NOISE REPORT
FOR THE
NEWLAND SIERRA PROJECT
SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 110
San Diego, California 92123

Project Proponent:

Newland Sierra, LLC
4790 Eastgate Mall, Suite 150
San Diego, California 92121
Contact: Rita Brandin

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Mike Greene, INCE Bd. Cert.
County-Approved Preparer
760.942.5147

JUNE 2017

Printed on 30% post-consumer recycled material.

TABLE OF CONTENTS

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

APPENDICES

TABLE OF CONTENTS (CONTINUED)

Page No.

FIGURES

TABLE OF CONTENTS (CONTINUED)

Page No.

TABLES

GLOSSARY OF TERMS AND ACRONYMS

Acronym/Abbreviation	Definition
ADT	average daily traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
EIR	environmental impact report
FHWA	Federal Highway Administration
HVAC	heating, ventilation, and air conditioning
Hz	hertz
I	Interstate
KVA	kilovolt amps
L_{eq}	equivalent noise level over a period of time
L_{max}	maximum noise level
NSLU	noise-sensitive land use
PPV	peak particle velocity
re	relative
RMS	root mean square
SR	State Route
TNM	Traffic Noise Model
VdB	vibration decibel

INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

The proposed Newland Sierra Project (hereafter referred to as "project" or "proposed project") would be approximately 1,985 acres and would be located within an unincorporated portion of the County of San Diego (County) within the North County Metropolitan Subregional Plan area. The North County Metropolitan Subregional Plan area is made up of many noncontiguous areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista, and Oceanside, with the most easterly portion adjacent to Valley Center. The North County Metropolitan Subregional Plan area includes the communities of Hidden Meadows and Twin Oaks. The project Site is located in the community of Twin Oaks.

The project Site is directly west of Interstate (I) 15, north of State Route (SR) 78, and south of SR-76. The cities of Escondido and San Marcos are located approximately 1 mile south of the Site. The project Site is bounded by I-15 on the east, Deer Springs Road (County Road S12) on the south, and Twin Oaks Valley Road on the west, with a small portion of the northwestern edge of the Site traversed by Twin Oaks Valley Road. Gopher Canyon Road is located approximately 1.5 miles north of the northern property line.

The proposed project would include a residential component consisting of 2,135 dwelling units and 81,000 square feet of general commercial uses. The Community would also include an active recreational system with parks, trails, bike lanes, pathways, pocket parks and overlooks, and a 6-acre school site.

Noise-Sensitive Land Uses Affected by Airborne Noise

Traffic-generated noise levels at planned on-site exterior receivers would result in potentially significant impacts. Mitigation measure M-N-1 requires that, prior to the issuance of grading permits for development at the significantly impacted locations, the project applicant or designee would be responsible for preparation of an acoustical study based on the final map design and for implementation of any measures recommended as a result of the study. The requirements of M-N-1 are to be completed to the satisfaction of County of San Diego Planning and Development Services (or designee) to meet applicable noise standards. With implementation of M-N-1, traffic-generated noise impacts at on-site exterior locations would be reduced to less than significant.

For on-site interior noise levels, noise levels in planned second-floor noise-sensitive land uses (NSLUs) located adjacent to roadways could exceed allowable interior noise levels. M-N-2 requires that when specific building plans are available, and prior to issuance of building permits, an interior analysis of those identified dwelling units be conducted to first determine whether interior noise levels would exceed the applicable standard for the subject land use and, if so, to demonstrate and verify based on appropriate mitigation that any such levels would be reduced to

within the applicable standard. This mitigation measure would reduce impacts because it would provide for the identification of the specifications for structural components and other noise mitigation at the time of construction. Therefore, with mitigation, impacts to the interiors of on-site NSLUs would be less than significant.

For off-site NSLUs, significant direct and cumulative impacts are predicted to occur as a result of the proposed project. Based on traffic noise modeling, no substantial noise increases would result under Future with Project conditions. A cumulative noise impact is predicted at three residences located adjacent to Deer Springs Road. For a variety of reasons (for example, construction of noise barriers at off-site NSLUs may not be feasible due to needs for driveways and other access points limiting the continuity of the barrier), mitigation of off-site impacts from noise level increases at this location is considered infeasible, and the project would result in significant and unavoidable direct and cumulatively considerable impacts.

Project-Generated Airborne Noise

Noise levels at planned on-site exterior receivers due to stationary sources developed as part of the project would result in a potentially significant impact. Stationary sources of concern include mechanical equipment such as heating, ventilation, and air conditioning (HVAC) units; loading docks and delivery areas; and recreational and educational facilities. M-N-3 and M-N-4 would require that airborne noise levels be reduced to comply with County property line limits, and, with implementation, impacts would be less than significant.

The proposed project would include project design features (PDFs) N-1 through PDF-N-5 that would reduce potential construction noise through the use of exhaust mufflers, use of electrical equipment when feasible, locating staging areas away from NSLUs, and other noise attenuation techniques. However, construction noise levels would have the potential to generate sporadic short-term noise levels during peak construction that could exceed the County's construction noise level limit of 75 A-weighted decibel (dBA) equivalent noise level (L_{eq}) at adjacent property lines—in particular during rock drilling and blasting activities. As such, M-N-5 would require preparation of a blast drilling and monitoring plan to reduce noise generated during construction-related rock drilling and blasting activities. These mitigation measures would reduce project-generated airborne noise impacts associated with construction to a less-than-significant level at affected NSLUs.

Groundborne Vibration and Noise Impacts

During project grading and blasting operations, potential impacts associated with the exposure of NSLUs to groundborne vibration levels would be significant. The proposed project would implement M-N-6, which would require a vibration monitoring plan to reduce groundborne vibration impacts. Additionally, M-N-6 would further reduce potential vibration impacts from

rock drilling and blasting during construction. These mitigation measures would reduce groundborne vibration impacts associated with blasting and heavy construction equipment to a less-than-significant level at NSLUs.

There would be no substantial vibration sources associated with project operation. Therefore, vibration impacts associated with project operation would be less than significant.

INTENTIONALLY LEFT BLANK

1 INTRODUCTION

This report analyzes the noise impacts from construction and operation of the proposed Newland Sierra Project (hereafter referred to as "project" or "proposed project"). The project Site is approximately 1,985 acres and is located in northern San Diego County (County). The Site is bounded by Interstate (I) 15 on the east, Deer Springs Road on the south, and Twin Oaks Valley Road on the west, with a small portion of the western edge of the Site traversed by Twin Oaks Valley Road. Gopher Canyon Road is located approximately 2.5 miles from proposed developed areas, and approximately 1.5 miles from the northern property line of the project Site (see Figures 1 and 2). This noise report evaluates long-term noise impacts associated with project-generated traffic at both on- and off-site noise-sensitive land uses (NSLUs). Short-term and temporary impacts associated with project construction activities are also evaluated.

Noise impacts are assessed based on County noise criteria. The results of this noise report are incorporated into the environmental impact report (EIR) prepared for the project pursuant to the California Environmental Quality Act (CEQA).

1.1 Project Description

The Newland Sierra Project (also referred herein as "Community" or "project") is a 1,985-acre mixed-use community within the unincorporated area of San Diego County designed in accordance with the County of San Diego General Plan Community Development Model. The majority of the Community is within the Twin Oaks community of the North County Metropolitan Subregional Plan area, and a portion is within the Bonsall Community Planning area. The Specific Plan includes a residential component consisting of 2,135 dwelling units, which equates to an overall density of 1.08 dwelling units per acre (du/ac) over the entire 1,985 acres. The Community Development Model influenced the design and pattern of the seven neighborhoods (also referred to as "planning areas") with the highest densities located in the Town Center. The Town Center includes a maximum of 81,000 square feet of general commercial uses, as well as educational and park uses. The Community also includes open space, parks, pocket parks, overlooks, trails, bike lanes, pathways, and a 6-acre school site. The planning areas are described in the following text and shown in Figure 3.

Town Center

The Town Center would be located off of Deer Springs Road, east of the primary access road, in the southernmost portion of the project Site. The Town Center would be compact and walkable, and include commercial retail space, townhomes, and a school, along with employment opportunities for future residents and the surrounding area. The Town Center would include 95 residential townhome units, 81,000 square feet of commercial space, a 6-acre school site, and

approximately 5.73 acres of parks. This planning area would range in elevation between approximately 1,020 feet above mean sea level (amsl) and 1,110 feet amsl.

Terraces Neighborhood

The Terraces Neighborhood would be located directly northwest of the Town Center on the west side of the primary access road in the southern portion of the project Site. This planning area would range in elevation between approximately 1,200 feet amsl and 1,350 feet amsl. It would include 446 residential units. The mix of residential units in this neighborhood would consist of two- and three-story townhomes and three-story townhomes with tandem garages.

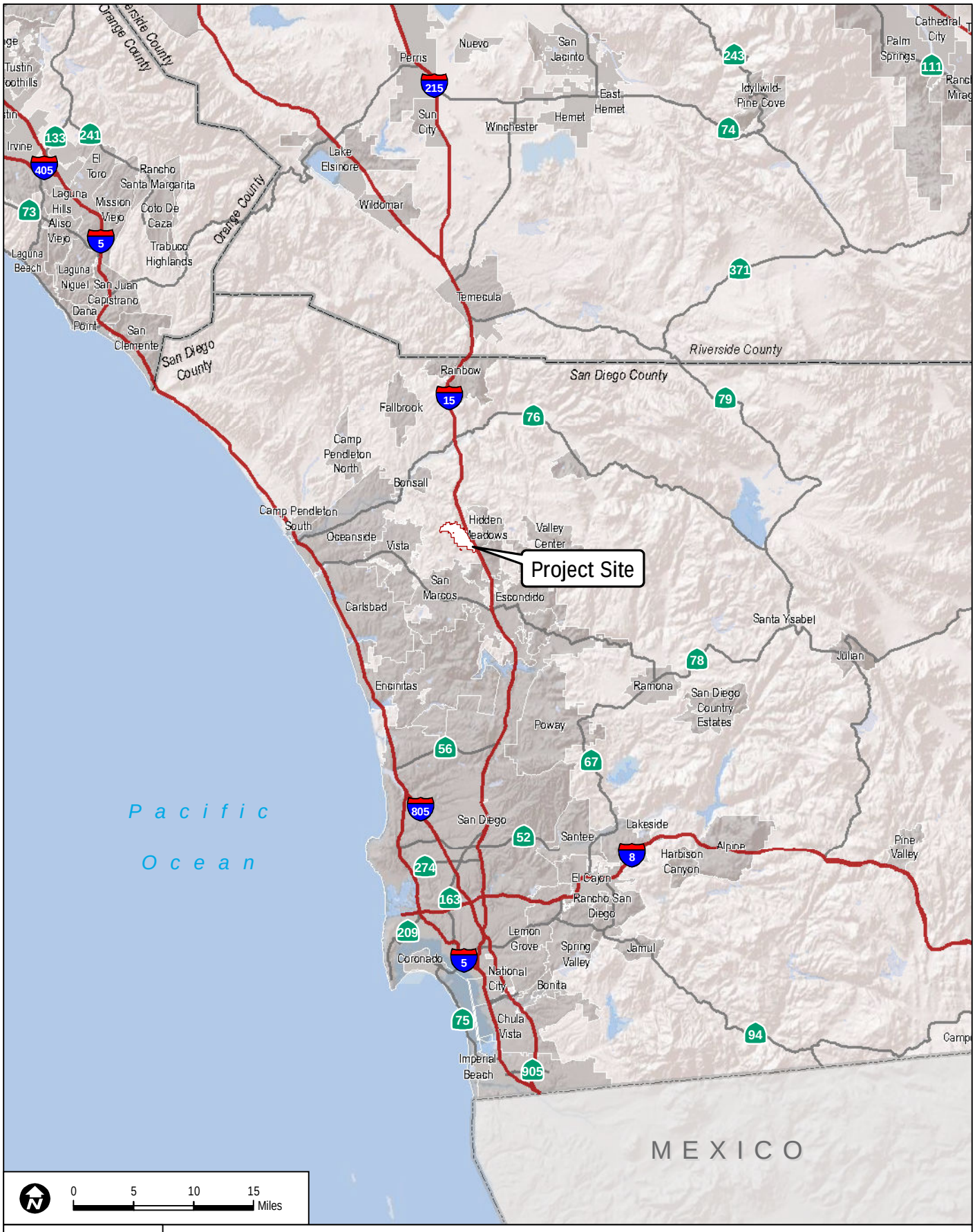
Hillside Neighborhood

The Hillside Neighborhood would be located north of the Terraces planning area and east of the primary access road in the southeastern portion of the project Site. This planning area would range in elevation between approximately 1,265 feet amsl and 1,300 feet amsl. Hillside would include 241 residential units and approximately 2.29 acres of parks. It would be composed of single-family detached homes with lots ranging in size from 4,500 to 5,000 square feet, as well as age-targeted lots. Age-targeted lots are intended in neighborhoods that are generally a mix of single-family detached and attached housing, with a portion of the neighborhood catering to (but not restricted to) adults 55 years of age and older. Age-targeted lots would not be deed-restricted.

Mesa Neighborhood

The Mesa Neighborhood would be located north of the Hillside, east of the Knoll, and southeast of the Summit Neighborhoods. This planning area would be composed of 325 age-qualified single-family lots and age-qualified single-family clusters on lots ranging from 3,000 to 6,000 square feet and would be centered on a park. Average elevation in the Mesa ranges from 1,250 feet amsl to 1,350 feet amsl.

Age-qualified lots are intended in neighborhoods that offer homes and Community features specifically aimed at adults 55 years of age and older, where housing must include at least one person who is 55 years of age or older as a permanent resident. Residents typically lead an independent, active lifestyle in a setting with private amenities such as a clubhouse and private recreational spaces. The term “cluster” is used to describe a neighborhood where housing is clustered together on relatively small lots with a larger amount of common area shared by the homeowners, and sharing of common areas such as a courtyard, motor court, or open space. The Mesa Neighborhood would include 4.10 acres of parks.



Document Path: Z:\Projects\j760801\MAPDOC\MAPS\Tech Reports\Noise\Fig 1_Regional.mxd

