2.10 Noise

This section describes the existing noise environment, evaluates potential noise and vibration impacts resulting from development of the Newland Sierra Project (project), and identifies mitigation measures as necessary to reduce potential noise and vibration impacts. This section is based on the Noise Report for the Newland Sierra Project prepared by Dudek (Appendix Q to this EIR).

Comments received in response to the Notice of Preparation (NOP) included concerns regarding construction noise and operational noise generated from the project (specifically at Sarver Lane). A copy of the NOP and comment letters received in response to the NOP is included in Appendix A of this EIR.

2.10.1 Existing Conditions

Existing Noise Conditions

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

Noise measurements were conducted at the project Site and the surrounding area to determine existing noise levels. Measurements were taken using a calibrated Soft decibel (dB) 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. For a full description of methodology, refer to Section 1.3 of Appendix Q to this EIR.

Noise measurements were conducted on September 29, 2014. Ten short-term (20-minute) noise measurements were made. Noise measurement sites were selected based on maps for existing land uses and planned future or existing noise-sensitive land uses (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 dB). The noise measurement locations are depicted as M1 through M6 (mobile sources) and A1 through A4 (ambient sources) in Figure 2.10-1, Noise Measurement Locations. 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.

Mobile Sources

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 2.10-1.

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} that 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} that was primarily caused by traffic along Buena Creek Road.

M6 Measurement location M6 is along North Twin Oaks Valley Road, 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}, primarily attributable to traffic on North Twin Oaks Valley Road.

Ambient Sources

The four ambient noise measurements are described in the following text, and the results of the measurements are shown in Table 2.10-2.

A1 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 L_{eq}, which was primarily produced by traffic to the south at the existing Arco gas station and distant I-15 traffic.

A2 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 L_{eq}, primarily caused by I-15 traffic. The noise meter did not have a direct line of sight to I-15 due to intervening topography.

A3 Ambient measurement location A3 is located in the proposed Mesa neighborhood. The noise meter was placed at the easternmost lot line. The measured average noise level was 41.8 dBA L_{eq}, 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.

A4 Ambient measurement location A4 is located in the proposed Valley neighborhood. The noise meter was located in an open field in a valley surrounded by steep sloping mountains and with little development in a direct line of sight. The measured average noise level was 54.8 dBA L_{eq}, primarily attributable to distant industrial equipment and occasional distant small aircraft operations.

2.10.2 Regulatory Setting

County of San Diego General Plan

The County of San Diego General Plan Noise Element (County of San Diego 2011) contains goals and policies related to the control and abatement of noise to protect from excessive exposure. The County of San Diego's (County) noise compatibility guidelines and standards are shown on Table 2.10-3 and Table 2.10-4, respectively.

The following goals and policies contained in the Noise Element are applicable to the proposed project (County of San Diego 2011):

- **Goal N-1, Land Use Compatibility.** A noise environment throughout the unincorporated County that is compatible with the land uses.
    - **Policy N-1.1, Noise Compatibility Guidelines.** Use the Noise Compatibility Guidelines (Table N-1 of the General Plan) and the Noise Standards (Table N-2 of the General Plan) as a guide in determining the acceptability of exterior and interior noise for proposed land uses.
    - **Policy N-1.2, Noise Management Strategies.** Require the following strategies as higher priorities than construction of conventional noise barriers where noise abatement is necessary:
        - Avoid placement of noise sensitive uses within noisy areas
        - Increase setbacks between noise generators and noise sensitive uses
        - Orient buildings such that the noise sensitive portions of a project are shielded from noise sources
        - Use sound-attenuating architectural design and building features
        - Employ technologies when appropriate that reduce noise generation (i.e., alternative pavement materials on roadways)
    - **Policy N-1.3, Sound Walls.** Discourage the use of noise walls. In areas where the use of noise walls cannot be avoided, evaluate and require where feasible, a combination of walls and earthen berms and require the use of vegetation or other visual screening methods to soften the visual appearance of the wall.
    - **Policy N-1.4, Adjacent Jurisdiction Noise Standards.** Incorporate the noise standards of an adjacent jurisdiction into the evaluation of a proposed project when it has the potential to impact the noise environment of that jurisdiction.

- **Policy N-1.5, Regional Noise Impacts.** Work with local and regional transit agencies and/or other jurisdictions, as appropriate, to provide services or facilities to minimize regional traffic noise and other sources of noise in the County.

- **Goal N-2, Protection of Noise Sensitive Uses.** A noise environment that minimizes exposure of noise sensitive land uses to excessive, unsafe, or otherwise disruptive noise levels.
  - **Policy N-2.1, Development Impacts to Noise Sensitive Land Uses.** Require an acoustical study to identify inappropriate noise level where development may directly result in any existing or future noise sensitive land uses being subject to noise levels equal to or greater than 60 CNEL and require mitigation for sensitive uses in compliance with the noise standards listed in Table N-2 of the General Plan.
  - **Policy N-2.2, Balconies and Patios.** Assure that in developments where the exterior noise level on patios or balconies for multi-family residences or mixed-use developments exceed 65 CNEL, a solid noise barrier is incorporated into the building design of the balconies and patios while still maintaining the openness of the patio or balcony.
- **Goal N-3, Groundborne Vibration.** An environment that minimizes exposure of sensitive land uses to the harmful effects of excessive groundborne vibration.
  - **Policy N-3.1, Groundborne Vibration.** Use the Federal Transit Administration and Federal Railroad Administration guidelines, where appropriate, to limit the extent of exposure that sensitive uses may have to groundborne vibration from trains, construction equipment, and other sources.
- **Goal N-4, Transportation-Related Noise Generators**. A noise environment that reduces noise generated from traffic, railroads, and airports to the extent feasible.
  - **Policy N-4.1, Traffic Noise.** Require that projects proposing General Plan amendments that increase the average daily traffic beyond what is anticipated in this General Plan do not increase cumulative traffic noise to off-site noise sensitive land uses beyond acceptable levels.
  - **Policy N-4.2, Traffic Calming.** Include traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise in development that may impact noise sensitive land uses.

County of San Diego Noise Ordinance

The County's Noise Ordinance, Section 36.404, sets limits on the noise levels generated from one property to another, such as from mechanical equipment. Unless a variance has been applied for by an applicant and granted by the County, it is unlawful for a person to cause or

allow noise generated on a particular property to exceed the 1-hour average sound level at any point on or beyond the boundaries of the property, as shown in Table 2.10-5.

Additionally, specific to construction activities, Sections 36.408 and 36.409 of the Noise Ordinance states:

> Section 36.408
>
> Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment:
>
> (a) Between 7 p.m. and 7 a.m.
>
> (b) On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, the fourth Thursday in November and December 25th. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10 a.m. and 5 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in sections 36.409 and 36.410.
>
> Section 36.409
>
> Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

2.10.3 Analysis of Project Effects and Determination as to Significance

2.10.3.1 Noise-Sensitive Land Uses Affected By Airborne Noise

Guidelines for the Determination of Significance

County of San Diego

For purposes of this EIR, the County's Guidelines for Determining Significance – Noise (County of San Diego 2009b) applies to the direct, indirect, and cumulative impact analysis. 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 2009b):

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 percent 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

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 Community Noise Equivalent Level (CNEL) above existing conditions (County of San Diego 2009b). 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 2009c). A doubling of sound energy is equivalent to a 3 dBA increase. Based on the County's Noise Compatibility Guidelines (Table 2.10-3) and related Noise Standards (Table 2.10-4), a documented noisy site is a location with NSLU that currently exceeds the applicable noise standard based on the land use type shown in Table 2.10-3 (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, and 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.

City of San Marcos

The City of San Marcos 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 uses. 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 analysis, 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's 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).

Analysis

On-Site Noise Impacts

Traffic noise impacts were evaluated based on a review of the data presented in the proposed project's Traffic Impact Analysis (Appendix R to this EIR). The following discussion addresses future on-site noise conditions and impacts.

Exterior Locations

Noise contours may be thought of as representing lines of equal noise exposure from a noise source—in this case, traffic noise. The 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). Option A would reclassify Deer Springs Road in the Mobility Element of the County's General Plan (County of San Diego 2011a) from a 6.2 Prime Arterial (six-lane) to a 4.1A Major Road with Raised Median (four-lane) and a 2.1B Community Collector with Continuous Turn Lane (two-lane). Option B would not reclassify

Deer Springs Road; the roadway would remain as shown in the Mobility Element of the General Plan, as a 6.2 Prime Arterial (six-lane) (County of San Diego 2011a). Under this option, the project would grade and construct the segment of Deer Springs Road from I-15 to just south of Sarver Lane as a 4.1B Major Road (four-lane road with continuous turn lane). The results are summarized in Table 2.10-6, On-Site Future Noise Contours, and depicted in Figure 2.10-2, On-Site Traffic Noise Contours. These distances do not include the reduction in noise levels due to terrain or structure shielding.

The predicted exterior noise levels at representative proposed on-site NSLUs are presented in Table 2.10-7, On-Site Future Noise Levels. Table 2.10-7 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. The levels for Option A and Option B are the same for the on-site receivers, except at receiver P-8 (a park site on the southern property line of Town Center), where Deer Springs Road is adjacent to that receiver. The corresponding receiver locations are shown in Figures 2.10-3a through 2.10-3h, and the Traffic Noise Model input and output files are provided in Appendix Q to this EIR.

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 (Table 2.10-8). The remaining on-site receivers were determined to have future with implementation of the project noise levels that would comply with County noise standards. 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. These on-site receivers exceeding the County's land use noise standards and would result in a **potentially significant impact** from noise on the ground floor at these receivers **(Impact N-1)**.

Second-Floor Noise Levels

For informational purposes, second-floor exterior noise levels are shown in Table 2.10-7 for residential receivers. Because detailed Site plans have not yet been produced, details such as whether balconies would be included in a particular residential unit and building setback distances are not known at this time, and, therefore, it is not known whether a particular residential site would be exposed to roadway noise exceeding County standards. If balconies are constructed at the second floor locations shown in Table 2.10-7, some of the noise exposures would exceed the applicable exterior noise standard. Table 2.10-9 shows noise receiver locations that were preliminarily found to exceed the County's exterior noise standard on the second floor; therefore, at these locations, a **potentially significant impact** would occur (**Impact N-2)**.

Interior Noise Levels

In addition to the exterior noise criteria, the County requires that indoor noise levels not exceed 45 dBA CNEL. Building plans for the homes have not yet been prepared. Typically, with the windows open, the building shells of homes provide approximately 15 dBA of noise attenuation. Therefore, the single-family and multi-family residences exposed to exterior noise levels exceeding 60 dBA CNEL (either at ground level or at upper levels) could have interior noise levels greater than 45 dBA CNEL. The lots identified in Table 2.10-10 would result in a **potentially significant impact** from an exceedance of the interior noise standard **(Impact N-3)**.

Direct Noise Impacts

Off-site traffic noise impacts were evaluated based on the calculated change in noise levels due to the increase or decrease in traffic volumes from the existing condition. Off-site noise model receiver locations are shown in Figure 2.10-4, Off-Site Noise Receiver Locations. Noise modeling receivers were selected based on being representative of planned future or existing NSLUs located along roadways that were found in the project's Traffic Impact Analysis (Appendix R) to carry substantial volumes of project-related traffic (in general, 10 percent or more). Additionally, for informational purposes and to generally characterize off-site project-related traffic noise levels, noise contours for major roadways expected to carry substantial volumes of project-related traffic were calculated using the Traffic Noise Model (Appendix Q). The distances (in feet) from the respective roadways to the 60, 65, and 70 dBA CNEL noise contours under Options A and B for Deer Springs Road are summarized in Table 2.10-11, and in Figures 2.10-5a and 2.10-5b for Option A and Figures 2.10-6a and 2.10-6b for Option B.

A substantial noise increase is defined as an increase of 10 dBA CNEL above existing conditions, as stated in the County of San Diego Guidelines for Determining Significance – Noise, Section 4.1-A(ii) (County of San Diego 2009b). However, the County's Report Format and Content Requirements include a statement that a "doubling of sound energy" is considered a significant impact at a "documented noisy site" (County of San Diego 2009c). 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 NSLU that currently exceeds the applicable noise standard based on the land use type shown in Table 2.10-3 (for example, 60 dBA CNEL for single-family residences, 65 dBA CNEL for multi-family or mixed-use residences, and 70 dBA for 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 below 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.

As shown in Table 2.10-12, upon project buildout, the proposed project would not increase noise levels by 3 dBA CNEL or greater in the cases in which existing or future noise levels are equal to or exceeding the County's Compatibility Guidelines and Standards at any of the representative receivers or roadway segments. Therefore, direct project-related noise increases would result in impacts that are **less than significant**.

At the church on Sarver Lane (Receiver O9), the traffic noise level is predicted to increase by 3 dBA from 54 dBA CNEL to 57 dBA CNEL with the proposed project. However, as noted above, an increase of 3 dBA or greater is considered a significant impact only if the site is a "documented noisy site." In this case, both the existing and existing with project noise levels (54 and 57 dBA CNEL, respectively) would not exceed the County noise standard for churches of 65 dBA CNEL. Similarly, traffic noise at a residence (Receiver O10) located near Camino Mayor north of the project Site is predicted to increase 5 dBA (from approximately 39 dBA CNEL in the existing scenario to 44 dBA CNEL in the existing plus project). These levels do not exceed the County's noise standard for residences of 60 dBA CNEL. Increases along all other segments would range from 1 to 2 dBA. Noise-level increases of less than 3 dBA generally are considered imperceptible in the context of community noise.

Based on the road segments identified previously, no NSLUs would be potentially impacted by substantial noise increases. Along Deer Springs Road, project-related traffic noise increases would be approximately 1 to 2 dBA compared to the existing scenario. Impacts would be **less than significant.**

2.10.3.2 Project-Generated Airborne Noise

Guidelines for the Determination of Significance

For purposes of this EIR, the County's Guidelines for Determining Significance – Noise (County of San Diego 2009b) applies to the direct, indirect, and cumulative impact analysis. A proposed project would result in a significant impact if the project would generate airborne noise that, together with noise from all sources, would be in excess of any of the following:

A. Non-Construction Noise: The limit specified in San Diego County Code Section 36.404, General Sound Level Limits, at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise. Section 36.404 provides the noise limits as shown on 2.10-5.

B. Construction Noise: Noise generated by construction activities related to the project will exceed the standards listed in San Diego County Code Section 36.409, Sound Level Limitations on Construction Equipment.

    a. Section 36.409 states: Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction

equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

C. Impulsive Noise: Noise generated by the project will exceed the standards listed in San Diego Code Section 36.410, Sound Level Limitations on Impulsive Noise.

a. Section 36.410 states:

In addition to the general limitations on sound levels in Section 36.404 and the limitations on construction equipment in Section 36.409, the following additional sound level limitations shall apply:

(a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in [Table 2.10-13], when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25% of the minutes in the measurement period, as described in [S]ection [36.410](c) [of the County's Noise Ordinance]. The maximum sound level depends on the use being made of the occupied property. The uses in Table [2.10-13] are as described in the County Zoning Ordinance.

(b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in [Table 2.10-14], when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25% of the minutes in the measurement period, as described in [S]ection [36.410](c) [of the County's Noise Ordinance]. The maximum sound level depends on the use being made of the occupied property. The uses in [Table 2.10-14] are as described in the County Zoning Ordinance.

(c) The minimum measurement period for any measurements conducted under this section shall be one hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the

impulsive noise, exceeds the maximum sound level for any portion of any minute it will be deemed that the maximum sound level was exceeded during that minute.

D. Additionally, the proposed project would result in a significant impact if it results in a substantial permanent increase in ambient noise levels in the vicinity. A substantial noise increase is defined as an increase of 10 dBA CNEL above existing conditions

Analysis

Potential Operational Noise Impacts (Non-Construction Noise)

Stationary Source Noise

Project implementation would result in on-site residential land uses adjacent to or sharing a property line with commercial and mixed-use land uses, recreational uses, and institutional uses. All proposed land uses would include on-site stationary noise sources, including rooftop or ground-mounted HVAC equipment; mechanical equipment; emergency electrical generators; loading dock operations; and parks, schools, and recreational activities. Each is addressed separately below.

Mechanical HVAC Equipment

Mechanical HVAC equipment would be a primary noise source associated with commercial and industrial uses. HVAC equipment is often mounted on rooftops, located on the ground, or established in mechanical rooms. The noise sources could take the form of fans, motors, air compressors, chillers, or cooling towers.

Noise levels from HVAC equipment vary substantially depending on unit efficiency, size, and location, but generally range from 50 to 65 dBA L_{eq} at a distance of 50 feet (City of Santa Ana 2010). Assuming a typical attenuation rate of 6 dBA per doubling of distance for point-source noise sources, noise levels attributed to unshielded HVAC mechanical systems could exceed the County's daytime property line noise limit for residential land uses (50 dBA L_{eq}) within 250 feet of the source. In addition, sources within 450 feet of an NSLU property line could exceed the County's nighttime noise limit (i.e., 45 dBA L_{eq}) for stationary-source noise. As a result, the impact of noise from HVAC equipment under the proposed project would be **potentially significant (Impact N-4)**.

Emergency Generators

Emergency generators may be used to power vital systems within constructed facilities with a need for uninterrupted power. Emergency generators are typically operated under two conditions: loss of main electrical supply or preventive maintenance/testing. Operation of mechanical equipment associated with emergency operations is exempt from the noise standards outlined in the San Diego County Municipal Code (County of San Diego 2000); thus, this analysis focuses on routine preventive maintenance and testing operations that would be conducted periodically.

Reference noise levels of emergency generators with rated power outputs of 1,500 kilowatts are approximately 95 dBA at 7 meters (23 feet) (Cummins Power Generation 2009). Based on this reference noise level, emergency electrical generators located within 3,500 feet of NSLUs could exceed the County's noise limit for daytime stationary sources. In addition, generators located within 6,000 feet of NSLUs could exceed the County's property line noise limit for nighttime stationary-source noise. As it is not yet known if any emergency generators would be used by planned on-site land uses, and specific locations for any generators have not been developed, this impact would be **potentially significant (Impact N-5)**.

Loading Dock and Delivery Activity

Noise sources associated with loading dock and delivery activities can include idling trucks (see also Section 2.7, Greenhouse Gas Emissions, regarding project design features to reduce truck idling), on-site truck circulation, trailer-mounted refrigeration units, pallet dropping, and forklift operation. Typical hourly noise levels for loading dock operations range from 55 to 60 dBA L_{eq} and from 80 to 84 dBA maximum noise level (L_{max}) at a distance of 50 feet (EDAW 2006). Based on these measured noise levels, the County's daytime stationary noise criterion would be exceeded up to approximately 125 feet from the acoustic center of the loading dock, and the nighttime stationary noise criterion would be exceeded up to approximately 250 feet from the acoustic center of the loading dock.

It is possible that the distance between loading docks and residential land uses could be less than 200 feet. Therefore, noise generated from loading dock and delivery activities would have an impact that is **potentially significant (Impact N-6)**.

Recreational and Educational Activities

Activities in the proposed parks, open spaces, and school would be sources of noise. Recreational users could generate noise typical of activities involving picnic areas, trails, active and passive turf areas for little league baseball, children's play areas, and other facilities and amenities included in the proposed project's parks. Passive recreational activities such as

walking, reading, and dining in open turf areas and group picnic areas typically generate lower noise levels compared to active sports play areas. At any one location, the hourly average sound level associated with recreational noise is difficult to predict due to many variables. These factors include the type of recreational activity, the number of players and spectators, the location of people, and the amount and level of conversation and cheering. However, based on noise measurements conducted at several existing active recreation community parks conducted for prior projects (Appendix Q), ball field activities (including use of a public address system) can generate a 1-hour average noise level of approximately 55 to 65 dBA at a distance of 50 feet from stands and/or spectator areas. The joint use park in the Town Center adjacent to the school site is the only park that would have established athletic field or sport court areas.

The County's Noise Ordinance considers specific noise activities and operations from schools exempt from the regulations and noise restrictions contained in the County's Noise Ordinance pursuant to Section 36.417(2): "shall not apply to noise reasonably related to authorized school: (A) bands, (B) athletic activities and (C) entertainments events."

Noise associated with outdoor recreation areas would generally take place during daylight hours and at distances at least 50 feet from on-site residences. Active recreation at sports parks would be the loudest potential noise generation source from parks and recreational facilities associated with the proposed project, with 1-hour average noise levels ranging up to 65 dBA at a distance of 50 feet (Appendix Q). Depending on eventual project Site design and the design of adjacent land uses, the activities from the joint-use park could cause an exceedance of the applicable noise standard in the County's Noise Ordinance at residential land uses. Noise levels associated with activities at other parks associated with the proposed project would typically generate noise levels below that of the active recreation and sport uses at the joint-use park in the Town Center. However, the P14 park is anticipated to include a composting area, which could include chipping and grinding of landscape trimmings. Chipping and grinding would be the primary sources of potential noise generation at the green waste area. Noise from the green waste area would be required to comply with the County's Noise Ordinance per Section 36.404 for daytime and nighttime noise levels. In addition, any activities considered a nuisance would be illegal under the County's Noise Ordinance, which would be enforced by the San Diego County Sheriff's Department. Thus, since noise levels would either be exempt from standards or controlled by the Noise Ordinance and law enforcement, no exceedance of the County's noise standard are expected to occur from recreational and educational activities. This impact would be **less than significant**.

Potential General Construction Noise Impacts

The following project design features (PDFs) are included in the project design and have been incorporated into the impacts analysis. They are also described in Section 1.2.1.9 of this EIR.

PDF 33 The project applicant, or its designee, shall take those steps necessary to require that all construction equipment shall be properly maintained and equipped with noise-reduction intake, exhaust mufflers, and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

PDF 34 The project applicant, or its designee, shall take those steps necessary to require that whenever feasible, electrical power shall be used to run air compressors and similar power tools.

PDF 35 The project applicant, or its designee, shall take those steps necessary to require that equipment staging areas are located as far as feasible from occupied residences or schools.

PDF 36 The project applicant, or its designee, shall take those steps necessary to require that for all construction activity (on-site and off-site improvement work), noise attenuation techniques shall be employed, as needed, to ensure that noise levels remain below 75 dBA L_{eq} at existing residences. Such techniques may include, but are not limited to, the use of sound blankets on noise-generating equipment and the construction of temporary sound barriers adjacent to construction sites between affected uses.

PDF 37 The project applicant, or its designee, shall take those steps necessary to ensure that on-site rock crusher facilities are located a minimum of 600 feet from the property line of existing residences and future on-site residences.

PDF 38 Maximum noise levels resulting from pile driving operations shall be limited to 20 percent of every hour.

Potential On-Site Temporary Construction Noise Impacts

Construction Equipment

The proposed project would include development of a variety of land uses on the project Site, including residential and commercial uses, a school site, parks, and open space, as well as supporting on-site and off-site roadway and infrastructure improvements. Construction of these land uses and infrastructure improvements would occur in two phases, with construction estimated to begin in January 2018 and end in November 2027. Phase 1 is anticipated to begin in January 2018 and continue through December 2024. Phase 2 is anticipated to begin in December 2020 and continue through November 2027.

Construction noise in any one particular area would be temporary and short-term. Construction noise typically occurs intermittently and varies depending on the nature of each phase of construction (e.g., demolition, site preparation, grading and excavation, building construction) due to the different types of construction activities such as hauling material via trucks, pouring concrete, and using power tools. Additionally, the noise levels generated by particular pieces of construction equipment, including earthmovers, material handlers, and portable generators, could reach high noise levels for brief periods.

To assess the potential noise effects of construction, this noise analysis used data from an extensive field study of various types of industrial and commercial construction projects (EPA 1971). Noise levels associated with various construction phases in which all pertinent equipment is present and operating at a reference distance of 50 feet are shown in Table 2.10-15. Because of vehicle technology improvements and stricter noise regulations since the field study was published, this analysis uses the average noise levels shown in Table 2.10-15 for the loudest construction phase. This information indicates that the overall (hourly) average noise level generated on a construction site could be 89 dBA at a distance of 50 feet during excavation/grading and finishing phases. The noise levels presented are ranges; the magnitude of construction noise emissions typically varies over time because construction activity is intermittent and the power demands on construction equipment (and the resulting noise output) are cyclical. Typically, an 8-hour L_{eq} would be lower than an hourly L_{eq}.

Project construction may also involve blasting to break up bedrock close to the ground surface. Typically, most of the noise generated by blasting is very low in frequency—below the frequency range audible to humans. The use of impulsive noise equipment and construction activities that would result in impulse noise (e.g., pile driving or explosives blasting) is discussed later in this section.

In residential construction projects, grading activities typically generate the greatest amount of noise because this phase requires the largest and heaviest pieces of equipment. It is anticipated that the grading portion of Phases 1 and 2 of project construction would overlap, which could result in the worst-case construction noise scenario. Construction equipment used during the grading portion of Phase 1 could include crawler tractors, excavators, graders, loaders, drill rigs, water trucks, off-highway trucks, and scrapers.

Noise levels generated by construction equipment (or by any point source) decrease at a rate of approximately 6 dBA per doubling of distance from the source (Harris 1979). As the loudest construction activity associated with on-site construction of the proposed project would occur during excavating/grading and finishing, which is estimated to generate average noise levels of 89 dBA at 50 feet, at the rate of noise attenuation noted above, the on-site construction noise would be 83 dBA L_{eq} at 100 feet, 77 dBA L_{eq} at 200 feet, 71 dBA L_{eq} at 400 feet, and so on. This

calculated reduction in noise level is based on the loss of energy resulting from the geometric spreading of the sound wave as it leaves the source and travels outward. Intervening structures that block the line of sight, such as buildings, would further decrease the resultant noise level by a minimum of 5 dBA. The effects of molecular air absorption and anomalous excess attenuation would further reduce the noise level from construction activities at more distant locations at the rates of 0.7 dBA and 1 dBA per 1,000 feet, respectively.

