

2.10 Noise

This section discusses potential noise and vibration impacts resulting from the implementation of the project. The analysis is based on the review of existing resources, technical data, and applicable laws, regulations, and guidelines, as well as the noise technical report prepared for the project by Ldn Consulting, Inc. (Appendix K to this EIR), in compliance with the County Guidelines for Determining Significance: Noise (2009).

2.10.1 Existing Conditions

2.10.1.1 *Noise Factors and Descriptors*

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal daily activities. Sound levels are measured in units called decibels (dB). Sounds heard by humans generally consist of multiple frequencies. An A-weighting scale is used to evaluate sounds, which reflects how the human ear responds to different sound levels at different frequencies (dBA). This A-weighted sound level depicts instantaneous noise. To evaluate the long-term characteristics of sound, accounting for the variability in sound levels over time, a mathematical average is taken for a given time interval. This time-averaged sound level over a specific period of time is called a noise equivalent level (L_{eq}).

Community receptors are more sensitive to unwanted noise during the evening and nighttime hours. For this reason, state law requires that “corrections” be attributed to measured noise levels during the evening and at night to obtain an A-weighted average for sound levels over a 24-hour period. This descriptor is called the Community Noise Equivalent Level (CNEL). The correction adds a 5 decibel penalty to measured sound levels during evening hours (7 p.m. and 10 p.m.), and a 10 decibel penalty to measured sound levels during nighttime hours (10 p.m. to 7 a.m.).

Vehicular noise is generated from a combination of sounds emitted from the engine, exhaust and tires. Cumulative traffic noise levels along roadway segments are based on three primary factors: the amount of traffic, the speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks that typically travel along the roadway. An increase in any of these three factors will increase the intensity of traffic noise.

2.10.1.2 *Regulatory Setting*

The County’s General Plan Chapter 8 Noise Element uses the Noise Compatibility Guidelines listed in Table N-1 of the General Plan Noise Element to determine the compatibility of land use when evaluating proposed development projects (Table 2.10-1, Noise Compatibility Guidelines (CNEL)). The Noise Compatibility Guidelines indicate ranges of compatibility and are intended to be flexible enough to apply to a range of projects and environments.

A land use located in an area identified as “acceptable” indicates that standard construction methods would reduce exterior noise such that indoor noise levels would remain within acceptable levels, and that outdoor activities may be resumed with minimal noise interference. Land uses which fall within the “conditionally acceptable” noise category should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with normal activities associated with that land use (sleep, speech, etc.). Land uses indicated as “conditionally acceptable” must reduce exterior noise levels to the indoor noise level as identified in the Noise Standards listed in Table N-2 of the General Plan Noise Element (Table 2.10-2, Noise Standards). For land uses with exterior noise levels that fall within the “unacceptable” range, new construction should generally not be undertaken. Select applicable General Plan policies are listed below:

- **N-1, Land Use Compatibility.** A noise environment throughout the unincorporated County that is compatible with the land uses.
- **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.
- **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)
- **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.
- **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.

- **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.
- **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.
- **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.
- **N-2.2, Balconies and Patios.** Assure that in developments where the exterior noise level on patios or balconies for multifamily 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.
- **N-3, Groundborne Vibration.** An environment that minimizes exposure of sensitive land uses to the harmful effects of excessive groundborne vibration.
- **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.

County Noise Ordinance Sections 36.404 and 36.409 govern operational and construction noise levels, respectively. County Noise Ordinance 36.410 establishes sound level limitations on impulsive noise. The proposed project is also subject to additional applicable requirements of the County of San Diego Noise Element (see Appendix K for conformance findings) and the County Zoning Ordinance.

2.10.1.3 Existing Noise Conditions

The project is adjacent to State Route (SR) 76, which runs along its southern boundary. Pala Temecula Road is just east of the project site. Surrounding land uses are primarily agricultural, residential and open space. Pala Casino is located just east of the project site, on the south side of SR 76.

SR 76 ranges in classification from a two-lane highway, to a four-lane collector, to a four-lane major roadway. The posted speed limit along SR 76 is 55 miles per hour (mph). Vehicular traffic along SR 76 is currently the primary source of existing noise in the area. Agricultural operations are a secondary source of noise, and to a lesser degree.

Noise measurements were taken at two monitoring locations on the project site to determine existing noise impacts to the site. Monitoring location 1 (M1) was positioned approximately 1200 feet from SR 76, near the center of the project. Monitoring location 2 (M2) was positioned approximately 30 feet from SR 76, near the proposed main entrance to the site. The locations were chosen because of their direct line of sight to SR 76. The terrain at these points is relatively flat, with no obstruction from trees or rock outcroppings. Noise measurements taken at such points would reflect a worst case condition at the closest Noise Sensitive Land Use proposed by the project. The locations of the noise monitoring locations and existing noise level measurements are shown on Figure 2.10-1, Locations of Noise Monitoring Stations, and the results of these noise measurements are shown in Table 2.10-3, Existing Noise Levels.

2.10.2 Analysis of Project Effects and Determination as to Significance

Guidelines for the Determination of Significance

1. **Noise Sensitive Land Uses:** a significant impact would occur if the proposed project would result in the exposure of any on- or off site existing or reasonably foreseeable future Noise Sensitive Land Use (NSLU) to exterior or interior noise in excess of the following:

Exterior Locations:

- 60 dB (CNEL) for single-family residential uses
- 65 dB (CNEL) for multifamily residential uses
- 70 dB (CNEL) for park uses

Interior Locations:

- 45 dB (CNEL)

2. **Construction Noise:** Generate construction noise that exceeds the standards and allowable hours listed in the San Diego County Code, Sections 36.408, 36.409 and 36.410, Construction Equipment.

Section 36.408: Hours of Operation of Construction Equipment

Except for emergency work,

- a. It shall be unlawful for any person to operate or cause to be operated, construction equipment between 7 p.m. and 7 a.m.
- b. On a Sunday or holiday (see Appendix K for specific days)

Section 36.409: Sound Level Limitations on Construction Equipment

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 8-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.

Section 36.410: Sound Level Limitations on Impulsive Noise

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 levels 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 82 dBA for residential, village zoning or civic use, and 85 dBA for agricultural, commercial or industrial use.
 - 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 85 dBA for residential, village zoning or civic use, and 90 dBA for agricultural, commercial or industrial use.
 - c. The minimum measurement period for any measurements conducted under this section shall be 1 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.
3. **Operational Noise: Section 36.404 (Table 2.10-4)** A significant construction noise impact would occur if the proposed project would:
- Cause or allow the creation of any noise that exceeds the applicable limits set forth in San Diego County Code Section 36.404 (Table 2.10-4, Construction Noise Levels from Rock Drills).
4. **Bird Breeding Success due to Noise:** The project would impact nesting success of sensitive bird species through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.
5. **Groundborne vibration:** A significant groundborne vibration and noise impact would occur if the proposed project would expose NSLUs to groundborne vibration or noise level equal to or in excess of the levels listed in Table 2.10-4.
6. **Off-Site Direct Noise Impacts:** Direct roadway noise impacts would be considered significant if:
- The project increases noise levels for a noise sensitive land use by 3 dBA CNEL;

and if:

- The existing noise levels already exceed the 60 dBA CNEL residential standard, or
- The project increases noise levels from below the 60 dBA CNEL standard to above 60 dBA CNEL in the area adjacent to the roadway segment.

The guidelines used to determine significance are based on the County of San Diego Guidelines for Determining Significance: Noise (January 27, 2009).

2.10.2.1 Noise Sensitive Land Uses

Analysis (Guideline 1)

The primary source of potential noise impacts to the project site is anticipated to be generated from traffic along SR 76. The proposed project is adjacent to SR 76. SR 76 is the primary source of ambient noise in the area. The project proposes a residential development which would include lots within close proximity to SR 76. Complete buildout of the project is not expected to be accomplished until 2020. Future traffic along SR 76 is projected to be 29,265 average daily trips (ADT) in the year 2030. Future noise levels were determined by utilizing the following assumptions regarding traffic along SR 76:

- a. 55 mph speed limit
- b. Peak hour volume is 2927 (10 percent of the ADT)
- c. Vehicle mix percentages traveling along SR 76 is as follows: 95 percent auto, 3 percent medium trucks, 2 percent heavy trucks

Existing and Projected 2030 Traffic Parameters are shown in Table 2.10-5 (Existing Traffic Parameters) and Table 2.10-6 (Buildout 2030 Traffic Parameters), respectively.

A noise contour analysis was performed to determine potential impacts that traffic-generated noise may have on the project. Noise contours are lines drawn from a noise source which indicate a continuous or equivalent level of noise exposure. The analysis assumed no noise shields or barriers would be erected. Figure 2.10-2, Future Noise Contour Locations, shows the location of the first- and second-floor 75 and 60 dBA CNEL future noise contours.

