2.6 Noise

This subchapter of the EIR summarizes the Valiano Acoustical Site Assessment Report (HELIX 2015e), which was prepared in conformance with the County Report Requirements for Format and Content for Noise (County 2009) (Appendix G). The reader is referred to text below for evaluation of all issues related to noise for the Proposed Project.

2.6.1 Existing Conditions

2.6.1.1 *Noise Descriptors*

Noise has been simply defined as "unwanted sound." Sound becomes "unwanted" when it interferes with normal activities, when it causes actual physical harm, or has adverse effects on health.

Sound-level values discussed in this subchapter are expressed in terms of decibels (dB). Sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA), which are adjusted to approximate the hearing sensitivity of humans. Time-averaged noise levels are referred to as "equivalent sound level" (L_{EQ}), which represents the average sound level over a given sample period. Unless a different time period is specified, L_{EQ} refers to a period of one hour.

The Community Noise Equivalent Level (CNEL) is the average of the intensity of a sound, with corrections made for time of day, and then averaged over 24 hours. The corrections are additions made to actual sound levels to account for increased human sensitivity to sound during the evening and night hours, when there is a decrease in the overall amount and loudness of noise generated, as compared to daytime hours. During these hours, sounds seem louder, and are weighted accordingly. The time of day corrections require the addition of 5 dB to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and the addition of 10 dB to sound levels at night from 10:00 p.m. to 7:00 a.m.

2.6.1.2 *Existing Noise Sources*

The dominant noise source in the vicinity of the Proposed Project site is the moderate traffic noise on Country Club Drive.

2.6.1.3 *Existing Ambient Noise Levels*

To determine the existing noise environment, noise measurements were conducted near the Proposed Project site during the day on Monday, January 21, 2013 at the intersection of Country Club Drive and Mt. Whitney Road, and on Thursday, February 7, 2013 on Country Club Drive, south of Hill Valley Drive (near Dinara Drive). The measurement at Country Club Drive and Mt. Whitney Road was taken approximately 50 feet from the centerline of Country Club Drive (approximately 37 feet from the edge). The measured noise level was 56.6 dBA L_{EQ} (averaged over a one-hour time period). The measurement on Country Club Road south of Hill Valley Drive was taken in open space east of Country Club Road. The measured noise level at that

location was 52.5 dBA L_{EQ} (averaged over a one-hour time period). See Table 4-1 in the Acoustical Site Assessment Report in Appendix G for a summary of ambient measurements.

The measurement locations were modeled to compare actual readings with estimated, or modeled, noise levels; this is done in order to calibrate the noise model. The reader is referred to Appendix G for specifics on the calibration. The modeled existing ambient noise level at the measurement location was less than two dBA L_{EQ} different (and for both sites, modeling levels were higher than measured) than the measured noise levels. A difference of less than 2 dBA is considered sufficiently accurate without necessitating an adjustment to the CADNA model. Accordingly, no correction was applied for this model.

2.6.1.4 *Existing Noise-sensitive Land Uses*

Noise-sensitive land uses (NSLUs) include uses associated with indoor and/or outdoor activities that may be subject to stress and/or substantial interference from noise. NSLUs include any residence, hospital, school, hotel, resort, library, or other facilities where lower noise levels are an important attribute of the environment. Existing residential development occurs north, east and west of the Proposed Project site. The area to the south of the Project site is currently being developed with the residential, 742-unit, Harmony Grove Village Specific Plan. All existing residential sites, the planned residential units within the Harmony Grove Village, and the proposed on-site housing units associated with this Project would be considered sensitive noise receptors. Additionally, livestock located in the general vicinity of the Project site may be sensitive to noise generated during construction activities. Project measures to ease these noise conflicts during construction are included in Chapter 1.

2.6.1.5 *Regulatory Setting*

The County addresses two separate types of noise sources, mobile and stationary. In the context of the noise analysis, transportation (mobile) noise levels associated with the Proposed Project are regulated by goals and policies in the Noise Element in the County General Plan (outlined below). County Noise Ordinance Sections 36.404 and 36.409 govern operational (stationary) and construction noise levels, respectively.

The purposes of the Noise Ordinance include controlling disturbing, offensive, and excessive noise, providing an environment in which noise is not detrimental to life, health, and enjoyment of property and "securing and promoting the public health, comfort, convenience, safety, welfare, prosperity, peace and quiet of the County of San Diego and its inhabitants" (County Code Sections 36.401[b], [d], and [e]). Compliance with Noise Ordinance limits would ensure that noise generated on the Proposed Project site would fall within the dB levels specified in the ordinance.

"Off-site" impacts generally focus on transportation-related noise associated with increases in Project-related vehicular activity. Noise level increases and impacts attributable to development of a project are estimated by comparing the "with project" ADT to the "without project" ADT (refer to Subchapter 2.3, Transportation/Traffic, of this EIR).

County of San Diego Noise Element

The County has adopted interior and exterior noise standards as part of the Noise Element in the General Plan for assessing the compatibility of land uses with transportation-related noise impacts. For assessing noise impacts to sensitive residential land uses, the County standard is an exterior noise level (for usable outdoor space) of 60 CNEL or less for single-family homes, 65 CNEL or less for multi-family residential uses, and an interior noise standard of 45 CNEL for both housing types. For active recreational parks, the allowable level according to the land use compatibility guidelines is 70 CNEL. Applicable goals from the Noise Element are as follows and Project consistency with these policies is provided in Subchapter 3.1.4, Land Use, of this EIR:

- Goal N-1: Land Use Compatibility, Policies N-1.1 through N-1.3
- Goal N-2: Protection of Noise-sensitive Uses, Policies N-2.1 and N-2.2
- Goal N-4: Transportation-related Noise Generators, Policies N-4.1 and 4.2
- Goal N-5: Non-transportation-related Noise Sources, Policy N-5.1

County of San Diego Noise Ordinance

Section 36.404 of the County Noise Ordinance provides performance standards and noise control guidelines for determining and mitigating non-transportation (stationary) noise source impacts to residential properties. The purpose of the Noise Ordinance is to protect, create, and maintain an environment free from noise and vibration that may jeopardize the health or welfare, or degrade the quality of life.

According to County stationary source exterior noise standards, no person shall operate any source of sound at any location within the County or allow the creation of any noise on a property that causes the noise levels to exceed the exterior noise standards at the property boundary. The Noise Ordinance sets an exterior noise limit for residential land uses adjacent to the property of 50 dBA L_{EQ} for daytime hours of 7:00 a.m. to 10:00 p.m. and 45 dBA L_{EQ} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m.

Section 36.409 of the Noise Ordinance controls construction equipment noise and establishes a 75-dBA L_{EQ} standard between 7:00 a.m. and 7:00 p.m. at the boundary line of the property where the noise source is being generated or any occupied property where noise is received during construction. Excluding emergency work, the County sets a threshold for construction equipment of 75 dBA averaged over a period of eight hours from 7:00 a.m. to 7:00 p.m.

In addition to the general limitations on sound levels in Section 36.404, and excluding emergency work, Section 36.410 of the County Noise Ordinance sets sound level limitations on "impulsive" or "single event" noise of 82 dBA L_{MAX} at residential uses, and 85 dBA L_{MAX} for agricultural, commercial or industrial uses. For public road projects, this is 85 dBA L_{MAX} and 90 dBA L_{MAX}, respectively.

County of San Diego Standards for Sensitive Birds

Some studies, such as that completed by the Bioacoustics Research Team (1997), have concluded that 60 dBA is a single, simple criterion to use as a starting point for passerine impacts until more specific research is done (County 2010a). Associated guidelines produced by the USFWS require that noise be limited to a level not to exceed an hourly limit of 60 dBA L_{EQ} or the average ambient noise level, whichever is greater, at the edge of habitat during the breeding season. This threshold has consistently been applied to sensitive avian species by various jurisdictions, including San Diego County. Therefore, if Project construction or operation occurs adjacent to an occupied habitat during the breeding season planning and control would be required. Subchapter 2.4, Biological Resources, addresses potential noise impacts to sensitive birds.

2.6.2 Analysis of Project Effects and Determination as to Significance

The noise analysis presented herein evaluates Proposed Project effects to on-site and off-site NSLUs associated with both on- and limited off-site roadway improvements and traffic.

2.6.2.1 *Transportation Noise Levels*

Guidelines for the Determination of Significance

A significant direct noise impact would occur if Proposed Project implementation would:

1. Expose exterior on- or off-site, existing or reasonably foreseeable future, NSLUs to noise (including road noise) in excess of 60 CNEL for single-family residential uses, 65 CNEL for multi-family residential uses, or an increase of 10 CNEL or more over existing noise levels (if that noise level is less than 50 CNEL).

2. Expose interior on- or off-site, existing or reasonably foreseeable future, NSLUs to noise in excess of 45 CNEL.

Guideline Source

The above guidelines are based on the County's Guidelines for Determining Significance – Noise (2009a), as amended by the 2011 General Plan with regard to exterior standards for multi-family residential uses.