The closest existing residences to on-site construction activities would be the residences located in the mobile home park, south of the Town Center neighborhood. On-site construction would take place within approximately 100 feet of the mobile home park property line and approximately 181 feet from the nearest residence (see Figure 2.10-7, Nearest Existing Residential Receiver: On-Site Construction). Work on Mesa Rock Road and the southern portion of the Town Center neighborhood is anticipated to result in noise levels as high as 83 dBA L_{eq} at the nearest existing residential property line, 100 feet to the south. In addition, because the proposed project would be constructed in phases, there is a possibility that on-site residences would be occupied while subsequent building phases are under construction. Thus, construction could occur within approximately 50 feet of on-site NSLUs, generating average noise levels of up to 89 dBA. This assumes a direct line of sight from the receiver to the construction area. Because construction work is cyclical, the 8-hour average noise level would be lower. Nonetheless, the County's noise limit of 75 dBA (8-hour average) may still be exceeded at future on-site residences and at the residences south of Town Center when work takes place near existing residences.

Construction staging areas would be located within the project Site. Staging areas during construction would be located within the proposed project limits at the maximum distance from existing sensitive receptors to the extent feasible. Construction equipment repairs, such as refueling and air filter replacement, would occur on Site. However, any major repairs would occur at an off-site location. All equipment repairs would be completed in the staging areas and would be conducted during the County Noise Ordinance's allowable hours and days of operation for construction. Additionally, the proposed project would implement PDF 33 through PDF 38 which would require properly maintained construction equipment with noise-reduction features (e.g., intake, exhaust mufflers, engine shrouds), use of electrical power tools, locating construction equipment staging areas away from residences and schools, and use of noise attenuation techniques (e.g., noise blankets and temporary barriers) to reduce noise levels to below 75 dBA L_{eq} at the property lines of existing residences. With implementation of these project design features, impacts from construction equipment noise would be **less than significant**.

Portable Rock-Crushing/Processing Equipment

Portable rock-crushing/processing equipment would be used on Site during construction activities. The rock-crushing operation would begin with a front-end loader picking up material and dumping the material into a primary crusher. The material would then be crushed, screened, and stacked in piles. The material would be stockpiled adjacent to the rock-crushing equipment. All material would be used on Site. Electric power would most likely be provided by a diesel engine generator. The primary crusher would also generate impulsive noise events. Maximum noise levels associated with the primary crusher could reach approximately 93 dBA at 100 feet.

Preliminarily, two rock-crushing locations would be located within or adjacent to the Hillside and Knoll neighborhoods, as depicted in Figure 2.10-8, Potential Rock Crusher Locations. The closest existing off-site residence property line or NSLU would be located more than 1,800 feet from the proposed rock-crushing areas and acoustically shielded by rugged intervening terrain. At this distance, the noise level (both 8-hour average and impulsive noise) associated with the rock-crushing activities would be **less than significant**. In addition, there would be intervening topography that would shield adjacent homes from the rock-crushing facilities.

Construction would occur in two phases. The project would be phased so that the future closest occupied homes would be located approximately 600 feet or more from operational rock-crushing equipment. Based on noise measurements conducted for portable rock-crushing operations, the rock-crushing activity would generate a 1-hour average noise level of approximately 80 dBA at a distance of 100 feet from the primary crusher (Appendix Q). Maximum noise levels associated with the primary crusher could reach approximately 88 dBA at 100 feet. Assuming an 8-hour work day, the rock-crushing average noise level at the property lines of the closest project occupied homes would be approximately 64 dBA or less and would be less than significant. The maximum noise level associated with impulsive noise from the primary crusher would be 72 dBA or less at the closest project occupied homes' property lines. This noise level would comply with the County's impulsive noise criteria, and, thus, would be **less than significant**.

Potential Off-Site Temporary Construction Noise Impacts

In addition to on-site construction, off-site construction would be required for roadway and utility improvements. Off-site construction associated with the proposed project would include improvements to the I-15 and Deer Springs Road interchange, Deer Springs Road, Twin Oaks Valley Road, Sarver Lane, and Camino Mayor. These off-site improvements would be constructed in a linear fashion, with construction likely occurring in segments that would move along the roadways' alignments. The loudest phase of construction associated with off-site roadway and utility improvements would likely be grading/excavation activities, which would generate similar

noise levels compared to the grading/excavation phase of the proposed project's on-site construction. Specific to the I-15/Deer Springs Road interchange improvements, while the equipment mix analyzed by the project noise study anticipated the interchange improvements, Caltrans can and should ensure standard measures used for all such projects to minimize or reduce the potential for significant noise impacts due to project construction are implemented. In addition, Caltrans can and should ensure additional options to minimize construction noise during the design phase, such as pre-drilling foundation pile holes where soil conditions allow, and that use of noise control blankets to shroud any pile driving hammer are considered in the event of any such construction occurring proximate to noise-sensitive areas (if any).

As described previously, the loudest construction activity associated with on-site construction of the proposed project would be during grading/excavation, which is estimated to generate average noise levels of 89 dBA at 50 feet. In some instances (such as along North Twin Oaks Valley Road), the property lines of the nearest occupied residences to off-site construction would be effectively nil (0 feet), and the nearest occupied residences would be within approximately 15 feet and adjacent to the roadway segments under construction (Figure 2.10-9, Nearest Existing Residential Receiver: Off-Site Construction). Because construction work is cyclical, the 8-hour average noise levels would be lower. Nonetheless, the County's noise limit of 75 dBA (8-hour average) would likely still temporarily be exceeded at adjacent NSLUs.

Similar to potential on-site construction noise, the proposed project would implement PDF 33 through PDF 38 which would require properly maintained construction equipment with noise-reduction features (e.g., intake, exhaust mufflers, engine shrouds), using electrical power tools, locating construction equipment staging areas away from residences and schools, and using noise attenuation techniques (e.g., noise blankets and temporary barriers) to reduce noise levels to below 75 dBA L_{eq} at the property lines of existing residences. With implementation of these project design features, impacts from construction equipment noise would be **less than significant**.

During construction, the proposed project would also result in a short-term increase in noise levels from off-site traffic on the local roadway network, but this increase would not be sufficient to increase traffic noise levels a substantial amount. It is expected that up to 40 daily vendor trips and 800 employee commute trips would occur during the Phase 1 construction period, which would be the maximum construction-related traffic anticipated for the proposed project. Construction-related traffic would be distributed over the local and regional roadway network and would access the Site primarily from I-15 and Deer Springs Road.

Typically, traffic volumes must double to create an increase in perceptible (3 dBA) traffic noise (Caltrans 2011). Even if all the 840 daily vendor and worker trips used Deer Springs Road, the approximately 5 percent increase in traffic would equate to an increase in noise of well under 1 decibel (approximately 0.2 dBA). Therefore, construction-related traffic would not result in a

perceptible (3 dBA) increase in daily or peak-hour traffic noise levels. Furthermore, project construction traffic is not anticipated to result in changes to level of service operations on the affected roadways. Therefore, construction-related traffic would result in a temporary increase in overall traffic noise levels that would have an impact that is **less than significant**.

Potential Impulsive Noise Impacts

Impulsive noise sources associated with project construction activities could include rock drilling, blasting, and pile driving. No operational impulsive noise sources are proposed as part of the project.

Blasting involves drilling a series of bore holes and placing explosives in each hole. By limiting the amount of explosives in each hole, the blasting contractor can limit the fraction of 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 80 to 98 dBA L_{max} at a distance of 50 feet (Appendix Q). Given a typical work cycle, this would equate to 78 dBA L_{eq} at 50 feet.

Blasting (and the associated drilling that precedes blasting) would only occur between 7 a.m. and 7 p.m. Construction blasting generates a maximum noise level of approximately 94 dBA at a distance of 50 feet (FHWA 2006). This noise level is used in the analysis because it provides a reasonable estimate of the construction blasting noise level. However, the noise level would vary depending on various factors, as more fully described below. The blast is generally perceived as a dull thud rather than as a loud explosion.

The United States Bureau of Mines has provided an impact guide for structural and human response to vibration (USBM 1980a). The criteria are well accepted for all types of ground vibration and are based on the peak particle velocity (PPV) of the receiving structure. The potential for damage to residential structures is greater with low-frequency blast vibration (below 40 Hertz (Hz)) than with high-frequency blast vibration (40 Hertz and above). For low-frequency blast vibration, a limit of 0.75 inch per second for modern dry construction and 0.50 inch per second for older plaster-on-lath construction is used. For frequencies above 40 Hertz, a limit of 2 inches per second for all types of construction is used.

The U.S. Bureau of Mines also published a document regarding recommendations for maximum safe air overpressure levels for blasting (USBM 1980b). This document, *Structure Response and Damage Produced by Airblast from Surface Mining*, recommends a maximum safe air overpressure of 134 dB (linear) for residential structures. The first occurrence of airblast damage is usually the breakage of poorly mounted windows at approximately 152 dB (linear) (Caltrans 2004). The response and annoyance problem from airblast likely is primarily caused by barrier

and window rattling and the resulting secondary noises. Although the maximum safe air overpressure will not entirely preclude these effects or the annoyance of individuals, the recommended levels are considered low enough to preclude damage to residential structures.

Additionally, to conduct blasting, a blasting permit must be obtained from the County Sheriff's Department prior to any blasting activities (County of San Diego 2008). The permit is issued in accordance with California Health and Safety Code requirements. The permit ensures that blasting is conducted in a safe manner. As part of the permit conditions, pre-blast notifications, pre-blast structure survey inspections for structures within 300 feet of the blast site, monitoring, and post-blast inspections are necessary.

When explosive charges detonate in rock, almost all of the available energy from the explosion is used in breaking and displacing the rock mass. However, some blast energy escapes into the atmosphere as a sequence of airborne sound waves, a phenomenon known as "air-blast overpressure." These sound waves are of a very low frequency, below the audible range. Very high air-blast overpressure levels can rattle, or in some cases break, windows. However, air-blast overpressure rarely reaches levels that could cause building damage with modern blasting practices (Appendix Q). The locations where blasting may be necessary is not known at this time; however, potential blasting areas are shown on Figure 2.10-11. Also, other details such as blast-charge weights are not known at this time; thus, air-blast overpressures cannot be predicted. However, since it is feasible that some damage to nearby structures may occur, impacts associated with blasting are **potentially significant (Impact N-7).**

Pile Driving

Construction of the larger buildings (such as in the Town Center neighborhood) may require pile driving during foundation construction that could produce impulsive noise. Based on the type of development, it is estimated that only one pile driver would be active on any single construction site or within 500 feet of another active pile driver if multiple building sites were active at once. One impact pile driver typically produces maximum noise levels of 95 dBA L_{max} at a distance of 50 feet (FTA 2006). Using a conservative hard site condition, one unshielded pile driver could exceed the County's impulsive noise level threshold within 1,000 feet. However, a pile driver does not generate maximum impulsive noise levels continuously. Instead, maximum impulsive noise levels are generated for short periods during peak power buildup and the pile strike. This cyclical pattern is called the equipment usage factor. Based on the Federal Highway Administration's Road Construction Noise Model, a pile driver has a 20 percent usage factor (FHWA 2008). Thus, while the maximum noise levels from a pile driver could exceed the County's maximum noise level threshold within 1,000 feet of active pile driving, the proposed project would implement PDF 38, which would limit pile driving to generate maximum noise levels 20 percent of an hour. Therefore, maximum noise levels would not exceed the County's

impulsive threshold for 25 percent or more of an hour. Based on duration and distance, impulsive noise levels are anticipated to be below the County's 82 dBA threshold. Thus, impacts would be **less than significant**.

2.10.3.3 Groundborne Vibration

Guidelines for the Determination of Significance

For purposes of this EIR, the County's Guidelines for Determining Significance – Noise (County of San Diego 2009b) applies to the direct, indirect, and cumulative impact analysis. A proposed project would result in a significant groundborne vibration impact if:

A. Project implementation would expose the uses listed in Tables 2.10-16 and 2.10-17 to groundborne vibration or noise levels equal to or in excess of the levels shown.

As stated in note "f" of Table 2.10-16, criteria set by the California Department of Transportation (Caltrans) would be used for pile drivers and transient sources such as those associated with project construction. Therefore, for the purposes of this vibration analysis, impacts from pile driving would occur if vibration levels exceed 0.1 inch per second PPV, and impacts from general construction would occur if vibration levels exceed 0.0040 inch per second root mean square (RMS) (County of San Diego 2009c).

Analysis

Operation

No operational components of the proposed project would include significant groundborne noise or vibration sources, and no significant vibrations sources currently exist, or are planned, in the project area. Thus, no significant groundborne noise or vibration impacts would occur with operation of the proposed project, and impacts would be **less than significant**.

Construction

On-site construction equipment that would cause the most groundborne vibration and noise is that equipment associated with grading and pile driving for foundations. During grading, the largest vibration levels are anticipated to be generated by large bulldozers and loaded trucks used for earthmoving. According to the Federal Transit Administration, vibration levels associated with the use of bulldozers range from approximately 0.003 to 0.089 inch per second PPV and 58 to 87 vibration decibels (VdB) at 25 feet (FTA 2006), as shown in Table 2.10-18. Additionally, loaded trucks used for soil hauling during grading could generate vibration levels of approximately 0.076 inch per second PPV and noise levels of 86 VdB at 25 feet. According to

the Federal Transit Administration's methodology for determining vibration propagation, vibration levels would exceed County-recommended Caltrans thresholds for residences of 0.004 PPV inch per second RMS within 190 feet of large bulldozers and 170 feet of loaded trucks. For pile driving, vibration levels would exceed County-recommended Caltrans thresholds of 0.1 PPV within 90 feet of the nearest sensitive receptor.

The nearest sensitive receptors to on-site construction that could produce high vibration levels would be at the mobile home park south of Deer Springs Road, which is located approximately 150 feet from the nearest construction area associated with the proposed project. Therefore, vibration levels may exceed 0.004 inch per second RMS or 0.1 inch per second PPV from general grading and pile driving activities on Site and off Site at the nearest residence. This impact would be **potentially significant (Impact N-8)**.

Blasting

Due to the geologic character of the project Site, explosive blasting and/or on-site rock breaking is anticipated during Site preparation activities. Thus, construction activities may result in significant groundborne vibrations or groundborne noise impacts. At the current stage of project design, a blasting study has not been completed, and no specific blasting timelines, blast numbers, or locations are proposed or available. However, it is anticipated (based on prior projects) that blasting would occur at 2- to 3-day intervals with no more than one blast per day. Blasting is also expected to generally occur in the center of the project Site and along roads within the project Site.

As previously discussed, when explosive charges detonate in rock, almost all of the available energy from the explosion is used in breaking and displacing the rock mass. However, a small portion of the energy is released in the form of vibration waves that radiate away from the charge location. The strength, or amplitude, of the waves reduces as the distance from the charge increases. The rate of amplitude decay depends on local geological conditions, but can be estimated with a reasonable degree of consistency, which allows regulatory agencies to control blasting operations by means of relationships between distance and explosive quantity.

The explosive charges used in mining and mass grading are typically wholly contained in the ground. However, because the blasting locations, necessary geotechnical data, and blasting and materials handling plans are not known at this time, it is not possible to conduct a noise analysis assessing the proposed blasting and materials handling associated with the proposed project. Therefore, for purposes of this analysis, impacts would be **potentially significant (Impact N-9)**.

2.10.3.4 Consistency with Applicable Plans, Policies, and Ordinances

The majority of the residential land uses planned for the project Site would be compatible with the existing and future noise environment. While mitigation to reduce cumulatively significant impacts to certain existing NSLUs located on Deer Springs Road would be infeasible, the majority of potential noise impacts would be either less than significant or mitigated to less than significant through the project design features and mitigation measures identified throughout this section. Overall, the project would minimize the exposure of noise sensitive land uses to excessive, unsafe or otherwise disruptive noise levels. As such, the project would be consistent with Policies N-1, N-1.1, or N-2.

The proposed project would include project design features PDF 33 through PDF 38 which would reduce potential construction noise through using exhaust mufflers, using electrical equipment when feasible, locating staging areas away from NSLUs, and using other noise attenuation techniques. Mitigation measures are proposed to ensure that barriers and/or setbacks have been incorporated into the project design such that noise exposure to residential receivers placed in all useable outdoor areas, including multi-family residential patios and balconies, are at or below the County's thresholds. Mitigation measures are proposed to ensure that future vibration levels do not exceed applicable limits and would reduce vibration levels to below County standards. Using the Federal Transit Administration's vibration standards, the project includes mitigation measures to reduce potential groundborne vibration impacts from grading and blasting activities consistent with County thresholds. The project would be consistent with Policies N-1.2, N-2.1, N-2.2, N-3, and N-3.1.

The Noise Technical Report for the project prepared by Dudek (Appendix Q to this EIR) provides recommendations for the use of sound attenuating walls when necessary (where such features are proposed, visual relief would be provided by proposed landscaping), incorporates the noise standards of the City of San Marcos, used the traffic analysis, and assessed potential noise impacts from project development. The project would be consistent with Policies N-1.3 through N-1.5.

Based on project design, the proposed project could place future on-site noise-sensitive land uses in areas where the projected cumulative noise levels from road traffic could exceed the County's exterior noise limits. Several methods and measures are available and have been considered to reduce traffic noise, such as noise barriers, road surface improvements, regulatory measures (such as lower speed limits), and traffic calming devices (such as speed bumps). Additionally, mitigation identified in the Noise Technical Report for the project (Appendix Q) and in Section 2.10.6, would reduce traffic noise impacts, consistent with Goal N-4 and Policies N-4.1 and N-4.2.

For additional details on the proposed project's consistency with applicable plans, policies, and ordinances, see Section 3.3, Land Use and Planning, as well as Appendix DD.

2.10.4 Cumulative Impact Analysis

Noise levels tend to diminish quickly with distance from a source; therefore, the geographic scope for the analysis of cumulative impacts related to noise was limited to locations within proximity to noise-generating operational components and construction equipment. This study area is similar to the off-site model receiver locations shown in Figure 2.10-4. As listed in Table 1-10, Cumulative Projects, and shown in Figure 1-46, of Chapter 1, Project Description, cumulative projects in this area include the Casa de Amparo, Dougherty Pet Resort, Crossroads Church, North County Metro (NC22), Matheson, and Rimsa TPM. Most of the cumulative projects located in the area consist of existing or planning NSLUs, and, given their size, are not likely to substantially contribute to cumulative traffic noise. However, cumulative projects outside of this immediate area could contribute traffic along Deer Springs Road and other off-site roadways, such that a cumulative increase in ambient noise would occur.

2.10.4.1 Noise-Sensitive Land Uses Affected by Airborne Noise

Similar to direct traffic noise impacts, a cumulative traffic noise impact would occur when the noise level would exceed the applicable standards and when a substantial noise level increase above "without project" conditions would occur. Cumulative impacts are caused by project traffic in combination with traffic from other closely related past, present, and reasonably foreseeable future projects. The proposed project's contribution to the future noise level is determined by comparing the future with implementation of the project and future without implementation of the project (i.e., Future No Project) conditions; a significant impact determination is made when the proposed project's contribution is found to be cumulatively considerable. Under the County's Noise Guidelines, an increase of 2 dBA CNEL or greater is considered cumulatively considerable (County of San Diego 2009b).

The study area for the cumulative analysis and the off-site noise receiver locations are shown in Figure 2.10-4. Table 2.10-19 presents the future noise levels for the cumulative condition without the project (i.e., no project) and for the future cumulative condition with the proposed project for affected roadways.

Off-site traffic noise impacts were evaluated based on the calculated change in noise levels due to the increase or decrease in traffic volumes. As shown in Table 2.10-19, project traffic would not result in a substantial noise increase under future with implementation of the project conditions at any of the modeled receiver locations.

However, the increase in noise levels attributable to project traffic would be cumulatively considerable under the County's Guidelines (i.e., 2 dBA CNEL or greater) at the following receiver and road segment:

- Receiver O5: Residence northeast of the Golden Door Properties LLC (828 Deer Springs Road, with the Option B Deer Springs Road scenario[1])
- Receiver O11: Residence south of the proposed project, (908 Deer Springs Road, with the Option B Deer Springs Road scenario[1])
- Receiver O12: Residence south of the proposed project, (906 Deer Springs Road, with the Option B Deer Springs Road scenario[1])

Noise level increases attributable to the proposed project along Deer Springs Road at Receivers O5, O11 and O12 would be 3,to 4 dBA CNEL with the Deer Springs Road Option B alternative. Therefore, the project would contribute to a **potentially significant cumulative impact** (**Impact CUM-N-1)** at these three noise-sensitive receivers.

2.10.4.2 Project-Generated Airborne Noise

Project implementation would result in significant noise impacts associated with the combination of construction activities and stationary noise sources. However, noise is a localized occurrence and attenuates rapidly with distance. Therefore, only future development projects in the direct vicinity of the project Site could add to construction- or stationary-source noise generated by the proposed project and result in a cumulative noise impact.

The areas surrounding the project Site are developed residential areas, and, thus, generate a similar level of noise as the residential portion of the proposed project would generate, and a lower level of stationary-source noise than the commercial portion of the proposed project would generate. It is unlikely that project implementation would create cumulative impacts due to stationary-source noise, because the surrounding developments and much of the development proposed at the property lines of the project Site are residential developments or commercial developments, such as Casa de Amparo and Crossroads Church, located at such a distance as to not contribute to cumulative operational noise levels.

Nearby cumulative projects are typically not sources of substantial noise. Even in the event that construction schedules of the proposed project and other cumulative projects such as North County Metro (NC22) overlap, the distance, intervening structures and topography, and differences in construction equipment work cycles would reduce potential for a cumulative noise impact. Therefore, the project, in combination with other cumulative projects, would not cumulatively contribute to a significant cumulative impact relating to airborne noise, and impacts would be **less than significant**.

[1] The project contribution would not be cumulatively considerable under the Option A Deer Springs Road scenario (2/4 lane configuration).

2.10.4.3 Groundborne Vibration

Given the rapidly attenuating nature of groundborne vibration during grading activities, and location, size, and likely construction requirements of nearby cumulative projects, it is unlikely that grading activities of the proposed project, in combination with cumulative projects, would result in a significant cumulative vibration impact due to grading. The two nearest projects that would likely require any form of grading during construction, North County Metro (NC22) and Matheson, are located at sufficient distance to reduce potential for cumulative vibration impacts.

Blasting is expected to occur at 2- to 3-day intervals with no more than one blast per day. Blasting is also expected to generally occur in the center of the project Site and along roads within the project Site. As stated previously, because the blasting locations, necessary geotechnical data, and blasting and materials handling plans are not known at this time, it is not possible to conduct a noise analysis assessing the proposed blasting and materials handling associated with the proposed project. As such, the proposed project would have a potentially significant impact to groundborne vibration due to blasting. Despite the unknowns regarding blasting activities on the project Site, due to the nature and size of cumulative projects in the area, it is unlikely that other projects would require such construction practices. Additionally, the intermittent timing and impulsive noise-generating nature of project blasting would reduce the potential for overlap with any cumulative construction activities. Therefore, the project, in combination with cumulative projects, would not cumulatively contribute to a significant cumulative groundborne vibration impact and impacts would be **less than significant**.

2.10.5 Significance of Impacts Prior to Mitigation

2.10.5.1 Noise-Sensitive Land Uses Affected By Airborne Noise

Impact N-1 Based on the noise modeling, ground-floor on-site noise levels would exceed the County's standards at 23 of the modeled single-family receivers, two of the modeled multi-family receivers, and two parks (see Table 2.10-8). These homes and other land uses are estimated to have rear-yard noise exposures ranging from 61 to 69 dBA CNEL in the future with implementation of the project. Therefore, these on-site receivers exceeding the County's land use noise standards would result in impacts that are potentially significant from noise on the ground floor at these receivers.

Impact N-2 As shown in Table 2.10-9, several noise receiver locations were preliminarily found to exceed the County's exterior noise standard on the second floor; therefore, at these locations, impacts would be potentially significant.

Impact N-3 The single-family and multi-family residences exposed to exterior noise levels exceeding 60 dBA CNEL (either at ground level or at upper levels) could have interior noise levels greater than 45 dBA CNEL. The lots identified in Table 2.10-10 would result in impacts that are potentially significant from an exceedance of the County's interior noise standard.

2.10.5.2 Project-Generated Airborne Noise

Impact N-4 Noise levels attributed to unshielded HVAC mechanical systems could exceed the County's daytime property line noise limit for residential land uses (50 dBA L_{eq}) within 250 feet of the source. In addition, sources within 450 feet of an NSLU property line could exceed the County's nighttime noise limit (i.e., 45 dBA L_{eq}) for stationary-source noise. As a result, the impact of noise from HVAC equipment under the proposed project would be potentially significant.

Impact N-5 Emergency electrical generators located within 3,500 feet of project property lines could exceed the County's noise limit for daytime stationary source noise. In addition, generators located within 6,000 feet of project property line could exceed the County's property line noise limit for nighttime stationary source noise. As it is not yet known if any emergency generators would be used by planned on-site land uses, and specific locations for any generators have not been developed, this impact would be potentially significant.

Impact N-6 The County's daytime stationary noise criterion would be exceeded at up to approximately 125 feet from the acoustic center of potential loading docks for on-site commercial land uses, and the nighttime stationary noise criterion would be exceeded at up to approximately 250 feet from the acoustic center of potential loading docks. It is possible that the distance between loading docks and residential land uses could be less than 200 feet. Therefore, noise generated from loading docks and delivery activities would result in impacts that are potentially significant.

Impact N-7 The locations where blasting may be necessary is not known at this time. Also, other details such as blast-charge weights are not known at this time; thus, air-blast overpressures cannot be predicted. Since it is feasible that some damage to nearby structures may occur, impacts associated with blasting would be potentially significant**.**

2.10.5.3 Groundborne Vibration

Impact N-8 Vibration levels may exceed 0.004 inch per second RMS or 0.1 inch per second PPV from general grading and pile-driving construction activities on Site and off Site at the nearest residence (the mobile home park south of Deer Springs Road, which is located approximately 150 feet from the nearest construction area). This impact would be potentially significant.

Impact N-9 Because the blasting locations, necessary geotechnical data, and blasting and materials handling plans are not known at this time, it is not possible to conduct a noise analysis assessing the proposed blasting and materials handling associated with the proposed project. Therefore, for purposes of this analysis, impacts would be potentially significant.