The noise contours in Figure 2.10-2 show that the 75 dBA CNEL contours are all located within the right-of-way. The worst-case first-floor 60 dBA CNEL contour extends approximately 425 feet from SR 76. This takes into account changes in elevation and top-of-slopes. The second floor 60 dBA CNEL contour extends approximately 800 feet from SR 76. These contours show that NSLU areas will exceed the County of San Diego 60 dBA CNEL exterior noise standard.

An additional detailed exterior noise analysis was performed to determine the specific areas that would be impacted. Noise modeled observer locations are shown on Figure 2.10-3, Modeled NSLU Receptor Locations, and modeled exterior noise is provided in Table 2.10-7, Future Exterior Noise Levels.

Exterior Locations

The analysis concluded that the proposed residential lots closest or in direct line of sight of SR 76 would not be in compliance with the County's 60 dBA CNEL exterior noise standard; therefore, impacts would be **potentially significant (Impact N-1)**.

The eastern portion of the site was found to comply with the 60 dBA CNEL exterior noise standard due to larger setbacks from SR 76 and/or vertical offsets from the roadway.

The multifamily units in the center of the site were found to comply with the County's 65 dBA CNEL standard for the ground floor private use areas. No second floor impacts are anticipated since the required private use areas are all located on the ground floor.

Noise modeling performed at two locations (Figure 2.10-3) for the park and recreational facilities along SR 76 were measured at 64.2 dBA CNEL and 64.8 dBA CNEL. These levels comply with the County's General Plan Noise Element threshold of 70 dBA. Impacts are therefore **less than significant**.

Interior Locations

Based on the analysis in the noise technical report, proposed sensitive uses located within 800 feet of SR 76 have the potential to be exposed to interior noise levels exceeding the 45 dBA CNEL threshold. Additionally, the proposed fire station is anticipated to have living quarters for on-duty staff. The exterior noise levels at the fire station building façade could be as high as 72dBA CNEL. Therefore impacts would be **potentially significant (Impact N-2)**.

2.10.2.2 Construction Noise

Analysis (Guideline 2)

The noise levels generated by construction equipment would vary greatly depending on the type of equipment being used. Construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers; all of which can produce relatively high levels of noise. Grading activities in particular generate one of the highest potential sources for noise impacts.

Noise levels generated by heavy construction equipment can range from 60 dBA to greater than 100 dBA when measured at 50 feet. These noise levels would diminish at about 6 dBA per

doubling distance (a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced again to 63 dBA at 200 feet from the source to the receptor).

Grading activities typically produce one of the highest levels of noise. Equipment to be utilized during the grading phase is shown in Table 2.10-8, Grading Operation Noise Levels.

The equipment will likely be spread out over the entire site. Some equipment may be operated at or near the property line while the rest may be located over 800 feet from the same property line. This would result in an acoustical center for the grading operation (the loudest phase) at approximately 400 feet to the nearest property line. A worst-case scenario was used to assess noise impacts at the project's property lines. This scenario assumes that all equipment would be operating simultaneously in the same location, at a distance of 170 feet from the nearest property line. At this distance, the point source noise reduction would be 10.6 dBA. This would result in a worst case combined noise level of 75 dBA at the property line (Table 2.10-9, Construction Noise Levels and Equipment). The noise levels will therefore comply with the County's 75 dBA standard at all property lines where an existing occupied structure is located.

Blasting and Rock Drilling

Areas of the project site that require deeper cuts, and where native material is not easily graded may require blasting and the use of rock drills. Two rock drills would be utilized around the site on an as-needed basis, and would be used independently of all other equipment (after blasting/drilling activities, grading equipment would come in to relocate/remove debris – grading and drilling equipment would not be used simultaneously at the same location).

Noise impacts related to blasting/drilling activities were assessed under a worst-case scenario which assumed that both rock drills would be operating simultaneously at the same location. The impact from rock drills is assessed at the property line where there are noise sensitive land uses. The cumulative noise level under this scenario would be 88 dBA at 50 feet. Using a 6 dBA reduction per doubling distance, blasting activities would have to occur at least 225 feet away from any property line in order to comply with the County's 75 dBA standard (Table 2.10-8).

In the event that rock drills are staged within 225 feet of any occupied noise sensitive land use, **potentially significant** impacts may occur (**Impact N-3**).

Rock drills that will be utilized can produce impulsive noise, reaching noise levels of 87-91 dBA at a distance of 50 feet, with a maximum impulsive noise level of 94 dBA from both rock drills at once. This maximum estimated noise level exceeds the threshold of 82 dBA as identified in the County's Noise Ordinance, Section 36.410: Sound Level Limitations on Impulsive Noise; therefore, impacts would be **potentially significant (Impact N-4)**.

Biological Impacts (Guideline 5)

The 60 dBA L_{eq} was used as the noise criterion for assessing noise impacts on sensitive wildlife, both on- and off-site. Construction activities may occur during a nesting or breeding season for sensitive species. If construction activities occur within 1000 feet of an identified sensitive habitat location, the noise levels may be above 60 dBA L_{eq} . This type of disturbance would be a **potentially significant** impact to sensitive wildlife species (**Impact N-5**).

Off-Site Construction

Off-site construction would also be required for sewer line improvements and connection along SR 76. Unlike construction associated with on-site development, utility pipeline construction is linear and usually extends roughly 300 feet along a pipeline/roadway alignment. Excavation and pipeline equipment used for sewer pipeline projects would generate similar noise levels as roadway improvements and the amount of equipment utilized would be limited due to alignment and work area constraints. Based on a construction area of approximately 50 feet by 300 feet, the average hourly off site construction noise levels would be approximately 75 dBA L_{eq} at the edge of the roadway right-of-way and 72 dBA L_{eq} 8 hour or lower at 50 feet from the edge of roadway construction.

The overall sewer line improvements will follow along SR 76 beginning from the project site to the west at an existing sewer pump station located near the intersection of Pankey Road and SR 76, as shown on Figure 2.10-4, Off-Site Sewer Force Main Alignment within SR 76/Pala Road Existing ROW. A site survey of the existing homes along SR 76 was conducted on June 4, 2015. It was found that a few of the homes along the roadway were unoccupied with the exception of a site with three homes located approximately 0.25 miles west of the site and a home located at about the halfway mark of the sewer line work, as shown on Figure 2.10-4. Figures 2.10-5a and 2.10-5b (Off-Site Construction Activities: Existing Residential A and B) provide aeriels of the existing homes that could be affected by the project's off site construction noise.

During maximum effort with several pieces of equipment operating at the same time in close proximity or during excavation, maximum noise levels of 76–80 dBA L_{max} may be experienced at local residences; however, these maximum noise levels would last for a few seconds at any specific location. As stated above, the anticipated off-site construction noise levels would be approximately 72 dBA L_{eq} over an 8-hour work day. The sewer line improvements are anticipated to move from the project site to the west in 200- to 300-foot increments. Therefore, the construction would only occur directly adjacent to the identified occupied homes for approximately 1 to 2 days. Noise levels on this order would not exceed the County's construction noise level limits and impacts would be **less than significant**.

2.10.2.3 Operational Activities

Analysis (Guideline 3) Section 36.404 of the County Noise Ordinance states that it is unlawful for any person to cause or allow the creation of any noise to the extent that the 1-hour average sound level, at any point on or beyond the boundaries of the property exceeds the applicable limits shown in Table 2.10-8. An impact would occur and mitigation would be needed if the project will generate airborne noise which, together with noise from all sources, will be in excess of limits set forth in San Diego County Code Section 36.404 (Table 2.10-4).

The project site and surrounding properties are zoned A-70 and A-72. Noise thresholds at property lines under these zones are set at 50 dBA Leq for the daytime hours of 7 a.m. to 10 p.m. and 45 dBA Leq for the nighttime hours of 10 p.m. to 7 a.m.

Sewer Pump/Lift Station

The project includes a sewer pump/lift station in the southwestern corner of the site. According to the project applicant, the pump stations will be submersible and contain two pumps. Based on a similar underground pump station, the pumps would be expected to generate a noise level of 45 dBA at a distance of 15 feet from the access hatch and would not result in any noise impacts when compared to County thresholds.

However, pump stations typically contain backup generators, which could generate unshielded noise levels that exceed the property line standards and therefore shielding or mitigation may be required. It was determined that a back-up generator up to 80 kilowatts (KW) is needed to power two of the 30 HP motors and controls if the main power supply is lost at the pump station. To assess the generator noise levels, typical outdoor sound levels were provided by the manufacturer (Kohler, Inc.). The noise ratings provided by Kohler indicated that an 80 KW generator would produce unmitigated noise levels of 68 dBA when measured at a distance of 23 feet in all directions when equipment with the manufacture's sound enclosure.

