 Eastbound Shoulder	14	902	14	3	0	3	5.2	\$378,812	\$126,270	Not cost reasonable, doesn't meet noise design goal
	ground	BW A2	I-4 Eastbound ROW	22	1455	14	13	8	21	6.4	\$960,096	\$45,719	not cost reasonable, not feasible for construction
	ground	BW A2	I-4 Eastbound ROW	20	1455	14	13	5	18	6.1	\$872,814	\$48,490	Not cost reasonable, not feasible for construction
	ground	BW A2	I-4 Eastbound ROW	18	1455	14	12	4	16	5.6	\$785,533	\$49,096	Not cost reasonable, does not meet noise design goal, not feasible for construction
NSA A	ground	BW A2	I-4 Eastbound ROW	16	1455	14	4	2	6	5.6	\$698,252	\$116,375	Not cost reasonable, does not meet noise design goal, not feasible for construction
	Traffic railing / ground combination	BW A3	I-4 Eastbound Shoulder / ROW	14 / 22	992 / 828	14	14	11	25	6.3	\$963,078	\$38,523	Cost Reasonable / not feasible for Construction
	Traffic railing / ground combination	BW A3	I-4 Eastbound Shoulder / ROW	14 / 20	992 / 828	14	14	8	22	6.2	\$913,412	\$41,519	Cost Reasonable, not feasible for construction
	Traffic railing / ground combination	BW A3	I-4 Eastbound Shoulder / ROW	14 / 18	992 / 828	14	14	7	21	6.2	\$863,747	\$41,131	Cost reasonable, not feasible for construction
	Traffic railing / ground combination	BW A3	I-4 Eastbound Shoulder / ROW	14 / 16	992 / 828	14	13	6	19	5.6	\$814,082	\$42,846	Not cost reasonable, does not meet design goal, not feasible for construction
	Traffic railing	BW C1	I-4 Westbound Shoulder	14	954	32	32	0	32	6.6	\$400,523	\$12,516	Cost Reasonable
	Traffic railing	BW C1A	I-4 Westbound Shoulder	14	1287	32	32	0	32	6.9	\$540,330	\$16,885	Cost Reasonable
NSA C	ground	BW C2	I-4 Westbound ROW	22	898	32	32	0	32	9.9	\$592,435	\$18,514	Cost Reasonable
Phase I	ground	BW C2	I-4 Westbound ROW	20	898	32	32	0	32	9.2	\$538,577	\$16,830	Cost Reasonable
	ground	BW C2	I-4 Westbound ROW	18	898	32	32	0	32	8.2	\$484,719	\$15,147	Cost Reasonable
	ground	BW C2	I-4 Westbound ROW	16	898	32	32	0	32	7.1	\$430,862	\$13,464	Cost Reasonable
	Traffic railing	BW C3a	I-4 Westbound Shoulder	12	1,164	58	40	0	40	8.5	\$419,125	\$10,478	Cost Reasonable
	Traffic railing	BW C3a	Shoulder	14	1,164	58	40	0	40	9.4	\$488,980	\$12,225	Cost Reasonable
	Traffic railing	BW C3b	Shoulder	12	1,552	62	62	12	74	7.1	\$558,711	\$7,550	Cost Reasonable
	Traffic railing	BW C3b	Shoulder	14	1,552	62	62	12	74	8.0	\$651,829	\$8,809	Cost Reasonable
NSA C Phase II	Ground	BW C4	ROW	12	1,157	58	40	0	40	9.0	\$416,698	\$10,417	Cost Reasonable
	Ground	BW C4	ROW	14	1,157	58	40	0	40	9.9	\$486,147	\$12,154	Cost Reasonable
	Ground	BW C4	ROW I-4 Westbound	16	1,157	58	40	8	48	9.7	\$555,597	\$11,575	Cost Reasonable
	Ground	BW C4	ROW I-4 Westbound	18	1,157	58	40	12	48	10.4	\$604.406	\$13,022	Cost Reasonable
	Ground		ROW I-4 Westbound	20	1,157	58	40	12	52	10.4	\$762.046	\$13,350	Cost Reasonable
	Ground	вvv C4	ROW	22	1,157	58	40	12	52	10.8	¢763,540	\$14,091	

6.0 Conclusions

Based upon the analysis conducted, one noise barrier is recommended for further consideration during the design phase of this segment of the project: For Phase I of the Festival Orlando Resort within Noise Sensitive Area C, both a 16-foot tall, 898-foot long ground mounted barrier and a 14-foot tall, 954-foot long shoulder mounted barrier provide the required noise abatement and meet the requirements as reasonable and feasible. Both barriers provide an insertion loss of at least 5 dB(A) for 32 receptors. For Phase II of the Festival Orlando Resort, both a 16-foot tall, 1,157-foot long ground mounted barrier and a 12-foot tall, 1,552-foot long shoulder mounted barrier provide the requirements as reasonable and feasible. The ground mounted barrier provides an insertion loss of at least 5 dB(A) for 48 receptors, while the shoulder mounted barrier provides an insertion loss of at least 5 dB(A) for 74 receptors.

7.0 Commitments

FDOT is committed to the construction of feasible and reasonable noise abatement measures at the noise impacted location describe in the conclusion above and shown in Table 7 and on the Noise Study Maps Figure B contingent upon the following conditions:

- Cost analysis indicates that the cost of the noise barriers will not exceed the cost-reasonable criterion.
- Community input supporting types, heights, and locations of the noise barrier is provided to the District Office.
- Safety and engineering aspects as related to the roadway user and the adjacent property owner have been reviewed and any conflicts or issues resolved.

Based upon the noise analyses performed to date, there appears to be no apparent solutions available to mitigate the noise impacts at Noise Sensitive Areas A and B, as shown on the Noise Study Maps (Figure B in Appendix II).

8.0 Construction Noise and Vibration

Construction activities for any of the proposed improvements will have temporary noise impacts for those residents and visitors within the immediate vicinity of the project. Noise and vibration impacts will be caused by heavy equipment movement and construction activities such as pile driving and vibratory compaction. Noise control measures should be implemented according to the FDOT's <u>Standard Specifications for Road and Bridge Construction</u> to minimize or eliminate some potential construction noise and vibration impacts. Section 335, F.S., exempts FDOT from compliance with local ordinances. FDOT policy is to follow the requirement of local ordinances to the extent that is reasonable. However, should unanticipated noise or vibration issues arise during the construction process, the Project Engineer, in coordination with the District Noise Specialist will investigate additional methods of controlling these impacts.

9.0 Public Involvement

As this project will have significant public involvement, the Final NSR will be made available in multiple forms (Public Meetings, Website, circulated to the appropriate local planning/zoning officials) in order to eliminate or minimize noise impacts at future development sites that are incompatible with traffic noise. Noise contours for the relevant Activity Categories were developed for this study and are shown on the Noise Study Maps in Appendix I. The public will have opportunities for input during the public meetings and via the web site while the planning and design of the project are ongoing.

10.0 References

FDOT's PD&E Manual - Part 2, Chapter 17 "Noise" (dated 05/24/2011)) FHWA's guidance document "Measurement of Highway-Related Noise." FDOT's <u>Standard Specifications for Road and Bridge Construction</u>

APPENDIX I Photos







NSA A – Existing Wall

APPENDIX II PROJECT MAPS AND FIGURES







LAND USE AND HABITAT COVERAGE MAPS



NOISE STUDY REPORT: Segment 5 - Land Use and Habitat Coverage Map SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line Polk County (16320)

202423016



Figure A - Sheet 2 of 2 : Land Use and Habitat Coverage Map

NOISE STUDY REPORT: Segment 5 - Land Use and Habitat Coverage Map SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line Polk County (16320)

	Мар Кеу
A BUNA DA	SR 400 (I-4) Beyond the Ultimate R/W (8/31/15)
	SR 400 (I-4) Beyond the Ultimate PD&E Study Limits
A CALL	Proposed Pond Sites (12/02/15)
200 circeit	Land Use and Habitat Coverage
1300 1300	1200:RESIDENTIAL MED DENSITY (2-5 DWELLING UNITS)
6150	1300:RESIDENTIAL HIGH DENSITY
6410	1400:COMMERCIAL AND SERVICES
4100 2100	1700:INSTITUTIONAL
4100	1820:GOLF COURSES
6150 6150 2100	1900:OPEN LAND
200	2100:CROPLAND AND PASTURELAND
	2200:TREE CROPS
8100 5300 1900	2600:OTHER OPEN LANDS (RURAL)
1200	3100:HERBACEOUS
2600	3200:SHRUB AND BRUSHLAND
700	
1400	
6150	
2600	5300:RESERVOIRS
2600 6150	6150:STREAM AND LAKE SWAMPS (BOTTOMLAND)
6410	6200:WETLAND CONIFEROUS FORESTS
6300 7 8100 1400	6210:CYPRESS
6410	6300:WETLAND FORESTED MIXED
	6410:FRESHWATER MARSHES
	6430:WET PRAIRIES
2200	6440:EMERGENT AQUATIC VEGETATION
	6530:INTERMITTENT PONDS
2600	8100:TRANSPORTATION
6410	8300:UTILITIES
5300	
6150 2100	Title:
6410	NOISE STUDY REPORT: Segment 5 - Land Use and Habitat Coverage Map
1000	Client/Project: Florida Department of Transportation- D5 SR 400 Project Development & Environment Study Segment 5: SR 400 (I-4) from W of SR 25/US 27 to W of CR 532
1300	Project Location: 16320 Polk County STA 368+50.00 (Begin) STA 604+50.00 (End)
Stem: NAD 1983 StatePlane Florida East FIPS 0901 Feet 0 600 1,200 2,400	Prepared by: mLeonard 5/9/2016 Technical Review by: mDrauer 5/9/2016 Independent Review by: jMoore 5/9/2016
onment (PD&E) Study FM No. 20121()-2-22-01
	2024230168

NOISE BARRIER ANALYSIS MAPS



NOISE STUDY REPORT: Segment 5 - Noise Analysis Map SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line Polk County (16320)

20242301



NOISE STUDY REPORT: Segment 5 - Noise Analysis Map SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line Polk County (16320)


1 " = 200 '









1 " = 200 '





20242301

APPENDIX III

TNM RESULTS

RESULTS: SOUND LEVELS							I-4 BtU PD8	щ				
Stantec M Drauer							23 Nover TNM 2.5	nber 2015				-
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:		I-4 BtU I-4 Seg INPUT	PD&E pment 5 Ex HEIGHTS	isting				Average	n 2.9 pavement type	shall be use	d unless	
ATMOSPHERICS;		68 de(g F, 50% R	т		_		of a diffe	igliway agency rent type with a	approval of F	s une use HWA.	
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h Calculated	Crit'n	Increase ove	er existing Crit'n	Type	Calculated LAeo1h	Noise Reduc Calculated	tion Goal	Calculated
							Sub'l Inc				800	carculated minus Goal
			dBA	dBA	dBA	dB	段		dBA	dВ	dB	dB
Val Pt 1	-		1	0.77	2.5 6	36 72	2.5	0 Snd Lv	72.5	0.0		-8.0
themeworld 1f	ŝ		1 0	0.0	4.7 6	36 64	1.7 1		64.7	0.0	0	-8.0
themeworld 1j	4		1	0.0	3.4	36 66	5.4	0 Snd Lv	66.4	0.0	0	8-
themeworld 1k	2		-	.0	3.6	36 66	3.6	0 Snd Lv	66.6	0.0	0	-8.0
themeworld 11	9		1	.0	5.8	36 66	5.8	0 Snd Lv	66.8	0.0	0	8
themworld 1m	7		1	.0 0	3.7 (36 66	5.7 1	0 Snd Lv	66.7	0.0	0	8-0.0
Theme RV Pool	80		1	.0 0	1 .2	36 64	t.2		64.2	0.0	0	8-0.0
themeworld 1n	6		1	.0 0	5.4	36 66	5.4	0 Snd Lv	66.4	0.0	0	8-
themeworld 1o	10		1	.0	5.3 6	36 66	5.3	0 Snd Lv	66.3	0.0	0	-8.0
themeworld 1p	11		1	.0 0	5.2	36 66	5.2	0 Snd Lv	66.2	0.0	0	8-0.0
themeworld 1q	12		1 0	·0	3.0	36 68	3.0	0 Snd Lv	68.0	0.0	0	-8.0
Themeworld Playground	13		1	0.	0.4	36 70	0.4	0 Snd Lv	70.4	0.0	0	-8.0
Fort Summit KOA Pool	14		1	.0	3.1	96 63	3.1		63.1	0.0	0	-8.0
Fort Summit KOA 1	15		1	.9 .0	3.6	56 G3	3.6 1		63.6	0.0	0	8
Fort Summit KOA 2	16		1 0	0.	1.3	56 61	1.3		61.3	0.0	0	8 -8.0
Fort Summit KOA 3	17		1	.0 .0	1.6	36 61	1.6	1	61.6	0.0	0	8
Fort Summit KOA 4	18		1	.0	0.5 (36 60).5 1	1	60.5	0.0	0	8-0.0
Ramada Pool	19		1	0.	1.0	36 61	1.0		61.0	0.0	0	8
Quality Pool	20		1 0	.0	9 0.7	36 57	7.0		57.0	0.0	0	8-8.0
Holiday Inn Express Pool	21		1	0.0	1.1	56 61	L.		61.1	0.0	0	-8.0
Home Suites	22		1	.0	3.1	36 53	3.1	0	53,1	0.0	0	8
Comfort Pool	23		1	.9 0.	7.5 6	36 67	7.5 1	0 Snd Lv	67.5	0.0	0	8-0.0
Festiva 1	24		9	.0 .0	3.7 (36 63	3.7 1		63.7	0.0	0	8
Festiva 3	25		8	.9 .0	7,1	36 67	7.1	0 Snd Lv	67.1	0.0	0	8 8 9
Festiva 2	26		0	ġ o	4.5	99 92	1.5		64.5	0.0	0	8
C:\TNM25\230168\Seg 5 exist					-				23 No	vember 2015		

RESULTS: SOUND LEVELS						14 Bt	U PD&E					
Festiva 4	27	თ	0.0	65.2	66	65,2	10	I	65.2	0.0	00	-8.0
Festiva 5	28	2	0.0	63.3	66	63,3	10	j,	63.3	0.0	œ	-8.0
Festiva 6	29	2	0.0	63.1	66	63.1	10	I)	63.1	0.0	80	-8.0
Themeworld 1g	30	-	0.0	65.2	66	65.2	10	Ĩ	65.2	0.0	00	-8.0
Themeworld 1e	31	-	0.0	65.0	99	65.0	10	I	65.0	0.0	80	-8.0
Themeworld 1i	32	-	0.0	66.8	99	66.8	10	Snd Lvl	66.8	0.0	80	-8.0
Themeworld 1h	33	+	0.0	67.2	99	67.2	10	Snd Lvl	67.2	0.0	œ	-8.0
Themeworld 1d	34	٢	0.0	64.1	66	64.1	10	Ĩ	64.1	0.0	80	-8.0
Themeworld 1c	35	+	0.0	64.1	99	64.1	10	I	64.1	0.0	œ	-8.0
Themeworld 1b	36	-	0.0	64.1	66	64.1	10	I	64.1	0.0	80	-8.0
Themeworld 1a	37	٢	0.0	65.0	99	65.0	10	I	65.0	0.0	œ	-8.0
Themeworld 2b	38	F	0.0	61.8	99	61.8	10	1	61.8	0.0	80	-8.0
Themeworld 2c	39	-	0.0	62.0	66	62.0	10	1	62.0	0.0	œ	-8.0
Themeworld 2d	40	-	0.0	62.0	99	62.0	10	I	62.0	0.0	œ	-8.0
Themeworld 2e	41	-	0.0	62.6	66	62.6	10	I	62.6	0.0	œ	-8.0
Themeworld 2f	42	-	0.0	62.7	99	62.7	10		62.7	0.0	œ	-8.0
Themeworld 3b	43	1	0'0	60.1	66	60.1	10	1	60.1	0'0	ω	-8.0
Themeworld 3c	44	-	0.0	59.8	99	59.8	10	1	59.8	0.0	œ	-8.0
Themeworld 3d	45	1	0.0	59.8	99	59.8	10	1	59.8	0.0	œ	-8.0
Themeworld 3e	46	-	0.0	59.7	99	59.7	10	1	59.7	0.0	80	-8.0
Themeworld 3f	47	-	0.0	60.0	99	60.0	10	1	60.0	0.0	80	-8.0
Themeworld 3g	48	-	0.0	64.3	99	64.3	10	1	64.3	0.0	ø	-8.0
Themeworld 4c	49	-	0.0	57.2	99	57.2	10	I	57.2	0.0	œ	-8.0
Themeworld 4d	50	-	0.0	57.1	99	57.1	10		57.1	0.0	ø	-8.0
Themeworld 4e	51	-	0.0	57.2	66	57.2	10	Đ	57.2	0.0	80	-8.0
Themeworld 4f	52	-	0.0	57.6	99	57.6	10	I	57.6	0.0	ø	-8.0
Themeworld 4g	53	~	0.0	57.7	99	57.7	10		57.7	0.0	80	-8.0
Themeworld 4h	54	-	0.0	58.1	99	58.1	10	Ĩ	58.1	0.0	80	-8.0
Themeworld 4i	55	-	0.0	59.5	66	59.5	10	Ĭ	59.5	0.0	80	-8.0
Themeworld 5a	56	-	0.0	67.5	99	67.5	10	Snd Lvl	67.5	0.0	80	-8.0
Themeworld 5b	57	-	0.0	66.1	99	66.1	10	Snd Lvl	66.1	0.0	ø	-8.0
Themeworld 5c	58	-	0.0	65.1	66	65.1	10	()	65.1	0.0	80	-8.0
Themeworld 5d	59	-	0.0	64.3	66	64.3	10	Ì	64.3	0.0	œ	-8.0
Themeworld 2g	60	-	0.0	64.3	66	64.3	10	I	64.3	0.0	ø	-8.0
Themeworld 2h	61	۲	0.0	62.8	66	62.8	10		62.8	0.0	ω	-8.0
Themeworld 2i	62	-	0.0	62.4	99	62.4	10	1 111 7	62.4	0.0	ø	-8.0
Themeworld 2j	63	-	0.0	62.1	66	62.1	10	1	62.1	0.0	80	-8.0
Themeworld 2k	64	-	0.0	62.7	66	62.7	10	l	62.7	0.0	80	-8.0
Themeworld 21	65	-	0.0	63.1	66	63.1	10		63.1	0.0	80	-8.0
Festiva 2nd a	67	9	0.0	57.6	66	57.6	10	ł	57.6	0.0	80	-8.0
Festiva 2nd b	68	4	0.0	57.6	66	57.6	10	ł	57.6	0.0	80	-8.0
Festiva 2nd c	69	9	0.0	58.5	99	58.5	10	I	58.5	0.0	œ	-8.0
C:\TNM25\230168\Seg 5 exist					2				23 Novemt	oer 2015		

RESULTS: SOUND LEVELS						14 Btl	J PD&E					
themeworld 2m	20	1 0	0.	64.0	99	64.0	10	1	64.0	0.0	00	-8.0
themeworld 2n	71	1	0.	66.6	66	66.6	10	Snd Lvl	66.6	0.0	00	-8.0
themeworld 2a	72	1	0.	64.4	99	64.4	10	I	64.4	0.0	00	-8.0
themeworld 3a	73	1	O,	62.9	66	62.9	10		62.9	0.0	00	-8.0
themeworld 4b	74	-	O,	57.8	66	57.8	10	1	57.8	0.0	00	-8.0
themeworld 4a	75	1	0.	59.5	66	59.5	10	l.	59.5	0.0	80	-8.0
Dwelling Units	ng #	s Noise R	eduction	4	-							
		Min	Avg	Ŵ	XE							
		ąp	ąp	Ĥ	~							
All Selected		16 0	0	0.0	0.0							
All Impacted		24 O	0	0.0	0.0							
All that meet NR Goal		0	0.	0.0	0.0							

C:\TNM25\230168\Seg 5 exist

23 November 2015

×

RESULTS: SOUND LEVELS						I-4 BtU PD&	ш					ſ
Stantec						3 May 201	9					
M Drauer						TNM 2.5 Calculate	d with TNM	25		_	-	
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN:	14 Bt 14 Se	U PD&E gment 5 Ex	isting								-	
BARRIER DESIGN:	INPL INPL	T HEIGHTS					Average p a State hig	avement type jhway agency	shall be us substantiat	ed unless tes the us	U	
ATMOSPHERICS:	68 d	eg F, 50% R	T				of a differ	ent type with	approval of	FHWA.		
Receiver		Eviation	No Domior					Mith Darrior				
Name	.0N	LAeq1h	LAeq1h		Increase ov	er existing	Type	Calculated	Noise Redu	uction		
			Calculated	Criťn	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculate minus Goal	pa
		dBA	dBA	dBA	명	æ		dBA	dB	qв	Вb	
Val Pt 1	-	1	0	9 0	36	0.0 11	o inactive	0.0	0	0.	80	0.0
themeworld 1f	e	1	0	0.	90	0.0	0 inactive	0.0	0	0.	80	0.0
themeworld 1j	4	1	0	9	36	0.0	0 inactive	0.0	0	0.	80	0.0
themeworld 1k	Û	1 0.	0	0.	26	0.0	0 inactive	0.0	0	0.	80	0.0
themeworld 11	9	1	0	0.	90	0.0	0 inactive	0.0	0	0.	80	0.0
themworld 1m	2	1	0	0.	36	0.0	0 inactive	0.0	0	0	80	0.0
Theme RV Pool	Ø	1	0	0.	36	0.0	0 inactive	0.0	0	0	œ	0.0
themeworld 1n	ດ	1	ō	0.	96	0.0	0 inactive	0.0	0	0.	æ	0.0
themeworld 1o	10	1	0	0.	90	0.0	0 inactive	0.0	0	0.	co	0.0
themeworld 1p	11	1	0	0.	90	0.0	0 inactive	0.0	0	0	œ	0.0
themeworld 1q	12	1	0	0.	36	0.0	0 inactive	0.0	0	0	ø	0.0
Themeworld Playground	13	1 0.	0	0.	36	0.0	0 inactive	0.0	0	0.	80	0.0
Fort Summit KOA Pool	14	1	0	0	36	0.0	0 inactive	0.0	0	0.	Ø	0.0
Fort Summit KOA 1	15	1	0	0	36	0.0	0 inactive	0	0	0	80	0.0
Fort Summit KOA 2	16	1 0.	0	0.	36	0.0	0 inactive	0.0	0	0.0	ø	0.0
Fort Summit KOA 3	17	1	0	0.	36	0.0	0 inactive	0.0	0	0.0	80	0.0
Fort Summit KOA 4	18	1	0	0.	90	0.0	0 inactive	0.0	0	0.0	80	0.0
Ramada Pool	19	1	0	0.	36	0.0	0 inactive	0.0	0	0.0	ω	0.0
Quality Pool	20	1	0	0.	36	0.0	0 inactive	0.0	0	0	ø	0.0
Holiday Inn Express Pool	21	1	0	0	36	0.0 1	0 inactive	0.0	0	0.	8	0.0
Home Suites	22	1	0	0.	36	0.0	0 inactive	0.0	0	0.	œ	0.0
Comfort Pool	23	1 0	0	0	96	0.0	0 inactive	0.0	0	0.	ø	0.0
Festiva 1	24	9	0 63	.7	36 6	3.7 1		63.7	2	0.0	ø	0.8 -
Festiva 3	25	8	0 67	5	96	7.1 1	0 Snd Lvl	. 29	-	0.0	œ	-8.0
Festiva 2	26	6	0 64	.5	56 6	4.5 1	1	64.	0	0	80	-8.0
C:\TNM25\l4\Seg 5 Exist				-				3 May	/ 2016			

RESULTS: SOUND LEVELS					I-4 Btl	J PD&E					
Festiva 4	27	9.0	65.2	99	65.2	10	Î	65.2	0.0	æ	-8.0
Festiva 5	28	2 0.(63.	66	63.3	10	1	63,3	0.0	80	-8.0
Festiva 6	29	2 0.0	63.	99	63.1	10	1	63.1	0.0	60	-8.0
Themeworld 1g	30	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	00	0.0
Themeworld 1e	31	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 1i	32	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 1h	33	1 0.0	0.0	99 0	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 1d	34	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 1c	35	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 1b	36	1 0.0	0.0	99	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 1a	37	1 0.0	0.0	99	0'0	10	inactive	0.0	0.0	80	0.0
Themeworld 2b	38	1 0.(0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2c	39	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2d	40	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2e	41	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2f	42	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 3b	43	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 3c	44	1 0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 3d	45	1 0.0	0.0	99 0	0.0	10	inactive	0.0	0.0	œ	0.0
Themeworld 3e	46	1 0.0	0.0	99 0	0.0	10	inactive	0.0	0.0	œ	0.0
Themeworld 3f	47	1 0.0	0.0	99 0	0.0	10	inactive	0.0	0.0	œ	0.0
Themeworld 3g	48	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 4c	49	1 0.0	0.0	99	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 4d	50	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 4e	51	1 0.0	0.0	99 00	0.0	10	inactive	0.0	0.0	80	0'0
Themeworld 4f	52	1 0.0	0.0	99 00	0.0	10	inactive	0.0	0.0	60	0.0
Themeworld 4g	53	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 4h	54	1 0.0	0.0	99 (0.0	10	inactive	0'0	0.0	ω	0.0
Themeworld 4i	55	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 5a	56	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 5b	57	1 0.0	0.0	99 (0	0.0	10	inactive	0.0	0.0	60	0.0
Themeworld 5c	58	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	60	0.0
Themeworld 5d	59	1 0.0	0.0	99 (0	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2g	60	1 0.0	0.0	99 (0	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2h	61	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2i	62	1 0.0	0.0	99 (0	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2j	63	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2k	64	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Themeworld 2	65	1 0.0	0.0	99 (0.0	10	inactive	0.0	0.0	80	0.0
Festiva 2nd a	67	6 0.(57.6	99 99	57.6	10	I	57.6	0.0	80	-8.0
Festiva 2nd b	68	4 0.0	57.6	99 66	57.6	10	I	57.6	0.0	00	-8.0
Festiva 2nd c	69	6 0.(58.	66	58.5	10	Ĩ	58.5	0.0	8	-8.0
C-\TNM25\ 4\Seq 5 Exist				2				3 May 201	(0		

C:\TNM25\I4\Seg 5 Exist

3 May 2016

ESULTS: SOUND LEVELS						14 Bft	J PD&E					
themeworld 2m	20	-	0.0	0.0	99	0.0	10	inactive	0.0	0.0	80	0.0
themeworld 2n	71	-	0.0	0.0	99	0.0	10	inactive	0.0	0.0	œ	0.0
themeworld 2a	72	-	0,0	0.0	99	0.0	10	inactive	0.0	0.0	œ	0.0
themeworld 3a	73	-	0.0	0.0	99	0.0	10	inactive	0:0	0.0	œ	0.0
themeworld 4b	74	*	0.0	0.0	99	0.0	10	inactive	0.0	0.0	œ	0.0
themeworld 4a	75	-	0.0	0.0	99	0.0	10	inactive	0.0	0.0	œ	0.0
F Phase 2 a	76	-	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	œ	-8.0
F Phase 2 b	12	-	0.0	66.1	99	66.1	10	Snd Lvl	66.1	0.0	80	-8.0
F Phase 2 c	78	-	0.0	62.9	66	65.9	10	1	65.9	0.0	80	-8.0
F Phase 2 d	29	-	0.0	65.6	66	65.6	10	l	65.6	0.0	œ	-8.0
F Phase 2 e	80	÷	0.0	64.6	99	64,6	10	1	64.6	0.0	80	-8.0
F Phase 2 f	81	-	0.0	64.6	99	64.6	10	ł	64.6	0.0	80	-8.0
F Phase 2 g	82	-	0.0	70.5	66	70.5	10	Snd Lvl	70.5	0.0	80	-8.0
F Phase 2 h	83	***	0.0	70.3	66	70,3	10	Snd Lvl	70.3	0.0	œ	-8.0
F Phase 2 i	84	4	0.0	64.6	99	64.6	10	I	64.6	0.0	œ	-8.0
F Phase 2 j	85	-	0.0	64.6	66	64.6	10	I	64.6	0.0	80	-8.0
F Phase 2 k	86	-	0.0	64.8	99	64.8	10	I	64.8	0.0	00	-8.0
F Phase 2 I	87	-	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	∞	-8.0
F Phase 2 m	88	4m	0.0	70.0	66	70.0	10	Snd Lvi	70.0	0.0	ø	-8.0
F Phase 2 n	89	÷	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	80	-8.0
F Phase 2 o	66	-	0.0	6.9	66	69.9	10	Snd Lvl	69.9	0.0	ø	-8.0
F Phase 2 p	91	-	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	80	-8.0
F Phase 2 q	92	-	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	80	-8.0
F Phase 2 r	93	~	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	80	-8.0
F Phase 2 s	94	-	0.0	70.0	99	70.0	10	Snd Lvl	70.0	0.0	80	-8.0
F Phase 2 t	95	-	0.0	64.3	66	64.3	10	1	64.3	0.0	80	-8.0
F Phase 2 u	96	*	0.0	61.9	99	61.9	10	I	61.9	0.0	ø	-8.0
F Phase 2 v	97	*	0.0	62.8	66	62.8	10	ľ	62.8	0.0	ø	-8.0
F Phase 2 w	98	-	0.0	61.5	66	61.5	10		61.5	0.0	ø	-8.0
F Phase 2 x	66	-	0.0	60.0	66	60.0	10	I	60.0	0.0	œ	-8.0
Dwelling Units	#	DUS N	oise Reductic	Ę	-							
		Σ	in Avg	Ma	×							
		P	е В	Ð								
All Selected		140	0.0	0.0	0.0							
All Impacted		20	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

C:\TNM25\l4\Seg 5 Exist

3 May 2016

ო

RESULTS: SOUND LEVELS					n)		4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tU PD&E						
Stantec M Drauer							% F (3 Novemk VM 2.5	er 2015	L. C		-		
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	<u>4</u> 4 <u>5</u>	BtU PD8 Segmen PUT HEI	t 5 All GHTS				5		Average p State hi	4.5 avement type shwav agency	shall be us	ed unless tes the us		
ATMOSPHERICS:	68	deg F, 5	0% RH						of a differ	ent type with a	approval of	FHWA.	2	
Receiver				11)										
Name	No. #D	Us Exi	sting	No Barrier						With Barrier				
		LĄ	eq1h	LAeq1h		Increas	e over ex	isting	Type	Calculated	Noise Redu	uction		
			_	Calculated	Criť n	Calcula	S C	rit'n ub'l Inc	Impact	LAeq1h	Calculated	Goal	Calcula minus Goal	ated
		dB/	đ	dBA	dBA	ę	ġ	m		dBA	đB	đB	æ	
Themeworld 1f	-	-	0.0	64.	G	36	64.6	10	I	64.6	0	0	80	-8.0
Themeworld 1j	2	-	0.0	67.	0	36	67.9	10	Snd Lvl	61.9		0.	œ	-8°.0
Themeworld 1k	e	-	0.0	68.	-	36	68.1	10	Snd Lvl	68.1		0.0	80	-8.0
Themeworld 11	4	-	0.0	68.	-	36	68.1	10	Snd Lvl	68.1		0.0	80	-8.0
Themeworld 1m	ς,	-	0.0	68.	0	96	68.0	10	Snd Lvl	68.0		0.0	80	-8.0
Themeworld RV Pool	G	-	0.0	64.	5	36	64.9	10	ł	64.9	0	0.0	80	-8.0
Themeworld 1n	7	-	0.0	67.	2	36	67.7	10	Snd Lvi	67.7		0.0	80	-8.0
Themeworld 1o	œ	-	0.0	67.	- 2	36	67.7	10	Snd Lvl	67.7		0.0	80	-8.0
Themeworld 1p	σ	-	0.0	67.	0	36	67.3	10	Snd Lvl	67.3		0.0	80	-8.0
Themeworld 1q	10	-	0.0	67.	5	96	67.9	10	Snd Lvl	67.9		0.0	80	-8.0
Themeworld playground	11	-	0.0	70.	4	56	70.4	10	Snd Lvl	70.4	-	0.0	80	-8.0
Fort Summit KOA pool	12	-	0.0	63.	2	96	63.7	10	I	63.7		0.0	80	-8.0
Fort Summit KOA 1	13	-	0.0	64.	0	96	64.0	10	1	64.0	0	0.0	ø	-8.0
Fort Summit KOA 2	14	-	0.0	61.	e	<u> 36</u>	61.3	10	1	61.3		0.0	80	-8.0
Fort Summit KOA 3	15	-	0.0	61.	8	56	61.8	10	1	61.8		0.0	œ	-8.0
Fort Summit KOA 4	16	-	0.0	.09	2	56	60.7	10	3	60.7		0.0	80	-8.0
Ramada Pool	18	-	0.0	62.	0	56	62.9	10	1	62.9	0	0.0	ø	-8.0
Quality Pool	20	-	0.0	58.	4	96	58.4	10	9	58.4	-	0.0	80	-8.0
Holiday Inn Express Pool	22	-	0.0	64.	2	96	64.2	10	J	64.2	0	0.0	8	-8.0
Home Suites	24	-	0.0	56.	2	96	56.2	10	1	56.2		0.0	8	-8 0.0
Comfort Pool	26	-	0.0	71.	5	96	71.5	10	Snd Lvl	71.5	0	0.0	œ	0. 89
Festiva 1	28	9	0.0	66.	7	96	66.7	10	Snd Lvl	66.7		0.0	8	-8°.0
Festiva 3	29	õ	0.0	68.	4	96	68.4	10	Snd Lvl	68.4	-	0.0	æ	9 [.] 0
Festiva 2	31	6	0.0	67.	0	66	67.0	10	Snd Lvl	67.0	0	0.0	œ	-8.0
Festiva 4	32	6	0.0	67.	5	96	67.5	10	Snd Lvl	67.5		0.0	œ	-8.0
C:\TNM25\230168\Seg_5_all					۲					23 No	vember 201	5		

RESULTS: SOUND LEVELS						1-4 Bt	U PD&E					
Festiva 5	33	2	0.0	65.5	66	65.5	10	1	65.5	0.0	æ	-8.0
Festiva 6	34	2	0.0	65.0	66	65.0	10	1	65.0	0.0	80	-8.0
Themeworld 1g	36	-	0.0	64.9	66	64.9	10	ľ	64.9	0.0	80	-8.0
Themeworld 1e	37	-	0'0	64.7	66	64.7	10	ľ	64.7	0.0	80	-8.0
themeworld 1i	39	-	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	80	-8.0
themeworld 1h	41	-	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	œ	-8.0
themeworld 1d	43	-	0.0	64.0	66	64.0	10	Ē	64.0	0.0	œ	-8.0
themeworld 1c	44	-	0.0	64.1	66	64.1	10	I	64.1	0.0	œ	0 0
themeworld 1b	45	-	0.0	64.1	66	64.1	10	I	64.1	0.0	œ	-8.0
themeworld 1a	46	-	0.0	65.0	66	65.0	10	1	65.0	0.0	Ø	-8.0
themeworld 2b	48	-	0.0	62.4	99	62.4	10	1	62.4	0.0	œ	-8.0
themeworld 2c	49	-	0.0	62.5	66	62.5	10	1	62.5	0.0	œ	-8.0
themeworld 2d	50	-	0.0	62.2	99	62.2	10	1	62.2	0.0	œ	-8.0
themeworld 2e	51	-	0.0	62.6	99	62.6	10	I	62.6	0.0	œ	-8.0
themeworld 2f	52	-	0.0	62.7	99	62.7	10	1	62.7	0.0	œ	-8.0
themeworld 3b	53	-	0.0	60.9	66	6'09	10	1	60.9	0.0	œ	-8.0
themeworld 3c	54	-	0.0	60.4	66	60.4	10	-44	60.4	0.0	œ	-8.0
themeworld 3d	55	-	0.0	60.1	66	60.1	10	1941	60.1	0.0	œ	-8.0
themeworld 3e	56	-	0.0	60.09	66	60.0	10	1	60.0	0.0	œ	-8.0
themeworld 3f	57	-	0.0	60.3	66	60.3	10	1	60.3	0-0	80	-8.0
themeworld 3g	58	-	0.0	64.8	66	64.8	10	1	64.8	0.0	œ	-8.0
themeworld 5a	59	+	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
themeworld 5b	60	+	0.0	6.99	99	66.9	10	Snd Lvl	6.9	0.0	æ	-8-0
themeworld 5c	61	-	0.0	66.3	99	66.3	10	Snd Lvl	66.3	0.0	80	-8.0
themeworld 5d	62	-	0'0	65.7	99	65.7	10	1	65.7	0.0	8	-8.0
themeworld 4c	63	-	0.0	58.8	99	58.8	10	1	58.8	0.0	80	-8.0
themeworld 4d	64	-	0.0	58.6	66	58.6	10	I	58.6	0.0	œ	-8.0
themeworld 4f	65	-	0.0	58.3	99	58.3	10	I	58.3	0.0	œ	-8.0
themeworld 4g	99	-	0.0	58.3	99	58.3	10		58.3	0.0	80	-8.0
themeworld 4h	67	-	0.0	58.4	66	58.4	10	I	58.4	0.0	80	-8.0
themeworld 4i	68	+	0.0	59.6	66	59.6	10	I	59.6	0.0	ø	-8.0
themeworld 4e	69	۲	0.0	58.3	99	58.3	10	I	58.3	0.0	ø	-8.0
themeworld 2g	71	-	0.0	65.3	66	65.3	10	ł	65.3	0.0	ø	-8.0
themeworld 2h	72	-	0.0	64.0	66	64.0	10		64.0	0.0	80	-8.0
themeworld 2i	73	-	0.0	63.5	66	63.5	10	I	63.5	0.0	ø	-8.0
themeworld 2j	74	-	0.0	63.4	66	63.4	10	Į	63.4	0.0	ø	-8.0
themeworld 2k	75	-	0.0	63.3	99	63.3	10	-	63.3	0.0	ø	-8.0
themeworld 21	76	-	0.0	63.2	66	63.2	10	•	63.2	0.0	80	-8.0
Festiva 2nd a	77	9	0.0	59-9	99	59.9	10	*	59.9	0.0	8	-8.0
Festiva 2nd b	78	4	0.0	59.0	66	59.0	10	l	59.0	0.0	œ	-8.0
Festiva 2nd c	62	9	0.0	59.9	66	59.9	10		59.9	0.0	œ	-8.0
themeworld 2m	80	-	0.0	63.6	99	63.6	10	I	63.6	0.0	ω	-8° -0
C:\TNM25\230168\Seg_5_ali					2				23 Noveml	ber 2015		

RESULTS: SOUND LEVELS						1-4 Btt	J PD&E					
themeworld 2n	81	-	0.0	65.4	99	65.4	10	1	65.4	0.0	80	-8,0
themeworld 2a	82	-	0.0	64.9	99	64.9	10	1	64.9	0.0	80	-8.0
themeworld 3a	83	-	0.0	63.8	99	63.8	10	1	63.8	0.0	80	-8.0
themeworld 4b	84	-	0.0	59.4	99	59.4	10	1	59.4	0.0	80	-8.0
themeworld 4a	85	-	0.0	61.5	99	61.5	10	I	61.5	0.0	80	-8.0
Dwelling Units	*	ŧ DUs	Noise Reduc	tion								
			Min A	bv	Max							
		-	dB	B	æ							
All Selected		115	0.0	0.0	0.0							
All Impacted		47	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