2.10.5.4 Cumulative Impacts

Impact CUM-N-1 Noise level increases attributable to the proposed project along Deer Springs Road at Receivers O5, O11 and O12 would be 3,to 4 dBA CNEL with the Deer Springs Road Option B alternative. Therefore, the project would cumulatively contribute to a potentially significant cumulative impact at these noise-sensitive receivers.

2.10.6 Mitigation Measures

2.10.6.1 Noise-Sensitive Land Uses Affected By Airborne Noise

The following mitigation measure (M-N-1) would reduce potentially significant exterior noise impacts (**Impacts N-1 and N-2**) to a level below significance:

M-N-1 Prior to the issuance of grading permits for construction at the modeled receiver locations listed in Tables 9 and 10 of the Noise Technical Report for the Newland Sierra Project, the project applicant or its designee shall prepare an acoustical study based on the final map design, and shall implement any and all measures recommended as a result of the study, which shall be approved by the County of San Diego Planning & Development Services department (or its designee). The acoustical study shall include the following:

1. The location, height, and building material of any noise barriers to be constructed. The noise barriers shall be a minimum of 6 feet in height, have a surface density of at least 4 pounds per square foot, and be free of openings and cracks. The barriers may be constructed of acrylic glass, masonry

material, earthen berm, or a combination of these materials. Noise barrier heights shall be relative to final pad elevation.

2. A detailed analysis that demonstrates that noise barriers and/or setbacks have been incorporated into the project design, such that noise level exposure to residential receivers in all useable outdoor areas, including multi-family residential patios and balconies, is at or below the applicable noise standard (i.e., 60 dBA Community Noise Equivalent Level (CNEL) at single-family residences, and 65 dBA CNEL at multi-family residences).
3. In the event that pad grade elevations, lot configuration/site design, and/or traffic assumptions change during the processing of any final maps, the noise barrier shall be revised to reflect those modifications.
4. Permanent noise barriers shall be installed as part of the landscape plan.

The following mitigation measure (M-N-2) would reduce potentially significant interior noise impacts **(Impact N-3)** to a level below significance:

M-N-2 Prior to issuance of building permits for the property lot numbers listed in Table 11 of the Noise Technical Report for the Newland Sierra Project, the applicant or its designee shall demonstrate that interior noise levels due to exterior noise sources at these locations will not exceed the applicable County of San Diego noise ordinance standard for the subject land use. It is anticipated that the typical method of compliance would be to provide noise barriers where appropriate; structure setbacks; acoustically rated windows and doors; or air conditioning or equivalent forced air circulation to allow occupancy with closed windows, which, for most construction, would provide sufficient exterior-to-interior noise reduction. An acoustical study shall be prepared to demonstrate and verify that interior noise levels at all lots listed in Table 11 of the Noise Technical Report for the Newland Sierra Project are below 45 dBA Community Noise Equivalent Level (CNEL) within all habitable residential rooms.

2.10.6.2 Project-Generated Airborne Noise

The following mitigation measure (M-N-3) would reduce potentially significant operational project-generated noise from HVAC and emergency generators (**Impacts N-4 and N-5**) to a level below significance:

M-N-3 Prior to the issuance of any building permit for stationary noise-generating equipment such as heating, ventilating, air conditioning (HVAC) systems or standby generators, the applicant or its designee shall prepare an acoustical study

of the proposed stationary noise sources associated with HVAC systems and standby generators for submittal to the County of San Diego (County) for review and approval. The acoustical study shall identify all noise-generating equipment and predict noise levels from all identified equipment at the applicable property lines. Where predicted noise levels would exceed those levels established by the County's Noise Ordinance, Section 36.404, the acoustical study shall identify mitigation measures shown to effectively reduce noise levels (e.g., enclosures, barriers, site orientation) to be implemented, as necessary, to demonstrate compliance with the County's Noise Ordinance, Section 36.404. Mitigation measures also may include implementing best engineering practices, changing the placement of noise-generating equipment, and implementing shielding for stationary noise sources associated with HVAC systems and standby generators. All mitigation measures identified in the acoustical study shall be implemented by the applicant or its designee prior to issuance of any building permit.

The following mitigation measure (M-N-4) would reduce potentially significant operational project-generated noise from loading areas (**Impact N-6**) to a level below significance:

M-N-4 Prior to the issuance of any building permit for commercial land uses containing loading docks and delivery areas, the applicant or its designee shall prepare an acoustical study of the proposed commercial land use site plans for submittal to the County of San Diego (County) for review and approval. The acoustical study shall identify all noise-generating areas and associated equipment, and shall calculate predicted noise levels at the applicable property lines from all identified sources. Where predicted noise levels would exceed those established by the County's Noise Ordinance, Section 36.404, the acoustical study shall identify mitigation measures to be implemented (e.g., enclosures, barriers, site orientation, reduction of parking stalls), as necessary, to demonstrate compliance with the property line noise level limits established by the County's Noise Ordinance, Section 36.404. Mitigation measures may include requiring that best engineering practices be used in the placement and shielding of noise-generating equipment and when developing site plans for commercial land uses containing loading docks and delivery areas. This shall ensure that noise levels at the property line comply with the County's noise standards. All mitigation measures identified in the acoustical study shall be implemented by the applicant or its designee prior to the issuance of a building permit.

The following mitigation measure (M-N-5) would reduce potentially significant construction project-generated noise from blasting activities (**Impact N-7 and N-9**) to a level below significance:

M-N-5 Prior to approval of the grading permit for any portion of the proposed project, the project applicant or the designated contractor shall prepare, or cause to be prepared, a blast drilling and monitoring plan. The plan shall include estimates of the drill noise levels, maximum noise levels (L_{max}), air-blast overpressure levels, and groundborne vibration levels at each residential property line within 1,000 feet of the blasting location, and shall be submitted to the County of San Diego (County) for review prior to the first blast. Blasting shall not commence until the County has approved the blast plan. Where potential exceedances of the County's Noise Ordinance are identified, the blast drilling and 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, presplitting) to be implemented to comply with the noise level limits of the County's Noise Ordinance, Sections 36.409 and 36.410, and the vibration-level limits of 1 inch per second peak particle velocity. The identified mitigation measures shall be implemented by the applicant or its designee prior to the issuance of the grading permit. Additionally, all project phases involving blasting shall conform to the following requirements:

- All blasting shall be performed by a blast contractor and blasting personnel licensed to operate in the County.
- 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 and is approved by the County.
- Blasting shall not exceed 1 inch per second peak particle velocity at the nearest occupied residence, in accordance with County of San Diego's Noise Guidelines, Section 4.3 (County of San Diego 2009a).

M-N-6 To reduce temporary construction noise, the project applicant shall implement project design features 33 through 38.

While the final configuration and design of the Caltrans interchange improvements are not known at this time, to ensure potential construction impacts caused by airborne noise remain less than significant, this EIR recommends the following measure:

M-N-7 Pursuant to California Public Resources Code Section 21081(a)(2), in coordination with the I-15 interchange improvement project, which is to be fully funded and constructed by the project applicant, though is within the ~~responsibility and~~ jurisdiction of Caltrans to approve, Caltrans can and should prepare, or cause to be prepared, a noise impact study to analyze the potential for construction-related

noise impacts as part of the CEQA/NEPA process. Caltrans can and should ensure standard measures to minimize or reduce the potential for significant noise impacts due to project construction are implemented. In addition, Caltrans can and should ensure additional options to minimize construction noise during the design phase, such as pre-drilling foundation pile holes where soil conditions allow, or using noise control blankets to shroud any pile driving hammer are implemented in the event of any such construction occurring proximate to noise-sensitive areas (if any).

2.10.6.3 Groundborne Vibration

The following mitigation measure (M-N-8) would reduce potentially significant construction project-generated vibration from grading activities (**Impact N-8 and N-9**) to a level below significance:

M-N-8 Prior to beginning construction of any project component within 200 feet of an existing or future occupied residence, the project applicant or its designee shall require preparation of a vibration monitoring plan for submittal to the County of San Diego (County) noise control officer for review and approval. At a minimum, the vibration monitoring plan shall require data be sent to the County noise control officer or designee on a weekly basis or more frequently as determined by the noise control officer. The data shall include vibration level measurements taken during the previous work period. In the event that the County noise control officer determines there is reasonable probability that future measured vibration levels would exceed allowable limits, the County noise control officer or designee shall take the steps necessary to ensure that future vibration levels do not exceed such limits, including suspending further construction activities that would result in excessive vibration levels until either alternative equipment or alternative construction procedures can be used that generate vibration levels that do not exceed 0.004 inch per second root mean square (RMS) or 0.1 inch per second peak particle velocity (PPV) at the nearest residential structure. Construction activities not associated with vibration generation could continue.

The vibration monitoring plan shall be prepared and administered by a County-approved noise consultant. In addition to the data described previously, the vibration monitoring plan shall include the location of vibration monitors, the vibration instrumentation used, a data acquisition and retention plan, and exceedance notification and reporting procedures. A description of these plan components is provided in the following text.

Location of Vibration Monitors: The vibration monitoring plan shall include a scaled plan indicating monitoring locations, including the location of

measurements to be taken at construction site property lines and at nearby residential properties.

Vibration Instrumentation: Vibration monitors shall be capable of measuring maximum unweighted RMS and PPV levels triaxially (in three directions) over a frequency range of 1 to 100 Hertz. The vibration monitor shall be set to automatically record daily events during working hours and to record peak triaxial PPV values in 5-minute interval histogram plots. The method of coupling the geophones to the ground shall be described and included in the report. The vibration monitors shall be calibrated within 1 year of the measurement, and a certified laboratory conformance report shall be included in the report.

Data Acquisition: The information to be provided in the data reports shall include, at a minimum, daily histogram plots of PPV versus time of day for three triaxial directions, and maximum peak vector sum PPV and maximum frequency for each direction. The reports shall also identify the construction equipment operation during the monitoring period and their locations and distances to all vibration measurement locations.

Exceedance Notification and Reporting Procedures: A description of the notification of exceedance and reporting procedures shall be included, and follow-up procedures taken to reduce vibration levels to below the allowable limits.

2.10.6.4 Cumulative Impacts

For reasons described in Section 2.10.7.4, no feasible mitigation exists to reduce potentially significant cumulative noise impacts resulting from project-generated traffic (**Impact CUM-N-1**).

2.10.7 Conclusion

2.10.7.1 Noise-Sensitive Land Uses Affected By Airborne Noise

Based on the noise modeling, ground-floor on-site noise levels would exceed the County's standards at 23 of the modeled single-family receivers, two of the modeled multi-family receivers, and two parks (Table 2.10-8) **(Impact N-1)**. As shown in Table 2.10-9, several noise receiver locations were preliminarily found to exceed the County's exterior noise standard on the second floor (**Impact N-2)**.

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 2.10-20 and

shown on Figures 2.10-10a through 2.10-10h, which would reduce ground-floor noise levels to at or below County noise standards. With implementation of mitigation measure M-N-1, potentially significant **Impact N-1** would be reduced to **less than significant**.

M-N-1 would require a detailed acoustical study that demonstrates that barriers and/or setbacks have been incorporated into project design such that noise exposure to residential receivers placed in all useable outdoor areas, including multi-family residential patios and balconies, are at or below the County's noise compatibility guideline of 65 dBA CNEL. Therefore, with incorporation of M-N-1, second-floor noise impacts (**Impact N-2**) would be **less than significant**.

The single-family and multi-family residences exposed to exterior noise levels exceeding 60 dBA CNEL (either at ground level or at upper levels) could have interior noise levels greater than 45 dBA CNEL **(Impact N-3)**. M-N-2 would require an interior acoustical analysis for the lots exposed to an external noise level greater than 60 dBA CNEL and incorporation of building construction methods (e.g., noise barriers, structure setbacks, acoustically rated windows and doors, or air conditioning or equivalent forced air circulation to allow occupancy with closed windows) to ensure that the interior noise levels would not exceed 45 dBA CNEL. Therefore, with implementation of an interior acoustical study and incorporation of building construction methods for these lots, interior noise impacts would be **less than significant**.

2.10.7.2 Project-Generated Airborne Noise

Noise attributed to unshielded HVAC mechanical systems and emergency electrical generators could exceed the County's daytime and nighttime noise limits **(Impacts N-4 and N-5**, respectively**)**. M-N-3 would require preparation of an acoustical study to identify mitigation measures shown to effectively reduce noise levels generated by stationary source noise (e.g., enclosures, barriers, site orientation). The proposed project would be required to implement the measures identified in the acoustical study as necessary to comply with the County's Noise Ordinance, Section 36.404. Therefore, with implementation of M-N-3, impacts from mechanical HVAC equipment (**Impact N-4**) and emergency generator (**Impact N-5**) noise would be **less than significant**.

The County's daytime stationary noise criterion would be exceeded up to approximately 125 feet from the acoustic center of any loading docks, and the nighttime stationary noise criterion would be exceeded up to approximately 250 feet from the acoustic center of any loading docks **(Impact N-6)**. M-N-4 would require preparation of an acoustical study for proposed commercial land use site plans to identify mitigation measures shown to effectively reduce noise levels from such sources (e.g., enclosures, barriers, site orientation). The proposed project would be required to implement the measures identified in the acoustical study as necessary to comply with the

County's Noise Ordinance, Section 36.404. Therefore, with implementation of M-N-4, impacts from loading dock and delivery activity noise (**Impact N-6**) would be **less than significant**.

It is feasible that some damage to nearby structures may occur due to blasting activities **(Impact N-7 and N-9).** M-N-5 would require a blast drilling and monitoring plan to identify mitigation measures shown to effectively reduce noise and vibration levels (e.g., altering orientation of blast progression, increased delay between charge detonations, presplitting), and implementation of those measures to comply with the noise level limits of the County's Noise Ordinance, Sections 36.409 and 36.410, and the vibration-level limits of 1 inch per second PPV. Therefore, with implementation of M-N-5, impacts from blasting (**Impact N**-7 and **N-9**) would be **less than significant**.

2.10.7.3 Groundborne Vibration

Vibration levels may exceed 0.004 inch per second RMS or 0.1 inch per second PPV from general grading and pile driving construction activities on Site and off Site at the nearest residence **(Impact N-8)**. M-N-8 would require preparation of a vibration monitoring plan that would require data be sent to the County noise control officer. The officer would then take the steps necessary to ensure that future vibration levels do not exceed applicable limits, including suspending further construction activities that would result in excessive vibration levels until either alternative equipment or alternative construction procedures have been identified that would reduce vibration levels to below County standards. Therefore, with implementation of M-N-7, vibration impacts during construction (**Impact N-8**) would be **less than significant**.

As the blasting locations, necessary geotechnical data, or blasting and materials handling plans are not known at this time, it is not possible to conduct a noise analysis assessing the proposed blasting and materials handling associated with the proposed project **(Impact N-9)**. As previously discussed, M-N-5 would require preparation of a blasting plan requiring compliance with applicable standards. Additionally, M-N-8 is proposed, which would require a vibration monitoring plan and require data be sent to the County noise control officer who would take the steps necessary to ensure that future vibration levels do not exceed applicable limits, including suspending construction activities that would result in excessive vibration levels until either alternative equipment or alternative construction procedures have been identified to reduce vibration levels below County standards. Therefore, with implementation M-N-5 and M-N-8, vibration impacts from blasting (**Impact N-9)** would be **less than significant**.

2.10.7.4 Cumulative Impacts

Noise level increases attributable to the proposed project along Deer Springs Road at Receivers O5, O11 and O12 would be 3 to 4 dBA CNEL with the Deer Springs Road Option B configuration (**Impact CUM-N-1)**. Several methods and measures are available to reduce traffic

noise, such as noise barriers, road surface improvements, regulatory measures (such as lower speed limits), and traffic-calming devices (such as speed bumps). However, none of these measures are considered feasible. For example, assuming noise barriers could be constructed entirely within the County's right-of-way, such barriers may not be effective due to the need to provide driveways and other access points, which would limit the continuity, and effectiveness, of the barrier. Additionally, constructing noise barriers on private property would be effective, although residents may not approve of such for various reasons; however, there are both liability and long-term maintenance concerns that would need to be addressed. For these reasons, noise barriers are considered infeasible.

The remaining potential mitigation methods likely would not substantially reduce or avoid impacts. In addition, some measures may not be desired by the local residents due to visual or traffic impacts. Additionally, the project would be responsible only for its fair-share of the costs of necessary improvements, and there is no funding plan or program in place to construct the improvements (i.e., there is no noise impact fee program in place). Finally, measures such as reduced speed limits or traffic-calming devices require legal or government enforcement and may cause other undesirable or unacceptable impacts, such as speed bumps lengthening emergency response calls.

For these reasons, the mitigation of significant cumulative off-site impacts from project-related traffic noise level increases along Deer Springs Road is infeasible, and cumulative impacts (**Impact CUM-N-1**) would be **significant and unavoidable**.

Table 2.10-1
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 Q.
* Average temperature was 73°F, relative humidity was 62%, average winds were 3 mile-per-hour southwest, and skies were clear.
** Equivalent Continuous Sound Level (Time-Average Sound Level)

Table 2.10-2
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 proposed Hillside neighborhood	9/29/14 3:30 to 3:50 p.m.	46.9	53.3	43.3
A3	Easternmost lot line in the proposed Mesa neighborhood	9/29/14 3:15 to 3:35 p.m.	41.8	50.4	39.0
A4	In the proposed Valley neighborhood	9/29/14 2:45 to 3:05 p.m.	54.8	62.4	46.4

Source: Appendix Q.
* Average temperature was 73°F, relative humidity was 62%, average winds were 3 mile-per-hour southwest, and skies were clear.

Table 2.10-3
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 Technical 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.						

Source: County of San Diego 2011

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

Table 2.10-4
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} (one 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.

Table 2.10-4
Noise Standards

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 2.10-3 of this EIR.

Table 2.10-5
County of San Diego Noise Ordinance Sound Level Limits

No.	Zone	Applicable Hours	Sound Level Limit dBA L_{eq} (1 hour)
1	RS, RD, RR, RMH, A70, A72, S80, S81, S90, S92, RV, and RU with a General Plan Land Use Designation density of less than 10.9 dwelling units per acre	7 a.m. to 10 p.m.	50
		10 p.m. to 7 a.m.	45
2	RRO, RC, RM, S86, FB-V5, RV, and RU with a General Plan Land Use Designation density of 10.9 or more dwelling units per acre	7 a.m. to 10 p.m.	55
		10 p.m. to 7 a.m.	50
3	S-94, FB-V4, AL-V2, AL-V1, AL-CD, RM-V5, RM-V4, RM-V3, RM-CD and all other commercial zones	7 a.m. to 10 p.m.	60
		10 p.m. to 7 a.m.	55
4	FB-V1, FB-V2, RM-V1, RM-V2	7 a.m. to 7 p.m.	60
	FB-V1, RM-V2	7 a.m. to 10 p.m.	55
	FB-V1, RM-V2	10 p.m. to 7 a.m.	55
	FB-V2, RM-V1	10 p.m. to 7 a.m.	50
	FB-V3	7 a.m. to 10 p.m.	70
		10 p.m. to 7 a.m.	65
5	M-50, M-52, and M-54	Anytime	70
6	S82, M56, and M58	Anytime	75
7	S88 (see County Noise Ordinance, Section 36.404(c))		

Source: Adapted from the County of San Diego Noise Ordinance, Section 36.404.
Notes: Pursuant to Section 36.404 of the County's Noise Ordinance:
(a) Except as provided in Section 36.409 of the County's Noise Ordinance, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the 1-hour average sound level limits in Table 36.404 of the County's Noise Ordinance, when the 1-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise.

(b) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit, which authorizes the noise-generating use or activity and the decision-making body approving the Major Use Permit determined that those mitigation measures reduce potential noise impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a).

(c) S88 zones are specific planning areas, which allow for different uses. The sound level limits in Table 36.404 of the County's Noise Ordinance that apply in an S88 zone depend on the use being made of the property. The limits in Table 36.404, subsection (1) of the County's Noise Ordinance apply to property with a residential, agricultural, or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52, or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

(d) If the measured ambient noise level exceeds the applicable limit in Table 36.404 in the County's Noise Ordinance, the allowable 1-hour average sound level shall be the 1-hour average ambient noise level, plus 3 dBA. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(e) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones. The 1-hour average sound level limit applicable to extractive industries, however, including borrow pits and mines, shall be 75 dBA at the property line regardless of the zone in which the extractive industry is located.

(f) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section, measured at or beyond 6 feet from the boundary of the easement on which the facility is located.

Table 2.10-6
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	2300	1100	500	2300	1100	500

FWP = Future with implementation of the project scenario; RW = Noise contour would be within the roadway right-of-way.

Table 2.10-7
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 2.10-7
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 - 62	Single Family Resi / 60	60	No	**61**	**Yes**	**61**	**Yes**	**61**	**Yes**
H-64	Hillside – Lot 64	Hillside – Lots 63 - 64	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 2.10-7
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 2.10-7
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	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 2.10-7
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 2.10-7
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	Multi-family Resi / 65	49	No	52	No	49	No	52	No
S-559	Summit – Lot 559	Summit – Lots 559	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 2.10-7
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 – Lots581 - 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 2.10-7
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	Valley – Lot 1097	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
V-1189	Valley – Lot 1189	Valley – Lots 1189 – 1190	Single Family Resi / 60	60	No	60	No	60	No	60	No

Table 2.10-7
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-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 implementation of the project scenario
Noise receiver levels greater than the applicable noise standard are shown in bold.
1- Hourly noise volumes and standard used for these park areas, per County guidance as shown in Table 2.10-4 of this EIR.

Table 2.10-8
Potentially Significant On-Site Ground-Floor Receivers (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 Residential / 60	**63**	**Yes**	**63**	**Yes**
H-37	Hillside – Lot 37	Hillside – Lots 35–39	Single-Family Residential / 60	**61**	**Yes**	**61**	**Yes**
H-43	Hillside – Lot 43	Hillside – Lots 40–45	Single-Family Residential / 60	**62**	**Yes**	**62**	**Yes**
H-49	Hillside – Lot 49	Hillside – Lots 49–50	Single-Family Residential / 60	**63**	**Yes**	**63**	**Yes**

Table 2.10-8
Potentially Significant On-Site Ground-Floor Receivers (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-54	Hillside – Lot 54	Hillside – Lots 53–55	Single-Family Residential / 60	**63**	**Yes**	**63**	**Yes**
H-59	Hillside – Lot 59	Hillside – Lots 58–59	Single-Family Residential / 60	**61**	**Yes**	**61**	**Yes**
H-94	Hillside – Lot 94	Hillside – Lots 93–95	Single-Family Residential / 60	**62**	**Yes**	**62**	**Yes**
H-97	Hillside – Lot 97	Hillside – Lots 96–98	Single-Family Residential / 60	**61**	**Yes**	**61**	**Yes**
H-100	Hillside – Lot 100	Hillside – Lots 99- 100	Single-Family Residential / 60	**63**	**Yes**	**63**	**Yes**
H-101	Hillside – Lot 101	Hillside – Lots 101–102	Single-Family Residential / 60	**64**	**Yes**	**64**	**Yes**
H-103	Hillside – Lot 103	Hillside – Lots 103–105	Single-Family Residential / 60	**64**	**Yes**	**64**	**Yes**
H-108	Hillside – Lot 108	Hillside – Lots 108–109	Single-Family Residential / 60	**64**	**Yes**	**64**	**Yes**
H-110	Hillside – Lot 110	Hillside – Lots 110–111	Single-Family Residential / 60	**63**	**Yes**	**63**	**Yes**
K-971	Knoll – Lot 971	Knoll – Lots 969–972	Single-Family Residential / 60	**64**	**Yes**	**64**	**Yes**
K-973	Knoll – Lot 973	Knoll – Lot 973	Single-Family Residential / 60	**64**	**Yes**	**64**	**Yes**
M-269	Mesa – Lot 269	Mesa – Lots 267–270	Single-Family Residential / 60	**61**	**Yes**	**61**	**Yes**
M-336	Mesa – Lot 336	Mesa – Lots 335–337	Single-Family Residential / 60	**61**	**Yes**	**61**	**Yes**
M-369	Mesa – Lot 369	Mesa – Lots 367–369	Single-Family Residential / 60	**63**	**Yes**	**63**	**Yes**

Table 2.10-8
Potentially Significant On-Site Ground-Floor Receivers (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
T-25N	Terraces Lot 25 – North	Terraces Lot 25 – North	Multi-Family Residential / 65	**66**	**Yes**	**66**	**Yes**
V-10710	Valley – Lot 10710	Valley - Lots 10701071, 10771078	Single-Family Residential / 60	**63**	**Yes**	**63**	**Yes**
V-10991100	Valley – Lot 10991100	Valley – Lot 10991100	Single-Family Residential / 60	**62**	**Yes**	**62**	**Yes**
V-1199V-1198	Valley – Lot 1199Valley – Lot 1198	Valley – Lots 1196 – 1199Valley – Lots 1197 – 1198	Single-Family Residential / 60	**61**	**Yes**	**61**	**Yes**

Notes: FWP = Future with implementation of the project scenario
Noise receiver levels greater than the applicable noise standard are shown in bold.

