

4.5 **Noise**

4.5.1 **Thresholds of Significance**

The following guidelines are based on the County's Guidelines for Determining Significance and Report Content Requirements for Noise, dated January 27, 2009.

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

1. Generate construction noise that exceeds the standards listed in the San Diego County Code, Section 36.409, Sound Level Limitations on Construction Equipment.
2. Expose exterior on- or off-site, existing or reasonably foreseeable future, NSLUs to noise (including road noise) in excess of 60 dBA CNEL for single-family residential uses, 65 dBA CNEL for multi-family residential uses, or an increase of 10 dBA CNEL or more over pre-existing noise levels (if that noise level is less than 50 CNEL). Expose interior on- or off-site, existing or reasonably foreseeable future, NSLUs to noise in excess of 45 dBA CNEL.
3. Generate non-transportation noise that exceeds the standards listed in the San Diego County Code, Section 36.404, Sound Level Limits, or Section 6300 et seq. of the San Diego County Zoning Ordinance, at all property lines or other applicable locations.
4. Expose the uses listed in Threshold Matrix 1 to ground-borne vibration or noise levels equal to or in excess of the levels shown.

THRESHOLD MATRIX 1 GUIDELINE FOR DETERMINING THE SIGNIFICANCE OF GROUND-BORNE VIBRATION AND NOISE IMPACTS				
Land Use Category	Ground-borne Vibration Impact Levels (inches/sec rms)		Ground-borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events¹	Occasional or Infrequent Events²	Frequent Events¹	Occasional or Infrequent Events²
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 ⁶	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 ⁶	40 dBA	48 dBA

Source: U.S. Department of Transportation 2006.

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 vibration events 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 ground-borne noise.

⁵ There are some buildings, such as concert halls, TV and recording studios, and theaters that can be very sensitive to vibration and noise but do not fit into any of the three categories. Table 3 gives criteria for acceptable levels of ground-borne vibration and noise for these various types of special uses.

⁶ For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the peak particle velocity (PPV) exceeds one inch per second. Non-transportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 inch per second.

dB re = dB reference to; rms = root mean square; sec = second ; dBA = A-weighted decibels

4.5.2 Proposed Project

4.5.2.1 Analysis of Project Effects and Determination as to Significance

Construction Noise Impacts (Guideline No. 1)

The construction phase of a quarry operation is similar to the operation of the quarry; during the initial construction phase, the quarry would not have operations whose purpose is solely to prepare materials. Rather the equipment at the site would be preparing the site for the placement of the quarry equipment which may include crushers, concrete, and asphalt handling systems as described in Chapter 1. The construction phase may also include scraping topsoil from areas which would be later mined for construction materials.

Generally, construction would generate less noise than the quarry operations because the equipment used for construction would be identical to that used for operation (i.e., rock drills, dozers, loaders and trucks), but without the additional large area of noise sources used for rock crushing and other plant operations.

The plant equipment would likely be installed in sections requiring only minor on-site set up. The equipment sections would be transported to the Project impact footprint via trucks. These plant equipment sections would likely be set up in phases. Initial crushing equipment would be followed by other equipment as the site is leveled. The materials production would come online to support the next phase of the plant operation as product demand requires. This operation would include some materials extraction and stockpiling of the materials around the plant area as part of the site leveling and preparation.

The operation of a heavy dozer to provide the initial road clearing and widening would be the loudest noise source during construction. With an operating noise level of approximately 85 dBA at 50 feet, the potential for this type of equipment to exceed the allowable eight-hour average of 75 dBA at the property line is unlikely given (1) the normal speed of equipment operation and (2) the equipment would move towards the center of the site (away from the initial driveway opening). No other typical roadway construction equipment would exceed this limitation.

Depending upon the size of rocks created during blasting, hydraulic breaking may be required prior to loading into the crushing systems. The continuous use of a breaker would create an hourly noise level greater than 75 dBA L_{EQ} at distances less than 500 feet. There are no property lines associated with existing residences and no NSLUs within this distance. Therefore, noise impacts during construction would be less than significant.

Operational Noise Impacts - Off-site Traffic Noise Impacts due to Project-generated Off-site Traffic (Guideline No. 2)

The Project trip generation information is divided into two parts: average Project trip generation and maximum Project trip generation. The Acoustical Site Assessment Report (HELIX 2017) focuses on the conservative noise impacts using the maximum Project trip generation rates.

The maximum trip generation calculations for the Project would be a total of 520 truck trips per day for operations and an additional 108 ADT associated with passenger (employee) vehicles. The export trucks would operate between the hours of 5:30 AM and 10:00 PM. Trucks importing sand, cement, and oil would operate 24 hours per day.

The Project truck analysis was converted into Passenger Car Equivalent (PCE) vehicles in the Project TIS (Darnell & Associates 2017) by multiplying the actual truck in/out count by four. The employee traffic was added to the PCE vehicle count and distributed across the analyzed roadway segments, as appropriate. For the purposes of the noise analysis, the PCE was divided by two so that all trucks were modeled as trucks, because a truck does not create the same noise level as two cars and vice versa. The existing and Proposed Project roadway information is provided in the Project TIS (Appendix I) and summarized in Sections 3.7 (refer to Table 3.7.1) and 4.7 (refer to Table 4.7-5) of this EIR. The Project-related PM peak hour traffic volumes would be larger than the AM peak hour traffic volumes and is therefore used for this analysis as the conservative scenario.

Analysis of traffic noise impacts is limited to the roadways to the east of the SR 125/905 corridor (excluding SR 11, as its noise impacts were analyzed during its planning). As stated above, there are three NSLUs (houses) along Otay Mesa Road, approximately 1.3 miles west of the Project

impact footprint. The traffic-related noise impacts to these residences at their front yard property line adjacent to Otay Mesa Road and whether or not impacts are significant are presented in Table 4.5-1, *Traffic-related Noise Impacts*. As shown in the table, noise impacts to the front yards of the three houses would not be significant because front yards are not considered NSLUs. The backyards of two of the three analyzed houses along Otay Mesa Road (located at 6944 and 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would have noise levels above 60 CNEL during maximum operation levels. Accordingly, noise impacts would be significant. (Impact N-1)

Also shown in Table 4.5-1 are the traffic-related noise levels at the standard distance of 100 feet from analyzed roadway centerlines. As presented in the table, although noise levels would increase by more than 3.0 dBA CNEL along some roadway segments, noise impacts would be less than significant because no NSLUs are present.