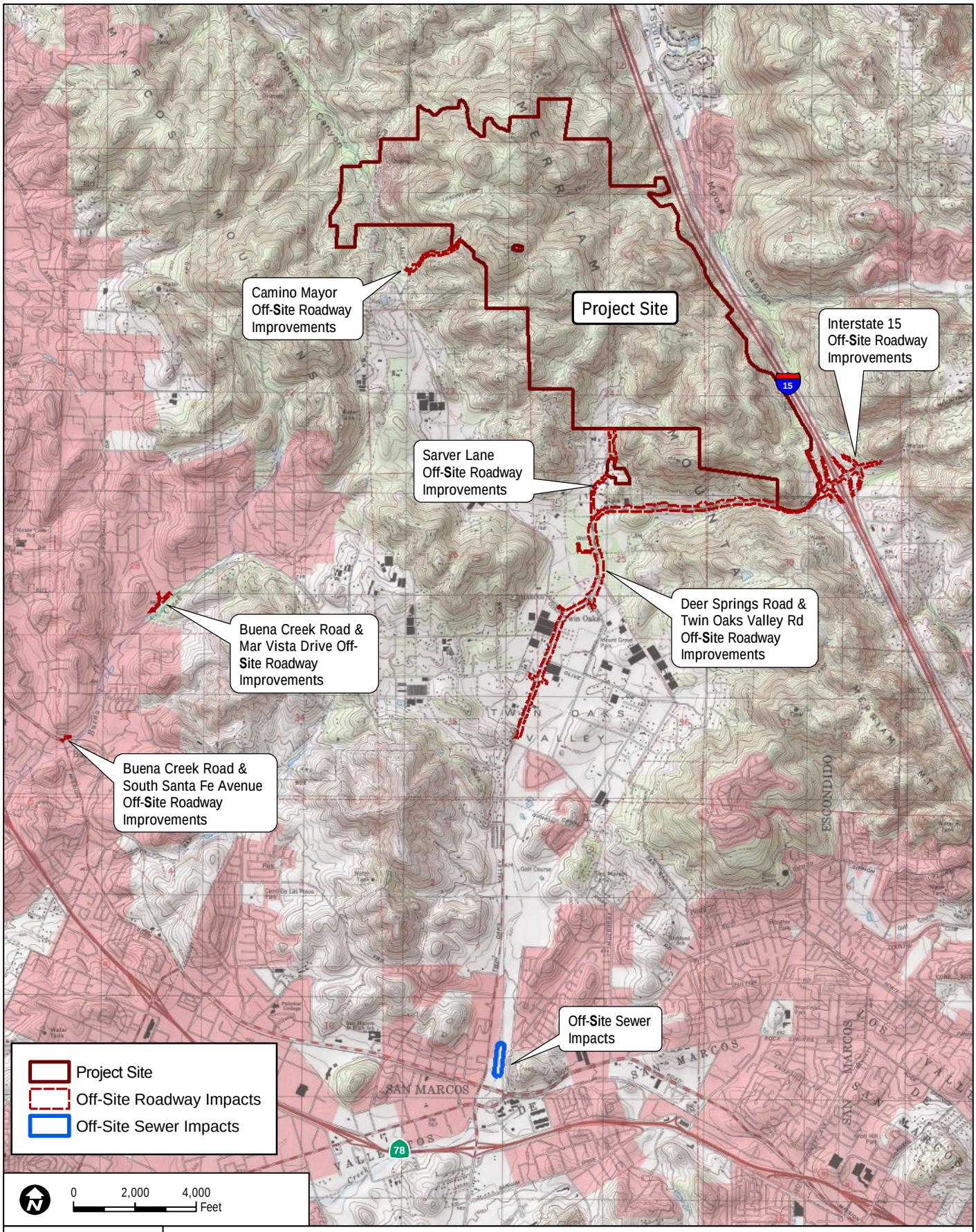
DUDEK

FIGURE 1

Regional Map

Noise Report for the Newland Sierra Project

INTENTIONALLY LEFT BLANK



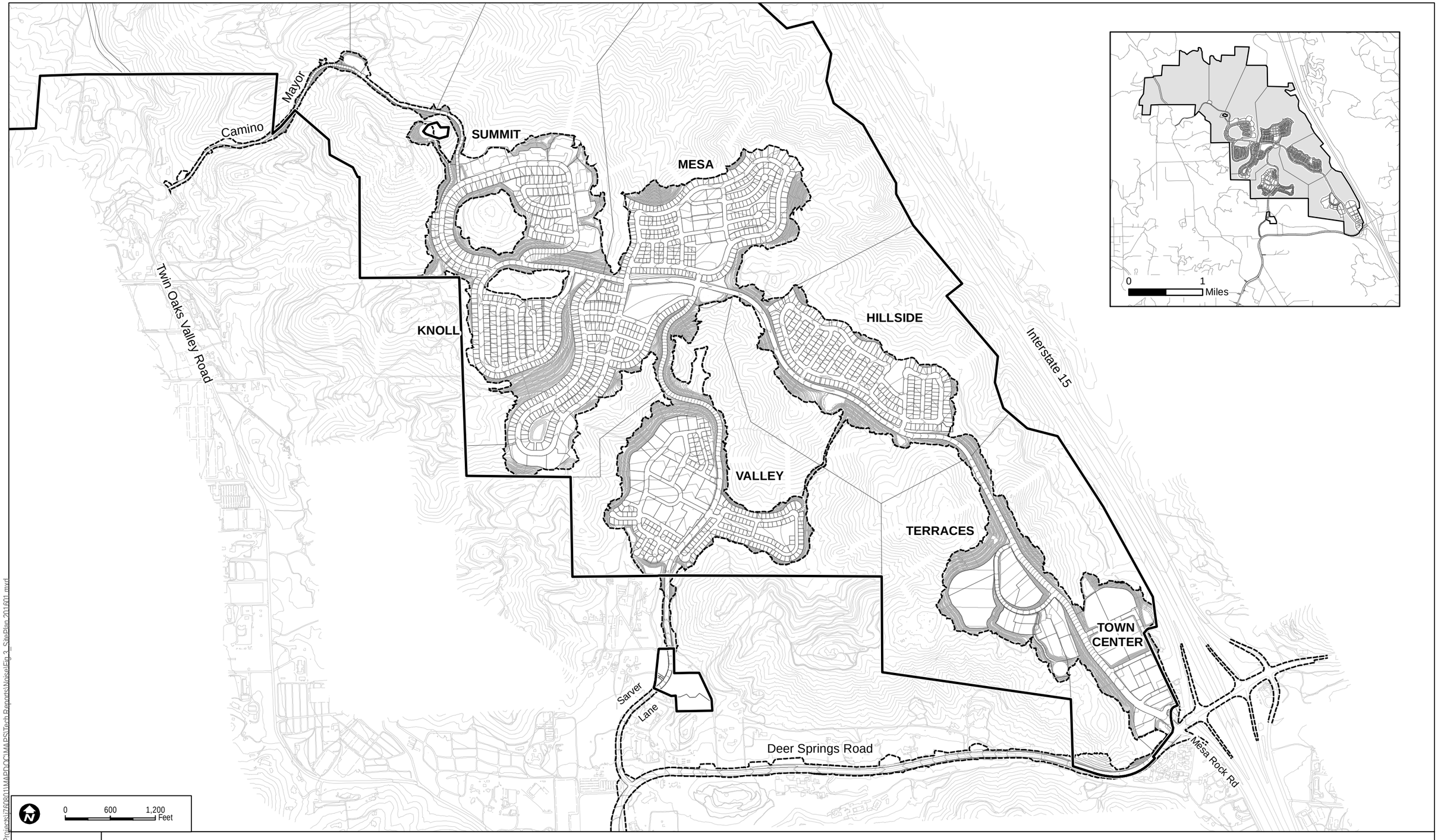
SOURCE: USGS 7.5-Minute Series San Marcos Quadrangle.

FIGURE 2
Vicinity Map

DUDEK

Noise Report for the Newland Sierra Project

INTENTIONALLY LEFT BLANK



SOURCE: Fuscoe 2016

FIGURE 3
Site Plan

DUDEK

Noise Report for the Newland Sierra Project

INTENTIONALLY LEFT BLANK

Summit Neighborhood

The Summit Neighborhood would be the northernmost area of development, located just north of the Knoll and northwest of the Mesa Neighborhoods. This planning area would be composed of the largest lots proposed throughout the development, with homes on lots ranging from 6,000 to 7,500 square feet. The Summit proposes 151 dwelling units and approximately 2 acres of parks (including the equestrian staging area). The highest elevations in the project Site occur in this planning area. Average elevations range from 1,390 feet amsl up to 1,600 feet amsl. A trail would lead to the highest point in the planning area where a lookout would be located. The Summit planning area would contain grade-adaptive large lots, family lots, and single-family clusters designed to maximize views.

Knoll Neighborhood

The Knoll Neighborhood would be located south of the Summit, southwest of the Mesa, and north of the Valley Neighborhoods. This planning area would be composed of single-family homes with lots ranging from 4,500 to 5,000 square feet, plus single-family clusters. Knoll would include 372 residential units and approximately 9.5 acres of parks. The residential units in this neighborhood would consist of single-family lots and single-family clusters. The topography of this planning area has some of the highest elevations of the project Site. Elevations range from 1,175 feet amsl to 1,400 feet amsl. Knoll was designed to preserve the primary knolls in the area.

Valley Neighborhood

The Valley Neighborhood would be located northwest of the Terraces and south of the Knoll Neighborhoods. This planning area would be composed of single-family clusters, townhomes, and single-family homes with lots ranging in size from 3,500 to 4,000 square feet. The average elevation for the Valley planning area would be approximately 900 feet amsl. It would include 505 residential units and approximately 12.3 acres of parks.

Access Points and Internal Circulation

The project's multimodal transportation network would support pedestrian, equestrian, bicycle, shuttle service, and vehicular use throughout the Community, with connections to off-site roads supporting the same. The project Site would have two primary access roads along Deer Springs Road at Mesa Rock Road and Sarver Lane, with an additional access point at Camino Mayor off North Twin Oaks Valley Road. The Mesa Rock Road access would be built as a six-lane entry road with a median that transitions into a four-lane divided road farther into the Site, and then into a two-lane undivided roadway until it reaches the Sarver Lane access where it would transition into a three-lane undivided roadway. The loop road is primarily designed with a width of 32 feet and would include striped bike lanes and a 10-foot-wide multi-use pathway along its

entire length. The bike lanes and multi-use pathway would connect to bike routes and a 10-foot-wide multi-use pathway along Deer Springs Road.

An electric bike share program would be included to further link the neighborhoods to one another and reduce internal vehicle trips. The electric bike share program would include the placement of a kiosk in close proximity to each planning area to allow electric bikes to be taken from one kiosk and left at another, encouraging sustainable transportation between planning areas within the project. The program includes the placement of eight kiosks throughout the Community, with 10 to 20 electric bikes at each kiosk. Additionally, the project would include bike lanes, an extensive trail system consisting of roadside pathways within the linear greenbelts, and pathways. With incorporation of these internal circulation features, the project would provide residents the opportunity to access employment, education, and recreational and commercial uses via multiple modes of transportation.

Off-Site Mitigation Requirements

In addition to the improvements described above, traffic impacts to off-site roadways would necessitate various off-site improvements. These improvements are identified as mitigation measures to reduce traffic impacts. They include improvements to the Deer Springs Road/I-15 Interchange, Deer Springs Road, Twin Oaks Valley Road, Buena Creek Road, Monte Vista Drive, S. Santa Fe Avenue, and various intersections, and they are necessary to improve the capacity and operations of these roadways. Several of these roadway improvements are located within the jurisdiction of another lead agency. Because these additional off-site improvements are identified as mitigation measures, the EIR discusses the environmental effects of the improvements to the extent known at this time, and as required by CEQA, in less detail than the significant effects of the proposed project (See CEQA Guidelines Section 15126.4(a)(1)(D)).

Deer Springs Road

Of the off-site mitigation requirements identified in the EIR, the improvements to Deer Springs Road would involve two options. Option A would improve an approximately 6,600-foot-long section of the segment of Deer Springs Road between Sarver Lane and Mesa Rock Road to a 2.1B Community Collector (two lanes of travel with a continuous center turn lane). The balance of the road southwest into the city of San Marcos and east to I-15, including its intersections with Sarver Lane and Mesa Rock Road, would be improved to a 4.1A Major Road (a four-lane road with a raised median). Consistent with these sets of improvements, Option A would reclassify Deer Springs Road in the Mobility Element of the County's General Plan from a 6.2 Prime Arterial (six-lane) to a 4.1A Major Road with Raised Median and a 2.1B Community

Collector with Continuous Turn Lane classifications. The centerline of Deer Springs Road would be realigned to ensure a minimum 750-foot turning radii along the entire alignment.

Option B would construct the entire length of the road from the I-15 interchange to its intersection with Twin Oaks Valley Road as a four-lane road, with an approximately 7,600-foot-long section of the road between Sarver Lane and Mesa Rock Road as a 4.1B Major Road (four lanes of travel with a continuous center turn lane), and the balance of the road, including its intersections with Sarver Lane and Mesa Rock Road, as a 4.1A Major Road. Option B would not reclassify Deer Springs Road; the roadway would remain as a 6.2 Prime Arterial (six-lane) in the Mobility Element of the General Plan. The centerline of Deer Springs Road would be realigned to ensure a minimum 750-foot turning radii along the entire alignment.

Both Option A and Option B would provide increased capacity on Deer Springs Road relative to existing conditions, although when considering level of service, only Option B would meet the County's level-of-service standards at project buildout. As is standard, the ultimate design of the road would be subject to County final engineering review and approval, whereby the County may require minor adjustments to the design details described herein.

1.2 Environmental Settings and Existing Conditions

1.2.1 Settings and Location

The project Site is located within the northern portion of the Merriam Mountains, a narrow chain of low mountains generally running north/south with a variety of east/west-trending ridgelines and scattered peaks. These mountains originate near the northern end of the urban parts of the City of Escondido and are bordered by Gopher Canyon Road to the north, I-15 to the east, and Twin Oaks Valley Road to the west. The Merriam Mountains are approximately 8.5 miles long, and the project Site is situated on approximately 3 miles of the northern portion of the Merriam Mountains.

The San Marcos Mountains are located northwest of the project Site and are significant due to their undeveloped nature and potential to support a wide variety of native wildlife species and because of the presence of rare and otherwise special-status plant species, such as tetracoccus, wart-stemmed Ceanothus (*Ceanothus verrucosus*), and southern mountain misery (*Chamaebatia australis*). Much of the northern two-thirds of the Merriam Mountains area is considered biologically significant due to its undeveloped nature and potential to provide a major block of habitat that would contribute to regional conservation planning. The project Site is located within the draft North County Multiple Species Conservation Program area and is categorized by the draft North County Multiple Species Conservation Program regional habitat evaluation model as having mostly moderate value habitats, with smaller areas of high-value and very-high-value habitats.

Natural topography of the Site is composed of hills and valleys dominated by significant rock outcroppings with moderate to steeply sloping terrain. On-site elevation ranges from approximately 660 feet amsl near the northwestern limits of the project Site at Twin Oaks Valley Road to approximately 1,750 feet amsl in the west-central portion of the Site. Portions of the Site contain Resource Protection Ordinance-defined steep slope lands in excess of 25% slope. Both Gopher Canyon and the San Marcos Mountains show favorable attributes as habitat and corridors for larger wildlife.

The project Site is primarily undeveloped. A number of dirt roads and trails that provide access to each parcel plus service roads for the existing water infrastructure traverse the project Site. Portions of the Site have been and continue to be used for various unauthorized land uses, including horseback riding, hiking, mountain biking, off-roading, motorcycling, shooting, and occasional dumping. An abandoned quarry is located in the northwest portion of the Site fronting Twin Oaks Valley Road, and an abandoned private landing strip is located in the north-central portion of the Site.

Surrounding land uses to the north, west, and south of the project Site include large-lot, single-family development and avocado groves. Many of the prominent ridges surrounding the Site are occupied by existing homes. Lawrence Welk Village and the community of Hidden Meadows are located to the east of the project Site across I-15. South of the Site is a mobile home park, Golden Door Properties LLC, and estate development along the border of the City of San Marcos and the unincorporated portion of the County.

1.2.2 Existing Noise Conditions

The primary existing noise source at the Site is traffic along I-15 and Deer Springs Road. The existing traffic volume is approximately 126,000 average daily traffic (ADT) along I-15. Deer Springs Road has an existing traffic volume of approximately 19,400 ADT adjacent to the Site (LLG 2017).

Noise measurements were conducted at the project Site and the surrounding area to determine existing noise levels. The measurements were made using a calibrated SoftdB Piccolo integrating sound level meter (S.N. 140317004) and a Larson Davis Model Cal150 field calibrator (S.N. 5152). The sound level meter was equipped with 0.5-inch pre-polarized condenser microphone and preamplifier. The sound level meter meets the current American National Standards Institute criteria for a Type 2 general-purpose sound level meter. The sound level meter was positioned at a height of approximately 5 feet above the ground during the noise measurements and was equipped with a windscreen.

Noise measurements were conducted on September 29, 2014. Ten short-term (20 minutes) noise measurements were made. Noise measurement sites were selected using the project Site plan and mapping resources for existing land uses on the basis of being representative of planned future or existing NSLUs. Based on the standard of the practice of community noise measurements, one measurement at each location was conducted during off-peak, daytime weekday hours of sufficient duration (in this case 20 minutes each) such that the energy-averaged noise level (L_{eq}) maintained a consistent level (within several tenths of a decibel (dB)). The noise measurement locations are depicted as Sites M1 through M6 (mobile sources) and A1 through A4 (ambient sources) in Figure 4. Six of the noise measurements (M1 through M6) were taken to capture existing noise levels created by traffic along roadways in the vicinity of the project Site, and the other four measurements (A1 through A4) were taken to determine the existing ambient noise levels at different locations on the project Site.

The six noise measurement locations meant to capture traffic-related noise are described in the following text, and the results of the measurements are shown in Table 1.

M1 Measurement location M1 is just north of the Mesa Rock Road cul-de-sac near the I-15 interchange at Deer Springs Road. The measurement was taken at approximately 210 feet from the I-15 centerline and had a direct line of sight to the northbound and southbound lanes on I-15, with only limited intervening topography. The measured average noise level at M1 was 65.9 decibels on the A-weighted scale (dBA) equivalent sound level (L_{eq}), which was primarily attributable to traffic noise from I-15.

M2 Measurement location M2 is just west of the I-15 and Deer Springs Road interchange, adjacent to Deer Springs Road and the existing residential uses to the south. The noise meter was located approximately 10 feet from the edge of the Deer Springs Road pavement, with a direct line of site to Deer Springs Road. The measured average noise level was 70.4 dBA L_{eq} and was primarily caused by traffic along Deer Springs Road.

M3 Measurement location M3 is located along Deer Springs Road, approximately 0.75 mile from the I-15 interchange with Deer Springs Road. The measurement was taken approximately 25 feet from the edge of the pavement of Deer Springs Road, with a direct line of sight and no intervening topography. The measured average noise level was 69.1 dBA L_{eq} and was primarily produced by traffic along Deer Springs Road.

M4 Measurement location M4 is along Sarver Lane, less than 0.25 mile north of Deer Springs Road. The noise meter was located approximately 20 feet from the Sarver

Lane edge of pavement, with a direct line of sight and no intervening topography or vegetation. The measured average noise level was 45.8 dBA L_{eq} and was attributable to a variety of noise sources, including traffic along Sarver Lane, wind rustling leaves and vegetation, and distant small aircraft operations.