The equipment noise levels were modeled to each adjacent property line and to the nearest existing residences. The project includes an 8-foot-high enclosure around the generator that would further reduce noise. To determine the noise level reductions from the proposed buildings located between the generator and the property lines, the Fresnel Barrier Reduction Calculations were utilized for each noise source. No reductions from the existing topography located between the equipment and property lines were taken to determine the worst-case the noise levels.

As noted in Table 2.10-10, Property Line Noise Levels from Sewer Pump/Lift Station, the proposed sewer pump/lift station would comply with the County's worse-case nighttime Noise Ordinance criteria at all surrounding land uses. Additionally, once the facility is fully operational a Certification Test is required as part of the project conditions to demonstrate

compliance with the County Noise Ordinance. Noise impacts from the sewer pump/lift station would be **less than significant**.

Recreational Facilities

A 5.14-acre public park is proposed along the project's frontage with SR 76. This acreage includes the public trail, as well as public restrooms. The project would also include 6.19 acres of private parks and a clubhouse.

The proposed recreational facilities would not result in operational impacts because permanent significant operational noise sources would not be installed at the public or private parks. The only noise increase would result from an increase of visitors to the parks and trails.

Noise generated by the public and private parks would include typical sounds of children laughing and playing on the courts, pools and playground facilities. These noises would primarily occur during daylight hours and would be considered **less than significant** because they would be substantially below the Noise Ordinance daytime criteria.

The proposed trails would be of a low noise producing nature, as they would provide passive visitor activities in the park (e.g., hiking and sightseeing). The current noise environment would not increase significantly due to public trails. Noise from trails that would be generated would be considered **less than significant** because it would be substantially below the Noise Ordinance daytime criteria.

Maintenance activities would include repair of trails, collection of waste and general maintenance. Noise associated with these activities would also be substantially below the Noise Ordinance daytime criteria and be considered **less than significant**.

Fire Station

Emergency operations from the proposed fire station are exempt under Section 36.417 of the County Noise Ordinance so they are not required to meet specific operational noise standards. However, station protocols for use of sirens would consider the time of day and proximity of residences. The station's location near SR 76 at the project entrance would also reduce potential noise impacts from operation. Impacts would therefore be **less than significant**.

2.10.2.4 Groundborne Vibration and Noise Impacts

Analysis (Guideline 5) Groundborne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object

describes how rapidly it is oscillating, measured in Hertz (Hz). The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration energy spreads out as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. The construction activities that typically generate the highest levels of vibration are blasting and impact pile driving.

Ground vibrations from construction activities do not often reach the levels that can damage structures. However, ground vibrations can reach the sensible range of human perception in buildings very close to the site. There are no existing or proposed frequent activities on or near the proposed project site which would cause any significant vibration levels to existing buildings near the project site. No vibration impacts are anticipated to or from the proposed project site. While blasting could potentially be felt at Pala Casino, any groundborne vibration generated by blasting activities would dissipate with distance and would not substantially affect Pala Casino. Additionally, prior to all blasting activities, a blasting permit would be required to be obtained from the County as defined in Section 96.1.202 in the County Code of Regulatory Ordinances, which would ensure that all blasting conducted according to County Code and minimizes adverse effects to safety. Therefore, impacts would be **less than significant**.

2.10.2.5 Off-Site Direct Noise Impacts

Analysis (Guideline 6) Off-site project related traffic noise levels were calculated using methods in the Highway Noise Model published by the Federal highway Administration (Appendix K).

Traffic

Existing noise level conditions were compared with the noise level increase of Existing Plus Project conditions to determine the significance of direct off-site noise level increases. Noise contours were developed for the following traffic scenarios:

- **Existing:** Current day noise conditions without construction of the proposed project.
- **Existing Plus Project:** Current day noise conditions plus the completion of the proposed project.
- **Existing vs. Existing Plus Project:** Comparison of the direct project related noise level increases in the vicinity of the proposed project site.

The noise levels and the distances to the 60 dBA CNEL contours for the roadways in the vicinity of the project are shown in Table 2.10-11 (San Diego County Code Section 36.404 Sound Level Limits) for the Existing Scenario and in Table 2.10-10 for the Existing plus Project Scenario.

These values do not take into account the effect of any noise barriers or topography that may affect ambient noise levels.

Table 2.10-12, Guideline for Determining the Significance of Groundborne Vibration and Noise Impacts, compares the Existing Year with and without project-related noise levels. Roadway segment noise levels will increase from 0.1 dBA CNEL to 1.46 dBA CNEL with the development of the proposed project. As shown in Table 2.10-12, the project does not create a direct noise level increase of more than 3 dBA CNEL on any roadway segment. Therefore, the project's direct contributions to off-site roadway noise increases will be **less than significant**.

Construction

Five rubber tire dozers, four track dozers, four loaders/tractors, two water trucks and four scraper excavators will be required to complete the project's grading operations. Project construction will also include blasting in areas where the native material is not easily graded. Two rock drills would be utilized for such areas. Material size is anticipated to be controlled during blasting so that excess rock and debris will be manageable and utilized for areas on site where fill material is needed. No rock crushing is anticipated.

Grading operations for the project are expected to take up to six months, with blasting to occur on a regular basis. After rough grading is complete, trenching and finish grading operations would take an additional three months.

The properties surrounding the project site are mostly occupied, with the exception of a few parcels in the northern portion of the site (Figure 2.10-6, Potential Properties Affected near Project Site). Some properties, especially to the northeast, are separated by distances of more than 1,000 feet. At a distance as close as 170 feet the point source noise attenuation or reduction from construction activities and the nearest property line is -10.6 dBA. This would result in an anticipated worst-case noise level of 75 dBA at the property line. Given this and the spatial separation of the equipment, the noise levels will comply with the County of San Diego's 75 dBA standard at all project property lines. Construction noise impacts at the property line would be **less than significant**.

2.10.3 Cumulative Impact Analysis

Cumulative Guideline for the Determination of Significance

As with direct roadway noise impacts, cumulative roadway noise impacts would be considered significant if:

- The existing noise levels already exceed the 60 dBA CNEL residential standard, or

- The project increases noise levels from below the 60 dBA CNEL standard to above 60 dBA CNEL in the area adjacent to the roadway segment

The County of San Diego requires that the Cumulative without Project scenario and the Cumulative with Project scenario be compared to determine if significant impacts occur. Project generated roadway noise impacts would be considered significant if the project raises the Cumulative without Project noise level by 1 dBA or greater.

Analysis

The cumulative study area chosen for assessing the project's cumulative contribution to noise impacts was taken from the project's traffic assessment (Appendix M). To determine if cumulative off-site noise level increases associated with the proposed development would contribute to a cumulatively significant noise impact, the noise levels for the near-term project buildout, as well as other planned and permitted projects in the vicinity were compared to existing conditions.

Utilizing the project's traffic assessment, noise contours were developed and analyzed for the following traffic scenarios:

- **Existing Plus Project Plus Cumulative Projects:** Existing day noise conditions plus the completion of the project and the completion of other permitted, planned projects or approved ambient growth factors (Table 2.10-13, Existing Roadway Noise Levels).
- **Existing vs. Existing Plus Project Plus Cumulative Projects:** Comparison of the existing noise levels and the noise level increases contributed from the proposed project and all other planned or permitted projects in the vicinity (Table 2.10-14, Existing Plus Project Noise Levels).

As shown in Table 2.10-11, there are cumulative noise increases of more than 3 dBA CNEL on segments of SR 76. To determine if the project has a cumulatively considerable noise increase (1 dBA CNEL or more) on any of these roadway segments, project contributions were isolated by comparing Existing Plus Cumulative conditions with and without the proposed project (Tables 2.10-15, Existing vs. Existing Plus Project Noise Levels, through 2.10-18, Existing Plus Cumulative vs. Existing Plus Project Plus Cumulative Noise Levels).

As shown in Tables 2.10-15 through 2.10-18, the project does not directly create a noise level increase of more than 3 dBA CNEL on any roadway segment. Therefore, the proposed project's direct contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses. There are cumulative noise increases of more than 3 dBA CNEL on several roadway segments along SR 76 but the project

related cumulative increases are below 1 dBA CNEL on all cumulatively impacted roadways. Therefore, the proposed project's contributions to cumulative off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses. Impacts would be **less than significant**.