Analysis

The Traffic Noise Model (TNM) software was used to project the expected roadway noise impacts. TNM calculates the daytime average Hourly Noise Level (HNL) from traffic data; including road alignment, elevation, lane configuration, projected traffic volumes, estimated truck composition percentages, and vehicle speeds. Because much of the Proposed Project area would be paved, hard surface noise attenuation is assumed in the analysis for transportation noise effects. This results in a conservative (worst-case) assessment, as noise attenuation provided by

vegetation or soil under soft surface assumptions was not incorporated into the model. The model calculated noise output represents the one-hour L_{EQ}, and is the equivalent of the CNEL with the use of 8 to 10 percent of the average daily traffic (considered to represent peak hour traffic; Caltrans 2009).

Exterior Traffic Noise Impact

Exterior on-site noise levels were analyzed using the Existing Plus Cumulative Plus Project (near-term) traffic volume forecasts from the TIA (LLG 2014); exterior off-site noise levels were analyzed based on Existing, Existing Plus Project, Existing Plus Cumulative, and Existing Plus Cumulative Plus Project conditions (Appendix H). Note that Year 2035 traffic volumes are lower than near-term traffic volumes due to traffic network changes; these expected network changes would result in a shift of traffic within the area from Country Club to other surrounding streets. For this reason, the near-term conditions (with higher traffic volumes) were modeled to provide a worst-case analysis. The change in traffic roadway noise at any location is directly proportional to the change in traffic volume if the roadway alignments are unchanged and traffic speeds are constant. This allows a determination of the change in noise associated with the Project at any area from the Project traffic information.

On-site Receptors

Proposed Project modeling was conducted based on the information in Section 1.2 of this EIR; Section 1.2.2.6 of this EIR specifically describes proposed construction phasing, and includes relevant information related to potential construction noise.

The exterior noise levels were calculated for future on-site residential outdoor use areas associated with the Proposed Project along Country Club Drive, and are shown in Table 2.6-1, *Exterior Use Area Noise Levels (CNEL) for On-Site Exterior Use Areas – Existing plus Cumulative plus Project (Near-term) Condition*.

Modeling of the potentially affected outdoor use areas associated with the Proposed Project shows that the Public Neighborhood Park and Staging Area in Neighborhood 5 (located immediately south of Project Lot 297) would not be exposed to noise levels in excess of the 70 CNEL threshold for this type of land use. However, all but one analyzed on-site residential outdoor use area receiver (all located within Neighborhood 5 along Country Club Drive) would be exposed to future exterior noise levels in excess of 60 CNEL (Project Residence [PR] 02 through PR 08) with levels from 61.3 to 63.89 CNEL). These **impacts to exterior use areas are considered significant**. **(Impact N-1)**

Off-site Receptors

Off-site transportation-related noise would be associated with the operations and buildout of the Proposed Project. Existing measured and calculated noise levels are presented on Table 1-7 in the Acoustical Site Assessment Report in Appendix G. Traffic data for the Existing, Existing Plus Project, Existing Plus Cumulative, and Existing Plus Cumulative Plus Project conditions are based on the TIA contained in Appendix H. Potential traffic volume changes due to the Project

are highlighted on Table 2-1 in the Acoustical Site Assessment Report in Appendix G. Similar to on-site conditions, additional traffic on area roadways would have the potential to affect off-site residences. As noted above, existing noise levels along Country Club Drive were measured at two locations, and the measurements ranged from 52.5 to 56.6, dBA. With Project development, noise levels would be expected to rise in these areas as discussed below.

Eden Valley Lane, Country Club Drive, Kauana Loa Drive, Mount Whitney Road, and Project roadways Street 5A (N) and Street 5A(S) were all modeled for Existing, Existing Plus Project, Existing Plus Cumulative, and Existing Plus Cumulative Plus Project conditions, without consideration of topographic, vegetative, or structural shielding along the roadways. As shown in Table 2.6-2, *Traffic Noise Levels for All Analyzed Conditions*, noise levels 100 feet from the roadway centerline are projected to be between 43.2 and 64.9 CNEL with Existing Plus Cumulative Plus Project conditions as compared to the existing noise conditions modeled to be between 40.8 and 62.2 CNEL. Thus, along some of the roadways (specifically, various segments along Country Club Drive), future noise levels could exceed the 60-CNEL threshold for exterior use areas for single-family residential uses.

Modeling was conducted to determine the off-site receiver noise levels for all nearby off-site NSLUs (predominantly single-family residential houses). The Existing, Existing plus Cumulative, and Existing plus Cumulative plus Project CNEL values are presented below in Table 2.6-3, *Predicted Noise Levels for Off-site Receivers*. Additionally, the change between the Existing condition and the Existing Plus Project condition, along with the change between the Existing plus Cumulative condition and the Existing plus Cumulative plus Project condition, is also presented in the table.

As shown in Table 2.6-3, future noise levels would exceed 60 CNEL at both structural facades and exterior use locations for off-site residences in both the Existing plus Cumulative condition, and the Existing plus Project plus Cumulative condition. The CNEL Value for the Existing plus Cumulative plus Project condition is never higher than 60 CNEL unless the Existing plus Cumulative only condition also exceeds 60 CNEL. In the instances where both of these conditions exceed 60 CNEL, the change from the Existing plus Cumulative condition to the Existing plus Project plus Cumulative condition does not exceed 1 dBA. Therefore, a "cumulatively considerable" project contribution does not occur.

An additional access option was also assessed where Project access would be provided via Hill Valley Drive in addition to Eden Valley Lane, Mt. Whitney Road and the two future access driveways south or Mt. Whitney Road; all of these roadways connect to Country Club Drive. With the additional access option, the traffic volumes at the following study roadway segments would be affected by the addition of Hill Valley Drive as an access point:

- Hill Valley Drive between Project access and Country Club Drive
- Eden Valley Lane between Project access and County Club Drive
- Country Club Drive between Hill Valley Drive and Eden Valley Lane

The additional access option would increase traffic noise levels along these roadway segments. Modeling was conducted for these street segments under the additional access option. A

comparison of near-term noise levels generated in the Existing, the Existing plus Project, the Existing plus Cumulative Projects (not including Project), and the Existing plus Cumulative plus Project conditions are shown below in Table 2.6-4. Additionally, the change between the Existing condition and the Existing Plus Project condition, along with the change between the Existing plus Cumulative condition and the Existing plus Cumulative plus Project condition, is also presented in the table.

The Existing, Existing plus Project, Existing plus Cumulative, and Existing plus Cumulative plus Project CNEL noise levels at nearby (off-site) residential receivers for the additional access option (for roadways affected by the additional access option) are presented in Table 2.6-5. Noise levels at modeled receivers along County Club Drive between Hill Valley Drive and Eden Valley Lane, and along Eden Valley Lane between the Project entrance and Country Club Drive would be lower with this option/scenario than they would be under the proposed Project (which does not include Project access at Hill Valley Drive). With this option, future noise levels would still exceed 60 CNEL at both structural façades and exterior use locations for many off-site residences along Country Club Drive. As with the proposed Project, however, in the instances where both of these conditions exceed 60 CNEL, the change from the Existing plus Cumulative condition to the Existing plus Project plus Cumulative condition does not exceed 1 dBA. Therefore, a "cumulatively considerable" project contribution (a greater than 1-dB increase due to Project-added noise to conditions that already exceed 60 CNEL) does not occur with the additional access option, and the cumulative impacts to off-site NSLUs would be less than significant.

Interior Traffic Noise Impact

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. The County requires that interior noise levels not exceed 45 dB CNEL. Typically, with the windows closed, building shells provide approximately 15 dB CNEL of noise reduction. Rooms exposed to an exterior CNEL greater than 60 dB could, therefore, result in an interior noise level greater than 45 dB CNEL. Reductions of 30 dB CNEL or greater from the exterior to the interior are normally feasible with enhanced building elements including thicker dual-paned windows with spacing of a ½-inch or greater.

On-site Receptors

As discussed above, some building facade noise levels may exceed 60 CNEL (see Table 2.6-1). Traditional architectural materials are normally able to reduce exterior to interior noise by up to 15 dBA. Therefore, traditional architectural materials would not be expected to attenuate noise to a level of 45 CNEL. While noise levels on the ground floor of residences may sometimes be reduced via the installation of sound walls, if the new residential units have a second story, the upper story may also be exposed to noise in excess of 60 CNEL. Thus, **the potential for an interior noise impact is considered significant**. **(Impact N-2)**

- Off-site Receptors

As noted above, off-site residential uses potentially affected by Project-related traffic noise would experience exterior noise of greater than 60 CNEL with existing barriers in place (see Table 2.6-3). As a result, the routine attenuation resulting from structural shielding would not be expected to lower interior noise levels to 45 CNEL or less, as traditional architectural materials are normally able to reduce exterior to interior noise by up to 15 dBA. As mentioned above, however, the CNEL Value for the Existing plus Cumulative plus Project condition is never higher than 60 CNEL unless the Existing plus Cumulative only condition also exceeds 60 CNEL. In the instances where both of these conditions exceed 60 CNEL, the change from the Existing plus Cumulative condition to the Existing plus Project plus Cumulative condition does not exceed 1 dBA. Therefore, a "cumulatively considerable" project contribution does not occur.

2.6.2.2 *Operational Noise Levels*

Guideline for the Determination of Significance

A significant direct noise impact would occur if Proposed Project implementation would:

3. Generate non-construction noise that exceeds the standards listed in the San Diego County Code, Section 36.404, Sound Level Limits, at all property lines.