Operational Noise Impacts - Off-site Traffic Noise Impacts due to On-site Transportation Noise Sources (Guideline No. 2)

On-site noise would consist of site personnel and truck access from public right-of-way to the interior of the Project. Note that on-site material haul routes are not considered in this analysis because the routes would not be located on public roadways and haul trucks would not normally be licensed for use on public roads.

On-site traffic would create noise at peak levels of approximately 60 dBA at 100 feet from the roadway centerline. The areas adjacent to the Project impact footprint are zoned/designated as technology business park, residential, and industrial; however, no sensitive receivers (such as houses) are constructed adjacent to the Project boundary. As previously stated, three residences occur approximately 1.3 miles from the Project impact footprint along Otay Mesa Road. These houses are far enough away from the Project impact footprint that they would not be affected by on-site traffic-related noise. Impacts from on-site transportation noise sources would be less than significant.

Operational Noise Impacts - On-site Traffic Noise Impacts to On-site NSLUs (Guideline No. 2)

No NSLUs would be located in the Project impact footprint; therefore, **no impacts would occur**.

Non-Transportation Operational Noise Impacts (Guideline No. 3)

As described above under Construction Impacts, during Phase 1, the main plant facilities would be set up in the central portion of the 16-acre processing area, and the extraction area would be set up in the central portion of the excavation area (Figure 2-1). In order to provide a project site-wide operational-phase analysis of the noise generated by both mining activities and plant facility activities, a single at-grade conservative potential excavation area was analyzed. Activities at these locations would include initial area grading and dozing operations, followed by drilling, blasting, excavation, and hauling. Table 4.5-2, *Site Equipment Plan*, shows the noise source data for necessary equipment.

Noise Impacts to Project Impact Footprint

No NSLUs would occur in the Project impact footprint; therefore, an analysis of impacts to on-site NSLUs is not necessary. **No impacts would occur.**

Operational Noise Impacts to Adjacent Properties

Proposed excavation/mining activities would occur throughout the Project impact footprint during the life of the Project. The plant's primary stationary equipment would be placed in the northern portion of the Project impact footprint, where it is proposed to remain throughout the life of the Project.

The operating conditions analyzed below are all considered to be conservative scenarios, which would entail all equipment operating simultaneously at the current ground level. The actual plant operations would rarely entail having all equipment operating simultaneously. In addition, the excavation pit within the Project impact footprint would be mined so that slopes would be created along the northern and eastern boundaries, as well as portions of the southern and western boundaries (Figure 2-2). Therefore, the placement of noise sources below current ground level would ultimately reduce noise impacts to off-site locations due to shielding from future topography.

Three site noise operation conditions were considered for the noise analysis, including:

- Condition 1: Only the plant equipment in operation
- Condition 2: Material extraction only at a property boundary with a large nearby habitat area (southern portion of the site)
- Condition 3: Plant equipment and material extraction

A noise impact contour map for the conservative composite noise scenario (Condition 3) is provided in Figure 4.5-1, *Noise Contours for Plant Equipment and Material Extraction Condition 3* (note: this contour map shows all of the calculated noise levels for extraction areas in use as a hypothetical conservative scenario).

In addition to the noise impact area contours, a series of specific calculation receiver locations are provided in the Project impact footprint. These receivers are numbered R1 through R13, starting with receiver R1 located to the west of the equipment to provide specific property line calculations. The remaining receivers continue in a clockwise manner around the periphery of the Project impact footprint. The receiver locations are shown on Figure 4.5-1. Table 4.5-3, *Analyzed Receiver Locations with All Plant Equipment in Operation*, provides the calculated noise levels at each receiver for the three site operation conditions. Table 4.5-4, *Typical Noise Levels at Specified Distances from Center of Extraction Areas*, shows the approximate noise contour distance for the extractive equipment when operating with a clear line-of-site view of the calculated receiver.

As shown in Table 4.5-4, it is possible that operational noise levels would exceed 75 dBA at the property line. Further, if residences were to be developed within 385 feet of the Project impact footprint area of current or future planned extraction, noise impacts from the Project would exceed

60 CNEL and would be significant. Furthermore, many adjacent parcels are at least 20-acres in area but are unlikely to be subdivided for residential use based on the current County planning guidelines. As such, the lots all have more than 10-acres of land suitable for exterior use at less than 60 CNEL even when excavation is occurring adjacent to the property line. Therefore, if operational noise sources exceed 75 dBA at the property line, or if residences were to be developed within 385 feet of the Project impact footprint area of current or future planned extraction, non-transportation related noise impacts from the Project would be potentially significant. (Impact N-2)

It should be noted that this (rural residential development) represents a conservative scenario in that other types of development that may be constructed adjacent to the Project impact footprint (e.g., commercial, industrial) have higher noise thresholds (refer to Section 3.5.2.3).

Ground-borne Vibration and Noise Impacts (Guideline No. 4)

To provide a basis for the blasting analysis, Leland Jones (Jones Seismic Services) provided typical blast decay rates for the Superior Ready Mix Quarry in Mission Valley. This quarry and the surrounding area have similar subsurface materials. The K-Factor calculated from multiple monitored blasts for the quarry range from 169 to 250.

A typical-to-larger blast at the Mission Valley quarry uses a 10-foot-by-12-foot shot hole pattern with 170 holes. The shot holes are drilled with a 4.5-inch diameter drill bit. The hole depth is approximately 26 feet. Each shot hole is loaded with an electric booster charge and an approximate 140-pound (average water gel explosive) charge per shot hole (approximately 23,800 pounds). Each shot hole is stemmed using fine gravel.