2.10.4 Significance of Impacts Prior to Mitigation

Based on the analyses above, the proposed project would have the following significant impacts prior to mitigation:

- Impact N-1** Noise generated from traffic along SR 76 will expose the proposed western residential lots to sound levels greater than the County's 60 dBA CNEL exterior noise standard. The lots affected are Lots 201 and 206, Lots 176-180 and Lots 204-205, and Lots 202-203.
- Impact N-2** Noise generated from traffic along SR 76 has the potential to expose proposed sensitive uses to interior noise levels exceeding the 45 dBA CNEL threshold. The lots affected are single-family lots 145-148, 178-230, 313-338 and 392-404, and multifamily lots 267-270 and 278-284 and 606 (fire station).
- Impact N-3** In the event that rock drills are staged within 225 feet of any occupied noise sensitive land use, the County's 75dBA standard would be exceeded.
- Impact N-4** Rock drills that will be utilized can produce impulsive noise, reaching noise levels of 87-91 dBA at a distance of 50 feet and a maximum impulsive noise level of 94 dBA when the two rock drills are combined. . This maximum estimated noise level exceeds the threshold of 82 dBA as identified in the County's Noise Ordinance, Section 36.410: Sound Level Limitations on Impulsive Noise.
- Impact N-5** Construction noise in sensitive habitat areas during nesting and breeding season will expose sensitive wildlife species to noise levels in excess of 60 dBA Leq.

2.10.5 Mitigation

The following mitigation measures would reduce all identified noise impacts to a level below significance.

- M-N-1** Noise barriers will be built to reduce exterior noise impacts to residential lots along SR 76, on the western portion of the site. Lots 221-225 and Lots 321-333 require 6-foot barriers. Lots 319 and 320 require 7-foot barriers. Lots 219, 220 and 213 require 8-foot barriers (with a 6-foot barrier on the side yard of Lot 213).

Lots 214-218 require 9-foot barriers. The barriers are to be constructed of non-gapping material consisting of masonry, half-inch-thick glass, earthen berm, or any combination of these materials. The location and required heights of the barriers is shown in Figure 2.10-7.

M-N-2 An interior noise assessment is necessary to finalize noise requirements based on precise grading plans and actual building design specifications, which would mitigate exterior noise levels to an interior level of 45 dBA CNEL. The affected lots that will require an interior noise assessment are single-family lots 145-148, 178-230, 313-338 and 392-404. Multifamily lots 267-270 and 278-284 and 606 will require an interior noise assessment as well. The interior noise assessment reports should be conducted prior to issuance of building permits. Interior noise levels of 45 dBA CNEL can be obtained with conventional building construction methods by providing a window condition requiring a means of mechanical ventilation (air conditioning) and providing upgraded windows at all affected lots.

M-N-3 In the event that rock drills are staged within 225 feet of any occupied noise sensitive land use, a specific mitigation plan shall be developed by a County-certified acoustical engineer to reduce impacts to below the County's 75dBA standard. A temporary noise barrier may be required which could range from 8 to 12 feet in height. The noise barrier would need to be of solid non-gapping material to adequately reduce construction noise levels. The mitigation plan may also place restrictions on the usage of the equipment (amount of time used and/or the location in respect to the property line).

M-N-4 To reduce the maximum noise level of 94 dBA (cumulative noise level from both rock drills) to 82 dBA the rock drills would need to be located 200 feet from the nearest occupied residential property line or only operate 25 percent of the hourly or daily duration (15 minutes of any hour) when located within that distance. In the event that the rock drills are staged within 200 feet of any occupied noise sensitive land use, it is recommended that a specific mitigation plan based upon the location of the construction equipment, topography and construction schedule be identified by a County certified acoustical engineer. If impacts are anticipated, a mitigation plan should be developed that may include a temporary noise barrier along any property line where the impacts could occur. The mitigation plan would determine the height and location of a temporary barrier, if one is necessary. The height of this noise barrier can range from 8 to 12 feet in height. The proposed noise barrier will need to be of solid non-gapping material to adequately reduce construction noise levels below the County's threshold. The mitigation plan can

also limit the usage of the equipment (amount of time used and/or the location in respect to the property line).

- M-N-5** If clearing, grubbing, and grading activities are proposed during the period of February 1 to August 31 of any year, the biological monitor will determine if there are sensitive bird nests within the projected 60 dBA L_{eq} construction noise contour. If nests are present under these circumstances, a County approved acoustical consultant will establish a baseline noise level in the occupied habitat without construction. If the construction noise levels at the nest sites during breeding season are anticipated to exceed 60 dBA L_{eq} or the ambient condition (whichever is higher), noise attenuation measures will be implemented. These measures include, but are not limited to, utilizing noise barriers and noise reducing features on construction equipment as necessary to maintain construction noise at acceptable levels at nest sites.

2.10.6 Conclusion

On-Site Noise Analysis: It was determined from the detailed analysis that the single-family NSLUs adjacent to the roadways will not comply with the County of San Diego 60 dBA CNEL exterior noise standard without mitigation measures (**Impact N-1**). As provided by mitigation measure **M-N-1**, in order to reduce the future exterior noise levels to below the County threshold noise barriers are required in the western portion of the site. The noise affected outdoor areas of proposed lots located closest to SR 76 or having direct line of sight to SR 76 on the western portion of the site will require noise barriers ranging in height from 6 to 8 feet. More specifically, Lots 201 and 206 require 6-foot barriers, Lots 176-180 and 204-205 require 7-foot barriers and Lots 202 and 203 require an 8-foot barrier. The barriers must be constructed of a non-gapping material consisting of masonry, ½ inch thick glass, earthen berm or any combination of these materials. With the incorporation of mitigation measure **M-N-1**, exterior on-site noise impacts would be less than significant because the proposed noise barriers would reduce traffic-generated noise to below 60 dBA CNEL by providing a physical barrier to attenuate noise.

With the incorporation of the mitigation measures, the first floor building facades of the single-family dwellings will comply with the General Plan Noise Element Standard, of 60 dBA CNEL. Exterior noise levels at the building facades were found to be above the General Plan Noise Element Standard, of 60 dBA CNEL at single-family and multifamily dwellings. As discussed earlier and shown in Figure 2.10-2, all proposed sensitive uses located within 800 feet of SR 76 could exceed the 60 dBA CNEL threshold at the building façade and may need interior mitigation (**Impact N-2**). The affected lots of the project that will require an interior noise assessment, as provided by mitigation measure **M-N-2**) consist of single-family lots 145-148, 178-230, 313-338 and 392-404. Multi-family lots 267-270 and 278-284 will require an

interior noise assessment as well. With the incorporation of mitigation measure **M-N-2**, interior on-site noise impacts would be less than significant because the noise analysis shows that, as prescribed by a site specific study, incorporation of structural and mechanical elements, would attenuate noise so that interior noise will be in conformance with the County's General Plan Noise Element.

Rock Drilling Construction Noise: Rock drilling and blasting will occur on an as-needed basis on site and would result in a significant impact in the event that rock drills are staged within 225 feet of any occupied noise sensitive land use (**Impact N-3**). A specific mitigation plan, as provided by mitigation measure **M-N-3**, shall be developed by a County-certified acoustical engineer to reduce impacts to below the County's 75dBA standard. A temporary noise barrier may be required which could range from 8 to 12 feet in height. The noise barrier would need to be of solid non-gapping material to adequately reduce construction noise levels. The mitigation plan may also place restrictions on the usage of the equipment (amount of time used and/or the location in respect to the property line). With the incorporation of mitigation measure **M-N-3**, impacts resulting from rock drilling construction would be less than significant because the noise modeling analysis shows that temporary noise barriers would adequately attenuate rock drilling construction noise such that it would conform with the County's Noise Ordinance.

Impulsive Noise: Rock drills that will be utilized can produce impulsive noise, reaching noise levels of 87-91 dBA at a distance of 50 feet and a maximum impulsive noise level of 94 dBA when the two rock drills are combined; these anticipated noise levels exceed the County's threshold of 82 dBA (**Impact N-4**). As provided in mitigation measure **M-N-4**, in order to reduce the maximum noise level of 94 dBA (cumulative noise level from both rock drills) to 82 dBA the rock drills would need to be located an adequate distance from the nearest occupied residential property line or limit during of operation. A specific mitigation plan, as specific in mitigation measure **M-N-4**, may be required if adequate distance cannot be achieved. With the incorporation of mitigation measure **M-N-4**, impulsive noise would be less than significant because the noise modeling analysis shows that adequate distance, limits to hours of rock drill operation, and temporary noise barriers (if necessary) would adequately attenuate impulsive noise such that rock drills would conform with the County's Noise Ordinance.

Biological Noise Impacts: If clearing, grubbing, and grading activities are proposed during the period of February 1 to August 31 of any year, and the biological monitor has determined that there are sensitive bird nests within the projected 60 dBA Leq construction noise contour (**Impact N-5**), incorporation of mitigation measure **M-N-5**, which requires biological monitoring and noise attenuation as necessary, would reduce impacts to a less than significant level because a qualified biological monitor would be able to identify sensitive nesting bird and the noise modeling analysis shows that temporary noise barriers would adequately attenuate construction noise such that sensitive wildlife species are not adversely impacted.