Guideline Source

The above guideline is based on the County's Guidelines for Determining Significance – Noise (2009a).

Analysis

On-site Property Lines

Residential Air Conditioner Noise

The Proposed Project involves the development of over 300 single-family residential units, and specific planning data for the future heating, ventilation, and air conditioning (HVAC) systems associated with these units is not yet available; however, analysis using a typical larger-sized residential condenser mounted on ground level pads provides a worst-case modeling scenario to assess potential impacts. For the purposes of this analysis, it was assumed that a residential building would be set back 10 feet from the property line, and the condenser would be positioned at the side of the building (at a distance of 7 feet from the property line). At this distance, the condenser would generate a noise level of 56 dBA, which is in excess of the County's nighttime allowable hourly limit of 45 dBA. Pending identification of specific locations for HVAC units, **impacts to the Project-related property lines could occur, and are conservatively assessed as potentially significant. (Impact N-3)**

Wastewater Treatment and Water Reclamation Facility (WTWRF) and Pump Station Noise

The Proposed Project would include an on-site WTWRF for the sewer needs of the development. Note that a MUP would be required for the on-site WTWRF and a LAFCO action would be necessary to approve the proposed annexation of the Project site into the County Sanitation District for the sewer service and de-annex the area from the Rincon del Diablo MWD.

The Proposed Project design includes a 0.7-acre on-site WTWRF and pump station located in the southeastern-most portion of the site (within Neighborhood 5) to provide treatment for all wastewater generated on site. Based on the loading and design criteria used in the 180,000 gpd Harmony Grove plant design, a scaled-down version could be constructed to serve the Proposed Project.

A summary of major plant components includes:

- **Headworks** to house the influent pump station and appurtenances and provide fine screening of the influent wastewater.
- **Equalization basin** to balance out variations in flow by storing a portion of the peak flows received for treatment in the plant during low-flow periods.
- **Aeration, anoxic and clarifer basins** to perform the activated sludge process along with biological nitrogen removal to settle most of the solids out of the wastewater to yield a clarified flow that goes to filters for further turbidity removal.
- **Filters** to further remove turbidity to produce reclaimed water meeting Title 22 standards for effluent clarity.
- **Chlorine contact basins** to disinfect the reclaimed water by chlorine solution.
- **Residual solids processing** to further reduce the settled solids produced by the treatment process; the Aero-Mod style process typically includes digester basins.
- **Operations/laboratory building** to provide space for employees to store their personal items, restrooms and showers for employees, some desk space and a small laboratory for use in operational control of the plant. All mechanical equipment would be housed within the building or noise-attenuating covers or walls including air compressors, vacuum pumps, odor control facilities, and the backup power generator.

The typical noise sources in the process area are a pre-screening unit, submersible pumps, and an aerobic mixing system. The loudest noise source is typically the screen, which has been measured at other locations, including the Santa Fe Valley Water Reclamation Facility at 50 dBA at 50 feet. Wastewater treatment facilities, such as the proposed WTWRF, also typically include air compressors, standby diesel generators, centrifuges, pumps, blowers, and the odor control facility. Excluding the generator set, this group of equipment would generate a noise level of approximately 62 dB at a distance of 25 feet.

The piece of WTWRF equipment that would generate the most noise at the proposed WTWRF would be the standby diesel generator. Noise generated by the backup power generator could

have the potential to exceed allowable levels, depending upon the proximity to NSLUs. Typical noise levels from a backup power generator required for the pump and control operation could range from 90 dBA to 105 dBA at 23 feet. A noise source that generates noise levels of 105 dBA at 23 feet could generate noise levels of 45 dBA (the night-time allowable limit) at distances of up to 23,000 feet (4.3 miles), without consideration for other factors (such as air and ground plane damping) that could reduce this noise level. A noise source that generates noise levels of 90 dBA at 23 feet could generate noise levels of 45 dBA at up to 4,090 feet (0.7 mile) without consideration for other factors (such as air and ground plane damping) that could reduce this noise level.

It is assumed that the backup pump generator would, at times, be operational during nighttime hours, as it will be running anytime the power has gone out. Thus, potential impacts must be analyzed in the context of the nighttime maximum allowable noise level of 45 dBA. Without additional noise control, the WTWRF equipment and generator may create a combined exterior noise level in excess of the allowed exterior one-hour average noise level of 45 dBA at the property line for on-site residential uses. Therefore, **impacts from the proposed WTWRF to on-site residential uses would be conservatively assessed as potentially significant. (Impact N-4)**

In addition to the pump station located at the WTWRF noted above, two additional lift (pump) stations would be located in the northern and eastern portions of the site. The on-site pump stations would be submersible (mounted below-grade) package sewers with an above-grade motor control center and electrical panel, which would be shielded by an enclosure. According to the Proposed Project applicant, these stations would include backup power generation. The only components of each pump station that would potentially produce audible noise are the exhaust piping for the pump (which would be located below grade in a covered pit) and the backup generator. The noise associated with the below-grade exhaust piping is generally experienced as a low humming sound, which is caused by vibration induced in the line by the submersible pump and motor; this noise would not be audible beyond a distance of 10 feet. Potential noise impacts related to the piping would therefore be less than significant at adjacent locations, as all NSLUs would be located more than 10 feet from the proposed pump stations.

The backup generator would generate similar noise levels to those described above for the WTWRF pump backup generator (noise levels ranging from 90 to 105 dBA at 23 feet); thus, noise levels of 45 dBA (the night-time allowable limit) could be experienced at distances of up to 23,000 feet (without consideration for other factors that could reduce this noise level). It is assumed that this backup pump generator would, at times, be operational during nighttime hours, as it will be running anytime the power has gone out. Thus, potential impacts must be analyzed in the context of the nighttime maximum allowable noise level of 45 dBA. Noise generated by the backup power generator could have the potential to exceed allowable levels, depending upon the proximity to NSLUs, and **noise impacts from the proposed pump stations to on-site residential uses would be conservatively assessed as potentially significant (Impact N-5)**.

The proposed booster pump station for the water circulation system would include a total of two domestic supply pumps and two emergency fire pumps with a backup power diesel generator. Unlike the pump stations for wastewater treatment, this pump is not assumed to be submersible.

It is assumed that the backup generator for this pump would sometimes be operational during nighttime hours (as it will run whenever the power goes out), and potential impacts must be analyzed in the context of the nighttime maximum allowable noise level of 45 dBA.

This type of booster pump could produce up to 75 dBA at 23 feet and a typical backup power generator required for the pump and control operations may create noise levels ranging from 90 to 105 dBA at 23 feet. As described for the WTWRF backup generator above, this generator could thus create noise levels of 45 dBA (the night-time allowable limit) at distances of up to 23,000 feet (without consideration for other factors that could reduce this noise level). Therefore, **noise impacts from the proposed booster pump station to on-site residential uses would be conservatively assessed as potentially significant (Impact N-6)**.

Off-site Property Lines

Residential Air Conditioner Noise

No off-site residential uses are sited close enough to possible on-site Project HVAC systems (for on-site residential uses) to experience increased noise levels. Subsequently, **noise impacts from Project HVAC units to off-site residential uses would be less than significant**.

Wastewater Treatment and Water Reclamation Facility (WTWRF) and Pump Station Noise

As mentioned above, the WTWRF associated with the Proposed Project could result in potentially significant noise impacts to on-site residences. Similarly to on-site residences, without additional noise control, the WTWRF equipment and generator may create a combined exterior noise level in excess of the allowed exterior one-hour average noise level of 45 dBA at the property line for off-site residential uses, as the equipment and the generator associated with the pump station at the WTWRF could generate noise levels of 45 dBA (the night-time allowable limit) at distances of up to 23,000 feet (approximately 4.3 miles). As the proposed WTWRF would be located closer than 23,000 feet from many off-site residences, **impacts from the proposed WTWRF to off-site residential uses would be conservatively assessed as potentially significant. (Impact N-4)**

The on-site pump stations associated with the Proposed Project (described above) could generate noise levels of 45 dBA (the night-time allowable limit) at distances of up to 23,000 feet (approximately 4.3 miles). As the proposed pump stations would be located closer than 23,000 feet from many off-site residences, **noise impacts from the proposed pump stations to off-site residential uses would be conservatively assessed as potentially significant. (Impact N-5)**

The proposed booster pump station for the water circulation system (described above) could also generate noise levels of 45 dBA (the night-time allowable limit) at distances of up to 23,000 feet (approximately 4.3 miles). As the proposed booster pump station would be located closer than 23,000 feet from many off-site residences, **noise impacts from the booster pump station to off-site residential uses would be conservatively assessed as potentially significant. (Impact N-6)**

2.6.2.3 *Construction Noise Levels*

Guideline for the Determination of Significance

A significant direct noise impact would occur if Proposed Project implementation would:

4. Generate construction noise that exceeds the standards listed in the San Diego County Code, Section 36.409, Sound Level Limitations on Construction Equipment.

Guideline Source

The above guideline is based on the County's Guidelines for Determining Significance – Noise (2009a).

