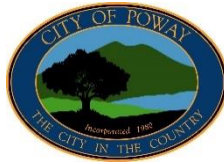


Appendix I

Noise Technical Report

Noise Technical Report for The Farm in Poway Project

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AC	acre
Caltrans	California Department of Transportation
City	City of Poway
County	County of San Diego
CNEL	Community Noise Equivalent Level
CNMP	construction noise management plan
dB	decibel
dBA	A-weighted decibel
DU	dwelling unit
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HP	horsepower
ips	inches per second
Ldn	day-night average noise level
Leq	equivalent noise level over a given period
Lmax	sound energy level averaged over a specified time period
Ln	statistical sound level
MM	Mitigation Measure
OS-C	Open Space – Conservation
OS-R	Open Space - Recreation
PPV	peak particle velocity
proposed project	The Farm in Poway Project
RCNM	Roadway Construction Noise Model
RMS	Root mean square
ST	short-term noise measurement locations
VdB	Velocity decibel

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1 Introduction and Background

This assessment was conducted to address potential noise impacts from the proposed The Farm in Poway Project (proposed project), a residential subdivision with a variety of open spaces and public recreation facilities to be located within a former country club property in the City of Poway (City). The assessment includes examination of noise generation from project construction and project related traffic, and also evaluates future potential noise exposure levels at sample locations of proposed future residences. Construction activity vibration is also evaluated as part of this assessment.

Project Description

The project site is located in the northern portion of the City and consists of the decommissioned StoneRidge Country Club and its associated 18-hole golf course. The project site bordered by Espola Road to the south, and existing residential communities along St. Andrews Drive to the west and north. The eastern boundary largely adjoins existing homes along Cloudcroft Drive, Tam O'Shanter Drive, and Boca Raton Lane. The project site consists of approximately 117.2 acres and currently has an address of 17166 Stoneridge Country Club Lane, Poway, California 92064. Figure 1 shows the project location within the County of San Diego (County) and the City. Regionally, the City is situated near the middle of the County, approximately 20 miles north of downtown San Diego via I-15. The project site is approximately 2 miles east of I-15. The City of Poway boundary is approximately 0.5 miles to the west. Figure 2 depicts an aerial view of the project site vicinity.

The proposed project includes a total of 160 single-family homes and a mix of open space and recreational uses open to the public (see Figure 2, Site Plan) that include the following: The Barn (a multi-purpose event space [e.g., weddings]), The Social (café with outdoor dining), The Butterfly Farm (greenhouse and picnic area), The Club (outdoor pool, tennis courts, and paddleball courts), The Meadow (featuring an amphitheater-style venue for outdoor concerts), a Tot Lot (children play area), a Trail System and pedestrian sidewalks, a Dog Park, and Agri-fields (a.k.a., "the Working Farm"). Uses permitted within the Specific Plan are shown on Table 3.1: Land Use Summary and Exhibit 3.1: Land Use Plan in Chapter 3 of the Specific Plan. Residential land uses would compose approximately 33.85 acres and would range in density from 2.5 to 10.7 dwelling units per acre (DU/AC). Open space uses would compose approximately 70.37 acres and would be comprised of Open Space – Conservation (OS-C) and Open Space – Recreational (OS-R). Approximately 12.96 acres would be private streets.

Noise Characteristics

Sound is mechanical energy transmitted by pressure waves in a compressible medium, such as air. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired. The sound pressure level (SPL) has become the most common descriptor used to characterize the loudness of an ambient sound level. The unit of measurement of sound pressure is a decibel (dB). Under controlled conditions in an acoustics laboratory, the trained, healthy human ear is able to discern changes in sound levels of 1 dB when exposed to steady, single-frequency signals in the mid-frequency range. Outside such controlled conditions, the trained ear can detect changes of 2 dB in normal environmental noise. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dB. A change of 5 dB is readily perceptible, and a change of 10 dB is perceived as twice or half as loud (Caltrans 2013a). A doubling of sound energy results in a 3-dB increase in sound, which means that a doubling of sound energy (e.g., doubling the number of daily trips along a given road) would result in a barely perceptible change in sound level.

Sound may be described in terms of level or amplitude (measured in decibels), frequency or pitch (measured in hertz, or cycles per second), and duration (measured in seconds or minutes). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel (dBA) scale performs this compensation by discriminating against low and very high frequencies in a manner approximating the sensitivity of the human ear.

Several descriptors of noise (noise metrics) exist to help predict average community reactions to the adverse effects of environmental noise, including traffic-generated noise. These descriptors include the equivalent noise level over a given period (L_{eq}), the statistical sound level (L_n), the day–night average noise level (L_{dn}), and the Community Noise Equivalent Level (CNEL). Each of these descriptors uses units of dBA.

L_{eq} is a sound level energy-averaged over a specified time period, represented by a single constant value equivalent to the variable sound energy received at a location. For example, a 1-hour L_{eq} measurement would represent the average amount of energy contained in all the noise that occurred in that hour. L_{eq} is an effective noise descriptor because it allows convenient comparison of time-varying sound levels at different locations. L_{max} is the greatest sound level measured during a designated time interval or event.

Unlike the L_{eq} metrics, L_{dn} and CNEL metrics always represent 24-hour periods. L_{dn} and CNEL also differ from L_{eq} because they apply a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when speech and sleep disturbance is of more concern). “Time weighted” refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive periods. In the case of CNEL, noise occurring during the daytime (7:00 a.m. to 7:00 p.m.) receives no penalty. Noise during the evening hours (7:00 p.m. to 10:00 p.m.) is penalized by adding 5 dB to the measured or predicted L_{eq} values, and nighttime (10:00 p.m. to 7:00 a.m.) noise is penalized by adding 10 dB. L_{dn} differs from CNEL in that the daytime period is defined as 7:00 a.m. to 10:00 p.m., thus eliminating the evening period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. These two metrics generally differ from one another by no more than 0.5–1 dB, and are thus often considered comparable or even equivalent and interchangeable by many jurisdictions.

Vibration is the oscillatory movement of solid mass. Like sound, it is described in terms of frequency and amplitude, which can be expressed as displacement, velocity, or acceleration. For purposes of this analysis and consistent with environmental assessment, vibration is presented and discussed herein as units of velocity (inches per second [ips]) and their decibel equivalents as appropriate. Vibration impacts to buildings are generally discussed in terms of peak particle velocity (PPV), while human annoyance or disturbance is often discussed with root-mean-square (RMS) vibration velocity levels that are converted to decibels (VdB). But for purposes of this analysis, PPV will be used to describe all vibration for ease of reading and comparison. Vibration can impact people, structures, and sensitive equipment or processes (Caltrans 2013b). Common sources of vibration within communities include construction activities and railroad operations. Groundborne vibration generated by construction projects exhibits highest amplitudes during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities that involve sudden impacts or other transient impulses of energy delivered to soil and rock strata. Vibration can also be more regularly occurring or even continuous in nature, such as the steady operation of mechanical equipment featuring reciprocating or rotating components that are slightly imbalanced. The maximum vibration level standard used by the California Department of Transportation (Caltrans) for the prevention of structural damage to typical residential buildings is 0.3 ips PPV (Caltrans 2013b).




SOURCE: SANGIS 2017, 2019

FIGURE 1
Project Vicinity
The Farm in Poway

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2 Regulatory Setting

Regulatory Setting

Federal

Federal Transit Administration

In its Transit Noise and Vibration Impact Assessment guidance manual, the Federal Transit Administration (FTA) recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period (FTA 2018) when “detailed” construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such limits at the State and local jurisdictional levels.

State

California Code of Regulations, Title 24

Title 24 of the California Code of Regulations sets standards which new development in California must meet. According to Title 24, interior noise levels are not to exceed 45 dB CNEL for new multifamily residences, hotels, and other attached residences.

Title 24 also requires that an interior acoustical study demonstrating that interior noise levels due to exterior sources will be less than or equal to 45 CNEL be performed for affected multifamily structures and hotels that are exposed to exterior noise levels in excess of 60 CNEL.

California Department of Health Services Guidelines

The State Department of Health Services has developed guidelines of community noise acceptability for use by local agencies (OPR 2003). Selected relevant levels are listed here:

- Below 60 dBA CNEL: normally acceptable for low-density residential use
- 50 to 70 dBA: conditionally acceptable for low-density residential use
- Below 65 dBA CNEL: normally acceptable for high-density residential use and transient lodging
- 60 to 70 dBA CNEL: conditionally acceptable for high-density residential, transient lodging, churches, educational, and medical facilities.

The normally acceptable exterior noise level for transient lodging use is up to 65 dBA CNEL. Conditional acceptable exterior noise levels range up to 70 dBA CNEL for transient lodging.

California Department of Transportation

In its Transportation and Construction Vibration Guidance Manual, Caltrans recommends a vibration velocity threshold of 0.2 ips PPV (Caltrans 2013b) for assessing “annoying” vibration impacts to occupants of residential structures. Although this Caltrans guidance is not a regulation, it can serve as a quantified standard in the absence of such limits at the local jurisdictional level. Similarly, thresholds to assess building damage risk due to

construction vibration vary with the type of structure and its fragility, but tend to range between 0.3 ips and 0.4 ips PPV for typical residential structures (Caltrans 2013b).

Local

City of Poway Noise Municipal Code

Section 8.08.040 and 8.08.100 of the Poway Municipal Code establishes sound level limits within the City and describes regulations on construction equipment, respectively. These sections are reproduced or summarized below.

8.08.040 Sound Level Limits

Unless a variance has been applied for and granted pursuant to this chapter, it is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property on which the sound is produced, exceeds the applicable limits set forth below, except that construction noise level limits shall be governed by PMC 8.08.100. In addition, the Noise Element addresses nuisance noise and states that it should be unlawful for any person to make or continue any loud, unnecessary noise that causes annoyance to any reasonable person of normal sensitivity.

Zone or Land Use Designation	Allowable Time	Applicable Limit One-Hour Average Sound Level (In decibels)
OS-RM, OS, OS/1du, RR-A, RR-B, RR-C, RS-2, RS-3, RS-4, RS-7, and Specific Plan, PRD and PC regulations with a density of 11 dwelling units or less per acre	10:00 p.m. to 7:00 a.m.	40
	7:00 a.m. to 10:00 p.m.	50
PF, RA, RC, MHP, and Specific Plan, PRD and PC regulations with a density of 11 or more dwelling units per acre	7:00 a.m. to 7:00 p.m.	55
	7:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
SPC, MU, CO, CN, CB, CG, TC, A/GC and HC	7:00 a.m. to 7:00 p.m.	60
	7:00 p.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
MRE, SC, LI, LI/S and IP	Anytime	70

The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts

Fixed location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.

8.08.100 Construction Equipment

Except for emergency work, it is unlawful for any person, including the City, to operate any single or combination of powered construction equipment at any construction site, except as outlined in subsections A and B of this section:

- A. It is unlawful for any person, including the City, to operate any single or combination of powered construction equipment at any construction site before 7:00 a.m. or after 5:00 p.m. on Mondays through Saturdays or at any time on a Sunday or holiday except as provided below. For purposes of this section, “construction” does not include minor home repairs, lawn mowing, gardening and similar types of routine maintenance as identified in PMC 8.08.170(D).
1. The City Engineer may permit, in writing, the use of powered construction equipment during specific hours before 7:00 a.m. or after 5:00 p.m. Monday through Saturday, or any time on a Sunday or holiday, if he or she determines that such operations are not detrimental to the health, safety, or welfare of the surrounding community, that the conduct of the activity is limited by the nature of the work, and that it is in the best interest of the public to perform the work outside of normal hours and days of work.
 2. A residential property owner constructing a single-family residence, or constructing an addition to, or otherwise modifying, a single-family residence for personal occupancy may operate powered construction equipment on Sundays or holidays between the hours of 10:00 a.m. and 5:00 p.m. in compliance with the requirements of subsection B of this section; provided, that:
 - a. The type of equipment used is limited to handheld construction equipment or equipment powered by small electrical motors, including, but not limited to, small cement mixers, table saws, and similar small equipment; and
 - b. The construction is not carried out for profit or livelihood. Upon request of the City, a property owner shall provide documentation, to the satisfaction of the Director of Development Services, of personal occupancy of the residence, or the intent to personally occupy the residence.
- B. No such equipment, or combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of 75 decibels for more than eight hours during any 24- hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes. These sound levels shall be corrected for time duration in accordance with the following table:

Total Duration in 24 Hours	Decibel Level Allowance	Total Decibel Level
Up to 15 Minutes	+15	90
Up to 30 Minutes	+12	87
Up to 1 Hour	+9	84
Up to 2 Hours	+6	81
Up to 4 Hours	+3	78
Up to 8 Hours	0	75

In the event that lower noise limit standards are established for construction equipment pursuant to State or Federal law, said lower limits shall be used as a basis for revising and amending the noise level limits specified in subsection B of this section.

Poway General Plan

The General Plan EIR Section 5.10 establishes the following mitigation measure related to noise. Development within the City of Poway, including the Specific Plan planning area, is subject to these measures: “6. The City of Poway shall ensure a safe and pleasant acoustical environment for the residents of Poway through site planning, zoning regulations, architectural design standards, and building construction regulations.”

Proposed Specific Plan

The Farm in Poway Specific Plan (Specific Plan) adopts noise level thresholds that are summarized by the following excerpts (SMA Ventures LLC 2019):

- Section 3.2.3, Additional Open Space Standards, “(7) The noise level emanating from any use or activity shall not exceed 60 dBA CNEL, as the acceptable outdoor noise exposure level when measured at the exterior boundaries of the Specific Plan area unless otherwise specified herein. This may be achieved through the construction of sound attenuation barriers based upon an approved noise study.”
- Section 3.2.3.B, under the description for regular events: “The aggregate sounds level from live (acoustic) or amplified music does not exceed the maximum total weighted decibel (dBA) at a distance of 10 feet as specified in Table 3.4: Event Sound Levels.” For convenience, Table 3.4 from the Specific Plan is reproduced below:

Venue Location and Time of Regular Event (up to 3 hours duration)	Maximum Total A-weighted Decibel (dBA) at a Distance of 10 feet ¹
The Barn + The Social Daytime (8 a.m. to 7 p.m.) Evening (7 p.m. to 10 p.m.)	103 98
The Meadow (Amphitheater) Daytime (8 a.m. to 7 p.m.) Evening (7 p.m. to 10 p.m.)	97 92

Notes: dBA = A-weighted sound pressure level.

¹ If Speakers are positioned to distribute amplified sound, they must be positioned in such a manner that linear occlusion occurs between the speaker and the nearest residential receptors outside of the Specific Plan area.

- Section 3.2.3.C, Dog Parks, “(3) Noise shall be sound attenuated so that the noise level measured at the exterior boundaries of the Specific Plan area does not exceed 60 dBA CNEL.”
- Section 3.3.3, Residential Performance Standards, “The noise level emanating from any residential use or operation within the Residential (R) Land Use Districts shall not exceed 70 dBA CNEL as the acceptable outdoor noise exposure level when measured at the property line. The interior noise levels shall not exceed 45 dBA CNEL for all residential uses.”

For purposes of the noise analyses herein and consistent with the Specific Plan, it is assumed that a 70 dBA CNEL standard represents the applicable noise limit for non-transportation and non-construction “stationary” sources of noise associated with anticipated typical project-attributed operation and activities at residential land use property lines within the Specific Plan area. At the property lines of offsite residential land uses that adjoin the exterior boundary of the Specific Plan area, 60 dBA CNEL would be the standard for impact significance—consistent with state planning guidelines. These noise sources include operation of heating, ventilation, and air-conditioning (HVAC) equipment from the newly-created residential and non-residential land uses attributed to the proposed project.

3 Existing Conditions

Noise measurements were conducted on and near the project site on June 11, 2019, to quantify and help characterize the existing pre-project outdoor sound environment. Table 1 provides the locations, date, and times these noise measurements were performed. The noise measurements were taken using a Rion NL-52 sound level meter equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier. The sound level meter meets the current American National Standards Institute standard for a Type 1 (Precision Grade) sound level meter. The accuracy of the sound level meter was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Table 1. Measured Community Outdoor Noise Levels

Receptor	Location/Address	Date (mm:dd:yy)	Time (hh:mm)	L _{eq} (dBA)	L _{max} (dBA)
ST1	North of 16616 Espola Rd. Poway, CA 92064	06.11.19	10:20–10:30 a.m.	64.9	75.1
ST2	South of Multi-Family homes on Port Marnock Dr.	06.11.19	11:30–11:40 a.m.	43.1	49.9
ST3	South of 17956 St Andrews Dr. Poway, CA 92064	06.11.19	11:15–11:25 a.m.	42.2	67.5
ST4	East of 17154 Cloudcroft Dr. Poway, CA 92064	06.11.19	11:00–11:10 a.m.	52.5	64.5

Source: Appendix A.

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); L_{max} = maximum sound level during the measurement interval; dBA = A-weighted decibels; ST = short-term noise measurement locations.

The four short-term (ST) noise measurement locations were selected to represent sample existing noise-sensitive receivers on and near the project site. These locations are depicted as receivers ST1–ST4 on Figure 3, Noise Measurement Locations. The measured energy-averaged (L_{eq}) and maximum (L_{max}) noise levels at these field survey locations are provided in Table 1. The primary noise sources at the sites identified in Table 1 consisted of traffic along adjacent roadways; and, the sounds of rustling leaves, aircraft overflights, distant conversation, and birdsong. As shown in Table 1, the measured sound levels ranged from approximately 42.2 dBA L_{eq} at ST3 to 64.9 dBA L_{eq} at ST1. More details of the collected noise measurement data can be found in Appendix A, Noise Measurement Field Data.

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4 Thresholds of Significance

The following significance criteria are based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and will be used to determine the significance of potential noise impacts. Impacts to noise would be significant if the proposed project would result in:

- a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- b. Generation of excessive groundborne vibration or groundborne noise levels.
- c. Expose people residing or working in the project area to excessive noise levels (for a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport).

For this noise assessment and the Specific Plan, up to 70 dBA CNEL noise exposure at the property lines of residences within the Specific Plan area would be allowed and thus serve as the relevant threshold. At the boundary lines of existing residences outside of (or adjoining) the Specific Plan area, the threshold would be a more stringent 60 dBA CNEL.

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5 Impact Discussion

- a) *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Short-Term Construction

Less-Than-Significant with Mitigation. Construction noise and vibration are temporary phenomena. Construction of the development proposed in the project would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction, distance between the noise source and receiver, and intervening structures. This section of the report discusses the noise levels calculated to result from construction of the project, at nearby sensitive receptors (i.e., existing residences).

The construction activities for the proposed project will be varied by component (i.e., Open Space Land Use Districts and Residential Land Use Districts) and location. The construction activities located nearest to a sensitive receptor was used for each phase and component. Representative equipment for residential lot earthwork and for residential building construction was assembled from similar residential subdivision projects that Dudek has evaluated for construction noise. Table 2 summarizes the construction phases and distances to the apparent closest noise-sensitive receptors that are used in the predictive analysis of construction noise levels at these community locations. Distance values of zero indicate the listed construction phase is not applicable to the project feature.

Table 2. Construction Phase Distance to Nearest Pre-Existing Noise-Sensitive Receptors (in feet)

Construction Phase	Project Feature (and distance in feet to nearest NSR)								
	<i>Residential</i>	<i>The Farm</i>	<i>The Meadow</i>	<i>The Club</i>	<i>Trail System</i>	<i>Road Paving</i>	<i>Basin</i>	<i>The Working Farm</i>	<i>Community Garden</i>
Demolition	120	120	0	120	0	0	120	0	0
Site Preparation	50	50	150	50	25	36	15	50	50
Grading	50	50	150	50	25	36	15	50	50
Building Construction	100	360	0	300	25	0	0	0	0
Paving	0	120	0	50	25	36	0	0	0
Architectural Finishes	100	360	0	300	0	0	0	0	0

Note: NSR = noise-sensitive receptor.

An Excel-based noise prediction model emulating and using reference data from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) (FHWA 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land use. (Although the RCNM was funded and promulgated by the FHWA, it is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are often used for other types of construction.) Input

variables for the predictive modeling consist of the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of time within a specific time period, such as an hour, when the equipment is expected to operate at full power or capacity and thus make noise at a level comparable to what is presented in Table 2), and the distance from the noise-sensitive receiver. The predictive model also considers how many hours that equipment may be on site and operating (or idling) within an established work shift. No topographical or structural shielding was assumed in the modeling. The RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were used for this noise analysis.

Equipment that would be in use during construction would include, in part, graders, backhoes, rubber-tired dozers, loaders, cranes, forklifts, cement mixers, pavers, rollers, and air compressors. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 3. Note that the equipment noise levels presented in Table 3 are maximum noise levels. Typically, construction equipment operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

Table 3. Typical Construction Equipment Maximum Noise Levels

Equipment Type	Typical Equipment (L_{\max} , dBA at 50 Feet)
All Other Equipment > 5 HP	85
Backhoe	78
Compressor (air)	78
Concrete Saw	90
Crane	81
Dozer	82
Excavator	81
Flat Bed Truck	74
Front End Loader	79
Generator	72
Grader	85
Man Lift	75
Paver	77
Roller	80
Scraper	84
Welder / Torch	73

Source: DOT 2006.

Notes: dBA = A-weighted decibels; L_{\max} = maximum sound level.

With the exception of the concrete saw, and as suggested by the list of L_{\max} values in Table 3, the maximum noise levels at 50 feet tend not to exceed 85 dBA for common equipment and vehicles anticipated for this kind of multi-use development project. Hourly L_{eq} values at this distance, however, would vary depending on duty cycle. Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance, as each piece of equipment can be approximated as an individual point-type source. Alternately, a set of equipment in proximity to one another could be considered geographically a common point source; or, on average with respect to time, a set of operating equipment with uncertain positions within a defined area could be considered a common point-source.