Table 2.10-1
Noise Compatibility Guidelines (CNEL)

Table N-1 Noise Compatibility Guidelines									
Land Use Category		Exterior Noise Level (CNEL)							
			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, child care 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, ranching, warehouse, maintenance/repair								
	<div> <div></div> ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements. </div>								
	<div> <div></div> 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 N-2, Noise Standards. 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. </div>								
	<div> <div></div> UNACCEPTABLE—New construction or development shall not be undertaken. </div>								

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table N-2).

**Table 2.10-2
Noise Standards**

Table N-2	Noise Standards^{Note}
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: (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.
5.	For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6.	For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7.	For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8.	The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9.	For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.

Note: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table N-1, Noise Compatibility Guidelines.

**Table 2.10-3
Existing Noise Levels**

Location	Time	One Hour Noise Levels (dBA)					
		L_{eq}	L_{min}	L_{max}	L_{10}	L_{50}	L_{90}
M1	1:40–1:50 p.m.	47.8	40.6	62.1	49.5	46.8	44.3
M2	2:00–2:30 p.m.	68.3	48.9	83.1	72.0	64.4	53.7

Source: Appendix K.

**Table 2.10-4
Construction Noise Levels from Rock Drills**

Construction Equipment	Quantity	Source Level @ 50 Feet (dBA)	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50 Feet (dBA)
Rock Drill	2	85	8	88.0
Noise Reduction Needed To Comply				-13.0
Distance Required to Reduce Noise Levels				225
Nearest Property Line Noise Level				75.0

Source: Appendix K.

**Table 2.10-5
Existing Traffic Parameters**

Roadway ¹	Observed Traffic Volume	Observed Speeds (MPH)	Vehicle Mix %		
			Auto	Medium Trucks	Heavy Trucks
State Route 76	634	50/45 ²	96.2	1.9	1.9

Source: Appendix K.

¹ All roadway parameters were observed during the ambient noise measurement period at M1

² Trucks were observed traveling at a slowing speed during the monitoring

**Table 2.10-6
Buildout 2030 Traffic Parameters**

Roadway	Average Daily Traffic (ADT)	Peak Hour Volume ¹	Modeled Speeds (MPH)	Vehicle Mix % ²		
				Auto	Medium Trucks	Heavy Trucks
State Route 76	29,265	2,927	55	95	3	2

Source: Appendix K.

¹ 10% of the ADT

² Conservative vehicle mix

**Table 2.10-7
Future Exterior Noise Levels**

Modeled Receptor Number	Receptor Location (Lot #)	Receptor Type or Use ¹	Receptor Elevation (Feet) ²	Unmitigated Outdoor Noise Level(dBA CNEL) ³	Barrier Height (Feet)	Mitigated Outdoor Noise Levels (dBA CNEL) ⁴	Second Floor Façade Noise Levels (dBA CNEL) ⁴
1	195	SFD	371	54.9	0	54.5	58.5
2	196	SFD	369	55.4	0	55.0	59.3
3	230	SFD	369	58.5	0	58.3	62.9
4	228	SFD	369	59.1	0	58.9	63.3
5	226	SFD	371	59.9	0	59.7	64.0

**Table 2.10-7
Future Exterior Noise Levels**

Modeled Receptor Number	Receptor Location (Lot #)	Receptor Type or Use ¹	Receptor Elevation (Feet) ²	Unmitigated Outdoor Noise Level(dBA CNEL) ³	Barrier Height (Feet)	Mitigated Outdoor Noise Levels (dBA CNEL) ⁴	Second Floor Façade Noise Levels (dBA CNEL) ⁴
6	224	SFD	371	60.6	0	59.3	64.7
7	222	SFD	373	61.9	6	58.4	65.6
8	220	SFD	375	63.8	8	59.0	69.6
9	218	SFD	375	68.1	9	59.5	71.5
10	216	SFD	375	69.9	9	60.3	72.7
11	213	SFD	373	68.7	8	60.0	71.9
12	148	SFD	375	60.8	0	60.2	64.2
13	146	SFD	377	59.3	0	58.7	62.0
14	144	SFD	377	57.8	0	57.2	60.4
15	142	SFD	377	56.4	0	55.8	58.9
16	140	SFD	377	55.2	0	54.7	57.9
17	138	SFD	377	54.3	0	53.8	57.4
18	319	SFD	389	61.8	7	60.4	65.4
19	322	SFD	387	60.7	6	58.0	64.2
20	326	SFD	385	59.8	6	59.8	63.1
21	330	SFD	383	60.1	6	59.9	64.0
22	333	SFD	381	60.9	6	60.0	65.2
23	396	SFD	401	59.1	0	59.1	63.9
24	398	SFD	413	59.5	0	59.5	64.4
25	400	SFD	425	59.1	0	59.1	64.4
26	402	SFD	435	58.4	0	58.4	63.9
27	404	SFD	447	57.8	0	57.8	63.6
28	268	MFD	393	59.3	0	59.3	62.8
29	269	MFD	393	59.6	0	59.7	63.0
30	280	MFD	393	59.0	0	59.1	62.3
31	283	MFD	395	58.3	0	58.2	62.0
32	284	MFD	399	57.5	0	57.4	61.8
33	318	MFD	391	58.9	0	58.9	63.4
34	605	Baseball	375	61.2	0	61.2	--
35		Play Area	373	65.6	0	65.6	--
36		Basketball	374	65.0	0	65.0	--
37		Park	376	62.2	0	62.2	--

Source: Appendix K.

¹ Single Family Dwelling (SFD), Multifamily Dwelling (MFD) or Park Use

² Receptor Elevation is 5 feet above the Pad Elevation for ground level and 15 feet above pad for second floor.

³ Exterior Mitigation required per County Guidelines if BOLD

⁴ Interior Noise Study required per County Guidelines if BOLD

**Table 2.10-8
Grading Operation Noise Levels**

Construction Equipment	Quantity	Source Level @ 50 Feet (dBA)	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50 Feet (dBA)
Dozer – D8	2	74	8	77.0
Loader/Tractor	4	72	8	78.0
Water Truck	2	70	8	73.0
Rubber Tire Dozers	5	73	8	80.0
Scrapers	4	75	8	81.0
Cumulative Levels @ 50 Feet (dBA)				85.6
Distance To Property Line				170
Noise Reduction Due To Distance				-10.6
Nearest Property Line Noise Level				75.0

Source: Appendix K.

**Table 2.10-9
Construction Noise Levels and Equipment**

Construction Phase	Construction Equipment	Quantity	Source Level @ 50 Feet (dBA)
Grading and Blasting Operations	Dozer – D8	2	74
	Loader/Tractor	4	72
	Water Truck	2	70
	Rubber Tire Dozers	5	73
	Scrapers	4	75
	Rock Drill	2	85

Source: Appendix K.

**Table 2.10-10
Property Line Noise Levels from Sewer Pump/Lift Station**

Property Line	Source Level @ 23 Feet (dBA)	Distance to Property Line (Feet)	Noise Reduction due to distance (dBA)	Noise Reduction from Walls (dBA)	Resultant Noise Level @ Property Line (dBA Leq)	Property Line Standard
Biological West	68.0*	170119	-14.3	0-5.6	50.646.4	60
A-70 West		386355	-23.8	-6.8	37.4	45
Residential North		700284	-21.8	0-7.3	38.340.6	45
Residential (east)A-70 South		745171	-17.4	0-7.2	37.843.4	45

Source: Appendix K.

* Manufactures sound level with provided sound enclosure.

**Table 2.10-11
San Diego County Code Section 36.404 Sound Level Limits**

ZONE	TIME	ONE-HOUR AVERAGE SOUND LEVEL LIMITS (dBA)
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92 and R-V and R-U with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
(2) R-RO, R-C, R-M, S-86, V5 and R-V and R-U with a density of 11 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, V4 and all other commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
(4) V1, V2	7 a.m. to 7 p.m.	60
V1, V2	7 p.m. to 10 p.m.	55
V1	10 p.m. to 7 a.m.	55
V2	10 p.m. to 7 a.m.	50
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) S-82, M-56 and M-58	Anytime	75
(7) S88 (see subsection (c) below)		

Table 2.10-12
Guideline for Determining the Significance of Groundborne Vibration and Noise Impacts

Land Use Category	Groundborne Vibration Impact Levels (inches/sec rms)		Groundborne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events ¹	Occasional or Infrequent Events ²	Frequent Events ¹	Occasional or Infrequent Events ²
Category 1: Buildings where low ambient vibration is essential for interior operations (research and manufacturing facilities with special vibration constraints).	0.0018 ³	0.0018 ³	Not Applicable ⁵	Not Applicable ⁵
Category 2: Residences and buildings where people normally sleep (hotels, hospitals, residences and other sleeping facilities).	0.0040	0.010	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use (schools, churches, libraries, other institutions and quiet offices).	0.0056	0.014	40 dBA	48 dBA

Source: County of San Diego 2009

¹ "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.