Table 2.10-9
Exterior Second-Floor Receivers Exceeding the Exterior Noise Standard (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A 2nd Floor	FWP Option B 2nd Floor
TC-10	Town Center – Lot 10	Town Center – Lot 10	Multifamily Residential / 65	67	67
TC-12	Town Center – Lot 12	Town Center – Lot 12	Multifamily Residential / 65	68	68
TC-13	Town Center – Lot 13	Town Center – Lot 13	Multifamily Residential / 65	67	67
TC-14-2	Town Center – Lot 14-2	Town Center – Lot 14 (east side of park)	Multifamily Residential / 65	75	75
H-28	Hillside – Lot 28	Hillside – Lots 26–29	Single-Family Residential / 60	62	62
H-32	Hillside – Lot 32	Hillside – Lots 30–34	Single-Family Residential / 60	63	63
H-37	Hillside – Lot 37	Hillside – Lots 35–39	Single-Family Residential / 60	62	62
H-43	Hillside – Lot 43	Hillside – Lots 40–45	Single-Family Residential / 60	62	62
H-49	Hillside – Lot 49	Hillside – Lots 49–50	Single-Family Residential / 60	63	63

Table 2.10-9
Exterior Second-Floor Receivers Exceeding the Exterior Noise Standard (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A 2nd Floor	FWP Option B 2nd Floor
H-54	Hillside – Lot 54	Hillside – Lots 53–55	Single-Family Residential / 60	63	63
H-59	Hillside – Lot 59	Hillside – Lots 58–59	Single-Family Residential / 60	62	62
H-62	Hillside – Lot 62	Hillside – Lots 60–62	Single-Family Residential / 60	61	61
H-64	Hillside – Lot 64	Hillside – Lots 63-64	Single-Family Residential / 60	61	61
H-91	Hillside – Lot 91	Hillside – Lots 90–92	Single-Family Residential / 60	62	62
H-94	Hillside – Lot 94	Hillside – Lots 93–95	Single-Family Residential / 60	65	65
H-97	Hillside – Lot 97	Hillside – Lots 96–98	Single-Family Residential / 60	64	64
H-100	Hillside – Lot 100	Hillside – Lots 99- 100	Single-Family Residential / 60	67	67
H-101	Hillside – Lot 101	Hillside – Lots 101–102	Single-Family Residential / 60	68	68
H-103	Hillside – Lot 103	Hillside – Lots 103–105	Single-Family Residential / 60	67	67
H-108	Hillside – Lot 108	Hillside – Lots 108–109	Single-Family Residential / 60	67	67
H-110	Hillside – Lot 110	Hillside – Lots 110–111	Single-Family Residential / 60	66	66
K-876	Knoll – Lot 876	Knoll – Lot 876	Single-Family Residential / 60	61	61
K-971	Knoll – Lot 971	Knoll – Lots 969–972	Single-Family Residential / 60	64	64
K-973	Knoll – Lot 973	Knoll – Lot 973	Single-Family Residential / 60	64	64
M-269	Mesa – Lot 269	Mesa – Lots 267–270	Single-Family Residential / 60	62	62
M-273	Mesa – Lot 273	Mesa – Lots 271–276	Single-Family Residential / 60	61	61
M-336	Mesa – Lot 336	Mesa – Lots 335–337	Single-Family Residential / 60	65	65
M-340	Mesa – Lot 340	Mesa – Lots 338–340	Single-Family Residential / 60	64	64
M-343	Mesa – Lot 343	Mesa – Lots 341–345	Single-Family Residential / 60	61	61
M-369	Mesa – Lot 369	Mesa – Lots 367–369	Single-Family Residential / 60	63	63
T-25N	Terraces Lot 25 – North	Terraces Lot 25 – North	Multi-Family Residential / 65	66	66
T-25S	Terraces Lot 25 – South	Terraces Lot 25 – South	Multi-Family Residential / 65	66	66
V-1071	Valley – Lot 1071	Valley – Lots 1071, 1078	Single-Family Residential / 60	63	63
V-1099	Valley – Lot 1100	Valley – Lot 1100	Single-Family Residential / 60	62	62

Table 2.10-9
Exterior Second-Floor Receivers Exceeding the Exterior Noise Standard (dBA CNEL)

Modeled Receiver	Location/Lot Number	Representative of Lots	Land Use/ Noise Standard	FWP Option A 2nd Floor	FWP Option B 2nd Floor
V-1194	Valley – Lot 1194	Valley – Lots 1193– 1195	Single-Family Residential / 60	61	61
V-1199	Valley – Lot 1199	Valley – Lots 1198 – 1199	Single-Family Residential / 60	61	61

FWP = Future with implementation of the project scenario

Table 2.10-10
Potentially Significant On-Site Future Receivers – Interior Noise

Location	Lot Numbers
Hillside	26–45, 49 –55, 58–64, 90–111
Knoll	876, 969–973
Mesa	267–276, 335–345, 367–369
Town Center	10, 12–14 E
Summit	561
Terraces	25 S,25 N
Valley	1071, 1078, 1100, 1193-1195, 1198-1199

Note: See Figures 2.10-3a through 2.10-3h for receiver locations.

Table 2.10-11
Off-Site Future Noise Contours

Roadway / Segment	FWP Option A			FWP Option B		
	Distance to CNEL Contour (feet) from Roadway Centerline					
	60 dBA CNEL	*65 dBA CNEL*	*70 dBA CNEL*	*60 dBA CNEL*	*65 dBA CNEL*	*70 dBA CNEL*
Deer Springs Road						
I-15 to Sarver Lane	410	200	100	600	275	130
South of Sarver Lane	520	240	110	685	320	150
Sarver Lane						
Deer Springs Road to Project Entrance	115	50	RW	110	50	RW
Buena Creek Road						
Twin Oaks Valley Road to Robinhood Road	350	160	75	520	240	110
Twin Oaks Valley Road						
South of Buena Creek Road to E. La Cienega Road	350	160	75	300	140	65
Camino Mayor						
Twin Oaks Valley Road to Project	75	RW	RW	75	RW	RW

Notes: FWP = Future with implementation of the project scenario
RW = Noise contour would be within roadway right-of-way.
The noise contour distances do not account for the mitigating effects of terrain or structure shielding.

Table 2.10-12
Changes in Off-Site Traffic Noise Levels (dBA CNEL)

Receiver	Existing	Existing with Project	Change in Noise Levels
O1: Mobile home park south of the proposed project	72	73	1
O2: Residence east of Deer Springs Road	69	70	1
O3: Residence north of Buena Creek Road	65	67	2
O4: Residence north of Buena Creek Road – 2	68	70	2
O5: Residence northeast of the Golden Door Properties LLC (828 Deer Springs Road)	61	62	1
O6: Residence south of the proposed project (1088 Deer Springs Road)	61	62	1
O7: Residence southeast of Deer Springs Road and Sarver Lane (585 Deer Springs Road)	63	64	1
O8: Golden Door Properties LLC nearest Facade	71	72	1
O9: Sarver Lane – church (Saint Marks Mission Church)	54	57	3
O10: Residence north of Camino Mayor	39	44	5
O11: Residence south of the proposed project, (908 Deer Springs Road)	59	60	1
O12: Residence south of the proposed project (906 Deer Springs Road)	60	62	2
O13: Residence south of the proposed project (836 Deer Springs Road)	57	58	1
O14 Residence south of the proposed project (820 Deer Springs Road)	57	58	1
O15: Residence south of the proposed project (640 Deer Springs Road)	55	56	1

Table 2.10-12
Changes in Off-Site Traffic Noise Levels (dBA CNEL)

Receiver	Existing	Existing with Project	Change in Noise Levels
O16: Residence south of the proposed project (620 Deer Springs Road)	58	59	1
O17: Residence south of the proposed project (574 Deer Springs Road)	66	67	1
Deer Springs Road – 100 feet from the centerline	68	69	1
Deer Springs Road south of Sarver Lane – 100 feet from the centerline	70	71	1
Buena Creek Road – 100 feet from the centerline	67	68	1
Twin Oaks Valley Road south of Buena Creek Road – 100 feet from the centerline	67	68	1
Twin Oaks Valley Road - Cassou to La Cienga (Residences)	66	67	1
Twin Oaks Valley Road - La Cienega to Windy (School)	67	68	1
Twin Oaks Valley Road – Windy to Borden (Residences)	71	71	0
Twin Oaks Valley Road - Borden to Missn (Residences)	55	56	1

Table 2.10-13
County of San Diego Noise Ordinance, Section 36.410, Maximum Sound Level (Impulsive) Measured at Occupied Property in Decibels

Occupied Property Use	dBA
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

Table 2.10-14
County of San Diego Noise Ordinance, Section 36.410, Maximum Sound Level (Impulsive) Measured at Occupied Property in Decibels for Public Road Projects

Occupied Property Use	dBA
Residential, village zoning or civic use	85
Agricultural, commercial or industrial use	90

Table 2.10-15
Typical Noise Levels from Construction Activities for Large Construction Projects

Construction Activity	Average Sound Level at 50 feet (dBA L_{eq})*	Standard Deviation (dBA)
Ground Clearing	84	7
Excavating/Grading	89	6
Foundations	78	3
Erecting	87	6
Finishing	89	7

Source: EPA 1971.
* Sound level with all pertinent equipment operating.

Table 2.10-16
Guidelines For Determining the Significance of Groundborne Vibration and Noise Impacts

Land Use Category	Groundborne Vibration Impact Levels (inches/second RMS)		Groundborne Noise Impact Levels (dB re 20 micropascals)	
	Frequent Events[a]	*Occasional or Infrequent Events*[b]	*Frequent Events*[a]	*Occasional or Infrequent Events*[b]
Category 1: Buildings where low ambient vibration is essential for interior operations (research and manufacturing facilities with special vibration constraints)[f]	0.0018[c]	0.0018[c]	Not applicable[d,e]	Not applicable[d,e]
Category 2: Residences and buildings where people normally sleep (hotels, hospitals, residences, and other sleeping facilities)[f]	0.0040	0.010	35 dB	43 dB
Category 3: Institutional land uses with primarily daytime use (schools, churches, libraries, other institutions, and quiet offices)[f]	0.0056	0.014	40 dB	48 dB

Source: FTA 2006.
RMS = root mean square; re = relative
[a] "Frequent events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
[b] "Infrequent events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
[c] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
[d] Vibration-sensitive equipment is not sensitive to groundborne noise.
[e] There are some buildings, such as concert halls, TV and recording studios, and theaters that can be very sensitive to vibration and noise but do not fit into any of the three categories. Table 2.10-17 of this EIR gives criteria for acceptable levels of groundborne vibration and noise for these various types of special uses.
[f] For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the PPV exceeds 1 inch per second. Nontransportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 inch per second. More specific criteria for structures and potential annoyance were developed by Caltrans (2004) and will be used to evaluate these continuous or transient sources in the County.

Table 2.10-17
Guidelines for Determining the Significance of Groundborne Vibration and Noise Impacts for Special Buildings

Type of Building or Room	Groundborne Vibration Impact Levels (inches/second RMS)		Groundborne Noise Impact Levels (dB re 20 micropascals)	
	Frequent Events[a]	*Occasional or Infrequent Event*[b]	*Frequent Events*[a]	*Occasional or Infrequent Events*[b]
Concert halls, TV studios, and recording studios	0.0018	0.0018	25 dB	25 dB
Auditoriums	0.0040	0.010	30 dB	38 dB
Theaters	0.0040	0.010	35 dB	43 dB

Source: FTA 2006.
RMS = root mean square; re = relative
[a] "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
[b] "Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.

Table 2.10-18
Typical Construction Equipment Vibration Levels

Equipment	PPV at 25 feet (inch per second)	Approximate Groundborne Noise Level at 25 Feet*
Pile drive (impact) – typical	0.644	104
Pile drive (sonic) – typical	0.170	93
Vibratory roller	0.210	94
Jackhammer	0.035	79
Large bulldozer	0.089	87
Loaded trucks	0.076	86
Small bulldozer	0.003	58

Sources: Caltrans 2013; FTA 2006.
PPV = peak particle velocity
* Where groundborne noise level is the velocity level in decibels (VdB) referenced to 1 microinch per second and based on the RMS velocity amplitude.

Table 2.10-19
Cumulative Changes in Off-Site Traffic Noise Levels (dBA CNEL)

Receiver	Existing	Future without Project	Future with Project *Deer Springs Road Option A*	Change in Noise Levels	Future with Project *Deer Springs Road Option B*	Change in Noise Levels
O1: Mobile home park south of the proposed project	72	75	74	-1	75	0
O2: Residence east of Deer Springs Road	69	70	70	0	70	0

Table 2.10-19
Cumulative Changes in Off-Site Traffic Noise Levels (dBA CNEL)

Receiver	Existing	Future without Project	Future with Project *Deer Springs Road Option A*	Change in Noise Levels	Future with Project *Deer Springs Road Option B*	Change in Noise Levels
O3: Residence north of Buena Creek Road	65	70	69	-1	70	0
O4: Residence north of Buena Creek Road – 2	68	72	72	0	73	1
O5: Residence northeast of the Golden Door Properties LLC (828 Deer Springs Road)	61	64	63	-1	68	4
O6: Residence south of the proposed project (1088 Deer Springs Road)	61	65	63	-2	65	0
O7: Residence southeast of Deer Springs Road and Sarver Lane (585 Deer Springs Road)	63	67	65	-2	68	1
O8: Golden Door Properties LLC nearest Facade	71	74	73	-1	74	0
O9: Sarver Lane – church (Saint Marks Mission Church)	54	58	58	0	61	3
O10: Residence north of Camino Mayor	39	39	45	6	45	6
O11: Residence south of the proposed project, (908 Deer Springs Road)	59	62	61	-1	66	4
O12: Residence south of the proposed project (906 Deer Springs Road)	60	65	62	-3	68	3
O13: Residence south of the proposed project (836 Deer Springs Road)	57	60	59	-1	63	3
O14 Residence south of the proposed project (820 Deer Springs Road)	57	60	59	-1	63	3
O15: Residence south of the proposed project (640 Deer Springs Road)	55	58	56	-2	60	2
O16: Residence south of the proposed project (620 Deer Springs Road)	58	62	60	-2	65	3

Table 2.10-19
Cumulative Changes in Off-Site Traffic Noise Levels (dBA CNEL)

Receiver	Existing	Future without Project	Future with Project *Deer Springs Road Option A*	Change in Noise Levels	Future with Project *Deer Springs Road Option B*	Change in Noise Levels
O17: Residence south of the proposed project (574 Deer Springs Road)	66	71	68	-3	72	1
Deer Springs Road – 100 feet from the centerline	68	72	69	-3	72	0
Deer Springs Road south of Sarver Lane – 100 feet from the centerline	70	73	71	-2	73	0
Buena Creek Road – 100 feet from the centerline	67	71	68	-3	71	0
Twin Oaks Valley Road south of Buena Creek Road – 100 feet from the centerline	67	68	68	0	67	-1
Twin Oaks Valley Road - Cassou to La Cienga (Residences)	66	67	68	1	68	1
Twin Oaks Valley Road - La Cienega to Windy (School)	67	69	69	0	69	0
Twin Oaks Valley Road – Windy to Borden (Residences)	71	72	73	1	73	1
Twin Oaks Valley Road - Borden to Missn (Residences)	55	55	56	1	56	1

Table 2.10-20
Mitigated Exterior Ground-Floor Receivers and Mitigated Future Noise Levels

Modeled Receiver	Location / Lot Number	Representative of Lots	Land Use / Noise Standard (dBA CNEL)	Noise Barrier Height	Noise Level (dBA CNEL) with Mitigation (Barrier)	
					FWP Option A Ground Floor	*FWP Option B Ground Floor*
H-32	Hillside – Lot 32	Hillside – Lots 30–34	Single-Family Residential / 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 Residential / 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 Residential / 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 Residential / 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 Residential / 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 Residential / 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 Residential / 60	6-foot-high wall along east-facing rear yard (facing I-15)	53	53

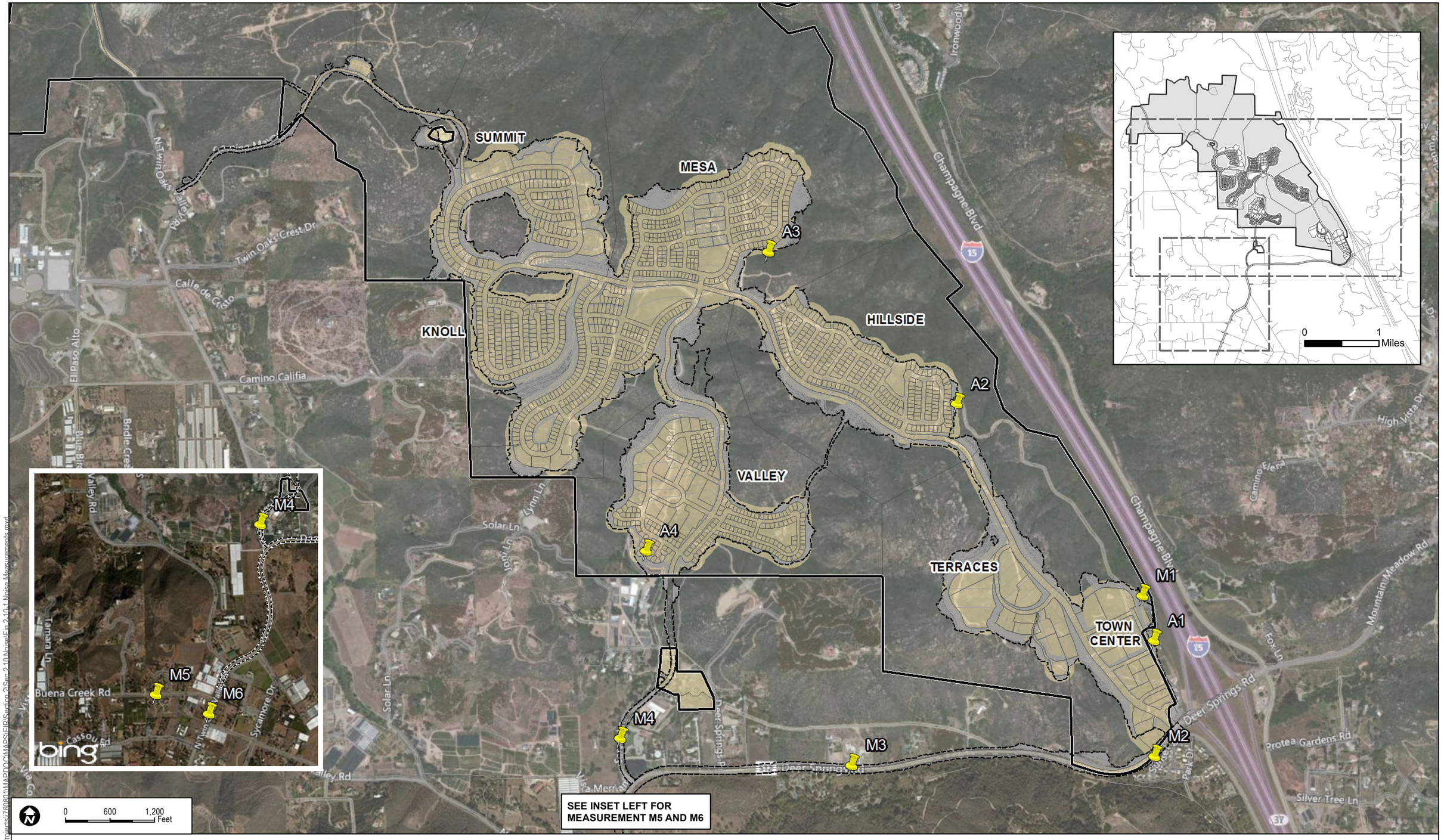
Table 2.10-20
Mitigated Exterior Ground-Floor Receivers and Mitigated Future Noise Levels

Modeled Receiver	Location / Lot Number	Representative of Lots	Land Use / Noise Standard (dBA CNEL)	Noise Barrier Height	Noise Level (dBA CNEL) with Mitigation (Barrier)	
					FWP Option A Ground Floor	*FWP Option B Ground Floor*
H-97	Hillside – Lot 97	Hillside – Lots 96–98	Single-Family Residential / 60	6-foot-high wall along east-facing rear yard (facing I-15)	58	58
H-100	Hillside – Lot 100	Hillside – Lots 99–100	Single-Family Residential / 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 Residential / 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 Residential / 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 Residential / 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 Residential / 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 Residential / 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 Residential / 60	6-foot-high wall along north-facing rear yard (facing future Mesa Rock Road)	57	57

Table 2.10-20
Mitigated Exterior Ground-Floor Receivers and Mitigated Future Noise Levels

Modeled Receiver	Location / Lot Number	Representative of Lots	Land Use / Noise Standard (dBA CNEL)	Noise Barrier Height	Noise Level (dBA CNEL) with Mitigation (Barrier)	
					FWP Option A Ground Floor	*FWP Option B Ground Floor*
M-269	Mesa – Lot 269	Mesa – Lots 267–270	Single-Family Residential / 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 Residential / 60	6-foot-high wall along east-facing rear yard (facing I-15)	54	54
M-369	Mesa – Lot 369	Mesa – Lots 367–369	Single-Family Residential / 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 Residential / 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 Residential / 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 Residential / 60	6-foot-high wall along northwest-facing rear yard (facing future Sarver Lane)	55	55
V-1199	Valley – Lot 1199	Valley – Lots 1198 – 1199	Single-Family Residential / 60	6-foot-high wall along northwest-facing rear yard (facing future Sarver Lane)	55	55

FWP = Future with implementation of the project scenario



SOURCE: Fuscoe 2016

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FIGURE 2.10-1

Noise Measurement Locations

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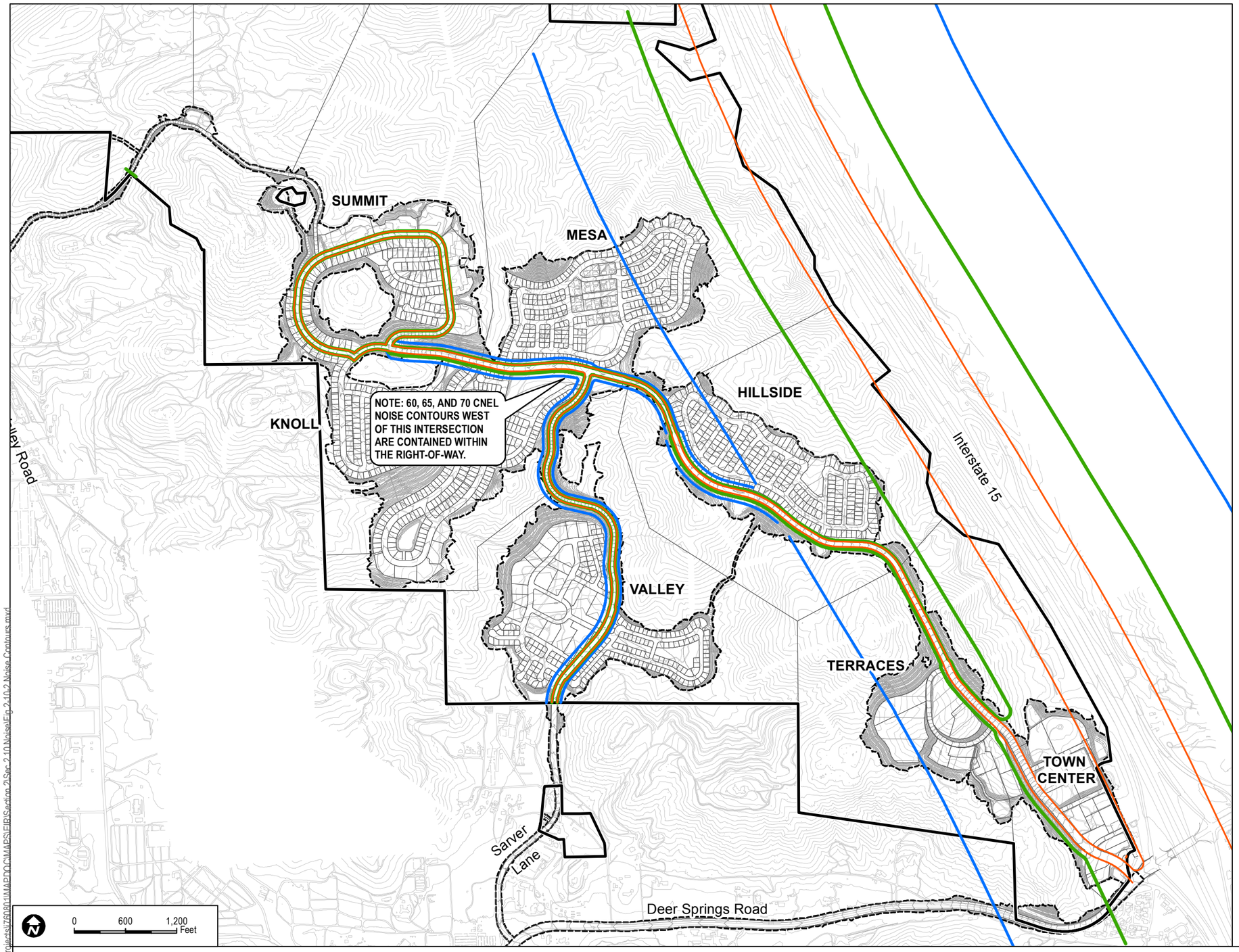

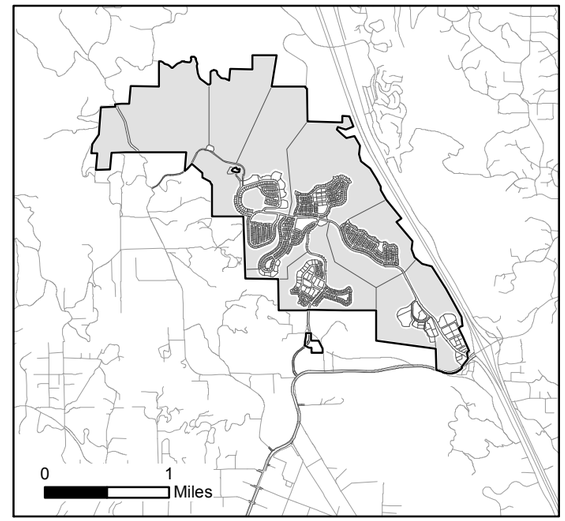

60 dBA CNEL Noise Contour (Option A & B)