Proposed project construction would take place both near and far from adjacent, existing noise-sensitive uses. For example, construction near the northern project site boundary would appear to take place within approximately 15 feet of existing residential property lines, but during construction of other proposed project components, construction activities would be much further away from sensitive receptors, as the distance values in Table 3 indicate. Appendix B provides details on the calculations of estimated construction noise, which are summarized in the following paragraphs and categorized in a manner similar to what is presented in the project description.

Open Space Land Use Districts

The Club

The Club would be located towards the middle of the project site, north of the R-C residential district (see Figure 2). Construction activities could occur within 50 feet of the nearest sensitive receiver. Estimated noise levels from the major construction phases were calculated for the nearest noise-sensitive land use, as presented in Table 4.

Table 4. Construction Noise Modeling Summary Results – The Club

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Demolition (dozer, excavator, concrete saw)	74
Site Preparation (backhoe, dozer, front-end loader)	75
Grading (excavator, grader, scraper)	75
Building Construction (crane, man-lift, generator, backhoe, front-end loader, welder)	64
Paving (paver, roller, other equipment > 5 HP)	74
Architectural Coating (air compressor)	59

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 4, the estimated construction noise levels are predicted to be as high as 75 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 50 feet away) when grading activities take place near the project boundary. Distances to the nearest noise-sensitive receiver are greater, as shown in Table 3, for activities such as demolition and building construction and therefore yield lower 8-hour predicted noise levels. Note that these estimated construction noise levels at a source-to-receiver distance of 50 feet include consideration of limited operation duration of specific anticipated equipment as detailed in Appendix B. By way of example, a grader might make one or more passes on site that are this close to the receiver; but, for the remaining time during the day, the grader is sufficiently farther away—performing work at a more distant location or simply not operating. Therefore, under these conditions, short-term construction noise would be less than significant.

The Meadow

The Meadow would be located directly adjacent to the east of The Club. Construction activities could occur within 150 feet of the nearest sensitive receiver. Estimated noise levels from the major construction phases were calculated for the nearest noise-sensitive land use, as presented in Table 5.

Table 5. Construction Noise Modeling Summary Results – The Meadow

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Site Preparation (backhoe, dozer, front-end loader)	71
Grading (excavator, grader, scraper)	75

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 5, the estimated construction noise levels are predicted to be as high as 75 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 150 feet away) when grading activities take place near the project boundary. Therefore, under these conditions and since the predicted 75 dBA 8-hour L_{eq} value is compliant with the City's threshold for construction noise, short-term construction noise relating to activity for this proposed project feature would be less than significant.

The Farm (The Barn and Butterfly Farm)

The Farm, a collective reference for both the The Barn and Butterfly Farm proposed project features, would be located at the southernmost portion of the project site, adjacent to Espola Road and at the proposed entrance of the project site at the intersection of Espola Road and Martincoit Road (see Figure 2). Construction activities could occur within 50 feet of the nearest sensitive receiver. Estimated noise levels from the major construction phases were calculated for the nearest noise-sensitive land use, as presented in Table 6.

Table 6. Construction Noise Modeling Summary Results – The Barn

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Demolition (dozer, excavator, concrete saw)	74
Site Preparation (backhoe, dozer, front-end loader)	75
Grading (excavator, grader, scraper)	75
Building Construction (crane, man-lift, generator, backhoe, front-end loader, welder)	63
Paving (paver, roller, other equipment > 5 HP)	72
Architectural Coating (air compressor)	57

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 6, the estimated construction noise levels are predicted to be as high as 75 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 50 feet away) when grading activities take place near the project boundary. Distances to the nearest noise-sensitive receiver are greater, as shown in Table 3, for activities such as demolition and building construction and therefore yield lower 8-hour predicted noise levels. Note that these estimated construction noise levels at a source-to-receiver distance of 50 feet include consideration of limited operation duration of specific anticipated equipment as detailed in Appendix B. By way of example, a grader might make one or more passes on site that are this close to the receiver; but, for the remaining time during the day, the grader is sufficiently farther away—performing work at a more distant location or simply not operating. Therefore, under these conditions, short-term construction noise would be less than significant.

The Working Farm (Agri-Fields)

The Working Farm would be composed of agrifields located at the northernmost portion of the project site, along the northwestern and northern project boundaries (see Figure 2). Construction activities could occur within 50 feet of the nearest sensitive receiver. Estimated noise levels from the major construction phases were calculated for the nearest noise-sensitive land use, as presented in Table 7.

Table 7. Construction Noise Modeling Summary Results – The Working Farm

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Site Preparation (backhoe, front-end loader)	75
Grading (excavator, grader, scraper)	75

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 7, the estimated construction noise levels are predicted to be as high as 75 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 50 feet away) when grading activities take place near the project boundary. Therefore, under these conditions and since the predicted 75 dBA 8-hour L_{eq} value is compliant with the City's threshold for construction noise, short-term construction noise relating to activity for this proposed project feature would be less than significant.

Community Gardens

Community gardens would be located throughout the project site, providing future residents a garden plot within walking distance of their home. Construction activities could occur within 50 feet of the nearest sensitive receiver. Estimated noise levels from the major construction phases were calculated for the nearest noise-sensitive land use, as presented in Table 8.

Table 8. Construction Noise Modeling Summary Results – Community Gardens

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Site Preparation (backhoe, front-end loader)	75
Grading (excavator, grader, scraper)	75

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 8, the estimated construction noise levels are predicted to be as high as 75 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 50 feet away) when grading activities take place near the project boundary. Therefore, under these conditions and since the predicted 75 dBA 8-hour L_{eq} value is compliant with the City's threshold for construction noise, short-term construction noise relating to activity for this proposed project feature would be less than significant.

Trail System

A multi-use trail system would circulate throughout the project site to provide mobility and recreational opportunities for pedestrians and bicyclists. The majority of the trail system would include decomposed granite or compacted earth trails. Trails along the southwest project boundary would require construction activities that could occur within 50 feet of the nearest noise-sensitive receiver. On average, this anticipated distance between trail construction activity and a receiver would be 25 feet. Some accessory structures, such as a landscaping maintenance shack, would also be installed as part of this construction phase and could be in similar proximity to an existing noise-sensitive receiver. Estimated noise levels from the major construction phases for the trail system were calculated for the nearest noise-sensitive land use, as presented in Table 9.

Table 9. Construction Noise Modeling Summary Results – Trail System

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Site Preparation (backhoe, front-end loader)	74
Grading (grader)	78
Building Construction (generator, welder / torch)	69
Paving (concrete mixer truck, paver)	74

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 9, the estimated construction noise levels are predicted to be as high as 78 dBA L_{eq} over an eight-hour period at the nearest existing residences (as close as 25 feet away) when grading activities take place near the project site boundary. Therefore, under these conditions, the predicted eight-hour L_{eq} value would not be compliant with the City's threshold for construction noise and need mitigation **MM-NOI-1**. With implementation of **MM-NOI-1**, impacts would be reduced to being **less than significant**.

The Basins

Bio-retention basins are scattered throughout the project site. Construction of these basins would involve site preparation and grading activities as close as 15 feet away from noise sensitive receptors. Estimated noise levels from the construction phases were calculated for the nearest noise-sensitive land use, as presented in Table 10. The detailed RCNM input and output values are provided in Appendix B.

Table 10. Construction Noise Modeling Summary Results – The Basins

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Site Preparation (backhoe, backhoe, front-end loader)	85
Grading (excavator, grader, scraper)	85

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 10, the estimated construction noise levels are predicted to be as high as 85 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 15 feet away) when grading activities take place near the project boundary. Note that these estimated noise levels at a source-to-receiver distance of 15 feet would only occur when the single loudest piece of heavy equipment is operating along the project boundary for a cumulative period of up to 0.75 hours a day. By way of example, the grader might make multiple passes on site that are this close to the receiver; but, for the remaining time during the day, the grader is sufficiently farther away—performing work at a more distant location or simply not operating. When the entire assemblage of equipment is working right at the edge of the construction zone in each phase, within 15 feet of existing residences, construction noise levels are anticipated to reach up to 85 dBA L_{eq} . Assuming relatively steady work, this would result in an exceedance of the City of Poway construction noise limit of 75 dBA L_{eq8h} . In order to avoid potentially significant construction noise impacts upon existing residences in the project vicinity, mitigation measure **MM-NOI-1** shall be implemented as indicated site conditions may warrant. Proper application of temporary noise barriers or comparable sound abatement that may arise as a result of **MM-NOI-1** implementation has the ability to realize a 10 dB reduction in noise levels that would correspondingly reduce the predicted 85 dBA eight-hour L_{eq} for the grading phase to a level of 75 dBA L_{eq} and thus compliant with the 75 dBA threshold. With implementation of **MM-NOI-1**, impacts would be reduced to being **less than significant**.

Residential Land Use Districts

New Residential Homes

The proposed project would allow for up to 160 single-family homes to be built around the project site. Construction activities during this component could occur within 50 feet of the nearest sensitive receiver. Estimated noise levels from the major construction phases were calculated for the nearest noise-sensitive land use, as presented in Table 11.

Table 11. Construction Noise Modeling Summary Results – New Homes

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Demolition (dozer, excavator, concrete saw)	74
Site Preparation (backhoe, front-end loader)	75
Grading (excavator, grader, scraper)	75
Building Construction (crane, man-lift, generator, backhoe, welder)	64
Paving (concrete mixer truck, backhoe, air compressor, paver, roller)	74
Architectural Coating (air compressor)	59

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 11, the estimated construction noise levels are predicted to be as high as 75 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 50 feet away) when grading activities take place near the project boundary. Distances to the nearest noise-sensitive receiver are greater, as shown in Table 3, for activities such as demolition and building construction and therefore yield lower 8-hour predicted noise levels. Note that these estimated construction noise levels at a source-to-receiver distance of 50 feet include consideration of limited operation duration of specific anticipated equipment as detailed in Appendix B. By way of example, a grader might make one

or more passes on site that are this close to the receiver; but, for the remaining time during the day, the grader is sufficiently farther away—performing work at a more distant location or simply not operating. Therefore, under these conditions, short-term construction noise would be less than significant.

Private Street “B”

The proposed project’s internal street network would consist of all private roadways in which construction would involve site preparation, grading, and paving. Construction activities involved with Private Street “B” near the southern boundary of the property could occur as close as approximately 36 feet away from sensitive noise receptors. Estimated noise levels from the major construction phases associated with Private Street “B” were calculated for the nearest noise-sensitive land use, as presented in Table 12.

Table 12. Construction Noise Modeling Summary Results – Private Street

Construction Phase (expected equipment types)	Estimated 8-hour L_{eq} (dBA) (at nearest distance per Table 2)
Site Preparation (backhoe, dozer, front-end loader)	78
Grading (excavator, grader, scraper)	78
Paving (paver, roller, other equipment > 5 HP)	77

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

As presented in Table 12, the estimated construction noise levels are predicted to be as high as 78 dBA equivalent continuous sound level (L_{eq}) over an 8-hour period at the nearest existing residences (as close as 36 feet away) when grading activities take place near the project boundary. Note that these estimated noise levels at a source-to-receiver distance of 36 feet would only occur when the single loudest piece of heavy equipment is operating along the project boundary for a cumulative period of up to 0.75 hours a day. By way of example, the grader would make multiple passes on site that are this close to the receiver; but, for the remaining time during the day, the grader is sufficiently farther away—performing work at a more distant location or simply not operating. When the entire assemblage of equipment is working right at the edge of the construction zone in each phase, within 36 feet of existing residences, construction noise levels are anticipated to reach up to 78 dBA L_{eq} . Assuming relatively steady work, this would result in an exceedance of the City of Poway construction noise limit of 75 dBA L_{eq} over an eight-hour period.

Although nearby off-site residences would be exposed to elevated construction noise levels, the increased noise levels would typically be relatively short term. It is anticipated that construction activities associated with the proposed project would take place primarily within the allowable hours of the City of Poway (7:00 a.m. and 5:00 p.m. Monday through Saturday). In the event that construction is required to extend beyond these times, extended hours permits would be required and would be obtained by the applicant.

If work were to occur outside of the allowable hours, annoyance or sleep disturbance could result from construction noise; also, due to the relatively limited distance to existing adjacent residences, construction noise annoyance could result even during daytime hours.

In order to avoid potentially significant construction noise impacts upon existing residences in the project vicinity, mitigation measure **MM-NOI-1** shall be implemented as indicated site conditions may warrant. Proper application of temporary noise barriers or comparable sound abatement that may arise as a result

of **MM-NOI-1** implementation has the ability to realize a 10 dB reduction in noise levels that would correspondingly reduce the predicted 78 dBA eight-hour L_{eq} for the grading phase to a level of 75 dBA L_{eq} and thus compliant with the 75 dBA threshold. With implementation of **MM-NOI-1**, impacts would be reduced to being **less than significant**.

Blasting

Blasting operations would be required for site preparation. Rock blasting is the controlled use of explosives to excavate, break down, or remove rock. The result of rock blasting is often known as a rock cut. The most commonly used explosives today are ammonium nitrate/fuel oil-based blends, due to their lower cost compared to dynamite.

No more than five (5) blasts, of up to 1.2 tons of explosive each, per day would occur during construction activities. Blasting would only be required where existing topography or geologic conditions require blasting to be conducted, and for purposes of this analysis would be no closer to an existing residential receptor than 400 feet. This analysis also assumes a per-delay charge weight of up to 18.5 pounds that is heavily confined prior to the blast event per industry guidance (Dyno Nobel 2010). With all the delayed charges detonated in succession, the A-weighted hourly L_{eq} is estimated to be 82.2 dBA per blast. For all five blasts occurring within the same 8-hour period, the L_{eq} would be 80 dBA and exceed the City of Poway's construction noise threshold by 5 dBA; hence blasting noise would result in a potentially significant impact and effective implementation of mitigation measure **MM-NOI-2** would be required.

Blasting involves drilling a series of boreholes and placing explosives in each hole. By limiting the amount of explosives in each hole, the blasting contractor can limit the total energy released at any single time, which in turn can reduce noise and vibration levels. Rock drilling generates impulsive noise from the striking of the hammer with the anvil within the drill body, which drives the drill bit into the rock. Rock drilling generates noise levels of approximately 81 dB L_{max} (maximum sound level during the measurement interval) at a distance of 50 feet (FHWA 2006). Given a typical work cycle, this would equate to 74 dBA L_{eq} at 50 feet. At a distance of 400 feet, consistent with the distance blast-to-receptor distance value, the drill noise would be 56 dBA L_{eq} over an 8-hour period and thus compliant with the City's construction noise limit.

Long-Term Operational

Off-Site Traffic Noise Exposure

Less-Than-Significant Impact. The proposed project would result in the creation of additional vehicle trips on local arterial roadways (i.e., Espola Road), which could result in increased traffic noise levels at adjacent noise-sensitive land uses. Appendix C, Traffic Noise Modeling Input and Output, contains a spreadsheet with traffic volume data (average daily traffic) for Espola Road. In particular, the proposed project would create additional traffic along Espola Road, which according to the Traffic Impact Assessment prepared for the proposed project (LOS Engineering Inc. 2019) would add 2938 total average daily trips to adjacent to the project site.

According to Caltrans, a three-dBA change in sound is the beginning at which humans generally notice a barely perceptible change in sound, a five-dBA change is generally readily perceptible, and a 10-dBA increase is perceived by most people as a doubling of the existing noise level (Caltrans 2013a). Due to the existing and proposed urban setting of the project area, a readily perceptible change in noise (five dBA) would be the appropriate threshold to determine significant increases in traffic noise.

Potential noise effects from vehicular traffic were assessed using the Federal Highway Administration's Traffic Noise Model version 2.5 (FHWA 2004). Information used in the model included the roadway geometry, existing (year 2019), near-term (opening day), near-term (opening day) plus project, horizon year (2035) without project, and horizon year (2035) plus project traffic volumes and posted traffic speeds. Noise levels were modeled at representative noise-sensitive receivers ST1 through ST4, as shown in Figure 3. The receivers were modeled to be 5 feet above the local ground elevation. The noise model results are summarized in Table 13. Based on results of the model, implementation of the proposed project would not result in readily perceptible increases in traffic noise.

Table 13. Traffic Noise Modeling Results

Modeled Receiver No.	Existing (2019) Noise Level (dBA CNEL)	Near-Term (Opening Day) without Project Noise Level (dBA CNEL)	Near-Term (Opening Day) with Project Noise Level (dBA CNEL)	Horizon Year (2035) without Project Noise Level (dBA CNEL)	Horizon Year (2035) with Project Noise Level (dBA CNEL)	Maximum Project-Related Noise Level Increase (dB)
ST1	65.7	65.9	66.2	66.9	67.1	0.3
ST2	41.0	41.1	44.1	41.4	44.3	3.0
ST3	52.5	52.6	52.7	52.8	52.8	0.1
ST4	47.8	48.0	50.1	48.3	50.2	2.1

Source: Appendix H.

Notes: dBA = A-weighted decibel; CNEL = community noise equivalent level; dB = decibel.

Table 13 shows that at all four listed representative receivers, the addition of proposed project traffic to the roadway network would result in an increase in the CNEL of less than 3 dB, which is below the discernible level of change for the average healthy human ear. Thus, a less-than-significant impact is expected for proposed project-related off-site traffic noise increases affecting existing residences in the vicinity.

On-site Traffic Interior Noise Exposure

The City and the state require that interior noise levels not exceed a CNEL of 45 dB within residences. Typically, with the windows open, building shells provide approximately 15 dB of noise reduction; with windows closed, residential construction generally provides a minimum of 25 dB attenuation. Therefore, rooms exposed to an exterior CNEL not greater than 60 dB would result in an interior CNEL of 45 dB or less even with windows open. But when exterior CNEL values range from 60-70 dBA, the windows would need to be closed and thus require that the occupied structure feature mechanical ventilation for interior comfort. The future exterior noise levels in Table 14 are calculated at modeled positions M1, M2, and M3 on Figure 3 corresponding with the facades of three sample proposed new homes on southern-most "Cottage" lots parallel with Espola Road. Consequently, interior noise levels within these future residences on the proposed project site would be expected to achieve compliance with the interior noise criterion of 45 dBA CNEL by employing standard residential construction techniques and materials.

Table 14. Future Ambient Noise Levels at Residential Facades

Receptor Location	Noise Source	Distance from Roadway	CNEL
Backyard, Espola Road West	Espola Road	150 feet	59
Backyard, Espola Road Center	Espola Road	150 feet	59
Backyard, Espola Road East	Espola Road/Private Street "A"	150 feet	59

Traffic noise results displayed in Table 14 indicate that future traffic noise exposure levels at the closest building facades would all be well under the maximum exterior noise level for single-family residences (70 CNEL dBA) within the Specific Plan area and would also result in an interior CNEL of 45 dB or less, even with the windows open (i.e., 59 dBA CNEL minus 15 dBA = 44 dBA CNEL). Therefore, future roadway traffic noise levels at residences would be less than significant.

Stationary Noise Sources

The proposed project's development would result in 160 new single-family homes and a mix of open space and recreational uses (see Figure 2) that would add a variety of noise-producing mechanical equipment (discussed below). Most of the noise-producing equipment would be considered stationary, or limited in mobility to a defined area. Additionally, the open space and recreational uses would attract participants and their guests (or in some situations, such activities would be open to the public) to enjoy proposed project facilities and thus create potential community noise relating to added aggregate speech and music (both acoustic and amplified) as appropriate or expected for the venue.

The Club

Less-Than-Significant Impact. The Club is anticipated to feature a family swimming pool, yoga pavilion, locker rooms, and outdoor tennis and pickle ball courts. These facilities suggest regular, continuous operation of pool filtration pumps and air-conditioning units for the occupied interior spaces that should be no closer than 150 feet to the nearest existing noise-sensitive residential property to the west. At this distance, the combined noise level of a typical operating pump (assume source level of 80 dBA L_{eq} at three feet [Bies and Hansen 1996]) and a commercial rooftop condenser unit (source level of 74 dBA at three feet [Johnson Controls 2010]) would be 47 dBA L_{eq} , which translates to 54 dBA CNEL (assuming continuous operation of equipment through nighttime hours, to keep the pool clean and the Club interior climate-controlled) and thus less than the 60 dBA CNEL standard at the exterior boundaries of the project area.

Residents and their guests enjoying the outdoor pool and ball courts during daytime hours would likely raise their voices while doing so. For purposes of this analysis, up to 100 participants (44 at the ball courts, and another 56 in or at the pool area) with individual speech levels of 66 dBA at three feet (Hayne et al. 2006) recreating outdoors at an average distance of 150 feet from the nearest noise-sensitive receptor to the west would result in an aggregate hourly sound level of 52 dBA L_{eq} , which translates to 52 dBA CNEL (assuming no operation during nighttime hours) and thus less than the 60 dBA CNEL standard at the exterior boundaries of the project area.

Anticipated noise due to pickle ball play from a single court is estimated to be 54 dBA L_{eq} at a distance of 80 feet, based on prior Dudek project experience and generally consistent with measurement data from publicly available sources (Spendiarian and Willis 2012). Assuming up to eight pickle ball courts, on

average, would experience concurrent play from residents, guests, and visitors, the predicted noise exposure at the nearest existing residential receiver to the west (at a distance of 150 feet, representing the average distance if pickle ball play was considered as a single-point source) would be 55 dBA, which translates to 55 dBA CNEL (assuming no play during nighttime hours) and thus less than the 60 dBA CNEL standard at the exterior boundaries of the project area.

In aggregate, sound from these three sources (operation of mechanical equipment, speech from Club attendance, and pickle ball play) would logarithmically combine into an hourly level of 57 dBA L_{eq} , which translates into 58 dBA CNEL and thus less than the 60 dBA CNEL standard at the western boundary adjoining offsite residences.