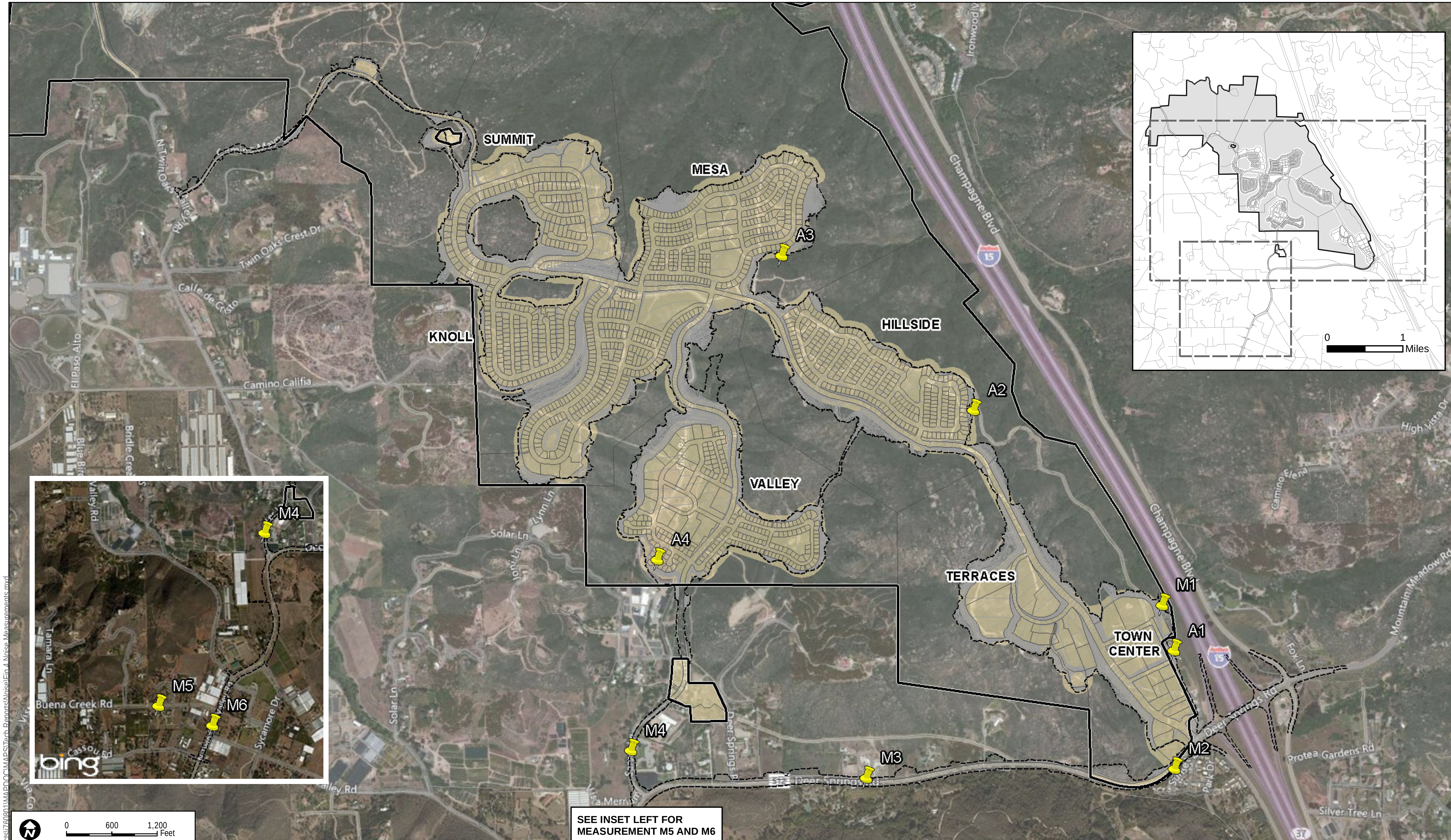
M5 Measurement location M5 is along Buena Creek Road, approximately 0.3 mile from North Twin Oaks Valley Road. The noise meter was located approximately 20 feet from the edge of the Buena Creek Road pavement, with a direct line of sight to Buena Creek Road. The measured average noise level at M5 was 65.3 dBA L_{eq} and was primarily caused by traffic along Buena Creek Road.

M6 Measurement location M6 is along North Twin Oaks Valley Road and approximately 0.1 mile south of its intersection with Buena Creek Road. The noise meter was located approximately 20 feet from the North Twin Oaks Valley Road edge of pavement, with a direct line of sight and flat topography. The measured average noise level at M6 was 68.7 dBA L_{eq} and was primarily attributable to traffic on North Twin Oaks Valley Road.

Table 1
Traffic Noise Measurements

Site	Description	Date/Time*	L_{eq}**	Cars	Medium Trucks	Heavy Trucks	Motorcycles
M1	Approximately 210 feet from the I-15 centerline	9/29/14 1:00 to 1:20 p.m.	65.9	2,110	46	249	14
M2	Approximately 10 feet from the Deer Springs Road edge of pavement	9/29/14 1:50 to 2:10 p.m.	70.4	224	11	1	0
M3	Approximately 25 feet from the Deer Springs Road edge of pavement	9/29/14 2:15 to 2:35 p.m.	69.1	261	0	3	2
M4	Approximately 20 feet from the Sarver Lane edge of pavement	9/29/14 2:30 to 2:45 p.m.	45.8	2	0	0	0
M5	Approximately 20 feet from the Buena Creek Road edge of pavement	9/29/14 3:50 to 4:10 p.m.	65.3	212	0	0	0
M6	Approximately 20 feet from the North Twin Oaks Valley Road edge of pavement	9/29/14 4:00 to 4:20 p.m.	68.7	445	6	11	3

Source: Appendix A.
* Average temperature was 73°F, relative humidity was 62%, 3 mile-per-hour southwest wind, and clear skies.
** Equivalent continuous sound level (time-average sound level)



SOURCE: Fuscoe 2016

DUDEK

FIGURE 4

Noise Measurement Locations

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\j760801\MAPDOC\MAPS\Tech Reports\Noise\Fig 4 Noise Measurements.mxd

INTENTIONALLY LEFT BLANK

The four ambient noise measurements are described in the following text, and the results of the measurements are shown in Table 2.

- Ambient measurement location A1 is located on the northern edge of the Mesa Rock Road cul-de-sac near the I-15 interchange at Deer Springs Road, near the location of the proposed school. The measurement was taken at approximately 15 feet from the edge of Mesa Rock Road, with a direct line of sight to Mesa Rock Road and no intervening topography. The measured average noise level was 52.7 dBA Leq, which was primarily produced by traffic to the south at the existing Arco gas station and distant I-15 traffic.
- Ambient measurement location A2 is located on one of the easternmost lot lines in the proposed Hillside Neighborhood. The measured average noise level was 46.9 dBA Leq and was primarily caused by I-15 traffic. The noise meter did not have a direct line of sight to I-15 due to intervening topography.
- Ambient measurement location A3 is located in the proposed Mesa Neighborhood. Specifically, the noise meter was placed at the easternmost lot line in the proposed Mesa Neighborhood. The measured average noise level was 41.8 dBA Leq, which was primarily due to distant aircraft operation and distant I-15 traffic, even though there was no direct line of sight to I-15 due to intervening topography.
- Ambient measurement location A4 is located on the project Site in the proposed Valley Neighborhood. The noise meter was located in an open field in a valley surrounded with steep-sloping mountains and with little development in a direct line of sight. The measured average noise level was 54.8 dBA L_{eq} and was primarily attributable to distant industrial equipment and occasional distant small aircraft operations.

Table 2
Ambient Noise Measurements

Site	Description	Date/Time*	Average Sound Level (dBA L_{eq})	Maximum Sound Level (dBA L_{max})	Minimum Sound Level (dBA L_{min})
A1	Approximately 15 feet north of Mesa Rock Road	9/29/14 12:45 to 1:15 p.m.	52.7	64.1	47.2
A2	Approximately easternmost lot line in the Hillside Neighborhood of the proposed project	9/29/14 3:30 to 3:50 p.m.	46.9	53.3	43.3
A3	Easternmost lot line in the Mesa Neighborhood of the proposed project	9/29/14 3:15 to 3:35 p.m.	41.8	50.4	39.0
A4	In the Valley Neighborhood of the proposed project	9/29/14 2:45 to 3:05 p.m.	54.8	62.4	46.4

Source: Appendix A.
* Average weather was the following: temperature was 73°F, relative humidity was 62%, 3-mile-per-hour southwest wind, and clear skies

1.3 Methodology and Equipment

1.3.1 Noise Measuring Methodology and Procedures

Noise levels were measured within the project Site and in the surrounding area with a SoftdB Piccolo sound level meter. All measurements were taken with the microphone at a height of approximately 5 feet above existing ground level and fitted with a windscreen. Sound level meter calibrations were checked before and after use. Short-term noise level measurements were taken within the project Site and surrounding area on September 29, 2014, between 12:45 p.m. and 4:20 p.m. During the measurement period, the weather was dry and slightly breezy (>3 miles per hour), and the average temperature was 73°F, with approximately 62% relative humidity.

1.3.2 Noise Modeling Software

The existing and future traffic noise levels were modeled using the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) Version 2.5 (FHWA 2004). The FHWA model is based on reference noise emission factors for automobiles, medium trucks, heavy trucks, motorcycles, and buses, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground type. The same traffic volume and vehicle composition ratios obtained during the noise measurements were used to calibrate the model and verify the input used in the noise model. The modeled values ranged from 0 to 2 dBA greater than the measured values. The greatest differences (2 dBA when rounded to whole numbers) were at sites M4, M5, and M6. Differences between measured and modeled noise levels of 2 dBA or less are within the tolerances of the measurement devices and the TNM model, and are, thus, considered acceptable.

The primary inputs for the TNM noise model to calculate the Community Noise Equivalent Level (CNEL) were the following:

- **Truck Mix:** 87% autos, 4% medium trucks, and 9% heavy trucks along I-15 (per the Caltrans 2010 Truck Counts Data); 96% autos, 1% medium trucks, and 3% heavy trucks along Deer Springs Road and Buena Creek Road;[1] and 97% autos, 2% medium trucks, and 1% heavy trucks along Sarver Lane, Camino Mayor, and internal project roads.[2]
- **Existing ADT:** 126,000 ADT along I-15 and 19,400 ADT along Deer Springs Road.
- **CNEL:** The TNM noise model uses hourly traffic noise volumes as the input. To derive the 24-hour weighted CNEL, 14% of the ADT volumes were input as hourly volumes for

[1] Percentage based on traffic counts conducted by Dudek field staff during the noise measurements on September 29, 2014.

[2] Percentage based on published vehicle mix guidance for arterial roadways, Orange County Environmental Management Agency (OCEMA 1989).

I-15, and 10% of the ADT volumes were input as hourly volumes for the other modeled roadways (Deer Springs Road, Buena Creek Road, Sarver Lane, Camino Mayor, and internal project roads).

1.3.3 Noise Formulas and Calculations

Construction Noise

Conventional Construction

Noise generated by construction equipment varies greatly depending on factors such as type and specific model of equipment, condition of the equipment, and the operation being performed. The average sound level of a construction activity also depends on the amount of time that the equipment operates and the intensity of the construction during that time. Construction activities would occur during the County's allowable hours of operation (7 a.m. to 7 p.m.).

Construction would involve several phases, including clearing and grubbing, grading, foundation construction, and finish construction. The maximum noise levels for various pieces of construction equipment at a distance of 50 feet are depicted in Table 3. Note that these are maximum noise levels, not the average sound level generally used in this assessment. The average sound level at construction sites is typically less than the maximum noise level because the equipment operates in alternating cycles of full power and lower power. Also, the equipment moves in various directions (i.e., noisiest side of the equipment to quieter sides of the equipment), and moves around the construction site, especially during clearing, grubbing, and grading activities. Thus, the average noise levels produced are less than the maximum level. Additionally, due to the dynamic nature of a construction site, noise levels are calculated from the center of the activity.

Typically, the greatest 1-hour average noise level occurs during clearing, grubbing, and grading/excavation activities. Construction equipment used during this construction phase typically includes scrapers, dozers, compactors, and water trucks. Based on prior noise measurements of construction activities, typical 1-hour average noise levels during ground clearing and grading activities range from approximately 75 to 80 dBA at 50 feet from the closest construction work area. Equipment operated during the prior noise measurements typically included six or more scrapers and dozers and two or three water trucks, backhoes, loaders, blades, and pickup trucks.

Construction noise in a well-defined area typically attenuates at approximately 6 dBA per doubling of distance. When the sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, an excess ground attenuation value of 1.5 dBA per doubling distance can be assumed (Caltrans 2009).

In addition, construction-related noise includes vehicle noise generated by off-site construction worker daily trips.

Table 3
Construction Equipment Noise Emission Levels

Equipment	Noise Level at 50 Feet (dBA)	Typical Duty Cycle
Auger drill rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain saw	85	20%
Clam shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete mixer truck	85	40%
Concrete pump	82	20%
Concrete saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump truck	84	40%
Excavator	85	40%
Front-end loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra break ram	90	10%
Impact pile driver (diesel or drop)	95	20%
In situ soil sampling rig	84	20%
Jackhammer	85	20%
Mounted impact hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic tools	85	50%
Pumps	77	50%
Rock drill	85	20%
Rock crusher	95	50%
Scraper	85	40%
Tractor	84	40%
Vacuum excavator (vac-truck)	85	40%
Vibratory concrete mixer	80	20%
Vibratory pile driver	95	20%

Source: FHWA 2008.
KVA = kilovolt amps

Operational Noise

As described in Section 1.3.2, on-site noise and land use compatibility were assessed using the FHWA's TNM Version 2.5 and traffic volumes from the proposed project's traffic report. Default ground absorption characteristics were used per FHWA guidance. Future traffic noise levels were calculated for two scenarios: Option A, with Deer Springs Road widened to four lanes, and Option B, with Deer Springs Road widened to six lanes (per the proposed Mobility Element classifications).

Stationary-source noise levels and attenuation rates were calculated using standard equipment reference data and hard site propagation characteristics. On-site receiver point calculations took major geographical contours (i.e., topographical shielding) and roadway/pad elevations into account, although the contour distance calculations conservatively did not take into account noise-attenuating shielding effects from topography or structures.

INTENTIONALLY LEFT BLANK

2 NOISE-SENSITIVE LAND USES AFFECTED BY AIRBORNE NOISE

2.1 Guidelines for the Determination of Significance

Guidelines for the determination of significance of environmental noise impacts for this report were promulgated from the County's Noise Guidelines (County of San Diego 2009a).

Under the County's Guidelines, a proposed project would result in a significant impact if implementation would result in the exposure of any on-site or off-site existing or reasonably foreseeable future NSLUs to exterior or interior noise (including noise generated from a project combined with noise from roads, railroads, airports, heliports, and all other noise sources) greater than any of the following (County of San Diego 2009a):

A. Exterior Locations

   i. 60 dBA (CNEL)

   ii. An increase of 10 dBA (CNEL) over preexisting noise

   In the case of single-family residential detached NSLUs, exterior noise shall be measured at an outdoor living area that adjoins and is on the same lot as the dwelling and that contains at least the following minimum area:

   i. Net lot area up to 4,000 square feet: 400 square feet

   ii. Net lot area 4,000 square feet to 10 acres: 10% of net lot area

   iii. Net lot area over 10 acres: 1 acre

For all projects, exterior noise shall be measured at all exterior areas provided for group or private usable open space.

B. Interior Locations

   45 dBA (CNEL) except for the following cases:

   i. Rooms that are usually occupied only part of the day (i.e., schools, libraries, or similar facilities) in which the interior 1-hour average sound level due to noise outside should not exceed 50 dBA

   ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet

County General Plan

The General Plan Update was adopted by the County on August 3, 2011 (County of San Diego 2011). The County's Noise Guidelines have not yet been updated to incorporate the revisions to the General Plan Noise Element; however, the new noise compatibility guidelines and standards as contained in the General Plan Update are applicable to the proposed project. Table 4 provides the County's current noise compatibility guidelines, and Table 5 provides the County's accompanying noise standards.

Table 4
Noise Compatibility Guidelines

Land Use Category		Exterior Noise Levels (dBA)					
		55	60	65	70	75	80
A	Residential – Single-family residences, mobile homes, senior housing, convalescent homes						
B	Residential – Multi-family residences, mixed-use (commercial/residential)						
C	Transient lodging – motels, hotels, resorts						
D*	Schools, churches, hospitals, nursing homes, childcare facilities						
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries						
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation						
G*	Office/professional, government, medical/dental, commercial, retail, laboratories						
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, warehouse, maintenance/repair						
	ACCEPTABLE—Specified land use is satisfactory based on the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.						
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table 8, Noise Standards [Noise Report Table 5]. If a project cannot mitigate noise to a level deemed acceptable, the appropriate County decision maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.						
	UNACCEPTABLE—New construction or development shall not be undertaken.						

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL.

Table 5
Noise Standards

1.	The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2.	The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3.	The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (1-hour average).
4.	For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: • for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet; • for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10% of the lot area; • for lots over 10 acres in area, the exterior area shall include 1 acre.
5.	For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6.	For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7.	For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8.	The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9.	For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.

Source: County of San Diego 2011
Note: Exterior noise level compatibility guidelines for Land Use Categories A–H are identified in Table 11 [Noise Report Table 4].

Direct Noise Impact Criteria

As stated in the County of San Diego Guidelines for Determining Significance, Noise, Section 4.1-A(ii), a substantial noise increase is defined as an increase of 10 dBA CNEL above existing conditions. However, the Report Format and Content Requirements includes a statement that a "doubling of sound energy" is considered a significant impact at a "documented noisy site" (County of San Diego 2009b). A doubling of sound energy is equivalent to a 3 dBA increase. Based on the County's Noise Compatibility Guidelines and related Noise Standards, a documented noisy site is a location with NSLUs that currently exceeds the applicable noise standard based on the land use type shown in Table 4 (for example, 60 dBA CNEL in the case of single-family residences, 65 dBA CNEL in the case of multi-family or mixed-use residences, or 70 dBA in the case of office/professional uses).

Thus, a substantial increase is defined as a 10 dBA increase or greater over existing noise levels when existing and future noise levels are less than the County's Noise Compatibility Guidelines and Standards, or a 3 dBA increase when existing or future noise levels equal or exceed the County's Compatibility Guidelines and Standards.