Peak Particle Velocity (PPV) is calculated as $PPV = K * (D_s)^{-1.6}$ (Equation 13, Caltrans, Transportation- and Construction-Induced Vibration Guidance Manual, Jones and Stokes, June 2004) where:

PPV = peak particle velocity (in in/sec),

D_s = square-root scaled distance (distance to receiver in ft. divided by square root of charge weight in lbs.)

$D = 1,500$ -feet (approximately) to closest offsite equipment

$D_s = 1,500 / [23,800^{(-2)}] = 9.72306$

PPV = 0.0056 to 0.01037 IPS (K = 250/169)

This level of vibration would be less than significant to any human receptor. Any sensitive equipment with vibration isolators would allow the equipment to operate with no interference at this level. Impacts related to ground-borne vibration would be less than significant.

Typical blasting noise is less than 105 dBA Sound Equivalent Level (SEL) for each blast shot hole. Based on a 600-hole shot pattern, this would equal a 97.3 dBA L_{EQ} at the 50-foot distance (105 dBA SEL times 600 minus 35.6). This would be reduced to 77.3 dBA at 500 feet. Sensitive receptors are located well over 500 feet from the Project impact footprint. Accordingly, impacts related to ground-borne noise would be less than significant.

4.5.2.2 Cumulative Impact Analysis (traffic-related only)

The planned development of the Otay Mesa area would result in additional projects that would generate trips. Traffic patterns in the area may be substantially altered by the two major roadway projects in the area: SR 905 and SR 11. Construction of the remaining portion of SR 905 is anticipated to occur over four phases. The first phase is further divided into Phases 1A and 1B. For more roadway-specific Project information please refer to the Project TIS (Appendix I).

Near-term (2015) cumulative traffic-related noise impacts (with SR 905 Phases 1A and 1B) with and without the Proposed Project are presented in Table 4.5-5, *Near-term (2020) Cumulative Traffic-Related Noise with the Proposed Project (with SR 905 Phases 1A And 1B)*, and buildout traffic-related noise impacts with and without the Project are shown in Table 4.5-6, *Buildout (2030) Traffic-related Noise Impacts without and with the Proposed Project (with SR 905)*. As shown in the tables, the exterior usable space of the three analyzed houses along Otay Mesa Road (located at 6950 and 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would have noise levels above 60 CNEL during maximum operation levels. (It should be noted that due to ambient growth and future development expected in the region, significant cumulative noise impacts to the existing three residences would occur regardless of whether or not the Project is implemented.) Cumulative impacts to exterior use areas (backyards) would be significant. (Impact N-3)

4.5.2.3 Significance of Impacts Prior to Mitigation

- Impact N-1 The backyards of two of the three analyzed houses along Otay Mesa Road (located at 6950 and 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would have noise levels above 60 CNEL during maximum operation levels due to Project-generated traffic along the roadway. Accordingly, direct project-generated traffic noise impacts would be significant.
- Impact N-2 Non-transportation noise sources generated on site by the Project may exceed 75 dBA at the property boundary and may create noise impacts in of 45 dBA L_{EQ} (which would be significant to rural residences) as far as 385 feet from the boundary of the extraction areas. Therefore, if noise levels exceed 75 dBA or if residences were to be developed within 385 feet of the Project impact footprint, noise impacts from the Project would be significant.
- Impact N-3 Cumulative project-generated traffic noise impacts to exterior use areas (backyards) of the three analyzed houses along Otay Mesa Road (located at 6950 and 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would be significant.

4.5.2.4 Mitigation Measures

The following mitigation measure would be implemented to reduce noise impacts to potential future residential (or other NSLU) development in the areas adjacent to the Project impact footprint (Impact N-2) (Mitigation Measure M-N-2 is also the mitigation for Impact LU-2 and is the same mitigation as required by Mitigation Measure M-LU-2):

- M-N-2 Operational noise sources from extraction operations shall not exceed the one-hour limit of 75 dBA at the property line. The following measures shall be implemented to reduce noise levels:
- a. No jaw crusher shall be operated closer than 350 feet from the closest property line or habitat location.
 - b. No screen shall be operated closer than 165 feet from the closest property line or habitat location.
 - c. No vertical crusher shall be operated closer than 85 feet from the closest property line or habitat location.
 - d. All cone crushers used in the aggregate crushing process shall be shielded with noise control barriers: the barriers shall start at ground level and extend to at least a minimum of one foot higher than the direct line of sight between any portion of the shielded equipment and suitable habitat areas to the east of the site or other potential noise-sensitive receptors. Noise control barriers can either be mounted to the equipment or ground-mounted separate from the equipment, or some combination of the two, depending on what is required for appropriate noise control.
 - e. All vertical crushers used in the aggregate crushing process shall be shielded with noise control barriers: the barriers shall extend to the ground or at least 2 feet below the crusher if it is an elevated unit and extend to at least a minimum of 1 foot higher than the direct line of sight between any portion of the shielded equipment and suitable habitat areas to the east of the site or other potential noise-sensitive receptors. Noise control barriers can either be mounted to the equipment or ground-mounted separate from the equipment, or some combination of the two, depending on what is required for appropriate noise control.
 - f. All aggregate screens shall use synthetic screen elements (note this does not apply to recycled materials which may utilize steel screens).
 - g. Excavation within 72 feet of the property line requires a temporary 10-foot high noise control barrier. The barrier must extend beyond the operational locations to break the line of sight for any location on the NSLU within 72 feet of the equipment operations.
 - h. All sound attenuation fence/walls should 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. Project Note: (conveyor belting is an excellent noise shielding material to allow a flexible barrier or provide lower skirts). Any seams or cracks must be filled or caulked. If wood is used, it can be tongue-and-groove and must be at least 1-inch total thickness or have a surface density of at least 3.5 pounds per square foot. 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 1-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.