The Butterfly Farm

Less-Than-Significant Impact. The Butterfly Farm is expected to include a butterfly vivarium, greenhouse, classroom, and associated office/maintenance support space. These facilities would involve ventilation and air-conditioning units that should be no closer than 350 feet to the nearest existing noise-sensitive residential property to the east. At this distance, the combined noise level of a typical axial-flow “box”-type ventilation fan (84 dBA L_{eq} at three feet, calculated from 22,575 cubic feet per minute [cfm] [Farmtek 2019]) and a commercial rooftop condenser unit (source level of 74 dBA at three feet [Johnson Controls 2010]) would be 43 dBA L_{eq} , which translates to 50 dBA CNEL (assuming 24-hour operation as a worst-case) and thus less than the 60 dBA CNEL standard at the exterior boundaries of the project area. Hence, noise impact from operation of these equipment serving the facilities at the Butterfly Farm would be considered less than significant.

Residents and their guests enjoying the outdoor garden and picnic area during daytime hours would likely raise their voices while doing so. For purposes of this analysis, up to 50 participants with individual speech levels of 66 dBA at three feet (Hayne 2006) recreating outdoors at an average distance of 400 feet from the nearest noise-sensitive receptor to the east would result in an aggregate hourly sound level of 38 dBA L_{eq} , which translates to 40 dBA CNEL (assuming no operation during nighttime hours) and thus less than the 60 dBA CNEL standard at the exterior boundaries of the project area. Hence, noise impact attributed to residents and guests enjoying the facilities at the Butterfly Farm would be considered less than significant.

The Barn and The Social

Less-Than-Significant Impact with Mitigation. The Event Barn and the “The Social” café—included in The Barn component of the proposed project—would be located northeast of the proposed project entrance across from Martincoit Road. These locations would be used as venues for weekday and weekend weddings, farmer’s markets, concerts, fairs, and other hosted private and public gatherings. The two detached structures would be expected to feature HVAC systems (to provide ventilation and air-conditioning for interior spaces) functionally similar to those assumed for the Butterfly Farm. However, the nearest existing residential receptor to this operating equipment would likely be south of Espola Road, approximately 200 feet away. At this distance, the estimated aggregate HVAC equipment noise level would be 48 dBA L_{eq} , which translates to 55 dBA CNEL (assuming 24-hour operation as a worst-case) and thus less than the 60 dBA CNEL standard at the exterior boundaries of the project area. Hence, noise impact from operation of these equipment serving the facilities at The Event Barn and The Social would be less than significant.

According to the Specific Plan, the hosted events would not normally last beyond 10 p.m., and any that do would require a Special Use Permit per 3.2.3.B of the Specific Plan Additional Open Space Standards (SMA Ventures LLC 2019). The number of participants at hosted events could be as high as 300, and this analysis assumes that individual average speech levels of up to 66 dBA at three feet (Hayne 2006) could occur. To help illustrate a sample outdoor event noise scenario, Appendix D shows the predicted noise propagation out to the community from the following assumed sound sources and sound-blocking features:

- Two (2) pole-mounted outdoor speaker systems, each six (6) feet in height above grade, are positioned at the southwest and southeast corners of The Barn and each emit an average sound level of up to 100 dBA L_{eq} at a distance of approximately 10 feet, comparable to an amplified guitar (on stage with the performer using ear monitors [Darling n.d.]).
- An attendance of 300, with individual speech level at 66 dBA L_{eq} at three feet each, is distributed south of the buildings' southern facades and over the event lawn north of the proposed curved Event Barn Lawn wall.
- The Event Barn Lawn wall, a stone barrier topped with glass panels and having an extent shown in the Specific Plan, is assumed to be eight feet in height above grade.

Under these assumed conditions, predicted dominant noise from the pair of speakers operating during a "regular event" (per 3.2.3.B of the Specific Plan Additional Open Space Standards) would cause sound levels at the nearest noise-sensitive receptor (an existing residential property on the south side of Espola Road, just 180 feet away from the Event Barn Lawn wall) to reach up to 69 dBA hourly L_{eq} . At this estimated sound level, a regular 3-hour event could transpire during the allowable daytime hours (9 a.m. to 3 p.m. on any weekday [except holidays]) and still result in a CNEL value compliant with the 60 dBA CNEL standard and thus represent a less-than-significant noise impact to the community. If the 3-hour event were to occur during evening hours (i.e., between 7 p.m. and 10 p.m.), the resulting CNEL at the same existing offsite receptor would be 65 dBA CNEL and thus need a 5 dB reduction at each of the two speakers in order to comply with the 60 dBA CNEL offsite standard.

At the nearest proposed on-site residential lot to the west of the Barn, approximately 120 feet away, the sound exposure from the 3-hour regular event during daytime hours would be as high as 74 dBA hourly L_{eq} at a second-story listener position—a receptor location, such as a bedroom window, at the end of a direct sound path that may not be occluded by the Barn wall. At this magnitude during daytime hours, the resulting CNEL value would be 65 dBA; and, for an evening event, the CNEL would be 60 dBA. Both of these predicted on-site residential façade levels are compliant with the 70 dBA CNEL limit per the Specific Plan.

During "special events" (per 3.2.3.B of the Specific Plan Additional Open Space Standards) requiring a temporary permit that could occur during nighttime hours and/or last for more than 3 hours duration, the same two speakers (at 100 dBA at 10' each) and speech from 50-300 guests would risk exceeding the offsite receptor standard of 60 dBA CNEL and require mitigation. For example, a 3-hour special event hosted between 10 p.m. and 1 a.m. would result in 70 dBA CNEL at the nearest existing residence south of Espola Road; thus, compliance during such nighttime hours would require that the two speakers have their amplified sound levels reduced by 10 dBA each. At the resulting 90 dBA at 10' per speaker, the scale and type of event would likely need to be different: 100 dBA at 10' would be consistent with an amplified guitar, but 90 dBA at 10' would be compatible with live, unamplified vocalists or a playing classical instruments (e.g., four-piece band). Given such considerations, a variety of special event possibilities could

risk exceeding the 60 dBA CNEL offsite standard and/or the on-site residential outdoor limit of 70 dBA CNEL and thus result in a potentially significant impact requiring mitigation measure **MM-NOI-3**.

The Meadow

Less-Than-Significant Impact with Mitigation. According to the Specific Plan, outdoor concerts may be performed at The Meadow area, which is bounded by a planned on-site slope and open space to the north, Private Street “D” to the south, Private Street “A” to the west, and new residential lots to the east. Similar to the sample event modeled for the Barn and Social venue, Appendix D shows the predicted noise propagation out to the community from the following assumed sound sources and sound-blocking features:

- Two (2) pole-mounted outdoor speaker systems, each six (6) feet in height above grade, are positioned at the southwest and southeast corners of The Barn and each emit an average sound level of up to 94 dBA L_{eq} at a distance of approximately 10 feet, comparable to an amplified guitar (on stage with the performer using ear monitors [Darling n.d.]).
- An attendance of 300, with individual speech level at 66 dBA L_{eq} at three feet each, is distributed south of the buildings’ southern facades and over the event lawn north of the proposed curved Event Barn Lawn wall.
- The Event Barn Lawn wall, a stone barrier topped with glass panels and having an extent shown in the Specific Plan, is assumed to be eight feet in height above grade.

Under these assumed conditions, predicted dominant noise from the pair of speakers operating during a “regular event” would cause sound levels at the nearest noise-sensitive receptor (an existing residential property 100 feet south of the Meadow beyond Private Street “D”) to attain 64 dBA L_{eq} . At this estimated sound level, a regular event could transpire for up to three hours during the daytime period and result in a CNEL value of 55 dBA. A similar regular event during evening hours would yield a CNEL value of 60 dBA. Both CNEL values would be compliant with the 60 dBA CNEL standard at the exterior boundaries of the project area and thus represent a less-than-significant noise impact to the neighboring offsite community.

At the nearest proposed on-site residential lot easterly adjacent to the Meadow, the sound exposure from the event would be as high as 72 dBA L_{eq} at a second-story listener position. At this magnitude, the same regular event during daytime hours would be 63 dBA CNEL. In the evening, a comparable 3-hour event would yield 68 dBA CNEL at the same second-story receptor. Both values are less than 70 dBA CNEL limit per the Specific Plan for on-site residential use boundaries.

During “special events” (per 3.2.3.B of the Specific Plan Additional Open Space Standards), the aggregate sound from live or amplified music from a well-attended event at the Meadow venue could occur during nighttime hours. Using the same sample event scenario conditions as described for regular events, a 3-hour special event at night would not meet the 60 dBA CNEL off-site threshold at the edge of existing residential land use 100 feet south of the Meadow. By way of example, the CNEL at the nearest offsite residence would be 65 dBA and thus require at least 5 dB of sound reduction at each of the two speakers. Given such considerations, a variety of special event possibilities could risk exceeding the 60 dBA CNEL offsite standard and/or the on-site residential outdoor limit of 70 dBA CNEL and thus result in a potentially significant impact requiring mitigation measure **MM-NOI-4**.

Agri-Fields (The Working Farm)

Less-Than-Significant Impact. The Working Farm would be expected to involve typical agricultural equipment operating as close as 60 feet to adjacent residential property. At this distance, noise levels could range from 55 dBA L_{\max} for a pickup truck and up to 84 dBA L_{\max} for a tractor (FHWA 2006). However, Section 8.08.170.E from the City's noise ordinance exempts agricultural operations so long as they occur during daytime hours (7 a.m. to 7 p.m.) or are performed for crop protection (City of Poway 2019). But to yield noise exposure levels at the adjoining offsite residential properties that meet the Specific Plan's exterior project area property line standard of 60 dBA CNEL, hours of operation for the noisiest on-site expected equipment would need to be limited. By way of example, a tractor could operate for up to 2 hours (during the aforementioned allowable daytime period) at an average working distance of no less than 150 feet from a receptor point along the exterior project area property line and result in a noise level less than 60 dBA CNEL. Quieter equipment, such as a flatbed truck ($L_{\max} = 74$ dBA at 50 feet), could operate for all twelve daytime hours at this same average working distance and yield a noise level compliant with this adopted standard.

The Dog Park

The Dog Park is a designated area southwest of the Meadow and approximately 150 feet north of the nearest offsite existing residence abutting Cloudcroft Court. Assuming up to four dogs may be barking (each bark considered comparable to 100 dBA L_{\max} at one meter [Helmut 2019]) intermittently (no more than twelve barks each per hour) during a typical daytime hour when the area would be available for usage, at this distance of 150 feet to the Specific Plan boundary the estimated CNEL would be less than 45 dBA and thus compliant with the offsite residential property line standard.

The Tot Lot

The Tot Lot is a designated area north of the Butterfly Farm and approximately 150 feet south-southeast of the nearest offsite existing residence abutting St. Andrews Drive. Assuming up to eight (8) children may be yelling during excited play (each yell considered comparable to a human shout [90 dBA L_{\max} at three feet, per Hayne 2006]) intermittently (no more than twelve shouts each per hour) during a typical daytime hour when the area would be available for usage, at this distance of 150 feet to the Specific Plan boundary the estimated CNEL would be less than 40 dBA and thus compliant with the offsite residential property line standard.

For two on-site future residential "Cottage" lots that adjoin the Tot Lot to the southwest, the playing children would be much closer—potentially 50 feet, on average. At this time-averaged distance, the yelling children would result in a noise level of 48 dBA CNEL and thus be compliant with the Specific Plan performance standard of 70 dBA CNEL.

New Residential Homes

Less-Than-Significant Impact. For purposes of this analysis, each of the 160 new single-family homes would be expected to feature an air-conditioning unit having operation noise comparable to 60 dBA at twenty feet (Berger *et al* 2015). Assuming these units are installed at grade and near a façade of the residence, they should be no closer than 50 feet to the nearest existing residential property and would thus be expected to yield—as a worst-case—a property line noise level of 52 dBA L_{eq} continuously throughout the day and night during hot summer conditions. At this hourly level, the corresponding CNEL value would be 59 dBA and less than the Specific Plan's 60 dBA CNEL standard at the exterior boundaries of the project area. Therefore, operation of residential air-conditioning units would result in potential noise impacts considered less than significant.

b) *Would the project result in generation of excessive groundborne vibration or groundborne noise levels?*

Construction activities may expose persons to excessive groundborne vibration or groundborne noise, causing a potentially significant impact. Caltrans has collected groundborne vibration information related to construction activities (Caltrans 2013b). Information from Caltrans indicates that continuous vibrations with a PPV of approximately 0.2 ips is considered “annoying.” For context, heavier pieces of construction equipment, such as a bulldozer that may be expected on the project site, have peak particle velocities of approximately 0.089 ips or less at a reference distance of 25 feet (DOT 2006).

Groundborne vibration attenuates rapidly—even over short distances. And when groundborne vibration encounters a building foundation, a coupling loss occurs depending on the mass and design. For typical wood-framed houses, like those near the proposed project, this coupling loss is 5 vibration velocity decibels according to FTA guidance (FTA 2006). The attenuation of groundborne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in FTA and Caltrans guidance. By way of example, for a bulldozer operating on site and as close as the western project boundary (that is 15 feet from the nearest receiving sensitive land use) the estimated vibration velocity level would be 0.19 ips and thus no greater than the annoyance threshold recommended by Caltrans. Therefore, vibration-induced annoyance to occupants of nearby existing homes would be **less than significant**.

Construction vibration, at sufficiently high levels, can also present a building damage risk. However, anticipated construction vibration from conventional heavy equipment associated with this proposed project would not yield levels that surpass this risk. Per Caltrans, the recommended PPV threshold for newer residential structures is 0.5 ips and 0.3 ips for older residential structures—both of which are less stringent than the aforementioned threshold to annoy occupants of such structures; thus vibration damage risk to nearby structures is considered **less than significant**.

For blasting events associated with project construction, Caltrans offers different “transient event” guidance: 0.5 ips PPV for “repeated” blasts where the class of receiving structure would be comparable to “relatively old residential structures in poor condition” (Caltrans 2013b). Detonation of an 18.5-pound, heavily confined per-delay charge would be predicted to result in a groundborne vibration velocity level of 0.5 ips PPV at a residential receptor no closer than 400 feet away.

Once operational, the proposed project would not be expected to feature major producers of groundborne vibration. Anticipated mechanical systems like heating, ventilation, and air-conditioning units are designed and manufactured to feature rotating (fans, motors) and reciprocating (compressors) components that are well-balanced with isolated vibration within or external to the equipment casings. On this basis, vibration due to proposed project operation should be **less than significant**.

- C. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?***

Less-Than-Significant Impact. There are no private airstrips within the vicinity of the project site. The closest airport to the proposed project site is the Ramona Municipal Airport, approximately 6.25 miles northeast of the site and would therefore not expose people residing or working in the project area to excessive noise levels. Impacts would be **less than significant**.

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6 Mitigation Measures

The following mitigation measures would be implemented to reduce potentially significant impacts to less than significant.

MM-NOI-1 Prior to the issuance of a Construction Permit, the project applicant/owner or construction contractor shall prepare and submit to the City of Poway Planning Division for its review and approval a Construction Noise Management Plan (CNMP). Prior to the issuance of a Construction Permit, construction plans shall also include a note indicating compliance with the CNMP is required. The CNMP shall be prepared or reviewed by a qualified acoustician (retained at the project applicant/owner or construction contractor's expense) and feature the following:

- 1) A detailed construction schedule, at daily (or weekly, if activities during each day of the week are typical) resolution and correlating to areas or zones of on-site project construction activities and the anticipated equipment types and quantities involved. Information shall include expected hours of actual operation per day for each type of equipment per phase and indication of anticipated concurrent construction activities on site.
- 2) Suggested locations of a set of noise-level monitors, attended by a qualified acoustician or another party under his/her supervision or direction, at which sample outdoor ambient noise levels will be measured and collected over a sufficient sample period and subsequently analyzed (i.e., compared with applicable time-dependent A-weighted decibel [dBA] thresholds) to ascertain compliance with the eight-hour City of Poway threshold of 75 dBA equivalent noise level over a consecutive eight-hour period. Sampling shall be performed, at a minimum, on the first (or otherwise considered typical construction operations) day of each distinct construction phase (e.g., each of the five listed phases in Table 2, Construction Phase Distance to Nearest Pre-Existing Noise-Sensitive Receptors).
- 3) If sample collected noise level data indicates that the eight-hour noise threshold has or will be exceeded, construction work shall be suspended (for the activity or phase of concern) and the project applicant/owner or construction contractor shall implement one or more of the following measures as detailed or specified in the CNMP:
 - a) Administrative controls (e.g., reduce operating time of equipment and/or prohibit usage of equipment type[s] within certain distances).
 - b) Engineering controls (upgrade noise controls, such as install better engine exhaust mufflers).
 - c) Install noise abatement on the project site boundary fencing (or within the project site, as practical and appropriate) in the form of sound blankets or comparable temporary barriers to occlude construction noise emission between the project site (or specific equipment operation as the situation may define) and the noise-sensitive receptor(s) of concern.

The implemented measure(s) shall be reviewed or otherwise inspected and approved by the qualified acoustician (or another party under his/her supervision or direction) prior to resumption of the construction activity or process that caused the measured noise concern or need for noise mitigation. Noise levels shall be re-measured, after installation of said measures, to ascertain post-mitigation compliance with the noise threshold. As needed, this process shall be repeated and refined until noise level compliance is demonstrated and

documented. A report of this implemented mitigation and its documented success shall be provided to the City of Poway Planning Division.

- 4) The project applicant/owner or construction contractor shall make available a telephone hotline so that concerned neighbors in the community may call to report noise complaints. The CNMP shall include a process to investigate these complaints and, if determined to be valid, detail efforts to provide a timely resolution and response to the complainant—with copy of resolution provided to the City of Poway Planning Division.

MM-NOI-2

The project applicant/owner or its construction contractor(s) shall prepare, or cause to be prepared, a blasting/drilling monitoring plan. The plan shall be site specific, based on general and exact locations of required blasting and the results of a project-specific geotechnical investigation. The blasting plan will include a description of the planned blasting methods, an inventory of receptors potentially affected by the planned blasting, and calculations to determine the area affected by the planned blasting that include estimates of the pre-blast drill noise levels, air-blast overpressure sound levels, and groundborne vibration levels at each residence within 500 feet of a blasting location. Where potential exceedances of relevant noise and vibration exposure limits are identified, the blasting/drilling monitoring plan shall identify mitigation measures shown to effectively reduce noise and vibration levels (e.g., altering orientation of blast progression, increased delay between charge detonations, pre-splitting) to be implemented in order to demonstrate compliance with these thresholds. Additionally, all project phases involving blasting shall conform to the following requirements:

1. All blasting shall be performed by a blast contractor and blasting personnel licensed to operate per appropriate regulatory agencies.
2. Prior to blasting, a qualified geotechnical professional shall inspect and document the existing conditions of facades and other visible structural features or elements of the nearest residential buildings. Should this inspector determine that some structural features or elements appear fragile or otherwise potentially sensitive to vibration damage caused by the anticipated blasting activity, the maximum per-delay charge weights and other related blast parameters shall be re-evaluated to establish appropriate quantified limits.
3. Each blast shall be monitored and recorded with an air-blast overpressure monitor and groundborne vibration accelerometer that is located outside the closest residence to the blast. This data shall be recorded, and a post-blast summary report shall be prepared and be available for public review or distribution as necessary.
4. Blasting shall not exceed 0.5 ips PPV at the nearest occupied residence, in accordance with California Department of Transportation guidance (Caltrans 2013b).
5. To ensure that potentially impacted residents are informed, the applicant will provide notice by mail to all property owners within 1,000 feet of the project at least one (1) week prior to a scheduled blasting event.
6. Pre-blast drilling operations associated with blasting preparations shall be performed in a manner consistent with adherence to City of Poway regulations and guidance.

MM-NOI-3 Operation of any “regular event” at The Event Barn (and The Social) as defined by 3.2.3.B of The Farm in Poway Specific Plan Additional Open Space Standards shall conform to the following acoustical conditions:

- 1) Daytime (within 8 a.m. to 7 p.m.)
 - a) Attendance shall not exceed 300 and include residents, guests, visitors, and any on-site support staff that host the event in progress.
 - b) Event duration shall not exceed a cumulative total of three hours.
 - c) The aggregate sound level from live (acoustic) or amplified music shall not exceed a total of 103 A-weighted decibel (dBA) at a distance of 10 feet. If speakers are positioned to distribute the amplified sound, they must be positioned in such a manner that The Event Barn Wall provides linear occlusion between the speaker and the nearest existing residential receptors south of Espola Road.
 - d) If any proposed event parameters above are not listed or may exceed the indicated constraints, then a qualified acoustician shall prepare or review a predictive sound propagation analysis prior to the proposed event in order to identify need for recommended noise control or sound abatement implantation measures that could include (but not be limited to):
 - i. Via the pre-installed house audio-visual (A/V) system or on A/V hardware supplied by the hosted event performers, set electronic controls on amplified sound levels to comply with recommended front-of-stage and/or property line expectations.
 - ii. Install temporary noise walls, curtains, or other barrier forms so as to improve containment and absorption of sound within The Event Barn Lawn venue space and minimize spill-over noise to the property line and community beyond.
 - iii. Install on-site sound level measurement systems (e.g., akin to NTiAudio or comparable supplier technology) to monitor event sound levels in real-time and provide alerts to event hosts and administrators. Collected data and alerts offer opportunity to provide feedback to event performers as part of implementing administrative control of sound emission levels.

Collected data from 1.d.iii can also provide documentation that an event was fully compliant with required sound limits at the property line(s), and might be used to support assertions that future events having identical conditions (e.g., an annual seasonal festival) would also be compliant and thus waive the need for additional monitoring (at the discretion or approval of the City of Poway).