² "Occasional or Infrequent Events" are defined as fewer than 70 vibrations per day. This combined category includes most commuter rail systems.

³ 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.

⁴ Vibration-sensitive equipment is not sensitive to groundborne noise.

Table 2.10-13
Existing Roadway Noise Levels

Roadway Segment	ADT	Vehicle Speeds (MPH) ¹	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
<i>State Route 76</i>				
E. Vista Way to N. River Road	28,805	55	76.0	582
N. River Road to Camino Del Rey	39,736	55	77.4	722
Camino Del Rey to S. Mission Road	39,316	55	77.3	717
S. Mission Road to Gird Road	26,752	55	75.7	554
Gird Road to Old Hwy 395	23,789	55	75.2	513
Old Hwy 395 to I-15 SB Ramps	29,407	55	76.1	591
I-15 SB Ramps to I-15 NB Ramps	19,359	55	74.3	447
I-15 NB Ramps to Pankey Road	11,031	55	71.8	307
Pankey Road to Horse Ranch Creek Road	11,031	55	71.8	307
Horse Ranch Creek Road to Rice Canyon Road	11,031	55	71.8	307
Rice Canyon Road to Couser Canyon Road	11,031	55	71.8	307
Couser Canyon Road to W. Pala Mission Road	10,224	55	71.5	292

Table 2.10-13
Existing Roadway Noise Levels

Roadway Segment	ADT	Vehicle Speeds (MPH) ¹	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
W. Pala Mission Road to E. Pala Mission Road	10,329	55	71.5	294
E. Pala Mission Road to Lilac Road	8,821	55	70.9	265
Lilac Road to Adams Drive	9,456	55	71.2	277
Adams Drive to Cole Grade Road	9,090	55	71.0	270
<i>W. Pala Mission Road</i>				
State Route 76 and Pala Temecula Road	4,711	30	63.2	81
<i>Pala Temecula Road</i>				
Pala Mission Road to Trujillo Road	8,318	40	67.5	158

Source: Appendix K.

Table 2.10-14
Existing Plus Project Noise Levels

Roadway Segment	ADT	Vehicle Speeds (MPH) ¹	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
<i>State Route 76</i>				
E. Vista Way to N. River Road	29,141	55	76.0	588
N. River Road to Camino Del Rey	40,186	55	77.4	728
Camino Del Rey to S. Mission Road	39,822	55	77.4	724
S. Mission Road to Gird Road	27,334	55	75.8	564
Gird Road to Old Hwy 395	24,447	55	75.3	524
Old Hwy 395 to I-15 SB Ramps	30,135	55	76.2	602
I-15 SB Ramps to I-15 NB Ramps	20,884	55	74.6	474
I-15 NB Ramps to Pankey Road	13,341	55	72.7	357
Pankey Road to Horse Ranch Creek Road	13,829	55	72.8	367
Horse Ranch Creek Road to Rice Canyon Road	14,499	55	73.0	380
Rice Canyon Road to Couser Canyon Road	14,803	55	73.1	386
Couser Canyon Road to W. Pala Mission Road	14,128	55	72.9	375
W. Pala Mission Road to E. Pala Mission Road	10,835	55	71.7	305
E. Pala Mission Road to Lilac Road	9,329	55	71.1	277
Lilac Road to Adams Drive	9,786	55	71.3	285
Adams Drive to Cole Grade Road	9,400	55	71.1	277
<i>W. Pala Mission Road</i>				
State Route 76 and Pala Temecula Road	5,729	30	64.0	95
<i>Pala Temecula Road</i>				
Pala Mission Road to Trujillo Road	9,110	40	67.9	170

Source: Appendix K.

Table 2.10-15
Existing vs. Existing Plus Project Noise Levels

Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing + Project Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
<i>State Route 76</i>			
E. Vista Way to N. River Road	76.0	76.1	0.1
N. River Road to Camino Del Rey	77.4	77.4	0.0
Camino Del Rey to S. Mission Road	77.3	77.4	0.1
S. Mission Road to Gird Road	75.7	75.8	0.1
Gird Road to Old Hwy 395	75.2	75.3	0.1
Old Hwy 395 to I-15 SB Ramps	76.1	76.2	0.1
I-15 SB Ramps to I-15 NB Ramps	74.3	74.7	0.4
I-15 NB Ramps to Pankey Road	71.8	72.8	1.0
Pankey Road to Horse Ranch Creek Road	71.8	73.0	1.2
Horse Ranch Creek Road to Rice Canyon Road	71.8	73.2	1.4
Rice Canyon Road to Couser Canyon Road	71.8	73.3	1.5
Couser Canyon Road to W. Pala Mission Road	71.5	73.1	1.6
W. Pala Mission Road to E. Pala Mission Road	71.5	71.8	0.3
E. Pala Mission Road to Lilac Road	70.9	71.1	0.2
Lilac Road to Adams Drive	71.2	71.3	0.1
Adams Drive to Cole Grade Road	71.0	71.2	0.2
<i>W. Pala Mission Road</i>			
State Route 76 and Pala Temecula Road	63.2	64.2	1.0
<i>Pala Temecula Road</i>			
Pala Mission Road to Trujillo Road	67.5	68.0	0.5

Source: Appendix K.

Note: Sound Levels provided are worst-case and do not take into account topography or shielding

Table 2.10-16
Existing Plus Project Plus Cumulative Noise Levels

Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing + Project Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
<i>State Route 76</i>			
E. Vista Way to N. River Road	76.0	76.1	0.1
N. River Road to Camino Del Rey	77.4	77.4	0.0
Camino Del Rey to S. Mission Road	77.3	77.4	0.1
S. Mission Road to Gird Road	75.7	75.8	0.1
Gird Road to Old Hwy 395	75.2	75.3	0.1
Old Hwy 395 to I-15 SB Ramps	76.1	76.2	0.1
I-15 SB Ramps to I-15 NB Ramps	74.3	74.7	0.4

Table 2.10-16
Existing Plus Project Plus Cumulative Noise Levels

Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing + Project Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
I-15 NB Ramps to Pankey Road	71.8	72.8	1.0
Pankey Road to Horse Ranch Creek Road	71.8	73.0	1.2
Horse Ranch Creek Road to Rice Canyon Road	71.8	73.2	1.4
Rice Canyon Road to Couser Canyon Road	71.8	73.3	1.5
Couser Canyon Road to W. Pala Mission Road	71.5	73.1	1.6
W. Pala Mission Road to E. Pala Mission Road	71.5	71.8	0.3
E. Pala Mission Road to Lilac Road	70.9	71.1	0.2
Lilac Road to Adams Drive	71.2	71.3	0.1
Adams Drive to Cole Grade Road	71.0	71.2	0.2
<i>W. Pala Mission Road</i>			
State Route 76 and Pala Temecula Road	63.2	64.2	1.0
<i>Pala Temecula Road</i>			
Pala Mission Road to Trujillo Road	67.5	68.0	0.5

Source: Appendix K.

Note: Sound Levels provided are worst-case and do not take into account topography or shielding from barriers.

Table 2.10-17
Existing vs. Existing Plus Project Plus Cumulative Noise Levels

Roadway Segment	Existing Noise Level at 50 Feet (dBA CNEL)	Existing + Project+ Cumulative Noise Level at 50 Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
<i>State Route 76</i>			
E. Vista Way to N. River Rd.	76.0	79.0	3.0
N. River Rd. to Camino Del Rey	77.4	79.7	2.3
Camino Del Rey to S. Mission Rd.	77.3	80.1	2.8
S. Mission Rd. to Gird Rd.	75.7	78.3	2.6
Gird Rd. to Old Hwy 395	75.2	77.8	2.6
Old Hwy 395 to I-15 SB Ramps	76.1	77.7	1.6
I-15 SB Ramps to I-15 NB Ramps	74.3	76.9	2.6
I-15 NB Ramps to Pankey Rd.	71.8	76.7	4.9
Pankey Rd. to Horse Ranch Creek Rd.	71.8	76.6	4.8
Horse Ranch Creek Rd. to Rice Canyon Rd.	71.8	76.7	4.9
Rice Canyon Rd. to Couser Canyon Rd.	71.8	76.7	4.9
Couser Canyon Rd. to W. Pala Mission Rd.	71.5	76.7	5.2
W. Pala Mission Rd. to E. Pala Mission Rd.	71.5	75.1	3.6
E. Pala Mission Rd. to Lilac Rd.	70.9	75.5	4.6
Lilac Rd. to Adams Dr.	71.2	75.4	4.2
Adams Dr. to Cole Grade Rd.	71.0	75.3	4.3

Table 2.10-17
Existing vs. Existing Plus Project Plus Cumulative Noise Levels

Roadway Segment	Existing Noise Level at 50 Feet (dBA CNEL)	Existing + Project+ Cumulative Noise Level at 50 Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
<i>W. Pala Mission Rd.</i>			
State Route 76 and Pala Temecula Rd.	63.2	65.0	1.8
<i>Pala Temecula Rd.</i>			
Pala Mission Rd. to Trujillo Rd.	67.5	68.6	1.1

Source: Appendix K.