Cumulative Noise Impact Criteria

Based on the guidance contained in the County's Report Format and Content Requirements, Noise (County of San Diego 2009b):

> Cumulative noise impacts may occur in discretionary applications where other permitted or planned projects will combine to exceed the standards of the Noise Element. It is more likely to occur in locations where existing noise levels are elevated or approach the applicable criterion of 60 dBA CNEL for an exterior noise sensitive land use (NSLU).

Further:

> Mitigation measures are required to reduce potential 'Cumulatively Considerable' impacts. Evaluation of mitigation feasibility and limitations shall be addressed in association with their implementation. A 'cumulatively considerable' contribution requiring mitigation or design measures is identified whenever … more than a one decibel increase from the project was identified in the model analysis.

By inference, "more than a one decibel increase" implies a 2 dBA or greater increase (when comparing Existing + Cumulative versus Existing + Cumulative + Project).

City of San Marcos

The City of San Marcos has established noise guidelines in the Noise Element of the City of San Marcos General Plan. These guidelines identify compatible exterior noise levels for various land use types. The maximum allowable noise exposure varies depending on the land use. For example, new single-family residential, schools, and churches are subject to a maximum acceptable exterior noise level of 60 dBA CNEL. Multi-family residential is subject to an outdoor noise level of 65 dBA CNEL (City of San Marcos 2012).

The City of San Marcos has not adopted specific road widening/extension significance thresholds for existing NSLUs. For the purposes of this study, the noise impact is significant if the traffic noise level increase exceeds 3 dBA CNEL and either elevates noise levels above the City of San Marcos' noise criteria limits or exceeds a 3 dBA increase above an already noisy existing condition (i.e., 60 dBA CNEL for single-family residential, schools, and churches, or 65 dBA CNEL for multi-family residential).

2.2 Potential On-Site Noise Impacts

Traffic noise impacts were evaluated based on a review of the data presented in the proposed project's traffic report (LLG 2017).

2.2.1 Potential Buildout Noise Conditions and Impacts

The following discussion addresses future on-site noise conditions and impacts. Traffic noise impacts at existing land uses (i.e., off-site locations) are assessed in Section 2.3.

Exterior Locations

For informational purposes and to generally characterize exterior traffic noise levels on the project Site, noise contours for the major interior roadways (herein referred to as Mesa Rock Road and Sarver Lane) and the adjacent I-15 were calculated for each planning area in the project Site using the TNM noise model. Noise contours may be thought of as representing lines of equal noise exposure from a noise source—in this case, traffic noise. Distances (in feet) from the respective roadways to the 60, 65, and 70 dBA CNEL noise contours were calculated for both Deer Springs Road improvement options (Option A and Option B). The results are summarized in Table 6, On-Site Future Noise Contours, and depicted in Figure 5, On-Site Traffic Noise Contours. These distances do not include the reduction in noise levels due to terrain or structure shielding.

Table 6
On-Site Future Noise Contours

Roadway / Segment or Neighborhood	FWP Option A			FWP Option B		
	Distance to CNEL Contour (in feet) from Roadway Centerline					
	60 dBA CNEL	*65 dBA CNEL*	*70 dBA CNEL*	*60 dBA CNEL*	*65 dBA CNEL*	*70 dBA CNEL*
Mesa Rock Road (Planned Extension)						
Project Entrance to Town Center	260	120	55	260	120	55
Town Center to Hillside	150	70	RW	150	70	RW
Hillside to Mesa	105	50	RW	105	50	RW
Mesa to Knolls	75	RW	RW	75	RW	RW
Knolls to Summit	105	50	RW	105	50	RW
Summit	RW	RW	RW	RW	RW	RW
Sarver Lane (Planned Extension)						
Valley	85	RW	RW	85	RW	RW
I-15						
Deer Springs Road to Gopher Canyon Road	2,300	1,100	500	2,300	1,100	500

FWP = Future With Project scenario; RW = Noise contour would be within the roadway right-of-way.

The noise contour distances shown in Table 6 do not account for the mitigating effects of terrain shielding or structure shielding. The predicted exterior noise levels at representative proposed on-site NSLUs are presented in Table 7, On-Site Future Noise Levels (dBA CNEL). Table 7 depicts the future with project noise levels for the ground floor and second floor under each of the two Deer Springs Road scenarios (Option A and Option B). Generally the levels for Option A and Option B are the same for the on-site receivers except for at receiver P-8 (a park site on the southern property line of Town Center), where Deer Springs Road would be adjacent to that receiver. The corresponding receiver locations are shown in Figures 6a through 6h, and the TNM noise model input and output files are provided in Appendix B to this report.

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
P-1	Town Center – Park 1	Town Center – Park 1	Park / 65	63[1]	No	n/a	n/a	64[1]	No	n/a	n/a
P-2	Town Center – Park 2	Town Center – Park 2	Park / 65	65[1]	No	n/a	n/a	65[1]	No	n/a	n/a
P-3	Town Center – Park 3	Town Center – Park 3	Park / 65	58[1]	No	n/a	n/a	59[1]	No	n/a	n/a
TC-2	Town Center – Lot 2	Town Center – Lot 2	Commercial, Retail / 70	67	No	n/a	n/a	68	No	n/a	n/a
TC-4	Town Center – Lot 4	Town Center – Lot 4	Commercial, Retail / 70	68	No	n/a	n/a	70	No	n/a	n/a
TC-7	Town Center Lot 7	Town Center – Lot 7	Commercial, Retail / 70	65	No	n/a	n/a	66	No	n/a	n/a
TC-10	Town Center – Lot 10	Town Center – Lot 10	Multi-family Resi / 65	64	No	67	Yes	65	No	67	Yes
TC-11	Town Center – Lot 11	Town Center – Lot 11	Multi-family Resi / 65	61	No	64	No	62	No	64	No
TC-12	Town Center – Lot 12	Town Center – Lot 12	Multi-family Resi / 65	59	No	**68**	**Yes**	60	No	**68**	**Yes**
TC-13	Town Center – Lot 13	Town Center – Lot 13	Multi-family Resi / 65	64	No	**67**	**Yes**	65	No	**67**	**Yes**
TC-14-1	Town Center – Lot 14	Town Center – Lot 14 (south side of lot)	Multi-family Resi / 65	59	No	62	No	60	No	62	No
TC-14-2	Town Center – Lot 14	Town Center – Lot 14 (east side of lot)	Multi-family Resi / 65	65	No	**75**	**Yes**	65	No	**75**	**Yes**
P-4	Hillside – Park 4	Hillside – Park 4	Park / 65	58	No	n/a	n/a	58	No	n/a	n/a

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
P-5	Hillside – Park 5	Hillside – Park 5	Park / 65	57	No	n/a	n/a	57	No	n/a	n/a
H-28	Hillside – Lot 28	Hillside – Lots 26–29	Single-family Resi / 60	58	No	**62**	**Yes**	59	No	**62**	**Yes**
H-32	Hillside – Lot 32	Hillside – Lots 30–34	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**
H-37	Hillside – Lot 37	Hillside – Lots 35–39	Single-family Resi / 60	**61**	**Yes**	**62**	**Yes**	**61**	**Yes**	**62**	**Yes**
H-43	Hillside – Lot 43	Hillside – Lots 40–45	Single-family Resi / 60	**62**	**Yes**	**62**	**Yes**	**62**	**Yes**	**62**	**Yes**
H-49	Hillside – Lot 49	Hillside – Lots 49–50	Single-family Resi / 60	**62**	**Yes**	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**
H-54	Hillside – Lot 54	Hillside – Lots 53–55	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**
H-59	Hillside – Lot 59	Hillside – Lots 58–59	Single-family Resi / 60	**61**	**Yes**	**62**	**Yes**	**61**	**Yes**	**62**	**Yes**
H-62	Hillside – Lot 62	Hillside – Lots 60–61	Single-family Resi / 60	60	No	**61**	**Yes**	**61**	**Yes**	**61**	**Yes**
H-64	Hillside – Lot 64	Hillside – Lots 58–59	Single-family Resi / 60	60	No	**61**	**Yes**	60	No	**61**	**Yes**
H-65	Hillside – Lot 65	Hillside – Lot 65	Single-family Resi / 60	53	No	55	No	53	No	55	No
H-68	Hillside – Lot 68	Hillside – Lots 67–69	Single-family Resi / 60	57	No	58	No	57	No	58	No
H-76	Hillside – Lot 76	Hillside – Lots 75–77	Single-family Resi / 60	55	No	58	No	55	No	58	No

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
H-80	Hillside – Lot 80	Hillside – Lots 79–81	Single-family Resi / 60	57	No	60	No	57	No	60	No
H-91	Hillside – Lot 91	Hillside – Lots 90–92	Single-family Resi / 60	59	No	**62**	**Yes**	59	No	**62**	**Yes**
H-94	Hillside – Lot 94	Hillside – Lots 93–95	Single-family Resi / 60	**62**	**Yes**	**65**	**Yes**	**62**	**Yes**	**65**	**Yes**
H-97	Hillside – Lot 97	Hillside – Lots 96–98	Single-family Resi / 60	**61**	**Yes**	**64**	**Yes**	**61**	**Yes**	**64**	**Yes**
H-100	Hillside – Lot 100	Hillside – Lots 99–100	Single-family Resi / 60	**63**	**Yes**	**67**	**Yes**	**63**	**Yes**	**67**	**Yes**
H-101	Hillside – Lot 101	Hillside–Lots 101–102	Single-family Resi / 60	**64**	**Yes**	**68**	**Yes**	**64**	**Yes**	**68**	**Yes**
H-103	Hillside – Lot 103	Hillside – Lots 103–105	Single-family Resi / 60	**64**	**Yes**	**67**	**Yes**	**64**	**Yes**	**67**	**Yes**
H-108	Hillside – Lot 108	Hillside – Lots 108–109	Single-family Resi / 60	**64**	**Yes**	**67**	**Yes**	**64**	**Yes**	**67**	**Yes**
H-110	Hillside – Lot 110	Hillside – Lots 110–111	Single-family Resi / 60	**63**	**Yes**	**66**	**Yes**	**63**	**Yes**	**66**	**Yes**
H-114	Hillside – Lot 114	Hillside – Lots 112–114	Single-family Resi / 60	57	No	59	No	57	No	59	No
H-116	Hillside – Lot 116	Hillside – Lots 115–117	Single-family Resi / 60	56	No	58	No	56	No	58	No
H-119	Hillside – Lot 119	Hillside – Lots 118–120	Single-family Resi / 60	57	No	59	No	57	No	59	No
P-11	Knoll – P-11	Knoll – P-11	Park / 65	61	No	n/a	n/a	61	No	n/a	n/a

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
K-798	Knoll – Lot 798	Knoll – Lots 799–797	Single-family Resi / 60	55	No	59	No	55	No	59	No
K-805	Knoll – Lot 805	Knoll – Lots 804–806	Single-family Resi / 60	54	No	57	No	55	No	57	No
K-809	Knoll – Lot 809	Knoll – Lots 808–810	Single-family Resi / 60	51	No	54	No	52	No	54	No
K-817	Knoll – Lot 817	Knoll – Lots 816–818	Single-family Resi / 60	48	No	50	No	49	No	50	No
K-821	Knoll – Lot 821	Knoll – Lots 819–823	Single-family Resi / 60	47	No	47	No	48	No	48	No
K-824	Knoll – Lot 824	Knoll – Lots 824–828 single-family clusters	Multi-family Resi / 65	46	No	47	No	47	No	48	No
K-876	Knoll – Lot 876	Knoll – Lot 876	Single-family Resi / 60	60	No	**61**	**Yes**	60	No	**61**	**Yes**
K-971	Knoll – Lot 971	Knoll – Lots 969–972	Single-family Resi / 60	**63**	**Yes**	**64**	**Yes**	**64**	**Yes**	**64**	**Yes**
K-973	Knoll – Lot 973	Knoll – Lot 973	Single-family Resi / 60	**64**	**Yes**	**64**	**Yes**	**64**	**Yes**	**64**	**Yes**
P-6	Mesa – Park-6	Mesa – Park-6	Park / 65	63	No	n/a	n/a	63	No	n/a	n/a
M-269	Mesa – Lot 269	Mesa – Lots 267–270	Single-family Resi / 60	**61**	**Yes**	**62**	**Yes**	**61**	**Yes**	**62**	**Yes**
M-273	Mesa – Lot 273	Mesa – Lots 271–276	Single-family Resi / 60	60	No	60	No	60	No	60	No
M-280	Mesa – Lot 280	Mesa – Lots 277–280	Single-family Resi / 60	59	No	59	No	59	No	59	No

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
M-283	Mesa – Lot 283	Mesa – Lots 281–284	Single-family Resi / 60	58	No	59	No	58	No	59	No
M-285	Mesa – Lot 286	Mesa – Lots 285–286	Single-family Resi / 60	57	No	58	No	58	No	58	No
M-288	Mesa – Lot 288	Mesa – Lots 287–289	Single-family Resi / 60	55	No	55	No	56	No	55	No
M-331	Mesa – Lot 331	Mesa – Lots 330–331	Single-family Resi / 60	55	No	58	No	55	No	58	No
M-333	Mesa – Lot 333	Mesa – Lots 332–334	Single-family Resi / 60	56	No	60	No	56	No	60	No
M-336	Mesa – Lot 336	Mesa – Lots 335–337	Single-family Resi / 60	**61**	**Yes**	**65**	**Yes**	**61**	**Yes**	**65**	**Yes**
M-340	Mesa – Lot 340	Mesa – Lots 338–340	Single-family Resi / 60	60	No	**64**	**Yes**	60	No	**64**	**Yes**
M-343	Mesa – Lot 343	Mesa – Lots 341–345	Single-family Resi / 60	58	No	**61**	**Yes**	58	No	**61**	**Yes**
M-347	Mesa – Lot 347	Mesa – Lots 346–347	Single-family Resi / 60	56	No	59	No	56	No	59	No
M-349	Mesa – Lot 349	Mesa – Lots 348–351	Single-family Resi / 60	56	No	59	No	56	No	59	No
M-353	Mesa – Lot 353	Mesa – Lots 352–355	Single-family Resi / 60	52	No	55	No	52	No	55	No
M-364	Mesa – Lot 364	Mesa – Lots 363–365	Single-family Resi / 60	54	No	58	No	54	No	58	No
M-369	Mesa – Lot 369	Mesa – Lots 367–369	Single-family Resi / 60	63	**Yes**	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
P-14	Park 14	Park 14 North	Park / 65	59	No	n/a	n/a	59	No	n/a	n/a
S-548	Summit – Lot 548	Summit – Lots 545–550	Single-family Resi / 60	37	No	37	No	37	No	37	No
S-554	Summit – Lot 554	Summit – Lots 552–555	Single-family Resi / 60	56	No	57	No	57	No	57	No
S-558	Summit – Lot 558	Summit – Lots 558 single-family clusters	Multi-family Resi / 65	49	No	52	No	49	No	52	No
S-559	Summit – Lot 559	Summit – Lots 559 single-family clusters	Multi-family Resi / 65	51	No	53	No	51	No	53	No
S-561	Summit – Lot 561	Summit – Lots 561	Multi-family Resi / 65	56	No	60	No	56	No	60	No
S-562	Summit – Lot 562	Summit – Lots 562–563	Single-family Resi / 60	59	No	59	No	59	No	59	No
S-562R	Summit – Lot 562 Rear	Summit – Lots 562–563	Single-family Resi / 60	54	No	55	No	54	No	55	No
S-565	Summit – Lot 565	Summit – Lots 565–564	Single-family Resi / 60	59	No	59	No	60	No	59	No
S-567	Summit – Lot 567	Summit – Lots 566–568	Single-family Resi / 60	49	No	52	No	49	No	52	No
S-570	Summit – Lot 570	Summit – Lots 569–572	Single-family Resi / 60	58	No	58	No	58	No	58	No
S-573	Summit – Lot 573	Summit – Lots 573–575	Single-family Resi / 60	58	No	58	No	58	No	59	No
S-578	Summit – Lot 578	Summit – Lots 578–580	Single-family Resi / 60	58	No	58	No	59	No	59	No

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
S-582	Summit – Lot 582	Summit – Lots 581–584	Single-family Resi / 60	58	No	58	No	58	No	59	No
S-588	Summit – Lot 588	Summit – Lots 585–590	Single-family Resi / 60	59	No	59	No	59	No	59	No
S-618	Summit – Lot 1715	Summit – Lots 618, 632	Single-family Resi / 60	56	No	56	No	56	No	56	No
S-633	Summit – Lot 633	Summit – Lots 633–634	Single-family Resi / 60	53	No	56	No	54	No	57	No
S-646	Summit – Lot 646	Summit – Lots 645–647	Single-family Resi / 60	52	No	55	No	53	No	55	No
S-649	Summit – Lot 649	Summit – Lots 648–649	Single-family Resi / 60	53	No	56	No	53	No	56	No
T-16	Terraces – Lot 16	Terraces – Lot 16	Multi-family Resi / 65	64	No	65	No	65	No	65	No
T-24S	Terraces Lot 24 – South	Terraces Lot 24 – South	Multi-family Resi / 65	64	No	65	No	65	No	65	No
T-24SW	Terraces Lot 24 – SW	Terraces Lot 24 – SW	Multi-family Resi / 65	56	No	58	No	57	No	58	No
T-25N	Terraces Lot 25–North	Terraces Lot 25–North	Multi-family Resi / 65	**66**	**Yes**	**66**	**Yes**	**66**	**Yes**	**66**	**Yes**
T-25NW	Terraces Lot 25–Northwest	Terraces Lot 25–Northwest	Multi-family Resi / 65	55	No	58	No	56	No	58	No
T-25S	Terraces Lot 25–South	Terraces Lot 25–South	Multi-family Resi / 65	65	No	**66**	**Yes**	65	No	**66**	**Yes**
V-998	Valley – Lot 998	Valley – Lots 998–999	Single-family Resi / 60	54	No	58	No	54	No	58	No

Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

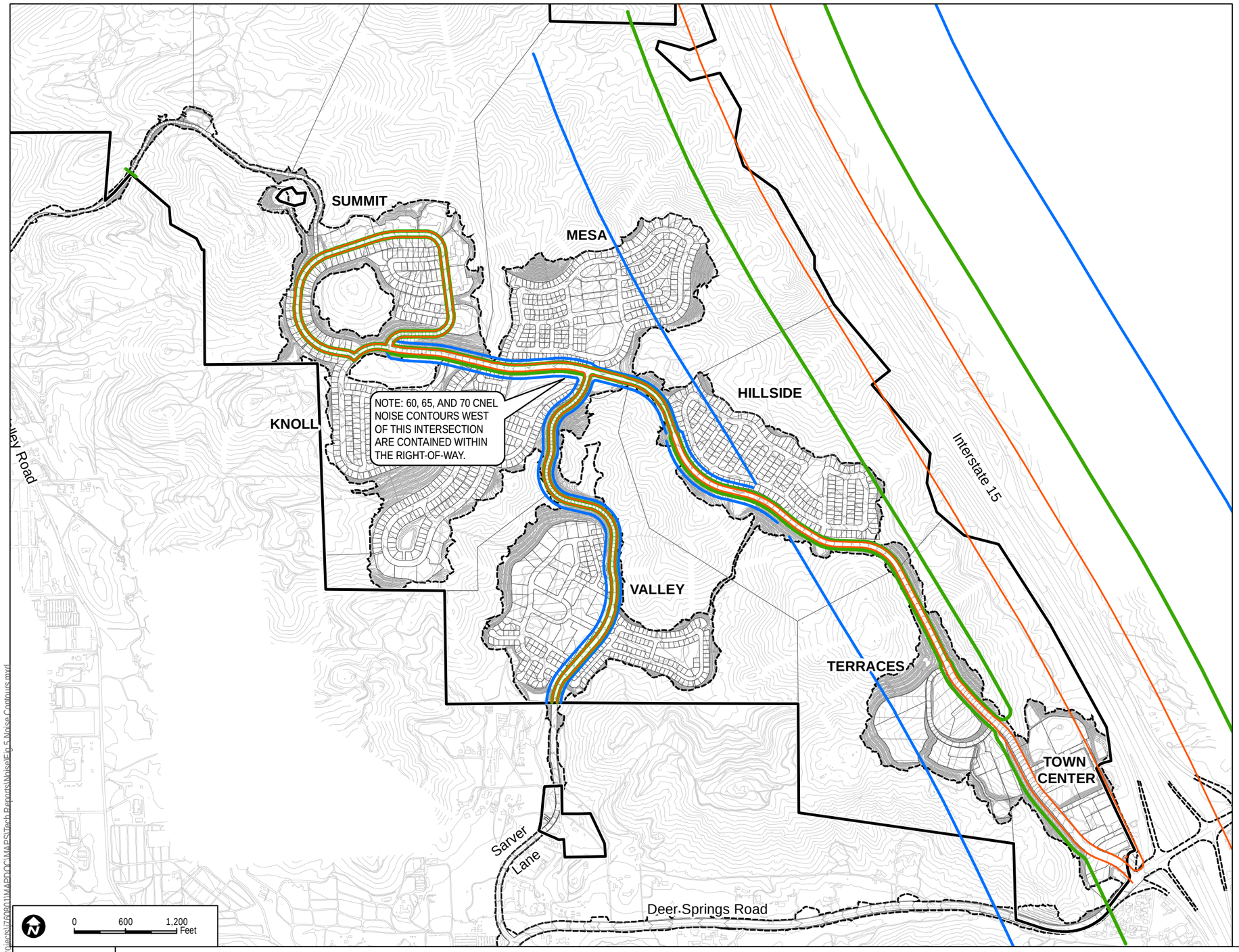
Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
V-1001	Valley – Lot 1001	Valley – Lots 1000–1002	Single-family Resi / 60	54	No	57	No	54	No	58	No
V-1004	Valley – Lot 1004	Valley – Lots 1003–1005	Single-family Resi / 60	53	No	55	No	53	No	56	No
V-1008	Valley – Lot 1008	Valley – Lot 1008	Single-family Resi / 60	51	No	52	No	51	No	53	No
V-1009	Valley – Lot 1009	Valley – Lot 1009	Single-family Resi / 60	50	No	51	No	50	No	52	No
V-1061	Valley – Lot 1061	Valley – Lots 1061–1062	Single-family Resi / 60	51	No	54	No	51	No	54	No
V-1067	Valley – Lot 1067	Valley – Lots 1066–1068	Single-family Resi / 60	56	No	58	No	56	No	58	No
V-1071	Valley – Lot 1071	Valley–Lots 1071, 1078	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**	**63**	**Yes**
V-1097	Valley – Lot 1097– single-family clusters	Valley – Lot 1097– single-family clusters	Multi-family Resi / 65	63	No	63	No	63	No	63	No
V-1098	Valley – Lot 1098	Valley – Lots 1098–1099	Single-family Resi / 60	58	No	58	No	58	No	58	No
V-1100	Valley – Lot 1100	Valley – Lot 1100	Single-family Resi / 60	**62**	**Yes**	**62**	**Yes**	**62**	**Yes**	**62**	**Yes**
V-1104	Valley – Lot 1104	Valley – Lots 1103–1105	Single-family Resi / 60	51	No	54	No	51	No	54	No
V-1151	Valley – Lot 1151	Valley – Lots 1151–1152	Single-family Resi / 60	51	No	55	No	52	No	55	No

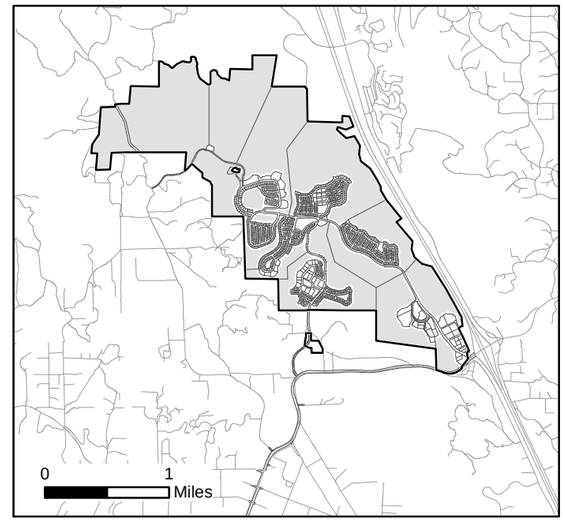
Table 7
On-Site Exterior Future Noise Levels (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option A 2nd Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards	FWP Option B 2nd Floor	Exceeds County Noise Standards
V-1189	Valley – Lot 1189	Valley – Lots 1189–1190	Single-family Resi / 60	60	No	60	No	60	No	60	No
V-1194	Valley – Lot 1194	Valley – Lots 1193–1195	Single-family Resi / 60	60	No	61	**Yes**	**61**	**Yes**	**61**	**Yes**
V-1194-F	Valley – Lot 1194–Ft Yard	Valley – Lots 1193–1195	Single-family Resi / 60	58	No	58	No	58	No	58	No
V-1199	Valley – Lot 1199	Valley – Lots 1198–1199	Single-family Resi / 60	**61**	**Yes**	**61**	**Yes**	**61**	**Yes**	**61**	**Yes**
V-1204	Valley – Lot 1204	Valley – Lots 1203–1205	Single-family Resi / 60	54	No	56	No	54	No	57	No

Notes: FWP = Future With Project scenario; n/a = not applicable
Noise receiver levels greater than the applicable noise standard are shown in **bold**.
[1] Hourly noise volumes and standards used for these park areas, per County guidance as shown in Table 4.

INTENTIONALLY LEFT BLANK





60 dBA CNEL Noise Contour (Option A & B)

65 dBA CNEL Noise Contour (Option A & B)

70 dBA CNEL Noise Contour (Option A & B)

Note:
Noise contours do not account for shielding effects from intervening terrain or structures.

SOURCE: Site Plan-Fuscoe 2016

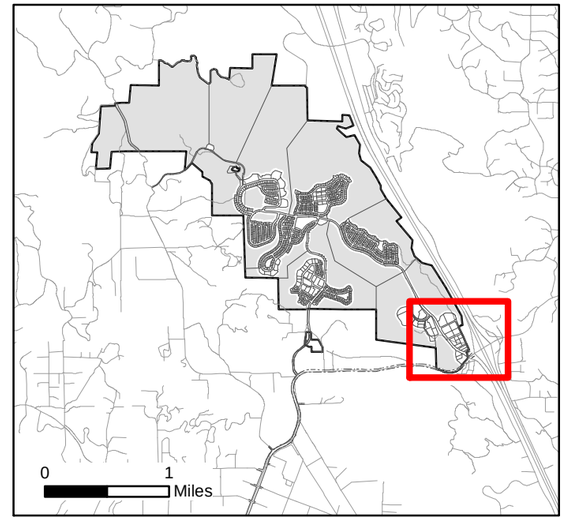
DUDEK

FIGURE 5
On-Site Traffic Noise Contours

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\Z760801\MAPDOC\MAPS\Tech Reports\Noise\Fig 5 Noise Contours.mxd

INTENTIONALLY LEFT BLANK



Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 6a

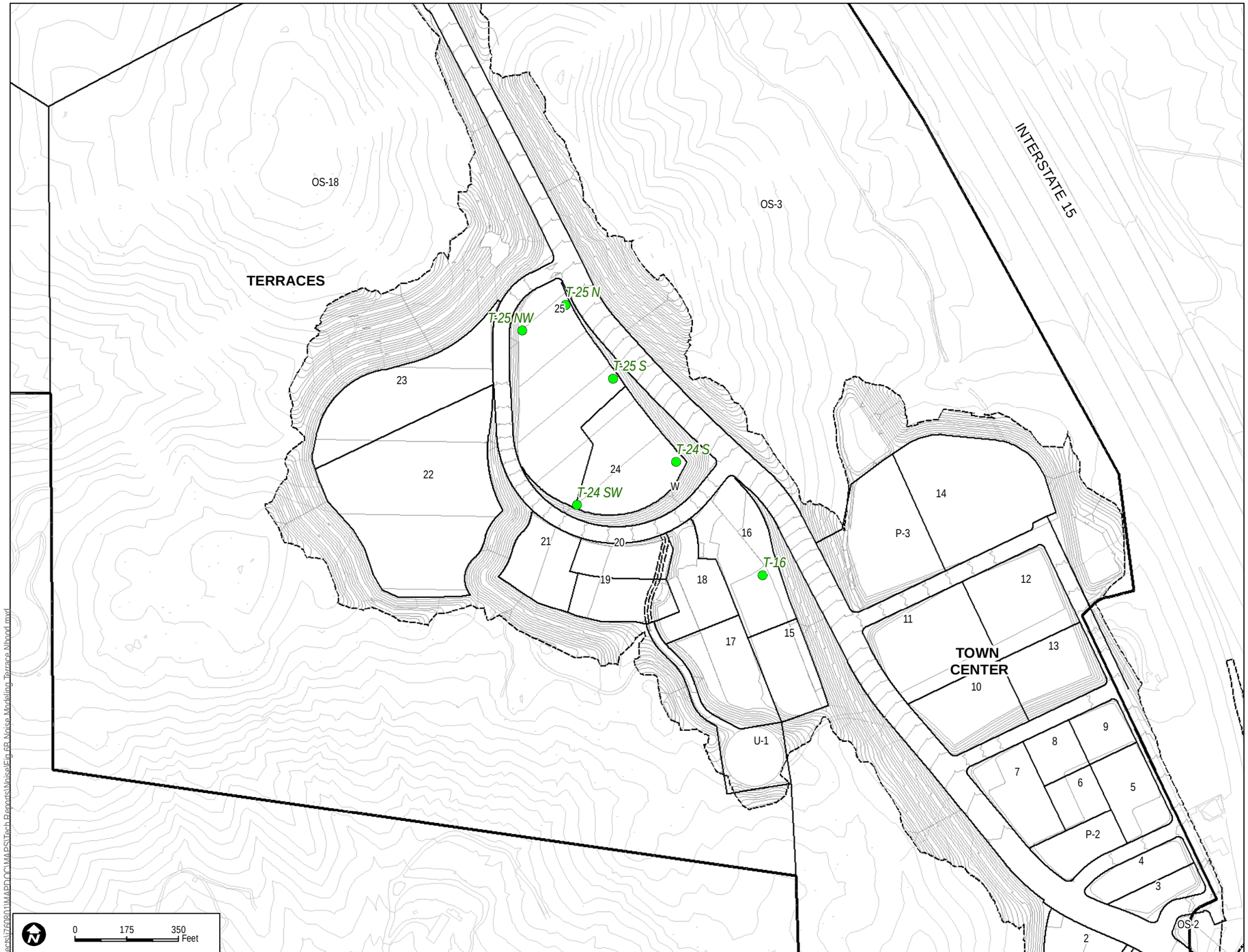
On-Site Noise Modeling Locations - Town Center

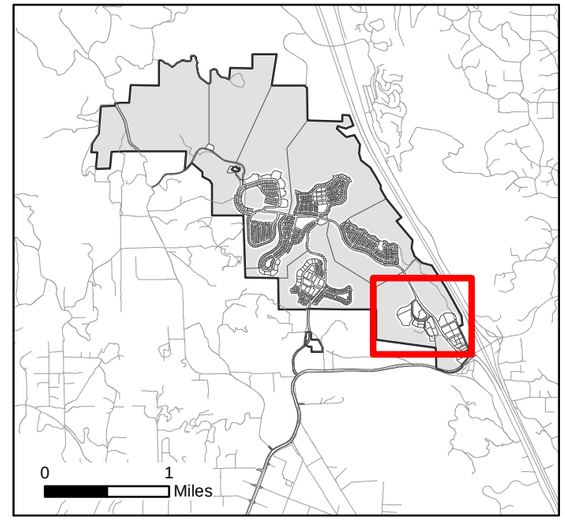
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\Z760901\MAPDOCS\MAPS\Tech Reports\Noise\Fig 6A Noise Modeling Town Center.mxd

INTENTIONALLY LEFT BLANK





Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 6b

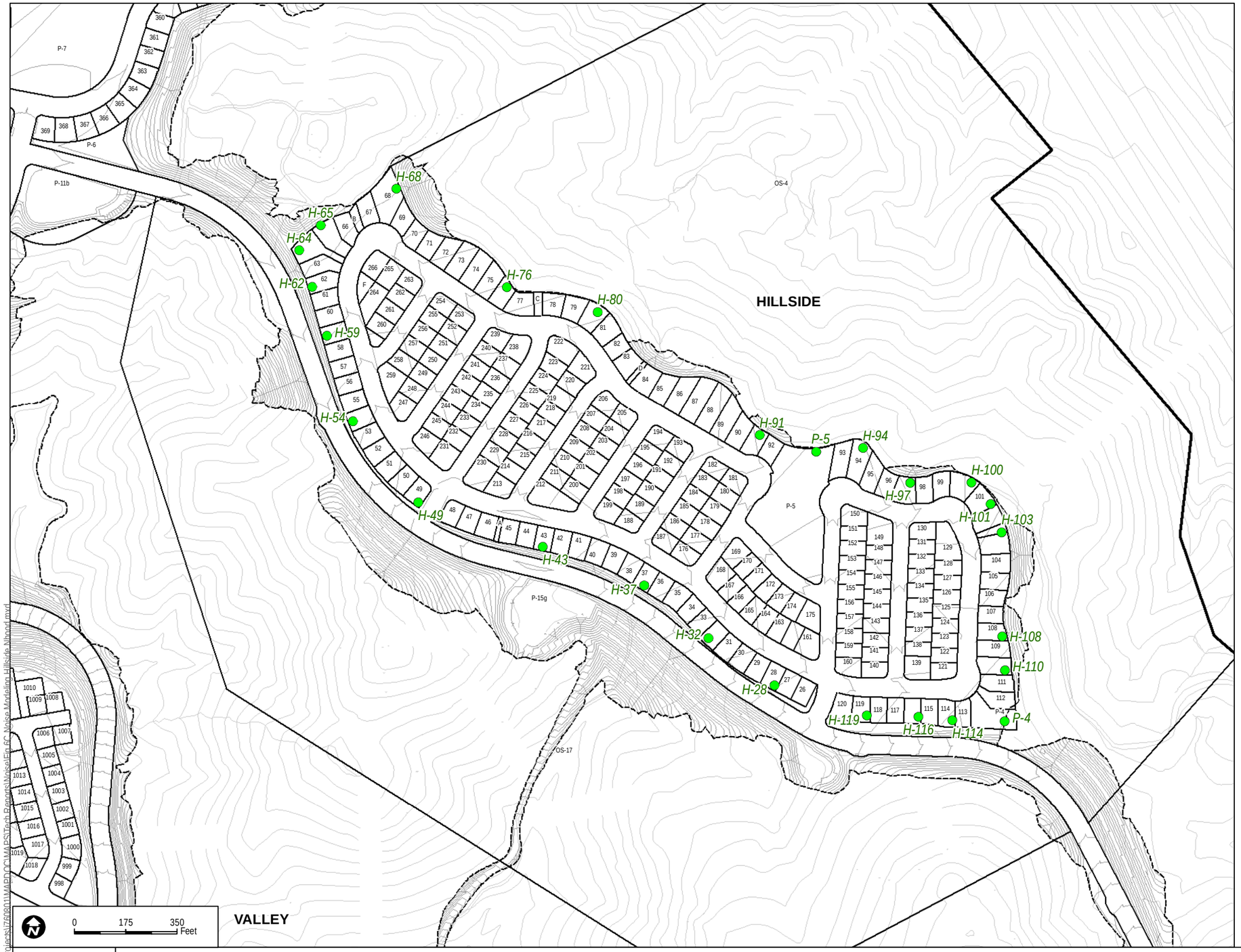
On-Site Noise Modeling Locations - Terraces Neighborhood