- 2) Evening (7 p.m. to 10 p.m.)
 - a) Attendance shall not exceed 300 and include residents, guests, visitors, and any on-site support staff that host the event in progress.
 - b) Event duration shall not exceed a cumulative total of three hours.
 - c) The aggregate sound level from live (acoustic) or amplified music shall not exceed a total of 98 dBA at a distance of 10 feet. If speakers are positioned to distribute the amplified sound, they must be positioned in such a manner that The Event Barn Wall provides linear occlusion between the speaker and the nearest existing residential receptors south of Espola Road.

- d) If any proposed event parameters above are not listed or may exceed the indicated constraints, then a qualified acoustician shall prepare or review a predictive sound propagation analysis prior to the proposed event in order to identify need for recommended noise control or sound abatement implantation measures that could include (but not be limited to):
 - i. Via the pre-installed house A/V system or on A/V hardware supplied by the hosted event performers, set electronic controls on amplified sound levels to comply with recommended front-of-stage and/or property line expectations.
 - ii. Install temporary noise walls, curtains, or other barrier forms so as to improve containment and absorption of sound within The Event Barn Lawn venue space and minimize spill-over noise to the property line and community beyond.
 - iii. Install on-site sound level measurement systems (e.g., akin to NTiAudio or comparable supplier technology) to monitor event sound levels in real-time and provide alerts to event hosts and administrators.

Collected data from 2.d.iii can also provide documentation that an event was fully compliant with required sound limits at the property line(s), and might be used to support assertions that future events having identical conditions (e.g., an annual seasonal festival) would also be compliant and thus waive the need for additional monitoring (at the discretion or approval of the City of Poway).

Conduct of a “special event” (i.e., that is not considered a “regular event”) at The Event Barn (and The Social) as defined by 3.2.3.B of The Farm in Poway Specific Plan Additional Open Space Standards shall require a City-approved Temporary Use Permit. At the City’s discretion, the Temporary Use Permit application may require the approval of a predictive sound propagation analysis prepared by a qualified acoustician to identify recommended noise control and sound abatement implementation measures that—as implemented properly by the permit applicant—would be expected to result in event-attributed noise levels that are compliant with the Farm in Poway Specific Plan Additional Open Space Standards as follows:

- 1) No greater than 60 dBA CNEL at the property lines of existing residential receptors adjoining the Specific Plan area; and,
- 2) No greater than 70 dBA CNEL at the property lines of on-site residential receptors within the Specific Plan area.

MM-NOI-4

Operation of any “regular event” at The Meadow (Amphitheater) as defined by 3.2.3.B of The Farm in Poway Specific Plan Additional Open Space Standards shall conform to the following acoustical conditions:

- 1) Daytime (within 8 a.m. to 7 p.m.)
 - a) Attendance shall not exceed 300 and include residents, guests, visitors, and any on-site support staff that host the event in progress.
 - b) Event duration shall not exceed a cumulative total of three hours.
 - c) The aggregate sound level from live (acoustic) or amplified music shall not exceed a total of 97 A-weighted decibel (dBA) at a distance of 10 feet. If speakers are positioned to distribute the amplified sound, they must be positioned in such a manner that The Event Barn Wall

provides linear occlusion between the speaker and the nearest existing residential receptors south of Espola Road.

- d) If any proposed event parameters above are not listed or may exceed the indicated constraints, then a qualified acoustician shall prepare or review a predictive sound propagation analysis prior to the proposed event in order to identify need for recommended noise control or sound abatement implantation measures that could include (but not be limited to):
 - i. Via the pre-installed house audio-visual (A/V) system or on A/V hardware supplied by the hosted event performers, set electronic controls on amplified sound levels to comply with recommended front-of-stage and/or property line expectations.
 - ii. Install temporary noise walls, curtains, or other barrier forms so as to improve containment and absorption of sound within The Event Barn Lawn venue space and minimize spill-over noise to the property line and community beyond.
 - iii. Install on-site sound level measurement systems (e.g., akin to NTiAudio or comparable supplier technology) to monitor event sound levels in real-time and provide alerts to event hosts and administrators. Collected data and alerts offer opportunity to provide feedback to event performers as part of implementing administrative control of sound emission levels.

Collected data from 1.d.iii can also provide documentation that an event was fully compliant with required sound limits at the property line(s), and might be used to support assertions that future events having identical conditions (e.g., an annual seasonal festival) would also be compliant and thus waive the need for additional monitoring (at the discretion or approval of the City of Poway).

2) Evening (7 p.m. to 10 p.m.)

- a) Attendance shall not exceed 300 and include residents, guests, visitors, and any on-site support staff that host the event in progress.
- b) Event duration shall not exceed a cumulative total of three hours.
- c) The aggregate sound level from live (acoustic) or amplified music shall not exceed a total of 92 dBA at a distance of 10 feet. If speakers are positioned to distribute the amplified sound, they must be positioned in such a manner that The Event Barn Wall provides linear occlusion between the speaker and the nearest existing residential receptors south of Espola Road.
- d) If any proposed event parameters above are not listed or may exceed the indicated constraints, then a qualified acoustician shall prepare or review a predictive sound propagation analysis prior to the proposed event in order to identify need for recommended noise control or sound abatement implantation measures that could include (but not be limited to):
 - i. Via the pre-installed house A/V system or on A/V hardware supplied by the hosted event performers, set electronic controls on amplified sound levels to comply with recommended front-of-stage and/or property line expectations.
 - ii. Install temporary noise walls, curtains, or other barrier forms so as to improve containment and absorption of sound within The Event Barn Lawn venue space and minimize spill-over noise to the property line and community beyond.

- iii. Install on-site sound level measurement systems (e.g., akin to NTiAudio or comparable supplier technology) to monitor event sound levels in real-time and provide alerts to event hosts and administrators.

Collected data from 2.d.iii can also provide documentation that an event was fully compliant with required sound limits at the property line(s), and might be used to support assertions that future events having identical conditions (e.g., an annual seasonal festival) would also be compliant and thus waive the need for additional monitoring (at the discretion or approval of the City of Poway).

Conduct of a “special event” (i.e., that is not considered a “regular event”) at The Meadow as defined by 3.2.3.B of The Farm in Poway Specific Plan Additional Open Space Standards shall require a City-approved Temporary Use Permit. At the City’s discretion, the Temporary Use Permit application may require the approval of a predictive sound propagation analysis prepared by a qualified acoustician to identify recommended noise control and sound abatement implementation measures that—as implemented properly by the permit applicant—would be expected to result in event-attributed noise levels that are compliant with The Farm in Poway Specific Plan Additional Open Space Standards as follows:

- 1) No greater than 60 dBA CNEL at the property lines of existing residential receptors adjoining the Specific Plan area; and,
- 2) No greater than 70 dBA CNEL at the property lines of on-site residential receptors within the Specific Plan area.

7 Summary of Findings

This noise report was conducted for the proposed project. The results indicate that potential impacts during construction would **be less than significant with mitigation**. Noise impacts due to operation of the proposed project (including traffic noise) would be **less than significant**. For some regular and special events hosted at the venue associated with The Barn and The Social facilities, potential noise impacts could arise but would be mitigated to a less than significant level. No further mitigation beyond what has been described herein is anticipated at this time.

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Appendix A

Noise Measurement Field Data

Field Noise Measurement Data

Record: 1148

Project Name	The Farms
Observer(s)	Connor Burke
Date	2019-06-11

Meteorological Conditions

Temp (F)	87
Humidity % (R.H.)	43
Wind	Light
Wind Speed (MPH)	8
Wind Direction	South West
Sky	Sunny

Instrument and Calibrator Information

Instrument Name List	(ENC) Rion NL-52
Instrument Name	(ENC) Rion NL-52
Instrument Name Lookup Key	(ENC) Rion NL-52
Manufacturer	Rion
Model	NL-52
Serial Number	553896
Calibrator Name	(ENC) LD CAL150
Calibrator Name	(ENC) LD CAL150
Calibrator Name Lookup Key	(ENC) LD CAL150
Calibrator Manufacturer	Larson Davis
Calibrator Model	LD CAL150
Calibrator Serial #	5152
Pre-Test (dBA SPL)	94
Post-Test (dBA SPL)	94
Windscreen	Yes
Weighting?	A-WTD
Slow/Fast?	Slow
ANSI?	Yes

Monitoring

Record #	1
Site ID	ST1
Site Location Lat/Long	33.018464, -117.039703
Begin (Time)	10:20:00
End (Time)	10:30:00
Leq	64.9
Lmax	75.1
Lmin	44.3
Other Lx?	L90, L50, L10
L90	49.8
L50	60.3
L10	69.3
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Aircraft, Distant Traffic, Rustling Leaves
Other Noise Sources Additional Description	Helicopter fly by
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts


Number of Lanes	2
Lane Width (feet)	10
Roadway Width (feet)	20
Roadway Width (m)	6.1
Distance to Roadway (feet)	40
Distance to Roadway (m)	12.2
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	45

Traffic Counts

Vehicle Count Summary	A 112, MT 4, HT 0, B 0, MC 0
Select Method for Recording Count Duration	Enter Manually
Counting Both Directions?	Yes
Count Duration (minutes)	10
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	112
Number of Vehicles - Medium Trucks	4
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcycles	0

Description / Photos

Site Photos

Photo	
Comments / Description	Facing north.

Monitoring

Record #	2
Site ID	ST4
Site Location Lat/Long	33.022707, -117.034781
Begin (Time)	11:00:00
End (Time)	11:10:00
Leq	52.5
Lmax	64.5
Lmin	36.3
Other Lx?	L90, L50, L10
L90	38.8
L50	44.6
L10	56.2
Other Lx (Specify Metric)	L
Primary Noise Source	Birds/distant aircraft
Other Noise Sources (Background)	Birds, Distant Aircraft, Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos

Photo



Comments / Description

Facing east.

Monitoring

Record #	3
Site ID	ST3
Site Location Lat/Long	33.032444, -117.030992
Begin (Time)	11:15:00
End (Time)	11:25:00
Leq	42.2
Lmax	67.5
Lmin	34.2
Other Lx?	L90, L50, L10
L90	35.2
L50	37.3
L10	44.7
Other Lx (Specify Metric)	L
Primary Noise Source	Birds
Other Noise Sources (Background)	Birds, Distant Aircraft, Distant Conversations / Yelling, Distant Traffic, Rustling Leaves
Other Noise Sources Additional Description	Distant nail gun
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos

Photo	
	
Comments / Description	Facing south

Monitoring

Record #	4
Site ID	ST2
Site Location Lat/Long	33.026245, -117.038944
Begin (Time)	11:30:00
End (Time)	11:40:00
Leq	43.1
Lmax	49.9
Lmin	36.3
Other Lx?	L90, L50, L10
L90	37.8
L50	41.6
L10	46.3
Other Lx (Specify Metric)	L
Primary Noise Source	Birds
Other Noise Sources (Background)	Birds, Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos

Photo



Comments / Description

Facing south.

Appendix B

Construction Noise Modeling Input and Output

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per City of Poway = **75**

allowable hours over which Leq is to be averaged (example: 8 for Poway, County of San Diego, or FTA guidance) = **8**

Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	0	40	82		0	0	0	0	0
	Excavator	0	40	81		0	0	0	0	0
	Concrete Saw	0	20	90		0	0	0	0	0
Total for Demolition Phase:										4.8
Site Preparation	Dozer	1	40	82		150	72	8	480	68
	Backhoe	1	40	78		150	68	8	480	64
	Front End Loader	1	40	79		150	69	8	480	65
Total for Site Preparation Phase:										71.3
Grading	Excavator	1	40	81		150	71	8	480	67
	Grader	1	40	85		150	75	8	480	71
	Dozer	0	40	82		150	0	8	480	0
	Front End Loader	0	40	79		150	0	8	480	0
	Backhoe	0	40	78		150	0	8	480	0
	Scraper	1	40	84		150	74	8	480	70
Total for Grading Phase:										74.9
Building Construction	Crane	0	16	81		0	0	0	0	0
	Man Lift	0	20	75		0	0	0	0	0
	Generator	0	50	72		0	0	0	0	0
	Backhoe	0	40	78		0	0	0	0	0
	Front End Loader	0	40	79		0	0	0	0	0
	Welder / Torch	0	40	73		0	0	0	0	0
Total for Building Construction Phase:										7.8
Paving	Paver	0	50	77		0	0	0	0	0
	Roller	0	20	80		0	0	0	0	0
	All Other Equipment > 5 HP	0	50	85		0	0	0	0	0
Total for Paving Phase:										4.8
Architectural Coating	Compressor (air)	0	40	78		0	0	0	0	0
Total for Architectural Coating Phase:										0.0

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noise level limit for construction phase, per City of Poway = **75**
allowable hours over which Leq is to be averaged (example: 8 for Poway, County of San Diego, or FTA guidance) = **8**

Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	0	40	82		0	0	0	0	0
	Excavator	0	40	81		0	0	0	0	0
	Concrete Saw	0	20	90		0	0	0	0	0
Total for Demolition Phase:										4.8
Site Preparation	Dozer	0	40	82		25	0	1	60	0
	Backhoe	1	40	78		25	84	1	60	71
	Front End Loader	1	40	79		25	85	1	60	72
Total for Site Preparation Phase:										74.5
Grading	Excavator	0	40	81		25	0	1	60	0
	Grader	1	40	85		25	91	1	60	78
	Dozer	0	40	82		25	0	1	60	0
	Front End Loader	0	40	79		25	0	1	60	0
	Backhoe	0	40	78		25	0	1	60	0
	Scraper	0	40	84		25	0	1	60	0
Total for Grading Phase:										78.0
Building Construction	Crane	0	16	81		0	0	0	0	0
	Man Lift	0	20	75		0	0	0	0	0
	Generator	1	50	72		25	78	1	60	66
	Backhoe	0	40	78		0	0	0	0	0
	Front End Loader	0	40	79		0	0	0	0	0
	Welder / Torch	1	40	73		25	79	1	60	66
Total for Building Construction Phase:										69.0
Paving	Paver	1	50	77		25	83	1	60	71
	Concrete mixer truck	1	40	79		25	85	1	60	72
Total for Paving Phase:										74.5
Architectural Coating	Compressor (air)	0	40	78		0	0	0	0	0
Total for Architectural Coating Phase:										0.0

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noise level limit for construction phase, per City of Poway = **75**

allowable hours over which Leq is to be averaged (example: 8 for Poway, County of San Diego, or FTA guidance) = **8**

Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	40	82		120	74	4	240	67
	Excavator	1	40	81		120	73	4	240	66
	Concrete Saw	1	20	90		120	82	4	240	72
Total for Demolition Phase:										74.4
Site Preparation	Dozer	1	40	82		50	82	2	120	72
	Backhoe	1	40	78		50	78	2	120	68
	Front End Loader	1	40	79		50	79	2	120	69
Total for Site Preparation Phase:										74.8
Grading	Excavator	1	40	81		50	81	1	60	68
	Grader	1	40	85		50	85	0.75	45	71
	Dozer	0	40	82		50	0	1	60	0
	Front End Loader	0	40	79		50	0	1	60	0
	Backhoe	0	40	78		50	0	1	60	0
	Scraper	1	40	84		50	84	1	60	71
Total for Grading Phase:										74.9
Building Construction	Crane	1	16	81		100	75	8	480	67
	Man Lift	1	20	75		100	69	8	480	62
	Generator	1	50	72		100	66	8	480	63
	Backhoe	1	40	78		100	72	8	480	68
	Front End Loader	1	40	79		100	73	8	480	69
	Welder / Torch	1	40	73		100	67	8	480	63
Total for Building Construction Phase:										74.0
Paving	Paver	0	50	77		0	0	0	0	0
	Roller	0	20	80		0	0	0	0	0
	All Other Equipment > 5 HP	0	50	85		0	0	0	0	0
Total for Paving Phase:										4.8
Architectural Coating	Compressor (air)	1	40	78		100	72	8	480	68
Total for Architectural Coating Phase:										68.0

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Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	40	82		120	74	4	240	67
	Excavator	1	40	81		120	73	4	240	66
	Concrete Saw	1	20	90		120	82	4	240	72
Total for Demolition Phase:										74.4
Site Preparation	Dozer	1	40	82		50	82	2	120	72
	Backhoe	1	40	78		50	78	2	120	68
	Front End Loader	1	40	79		50	79	2	120	69
Total for Site Preparation Phase:										74.8
Grading	Excavator	1	40	81		50	81	1	60	68
	Grader	1	40	85		50	85	0.75	45	71
	Dozer	0	40	82		50	0	1	60	0
	Front End Loader	0	40	79		50	0	1	60	0
	Backhoe	0	40	78		50	0	1	60	0
	Scraper	1	40	84		50	84	1	60	71
Total for Grading Phase:										74.9
Building Construction	Crane	1	16	81		360	64	8	480	56
	Man Lift	1	20	75		360	58	8	480	51
	Generator	1	50	72		360	55	8	480	52
	Backhoe	1	40	78		360	61	8	480	57
	Front End Loader	1	40	79		360	62	8	480	58
	Welder / Torch	1	40	73		360	56	8	480	52
Total for Building Construction Phase:										62.8
Paving	Paver	1	50	77		120	69	4	240	63
	Roller	1	20	80		120	72	4	240	62
	All Other Equipment > 5 HP	1	50	85		120	77	4	240	71
Total for Paving Phase:										72.5
Architectural Coating	Compressor (air)	1	40	78		360	61	8	480	57
Total for Architectural Coating Phase:										56.9

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Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	40	82		120	74	4	240	67
	Excavator	1	40	81		120	73	4	240	66
	Concrete Saw	1	20	90		120	82	4	240	72
Total for Demolition Phase:										74.4
Site Preparation	Dozer	1	40	82		50	82	2	120	72
	Backhoe	1	40	78		50	78	2	120	68
	Front End Loader	1	40	79		50	79	2	120	69
Total for Site Preparation Phase:										74.8
Grading	Excavator	1	40	81		50	81	1	60	68
	Grader	1	40	85		50	85	0.75	45	71
	Dozer	0	40	82		50	0	1	60	0
	Front End Loader	0	40	79		50	0	1	60	0
	Backhoe	0	40	78		50	0	1	60	0
	Scraper	1	40	84		50	84	1	60	71
Total for Grading Phase:										74.9
Building Construction	Crane	1	16	81		300	65	8	480	57
	Man Lift	1	20	75		300	59	8	480	52
	Generator	1	50	72		300	56	8	480	53
	Backhoe	1	40	78		300	62	8	480	58
	Front End Loader	1	40	79		300	63	8	480	59
	Welder / Torch	1	40	73		300	57	8	480	53
Total for Building Construction Phase:										64.4
Paving	Paver	1	50	77		50	77	1	60	65
	Roller	1	20	80		50	80	1	60	64
	All Other Equipment > 5 HP	1	50	85		50	85	1	60	73
Total for Paving Phase:										74.0
Architectural Coating	Compressor (air)	1	40	78		300	62	8	480	58
Total for Architectural Coating Phase:										58.5

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Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	0	40	82		0	0	0	0	0
	Excavator	0	40	81		0	0	0	0	0
	Concrete Saw	0	20	90		0	0	0	0	0
Total for Demolition Phase:										4.8
Site Preparation	Dozer	1	40	82		36	85	2	120	75
	Backhoe	1	40	78		36	81	2	120	71
	Front End Loader	1	40	79		36	82	2	120	72
Total for Site Preparation Phase:										77.6
Grading	Excavator	1	40	81		36	84	1	60	71
	Grader	1	40	85		36	88	0.75	45	74
	Dozer	0	40	82		36	0	1	60	0
	Front End Loader	0	40	79		36	0	1	60	0
	Backhoe	0	40	78		36	0	1	60	0
	Scraper	1	40	84		36	87	1	60	74
Total for Grading Phase:										77.7
Building Construction	Crane	0	16	81		0	0	0	0	0
	Man Lift	0	20	75		0	0	0	0	0
	Generator	0	50	72		0	0	0	0	0
	Backhoe	0	40	78		0	0	0	0	0
	Front End Loader	0	40	79		0	0	0	0	0
	Welder / Torch	0	40	73		0	0	0	0	0
Total for Building Construction Phase:										7.8
Paving	Paver	1	50	77		36	80	1	60	68
	Roller	1	20	80		36	83	1	60	67
	All Other Equipment > 5 HP	1	50	85		36	88	1	60	76
Total for Paving Phase:										76.9
Architectural Coating	Compressor (air)	0	40	78		0	0	0	0	0
Total for Architectural Coating Phase:										0.0

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Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	1	40	82		120	74	4	240	67
	Excavator	1	40	81		120	73	4	240	66
	Concrete Saw	1	20	90		120	82	4	240	72
Total for Demolition Phase:										74.4
Site Preparation	Dozer	1	40	82		15	92	2	120	82
	Backhoe	1	40	78		15	88	2	120	78
	Front End Loader	1	40	79		15	89	2	120	79
Total for Site Preparation Phase:										85.2
Grading	Excavator	1	40	81		15	91	1	60	78
	Grader	1	40	85		15	95	0.75	45	81
	Dozer	0	40	82		15	0	1	60	0
	Front End Loader	0	40	79		15	0	1	60	0
	Backhoe	0	40	78		15	0	1	60	0
	Scraper	1	40	84		15	94	1	60	81
Total for Grading Phase:										85.3
Building Construction	Crane	0	16	81		0	0	0	0	0
	Man Lift	0	20	75		0	0	0	0	0
	Generator	0	50	72		0	0	0	0	0
	Backhoe	0	40	78		0	0	0	0	0
	Front End Loader	0	40	79		0	0	0	0	0
	Welder / Torch	0	40	73		0	0	0	0	0
Total for Building Construction Phase:										7.8
Paving	Paver	0	50	77		0	0	0	0	0
	Roller	0	20	80		0	0	0	0	0
	All Other Equipment > 5 HP	0	50	85		0	0	0	0	0
Total for Paving Phase:										4.8
Architectural Coating	Compressor (air)	0	40	78		0	0	0	0	0
Total for Architectural Coating Phase:										0.0