Note: Sound levels provided are worst-case and do not take into account topography or shielding from barriers

Table 2.10-18
Existing Plus Cumulative vs. Existing Plus Project Plus Cumulative Noise Levels

Roadway Segment	Existing + Cumulative Noise Level @ 50-Foot (dBA CNEL)	Existing + Project + Cumulative Noise Level @ 50-Foot (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
<i>State Route 76</i>			
E. Vista Way to N. River Road	78.9	79.0	0.1
I-15 NB Ramps to Pankey Road	76.3	76.7	0.4
Pankey Road to Horse Ranch Creek Road	76.1	76.6	0.5
Horse Ranch Creek Road to Rice Canyon Road	76.1	76.7	0.6
Rice Canyon Road to Couser Canyon Road	76.1	76.7	0.6
Couser Canyon Road to W. Pala Mission Road	76.1	76.7	0.6
W. Pala Mission Road to E. Pala Mission Road	75.0	75.1	0.1
E. Pala Mission Road to Lilac Road	75.4	75.5	0.1
Lilac Road to Adams Drive	75.4	75.4	0.0
Adams Drive to Cole Grade Road	75.2	75.3	0.1

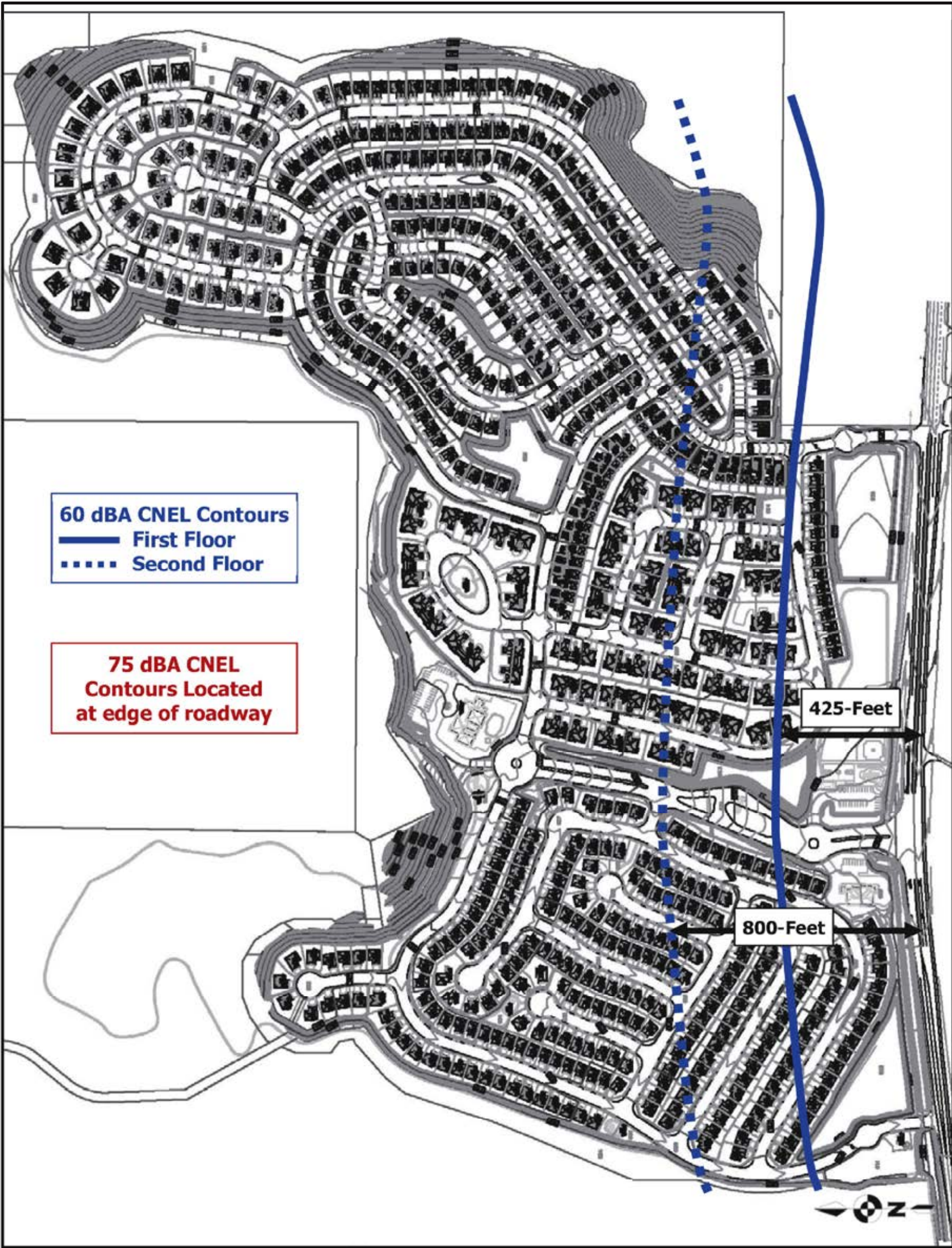
Source: Appendix K.

Note: Sound Levels provided are worst-case and do not take into account topography or shielding from barriers.

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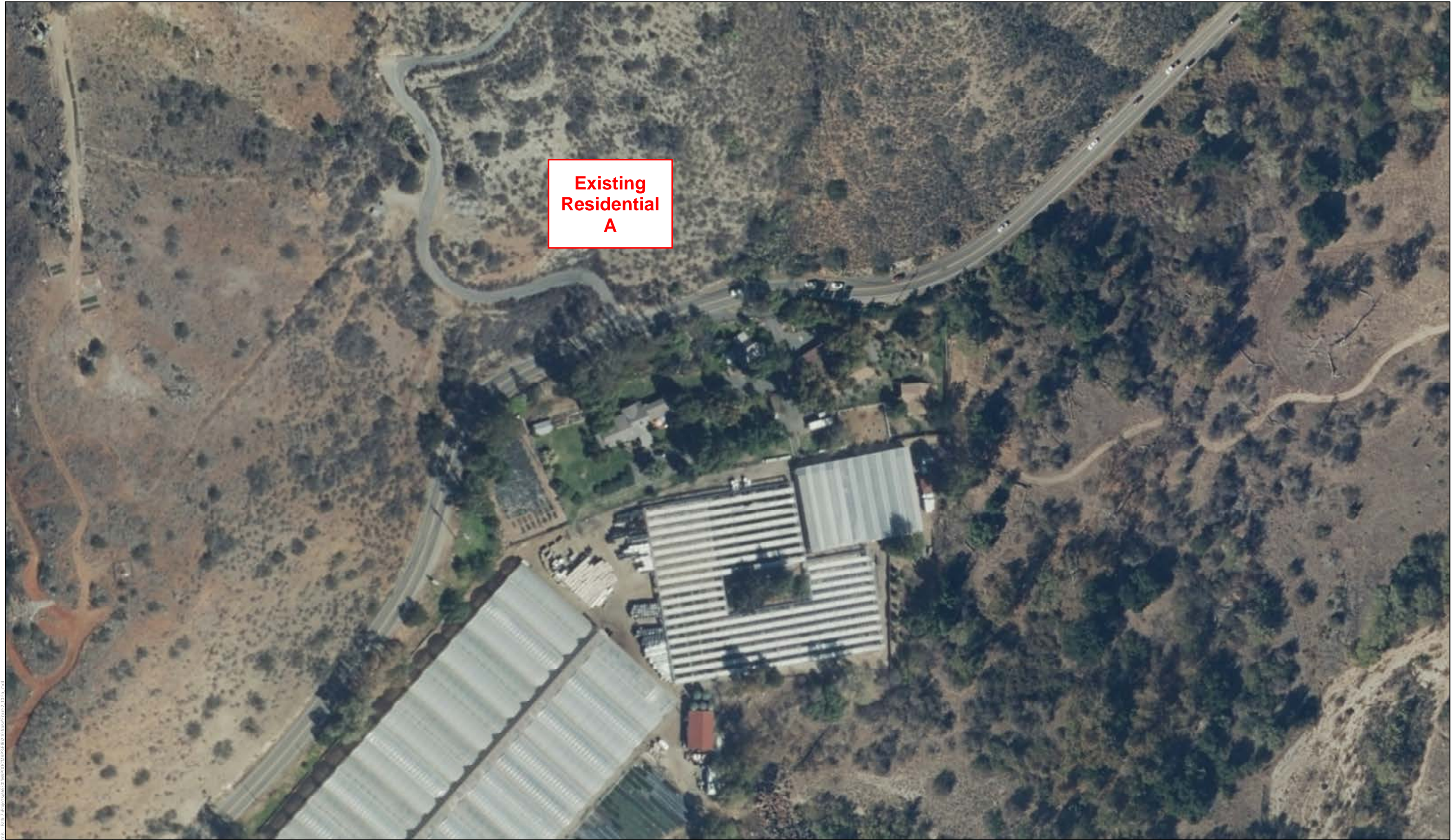