- i. If a cone crusher is used in the Asphaltic Concrete Plant it shall be shielded with a barrier as described above in M-N-2e.
- j. If a portable plant is used for occasional processing of recycled materials, the unit shall only be used in the area south of the main plant. The unit shall never be positioned closer than 500 feet to the eastern or southern excavation boundary or the southern boundary of the normal equipment areas to control additional noise impacts to the east.

With regard to Impacts N-1 and N-3, noise barriers in excess of 20 feet with returns on the residential properties to accommodate driveways would be required to fully mitigate impacts to the three affected houses along Otay Mesa Road. The County of San Diego Zoning Ordinance 6708, *Permitted Fences, Walls, Gates and Entry Structures*, specifies that noise walls heights should not normally exceed 72 inches in height for backyard walls and 42 inches for front yard walls. The County will normally permit walls to be planned as berm wall combinations up to nine feet in height (which is probably not feasible at these residences). The construction of noise walls to the requisite height to control the noise from heavy truck traffic immediately adjacent to the roadway would require walls significantly higher than specified above. Therefore, this mitigation may not be practically feasible. Residences may request the construction of shorter noise walls in front of their property; however, the walls would not fully mitigate impacts. Accordingly, Impacts N-1 and N-3 are conservatively assessed as significant and unmitigated; while Impact N-2 is considered to be mitigated to less than significant.

4.5.2.5 Conclusion

The backyards of two of the three analyzed houses along Otay Mesa Road (located at 6944 and 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would have noise levels above 60 CNEL during maximum operation levels due to Project-generated traffic along the roadway. In addition, the interiors of all three houses would probably have interior noise levels above 45 CNEL during maximum operation levels. Accordingly, direct and cumulative noise impacts would be significant and unmitigable to these three houses (Impacts N-1 and N-3).

Non-transportation noise sources generated on site by the Project may exceed 75 dBA at the property boundary and may create noise impacts of 45 dBA L_{EQ} (which would be significant to rural residences) as far as 385 feet from the boundary of the extraction areas. Therefore, if noise levels exceed 75 dBA or if residences were to be developed within 385 feet of the Project impact footprint, noise impacts from the Project would be significant (Impact N-2). In order to reduce noise levels for future residences, mitigation has been identified to ensure operation noise sources from extraction operations shall not exceed 75 dBA at the property line. Implementation of mitigation measure M-N-2 would reduce noise impacts associated with non-transportation noise sources generated on site to a less than significant level.

4.5.3 Extraction to Natural Grade Alternative

4.5.3.1 Analysis of Project Effects and Determination as to Significance

Construction Noise Impacts (Guideline No. 1)

Construction noise impacts associated with the Extraction to Natural Grade Alternative would be approximately the same as the Proposed Project. As with the Proposed Project, implementation of the Extraction to Natural Grade Alternative would result in less than significant construction noise impacts because Guideline No. 1 would not be exceeded.

Transportation-related Operational Noise Impacts (Guideline No. 2)

Traffic noise impacts associated with the Extraction to Natural Grade Alternative would be less than that of the Proposed Project as it does not assume traffic from future landfill operations. This alternative would result in 2,154 ADT (as opposed to 2,674 ADT under the Proposed Project). Traffic noise impacts associated with the Extraction to Natural Grade Alternative would be reduced as compared to the Proposed Project but would still result in noise levels above 60 CNEL for backyards of two of the three analyzed houses along Otay Mesa Road (located at 6944 and 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) during maximum operation levels. Accordingly, transportation noise impacts to exterior residential areas would be significant. (Impact N-1)

Non-Transportation Operational Noise Impacts (Guideline No. 3)

Operational noise impacts associated the Extraction to Natural Grade Alternative would be the same as the Proposed Project during the initial excavation period. However, during operations, noise levels would be reduced due to excavation activities deepening the site. It should be noted that in the Extraction to Natural Grade Alternative, the 72-foot setback requirement from the property line to the excavation sites would be identical to the Proposed Project. It applies to the direct line of sight (i.e., if the excavation is 72 feet down from the property line then no barrier would be required). Therefore, if residences were to be developed within 385 feet of the Project impact footprint area of current or future planned extraction, non-construction, non-transportation noise impacts from the Extraction to Natural Grade Alternative would be significant. (Impact N-2)

Ground-borne Vibration and Noise Impacts (Guideline No. 4)

Ground-borne vibration and noise impacts associated with the Extraction to Natural Grade Alternative would be approximately the same as the Proposed Project. Impacts related to ground-borne vibration and noise would be less than significant.

4.5.3.2 Cumulative Impact Analysis (traffic-related only)

Near-term (2015) cumulative traffic-related noise impacts (with SR 905 Phases 1A and 1B) would be similar to those described for the Proposed Project. The exterior usable space of the three analyzed houses along Otay Mesa Road (one is located at 6950 and two are located at 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would have noise levels above 60 CNEL during maximum operation levels. (It should be noted that significant cumulative noise impacts to the

existing three residences would occur regardless of whether or not this alternative is implemented.) Cumulative impacts to exterior use areas (backyards) would be significant. (Impact N-3)

4.5.3.3 Significance of Impacts Prior to Mitigation

Significant impacts associated with the Extraction to Natural Grade Alternative would be similar to those described for the Proposed Project in Subsection 4.5.3.3.

4.5.3.4 Mitigation Measures

The mitigation measures required for the Extraction to Natural Grade Alternative would be the same as those described for the Proposed Project in Subsection 4.5.3.4.

4.5.3.5 Conclusion

As in the case of the Proposed Project, the backyards of two of the three analyzed houses along Otay Mesa Road would have noise levels above 60 CNEL during maximum operation levels due to Project-generated traffic along the roadway, and the interiors of all three houses would probably have interior noise levels above 45 CNEL during maximum operation levels. Accordingly, direct and cumulative noise impacts would be significant to these three houses (Impacts N-1, N-3). As described for the Proposed Project, implementation of mitigation measures under the Extraction to Natural Grade Alternative would require the construction of noise walls with heights in excess of the County of San Diego's standards. Impacts are conservatively assessed as significant and unmitigated.