C:\TNM25\230168\Seg_5_all

23 November 2015

ŝ

						1-4 Btu PU8	ц.					
Stantec			*1			2 May 20	16					
M Drauer						TNM 2.5	1					
RESULTS: SOUND LEVELS						Calculate		6.2 M				
PROJECT/CONTRACT:	I-4 Bt	U PD&E			-							
RUN: BARRIER DESIGN:	1-4 Se INPL	igment 5 Fe	stival Phase	=	_		Average	pavement typ	e shall be us	ed unless		
ATMOSPHERICS:	68 d	eg F, 50% F	H				a State I of a diff	nighway agenc erent type with	cy substantiat approval of	tes the us FHWA.	Ð	
Receiver				<								
Name	No. #DUs	Existing	No Barrier					With Barrie				
		LAeq1h	LAeq1h		Increase or	ver existing	Type	Calculated	Noise Redu	uction		
			Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calcul minus Goal	ated
		dBA	dBA	dBA	đB	ąp		dBA	đB	dB	ę	
Themeworld 1f	~	1	0	0.0	Q	0.0	0 inactiv	ö	0	0	œ	0.0
Themeworld 1j	2	-	0	0.0	Q	0.0	0 inactiv	0	0	0.	80	0.0
Themeworld 1k	e	1	0.	0.0	Q	0.0	0 inactiv	0	0	0.	80	0.0
Themeworld 11	4	1	0	0.0	Q	0.0	0 inactiv	0	0	0	80	0.0
Themeworld 1m	9		0	0.0	Q	0.0	0 inactiv	0	0	0.	ø	0.0
Themeworld RV Pool	9	0	0	0.0	Q	0.0 1	0 inactiv	0	0	0.	œ	0.0
Themeworld 1n	7	1	0.	0.0	9	0.0	0 inactiv	0 O	0 0	0	œ	0.0
Themeworld 10	œ	1	0.	0.0 6	9	0.0	0 inactiv	0	0	0.	80	0.0
Themeworld 1p	თ	0	0	9	9	0.0	0 inactiv	Ö	0	0.	80	0.0
Themeworld 1q	10	-	0.	6	9	0.0	0 inactiv	Ö	0	0.	œ	0.0
Themeworld playground	1	5	0	6	9	0.0	0 inactiv	0.0	0	0	00	0.0
Fort Summit KOA pool	12	1	0	9 0	9	0.0	0 inactiv	0	0	0	ø	0.0
Fort Summit KOA 1	13	1	0	0.0	9	0.0	0 inactiv	Ö	0	0.	œ	0.0
Fort Summit KOA 2	14	1	0	0.0	9	0.0	0 inactiv	Ö	0	0.	∞	0.0
Fort Summit KOA 3	15	1	0.	.0	9	0.0 1	0 inactiv	Ö	0	0.	80	0.0
Fort Summit KOA 4	16	1	0.	9	9	0.0	0 inactive	0	0	O.	80	0.0
Ramada Pool	18	1	0.	9 0	9	0.0 1	0 inactive	0	0	0	80	0.0
Quality Pool	20	1	0.	9	9	0.0	0 inactive	Ő	0	0	8	0.0
Holiday Inn Express Pool	22	1	0.0	9	9	0.0	0 inactive	ö	0	0	80	0.0
Home Suites	24	1	0.0	6 07	9	0.0 1	0 inactive	Ö	0	0	80	0.0
Comfort Pool	26	1	0.	0 0	9	0.0	0 inactive	0	0	o,	80	0.0
Festiva 1	28	9	.0 72	2 6	6 7	2.2 1	0 Snd Lv	1 72.	2	0	80	-8.0
Festiva 3	29	8	.0 72	.5	6 7	2.5 1	0 Snd Lv	1 72.	5 0	0	80	-8.0
Festiva 2	31	6	-0 74	.7 6	6 7	4.7 1	0 Snd Lv	1 74.	7 0	0	80	-8.0
Festiva 4	32	0	.0 73	.6	6 7	3.6 1	D Snd Lv	1 73.	6 0	0	80	-8.0
C:\TNM25\I4\Fest Phase II all				-				2 Ma	y 2016			

RESULTS: SOUND LEVELS						I-4 Btl	J PD&E					
Festiva 5	33	7	0.0	67.3	99	67.3	10	Snd Lvl	67,3	0.0	œ	-8.0
Festiva 6	34	7	0.0	66.0	99	66.0	10	Snd Lvl	66.0	0.0	80	-8.0
Themeworld a	36	-	0.0	0.0	66	0.0	10	inactive	0.0	0.0	80	0.0
Themeworld b	37	-	0.0	0.0	66	0.0	10	inactive	0.0	0.0	œ	0'0
Festiva 2nd a	39	9	0.0	62.1	66	62.1	10	1	62.1	0.0	80	9.0
Festiva 2nd b	40	4	0.0	61.5	66	61.5	10	ł	61.5	0.0	80	9.0
Festiva 2nd c	41	9	0.0	61.5	66	61.5	10	I	61.5	0.0	80	-8.0
F Phase 2 a	42	0	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	00	-8.0
F Phase 2 b	43	4	0.0	68.4	99	68.4	10	Snd Lvl	68.4	0.0	80	0. Ø
F Phase 2 c	44	4	0.0	68.3	99	68.3	10	Snd Lvi	68.3	0.0	00	-8.0
F Phase 2 d	45	4	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	80	-8.0
F Phase 2 e	46	4	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	ø	-8.0
F Phase 2 f	47	4	0.0	62.9	66	65.9	10	1	65.9	0.0	ø	-8.0
F Phase 2 g	48	4	0.0	74.4	99	74.4	10	Snd Lvl	74.4	0.0	80	-8.0
F Phase 2 h	49	4	0.0	74.7	99	74.7	10	Snd Lvl	74.7	0.0	80	-8.0
F Phase 2 i	51	4	0.0	64.7	99	64.7	10	1	64.7	0.0	œ	-8.0
F Phase 2 j	52	4	0.0	65.3	66	65.3	10	1	65.3	0.0	80	-8.0
F Phase 2 k	53	4	0.0	64.5	66	64.5	10	1	64.5	0.0	œ	-8.0
F Phase 2 I	54	4	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	œ	0.0 9
F Phase 2 m	55	4	0.0	74.9	66	74.9	10	Snd Lvl	74.9	0.0	80	-8.0
F Phase 2 n	56	4	0.0	74.8	66	74.8	10	Snd Lvi	74.8	0.0	œ	-8.0
F Phase 2 o	57	4	0.0	75.1	66	75.1	10	Snd Lvl	75.1	0.0	80	-8.0
F Phase 2 p	59	4	0.0	74.6	99	74.6	10	Snd Lvl	74.6	0.0	80	-8.0
F Phase 2 q	60	4	0.0	75.0	66	75.0	10	Snd Lvl	75.0	0.0	80	-8.0
F Phase 2 r	61	4	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	80	-8.0
F Phase 2 s	62	4	0.0	74.9	99	74.9	10	Snd Lvl	74.9	0.0	80	-8.0
F Phase 2 t	63	4	0.0	65.1	66	65.1	10	1	65.1	0.0	80	9°0
F Phase 2 u	64	4	0'0	62.4	66	62.4	10	1	62.4	0.0	80	-8.0
F Phase 2 v	65	2	0.0	64.1	66	64.1	10	1	64.1	0.0	80	-8.0
F Phase 2 w	99	4	0.0	61.7	66	61.7	10	I	61.7	0.0	80	-8.0
F Phase 2 x	67	2	0.0	60.0	99	60.0	10		60.0	0.0	80	-8.0
Dwelling Units	#	DUS No	ise Reduct	on								
		M	n Avi	-	Aax							
		đđ	đđ	J	ß							
All Selected		165	0.0	0.0	0.0							
All Impacted		94	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

C:\TNM25\I4\Fest Phase II all

2 May 2016

2

BARRIER ANALYSIS

s
0 L
RIP
SCI
۵ ۵
RE
3AR
ŝ
ÜLT
RES

1-4 Btu PD&E

24 November 2015 TNM 2.5

Stantec

M Drauer

RESULTS: BARRIER DESCRIPTIONS

PROJECT/CONTRACT:

RUN:

I-4 Segment 5 Themeworld 14' I-4 BtU PD&E

BARRIER DESIGN:

Theme_14

378812 378812 Cost \$ Total Cost: Run:Rise ft:ff Width Top ŧ Volume If Berm cu yd 12627 46097 If Wall Area sq ft 902 2768 Length ¢= 14.00 20.00 Мах æ Type Heights along Barrier 14.00 16.65 Avg æ 14.00 2.00 Min t 33 Retaining Wall Theme 14' Barriers Name

0

C:\TNM25\230168\TEST\14

RESULTS: SOUND LEVELS							-4 BtU PD&						ſ
Stantec M Drauer							24 Noverr TNM 2.5 Calculate	lber 2015 d with TNM	25				
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	14 E	3tU PD&E segment 5 1 me_14	Theme	world 14'				Average p a State hi	bavement type dhwav agencv	shall be use substantiati	ed unless es the us	- U	
ATMOSPHERICS:	68	deg F, 50%	RH					of a differ	ent type with a	approval of F	FHWA.		-
Receiver													
Name	No. #DL	ls Existin	g N	o Barrier					With Barrier				
		LAeq1	ື່ ບັ	veq1h Ilculated	Crit'n	Increase ove Calculated	er existing Crit'n Sub'l Inc	Type Impact	Calculated LAeq1h	Noise Redu Calculated	Goal	Calculate minus	-0
		dBA	Цþ	A.	dBA	đB	đb		dBA	đB	æ	dB dB	
Themeworld 1f	4		0.0	64.5		64	5		62.1	5	4	00	-5.6
Themeworld 1j	2	-	0.0	68.0	G	68	1	D Snd Lvl	67.4	Ö	9.	60	-7.4
Themeworld 1k	ო	-	0.0	68.2	U	68	1	D Snd Lvi	67.7	Ö	.5	Ø	-7.5
Themeworld 11	4	-	0.0	68.1	U	68	1	D Snd Lvl	67.7	Ö	4.	00	-7.6
Themeworld 1m	2	-	0.0	68.0	U	68	1	Snd Lvl	67.6	0	4	ω	-7.6
Themeworld 1n	7	F	0.0	67.7	U	6 67	.7	Snd Lvl	67.4	o	e G	ω	-7.7
Themeworld 1o	œ	-	0.0	67.7	U	6 67	.7	D Snd Lvl	67.5	0	Ņ	ω	-7.8
Themeworld 1p	σ	-	0.0	67.3	Ű	6 67	3	D Snd Lvl	67.0	Ö	en.	œ	-7.7
Themeworld 1q	10	-	0.0	67.9	Ű	67 67	<u>6</u>	Snd Lvi	67.7	Ö	Ņ	œ	-7.8
Fort Summit KOA pool	12	-	0.0	63.7	Ű	63 63	1	1	63.6	Ö	₸.	Ø	-7.9
Fort Summit KOA 1	13	-	0.0	64.0	U	66 64	0	1	63.9	Ö		Ø	-7.9
Fort Summit KOA 2	14	-	0.0	61.3	Ψ.	66 61	.3		61.3	Ő	<u>0</u>	ω	-8.0
Fort Summit KOA 3	15	-	0.0	61.8	U	6 61	.0 1		61.8	0	0.	ω	-8.0
Fort Summit KOA 4	16	-	0.0	60.7	Ű	60 60	1	I	60.7	0	0.	Ø	-8.0
Ramada Pool	18	-	0.0	0.0	Ű	90	1.0	0 inactive	0.0	0	0 <u>.</u>	00	0.0
Quality Pool	20	-	0.0	0.0	Ű	90	1.0	0 inactive	0.0	0	0.	œ	0.0
themeworld 1d	43	-	0.0	64.0	Ű	64	.0	1	62.4	Ţ	9.	ω	-6.4
themeworld 1c	44	-	0.0	64.1	Ű	64 64	.1		61.9	0	2	ω	-5.8
themeworld 1b	45	-	0.0	64.1	Ű	64 64	1.1		61.6	2	.5	ω	-5.5
themeworld 1a	46	-	0.0	65.0	Ű	65 65	1		61.1	e	6.	Ø	-4.1
themeworld 2b	48	-	0.0	62.3	U	62 62	1	1	59.7	2	9.	80	-5.4
themeworld 2c	49	-	0.0	62.4		36 62	1		60.4	1	0	ø	-6.0
themeworld 2d	50	t	0.0	62.2		62 62	1		59.0	3	Ņ	Ø	4.8
themeworld 2e	51	-	0.0	62.6	U	62 62	1		59.5	°	<u>-</u>	ø	4.9
themeworld 2f	52	-	0.0	62.7	Ţ	62 62	1.7		60.5	2	7	80	-5.8
C:\TNM25\230168\TEST\14					÷				24 No	vember 201	5		

RESULTS: SOUND LEVELS						1-4 Btt	J PD&E					
themeworld 3b	53	-	0.0	61.1	66	61.1	10	ľ	58.9	2.2	80	-5.8
themeworld 3c	54	-	0.0	60.5	66	60.5	10	I	58.5	2.0	ω	- 0 .0
themeworld 3d	55	-	0.0	60.2	66	60.2	10		58.7	1.5	80	-6.5
themeworld 3e	56	-	0.0	60.1	66	60.1	10	Ĩ	57.6	2.5	80	-5.5
themeworld 3f	57	-	0.0	60.4	99	60.4	10	Ĩ	57.8	2.6	æ	-5.4
themeworld 3g	58	-	0.0	64.8	66	64.8	10	Ĩ	62.5	2.3	80	-5.7
themeworld 5a	59	-	0.0	67.7	66	67.7	10	Snd Lvl	62.2	5.5	œ	-2.5
themeworld 5b	60	-	0.0	66.8	66	66.8	10	Snd Lvl	61.6	5.2	80	-2.8
themeworld 5c	61	-	0.0	66.3	66	66.3	10	Snd Lvl	61.3	5.0	œ	-3.0
themeworld 5d	62	~	0.0	65.7	66	65.7	10	I	61.1	4.6	80	-3.4
themeworld 4c	63	-	0.0	58.9	66	58.9	10	1	56.3	2.6	80	-5.4
themeworld 4d	64	-	0.0	58.6	66	58.6	10	1	55.8	2.8	80	-5.2
themeworld 4f	65	-	0.0	58.5	66	58.5	10	Ĩ	56.0	2.5	80	-5.5
themeworld 4g	99	-	0.0	58.4	66	58.4	10	1	56.1	2,3	œ	-5.7
themeworld 4h	67	-	0.0	58.5	66	58.5	10	ł	56.4	2.1	œ	-5.9
themeworld 4i	68	-	0.0	59.7	66	59.7	10	į	58.3	1.4	œ	-6.6
themeworld 4e	69	~	0.0	58.4	66	58.4	10	į	55.5	2.9	œ	-5.1
themeworld 2g	71	-	0.0	65.3	66	65.3	10	Sector 1	63.7	1.6	œ	-6.4
themeworld 2h	72	-	0.0	64.0	66	64.0	10	1	63.3	0.7	œ	-7.3
themeworld 2i	73	-	0.0	63.5	66	63.5	10	A second at	63.0	0.5	œ	-7.5
themeworld 2j	74	-	0.0	63.3	66	63.3	10	I	63.0	0.3	œ	-7,7
themeworld 2k	75	-	0.0	63.3	99	63.3	10		63.1	0.2	œ	-7.8
themeworld 21	76	-	0.0	63.2	99	63.2	10	I	63.0	0.2	ω	-7.8
themeworld 2m	77	-	0.0	63.6	99	63.6	10	1	63.5	0.1	ω	-7.9
themeworld 2n	78	-	0.0	65.2	66	65.2	10	- Hereit	65.1	0.1	œ	-7.9
themeworld 2a	6/	-	0.0	65.0	99	65.0	10		60.2	4.8	œ	-3.2
themeworld 3a	80	-	0.0	63.6	99	63.6	10		59.9	3.7	ω	-4.3
themeworld 4b	81	-	0.0	59.7	99	59.7	10		57.2	2.5	ω	-5.5
themeworld 4a	82	-	0.0	63.2	66	63.2	10	ĺ	59.3	3.9	Ø	-4.1
Themeworld RV Pool	Q	-	0.0	65.0	99	65.0	10	ţ	62.7	2.3	œ	-5.7
Themeworld playground	11	-	0.0	70.4	99	70.4	10	Snd Lvl	70.2	0.2	80	-7.8
Themeworld 1g	36	-	0.0	64.9	66	64.9	10	I	63.0	1.9	œ	-9.1
Themeworld 1e	37	-	0.0	64.8	99	64.8	10	1	62.1	2.7	æ	-5.3
themeworld 1i	39	-	0.0	68.0	66	68.0	10	Snd Lvl	6.99	1.1	80	6°9-
themeworld 1h	41	-	0.0	66.5	66	66.5	10	Snd Lvl	65.4	1.1	80	6.9 <mark>-</mark>
Dwelling Units	#	Us No	oise Reduct	ion								
		Ä	n Av	W	X							
		đĒ	gp	đ	~							
All Selected		60	0.0	1.8	5.5							
All Impacted		4	0.2	1.5	5.5							
All that meet NR Goal		0	0.0	0.0	0.0							

2

Stantec M Drauer								
		24 Novemt TNM 2.5	ler 2015					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: I-4 BtU PD&E								
RUN: I-4 Segment 5 Th BARRIER DESIGN: ROW 16	Themeworld	ROW						
Barriers								
Name Type Heights al	s along Barrie		Length	if Wall	lf Berm			Cost
Min	Avg	Max		Area	Volume	Top Width	Run:Rise	v
ų	H	ŧ	ft	sq ft	cu yd	Ŧ	ft:ft	\$
Theme ROW 16.00	3.00 16.0C	16.00	1455	23275				698252
Retaining Wall W 2.00	2.00 16.65	20.00	2768	46097				0
							Total Cost:	698252

×.

C:\TNM25\230168\TEST\ROW

RESULTS: SOUND LEVELS								I-4 BtU I	D&E						ſ
Stantec M Drauer								24 No TNM Calcu	vembe 2.5	er 2015 vith TNM	<u>بر</u>		_		
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:		I-4 Btl I-4 Seg ROW	J PD&E gment 5 T 16	hemewo	orld ROW				0, Þ	verage p. State hig	tvement type	shall be usec substantiate	d unless s the use	_	
ATMOSPHERICS:		68 de	g F, 50% I	ЯH					0	f a differe	nt type with a	pproval of Fl	HWA.		
Receiver															
Name	No.	#DUs	Existing	I NO E	arrier						With Barrier				
			LAeq1h	LAe	1h		Increase o	ver existi	T Bu	ype	Calculated	Noise Reduc	tion		
			•	Calc	ulated	Crit'n	Calculated	Crit'n Sub'l	 2	npact	LAeq1h	Calculated	Goal	Calculated minus	
			dBA	dBA		dBA	đb	đB			dBA	dB	В	· B	
Themeworld 1f			-	0.0	64.3	Ö	6	34.3	10	1	61.3	3.0		, 2	0
Themeworld 1i		~	-	0.0	68.1	Ø	0	38.1	10	Snd Lvl	64.0	4.1		8 6	6.
Themeworld 1k		0	-	0.0	68.2	Ö	0	38.2	10	Snd Lvl	64.0	4.2		8 S	80
Themeworld 11		-	1	0.0	68.2	Ö	6	38.2	10	Snd Lvl	63.9	4.3	-	8	2
Themeworld 1m		10	-	0.0	68.1	Ū		38.1	10	Snd Lvl	63.7	4.4	-	α Υ	9.6
Themeworld 1n		~	1	0.0	67.8	Ū	9	37.8	9	Snd Lvl	63.5	4.3	-	α Υ	5.7
Themeworld 10		0	-	0.0	67.7	Ö	9	57.7	10	Snd Lvi	63.3	4.4	-	α α	9
Themeworld 1p		6	-	0.0	67.3	Ö	6	37.3	10	Snd Lvl	63.2	4.1		ω Υ	6.0
Themeworld 1q	-	_	-	0.0	67.9	Ø	9	57.9	10	Snd Lvl	63.4	4.5	10	α Ω	5.5
Fort Summit KOA pool	Ŧ	2	L	0.0	63.7	Ō	9	33.7	9	۱	63.5	0.2	01	8 -7.	<u>80</u>
Fort Summit KOA 1	÷	0	-	0.0	64.0	9	0	34.0	10	I	63.7	0.3	~	8 -7.	1.7
Fort Summit KOA 2	÷	4	-	0.0	61.2	9	6	51.2	10	1	60.9	0.3	~	8 -7.	1.7
Fort Summit KOA 3	÷	2	-	0.0	61.8	9	6	51.8	10	I	61.7	0.1		8 -7.	6.7
Fort Summit KOA 4	-	10	-	0.0	60.7	9	9	50.7	10	1	60.6	0.1		8 -7	6.7
Ramada Pool	÷	80	-	0.0	0.0	9	9	0.0	10	inactive	0.0	0.0	0	8	0.0
Quality Pool	Ñ	0	-	0.0	0.0	9	9	0.0	10	inactive	0.0	0.0	0	8	0.0
themeworld 1d	4	eð	-	0.0	63.2	9	9	53.2	10	1	61.2	2.0	0	8	0.0
themeworld 1c	4	4	-	0.0	63.2	9	9	53.2	10		61.5	1.7	~	φ ø	5.3
themeworld 1b	4	5	-	0.0	63.0	9	9	53.0	10	1	61.6	1.4		8	9.6
themeworld 1a	4	g	-	0.0	64.3	9	9	54.3	10	I	60.7	3.6	(0	8	4
themeworld 2b	4	80	-	0.0	61.8	9	9	51.8	10	I	59.8	2.0	0	φ 8	0.0
themeworld 2c	4	6	-	0.0	61.8	9	9	51.8	10	1	62.0	0.2		φ ø	3.2
themeworld 2d	S	0	-	0.0	62.1	9	9	52.1	10	l	58.2	3.6	Œ	8	Ŧ
themeworld 2e	5	_	-	0.0	62.6	Q	9	52.6	6	1	58.6	4.(0	8	0
themeworld 2f	2	2	-	0.0	62.3	9	9	52.3	9	1	58.7	3.6	(0)	8	4
C:\TNM25\230168\TEST\ROW						۴.					24 No	vember 2015			

RESULTS: SOUND LEVELS			ĺ			1-4 B	tU PD&E					
themeworld 3b	53	-	0.0	61.1	99	61.1	10	1	58.4	2.7	œ	-5.3
themeworld 3c	54	-	0.0	60.6	99	60.6	10	1	58.1	2.5	œ	-5.5
themeworld 3d	55	-	0'0	60.2	99	60.2	10	ľ	59.4	0.8	80	-7.2
themeworld 3e	56	-	0.0	60.2	99	60.2	10	l	57.8	2.4	ø	-5.6
themeworld 3f	57	-	0.0	60.4	66	60.4	10	I	56.4	4.0	80	4.0
themeworld 3g	58	۲	0.0	64.8	99	64.8	10	ľ	58.7	6.1	œ	-1.9
themeworld 5a	59	-	0.0	67.6	99	67.6	10	Snd Lvl	61.5	6.1	œ	-1.9
themeworld 5b	60	-	0.0	66.8	99	66.8	10	Snd Lvl	61.0	5.8	œ	-2.2
themeworld 5c	61	-	0.0	66.1	99	66.1	10	Snd Lvl	60.8	5.3	œ	-2.7
themeworld 5d	62	÷	0.0	65.6	99	65.6	10	I	60.7	4.9	œ	
themeworld 4c	63	F	0.0	59.0	66	59.0	10	I	56.1	2.9	80	-5.1
themeworld 4d	64	-	0.0	58.6	99	58.6	10	I	55.6	3.0	80	-5.0
themeworld 4f	65	-	0.0	58.4	99	58.4	10	I	55.4	3.0	80	-5.0
themeworld 4g	99	-	0.0	58.3	99	58.3	10	ł	55.5	2.8	æ	-5.2
themeworld 4h	67	-	0.0	58.4	99	58.4	10	1	55.5	2.9	ω	-5.1
themeworld 4i	68	-	0.0	59.5	99	59,5	10	1	56.2	3.3	ø	-4.7
themeworld 4e	69	F	0.0	58.4	99	58.4	10	1	55.9	2.5	ø	-5.5
themeworld 2g	71	-	0.0	65.4	99	65.4	10	I	61.5	3.9	ø	4.1
themeworld 2h	72	-	0.0	63.9	66	63.9	10	I	60.6	3.3	ø	-4.7
themeworld 2i	73	-	0.0	63.4	99	63.4	10	1	60.3	3.1	ø	-4.9
themeworld 2j	74	-	0.0	63.2	99	63.2	10		60.2	3.0	œ	-5.0
themeworld 2k	75	-	0.0	63.2	99	63.2	10		60.1	3.1	80	-4.9
themeworld 2I	76	-	0.0	63.1	99	63.1	10	5 5	60.4	2.7	œ	-5.3
themeworld 2m	27	-	0.0	63.5	99	63.5	10	1	60.9	2.6	80	-5.4
themeworld 2n	78	-	0.0	65.3	99	65.3	10	I	62.0	3.3	∞	-4.7
themeworld 2a	52	-	0.0	64.8	99	64.8	10	1	59.9	4.9	80	-3.1
themeworld 3a	80	-	0.0	65.0	99	65.0	10	I	59.6	5.4	œ	-2.6
themeworld 4b	81	-	0.0	59.3	99	59.3	10		57.1	2.2	80	-5.8
themeworld 4a	82	-	0.0	61.5	66	61.5	10	Ĭ	59.2	2.3	ø	-5.7
Themeworld RV Pool	9	۲-	0.0	64.9	99	64.9	10	l	59.5	5.4	ø	-2.6
Themeworld playground	11	-	0.0	70.4	66	70.4	10	Snd Lvl	68.0	2.4	80	-5.6
Themeworld 1g	36	-	0.0	64.8	99	64.8	10	ļ	59.1	5.7	80	-2.3
Themeworld 1e	37	-	0.0	64.4	66	64.4	10		59.1	5.3	œ	-2.7
themeworld 1i	39	-	0.0	68.1	66	68.1	10	Snd Lvl	63.5	4.6	80	-3.4
themeworld 1h	41	-	0.0	66.3	99	66.3	10	Snd Lvl	60.4	5.9	Ø	-2.1
Dwelling Units	#	DUs	Noise Red	uction						13		
			Min	Avg	Max							
			B	đB	ß							
All Selected	-	60	-0.2	3.2	6.1							
All Impacted		14	2.4	4.6	6.1							
All that meet NR Goal		0	0.0	0.0	0.0							

2

RESULTS: BARRIER DESCRIPTIONS						I-4 BtU PD8	ų			
Stantec M Drauer				24 Nover TNM 2.5	nber 2015					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	1-4 Bt 1-4 Se ROW	U PD&E igment 5 T ^I 18	nemeworl	d ROW						
Barriers										
Name	Type	Heights a	long Barr	ier	Length	If Wall	lf Berm			Cost
		Min	Avg	Мах		Area	Volume	Top Width	Run:Rise	
		¥	Ħ	ŧ	ŧ	sq ft	cu yd	ŧ	ft:ft	¢
Theme ROW	3	18.00	18.0	00 18.C	00 145	5 26184				785533
Retaining Wall	≥	2.0(16.6	35 20.0	00 276	8 46097	N			0
									Total Cost:	785533

24 November 2015

ς.

State State Anomenter ZIS Anomenter ZIS Anomenter ZIS In Duscr FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL FRSUL FCL RESUL FCL FRSUL FCL FRSUL FCL FRSUL FRSUL FCL FRSUL FRSUL FCL FRSUL FRSUL FCL RESUL FCL FRSUL FRSUL FCL RESUL FC	RESULTS: SOUND LEVELS						-	4 BtU PD&I	ω					
REBULTS SOUND LEVELS LEU POLE LEU POLE LEU POLE LEU POLE READICTIONTRACT: EXAMPLE FIELD LEU POLE LEU POLE Average prevent type shall be used unless a data field per type shall be used unless RUNS LEU POLE LEU POLE LEU POLE LEU POLE RUNS LEU POLE LEU POLE LEU POLE LEU POLE RUNS LEU POLE LEU POLE LEU POLE LEU POLE RUNS LEU POLE LEU POLE LEU POLE LEU POLE RUNS LEU POLE LEU POLE LEU POLE LEU POLE REVEN MOLE Extension LEU POLE LEU POLE REVEN LEU POLE LEU POLE<	Stantec M Drauer							24 Novem TNM 2.5	ber 2014	N N			_	
ATMOSPHERICS:Gene F, SON, FMor a different type with approval of FMM.ReceiverNo.ATMOSPHERICS:or a different type with approval of FMM.ReceiverNo.ATMOSPHERICS:No.ATMOSPHERICS:ReceiverAnnewordd t121AnneAnneAnnewordd t21AnneAnneAnneAnnewordd t21068368310Annewordd t21068368310Annewordd t21068368310Annewordd t21068368310Annewordd t210067368Annewordd t21001022323Annewordd t2200102242323Annewordd t220000000Annewordd t22222222Annewordd t22222222Annewordd t2222222	RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	-4 Bt -4 Se ROW	J PD&E gment 5 T 18	hemework	I ROW				Averag a State	e pavement typ	e shall be u v substanti	sed unless steres the us	-	
Receiver No. Fully and burking Existing burking No. Fully burking Risking burking No. Fully burking Risking burking No. Risking No. Risking No. Risking No. No. Risking No. Risking No. Risking No. Risking No. Risking No. Risking No. No. No. No. No. No. No. No.	ATMOSPHERICS:	68 de	g F, 50% I	ЗН					of a dif	ferent type with	approval of	FHWA.	2	
	Receiver	NO #DIte	Evicting	No Bar	riar					With Barrie				
Intermedial Intermedial <thintermedial< th=""> <thintermedial< th=""></thintermedial<></thintermedial<>	Name	*00 #00		LAeq1			ncrease over	r existing	Type	Calculated	Noise Red	luction	_	
Therrevord if dBA dBA <thd>dBA</thd>	п			Calcula	ated Crit	Ę.	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	d Goal	Calcula minus Goal	ated
			dBA	dBA	dBA	0	B	ąp		dBA	Вb	ß	е В	
Therreword 1Z10.068.16668.110Snd LM62.95.282.1Therreword 1310.068.26668.210Snd LM62.95.382.3Therreword 1510.068.16668.110Snd LM62.95.382.3Therreword 1510.068.16668.110Snd LM62.95.382.3Therreword 1710.067.76667.310Snd LM62.75.482.3Therreword 10810.067.76667.310Snd LM62.74.882.3Therreword 10910.067.76667.310Snd LM62.74.882.7Therreword 10110.067.76667.310Snd LM62.74.882.7Therreword 10110.067.76667.310Snd LM62.74.882.7Fet Summit KOA110.067.76667.310Snd LM62.76.87.7Fet Summit KOA110.067.76667.310Snd LM62.76.87.7Fet Summit KOA1110.067.26667.3105.76.87.7 <td>Themeworld 1f</td> <td>-</td> <td>-</td> <td>0.0</td> <td>64.3</td> <td>66</td> <td>64</td> <td>3</td> <td></td> <td>.09</td> <td>0</td> <td>3.5</td> <td>8</td> <td>4 .5</td>	Themeworld 1f	-	-	0.0	64.3	66	64	3		.09	0	3.5	8	4 .5
Thermenold if 3 1 0.0 68.2 66 68.2 10 Sind Lvi 62.9 5.3 8 2.7 Thermenold 11 7 1 0.00 68.2 66 68.2 10 Sind Lvi 62.9 5.3 8 2.7 Thermenold 11 7 1 0.00 67.8 66 67.8 10 Sind Lvi 62.9 5.3 8 2.7 Thermevold 10 7 9 1 0.00 67.3 66 67.3 10 Sind Lvi 62.6 5.2 8 -2.7 Thermevold 10 12 1 0.0 67.3 66 67.3 10 Sind Lvi 62.6 5.2 8 -2.7 Thermevold 10 12 1 0.0 67.3 66 67.3 10 Sind Lvi 62.6 5.2 8 -2.7 For Summit KOA 1 13 1 0.0 67.3 66 67.3 10 Sind L	Themeworld 1	2		0.0	68.1	66	68.	1 10	D Snd L	-vl 62.	6	5.2	8	-2.8
Thermeworld 1410.068.26668.110Snd Lvi62.35.382.2Thermeworld 1710.067.16668.110Snd Lvi62.55.482.3Thermeworld 107910.067.76667.310Snd Lvi62.55.482.3Thermeworld 10810.067.76667.310Snd Lvi62.55.482.3Thermeworld 10110.067.76667.310Snd Lvi62.55.482.3Thermeworld 1012100.067.76667.310Snd Lvi62.55.382.3Thermeworld 1012100.067.76667.310Snd Lvi62.55.387.3For Summit KOA11310.067.76667.710Snd Lvi62.56.387.3For Summit KOA11310.061.26661.710Snd Lvi62.56.36.77.3For Summit KOA11410.061.26661.210Snd Lvi62.56.37.3For Summit KOA214110Snd Lvi62.56.36.76.77.3For Summit KOA11410.061.26661.210Snd Lvi67.5 </td <td>Themeworld 1k</td> <td>n</td> <td>-</td> <td>0.0</td> <td>68.2</td> <td>99</td> <td>68.1</td> <td>2 1(</td> <td>D Snd I</td> <td>-vl 62.</td> <td>6</td> <td>5.3</td> <td>80</td> <td>-2.7</td>	Themeworld 1k	n	-	0.0	68.2	99	68.1	2 1(D Snd I	-vl 62.	6	5.3	80	-2.7
Therreworld 1m510.068.16668.1105nd Lvl62.75.48-2.5Therreworld 1n710.067.36667.310Snd Lvl62.65.28-2.3Therreworld 1p910.067.36667.310Snd Lvl62.65.28-2.3Therreworld 1p910.067.36667.310Snd Lvl62.65.28-2.3Therreworld 1p110.067.36667.310Snd Lvl62.65.28-2.3Fort Summit KOA1210.061.26661.210mc63.50.28-7.6Fort Summit KOA1110.061.26661.210mc63.50.28-7.6Fort Summit KOA1610.061.86661.210mc60.90.38-7.7Fort Summit KOA1610.061.86661.210mc66.76667.7Fort Summit KOA1610.061.86661.210mc63.50.28-7.7Fort Summit KOA1610.061.86661.210mc66.767.767.7Fort Summit KOA1610.061.86661.710mc66.767	Themeworld 11	4	-	0.0	68.2	99	68.	2 1(D Snd I	-vl 62.	6	5.3	ø	-2.7
Thermeworid in710.067.86667.8105nd Lvi62.65.28-2.7Thermeworid in810.067.76667.7105nd Lvi62.45.38-2.7Thermeworid in910.067.76667.7105nd Lvi62.45.38-2.7Thermeworid in1210.067.96667.7105.10.28-7.6Thermeworid in1210.063.76663.7105.16.28-7.6Fort Summit KOA pool1210.063.76663.7105.268-7.6Fort Summit KOA 21410.064.061.2105.161.663.761.667.7Fort Summit KOA 316110.064.16664.01063.667.767.7Fort Summit KOA 31610.064.16664.01063.667.767.7Fort Summit KOA 41810.064.16664.01066.667.767.7Fort Summit KOA 31810.064.11063.667.767.7Fort Summit KOA 41810.061.11063.667.767.7Fort Summit KOA	Themeworld 1m	S		0.0	68.1	99	68.	1 1(D Snd I	-vl 62.	7	5.4	80	-2.6
Thereword 10810.0 67.7 66 67.7 10 $5nd Lvl$ 62.4 5.3 8 -3.7 Thereword 1910.0 67.3 66 67.3 10 $5nd Lvl$ 62.5 6.8 8.7 Thereword 1910.0 67.3 66 67.3 10 $5nd Lvl$ 62.5 6.8 8.7 Thereword 11210.0 67.3 66 63.7 10 $-nc$ 63.5 0.2 8 -7.6 For Summit KOA 11310.0 61.2 66 61.2 10 $-nc$ 63.5 0.2 8 -7.6 For Summit KOA 11310.0 61.2 66 61.2 10 $-nc$ 63.6 0.2 8 -7.6 For Summit KOA 31610 $-nc$ 63.5 0.2 66 61.7 10 $-nc$ 63.6 0.7 0.7 For Summit KOA 31610 $-nc$ 66.7 0.0 0.1 0.1 $-nc$ 63.6 0.2 8 -7.6 For Summit KOA 3181 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 For Summit KOA 3201 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Randa Fool2020 0.0 0.0 0.0 0.0 0.0 <t< td=""><td>Themeworld 1n</td><td>7</td><td>-</td><td>0.0</td><td>67.8</td><td>99</td><td>67.</td><td>8 1(</td><td>D Snd I</td><td>-vl 62.</td><td>9</td><td>5.2</td><td>80</td><td>-2.8</td></t<>	Themeworld 1n	7	-	0.0	67.8	99	67.	8 1(D Snd I	-vl 62.	9	5.2	80	-2.8
Thereworld 1p910.067.36667.310Snd Lvl62.54.88-3.2Thereworld 1q1010.067.96667.110 \sim 65.75.28-7.8Fort Summit KOA pool1210.063.76664.010 \sim 65.50.48-7.8Fort Summit KOA 11310.064.06664.010 \sim 65.50.48-7.8Fort Summit KOA 11310.064.06664.010 \sim 65.50.48-7.6Fort Summit KOA 11310.064.06664.010 \sim 65.50.48-7.6Fort Summit KOA 11410.061.86664.010 \sim 65.60.18-7.6Fort Summit KOA 31610.061.86664.010 \sim 66.90.18-7.6Ranade Pool1810.061.86664.010 \sim 66.00.18-7.6Ranade Pool2310.065.110 \sim 66.00.18-7.6Ranade Pool3310.06663.210 \sim 66.00.18-7.6Ranade Pool3410.06663.210 \sim 66.00.08-7.6<	Themeworld 1o	ø	1	0.0	67.7	66	67.	7 1(D Snd I	-vl 62.	4	5.3	00	-2.7
Thereword 1q1010.067.96667.9101062.752.8-2.8Fort Summit KOA 70011210.063.76663.710 \cdots 63.50.28-7.8Fort Summit KOA 11310.063.76664.010 \cdots 63.50.28-7.8Fort Summit KOA 21410.061.86661.810 \cdots 63.50.28-7.1Fort Summit KOA 21510.061.86661.810 \cdots 63.50.28-7.7Fort Summit KOA 41610.061.86661.810 \cdots 60.60.18-7.7Fort Summit KOA 41610.061.86661.810 \cdots 60.60.18-7.7Ramada Pool201810.060.710 \cdots 60.60.10.18-7.7Ramada Pool201810.060.710 \cdots 60.60.10.18-7.7Ramada Pool206661.810 \cdots 60.60.10.160.60.18-7.7Ramada Pool206663.210 \cdots 60.60.11010101010Homeword 1410.063.06663.210 \cdots 61.112<	Themeworld 1p	σ	-	0.0	67.3	99	. 29	3 1(D Snd I	-vl 62.	5	4.8	œ	-3.2
Fort Summit KoA pool 12 1 0.0 6.3.7 6.6 6.3.7 10 63.5 0.2 8 -7.7 Fort Summit KOA 1 13 1 0.0 64.0 66 64.0 10 63.6 0.2 8 -7.7 Fort Summit KOA 2 14 1 0.0 61.2 66 61.3 10 63.6 0.3 8 -7.7 Fort Summit KOA 3 16 1 0.0 61.2 66 61.3 10 63.6 0.3 8 -7.7 Fort Summit KOA 4 16 1 0.0 61.2 66 61.3 10 61.7 8 -7.7 Ramade yool 20 1 0.0 66.7 10 60.7 0.1 8 -7.7 Ramadyoid 41 1 0.0 66 63.2 10 60.7 0.1 8 -7.7	Themeworld 1q	10	-	0.0	67.9	99	67.	9 1(Du Snd I	-vl 62.	7	5.2	œ	-2.8
Fort Summit KOA1 13 1 0.0 64.0 66 64.0 10 63.6 0.4 8 -7.7 Fort Summit KOA2 14 1 0.0 61.2 66 61.2 10 60.9 0.3 8 -7.7 Fort Summit KOA3 15 1 0.0 61.2 66 60.7 10 60.9 0.3 8 -7.7 Fort Summit KOA4 18 1 0.0 61.7 10 61.7 0.1 8 -7.9 Ramada Pool 18 1 0.0 66 0.0 10 indefine 0.0 8 -7.9 Ramada Pool 20 1 0.0 66 0.0 10 indefine 0.0 8 -7.9 Ramada Pool 20 0 0 0 0 10 indefine 0.0 0 8 -7.9 Ramada Pool 10 2 66	Fort Summit KOA pool	12	-	0.0	63.7	99	63.	7 1(63.	2	0.2	œ	-7.8
Fort Summit KOA21410.0 61.2 66 61.2 10 $$ 60.9 0.3 8 -7.7 Fort Summit KOA31510.0 61.8 66 61.8 10 $$ 61.7 0.1 8 -7.9 Fort Summit KOA41610.0 61.8 66 60.7 10 $$ 61.6 0.1 8 -7.9 Fort Summit KOA41610.0 61.7 66 60.7 10 $$ 61.7 0.1 8 -7.9 Fort Summit KOA41810.0 60.7 66 60.7 10 $$ 60.6 0.1 8 -7.9 Ramada Pool2010.0 0.0 61.7 0.0 0.0 10 $$ 60.6 0.1 8 -7.9 Quality Pool2010.0 0.0 66.7 63.2 10 $$ 60.7 22.6 8 -5.6 Homeworld 14310.0 63.3 66 63.2 10 $$ 61.1 12 25 8 -5.6 Homeworld 24810.0 61.8 66 63.2 10 $$ 61.1 12 25 8 -5.6 Homeworld 2481 0.0 61.8 66 64.3 10 $$ 61.1 4.2 8 -5.6 Homeworld 2491 0.0 61.8 66 <t< td=""><td>Fort Summit KOA 1</td><td>13</td><td>-</td><td>0.0</td><td>64.0</td><td>99</td><td>64.</td><td>11</td><td> </td><td>63.</td><td>9</td><td>0.4</td><td>œ</td><td>-7.6</td></t<>	Fort Summit KOA 1	13	-	0.0	64.0	99	64.	11		63.	9	0.4	œ	-7.6
Fort Summit KOA31510.0 61.8 66 61.8 16 10 0.1 8 -7.3 Fort Summit KOA41610.0 60.7 66 60.7 10 $$ 60.6 0.1 8 -7.3 Ramada Pool1810.0 60.7 66 60.7 10 $$ 60.6 0.1 8 -7.3 Ramada Pool2010.0 0.0 66 0.0 10 10 $$ 60.6 0.1 8 -7.3 Quality Pool2010.0 0.0 66 0.0 0.0 10 10 0.0 8 -7.3 Ameworld 142910.0 0.0 65.2 66 63.2 10 6 60.7 2.5 8 -5.5 Ameworld 12441 0.0 63.2 66 63.2 10 6 61.7 2.5 8 -5.5 Ameworld 2481 0.0 63.2 66 63.2 10 6 61.7 2.5 8 -5.5 Ameworld 2481 0.0 64.3 66 64.3 10 6 61.7 10 42 8 -5.5 Ameworld 2481 0.0 61.8 66 61.8 10 6 61.1 10 6 -5.5 8 -5.5 Ameworld 2481 0.0 61.8 66	Fort Summit KOA 2	14	-	0.0	61.2	66	61.	2 1(.09	6	0.3	ø	-7.7
Fort Summit KOA 41610.0 60.7 66 60.7 10 $$ 60.6 0.1 8 -7.3 Ramada Pool1810.00.0660.010inactive0.00.080.0Quality Pool2010.00.0660.010inactive0.00.080.0Quality Pool2010.00.0660.010inactive0.00.080.0Unality Pool4310.063.26663.21060.72.58-5.5themeworld 1c4410.063.26663.21061.11.98-5.5themeworld 1c4510.063.26663.21061.11.98-5.5themeworld 1c4610.063.26663.21061.11.98-5.5themeworld 2c4810.063.26663.21061.11.98-5.5themeworld 2c4810.061.86661.81060.14.28-5.5themeworld 2c4910.061.86661.81060.14.28-5.5themeworld 2c5110.061.86661.81061	Fort Summit KOA 3	15	1	0.0	61.8	99	61.	8 1(61.	7	0.1	œ	-7.9
Ramada Pool1810.00.0660.010inactive0.00.080.0Quality Pool2010.0660.010inactive0.00.080.0themeworld 1d2010.063.26663.21060.72.58-5.5themeworld 1t4510.063.26663.21061.02.28-5.5themeworld 1t4510.063.06663.21061.11.98-5.5themeworld 1t4610.063.06661.81061.11.98-5.5themeworld 2t4810.064.36661.81061.11.98-5.5themeworld 2t4810.061.86661.81061.11.98-5.5themworld 2t4910.061.86661.81066.10.18-5.5themworld 2t4910.061.86661.81066.10.18-5.5themworld 2t10.061.86661.81061.11.92.58-5.5themworld 2t10.061.86661.81061.70.18-7.5	Fort Summit KOA 4	16	-	0.0	60.7	99	60.	7 1(60	9	0.1	œ	-7.9
Quality Pool2010.00.0660.010inactive0.080.0thereworld 1d4310.063.26663.21060.72.58-5.5thereworld 1c4410.063.26663.21061.02.28-5.5thereworld 1b4510.063.26663.21061.11.98-5.5thereworld 1a4610.063.06663.31061.11.98-5.5thereworld 2b4810.061.86661.81061.11.98-5.5thereworld 2b4810.061.86661.81061.71.98-5.5thereworld 2b4810.061.86661.81061.70.18-5.5thereworld 2c4910.061.86661.81061.70.18-5.5thereworld 2d5010.062.16662.11061.70.18-7.5thereworld 2d5110.062.26662.11061.70.18-7.5thereworld 2e5110.062.11061.81010110<	Ramada Pool	18	-	0.0	0.0	99	0	0 1(0 inacti	ve 0.	0	0.0	80	0.0
thereworld 1d4310.0 63.2 66 63.2 10 $$ 60.7 2.5 8 -5.6 thereworld 1c4410.0 63.2 66 63.2 10 $$ 61.0 2.2 8 -5.8 thereworld 1c4510.0 63.2 66 63.2 10 $$ 61.1 1.9 8 -5.8 thereworld 1a4610.0 64.3 66 64.3 10 $$ 61.1 1.9 8 -5.8 thereworld 2b4810.0 61.8 66 61.8 10 $$ 61.1 4.2 8 -5.6 thereworld 2b4910.0 61.8 66 61.8 10 $$ 61.7 4.2 8 -5.6 thereworld 2c4910.0 61.8 66 61.8 10 $$ 61.7 0.1 8 -5.6 thereworld 2c5010.0 61.8 66 61.8 10 $$ 61.7 0.1 8 -5.6 thereworld 2c5010.0 62.1 66 62.6 62	Quality Pool	20	1	0.0	0.0	99	0	0 1(0 inacti	ve O	0.	0.0	80	0.0
thereworld 1c 44 1 0.0 63.2 66 63.2 10 $$ 61.0 2.2 8 -5.8 thereworld 1b 45 1 0.0 63.0 66 63.2 10 $$ 61.1 1.9 8 -6.1 thereworld 1a 46 1 0.0 64.3 66 64.3 10 $$ 61.1 1.9 8 -5.6 thereworld 2b 48 1 0.0 61.8 66 61.8 10 $$ 60.1 4.2 8 -5.6 thereworld 2b 49 1 0.0 61.8 66 61.8 10 $$ 61.7 0.1 8^2 -5.6 thereworld 2c 49 1 0.0 61.8 66 61.8 10 $$ 61.7 0.1 8 -5.6 thereworld 2c 50 1 0.0 62.1 66 62.1 10 $$ 61.7 0.1 8 -5.6 thereworld 2c 51 1 0.0 62.1 66 62.6 10 $$ 58.3 4.2 8 -5.7 thereworld 2r 51 1 0.0 62.1 66 62.6 10 $$ 58.3 4.3 8 -5.7 thereworld 2r 51 1 0.0 62.1 66 62.6 10 $$ 58.3 4.3 8 -7.9 thereworld 2r 51 1 0.0 62.6 66	themeworld 1d	43	-	0.0	63.2	99	63.	2 1(0	00	.7	2.5	80	-5.5
thereworld 1b 45 1 0.0 63.0 66 63.0 10 $$ 61.1 1.9 8 -6.1 thereworld 1a 46 1 0.0 64.3 66 64.3 10 $$ 60.1 4.2 8 -3.8 thereworld 2b 48 1 0.0 61.8 66 64.3 10 $$ 60.1 4.2 8 -3.6 thereworld 2b 48 1 0.0 61.8 66 61.8 10 $$ 61.7 2.5 8 -5.5 thereworld 2c 49 1 0.0 61.8 66 61.8 10 $$ 61.7 0.1 8 -5.5 thereworld 2c 50 1 0.0 61.8 66 62.1 10 $$ 57.9 4.2 8 -5.5 thereworld 2d 51 1 0.0 62.1 66 62.1 10 $$ 57.9 4.2 8 -7.9 thereworld 2e 51 1 0.0 62.2 66 62.2 10 $$ 58.3 4.2 8 -3.8 thereworld 2f 52 1 0.0 62.2 66 62.2 10 $$ 58.3 4.0 8 -3.7 thereworld 2f 52 1 0.0 62.2 66 62.2 10 $$ 58.3 4.0 8 -3.7 thereworld 2f 1 0.0 62.2 66 62.3	themeworld 1c	44	+	0.0	63.2	99	63.	2 1(0	61	0	2.2	80	-5.8
thereworld 1a4610.0 64.3 66 64.3 10 \cdots 60.1 4.2 8 -3.8 thereworld 2b4810.0 61.8 66 61.8 10 \cdots 59.3 2.5 8 -5.5 thereworld 2c4910.0 61.8 66 61.8 10 \cdots 59.3 2.5 8 -7.9 thereworld 2c4910.0 61.8 66 61.8 10 \cdots 61.7 0.1 8 -7.9 thereworld 2d5010.0 62.1 66 62.1 10 \cdots 57.9 4.2 8 -3.8 thereworld 2e 51 10.0 62.6 66 62.6 10 \cdots 58.3 4.2 8 -3.6 thereworld 2e 51 10.0 62.2 66 62.6 10 \cdots 58.3 4.2 8 -3.6 thereworld 2f 52 10.0 62.3 66 62.3 10 \cdots 58.3 4.0 8 -3.7	themeworld 1b	45	-	0.0	63.0	99	63.	0 1(61		1.9	ω	. 9
thereworld 2b 48 1 0.0 61.8 66 61.8 10 59.3 2.5 8 -5.5 thereworld 2c 49 1 0.0 61.8 66 61.8 10 61.7 0.1 8 -7.9 thereworld 2c 50 1 0.0 61.8 66 61.8 10 61.7 0.1 8 -7.9 thereworld 2d 51 1 0.0 62.1 66 62.1 10 57.9 4.2 8 -3.8 thereworld 2e 51 1 0.0 62.6 62.6 10 58.3 4.3 8 -3.6 thereworld 2f 52 1 0.0 62.3 66 62.3 10 58.3 4.0 8 -3.6	themeworld 1a	46	+	0.0	64.3	99	64.	3 1(60	.	4.2	æ	-3.8
thermeworld 2c 49 1 0.0 61.8 66 61.8 10 61.7 0.1 8 -7.9 thermeworld 2d 50 1 0.0 62.1 66 62.1 10 57.9 4.2 8 -3.8 thermeworld 2d 51 1 0.0 62.6 66 62.6 10 58.3 4.3 8 -3.7 thermeworld 2e 51 1 0.0 62.5 66 62.6 10 58.3 4.3 8 -3.7 thermeworld 2f 52 1 0.0 62.3 66 62.3 10 58.3 4.0 8 -3.7	themeworld 2b	48	1	0.0	61.8	99	61.	11		20	c,	2.5	œ	-5.5
thermeworld 2d 50 1 0.0 62.1 66 62.1 10 57.9 4.2 8 -3.8 thermeworld 2e 51 1 0.0 62.6 66 62.6 10 58.3 4.3 8 -3.7 thermeworld 2e 51 1 0.0 62.5 66 62.6 10 58.3 4.3 8 -3.7 thermeworld 2f 52 1 0.0 62.3 66 62.3 10 58.3 4.0 8 -3.7	themeworld 2c	49	+	0.0	61.8	99	61.	11		61	.7	0.1	œ	-7.9
themeworld 2e 51 1 0.0 62.6 66 62.6 10 58.3 4.3 8 -3.7 themeworld 2f 52 1 0.0 62.3 66 62.3 10 58.3 4.3 8 -3.7	themeworld 2d	50	+	0.0	62.1	99	62.	1	0	57	0	4.2	80	-3.8 -
themeworld 2f 52 1 0.0 62.3 66 62.3 10 58.3 4.0 8 -4.0	themeworld 2e	51	-	0.0	62.6	99	62.	.6		28	ei.	4.3	ø	-3.7
	themeworld 2f	52	-	0.0	62.3	99	62.	3	1	28	¢,	4.0	80	4.0