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Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	0	40	82		0	0	0	0	0
	Excavator	0	40	81		0	0	0	0	0
	Concrete Saw	0	20	90		0	0	0	0	0
Total for Demolition Phase:										4.8
Site Preparation	Dozer	1	40	82		50	82	2	120	72
	Backhoe	1	40	78		50	78	2	120	68
	Front End Loader	1	40	79		50	79	2	120	69
Total for Site Preparation Phase:										74.8
Grading	Excavator	1	40	81		50	81	1	60	68
	Grader	1	40	85		50	85	0.75	45	71
	Dozer	0	40	82		50	0	1	60	0
	Front End Loader	0	40	79		50	0	1	60	0
	Backhoe	0	40	78		50	0	1	60	0
	Scraper	1	40	84		50	84	1	60	71
Total for Grading Phase:										74.9
Building Construction	Crane	0	16	81		0	0	0	0	0
	Man Lift	0	20	75		0	0	0	0	0
	Generator	0	50	72		0	0	0	0	0
	Backhoe	0	40	78		0	0	0	0	0
	Front End Loader	0	40	79		0	0	0	0	0
	Welder / Torch	0	40	73		0	0	0	0	0
Total for Building Construction Phase:										7.8
Paving	Paver	0	50	77		0	0	0	0	0
	Roller	0	20	80		0	0	0	0	0
	All Other Equipment > 5 HP	0	50	85		0	0	0	0	0
Total for Paving Phase:										4.8
Architectural Coating	Compressor (air)	0	40	78		0	0	0	0	0
Total for Architectural Coating Phase:										0.0

Appendix C

Traffic Noise Modeling Input and Output

RESULTS: SOUND LEVELS
The Farm

Dudek													
CB													
RESULTS: SOUND LEVELS													
PROJECT/CONTRACT:													
RUN:													
BARRIER DESIGN:													
ATMOSPHERICS:													
Receiver													
Name	No.	#DUs	Existing	No Barrier						With Barrier			
			LAeq1h	LAeq1h			Increase over existing	Type	Calculated	Noise Reduction			
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated	
							Sub'l Inc					minus	
												Goal	
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
ST1	1	1	64.0	65.7	66	1.7	10	----	65.7	0.0	8	-8.0	
ST4	2	1	52.5	47.8	66	-4.7	10	----	47.8	0.0	8	-8.0	
ST2	3	1	43.1	41.0	66	-2.1	10	----	41.0	0.0	8	-8.0	
ST3	4	1	42.2	52.5	66	10.3	10	Sub'l Inc	52.5	0.0	8	-8.0	
Dwelling Units		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		4	0.0	0.0	0.0								
All Impacted		1	0.0	0.0	0.0								
All that meet NR Goal		0	0.0	0.0	0.0								

INPUT: ROADWAYS
The Farm

Dudek											
CB											
INPUT: ROADWAYS								Average pavement type shall be used unless			
PROJECT/CONTRACT:				The Farm				a State highway agency substantiates the use			
RUN:				Existing				of a different type with the approval of FHWA			
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
West Espola W7	25.0	point1	1	1,271.9	885.2	0.00				Average	
		point2	2	2,478.0	878.0	0.00					
East Espola W7	25.0	point3	3	1,280.9	858.1	0.00				Average	
		point4	4	2,474.4	858.1	0.00					
West Espola E7	25.0	point5	5	2,528.5	878.0	0.00				Average	
		point6	6	3,716.5	870.8	0.00				Average	
		point7	7	4,221.3	865.1	0.00					
East Espola E10	25.0	point16	16	7,502.8	683.3	0.00				Average	
		point17	17	7,008.8	744.6	0.00				Average	
		point18	18	6,756.4	773.4	0.00				Average	
		point19	19	6,487.8	807.6	0.00				Average	
		point20	20	5,563.4	826.3	0.00				Average	
		point21	21	4,939.7	842.5	0.00					
West Espola Rd E11	30.0	point23	23	7,568.0	693.5	0.00				Average	
		point24	24	8,069.2	634.1	0.00				Average	
		point25	25	8,274.7	605.2	0.00				Average	
		point26	26	8,545.2	484.4	0.00				Average	
		point27	27	8,748.9	322.1	0.00				Average	
		point28	28	8,947.2	46.3	0.00					
East Espola Rd E11	30.0	point29	29	8,897.8	43.3	0.00				Average	
		point30	30	8,739.1	286.6	0.00				Average	
		point31	31	8,627.4	391.2	0.00				Average	
		point32	32	8,338.9	549.9	0.00				Average	
		point33	33	8,077.5	607.5	0.00				Average	
		point34	34	7,576.3	658.0	0.00					

INPUT: ROADWAYS
The Farm

Cloudcroft Dr N10	40.0	point35	35	4,949.1	887.8	0.00				Average	
		point36	36	4,949.1	1,875.6	0.00				Average	
		point37	37	4,944.7	2,055.4	0.00				Average	
		point38	38	4,958.0	2,146.5	0.00				Average	
		point39	39	5,022.4	2,233.0	0.00					
CloudCroft Dr N25	40.0	point40	40	5,051.2	2,253.0	0.00				Average	
		point41	41	5,137.8	2,295.2	0.00				Average	
		point42	42	5,197.7	2,312.9	0.00				Average	
		point43	43	6,201.1	2,293.0	0.00				Average	
		point44	44	6,250.0	2,295.2	0.00				Average	
		point45	45	6,245.5	2,506.1	0.00				Average	
		point46	46	6,238.9	2,721.4	0.00				Average	
		point47	47	6,181.2	2,938.9	0.00				Average	
		point48	48	6,056.8	3,087.7	0.00				Average	
		point49	49	5,894.8	3,196.5	0.00				Average	
		point50	50	5,726.1	3,271.9	0.00				Average	
		point51	51	5,424.2	3,287.5	0.00				Average	
		point52	52	5,180.0	3,316.3	0.00				Average	
		point53	53	5,111.2	3,371.8	0.00					
Tam O Shanter N24	40.0	point54	54	5,093.4	3,380.7	0.00				Average	
		point55	55	5,013.5	3,525.0	0.00				Average	
		point56	56	4,995.7	3,558.3	0.00				Average	
		point57	57	4,953.6	3,818.0	0.00				Average	
		point58	58	4,933.6	4,008.9	0.00				Average	
		point59	59	4,935.8	4,142.1	0.00				Average	
		point60	60	4,962.4	4,337.5	0.00				Average	
		point61	61	4,995.7	4,523.9	0.00				Average	
		point62	62	5,042.4	4,617.2	0.00				Average	
		point63	63	5,075.7	4,674.9	0.00				Average	
		point64	64	5,162.2	4,732.6	0.00				Average	
		point65	65	5,262.1	4,748.1	0.00				Average	
		point66	66	6,012.4	4,743.7	0.00				Average	
		point67	67	6,687.3	4,748.1	0.00				Average	
		point68	68	6,760.5	4,757.0	0.00				Average	
		point69	69	6,913.7	5,098.9	0.00					
St Andrews Dr	40.0	point70	70	6,922.6	5,132.2	0.00				Average	
		point72	72	7,026.9	5,416.3	0.00				Average	
		point73	73	7,035.8	5,496.2	0.00				Average	
		point74	74	6,971.4	5,689.4	0.00				Average	

INPUT: ROADWAYS
The Farm

		point75	75	6,878.2	5,778.1	0.00				Average	
		point76	76	6,753.9	5,842.5	0.00				Average	
		point77	77	6,536.3	5,849.2	0.00				Average	
		point78	78	4,891.4	5,824.8	0.00				Average	
		point79	79	4,682.7	5,793.7	0.00				Average	
		point80	80	4,471.9	5,691.6	0.00				Average	
		point81	81	4,318.7	5,556.2	0.00				Average	
		point82	82	4,178.8	5,387.5	0.00				Average	
		point83	83	4,138.9	5,325.3	0.00				Average	
		point84	84	4,078.9	5,163.3	0.00				Average	
		point85	85	4,050.1	5,036.7	0.00				Average	
		point86	86	4,041.2	4,273.1	0.00				Average	
		point87	87	4,014.6	3,542.7	0.00				Average	
		point88	88	4,012.3	2,583.8	0.00				Average	
		point89	89	4,007.9	2,328.5	0.00				Average	
		point90	90	4,005.7	2,146.5	0.00				Average	
		point91	91	3,992.4	2,051.0	0.00				Average	
		point92	92	3,916.9	1,911.2	0.00				Average	
		point93	93	3,834.7	1,824.6	0.00				Average	
		point94	94	3,739.3	1,766.9	0.00				Average	
		point95	95	3,248.7	1,524.9	0.00				Average	
		point96	96	3,084.4	1,462.7	0.00				Average	
		point97	97	3,033.4	1,458.3	0.00				Average	
		point71	71	2,551.7	1,449.4	0.00					
Valley Verde Rd S8	50.0	point98	98	2,503.3	907.8	0.00				Average	
		point99	99	2,505.5	1,009.9	0.00				Average	
		point100	100	2,518.8	1,125.3	0.00				Average	
		point101	101	2,518.8	1,229.7	0.00				Average	
		point102	102	2,521.0	1,447.2	0.00					
West Espola E10-2	25.0	point103	103	4,949.3	861.1	0.00				Average	
		point9	9	5,541.0	850.9	0.00				Average	
		point10	10	5,957.4	841.9	0.00				Average	
		point11	11	6,489.2	825.7	0.00				Average	
		point12	12	6,871.5	780.6	0.00				Average	
		point13	13	7,105.8	748.2	0.00				Average	
		point14	14	7,484.4	704.9	0.00				Average	
		point15	15	7,515.1	701.3	0.00					
East Espola E9	25.0	point104	104	4,939.7	842.5	0.00				Average	
		point105	105	4,217.4	848.5	0.00					

INPUT: ROADWAYS**The Farm**

West Espola E9	25.0	point106	106	4,221.3	865.1	0.00				Average	
		point8	8	4,949.3	861.1	0.00					
East Espola E7	25.0	point107	107	4,217.4	848.5	0.00				Average	
		point22	22	2,534.3	854.5	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

Dudek												
CB												
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	The Farm											
RUN:	Existing											
Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
West Espola W7	point1	1	1019	35	21	35	11	35	0	0	0	0
	point2	2										
East Espola W7	point3	3	1019	35	21	35	11	35	0	0	0	0
	point4	4										
West Espola E7	point5	5	773	35	16	35	8	35	0	0	0	0
	point6	6	773	35	16	35	8	35	0	0	0	0
	point7	7										
East Espola E10	point16	16	702	35	14	35	7	35	0	0	0	0
	point17	17	702	35	14	35	7	35	0	0	0	0
	point18	18	702	35	14	35	7	35	0	0	0	0
	point19	19	702	35	14	35	7	35	0	0	0	0
	point20	20	702	35	14	35	7	35	0	0	0	0
	point21	21										
West Espola Rd E11	point23	23	594	35	12	35	6	35	0	0	0	0
	point24	24	594	35	12	35	6	35	0	0	0	0
	point25	25	594	35	12	35	6	35	0	0	0	0
	point26	26	594	35	12	35	6	35	0	0	0	0
	point27	27	594	35	12	35	6	35	0	0	0	0
	point28	28										
East Espola Rd E11	point29	29	594	35	12	35	6	35	0	0	0	0
	point30	30	594	35	12	35	6	35	0	0	0	0
	point31	31	594	35	12	35	6	35	0	0	0	0
	point32	32	594	35	12	35	6	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point33	33	594	35	12	35	6	35	0	0	0	0
	point34	34										
Cloudcroft Dr N10	point35	35	132	25	3	25	1	25	0	0	0	0
	point36	36	132	25	3	25	1	25	0	0	0	0
	point37	37	132	25	3	25	1	25	0	0	0	0
	point38	38	132	25	3	25	1	25	0	0	0	0
	point39	39										
CloudCroft Dr N25	point40	40	43	25	1	25	0	0	0	0	0	0
	point41	41	43	25	1	25	0	0	0	0	0	0
	point42	42	43	25	1	25	0	0	0	0	0	0
	point43	43	43	25	1	25	0	0	0	0	0	0
	point44	44	43	25	1	25	0	0	0	0	0	0
	point45	45	43	25	1	25	0	0	0	0	0	0
	point46	46	43	25	1	25	0	0	0	0	0	0
	point47	47	43	25	1	25	0	0	0	0	0	0
	point48	48	43	25	1	25	0	0	0	0	0	0
	point49	49	43	25	1	25	0	0	0	0	0	0
	point50	50	43	25	1	25	0	0	0	0	0	0
	point51	51	43	25	1	25	0	0	0	0	0	0
	point52	52	43	25	1	25	0	0	0	0	0	0
	point53	53										
Tam O Shanter N24	point54	54	149	25	3	25	2	25	0	0	0	0
	point55	55	149	25	3	25	2	25	0	0	0	0
	point56	56	149	25	3	25	2	25	0	0	0	0
	point57	57	149	25	3	25	2	25	0	0	0	0
	point58	58	149	25	3	25	2	25	0	0	0	0
	point59	59	149	25	3	25	2	25	0	0	0	0
	point60	60	149	25	3	25	2	25	0	0	0	0
	point61	61	149	25	3	25	2	25	0	0	0	0
	point62	62	149	25	3	25	2	25	0	0	0	0
	point63	63	149	25	3	25	2	25	0	0	0	0
	point64	64	149	25	3	25	2	25	0	0	0	0
	point65	65	149	25	3	25	2	25	0	0	0	0
	point66	66	149	25	3	25	2	25	0	0	0	0
	point67	67	149	25	3	25	2	25	0	0	0	0
	point68	68	149	25	3	25	2	25	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point69	69										
St Andrews Dr	point70	70	149	25	3	25	2	25	0	0	0	0
	point72	72	149	25	3	25	2	25	0	0	0	0
	point73	73	149	25	3	25	2	25	0	0	0	0
	point74	74	149	25	3	25	2	25	0	0	0	0
	point75	75	149	25	3	25	2	25	0	0	0	0
	point76	76	149	25	3	25	2	25	0	0	0	0
	point77	77	149	25	3	25	2	25	0	0	0	0
	point78	78	149	25	3	25	2	25	0	0	0	0
	point79	79	149	25	3	25	2	25	0	0	0	0
	point80	80	149	25	3	25	2	25	0	0	0	0
	point81	81	149	25	3	25	2	25	0	0	0	0
	point82	82	149	25	3	25	2	25	0	0	0	0
	point83	83	149	25	3	25	2	25	0	0	0	0
	point84	84	149	25	3	25	2	25	0	0	0	0
	point85	85	149	25	3	25	2	25	0	0	0	0
	point86	86	149	25	3	25	2	25	0	0	0	0
	point87	87	149	25	3	25	2	25	0	0	0	0
	point88	88	149	25	3	25	2	25	0	0	0	0
	point89	89	149	25	3	25	2	25	0	0	0	0
	point90	90	149	25	3	25	2	25	0	0	0	0
	point91	91	149	25	3	25	2	25	0	0	0	0
	point92	92	149	25	3	25	2	25	0	0	0	0
	point93	93	149	25	3	25	2	25	0	0	0	0
	point94	94	149	25	3	25	2	25	0	0	0	0
	point95	95	149	25	3	25	2	25	0	0	0	0
	point96	96	149	25	3	25	2	25	0	0	0	0
	point97	97	149	25	3	25	2	25	0	0	0	0
	point71	71										
Valley Verde Rd S8	point98	98	611	35	13	35	6	35	0	0	0	0
	point99	99	611	35	13	35	6	35	0	0	0	0
	point100	100	611	35	13	35	6	35	0	0	0	0
	point101	101	611	35	13	35	6	35	0	0	0	0
	point102	102										
West Espola E10-2	point103	103	702	35	14	35	7	35	0	0	0	0
	point9	9	702	35	14	35	7	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point10	10	702	35	14	35	7	35	0	0	0	0
	point11	11	702	35	14	35	7	35	0	0	0	0
	point12	12	702	35	14	35	7	35	0	0	0	0
	point13	13	702	35	14	35	7	35	0	0	0	0
	point14	14	702	35	14	35	7	35	0	0	0	0
	point15	15										
East Espola E9	point104	104	704	35	15	35	7	35	0	0	0	0
	point105	105										
West Espola E9	point106	106	704	35	15	35	7	35	0	0	0	0
	point8	8										
East Espola E7	point107	107	773	35	16	35	8	35	0	0	0	0
	point22	22										

INPUT: RECEIVERS
The Farm

Dudek												
CB												
INPUT: RECEIVERS												
PROJECT/CONTRACT:	The Farm											
RUN:	Existing											
Receiver												
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active	
			X	Y	Z	above	Existing	Impact Criteria		NR	in	
						Ground	LAeq1h	LAeq1h	Sub'l	Goal	Calc.	
			ft	ft	ft	ft	dBA	dBA	dB	dB		
ST1	1	1	4,228.2	801.6	0.00	4.92	64.00	66	10.0	8.0	Y	
ST4	2	1	5,679.8	2,346.1	0.00	4.92	52.50	66	10.0	8.0	Y	
ST2	3	1	4,384.1	3,690.0	0.00	4.92	43.10	66	10.0	8.0	Y	
ST3	4	1	6,696.9	5,901.7	0.00	4.92	42.20	66	10.0	8.0	Y	

RESULTS: SOUND LEVELS
The Farm

Dudek													
CB													
RESULTS: SOUND LEVELS													
PROJECT/CONTRACT:													
RUN:													
BARRIER DESIGN:													
ATMOSPHERICS:													
Receiver													
Name	No.	#DUs	Existing	No Barrier						With Barrier			
			LAeq1h	LAeq1h			Increase over existing	Type	Calculated	Noise Reduction			
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated	
							Sub'l Inc					minus	
												Goal	
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
ST1	1	1	64.0	65.9	66	1.9	10	----	65.9	0.0	8	-8.0	
ST4	2	1	52.5	48.0	66	-4.5	10	----	48.0	0.0	8	-8.0	
ST2	3	1	43.1	41.1	66	-2.0	10	----	41.1	0.0	8	-8.0	
ST3	4	1	42.2	52.6	66	10.4	10	Sub'l Inc	52.6	0.0	8	-8.0	
Dwelling Units		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		4	0.0	0.0	0.0								
All Impacted		1	0.0	0.0	0.0								
All that meet NR Goal		0	0.0	0.0	0.0								

INPUT: ROADWAYS
The Farm

Dudek											
CB											
INPUT: ROADWAYS								Average pavement type shall be used unless			
PROJECT/CONTRACT:				The Farm				a State highway agency substantiates the use			
RUN:				Near Opening Day				of a different type with the approval of FHWA			
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
West Espola W7	25.0	point1	1	1,271.9	885.2	0.00				Average	
		point2	2	2,478.0	878.0	0.00					
East Espola W7	25.0	point3	3	1,280.9	858.1	0.00				Average	
		point4	4	2,474.4	858.1	0.00					
West Espola E7	25.0	point5	5	2,528.5	878.0	0.00				Average	
		point6	6	3,716.5	870.8	0.00				Average	
		point7	7	4,221.3	865.1	0.00					
East Espola E10	25.0	point16	16	7,502.8	683.3	0.00				Average	
		point17	17	7,008.8	744.6	0.00				Average	
		point18	18	6,756.4	773.4	0.00				Average	
		point19	19	6,487.8	807.6	0.00				Average	
		point20	20	5,563.4	826.3	0.00				Average	
		point21	21	4,939.7	842.5	0.00					
West Espola Rd E11	30.0	point23	23	7,568.0	693.5	0.00				Average	
		point24	24	8,069.2	634.1	0.00				Average	
		point25	25	8,274.7	605.2	0.00				Average	
		point26	26	8,545.2	484.4	0.00				Average	
		point27	27	8,748.9	322.1	0.00				Average	
		point28	28	8,947.2	46.3	0.00					
East Espola Rd E11	30.0	point29	29	8,897.8	43.3	0.00				Average	
		point30	30	8,739.1	286.6	0.00				Average	
		point31	31	8,627.4	391.2	0.00				Average	
		point32	32	8,338.9	549.9	0.00				Average	
		point33	33	8,077.5	607.5	0.00				Average	
		point34	34	7,576.3	658.0	0.00					