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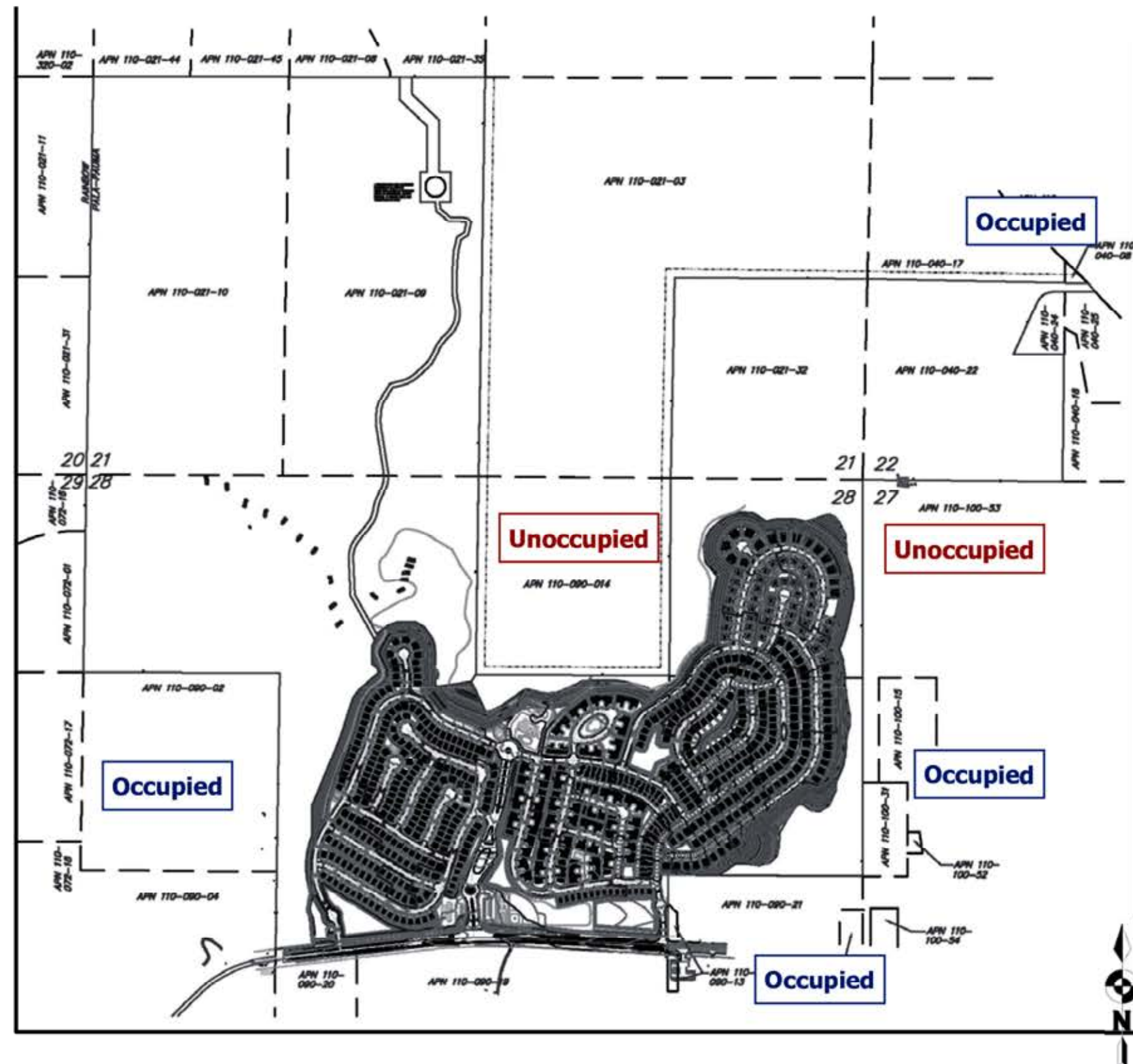


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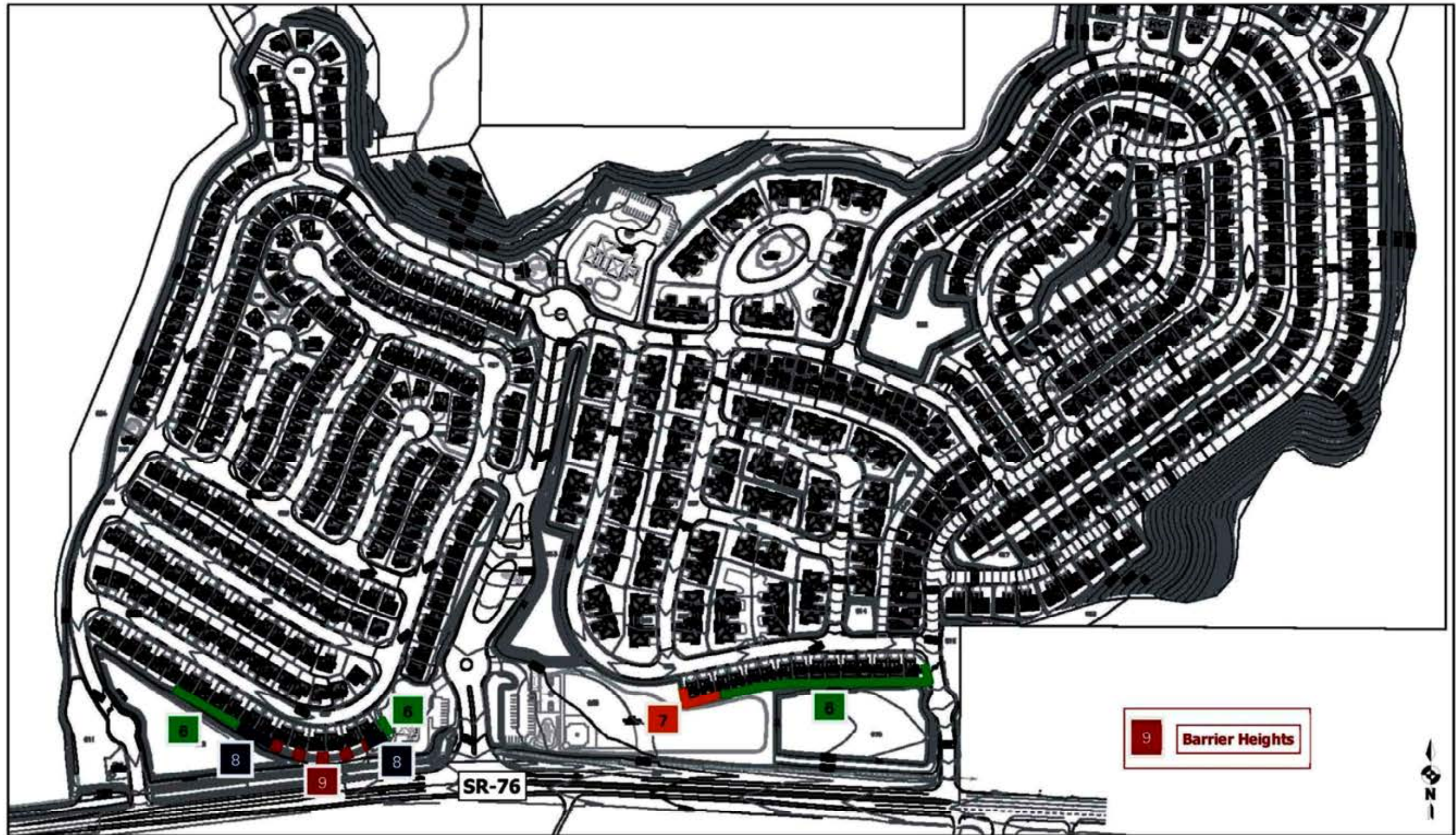
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SOURCE: LDN

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FIGURE 2.10-7

Location and Required Heights of Noise Barriers

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