RESULTS: SOUND LEVELS						I-4 Btl	J PD&E					
themeworld 3b	53	-	0.0	61.1	66	61.1	10	I	58.0	3.1	œ	4.9
themeworld 3c	54	-	0.0	60.6	66	60.6	10	I	57.7	2.9	ø	-5.1
themeworld 3d	55	-	0.0	60.2	66	60.2	10	ľ	59.2	1.0	ø	-7.0
themeworld 3e	56	-	0.0	60.2	99	60.2	10	-	57.5	2.7	80	-5.3
themeworld 3f	57	+	0.0	60.4	66	60.4	10	Ĭ	56.2	4.2	œ	-3.8
themeworld 3g	58	-	0.0	64.8	66	64.8	10	I	58.2	6.6	80	-1.4
themeworld 5a	59	-	0.0	67.6	66	67.6	10	Snd Lvl	61.0	6.6	80	-1.4
themeworld 5b	60	-	0.0	66.8	99	66.8	10	Snd Lvl	60.6	6.2	œ	-1.8
themeworld 5c	61	-	0.0	66.1	99	66.1	10	Snd Lvl	60.4	5.7	ω	-2.3
themeworld 5d	62	-	0.0	65.6	66	65.6	10	I	60.4	5,2	ω	-2.8
themeworld 4c	63	-	0.0	59.0	66	59.0	10	1	55.7	3.3	80	-4.7
themeworld 4d	64	-	0.0	58.6	99	58.6	10	I	55.3	3.3	œ	4.7
themeworld 4f	65	-	0.0	58.4	66	58.4	10	1	55.2	3.2	œ	4.8
themeworld 4g	99	-	0.0	58.3	99	58.3	10	1	55.3	3.0	ω	-5.0
themeworld 4h	67	-	0.0	58.4	99	58.4	10	I	55.3	3.1	ω	-4.9
themeworld 4i	68	-	0.0	59.5	99	59.5	10	1	56.0	3.5	ø	-4.5
themeworld 4e	69		0.0	58.4	66	58.4	10	1	55.7	2.7	œ	-5.3
themeworld 2g	71	-	0.0	65.4	99	65.4	10	I	60.7	4.7	8	-3.3
themeworld 2h	72	-	0.0	63,9	99	63.9	10	1	59.9	4.0	80	-4.0
themeworld 2i	73	-	0.0	63.4	66	63.4	10		59.6	3.8	ø	-4.2
themeworld 2j	74	-	0.0	63.2	66	63.2	10	1	59.6	3.6	ø	-4.4
themeworld 2k	75	-	0.0	63.2	99	63.2	10	1	59.6	3.6	œ	-4.4
themeworld 21	76	-	0.0	63.1	99	63.1	10	I	59.9	3.2	80	4.8
themeworld 2m	77	-	0.0	63.5	99	63.5	10	1	60.5	3.0	õ	-5.0
themeworld 2n	78	-	0.0	65.3	66	65.3	10	Ĩ	61.5	3.8	ø	-4.2
themeworld 2a	52	-	0.0	64.8	66	64.8	10	1000	59.4	5.4	œ	-2.6
themeworld 3a	80	-	0.0	65.0	99	65.0	10		59.2	5.8	œ	-2.2
themeworld 4b	81	-	0.0	59.3	99	59.3	10		56.8	2.5	ø	-5.5
themeworld 4a	82	-	0.0	61.5	66	61.5	10	I	58.9	2.6	æ	-5.4
Themeworld RV Pool	9	-	0.0	64.9	99	64.9	10		59.1	5.8	œ	-2.2
Themeworld playground	11	-	0.0	70.4	99	70.4	10	Snd Lvl	67.7	2.7	ø	-5.3
Themeworld 1g	36	-	0.0	64.8	66	64.8	10		58.7	6.1	œ	-1.9
Themeworld 1e	37	-	0.0	64.4	66	64.4	10	100	58.7	5.7	œ	-2.3
themeworld 1i	39	-	0.0	68.1	66	68.1	10	Snd Lvl	62.5	5.6	ŝ	-2.4
themeworld 1h	41	.	0.0	66.3	99	66.3	10	Snd Lvl	59.9	6.4	00	-1.6
Dwelling Units	#	Us No	oise Reductio	E								
		W	n Avg	W	X							
		뜅	ер	đ	~							
All Selected		60	0.0	3.6	6.6							
All Impacted		4	2.7	5.3	6.6							
All that meet NR Goal		0	0.0	0.0	0.0							

24 November 2015

2

C:\TNM25\230168\TEST\ROW

RESULTS: BARRIER DESCRIPTIONS					-	4 Btu PD&	ш			
Stantec				24 Novem	ber 2015					
M Drauer				TNM 2.5						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	I-4 Bt	U PD&E								
RUN:	I-4 Se	gment 5 Th	emeworld	ROW						
BARRIER DESIGN:	ROW	20								
Barriers										
Name	Type	Heights al	ong Barrie		Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		Ĥ	Ĥ	Ĥ	Ĥ	sq ft	cu yd	Ħ	ft:ft	s
Theme ROW	8	20.00	20.00	20.00	1455	29094				872814
Retaining Wall	≥	2.00	16.65	20.00	2768	46097				0
									Total Cost:	872814

RESULTS: SOUND LEVELS							I-4 BtU	PD&E						ſ
Stantec M Drauer							24 N TNM	ovembe 2.5	er 2015			-	-	
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	4-1 1 4-1 0 7 0 7	3tU PD&E Segment { N 20	5 Them	eworld ROV	>		Calc		vith I Nim verage p: state bio	2.5 avement type	shall be use	ed unless		
ATMOSPHERICS:	68	deg F, 50'	% RH					. 0	f a differe	inway agency int type with a	pproval of F	HWA.	6	
Receiver										100000				
Name	No. #D(ls Exist	N Bui	o Barrier		2			1000	With Barrier	•	;	-	
		LAeq	é 10	Aeq1h alculated	Crit'n	Increase o Calculated	ver exist Crit' Sub'		ype npact	Calculated LAeq1h	Noise Reduc Calculated	Goal	Calculate minus	σ
					į	1	9				Ę	9	Goal	
		dBA	Ð	BA	ABA	gp	g			ABA	g	9	9	
Themeworld 1f	-	-	0.0	64.3		99	64.3	10	1	60.5	õ	00	00	4
Themeworld 1j	N	-	0.0	68.		9	68.1	10	Snd Lvl	62,0	9	-	80	-1.9
Themeworld 1k	m	-	0.0	68.2		36	68.2	10	Snd Lvl	62.0	9	2	œ	-1.00
Themeworld 11	4	-	0.0	68.2		96	68.2	10	Snd Lvl	62.0	9	2	80	-1.8
Themeworld 1m	2ı	-	0.0	68.	-	36	68.1	10	Snd Lvl	61.9	9	2	80	-1.8
Themeworld 1n	7	-	0.0	67.8		36	67.8	10	Snd Lvl	61.8	9	0	ø	-2.0
Themeworld 1o	Ø	-	0.0	67.7	2	36	67.7	10	Snd Lvl	61.7	Ö	0	ø	-2.0
Themeworld 1p	ດ	1	0.0	67.3		36	67.3	10	Snd Lvl	61.8	5.	Ċ,	80	-2.5
Themeworld 1q	10	-	0.0	67.9	•	36	67.9	10	Snd Lvl	62.1	Ċ.	80	Ø	-2.2
Fort Summit KOA pool	12	-	0.0	63.	~	36	63.7	10	I	63.5	Ö	3	8	-7.8
Fort Summit KOA 1	13	-	0.0	64.(0	36	64.0	10	ļ	63.6	Ö	4	ø	-7.6
Fort Summit KOA 2	4	-	0.0	61.	0	36	61.2	10	ļ	6.09	Ö	e.	ø	-7.7
Fort Summit KOA 3	15	-	0.0	61.8		90	61.8	10	1	61.6	Ö	Ņ	Ø	-7.8
Fort Summit KOA 4	16	~	0.0	.09	2	36	60.7	10	1	9.09	Ö	5	œ	-7.9
Ramada Pool	18	-	0.0	0.0	0	36	0.0	10	inactive	0.0	Ö	0	œ	0.0
Quality Pool	20	-	0.0	0.0	0	36	0.0	10	inactive	0.0	0	0	ø	0.0
themeworld 1d	43	-	0.0	63.	0	36	63.2	10	1	60.2	Ċ.	0	80	-5.0
themeworld 1c	44	-	0.0	63.	0	36	63.2	10	1	9.09	9	9	œ	-5.4
themeworld 1b	45	-	0.0	63.(0	36	63.0	10	1	60.6	5	4	ø	-5.6
themeworld 1a	46	-	0.0	64.		36	64.3	10	1	59.6	4.	.7	8	-3.3
themeworld 2b	48	-	0.0	61.9	0	36	61.8	10		58.9	5	6	Ø	-5.1
themeworld 2c	49	-	0.0	61.	80	36	61.8	10	1	61.2	O	9	Ø	-7.4
themeworld 2d	50	-	0.0	62.	-	36	62.1	10	I	57.6	4	5	Ø	-3.5
themeworld 2e	51	-	0.0	62.	10	56	62.6	10	1	57.9	4	۲.	ω	-3.3
themeworld 2f	52	-	0.0	62.	0	96	62.3	9	l	22.9	4	4	80	-3.6 -
C:\TNM25\230168\TEST\ROW					-					24 No	vember 201	5		

RESULTS: SOUND LEVELS						I-4 BtU I	2D&E					
themeworld 3b	53	0.0	61	Ŧ.	66	61.1	10	1	57.6	3.5	œ	-4.5
themeworld 3c	54	0.0	00	.6	66	60.6	10	1	57.5	3.1	ø	-4.9
themeworld 3d	55	0.0	00	0.2	66	60.2	5	I	59.0	1.2	ω	-6.8
themeworld 3e	26	0.0	00	0.2	66	60.2	9	Ī	57.3	2.9	œ	-5.1
themeworld 3f	57	0.0	90	4.0	66	60.4	9	J	55.9	4.5	œ	-3.5
themeworld 3g	58	0.0	9	8.1	. 99	64.8	9	1	57.8	7.0	ω	-1.0
themeworld 5a	29	0.0	67	.6	66	67.6	6	Snd Lvl	60.6	7.0	ω	-1.0
themeworld 5b	09	0.0	99	8.0	66	66.8	10	Snd Lvl	60.2	6.6	σο	-1.4
themeworld 5c	61	0.0	99	1.0	66	66.1	10	Snd Lvl	60.0	6.1	ω	-1.9
themeworld 5d	62	0.0	6	6.6	66	65.6	9	1	60.1	5.5	ω	-2.5
themeworld 4c	63	0.0	26	9.0	66	59.0	10	1	55.4	3.6	œ	4.4
themeworld 4d	64	0.0	5	3.6	66	58.6	9		55.0	3.6	œ	-4.4
themeworld 4f	65	0.0	5	3,4	66	58.4	10	1	55.0	3.4	œ	-4.6
themeworld 4g	99	0.0	5	3.3	66	58.3	10	Ĩ	55.1	3.2	ω	4.8
themeworld 4h	67	0.0	5	3.4	66	58.4	10	1	55.0	3.4	œ	4.6
themeworld 4i	68	0	56	9.5	66	59.5	10	1	55.7	3.8	œ	-4.2
themeworld 4e	69	0.0	5	3.4	66	58.4	10	ĩ	55.5	2.9	80	-5.1
themeworld 2g	71	0.0	0	5.4	66	65.4	10	1	60.1	5.3	ø	-2.7
themeworld 2h	72	0.0	0	3.9	66	63.9	9	l	59.3	4.6	œ	-3.4
themeworld 2i	73	0	0	3.4	66	63.4	10		59.1	4.3	ø	-3.7
themeworld 2j	74	1 0.0	0	3.2	66	63.2	10		59.1	4.1	œ	-3.9
themeworld 2k	75	0.0	0	3.2	66	63.2	10	ľ	59.1	4.1	ø	-3.9
themeworld 21	76	0.0	0	3.1	66	63.1	9	ĺ	59.5	3.6	80	4.4
themeworld 2m	17	1 0.0	0	3.5	66	63.5	10	ļ	60.1	3.4	œ	-4.6
themeworld 2n	78	0.0	6	5.3	66	65.3	9	I	61.2	4.1	œ	-3.9
themeworld 2a	29	0.	ů O	4.8	66	64.8	10	I	59.0	5.8	Ø	-2.2
themeworld 3a	80	0	0	5.0	66	65.0	10	1	58.8	6.2	œ	-1.8
themeworld 4b	81	0	5	9.3	66	59.3	10	1	56.5	2.8	œ	-5.2
themeworld 4a	82	1 0.	0	1.5	66	61.5	10	1	58.6	2.9	Ø	-5.1
Themeworld RV Pool	ø	1 0.	0	1.9	66	64.9	10	ł	58.7	6.2	80	-1.8
Themeworld playground	1	0.0	0	0.4	66	70.4	10	Snd LvI	67.5	2.9	80	-5.1
Themeworld 1g	36	1 0.	0 0	4.8	66	64.8	10		58.3	6.5	œ	-1.5
Themeworld 1e	37	1 0.	ů 0	4.4	66	64.4	10	1	58.3	6.1	80	-1.9
themeworld 1i	39	1 0.	0 6	3.1	66	68.1	10	Snd Lvl	61.7	6.4	80	-1.6
themeworld 1h	41	1	0	5.3	66	66.3	9	Snd Lvi	59.5	6.8	80	-1.2
Dwelling Units	# DUs	Noise Re	eduction									
1		Min	Avg	Max								
		명	đB	Ð								
All Selected	9	0	0	4.0	7.0							
All Impacted	-	4	6	9.0	7.0							
All that meet NR Goal		0	0	0.0	0.0							

2

RESULTS: BARRIER DESCRIPTIONS					<u>-</u>		ш			
Stantec M Drauer				24 Novem TNM 2.5	ber 2015					
RESULTS: BARRIER DESCRIPTIONS	-									
PROJECT/CONTRACT: RUN:	4 <u>4</u> 7 8	U PD&E gment 5 Th	iemeworld	ROW						
BARRIER DESIGN:	ROW	22								
Barriers										
Name	Type	Heights a	long Barriv	D.	Length	If Wall	If Berm			Cost
	8	Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
	_	Ŧ	Ŧ	æ	æ	sq ft	cu yd	ft	ft:ft	S
Theme ROW	≥	22.00	22.0	0 22.00	1455	32003		-		960096
Retaining Wall	3	2.00	16.6	5 20.00	0 2768	46097				0
•									Total Cost:	960096

24 November 2015

~

RESULTS: SOUND LEVELS							I-4 BtU PD8	щ					ſ
Stantec M Drauer							24 Nover TNM 2.5	nber 2015					
							Calculate	ed with TNI	M 2.5				
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN:	<u>4</u> 4	BtU PD& Segment	E 5 Ther	neworld ROV	>								
BARRIER DESIGN:	RC	W 22						Average a State h	pavement type ighway agency	shall be user / substantiate	d unless s the use		
ATMOSPHERICS:	68	deg F, 5(0% RH					of a diffe	rent type with	approval of FI	HWA.		
Receiver													
Name	No. #D	Us Exis	sting	No Barrier		-		0.0	With Barrier				
		LAe	d1h	LAeq1h	-101-0	Increase ov	er existing	Type	Calculated	Noise Reduc	tion	h a halina la C	
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal	
		dBA		dBA	dBA	đB	đB		dBA	đB	dB	æ	T
Themeworld 1f	-	-	0.0	64.3	9	9	4.3		60.3	4.0		۵۵ ط	0.4
Themeworld 1j	2	-	0.0	68.1	G	9	8.1	0 Snd Lv	61.3	6.6	~	80 1-	2
Themeworld 1k	n	-	0.0	68.2	9	6	8.2	0 Snd Lv	61.3	3 6.5	•	8	Ξ.
Themeworld 11	4	-	0.0	68.2	9	9	8.2	0 Snd Lv	61.2	2.0	0	8	0.1
Themeworld 1m	Q	-	0.0	68.1	9	6	8.1	0 Snd Lv	61.1	2.0	0	8	0.
Themeworld 1n	7	F	0.0	67.8	9	6	7.8 1	0 Snd Lv	61.1	6.7		ω -	е. Т
Themeworld 10	œ	-	0.0	67.7	9	6	7.7	0 Snd Lv	61.0	6.7		8	<u>с</u> .
Themeworld 1p	σ	-	0.0	67.3	9	9	7.3 1	0 Snd Lv	61.2	6.1		8	<u>ල</u> .
Themeworld 1q	10	-	0.0	67.6	9	9	7.9 1	0 Snd Lv	61.6	6.9	-	8	2
Fort Summit KOA pool	12	-	0.0	63.7	9	9	3.7 1		63.5	0.2	01	8 -7	8.7
Fort Summit KOA 1	13	-	0.0	64.0	9	9	4.0		63.6	9.4		8 -7	2.6
Fort Summit KOA 2	14	-	0.0	61.2	9	9	1.2		60.8	8 0.4		8 -7	2.6
Fort Summit KOA 3	15	-	0.0	61.8	9	9	1.8		61.6	0.2	01	8 -7	2.8
Fort Summit KOA 4	16	-	0.0	60.7	9	9	0.7 1		60.6	0.1		8 -7	6.7
Ramada Pool	18	-	0.0	0.0	9	9	0.0	0 inactive	0.0	0.0		8	0.0
Quality Pool	20	-	0.0	0.0	9	9	0.0	0 inactive	0.0	0.0	0	8	0.0
themeworld 1d	43	-	0.0	63.2	9	9	3.2		59.8	3.4	-	00 A	4.6
themeworld 1c	44	-	0.0	63.2	9	6 6	3.2		60.1	3.1		оо А	4.9
themeworld 1b	45	1	0.0	63.0	9	6 6	3.0		60.1	1 2.9		ς. α	
themeworld 1a	46	-	0.0	64.3	9	6 6	4.3	1	26.2	2 5.1		°-	6.2
themeworld 2b	48	-	0.0	61.8	9	6 6	1.8	1	58.5	3.3	~	о Ф	4.7
themeworld 2c	49	-	0.0	61.8	9	6	1.8		60.5	9.0	•	8	1.1
themeworld 2d	50	-	0.0	62.1	9	6	2.1		57.3	3.4.8	~	Ϋ́ œ	3.2
themeworld 2e	51	-	0.0	62.6	9	9	2.6 1		57.6	5.0	0	φ ∞	0.0 8
themeworld 2f	52	-	0.0	62.3	9	6	2.3		57.6	5 4.7	•	ς α	3.3
C:\TNM25\230168\TEST\ROW					-				24 No	vember 2015			

RESULTS: SOUND LEVELS							1-4 Btl	U PD&E					
themeworld 3b	53	-	0.0		51.1	66	61.1	10	I	57.3	3.8	œ	-4.2
themeworld 3c	54	-	0.0		<u> 30.6</u>	66	60.6	10	I	57.2	3.4	ω	4.6
themeworld 3d	55	-	0.0		50.2	66	60.2	10	ļ	58.3	1.9	œ	-6.1
themeworld 3e	56	+	0.0		50.2	66	60.2	10	ï	57.1	3.1	ω	-4.9
themeworld 3f	57	-	0.0		50.4	99	60.4	10	I	55.7	4.7	œ	-3.3
themeworld 3g	58	-	0.0		54.8	99	64.8	10	ĺ	57.4	7.4	œ	-0.6
themeworld 5a	59	-	0.0		67.6	66	67.6	10	Snd Lvl	60.2	7.4	œ	-0.6
themeworld 5b	60	-	0.0		56.8	99	66.8	10	Snd Lvi	59.9	6.9	œ	-1.1
themeworld 5c	61	*	0.0		66.1	99	66.1	10	Snd Lvl	59.7	6.4	œ	-1.6
themeworld 5d	62	-	0.0		65.6	99	65.6	10		59.8	5.8	ω	-2.2
themeworld 4c	63	-	0.0		59.0	66	59.0	10		55.2	3.8	œ	-4.2
themeworld 4d	64	-	0.0		58.6	99	58.6	10	I	54.8	3.8	ω	-4.2
themeworld 4f	65	-	0.0		58.4	66	58.4	10	1	54.8	3.6	œ	-4.4
themeworld 4g	99	-	0.0		58.3	66	58.3	10	Ì	54.9	3.4	ω	4.6
themeworld 4h	67	-	0.0		58.4	99	58.4	10	1	54.8	3.6	80	-4.4
themeworld 4i	68	-	0.0		59.5	99	59.5	10	1	55.5	4.0	80	4.0
themeworld 4e	69	-	0.0		58.4	66	58.4	10	1	55.3	3.1	ø	4.9
themeworld 2g	71	-	0.0		65.4	66	65.4	10		59.6	5.8	æ	-2.2
themeworld 2h	72	-	0.0	a	63.9	66	63.9	10	j	58.9	5.0	80	-3.0
themeworld 2i	73	-	0.0		63.4	99	63.4	10	1	58.7	4.7	Ø	-3.3
themeworld 2j	74	-	0.0		63.2	99	63.2	10	l	58.6	4.6	80	-3.4
themeworld 2k	75	<i>t</i>	0.0		63.2	99	63.2	10	1	58.6	4.6	œ	-3.4
themeworld 21	76	-	0.0		63.1	66	63.1	10	I	59.1	4.0	œ	4.0
themeworld 2m	27	-	0.0		63.5	99	63.5	10	1	59.7	3.8	œ	4.2
themeworld 2n	78	~	0.0		65.3	99	65.3	10	ł	60.9	4.4	œ	-3.6
themeworld 2a	79	-	0.0		64.8	66	64.8	10	-	58.6	6.2	80	-1.8
themeworld 3a	80	-	0.0		65.0	66	65.0	10	i.	58.4	6.6	œ	-1.4
themeworld 4b	81	-	0.0		59.3	66	59.3	10	Ē	56.3	3.0	œ	-5.0
themeworld 4a	82	-	0.0		61.5	66	61.5	10	ţ	58.3	3.2	80	4 .8
Themeworld RV Pool	9	-	0.0		64.9	66	64.9	10	ţ	58.5	6.4	œ	-1.6
Themeworld playground	11	-	Ö		70.4	66	70.4	10	Snd Lvl	67.3	3.1	80	4.9
Themeworld 1g	36	-	0.0		64.8	66	64.8	10		57.9	6.9	00	-1.1
Themeworld 1e	37	-	0.0		64.4	66	64.4	10	1	58.0	6.4	æ	-1.6
themeworld 1i	39	-	0.0		68.1	66	68.1	10	Snd Lvl	61.0	7.1	00	6 [.] 0-
themeworld 1h	41	-	0.0		66.3	66	66.3	10	Snd Lvl	59.0	7.3	œ	-0.7
Dwelling Units		¢ DUs	Noise Re	duction									
			Min	Avg	Max								
			dB	qB	æ								
All Selected		60	0.0		4.4	7.4							
All Impacted		14	3.1		6.5	7.4							
All that meet NR Goal		0	0.0		0.0	0.0							

2

24 November 2015

ļ

RESULTS: BARRIER DESCRIPTIONS						-4 Btu PD&	щ			
Stantec M Drauer				23 Noverr TNM 2.5	15 2015					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	14 Bt 14 Se COMI	U PD&E igment 5 R(3022	W + Shou	Ilder						
Barriers										
Name	Type	Heights a	long Barri	er.	Length	If Wall	lf Berm			Cost
	8	Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
	-	ŧ	Ħ	ŧ	æ	sq ft	cu yd	Ĥ	ft:ft	G
ROW Themeworld	3	22.00	0 22.0	0 22.0	0 82	8 18211				546317
14' shoulder	3	14.00	14.0	0 14.0	09;	2 13892				416761
Retaining Wall	3	2.0	16.6	5 20.0	0 276	8 46097	2			0

Retaining Wall

963078 0

Total Cost:

C:\TNM25\230168\TEST\combo
RESULTS: SOUND LEVELS								4 Btu PD&	щ					
Stantec M Drauer								23 Noven TNM 2.5 Calculate	nber 2015 M with TN	M 25				
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:		I-4 BtU I-4 Seg COMB	PD&E pment 5 R(022	OW + Sho	ulder				Average a State I	pavement ty nighway ager	pe shall t ncy subst	e used un	lless le use	
ATMOSPHERICS:		68 dei	g F, 50% R	H		-			of a diff	erent type wit	h approv	al of FHW/	¥	
Receiver														
Name	No.	#DUS	Existing	No Bar	rier					With Barri	er			
			LAeq1h	LAeq1I	_		ncrease ove	er existing	Type	Calculated	I Noise	Reduction	_	
				Calcula	ated Crit	S.	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calcu	ated Go	al	Calculated minus Goal
			dBA	dBA	dB/	-	B	đB		dBA	В	gp		đB
Themeworld 1f			1	0	64.1	99	64	F		ß	8.5	5.6	8	-2.4
Themeworld 1i		0	1	0.0	68.0	99	98	1	0 Snd Ly	4 6	1.0	2.0	80	-1.0
Themeworld 1k	61	~	-	0.0	68.1	99	89	1	0 Snd Lv	4 6	0.8	7.3	80	2.0-
Themeworld 11	4		1	0.0	68.0	99	89	1	0 Snd Ly	/ 6	0.8	7.2	æ	8.0-
Themeworld 1m	4,	10	-	0.0	68.0	99	39	1	0 Snd Ly	1 6	0.7	7.3	ω	-0.7
Themeworld RV Pool		0	-	0.0	65.0	99	65	0.0		S	0.0	6.0	œ	-2.0
Themeworld 1n		~	1	0,0	61,9	99	67	ō,	0 Snd Ly	2	0.6	7.3	~	-0.7
Themeworld 1o	w	m	-	0.0	67.7	99	61	L	0 Snd L	9	0.6	7.1	00	9 9
Themeworld 1p	0,	•	-	0.0	67.5	99	67	5	IO Snd Ly	9	0.9	9 I 9 0	00	7. L
Themeworld 1q	÷	0	-	0.0	68.0	99	8	0.	IO Sud L	2	1.3	6.7	000	
Themeworld playground	÷-	-	-	0.0	70.3	99	22	с.	IO Sud L	5	7.3	0.0 0.0	00	ο γ i
Fort Summit KOA pool	1	N	1	0.0	63.8	99	8	.8		9	3.6	0.2	00	8 <u>/</u> -
Fort Summit KOA 1	₩ ₩	ń	1	0.0	64.0	99	6	0.1	0	G	3.6	0.4	œ	-7.6
Fort Summit KOA 2	1	4	1	0.0	61.3	99	6	ω.	1	G	0.8	0.5	ω ·	
Fort Summit KOA 3	1	Q	-	0.0	61.9	99	6	6.		G	1.6	0.3	80 (··/-
Fort Summit KOA 4	4	0	1	0.0	60.7	99	90	.7		G	0.5	0.2	×0	₽·/-
Ramada Pool	31	80	1	0.0	0.0	99) 0'0	10 inactiv	Q	0.0	0.0	00 '	0.0
Quality Pool	5	0	-	0.0	0.0	99		. 0.0	10 inactiv	e	0.0	0.0	œ	0
Themeworld 1g	Ř	G	1	0.0	64.7	66	ō.	1.7	10	(1)	8.2	6.5	æ	-1
Themeworld 1e	S	2	1	0:0	64.6	99	ġ		10	4,	8.4	6.2	ω	-1.8
themeworld 1i	ř	0	1	0.0	67.9	66	9	, 6.7	10 Snd L	2	0.7	7.2	æ	°,
themeworld 1h	4	-	1	0.0	66.6	66	99	9.6	10 Snd L	2	0.0	7.6	ω	o
themeworld 1d	4	e	1	0.0	63.3	99	ö	3.3	10	U	6.0	2.4	ω	-5.6
themeworld 1c	4	4	1	0.0	63.3	99	ö	3.3	1	Ű	80.7	2.6	ω	-2.
themeworld 1b	4	5	-	0.0	63.1	99	ö	8.1	9	Ű	0.4	2.7	ω	-2·:
C:\TNM25\230168\TEST\combo										23	Novembe	er 2015		

RESULTS: SOUND LEVELS						I-4 Btl	U PD&E					
themeworld 1a	46	-	0.0	64.4	99	64.4	10	1	59.9	4.5	80	-3.5
themeworld 2b	48	-	0.0	62.0	99	62.0	10	1	59.8	2,2	80	-5.8
themeworld 2c	49	۲	0.0	62.0	66	62.0	10	1	59.6	2.4	80	-5.6
themeworld 2d	50	-	0.0	62.1	99	62.1	10	1	57.9	4.2	ω	-3.8
themeworld 2e	51	-	0.0	62.6	99	62.6	10	I	58.1	4.5	00	-3,5
themeworld 2f	52	-	0.0	62.4	66	62.4	10	l	57.9	4.5	00	-3.5
themeworld 3b	53	-	0.0	61.0	66	61.0	10	I	58.4	2.6	80	-5,4
themeworld 3c	54	-	0.0	60.5	66	60.5	10	I	58.0	2.5	∞	-5.5
themeworld 3d	55	-	0.0	60.2	66	60.2	10	1	58.8	1.4	œ	-9 [.] 0
themeworld 3e	56	-	0.0	60.1	99	60.1	10	-	57.2	2.9	œ	-5.1
themeworld 3f	57	-	0.0	60.4	99	60.4	10	1	56.1	4.3	œ	-3.7
themeworld 3g	58	-	0.0	64.8	66	64.8	10	1	57.5	7.3	80	-0.7
themeworld 5a	59	-	0.0	67.6	66	67.6	10	Snd Lvl	61.6	6.0	œ	-2.0
themeworld 5b	60	-	0.0	6.99	99	6.99	10	Snd Lvl	61.0	5.9	80	-2.1
themeworld 5c	61	~	0.0	66.3	66	66.3	10	Snd Lvl	60.7	5.6	80	-2.4
themeworld 5d	62	~	0,0	65.6	66	65.6	10	1	60.4	5.2	ø	-2.8
themeworld 4c	63	-	0.0	58.8	66	58.8	10	1	56.0	2.8	80	-5.2
themeworld 4d	64	-	0.0	58.5	99	58.5	10]	55.4	3.1	8	-4.9
themeworld 4f	65	-	0.0	58.4	66	58.4	10		55.2	3.2	œ	-4.8
themeworld 4g	99	1	0.0	58.4	99	58.4	10		55.2	3.2	œ	-4.8
themeworld 4h	67		0.0	58.4	66	58.4	10	1	55.0	3,4	œ	4.6
themeworld 4i	68	~	0.0	59.7	99	59.7	10	1	55.7	4.0	ø	4.0
themeworld 4e	69	-	0.0	58.3	99	58.3	10	3	55.0	3.3	œ	-4.7
themeworld 2g	71	-	0'0	66.5	99	66.5	10	Snd Lvl	60.8	5.7	80	-2.3
themeworld 2h	72	-	0.0	65.0	99	65.0	10		60.0	5.0	œ	-3.0
themeworld 2i	73	-	0.0	64.6	99	64.6	10		59.5	5,1	ω	-2.9
themeworld 2j	74	-	0.0	64.2	99	64.2	10	ł	59.5	4.7	ω	
themeworld 2k	75	-	0.0	64.2	99	64.2	10	1	59.6	4.6	œ	-3.4
themeworld 21	76	-	0.0	64.3	99	64.3	10	J.	59.6	4.7	80	-3.3
themeworld 2m	17	F	0.0	64.9	99	64.9	10	Ĩ	59.8	5.1	ø	-2.9
themeworld 2n	78	Ł	0.0	66.2	99	66.2	10	Snd Lvl	60.9	5.3	œ	-2.7
themeworld 2a	62	£	0.0	65.2	99	65.2	10	A STATE	59.8	5.4	œ	-2.6
themeworld 3a	80	F	0.0	63.5	66	63.5	10		59.4	4.1	80	-3.9
themeworld 4b	8	-	0.0	59-5	99	59.5	10	I	56.6	2.9	œ	-5.1
themeworld 4a	82	-	0.0	63.4	99	63.4	10	I	59.1	4.3	80	-3.7
Dwelling Units		# DUs	Noise Redu	ction	2							
			Min A	- BA	Мах							
			dB	8	8							
All Selected		60	0.0	4.2	7.6							
All Impacted		16	3.0	6.4	7.6							
All that meet NR Goal		0	0.0	0.0	0.0							