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

FIGURE 2.10-2

On-Site Traffic Noise Contours

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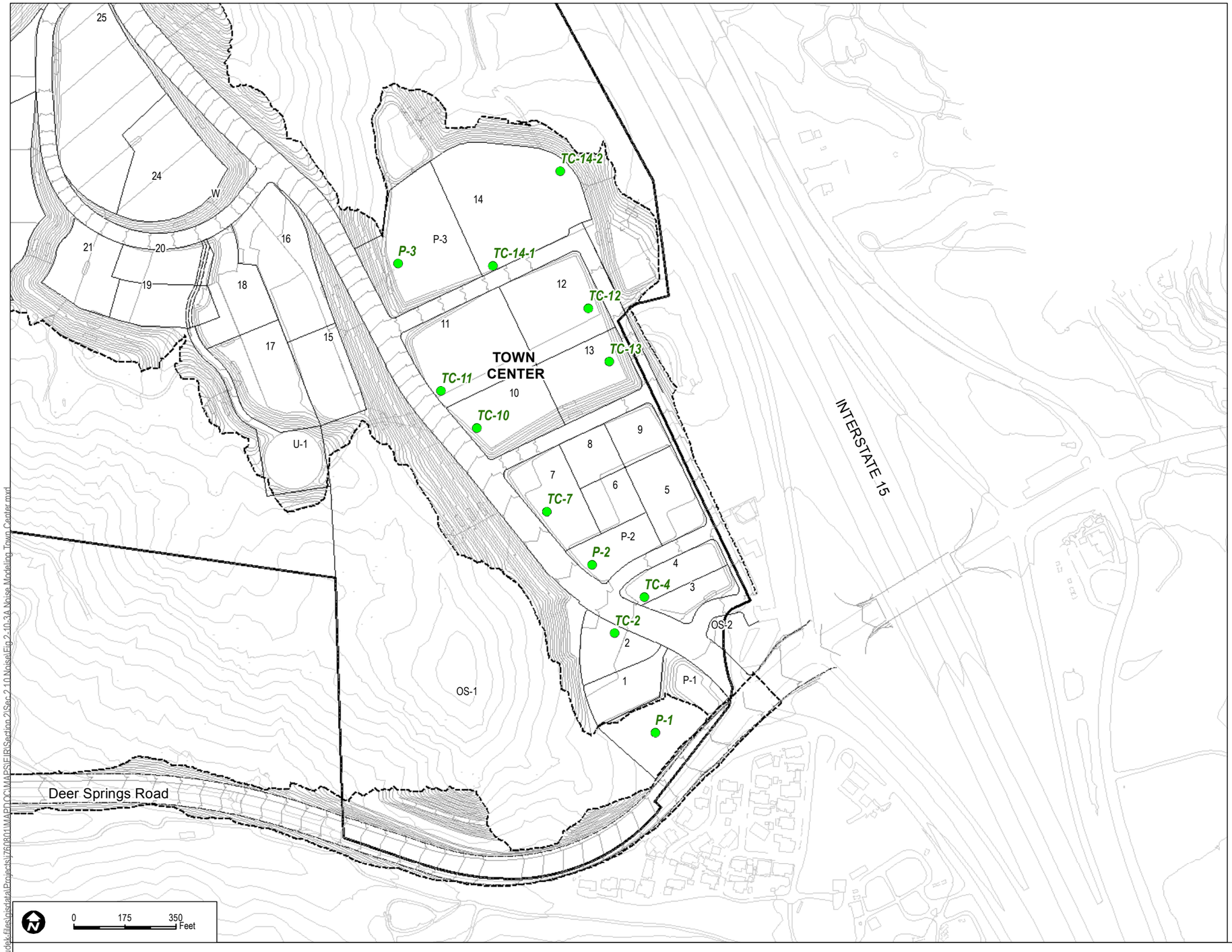

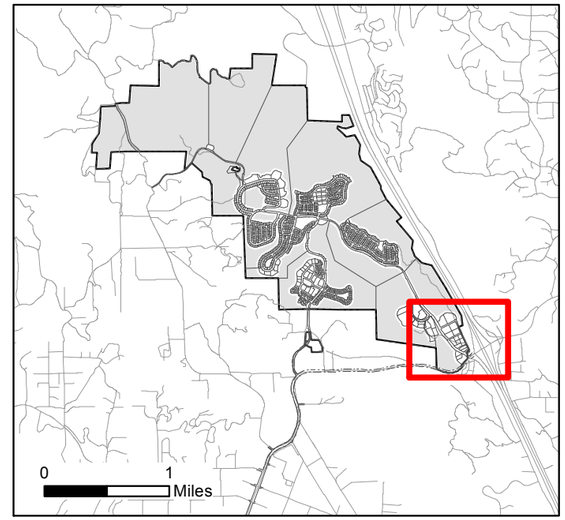

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

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FIGURE 2.10-3A

On-Site Noise Modeling Locations - Town Center

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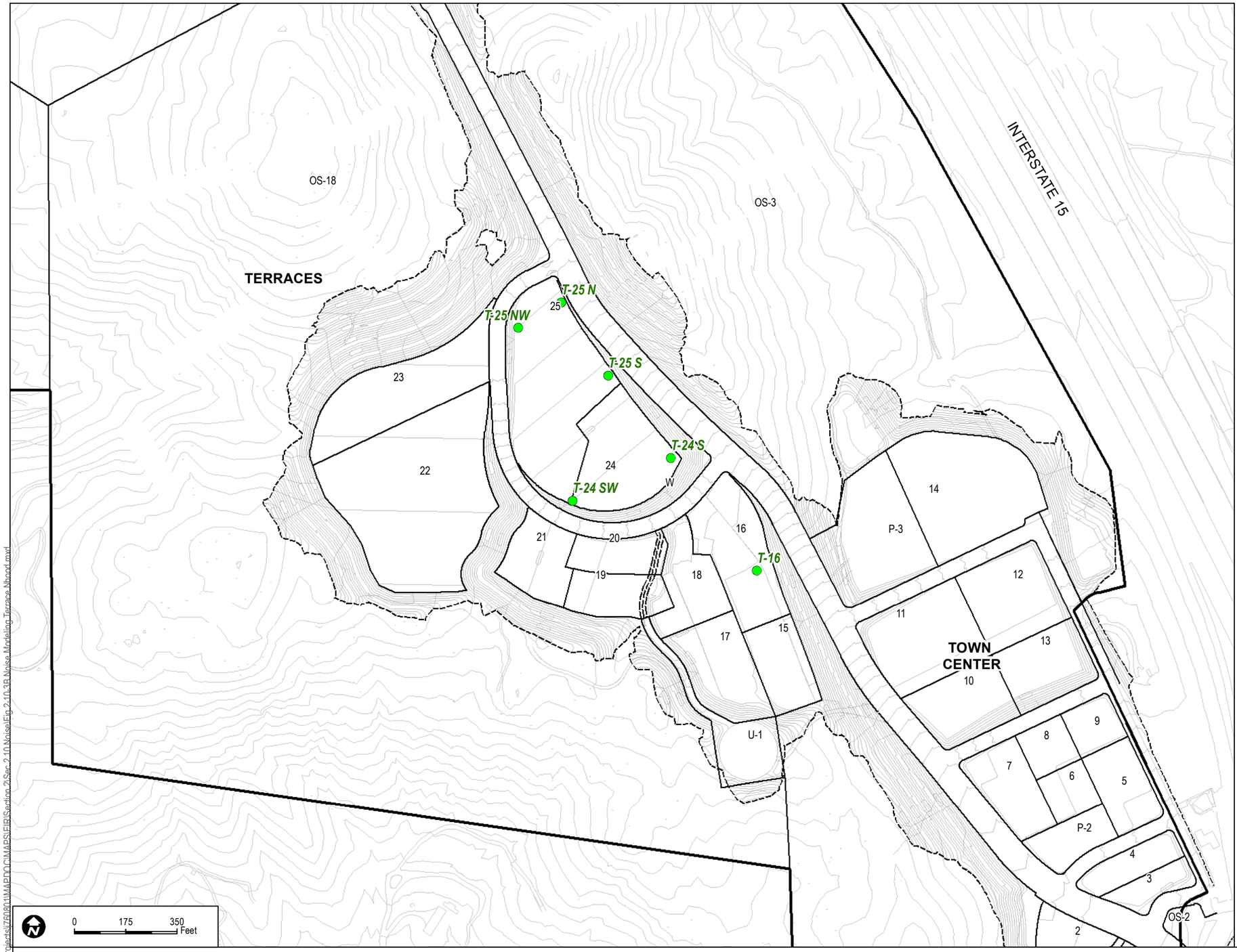

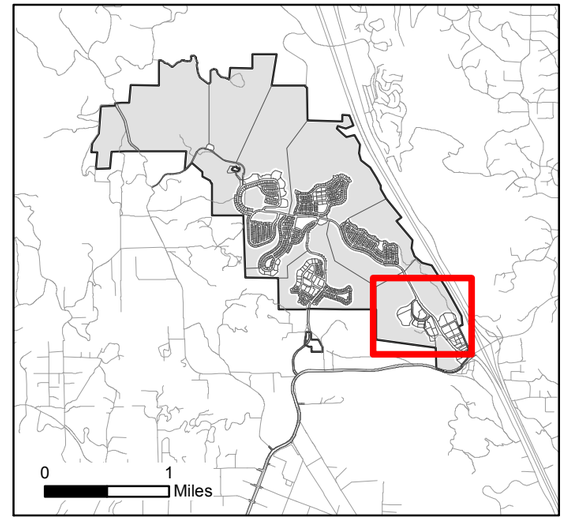

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-3B

On-Site Noise Modeling Locations - Terraces Neighborhood

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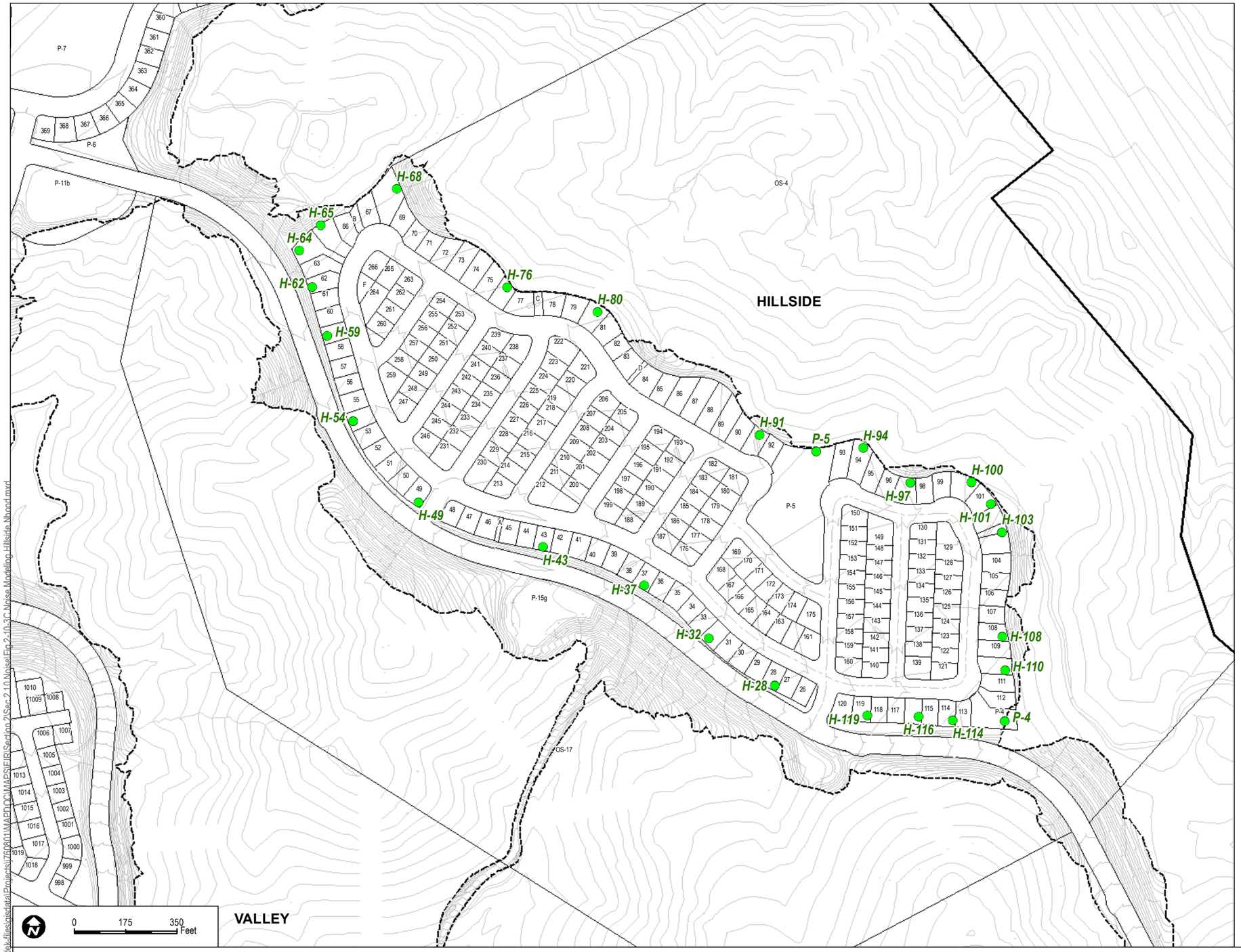

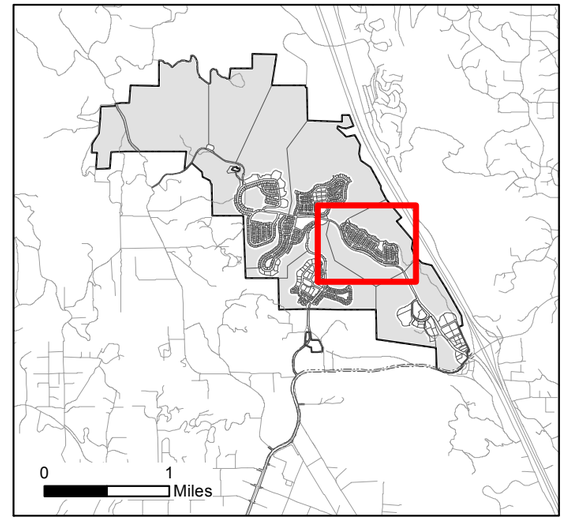

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-3C

On-Site Noise Modeling Locations - Hillside Neighborhood

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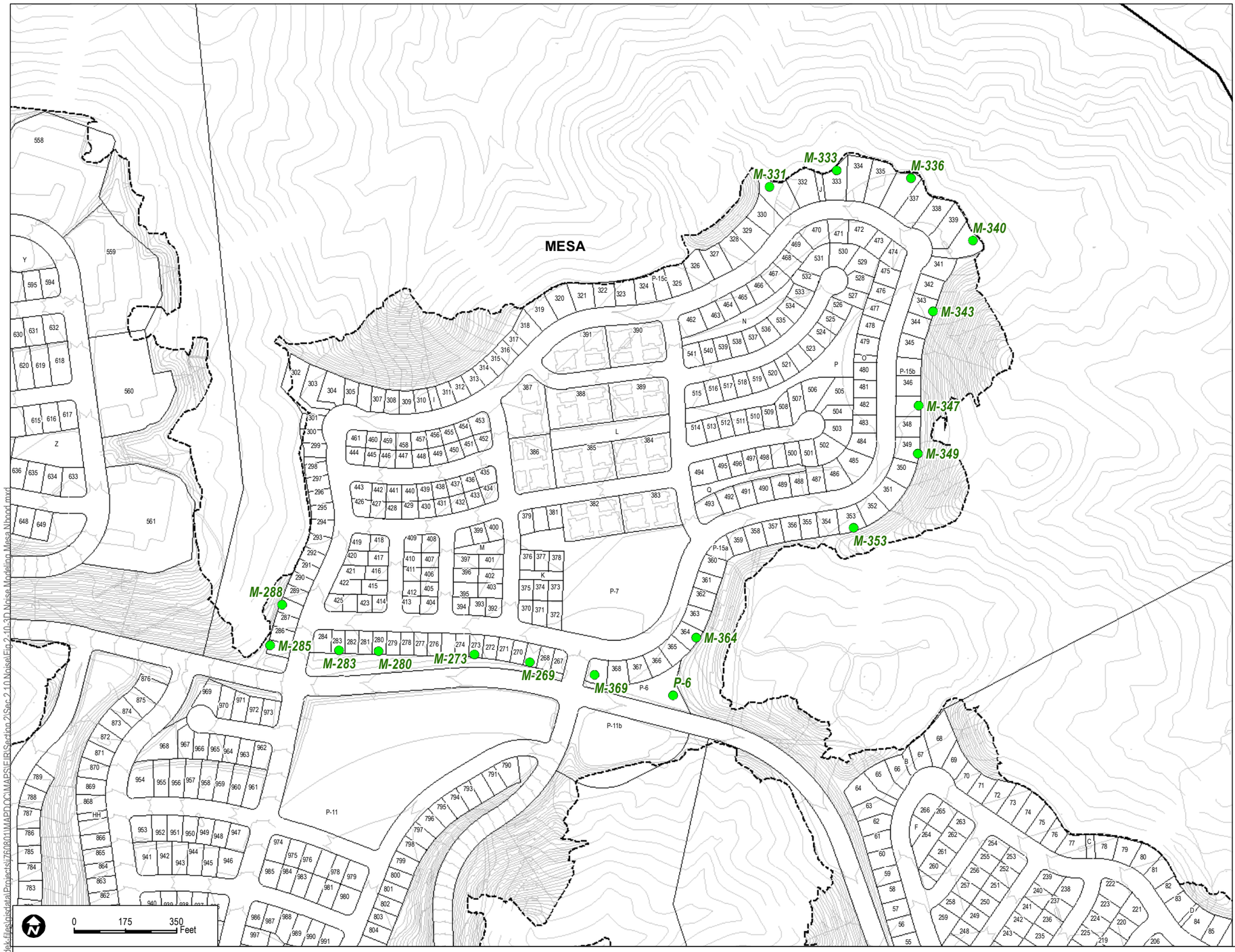

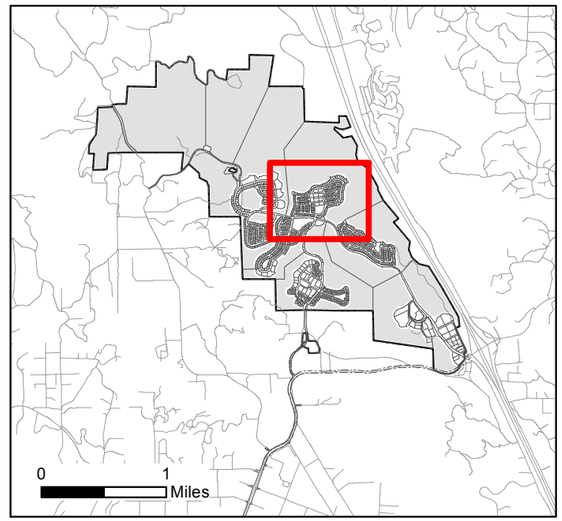

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-3D

On-Site Noise Modeling Locations - Mesa Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek.file\sioldata\Projects\J7608001\MAPDOC\MAPS\EIR\Section 2\Sec 2.10\NoiseFig 2.10-3D Noise Modeling Mesa Nbhood.mxd

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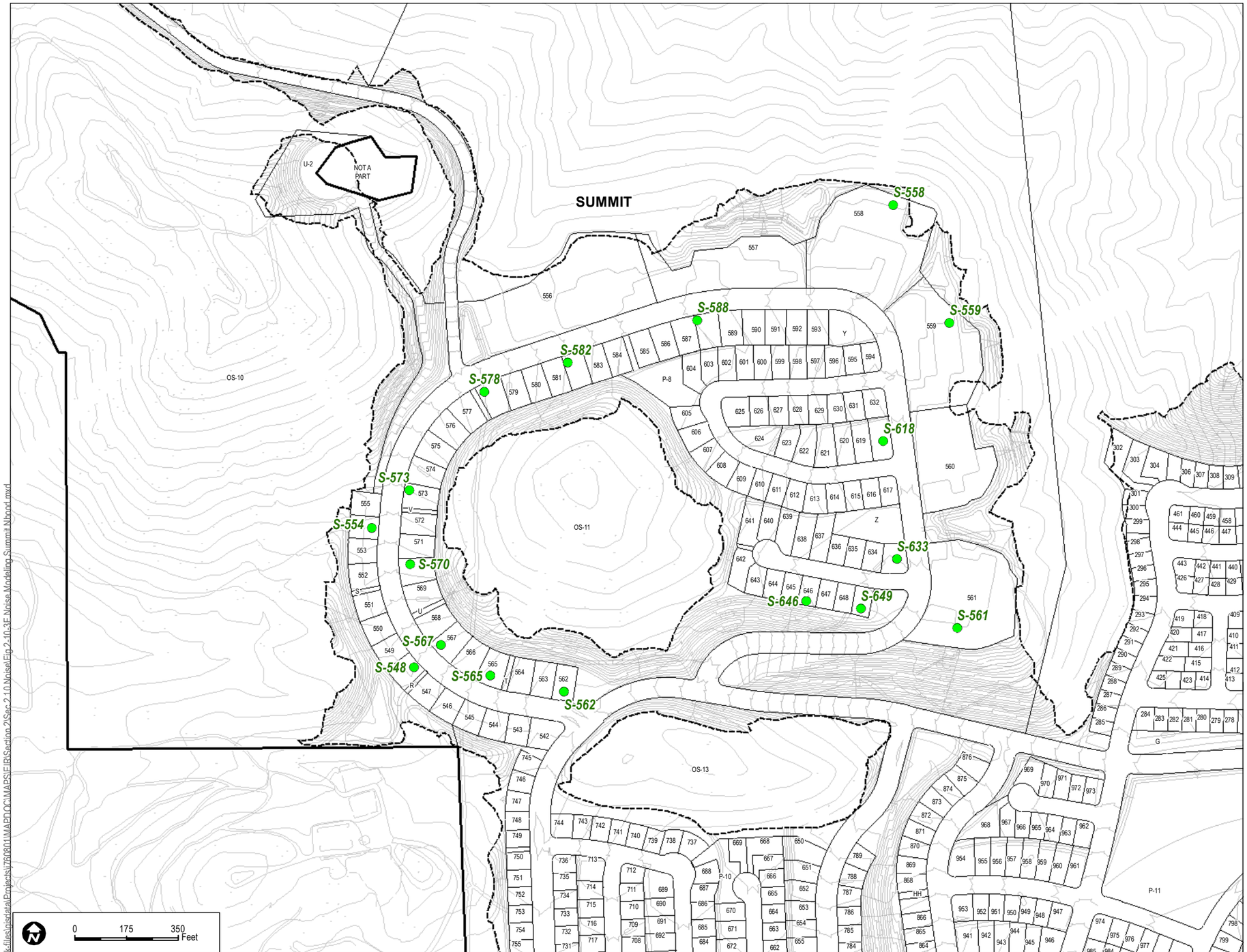

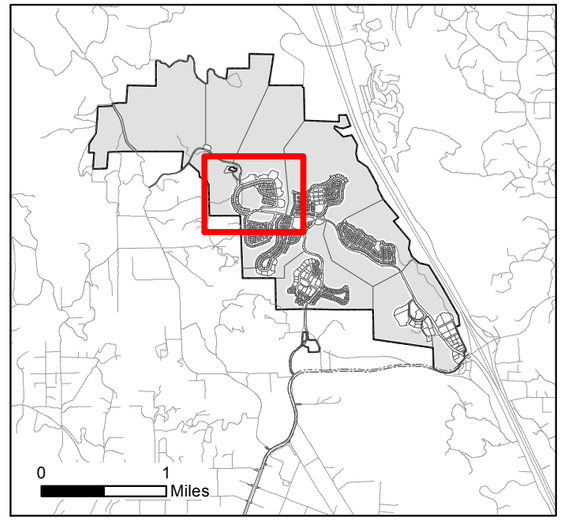

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-3E

On-Site Noise Modeling Locations - Summit Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek.files\sioc\data\Projects\J760801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10\Noise\Fig 2-10-3E Noise Modeling Summit Nbhood.mxd

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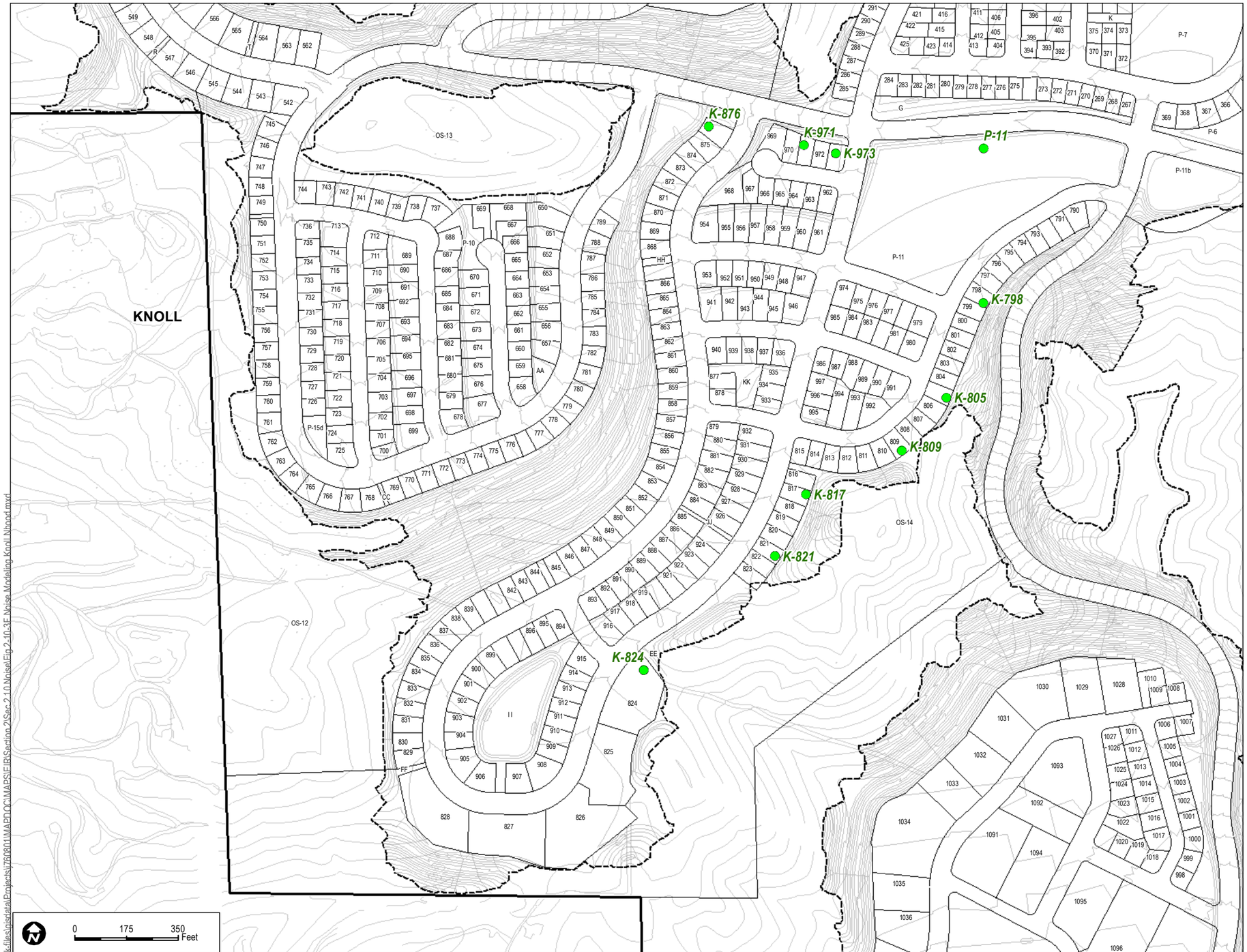