Analysis

Construction noise represents a short-term impact on the ambient noise levels. All Proposed Project construction activities would occur during the County's allowable hours of operation. The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the location in which operation occurs, and the condition of the equipment. The average sound level of the construction activity also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period.

Construction of the Proposed Project would generate elevated noise levels that may disrupt nearby noise sensitive receptors. The magnitude of the impact would depend on the type of construction activity, equipment, duration of each construction phase, distance between the noise source and receiver, and any intervening structures. For the purposes of the noise analysis, the construction activities were be divided into approximately nine phases; these phases could include some overlap depending on location, timing, and project phasing. The construction phases would likely include the following:

1. Rough Grading
   This phase typically consists of the use of heavy equipment, potentially including large dozers, excavators, scrapers, rock drills, blasting, compactors, water trucks, and a variety of smaller equipment to create the basic building, road, and outdoor elevations.

2. Foundation Excavation
   This phase typically involves the use of medium-sized equipment, which may include a small dozer, backhoe or excavator, compactor, water truck, and a variety of smaller equipment to create the finished pad elevation and foundation excavations.

3. Utilities Excavation
   This phase typically includes the use of excavator(s), backhoe(s) and/or trencher(s) throughout the site to construct trenches for underground utilities.

4. Foundation Pour
   This phase typically involves the creation of individual building pads; concrete is delivered from an off-site mixing facility, and is pumped throughout the foundation area with a reed boom truck to create a finished building pad.

5. Building Construction
   This phase typically includes the manual construction of the building framing and exterior with the use of forklifts, light mobile cranes or sky lifts, as well as a variety of specific tools including welders, metal shears, and light hand tools.

6. Building Interior and HVAC
   This phase typically consists of the rough framing and finishing of the building interior with all utilities, power, and HVAC systems including rooftop equipment.

7. Finish Grading
   This phase typically includes the preparation of the site for paving and landscaping using a grader, water truck, compactor and sometimes a small dozer and/or skidsteer.
8. Paving
   This phase typically includes the spreading of concrete or blacktop, delivered to the site from an off-site mixing facility, over the planned hard surface areas; it is then either compacted or allowed to cure.

9. Landscaping
   This phase typically involves the installation of planters, watering systems, exterior lighting, fencing, walls, gating and vegetation using a skidsteer, mini excavator, trencher, and a backhoe.

On-site Effects

The noise impact analysis for the Proposed Project focused on mass grading, which is typically significantly louder than other activities; the Project would require extensive material excavation and/or fill. However, the grading, along with all of the loudest construction processes (specifically, ripping, the use of breakers, and blasting) would occur prior to the development of proposed on-site residences. Since on-site residences would not yet be occupied prior to these construction activities, **impacts to on-site NSLUs would be less than significant.**

Off-site Proposed Project Effects

The Proposed Project's geotechnical reports note that the site is underplayed with granitic rock formations, and that portions of the site may experience difficult ripping; additionally, other areas are anticipated to require blasting after the rippable mantle is removed (GEOCON 2012a and 2012b). Figure 1-25 in Chapter 1 shows the areas where extensive cut/fill with likely blasting would occur. The map shows numerous areas throughout the Project area with potential for ripping, drilling, and blasting. Hard rock handling, including the ripping of materials, the drilling of non-rippable materials, and the breaking of oversize materials via the use of a large dozer, is one of the main noise issues related to Proposed Project construction. Typically, a D8,

D9 or similar size dozer may be used for ripping the harder subsurface materials, as well as removing large boulders during the site rough grading.

The noise analysis focused on the areas highlighted in Figure 1-25 because these areas would likely require heavy ripping and are located within relatively close proximity to existing NSLUs. Analysis was conducted based on the assumption of a D9 dozer (described in more detail in Appendix G) moving at 1.25 mph at the highest on-site elevations, making nine passes at varying distances from the southwestern property line. The highest impact level at the adjacent property, east of the on-site areas which might require ripping, is 83.5 dBA L_{EQ} which exceeds the County's 8-hour noise level limits if operations are longer than 1.25 hours in duration. Therefore, **impacts from ripping would be potentially significant. (Impact N-7)**

Breakers, or a hydraulically operated impact hammers attached to a tracked excavator, are used in site preparation to reduce the size of large granitic materials in order to reduce them to a size where they can either be transported off site, buried on site for fill, or used as rip rap or landscaping materials. Breakers create an impulsive noise which is regulated by the 75 dBA 8-hour average requirement, and the maximum impulsive noise level requirement of 82 dBA L_{MAX}. If a breaker is operating at distance of less than 300 feet from the nearest property line of an occupied residence, the breaker may not be in compliance with the County noise level limits. Therefore, **impacts associated with breaker noise would be potentially significant. (Impact N-8)**

With regard to blasting, a full blasting analysis cannot be done until after the site is cleared of all surface material including any rippable material to expose the specific type of material to be blasted, the extent of the area of blasting, and the required blasting charge type is known. The preliminary blasting evaluation for the Proposed Project is based on a reasonable minimum blast size and its closest allowable off-site residential distance based on available standards. As the blast charge size is increased, so is the allowable distance to prevent residential structural damage.

Blasting has three separate types of potential impacts: flyrock, vibration, and airblast. Flyrock consists of debris (smaller and potentially larger chunks of rock) ejected from the blast. Outside the immediate area of the blast itself, flyrock is potentially the most dangerous portion of blasting. In terms of vibration, both air and ground vibrations create waves that disturb the material in which they travel. When these waves encounter a structure, they cause it to shake and may cause structural damage. Ground vibrations enter the house through the foundation. An airblast is a pressure wave that creates a push (positive pressure) and pull (negative pressure) effect; it may be audible (noise) or inaudible (concussion). A blast occurring outside of a residence may be heard inside because of the audible noise; however, noise has little impact on the structure. The concussion wave causes the structure to shake and rattle, and can break windows at higher pressure levels.

Flyrock would not be allowed at the site, beyond the direct area of the blast, under any circumstances. The noise analysis assumes that proper blast planning would be used, that all flyrock would be controlled with blast mats or other flyrock control techniques, and proper stemming materials for the charge hole would be utilized. Therefore, no further analysis is provided with regard to flyrock.

As with flyrock, control of airblast is dependent on the skill of the Blasting Supervisor, along with many factors including but not limited to: the depth of the charge, the type of rock, the amount of fractures in the rock, and the length of correct stemming materials. An analysis of airblast is not provided in this report because airblast is regulated by the limits from the Code of Federal Regulations (30 CFR 816.61-68) which are provided in Appendix G of this EIR (Table 5-3). The Project would be required to conform to these standards.

The minimum distance from any blast for this site was assumed to be 200 feet for the control of ground borne vibration impacts to the closest residence. The basic planning for blasting charge weight limits at distances greater than 200 feet from an off-site structure does not provide final project-specific analysis for allowable blasting charges, nor is it intended to limit the blasting company to this as a minimum distance or maximum or minimum charge weights. This planning analysis is provided as general guidance and is not intended to provide final blasting planning for any specific blast. Because there are residences within 200 feet from blasting, **impacts from blasting would be potentially significant. (Impact N-9)**

An additional access option would be provided via Hill Valley Drive. This may result in off-site roadway improvements along this segment connecting to Country Club Drive. Typical roadway improvement activities are temporary in nature, and would not result in a substantial noise generating activity for a long period of time. The road improvement work would be accomplished segment by segment and would not require any impulsive type of construction equipment. Based on the short duration of roadway improvement operations, roadway construction-related improvements would be less than significant.

With regard to vibration impacts other than those from blasting, please refer to Section 2.6.2.4 below.

2.6.2.4 *Groundborne Vibration/Noise*

Guidelines for the Determination of Significance

A significant vibration impact would occur if the Proposed Project would:

5. Subject residences to:

    a. Ongoing ground-borne vibration levels of 0.0040 inches per second root mean square from frequent events, or 0.010 inches per second (in/sec) root mean square (rms) for occasional or infrequent events; and/or

    b. Ongoing ground-borne noise levels of 35 dB re micro Pascals for frequent events or 43 dB re micro Pascals for occasional or infrequent events.

6. Subject residences to vibration from isolated events (e.g., blasting) with peak particle velocity exceeding one inch per second.

Guideline Source

The above guideline is based on the County's Guidelines for Determining Significance – Noise (2009a).

Analysis

On-site Receptors

The most likely source of vibration during the Proposed Project construction (excluding blasting discussed above) would be a vibratory roller, which may be used to achieve soil compaction as part of the foundation construction (and possibly for on-site driveways at a later time). A vibratory roller creates approximately 0.210 inches/sec PPV at 25 feet.