2

RESULTS: BARRIER DESCRIPTIONS					-	4 BtU PD&	ш			
Stantec M Drauer				23 Novem TNM 2.5	ber 2015					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	1-4 Bt 1-4 Se COMI	U PD&E igment 5 RC 3020	W + Shou	ılder						
Barriers										
Name	Type	Heights al	ong Barri	er	Length	If Wall	If Berm			Cost
*	8 	Min	Avg	Мах	0	Area	Volume	Top Width	Run:Rise	
		ŧ	ŧ	Ŧ	ŧ	sq ft	cu yd	Ħ	ft:ft	ю
ROW Themeworld	3	20.00	20.0	0 20.00	828	16555				496652
14' shoulder	3	14.00	14.0	0 14.00	992	13892				416761
Retaining Wall	3	2.00	16.6	5 20.00	2768	46097				0
5									Total Cost:	913412

RESULTS: SOUND LEVELS							ľ	4 BtU PD&E						ſ
Stantec M Drauer								23 Novem TNM 2.5 Calculated	ber 2015 I with TNN	2.5		-	_	
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:		I-4 BtU I-4 Seg COMB(PD&E ment 5 RO 220	W + Shou	lder				Average p a State hi	avement type ghway agency	shall be use substantiat	ed unless es the us	-	
ATMOSPHERICS:		68 deg	F, 50% RI	Ŧ					of a differ	ent type with	approval of	FHWA.		
Receiver														
Name	No.	\$NQ#	Existing	No Barri	er					With Barrier				
			LAeq1h	LAeq1h		5	Icrease over	existing	Type	Calculated	Noise Redu	Iction	-tologo	3
				Calculat	ed Criť'n	0	alculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	calculate minus Goal	0
			dBA	dBA	dBA	đ		Bb		dBA	đb	đB	dB	
Themeworld 1f			0	0	64.1	99	64.	1	I	58.7	S	4	80	-2.6
Themeworld 1			0	0	68.0	99	68.(10	Snd Lvl	61.5	9	Ĵ.	80	-1.5
Themeworld 1k	(7)		0	0	68.1	99	68.	1	Snd Lvl	61.4	9	.7	ω	-1.3
Themeworld 1	T		1	0	68.0	99	68.(10	Snd Lvi	61.4	9	9	œ	-1.4
Themeworld 1m			1	0	68.0	99	68.(10	Snd Lvl	61.3	9	7	ω	-1.3
Themeworld RV Pool			1	0	65.0	99	65.(10	1	59.1	2	o.	80	-2.1
Themeworld 1n			1	0	67.9	99	67.9	9	Snd Lvi	61.2	9	2	ω	-1.3
Themeworld 10	u		1	0	67.7	99	67.	7 1(Snd Lvl	61.1	0	9	œ	-1.4
Themeworld 1p	0,		1	0	67.5	99	67.1	1(Snd Lvl	61.9	9	Ņ	ω	-1.8
Themeworld 1q	1		-0	0	68.0	99	68.	1) Snd Lvl	61.7	9	e	ω	-1.7
Themeworld playground	1		0	0	70.3	99	20:	3 1(Snd Lvl	67.4	5	6	œ	-5.1
Fort Summit KOA pool	[01	1	0	63.8	99	63.	1(1	63.6	0	2	80	-7.8
Fort Summit KOA 1	13	-	1	0	64.0	99	64.	1	1	63.6	0	4	œ	-7.6
Fort Summit KOA 2	1	-	0	0	61.3	99	61.	3 10		60.8	0	.5	ø	-7.5
Fort Summit KOA 3	4	10	1	0	61.9	99	61,	9 1	1	61.6	6		ø	-7.7
Fort Summit KOA 4	16	(0	1	0	60.7	99	.09	7		60.4	0	.2	ø	-7.8
Ramada Pool	31	~	1	0	0.0	99	Ö	-) inactive	0.0	0	0.0	80	0.0
Quality Pool	5	0	1	0	0.0	99	ō	1) inactive	0.0	0	0.0	8	0.0
Themeworld 1a	36	6	1	o	64.7	99	64.	7 1	1	58.3	0	4	ø	-1.6
Themeworld 1e	3	N	1	O,	64.6	99	64.	6	1	58.	9	.1	8	-1.9
themeworld 1i	Ř	0	1	0	67.9	99	67.	9	D Snd Lvl	61.	9	6.7	œ	-1.3
themeworld 1h	4		1	0	66.6	99	66.	6	D Snd Lvl	59.	6	.3	ø	-0.7
themeworld 1d	4		1	0.	63.3	99	63.	3	1	61.		2.2	ø	-5.8
themeworld 1c	4	-	1	O.	63.3	99	63.	3	1	60.	80	5.5	ø	-5.5
themeworld 1b	4	10	1	O.	63.1	99	63.	1		60.		9.1	80	-5 -4
C:\TNM25\230168\TEST\combo					-					23 Nc	ovember 201	5		

RESULTS: SOUND LEVELS						I-4 Bt(J PD&E					
themeworld 1a	46	-	0.0	64.4	99	64.4	10	ł	60,0	4.4	õ	-3.6
themeworld 2b	48	-	0.0	62.0	99	62.0	10	L'ANNA	59.9	2.1	80	- 2.9
themeworld 2c	49	-	0.0	62.0	99	62.0	10	I	59.6	2.4	ø	-5.6
themeworld 2d	50	-	0'0	62.1	66	62.1	10	ł	58.0	4.1	œ	-3.9
themeworld 2e	51	-	0.0	62.6	66	62.6	10	1	58.1	4.5	œ	-3.5
themeworld 2f	52	-	0.0	62.4	66	62.4	10	I	58.0	4.4	ω	-3.6
themeworld 3b	53		0.0	61.0	66	61.0	10	1	58.5	2.5	œ	-5.5
themeworld 3c	54	-	0.0	60.5	66	60.5	10	1	58.0	2.5	œ	-5.5
themeworld 3d	55	-	0.0	60.2	66	60.2	10	1	58.8	1.4	æ	-6.6
themeworld 3e	56	-	0.0	60.1	66	60.1	10	ŧ	57.3	2.8	ø	-5.2
themeworld 3f	57	-	0.0	60.4	66	60.4	10	1	56.2	4.2	80	-3.8 -
themeworld 3a	28	-	0.0	64.8	66	64.8	10	1	57.8	7.0	œ	-1.0
themeworld 5a	59	-	0.0	67,6	66	67.6	10	Snd Lvl	61.6	6.0	80	-2.0
themeworld 5b	09	-	0.0	6.99	66	6.99	10	Snd Lvl	61.1	5.8	80	-2.2
themeworld 5c	61	-	0.0	66.3	99	66.3	10	Snd Lvl	60.7	5.6	80	-2.4
themeworld 5d	62	-	0.0	65.6	99	65.6	10	J	60.4	5.2	œ	-2.8
themeworld 4c	63	-	0.0	58.8	66	58.8	10	j	56.0	2.8	80	-5.2
themeworld 4d	64	-	0.0	58.5	99	58.5	10	1	55.4	3.1	œ	-4.9
themeworld 4f	65	-	0.0	58.4	99	58.4	10	-	55.3	3.1	80	-4.9
themeworld 4g	99	-	0.0	58.4	99	58.4	10	I	55.2	3.2	œ	-4.8
themeworld 4h	67	-	0.0	58.4	99	58.4	10	1	55.1	3.3	œ	-4.7
themeworld 4i	89	-	0.0	59.7	66	59.7	10	ł	55.8	3.9	œ	4.1
themeworld 4e	69	1	0.0	58.3	99	58.3	10	1	55.0	3.3	œ	4.7
themeworld 2g	71	-	0.0	66.5	99	66.5	10	Snd Lvl	61.2	5.3	ø	-2.7
themeworld 2h	72	-	0.0	65.0	99	65.0	10	f	60.3	4.7	œ	-3.3
themeworld 2i	73	-	0.0	64.6	99	64.6	10		59.9	4.7	ω	-3.3
themeworld 2i	74	-	0.0	64.2	66	64.2	10		59,9	4.3	œ	-3.7
themeworld 2k	75	-	0.0	64.2	99	64.2	10	ŀ	59.9	4.3	œ	-3.7
themeworld 21	76	-	0.0	64.3	99	64.3	10	Ĩ	60.0	4.3	œ	-3.7
themeworld 2m	22	-	0.0	64.9	99	64.9	10	Ì	60.2	4.7	œ	-3.3
themeworld 2n	78	-	0.0	66.2	99	66.2	10	Snd Lvl	61.2	5.0	œ	-3.0
themeworld 2a	62	-	0.0	65.2	66	65.2	10	Î	59.8	5.4	õ	-2.6
themeworld 3a	80	-	0.0	63.5	66	63.5	10	I	59.4	4.1	œ	9. <u>0</u>
themeworld 4b	81	-	0.0	59.5	66	59.5	10	****	56.6	2.9	ø	-5.1
themeworld 4a	82	-	0.0	63.4	66	63.4	10	1	59.1	4.3	œ	-3.7
Dwelling Units	na #	Is Noise	Reductio	E.								
		Min	Avg	Z	ах							
		₽	8 þ	σ	m							
All Selected		60	0.0	4.1	7.3							
All Impacted		16	2.9	6.1	7.3							
All that meet NR Goal		0	0.0	0.0	0.0							
All Inal Illeel INN GUAL		2	2	2.5	*:>					ľ		

2

Stantec Stantec M Drauer Drauer TIM 2.5 RESULTS: BARRIER DESCRIPTIONS IMM 2.5 RESULTS: BARRIER DESCRIPTIONS RESULTS: BARRIER DESCRIPTIONS IA BU/ PD&E RESULTS: BARRIER DESCRIPTIONS IA BU/ DAGE RESULTS: BARRIER DESCRIPTIONS IA BU/ DAGE RUN IA BU/ DAGE IA BU/ DAGE COMBO18 IA BU/ Area Const IA BU/ Area Const Const	RESULTS: BARRIER DESCRIPTIONS							I-4 BtU PD8	щ			
RESULTS: BARRIER DESCRIPTIONS RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: 14 Btu PD&E RUN: L4 Segment 5 ROW + Shoulder BARRIER DESIGN: L4 Segment 5 ROW + Shoulder I-4 Segment 5 ROW + Shoulder I A Main Barriers COMBO18 Mane Min Avg Max Length Main <	Stantec M Drauer				~ ⊢	3 Nover NM 2.5	lber 2015					
BarrierLengthIf wallIf wallFortNameTypeHeights along BarrierLengthIf wallIf BernCostNameTypeMinAvgMaxLengthAreaVolumeTopRun:RiseNimeItItItItItNVolumeTopRun:RiseCostNoItItItItItItItItItItItNoItItItItItItItItItItItNoItItItItItItItItItItItNoItItItItItItItItItItItRowWItItItItItItItItItItNoItItItItItItItItItItItNoItItItItItItItItItItItRowWItItItItItItItItItItNoIt	RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	COM 00 H	LU PD&E sgment 5 R BO18	+ M O	Should	5						
NameTypeHeights along BarrierLengthIf WallIf BernCostNameMinAvgMaxAreaVolumeTopRun:Rise 1 <t< td=""><td>Barriers</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Barriers											
Min Avg Max Area Volume Top Run:Rise Module ft ft ft ft ft out width width % Module width width width width width % <t< td=""><td>Name</td><td>Type</td><td>Heights a</td><td>along</td><td>Barrier</td><td></td><td>Length</td><td>If Wall</td><td>lf Berm</td><td></td><td></td><td>Cost</td></t<>	Name	Type	Heights a	along	Barrier		Length	If Wall	lf Berm			Cost
ROW Thermeworld ft ft ft ft cu yd ft ft.ft \$ ROW Thermeworld W 18.00 18.00 828 14900 P 4465 14' shoulder W 14.00 14.00 992 13892 P 4167 Retaining Wall W 2.00 16.65 20.00 2768 46097 Total Cost: 8637			Min	Avg	-	Aax	1	Area	Volume	Top Width	Run:Rise	
ROW Themeworld W 18.00 18.00 828 14900 928 14900 4465 14' shoulder W 14.00 14.00 992 13892 4167 4167 Retaining Wall W 2.00 16.65 20.00 2768 46097 1041 1041			ŧ	æ	œ.	114	ŧ	sq ft	cu yd	Ŧ	ft:ft	÷
14' shoulder W 14.00 14.00 992 13892 4167 Retaining Wall W 2.00 16.65 20.00 2768 46097 Total Cost: 8637	ROW Themeworld	3	18.0	0	18.00	18.0	.8	28 1490(0			446986
Retaining Wall W 2.00 16.65 20.00 2768 46097 Total Cost: 8637	14' shoulder	≥	14.0	0	14.00	14.0	ő	92 13892	0			416761
Total Cost: 8637	Retaining Wall	>	2.0	0	16.65	20.0	0 27(38 4609	2			0
											Total Cost:	863747

RESULTS: SOUND LEVELS							4	BtU PD&E						
Stantec M Drauer								23 Noveml FNM 2.5 Calculated	oer 2015 with TNM	о. Б		-		
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:		I-4 BtU I-4 Seg COMB(PD&E ment 5 RO 018	N + Shoulde	-				Average p a State hid	avement type	shall be us substantia	ed unless tes the us	۵. ۵	
ATMOSPHERICS:		68 deç	I F, 50% RH			_			of a differ	ent type with	approval of	FHWA.		
Receiver														
Name	No.	#DUS	Existing	No Barrier						With Barrier				
			LAeq1h	LAeq1h Calculated	Crit'n	Increa	se over e ated	xisting Crit'n Sub'l Inc	Type Impact	Calculated LAeq1h	Noise Red Calculated	uction Goal	Calcul minus	lated
			dBA	dBA	dBA	岛		B		dBA	Вb	đB	₽ B	
Themeworld 1f			0.0	64		66	64.1	10	I	29.0		5.1	80	-2.9
Themeworld 1			0.0	68	0.1	66	68.0	10	Snd Lvl	62.1		5.9	60	-2.1
Themeworld 1k	e		0.0	68	5	66	68.1	10	Snd Lvl	62,1		0.0	ø	-2.0
Themeworld 11	4		1 0.0	68	0	66	68.0	10	Snd Lvl	62.1	-	6.9	80	-2.1
Themeworld 1m	υ.		1 0.0	68	0.0	66	68.0	10	Snd Lvl	61.9		5.1	ø	-1.9
Themeworld RV Pool	9		1 0.0	99 02	0	66	65.0	10	ł	59.3	~	5.7	ø	-2.3
Themeworld 1n	~		1 0.0	0 67	6.	66	67.9	10	Snd Lvl	61.8	~	0.1	õ	-1.9
Themeworld 1o	œ		1 0.0	0 67	1.7	66	67.7	0	Snd Lvl	61.7	•	0.0	ω	-2.0
Themeworld 1p	6		1 0.0	0 67	.5	66	67.5	6	Snd Lvl	61.9	~	9.6	80	-2.4
Themeworld 1q	10		1 0.0	68	8.0	66	68.0	10	Snd Lvl	62.3		5.8	80	-2.2
Themeworld playground	÷-		1 0.0	02	.3	66	70.3	10	Snd Lvl	67.5	10	2.8	80	-5.2
Fort Summit KOA pool	12		1 0.0	0	8.8	66	63.8	10	I	63.(0.2	80	-7.8
Fort Summit KOA 1	13		1 0.0	9	0.1	66	64.0	10	1	63.6	0	0.4	ø	-7.6
Fort Summit KOA 2	41		1 0.0	61	3	66	61.3	10	1	60.8	~	0.5	ø	-7.5
Fort Summit KOA 3	15		1 0.0	61	6	66	61.9	0	1	61.6	0	0.3	œ	-7.7
Fort Summit KOA 4	16		1 0.0	0	0.7	66	60.7	5	1	60.	10	0.2	80	-7.8
Ramada Pool	18		1 0.0	0	0.0	66	0.0	10	inactive	0.0	0	0.0	80	0.0
Ouality Pool	20		1 0.0	0	0.0	66	0.0	10	inactive	0.0	0	0.0	ø	0.0
Themeworld 1a	36		1 0.	9	17	66	64.7	10	1	58.1	10	5.2	80	-1.8
Themeworld 1e	37		1 0.0	9 0	9.1	66	64.6	þ	1	58.6	(0)	6.0	ø	-2.0
themeworld 1i	36		1 0.	0 67	6.7	66	67.9	5	Snd Lvl	61.4		6.1	80	-1.9
themeworld 1h	4		1 0.	0 66	5.6	66	66.6	5	Snd Lvl	59.0	6	7.0	œ	-1.0
themeworld 1d	43		1	0 6	3.3	66	63.3	1	1	61.	0	2.0	œ	-6.0
themeworld 1c	4		1	0	3.3	66	63.3	5	I	61.1	0	2.3	œ	-5.7
themeworld 1b	45		1 0.	0	3.1	66	63.1	Ę	1	60.	0	2.5	80	-5.5
C:\TNM25\230168\TEST\combo					-					23 No	ovember 20	15		

RESULTS: SOUND LEVELS						14 Bt(J PD&E					
themeworld 1a	46	-	0.0	64.4	66	64.4	10	1	60.2	4.2	œ	-3.8
themeworld 2b	48	-	0.0	62.0	66	62.0	10	1	59.9	2.1	œ	-5.9
themeworld 2c	49	-	0.0	62.0	66	62.0	10	1	59.7	2.3	ø	-5.7
themeworld 2d	50	+	0.0	62.1	66	62.1	10	I	58.0	4.1	80	-3.9
themeworld 2e	51	-	0.0	62.6	99	62.6	10	I	58.2	4.4	80	-3.6
themeworld 2f	52	.	0.0	62.4	99	62.4	10	f	58.2	4.2	œ	-3.8
themeworld 3b	53	-	0.0	61.0	66	61.0	9	ſ	58.5	2.5	ø	-5,5
themeworld 3c	54	-	0.0	60.5	66	60.5	10	ľ	58.0	2.5	80	-5.5
themeworld 3d	55	-	0.0	60.2	66	60.2	10	I	58.8	1.4	æ	-6.6
themeworld 3e	56	-	0.0	60.1	99	60.1	10	I	57.3	2.8	œ	-5.2
themeworld 3f	57	-	0.0	60.4	66	60.4	10	ł	56.2	4.2	80	-3.8
themeworld 3g	58	-	0.0	64.8	99	64.8	10	1	58.0	6.8	œ	-1.2
themeworld 5a	59	~ -	0.0	67.6	99	67.6	10	Snd Lvl	61.6	6.0	œ	-2.0
themeworld 5b	09	-	0.0	6.99	99	6.99	10	Snd Lvl	61.1	5.8	œ	-2.2
themeworld 5c	61	-	0.0	66.3	66	66.3	10	Snd Lvl	60.7	5.6	œ	-2.4
themeworld 5d	62	-	0.0	65.6	99	65.6	10	1	60.4	5.2	ø	-2.8
themeworld 4c	63	-	0'0	58.8	66	58.8	10	1	56.0	2.8	æ	-5.2
themeworld 4d	64	-	0.0	58.5	66	58.5	10	1	55.4	3.1	80	-4.9
themeworld 4f	65	-	0.0	58.4	66	58.4	10	1	55.3	3.1	80	-4.9
themeworld 4a	66	-	0.0	58.4	66	58.4	10	1	55.3	3.1	ø	-4.9
themeworld 4h	67	-	0.0	58.4	66	58.4	10		55.2	3.2	80	4.8
themeworld 4i	68	-	0.0	59.7	66	59.7	10		55.9	3.8 9	ø	4.2
themeworld 4e	69	-	0.0	58.3	66	58.3	10	1	55.0	3.3	ø	-4.7
themeworld 2a	71	-	0.0	66.5	99	66.5	10	Snd Lvl	61.5	5.0	õ	-3.0
themeworld 2h	72	-	0.0	65.0	99	65.0	10	1	60.8	4.2	œ	 9.0
themeworld 2i	73	-	0.0	64.6	66	64.6	10	1	60.4	4.2	ω	-3.8
themeworld 2i	74	+	0.0	64.2	99	64.2	10	1	60.3	3.9	œ	4.1
themeworld 2k	75	-	0.0	64.2	66	64.2	10	I	60.3	3.9	æ	4.1
themeworld 2	76	-	0.0	64.3	66	64.3	10	1	60.3	4.0	æ	4.0
themeworld 2m	77	-	0.0	64.9	66	64.9	10	()	60.5	4.4	œ	-3.6
themeworld 2n	78	-	0.0	66.2	66	66.2	10	Snd Lvl	61.5	4.7	œ	-3.3
themeworld 2a	62	-	0.0	65.2	99	65.2	10	Ì	59.9	5.3	œ	-2.7
themeworld 3a	80	-	0.0	63.5	99	63.5	10	l	59.5	4.0	ω	4.0
themeworld 4b	81	-	0.0	59.5	66	59.5	10	2	56.6	2.9	ø	-5.1
themeworld 4a	82	-	0.0	63.4	99	63.4	10		59.1	4.3	œ	-3.7
Dwelling Units	# DC	Is Noise	Reduction	LO LO								
)		Min	Avg	Σ	ах							
		ąp	ąp	Ð	m							
All Selected		60	0.0	3.9	7.0							
All Impacted		16	2.8	5.7	7.0							
All that meet NR Goal		0	0.0	0.0	0.0							

LA RHI PD&F

2

23 November 2015

C:\TNM25\230168\TEST\combo

Stantec Stantec TIND Stantec TIND Stantec TIND Stantec RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: 14 BtU PD&E I a BtU PD&E ROULET/CONTRACT: RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: 14 BtU PD&E I a BtU PD&E RUN: COMBOIG COMBOIG Market Area Area Area Market Name Type Area Constanter Market Area Area Constanter Name Type Area Contenter Area Area Area Contenter Area Area Contenter Area Area Contenter	RESULTS: BARRIER DESCRIPTIONS						Ŧ	Btu PD&I	ш			
RESULTS: BARRIER DESCRIPTIONS I a REU PD&E I a REU PD&E I a Segment 5 ROW + Shoulder COMBOIG I a Segment 5 ROW + Shoulder I a Segment 5 ROW Themeworld I the Run I the Run I the Run I the Run I a Segment 5 ROW Themeworld I the Run I the Run <th< td=""><td>Stantec M Drauer</td><td></td><td></td><td></td><td>23 Nove TNM 2.4</td><td>ember 2 5</td><td>015</td><td></td><td></td><td></td><td></td><td></td></th<>	Stantec M Drauer				23 Nove TNM 2.4	ember 2 5	015					
Barriers Image Image Image ImageType Image MinHeights along Barrier AvgLength If WallIf BernCostName MinAvgMaxVelumeITopRun:Rise 	RESULTS: BARRIER DESCRIPTIONS 	C 14 B C 0 %	:U PD&E sgment 5 R BO16	OW + Sh	oulder							
NameTypeHeights afortLengthIf WallIf BermCost 1 Min 4 Min 4 Max 6 Min 7 Max 7 Max 1 Min 1 Max 4 Max 4 Max 4 Max 4 Max 7 Max 7 Max 7 Max 7 Max 1 Min 1 Max 7 Max 7 Max 1 Max 1	Barriers					0						
MinAvgMaxAreaVolumeTopRun: Rise $(1, 1)$ $(1, 2)$ $(1, 2)$ $(1, 2)$ $(1, 2)$ $(1, 2)$ $(1, 2)$ $(1, 1)$ $(1, 2)$	Name	Type	Heights a	Ilong Bar	rier	Len	gth	f Wall	lf Berm			Cost
ft ft<			Min	Avg	Мах			Area	Volume	Top Width	Run:Rise	
ROW Themeworld W 16.00 16.00 16.00 828 13244 M 93732 14' shoulder W 14.00 14.00 14.00 992 13892 41676 41676 Retaining Wall W 2.00 16.65 20.00 2768 46097 Total Cost: 81408			ŧ	41	ŧ	ŧ		sq ft	cu yd	Ĥ	ft:ft	¢
14' shoulder W 14.00 14.00 992 13892 41676 41676 Retaining Wall W 2.00 16.65 20.00 2768 46097 1740 1400 Retaining Wall W 2.00 16.65 20.00 2768 46097 1740 1740	ROW Themeworld	3	16.0	0 16.	00 16	00.	828	13244				397321
Retaining Wall W 2.00 16.65 20.00 2768 46097 Total Cost: 81408	14' shoulder	3	14.0	0 14.	00 14	00.	992	13892				416761
Total Cost: 81408	Retaining Wall	×	2.0	0 16.	65 20	00.0	2768	46097				
											Total Cost:	814082

RESULTS: SOUND LEVELS							Ŧ	Btu PD&E						
Stantec M Drauer								23 Noveml TNM 2.5 Calculated	oer 2015 With TNM	л С		_	-	
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	<u> </u>	4 BtU F 4 Segn OMBO	PD&E nent 5 RO 16	W + Should	er				Average p a State hid	avement type	shall be use substantiat	es the usi	Ð	
ATMOSPHERICS:	Ū	38 deg	F, 50% RH	_		_			of a differ	ent type with a	approval of F	=HWA.		
Receiver														
Name	No.	DUs	Existing	No Barrie		1		:	1	With Barrier	-		-	
			LAeq1h	LAeq1h Calculate	d Crit'n	Calc	sase over ulated	existing Crit'n Sub'l Inc	Type Impact	Calculated LAeq1h	Noise Redu Calculated	Goal	Calcula minus Goal	ted
			dBA	dBA	dBA	æ		dB		dBA	dB	đB	æ	
Themeworld 1f	-	-	0.0	0	4.1	66	64.1	10	1	59,2	4	Ø	8	-3.1
Themeworld 1i	0	-	0.0	0	8.0	66	68.0	10	Snd Lvl	62.9	Ω.	1	80	-2.9
Themeworld 1k	e	F	0,0	9	8.1	66	68.1	10	Snd Lvi	62.8	Ω.	3	œ	-2.7
Themeworld 11	4	Ē	0.0	9	8.0	66	68.0	10	Snd Lvl	62.9	ŝ	Γ.	œ	-2.9
Themeworld 1m	S	-	ö	0	8.0	66	68.0	10	Snd Lvl	62.6	Ś	4	80	-2.6
Themeworld RV Pool	Ø	-	0	0	5.0	66	65.0	5		59.5	ŝ	5	80	-2.5
Themeworld 1n	2	-	0	0	6.7.9	66	67.9	5	Snd Lvl	62.5	ŝ	4	0	-2.6
Themeworld 1o	œ	~	ō	°	7.7	99	67.7	10	Snd Lvl	62.4	ιά ·	ei i	80	-2.7
Themeworld 1p	თ	-	.0	0	57.5	99	67.5	5	Snd Lvl	62.5	ŝ	0.	œ	-3.0
Themeworld 1q	10	-	0	0	8.0	66	68.0	5	Snd Lvl	62.7	ŝ	e.	80	-2.7
Themeworld playground	11	-	0	0	0.3	66	70.3	10	Snd Lvl	67.7	2	9	80	-5.4
Fort Summit KOA pool	12	-	0.	0	33.8	66	63.8	10		63.6	0	2	80	-7.8
Fort Summit KOA 1	13	-	0	0	64.0	66	64.0	10	I	63.6	0	4	80	9.7-
Fort Summit KOA 2	14	-	ö	0	51.3	66	61.3	10		60.8	0	.5	ø	-7.5
Fort Summit KOA 3	15		0	0	51.9	66	61.5	10	1	61.6	0	در	80	-7.7
Fort Summit KOA 4	16	-	Ö	0	50.7	66	60.7	Ş	I	60.5	0	N	80	-7.8
Ramada Pool	18	-	Ö	0	0.0	66	0.0	5	inactive	0.0	0	0.	8	0.0
Ouality Pool	20	-	Ö	0	0.0	66	0.0	9	inactive	0.0	0	0	80	0.0
Themeworld 1a	36	-	o	0	34.7	66	64.7	ç	1	58.7	9	0	ø	-2.0
Themeworld 1e	37	-	0	0	34.6	66	64.6	10	1	58.5	5	8	œ	-2.2
themeworld 1i	39	-	Ö	0	57.9	66	67.9	10	Snd Lvl	62.4	5	5.	œ	-2.5
themeworld 1h	41		0	0	36.6	66	66.6	10	Snd Lvl	29.6	9	.7	œ	-1.3
themeworld 1d	43	-	0	0	53.3	66	63.5	3 10	1	61.5	1	89	œ	-6.2
themeworld 1c	44	-	0	0	53.3	66	63.5	3 10		61.2	2	5	œ	-5.9
themeworld 1b	45		Ö	0	33.1	66	63.	1	1	60.8	3	3	80	-5.7
C:\TNM25\230168\TEST\combo					-					23 No	vember 201	2ı		

RESULTS: SOUND LEVELS						14 Bt	U PD&E					
themeworld 1a	46	-	0.0	64,4	99	64.4	10	1	60.3	4.1	∞	-3.9
themeworld 2b	48	-	0.0	62.0	99	62.0	10	1	59.9	2.1	œ	-5.9
themeworld 2c	49	+	0.0	62.0	66	62.0	10	I	59.7	2.3	80	-5.7
themeworld 2d	50		0.0	62.1	66	62.1	10	1	58.1	4.0	80	-4.0
themeworld 2e	51	4	0.0	62.6	66	62.6	10	I	58.3	4.3	80	-3.7
themeworld 2f	52	٢	0.0	62.4	99	62.4	10	I	58.4	4.0	œ	4.0
themeworld 3b	53	-	0.0	61.0	99	61.0	10	ŀ	58.5	2.5	60	-5.5
themeworld 3c	54	-	0.0	60.5	99	60.5	10	I	58.1	2.4	œ	-5.6
themeworld 3d	55	-	0.0	60.2	66	60.2	10	I	58.9	1.3	ø	-6.7
themeworld 3e	56	-	0.0	60.1	66	60.1	10	I	57.4	2.7	œ	-5.3
themeworld 3f	57	-	0.0	60.4	66	60.4	10	I	56.3	4.1	80	-3.9
themeworld 3g	58	-	0.0	64.8	99	64.8	10	1	58.2	6.6	œ	-1.4
themeworld 5a	59	-	0.0	67.6	66	67.6	10	Snd Lvl	61.6	6.0	œ	-2.0
themeworld 5b	60	-	0.0	6.99	66	6.99	10	Snd Lvl	61.1	5.8	œ	-2.2
themeworld 5c	61	-	0.0	66.3	99	66.3	10	Snd Lvl	60.7	5.6	œ	-2.4
themeworld 5d	62	-	0.0	65.6	99	65.6	10	1	60.4	5.2	œ	-2,8
themeworld 4c	63	+	0.0	58.8	99	58.8	10	1	56.0	2.8	œ	-5.2
themeworld 4d	64	-	0.0	58.5	99	58.5	10	1	55.4	3.1	œ	4.9
themeworld 4f	65	-	0.0	58.4	99	58.4	10	1	55.3	3.1	00	4.9
themeworld 4g	66	-	0.0	58.4	99	58.4	10	1	55.4	3.0	ø	-5.0
themeworld 4h	67	-	0.0	58.4	99	58.4	10	1	55.3	3.1	80	4.9
themeworld 4i	68	٢	0.0	59.7	99	59.7	10	1	56.1	3.6	80	-4.4
themeworld 4e	69	1	0.0	58.3	99	58.3	10	1	55,1	3,2	80	-4.8
themeworld 2g	71	F	0.0	66.5	99	66.5	10	Snd Lvl	62.0	4.5	00	-3.5
themeworld 2h	72	-	0.0	65.0	66	65.0	10	1	61.3	3.7	80	4.3
themeworld 2i	73	٢	0.0	64.6	99	64.6	10	1	60.9	3.7	80	4.3
themeworld 2j	74	-	0.0	64.2	66	64.2	10	1	60.8	3.4	80	4.6
themeworld 2k	75	-	0.0	64.2	99	64.2	10	I	60.8	3.4	00	4.6
themeworld 21	76	٢	0.0	64.3	99	64.3	10		60.8	3.5	ø	4.5
themeworld 2m	77	-	0.0	64.9	66	64.9	10		60.9	4.0	80	4.0
themeworld 2n	78	1	0.0	66.2	99	66.2	10	Snd Lvl	61.9	4.3	80	-3.7
themeworld 2a	52	۲	0.0	65.2	66	65.2	10	I	59.9	5.3	œ	-2.7
themeworld 3a	80	-	0.0	63.5	66	63.5	10	I	59.5	4.0	80	4.0
themeworld 4b	81	+	0.0	59.5	99	59.5	10	Ŀ	56.6	2.9	80	-5.1
themeworld 4a	82	-	0.0	63.4	66	63.4	10	I	59.1	4.3	œ	-3.7
Dwelling Units	<u>0</u> #	Us No	ise Reduct	noi								
		Mir	Avi	-	flax							
		æ	æ	0	ß							
All Selected		60	0.0	3.6	6.7							
All Impacted		16	2.6	5.2	6.7							
All that meet NR Goal		0	0.0	0.0	0.0							

23 November 2015

2

C:\TNM25\230168\TEST\combo

Stantec 18 November 2015 RESULTS: BARRIER DESCRIPTIONS 14 BtU PD&E RESULTS: BARRIER DESCRIPTIONS 14 BtU PD&E PROJECT/CONTRACT: 14 BtU PD&E RESULTS: BARRIER DESIGN: 14 BtU PD&E BARRIER DESIGN: 14 Segment 5 Festiva 14' BARRIER DESIGN: 14 Segment 5 Festiva 14' BARRIER DESIGN: 14 Segment 5 Festiva 14' Barriers 14 Segment 5 Festiva 14' Mane 14' Mane 14' Mane 14' Mane 14.00 Mat 14.00	RESULTS: BARRIER DESCRIPTIONS						-4 BtU PD8	ų			
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT:PROJECT/CONTRACT:14 BtU PD&ERUN:14 Segment 5 Festiva 14'RUN:14 Segment 5 Festiva 14'BARRIER DESIGN:14 Segment 5 Festiva 14'BarriersTypeMinAvgMinAvgMinAvgMinAvgMinAvgMin14.00 <td< td=""><td>Stantec M Drauer</td><td></td><td></td><td></td><td>18 Noven TNM 2.5</td><td>1ber 2015</td><td></td><td></td><td></td><td></td><td></td></td<>	Stantec M Drauer				18 Noven TNM 2.5	1ber 2015					
Barriers Type Heights along Barrier Length If Wall If Berm Cos Name Nin Avg Max Length If Wall If Berm Cos Name Nin Avg Max Length If Wall If Berm Cos Name Nin Avg Max Length Run:Rise Voiume Voiume Voiume Voiume Voiume Name N Area Voiume <	RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	14 Bt 14 Se Fest	U PD&E gment 5 Fe	stiva 14'			1				
Name Type Heights along Barrier Length If Wall If Berm Cos Nin Avg Max Area Volume Top Run:Rise Cos 1 Area Volume Top Width Area Volume Top Run:Rise 1 Area Area Volume Top Run:Rise Area Volume Top Run:Rise 1 Area Area Volume Top Run:Rise Area Volume Top Run:Rise 1 Area Area Volume Top Run:Rise Area Volume Top Run:Rise Area Volume Volume Volume Volume Volume Volume Volume Volume Volume </td <td>Barriers</td> <td></td>	Barriers										
Min Avg Max Area Volume Top Run:Rise Image: Max Area Volume Top Run:Rise Midth Mi	Name	Type	Heights al	ong Barrie	-	Length	If Wall	If Berm			Cost
ft ft ft ft ft sq ft cu yd ft ft:ft \$ Festiva 14 W 14.00 14.00 954 13351 <td></td> <td></td> <td>Min</td> <td>Avg</td> <td>Мах</td> <td>1</td> <td>Area</td> <td>Volume</td> <td>Top Width</td> <td>Run:Rise</td> <td>1</td>			Min	Avg	Мах	1	Area	Volume	Top Width	Run:Rise	1
Festiva 14 W 14.00 14.00 954 13351			ŧ	ft	ft	Ŧ	sq ft	cu yd	Ŧ	ft:ff	¢
	Festiva 14	3	14.00	14.00	14.0	0 95	4 13351			1	400523
Total Cost:										Total Cost:	400523

RESULTS: SOUND LEVELS							<u>4</u>	tu PD&I						
Stantec							÷	8 Novem	ber 2015					1
M Drauer							F	NM 2.5						
							U	alculated	I with TNM	2.5				
RESULTS: SOUND LEVELS												_	-	
PROJECT/CONTRACT:		I-4 BtU	PD&E											
RUN:		I-4 Segi	ment 5 Fe	stiva 14'										
BARRIER DESIGN:		Fest_14	-						Average p	avement type	shall be use	d unless		_
				:					a State hi	ghway agency	/ substantiate	es the use		
AI MOSPHERICS:		68 deg	F, 50% R	I		-			of a differ	ent type with	approval of F	HWA.		
Receiver														
Name	No.	#DUs	Existing	No Barrie	-					With Barrier				
			LAeq1h	LAeq1h		Increase	over ex	isting	Type	Calculated	Noise Reduc	ction		Τ
				Calculate	d Criťn	Calculate	Ū Ŵ	riťn ub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus	127
			dBA	dBA	dBA	đB	B			dBA	dB	æ	e e e	
Festiva 1	28	9	0	0	2.2	66	72.2	10	Snd Lvl	65.7	9	10	00	1.5
Festiva 3	29	8	0	0	2.6	66	72.6	10	Snd Lvl	65.7	9	0	00	-
Festiva 2	31	6	0	0	4.9	66	74.9	10	Snd Lvl	67.5	.7	**	8	0.6
Festiva 4	32	6	o	0	3.5	66	73.5	10	Snd Lvl	67.8	5.1	•	۲ <u>۲</u>	3
Festiva 5	33	2	0	9	57.3	66	67.3	10	Snd Lvl	65.4	1.9	0	φ ∞	5
Festiva 6	34	3	Ö	9	6.1	66	66.1	10	Snd Lvl	64.5	1.6	(0	9	4.0
Festiva 2nd a	39	9	0	0	82.1	66	62.1	10	l	603	1.8	~	φ ∞	2.0
Festiva 2nd b	40	4	0	9 0	11.5	66	61.5	10	1	59.2	2.5	~	8	1
Festiva 2nd c	41	9	o	0	1.7	66	61.7	10	1	59.3	2.4		ср Ю	9.6
Dwelling Units		# DUs	Noise R	eduction										11
			Min	Avg	Max	1								-
			Вb	Вb	æ									
All Selected		52	÷	9	4.1	7.4								
All Impacted		36	÷	9	5.0	7.4								
All that meet NR Goal		0	Ó	0	0.0	0.0								_
														1