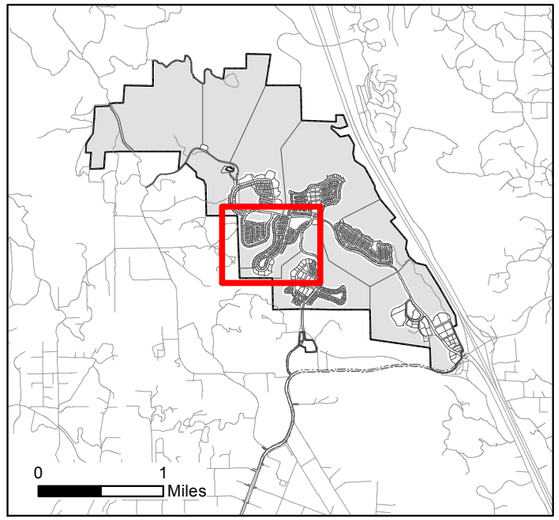

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-3F

On-Site Noise Modeling Locations - Knoll Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek\files\sd\data\Projects\j760801\MAPDOC\MAPSIR\Section 2\Sec 2.10 Noise\Fig 2.10-3F Noise Modeling Knoll Nbhood.mxd

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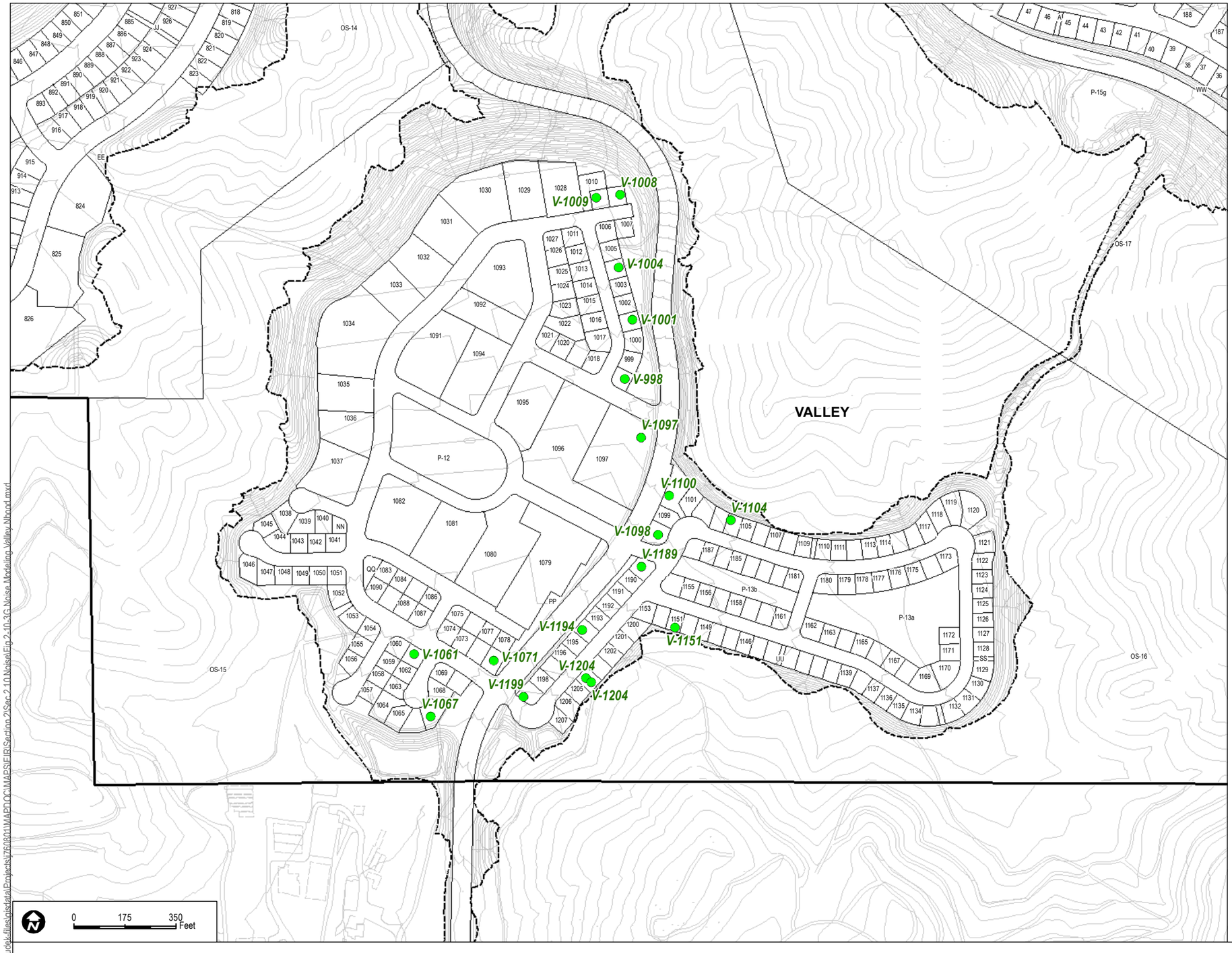

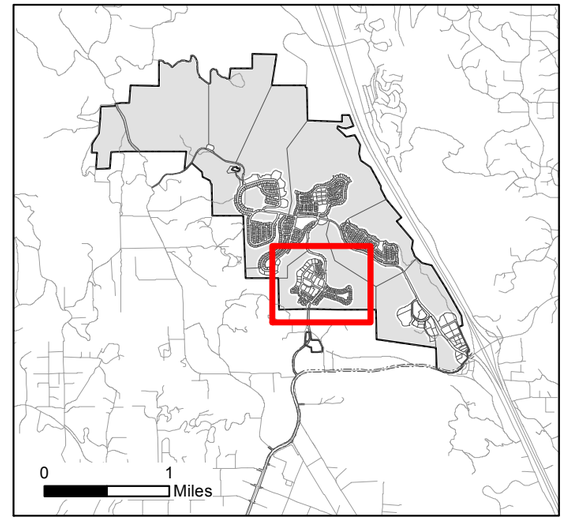

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

Document Path: \\dudek-files\gis\data\Projects\7600801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2.10-3G Noise Modeling Valley Nhood.mxd

FIGURE 2.10-3G

On-Site Noise Modeling Locations - Valley Neighborhood

Newland Sierra Environmental Impact Report

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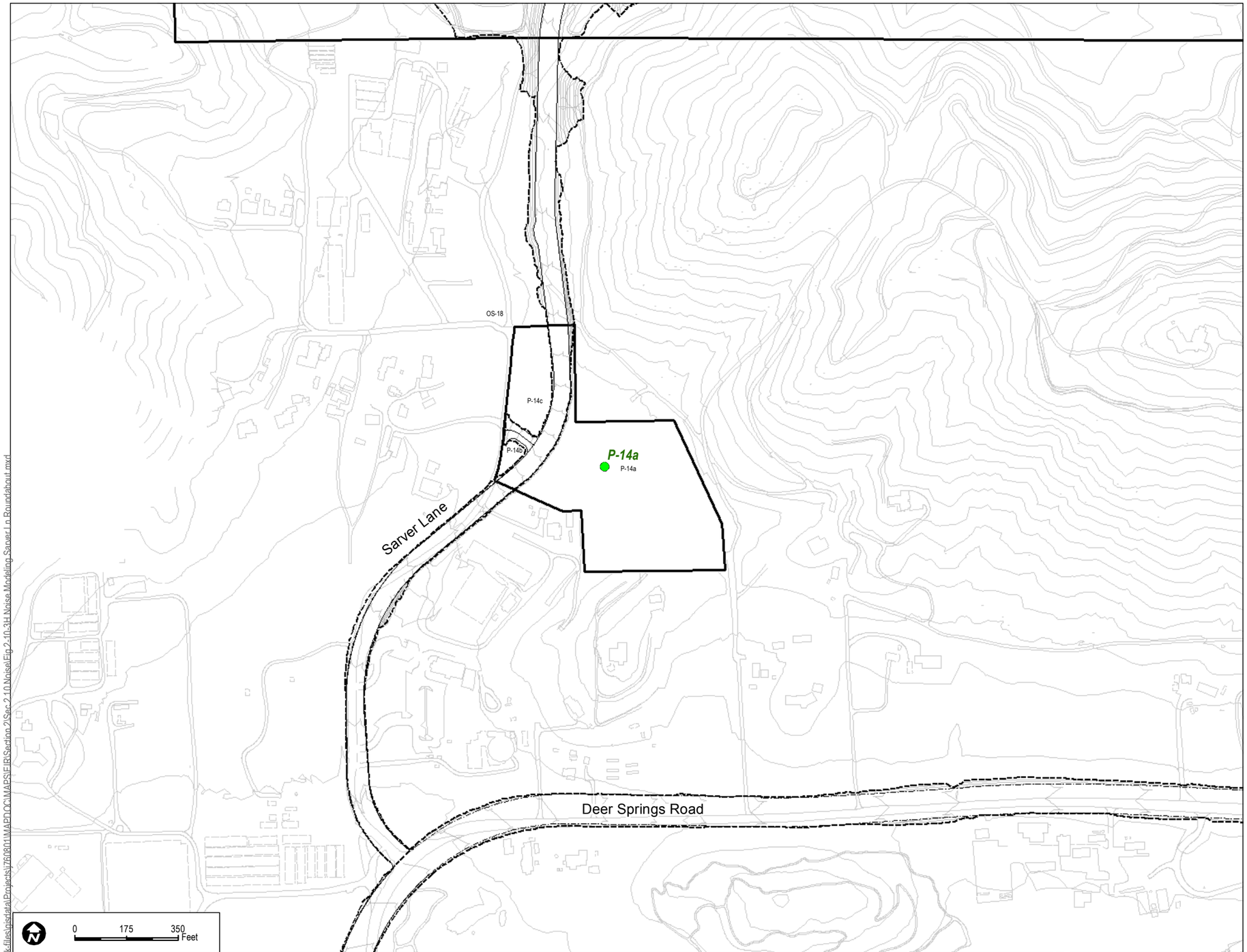

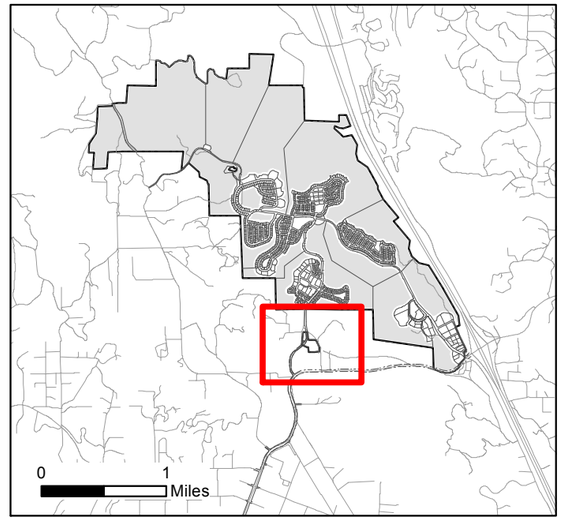

Noise Modeling Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

Document Path: \\dudek.files\sdata\Projects\J760801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10\NoiseFig 2-10-3H Noise Modeling Sarver Ln Roundabout.mxd

FIGURE 2.10-3H

On-Site Noise Modeling Locations - Sarver Lane Roundabout

Newland Sierra Environmental Impact Report

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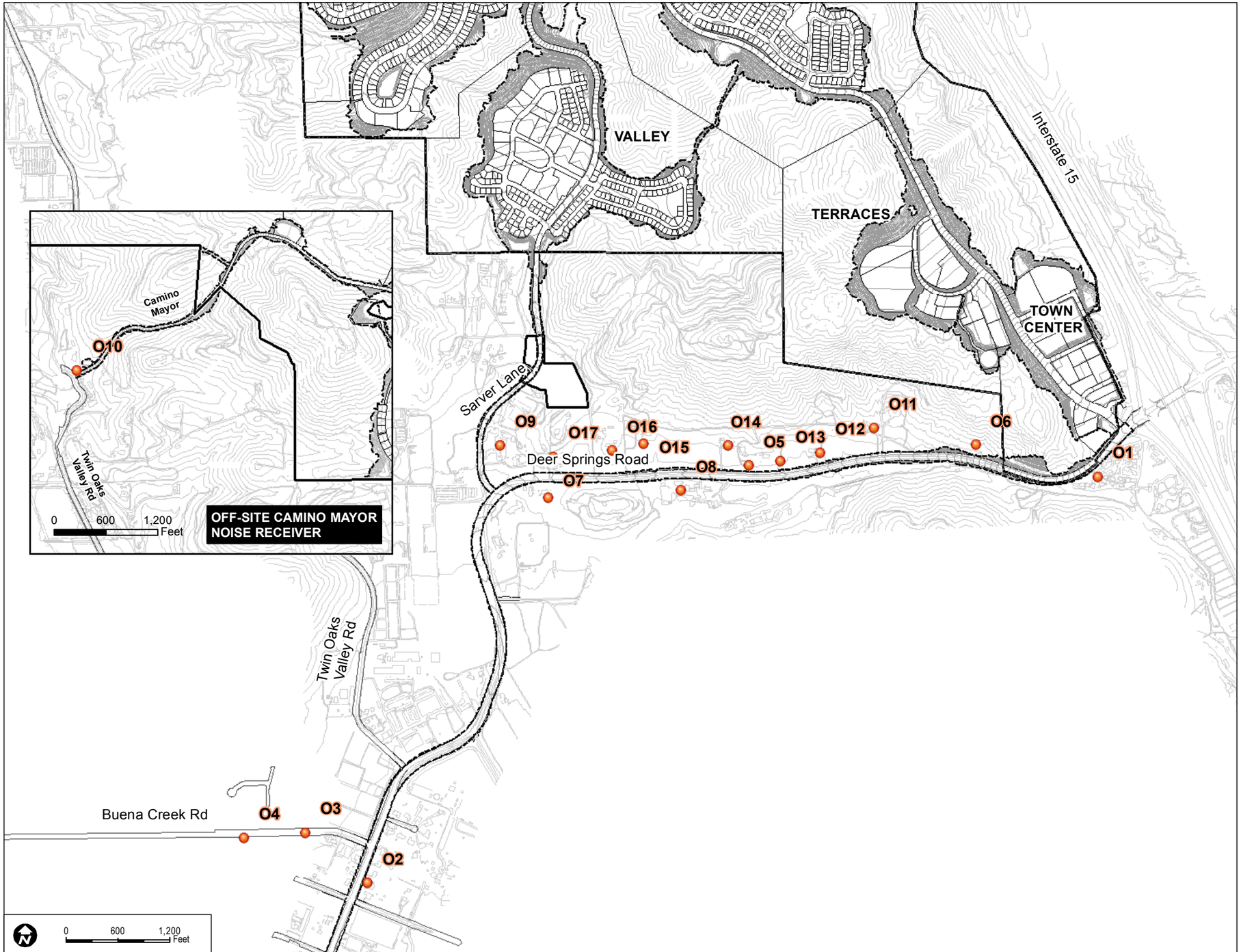

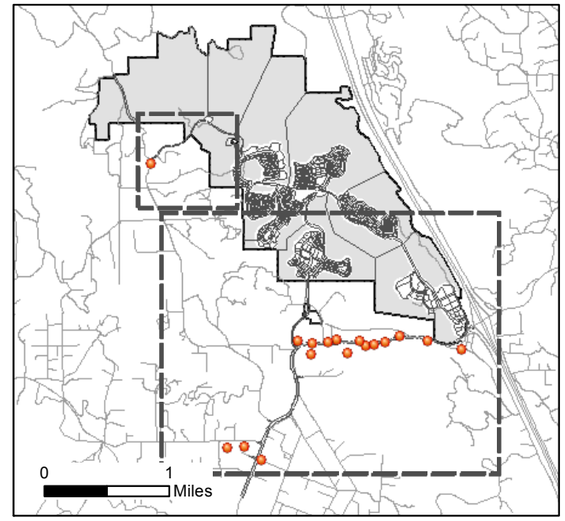

Off-Site Noise Receiver Location

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-4

Off-Site Noise Receiver Locations

Newland Sierra Environmental Impact Report

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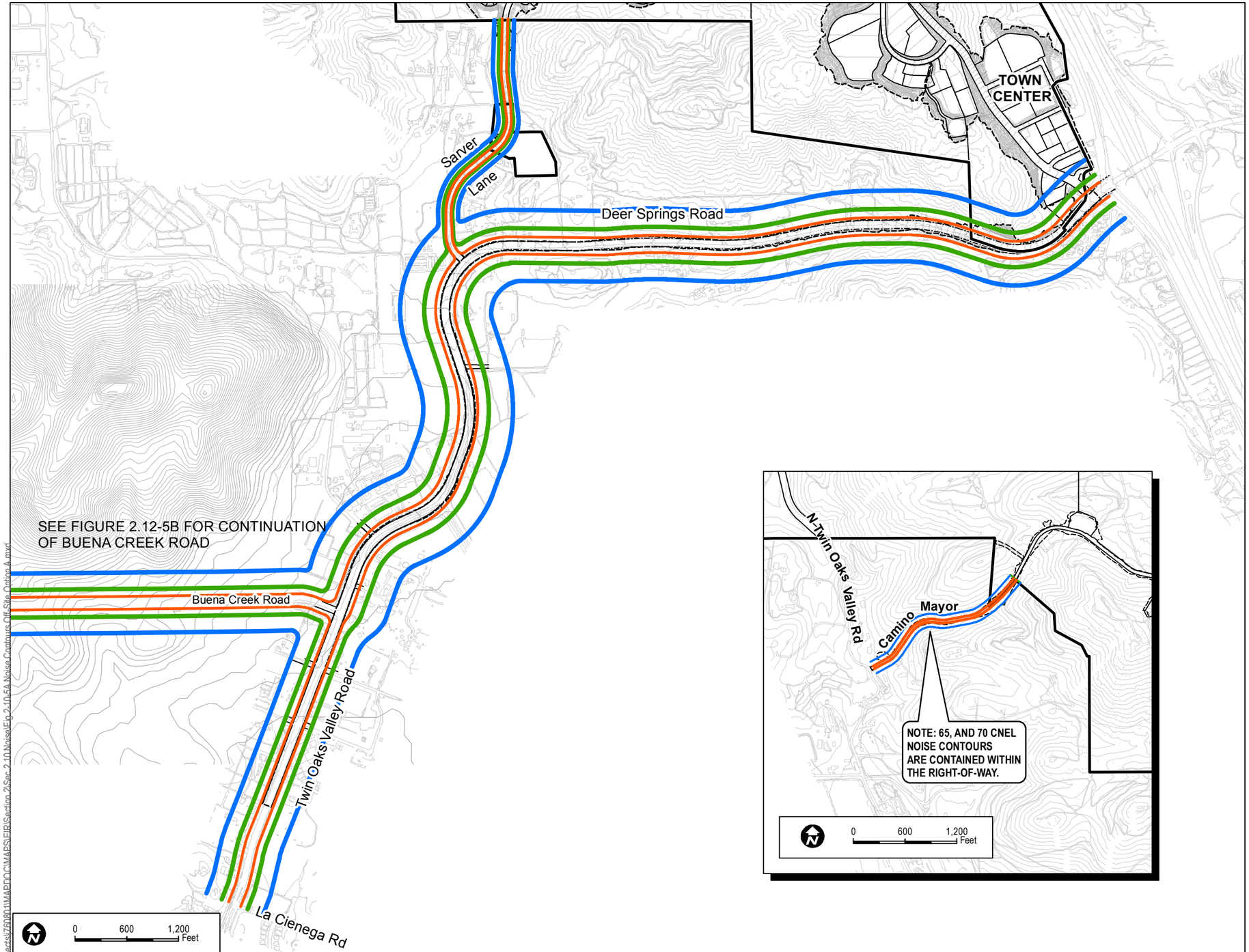

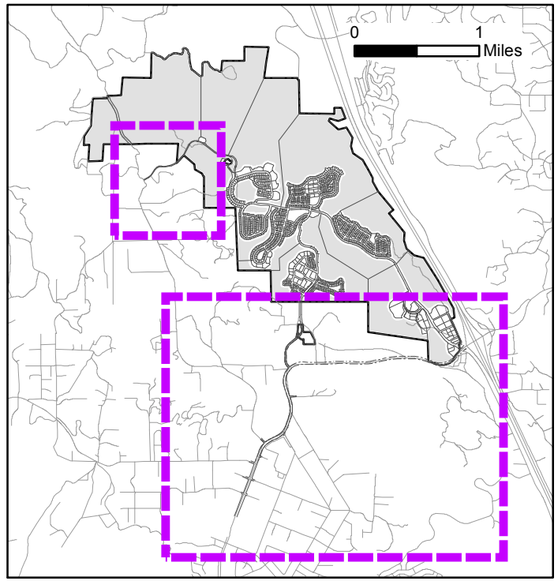

60 dBA CNEL Noise Contour (Option A)

65 dBA CNEL Noise Contour (Option A)

70 dBA CNEL Noise Contour (Option A)

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

TOPO SOURCE: SANGIS & Fuscoe Engineering 2016

Document Path: Z:\Projects\Z60801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2.10-5A Noise Contours Off-Site Option A.mxd

FIGURE 2.10-5A

Off-Site Traffic Noise Contours (Option A: Four-Lane Deer Springs Road)

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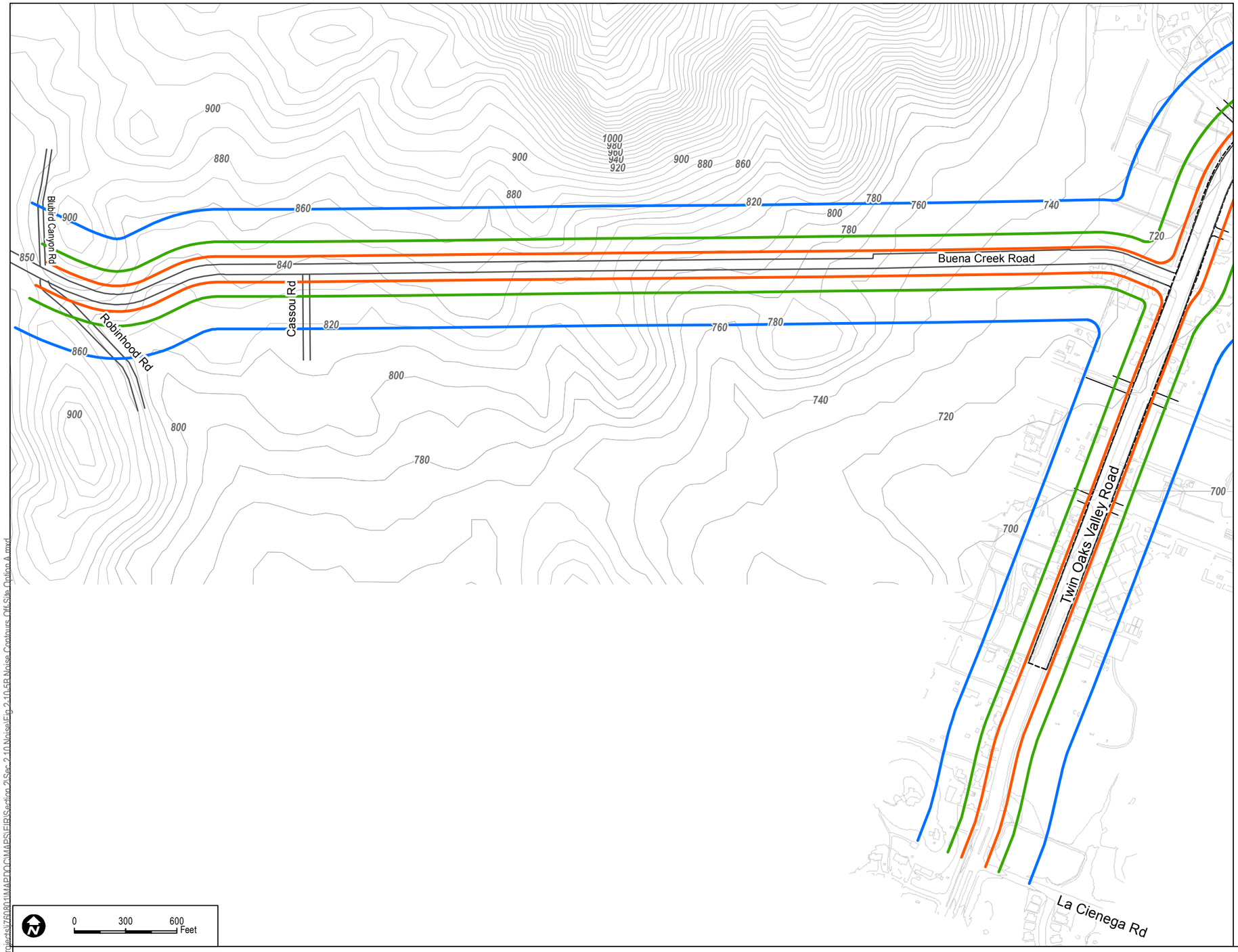