The County provides for the use of the Caltrans standards (2004) for construction vibration impacts in the footnotes of Table 4 (Guideline for Determining the Significance of Ground-borne Vibration and Noise Impacts) of the County of San Diego Guidelines for Determining Significance, Noise. This table is included as Table 1-6 in the Acoustical Site Assessment Report contained in Appendix G. Using the Caltrans criterion of 0.4 in/Sec PPV, the approximately 0.210 inches/sec PPV vibration impact would be less than what is considered to be a "severe" impact. Therefore, although vibration may be perceptible by nearby residences, **temporary impacts associated the vibratory roller (and other potential equipment) would be less than significant.**

Off-site Receptors

As mentioned above, potential impacts to on-site receptors from construction-related vibration would be less than significant. Consequently, **potential construction-related vibration impacts to off-site receptors would also be less than significant.**

2.6.3 Cumulative Impact Analysis

Guideline for the Determination of Significance

A significant cumulative impact would occur if the Proposed Project would:

7. Considerably contribute to a cumulative scenario that would result in the exposure of any on- or off-site, existing or reasonably foreseeable future NSLU, to: (1) an increase of 10 dB (CNEL) over pre-existing noise levels of less than 50 dB CNEL resulting in a combined exterior noise level of 60 dB CNEL or greater, (2) an increase of 3 dB CNEL in existing plus project plus cumulative conditions if that total is above 60 dB CNEL, or (3) interior noise in excess of 45 dB CNEL. A "cumulatively considerable" project contribution to an identified significant cumulative noise impact would occur if the project would contribute more than a one dB increase.

Guideline Source

This guideline is based on the County's Report Format and Content Requirements – Noise (2009a).

Analysis

Project-generated noise primarily would be associated with Project-related traffic, although non-transportation noise sources are addressed in the Acoustical Site Assessment Report (Appendix G) as well. The cumulative study area associated with noise identified for the Proposed Project included other projects affecting area roads also impacted by the Proposed Project. The off-site cumulative traffic noise impacts associated with Project implementation in conjunction with other planned developments in the area was calculated.

Exterior on-site noise levels were analyzed using the Existing Plus Cumulative Plus Project (near-term) traffic volume forecasts from the Traffic Impact Analysis; exterior off-site noise levels were analyzed based on Existing, Existing Plus Project, Existing Plus Cumulative, and Existing Plus Cumulative Plus Project conditions (Appendix H). Note that, as described previously, Year 2035 traffic volumes are lower than near-term traffic volumes due to traffic network changes; these expected network changes would result in a shift of traffic within the area from Country Club Drive to other surrounding streets. For this reason, the near-term conditions were modeled to provide a worst-case analysis.

As shown in Table 2.6-3, and discussed above in the discussion of transportation noise levels, future noise levels would exceed 60 CNEL at both structural façades and exterior use locations for off-site residences in both the Existing plus Cumulative condition, and the Existing plus Project plus Cumulative condition. The CNEL Value for the Existing plus Cumulative plus Project condition is never higher than 60 CNEL unless the Existing plus Cumulative only condition also exceeds 60 CNEL. In the instances where both of these conditions exceed 60 CNEL, the change from the Existing plus Cumulative condition to the Existing plus Project plus Cumulative condition does not exceed 1 dBA. Therefore, a "cumulatively considerable" project contribution (a greater than one dB increase due to project-added noise to conditions that already exceed 60 CNEL) does not occur. **Cumulative impacts to exterior off-site outdoor use areas are not significant.**

2.6.4 Significance of Impacts Prior to Mitigation

The following significant impacts related to noise would occur with Proposed Project implementation:

Impact N-1 Noise levels at the Proposed Project's residential exterior use areas of Neighborhood 5 adjacent to Country Club Drive may exceed 60 CNEL, and would require exterior use area noise control.

Impact N-2 Noise levels at the Proposed Project's residential building facades facing Country Club Drive may exceed 60 CNEL; typically, with the windows closed, building

shells provide approximately 15 dB CNEL of noise reduction. Thus, it is possible that interior noise levels would exceed the 45 CNEL threshold.

Impact N-3 Pending identification of specific locations for HVAC units, the use of air conditioning condensers at the Proposed Project site within 35 feet of a property line may create noise levels in excess of the County's nighttime allowable hourly limit of 45 dBA L_{EQ} at adjacent residences; impacts to the property lines for on-site residences could occur.

Impact N-4 Without additional noise control, the WTWRF equipment and generator may create a combined exterior noise level in excess of the allowed exterior one-hour average noise level of 45 dBA L_{EQ} at residential property lines. Thus, noise impacts from the proposed WTWRF to surrounding property lines could occur.

Impact N-5 Without additional noise control, the generators associated with the proposed wastewater pump stations may create exterior noise levels in excess of the allowed exterior one-hour average noise level of 45 dBA L_{EQ} at residential property lines. Thus, noise impacts from the proposed pump stations to surrounding property lines could occur.

Impact N-6 Without additional noise control, the pump and generator associated with the proposed booster pump station (for water circulation) may create exterior noise levels in excess of the allowed exterior one-hour average noise level of 45 dBA L_{EQ} at residential property lines. Thus, noise impacts from the proposed booster pump to surrounding property lines could occur.

Impact N-7 Ripping or any heavy dozer activities, use of a large excavator, or use of a rock drill within 180-feet of an occupied off-site or future on-site residential structure may create significant impacts.

Impact N-8 Rock breaking within 300 feet of an occupied off-site or future on-site residential structure may create significant impacts.

Impact N-9 Blasting using even small charges within 200 feet of an on-site or off-site residential structure may create a significant vibration impact. Larger blasts at greater distances may also create significant impacts; however, as mentioned above, potential impacts from larger blasts could not be evaluated within the acoustical study for the Proposed Project. This analysis cannot be done until after the site is cleared of all surface material (including any rippable material) in order to expose the specific type of material to be blasted, the extent of the area of blasting, and the required blasting charge type is known.

2.6.5 Mitigation

On-site Exterior Noise

M-N-1 Traffic Noise Barriers: Existing plus Cumulative plus Project (worst-case near-term) traffic noise levels at the Proposed Project's residential exterior use areas facing Country Club Drive shall be mitigated to County Standards by the following measure:

- A 6-foot high noise control wall shall be installed along the outer perimeter of the residential use areas for Lots 283 through 289 to reduce noise impacts in the outdoor use area to less than 60 CNEL (refer to Table 2.6-1). Please see Figure 2.6-1, *Proposed Sound Wall Locations*, for the locations of the proposed sound walls. The noise control wall must wrap around the ends of the property with 30-foot long returns wherever there is a break or terminus of the wall along Country Club Drive. Required sound attenuation barriers shall be solid and constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, with no cracks or gaps, through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one-inch total thickness or have a density of at least 3½ pounds per s.f. Where architectural or aesthetic factors allow, glass or clear plastic 3/8 of an inch thick or thicker may be used on the upper portion, if it is desirable to preserve a view. Sheet metal of 18-gauge (minimum) may be used, if it meets the other criteria and is properly supported and stiffened so that it does not rattle or create noise itself from vibration or wind. Any door(s) or gate(s) must be designed with overlapping closures on the bottom and sides and meet the minimum specifications of the wall materials described above. The gate(s) may be of one-inch thick or better wood, solid-sheet metal of at least 18-gauge metal, or an exterior-grade solid-core steel door with prefabricated door jambs.

On-site Interior Noise

M-N-2 Interior Noise Control for Residences: A final exterior-to-interior analysis shall be conducted to demonstrate that interior residential noise levels are below 45 CNEL. This analysis would be submitted with the final building plan submittal for the residential units along Country Club Drive.

On-site Operational Noise

M-N-3 HVAC Noise Barrier: If a residential air conditioning condenser is installed within 35 feet of a property line, a 5.5 foot-high noise control barrier shall be installed between the residential use areas and the condensers to reduce related noise impacts in the outdoor use areas to less than 45 dBA L_{EQ}. The barrier shall extend in each direction beyond the condenser location so that any location without a barrier at the adjacent property is at least 35 feet from the condenser unit. The applicant shall provide proof that the installed condensers have a manufacturer's sound power noise

rating of less than 75 dBA. If the condenser is placed beyond a distance of 35 feet from the property line, no mitigation would be required.

M-N-4 WTWRF Noise Control: In order to ensure compliance of the WTWRF with applicable noise regulations, design options shall be employed to reduce noise levels. These design measures could include the following:

1. Stationary equipment noise may be controlled by the following methods:

    a. Providing a tall exterior enclosure wall and gate to control offsite noise impacts for all WTWRF equipment (excluding the diesel generator),
    b. Enclosing the WTWRF equipment inside a noise control Concrete Masonry Unit (CMU) structure or specific design enclosures.
    c. Increasing property line setbacks of WTWRF noise sources where feasible.
    d. Locating WTWRF noise sources such that noise shielding would be provided from on-site buildings or structures.
    e. Incorporating noise control measures such as acoustical louvers or paneling into the WTWRF design.

2. Diesel generator noise may be controlled by the following methods:

    a. Enclosing the diesel generator within a custom designed noise control structure (such as a steel enclosure).
    b. Placing the diesel generator within a CMU building that includes noise control features such as (but not limited to) acoustical louvers or paneling, etc.

The applicant shall be required to provide a final noise impact analysis as part of the facilities design submittal package for the WTWRF prepared by a County-approved noise consultant. The final noise impact analysis shall demonstrate compliance with the County 45 dBA L_{EQ} property line nighttime limit completed to the satisfaction of the County PDS. The conditions of approval of the MUP will ensure that the correct equipment/structural noise barriers will be properly installed to reduce noise levels to less than significant levels. The conditions of approval of the MUP will ensure that the correct equipment/structural noise barriers will be properly installed to reduce noise levels to less than significant levels.