Similar to the Proposed Project, implementation of mitigation measure M-N-2 would reduce noise impacts associated with non-transportation noise sources generated on site by the Extraction to Natural Grade Alternative to a less than significant level.

4.5.4 Extraction to Varying Depth Alternative

4.5.4.1 Analysis of Project Effects and Determination as to Significance

Construction Noise Impacts (Guideline No. 1)

Construction noise impacts associated with the Extraction to Varying Depth Alternative would be approximately the same as the Proposed Project. As with the Proposed Project, implementation of the Extraction to Varying Depth Alternative would result in less than significant construction noise impacts because Guideline No. 1 would not be exceeded.

Transportation-related Operational Noise Impacts (Guideline No. 2)

Traffic noise impacts associated with the Extraction to Varying Depth Alternative would be the same as that identified for the Proposed Project. Accordingly, the Extraction to Varying Depth Alternative would result in noise levels above 60 CNEL for backyards of two of the three analyzed houses along Otay Mesa Road (located at 6950 and 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) during maximum operation levels. Traffic noise impacts to exterior areas would exceed 60 CNEL and would be significant. (Impact N-1)

Non-Transportation Operational Noise Impacts (Guideline No. 3)

Operational noise impacts associated the Extraction to Varying Depth Alternative would be the same as the Proposed Project during the initial excavation period. However, during operations, noise levels would be reduced due to excavation activities deepening the site. It should be noted that in the Extraction to Varying Depth Alternative, the 72-foot setback requirement from the property line to the excavation sites would be identical to the Proposed Project. It applies to the direct line of sight (i.e. if the excavation is 72 feet down from the property line then no barrier would be required). Therefore, if residences were to be developed within 385 feet of the Project impact footprint area of current or future planned extraction, non-construction noise impacts from the Extraction to Varying Depth Alternative would be significant. (Impact N-2)

Ground-borne Vibration and Noise Impacts (Guideline No. 4)

Ground-borne vibration and noise impacts associated with the Extraction to Varying Depth Alternative would be approximately the same as the Proposed Project. Impacts related to ground-borne vibration and noise would be less than significant.

4.5.4.2 Cumulative Impact Analysis (traffic-related only)

Near-term (2015) cumulative traffic-related noise impacts (with SR 905 Phases 1A and 1B) would be similar to those described for the Proposed Project. The exterior usable space of the three analyzed houses along Otay Mesa Road (one is located at 6950 and two are located at 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would have noise levels above 60 CNEL during maximum operation levels. (It should be noted that significant cumulative noise impacts to the existing three residences would occur regardless of whether or not this alternative is implemented.) Cumulative impacts to exterior use areas (backyards) would be significant. (Impact N-3)

4.5.4.3 Significance of Impacts Prior to Mitigation

Significant impacts associated with the Extraction to Varying Depth Alternative would be similar to those described for the Proposed Project in Subsection 4.5.3.3.

4.5.4.4 Mitigation Measures

The mitigation measures required for the Extraction to Varying Depth Alternative would be the same as those described for the Proposed Project in Subsection 4.5.3.4.

4.5.4.5 Conclusion

As in the case of the Proposed Project, the backyards of two of the three analyzed houses along Otay Mesa Road would have noise levels above 60 CNEL during maximum operation levels due to Project-generated traffic along the roadway. Accordingly, direct and cumulative noise impacts would be significant to these three houses (Impacts N-1, N-3). As described for the Proposed Project, implementation of mitigation measures under the Extraction to Varying Depth Alternative would require the construction of noise walls in excess of the County of San Diego's standards and, therefore, not feasible. Impacts are conservatively assessed as significant and unmitigated.

Similar to the Proposed Project, implementation of mitigation measure M-N-2 would reduce noise impacts associated with non-construction noise sources generated on site by the Extraction to Varying Depth Alternative to a less than significant level.

4.5.5 No Project/Existing Plan Alternative

4.5.5.1 Analysis of Project Effects and Determination as to Significance

Construction Noise Impacts (Guideline No. 1)

Construction noise levels associated with the No Project/Existing Plan Alternative would be substantially greater than those associated with the Proposed Project due to the more intensive development (including residences, industrial facilities, and associated infrastructure) that would occur under this alternative when compared to the Proposed Project. In addition, while there are currently no NSLUs in the vicinity of the Project site, rural residences developed under the No Project/Existing Plan Alternative would be exposed to construction noise from subsequent construction activities under this alternative, if construction is phased and the residential uses are developed first. Therefore, potentially significant noise impacts during construction would occur under this alternative. (Impact N-1)

Transportation-related Operational Noise Impacts (Guideline No. 2)

Traffic-related noise associated with the No Project/Existing Plan Alternative at buildout would be greater than that of the Proposed Project because this alternative would result in 8,628 ADT (as opposed to 2,674 ADT under the Proposed Project). Therefore, it can be assumed that noise levels in the backyards of residences located along Otay Mesa road would exceed 60 CNEL under this alternative. Transportation-related operational impacts associated with noise from this alternative would be significant (Impact N-2).

Any discretionary projects within the area would be required to go through detailed review of environmental impacts before any development is approved. Therefore, mitigation measures would be required for any significant noise impacts.

Non-Transportation Operational Noise Impacts (Guideline No. 3)

Non-Transportation related noise generated on-site under the No Project/Existing Plan Alternative would occur from operation of the planned Rural Residential and Mixed Industrial land uses. Noise from the rural residences would primarily be associated with operation of heating, ventilation, and air conditioning (HVAC) systems, which would generate noise levels substantially less than those generated by the grading and extractive operations associated with the Proposed Project. Similarly, although noise generated by the industrial land uses would depend on the specific type of industrial use and associated activities, noise levels are anticipated to be less than those from the noise-intensive grading and extractive operations associated with the Proposed Project; however, based on the proximity of land designated for Mixed Industrial uses to land designated for Rural Residential uses, non-transportation-related operational impacts associated with noise from this alternative would be potentially significant (Impact N-3).