INPUT: ROADWAYS
The Farm

Cloudcroft Dr N10	40.0	point35	35	4,949.1	887.8	0.00				Average	
		point36	36	4,949.1	1,875.6	0.00				Average	
		point37	37	4,944.7	2,055.4	0.00				Average	
		point38	38	4,958.0	2,146.5	0.00				Average	
		point39	39	5,022.4	2,233.0	0.00					
CloudCroft Dr N25	40.0	point40	40	5,051.2	2,253.0	0.00				Average	
		point41	41	5,137.8	2,295.2	0.00				Average	
		point42	42	5,197.7	2,312.9	0.00				Average	
		point43	43	6,201.1	2,293.0	0.00				Average	
		point44	44	6,250.0	2,295.2	0.00				Average	
		point45	45	6,245.5	2,506.1	0.00				Average	
		point46	46	6,238.9	2,721.4	0.00				Average	
		point47	47	6,181.2	2,938.9	0.00				Average	
		point48	48	6,056.8	3,087.7	0.00				Average	
		point49	49	5,894.8	3,196.5	0.00				Average	
		point50	50	5,726.1	3,271.9	0.00				Average	
		point51	51	5,424.2	3,287.5	0.00				Average	
		point52	52	5,180.0	3,316.3	0.00				Average	
		point53	53	5,111.2	3,371.8	0.00					
Tam O Shanter N24	40.0	point54	54	5,093.4	3,380.7	0.00				Average	
		point55	55	5,013.5	3,525.0	0.00				Average	
		point56	56	4,995.7	3,558.3	0.00				Average	
		point57	57	4,953.6	3,818.0	0.00				Average	
		point58	58	4,933.6	4,008.9	0.00				Average	
		point59	59	4,935.8	4,142.1	0.00				Average	
		point60	60	4,962.4	4,337.5	0.00				Average	
		point61	61	4,995.7	4,523.9	0.00				Average	
		point62	62	5,042.4	4,617.2	0.00				Average	
		point63	63	5,075.7	4,674.9	0.00				Average	
		point64	64	5,162.2	4,732.6	0.00				Average	
		point65	65	5,262.1	4,748.1	0.00				Average	
		point66	66	6,012.4	4,743.7	0.00				Average	
		point67	67	6,687.3	4,748.1	0.00				Average	
		point68	68	6,760.5	4,757.0	0.00				Average	
		point69	69	6,913.7	5,098.9	0.00					
St Andrews Dr	40.0	point70	70	6,922.6	5,132.2	0.00				Average	
		point72	72	7,026.9	5,416.3	0.00				Average	
		point73	73	7,035.8	5,496.2	0.00				Average	
		point74	74	6,971.4	5,689.4	0.00				Average	

INPUT: ROADWAYS
The Farm

		point75	75	6,878.2	5,778.1	0.00				Average	
		point76	76	6,753.9	5,842.5	0.00				Average	
		point77	77	6,536.3	5,849.2	0.00				Average	
		point78	78	4,891.4	5,824.8	0.00				Average	
		point79	79	4,682.7	5,793.7	0.00				Average	
		point80	80	4,471.9	5,691.6	0.00				Average	
		point81	81	4,318.7	5,556.2	0.00				Average	
		point82	82	4,178.8	5,387.5	0.00				Average	
		point83	83	4,138.9	5,325.3	0.00				Average	
		point84	84	4,078.9	5,163.3	0.00				Average	
		point85	85	4,050.1	5,036.7	0.00				Average	
		point86	86	4,041.2	4,273.1	0.00				Average	
		point87	87	4,014.6	3,542.7	0.00				Average	
		point88	88	4,012.3	2,583.8	0.00				Average	
		point89	89	4,007.9	2,328.5	0.00				Average	
		point90	90	4,005.7	2,146.5	0.00				Average	
		point91	91	3,992.4	2,051.0	0.00				Average	
		point92	92	3,916.9	1,911.2	0.00				Average	
		point93	93	3,834.7	1,824.6	0.00				Average	
		point94	94	3,739.3	1,766.9	0.00				Average	
		point95	95	3,248.7	1,524.9	0.00				Average	
		point96	96	3,084.4	1,462.7	0.00				Average	
		point97	97	3,033.4	1,458.3	0.00				Average	
		point71	71	2,551.7	1,449.4	0.00					
Valley Verde Rd S8	50.0	point98	98	2,503.3	907.8	0.00				Average	
		point99	99	2,505.5	1,009.9	0.00				Average	
		point100	100	2,518.8	1,125.3	0.00				Average	
		point101	101	2,518.8	1,229.7	0.00				Average	
		point102	102	2,521.0	1,447.2	0.00					
West Espola E10-2	25.0	point103	103	4,949.3	861.1	0.00				Average	
		point9	9	5,541.0	850.9	0.00				Average	
		point10	10	5,957.4	841.9	0.00				Average	
		point11	11	6,489.2	825.7	0.00				Average	
		point12	12	6,871.5	780.6	0.00				Average	
		point13	13	7,105.8	748.2	0.00				Average	
		point14	14	7,484.4	704.9	0.00				Average	
		point15	15	7,515.1	701.3	0.00					
East Espola E9	25.0	point104	104	4,939.7	842.5	0.00				Average	
		point105	105	4,217.4	848.5	0.00					

INPUT: ROADWAYS

The Farm

West Espola E9	25.0	point106	106	4,221.3	865.1	0.00				Average	
		point8	8	4,949.3	861.1	0.00					
East Espola E7	25.0	point107	107	4,217.4	848.5	0.00				Average	
		point22	22	2,534.3	854.5	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

Dudek					18 June 2019							
CB					TNM 2.5							
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	The Farm											
RUN:	Near Opening Day											
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos									
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
West Espola W7	point1	1	1055	35	22	35	11	35	0	0	0	0
	point2	2										
East Espola W7	point3	3	1055	35	22	35	11	35	0	0	0	0
	point4	4										
West Espola E7	point5	5	800	35	17	35	8	35	0	0	0	0
	point6	6	800	35	17	35	8	35	0	0	0	0
	point7	7										
East Espola E10	point16	16	727	35	15	35	7	35	0	0	0	0
	point17	17	727	35	15	35	7	35	0	0	0	0
	point18	18	727	35	15	35	7	35	0	0	0	0
	point19	19	727	35	15	35	7	35	0	0	0	0
	point20	20	727	35	15	35	7	35	0	0	0	0
	point21	21										
West Espola Rd E11	point23	23	615	35	13	35	6	35	0	0	0	0
	point24	24	615	35	13	35	6	35	0	0	0	0
	point25	25	615	35	13	35	6	35	0	0	0	0
	point26	26	615	35	13	35	6	35	0	0	0	0
	point27	27	615	35	13	35	6	35	0	0	0	0
	point28	28										
East Espola Rd E11	point29	29	615	35	13	35	6	35	0	0	0	0
	point30	30	615	35	13	35	6	35	0	0	0	0
	point31	31	615	35	13	35	6	35	0	0	0	0
	point32	32	615	35	13	35	6	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point33	33	615	35	13	35	6	35	0	0	0	0
	point34	34										
Cloudcroft Dr N10	point35	35	138	25	3	25	1	25	0	0	0	0
	point36	36	138	25	3	25	1	25	0	0	0	0
	point37	37	138	25	3	25	1	25	0	0	0	0
	point38	38	138	25	3	25	1	25	0	0	0	0
	point39	39										
CloudCroft Dr N25	point40	40	45	25	1	25	0	0	0	0	0	0
	point41	41	45	25	1	25	0	0	0	0	0	0
	point42	42	45	25	1	25	0	0	0	0	0	0
	point43	43	45	25	1	25	0	0	0	0	0	0
	point44	44	45	25	1	25	0	0	0	0	0	0
	point45	45	45	25	1	25	0	0	0	0	0	0
	point46	46	45	25	1	25	0	0	0	0	0	0
	point47	47	45	25	1	25	0	0	0	0	0	0
	point48	48	45	25	1	25	0	0	0	0	0	0
	point49	49	45	25	1	25	0	0	0	0	0	0
	point50	50	45	25	1	25	0	0	0	0	0	0
	point51	51	45	25	1	25	0	0	0	0	0	0
	point52	52	45	25	1	25	0	0	0	0	0	0
	point53	53										
Tam O Shanter N24	point54	54	154	25	3	25	2	25	0	0	0	0
	point55	55	154	25	3	25	2	25	0	0	0	0
	point56	56	154	25	3	25	2	25	0	0	0	0
	point57	57	154	25	3	25	2	25	0	0	0	0
	point58	58	154	25	3	25	2	25	0	0	0	0
	point59	59	154	25	3	25	2	25	0	0	0	0
	point60	60	154	25	3	25	2	25	0	0	0	0
	point61	61	154	25	3	25	2	25	0	0	0	0
	point62	62	154	25	3	25	2	25	0	0	0	0
	point63	63	154	25	3	25	2	25	0	0	0	0
	point64	64	154	25	3	25	2	25	0	0	0	0
	point65	65	154	25	3	25	2	25	0	0	0	0
	point66	66	154	25	3	25	2	25	0	0	0	0
	point67	67	154	25	3	25	2	25	0	0	0	0
	point68	68	154	25	3	25	2	25	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point69	69										
St Andrews Dr	point70	70	154	25	3	25	2	25	0	0	0	0
	point72	72	154	25	3	25	2	25	0	0	0	0
	point73	73	154	25	3	25	2	25	0	0	0	0
	point74	74	154	25	3	25	2	25	0	0	0	0
	point75	75	154	25	3	25	2	25	0	0	0	0
	point76	76	154	25	3	25	2	25	0	0	0	0
	point77	77	154	25	3	25	2	25	0	0	0	0
	point78	78	154	25	3	25	2	25	0	0	0	0
	point79	79	154	25	3	25	2	25	0	0	0	0
	point80	80	154	25	3	25	2	25	0	0	0	0
	point81	81	154	25	3	25	2	25	0	0	0	0
	point82	82	154	25	3	25	2	25	0	0	0	0
	point83	83	154	25	3	25	2	25	0	0	0	0
	point84	84	154	25	3	25	2	25	0	0	0	0
	point85	85	154	25	3	25	2	25	0	0	0	0
	point86	86	154	25	3	25	2	25	0	0	0	0
	point87	87	154	25	3	25	2	25	0	0	0	0
	point88	88	154	25	3	25	2	25	0	0	0	0
	point89	89	154	25	3	25	2	25	0	0	0	0
	point90	90	154	25	3	25	2	25	0	0	0	0
	point91	91	154	25	3	25	2	25	0	0	0	0
	point92	92	154	25	3	25	2	25	0	0	0	0
	point93	93	154	25	3	25	2	25	0	0	0	0
	point94	94	154	25	3	25	2	25	0	0	0	0
	point95	95	154	25	3	25	2	25	0	0	0	0
	point96	96	154	25	3	25	2	25	0	0	0	0
	point97	97	154	25	3	25	2	25	0	0	0	0
	point71	71										
Valley Verde Rd S8	point98	98	633	35	13	35	7	35	0	0	0	0
	point99	99	633	35	13	35	7	35	0	0	0	0
	point100	100	633	35	13	35	7	35	0	0	0	0
	point101	101	633	35	13	35	7	35	0	0	0	0
	point102	102										
West Espola E10-2	point103	103	727	35	15	35	7	35	0	0	0	0
	point9	9	727	35	15	35	7	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point10	10	727	35	15	35	7	35	0	0	0	0
	point11	11	727	35	15	35	7	35	0	0	0	0
	point12	12	727	35	15	35	7	35	0	0	0	0
	point13	13	727	35	15	35	7	35	0	0	0	0
	point14	14	727	35	15	35	7	35	0	0	0	0
	point15	15										
East Espola E9	point104	104	729	35	15	35	8	35	0	0	0	0
	point105	105										
West Espola E9	point106	106	729	35	15	35	8	35	0	0	0	0
	point8	8										
East Espola E7	point107	107	800	35	17	35	8	35	0	0	0	0
	point22	22										

INPUT: RECEIVERS
The Farm

Dudek							18 June 2019				
CB							TNM 2.5				
INPUT: RECEIVERS											
PROJECT/CONTRACT:	The Farm										
RUN:	Near Opening Day										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	1	1	4,228.2	801.6	0.00	4.92	64.00	66	10.0	8.0	Y
ST4	2	1	5,679.8	2,346.1	0.00	4.92	52.50	66	10.0	8.0	Y
ST2	3	1	4,384.1	3,690.0	0.00	4.92	43.10	66	10.0	8.0	Y
ST3	4	1	6,696.9	5,901.7	0.00	4.92	42.20	66	10.0	8.0	Y

RESULTS: SOUND LEVELS
The Farm

Dudek													
CB													
RESULTS: SOUND LEVELS													
PROJECT/CONTRACT:													
RUN:													
BARRIER DESIGN:													
ATMOSPHERICS:													
Receiver													
Name	No.	#DUs	Existing	No Barrier						With Barrier			
			LAeq1h	LAeq1h			Increase over existing	Type	Calculated	Noise Reduction			
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated	
							Sub'l Inc					minus	
												Goal	
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
ST1	1	1	64.0	66.2	66	2.2	10	Snd Lvl	66.2	0.0	8	-8.0	
ST4	2	1	52.5	50.1	66	-2.4	10	----	50.1	0.0	8	-8.0	
ST2	3	1	43.1	44.1	66	1.0	10	----	44.1	0.0	8	-8.0	
ST3	4	1	42.2	52.7	66	10.5	10	Sub'l Inc	52.7	0.0	8	-8.0	
Dwelling Units		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		4	0.0	0.0	0.0								
All Impacted		2	0.0	0.0	0.0								
All that meet NR Goal		0	0.0	0.0	0.0								

INPUT: ROADWAYS
The Farm

Dudek											
CB											
INPUT: ROADWAYS								Average pavement type shall be used unless			
PROJECT/CONTRACT:				The Farm				a State highway agency substantiates the use			
RUN:				Near Opening Day + Project				of a different type with the approval of FHWA			
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
West Espola W7	25.0	point1	1	1,271.9	885.2	0.00				Average	
		point2	2	2,478.0	878.0	0.00					
East Espola W7	25.0	point3	3	1,280.9	858.1	0.00				Average	
		point4	4	2,474.4	858.1	0.00					
West Espola E7	25.0	point5	5	2,528.5	878.0	0.00				Average	
		point6	6	3,716.5	870.8	0.00				Average	
		point7	7	4,221.3	865.1	0.00					
East Espola E10	25.0	point16	16	7,502.8	683.3	0.00				Average	
		point17	17	7,008.8	744.6	0.00				Average	
		point18	18	6,756.4	773.4	0.00				Average	
		point19	19	6,487.8	807.6	0.00				Average	
		point20	20	5,563.4	826.3	0.00				Average	
		point21	21	4,939.7	842.5	0.00					
West Espola Rd E11	30.0	point23	23	7,568.0	693.5	0.00				Average	
		point24	24	8,069.2	634.1	0.00				Average	
		point25	25	8,274.7	605.2	0.00				Average	
		point26	26	8,545.2	484.4	0.00				Average	
		point27	27	8,748.9	322.1	0.00				Average	
		point28	28	8,947.2	46.3	0.00					
East Espola Rd E11	30.0	point29	29	8,897.8	43.3	0.00				Average	
		point30	30	8,739.1	286.6	0.00				Average	
		point31	31	8,627.4	391.2	0.00				Average	
		point32	32	8,338.9	549.9	0.00				Average	
		point33	33	8,077.5	607.5	0.00				Average	
		point34	34	7,576.3	658.0	0.00					

INPUT: ROADWAYS
The Farm

Cloudcroft Dr N10	40.0	point35	35	4,949.1	887.8	0.00				Average	
		point36	36	4,949.1	1,875.6	0.00				Average	
		point37	37	4,944.7	2,055.4	0.00				Average	
		point38	38	4,958.0	2,146.5	0.00				Average	
		point39	39	5,022.4	2,233.0	0.00					
CloudCroft Dr N25	40.0	point40	40	5,051.2	2,253.0	0.00				Average	
		point41	41	5,137.8	2,295.2	0.00				Average	
		point42	42	5,197.7	2,312.9	0.00				Average	
		point43	43	6,201.1	2,293.0	0.00				Average	
		point44	44	6,250.0	2,295.2	0.00				Average	
		point45	45	6,245.5	2,506.1	0.00				Average	
		point46	46	6,238.9	2,721.4	0.00				Average	
		point47	47	6,181.2	2,938.9	0.00				Average	
		point48	48	6,056.8	3,087.7	0.00				Average	
		point49	49	5,894.8	3,196.5	0.00				Average	
		point50	50	5,726.1	3,271.9	0.00				Average	
		point51	51	5,424.2	3,287.5	0.00				Average	
		point52	52	5,180.0	3,316.3	0.00				Average	
		point53	53	5,111.2	3,371.8	0.00					
Tam O Shanter N24	40.0	point54	54	5,093.4	3,380.7	0.00				Average	
		point55	55	5,013.5	3,525.0	0.00				Average	
		point56	56	4,995.7	3,558.3	0.00				Average	
		point57	57	4,953.6	3,818.0	0.00				Average	
		point58	58	4,933.6	4,008.9	0.00				Average	
		point59	59	4,935.8	4,142.1	0.00				Average	
		point60	60	4,962.4	4,337.5	0.00				Average	
		point61	61	4,995.7	4,523.9	0.00				Average	
		point62	62	5,042.4	4,617.2	0.00				Average	
		point63	63	5,075.7	4,674.9	0.00				Average	
		point64	64	5,162.2	4,732.6	0.00				Average	
		point65	65	5,262.1	4,748.1	0.00				Average	
		point66	66	6,012.4	4,743.7	0.00				Average	
		point67	67	6,687.3	4,748.1	0.00				Average	
		point68	68	6,760.5	4,757.0	0.00				Average	
		point69	69	6,913.7	5,098.9	0.00					
St Andrews Dr	40.0	point70	70	6,922.6	5,132.2	0.00				Average	
		point72	72	7,026.9	5,416.3	0.00				Average	
		point73	73	7,035.8	5,496.2	0.00				Average	
		point74	74	6,971.4	5,689.4	0.00				Average	

INPUT: ROADWAYS
The Farm

		point75	75	6,878.2	5,778.1	0.00				Average	
		point76	76	6,753.9	5,842.5	0.00				Average	
		point77	77	6,536.3	5,849.2	0.00				Average	
		point78	78	4,891.4	5,824.8	0.00				Average	
		point79	79	4,682.7	5,793.7	0.00				Average	
		point80	80	4,471.9	5,691.6	0.00				Average	
		point81	81	4,318.7	5,556.2	0.00				Average	
		point82	82	4,178.8	5,387.5	0.00				Average	
		point83	83	4,138.9	5,325.3	0.00				Average	
		point84	84	4,078.9	5,163.3	0.00				Average	
		point85	85	4,050.1	5,036.7	0.00				Average	
		point86	86	4,041.2	4,273.1	0.00				Average	
		point87	87	4,014.6	3,542.7	0.00				Average	
		point88	88	4,012.3	2,583.8	0.00				Average	
		point89	89	4,007.9	2,328.5	0.00				Average	
		point90	90	4,005.7	2,146.5	0.00				Average	
		point91	91	3,992.4	2,051.0	0.00				Average	
		point92	92	3,916.9	1,911.2	0.00				Average	
		point93	93	3,834.7	1,824.6	0.00				Average	
		point94	94	3,739.3	1,766.9	0.00				Average	
		point95	95	3,248.7	1,524.9	0.00				Average	
		point96	96	3,084.4	1,462.7	0.00				Average	
		point97	97	3,033.4	1,458.3	0.00				Average	
		point71	71	2,551.7	1,449.4	0.00					
Valley Verde Rd S8	50.0	point98	98	2,503.3	907.8	0.00				Average	
		point99	99	2,505.5	1,009.9	0.00				Average	
		point100	100	2,518.8	1,125.3	0.00				Average	
		point101	101	2,518.8	1,229.7	0.00				Average	
		point102	102	2,521.0	1,447.2	0.00					
West Espola E10-2	25.0	point103	103	4,949.3	861.1	0.00				Average	
		point9	9	5,541.0	850.9	0.00				Average	
		point10	10	5,957.4	841.9	0.00				Average	
		point11	11	6,489.2	825.7	0.00				Average	
		point12	12	6,871.5	780.6	0.00				Average	
		point13	13	7,105.8	748.2	0.00				Average	
		point14	14	7,484.4	704.9	0.00				Average	
		point15	15	7,515.1	701.3	0.00					
East Espola E9	25.0	point104	104	4,939.7	842.5	0.00				Average	
		point105	105	4,217.4	848.5	0.00					

INPUT: ROADWAYS
The Farm

West Espola E9	25.0	point106	106	4,221.3	865.1	0.00				Average	
		point8	8	4,949.3	861.1	0.00					
East Espola E7	25.0	point107	107	4,217.4	848.5	0.00				Average	
		point22	22	2,534.3	854.5	0.00					
Road A	30.0	point108	108	4,148.8	960.2	0.00				Average	
		point109	109	4,163.7	1,391.9	0.00				Average	
		point110	110	4,170.4	1,438.4	0.00				Average	
		point111	111	4,358.0	1,639.3	0.00				Average	
		point112	112	4,446.0	1,733.9	0.00				Average	
		point113	113	4,467.6	2,595.6	0.00				Average	
		point114	114	4,479.2	2,652.1	0.00				Average	
		point115	115	4,542.3	2,738.4	0.00				Average	
		point116	116	4,628.6	2,821.5	0.00				Average	
		point117	117	4,847.8	3,042.3	0.00				Average	
		point118	118	4,905.9	3,131.9	0.00				Average	
		point119	119	4,915.9	3,331.2	0.00				Average	
		point120	120	5,010.5	3,455.7	0.00					
Road E	30.0	point121	121	4,889.3	3,342.8	0.00				Average	
		point122	122	4,685.1	3,417.5	0.00				Average	
		point123	123	4,617.0	3,457.3	0.00				Average	
		point124	124	4,573.9	3,540.4	0.00				Average	
		point125	125	4,578.8	3,621.7	0.00				Average	
		point126	126	4,588.8	3,742.9	0.00				Average	
		point127	127	4,582.2	3,829.3	0.00				Average	
		point128	128	4,540.6	3,952.1	0.00				Average	
		point129	129	4,530.7	4,020.2	0.00				Average	
		point130	130	4,567.2	4,199.5	0.00				Average	
		point131	131	4,632.0	4,344.0	0.00				Average	
		point132	132	4,658.5	4,475.2	0.00				Average	
		point133	133	4,691.7	4,734.2	0.00				Average	
		point134	134	4,748.2	4,820.5	0.00				Average	
		point135	135	4,891.0	4,920.1	0.00				Average	
		point136	136	5,017.2	4,941.7	0.00				Average	
		point137	137	5,561.8	4,955.0	0.00				Average	
		point138	138	5,736.1	5,013.1	0.00				Average	
		point139	139	5,820.8	5,049.6	0.00				Average	
		point140	140	6,406.9	5,048.0	0.00				Average	
		point141	141	6,773.8	4,968.3	0.00				Average	
		point142	142	6,813.7	4,956.7	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