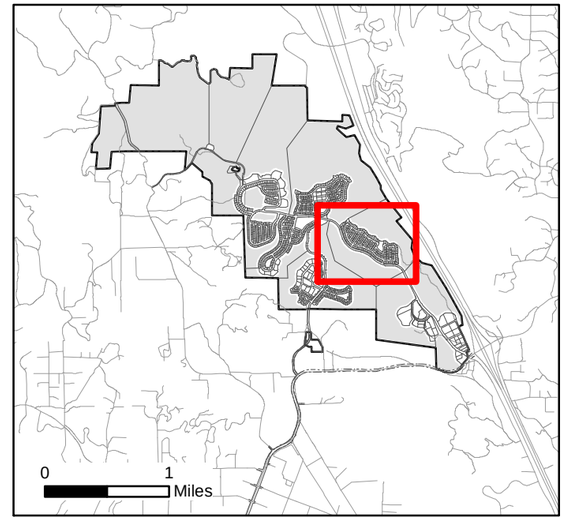
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\IZ6090011\MAPDOC\MAPS\Tech Reports\Noise\Fig 6B Noise Modeling Terrace Nbhood.mxd

INTENTIONALLY LEFT BLANK





Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

DUDEK

7608

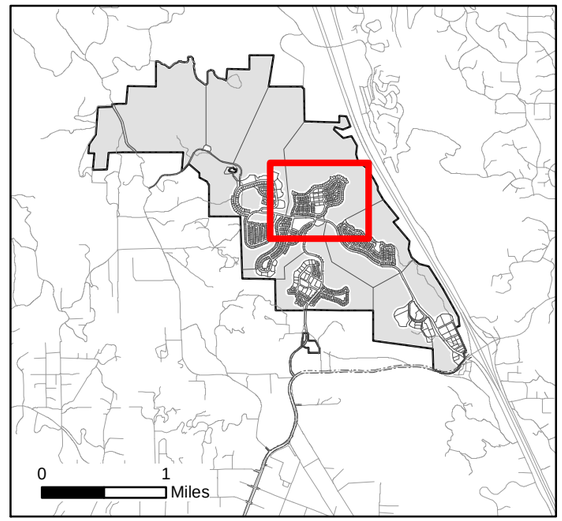
FIGURE 6c

On-Site Noise Modeling Locations - Hillside Neighborhood

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\7608\01\MAPDOC\MAPS\Tech Reports\Noise\Fig 6C Noise Modeling Hillside Nhood.mxd

INTENTIONALLY LEFT BLANK



Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 6d

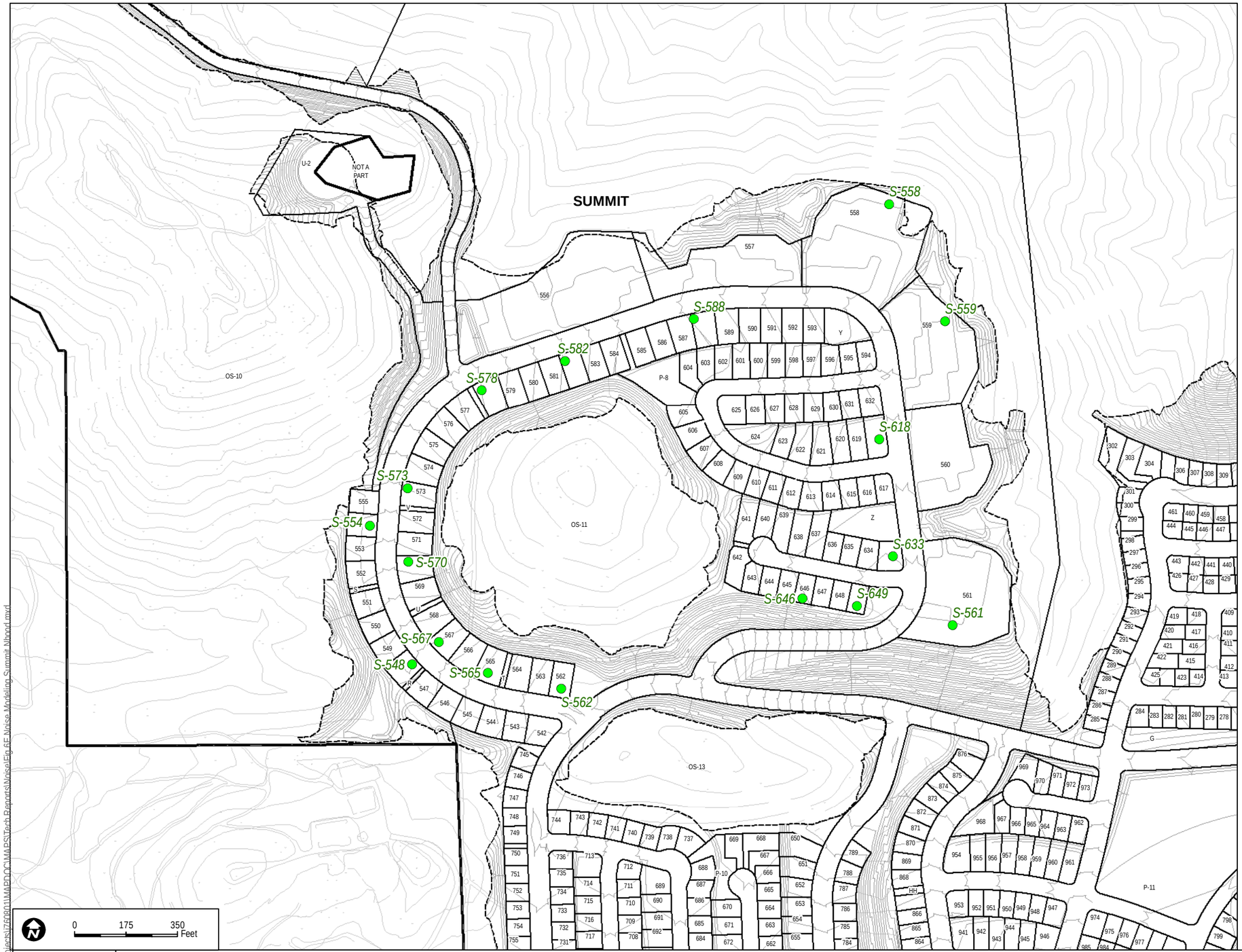
On-Site Noise Modeling Locations - Mesa Neighborhood

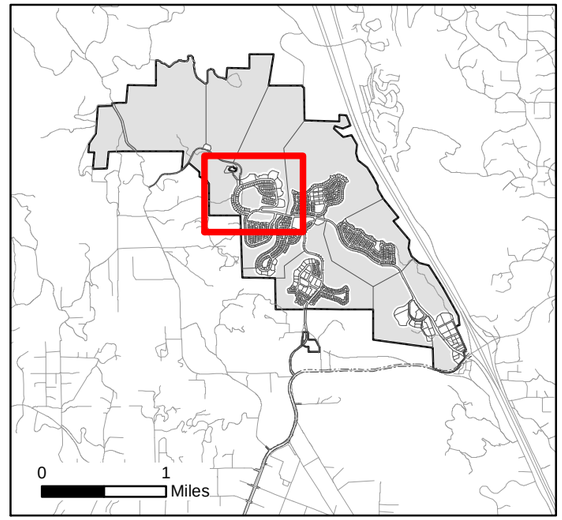
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\I7600011\MAPDOC\MAPS\Tech Reports\Noise\Fig 6D Noise Modeling Mesa Nbhood.mxd

INTENTIONALLY LEFT BLANK





Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 6e

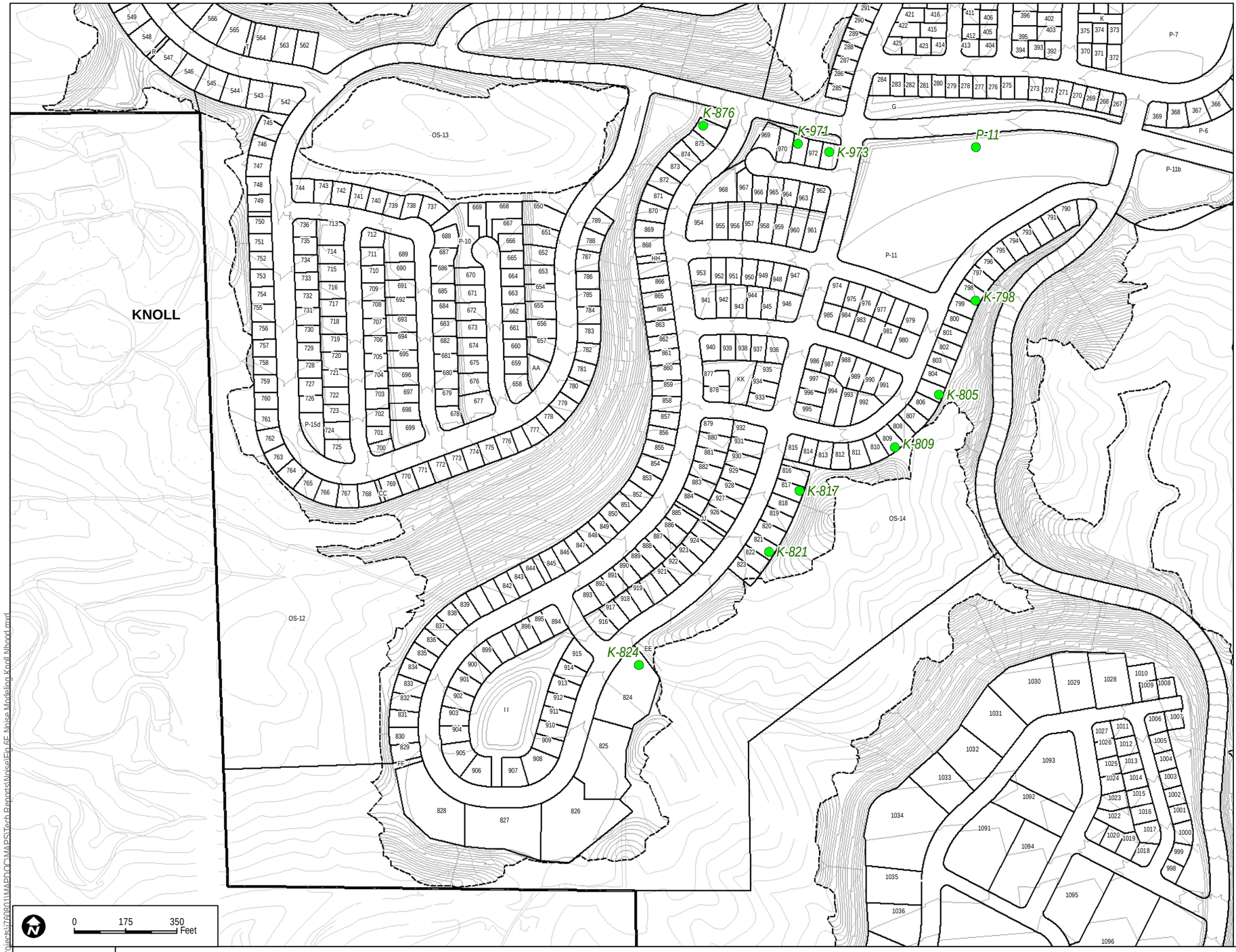
On-Site Noise Modeling Locations - Summit Neighborhood

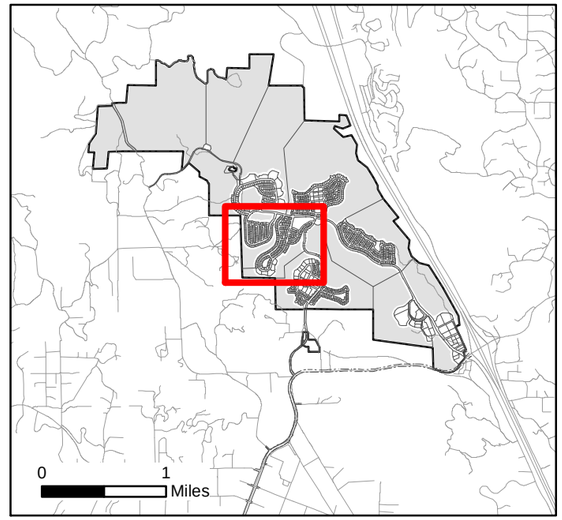
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\Z7608011\MAPDOC\MAPS\Tech Reports\Noise\Fig 6E Noise Modeling Summit Nhood.mxd

INTENTIONALLY LEFT BLANK





Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 6f

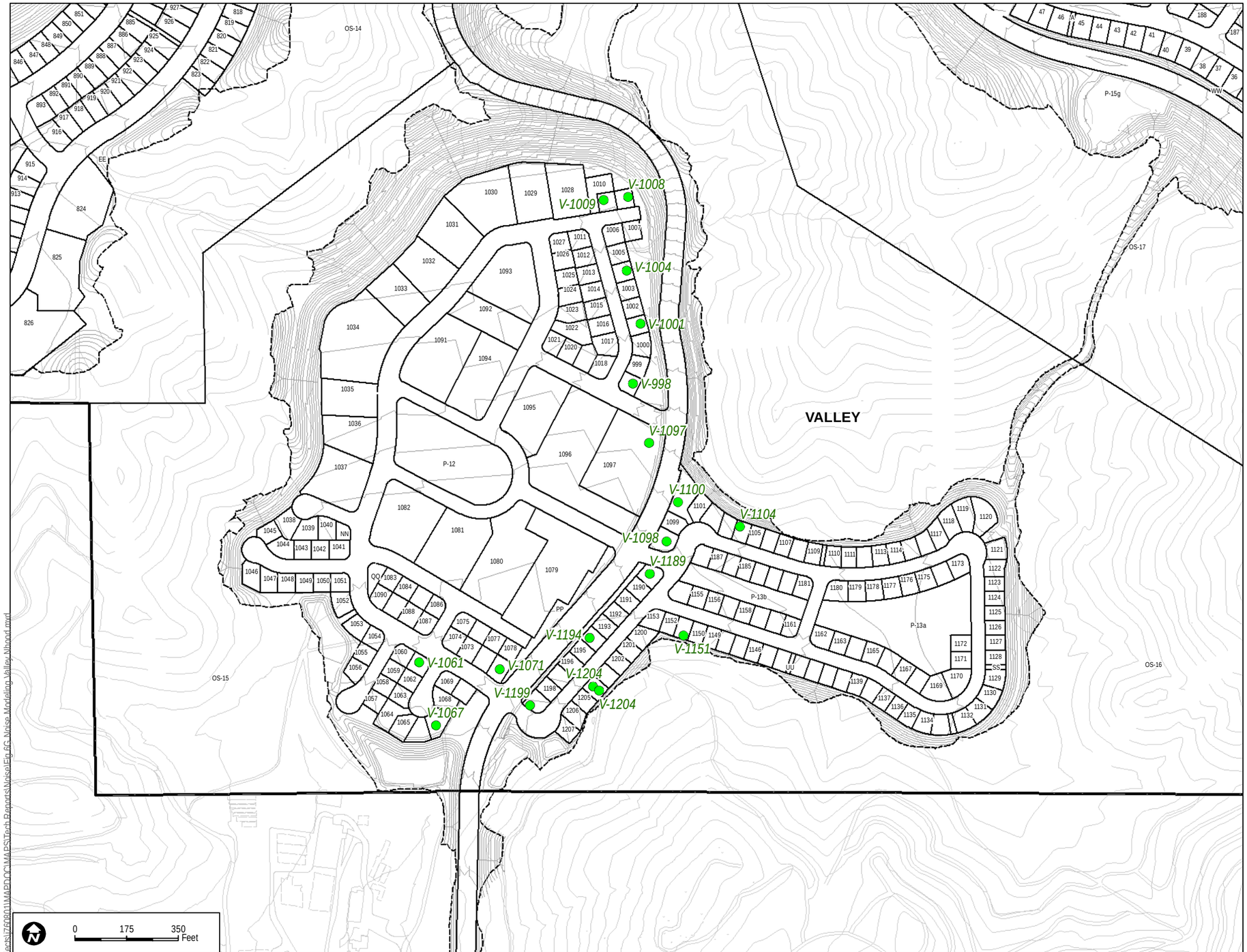
On-Site Noise Modeling Locations - Knoll Neighborhood