18 November 2015

۳

RESULTS: SOUND LEVELS							I-4 BtU PD8	щ					
Stantec							18 Nover	nber 2015					<u> </u>
M Drauer							TNM 2.5						
							Calculate	d with TNA	12.5				
RESULTS: SOUND LEVELS												-	
PROJECT/CONTRACT:		I-4 BtU	PD&E										
RUN:		I-4 Seg	ment 5										
BARRIER DESIGN:		Fest_1	4long					Average	oavement type	e shall be use	d unless		
ATMOSPHERICS:		68 deg	F, 50% RH					a State hi of a differ	ghway agency ent type with	y substantiate approval of F	es the use HWA.		_
Receiver										-			1
Name	No.	\$NQ#	Existing	No Barrier					With Barrier				
			LAeq1h	LAeq1h		Increase over	er existing	Type	Calculated	Noise Reduc	ction	P	1
				Calculated	Criťn	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus	
			dBA	dBA	dBA	dB	Æ		dRA	ą	ą		T
Festiva 1	3	4		5 CZ	ŭ	7		Cod Lul			})	T S
Festiva 3	1 X	,	0.0	72.6		2.2	i .c		65.4		2 0		
Festiva 2	ά i è		0	74.9			σ	Snd V			4 10		
Festiva 4	8	, 0,	0.0	73.5	6 6	23		0 Snd Lvl					2 1
Festiva 5	8	~	0.0	67.1	99	67	-	0 Snd Lvl	62.9	6.4		 	00
Festiva 6	3		0.0	66.0	9	66	1	0 Snd Lvl	62.4	3.6	6	8	4
Festiva 2nd a	ĕ	9	0.0	62.1	99	5 62	-		59.	2.6	(0	8	4
Festiva 2nd b	40	4	0.0	61.5	9	61	.5		58.5	9 2.6	10	0	4
Festiva 2nd c	4	U	0.0	61.5	99	61	.5		59.2	2.3	6	8	1.0
Dwelling Units		\$ND #	Noise Re	duction									1
			Min	Avg	Мах								_
			뗭	đB	æ	1							
All Selected		52	2.3	4.8	3.7.8	10							
All Impacted		36	3.6	5.6	1.5	10							
All that meet NR Goal		0	0.0	0.0	0.0	0							

RESULTS: BARRIER DESCRIPTIONS						4 BtU PD&	щ			
Stantec M Drauer			¢	18 Novem TNM 2.5	iber 2015					
RESULTS: BARRIER DESCRIPTIONS	-									
RUN:	14 BT 14 Se	u PU&E gment 5								
BARRIER DESIGN:	Fest	14long								
Barriers										
Name	Type	Heights al	ong Barrie	Ŀ	Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		4	Ĥ	ŧ	Ĥ	sq ft	cu yd	ħ	ft:ft	Ф
Barrier10	8	14.00	14.00	14.00	1287	18011				540330
									Total Cost:	540330

RESULTS: BARRIER DESCRIPTIONS						I-4 BtU PD8	ш			
Stantec M Drauer				18 Noverr TNM 2.5	1ber 2015					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	14 Bt 14 Sc Fest	:U PD&E egment 5 Fe _16'	stiva ROW	_						
Barriers										
Name	Type	Heights al	ong Barrie	<u>ب</u>	Length	If Wall	If Berm			Cost
	_	Min	Avg	Max	1	Area	Volume	Top Width	Run:Rise	
		Ŧ	Ħ	Ĥ	Ħ	sq ft	cu yd	ŧ	ft:ft	ω
Barrier9	Χ	16.00	16.00	16.00	89	8 14362				430862
									Total Cost:	430862

18 Nov

-

18 November
2015

-

RESULTS: SOUND LEVELS								-	4 BtU PD&						
Stantec									18 Novem	ber 2015					
M Drauer									TNM 2.5						
									Calculate	d with TNM	12.5				
RESULTS: SOUND LEVELS															
PROJECT/CONTRACT:		I-4 Bt	U PD&	m			-								
RUN:		I-4 Se	gment	5 Fes	tiva ROW										
BARRIER DESIGN:		Fest_	16'							Average p	avement type	shall be used	d unles	S	
ATMOSPHERICS		68 do	5 П Л	N%, RH						a State hi	ghway agency	substantiate	s the u	se	
			ů ,								citt type with t		TIVEN,		
Name	No.	#DUs	Exis	sting	No Barrier						With Barrier				
			LA _e	q1h	LAeq1h		_	ncrease over	existing	Туре	Calculated	Noise Reduc	tion	_	
					Calculated	Crit'n	0	alculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	E C	alculated
			dBA		dBA	dBA	D	Ø	₿		dBA	đB	đB	89	
Festiva 1	28		თ	0.0	72.	9	66	72.9	10) Snd Lvl	65.9	7.0		00	-1.0
Festiva 3	29		00	0.0	73.	ω	66	73,3	3 10	Snd Lvl	66,1	7.2		~	-0.8
Festiva 2	31		9	0.0	75.	_	66	75.1	10) Snd Lvl	67.5	7.6		∞	-0.4
Festiva 4	32		9	0.0	74.	N	66	74.2	10) Snd Lvl	67.5	6.7		~	-1.3
Festiva 5	33		N	0.0	67.	0	66	67.6	5 10	Snd Lvl	65.3	2.3		~	-5.7
Festiva 6	34		N	0.0	66.	ω	66	66.3	10) Snd Lvl	64.6	1.7		œ	-6.3
Festiva 2nd a	39		თ	0.0	62.	4	8	62.4	10	1	60.3	2.1		~	-5.9
Festiva 2nd b	40		4	0.0	61.	co	66	61.8	10	1	59.2	2.6		~	-5.4
Festiva 2nd c	41		ර	0.0	61.	0	66	61.8	s 10	Į	59.3	2.5		œ	-5.5
Dwelling Units		# DUs	Noi	se Rec	fuction										
			Min		Avg	Max									
			đB		đB	dB									
All Selected		(JT	ž	1.7	4.	4	7.6								
All Impacted		w	5	1.7	5	4	7.6								
All that meet NR Goal			0	0.0	0.	0	0.0								

ള
~
2
F
₫.
2
Ö
က္ဆ
2
<u> </u>
<u>щ</u>
Ľ
ĸ
2
ш
ö
Ĕ
1
2
- Ш
2
_

I-4 BtU PD&E

Stantec M Drauer	

18 November 2015 TNM 2.5

> RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT:

PROJECT/CONTRACT: RUN:

I.4 BtU PD&E I.4 Segment 5 Festiva ROW Fest_18'

BARRIER DESIGN:

Cost Э Total Cost: Run:Rise fi:fi Width Top ŧ Volume If Berm cu yd 16157 If Wall Area sq ft 898 Length ŧ 18.00 Max ¢ Type Heights along Barrier 18.00 Avg ¢ 18.00 Min ŧ ≥ Barriers Name Barrier9

484719 484719

C:\TNM25\230168\Seg 5_rev\Festiva ROW

Stattlec 18 November 2015 ND rauer ND rauer ND rauer ND rauer RESULTS: SOUND LEVELS I a BU DOBE REVIER I a BU DOBE RUN: Feet Jos RESULTS: SOUND LEVELS I a BU DOBE RUN: Feet Jos ATMORSPHERICS: Gad Gad ATMORSPHERICS: Eastive ROW ATMORSPHERICS: Gad Gad ATMORSPHERICS: Gad Gad ATMORSPHERICS: Gad Gad Receiver No. Partin Average pavement y Areado Gad Gad Areado	/ELS				_	-4 BtU PD&	ш						
TIMM 2.5 Calculated with TNM 2.5 Calculated festive ROW Fast, 16 ATMOSPHERICS: Calculated festive ROW ATMOSPHERICS: Calculated With Barri No. #0 Meditive Generative Row Average pavement ty Average Row Average Row <th col<="" th=""><th></th><th></th><th></th><th></th><th></th><th>18 Noven</th><th>1ber 2015</th><th></th><th></th><th></th><th></th><th></th></th>	<th></th> <th></th> <th></th> <th></th> <th></th> <th>18 Noven</th> <th>1ber 2015</th> <th></th> <th></th> <th></th> <th></th> <th></th>						18 Noven	1ber 2015					
RESULTS: SOUND LEVELS A BU PD&E REOLECTICONTRACT: FUN: FLASENTER DESIGN: FLASENT A BU PD&E ATMOSPHERICS: FLASENT A BARIER DESIGN: Feet/18' ATMOSPHERICS: A restar Feet/18' ATMOSPHERICS: ATMOSPHERICS: ATMOSPHERICS: ATMOSPHERICS: ATMOSPHERICS: ATMOSPHERICS: Reteriva A RH PD&E ATMOSPHERICS: ATMOSPHERICS: ATMOSPHERICS: Reteriva A RH PD&E ATMOSPHERICS: ATMOSPHERICS: Reteriva A RH PD&E ATMOSPHERICS: ATMOSPHERICS: Reteriva A Reteriva ROW ATMOSPHERICS: ATMOSPHERICS: Reteriva A Reteriva ROW ATMOSPHERICS: ATMOSPHERICS: Reteriva A Reteriva ROW ATT In Parting A Reteriva A Reteriva ROW A Reteriva A REGULATERICS: A Reteriva A Reteriva ROW Feetiva 3 A REGULATERIC A REGULATERICS: Reteriva A REGULATERIC A REGULATERICS: Reteriva A REGULATERICS: A REGULATERICS A REGULATERICS A REGULATERICS: Reteriva A REGULATERICS A REGULATERICS						Calculato	A with TNR	1 2 5			-		
PROJECT/CONTRACT: 14 BLU PD&E I 4 Segment 5 Festiva ROW Arenge pavement y a State highway age RUN: 14 Segment 5 Festiva ROW Arenge pavement y a State highway age ATMOSPHERICS: 14 Segment 5 Festiva ROW Arenge pavement y a State highway age ATMOSPHERICS: 68 deg F, 50% RH Arenge pavement y a State highway age Receiver Anot ATMOSPHERICS: Arenge pavement y a State highway age Non- #DUS Existing No #DIS Receiver No. #DIS Med th Log th Arenge pavement y a State highway age Non- #DIS Most ABA Ade th Arenge pavement y a State highway age Non- #DIS Most ABA Ade th Arenge pavement y a State highway age Non- #DIS Ade th Ade th Arenge pavement y a State highway age Restor Ade th Ade th Ade th Ade th Ade th Restor Ade th Ade th Ade th Ade th Ade th Ade th Festiva 2 2 2 0 72.2 10 Ad LVI	VELS					Calculate		6.7 1					
I-4 Segment 5 Featura ROW BARRIER DESIGN: Featura ROW Feat_18* Average pavement ty a state highway age ATMOSPHERICS: State featura ROW ATMOSPHERICS: Average pavement ty a state highway age ATMOSPHERICS: Average pavement ty a state highway age ATMOSPHERICS: Average pavement ty a state highway age Receiver No. #DUs Everiting Average pavement ty a state highway age Receiver No. #DUs Keithing Average pavement ty a state highway age Receiver No. #DUs Keithing Average pavement ty a verage pavement ty a state highway age Receiver No. #DUs Average verage pavement ty a verage pavement ty a verage state to the toth toth toth toth toth toth	I-4 BtU Pt	0&E											
BARRIER DESIGN: Fest_ris Average pavement type with a state highwary ager Average pavement type with a state highwary ager ATMOSPHERICS: 68 deg f, 50% RH Average pavement type with a state highwary ager Average pavement type with a state highwary ager Receiver No. #Dus Kulls Kulls Kulls Mith Barrier Average pavement type with a state highwary ager Receiver No. #Dus Kulls Kulls Mith Barrier Mith Barrier Receiver No. #Dus Kulls Mith Barrier Mith Barrier Mith Barrier Receiver No. #Dus Kalls No. #Dus No. #Dus Mith Barrier Name No. #Dus Kalls No. #Dus No. #Dus Mith Barrier Receiver No. #Dus Max Datrier Mith Barrier Mith Barrier Receiver Sub'I Inc. Calculated Critin Critin Top Mith Barrier Festiva 2 2 0 2 6 6	I-4 Segme	nt 5 Festi	va ROW		-								
Atmospherics:a state highway ageAtmospherics:a state highway ageReceivera state highway ageReceivera state highway ageNo.#DUsAtthe righway ageReceiverNo.#DUsFexistingNo.MolAtthe righway ageReceiverNo.#DUsAbdAbsAbsAbsAtthe righway ageReceiverNo.#DUsAbdAbsAbsAbsAbsAnthe righway ageFestiva 1DAbsAbsAbsAbsAbsAbsAbsFestiva 32980.07.2.9667.3.310Snd LuFestiva 32323200.07.4.2667.4.210Snd LuFestiva 23320.067.6667.4.210Snd Lu66Festiva 23320.067.6667.4.210Snd Lu66Festiva 23320.067.6667.4.210Snd Lu66Festiva 2AbsAbsAbsAbsAbsAbsAbsAbsAbsAbsFestiva 2AbsAbsAbsAbsAbsAbsAbsAbsAbsAbsAbsAbsFestiva 2AbsAbsAbsAbsAbsAbsAbsAbsAbs <t< td=""><td>Fest_18'</td><td></td><td></td><td></td><td></td><td></td><td>Average </td><td>bavement type</td><td>shall be use</td><td>d unless</td><td></td><td></td></t<>	Fest_18'						Average	bavement type	shall be use	d unless			
Receiver No. #Dus Existing No. #Th Barri Name No. #Dus Existing No. #Increase over existing Type Adduate Name No. #Dus Existing No. #Dus Existing No. #Increase No. #Increase No. Mith Barri Festiva 1 D dBA dBA dBA Calculated Critin Impact Laeqtin Festiva 1 D dBA	68 deg F,	50% RH					a State hi of a differ	ghway agency ent type with	/ substantiate approval of F	es the use HWA.			
NameNo.#DUsExistingNoMot#MUsMith BarrierAdditionAdditionAdditionAdditionAdditionAdditionAdditionAdditionFestiva 12AdditionAdditionAdditionAdditionAdditionAdditionAdditionFestiva 12Addition72.9AdditionAdditionAdditionAdditionAdditionAdditionFestiva 22073.16673.110Sad LiuSad Liu66Festiva 23190.073.16673.110Sad Liu66Festiva 3220.073.16673.110Sad Liu66Festiva 43320.074.26666.374.21056Festiva 53320.061.86667.610Sad Liu66Festiva 53320.061.86666.31070.166Festiva 660.061.86666.31070.170.170.1Festiva 70 d660.061.86666.31070.170.170.1Festiva 2nd b60.061.86666.31070.170.170.170.170.1Festiva 2nd b666666.36674.27070.170.170.1Festiva 2nd b6					-							11	
	No. #DUs E	kisting 1	Vo Barrier					With Barrier					
		Aeq1h L	-Aeq1h		Increase ove	r existing	Type	Calculated	Noise Reduc	ction		T	
Festiva 1 dBA		0	Calculated	Criťn	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goot		
Festiva 1 28 6 0.0 72.9 56 72.9 10 Snd Lvl 66 Festiva 3 29 8 0.0 73.3 66 73.3 10 Snd Lvl 66 Festiva 2 31 9 0.0 75.1 66 73.3 10 Snd Lvl 66 Festiva 2 32 9 0.0 74.2 66 74.2 10 Snd Lvl 66 Festiva 5 33 2 0.0 67.6 66 67.6 10 Snd Lvl 66 Festiva 5 33 2 0.0 66.3 66 67.6 66 67.6 10 Snd Lvl 66 Festiva 5 5 66.3 66 67.6 66 67.6 66 67.6 66 67.6 66 67.6 66 67.6 66 66.3 10 5.4 67 66 66.3 10 5.4 66 66.3 10 5.	q	3A o	IBA	dBA	đB	æ		dBA	đB	gp	dB dB	T	
Festiva 3 29 8 0.0 73.3 66 73.3 10 Sind Lvl 66 Festiva 2 31 9 0.0 75.1 66 75.1 10 Sind Lvl 66 Festiva 2 32 9 0.0 74.2 66 75.1 10 Sind Lvl 66 Festiva 5 33 2 0.0 67.6 66 73.2 10 Sind Lvl 66 Festiva 5 33 2 0.0 67.6 66 67.6 10 Sind Lvl 66 Festiva 5 66.3 66.3 66 61.8 66 61.8 70 66 Festiva 2nd a 39 6 0.0 61.8 66 61.8 10 70	28 6	0.0	72.9	99	72.	9	O Snd Lvl	65.2	12	2	С 0	(°.	
Festiva 2 31 9 0.0 75.1 66 75.1 10 Snd Lvl 66 Festiva 4 32 9 0.0 74.2 66 74.2 10 Snd Lvl 66 Festiva 5 33 2 0.0 67.6 66 74.2 10 Snd Lvl 66 Festiva 5 33 2 0.0 65.3 66 65.3 10 Snd Lvl 66 Festiva 5 34 2 0.0 65.4 66 65.3 10 Snd Lvl 66 Festiva 2nd a 39 6 0.0 61.8 66 61.8 10 $$	29 8	0.0	73.3	99	73.	3 10	Snd Lvl	65.0	Ø		0 0	0	
Festiva 4 32 9 0.0 74.2 66 74.2 10 Snd Lvl 66 Festiva 5 33 2 0.0 67.6 66 67.6 10 Snd Lvl 66 Festiva 5 34 2 0.0 67.6 66 67.6 10 Snd Lvl 66 Festiva 5 34 2 0.0 66.3 66 67.6 10 Snd Lvl 66 Festiva 5 36 66 61.8 66 61.8 10 56 56 Festiva 2nd b 40 40 61.8 66 61.8 10 56 56 Festiva 2nd b 41 6 61.8 66 61.8 10 56 56 Festiva 2nd c 41 6 61.8 66 61.8 10 56 56 Festiva 2nd c 41 6 61.8 66 61.8 10 56 56 56 56 <t< td=""><td>31 9</td><td>0.0</td><td>75.1</td><td>66</td><td>75.</td><td>1</td><td>Snd Lvl</td><td>66.3</td><td>80</td><td>0</td><td>8</td><td>00</td></t<>	31 9	0.0	75.1	66	75.	1	Snd Lvl	66.3	80	0	8	00	
Festiva 5 33 2 0.0 67.6 66 67.6 10 Snd Lvl 66 Festiva 6 34 2 0.0 66.3 66 67.6 10 Snd Lvl 66 Festiva 6 66.3 66 66.3 10 Snd Lvl 66 Festiva 2nd a 39 6 0.0 61.8 66 61.8 10 56 Festiva 2nd b 40 4 0.0 61.8 66 61.8 10 56 Festiva 2nd b 41 6 0.0 61.8 66 61.8 10 56 Festiva 2nd c 41 6 0.0 61.8 66 61.8 10 56 Dwelling Units # DUs Min Avg Max 56 51 56 56 56 56 56 56 56 56 56 56 56 56 56 <	32 9	0.0	74.2	99	74.	2 10	Snd Lvl	66.3	5.7		0. 0.	-	
Festiva 6 34 2 0.0 66.3 66 66.3 10 Snd Lvl 6 Festiva 2nd a 39 6 0.0 62.4 66 62.4 10 $$ 56 Festiva 2nd b 40 4 0.0 61.8 66 61.8 10 $$ 56 Festiva 2nd b 41 6 61.8 66 61.8 10 $$ 56 Festiva 2nd c 41 6 0.0 61.8 66 61.8 10 $$ 56 Dwelling Units # DUs Moise Reduction Aug Max Max	33 2	0.0	67.6	99	67.	6 10	Snd Lvl	65.0	2.6	0	8	4	
Festiva 2nd a 39 6 0.0 62.4 66 62.4 10 51 Festiva 2nd b 40 4 0.0 61.8 66 61.8 10 56 Festiva 2nd b 40 4 0.0 61.8 66 61.8 10 56 Festiva 2nd c 41 6 0.0 61.8 66 61.8 10 56 Dwelling Units # DUs Min Avg Max Max Max Max Max All Selected 52 2.0 5.1 8.8	34 2	0.0	66.3	66	66.	3 1(Snd Lvl	64.3	2.0	0	8	0	
Festiva 2nd b 40 4 0.0 61.8 66 61.8 10 51 Festiva 2nd c 41 6 0.0 61.8 66 61.8 10 51 Powelling Units # DUs Noise Reduction # Aug Max 58 All Selected 52 2.0 5.1 8.8 58 All Impacted 52 2.0 5.1 8.8 58	39 6	0.0	62.4	66	62.	4	1	59.8	2.6	0	8	4	
Festiva 2nd c 41 6 0.0 61.8 66 61.8 10 50 Dwelling Units # DUs Noise Reduction # DUs Noise Reduction 10 50 Melling Units # DUs Min Avg Max 40 10 50 All Selected 52 2.0 5.1 8.8 All moacted 53 54 50 53 54 54 56 51 56 51 56 51 58 56 51 56 51 56 51 56 56 51 <td>40 4</td> <td>0.0</td> <td>61.8</td> <td>66</td> <td>61.</td> <td>8 10</td> <td>1</td> <td>58.5</td> <td>3.3</td> <td>-</td> <td>8</td> <td>~</td>	40 4	0.0	61.8	66	61.	8 10	1	58.5	3.3	-	8	~	
Dwelling Units # DUs Noise Reduction Min Avg Max All Selected 52 2.0 5.1 8.8 All Impacted 36 2.0 5.1 8.8	41 6	0.0	61.8	99	61.	8	1	58.8	3.0		-5. -5.	0	
MinAvgMaxAll Selected522.05.18.8All Impacted362.06.28.8	N SUD #	oise Redu	uction							-		11-	
dB dB dB dB All Selected 52 2.0 5.1 8.8 All Impacted 36 2.0 6.2 8.8	2	in	Avg	Мах								-	
All Selected 52 2.0 5.1 8.8 All Impacted 36 2.0 6.2 8.8		с 0	留	æ								_	
All Impacted 36 2.0 6.2 8.8	52	2.0	5.1	8.8									
	36	2.0	6.2	8.8	100.00								
All that meet NR Goal 17 8.3 8.5 8.8	17	8.3	8.5	8.8									

18 November 2015

٣

RESULTS: BARRIER DESCRIPTIONS					_	4 BtU PD&	щ			
Stantec M Drauer				18 Novem TNM 2.5	lber 2015					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	I-4 Bt I-4 Se Fest	U PD&E gment 5 Fe: 20'	stiva ROW							
Barriers										
Name	Type	Heights al	ong Barrie		Length	If Wall	lf Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		¥	æ	Ĥ	Ħ	sq ft	cu yd	æ	ft:ft	69
Barrier9	3	20.00	20.00	20.00	898	17953				538577
									Total Cost:	538577

18 Nov

RESULTS: SOUND LEVELS							-4 Btu PD&	ш					- ul
Stantec							18 Noven	lber 2015					
M Drauer							TNM 2.5						
REGULTS: SOLIND LEVELS							Calculate	d with TNM	2.5		-		
PROJECT/CONTRACT			DD&E										
RUN:		14 Seq	ment 5 Fes	tiva ROW									
BARRIER DESIGN:		Fest_2	5					Average p	avement type	shall be use	d unless		
								a State hi	ghway agency	/ substantiate	es the use		
AI MUSPHERICS:		68 deg	F, 50% KH					of a differ	ent type with	approval of F	HWA.		-
Receiver													1
Name	No.	#DUs	Existing	No Barrier					With Barrier				1
			LAeq1h	LAeq1h		Increase ove	r existing	Type	Calculated	Noise Reduc	ction		1
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal	1
			dBA	dBA	dBA	B	æ		ЧВА	ą	ą	ą	1
Festiva 1	5	v	0.0	72.9	Ö	6 72	10	Snd Lvl	64.6	3	3		~
Festiva 3	3	8	0.0	73.5	ē	5 73.	3	Snd Lvl	64.	0		8	
Festiva 2	ά	0,	0.0	75.	9	6 75.	1	Snd Lvl	65.2	6.6	6	8	0
Festiva 4	32	0	0.0	74.2	9	5 74.	2 10	Snd Lvl	65.2	9.0	0	1.0	0
Festiva 5	R	2	0.0	67.6	9	67.	6 10	Snd Lvl	64.7	2.9	0	-5.1	-
Festiva 6	37	~	0.0	66.0	0	66.	3 10	Snd Lvl	64.1	2.5	0	8 -5.8	8
Festiva 2nd a	ž	9	0.0	62.4	Ö	62.	4	1	59.5	2.9	0	-5.1	-
Festiva 2nd b	4(4	0.0	61.8	9	61.	8 10	1	58.0	3.6	0	8 -4.2	N
Festiva 2nd c	4	œ	0.0	61.8	0 0	61.	8 10	1	58:3	3.6	10	8 4.5	ŝ
Dwelling Units		# DUs	Noise Rec	duction									T
			Min	Avg	Max								
			₽	đB	ąp								
All Selected		52	2.2	5.7	9.6	a							
All Impacted		36	2.2	6.6	9.6	0							_
All that meet NR Goal		32	8.3	9.1	6	D							_

18 November 2015

Ţ

RESULTS: BARRIER DESCRIPTIONS						I-4 BtU PD8	щ			
Stantec M Drauer				18 Nover TNM 2.5	nber 2015					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	I-4 Bt I-4 Se Fest_	U PD&E gment 5 Fe 22'	stiva ROV	>						
Barriers										
Name	Type	Heights al	ong Barri	er	Length	If Wall	If Berm			Cost
		Min	Avg	Max	1	Area	Volume	Top Width	Run:Rise	
		ŧ	ŧ	Ŧ	Ŧ	sq ft	cu yd	æ	ft:ft	\$
Barrier9	8	22.00	22.0	0 22.0	0 89	8 19748				592435
									Total Cost:	592435

RESULTS: SOUND LEVELS							1-4 BtU PD8	щ					
Stantec							18 Nover	nher 2015					
M Drauer							TNM 2.5						
							Calculate	ed with TNN	1 2.5				
RESULTS: SOUND LEVELS											-		
PROJECT/CONTRACT:		I-4 BtU	PD&E										
RUN:		I-4 Seg	ment 5 Fee	stiva ROW		-							
BARRIER DESIGN:		Fest_2	2,					Average	avement type	e shall be use	ed unless		
ATMOSPHERICS:		68 deg	3 F, 50% RI	Ŧ				a State hi of a diffe	ghway agency ent type with	y substantiate approval of F	es the use HWA.		_
Receiver													11
Name	No.	\$NQ#	Existing	No Barrier					With Barrier				
			LAeq1h	LAeq1h		Increase over	er existing	Type	Calculated	Noise Redu	ction		1
				Calculated	Crit'n	Calculated	Criťn Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus	1
			dBA	dBA	dBA	æ	ą			ą	9		T
Eacting 1	č			ſ			3		5	9	9	g	1
	N I				Ō	2	ק	0 SNG LVI	64.2	ŝ	7	8	2
Festiva 3	50	~	0.0	73.	9	6 73	3.3	0 Snd Lvl	63.4	1.0	6	8.1.	σ
Festiva 2	ä	<i></i>	0.0) 75.	1 6	6 75	6.1	0 Snd Lvl	64.4	10.	2	8	N:
Festiva 4	33	o,	0.0	74.	2	6 74	1 1	0 Snd Lvl	64.4	0.0	8	00	00
Festiva 5	ë	~	0.0	67.	9	6 67	6	0 Snd Lvi	64.5	'n	-	00 4	σ
Festiva 6	37		0.0	.99	3	66	1.3	0 Snd Lvl	63.5	2.4	4	80 L	(O
Festiva 2nd a	ŝ	•	0.0	62.	4	62 62	1		59.2	3.5	0	4	00
Festiva 2nd b	40	4	0.0	61.	8	61	8	1	57.6	4	0		
Festiva 2nd c	41	Ű	0.0	61.	8	61	8.		58.0	3.6		8	N
Dwelling Units		# DUs	Noise Re	duction							-		11
			Min	Avg	Max	1							
			æ	명	畏								
All Selected		52	2.4	.9	2 10.	2							
All Impacted		ŝ	2.4	.7.	4 10.7	2							
All that meet NR Goal		32	8.7	9.6	10.7	2							_

18 November 2015

-

							ĥ			
Stantec M Drauer				29 April 2(TNM 2.5	16					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: 1-4 Bi RUN: 1-4 Si BARRIER DESIGN: P2 12	BtU F Segr 12sh	2D&E 1ent 5 Fee	stiva ROW							
Barriers										
Name Type	ě	leights ald	ong Barrier		Length	If Wall	lf Berm			Cost
	2	lin	Avg	Max		Area	Volume	Top Width	Run:Rise	
	Ŧ		ft	ft	Ħ	sq ft	cu yd	Ĥ	ft:ft	S
Barrier11 W	>	12.00	12.00	12.00	116	4 1397	-			419125
	-								Total Cost:	419125

C:\TNM25\I4\Fest Phase IIb

29 April 2016

Statute In Disame Stantiant Statutation Statutation	RESULTS: SOUND LEVELS								I-4 BtU	I PD&E					
REMUTS SOUND LEVELS BOARCETCONTRACT: It also that it all points and the iteration of a different type with Think and the used unites a series and the iteration of a different type with the used unites a series and the iteration of a different type with the used unites a series and the iteration of a different type with the used unites a series and the iteration of a different type with the used unites a series and the iteration of a different type with the used unites a series and the iteration of a different type with the used unites a series and the iteration of a different type with the used unites a series and the iteration of a different type with the used unites a different type	Stantec M Drauer								29 A TNN	\pril 201 A 2.5	Q				
International Legistration (Control) Average provinent type shall be used unless a lage region (5 FMA). International Control (Control) It sector (Control) Average provinent type shall be used unless. Armonic Marker (Control) Armonic Marker (Control) Average provinent type shall be used unless. Armonic Marker (Control) Armonic Marker (Control) Average provinent type shall be used unless. Armonic Marker (Control) Armonic Marker (Control) Armonic Marker (Control) Armonic Marker (Control) Receiver Marker (Control) Marker (Contro) Marker (Control) M	RESULTS: SOUND LEVELS								Calc	culated	with TNM	2.5			
BARRIER DESIGN: P2 12m P2 12m P2 12m P3 affect (n)/may agroy and finitival finitital finitital finitival finitival finitital finitival finitival	PROJECT/CONTRACT: RUN:		14 Btl. 14 Sec	J PD&E ament 5 F	-estiva	ROW		_							
ATMOSPHERICS:StatesStatesAttracta state transmart parton of FIMA.ReceiverReceiverNoNoNoReprintAttractAttractAttractAttractNoAnnoReceiverNoNoNoNoNoStateCalculated	BARRIER DESIGN:		P2 125	Ę							Average p	avement type	shall be use	d unless	
Receiver No. AUX Existing No. Mith Barrier	ATMOSPHERICS:		68 de(g F, 50%	RH			_			l state niç of a differ	Jnway agency ent type with a	substantiate approval of Fl	is the use HWA.	_
Number Number<	Receiver														
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Name	No.	#DUs	Existin	oN B	Barrier						With Barrier			
Application Cutrin Cutrin Cutrin Medition Cutrin Cutrin <t< th=""><th></th><th></th><th></th><th>LAeq1I</th><th>≤</th><th>eq1h</th><th></th><th>Increase o</th><th>ver exist</th><th>ting 1</th><th>ype</th><th>Calculated</th><th>Noise Reduc</th><th>tion</th><th></th></t<>				LAeq1I	≤	eq1h		Increase o	ver exist	ting 1	ype	Calculated	Noise Reduc	tion	
Image of the set of t					Ca	culated	Crit'n	Calculated	d Crit	- u	mpact	LAeq1h	Calculated	Goal	Calculated minus Goat
F Phase 2 a 0 0 67.4 06 67.4 10 Smd LM 66.9 0.5 8 7.7 F Phase 2 b 4 0.0 68.3 10 Smd LM 66.9 0.5 8 7.7 F Phase 2 c 44 0.0 68.3 66 68.3 10 Smd LM 65.9 0.5 8 7.7 F Phase 2 f 45 4 0.0 68.3 66 68.3 10 Smd LM 65.9 12 8 7 F Phase 2 f 4 0.0 65.3 66 65.5 10 Smd LM 65.7 8 7 F Phase 2 f 4 0.0 74.6 66 74.6 10 Smd LM 65.9 8 7 F Phase 2 f 52 4 0.0 74.6 74.6 74.6 10 Smd LM 65.9 8 7 8 7 7 8 7 8 7 8 7 8				dBA	dB	4	dBA	đB	Вb			dBA	dB	đb	ер Пр
F Phase 2 b (4) (4) (0) (6) (6) (7) <th< td=""><td>F Phase 2 a</td><td>4</td><td>2</td><td>2</td><td>0.0</td><td>67.4</td><td>9</td><td>90</td><td>67.4</td><td>10</td><td>Snd Lvi</td><td>6.99</td><td>0.5</td><td>10</td><td>8</td></th<>	F Phase 2 a	4	2	2	0.0	67.4	9	90	67.4	10	Snd Lvi	6.99	0.5	10	8
F Phase 2 c 64 0.0 662 66 67.0 10 67.0 12 8 6 F Phase 2 f 45 4 0.0 65.3 66 67.6 10 66.3 13 8 4 6 6 6 74.6 10 66.3 13 8 4 4 6 10 65.3 66 65.3 10 54.1 85.1 8 4 4 10 65.1 10 65.1 8 4 4 10 10 65.1 10 65.1 10 65.1 8 4 4 10	F Phase 2 b	4	e	4	0.0	68.3	6	90	68.3	10	Snd Lvl	67.8	0.5	10	8
FPhase 2 d 6 d 6 d 6 d 6 d 6 d 6 d 6 d 1 d 6 d 1 d	F Phase 2 c	4	4	4	0.0	68.2	9	36	68.2	10	Snd Lvl	67.0	1.2	01	φ 8
F Phase 2 e 64 0 66.3 16 66.3 10 mode 33 8 44 F Phase 2 f 47 4 0.0 66.3 66.5 65.5 10 62.4 35 8 -4 F Phase 2 f 4 0.0 74.6 66 65.5 10 62.4 35 8 -4 F Phase 2 f 51 4 0.0 74.6 66 64.5 10 60.7 35 8 -4 F Phase 2 f 53 4 0.0 64.5 64.5 10 60.7 35 8 -3 F Phase 2 f 53 4 0.0 64.5 64.5 10 56.5 91.6 91.7	F Phase 2 d	4	2	4	0.0	67.6	9	90	67.6	10	Snd Lvl	65.8	1.8	~	φ
F Phase 2f 47 47 0 65.9 65.0 10 62.4 3.5 8 F Phase 2g 48 4 0.0 74.6 66.1 66.1 85.6 96.1 85.6 96.1 85.9 90 8 90 7 F Phase 2 i 51 4 0.0 64.6 65.2 66 64.6 70 mol 1 85.6 94.0 8 4 7 7 39 8 39 8 39 8 39 8 39 39 8 39 8 39 39 39 39 8 39 30 39	F Phase 2 e	4	9	4	0.0	66.3	e	99	66.3	10	Snd Lvl	63.0	e. E	~	8
F hase 2 g 74.6 74.8 74.0 74.8 74.7 74.8 74.7	F Phase 2 f	4	. 2	4	0.0	65.9	e	90	65.9	10	I	62.4	3.5	10	8
F Phase 2 h 44 0.0 74.8 66 74.8 10 model 66.7 39 90 8 4 F Phase 2 i 51 4 0.0 64.5 66.5 10 60.7 39 8 -4 F Phase 2 i 53 4 0.0 64.5 66.5 10 60.7 39 8 -3 F Phase 2 i 53 4 0.0 64.5 66 74.9 10 56 94 8 -3 F Phase 2 i 55 4 0.0 74.7 66 74.9 10 56 94 8 -1 F Phase 2 i 55 4 0.0 74.7 66 74.9 10 56 94 1 <td>F Phase 2 g</td> <td>4</td> <td>0</td> <td>4</td> <td>0.0</td> <td>74.6</td> <td>9</td> <td>90</td> <td>74.6</td> <td>10</td> <td>Snd Lvl</td> <td>66.1</td> <td>8.5</td> <td>10</td> <td>8</td>	F Phase 2 g	4	0	4	0.0	74.6	9	90	74.6	10	Snd Lvl	66.1	8.5	10	8
F Phase 2 i 51 4 0.0 64.6 64.6 10 60.7 3.9 8 -4. F Phase 2 i 52 4 0.0 65.2 66 65.2 10 59.9 4.6 3.3 3.3 3.3 3.3 3.4 0.0 65.5 66 67.2 10 59.9 4.6 3.3	F Phase 2 h	4	О	4	0.0	74.8	6	99	74.8	10	Snd Lvl	65.8	9.6		8
F hase 2 i 6 0.0 65.2 6 0 65.2 10 60.7 4.5 8 -3.3 F hase 2 k 53 4 0.0 64.5 66 64.5 10 59.9 4.6 8 -3 F hase 2 k 53 4 0.0 74.3 66 74.4 10 50.0 4.6 8 -3 F hase 2 m 55 4 0.0 74.3 66 74.3 10 50.0 9.2 8 1 F hase 2 m 55 4 0.0 74.3 66 74.3 10 50.0 9.2 8 1 F hase 2 m 55 4 0.0 74.3 66 74.3 10 50.0 9.2 8 1 1 F hase 2 m 56 4 0.0 74.3 66 74.3 10 50.0 9.4 8 1 1 F hase 2 m 60 74.8	F Phase 2 i	£.	-	4	0.0	64.6	e	9	64.6	10	I	60.7	3.5	•	80
F hase 2 k 53 4 0.0 64.5 66 64.5 10 59.9 4.6 8 7.3 F hase 2 l 54 4 0.0 74.9 66 74.9 10 Snd Lvi 66.5 9.4 8 1 F hase 2 m 55 4 0.0 74.7 66 74.7 10 Snd Lvi 66.5 9.2 8 1 F hase 2 m 55 4 0.0 74.8 66 74.8 10 Snd Lvi 66.5 9.2 8 1 1 F hase 2 m 55 4 0.0 74.7 66 74.8 10 Snd Lvi 66.5 8 1 1 F hase 2 m 61 4 0.0 74.7 66 74.8 10 Snd Lvi 66.5 8 1 1 1 66.5 8 1 1 1 1 1 1 1 1 1 1	F Phase 2 j	ŝ	2	4	0.0	65.2	9	90	65.2	10	1	60.7	4.5	10	e e o
	F Phase 2 k	ù	Ю	4	0.0	64.5	9	99	64.5	10	1	59.9	4.6	(0)	ې ∞
F Phase 2 m5540.0 74.7 66 74.7 10Sind Lvi65.59.281F Phase 2 n5640.0 74.8 66 74.8 10Sind Lvi65.59.281F Phase 2 n5740.0 74.7 66 74.8 10Sind Lvi65.59.281F Phase 2 n5740.0 74.7 66 74.7 10Sind Lvi65.59.681F Phase 2 n5940.0 74.7 66 74.7 10Sind Lvi65.581F Phase 2 n6040.0 74.7 66 74.7 10Sind Lvi65.5890F Phase 2 n6140.0 74.7 66 74.7 10Sind Lvi65.287F Phase 2 n6140.0 74.8 66 74.8 10Sind Lvi65.2780F Phase 2 u6340.0 74.8 66 65.2 10Sind Lvi66.93.38 -2.2 F Phase 2 u636474.866 65.2 10 56.4 10 61.7 66 61.7 66.9 66.7 <td>F Phase 2 I</td> <td>ŵ</td> <td>\</td> <td>4</td> <td>0.0</td> <td>74.5</td> <td>9</td> <td>90</td> <td>74.9</td> <td>10</td> <td>Snd Lvl</td> <td>65.5</td> <td>9.4</td> <td>_</td> <td>8</td>	F Phase 2 I	ŵ	\	4	0.0	74.5	9	90	74.9	10	Snd Lvl	65.5	9.4	_	8
F Phase 2 n 56 4 0.0 74.8 66 74.8 10 Sind Lvi 65.6 9.2 8 1 F Phase 2 o 57 4 0.0 75.2 66 75.2 10 Sind Lvi 65.6 9.6 8 8 1 F Phase 2 o 59 4 0.0 74.7 66 74.7 10 Sind Lvi 65.6 9.6 8 8 9 0 F Phase 2 o 60 4 0.0 74.8 66 74.8 10 Sind Lvi 65.2 8.7 8 9 0 F Phase 2 v 61 4 0.0 74.8 66 74.8 10 Sind Lvi 65.2 8.7 8 -0 -0 -0 -0 -0 0 10 0 10 0 10 0 10 0 10 0 10 0 10 0 10 10 10 10 10 <t< td=""><td>F Phase 2 m</td><td>Ϋ́</td><td>2</td><td>4</td><td>0.0</td><td>74.7</td><td>۵ ۲</td><td>. 99</td><td>74.7</td><td>10</td><td>Snd Lvl</td><td>65.5</td><td>9.2</td><td>01</td><td>8</td></t<>	F Phase 2 m	Ϋ́	2	4	0.0	74.7	۵ ۲	. 99	74.7	10	Snd Lvl	65.5	9.2	01	8
F Phase 2 o 57 4 0.0 75.2 66 75.2 10 Snd Lvl 65.6 9.6 8 8 0 F Phase 2 p 59 4 0.0 74.7 66 74.7 10 Snd Lvl 65.9 8.8 8 0 F Phase 2 q 60 4 0.0 74.7 66 74.8 10 Snd Lvl 65.9 8.8 8 0 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.2 8.7 8 -0 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.3 8 -0 F Phase 2 r 62 4 0.0 65.2 66 65.4 10 76 8 -0 F Phase 2 r 63 64.1 10 Snd Lvl 66.3 61.3 61.9 67.4 67 67 67 67 <t< td=""><td>F Phase 2 n</td><td>Ω.</td><td>ç</td><td>4</td><td>0.0</td><td>74.8</td><td>9</td><td></td><td>74.8</td><td>10</td><td>Snd Lvl</td><td>65.6</td><td>9,2</td><td>01</td><td>8</td></t<>	F Phase 2 n	Ω.	ç	4	0.0	74.8	9		74.8	10	Snd Lvl	65.6	9,2	01	8
F Phase 2 p 59 4 0.0 74.7 66 74.7 10 Snd Lvl 65.9 8.8 8 0 F Phase 2 q 60 4 0.0 74.9 66 74.9 10 Snd Lvl 65.2 8.7 8 0 F Phase 2 q 60 4 0.0 74.8 66 74.8 10 Snd Lvl 66.2 8.7 8 0 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.2 8.7 8 -0 F Phase 2 r 62 4 0.0 65.2 66 65.2 10 -1 -1 -2 F Phase 2 u 63 4 0.0 65.2 66 65.4 10 -1 -1 -1 F Phase 2 u 63 4 0.0 65.2 10 -1 10 -1 -1 -1 -1 -1 -1 -1 -1	F Phase 2 o	Q	2	4	0.0	75.2	9	99	75.2	10	Snd Lvi	65.6	9.6		8
F Phase 2 q 60 4 0.0 74.9 66 74.9 10 Snd Lvl 66.2 8.7 8 0 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.2 8.7 8 -0 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 67.2 7.6 8 -0 F Phase 2 r 63 4 0.0 65.2 66 65.2 10 snd Lvl 67.9 7.6 8 -2. F Phase 2 u 63 4 0.0 65.2 66 65.4 10 -1.6 3.3 8 -4. F Phase 2 u 63 6 65.2 66 64.1 10 -0 15 8 -4. F Phase 2 u 65 2 0.0 61.7 10 -0 61.9 61.4 61.5 8 -7. F Phase 2 u	F Phase 2 p	ö	6	4	0.0	74.7	G V	. 99	74.7	10	Snd Lvl	65.9	8.8	~	8
F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd LvI 67.2 7.6 8 -0 F Phase 2 s 62 4 0.0 74.8 66 74.8 10 Snd LvI 67.2 7.6 8 -2. F Phase 2 s 62 4 0.0 65.2 66 65.2 10 61.9 3.3 8 -4. F Phase 2 u 63 4 0.0 65.2 66 65.4 10 61.9 3.3 8 -4. F Phase 2 u 65 2 0.0 65.4 10 61.9 3.3 8 -4. F Phase 2 v 65 6 65.4 10 60.9 1.5 8 -7. F Phase 2 v 65 6 64.1 66 64.1 10 61.3 0.4 8 -7. F Phase 2 v 65 61.7 <td< td=""><td>F Phase 2 q</td><td>Ö</td><td></td><td>4</td><td>0.0</td><td>74.5</td><td>9</td><td>. 99</td><td>74.9</td><td>10</td><td>Snd Lvl</td><td>66.2</td><td>8.7</td><td></td><td>8</td></td<>	F Phase 2 q	Ö		4	0.0	74.5	9	. 99	74.9	10	Snd Lvl	66.2	8.7		8
F Phase 2 s 62 4 0.0 74.8 66 74.8 10 Snd Lvl 69.4 5.4 8 -2 F Phase 2 t 63 4 0.0 65.2 66 65.2 10 61.9 3.3 8 -4. F Phase 2 t 63 4 0.0 65.2 66 65.2 10 61.9 3.3 8 -4. F Phase 2 u 64 4 0.0 65.4 10 61.9 3.3 8 -4. F Phase 2 u 64 4 0.0 64.1 66 64.1 10 61.3 0.3 8 -7. F Phase 2 w 65 61.7 66 61.7 10 61.3 0.4 8 -7. F Phase 2 w 67 60.0 61.7 66 61.7 10 61.3 0.4 8 -7. F Phase 2 w 67 <td< td=""><td>F Phase 2 r</td><td>9</td><td>,</td><td>4</td><td>0.0</td><td>74.8</td><td>9</td><td>9</td><td>74.8</td><td>10</td><td>Snd Lvl</td><td>67.2</td><td>7.6</td><td>0</td><td>ő</td></td<>	F Phase 2 r	9	,	4	0.0	74.8	9	9	74.8	10	Snd Lvl	67.2	7.6	0	ő
F Phase 2 t 63 4 0.0 65.2 66 65.2 10 61.9 3.3 8 -4 F Phase 2 u 64 4 0.0 62.4 66 65.2 10 61.9 3.3 8 -6. F Phase 2 u 64 4 0.0 62.4 66 65.4 10 60.9 1.5 8 -6. F Phase 2 u 65 2 0.0 64.1 66 64.1 10 61.3 0.3 8 -7. F Phase 2 w 67 61.7 66 61.7 10 61.3 0.4 8 -7. F Phase 2 x 67 2 0.0 60.0 66.0 10 61.3 0.4 8 -7.	F Phase 2 s	ö	2	4	0.0	74.8	9	99	74.8	10	Snd Lvl	69.4	5.4	_	-2
F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.9 1.5 8 -6. F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7. F Phase 2 v 66 64.1 66 64.1 10 61.3 0.3 8 -7. F Phase 2 v 66 61.7 66 61.7 10 61.3 0.4 8 -7. F Phase 2 v 67 2 0.0 60.0 66.0 10 59.6 0.4 8 -7.	F Phase 2 t	ö		4	0.0	65.2	e	9	65.2	10	-	61.9	3.3		60
F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7 F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.4 8 -7 F Phase 2 w 67 2 0.0 60.0 66 61.7 10 61.3 0.4 8 -7 F Phase 2 w 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7	F Phase 2 u	ġ	4	4	0.0	62.4	9	9	62.4	10]	6.09	1.5	10	80
F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.4 8 -7 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7	F Phase 2 v	ö	ŝ	2	0.0	64.1	Ð	9	64.1	10	1000	63.8	0.3	-	8 -7
F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.	F Phase 2 w	ğ	G	4	0.0	61.7	9	9	61.7	10	1	61.3	0.4	-	8 -7
	F Phase 2 x	9	2	N	0.0	60.C	e	9	60.0	10		59.6	0.4		8 -7

C:\TNM25\I4\Fest Phase IIb

29 April 2016

.