M-N-5 Wastewater Pump Station Noise Control: The pump and diesel generator noise may be controlled by various methods, including but not limited to: enclosing the diesel generator within a custom designed noise control structure (such as a steel enclosure); placing the pump equipment and diesel generator within a CMU construction building that includes noise control features, increase property line setbacks of the generator location, locating noise sources such that noise shielding would be provided from on-site intervening structures or topography.

The applicant shall provide a final noise impact analysis for the booster pump station backup power generators prepared by a County-approved noise consultant

demonstrating compliance with the County 45 dBA L_{EQ} property line requirement completed to the satisfaction of the County PDS.

M-N-6 Water Circulation Booster Pump Station Noise Control: The booster pump and diesel generator noise may be controlled by the various methods, including but not limited to: enclosing the diesel generator within a custom designed noise control structure (such as a steel enclosure); placing the pump equipment and diesel generator within a CMU construction building that includes noise control features, increase property line setbacks of the generator location, locating noise sources such that noise shielding would be provided from on-site intervening structures or topography.

The applicant shall be required to provide a final noise impact analysis for the pump station backup power generators prepared by a County-approved noise consultant. The final noise impact analysis shall demonstrate compliance with the County 45 dBA L_{EQ} property line requirement completed to the satisfaction of the County PDS.

Construction Noise

M-N-7 Ripping Noise Barrier: If ripping, drilling, or excavation is required within 180 feet of a residentially occupied off-site or on-site property line, a 12-foot high barrier shall be erected along a length of the property line. This barrier shall be of sufficient length to block the line of sight between the occupied property and any ripping operations within 180 feet of the property. Additionally, the barriers shall extend at least 10 feet beyond the horizontal line of sight in each direction. Figure 5 of the acoustical study (contained in Appendix G of this EIR) shows the 12-foot barrier noise mitigation noise contours. The final barrier must break the line of sight between the top of the equipment exhaust and the residential receiver at all visible locations, and when taking into consideration all topography in relevant areas.

If new information is provided to prove and certify that the construction equipment and noise measures being used is different prior to grading plan approval, then a new construction noise analysis may be reviewed to the satisfaction of the [PDS, PCC]. The supplemental noise analysis shall be prepared by a County Approved Noise Consultant and the report shall comply with the Noise Report Format and Content Requirements. Any proposed alternative methods, or the reduction or modification of measures may be approved if the construction activities are reduced to 75 dB and below at the occupied property line.

M-N-8 Breaker Equipment Operation Limit: If a breaker is required on-site during construction, then it shall not be used within 300 feet of property lines of occupied residences.

M-N-9 Blasting Plan and Noise Ordinance Compliance: Prior to and during construction activities, the applicant shall be required to prepare and implement a blast plan to reduce impacts associated with air blast over-pressure generated by Project-related

construction activities and to incorporate any required noise reducing measures to comply with County Noise Ordinance regulations. The Project applicant shall conform to the blast plan which would be comprised of the following (but not limited to): No blasting shall occur at a distance of less than 600 feet from any off-site structure without specific analysis by the blasting contractor showing less than significant vibration impacts to the structure.

All blast planning shall be done by a San Diego County Sheriff approved blaster, with the appropriate San Diego County Sheriff blasting permits, and all other applicable local, state, and federal permits, licenses, and bonding. The blasting contractor or owner shall conduct all notifications, inspections, monitoring, and major or minor blasting requirements planning, with seismograph reports as necessary.

Construction equipment associated with blasting (i.e. drilling, pre and post blasting work) shall comply with the County Noise Ordinance, Section 36.408, 36.409, and 36.410. The blast plan shall include any necessary noise measures such as (but not limited to) temporary noise barriers and blankets, increased setbacks, limiting construction equipment operations, and any other methods specified within the blasting plan must be implemented to comply with County Noise Ordinance requirements.

2.6.6 Conclusion

The Proposed Project would result in significant on-site noise impacts related to traffic. Specifically, noise levels at the Project's exterior use areas facing Country Club Drive may exceed 60 CNEL (Impact N-1), and would require exterior use area noise control. Mitigation for this impact would include two 6-foot high noise sound walls located around the residential exterior use areas in Neighborhood 5; implementation of these walls would reduce noise impacts in these outdoor use areas to less than 60 CNEL. This mitigation would reduce impacts to less than significant levels because the noise modeling results indicate the noise attenuation provided by the walls would be adequate to comply with exterior noise standards of the Noise Element. Conditions of approval of the tentative map would ensure that the noise walls would be properly installed.

Since some of the proposed on-site residential properties would experience exterior noise in excess of 60 CNEL, it is possible that interior noise would exceed the 45 CNEL threshold (Impact N-2). A final exterior to interior noise control plan provided by a County-approved noise consultant shall be conducted to demonstrate that interior noise levels would be below 45 CNEL. If predicted noise levels are found to be in excess of 45 CNEL, the report shall identify architectural materials or techniques to reduce noise levels to 45 CNEL in habitable rooms, and be implemented through the final building plans. This mitigation measure would reduce impacts to less than significant because architectural measures have been demonstrated to be effective and feasible through modeling and the noise levels would be reduced to below the Noise Element standard of 45 CNEL.

Noise levels associated with residential HVAC units could potentially exceed the County's Noise Ordinance nighttime allowable hourly limit of 45 dBA L_{EQ} at adjacent residences (Impact N-3) when located within 35 feet of a property line. If a residential air conditioning condenser is installed within 35 feet of a property line, a 5.5 foot-high noise control fence would be installed between the residential use areas and the condensers to reduce related noise impacts. This mitigation would reduce impacts to less than significant levels because the noise modeling results indicate adequate noise attenuation would be provided by the noise control fences. Ongoing conditions of the site plan will implement noise wall requirements and provide for noise generating equipment compliance with County noise standards.

Additionally, without the implementation of specific noise control measures, the equipment and generator for the proposed on-site WTWRF may create a combined exterior noise level in excess of the allowed exterior one-hour average noise level of 45 dBA L_{EQ} at the property line for on-site residential uses (Impact N-4). The implementation of certain design options (described above) would help reduce the potential noise impacts, and help reduce the noise levels associated with the WTWRF. However, in order to ensure compliance of the WTWRF with applicable noise regulations, the Project applicant shall be required to provide a final noise impact analysis as part of the facilities design submittal package for the WTWRF prepared by a County-approved noise consultant. The final noise impact analysis shall demonstrate compliance with the County 45 dBA L_{EQ} property line nighttime limit completed to the satisfaction of the County PDS. This mitigation would reduce impacts to less than significant because the conditions of approval of the MUP would ensure that the correct equipment/structural noise barriers would be properly installed to reduce noise levels to less than significant levels.

Additionally, without the implementation of specific noise control measures, the generators for the proposed on-site wastewater treatment pump stations and the freshwater booster pump station may create exterior noise levels in excess of the allowed exterior one-hour average noise level of 45 dBA L_{EQ} at the property line for on-site residential uses (Impacts N-5 and N-6). The booster pump and diesel generator noise (for both the booster pump and wastewater pump stations) may be controlled by various methods, including but not limited to: enclosing the diesel generator within a custom designed noise control structure (such as a steel enclosure); placing the pump equipment and diesel generator within a CMU construction building that includes noise control features.

As with the WTWRF, the applicant shall provide a final noise impact analysis for the booster pump station and wastewater pump station backup power generators prepared by a County-approved noise consultant demonstrating compliance with the County 45 dBA L_{EQ} property line requirement completed to the satisfaction of the County PDS. This mitigation would reduce impacts to less than significant because the conditions of approval of the tentative map would ensure that the correct equipment/structural noise barriers will be properly installed to reduce noise levels to less than significant levels and the Noise Ordinance would regulate continuing use of the pumps and generators.

Noise levels associated with ripping, rock breaking and blasting (Impacts N-7, N-8 and N-9) all could result in potentially significant impacts to off-site residential uses without the

implementation of mitigation measures. Because of this, mitigation measures are proposed for some construction activities, as outlined above. Specifically, if ripping, drilling, or excavation is required within 180 feet of a residentially occupied off-site or on-site property line, a 12-foot high barrier shall be erected along a length of the property line. The final barrier must break the line of sight between the top of the equipment exhaust and the residential receiver at all visible locations, and when taking into consideration all topography in relevant areas. Additionally, if a breaker is required on-site, then it shall not be used within 300 feet of property lines of occupied residences. Finally, a blast plan shall be prepared and no blasting shall occur at a distance of less than 600 feet from any off-site structure without specific analysis by the blasting contractor showing less than significant vibration impacts to the structure. This mitigation would reduce impacts to less than significant because the noise modeling results indicate adequate noise attenuation would occur with the proposed noise control fence, and conditions of approval of the grading plans would ensure that the specified noise attenuation measures are in place.

Implementation of the proposed mitigation would ensure compliance with the County Noise Element standards and Noise Ordinance property line limits and reduce noise to less than significant.