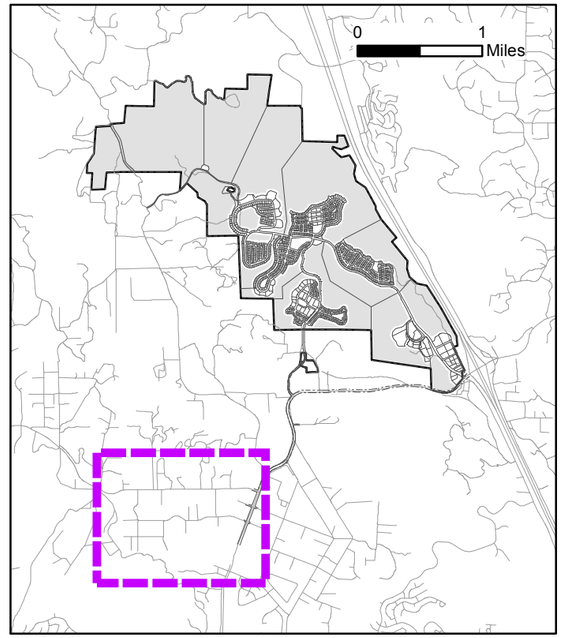

70 dBA CNEL Noise Contour (Option A & B)

65 dBA CNEL Noise Contour (Option A & B)

60 dBA CNEL Noise Contour (Option A & B)

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

TOPO SOURCE: SANGIS & Fuscoe Engineering 2016

Document Path: Z:\Projects\760801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2.10-5B Noise Contours Off-Site Option A.mxd

FIGURE 2.10-5B

Off-Site Traffic Noise Contours (Option A: Four-Lane Deer Springs Road)

Newland Sierra Environmental Impact Report

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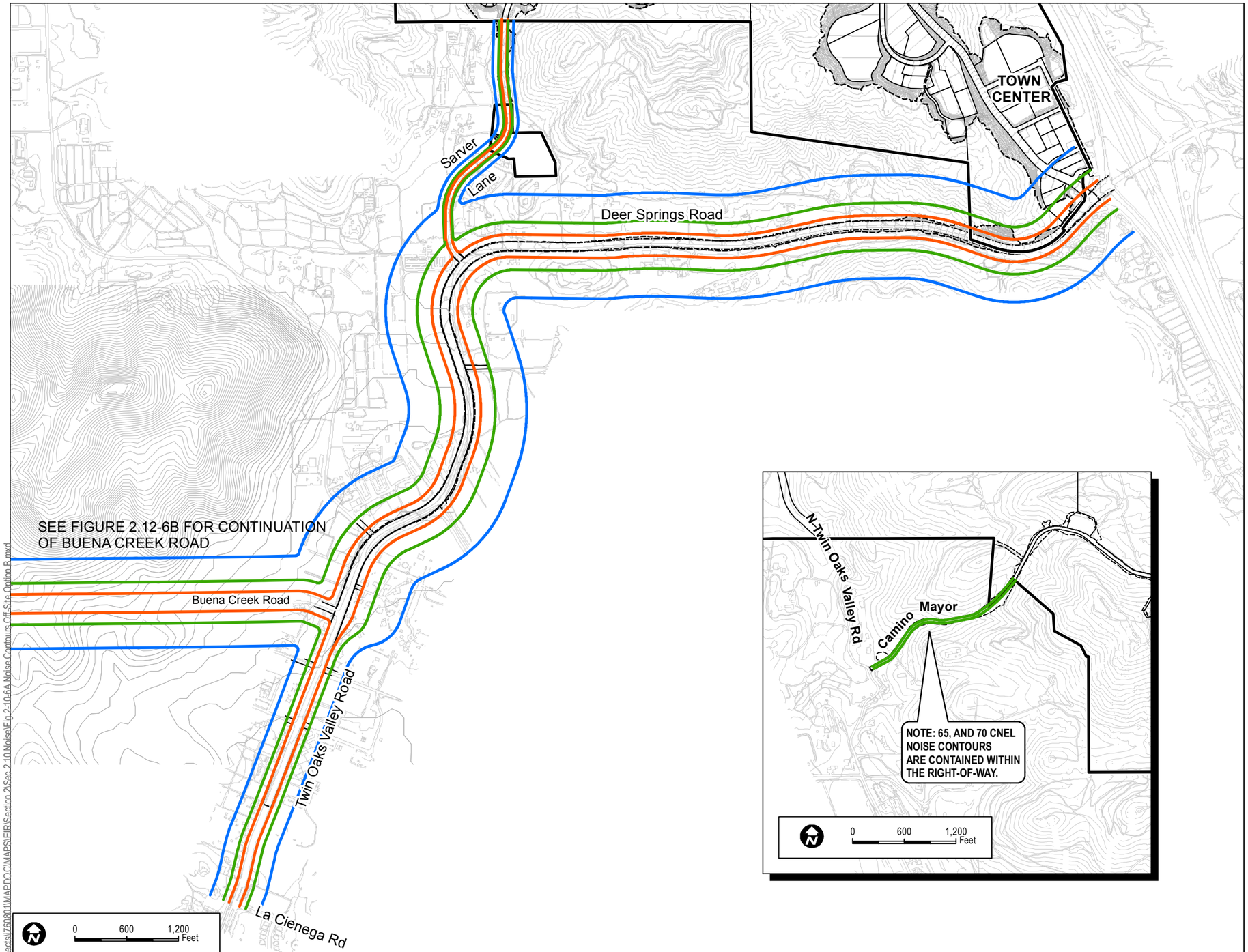

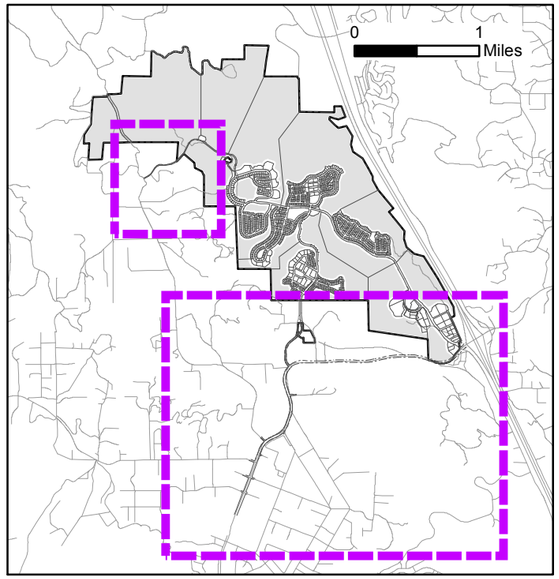

60 dBA CNEL Noise Contour (Option B)

65 dBA CNEL Noise Contour (Option B)

70 dBA CNEL Noise Contour (Option B)

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

TOPO SOURCE: SANGIS & Fuscoe Engineering 2016

Document Path: Z:\Projects\Z60801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2.10-6A Noise Contours Off-Site Option B.mxd

FIGURE 2.10-6A

Off-Site Traffic Noise Contours (Option B: Six-Lane Deer Springs Road)

Newland Sierra Environmental Impact Report

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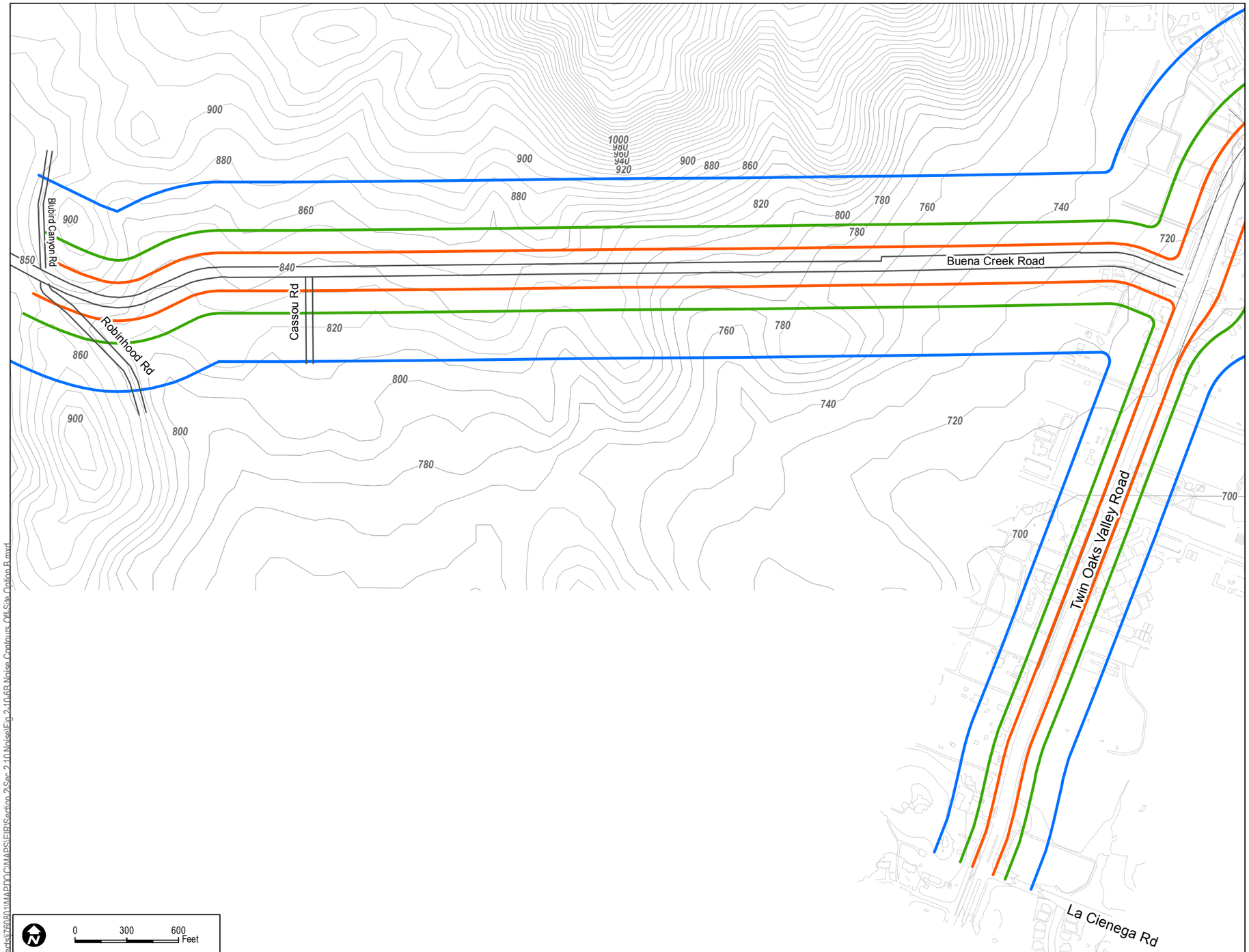

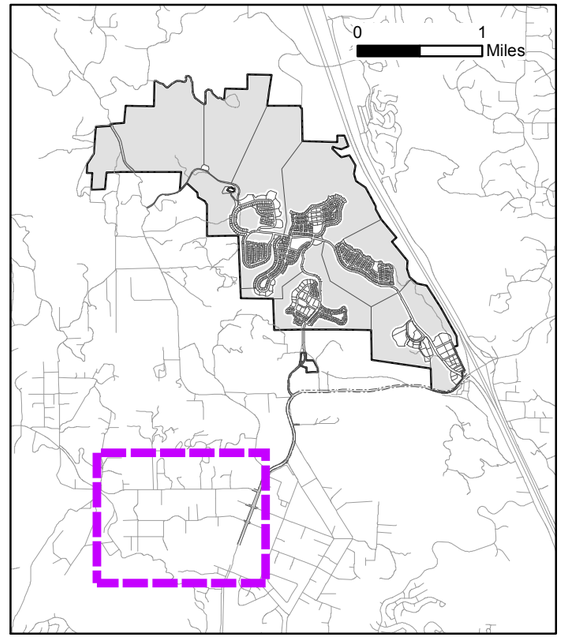

Project Boundary

60 dBA CNEL Noise Contour (Option B)

65 dBA CNEL Noise Contour (Option B)

70 dBA CNEL Noise Contour (Option B)

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

TOPO SOURCE: SANGIS & Fuscoe Engineering 2016

Document Path: Z:\Projects\Z60801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2.10-6B Noise Contours Off-Site Option B.mxd

FIGURE 2.10-6B
Off-Site Traffic Noise Contours (Option B: Six-Lane Deer Springs Road)

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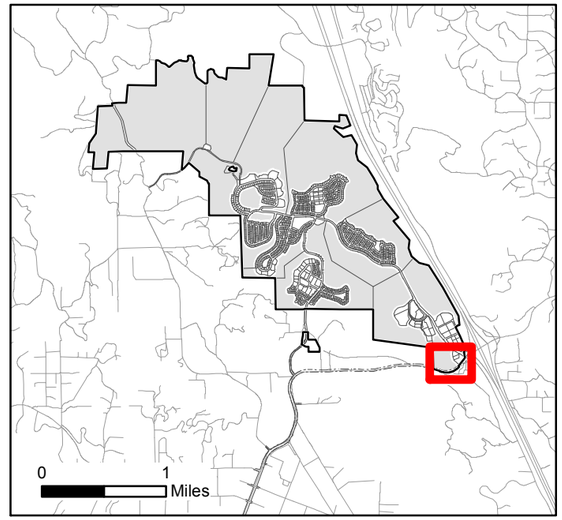

Nearest Existing Residential Receiver

Project Site

SOURCE: Site Plan-Fuscoe 2016

FIGURE 2.10-7

Nearest Existing Residential Receiver: On-Site Construction

Newland Sierra Environmental Impact Report

Document Path: Z:\Projects\Z608011MAPDOC\MAPS\EIR\Section 2\Sec 2.10\Noise\Fig 2.10-7 Nearest Res Receivers Onsite Construction.mxd

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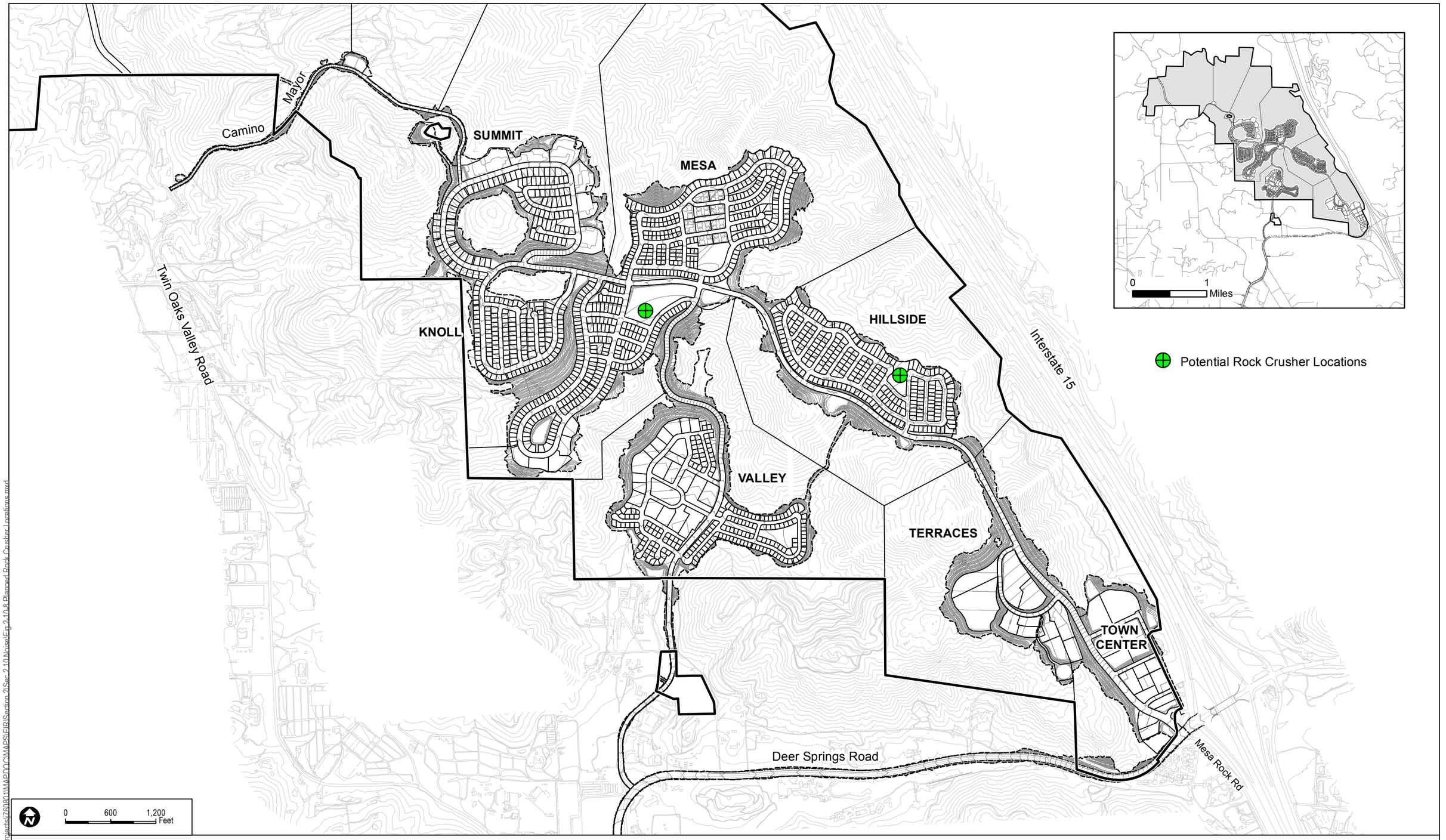

SOURCE: Fuscoe 2016

Document Path: Z:\Projects\Z60801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10\Noise\Fig 2.10-8 Planned Rock Crusher Locations.mxd

FIGURE 2.10-8

Potential Rock Crusher Locations

Newland Sierra Environmental Impact Report

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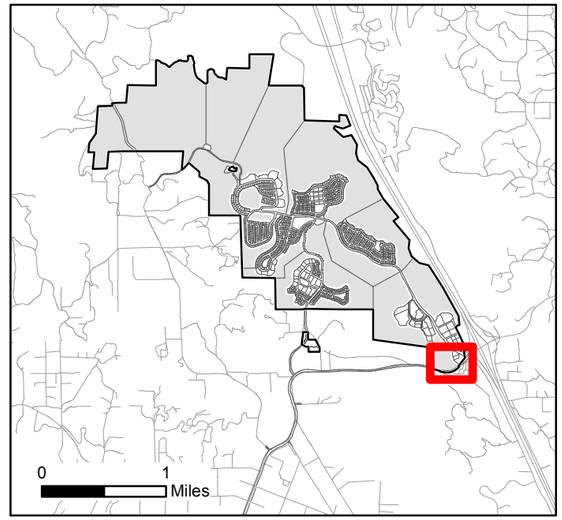

Nearest Existing Residential Receiver

Project Site

SOURCE: Site Plan-Fuscoe 2016

FIGURE 2.10-9

Nearest Existing Residential Receiver: Off-Site Construction

Newland Sierra Environmental Impact Report

Document Path: Z:\Projects\Z6980\1\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2.10-9 Nearest Res Receivers Offsite Construction.mxd

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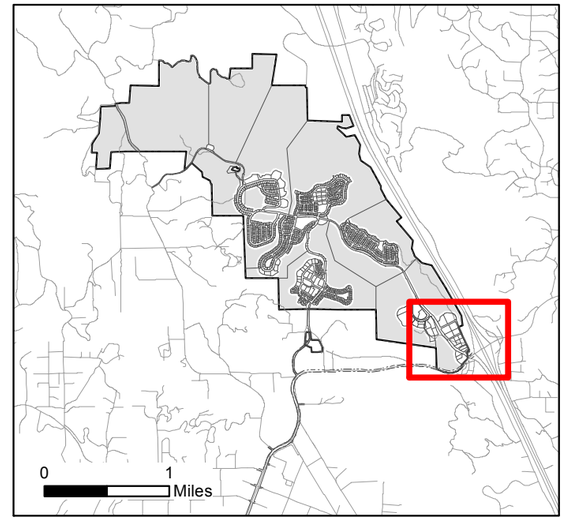

Noise Barrier Height

6’

Project Site

Document Path: \\dudek.files\sjgisdata\Projects\j\7608011\MAPDOC\MAPSFIR\Section 2\Sec 2.10 Noise\Fig 2.10-10A Noise Barriers Town Center.mxd

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-10A

Preliminary Noise Barrier Locations - Town Center

Newland Sierra Environmental Impact Report

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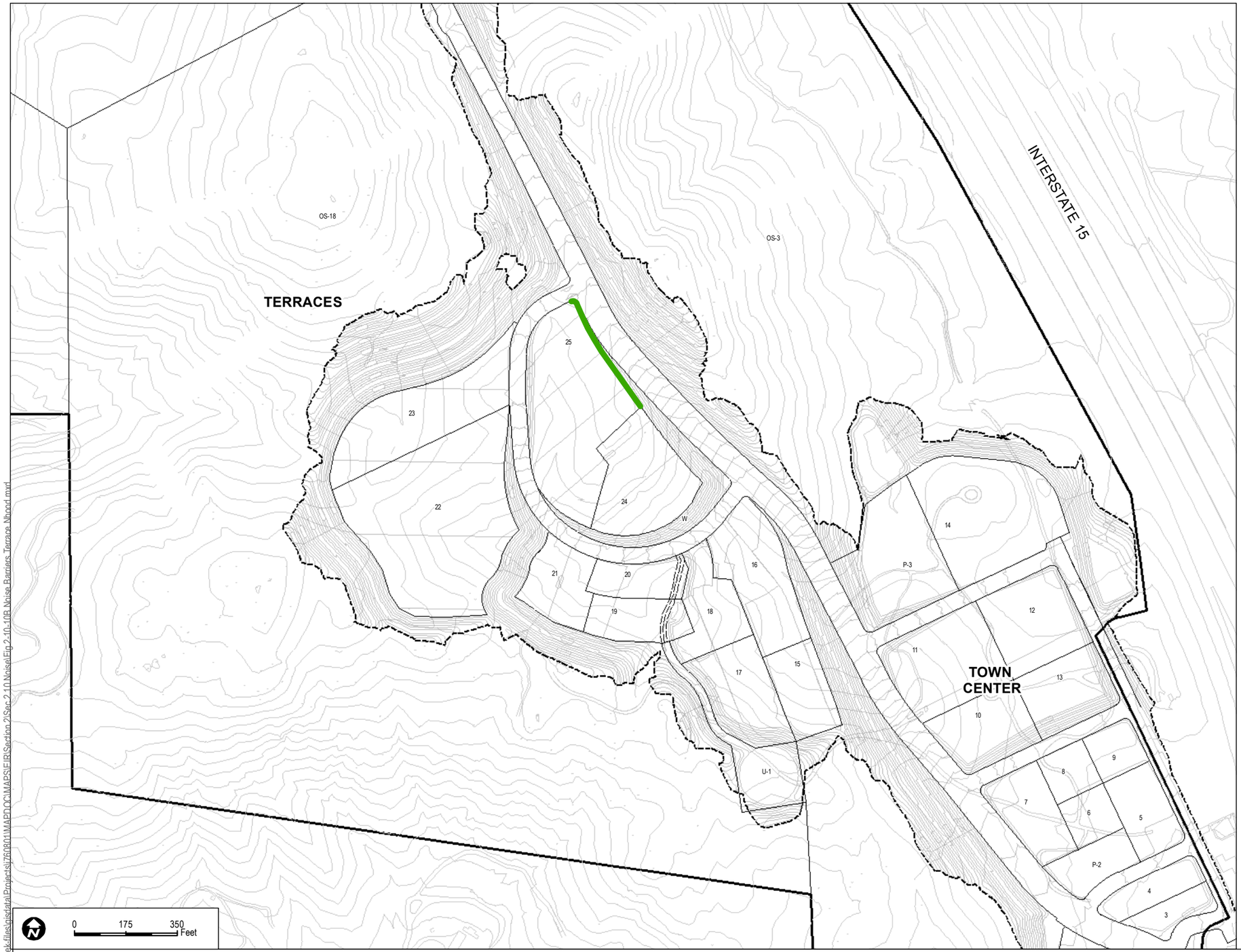

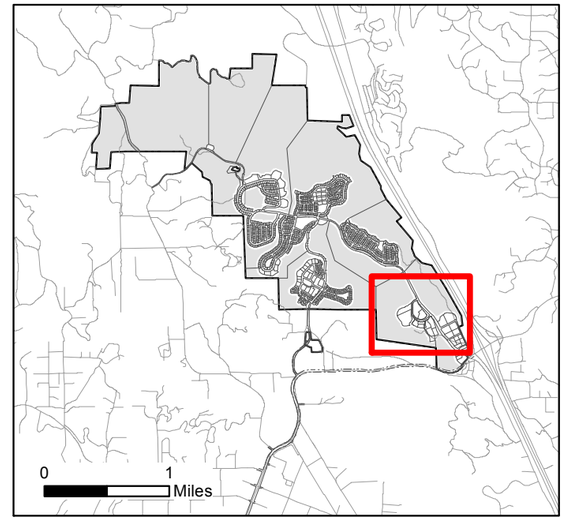

Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-10B

Preliminary Noise Barrier Locations - Terraces Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek\files\sandata\Projects\j760801\MAPDOC\MAPSIFR\Section 2\Sec 2.10 Noise\Fig 2.10-10B Noise Barriers Terrace Nbhood.mxd