	C	ſ	2
	ī	ī	1
	2	>	•
	L	L	
	2	-	5
	1	2	2
	ļ)
	2	-	2
	•		
	Ş	1)
	2		Ì
	ļ		2
	1	1	ì
	i	h	/

14 Btu PD&E

Dwelling Units	\$NQ #	Noise R	eduction			
		Min	Avg	-	Max	
		ąB	멹	U	dB	
All Selected	6	Ö	e,	4.8	9.6	
All Impacted	28	Ö	5	6.2	9.6	
All that meet NR Goal	32	80	Ŋ	9.1	9.6	

C:\TNM25\I4\Fest Phase IIb

29 April 2016

2

÷

Statelia Satelia <	RESULTS: SOUND LEVELS								-4 BtU PD8	ш				
RENLT:S SOUND LEVELS Calculated with TML 2.5 PROVIE: FUN: PARATINE SOUND LEVELS LEVEL FUN: 2.14.5 LEVEL FUN: 2.14.5 Calculated view state injow upper shall to used unless. RAME Hard TML FUN: 2.14.5 Hard TML FUN: 2.14.5 Mark Funct 5 feative KOM Mark Funct 5 feative KOM ATML: Hard TML FUN: 2.14.5 Mark Funct 5 feative KOM Mark Funct 7 feative KOM Mark Funct 7 feative KOM ATML: Fail Funct 7 feative KOM Mark Funct 7 feative KOM ATML: Mark Funct 7 feative KOM ATML: Mark Funct 7 feative KOM Mark Funct 7 feative KOM Mark Funct 7 feative KOM Mark Funct 7 feative KOM Mark Funct 7 feative KOM Mark Funct 7 feative KOM Mark Funct 7 feative KOM Feative COM Feative COM Feative KOM Mark Fand Funct 7 feat	Stantec M Drauer								29 April 2 TNM 2.5	016				
Image:	RESULTS: SOUND LEVELS								Calculate	d with TNI	A 2.5			
Modeline Decision: Target a state interval modeline balance Analysis and balance Average a state interval balance Average a state interval balance	PROJECT/CONTRACT:		4 BťU	PD&E										
ATMOSPHERICS: Eaded F. Sofk R1 State F. Sofk R1 Atmospheric representational properious of FLMMA sector Visional and Control and Contro and Control and Control	KUN: BARRIER DESIGN:	- 11	4 Segi 22 14sh		stiva kow					Average	pavement type	shall be use	d unless	
Receiver No. MDIA Existing No. MDIA Name No. MOL No.	ATMOSPHERICS:		68 deg	F, 50% RI	Ŧ					a State h of a diffe	ighway agency rent type with	/ substantiate approval of F	es the use HWA.	
Name No. Patrial Patria Patria Patria	Receiver													
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Name	No.	*DUs	Existing	No Barri	er					With Barrier			
Image: constraint of the				LAeq1h	LAeq1h			Increase ove	r existing	Type	Calculated	Noise Redu	ction	
Image: 2 mode of the sector of the					Calculat	ed Cri	5	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
F Phase 2 2 0.0 67.4 66 67.4 10 Sind Livi 66.9 0.5 8 7.7 F Phase 2 43 4 0.0 66.3 66.3 10 Sind Livi 66.9 0.5 8 7.7 F Phase 2 43 4 0.0 66.3 66.3 10 Sind Livi 66.5 2.3 8 7.7 F Phase 2 45 4 0.0 65.3 66 67.6 10 Sind Livi 66.5 2.3 8 -7.3 F Phase 2 45 4 0.0 65.3 66 67.6 10 Sind Livi 66.5 2.3 8 -7.3 F Phase 2 47 0.0 74.6 66 74.6 10 Sind Livi 66.6 2.3 8 -7.3 F Phase 2 57 4 0.0 74.6 66 74.6 10 Sind Livi 66.6 2.3 8 -7.3 <t< td=""><td></td><td></td><td></td><td>dBA</td><td>dBA</td><td>dB,</td><td>F</td><td>dB</td><td>dB</td><td></td><td>dBA</td><td>đB</td><td>đB</td><td>dB</td></t<>				dBA	dBA	dB,	F	dB	dB		dBA	đB	đB	dB
F Phase 2 b 4 0 0 0 66.3 66 57.4 l 57.6 l 66 7.6 l 67.8 l 0.5 l 67.8 l 0.5 l 67.8 l <	F Phase 2 a	42	0	Ö	0	67.4	99	67	4	0 Snd Lv	6.66	0	10	8 -7.5
F Phase 2 c 64 0.0 68.2 0.6 68.2 10 56.6 13 8 6.0 F Phase 2 c 45 4 0.0 66.3 66 67.6 10 56.6 2.0 8 4.0 F Phase 2 f 45 4 0.0 66.3 66 66.3 10 5.0 13 28 4.1 F Phase 2 f 47 4 0.0 66.3 66 66.3 10 5.0 13 28 4.1 F Phase 2 f 51 4 0.0 65.3 66 65.3 10 5.0 13 28 4.1 F Phase 2 f 51 4 0.0 65.4 56 65.4 10 50.4 4.1 4.1 F Phase 2 f 51 4 0.0 65.2 65.3 10 56.4 10 66.4 10 66.4 10 66.3 10 10 10 10 10 10	F Phase 2 b	43	4	O	0	68.3	99	68	3	0 Snd Lv	67.8	0	2	8 -7.5
F Phase 2 d 6 d <th< td=""><td>F Phase 2 c</td><td>44</td><td>4</td><td>Ö</td><td>0</td><td>68.2</td><td>99</td><td>68</td><td>2 1</td><td>0 Snd Lv</td><td>6.6</td><td>6 </td><td>~</td><td>8 -6.7</td></th<>	F Phase 2 c	44	4	Ö	0	68.2	99	68	2 1	0 Snd Lv	6.6	6 	~	8 -6.7
F Phase 2 e 64 0 66.3 00 66.3 10 Smd Lvl 62.6 3.7 8 4.3 F Phase 2 f 47 4 0.0 66.3 66 65.9 10 65.1 3.8 8 4.3 F Phase 2 f 47 4 0.0 74.6 66 74.8 10 5.1 3.8 8 4.1 F Phase 2 f 51 4 0.0 74.8 66 64.5 10 60.6 4.0 8 4.0 F Phase 2 f 53 4 0.0 65.2 66 64.5 10 60.4 8 -3.3 F Phase 2 f 53 4 0.0 74.7 66 74.7 10 50.4 4.7 8 -3.3 F Phase 2 f 55 4 0.0 74.7 66 74.8 10 50.4 4.7 8 -3.3 F Phase 2 f 7 6	F Phase 2 d	45	4	Ö	0	67.6	99	67	6	0 Snd Lv	65.6	2.0	0	8 -6.0
F Phase 2 f 61 61 62 65 62 63 62 62 63 62 73 8 41 F Phase 2 j 64 0 746 66 74 10 51 9 9 8 13 F Phase 2 j 51 4 0.0 64.6 66 64.5 10 53 9 9 8 10 F Phase 2 j 51 4 0.0 64.6 66 64.5 10 53 8 40 F Phase 2 j 53 4 0.0 64.5 66 64.5 10 53 8 73 F Phase 2 j 53 4 0.0 74.9 66 74.7 10 50 47 8 23 F Phase 2 j 7 4 0.0 74.7 66 74.7 10 50 40 8 23 F Phase 2 j 7 4 0.0 74.7 10	F Phase 2 e	46	4	Ö	0	66.3	66	99	3	0 Snd Lv	62.6		2	8 -4.3
F Phase 2 P and 1 Sind 1 Sin	F Phase 2 f	47	4	O	0	65.9	99	65	0		62.1	3.	0	8 -4.2
F Phase 2 h 49 4 0.0 74.8 66 74.8 10 Snd Lvi 64.9 9.9 8 1.3 F Phase 2 i 51 4 0.0 64.5 66 64.6 10 60.6 4.0 8 3 F Phase 2 i 53 4 0.0 64.5 66 64.5 10 59.8 4.7 8 -3.3 F Phase 2 i 53 4 0.0 64.5 66 74.7 10 Snd Lvi 64.5 10.4 8 -3.3 F Phase 2 in 55 4 0.0 74.7 66 74.7 10 Snd Lvi 64.5 10.3 8 2.3 F Phase 2 in 56 4 0.0 74.7 66 74.8 10 8 2.3 10 8 2.3 10 8 2.3 10 10 10 10 10 10 10 10 10	F Phase 2 g	48	4	Ö	0	74.6	66	74	6	0 Snd Lvl	65.3	9.	~	8 1.3
F Phase 2 i 51 4 0.0 64.6 64.6 10 60.6 4.0 8 4.0 F Phase 2 j 52 4 0.0 65.2 10 59.8 4.7 8 -33 F Phase 2 k 53 4 0.0 65.2 66 64.5 10 59.8 4.7 8 -33 F Phase 2 l 55 4 0.0 74.3 66 74.3 10 SmL ul 66.4 7.8 -33 F Phase 2 l 55 4 0.0 74.7 66 74.3 10 SmL ul 64.5 10.3 8 2.3 F Phase 2 n 55 4 0.0 74.7 66 74.3 10 SmL ul 64.5 10.3 8 2.4 F Phase 2 n 57 40 56.2 66 74.3 10 SmL ul 67.6 8 2.4 F Phase 2 n 50 74.7	F Phase 2 h	49	4	Ö	0	74.8	66	74	8	0 Snd Lvl	64.9	9.6	0	8 1.9
F Phase 2 j 6 7 10 59 4 7 8 -33 F Phase 2 I 53 4 0.0 74.9 66 74.7 10 Snd Lvl 64.5 10.4 8 23 F Phase 2 In 55 4 0.0 74.8 66 74.7 10 Snd Lvl 64.5 10.2 8 23 F Phase 2 In 55 4 0.0 74.8 66 74.7 10 Snd Lvl 64.5 10.6 8 23 F Phase 2 In 60 4 0.0 74.8 66 74.7 10 Snd Lvl 64.5 10.6 8 11.6 F Phase 2 In 60 74.9	F Phase 2 i	51	4	Ö	0	64.6	66	64	6 1	1	60.6	3 4.0	0	8 -4.0
F Phase 2 k 64.5 64.5 66. 64.5 10 59.8 4.7 8 -3.3 F Phase 2 li 54 4 0.0 74.9 66 74.7 10 5md Lvi 64.5 10.4 8 -3.3 F Phase 2 li 55 4 0.0 74.7 66 74.7 10 5md Lvi 64.5 10.2 8 -2.4 F Phase 2 li 55 4 0.0 74.8 66 74.7 10 5md Lvi 64.5 10.3 8 2.3 F Phase 2 li 57 4 0.0 74.8 66 74.3 10 5md Lvi 64.5 10.6 7.3 8 2.3 F Phase 2 li 59 4 0.0 74.3 66 74.3 10 5md Lvi 64.5 10.6 8 2.4 F Phase 2 li 60 74.3 66 74.3 10 5md Lvi 66.4 10 57.4 10 <td>F Phase 2 j</td> <td>52</td> <td>4</td> <td>Ö</td> <td>0</td> <td>65.2</td> <td>66</td> <td>65.</td> <td>1</td> <td>1</td> <td>60.4</td> <td>4.6</td> <td>8</td> <td>-3.2</td>	F Phase 2 j	52	4	Ö	0	65.2	66	65.	1	1	60.4	4.6	8	-3.2
F hase 21 54 4 0.0 74.9 66 74.9 10 Mode Lvi 64.5 10.4 8 2.4 F hase 2 mode 2	F Phase 2 k	53	4	0	0	64.5	66	64.	5 1	1	59.6	3 4.	2	-3.3
F Phase 2 m 55 4 0.0 74.7 66 74.7 10 Smd LvI 64.5 10.2 8 2.3 F Phase 2 n 56 4 0.0 74.8 66 74.7 10 Smd LvI 64.5 10.3 8 2.3 F Phase 2 n 57 4 0.0 74.8 66 74.7 10 Smd LvI 64.5 10.3 8 2.3 F Phase 2 n 59 4 0.0 74.7 66 74.7 10 Smd LvI 64.6 10.6 8 2.3 F Phase 2 n 60 74.7 66 74.9 10 Smd LvI 64.6 9.8 8 1.16 F Phase 2 n 61 74.9 66 74.8 10 Smd LvI 64.6 9.5 8 1.16 F Phase 2 n 61 74.8 66 74.8 10 Smd LvI 64.9 9.5 8 2.3 F Phase 2 n 61	F Phase 2 I	54	4	0	0	74.9	66	74.	9	0 Snd Lvl	64.5	10.4	**	8 2.4
F Phase 2 n 56 4 0.0 74.8 66 74.8 10 Snd Lvl 64.5 10.3 8 2.3 F Phase 2 o 57 4 0.0 75.2 66 74.7 10 Snd Lvl 64.6 10.6 8 2.6 F Phase 2 p 59 4 0.0 74.7 66 74.7 10 Snd Lvl 64.6 10.6 8 2.6 F Phase 2 p 60 4 0.0 74.8 66 74.9 10 Snd Lvl 65.4 9.5 8 1.6 F Phase 2 p 61 4 0.0 74.8 66 74.8 10 Snd Lvl 65.4 9.5 8 1.5 F Phase 2 p 63 74.8 66 74.8 10 Snd Lvl 65.4 9.5 8 1.5 F Phase 2 p 63 74.8 66 74.8 10 Snd Lvl 65.4 9.5 8 1.5	F Phase 2 m	55	4	ö	0	74.7	99	74	7 1	0 Snd Lvl	64.5	10.1	2	8 2.2
F Phase 2 o 57 4 0.0 75.2 66 75.2 10 Snd Lvl 64.6 10.6 8 2.0 F Phase 2 p 59 4 0.0 74.7 66 74.7 10 Snd Lvl 64.9 9.8 8 1.8 F Phase 2 q 60 4 0.0 74.9 66 74.8 10 Snd Lvl 65.4 9.5 8 1.6 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 65.4 9.5 8 1.5 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 65.4 9.5 8 -2.3 F Phase 2 r 62 4 0.0 74.8 66 65.2 10 Snd Lvl 66.1 8 -2.3 8 -2.3 F Phase 2 r 63 64 65.2 66 65.4 10 7.6 61.8 -2.3	F Phase 2 n	56	4	ö	0	74.8	99	74.	8	0 Snd Lvl	64.5	10.	0	8 2.3
F Phase 2 p 59 4 0.0 74.7 66 74.7 10 Snd Lvl 64.9 9.8 8 1.5 F Phase 2 q 60 4 0.0 74.9 66 74.9 10 Snd Lvl 65.6 9.5 8 1.5 F Phase 2 q 61 4 0.0 74.8 66 74.8 10 Snd Lvl 65.6 8.2 8 1.5 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.6 8.2 8 7.3 F Phase 2 r 63 4 0.0 74.8 66 65.2 10 Snd Lvl 69.1 5.7 8 -2.3 F Phase 2 v 63 64 10 65.2 66 65.4 10 7.4 8 -2.3 F Phase 2 v 63 65 65.2 10 10 10 10 10 10 10 10 10 <	F Phase 2 o	57	4	o	0	75.2	99	75.	1	0 Snd Lvl	64.6	10.6	0	8 2.6
F Phase 2 q 60 4 0.0 74.9 66 74.9 10 Snd Lvl 65.4 9.5 8 1.5 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.6 8.2 8 0.0 F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.6 8.2 8 0.2 F Phase 2 r 62 4 0.0 65.2 66 65.2 10 Snd Lvl 69.1 5.7 8 -2.3 F Phase 2 u 63 4 0.0 65.2 66 65.4 10 61.8 6.4 F Phase 2 u 63 64 10 65.2 10 -6 6.4	F Phase 2 p	59	4	o.	0	74.7	99	74	7 1	D Snd Lvl	64.5	9.6		8 1.8
F Phase 2 r 61 4 0.0 74.8 66 74.8 10 Snd Lvl 66.6 8.2 8 0.2 F Phase 2 s 62 4 0.0 74.8 66 74.8 10 Snd Lvl 66.6 8.2 8 2.3 F Phase 2 s 62 4 0.0 74.8 66 65.2 10 5.7 8 -2.3 F Phase 2 u 63 4 0.0 65.2 66 65.2 10 61.8 3.4 8 -5.7 F Phase 2 u 64 6.0 65.4 66 65.4 10 61.8 3.4 8 -5.7 F Phase 2 u 65 2 0.0 64.1 66 61.7 10 61.3 8 -7.7 F Phase 2 u 65 64 64.1 10 61.3 0.4 8 -7.7 F Phase 2 u 66 61.7 10	F Phase 2 q	60	4	ö	0	74.9	99	74.	9	D Snd Lvl	65.4	6	10	8 1.5
F Phase 2 s 62 4 0.0 74.8 66 74.8 10 Snd Lvl 69.1 5.7 8 -2.3 F Phase 2 t 63 4 0.0 65.2 66 65.2 10 61.8 3.4 8 -4.6 F Phase 2 u 64 4 0.0 65.2 66 65.2 10 61.8 3.4 8 -6.4 F Phase 2 u 65 2 66 65.4 10 61.8 3.4 8 -5.7 F Phase 2 v 65 2 0.0 64.1 66 61.7 10 61.3 8 -7.7 F Phase 2 v 66 61.7 10 61.3 0.1 8 -7.7 F Phase 2 v 67 60.0 60.0 60.0 66.0 61.7 10 61.3 8 -7.7 F Phase 2 v 67 60.0 60.0 60.0 <td>F Phase 2 r</td> <td>61</td> <td>4</td> <td>Ö</td> <td>0</td> <td>74.8</td> <td>99</td> <td>74.</td> <td>8</td> <td>D Snd Lvl</td> <td>66.6</td> <td>8.8</td> <td>0</td> <td>8 0.2</td>	F Phase 2 r	61	4	Ö	0	74.8	99	74.	8	D Snd Lvl	66.6	8.8	0	8 0.2
F Phase 2 t 63 4 0.0 65.2 66 65.2 10 61.8 3.4 8 -4.6 F Phase 2 u 64 4 0.0 62.4 66 62.4 10 61.8 3.4 8 -6.4 F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.8 1.6 8 -6.4 F Phase 2 u 65 2 0.0 64.1 66 64.1 10 61.3 0.3 8 -7.7 F Phase 2 w 67 61.7 10 61.3 0.4 8 -7.6 F Phase 2 x 67 60.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 s	62	4	O	0	74.8	99	74.	8	D Snd Lvl	69.1	5.	~	8 -2.3
F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.8 1.6 8 -6.4 F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 v 66 4 0.0 64.1 66 64.1 10 61.3 0.3 8 -7.7 F Phase 2 v 66 61.7 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 t	63	4	Ö	0	65.2	99	65.	2	1	61.8	e S		8 -4.6
F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.3 8 -7.6 F Phase 2 w 67 2 0.0 61.7 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 u	64	4	Ö	0	62.4	99	62	4		60.8	1.6	0	8 -6.4
F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 v	65	0	Ö	0	64.1	66	64.	-	1	63.5	0.0	0	8 -7.7
F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 w	99	4	o	0	61.7	99	61.	7		61.3	0.4	*	8 -7.6
	F Phase 2 x	67	2	Ö	0	60.0	99	60	0	1	59.6	0.	¥	8 -7.6

29 April 2016

.

C:\TNM25\I4\Fest Phase IIb

S
Ш
2
ш
_
Ο
7
5
1
0
S
S
-
=
S
ш
R
_

щ
øð
Q
α.
ž
T
_

welling Units	# DUS	Noise Re	duction		
		Min	Avg	Ma	ax
		đB	đB	æ	m
VII Selected	06	Ö	e	5.2	10.6
All Impacted	58	Ö	10	6.8	10.6
All that meet NR Goal	96	ŝ	~	9.8	10.6

C:\TNM25\I4\Fest Phase IIb

29 April 2016

2

						4 BtU PD8	щ			
Stantec M Drauer				29 April 20 TNM 2.5	016					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	1-4 Btl 1-4 Se P2 1-4	U PD&E gment 5 Fe sh	stiva ROW							
Barriers										
Name	Type	Heights al	ong Barrie	6	Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	-
		Ħ	ft	ŧ	ŧ	sq ft	cu yd	Ħ	ft:ft	¢
Barrier11	3	14.00	14.00	14.00	1164	16299				488980
									Total Cost:	488980

C:\TNM25\I4\Fest Phase IIb

29 April 2016

RESULTS: BARRIER DESCRIPTIONS						-4 BtU PD&	щ			
Stantec M Drauer				2 May 201 TNM 2.5	9					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	-4 Bt -4 Se P2 loi	U PD&E gment 5 Fe ng 12	stival Sho	ulder						
Barriers										
Name	Type	Heights al	ong Barrie	-	Length	If Wall	If Berm			Cost
		Min	Avg	Мах		Area	Volume	Top Width	Run:Rise	
		Ĥ	Ĥ	Ĥ	Ĥ	sq ft	cu yd	ŧ	ft:ft	в
Barrier11	8	12.00	12.00	12.00	1552	18624				558711
									Total Cost:	558711

C:\TNM25\I4\Fest Phase IIb long

2 May 2016

RESULTS: SOUND LEVELS								I-4 BtU PD8	щ					
Stantec M Drauer								2 May 20 TNM 2.5 Calculate	16 ed with TN	X 2.5		_	_	
RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN: ATMOSPHERICS:		I-4 Btl I-4 Seç P2 Ion 68 de	J PD&I gment 1g 12 g F, 50	E 5 Festi % RH	val Shoulde	Ļ			Average a State I of a diffe	pavement type ighway agenc: rent type with	e shall be use y substantiate approval of F	d unless is the use HWA.		
Receiver														
Name	No.	#DUs	Exis	ting	Vo Barrier					With Barrier				
			LAe	£	-Aeq1h		Increase ov	er existing	Type	Calculated	Noise Reduc	ction		
				-	Calculated	Criťn	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calcula minus Goal	ated
			dBA		1BA	dBA	dB	땅		dBA	dB	dB	đb	
F Phase 2 a	4		2	0.0	68.	1 6	6	8.1	0 Snd Lv	63.	1 5.0	0	8	-3.0
F Phase 2 b	4	m	4	0.0	68.	7 6	9	8.7	0 Snd Lv	63.	1 5.6	0	8	-2.4
F Phase 2 c	4	4	4	0.0	68.	4	9	8.4	0 Snd Lv	l 62. ⁻	7 5.7	~	80	-2.3
F Phase 2 d	4	10	4	0.0	67	0	9	7.7	0 Snd Lv	I 62.3	5.1	10	80	-2.5
F Phase 2 e	4	(0	4	0.0	66.	3	6	5.3	0 Snd Lv	I 61.(5.2	~	80	-2.7
F Phase 2 f	.4	2	4	0.0	66.(9	6	6.0	0 Snd Lv	1 60.8	5.2	2	80	-2.8
F Phase 2 g	4		4	0.0	74.0	0	6 7.	4.6	0 Snd Lv	I 65.	1 9.1	10	80	1.5
F Phase 2 h	4	0	4	0.0	74.	8	6 7.	4.8	0 Snd Lv	1 65.	1 9.7	2	80	1,7
F Phase 2 i	2		4	0.0	64.	2 6	ڻ و	4.7	0	59.7	7 5.0	0	8	-3.0
F Phase 2 j	3	2	4	0.0	65.	8	9	5.3	0	59.9	ۍ, ۵	4	8	-2.6
F Phase 2 k	3	8	4	0.0	64.	0	ف و	4.6	0	59.4	4 5.2	2	80	-2.8
F Phase 2 I	ŭ	¥	4	0.0	74.	9	6 7.	4.9	0 Snd Lv	1 65.2	6	2	80	1.7
F Phase 2 m	ŝ	10	4	0.0	74.	2 6	6 7.	4.7	0 Snd Lv	I 65.1	2 9.1	6	8	1.5
F Phase 2 n	ŝ	0	4	0.0	74.	0	6 7.	4.8	0 Snd Lv	I 65.4	4.0.4	-	8	1.4
F Phase 2 o	Q,	2	4	0.0	75.	2	6 7	5.2	0 Snd Lv	I 65.	6	2	80	1.7
F Phase 2 p	ŝ	6	4	0.0	74.	7 6	6 7.	4.7	0 Snd Lv	I 65.8	8	0	8	0.9
F Phase 2 q	Ö	0	4	0.0	74.	9	6 7.	4.9	0 Snd Lv	I 66.1	8	2	8	0.7
F Phase 2 r	Ö	_	4	0.0	74.3	0	6 7.	4.8	0 Snd Lv	I 67.:	2 7.((0	80	-0.4
F Phase 2 s	.0	0	4	0.0	74.	0	6 7.	4.8	0 Snd Lv	1 69	4	*	8	-2.6
F Phase 2 t	6	0	4	0.0	65.	0	9	5.2 1		61.9	3.5	۳	8	-4.7
F Phase 2 u	ġ	**	4	0.0	62.	0	0	2.4		60.5		10	œ	-6.5
F Phase 2 v	ö	10	2	0.0	64.	6	Ó Q	4.1	-	63.4	0.0	3	ø	-7.7
F Phase 2 w	Ö	0	4	0.0	61.	2 6	9	1.7		61.3	0.0	4	80	-7.6
F Phase 2 x	9	N	2	0.0	60.	9	9	0.0	1	29.0	0.0	4	80	-7.6

2 May 2016

C:\TNM25\I4\Fest Phase IIb long

S
ш
2
щ
_
Z
5
5
x
~
ö
Ľ
ы.
5
õ
ш
R
_

I-4 BtU PD&E

velling Units	\$nd #	Noise R	eduction		
		Min	Avg	Max	
		명	ą	ą	
Selected	06	Ö	e	5.9	9.7
I Impacted	62	ŝ	0	7.5	9.7
II that meet NR Goal	32	Ø	2	9.4	9.7

C:\TNM25\I4\Fest Phase IIb long

2 May 2016

2

RESULTS: BARRIER DESCRIPTIONS					-	4 Btu PD8	ų			
Stantec M Drauer				2 May 201 TNM 2.5	G					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	14 Bt 14 Se P2 Ioi	U PD&E igment 5 Fei ng 14	stival Shou	ılder						
Barriers										
Name	Type	Heights ald	ong Barrie	-	Length	If Wall	If Berm			Cost
	ŕ	Li Ni	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	Ĥ	ft	ŧ	sq ft	cu yd	Ŧ	ft:ft	\$
Barrier11	>	14.00	14.00	14.00	1552	21728				651829
									Total Cost:	651829

C:\TNM25\I4\Fest Phase IIb long

2 May 2016

RESULTS: SOUND LEVELS							I-4 BtU PD&	ш				
Stantec M Drauer							2 May 201 TNM 2.5	9				
RESULTS: SOUND LEVELS							Calculate	d with TNN	1 2.5			_
PROJECT/CONTRACT: RUN:	<u> </u>	4 BtU F	PD&E 1ent 5 Fes	stival Should	er							
BARRIER DESIGN:	<u>م</u>	2 long	14			_		Average a State hi	avement type	shall be used	unless the use	
ATMOSPHERICS:	9	8 deg	F, 50% RH	-				of a differ	ent type with a	approval of FH	WA.	
Receiver												
Name	No. #I	SUC	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase ov	er existing	Type	Calculated	Noise Reducti	ion	
				Calculated	Criť n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dВ		dBA	dB	dB	đB
F Phase 2 a	42	2	0	0 68	F.	66 68	8.1 10	Snd Lvl	62.4	5.7		-2.3
F Phase 2 b	43	4	0.0	68	7	66 68	8.7 10	Snd Lvl	62.3	6.4		-1.6
F Phase 2 c	44	4	0.0	0 68	4	66 68	8.4 10	Snd Lvl	61.7	6.7		-1.3
F Phase 2 d	45	4	0.0	0 67	7	66 67	7.7 10	Snd Lvl	61.2	6.5		-1.5
F Phase 2 e	46	4	0.0	99 00	e.	66 66	6.3 10	Snd Lvl	60.1	6.2		-1.8
F Phase 2 f	47	4	0.0	99 00	o.	66 66	5.0 1(Snd Lvl	60.2	5.8		-2.2
F Phase 2 g	48	4	0.0	74	9	66 74	4.6 10	Snd Lvl	63.9	10.7		8 2.7
F Phase 2 h	49	4	0.0	74	Ø	66 74	4.8 1(Snd Lvi	64.0	10.8	000	8 2.8
F Phase 2 i	51	4	0.0	64	7	66 62	4.7 10	ł	59.5	5.2		8 -2.8
F Phase 2 j	52	4	0.0	0 65	3	66 65	5.3 10	1	59.5	5.8		8 -2.2
F Phase 2 k	53	4	0.0	64	9	66 62	4.6 10	1	59.3	5.3		8 -2.7
F Phase 2 I	54	4	0.0	74	6	99	4.9 10	Snd Lvi	64.1	10.8		8 2.8
F Phase 2 m	55	4	0.0	74	7	66 74	4.7 10	Snd Lvl	64.1	10.6		8 2.6
F Phase 2 n	56	4	0.0	74	8	66 74	4.8 10	Snd Lvl	64.3	10.5		8 2.5
F Phase 2 o	57	4	0.0	15	2	66 75	5.2 10	Snd Lvl	64.4	10.8		8 2.8
F Phase 2 p	59	4	0.0	74	7	66 74	4.7 10	Snd Lvl	64.8	9.9		8 1.9
F Phase 2 q	60	4	0.0	74	6	66 74	4.9 10	Snd Lvl	65.3	9.6		1.6
F Phase 2 r	61	4	0.0	74.	80	66 74	4.8 10	Snd Lvl	66.6	8.2		8 0.2
F Phase 2 s	62	4	0.0	74.	80	66 74	1.8 10	Snd Lvl	69.1	5,7		-2.3
F Phase 2 t	63	4	0.0	65.	2	66 65	5.2 10	1	61.7	3.5		8 -4.5
F Phase 2 u	64	4	0.0	62	4	66 62	2.4 10	I	60.8	1.6		8 6.4
F Phase 2 v	65	2	0.0	64	•	66 64	4.1 10	1	63.8	0.3		8 -7.7
F Phase 2 w	99	4	0.0	61.	7	66 61	1.7 10	1	61.3	0.4		8 -7.6
F Phase 2 x	67	2	0.0	60	0	66 60	0.0 10	1	59.6	0.4		8 -7.6
F Phase 2 x	67	N	0.0	00	0	66 60	0.0	1		59.6	59.6 0.4	59.6 0.4

C:\TNM25\I4\Fest Phase IIb long

2 May 2016

۲

RESULTS: BARRIER DESCRIPTIONS						-4 BtU PD8	Ш			
Stantec M Drauer				29 April 2 TNM 2.5	016			-		
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	1-4 Bt 1-4 Se P2 12	J PD&E gment 5 Fe	stiva ROW							
Barriers										
Name	Type	Heights al	ong Barrie	Ŀ	Length	If Wall	If Berm			Cost
		Min	Avg	Max	ľ	Area	Volume	Top Width	Run:Rise	
		ŧ	ft	ft	Ĥ	sq ft	cu yd	Ĥ	ft:ff	÷
Barrier10	3	12.00	12.00	12.0	0 115	7 1389(0		-	416698
									Total Cost:	416698