Table 2.6-1
EXTERIOR USE AREA NOISE LEVELS (CNEL) FOR ON-SITE EXTERIOR USE AREAS EXISTING PLUS CUMULATIVE PLUS PROJECT (NEAR-TERM) CONDITION

Receiver Number	Noise Level (CNEL)		
Location	No Wall	5½-foot Wall	6-foot Wall
PR 01 – Lot 282[1]	57.2	56.5	56.2
No noise control			
PR 02 – Lot 283	**63.4**	59.0	56.5
SW-1			
PR 03 – Lot 284	**63.2**	58.5	57.1
SW-1			
PR 04 – Lot 285	**63.4**	58.4	57.1
SW-1			
PR 05 – Lot 286	**64.3**	**60.2**	57.7
SW-1			
PR 06 – Lot 287	**63.8**	**61.7**	59.4
SW-1			
PR 07 – Lot 288	**65.0**	**61.1**	59.5
SW-2			
PR 08 – Lot 289	**63.8**	**60.4**	59.3
SW-2			
CP 01 – Community Park[1]	66.9	NA	NA
No noise control			
CP 02 – Community Park[1]	67.3	NA	NA
No noise control			
CP 03 – Community Park[1]	67.4	NA	NA
No noise control			
CP 04 – Community Park[1]	66.6	NA	NA
No noise control			

SW-1 = Sound Wall 1 (northern residential wall), SW-2 = Sound Wall 2 (southern residential wall)
Note: Near-term Existing Plus Cumulative Plus Project condition is expected to have greater traffic volumes on segments surrounding the Project site than Year 2035 with Project conditions (LLG 2014); Near-term conditions were modeled to provide a worst-case analysis.
[1]No wall required for this lot/area, as noise levels do not exceed applicable threshold (60 CNEL for residential uses, 70 CNEL for the community park)

Table2.6-2
TRAFFIC NOISE LEVELS FOR ALL ANALYZED CONDITIONS

Roadway/Segment	Existing Conditions (E)				Existing + Project (E+P)				Existing + Cumulative projects (E+C) (Near-term)				Existing + Cumulative + Project (E+C+P) (Near-term)			
	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)
Eden Valley Lane																
West of Country Club Drive	41.8	IRW	IRW	IRW	50.8	IRW	IRW	13	41.8	IRW	IRW	IRW	50.8	IRW	IRW	13
Country Club Drive																
Auto Park Way to Hill Valley Drive	62.2	20	58	150	63.9	30	81	204	63.7	29	79	194	64.9	37	98	240
Hill Valley Drive to Kauana Loa Drive	61.6	17	53	135	63.5	28	76	187	63.7	29	79	194	64.9	37	98	240
Kauana Loa Drive to Mt. Whitney Road	59.6	9	35	92	61.8	18	55	140	62.7	23	63	164	63.9	30	82	202
Mt. Whitney Road to Street 5A (N)	59.6	9	35	92	60.9	14	45	118	62.7	23	63	164	63.4	27	74	183
Street 5A (N) to Street 5A (S)	59.6	9	35	92	60.5	13	43	111	62.7	23	63	164	63.11	25	70	176
Street 5A (S) to Harmony Grove Road	59.6	9	35	92	60.1	11	39	102	62.7	23	63	164	63.0	25	68	171
Kauana Loa Drive																
Citracado Pkwy to Country Club Drive	47.5	IRW	IRW	IRW	51.6	IRW	IRW	16	54.0	IRW	8	29	54.9	IRW	10	35
Mt. Whitney Road																
Mt. Whitney Road	38.8	IRW	IRW	IRW	50.3	IRW	IRW	12	38.8	IRW	IRW	IRW	50.3	12	IRW	IRW
Street 5A (N)																
On-site Segment	-	-	-	-	43.2	IRW	IRW	IRW	-	-	-	-	43.2	IRW	IRW	IRW
Street 5A (S)																
On-site Segment	-	-	-	-	43.3	IRW	IRW	IRW	-	-	-	-	43.3	IRW	IRW	IRW

- = Roadway does not exist at present
IRW = The CNEL contour indicated exists within the width of the roadway.
Note: Distances represent the distance to noise contour lines from the centerlines of roadways (with no topographical consideration).

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Table 2.6-3
PREDICTED NOISE LEVELS FOR OFF-SITE RECEIVERS

Receiver	Location	CNEL					
		E	E+P	E vs E+P[1]	E+C	E+C+P	E+C vs E+C+P[1]
R 01	2869 Hill Valley Drive	48.0	49.5	N/A	49.5	50.6	N/A
R 02	2843 Hill Valley Drive	49.8	51.3	N/A	51.3	52.3	N/A
R 03	2805 Hill Valley Drive	50.6	52.0	N/A	52.0	53.1	N/A
R 04	809 Country Club Drive	60.7	62.5	1	62.6	63.9	1
R 05	820 Country Club Drive	62.8	64.6	1	64.8	66.0	1
R 06	825 Country Club Drive	63.1	65.0	1	65.1	66.4	1
R 07	916 Country Club Drive	59.7	61.6	1	61.8	63.1	1
R 08	932 Country Club Drive	61.2	63.1	1	63.3	64.6	1
R 09	1008 Country Club Drive	58.7	60.6	1	60.8	62.1	1
R 10	1012 Country Club Drive	59.4	61.3	1	61.5	62.8	1
R 11	1009 Country Club Drive	60.6	62.5	1	62.7	63.9	1
R 12	2710 Surrey Lane	63.3	65.2	1	65.3	66.6	1
R 13		63.1	65.0	1	65.2	66.5	1
R 14	1040 Country Club Drive	61.2	63.1	1	63.3	64.6	1
R 15	1044 Country Club Drive	59.7	61.6	1	61.8	63.0	1
R 16	1110 Country Club Drive	60.1	62.0	1	62.2	63.5	1
R 18	2709 Surrey Lane	64.8	66.7	1	66.8	68.1	1
R 17		63.9	65.8	1	66.0	67.2	1
R 19	2482 Live Oak Road	62.9	64.8	1	65.0	66.3	1
R 20		63.4	65.3	1	65.4	66.7	1
R 21	2472 Live Oak Road	58.6	60.6	2	60.7	62	1
R 22	1142 Country Club Drive	60.2	62.1	1	62.3	63.6	1
R 23	1206 Country Club Drive	61.4	63.4	2	63.5	64.8	1
R 24	1220 Country Club Drive	61.8	63.7	1	63.8	65.2	1
R 25	1230 Country Club Drive	61.0	62.9	1	63.1	64.4	1
R 26	1302 Country Club Drive	59.0	60.9	1	61.1	62.4	1
R 27	1318 Country Club Drive	59.7	61.6	1	61.8	63	1
R 28	1311 Country Club Drive	63.4	65.4	2	65.5	66.8	1
R 29	1322 Country Club Drive	58.7	60.6	1	60.8	62.1	1
R 30	1321 Country Club Drive	62.3	64.2	1	64.4	65.6	1
R 31	1345 Country Club Drive	62.0	63.9	1	64.1	65.3	1
R 32	1410 Country Club Drive	63.7	65.6	1	65.8	67.1	1
R 33	1417 Country Club Drive	62.1	64.0	1	64.2	65.5	1
R 34	1433 Country Club Drive	63.8	65.7	1	65.9	67.2	1
R 35	1498 Country Club Drive	64.7	66.6	1	66.8	68.1	1
R 36	1437 Country Club Drive	62.7	64.6	1	64.8	66.1	1
R 37	1449 Country Club Drive	60.9	62.9	2	63.2	64.4	1
R 38		63.1	65.0	1	65.2	66.5	1
R 39	1517 Country Club Drive	58.6	60.6	2	61.4	62.5	1

Table 2.6-3 (cont.)
PREDICTED NOISE LEVELS FOR OFF-SITE RECEIVERS

Receiver	Location	CNEL					
		E	E+P	E vs E+P[1]	E+C	E+C+P	E+C vs E+C+P[1]
R 40	1534 Country Club Drive	56.2	57.8	N/A	59.1	60.0	N/A
R 41	1678 Country Club Drive	57.4	58.3	N/A	60.5	61.0	0
R 42	1805 Country Club Drive	58.8	59.7	N/A	61.9	62.4	0
R 43	2774 Harmony Heights Road	61.1	62.0	0	64.2	64.7	0
R 44	1776 Country Club Drive	59.9	60.8	0	62.9	63.4	0
R 45	2782 Kauana Loa Drive	58.1	60.0	N/A	60.7	61.9	1
R 46	2820 Mt. Whitney Road	54.4	56.5	N/A	57.2	58.5	N/A
R 47	2836 Mt. Whitney Road	51.6	54.5	N/A	54.5	56.2	N/A
R 48	2844 Mt. Whitney Road	50.7	53.6	N/A	53.4	55.2	N/A
R 49	2910 Mt. Whitney Road	50.6	54.4	N/A	53.2	55.8	N/A
R 50	2918 Mt. Whitney Road	49.2	53.5	N/A	51.6	54.6	N/A
R 51	2926 Mt. Whitney Road	48.6	53.0	N/A	50.9	54	N/A
R 52	2942 Mt. Whitney Road	48.4	53.4	N/A	50.5	54.2	N/A
R 53	2958 Mt. Whitney Road	47.9	53.2	N/A	49.9	54	N/A
R 54	1557 Calico Lane	46.3	51.1	N/A	48.4	51.9	N/A
R 55	2895 Eden Valley Lane	49.1	53.3	N/A	50.6	53.9	N/A
R 56	2928 Eden Valley Lane	50.4	54.9	N/A	51.8	55.4	N/A
R 57	2890 Eden Valley Lane	51.4	55.8	N/A	52.8	56.3	N/A
R 58	2919 Eden Valley Lane	49.1	53.5	N/A	50.6	54.1	N/A
R 59	2867 Eden Valley Lane	51.9	56.2	N/A	53.4	56.8	N/A
R 60	2811 Eden Valley Lane	51.8	55.0	N/A	53.5	55.9	N/A
R 61	2835 Eden Valley Lane	53.7	56.2	N/A	55.6	57.4	N/A

[1] Results rounded down to nearest whole number per County standard practice.
Table Headings: E = Existing, E+P = Existing + Project, E+C = Existing + Cumulative, E+C+P = Existing + Cumulative + Project
N/A =Noise levels are below 60 CNEL; impacts are less than significant.