Any discretionary projects within the area would be required to go through detailed review of environmental impacts before any development is approved. Therefore, mitigation measures would be required for any significant noise impacts.

Ground-borne Vibration and Noise Impacts (Guideline No. 4)

It is assumed that there would be no ground-borne vibration and noise impacts associated with the residential and mixed industrial uses envisioned in the EOMSP. However, any discretionary projects within the area would be required to go through detailed review of environmental impacts before any development is approved. Therefore, ground-borne vibration and noise impacts are anticipated to be less than significant under this alternative.

4.5.5.2 Cumulative Impact Analysis (traffic-related only)

Near-term (2015) cumulative traffic-related noise impacts (with SR 905 Phases 1A and 1B) would be greater than that described for the Proposed Project since this alternative would generate a higher ADT. The exterior usable space of the three analyzed houses along Otay Mesa Road (one is located at 6950 and two are located at 6980 Otay Mesa Road; APNs 646-080-12 and 646-080-11) would have noise levels above 60 CNEL during maximum operation levels. (It should be noted that significant cumulative noise impacts to the existing three residences would occur regardless of whether or not this alternative is implemented.) Cumulative impacts to exterior use areas (backyards) would be significant. (Impact N-3)

As noted above, any proposed land use would go through discretionary review, establishing mitigation measures required for any significant cumulative noise impacts.

4.5.5.3 Significance of Impacts Prior to Mitigation

The No Project/Existing Plan Alternative would result in potentially significant noise impacts. Nonetheless, any proposed land use would go through discretionary review to determine if any significant noise impacts would occur.

4.5.5.4 Mitigation Measures

As noted above, any proposed land use would go through discretionary review, establishing mitigation measures required for any significant noise impacts. It is assumed that mitigation measures for this alternative would be quite different to those for the Proposed Project as no mining/extractive operations would be proposed.

It is assumed that the cumulative traffic-related noise impact associated with the Proposed Project would occur under the No Project/Existing plan Alternative since the ADT associated with this alternative is higher than that of the Proposed Project.

4.5.5.5 Conclusion

While no details are available as to the specific projects that might be developed on site, it is anticipated that the No Project/Existing Plan Alternative could result significant impacts related to construction noise due to the development of useable residential and industrial lots and access

streets. Any discretionary projects would be required to go through detailed review of environmental impacts before any development is approved, and mitigation measures would be required for any significant noise impacts.

As in the case of the Proposed Project, the backyards of two of the three analyzed houses along Otay Mesa Road would have noise levels above 60 CNEL during maximum operation levels due to Project-generated traffic along the roadway. Accordingly, direct and cumulative noise impacts would be significant to these three houses (Impacts N-1, N-3). As described for the Proposed Project, implementation of mitigation measures would require the construction of noise walls in excess of the County of San Diego's standards. Impacts are conservatively assessed as significant and unmitigated.

4.5.6 No Project Alternative

4.5.6.1 Analysis of Project Effects and Determination as to Significance

With this alternative, no development would take place and, therefore, no noise impacts would occur.

4.5.6.2 Cumulative Impact Analysis (traffic-related only)

With this alternative, no development would take place, and therefore, no cumulative traffic-related noise impacts would occur.

4.5.6.3 Significance of Impacts Prior to Mitigation

Under the No Project Alternative, no noise impacts would occur.

4.5.6.4 Mitigation Measures

Because no noise impacts would occur under this alternative, no mitigation measures would be required.

4.5.6.5 Conclusion

With this alternative, no development would take place; therefore, no noise impacts would occur and no mitigation measures would be necessary.

**Table 4.5-1
TRAFFIC-RELATED NOISE IMPACTS**

Residence No./Location	PM Peak Hour dBA L _{EQ} /CNEL			Potentially Significant Impact?	
	Existing Without Project (2017)	Existing with Project	Change	Exterior	Interior
#1 Front of 6940 Otay Mesa Road, APN 646-080-11 (West)	69.9	72.2	2.3	No ¹	Yes
#1 Backyard of 6940 Otay Mesa Road, APN 646-080-11	55.7	58.2	2.5	No	-
#2 Front of 6944 Otay Mesa Road, APN 646-080-12	69.3	71.7	2.4	No ¹	Yes
#2 Backyard of 6944 Otay Mesa Road, APN 646-080-12	59.4	61.7	2.3	Y	-
#3 Front of 6980 Otay Mesa Road, APN 646-080-11 (East)	69.2	71.4	2.2	No ¹	Yes
#3 Backyard of 6980 Otay Mesa Road, APN 646-080-11	59.4	61.7	2.3	Y	-
Roadway Segments	PM Peak Hour dBA L _{EQ} /CNEL ²			Potentially Significant Impact?	
	Existing Without Project (2017)	Existing Plus Project	Change		
Otay Mesa Road (Old Otay Mesa Road)					
SR 125 to Sanyo Avenue	70.2	71.7	1.5	No ³	
Sanyo Avenue to Enrico Fermi Drive ⁴	68.5	70.6	2.1	Yes	
Enrico Fermi Drive to Alta Road	66.6	70.2	3.6	No ³	
Britannia Boulevard to La Media Road	-	-	-	-	
La Media Road to Piper Ranch Road	70.5	71.6	1.1	No ³	
Piper Ranch Road to SR 125	70.3	71.5	1.2	No ³	
Calzada de la Fuente					
East of Alta Road	49.7	64.7	15	N ³	
Enrico Fermi Drive					
Otay Mesa Road to Airway Road	61.1	63.7	2.6	No	
Airway Road to Siempre Viva Road	-	-	-	-	
Alta Road					
Calzada de la Fuente to Lone Star Road	64.1	68.2	4.1	No ³	
Lone Star Road to Otay Mesa Road	64.2	68.1	3.9	No ³	

Source: HELIX 2017

¹ Front yards are not an NSLU.