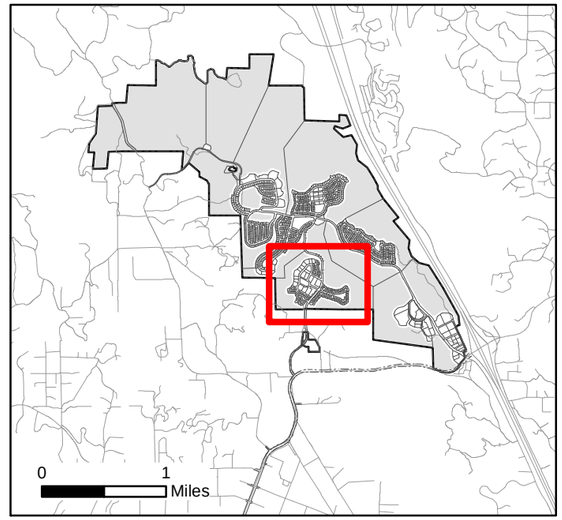
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\I7609001\MAPDOC\MAPS\Tech Reports\Noise\Fig 6F Noise Modeling Knoll Nbhood.mxd

INTENTIONALLY LEFT BLANK





Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 6g

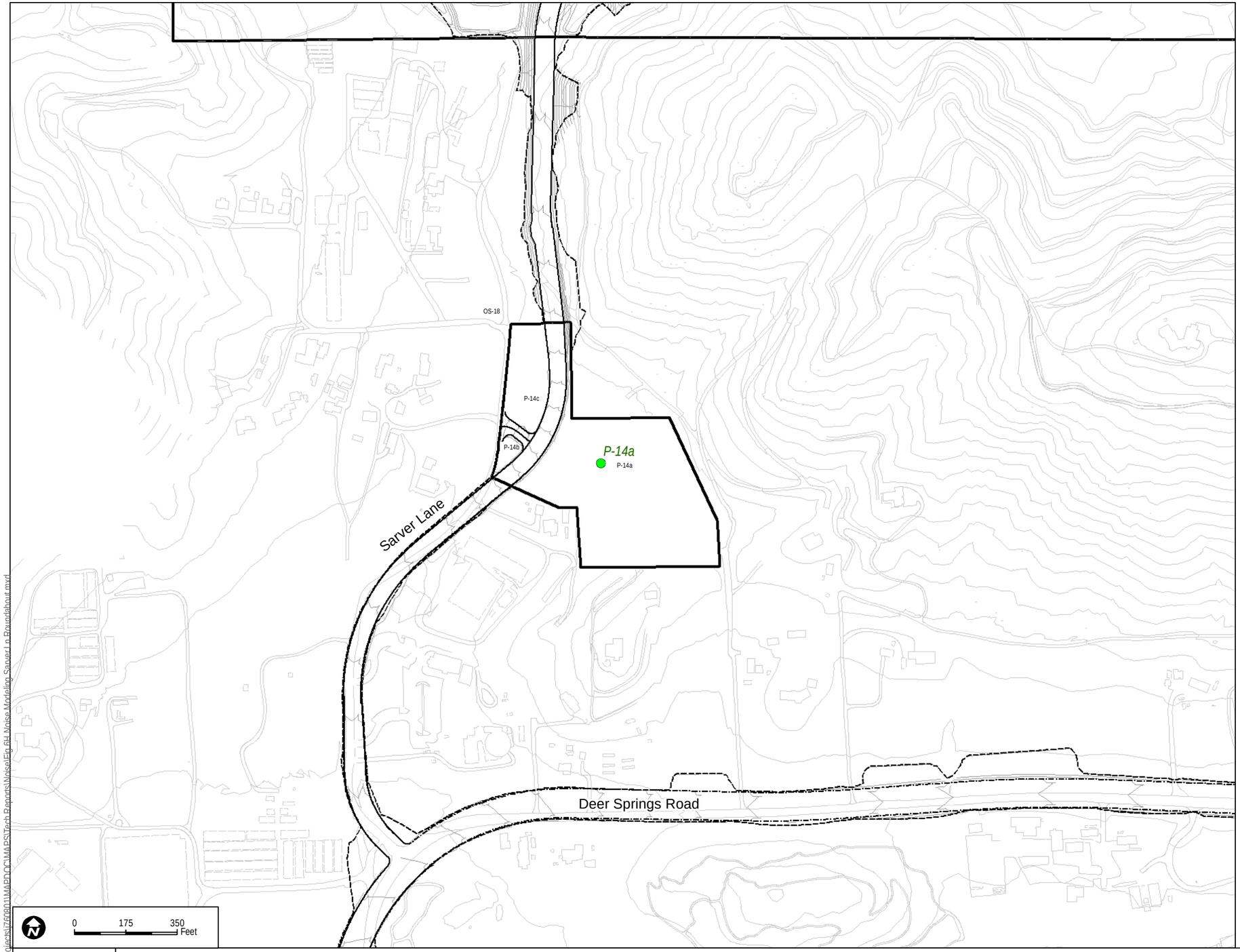
On-Site Noise Modeling Locations - Valley Neighborhood

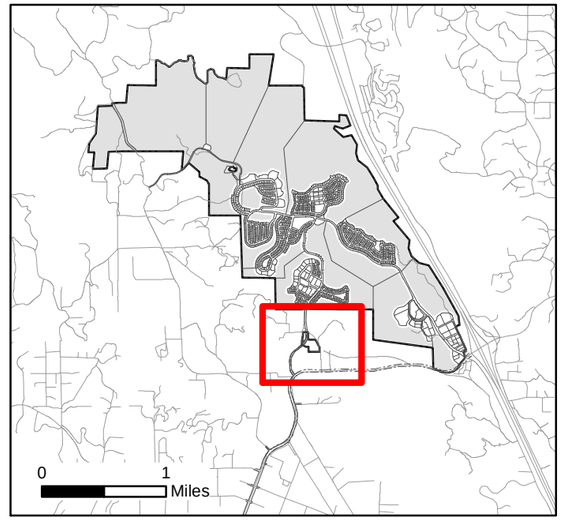
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\IZ6090011\MAPDOC\MAPS\Tech Reports\Noise\Fig 6G Noise Modeling Valley Nbhood.mxd

INTENTIONALLY LEFT BLANK





Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 6h

On-Site Noise Modeling Locations - Sarver Lane Roundabout

DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\IZ6080\MAPDOC\MAPS\Tech Reports\Noise\Fig 6H Noise Modeling Sarver Ln Roundabout.mxd

INTENTIONALLY LEFT BLANK

Exterior Ground-Floor Noise Levels

Based on the noise modeling, ground-floor on-site noise levels would exceed the County's standards at 21 of the modeled single-family receivers, and one of the modeled multi-family receivers. The on-site receivers exceeding the County of San Diego land use noise standards, and therefore requiring mitigation, are summarized in Table 8.

Table 8
On-Site Ground-Floor Receivers Requiring Mitigation (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use / Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards
H-32	Hillside – Lot 32	Hillside – Lots 30–34	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**
H-37	Hillside – Lot 37	Hillside – Lots 35–39	Single-family Resi / 60	**61**	**Yes**	**61**	**Yes**
H-43	Hillside – Lot 43	Hillside – Lots 40–45	Single-family Resi / 60	**62**	**Yes**	**62**	**Yes**
H-49	Hillside – Lot 49	Hillside – Lots 49–50	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**
H-54	Hillside – Lot 54	Hillside – Lots 53–55	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**
H-59	Hillside – Lot 59	Hillside – Lots 58–59	Single-family Resi / 60	**61**	**Yes**	**61**	**Yes**
H-94	Hillside – Lot 94	Hillside – Lots 93–95	Single-family Resi / 60	**62**	**Yes**	**62**	**Yes**
H-97	Hillside – Lot 97	Hillside – Lots 96–98	Single-family Resi / 60	**61**	**Yes**	**61**	**Yes**
H-100	Hillside–Lot 100	Hillside – Lots 99–100	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**
H-101	Hillside–Lot 101	Hillside–Lots 101–102	Single-family Resi / 60	**64**	**Yes**	**64**	**Yes**
H-103	Hillside – Lot 103	Hillside – Lots 103–105	Single-family Resi / 60	**64**	**Yes**	**64**	**Yes**
H-108	Hillside – Lot 108	Hillside – Lots 108–109	Single-family Resi / 60	**64**	**Yes**	**64**	**Yes**
H-110	Hillside – Lot 110	Hillside – Lots 110–111	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**
K-971	Knoll – Lot 971	Knoll – Lots 969–972	Single-family Resi / 60	**64**	**Yes**	**64**	**Yes**
K-973	Knoll – Lot 973	Knoll – Lot 973	Single-family Resi / 60	**64**	**Yes**	**64**	**Yes**
M-269	Mesa – Lot 269	Mesa – Lots 267–270	Single-family Resi / 60	**61**	**Yes**	**61**	**Yes**

Table 8
On-Site Ground-Floor Receivers Requiring Mitigation (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use / Noise Standard	FWP Option A Ground Floor	Exceeds County Noise Standards	FWP Option B Ground Floor	Exceeds County Noise Standards
M-336	Mesa – Lot 336	Mesa – Lots 335–337	Single-family Resi / 60	**61**	**Yes**	**61**	**Yes**
M-369	Mesa – Lot 369	Mesa – Lots 367–369	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**
T-25N	Terraces Lot 25–North	Terraces Lot 25–North	Multi-family Resi / 65	**66**	**Yes**	**66**	**Yes**
V-1071	Valley – Lot 1071	Valley – Lots 1071, 1078	Single-family Resi / 60	**63**	**Yes**	**63**	**Yes**
V-1100	Valley – Lot 1100	Valley – Lot 1100	Single-family Resi / 60	**62**	**Yes**	**62**	**Yes**
V-1199	Valley – Lot 1199	Valley – Lots 1196–1199	Single-family Resi / 60	**61**	**Yes**	**61**	**Yes**

Notes: FWP = Future With Project scenario
Noise receiver levels greater than the applicable noise standard are shown in bold.

These homes and other land uses are estimated to have rear yard noise exposures ranging from 61 to 66 dBA CNEL in the future with implementation of the project. Therefore, there would be **potentially significant** impacts from noise on the ground floor at these receivers before incorporation of mitigation. The remaining on-site receivers were determined to have Future With Project noise levels that would comply with the County noise standards without mitigation. The TNM noise model was used to preliminarily determine the barrier heights needed to reduce traffic noise impacts to less than significant at the ground-floor receiver locations identified above as significantly impacted (i.e., to reduce noise levels to at or below the County noise compatibility guideline). The results of the mitigation modeling are shown in Table 9, and preliminary noise barrier layouts are shown in Figures 7a through 7h.

Table 9
Mitigated Exterior Ground-Floor Receivers and
Mitigated Future Noise Levels (dBA CNEL)

Modeled Receiver	Location / Lot Number	Representative of Lots	Land Use / Noise Standard	Noise Barrier Height	Noise Level with Mitigation (Barrier)	
					FWP Option A Ground Floor	*FWP Option B Ground Floor*
H-32	Hillside – Lot 32	Hillside – Lots 30–34	Single-family Resi / 60	6-foot-high wall along south-facing rear yard (facing future Mesa Rock Road)	55	55
H-37	Hillside – Lot 37	Hillside – Lots 35–39	Single-family Resi / 60	6-foot-high wall along south-facing rear yard (facing future Mesa Rock Road)	54	54
H-43	Hillside – Lot 43	Hillside – Lots 40–45	Single-family Resi / 60	6-foot-high wall along south-facing rear yard (facing future Mesa Rock Road)	54	54
H-49	Hillside – Lot 49	Hillside – Lots 49–50	Single-family Resi / 60	6-foot-high wall along south-facing rear yard (facing future Mesa Rock Road)	57	57
H-54	Hillside – Lot 54	Hillside – Lots 53–55	Single-family Resi / 60	6-foot-high wall along south-facing rear yard (facing future Mesa Rock Road)	57	57
H-59	Hillside – Lot 59	Hillside – Lots 58–59	Single-family Resi / 60	6-foot-high wall along south-facing rear yard (facing future Mesa Rock Road)	54	54
H-94	Hillside – Lot 94	Hillside – Lots 93–95	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	53	53
H-97	Hillside – Lot 97	Hillside – Lots 96–98	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	58	58

Table 9
Mitigated Exterior Ground-Floor Receivers and Mitigated Future Noise Levels (dBA CNEL)

Modeled Receiver	Location / Lot Number	Representative of Lots	Land Use / Noise Standard	Noise Barrier Height	Noise Level with Mitigation (Barrier)	
					FWP Option A Ground Floor	*FWP Option B Ground Floor*
H-100	Hillside – Lot 100	Hillside – Lots 99–100	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	58	58
H-101	Hillside – Lot 101	Hillside – Lots 101–102	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	56	56
H-103	Hillside – Lot 103	Hillside – Lots 103–105	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	60	60
H-108	Hillside – Lot 108	Hillside – Lots 108–109	Single-family Resi / 60	8-foot-high wall along east-facing rear yard (facing I-15)	60	60
H-110	Hillside – Lot 110	Hillside – Lots 110–111	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	59	59
K-971	Knoll – Lot 971	Knoll – Lots 969–973	Single-family Resi / 60	6-foot-high wall along north-facing rear yard (facing future Mesa Rock Road)	56	56
K-973	Knoll – Lot 969	Knoll – Lot 969	Single-family Resi / 60	6-foot-high wall along north-facing rear yard (facing future Mesa Rock Road)	57	57
M-269	Mesa – Lot 269	Mesa – Lots 267–270	Single-family Resi / 60	6-foot-high wall along south-facing rear yard (facing future Mesa Rock Road)	56	56
M-336	Mesa – Lot 336	Mesa – Lots 335–337	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	54	54

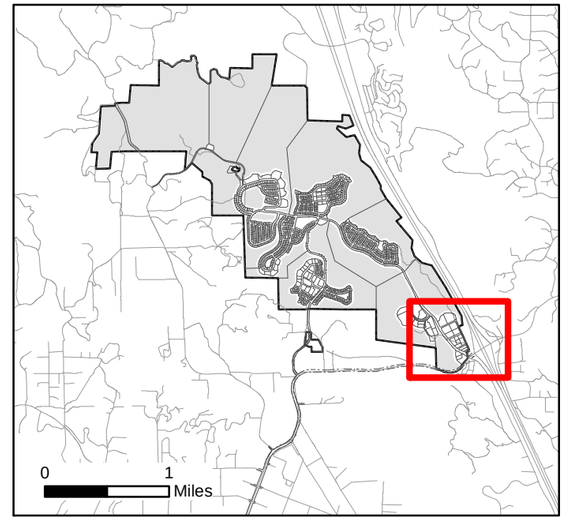
Table 9
Mitigated Exterior Ground-Floor Receivers and
Mitigated Future Noise Levels (dBA CNEL)

Modeled Receiver	Location / Lot Number	Representative of Lots	Land Use / Noise Standard	Noise Barrier Height	Noise Level with Mitigation (Barrier)	
					FWP Option A Ground Floor	*FWP Option B Ground Floor*
M-369	Mesa – Lot 369	Mesa – Lots 367–369	Single-family Resi / 60	6-foot-high wall along east-facing rear yard (facing I-15)	57	57
T-25N	Terraces Lot 25–North	Terraces Lot 25–North	Multi-family Resi / 65	6-foot-high wall along east-facing side (facing future Mesa Rock Road)	59	59
V-1071	Valley – Lot 1071	Valley – Lots 1071, 1078	Single-family Resi / 60	6-foot-high wall along southeast-facing rear yard (facing future Sarver Lane)	57	57
V-1100	Valley – Lot 1100	Valley – Lot 1100	Single-family Resi / 60	6-foot-high wall along northwest-facing rear yard (facing future Sarver Lane)	55	55
V-1199	Valley – Lot 1199	Valley – Lots 1196 – 1199	Single-family Resi / 60	6-foot-high wall along northwest-facing rear yard (facing future Sarver Lane)	55	55

FWP = Future With Project scenario

Mitigation measure M-N-1 is proposed, which would require preparation of an acoustical study based on final map design and implementation of the measures recommended as a result of the study. These measures could include noise barriers of the height evaluated in Table 9, which would reduce ground-floor noise levels to at or below County noise standards. With implementation of M-N-1 and any measures recommended in the acoustical study to reduce noise levels to at or below the County noise standards, impacts would be **less than significant**.