Table 2.6-4
TRAFFIC NOISE LEVELS AND CONTOURS FOR ALTERNATE ACCESS SCENARIO

Roadway/Segment	Existing Conditions (E)				Existing + Project (E+P)				Existing + Cumulative projects (E+C) (Near-term)				Existing + Cumulative + Project (E+C+P) (Near-term)			
	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)
Hill Valley Drive																
Project access to Country Club Drive	42	IRW	IRW	IRW	49.7	IRW	IRW	9	42	IRW	IRW	IRW	49.7	IRW	IRW	9
Eden Valley Lane																
Project access to Country Club Drive	41.8	IRW	IRW	IRW	48.6	IRW	IRW	7	41.8	IRW	IRW	IRW	48.6	IRW	IRW	7
Country Club Drive																
Hill Valley Drive to Eden Valley Lane	61.6	17	53	135	63.1	24	70	176	63.7	29	79	194	64.8	36	97	236

IRW = The CNEL contour indicated exists within the width of the roadway.
Note: Distances represent the distance to noise contour lines from the centerlines of roadways (with no topographical consideration).

Table 2.6-5
TRAFFIC NOISE LEVELS AND CONTOURS FOR ALTERNATE ACCESS SCENARIO

Receiver	Location	CNEL					
		E	E+P	E vs E+P[1]	E+C	E+C+P	E+C vs E+P+C[1]
R 01	2869 Hill Valley Drive	48	51.9	N/A	49.5	51.9	N/A
R 02	2843 Hill Valley Drive	49.8	53.8	N/A	51.3	53.8	N/A
R 03	2805 Hill Valley Drive	50.6	54.7	N/A	52.0	54.7	N/A
R 04	809 Country Club Drive	60.7	62.3	1.8	62.6	63.8	1
R 05	820 Country Club Drive	62.8	64.3	1.8	64.8	65.8	1
R 06	825 Country Club Drive	63.1	64.6	1.9	65.1	66.2	1
R 07	916 Country Club Drive	59.7	61.2	1.9	61.8	62.8	1
R 08	932 Country Club Drive	61.2	62.7	1.9	63.3	64.3	1
R 09	1008 Country Club Drive	58.7	60.3	1.9	60.8	61.8	1
R 10	1012 Country Club Drive	59.4	60.9	1.9	61.5	62.5	1
R 11	1009 Country Club drive	60.6	62.1	1.9	62.7	63.7	1
R 12	2710 Surrey Lane	63.3	64.8	1.9	65.3	66.3	1
R 13		63.1	64.6	1.9	65.2	66.2	1
R 14	1040 Country Club Drive	61.2	62.7	1.9	63.3	64.3	1
R 15	1044 Country Club Drive	59.7	61.2	1.9	61.8	62.8	1
R 16	1110 Country Club Drive	60.1	61.7	1.9	62.2	63.2	1
R 18		64.8	66.3	1.9	66.8	67.8	1
R 17	2709 Surrey Lane	63.9	65.4	1.9	66	67	1
R 19	2482 Live Oak Road	62.9	64.5	1.9	65	66	1
R 20		63.4	64.9	1.9	65.4	66.5	1
R 21	2472 Live Oak Road	58.6	60.2	2	60.7	61.8	1
R 22	1142 Country Club Drive	60.2	61.8	1.9	62.3	63.4	1
R 23	1206 Country Club Drive	61.4	63.1	2	63.5	64.6	1
R 24	1220 Country Club Drive	61.8	63.5	1.9	63.8	65	1
R 55	2895 Eden Valley Lane	49.1	51.7	N/A	50.6	52.6	N/A
R56	2928 Eden Valley Lane	50.4	53.1	N/A	51.8	53.9	N/A
R57	2890 Eden Valley Lane	51.4	54.1	N/A	52.8	54.9	N/A
R58	2919 Eden Valley Lane	49.1	51.9	N/A	50.6	52.7	N/A
R59	2867 Eden Valley Lane	51.9	54.6	N/A	53.4	55.4	N/A
R60	2811 Eden Valley Lane	51.8	54	N/A	53.5	55.1	N/A
R61	2835 Eden Valley Lane	53.7	55.6	N/A	55.6	57	N/A

[1] Results have been rounded down to nearest whole number per County standard practice.
E = Existing, E+P = Existing + Project, E+C = Existing + Cumulative, E+C+P = Existing + Cumulative + Project
N/A =Noise levels are below 60 CNEL; impacts are less than significant.

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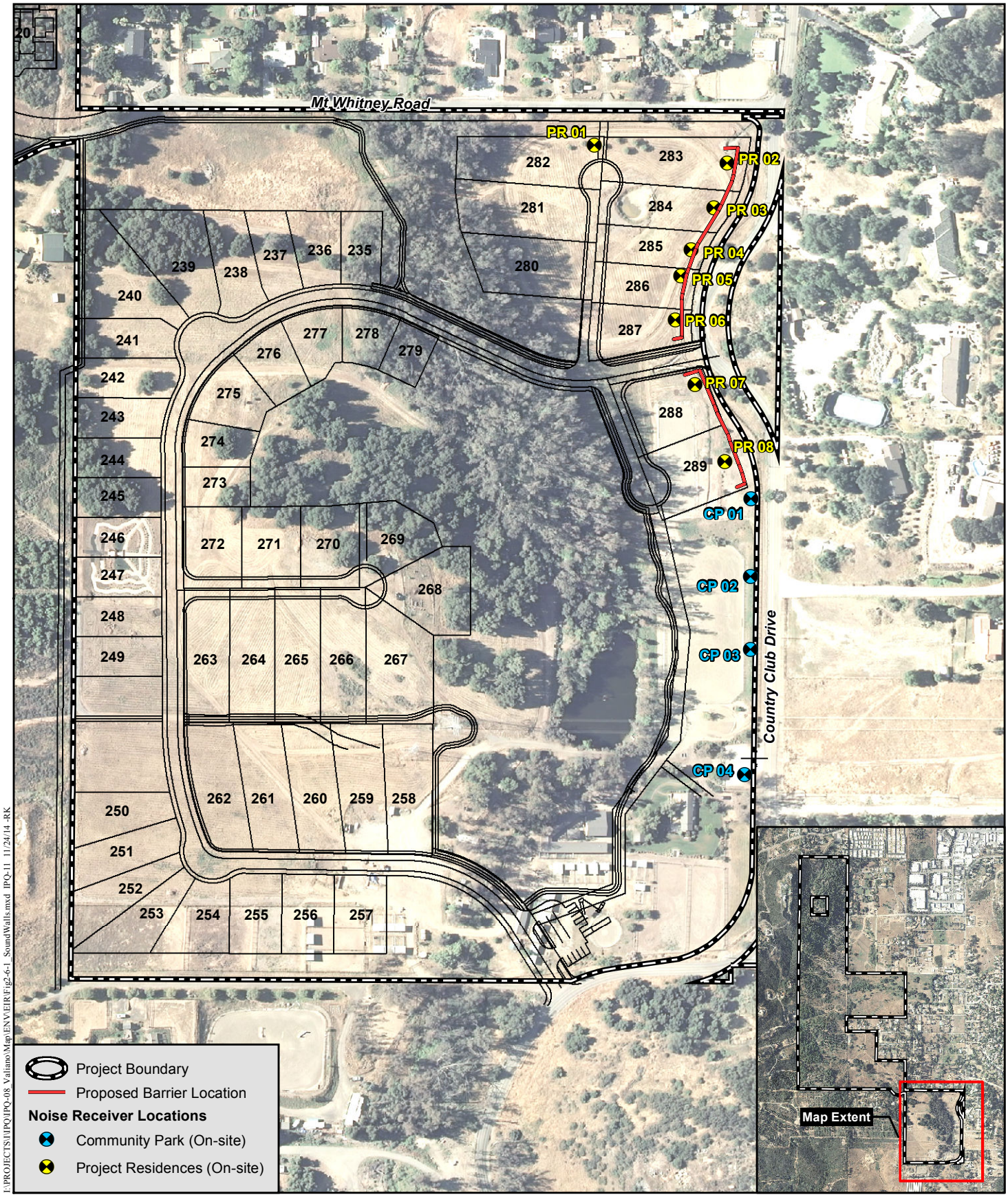

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Proposed Sound Walls Locations

VALIANO

HELIX Environmental Planning

N 0 250 Feet

Figure 2.6-1