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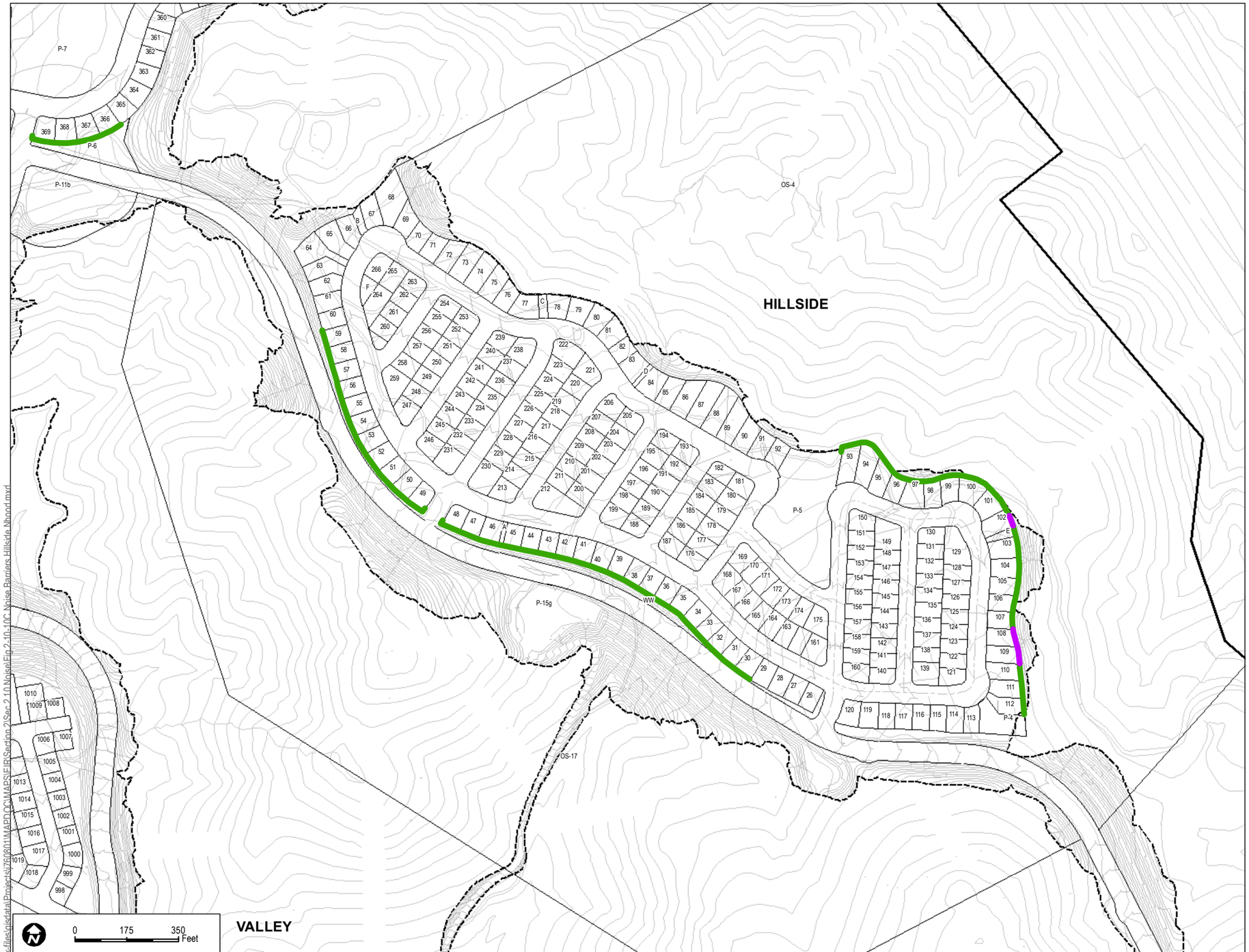

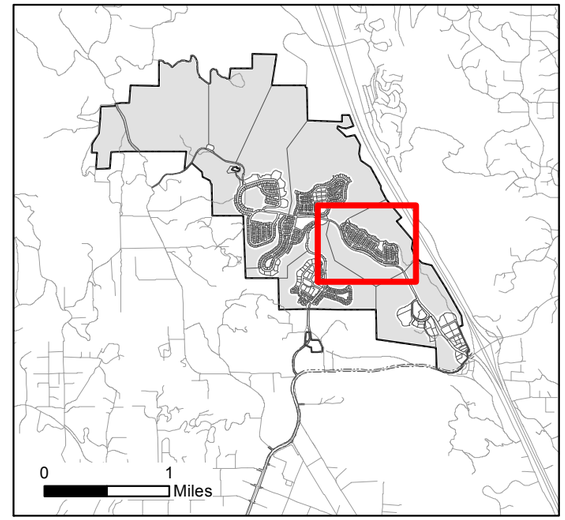

Noise Barrier Height

- 6’
- 8’
- 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 2.10-10C

Preliminary Noise Barrier Locations - Hillside Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek\files\sied\data\Projects\j760801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2.10-10C Noise Barriers Hillside Nhood.mxd

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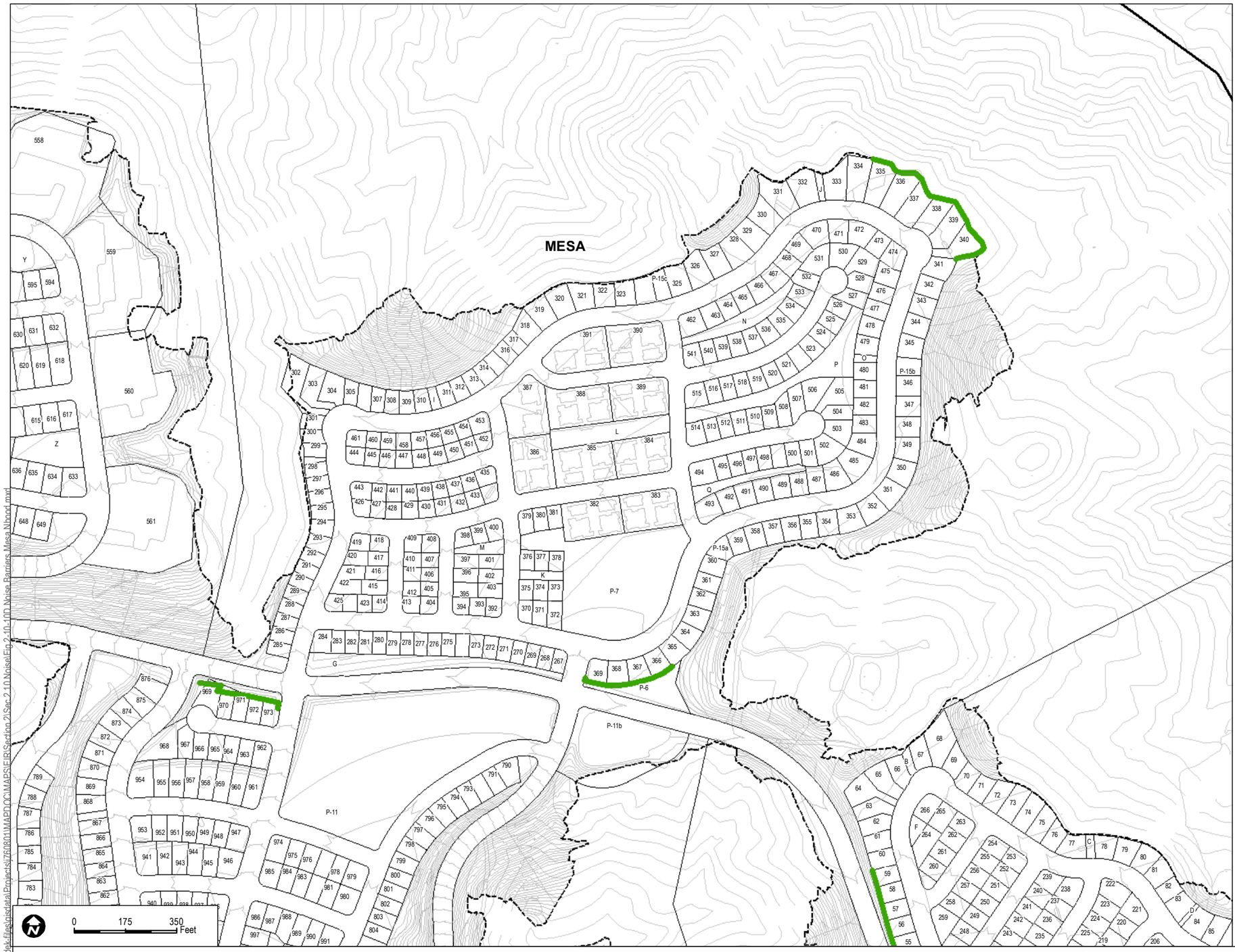

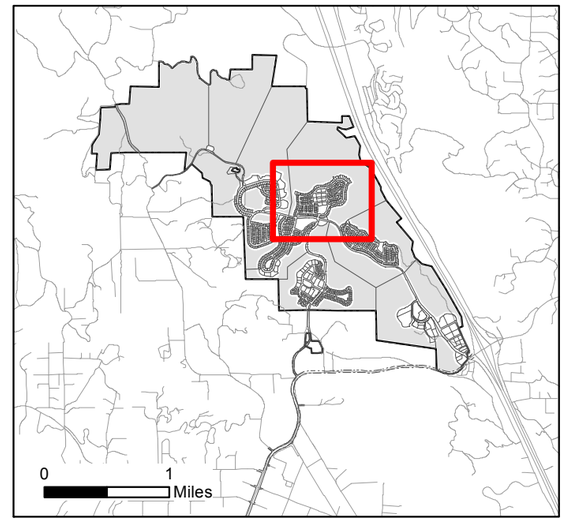

Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-10D

Preliminary Noise Barrier Locations - Mesa Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek-files\oisdata\Projects\J760801\MAPDOC\MAPSIEIR\Section 2\Sec 2.10\Noise\Fig 2.10-10D Noise Barriers Mesa Nbhood.mxd

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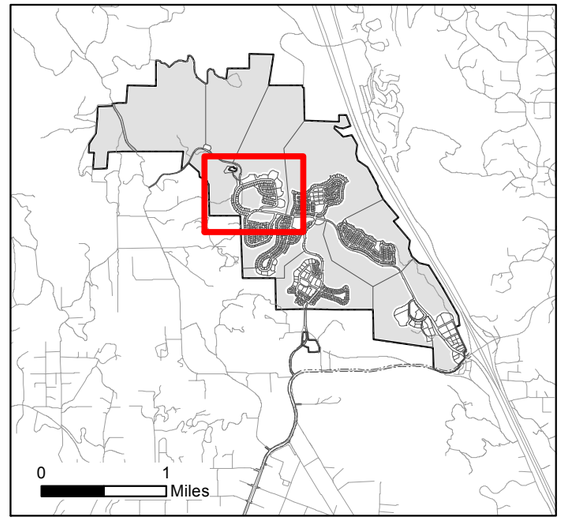

Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-10E

Preliminary Noise Barrier Locations - Summit Neighborhood (No Walls)

Newland Sierra Environmental Impact Report

Document Path: \\dudek.files\sjo\data\Projects\J760801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10\Noise\Fig 2-10_10E Noise Barriers Summit Nbhood.mxd

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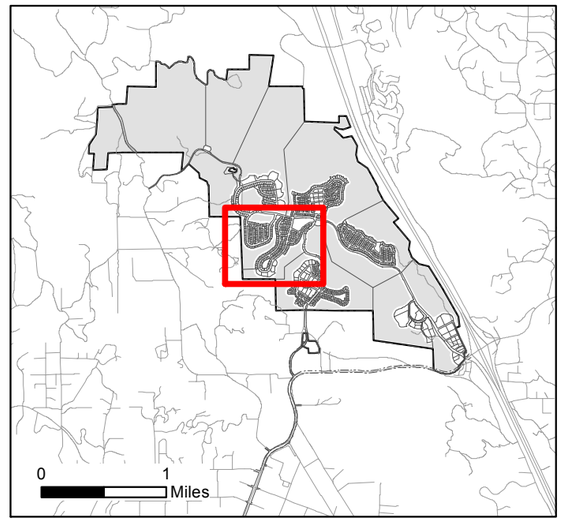

Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-10F

Preliminary Noise Barrier Locations - Knoll Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek.files\sd\data\Projects\j760801\MAPDOC\MAPSEIR\Section 2\Sec 2.10 Noise\Fig 2.10-10F Noise Barriers Knoll Nbrod.mxd

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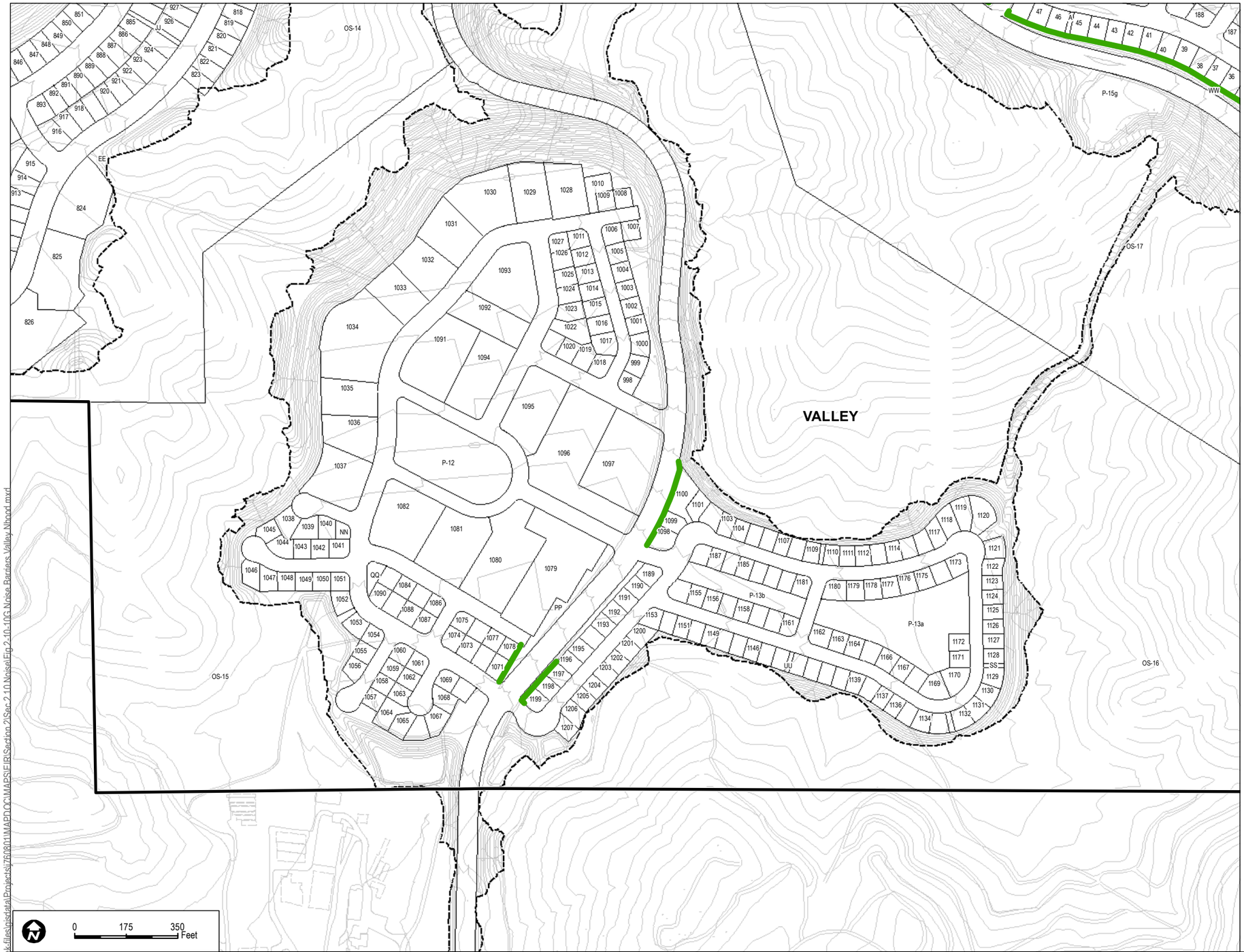

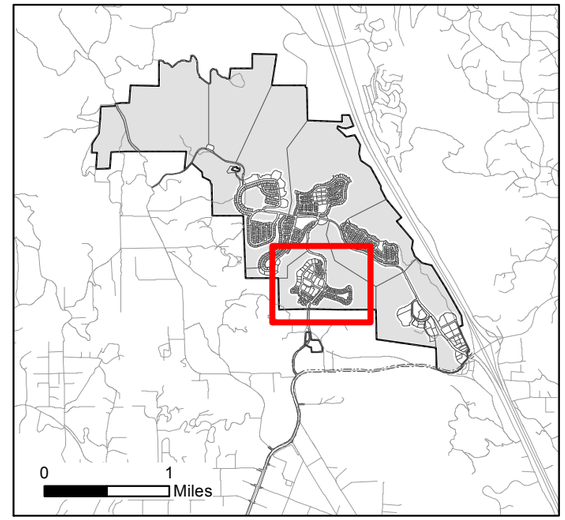

Noise Barrier Height

6’

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-10G

Preliminary Noise Barrier Locations - Valley Neighborhood

Newland Sierra Environmental Impact Report

Document Path: \\dudek.files\sisdata\Projects\j760801\MAPDOC\MAPS\EIR\Section 2\Sec 2.10 Noise\Fig 2-10-10G Noise Barriers Valley Nhood.mxd

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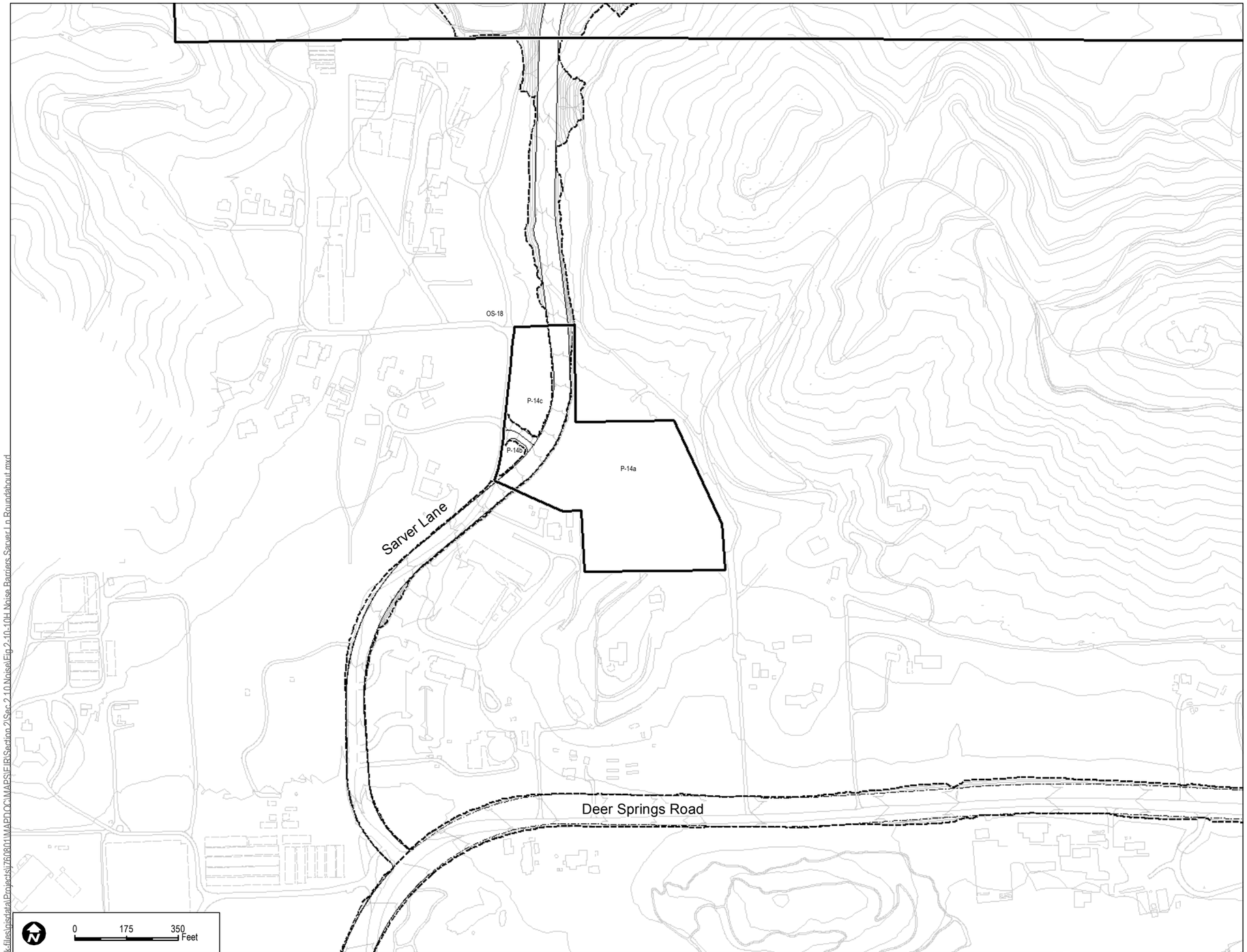

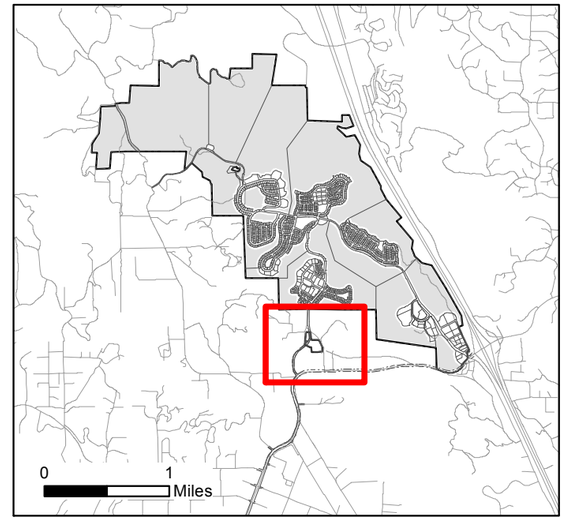

Project Site

SOURCE: Site Plan-Fuscoe January 2016

FIGURE 2.10-10H

Preliminary Noise Barrier Locations - Sarver Lane Roundabout (No Walls)

Newland Sierra Environmental Impact Report

Document Path: \\duderk-files\gisdata\Projects\j760801\MAPDOC\MAPS\FIR\Section 2\Sec 2.10 Noise\Fig 2.10-10H Noise Barriers Sarver Ln Roundabout.mxd

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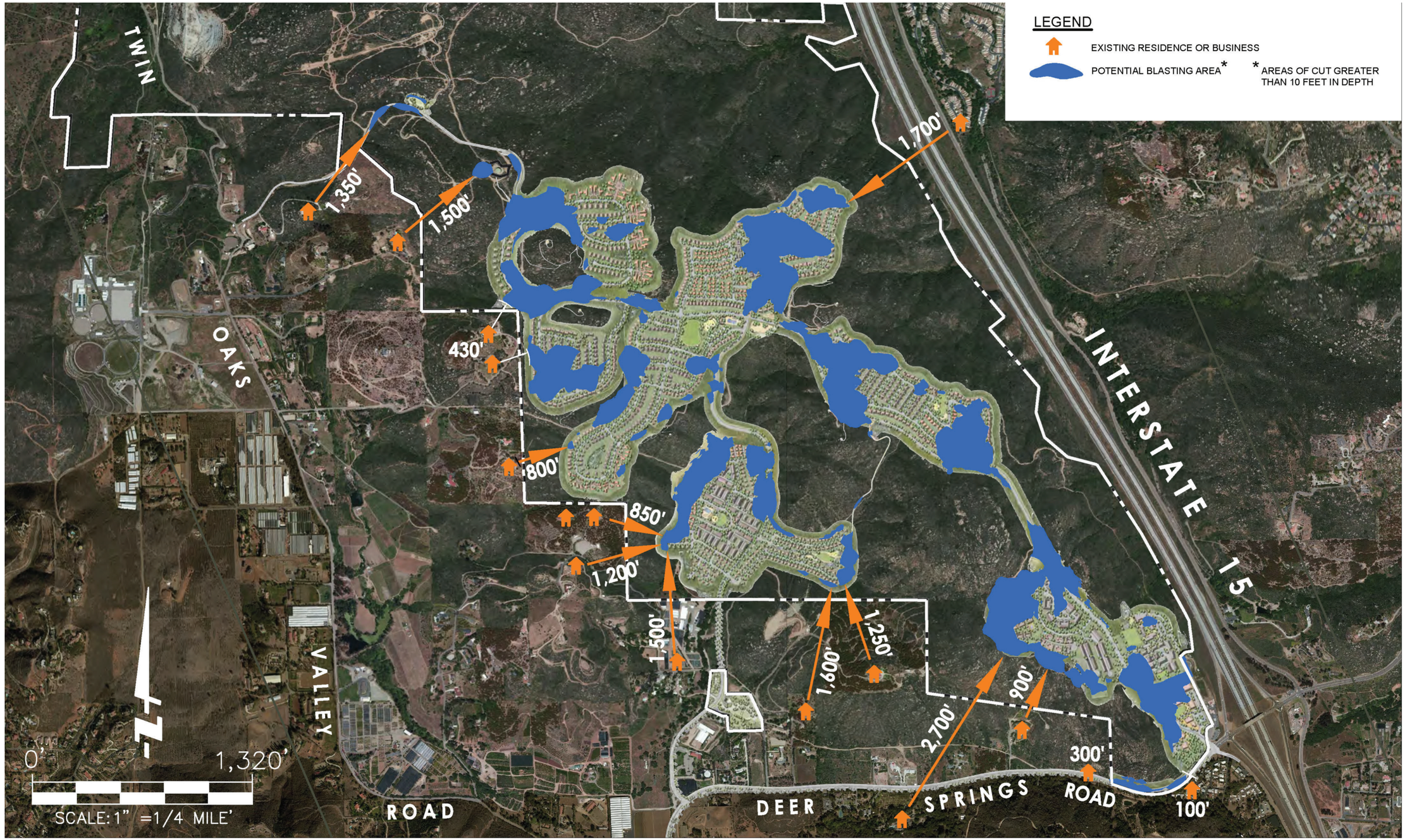

SOURCE: FUSCOE ENGINEERING 2018

FIGURE 2.10-11

Newland Sierra Project Potential Blasting Areas

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