Dudek												
CB												
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	The Farm											
RUN:	Near Opening Day + Project											
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos									
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
West Espola W7	point1	1	1141	35	24	35	12	35	0	0	0	0
	point2	2										
East Espola W7	point3	3	1141	35	24	35	12	35	0	0	0	0
	point4	4										
West Espola E7	point5	5	884	35	18	35	9	35	0	0	0	0
	point6	6	884	35	18	35	9	35	0	0	0	0
	point7	7										
East Espola E10	point16	16	758	35	16	35	8	35	0	0	0	0
	point17	17	758	35	16	35	8	35	0	0	0	0
	point18	18	758	35	16	35	8	35	0	0	0	0
	point19	19	758	35	16	35	8	35	0	0	0	0
	point20	20	758	35	16	35	8	35	0	0	0	0
	point21	21										
West Espola Rd E11	point23	23	647	35	13	35	7	35	0	0	0	0
	point24	24	647	35	13	35	7	35	0	0	0	0
	point25	25	647	35	13	35	7	35	0	0	0	0
	point26	26	647	35	13	35	7	35	0	0	0	0
	point27	27	647	35	13	35	7	35	0	0	0	0
	point28	28										
East Espola Rd E11	point29	29	647	35	13	35	7	35	0	0	0	0
	point30	30	647	35	13	35	7	35	0	0	0	0
	point31	31	647	35	13	35	7	35	0	0	0	0
	point32	32	647	35	13	35	7	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point33	33	647	35	13	35	7	35	0	0	0	0
	point34	34										
Cloudcroft Dr N10	point35	35	145	25	3	25	1	25	0	0	0	0
	point36	36	145	25	3	25	1	25	0	0	0	0
	point37	37	145	25	3	25	1	25	0	0	0	0
	point38	38	145	25	3	25	1	25	0	0	0	0
	point39	39										
CloudCroft Dr N25	point40	40	50	25	1	25	1	25	0	0	0	0
	point41	41	50	25	1	25	1	25	0	0	0	0
	point42	42	50	25	1	25	1	25	0	0	0	0
	point43	43	50	25	1	25	1	25	0	0	0	0
	point44	44	50	25	1	25	1	25	0	0	0	0
	point45	45	50	25	1	25	1	25	0	0	0	0
	point46	46	50	25	1	25	1	25	0	0	0	0
	point47	47	50	25	1	25	1	25	0	0	0	0
	point48	48	50	25	1	25	1	25	0	0	0	0
	point49	49	50	25	1	25	1	25	0	0	0	0
	point50	50	50	25	1	25	1	25	0	0	0	0
	point51	51	50	25	1	25	1	25	0	0	0	0
	point52	52	50	25	1	25	1	25	0	0	0	0
	point53	53										
Tam O Shanter N24	point54	54	157	25	3	25	2	25	0	0	0	0
	point55	55	157	25	3	25	2	25	0	0	0	0
	point56	56	157	25	3	25	2	25	0	0	0	0
	point57	57	157	25	3	25	2	25	0	0	0	0
	point58	58	157	25	3	25	2	25	0	0	0	0
	point59	59	157	25	3	25	2	25	0	0	0	0
	point60	60	157	25	3	25	2	25	0	0	0	0
	point61	61	157	25	3	25	2	25	0	0	0	0
	point62	62	157	25	3	25	2	25	0	0	0	0
	point63	63	157	25	3	25	2	25	0	0	0	0
	point64	64	157	25	3	25	2	25	0	0	0	0
	point65	65	157	25	3	25	2	25	0	0	0	0
	point66	66	157	25	3	25	2	25	0	0	0	0
	point67	67	157	25	3	25	2	25	0	0	0	0
	point68	68	157	25	3	25	2	25	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point69	69										
St Andrews Dr	point70	70	159	25	3	25	2	25	0	0	0	0
	point72	72	159	25	3	25	2	25	0	0	0	0
	point73	73	159	25	3	25	2	25	0	0	0	0
	point74	74	159	25	3	25	2	25	0	0	0	0
	point75	75	159	25	3	25	2	25	0	0	0	0
	point76	76	159	25	3	25	2	25	0	0	0	0
	point77	77	159	25	3	25	2	25	0	0	0	0
	point78	78	159	25	3	25	2	25	0	0	0	0
	point79	79	159	25	3	25	2	25	0	0	0	0
	point80	80	159	25	3	25	2	25	0	0	0	0
	point81	81	159	25	3	25	2	25	0	0	0	0
	point82	82	159	25	3	25	2	25	0	0	0	0
	point83	83	159	25	3	25	2	25	0	0	0	0
	point84	84	159	25	3	25	2	25	0	0	0	0
	point85	85	159	25	3	25	2	25	0	0	0	0
	point86	86	159	25	3	25	2	25	0	0	0	0
	point87	87	159	25	3	25	2	25	0	0	0	0
	point88	88	159	25	3	25	2	25	0	0	0	0
	point89	89	159	25	3	25	2	25	0	0	0	0
	point90	90	159	25	3	25	2	25	0	0	0	0
	point91	91	159	25	3	25	2	25	0	0	0	0
	point92	92	159	25	3	25	2	25	0	0	0	0
	point93	93	159	25	3	25	2	25	0	0	0	0
	point94	94	159	25	3	25	2	25	0	0	0	0
	point95	95	159	25	3	25	2	25	0	0	0	0
	point96	96	159	25	3	25	2	25	0	0	0	0
	point97	97	159	25	3	25	2	25	0	0	0	0
	point71	71										
Valley Verde Rd S8	point98	98	638	35	13	35	7	35	0	0	0	0
	point99	99	638	35	13	35	7	35	0	0	0	0
	point100	100	638	35	13	35	7	35	0	0	0	0
	point101	101	638	35	13	35	7	35	0	0	0	0
	point102	102										
West Espola E10-2	point103	103	758	35	16	35	8	35	0	0	0	0
	point9	9	758	35	16	35	8	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point10	10	758	35	16	35	8	35	0	0	0	0
	point11	11	758	35	16	35	8	35	0	0	0	0
	point12	12	758	35	16	35	8	35	0	0	0	0
	point13	13	758	35	16	35	8	35	0	0	0	0
	point14	14	758	35	16	35	8	35	0	0	0	0
	point15	15										
East Espola E9	point104	104	757	35	16	35	8	35	0	0	0	0
	point105	105										
West Espola E9	point106	106	757	35	16	35	8	35	0	0	0	0
	point8	8										
East Espola E7	point107	107	884	35	18	35	9	35	0	0	0	0
	point22	22										
Road A	point108	108	233	25	5	25	2	25	0	0	0	0
	point109	109	233	25	5	25	2	25	0	0	0	0
	point110	110	233	25	5	25	2	25	0	0	0	0
	point111	111	233	25	5	25	2	25	0	0	0	0
	point112	112	233	25	5	25	2	25	0	0	0	0
	point113	113	233	25	5	25	2	25	0	0	0	0
	point114	114	233	25	5	25	2	25	0	0	0	0
	point115	115	233	25	5	25	2	25	0	0	0	0
	point116	116	233	25	5	25	2	25	0	0	0	0
	point117	117	233	25	5	25	2	25	0	0	0	0
	point118	118	233	25	5	25	2	25	0	0	0	0
	point119	119	233	25	5	25	2	25	0	0	0	0
	point120	120										
Road E	point121	121	49	25	1	25	1	25	0	0	0	0
	point122	122	49	25	1	25	1	25	0	0	0	0
	point123	123	49	25	1	25	1	25	0	0	0	0
	point124	124	49	25	1	25	1	25	0	0	0	0
	point125	125	49	25	1	25	1	25	0	0	0	0
	point126	126	49	25	1	25	1	25	0	0	0	0
	point127	127	49	25	1	25	1	25	0	0	0	0
	point128	128	49	25	1	25	1	25	0	0	0	0
	point129	129	49	25	1	25	1	25	0	0	0	0
	point130	130	49	25	1	25	1	25	0	0	0	0
	point131	131	49	25	1	25	1	25	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point132	132	49	25	1	25	1	25	0	0	0	0
	point133	133	49	25	1	25	1	25	0	0	0	0
	point134	134	49	25	1	25	1	25	0	0	0	0
	point135	0	49	25	1	25	1	25	0	0	0	0
	point136	136	49	25	1	25	1	25	0	0	0	0
	point137	137	49	25	1	25	1	25	0	0	0	0
	point138	138	49	25	1	25	1	25	0	0	0	0
	point139	139	49	25	1	25	1	25	0	0	0	0
	point140	140	49	25	1	25	1	25	0	0	0	0
	point141	141	49	25	1	25	1	25	0	0	0	0
	point142	142										

INPUT: RECEIVERS
The Farm

Dudek											
CB											
INPUT: RECEIVERS											
PROJECT/CONTRACT:	The Farm										
RUN:	Near Opening Day + Project										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	1	1	4,228.2	801.6	0.00	4.92	64.00	66	10.0	8.0	Y
ST4	2	1	5,679.8	2,346.1	0.00	4.92	52.50	66	10.0	8.0	Y
ST2	3	1	4,384.1	3,690.0	0.00	4.92	43.10	66	10.0	8.0	Y
ST3	4	1	6,696.9	5,901.7	0.00	4.92	42.20	66	10.0	8.0	Y

RESULTS: SOUND LEVELS
The Farm

Dudek												
CB												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST1	1	1	64.0	66.9	66	2.9	10	Snd Lvl	66.9	0.0	8	-8.0
ST4	2	1	52.5	48.3	66	-4.2	10	----	48.3	0.0	8	-8.0
ST2	3	1	43.1	41.4	66	-1.7	10	----	41.4	0.0	8	-8.0
ST3	4	1	42.2	52.8	66	10.6	10	Sub'l Inc	52.8	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		4	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS
The Farm

Dudek					18 June 2019						
CB					TNM 2.5						
INPUT: ROADWAYS					Average pavement type shall be used unless						
PROJECT/CONTRACT:					a State highway agency substantiates the use						
RUN:					of a different type with the approval of FHWA						
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
West Espola W7	25.0	point1	1	1,271.9	885.2	0.00				Average	
		point2	2	2,478.0	878.0	0.00					
East Espola W7	25.0	point3	3	1,280.9	858.1	0.00				Average	
		point4	4	2,474.4	858.1	0.00					
West Espola E7	25.0	point5	5	2,528.5	878.0	0.00				Average	
		point6	6	3,716.5	870.8	0.00				Average	
		point7	7	4,221.3	865.1	0.00					
East Espola E10	25.0	point16	16	7,502.8	683.3	0.00				Average	
		point17	17	7,008.8	744.6	0.00				Average	
		point18	18	6,756.4	773.4	0.00				Average	
		point19	19	6,487.8	807.6	0.00				Average	
		point20	20	5,563.4	826.3	0.00				Average	
		point21	21	4,939.7	842.5	0.00					
West Espola Rd E11	30.0	point23	23	7,568.0	693.5	0.00				Average	
		point24	24	8,069.2	634.1	0.00				Average	
		point25	25	8,274.7	605.2	0.00				Average	
		point26	26	8,545.2	484.4	0.00				Average	
		point27	27	8,748.9	322.1	0.00				Average	
		point28	28	8,947.2	46.3	0.00					
East Espola Rd E11	30.0	point29	29	8,897.8	43.3	0.00				Average	
		point30	30	8,739.1	286.6	0.00				Average	
		point31	31	8,627.4	391.2	0.00				Average	
		point32	32	8,338.9	549.9	0.00				Average	
		point33	33	8,077.5	607.5	0.00				Average	
		point34	34	7,576.3	658.0	0.00					

INPUT: ROADWAYS
The Farm

Cloudcroft Dr N10	40.0	point35	35	4,949.1	887.8	0.00				Average	
		point36	36	4,949.1	1,875.6	0.00				Average	
		point37	37	4,944.7	2,055.4	0.00				Average	
		point38	38	4,958.0	2,146.5	0.00				Average	
		point39	39	5,022.4	2,233.0	0.00					
CloudCroft Dr N25	40.0	point40	40	5,051.2	2,253.0	0.00				Average	
		point41	41	5,137.8	2,295.2	0.00				Average	
		point42	42	5,197.7	2,312.9	0.00				Average	
		point43	43	6,201.1	2,293.0	0.00				Average	
		point44	44	6,250.0	2,295.2	0.00				Average	
		point45	45	6,245.5	2,506.1	0.00				Average	
		point46	46	6,238.9	2,721.4	0.00				Average	
		point47	47	6,181.2	2,938.9	0.00				Average	
		point48	48	6,056.8	3,087.7	0.00				Average	
		point49	49	5,894.8	3,196.5	0.00				Average	
		point50	50	5,726.1	3,271.9	0.00				Average	
		point51	51	5,424.2	3,287.5	0.00				Average	
		point52	52	5,180.0	3,316.3	0.00				Average	
		point53	53	5,111.2	3,371.8	0.00					
Tam O Shanter N24	40.0	point54	54	5,093.4	3,380.7	0.00				Average	
		point55	55	5,013.5	3,525.0	0.00				Average	
		point56	56	4,995.7	3,558.3	0.00				Average	
		point57	57	4,953.6	3,818.0	0.00				Average	
		point58	58	4,933.6	4,008.9	0.00				Average	
		point59	59	4,935.8	4,142.1	0.00				Average	
		point60	60	4,962.4	4,337.5	0.00				Average	
		point61	61	4,995.7	4,523.9	0.00				Average	
		point62	62	5,042.4	4,617.2	0.00				Average	
		point63	63	5,075.7	4,674.9	0.00				Average	
		point64	64	5,162.2	4,732.6	0.00				Average	
		point65	65	5,262.1	4,748.1	0.00				Average	
		point66	66	6,012.4	4,743.7	0.00				Average	
		point67	67	6,687.3	4,748.1	0.00				Average	
		point68	68	6,760.5	4,757.0	0.00				Average	
		point69	69	6,913.7	5,098.9	0.00					
St Andrews Dr	40.0	point70	70	6,922.6	5,132.2	0.00				Average	
		point72	72	7,026.9	5,416.3	0.00				Average	
		point73	73	7,035.8	5,496.2	0.00				Average	
		point74	74	6,971.4	5,689.4	0.00				Average	

INPUT: ROADWAYS
The Farm

		point75	75	6,878.2	5,778.1	0.00				Average	
		point76	76	6,753.9	5,842.5	0.00				Average	
		point77	77	6,536.3	5,849.2	0.00				Average	
		point78	78	4,891.4	5,824.8	0.00				Average	
		point79	79	4,682.7	5,793.7	0.00				Average	
		point80	80	4,471.9	5,691.6	0.00				Average	
		point81	81	4,318.7	5,556.2	0.00				Average	
		point82	82	4,178.8	5,387.5	0.00				Average	
		point83	83	4,138.9	5,325.3	0.00				Average	
		point84	84	4,078.9	5,163.3	0.00				Average	
		point85	85	4,050.1	5,036.7	0.00				Average	
		point86	86	4,041.2	4,273.1	0.00				Average	
		point87	87	4,014.6	3,542.7	0.00				Average	
		point88	88	4,012.3	2,583.8	0.00				Average	
		point89	89	4,007.9	2,328.5	0.00				Average	
		point90	90	4,005.7	2,146.5	0.00				Average	
		point91	91	3,992.4	2,051.0	0.00				Average	
		point92	92	3,916.9	1,911.2	0.00				Average	
		point93	93	3,834.7	1,824.6	0.00				Average	
		point94	94	3,739.3	1,766.9	0.00				Average	
		point95	95	3,248.7	1,524.9	0.00				Average	
		point96	96	3,084.4	1,462.7	0.00				Average	
		point97	97	3,033.4	1,458.3	0.00				Average	
		point71	71	2,551.7	1,449.4	0.00					
Valley Verde Rd S8	50.0	point98	98	2,503.3	907.8	0.00				Average	
		point99	99	2,505.5	1,009.9	0.00				Average	
		point100	100	2,518.8	1,125.3	0.00				Average	
		point101	101	2,518.8	1,229.7	0.00				Average	
		point102	102	2,521.0	1,447.2	0.00					
West Espola E10-2	25.0	point103	103	4,949.3	861.1	0.00				Average	
		point9	9	5,541.0	850.9	0.00				Average	
		point10	10	5,957.4	841.9	0.00				Average	
		point11	11	6,489.2	825.7	0.00				Average	
		point12	12	6,871.5	780.6	0.00				Average	
		point13	13	7,105.8	748.2	0.00				Average	
		point14	14	7,484.4	704.9	0.00				Average	
		point15	15	7,515.1	701.3	0.00					
East Espola E9	25.0	point104	104	4,939.7	842.5	0.00				Average	
		point105	105	4,217.4	848.5	0.00					

INPUT: ROADWAYS

The Farm

West Espola E9	25.0	point106	106	4,221.3	865.1	0.00				Average	
		point8	8	4,949.3	861.1	0.00					
East Espola E7	25.0	point107	107	4,217.4	848.5	0.00				Average	
		point22	22	2,534.3	854.5	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

Dudek												
CB												
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	The Farm											
RUN:	Horizon Year without Project											
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos									
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
West Espola W7	point1	1	1261	35	26	35	13	35	0	0	0	0
	point2	2										
East Espola W7	point3	3	1261	35	26	35	13	35	0	0	0	0
	point4	4										
West Espola E7	point5	5	1004	35	21	35	10	35	0	0	0	0
	point6	6	1004	35	21	35	10	35	0	0	0	0
	point7	7										
East Espola E10	point16	16	912	35	19	35	9	35	0	0	0	0
	point17	17	912	35	19	35	9	35	0	0	0	0
	point18	18	912	35	19	35	9	35	0	0	0	0
	point19	19	912	35	19	35	9	35	0	0	0	0
	point20	20	912	35	19	35	9	35	0	0	0	0
	point21	21										
West Espola Rd E11	point23	23	773	35	16	35	8	35	0	0	0	0
	point24	24	773	35	16	35	8	35	0	0	0	0
	point25	25	773	35	16	35	8	35	0	0	0	0
	point26	26	773	35	16	35	8	35	0	0	0	0
	point27	27	773	35	16	35	8	35	0	0	0	0
	point28	28										
East Espola Rd E11	point29	29	773	35	16	35	8	35	0	0	0	0
	point30	30	773	35	16	35	8	35	0	0	0	0
	point31	31	773	35	16	35	8	35	0	0	0	0
	point32	32	773	35	16	35	8	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point33	33	773	35	16	35	8	35	0	0	0	0
	point34	34										
Cloudcroft Dr N10	point35	35	140	25	3	25	1	25	0	0	0	0
	point36	36	140	25	3	25	1	25	0	0	0	0
	point37	37	140	25	3	25	1	25	0	0	0	0
	point38	38	140	25	3	25	1	25	0	0	0	0
	point39	39										
CloudCroft Dr N25	point40	40	48	25	1	25	0	0	0	0	0	0
	point41	41	48	25	1	25	0	0	0	0	0	0
	point42	42	48	25	1	25	0	0	0	0	0	0
	point43	43	48	25	1	25	0	0	0	0	0	0
	point44	44	48	25	1	25	0	0	0	0	0	0
	point45	45	48	25	1	25	0	0	0	0	0	0
	point46	46	48	25	1	25	0	0	0	0	0	0
	point47	47	48	25	1	25	0	0	0	0	0	0
	point48	48	48	25	1	25	0	0	0	0	0	0
	point49	49	48	25	1	25	0	0	0	0	0	0
	point50	50	48	25	1	25	0	0	0	0	0	0
	point51	51	48	25	1	25	0	0	0	0	0	0
	point52	52	48	25	1	25	0	0	0	0	0	0
	point53	53										
Tam O Shanter N24	point54	54	164	25	3	25	2	25	0	0	0	0
	point55	55	164	25	3	25	2	25	0	0	0	0
	point56	56	164	25	3	25	2	25	0	0	0	0
	point57	57	164	25	3	25	2	25	0	0	0	0
	point58	58	164	25	3	25	2	25	0	0	0	0
	point59	59	164	25	3	25	2	25	0	0	0	0
	point60	60	164	25	3	25	2	25	0	0	0	0
	point61	61	164	25	3	25	2	25	0	0	0	0
	point62	62	164	25	3	25	2	25	0	0	0	0
	point63	63	164	25	3	25	2	25	0	0	0	0
	point64	64	164	25	3	25	2	25	0	0	0	0
	point65	65	164	25	3	25	2	25	0	0	0	0
	point66	66	164	25	3	25	2	25	0	0	0	0
	point67	67	164	25	3	25	2	25	0	0	0	0
	point68	68	164	25	3	25	2	25	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point69	69										
St Andrews Dr	point70	70	164	25	3	25	2	25	0	0	0	0
	point72	72	164	25	3	25	2	25	0	0	0	0
	point73	73	164	25	3	25	2	25	0	0	0	0
	point74	74	164	25	3	25	2	25	0	0	0	0
	point75	75	164	25	3	25	2	25	0	0	0	0
	point76	76	164	25	3	25	2	25	0	0	0	0
	point77	77	164	25	3	25	2	25	0	0	0	0
	point78	78	164	25	3	25	2	25	0	0	0	0
	point79	79	164	25	3	25	2	25	0	0	0	0
	point80	80	164	25	3	25	2	25	0	0	0	0
	point81	81	164	25	3	25	2	25	0	0	0	0
	point82	82	164	25	3	25	2	25	0	0	0	0
	point83	83	164	25	3	25	2	25	0	0	0	0
	point84	84	164	25	3	25	2	25	0	0	0	0
	point85	85	164	25	3	25	2	25	0	0	0	0
	point86	86	164	25	3	25	2	25	0	0	0	0
	point87	87	164	25	3	25	2	25	0	0	0	0
	point88	88	164	25	3	25	2	25	0	0	0	0
	point89	89	164	25	3	25	2	25	0	0	0	0
	point90	90	164	25	3	25	2	25	0	0	0	0
	point91	91	164	25	3	25	2	25	0	0	0	0
	point92	92	164	25	3	25	2	25	0	0	0	0
	point93	93	164	25	3	25	2	25	0	0	0	0
	point94	94	164	25	3	25	2	25	0	0	0	0
	point95	95	164	25	3	25	2	25	0	0	0	0
	point96	96	164	25	3	25	2	25	0	0	0	0
	point97	97	164	25	3	25	2	25	0	0	0	0
	point71	71										
Valley Verde Rd S8	point98	98	672	35	14	35	7	35	0	0	0	0
	point99	99	672	35	14	35	7	35	0	0	0	0
	point100	100	672	35	14	35	7	35	0	0	0	0
	point101	101	672	35	14	35	7	35	0	0	0	0
	point102	102										
West Espola E10-2	point103	103	912	35	19	35	9	35	0	0	0	0
	point9	9	912	35	19	35	9	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point10	10	912	35	19	35	9	35	0	0	0	0
	point11	11	912	35	19	35	9	35	0	0	0	0
	point12	12	912	35	19	35	9	35	0	0	0	0
	point13	13	912	35	19	35	9	35	0	0	0	0
	point14	14	912	35	19	35	9	35	0	0	0	0
	point15	15										
East Espola E9	point104	104	915	35	19	35	9	35	0	0	0	0
	point105	105										
West Espola E9	point106	106	915	35	19	35	9	35	0	0	0	0
	point8	8										
East Espola E7	point107	107	1004	35	21	35	10	35	0	0	0	0
	point22	22										