² 75 feet from roadway centerline.

³ No NSLU present.

⁴ The three residences shown above in this table are located along this roadway segment.

Table 4.5-2 SITE EQUIPMENT PLAN		
Number	Description	Noise Source?
Aggregate Processing Equipment		
CR1	Jaw Crusher	Yes
CR2	Cone Crusher	Yes
CR3	Cone Crusher	Yes
CR4	Vertical Shaft Impact Crusher	Yes
CR5	Vertical Shaft Impact Crusher	Yes
CR6	Impact or Cone Crusher	Yes
S1	Screen	Yes
S2/S3	Stacked Screens	Yes
S4-S7	Screens	Yes
N/A	Stock Piles	Yes
B1 through B50	Materials Handling Belts	No
N/A	Sand Washing System	No
N/A	Stock Piles	Yes
HF1-HF2	Hopper Feeder	No
FH3	Feeder Hopper	No
Materials Recycling Equipment		
RCR1	Jaw Crusher	Yes
RCR2	Horizontal Shaft Impact Crusher	Yes
RS1, RS2	Screens	Yes
RB1 through RB5	Materials Handling Belts	No
N/A	Stock Piles	Yes
Asphaltic Concrete Plant		
HF6-HF9	Hopper Feeder	No
N/A	Pug Mill	No
N/A	Bag Filter System	Yes
N/A	Stock Piles	No
Ready Mix Concrete Equipment		
N/A	Feeder Hoppers/Truck	No
N/A	Belt System	No
Concrete Treated Base Plant Equipment		
N/A	Pug Mill	No

Source: HELIX 2017

Table 4.5-3 ANALYZED RECEIVER LOCATIONS WITH ALL PLANT EQUIPMENT IN OPERATION			
Receiver No.	Operating Condition Noise Level (dBA L_{EQ})		
	Condition 1: Plant Only	Condition 2: Southern Quarry Operation	Condition 3: Plant Plus Southern Quarry Operation
R 1	68.1	49.1	68.1
R 2	64.9	41.7	64.9
R 3	63.8	37.1	63.8
R 4	57.6	27.6	57.6
R 5	69.1	40.4	69.1
R 6	64.7	38.5	64.7
R 7	53.8	42.4	54.1
R 8	38.5	51.5	51.7
R 9	38.4	62.0	62.0
R 10	34.9	75.0	75.0
R 11	36.7	38.8	40.8
R 12	50.1	36.7	50.2
R 13	57.3	39	57.3

Source: HELIX 2017

Table 4.5-4 TYPICAL NOISE LEVELS AT SPECIFIED DISTANCES FROM CENTER OF EXTRACTION AREAS	
Noise Level (dBA L_{EQ} & CNEL)	Distance in Feet
75	72
70	125
65	217
60	385
55	656
50	1,132

Source: HELIX 2017

**Table 4.5-5
NEAR-TERM (2020) CUMULATIVE TRAFFIC-RELATED NOISE
WITH THE PROPOSED PROJECT
(WITH SR 905 PHASES 1A AND 1B)**

Residence No./Location	PM Peak Hour dBA L _{EQ} /CNEL (Cumulative Plus Project)	Potentially Significant Impact?	
		Exterior	Interior
#1 Front of 6980 Otay Mesa Road, APN 646-080-11 (West)	71.3	No ¹	Yes
#1 Backyard of 6980 Otay Mesa Road, APN 646-080-11	57.3	No	-
#2 Front of 6950 Otay Mesa Road, APN 646-080-12	70.7	No ¹	Yes
#2 Backyard of 6950 Otay Mesa Road, APN 646-080-12	60.8	Yes	-
#3 Front of 6980 Otay Mesa Road, APN 646-080-11 (East)	70.4	No ¹	Yes
#3 Backyard of 6980 Otay Mesa Road, APN 646-080-11	60.8	Yes	-
Roadway Segments	PM Peak Hour dBA L _{EQ} /CNEL ² (Cumulative Plus Project)	Potentially Significant Impact?	
Otay Mesa Road (Old Otay Mesa Road)			
SR 125 to Harvest Road	74.7	No ³	
Harvest Road to Sanyo Avenue	71.5	No ³	
Sanyo Avenue to Enrico Fermi Drive ⁴	69.5	Yes	
Enrico Fermi Drive to Alta Road	72.3	No ³	
Britannia Boulevard to La Media Road	-	-	
La Media Road to Piper Ranch Road	74.4	No ³	
Piper Ranch Road to SR 125	73.9	No ³	
Calzada de la Fuente			
East of Alta Road	65.1	No ³	
Enrico Fermi Drive			
Otay Mesa Road to Airway Road	69.1	No ³	
Airway Road to Siempre Viva Road	-	-	
Alta Road			
Calzada de la Fuente to Lone Star Road	69.1	No ³	
Lone Star Road to David Ridge Drive	68.3	No ³	
David Ridge Drive to Otay Mesa Road	68.9	No ³	

Source: HELIX 2017

¹ Front yards are not a NSLU.

² 75 feet from roadway centerline.

³ No NSLU present.

⁴ The three residences shown above in this table are located along this roadway segment.