29 April 2016

Statilite Statility Statility <t< th=""><th>RESULTS: SOUND LEVELS</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>I-4 BtU PD</th><th>Ш</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	RESULTS: SOUND LEVELS								I-4 BtU PD	Ш						
REGULT: SOUND LEVELS HUI POLE REQUET: SOUND LEVELS HEU POLE REVIEW HEU POLE REVIEW HEU POLE REVIEW HEU POLE REVIEW HEU POLE RUN RUN RUN HEU POLE RUN HEU POLE RUN HEU POLE ALTONOTIACT: HEU POLE RUN RUN RUN HEU POLE ALTONOTIACT: HEU POLE RUN HEU POLE ALTONOTIACT: HEU POLE RUND HEU POLE ALTONOTIACT:	Stantec M Drauer								29 April TNM 2.5	2016		L		-	-	
ATMOSPHERICS: Eader P. Som, and an and an and an and an and an and an and and	RESULTS: SOUND LEVELS PROJECT/CONTRACT: RUN: BARRIER DESIGN:		1-4 BtL 1-4 Seç P2 12	J PD&E gment 5 Fe	stiva RC	M			Calcula		age par	.o /ement type	shall be use	d unless		
Receiver No. Anne No. Anne No. Anne Anne <t< th=""><th>ATMOSPHERICS:</th><th></th><th>68 de</th><th>g F, 50% R</th><th>т</th><th></th><th></th><th>_</th><th></th><th>ofa</th><th>differer</th><th>it type with a</th><th>pproval of F</th><th>HWA.</th><th>0</th><th></th></t<>	ATMOSPHERICS:		68 de	g F, 50% R	т			_		ofa	differer	it type with a	pproval of F	HWA.	0	
Matrix Matrix<	Receiver			Eviation		-						Domine D				
F Phase 2 Eq. (a) (b) (b) (b) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	Name	.0N	snu#	EXISTING LAea1h	No Ba LAed1	h		Increase ov	ver existing	Tvpe	> 0	vitn Barrier alculated	Noise Redu	ction		Ĩ
F Phase 2 dBA d					Calcu	ated C	rit'n	Calculated	Criť n Sub'l In		t t	Aeq1h	Calculated	Goal	Calculated minus	τ
				dBA	dBA	σ	BA	dB	đB		0	BA	dB	Вb	dB	
F Phase 2 b 64 00 68.4 66 68.3 10 Sind Lvi 66.7 11 8 7.7 F Phase 2 c 44 4 0.0 68.3 66 57.3 10 Sind Lvi 66.7 11 8 -6.3 F Phase 2 c 45 4 0.0 66.3 66.5 71.0 10 67.2 11 8 -6.3 F Phase 2 f 4 0.0 65.3 66 65.3 10 Sind Lvi 65.2 8 -4.3 F Phase 2 f 4 0.0 65.3 66 65.7 10 Sind Lvi 65.3 36 6 64.3 66 74.6 66.3 74.6 66.3 74.6 66.3 74.6 66.7 74.6 66.7 74.7 66.7 74.7 66.7 74.7 70 74.7 70 74.7 74.7 74.7 74.7 74.7 74.7 74.7 74.7 74.7 74.7 74.7	F Phase 2 a	4		2	0	67.4	Ö	9	7.4	10 Sn	d Lvi	67.0	Ö	4	ω	-7.6
F Phase 2 c 44 0.0 68.3 10 Snd Lvi 67.2 11 8 6.6 F Phase 2 d 45 4 0.0 65.7 66 67.7 10 Snd Lvi 66.0 17 8 6.5 F Phase 2 f 45 4 0.0 65.7 66 65.3 10 Snd Lvi 65.1 31 32 8 -44 F Phase 2 f 4 0.0 65.7 66 65.7 10 Snd Lvi 65.1 32 8 -43 F Phase 2 f 51 4 0.0 64.7 66 64.7 10 Snd Lvi 65.3 35 8 -43 F Phase 2 f 51 4 0.0 64.7 66 64.7 10 Snd Lvi 66.0 7.1 8 -43 F Phase 2 f 53 4 0.0 64.5 66 7.4 10 Snd Lvi 66.0 7.1 7 7 7	F Phase 2 b	4	~	4	0.	68.4	Ö	9	8.4	10 Sn	d LvI	68.0	0	4	00	-7.6
F Phase 2 d 64 0.0 67.7 66 67.7 10 Sind Lvi 66.0 17 8 6.3 F Phase 2 f 4 0.0 67.3 66.3 69.3 10 Sind Lvi 66.3 33 35 8 3 4 F Phase 2 f 4 0.0 65.3 66 74.6 10 Sind Lvi 65.3 35 8 8 8 8 4 4 F Phase 2 f 51 4 0.0 74.7 66 74.7 10 Sind Lvi 65.3 3 3 8 8 4 4 F Phase 2 f 51 4 0.0 64.5 66 74.3 10 Sind Lvi 65.3 3 4 4 5 4 3 F Phase 2 f 4 0.0 64.5 66 75.1 10 Sind Lvi 65.3 3 4 7 8 3 3 7 F Phase	F Phase 2 c	4		4	0	68.3	Ö	9	8.3	10 Sn	d Lvl	67.2	÷	-	00	-6.9
F Phase 2 e 4 b 0.0 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 66.3 86.3 88 8 8 44 F Phase 2 i 41 49 4 0.0 74.7 66 74.7 10 5nd Lu 65.5 92.2 8 74.0 F Phase 2 i 51 4 0.0 64.7 66 64.7 10 5nd Lu 65.5 92 8 74.0 F Phase 2 i 53 4 0.0 64.5 66 74.7 10 5nd Lu 65.6 8 74.7 F Phase 2 i 53 4 0.0 74.7 66 74.7 10 5nd Lu 65.4 97 8 74.7 F Phase 2 i 54 4 0.0 74.7 66 74.7 10 5nd Lu 65.6 <t< td=""><td>F Phase 2 d</td><td>4</td><td>10</td><td>4</td><td>Ō,</td><td>67.7</td><td>Ö</td><td>0</td><td>7.7</td><td>10 Sn</td><td>d Lvi</td><td>66.0</td><td>÷</td><td>7</td><td>00</td><td>-6.3</td></t<>	F Phase 2 d	4	10	4	Ō,	67.7	Ö	0	7.7	10 Sn	d Lvi	66.0	÷	7	00	-6.3
F Phase 2 f 47 4 0.0 65.9 65.6 65.9 10 62.3 31.6 8 44 F Phase 2 f 74.6 0.0 74.7 10 50.1 65.5 9.2 8 10.0 F Phase 2 f 51 4 0.0 64.7 66 64.7 10 50.6 9.5 8 10.0 F Phase 2 f 51 4 0.0 64.7 66 64.7 10 50.6 8.7 9.0 8 10.0 F Phase 2 f 51 4 0.0 64.5 66 64.7 10 50.6 4.7 9.5 8 10.0 F Phase 2 f 53 4 0.0 74.7 66 74.7 10 50.6 65.4 10 50.6 8 10.7 F Phase 2 f 54 4 0.0 74.7 10 50.1 10 10 10 10 10 10 10.7 1	F Phase 2 e	4	10	4	0.	66.3	Ø	6	6.3	10 Sn	d Lvl	63.1	З.	2	00	4.8
F Phase 2 48 48 0.0 74.6 66 74.5 10 Smd Lvi 65.8 8.1 F Phase 21 51 4 0.0 64.7 66 64.5 10 60.6 4.6 8 3.4 F Phase 21 53 4 0.0 64.7 66 64.5 10 60.6 4.7 8 -3.4 F Phase 21 53 4 0.0 74.7 66 74.7 10 Smd Lvi 65.6 8 17 F Phase 2 54 4 0.0 74.7 66 75.1 10 Smd Lvi 65.6 9.7 8 17.4 F Phase 2 54 9 7 10 Smd Lvi 66.	F Phase 2 f	4	N	4	0.	65.9	9	0	5.9	10	Ť	62.3	ŝ	9	8	4.4
F Phase 2 h 49 0 74.7 66 74.7 10 Sind Lvi 65.5 9.2 8 1.1 F Phase 2 i 51 4 0.0 64.7 66 64.7 10 60.7 40 8 -40 F Phase 2 i 53 4 0.0 64.5 66 64.7 10 60.7 40 8 -3.3 F Phase 1 53 4 0.0 64.5 66 57.0 66 57.0 8 -3.3 F Phase 2 m 55 4 0.0 74.7 66 74.7 10 Snd Lvi 65.3 9.7 8 -1.7 F Phase 2 m 55 4 0.0 75.1 66 75.1 10 Snd Lvi 65.3 9.7 8 1.7 F Phase 2 m 56 4 0.0 75.1 66 75.1 10 Snd Lvi 65.7 9.7 8 1.7 <	F Phase 2 g	4	~	4 0	0.	74.6	Ō	6	4.6	10 Sn	d Lvl	65.8	œ	80	8	0.8
F hase 2 i 6 1 4 0.0 64.7 66 64.7 10 60.7 4.0 8 -40 F hase 2 j 53 4 0.0 64.5 66 65.2 10 60.6 4.6 8 -33 F hase 2 j 53 4 0.0 64.5 66 74.9 10 59.8 8 -15 F hase 2 j 55 4 0.0 74.9 66 74.7 10 Sult u 65.3 9.7 8 17.5 F hase 2 j 56 4 0.0 74.7 66 74.8 10 85.3 9.4 8 17.5 F hase 2 j 57 4 0.0 74.8 66 74.8 10 86.7 10 17.4 F hase 2 j 59 4 0.0 74.8 66 74.8 10 86.7 11.4 F hase 2 j 60 6 74.9 10 <td>F Phase 2 h</td> <td>4</td> <td>•</td> <td>4</td> <td>0</td> <td>74.7</td> <td>Ö</td> <td>5</td> <td>4.7</td> <td>10 Sn</td> <td>d Lvi</td> <td>65.5</td> <td>ດ</td> <td>2</td> <td>ø</td> <td>1.2</td>	F Phase 2 h	4	•	4	0	74.7	Ö	5	4.7	10 Sn	d Lvi	65.5	ດ	2	ø	1.2
F Phase 2 j 6 0.0 65.2 6 6 65.2 10 60.6 4.6 8 3.4 F Phase 2 k 53 4 0.0 64.5 66 64.5 10 59.8 4.7 8 -3.3 F Phase 2 k 53 4 0.0 74.9 66 74.9 10 54.4 9.5 8 -3.3 F Phase 2 n 55 4 0.0 74.9 66 74.7 10 50.4 9.7 8 1.7 F Phase 2 n 57 4 0.0 74.7 66 74.7 10 50 dult 65.3 9.7 8 1.7 F Phase 2 n 57 4 0.0 74.7 66 74.1 10 50 dult 65.7 9.7 8 1.7 F Phase 2 n 61 74.9 66 74.9 10 50.1 66.3 8 1.3 F Phase 2 n 61 4 0.0 <td>F Phase 2 i</td> <td>2</td> <td></td> <td>4</td> <td>0</td> <td>64.7</td> <td>Ø</td> <td>9</td> <td>4.7</td> <td>10</td> <td>ř</td> <td>60.7</td> <td>4</td> <td>0</td> <td>۰ ∞</td> <td>4.0</td>	F Phase 2 i	2		4	0	64.7	Ø	9	4.7	10	ř	60.7	4	0	۰ ∞	4.0
F Phase 2 k 53 4 0.0 64.5 66 64.5 10 53.8 4.7 8 -3.3 F Phase 2 l 54 4 0.0 74.9 66 74.9 10 SndLM 65.4 9.5 8 -3.3 F Phase 2 ln 55 4 0.0 74.7 66 74.7 10 SndLM 65.4 9.5 8 1.4 F Phase 2 n 55 4 0.0 74.7 66 74.7 10 SndLM 65.3 9.7 8 1.4 F Phase 2 n 57 4 0.0 74.7 66 74.8 10 86.5 9.7 8 1.4 F Phase 2 n 57 4 0.0 74.9 66 74.9 10 SndLM 66.5 9.7 8 1.4 F Phase 2 n 60 4 0.0 74.9 66 74.9 10 SndLM 66.5 8 1.3	F Phase 2 j	22	01	4	0	65.2	ø	0	5.2	10	ĩ	60.6	4	9	~	-3.4
F Phase 21 54 4 0.0 74.9 66 74.9 10 Sind Lyi 65.4 9.5 8 1.5 F Phase 2n 55 4 0.0 75.0 66 75.0 10 Sind Lyi 65.3 9.7 8 1.7 F Phase 2n 55 4 0.0 75.1 66 75.1 10 Sind Lyi 65.3 9.7 8 1.7 F Phase 2n 57 4 0.0 75.1 66 75.1 10 Sind Lyi 65.3 9.7 8 1.7 F Phase 2n 57 4 0.0 74.8 66 75.1 10 Sind Lyi 65.5 9.7 8 1.7 F Phase 2n 60 4 0.0 74.9 66 74.9 10 Sind Lyi 65.7 9.4 8 1.4 F Phase 2 n 60 4 0.0 74.9 66 74.9 10 Sind Lyi 65.7 9.	F Phase 2 k	ъ З	~	4	0	64.5	Ō	9	4.5	10	ï	59.8	4	7	8	3.3
F hase 2 m 55 4 0.0 75.0 66 75.0 10 Sind Lvi 65.3 9.7 8 1.1 F hase 2 n 56 4 0.0 74.7 66 74.7 10 Sind Lvi 65.3 9.7 8 1.1 F hase 2 n 57 4 0.0 74.7 66 74.7 10 Sind Lvi 65.3 9.7 8 1.1 F hase 2 n 57 4 0.0 74.8 66 74.8 67.1 90 8 1.1 F hase 2 n 59 4 0.0 74.8 66 74.8 10 Sind Lvi 65.5 9.3 8 1.1 F hase 2 n 67 4 0.0 74.9 66 74.9 10 Sind Lvi 65.7 9.4 8 1.1 F hase 2 n 67 4 0.0 74.9 66 74.9 10 Sind Lvi 65.7 8 -1.13	F Phase 2 I	27	-	4	0.	74.9	9	2	4.9	10 Sn	d Lvl	65.4	Ъ.	5	8	1.5
F Phase 2 n 56 4 0.0 74.7 66 74.7 10 Snd Lvl 65.3 9.4 8 1.7 F Phase 2 o 57 4 0.0 75.1 66 75.1 10 Snd Lvl 65.4 9.7 8 1.7 F Phase 2 o 59 4 0.0 75.1 66 75.1 10 Snd Lvl 65.5 9.3 8 1.3 F Phase 2 o 60 4 0.0 74.8 66 75.1 10 Snd Lvl 65.5 9.3 8 1.3 F Phase 2 r 61 7 10 Snd Lvl 65.6 9.3 8 1.3 F Phase 2 r 62 7 9 66 74.9 10 Snd Lvl 65.7 9.4 8 1.3 F Phase 2 r 62 4 0.0 74.9 66 74.9 10 Snd Lvl 66.4 8 1.3 F Phase 2 r 63 64 </td <td>F Phase 2 m</td> <td>ŝ</td> <td>10</td> <td>4</td> <td>0.</td> <td>75.0</td> <td>Ö</td> <td>2</td> <td>5.0</td> <td>10 Sn</td> <td>d LvI</td> <td>65.3</td> <td>G</td> <td>7</td> <td>8</td> <td>1.7</td>	F Phase 2 m	ŝ	10	4	0.	75.0	Ö	2	5.0	10 Sn	d LvI	65.3	G	7	8	1.7
F Phase 2 o 57 4 0.0 75.1 66 75.1 10 Snd Lvl 65.4 9.7 8 1.7 F Phase 2 p 59 4 0.0 74.8 66 74.8 10 Snd Lvl 65.5 9.3 8 1.3 F Phase 2 p 60 4 0.0 74.8 66 74.8 10 Snd Lvl 65.5 9.3 8 1.4 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.4 8 1.4 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 66.4 8 7.3 8 7.3 F Phase 2 r 63 4 0.0 65.1 66 65.1 10 7.4 8 7.3 8 7.3 F Phase 2 u 63 4 0.0 65.1 66 61.1 10 7.4 8 <t< td=""><td>F Phase 2 n</td><td>56</td><td>10</td><td>4 0</td><td>0.</td><td>74.7</td><td>Ö</td><td>2 2</td><td>4.7</td><td>10 Sn</td><td>d Lvl</td><td>65.3</td><td>6</td><td>4</td><td>80</td><td>1.4</td></t<>	F Phase 2 n	56	10	4 0	0.	74.7	Ö	2 2	4.7	10 Sn	d Lvl	65.3	6	4	80	1.4
F Phase 2 p 59 4 0.0 74.8 66 74.8 10 Snd Lvl 66.5 9.3 8 1.3 F Phase 2 q 60 4 0.0 75.1 66 74.8 10 Snd Lvl 65.7 9.4 8 1.4 F Phase 2 q 60 4 0.0 74.9 66 74.9 10 Snd Lvl 66.4 8.5 8 1.4 F Phase 2 r 61 7 9 66 74.9 10 Snd Lvl 66.4 8 7.4 F Phase 2 r 61 7 9 66 74.9 10 Snd Lvl 66.4 8 7.1 F Phase 2 r 63 4 0.0 65.1 66 65.4 10 7.1 7.1 7.1 F Phase 2 u 64 4 0.0 62.4 10 7.1 7.1 7.1 7.1 F Phase 2 u 65 2 0.0 61.1 10	F Phase 2 o	21		4	0.	75.1	Ö	5 7	5.1	10 Sn	d LvI	65.4	ő	7	80	1.7
F Phase 2 q 60 4 0.0 75.1 66 75.1 10 Snd Lvi 65.7 9.4 8 1.4 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvi 66.4 8.5 8 0.5 F Phase 2 r 62 4 0.0 74.9 66 74.9 10 Snd Lvi 66.4 8.5 8 0.5 F Phase 2 r 62 4 0.0 65.1 66 65.1 10 Snd Lvi 68.2 6.7 8 -1.5 F Phase 2 u 63 4 0.0 62.4 66 65.1 10 -10 -1.5 34 8 -4.6 F Phase 2 u 63 4 0.0 62.4 66 64.1 10 -10 -1.5 8 -5.7 F Phase 2 u 65 2 0.0 64.1 10 -10 61.4 0.3 8 -7.7	F Phase 2 p	5		4	0.	74.8	Ō	0	4.8	10 Sn	d Lvl	65.5	ດັ	0	80	1.3
F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 66.4 8.5 8 0.5 F Phase 2 s 62 4 0.0 74.9 66 74.9 10 Snd Lvl 66.4 8.5 8 -1.3 F Phase 2 s 62 4 0.0 74.9 66 74.9 10 Snd Lvl 66.3 6.7 8 -1.3 F Phase 2 u 63 4 0.0 65.1 66 65.1 10 61.7 3.4 8 1.3 F Phase 2 u 63 2 0.0 65.1 10 61.7 3.4 8 5.7 F Phase 2 u 65 2 0.0 61.1 66 61.7 10 63.8 0.3 8 7.7 F Phase 2 w 67 2 0.0 60.0 61.1 10 61.4 0.3 8 -7.7	F Phase 2 q	90	0	4	0.	75.1	Ö	2	5.1	10 Sn	d Lvl	65.7	6	4	8	1.4
F Phase 2 s 62 4 0.0 74.9 66 74.9 10 Snd Lvl 68.2 6.7 8 -1.3 F Phase 2 t 63 4 0.0 65.1 66 65.1 10 61.7 3.4 8 -4.6 F Phase 2 u 63 4 0.0 65.1 66 65.1 10 61.7 3.4 8 -4.6 F Phase 2 u 64 4 0.0 62.4 10 60.9 1.5 8 -6.5 F Phase 2 v 65 2 0.0 61.7 66 61.7 10 63.8 0.3 8 -5.7 F Phase 2 v 67 6 60.0 60.0 60.0 60.0 61.7 10 61.4 0.3 8 -7.7 F Phase 2 v 67 2 0.0 60.0 60.0 10 61.4 0.3 8 -7.7	F Phase 2 r	9		4	0.	74.9	Ö	2	4.9	10 Sn	d Lvl	66.4	œ	5	80	0.5
F Phase 2 t 63 4 0.0 65.1 66 65.1 10 61.7 3.4 8 -4.6 F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.9 1.5 8 -6.5 F Phase 2 u 65 2 0.0 64.1 66 64.1 10 60.9 1.5 8 -6.5 F Phase 2 w 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 w 67 61 66 61.7 10 61.4 0.3 8 -7.7 F Phase 2 w 67 2 0.0 60.0 66.0 61.7 10 61.4 0.3 8 -7.7	F Phase 2 s	6	0	4 0	0.	74.9	Ö	2	4.9	10 Sn	d Lvl	68.2	Ö	2	. 00	-1.3
F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.9 1.5 8 -6.5 F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 v 66 4 0.0 61.7 66 61.7 10 61.4 0.3 8 -7.7 F Phase 2 w 66 61.7 10 61.4 0.3 8 -7.7 F Phase 2 x 67 2 0.0 60.0 66.0 10 59.7 0.3 8 -7.7	F Phase 2 t	ö	~	4	0.	65.1	Ö	0	5.1	10	ï	61.7	ю.	4	8	4.6
F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.4 0.3 8 -7.7 F Phase 2 w 67 2 0.0 61.7 66 61.7 10 61.4 0.3 8 -7.7 F Phase 2 w 67 2 0.0 60.0 66 60.0 10 59.7 0.3 8 -7.7	F Phase 2 u	<u></u> ě	-	4	0.	62.4	9	6	2.4	10	ĩ	60.9	.	5	8	-6.5
F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.4 0.3 8 -7.7 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.7 0.3 8 -7.7	F Phase 2 v	ÿ	10	2	0.	64.1	9	0	4.1	10		63.8	Ö	0	8	-7.7
F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.7 0.3 8 -7.7	F Phase 2 w	Q	(0)	4	0.	61.7	Ø	0	1.7	10	1	61.4	°.	e	8	1.7-
	F Phase 2 x	0	~	2 0	0	60.0	Ō	9	0.0	- 10	ĩ	59.7	Ö	0	8	1.7-
S																

_																
Ш																
>																
щ																
-																
Δ																
z																
5																
~																
U.																
S																
Ś																
ь.																
)																
ō																
ш																
R																

I-4 BtU PD&E

Dwelling Units	# DUs	Noise R	duction		
		Min	Avg	Ma	ax
		qB	ąp	đB	
All Selected	06	0	e	5.0	9.7
All Impacted	28	Ö	4	6.5	9.7
All that meet NR Goal	36	Ø	2	9.3	9.7

29 April 2016

Stattlet TAPIII 2015 TAPIII 2015 M.D.Guarter Calculated with TMM 2.5 FRAM.2.5 RESULTS: SOUND LEVELS Latul DAG Calculated with TMM 2.5 RESULTS: SOUND LEVELS Latul DAG Calculated with TMM 2.5 RENERT CESTOR: Latul DAG Calculated with TMM 2.5 RUM RUM Stathling No Barrier Stathling No Barrier Atmospheter(CS: RGB F, 50%, RH Calculated Noise Atmospheter(CS: RGB F, 70%, RH Calculated Noise Atmospheter(CS: RGB F, 70%, RH Calculated Noise Atmospheter(CS: RGB F, 70%, RH	RESULTS: SOUND LEVELS								-4 Btu PD&I						
RESULTS. SOUND LEVELS I all UDDE FINOUS I all Segnent 5 Fethy ROW Average pavement type shall be used BARIER DESIGN: I all Segnent 5 Fethy ROW Average pavement type shall be used BARIER DESIGN: I all Segnent 5 Fethy ROW Average pavement type shall be used ATMOSPHERICS: I all Segnent 5 Fethy ROW Average pavement type shall be used ATMOSPHERICS: I all Segnent 5 Fethy ROW Average pavement type shall be used ATMOSPHERICS: I all Segnent 5 Fethy ROW Average pavement type shall be used ATMOSPHERICS: I all Segnent 5 Fethy ROW Average pavement type shall be used ATMOSPHERICS: I all Segnent 5 Fethy ROW Average pavement type shall be used ATMOSPHERICS: I all Segnent 5 Fethy ROW Average pavement type shall be used Atmos Average pavement type shall be used Average pavement type shall be used Atmos Average pavement type shall be used Average pavement type shall be used Atmos Average pavement type shall be used Average pavement type shall be used F Phase 2 E all bar all be used Average pavement type shall be used F Phase 2 E all bar all bar a	Stantec M Drauer								27 April 2 TNM 2.5 Calculator)16 4 with TMB	2		-	_	
PROJECTIONTNACT: I all IDDE RARLECTONTACT: I all IDDE ASMENTER DESIGN: I all Segment 5 FeatwarDM ATMOSPHERUCS: State IT Armage paroment type shall be used ATMOSPHERUCS: State IT Armage paroment type shall be used ATMOSPHERUCS: State IT Armage paroment type shall be used ATMOSPHERUCS: State IT Armage paroment type shall be used ATMOSPHERUCS: State IT Armage paroment type shall be used ATMOSPHERUCS: State IT Armage paroment type shall be used ATMOSPHERUCS: State IT Armage paroment type shall be used Armage IT Armage paroment type shall be used Armage state IT Armage state IT Receiver Armage state IT Armage state IT Armage state IT Armage state IT Receiver Armage state IT Armage state IT Armage state IT Armage state IT Receiver Armage state IT Armage state IT Armage state IT Armage state IT F Phase 2 Phase 2 Armage state IT Armage state IT Armage IT Armage IT Arma	RESULTS: SOUND LEVELS								Carculate		0.7 1				
BARRER DESION: P2 4 Average pavement type shall be used ATMOSPHERICS: Stating No. P3 and Average pavement type shall be used ATMOSPHERICS: Stating No. P3 and Average pavement type shall be used Receiver No. P3 be Exating No. P3 be Average pavement type shall be used Name No. P3 be Exating No. P3 be Average pavement type shall be used Name No. P3 be Exating No. P3 be Average pavement type shall be used Name No. P3 be Exating No. P3 be Exating No. P3 be P1 base 2 P1 base 2 Q3 Q3 Q3 Q3 Q4 Q4 <thq4< th=""> Q4 <thq4< th=""></thq4<></thq4<>	PROJECT/CONTRACT: RUN:		I-4 BtU I-4 Seg	PD&E ment 5 Fe	stiva ROV										
ATMOSPHERICS: Eaded F, SUN, RH a care minore up of a care minore up o	BARRIER DESIGN:		P2 14							Average	pavement type	e shall be use	d unless	6	
Receiver No. #DUs Existing No. #DUs Mith Barrier Mith Barrier Name Addrth Ladeth Ladeth Ladeth Ladeth Mith Barrier Mith Barrier Fhase 2 Addrth Ladeth Ladeth Ladeth Ladeth Mith Barrier Mith Barrier Fhase 2 Addrth Addrth Calculated Crith Moth Mith Barrier Fhase 2 Addrth	ATMOSPHERICS:		68 de(g F, 50% R	H					a state n of a diffe	griway agenc rent type with	y substantiate approval of F	es the us HWA.	e	
NameNo.FistingNo.ExistingNo.MothMuthMuth $AretinLaretinLaretinLaretinLaretinTypeCalculatedNo.No.F hase 2AbdBdBdBdBdBdBdBdBdBdBF hase 2422067.4dB$	Receiver									n jî					
	Name	No.	\$NQ#	Existing	No Barr	ier					With Barrier				
				LAeq1h	LAeq1h	2	4	Increase ove	r existing	Type	Calculated	Noise Redu	ction	10	
ABA ABA <th></th> <th></th> <th></th> <th></th> <th>calcula</th> <th></th> <th></th> <th>calculated</th> <th>Sub'l Inc</th> <th>Impact</th> <th>LAeq1n</th> <th>calculated</th> <th>Goal</th> <th>Calcu minu Goal</th> <th>ulated</th>					calcula			calculated	Sub'l Inc	Impact	LAeq1n	calculated	Goal	Calcu minu Goal	ulated
F Phase 2 42 2 0.0 67.4 66 67.4 10 Sind Lvi 67.0 0.4 F Phase 2 b 43 4 0.0 68.4 66 68.4 10 56.1 11 F Phase 2 c 45 4 0.0 67.3 66 68.3 10 57.1 10 57.1 11 F Phase 2 f 45 4 0.0 65.3 66 65.3 10 57.1 10				dBA	dBA	đB	A	dB	đB		dBA	dB	đB	đb	
F Phase 2 b 43 4 0.0 68.4 66 68.4 10 Sind LM 68.0 0.1 F Phase 2 c 44 4 0.0 68.3 66 63.3 10 Sind LM 66.1 1 F Phase 2 f 45 4 0.0 66.3 66 66.3 10 Sind LM 66.1 13 F Phase 2 f 47 4 0.0 65.3 66 65.3 10 Sind LM 67.1 38 F Phase 2 f 47 4 0.0 65.3 66 65.3 10 Sind LM 67.1 38 F Phase 2 f 4 0.0 65.2 66 65.3 10 Sind LM 67.1 30 F Phase 2 f 53 4 0.0 64.7 10 Sind LM 66.1 40 F Phase 2 f 53 4 0.0 64.7 10 Sind LM 66.1 40 F Phase 2 f 53	F Phase 2 a	4	N	2 0	0.	67.4	99	67.	4	Snd Lvl	67.(0	4	ω	-7.6
F Phase 2c 44 4 0.0 68.3 66 68.3 10 67.1 1.1 F Phase 2d 45 4 0.0 67.7 66 67.7 10 56.8 19 F Phase 2d 45 4 0.0 65.9 66 67.7 10 50.1 62.7 36 F Phase 2g 47 4 0.0 65.9 66 65.7 10 50.1 62.7 36 F Phase 2g 47 0.0 65.9 66 65.7 10 50.1 62.7 36 F Phase 2g 51 4 0.0 74.7 66 74.7 10 50.1 64.3 10.7 F Phase 2g 53 4 0.0 64.7 66 74.7 10 50.1 64.3 10.7 F Phase 2g 53 4 0.0 74.7 66 74.7 10 50.1 64.3 10.7 F Phase 2g 55	F Phase 2 b	4	ღ	4 0	0.	68.4	99	68.	4 10	Snd Lvl	68.(0	4	80	-7.6
F Phase 2 d 45 4 0.0 67.7 66 67.7 10 Sind LM 65.3 10 F Phase 2 f 4 0.0 66.3 66.3 10 Sind LM 65.3 10 F Phase 2 f 4 0.0 66.3 66.3 10 Sind LM 65.2 36 F Phase 2 f 4 0.0 65.3 66 74.7 10 Sind LM 65.3 10.2 F Phase 2 f 51 4 0.0 64.7 66 74.7 10 54.9 9.0 F Phase 2 f 51 4 0.0 64.7 66 64.7 60 4.0 F Phase 2 f 53 4 0.0 64.5 66 74.7 66 74.7 60 64.3 10.7 F Phase 2 f 53 4 0.0 74.9 66 74.7 10 66.7 74.7 F Phase 2 f 6 6 74.7 10 54.9	F Phase 2 c	4	4	4	0.	68.3	99	68.	3 10	Snd Lvl	67.7		2	ω	-6.8
F Phase 2 e 66.3 66.3 66.3 70 82.1 33 F Phase 2 f 47 4 0.0 65.9 66. 74.5 0.0 65.3 0.0 51.3 9.7 33. F Phase 2 f 43 0.0 74.5 66 74.7 10 62.1 33. F Phase 2 h 31 4 0.0 74.7 66 64.7 10 62.1 40.7 F Phase 2 h 51 4 0.0 64.7 66 64.7 10 60.7 40.7 F Phase 2 h 51 4 0.0 64.7 66 64.5 10.7 40.7 F Phase 2 h 53 4 0.0 74.7 10 60.6 43.3 10.4 F Phase 2 h 55 4 0.0 74.7 66 74.7 10 64.3 10.6 F Phase 2 h 56 4 0.0 74.7	F Phase 2 d	4	2	4	0.	67.7	99	67.	7 10	Snd Lvl	65.4	1.1	o	œ	-6.1
F Phase 2 f 47 4 0.0 65.9 66 65.9 10 62.1 33 F Phase 2 j 43 4 0.0 74.6 66 74.6 10 64.5 10.2 F Phase 2 j 51 4 0.0 74.7 66 64.7 10 60.7 40 F Phase 2 j 53 4 0.0 64.7 66 64.7 10 60.6 45.5 40 F Phase 2 j 53 4 0.0 64.7 66 64.7 10 60.6 45.5 40 F Phase 2 j 53 4 0.0 74.7 66 74.7 10 64.3 10.6 F Phase 2 j 54 4 0.0 74.7 66 74.7 10 64.3 10.7 F Phase 2 j 54 4 0.0 74.7 66 74.7 10 64.3 10.7 F Phase 2 j <td>F Phase 2 e</td> <td>4</td> <td>9</td> <td>4</td> <td>0.</td> <td>66.3</td> <td>66</td> <td>66.</td> <td>3 10</td> <td>Snd Lvl</td> <td>62.</td> <td>7 3.</td> <td>9</td> <td>œ</td> <td>4.4</td>	F Phase 2 e	4	9	4	0.	66.3	66	66.	3 10	Snd Lvl	62.	7 3.	9	œ	4.4
F Phase 2 4 0.0 74.6 66 74.6 10 Sind Lwi 64.9 9.1 F Phase 2 hase 2 has	F Phase 2 f	4	2	4	0.	65.9	66	65.	9 10	I	62.	3.0	80	80	4.2
F Phase 2 h 49 4 0.0 74.7 66 74.7 10 Sind Lvl 64.5 10.2 F Phase 2 i 51 4 0.0 64.7 66 64.7 10 60.7 40 F Phase 2 i 51 4 0.0 65.2 66 65.2 10 60.6 4.5 F Phase 2 k 53 4 0.0 65.2 66 65.2 10 59.9 4.6 F Phase 2 m 53 4 0.0 74.9 66 74.9 10 59.9 4.6 F Phase 2 m 55 4 0.0 74.1 66 74.1 10 59.9 40.1 F Phase 2 m 55 4 0.0 74.1 66 74.3 10.1 64.3 10.1 F Phase 2 m 55 4 0.0 74.3 66 74.3 10.3 10.4 F Phase 2 m	F Phase 2 g	4	80	4	0.	74.6	66	74.	6 10	Snd Lvl	64.9	9.	7	ŝ	1.7
F Phase 2 i 61 4 0.0 64.7 66 64.7 10 60.7 4.6 F Phase 2 i 52 4 0.0 65.2 66 65.2 10 60.6 4.5 F Phase 2 i 53 4 0.0 65.2 66 65.2 10 60.6 4.5 F Phase 2 i 53 4 0.0 74.9 66 74.9 10 60.6 4.3 10.6 F Phase 2 i 55 4 0.0 74.7 66 74.7 10 Snd Lvi 64.3 10.6 F Phase 2 i 57 4 0.0 74.7 66 74.7 10 Snd Lvi 64.3 10.6 F Phase 2 i 74.7 66 74.7 10 Snd Lvi 64.3 10.0 F Phase 2 i 74 71 66 74.3 10 64.5 10.4 F Phase 2 i 60 64	F Phase 2 h	4	5	4	0.	74.7	99	74.	7 10	Snd Lvl	64.1	5 10.3	0	∞	2.2
F Phase 2 i 52 4 0.0 65.2 66 65.2 10 60.6 4.6 F Phase 2 k 53 4 0.0 64.5 66 64.5 10 59.9 4.6 F Phase 2 k 53 4 0.0 64.5 66 64.5 10 59.9 4.6 F Phase 2 m 55 4 0.0 74.7 66 74.7 10 5md Lyl 64.3 10.4 F Phase 2 m 55 4 0.0 74.7 66 74.7 10 5md Lyl 64.3 10.4 F Phase 2 m 55 4 0.0 74.8 66 74.8 10 5md Lyl 64.3 10.4 F Phase 2 m 57 4 0.0 74.8 66 74.9 10 5md Lyl 64.3 10.4 F Phase 2 m 56 4 0.0 74.9 5md Lyl 64.4 10.4 10.4 F	F Phase 2 i	Ŷ	-	4	0	64.7	66	64.	7 10		60.	7 4.(0	80	4.0
F Phase 2 k 53 4 0.0 64.5 66 64.5 10 59.9 4.6 F Phase 2 l 54 4 0.0 74.9 66 74.9 10 59.3 10.6 F Phase 2 m 55 4 0.0 75.0 66 74.9 10 54.3 10.7 F Phase 2 m 56 4 0.0 75.1 66 74.7 10 54.3 10.7 F Phase 2 m 57 4 0.0 74.7 66 74.8 10 64.3 10.7 F Phase 2 m 57 4 0.0 74.7 66 74.8 10 54.3 10.8 F Phase 2 m 60 4 0.0 74.8 66 74.9 10 54.3 10.8 F Phase 2 m 60 4 0.0 74.9 66 74.9 10 54.3 10.8 F Phase 2 m 63 4 0.0 74.9 66 </td <td>F Phase 2 j</td> <td>ŝ</td> <td>2</td> <td>4</td> <td>0</td> <td>65.2</td> <td>66</td> <td>65.</td> <td>2 10</td> <td>1</td> <td>60.6</td> <td>6 4.1</td> <td>9</td> <td>80</td> <td>-3.4</td>	F Phase 2 j	ŝ	2	4	0	65.2	66	65.	2 10	1	60.6	6 4.1	9	80	-3.4
F Phase 215440.074.96674.9108nd Lvi64.310.7F Phase 2m5540.075.06675.0108nd Lvi64.310.7F Phase 2n5640.075.16674.7108nd Lvi64.310.4F Phase 2n5740.075.16674.9108nd Lvi64.310.8F Phase 2n5740.075.16674.9108nd Lvi64.310.8F Phase 2n5940.075.16674.9108nd Lvi64.510.8F Phase 2n6040.075.16674.9108nd Lvi64.510.8F Phase 2n6140.074.96674.9108nd Lvi65.79.2F Phase 2n6240.065.16674.9108nd Lvi65.87.1F Phase 2n6340.065.16674.9108nd Lvi67.87.1F Phase 2n6340.065.16666.174.9108nd Lvi61.87.1F Phase 2n6520.065.16666.174.9108nd Lvi61.87.1F Phase 2n6520.065.16666.166.160.861.861.861.861.8F Phase 2n6	F Phase 2 k	ò	ო	4	0	64.5	99	64.	5 10		29.9	9 4.1	9	80	-3.4
F Phase 2 m 55 4 0.0 75.0 66 75.0 10 NdLvl 64.3 10.7 F Phase 2 n 56 4 0.0 74.7 66 74.7 10 Snd Lvl 64.3 10.4 F Phase 2 n 57 4 0.0 74.7 66 74.7 10 Snd Lvl 64.3 10.4 F Phase 2 n 57 4 0.0 74.8 66 74.8 10 Snd Lvl 64.3 10.4 F Phase 2 n 59 4 0.0 74.8 66 74.9 10 Snd Lvl 64.3 10.3 F Phase 2 n 60 4 0.0 74.9 66 74.9 10 Snd Lvl 64.7 10.4 F Phase 2 n 61 4 0.0 74.9 66 74.9 10 Snd Lvl 66.7 9.2 F Phase 2 n 63 4 0.0 74.9 66 67.4 10 67.8 7.1<	F Phase 2 I	ů	4	0	0	74.9	66	74.	9 10	Snd Lvl	64.3	3 10.0	9	ø	2.6
F Phase 2 n 56 4 0.0 74.7 66 74.7 10 Snd Lvl 64.3 10.4 F Phase 2 o 57 4 0.0 75.1 66 75.1 10 Snd Lvl 64.3 10.3 F Phase 2 o 57 4 0.0 75.1 66 75.1 10 Snd Lvl 64.3 10.3 F Phase 2 p 59 4 0.0 74.8 66 75.1 10 Snd Lvl 64.3 10.3 F Phase 2 q 60 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 r 63 4 0.0 65.1 66 74.9 10 5.1 10.4 67.8 7.1 F Phase 2 r 63 4 0.0 65.1 66 65.1 10 7.1	F Phase 2 m	ŭ	د	4	0.	75.0	99	75.	0	Snd Lvl	64.3	3 10.	7	ø	2.7
F Phase 2 0 57 4 0.0 75.1 66 75.1 10 Snd Lvl 64.3 10.3 F Phase 2 p 59 4 0.0 74.8 66 74.8 10 Snd Lvl 64.5 10.3 F Phase 2 p 59 4 0.0 74.8 66 74.8 10 Snd Lvl 64.5 10.3 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 r 63 4 0.0 65.1 66 74.9 10 5.4 61.8 7.1 F Phase 2 r 63 4 0.0 65.1 66 64.1 61.8 7.1	F Phase 2 n	ŭ	9	4	0.	74.7	66	74.	7 10	Snd Lvl	64.3	3 10.	4	ø	2.4
F Phase 2 p 59 4 0.0 74.8 66 74.8 10 Snd Lvl 64.5 10.3 F Phase 2 q 60 4 0.0 75.1 66 74.9 10 Snd Lvl 64.5 10.4 F Phase 2 r 61 4 0.0 75.1 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 r 62 4 0.0 74.9 66 74.9 10 Snd Lvl 67.8 7.1 F Phase 2 r 63 4 0.0 65.1 66 65.1 10 mod Lvl 67.8 7.1 F Phase 2 u 63 4 0.0 65.1 66 64.1 10 mod Lvl 61.8 7.1 F Phase 2 u 63 64 60 62.4 66 64.1 10 mod Lvl 16.	F Phase 2 o	ίς.		4	0.	75.1	66	75.	1	Snd Lvl	64.3	3 10.	80	ø	2.8
F Phase 2 q 60 4 0.0 75.1 66 75.1 10 NnLvi 64.7 10.4 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 SndLvi 65.7 9.2 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 SndLvi 65.7 9.2 F Phase 2 r 63 4 0.0 65.1 66 74.9 10 SndLvi 67.8 7.1 F Phase 2 u 63 4 0.0 65.1 66 65.1 10 61.8 3.3 F Phase 2 u 63 2 0.0 62.4 66 64.1 10 61.8 3.3 F Phase 2 u 65 2 0.0 61.7 66 64.1 10 61.8 0.3 F Phase 2 u 65 2 0.0 61.7 66 64.1 10 61.8 0.3	F Phase 2 p	ũ	Б	0	0.	74.8	66	74.	8	Snd Lvl	64.	5 10.	e	ω	2.3
F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 s 62 4 0.0 74.9 66 74.9 10 Snd Lvl 65.7 9.2 F Phase 2 s 63 4 0.0 65.1 66 65.1 10 57.8 7.1 F Phase 2 u 63 4 0.0 65.1 66 65.1 10 57.8 7.1 F Phase 2 u 63 4 0.0 65.1 66 65.1 10 57.8 7.1 F Phase 2 u 63 2 0.0 62.4 66 64.1 10 61.8 3.3 F Phase 2 w 66 64.1 66 64.1 10 63.8 0.3 F Phase 2 w 66 64.1 66 64.1 10 63.8 0.3 F Phase 2 w 66 61.7 60 61.7 <	F Phase 2 q	90	0	0	0	75.1	66	75.	1	Snd Lvl	64.7	7 10.4	4	Ø	2.4
F Phase 2 s 62 4 0.0 74.9 66 74.9 10 Snd Lvl 67.8 7.1 F Phase 2 t 63 4 0.0 65.1 66 65.1 10 61.8 3.3 F Phase 2 t 63 4 0.0 65.1 66 65.1 10 61.8 3.3 F Phase 2 u 63 4 0.0 62.4 66 65.4 10 61.8 3.3 F Phase 2 u 65 2 0.0 64.1 66 64.1 10 61.8 1.6 F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.3	F Phase 2 r	ė	-	4	0.	74.9	66	74.	9 10	Snd Lvl	65.7	2.6	2	00	1.2
F Phase 2 t 63 4 0.0 65.1 66 65.1 10 61.8 3.3 F Phase 2 u 64 4 0.0 62.4 66 62.4 10 61.8 3.3 F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.8 1.6 F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 F Phase 2 v 66 61.7 66 61.7 10 61.3 0.4	F Phase 2 s	3	N	4	0.	74.9	66	74.	9 10	Snd Lvl	67.8	8 7.	1	00	-0.9
F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.8 1.6 F Phase 2 v 65 2 0.0 64.1 66 64.1 10 60.8 1.6 F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 F Phase 2 w 66 61.7 66 61.7 10 61.3 0.4 F Phase 2 w 67 60 67.1 66 61.7 10 61.3 0.4	F Phase 2 t	6	e	4	0.	65.1	66	65.	1	I	61.8	8	3	00	-4.7
F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.4 F Phase 2 w 66 61.7 66 61.7 10 61.3 0.4	F Phase 2 u	ò	4	0	0.	62.4	66	62.	4 10	1	60.8	1.6	G	00	-6.4
F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.4 r Phase 2 w 67 0 61.7 66 61.7 10 61.3 0.4	F Phase 2 v	ö	ŝ	0	0.	64.1	66	64.	1	1	63.6	0.0	0	8	-7.7
	F Phase 2 w	ö	G	0	0.	61.7	66	61.	7 10	1	61.	3	4	ø	-7.6
	F Phase 2 x	9	2	0	0.	60.0	99	60.	0	1	59.6	9.0	4	ø	-7.6

27 April 2016

~

က
Ē
Ē
Q
sou
:TS:
RESUI

ш	
90	
Ď	
<u><u> </u></u>	
Ę.	
m	
4	
-	

Dwelling Units	N SUD#	loise Re	luction	
	2	Nin	Avg	Мах
		8	đB	đB
II Selected	06	0.3		5.4 10.8
I Impacted	58	0.4		7.1 10.8
Il that meet NR Goal	36	9.2	7	0.3 10.8

2

3

Stantec 27 April 2016 TIM 2.5 M Drauer TIM 2.5 RESULTS: BARRIER DESCRIPTIONS 14 BtU PD&E PROJECT/CONTRACT: 14 BtU PD&E RUN: 14 Segment 5 Festiva ROW BARRIER DESIGN: 214 BARRIER DESIGN: 214 Barriers Type Min Avg Min Avg Min 44.00 Area Volume Width Min Min 44.00 Area Volume Midth Midth Midth Min Min 44.00 Area Volume Midth Midth	ESULTS: BARRIER DESCRIPTIONS						I-4 BtU PD8	Щ			
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: 14 B¢U PD&E RUN: 14 Segment 5 Festiva ROW BARRIER DESIGN: 2 14 Barriers Name Name Min Avg Max Math ft Mall ft Berm Min Avg Max Math ft m ft	lantec Drauer				27 April 2 TNM 2.5	016					
RUN: RUN: BARRIER DESIGN: P2 14 Barriers Name Type Min Area Min Area Min Area Min Area Min Area Min Area Min Area Min Area Min Area Min Area Min Area Min Min Area Min Min Min Min Min Min Min Min	ESULTS: BARRIER DESCRIPTIONS										
BARRIER DESIGN: P2 14 Barriers Name Type Heights along Barrier Length If Wall If Berm Area Volume Top Run:R Min Avg Max Area Volume Top Width Wildth Area Volume Top Run:R	KUJEC I/CUN KACI: UN:	14 Bu	u PuœE gment 5 Fe	stiva ROW	_						
Barriers Type Heights along Barrier Length If Wall If Berm Name Min Avg Max Area Volume Top Min Avg Max Area Volume Top Nuidth Min Avg Max Area Volume Top Nuidth	ARRIER DESIGN:	P2 14									
Name Type Heights along Barrier Length If Wall If Berm Min Avg Max Area Volume Top Run:Ri Image: Second Condet Area Volume Top Run:Ri	arriers										
Min Avg Max Area Volume Top Run:R ft ft ft ft ft ft ft	ame	Type	Heights al	ong Barrie	5	Length	If Wall	If Berm			Cost
A ft ft ft ft sq ft cu yd ft ft:ft Doreiodd			Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
Derived M 14 00 14 00 14 00			¥	¥	ft	ŧ	sq ft	cu yd	Ħ	ft:ft	S
	arrier10	≥	14.00	14.00	14.0	0 115	7 16205	10			486147
To										Total Cost:	486147

Stantec M Drauer									
			27 April 20 TNM 2.5	16			_		
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: I-4 BtU PD&E	Ш								
RUN: I-4 Segment 5 BARRIER DESIGN: P2 16	ıt 5 Festi	iva ROW							
Barriers									
Name Type Height:	jhts alon	ig Barrier		Length	If Wall	lf Berm			Cost
Min	Ā	ь Бл	Max		Area	Volume	Top Width	Run:Rise	
H	£	÷	æ	ft	sq ft	cu yd	Ŧ	ft:ft	ø
Barrier10 W 16	16.00	16.00	16.00	1157	18520	-			555597
								Total Cost:	555597

27 April 2016

a.