INPUT: RECEIVERS
The Farm

Dudek							18 June 2019				
CB							TNM 2.5				
INPUT: RECEIVERS											
PROJECT/CONTRACT:	The Farm										
RUN:	Horizon Year without Project										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L _{Aeq} 1h	L _{Aeq} 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	1	1	4,228.2	801.6	0.00	4.92	64.00	66	10.0	8.0	Y
ST4	2	1	5,679.8	2,346.1	0.00	4.92	52.50	66	10.0	8.0	Y
ST2	3	1	4,384.1	3,690.0	0.00	4.92	43.10	66	10.0	8.0	Y
ST3	4	1	6,696.9	5,901.7	0.00	4.92	42.20	66	10.0	8.0	Y

RESULTS: SOUND LEVELS
The Farm

Dudek												
CB												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dB	dB	dB	dB	dB		dB	dB	dB	dB
ST1	1	1	64.0	67.1	66	3.1	10	Snd Lvl	67.1	0.0	8	-8.0
ST4	2	1	52.5	50.3	66	-2.2	10	----	50.3	0.0	8	-8.0
ST2	3	1	43.1	44.3	66	1.2	10	----	44.3	0.0	8	-8.0
ST3	4	1	42.2	52.8	66	10.6	10	Sub'l Inc	52.8	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		4	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS
The Farm

Dudek											
CB											
INPUT: ROADWAYS								Average pavement type shall be used unless			
PROJECT/CONTRACT:				The Farm				a State highway agency substantiates the use			
RUN:				Horizon Year With Project				of a different type with the approval of FHWA			
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
West Espola W7	25.0	point1	1	1,271.9	885.2	0.00				Average	
		point2	2	2,478.0	878.0	0.00					
East Espola W7	25.0	point3	3	1,280.9	858.1	0.00				Average	
		point4	4	2,474.4	858.1	0.00					
West Espola E7	25.0	point5	5	2,528.5	878.0	0.00				Average	
		point6	6	3,716.5	870.8	0.00				Average	
		point7	7	4,221.3	865.1	0.00					
East Espola E10	25.0	point16	16	7,502.8	683.3	0.00				Average	
		point17	17	7,008.8	744.6	0.00				Average	
		point18	18	6,756.4	773.4	0.00				Average	
		point19	19	6,487.8	807.6	0.00				Average	
		point20	20	5,563.4	826.3	0.00				Average	
		point21	21	4,939.7	842.5	0.00					
West Espola Rd E11	30.0	point23	23	7,568.0	693.5	0.00				Average	
		point24	24	8,069.2	634.1	0.00				Average	
		point25	25	8,274.7	605.2	0.00				Average	
		point26	26	8,545.2	484.4	0.00				Average	
		point27	27	8,748.9	322.1	0.00				Average	
		point28	28	8,947.2	46.3	0.00					
East Espola Rd E11	30.0	point29	29	8,897.8	43.3	0.00				Average	
		point30	30	8,739.1	286.6	0.00				Average	
		point31	31	8,627.4	391.2	0.00				Average	
		point32	32	8,338.9	549.9	0.00				Average	
		point33	33	8,077.5	607.5	0.00				Average	
		point34	34	7,576.3	658.0	0.00					

INPUT: ROADWAYS
The Farm

Cloudcroft Dr N10	40.0	point35	35	4,949.1	887.8	0.00				Average	
		point36	36	4,949.1	1,875.6	0.00				Average	
		point37	37	4,944.7	2,055.4	0.00				Average	
		point38	38	4,958.0	2,146.5	0.00				Average	
		point39	39	5,022.4	2,233.0	0.00					
CloudCroft Dr N25	40.0	point40	40	5,051.2	2,253.0	0.00				Average	
		point41	41	5,137.8	2,295.2	0.00				Average	
		point42	42	5,197.7	2,312.9	0.00				Average	
		point43	43	6,201.1	2,293.0	0.00				Average	
		point44	44	6,250.0	2,295.2	0.00				Average	
		point45	45	6,245.5	2,506.1	0.00				Average	
		point46	46	6,238.9	2,721.4	0.00				Average	
		point47	47	6,181.2	2,938.9	0.00				Average	
		point48	48	6,056.8	3,087.7	0.00				Average	
		point49	49	5,894.8	3,196.5	0.00				Average	
		point50	50	5,726.1	3,271.9	0.00				Average	
		point51	51	5,424.2	3,287.5	0.00				Average	
		point52	52	5,180.0	3,316.3	0.00				Average	
		point53	53	5,111.2	3,371.8	0.00					
Tam O Shanter N24	40.0	point54	54	5,093.4	3,380.7	0.00				Average	
		point55	55	5,013.5	3,525.0	0.00				Average	
		point56	56	4,995.7	3,558.3	0.00				Average	
		point57	57	4,953.6	3,818.0	0.00				Average	
		point58	58	4,933.6	4,008.9	0.00				Average	
		point59	59	4,935.8	4,142.1	0.00				Average	
		point60	60	4,962.4	4,337.5	0.00				Average	
		point61	61	4,995.7	4,523.9	0.00				Average	
		point62	62	5,042.4	4,617.2	0.00				Average	
		point63	63	5,075.7	4,674.9	0.00				Average	
		point64	64	5,162.2	4,732.6	0.00				Average	
		point65	65	5,262.1	4,748.1	0.00				Average	
		point66	66	6,012.4	4,743.7	0.00				Average	
		point67	67	6,687.3	4,748.1	0.00				Average	
		point68	68	6,760.5	4,757.0	0.00				Average	
		point69	69	6,913.7	5,098.9	0.00					
St Andrews Dr	40.0	point70	70	6,922.6	5,132.2	0.00				Average	
		point72	72	7,026.9	5,416.3	0.00				Average	
		point73	73	7,035.8	5,496.2	0.00				Average	
		point74	74	6,971.4	5,689.4	0.00				Average	

INPUT: ROADWAYS
The Farm

		point75	75	6,878.2	5,778.1	0.00				Average	
		point76	76	6,753.9	5,842.5	0.00				Average	
		point77	77	6,536.3	5,849.2	0.00				Average	
		point78	78	4,891.4	5,824.8	0.00				Average	
		point79	79	4,682.7	5,793.7	0.00				Average	
		point80	80	4,471.9	5,691.6	0.00				Average	
		point81	81	4,318.7	5,556.2	0.00				Average	
		point82	82	4,178.8	5,387.5	0.00				Average	
		point83	83	4,138.9	5,325.3	0.00				Average	
		point84	84	4,078.9	5,163.3	0.00				Average	
		point85	85	4,050.1	5,036.7	0.00				Average	
		point86	86	4,041.2	4,273.1	0.00				Average	
		point87	87	4,014.6	3,542.7	0.00				Average	
		point88	88	4,012.3	2,583.8	0.00				Average	
		point89	89	4,007.9	2,328.5	0.00				Average	
		point90	90	4,005.7	2,146.5	0.00				Average	
		point91	91	3,992.4	2,051.0	0.00				Average	
		point92	92	3,916.9	1,911.2	0.00				Average	
		point93	93	3,834.7	1,824.6	0.00				Average	
		point94	94	3,739.3	1,766.9	0.00				Average	
		point95	95	3,248.7	1,524.9	0.00				Average	
		point96	96	3,084.4	1,462.7	0.00				Average	
		point97	97	3,033.4	1,458.3	0.00				Average	
		point71	71	2,551.7	1,449.4	0.00					
Valley Verde Rd S8	50.0	point98	98	2,503.3	907.8	0.00				Average	
		point99	99	2,505.5	1,009.9	0.00				Average	
		point100	100	2,518.8	1,125.3	0.00				Average	
		point101	101	2,518.8	1,229.7	0.00				Average	
		point102	102	2,521.0	1,447.2	0.00					
West Espola E10-2	25.0	point103	103	4,949.3	861.1	0.00				Average	
		point9	9	5,541.0	850.9	0.00				Average	
		point10	10	5,957.4	841.9	0.00				Average	
		point11	11	6,489.2	825.7	0.00				Average	
		point12	12	6,871.5	780.6	0.00				Average	
		point13	13	7,105.8	748.2	0.00				Average	
		point14	14	7,484.4	704.9	0.00				Average	
		point15	15	7,515.1	701.3	0.00					
East Espola E9	25.0	point104	104	4,939.7	842.5	0.00				Average	
		point105	105	4,217.4	848.5	0.00					

INPUT: ROADWAYS
The Farm

West Espola E9	25.0	point106	106	4,221.3	865.1	0.00				Average	
		point8	8	4,949.3	861.1	0.00					
East Espola E7	25.0	point107	107	4,217.4	848.5	0.00				Average	
		point22	22	2,534.3	854.5	0.00					
Road E	30.0	point108	108	4,889.3	3,342.8	0.00				Average	
		point110	110	4,685.1	3,417.5	0.00				Average	
		point111	111	4,617.0	3,457.3	0.00				Average	
		point112	112	4,573.9	3,540.4	0.00				Average	
		point113	113	4,578.8	3,621.7	0.00				Average	
		point114	114	4,588.8	3,742.9	0.00				Average	
		point115	115	4,582.2	3,829.3	0.00				Average	
		point116	116	4,540.6	3,952.1	0.00				Average	
		point117	117	4,530.7	4,020.2	0.00				Average	
		point118	118	4,567.2	4,199.5	0.00				Average	
		point119	119	4,632.0	4,344.0	0.00				Average	
		point120	120	4,658.5	4,475.2	0.00				Average	
		point121	121	4,691.7	4,734.2	0.00				Average	
		point122	122	4,748.2	4,820.5	0.00				Average	
		point123	123	4,891.0	4,920.1	0.00				Average	
		point124	124	5,017.2	4,941.7	0.00				Average	
		point125	125	5,561.8	4,955.0	0.00				Average	
		point126	126	5,736.1	5,013.1	0.00				Average	
		point127	127	5,820.8	5,049.6	0.00				Average	
		point128	128	6,406.9	5,048.0	0.00				Average	
		point129	129	6,773.8	4,968.3	0.00				Average	
		point109	109	6,813.7	4,956.7	0.00					
Road A	30.0	point130	130	4,148.8	960.2	0.00				Average	
		point132	132	4,163.7	1,391.9	0.00				Average	
		point133	133	4,170.4	1,438.4	0.00				Average	
		point134	134	4,358.0	1,639.3	0.00				Average	
		point135	135	4,446.0	1,733.9	0.00				Average	
		point136	136	4,467.6	2,595.6	0.00				Average	
		point137	137	4,479.2	2,652.1	0.00				Average	
		point138	138	4,542.3	2,738.4	0.00				Average	
		point139	139	4,628.6	2,821.5	0.00				Average	
		point140	140	4,847.8	3,042.3	0.00				Average	
		point141	141	4,905.9	3,131.9	0.00				Average	
		point142	142	4,915.9	3,331.2	0.00				Average	
		point131	131	5,010.5	3,455.7	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

Dudek												
CB												
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	The Farm											
RUN:	Horizon Year With Project											
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos									
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
West Espola W7	point1	1	1347	35	28	35	14	35	0	0	0	0
	point2	2										
East Espola W7	point3	3	1347	35	28	35	14	35	0	0	0	0
	point4	4										
West Espola E7	point5	5	1088	35	22	35	11	35	0	0	0	0
	point6	6	1088	35	22	35	11	35	0	0	0	0
	point7	7										
East Espola E10	point16	16	944	35	19	35	10	35	0	0	0	0
	point17	17	944	35	19	35	10	35	0	0	0	0
	point18	18	944	35	19	35	10	35	0	0	0	0
	point19	19	944	35	19	35	10	35	0	0	0	0
	point20	20	944	35	19	35	10	35	0	0	0	0
	point21	21										
West Espola Rd E11	point23	23	804	35	17	35	8	35	0	0	0	0
	point24	24	804	35	17	35	8	35	0	0	0	0
	point25	25	804	35	17	35	8	35	0	0	0	0
	point26	26	804	35	17	35	8	35	0	0	0	0
	point27	27	804	35	17	35	8	35	0	0	0	0
	point28	28										
East Espola Rd E11	point29	29	804	35	17	35	8	35	0	0	0	0
	point30	30	804	35	17	35	8	35	0	0	0	0
	point31	31	804	35	17	35	8	35	0	0	0	0
	point32	32	804	35	17	35	8	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point33	33	804	35	17	35	8	35	0	0	0	0
	point34	34										
Cloudcroft Dr N10	point35	35	147	25	3	25	2	25	0	0	0	0
	point36	36	147	25	3	25	2	25	0	0	0	0
	point37	37	147	25	3	25	2	25	0	0	0	0
	point38	38	147	25	3	25	2	25	0	0	0	0
	point39	39										
CloudCroft Dr N25	point40	40	52	25	1	25	1	25	0	0	0	0
	point41	41	52	25	1	25	1	25	0	0	0	0
	point42	42	52	25	1	25	1	25	0	0	0	0
	point43	43	52	25	1	25	1	25	0	0	0	0
	point44	44	52	25	1	25	1	25	0	0	0	0
	point45	45	52	25	1	25	1	25	0	0	0	0
	point46	46	52	25	1	25	1	25	0	0	0	0
	point47	47	52	25	1	25	1	25	0	0	0	0
	point48	48	52	25	1	25	1	25	0	0	0	0
	point49	49	52	25	1	25	1	25	0	0	0	0
	point50	50	52	25	1	25	1	25	0	0	0	0
	point51	51	52	25	1	25	1	25	0	0	0	0
	point52	52	52	25	1	25	1	25	0	0	0	0
	point53	53										
Tam O Shanter N24	point54	54	166	25	3	25	2	25	0	0	0	0
	point55	55	166	25	3	25	2	25	0	0	0	0
	point56	56	166	25	3	25	2	25	0	0	0	0
	point57	57	166	25	3	25	2	25	0	0	0	0
	point58	58	166	25	3	25	2	25	0	0	0	0
	point59	59	166	25	3	25	2	25	0	0	0	0
	point60	60	166	25	3	25	2	25	0	0	0	0
	point61	61	166	25	3	25	2	25	0	0	0	0
	point62	62	166	25	3	25	2	25	0	0	0	0
	point63	63	166	25	3	25	2	25	0	0	0	0
	point64	64	166	25	3	25	2	25	0	0	0	0
	point65	65	166	25	3	25	2	25	0	0	0	0
	point66	66	166	25	3	25	2	25	0	0	0	0
	point67	67	166	25	3	25	2	25	0	0	0	0
	point68	68	166	25	3	25	2	25	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point69	69										
St Andrews Dr	point70	70	169	25	3	25	2	25	0	0	0	0
	point72	72	169	25	3	25	2	25	0	0	0	0
	point73	73	169	25	3	25	2	25	0	0	0	0
	point74	74	169	25	3	25	2	25	0	0	0	0
	point75	75	169	25	3	25	2	25	0	0	0	0
	point76	76	169	25	3	25	2	25	0	0	0	0
	point77	77	169	25	3	25	2	25	0	0	0	0
	point78	78	169	25	3	25	2	25	0	0	0	0
	point79	79	169	25	3	25	2	25	0	0	0	0
	point80	80	169	25	3	25	2	25	0	0	0	0
	point81	81	169	25	3	25	2	25	0	0	0	0
	point82	82	169	25	3	25	2	25	0	0	0	0
	point83	83	169	25	3	25	2	25	0	0	0	0
	point84	84	169	25	3	25	2	25	0	0	0	0
	point85	85	169	25	3	25	2	25	0	0	0	0
	point86	86	169	25	3	25	2	25	0	0	0	0
	point87	87	169	25	3	25	2	25	0	0	0	0
	point88	88	169	25	3	25	2	25	0	0	0	0
	point89	89	169	25	3	25	2	25	0	0	0	0
	point90	90	169	25	3	25	2	25	0	0	0	0
	point91	91	169	25	3	25	2	25	0	0	0	0
	point92	92	169	25	3	25	2	25	0	0	0	0
	point93	93	169	25	3	25	2	25	0	0	0	0
	point94	94	169	25	3	25	2	25	0	0	0	0
	point95	95	169	25	3	25	2	25	0	0	0	0
	point96	96	169	25	3	25	2	25	0	0	0	0
	point97	97	169	25	3	25	2	25	0	0	0	0
	point71	71										
Valley Verde Rd S8	point98	98	677	35	14	35	7	35	0	0	0	0
	point99	99	677	35	14	35	7	35	0	0	0	0
	point100	100	677	35	14	35	7	35	0	0	0	0
	point101	101	677	35	14	35	7	35	0	0	0	0
	point102	102										
West Espola E10-2	point103	103	944	35	19	35	10	35	0	0	0	0
	point9	9	944	35	19	35	10	35	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point10	10	944	35	19	35	10	35	0	0	0	0
	point11	11	944	35	19	35	10	35	0	0	0	0
	point12	12	944	35	19	35	10	35	0	0	0	0
	point13	13	944	35	19	35	10	35	0	0	0	0
	point14	14	944	35	19	35	10	35	0	0	0	0
	point15	15										
East Espola E9	point104	104	943	35	19	35	10	35	0	0	0	0
	point105	105										
West Espola E9	point106	106	943	35	19	35	10	35	0	0	0	0
	point8	8										
East Espola E7	point107	107	1088	35	22	35	11	35	0	0	0	0
	point22	22										
Road E	point108	108	49	25	1	25	1	25	0	0	0	0
	point110	110	49	25	1	25	1	25	0	0	0	0
	point111	111	49	25	1	25	1	25	0	0	0	0
	point112	112	49	25	1	25	1	25	0	0	0	0
	point113	113	49	25	1	25	1	25	0	0	0	0
	point114	114	49	25	1	25	1	25	0	0	0	0
	point115	115	49	25	1	25	1	25	0	0	0	0
	point116	116	49	25	1	25	1	25	0	0	0	0
	point117	117	49	25	1	25	1	25	0	0	0	0
	point118	118	49	25	1	25	1	25	0	0	0	0
	point119	119	49	25	1	25	1	25	0	0	0	0
	point120	120	49	25	1	25	1	25	0	0	0	0
	point121	121	49	25	1	25	1	25	0	0	0	0
	point122	122	49	25	1	25	1	25	0	0	0	0
	point123	123	49	25	1	25	1	25	0	0	0	0
	point124	124	49	25	1	25	1	25	0	0	0	0
	point125	125	49	25	1	25	1	25	0	0	0	0
	point126	126	49	25	1	25	1	25	0	0	0	0
	point127	127	49	25	1	25	1	25	0	0	0	0
	point128	128	49	25	1	25	1	25	0	0	0	0
	point129	129	49	25	1	25	1	25	0	0	0	0
	point109	109										
Road A	point130	130	233	25	5	25	2	25	0	0	0	0
	point132	132	233	25	5	25	2	25	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
The Farm

	point133	133	233	25	5	25	2	25	0	0	0	0
	point134	134	233	25	5	25	2	25	0	0	0	0
	point135	135	233	25	5	25	2	25	0	0	0	0
	point136	136	233	25	5	25	2	25	0	0	0	0
	point137	137	233	25	5	25	2	25	0	0	0	0
	point138	138	233	25	5	25	2	25	0	0	0	0
	point139	139	233	25	5	25	2	25	0	0	0	0
	point140	140	233	25	5	25	2	25	0	0	0	0
	point141	141	233	25	5	25	2	25	0	0	0	0
	point142	142	233	25	5	25	2	25	0	0	0	0
	point131	131										

INPUT: RECEIVERS
The Farm

Dudek											
CB											
INPUT: RECEIVERS											
PROJECT/CONTRACT:	The Farm										
RUN:	Horizon Year With Project										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L _{Aeq} 1h	L _{Aeq} 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	1	1	4,228.2	801.6	0.00	4.92	64.00	66	10.0	8.0	Y
ST4	2	1	5,679.8	2,346.1	0.00	4.92	52.50	66	10.0	8.0	Y
ST2	3	1	4,384.1	3,690.0	0.00	4.92	43.10	66	10.0	8.0	Y
ST3	4	1	6,696.9	5,901.7	0.00	4.92	42.20	66	10.0	8.0	Y

Appendix D

Operation Scenarios - Events at The Barn and The Meadow