**Table 4.5-6
BUILDOUT (2030) TRAFFIC-RELATED NOISE IMPACTS WITHOUT AND WITH
THE PROPOSED PROJECT (WITH SR 905)**

Residence No./Location	PM Peak Hour dBA L _{EQ} /CNEL			Potentially Significant Impact?	
	Cumulative Without Project	Cumulative With Project	Change	Exterior	Interior
#1 Front of 6980 Otay Mesa Road, APN 646-080-11 (West)	73.8	75.0	1.2	No ¹	Yes
#1 Backyard of 6980 Otay Mesa Road, APN 646-080-11	59.9	61.1	1.2	No	-
#2 Front of 6950 Otay Mesa Road, APN 646-080-12	73.3	74.4	1.1	No ¹	Yes
#2 Backyard of 6950 Otay Mesa Road, APN 646-080-12	63.3	64.5	1.2	Yes	-
#3 Front of 6980 Otay Mesa Road, APN 646-080-11 (East)	73.0	74.1	1.1	No ¹	Yes
#3 Backyard of 6980 Otay Mesa Road, APN 646-080-11	63.4	64.6	1.2	Yes	-
Roadway Segments	PM Peak Hour dBA L _{EQ} /CNEL ²			Potentially Significant Impact?	
	Cumulative Without Project	Cumulative With Project	Change		
Otay Mesa Road (Old Otay Mesa Road)					
SR 125 to Sanyo Avenue	70.2	71.7	1.5	No ³	
Sanyo Avenue to Enrico Fermi Drive ⁴	68.5	70.6	2.1	Yes	
Enrico Fermi Drive to Alta Road	66.6	70.2	3.6	No ³	
Britannia Boulevard to La Media Road	-	-	-	-	
La Media Road to Piper Ranch Road	70.5	71.6	1.1	No ³	
Piper Ranch Road to SR 125	70.3	71.5	1.2	No ³	
Calzada de la Fuente					
East of Alta Road	59.2	67.8	8.6	No ³	
Enrico Fermi Drive					
Otay Mesa Road to Airway Road	72.0	73.0	1.0	No	
Airway Road to Siempre Viva Road	67.7	68.3	-	-	
Alta Road					
Calzada de la Fuente to Lone Star Road	68.1	71.3	3.2	No ³	
Lone Star Road to David Ridge Drive	68.0	71.3	3.3	No ³	
David Ridge Drive to Otay Mesa Road	68.5	71.5	3.0	No ³	

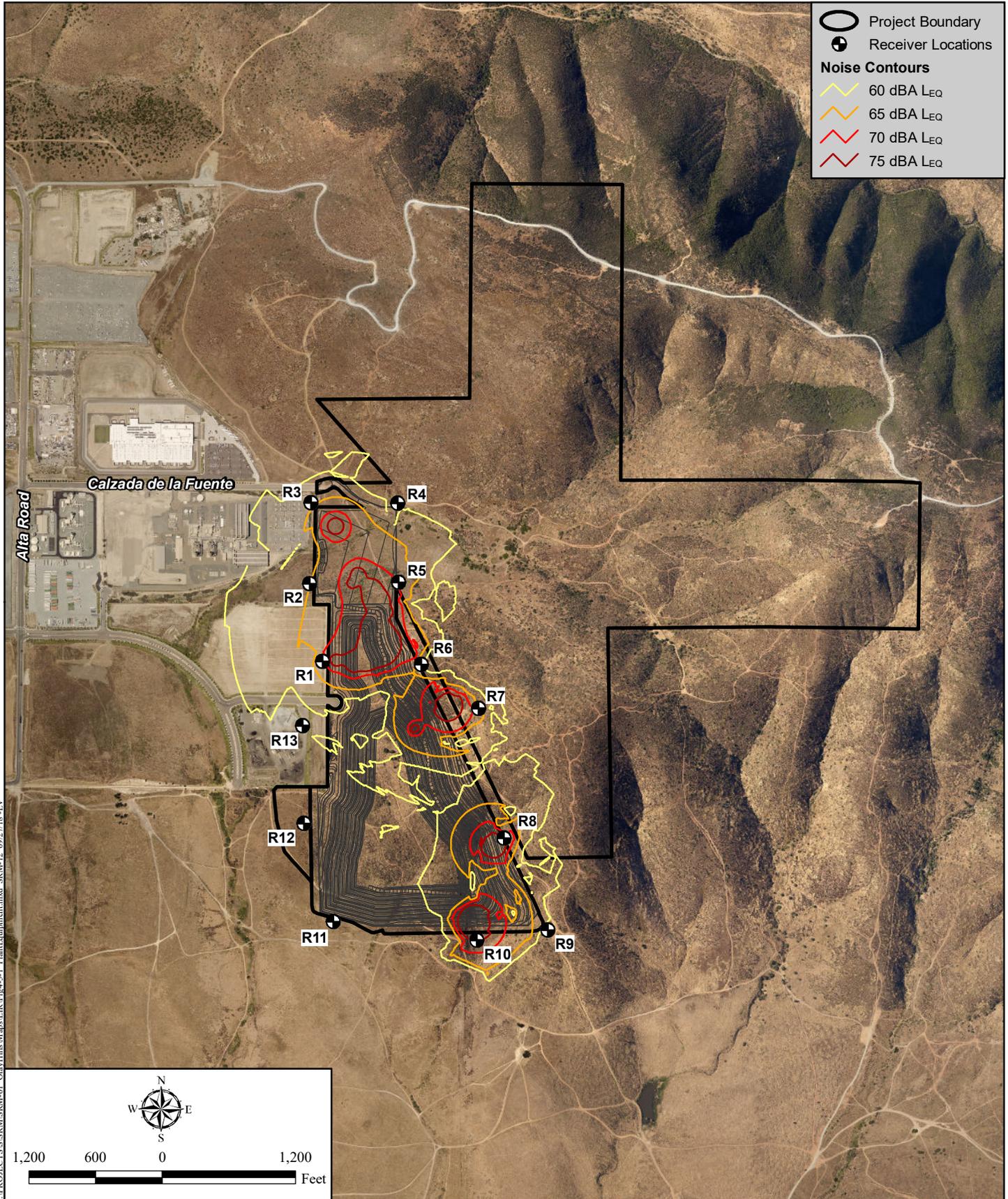
Source: HELIX 2017

¹ Front yards are not an NSLU.

² 75 feet from roadway centerline.

³ No NSLU present.

⁴ The three residences shown above in this table are located along this roadway segment.



Noise Contours for Plant Equipment & Material Extraction Condition 3

OTAY HILLS EIR

Figure 4.5-1