Statute In Divator Statuti 2016 FREML FS Transfer Statuti 2016 FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS FREML FS RNN FS FREML FS FREML FS FREML FS	RESULTS: SOUND LEVELS							I-4 BtU PD&	щ						
Results: South LPVLIS Calculated with TMI 125 ATMOSPHERICS: Calculated with TMI 125 Calculated Total TMI 125 Calculated Total TMI 125 Calculated With TMI 125 MIL 125 Calculated With TMI 125 MIL 126 Calculated With TMI 125 MIL 126 MIL 126 Calculated With TMI 125 MIL 126 Calculated With TMI 125 MIL 126 MIL 126 <th colsp<="" th=""><th>Stantec M Drauer</th><th></th><th></th><th></th><th></th><th></th><th></th><th>27 April 2 TNM 2.5</th><th>016</th><th></th><th></th><th></th><th>a</th><th></th></th>	<th>Stantec M Drauer</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>27 April 2 TNM 2.5</th> <th>016</th> <th></th> <th></th> <th></th> <th>a</th> <th></th>	Stantec M Drauer							27 April 2 TNM 2.5	016				a	
RUN: Total Sector Sector Sector Alow Famore Total Sector Alow Famore Tota	RESULTS: SOUND LEVELS PROJECT/CONTRACT:	4-1	BtU PD&E					Calculate	d with TNN	1 2.5					
ATMOSPHERICS:Stade F, S0% RHATMOSPHERICS:And Referent type with sproval of FHWA.RecieverNoExistingNoAnneAnneRecieverNoMortLocatingNoMithMithAnneNoAnneLocatingNoMithMithPhase 2Phase 2MortLocatingSub'i IncSub'i IncAnneF Phase 2HoSiteNoSiteMithSub'i IncMithSiteF Phase 2HASiteNoSiteSub'i IncMithSiteMithF Phase 2HHNoSiteNoSiteSiteSiteSiteMithF Phase 2HHNoSiteSiteNoSiteSiteSiteSiteSiteF Phase 2HHNoSiteSiteNoSiteSiteSiteSiteSiteSiteF Phase 2HHNoSiteSiteNoSiteSiteSiteSiteSiteSiteF Phase 2HNoSiteSiteSiteSiteSiteSiteSiteSiteSiteSiteSiteSiteF Phase 2HHNoSiteSiteSiteSiteSiteSiteSiteSiteSiteSiteSiteSiteF Phase 2HHNoSiteSiteSiteSiteSiteSiteSiteSite<	RUN: BARRIER DESIGN:	P2 P2	Segment 5 16	Festiva	ROW				Average a State hi	pavement type ohwav agency	e shall be use v substantiat	ed unless es the us	a		
Receiver No. ADIA Exercise No. ADIA	ATMOSPHERICS:	ÿ	3 deg F, 50%	RH					of a diffe	ent type with	approval of I	EHWA.	5		
NameNo. 100 Existing LengthDeBartierDiffer LengthTypeCalculated LengthTypeCalculated LengthTypeCalculated LengthTypeCalculated LengthTypeCalculated LengthTypeCalculated LengthTypeCalculated LengthTypeCalculated LengthCalculated LengthTypeCalculated LengthTypeCalculated LengthCalculated Len	Receiver			0											
$ \begin{array}{l l l l l l l l l l l l l l l l l l l $	Name	No. #D	Us Existir	N S	Barrier				,	With Barrier		1120			
There Control			LAeq1	C L	eq1n Iculated	Crit'n	Increase ov Calculated	er existing Crit'n	l ype Impact	Calculated LAeq1h	Noise Redu Calculated	Goal	Calculate	ed	
F dBA dBA <thdba< th=""> <thdba< th=""> <thdba< th=""></thdba<></thdba<></thdba<>							5 (1997) (1	Sub'l Inc					minus Goal		
F Phase 2 a 42 2 0.0 67.4 66 67.4 10 57.1 67.0 0.4 8 7.7 F Phase 2 b 43 4 0.0 66.3 66.4 10 66.7 11 12 8 7.75 F Phase 2 c 43 4 0.0 66.3 66.6 68.3 10 50.1 11 2 8 7.75 F Phase 2 c 44 4 0.0 66.3 66.6 66.3 10 50.1 11 12 8 7.35 F Phase 2 f 4 0.0 66.3 66.6 57.3 10 57 4 20 23 </td <td></td> <td></td> <td>dBA</td> <td>8</td> <td>A</td> <td>dBA</td> <td>đB</td> <td>qp</td> <td></td> <td>dBA</td> <td>dB</td> <td>dB</td> <td>gв</td> <td></td>			dBA	8	A	dBA	đB	qp		dBA	dB	dB	gв		
F Phase 2 b t d 0.0 68.4 0.6 68.4 10 Snd Lvi 67.1 11 2 6 F Phase 2 c 44 0.0 67.3 66 67.3 10 5nd Lvi 67.1 112 6 66.3 F Phase 2 c 45 4 0.0 67.3 66 67.3 10 5nd Lvi 67.1 112 2 6 F Phase 2 f 47 0.0 66.3 66 74.7 10 5nd Lvi 67.3 10 5nd Lvi 67.3 10 5nd Lvi 67.3 10 5nd Lvi 67.3 10 5nd Lvi 20.3 50 5nd Lvi 67.3 10 5nd Lvi 67.3 10 5nd Lvi 10 51.3 10 50 20 50	F Phase 2 a	42	7	0.0	67.4	U	6 61	7.4 1	0 Snd Lvl	67.0	0	4	8	-7.6	
F Phase 2 c 64 0 68.3 66 68.3 10 5nd Lvi 67.1 12 8 6.6 F Phase 2 f 45 4 0.0 65.3 66 65.3 10 5nd Lvi 65.7 20 8 -6.0 F Phase 2 f 45 4 0.0 65.3 66 65.3 10 Snd Lvi 65.7 10.3 8 -6.0 F Phase 2 f 45 0.0 65.3 66 65.3 10 Snd Lvi 67.3 10 -6.1 7.1 7.1 7.2 8 -7.3 F Phase 2 f 51 4 0.0 64.7 66 7.4 10 -6.0 67.3 7.1 7.1 8 -7.3 F Phase 2 f 51 4 0.0 64.7 66 7.4 10 -6.0 67.3 10 -7.3 10 2.3 8 -7.3 F Phase 2 f 51 4 0.0 64.5	F Phase 2 b	43	4	0.0	68.4	U	66	8.4 1	0 Snd Lvl	67.5	0	5	00	-7.5	
F Phase 2 d 64 0.0 67.7 66 67.7 10 Sind Lvi 65.7 2.0 8 -4.0 F Phase 2 e 47 4 0.0 65.3 66 66.3 10 Sind Lvi 65.5 3.8 8 -3.3 F Phase 2 e 47 4 0.0 65.3 66 6.4 10 Sind Lvi 65.7 11.0 8 -3.3 F Phase 2 i 57 4 0.0 64.7 66 74.6 10 Sind Lvi 65.7 11.0 8 -3.3 F Phase 2 i 57 4 0.0 64.5 66 64.5 10 Sind Lvi 66.1 8 -3.3 F Phase 2 i 55 4 0.0 64.5 66 74.1 10 Sind Lvi 66.3 11.4 8 -3.3 F Phase 2 i 55 4 0.0 74.1 66 74.1 10 Sind Lvi 67.1 11.4 8	F Phase 2 c	44	4	0.0	68.3	U	66	8.3 1	0 Snd Lvl	67.1	-	2	00	-9.8	
F Phase 2 e 4 0.0 66.3	F Phase 2 d	45	4	0.0	67.7	Ð	6	1.7 1	0 Snd Lvl	65.7	7 2	0	80	-6.0	
F Phase 2f 47 4 0.0 65.9 66 65.9 10 61.7 4.2 8 3.3 F Phase 2g 48 4 0.0 74.6 66 74.6 10 SndLind 64.3 10.3 8 3.3 F Phase 2i 51 4 0.0 64.7 66 64.7 10 60.1 51 8 3.6 F Phase 2i 51 4 0.0 64.7 66 64.5 10 60.1 51 8 55 F Phase 2i 52 4 0.0 64.7 66 64.7 10 59 41.1 8 23 F Phase 2i 55 4 0.0 74.7 66 74.7 10 51 11 8 23 F Phase 2i 56 4 0.0 74.7 10 50.1 11.1 8	F Phase 2 e	46	4	0.0	66.3	Ð	66	5.3 1	0 Snd Lvl	62.5	3.	80	00	4.2	
F hase 2 4 0.0 74.6 66 74.6 10 50.1 64.3 10.3 8 2.3 F hase 21 51 4 0.0 74.7 66 64.7 10 50.1 63.7 11.0 8 2.3 F hase 21 55 4 0.0 64.7 66 64.5 10 60.1 51 8 2.3 F hase 21 55 4 0.0 64.5 66 64.5 10 59.4 51 8 2.3 F hase 21 53 4 0.0 74.7 66 74.7 10 50.1 11.4 8 2.3 F hase 21 54 4 0.0 74.7 66 74.7 10 50.1 11.4 8 3.3 F hase 20 55 4 0.0 74.7 66 74.7 10 50.1 11.1 8 3.3 F hase 21 56	F Phase 2 f	47	4	0.0	62.9	Ð	6	5.9 1		61.7	4.	2	80	-3.8	
F Phase 2 h 44 0.0 74.7 66 74.7 10 Sid Lvi 63.7 11.0 8 3.0 F Phase 2 i 51 4 0.0 64.7 10 60.3 4.4 8 3.0 F Phase 2 i 53 4 0.0 65.2 66 64.5 10 60.3 4.4 8 3.0 F Phase 2 i 53 4 0.0 65.2 66 64.5 10 60.3 4.4 8 3.4 F Phase 2 i 55 4 0.0 74.9 66 74.7 10 56d Lvi 11.4 8 3.4 F Phase 2 i 55 4 0.0 74.7 66 74.7 10 56d Lvi 11.4 8 3.4 F Phase 2 i 56 4 0.0 74.1 66 75.1 10 56d Lvi 11.4 8 3.1 F Phase 2 i 57 4	F Phase 2 g	48	4	0.0	74.6	U	6 74	4.6	0 Snd Lvl	64.3	3 10.	3	ø	2.3	
F Phase 2 i 51 4 0.0 64.7 66 64.7 10 60.3 4.4 8 -3.6 F Phase 2 i 52 4 0.0 65.2 66 65.2 10 60.1 51 8 -2.9 F Phase 2 k 53 4 0.0 65.2 66 65.2 10 59.4 11.4 8 -3.4 F Phase 2 l 55 4 0.0 74.9 66 74.7 10 Snd Ly 63.4 11.4 8 3.3 F Phase 2 m 56 4 0.0 74.7 66 74.7 10 Snd Ly 63.7 11.1 8 3.3 F Phase 2 m 56 4 0.0 74.8 66 74.8 10 Snd Ly 65.1 11.1 8 3.1 F Phase 2 m 56 4 0.0 74.8 66 74.9 10 Snd Ly 66.1 11.1	F Phase 2 h	49	4	0.0	74.7	G	9	4.7 1	0 Snd Lvl	63.7	11.	0	80	3.0	
F Phase 2 j 6 65.2 10 60.1 5,1 8 -2.9 F Phase 2 k 53 4 0.0 64.5 66 64.5 10 59.4 5,1 8 -2.9 F Phase 2 k 53 4 0.0 74.9 66 74.9 10 SndLvl 63.5 11.4 8 -2.9 F Phase 2 model 55 4 0.0 74.9 66 74.9 10 SndLvl 63.5 11.4 8 -3.3 F Phase 2 model 55 4 0.0 74.7 66 74.7 10 SndLvl 63.5 11.1 8 -3.3 F Phase 2 model 56 4 0.0 74.8 66 74.9 10 SndLvl 65.7 11.1 8 -3.1 F Phase 2 model 66 74.9 10 SndLvl 65.1 11.1 8 -3.1 F Phase 2 model 60 74.9	F Phase 2 i	51	4	0.0	64.7	9	6	4.7 11	1	60.3	.4	4	80	-3.6	
F Phase 2 k 53 4 0.0 64.5 66 64.5 10 59.4 5.1 8 2.3 F Phase 2 l 54 4 0.0 74.9 66 74.9 10 Sid k 11.4 8 3.4 F Phase 2 l 55 4 0.0 75.0 66 74.7 10 Sid k 11.6 8 3.3 F Phase 2 n 55 4 0.0 75.1 66 74.7 10 Sid k 11.6 8 3.3 F Phase 2 n 55 4 0.0 74.7 66 74.3 10 Sid k 11.1 8 3.3 F Phase 2 n 61 4 0.0 74.9 66 74.9 10 Sid k 11.1 8 3.1 F Phase 2 n 61 4 0.0 74.9 66 74.9 10 Sid k 11.1 8 3.1 F Phase 2 n 61 64	F Phase 2 j	52	4	0.0	65.2	G	6 65	5.2 1	1	60.1	5.	-	80	-2.9	
F Phase 21 54 4 0.0 74.9 66 74.9 10 Snd Lvi 63.5 11.4 8 3.6 F Phase 2 m 55 4 0.0 75.0 66 75.0 10 Snd Lvi 63.4 11.6 8 3.3 F Phase 2 m 55 4 0.0 74.7 66 74.7 10 Snd Lvi 63.4 11.6 8 3.3 F Phase 2 m 57 4 0.0 74.7 66 75.1 10 Snd Lvi 63.4 11.6 8 3.3 F Phase 2 m 57 4 0.0 74.8 66 75.1 10 Snd Lvi 63.7 11.1 8 3.3 F Phase 2 m 60 74.9 66 74.9 10 Snd Lvi 63.4 11.1 8 3.1 F Phase 2 m 61 4 0.0 74.9 66 74.9 10 5nd Lvi 67.4 8 4.3	F Phase 2 k	53	4	0.0	64.5	G	6 64	4.5 1		59.4	t 2	-	80	-2.9	
F Phase 2 m 55 4 0.0 75.0 66 75.0 10 Snd Lvi 63.4 11.6 8 3.3 F Phase 2 n 56 4 0.0 74.7 66 74.7 10 Snd Lvi 63.4 11.3 8 3.3 F Phase 2 n 55 4 0.0 74.7 66 75.1 10 Snd Lvi 63.4 11.3 8 3.3 F Phase 2 n 59 4 0.0 75.1 66 74.9 10 Snd Lvi 63.7 11.1 8 3.1 F Phase 2 n 61 4 0.0 74.9 66 74.9 10 Snd Lvi 65.1 91.7 93 91.8 3.1 F Phase 2 n 63 74.9 66 74.9 10 Snd Lvi 65.1 91.7 93 91.8 91.8 F Phase 2 n 61 4 0.0 74.9 66 65.1 10 10 10 <	F Phase 2 I	54	4	0.0	74.9	G	6 74	1.9	0 Snd Lvl	63.5	11.	4	8	3.4	
F Phase 2 n 56 4 0.0 74.7 66 74.7 10 Snd Lvl 63.4 11.3 8 3.3 F Phase 2 o 57 4 0.0 75.1 66 75.1 10 Snd Lvl 63.5 11.6 8 3.3 F Phase 2 o 59 4 0.0 75.1 66 75.1 10 Snd Lvl 63.5 11.1 8 3.1 F Phase 2 p 60 4 0.0 75.1 66 75.1 10 Snd Lvl 63.7 11.1 8 3.1 F Phase 2 p 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.1 9.8 3.1 F Phase 2 r 62 74.9 66 74.9 10 Snd Lvl 67.5 7.4 8 -0.6 F Phase 2 r 63 4 0.0 74.9 66 65.1 10 -0.6 7.4 8 -0.6 F	F Phase 2 m	55	4	0.0	75.0	9	9	5.0 1	0 Snd Lvl	63.4	11.	9	80	3.6	
F Phase 2 o 57 4 0.0 75.1 66 75.1 10 Smd Lvi 63.5 11.6 8 3.1 F Phase 2 p 59 4 0.0 74.8 66 74.8 10 Smd Lvi 63.7 11.1 8 3.1 F Phase 2 q 60 4 0.0 75.1 66 75.1 10 Smd Lvi 63.7 11.1 8 3.1 F Phase 2 r 61 4 0.0 75.1 66 74.9 10 Smd Lvi 65.1 9.8 8 3.1 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Smd Lvi 65.7 7.4 8 -0.6 F Phase 2 r 63 4 0.0 74.9 66 65.1 10 57.4 8 -0.6 F Phase 2 v 63 4 0.0 65.1 66 64.1 10 -0.7 67.4 8 -0.6	F Phase 2 n	26	4	0.0	74.7	9	6 74	4.7	0 Snd Lvl	63.4	11.	3	8	3.3	
F Phase 2 p 63 74.8 66 74.8 70 74.8 63.7 11.1 8 3.1 F Phase 2 q 60 4 0.0 75.1 66 74.9 61 64.0 11.1 8 3.1 F Phase 2 q 60 4 0.0 75.1 66 74.9 10 Snd Lvi 65.1 11.1 8 3.1 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvi 65.1 9.8 7.4 F Phase 2 r 62 74.9 66 74.9 10 Snd Lvi 67.5 7.4 8 -0.6 F Phase 2 r 63 4 0.0 74.9 66 65.1 10 -0 61.4 3.7 8 -6.6 6.6 6.6 6.7 10 -0 6.6 6.6 6.6 6.1 6.1 10 -6.1 6.6 6.6 6.6 6.6 6.1 10	F Phase 2 o	57	4	0.0	75.1	9	6 75	5.1 1	0 Snd Lvl	63.5	11.	9	80	3.6	
F Phase 2 q 60 4 0.0 75.1 66 75.1 10 Snd Lvl 64.0 11.1 8 3.1 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.1 9.8 8 1.8 F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd Lvl 65.1 9.8 8 1.8 F Phase 2 r 62 74.9 66 74.9 10 Snd Lvl 67.5 7.4 8 -0.6 F Phase 2 v 63 4 0.0 65.1 66 65.4 10 61.7 8 -6.3 F Phase 2 v 65 2 0.0 62.4 66 64.1 10 60.7 8 -6.3 F Phase 2 v 65 2 0.0 64.1 10 60.7 1.7 8 -7.6 F Phase 2 v 65 64.1<	F Phase 2 p	59	4	0.0	74.8	9	9 27	1.8 1	0 Snd Lvl	63.7	11.	-	8	3.1	
F Phase 2 r 61 4 0.0 74.9 66 74.9 10 Snd LvI 65.1 9.8 8 1.8 F Phase 2 s 62 4 0.0 74.9 66 74.9 10 Snd LvI 65.1 9.8 8 -0.6 F Phase 2 s 62 4 0.0 74.9 66 65.1 10 Snd LvI 61.4 3.7 8 -0.6 F Phase 2 u 63 4 0.0 65.1 66 65.1 10 61.4 8 -0.6 F Phase 2 u 63 2 0.0 62.4 66 65.1 10 61.7 8 -6.3 F Phase 2 u 65 2 0.0 64.1 66 61.7 10 61.3 8 -7.7 F Phase 2 w 65 6 61.7 10 61.3 0.3 8 -7.6 F Phase 2 w 65 61.7	F Phase 2 q	60	4	0.0	75.1	G	6 75	5.1 10	0 Snd Lvl	64.0	11.	-	80	3.1	
F Phase 2 s 62 4 0.0 74.9 66 74.9 10 Snd Lvi 67.5 7.4 8 -0.6 F Phase 2 t 63 4 0.0 65.1 66 65.1 10 61.4 3.7 8 -4.3 F Phase 2 t 63 4 0.0 65.1 66 65.4 10 61.4 3.7 8 -4.3 F Phase 2 u 64 4 0.0 62.4 66 64.1 10 60.7 1.7 8 -6.3 F Phase 2 v 66 64.1 10 61.3 0.3 8 -7.7 F Phase 2 v 66 61.7 66 61.7 10 61.3 0.4 8 -7.7 F Phase 2 v 67 2 0.0 60.0 60.0 60.1 10 61.3 8 -7.6 F Phase 2 v 67 2 0.0	F Phase 2 r	61	4	0.0	74.9	G	9 27	4.9 10	D Snd Lvl	65.1	ດ່	80	80	1.8	
F Phase 2 t 63 4 0.0 65.1 66 65.1 10 61.4 3.7 8 -4.3 F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.7 1.7 8 -6.3 F Phase 2 u 65 2 0.0 64.1 66 64.1 10 60.7 1.7 8 -6.3 F Phase 2 u 65 2 0.0 64.1 66 64.1 10 61.3 8 -7.7 F Phase 2 w 66 61.7 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 w 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 s	62	4	0.0	74.9	G	9 27	1.9 1.	D Snd Lvl	67.5	5 7.	4	80	-0.6	
F Phase 2 u 64 4 0.0 62.4 66 62.4 10 60.7 1.7 8 -6.3 F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 w 66 61.7 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 w 67 2 0.0 60.0 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 t	63	4	0.0	65.1	G	6 65	5.1 10		61.4	1 3.	2	80	4.3	
F Phase 2 v 65 2 0.0 64.1 66 64.1 10 63.8 0.3 8 -7.7 F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 w 67 2 0.0 60.0 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 u	64	4	0.0	62.4	G	6 62	2.4 11		60.7	4.	7	80	-6.3	
F Phase 2 w 66 4 0.0 61.7 66 61.7 10 61.3 0.4 8 -7.6 F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 v	65	2	0.0	64.1	G	6 64	4.1		63.8	0	3	80	-7.7	
F Phase 2 x 67 2 0.0 60.0 66 60.0 10 59.6 0.4 8 -7.6	F Phase 2 w	66	4	0.0	61.7	G	6 61	1.7 11		61.3	0.	4	80	-7.6	
	F Phase 2 x	67	7	0.0	60.0	Q	6 60	0.0		59.6	0.	4	80	-7.6	

Ś
- Ei
5
ш
Δ
Z
Ç
0
S
മ
5
2
്ല
Ж
ш.

1-4 Btu PD&E

lling Units	# DUs	Noise Re	duction		
		Min	Avg	Ma	
		đB	ą	đþ	
I Selected	06	0	8	5.8	11.6
l Impacted	58	ö	4	7.6	11.6
II that meet NR Goal	36	6	8	11.0	11.6

C:\TNM25\I4\Fest Phase II

7

RESULTS: BARRIER DESCRIPTIONS						-4 Btu PD8	щ			
Stantec M Drauer				27 April 3 TNM 2.5	2016			_		
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:	14 B 14 Se P2 18	:U PD&E egment 5 Fe	stiva ROM							
Barriers										
Name	Type	Heights al	ong Barrie	L	Length	If Wall	lf Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
	_	æ	ft	Ħ	Ĥ	sq ft	cu yd	ŧ	ft:ft	s
Barrier10	3	18.00	18.00	18.0	0 1157	20835				625046
									Total Cost:	625046

RESULTS: SOUND LEVELS							Ŧ	BtU PD&						
Stantec M Drauer								27 April 2(TNM 2.5	116					
RESULTS: SOUND LEVELS								Calculated	l with TNN	l 2.5		_		
PROJECT/CONTRACT: RUN:	11	4 BtU 4 Segr	PD&E nent 5 Fe:	stiva ROW		-								
BARRIER DESIGN:	È.	2 18				-			Average	avement type	shall be use	d unless		
ATMOSPHERICS:	Ó	8 deg	F, 50% RI	-					a State hi of a differ	ghway agenc) ent tyne with	r substantiate	es the use	0	
Receiver						-								
Name	No. #I	suc	Existing	No Barrier						With Barrier				
			LAeq1h	LAeq1h		Increa	ise over (existing	Type	Calculated	Noise Reduc	ction	-	
				Calculated	Crit'n	Calcu	lated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculate minus Goal	pa
			dBA	dBA	dBA	æ		đB		dBA	dB	đВ	đb	
F Phase 2 a	42	2	0.0	0 67	4	99	67.4	10	Snd Lvl	67.0	0		~	2 2
F Phase 2 b	43	4	0.0	68	4	66	68.4	10	Snd Lvi	67.9	0.5	10	> ∞	10.1
F Phase 2 c	44	4	0.0	68	3	66	68.3	10	Snd Lvl	67.0	-		0 00	-9.7
F Phase 2 d	45	4	0.0) 67	.7	66	67.7	10	Snd Lvl	65.6	2.1		00	-5.9
F Phase 2 e	46	4	0.0	99	e.	66	66.3	10	Snd Lvl	62.3	4.0	0	8	4
F Phase 21	47	4	0.0) 65	<u>.</u>	66	65.9	10	1	61.5	4.4	-	80	-3.6
F Phase 2 g	48	4	0.0	74	9	66	74.6	10	Snd Lvl	63.6	11.0	0	80	3.0
F Phase 2 h	49	4	0.0	74	2.	66	74.7	10	Snd Lvl	63.0	11.7		8	3.7
F Phase 21	51	4	0	64	1	66	64.7	10	1	59.9	4.8		8	-3.2
F Phase 2 J	52	4	0	65	2	66	65.2	10	1	59.6	5.6	10	80	-2.4
F Phase Z K	23	4	0.0	64	5	99	64.5	10	1	59.0	5.5		80	-2.5
F Phase 2	54	4	0.0	74	ō,	66	74.9	10	Snd Lvi	62.7	12.2		œ	4.2
F Phase 2 m	55	4	0.0	15	o,	66	75.0	10	Snd Lvl	62.7	12.3		80	4.3
F Phase 2 n	29	4	0.0	74	2	66	74.7	10	Snd Lvl	62.6	12.1		03	4
F Phase 2 0	57	4	0.0	75	-	66	75.1	10	Snd Lvi	62.7	12.4		8	4.4
r Phase Z p	20	4	0.0	74	80	66	74.8	10	Snd Lvl	63.0	11.8		80	3.8
r Phase 2 q	09	4	0.0	75	-	66	75.1	10	Snd Lvl	63.3	11.8		8	3.8
F Phase 2 r	61	4	0.0	74	6	66	74.9	10	Snd Lvl	64.6	10.3		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2.3
F Phase Z S	62	4	0.0	74	D.	66	74.9	10	Snd Lvl	67.3	7.6		00	-0.4
	83	4	0.0	65	~	66	65.1	10	I	61.2	3.9			-4.1
r Phase 2 U	64	4	0.0	62	4	99	62.4	10	I	60.6	1.8		~	-6.2
F Phase 2 V	65	2	0.0	64	5	66	64.1	10	Ĭ,	63.8	0.3		80	-7.7
F Phase Z W	99	4	0.0	61.	7	99	61.7	10		61.3	0.4		80	-7.6
	91	N	0.0	60	0	99	60.0	10	ſ	59.6	0.4		00	-7.6
														1

¢

27 April 2016

C:\TNM25\I4\Fest Phase II

S.
::::::::::::::::::::::::::::::::::::::
۳.
.
ч.
z
⊃.
0
ō
S.
H. I
=
ಸ
87 I
2

1-4 BtU PD&E

Jwelling Units	# DUS	Noise R	duction		
		Min	Avg	Ma	
		æ	đb	æ	
VII Selected	06	Ö	~	6.2	12.4
dl Impacted	28	Ö		8.1	12.4
I that meet NR Goal	36	10.		11.7	12.4

C:\TNM25\I4\Fest Phase II

27 April 2016

RESULTS: BARRIER DESCRIPTIONS						4 BtU PD8	щ			
Stantec M Drauer				27 April 2 TNM 2.5	016					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT: RUN: BARRIER DESIGN:		:U PD&E egment 5 Fe	stiva ROV	>						
Barriers										
Name	Type	Heights al	ong Barri	-La	Length	If Wall	If Berm			Cost
		Min	Avg	Max		Area	Volume	Top Width	Run:Rise	
		ft	ŧ	ft	¥	sq ft	cu yď	ŧ	ft:ft	Ф
Barrier10	>	20.00	20.0	0 20.00	1157	23150				694496
	_								Total Cost:	694496

1

RESULTS: SOUND LEVELS								I-4 BtU PI	0&E						
Stantec M Drauer								27 Apri TNM 2.	l 2016 5						
RESULTS: SOUND LEVELS								Calcula	ited witl	TNM	5				
PROJECT/CONTRACT: RUN: BARRIER DESIGN:		I-4 BtL I-4 Seç P2 20	J PD&E gment 5 F	estiva R	MO				Ave	rage pa	vement type	shall be use	d unless		
ATMOSPHERICS:		68 de	g F, 50% I	HR					a St of a	ate higl differe	way agency	substantiate	es the use	0	
Receiver									5						
Name	No.	\$ND#	Existing	No B	arrier						Vith Barrier				
			LAeq1h	LAeq	ŧ		Increase ov	ver existing	Type		calculated	Noise Reduc	ction		
				Calc	lated	Criťn	Calculated	Crit'n Sub'l Ir		act	Aeq1h	Calculated	Goal	Calcu minus Goal	lated
			dBA	dBA		dBA	qB	đB	_		BA	dB	đb	ąp	
F Phase 2 a	42	0	2	0.0	67.4		36 6	17.4	10 Sn	d Lvi	6.9	3.0	10	80	-7.5
F Phase 2 b	4	~	4	0.0	68.4	Ŧ	36 6	8.4	10 Sn	d Lvl	67.9	0.5	10	0 00	-7.5
F Phase 2 c	4	-	4	0,0	68.3	U	36 6	8.3	10 Sn	d Lvi	67.0	13	~	æ	-6.7
F Phase 2 d	45		4	0.0	67.7	U	36 6	2.7	10 Sn	d Lvi	65.6	2.1		œ	-5.9
F Phase 2 e	46		4	0.0	66.3	U	6 6	6.3	10 Sn	d LvI	62.1	4.2	0	60	-3.8
F Phase 2 f	47	•	4	0.0	62.9	U	36 6	5.9	10	1	61.3	4.6	(0	80	-3.4
F Phase 2 g	46	~	4	0.0	74.6	U	6 7	4.6	10 Sn	d Lvi	63.2	11.4	Ŧ	80	3.4
F Phase 2 h	40	•	4	0.0	74.7	¢	36 7	4.7	10 Sn	d Lvi	62.5	12.2	01	80	4.2
F Phase 2 i	51		4	0.0	64.7	U	9 9	4.7	10	i	59.5	5.2	0	80	-2.8
F Phase 2 j	25		4	0.0	65.2	w.	90 90	5.2	10	1	59.3	5.9	-	00	-2.1
F Phase 2 k	23		4	0.0	64.5	U.	ġ g	4.5	10	1	58.6	5.9		8	-2.1
F Phase 2 I	24		4	0.0	74.9	U	86 7.	4.9	10 Sn	d LvI	62.2	12.7		80	4.7
F Phase 2 m	55	•	4	0.0	75.0	G	12 23	5.0	10 Sn	d Lvl	62.1	12.9		8	4.9
F Phase 2 n	20	N	4	0.0	74.7	G	6 7.	4.7	10 Sn	d Lvi	62.0	12.7		80	4.7
F Phase 2 o	27		•	0	75.1	9	6 7	5.1	10 Sn	d Lvl	62.1	13.0		80	5.0
F Phase 2 p	20	•		0.0	74.8	Θ	9	4.8	10 Sn	d LvI	62.4	12.4		8	4.4
F Phase 2 q	99	•	4	0.0	75.1	G	6 7	5.1	10 Sn	d Lvl	62.8	12.3		00	4.3
F Phase 2 r	61	•	4	0.0	74.9	9	.2 2,	4.9	10 Sn	d LvI	64.3	10.6		80	2.6
F Phase 2 s	62	•	*	0.0	74.9	G	6 7,	4.9	10 Sn	d Lvi	67.2	7.7		8	-0.3
F Phase 2 t	63	•	•	0.	65.1	9	6	5.1	10	Ŧ	60.9	4.2		8	-3.8
F Phase 2 u	64		•	0.	62.4	ø	6	2.4	10	I	60.5	1.9		8	-6.1
F Phase 2 v	65		0	0.	64.1	ø	6	4.1	10 -	r	63.8	0.3		80	7.7-
F Phase 2 w	99	•	•	0.	61.7	9	6	1.7	10	ſ	61.3	0.4		80	-7.6
F Phase 2 x	67		0	0.	60.0	9	6	0.0	10	f	59.6	0.4		00	-7.6

27 April 2016

~

C:\TNM25\I4\Fest Phase Ii

တု
. .
ш
2
щ
- - - -
0
7
5
Z
Q
S
S
E.
S
Ш.
Ŕ
_

I-4 BtU PD&E

ng Units	# DUS Noi	se Reduction	
	Min	Avg	Max
	ĝ	Ð	æ
Selected	06	0.3	6.5
mpacted	58	0.5	8.4
that meet NR Goal	36	10.6	12.2

C:\TNM25\I4\Fest Phase II

RESULTS: BARRIER DESCRIPTIONS					_	4 BtU PD8	щ			
Stantec M Drauer				29 April 2 TNM 2.5	016					
RESULTS: BARRIER DESCRIPTIONS PROJECT/CONTRACT:	<u>4</u> B	U PD&E								
RUN: BARRIER DESIGN:	14 Se P2 22	igment 5 Fe	estiva ROM							
Barriers										
Name	Type	Heights a	long Barrie	r	Length	If Wall	If Berm			Cost
		Min	Avg	Max	0	Area	Volume	Top Width	Run:Rise	
		ŧ	ŧ	Ħ	ħ	sq ft	cu yd	Ŧ	ft:ft	ø
Barrier10	N	22.00	22.0	0 22.00	1157	25465				763946
									Total Cost:	763946

States												
M Drauer							29 April 2 TNM 2.5	2016				
RESULTS' SOLIND LEVELS							Calculate	d with TNR	1 2.5			
PROJECT/CONTRACT:		I-4 BtU	PD&E			_						
RUN:		I-4 Seg	ment 5 Fe	stiva ROW		-						
BARRIER DESIGN:		P2 22				_		Average	pavement type	shall be use	d unless	
ATMOSPHERICS:		68 deg	F, 50% R	г		_		of a diffe	rent type with	approval of F	en en erse HWA.	_
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase ov	er existing	Type	Calculated	Noise Reduc	ction	
				Calculated	l Criť'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus
			dBA	dBA	dBA	명	đB		dBA	dB	dB	dB B
F Phase 2 a	42		0	0	7.4	66 67	7.4 1	0 Snd Lvl	6.99	0.6	19	8 -7
F Phase 2 b	43	4	.0	0	3.4	66 68	3.4 1	0 Snd Lvl	67.5	0.6	10	8 -7
F Phase 2 c	44	4	0	Ō	3.3	66 68	3.3 1	0 Snd Lvl	66.5	1.4	-	φ
F Phase 2 d	45	4	Ö	0	7.7	66 67	7.7 1.	0 Snd Lvl	65.5	5 2.2	~	8
F Phase 2 e	46	4	ö	Ó	5.3	66 6(3.3 1.	0 Snd Lvl	62.C	4.5	0	80 67
F Phase 2 f	47	4	ö	0	5.9	66 6!	5.9 1.		61.C	4.5	6	ကိ
F Phase 2 g	48	4	O	0	1.6	66 74	1.6	0 Snd Lvl	62.8	3 11.6	8	8
F Phase 2 h	49	4	Ö	0	1.7	66 74	1.7 1.	0 Snd Lvl	62.C	12.7	2	8
F Phase 2 i	51	4	ö	0 0	1.7	66 64	1.7		59.2	5.5	10	8
F Phase 2 j	52	4	ö	0	5.2	66 65	5.2 1		58.5	9 6.2	m	8
F Phase 2 k	53	4	ö	0 0	1.5	66 64	1.5 1.		58.1	6.4	*	8
F Phase 2 I	54	4	ö	0 7.	1.9	99	1.9	0 Snd Lvl	61.6	3 13.3	~	8
F Phase 2 m	55	4	ö	0 7	5.0	66 75	5.0 11	0 Snd Lvl	61.5	13.5	10	8
F Phase 2 n	56	4	Ö	0 7.	1.7	99 74	1.7 1.	0 Snd Lvl	61.5	13.2	0	8
F Phase 2 o	57	4	ö	0 7	1.1	66 75	5.1 14	0 Snd Lvl	61.5	13.6	6	8
F Phase 2 p	59	4	o	0 7.	8.1	99 27	1.8 1.	0 Snd Lvl	61.9	12.5	0	8
F Phase 2 q	60	4	Ö	0 7	5.1	56 75	5.1 16	0 Snd Lvl	62.3	3 12.6		8
F Phase 2 r	61	4	0.	0 7.	1.9	56 74	1.9 1.9	0 Snd Lvl	64.0	10.5	•	8
F Phase 2 s	62	4	0	0 7.	1.9	56 74	1.9 11	0 Snd Lvl	67.0	3.7 (0	с О́
F Phase 2 t	63	4	o.	0 6!	5.1	56 65	5.1 11		60.7	4.4	st.	ထု
F Phase 2 u	64	4	0.	0	4	62	2.4 11		60.4	1 2.0	0	φ
F Phase 2 v	65	2	ö	0	1	56 6 ²	1.1]	63.8	0.0	~	8 -7.
F Phase 2 w	99	4	ö	e 0	2.1	56 61	11		61.3	0.4	-	8 -7.
F Phase 2 x	67	N	0	0 6(0.0	56 6(10 11		59.6	0.4		8 -7.

29 April 2016

-

က
Ш
2
Ģ
5
0
S
~~~~
Ë
1
പ്പ
_
<b>n</b>

1-4 Btu PD&E

elling Units	# DUS Noise	Reduction	
	Min	Avg	Max
	æ	đB	ŧ
II Selected	06	0.3	6.8 13.
II Impacted	58	0.5	8.8 13.
II that meet NR Goal	36	10.9	2.7 13.

C:\TNM25\I4\Fest Phase II

29 April 2016