INTENTIONALLY LEFT BLANK



Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 7a

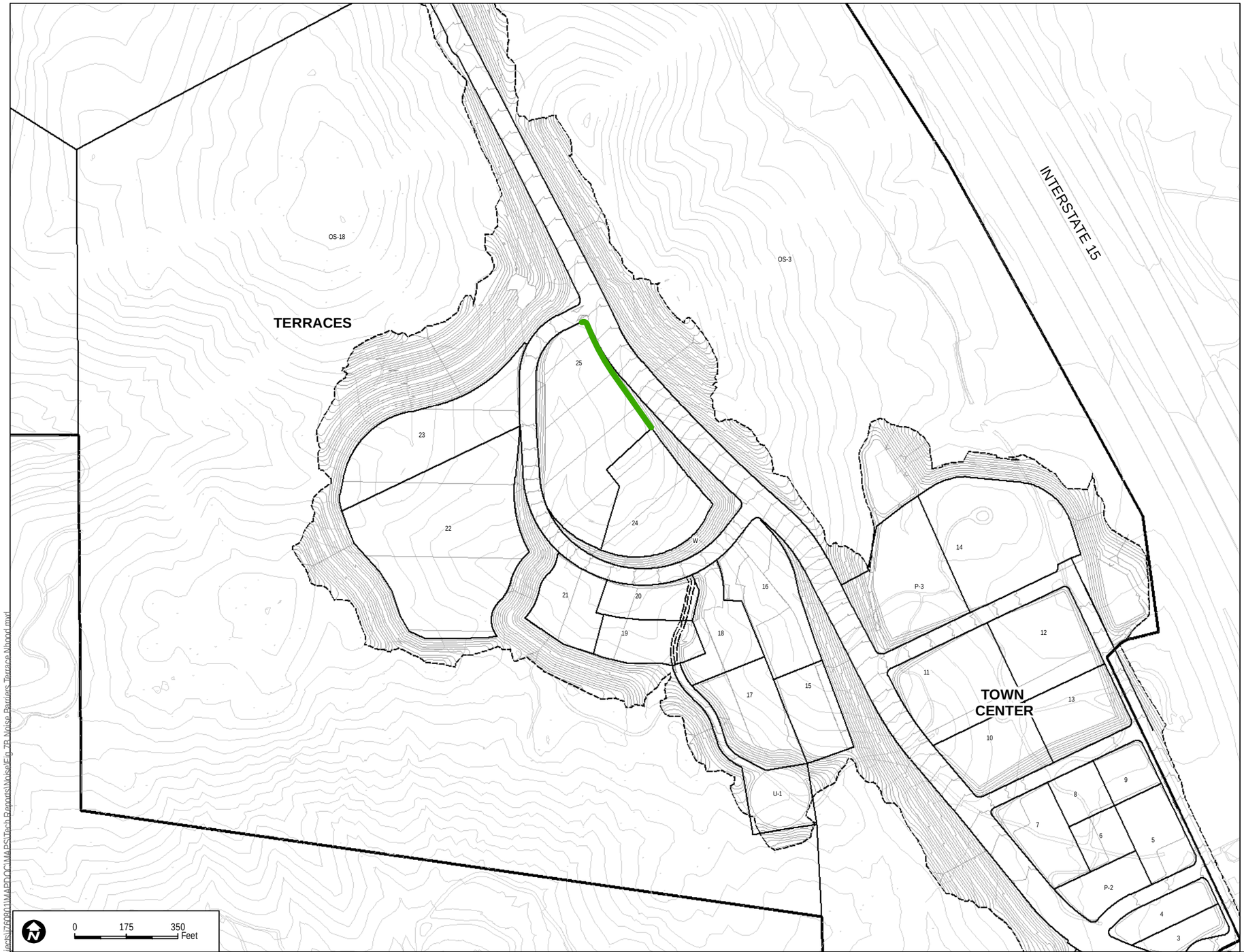
Preliminary Noise Barrier Locations - Town Center

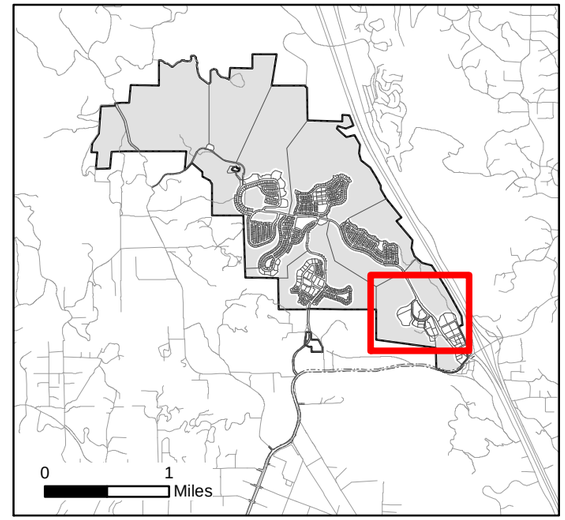
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\760801\MAPDOC\MAPS\Tech Reports\Noise\Fig 7A Noise Barriers Town Center.mxd

INTENTIONALLY LEFT BLANK





Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

DUDEK

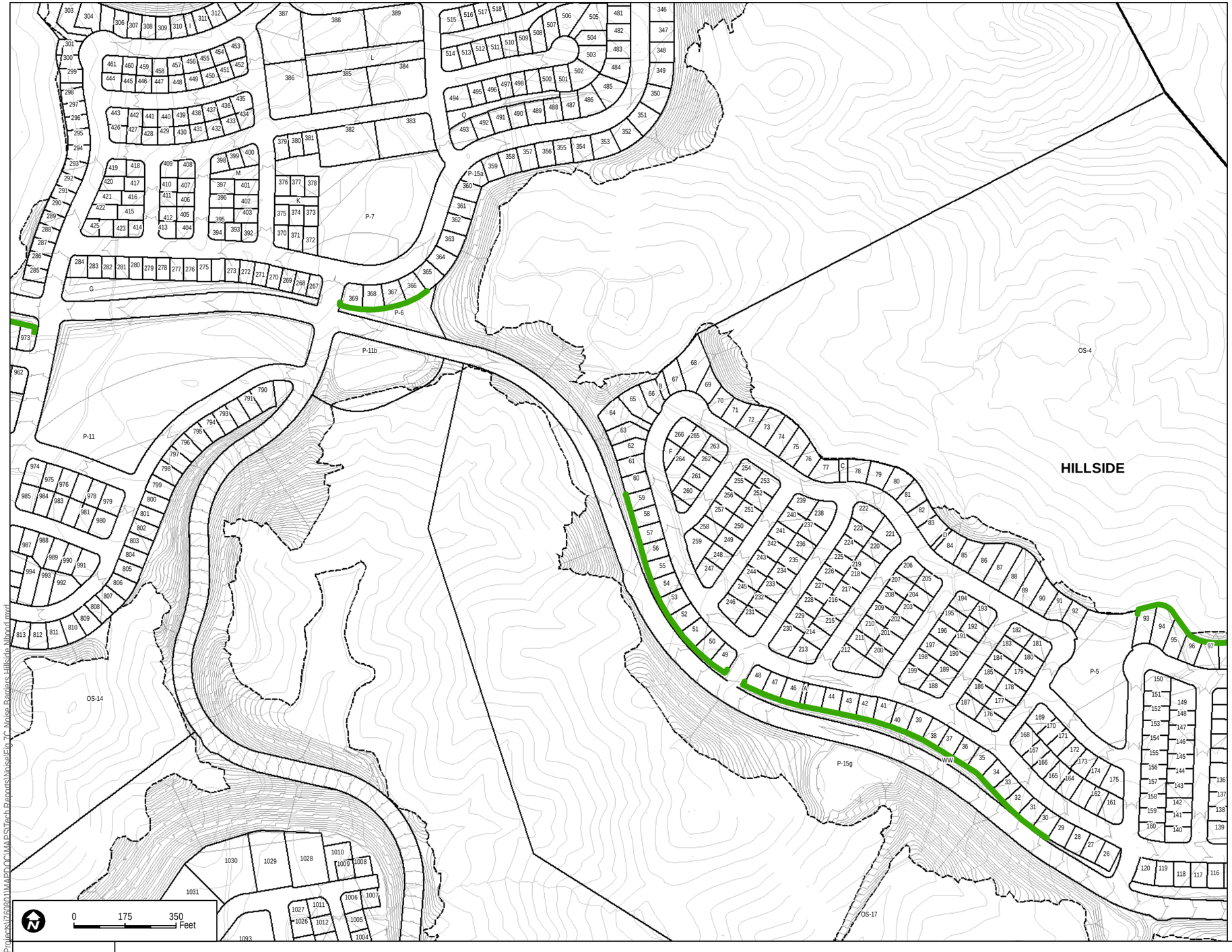
FIGURE 7b

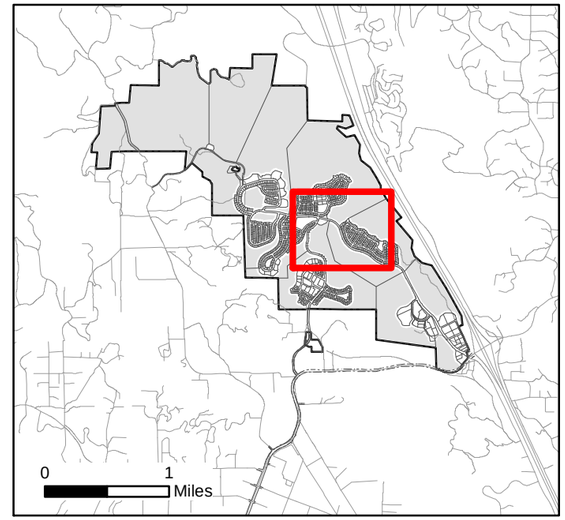
Preliminary Noise Barrier Locations - Terraces Neighborhood

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\z260801\MAPDOC\MAPS\Tech Reports\Noise\Fig 7B Noise Barriers Terrace Nbood.mxd

INTENTIONALLY LEFT BLANK





Noise Barrier Height

6’

Project Site

NOTE:
Site plan to be updated with most recent site plan and lotting once Tentative Map is finalized.

SOURCE: Site Plan-Fuscoe September 2014

FIGURE 7c

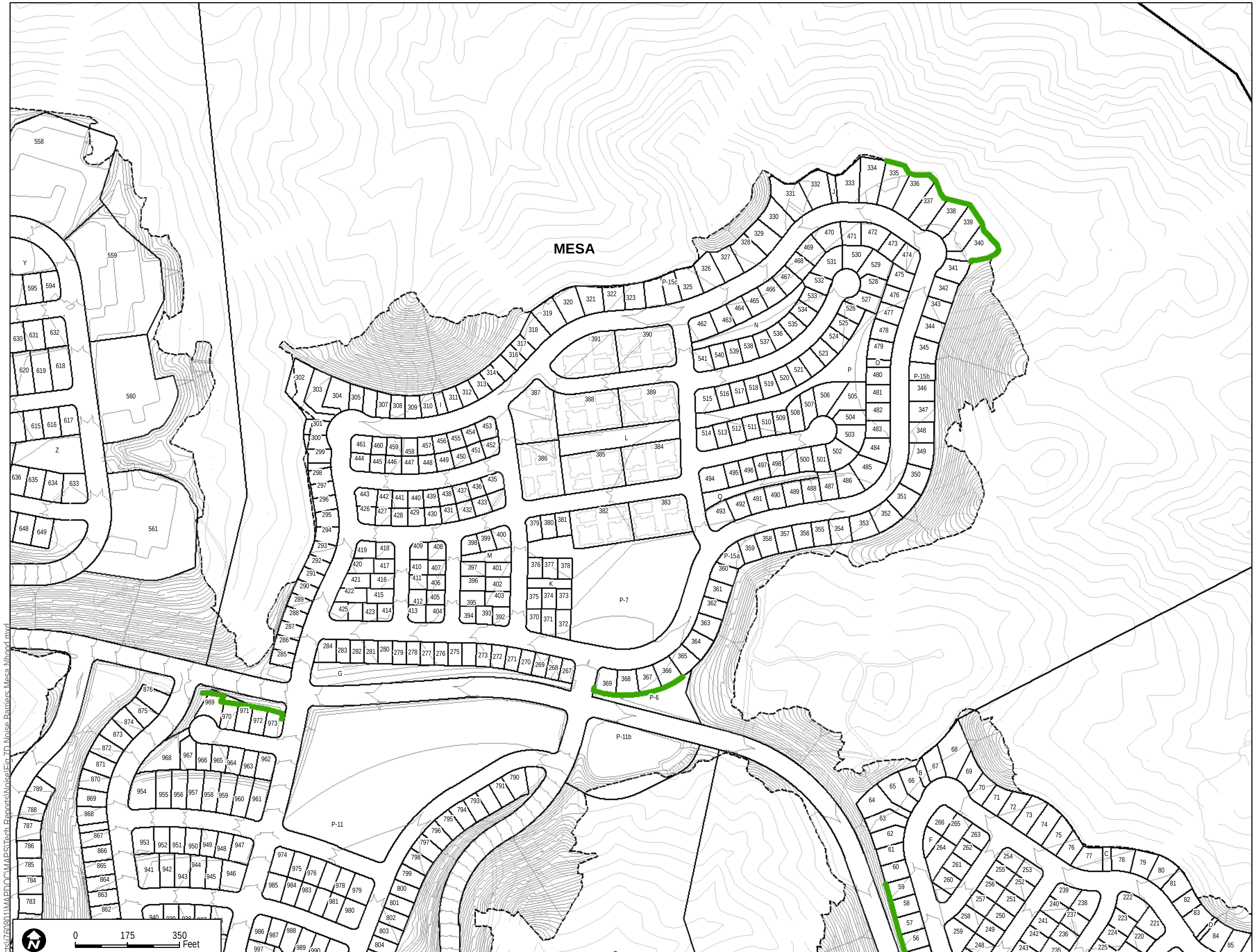
Preliminary Noise Barrier Locations - Hillside Neighborhood

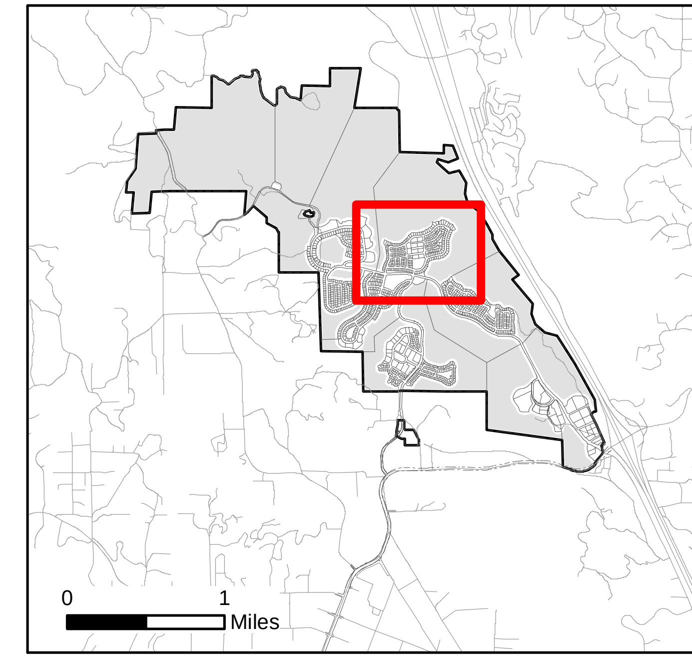
DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\I7609801\MAPDOC\MAPS\Tech Reports\Noise\Fig 7C Noise Barriers Hillside Nbood.mxd

INTENTIONALLY LEFT BLANK





Noise Barrier Height

- 6’
- Project Site

SOURCE: Site Plan-Fuscoe January 2016

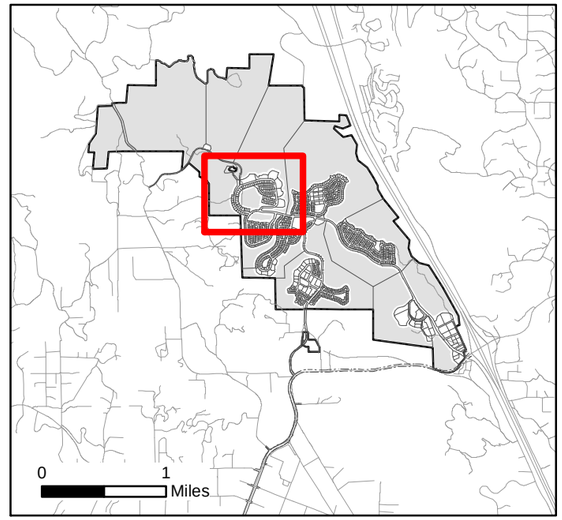
FIGURE 7d

Preliminary Noise Barrier Locations - Mesa Neighborhood

DUDEK

Noise Report for the Newland Sierra Project

INTENTIONALLY LEFT BLANK



Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 7e

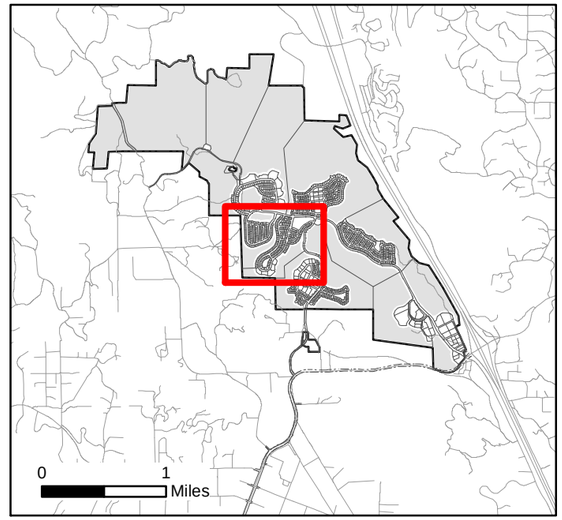
Preliminary Noise Barrier Locations - Summit Neighborhood (No Walls)

DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\7609001\MAPDOC\MAPS\Tech Reports\Noise\Fig 7E Noise Barriers Summit Nbhood.mxd

INTENTIONALLY LEFT BLANK



Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 7f

Preliminary Noise Barrier Locations - Knoll Neighborhood

DUDEK

Noise Report for the Newland Sierra Project

Document Path: Z:\Projects\I7609001\MAPDOC\MAPS\Tech Reports\Noise\Fig 7F Noise Barriers Knoll Nbhood.mxd

INTENTIONALLY LEFT BLANK