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Syar Napa Quarry Expansion EIR

Noise and Vibration Assessment
August 12, 2015



Noise and Vibration Assessment

– Setting Section

- Provides background information on acoustics, vibration, and blasting, summarizes applicable regulatory criteria, and establishes existing conditions at receptors in the project vicinity.

– Impacts and Mitigation Measures Section

- Evaluates impacts with regard to CEQA checklist questions and Napa County regulatory criteria.
- Identifies mitigation measures to reduce significant impacts to less than significant levels.



Noise and Vibration Chapter Setting Section

– Establishes existing noise and vibration levels at sensitive receptors near Syar Napa Quarry.

- Results of the noise monitoring survey made during typical quarry operations showed that operational noise levels are in compliance with Napa County standards. Quarry sounds are audible at times, but little variation was noted between operational hours versus non-operational hours.
- Results of the vibration monitoring survey showed that blasting vibration levels are barely perceptible to most humans and below Federal thresholds used to avoid damage to structures. The sound of the blast is inaudible to humans because the sound energy is below 20 Hz.



Noise and Vibration Chapter Regulatory Framework Section

- Napa County General Plan and Noise Ordinance establish applicable noise limits.
 - For steady noise, the L50 noise limit (50 dBA daytime, 45 dBA nighttime) is the lowest noise limit. This limit would be exceeded before any of the other noise limits contained in the code (L25, L08, L02 or Lmax limits).



Noise and Vibration Chapter Impacts and Mitigation Measures Section

- Impact 4.11-1 of the Draft EIR identifies a potentially significant noise impact at residential and educational land uses along Imola Avenue and Madrone Drive as well as at established activity areas at Skyline Wilderness Park due to aggregate mining activities and operations on the ridgelines.



Mining Noise at Imola Avenue Receptors

- Noise levels would exceed the daytime Napa County Noise Ordinance limits during the step-back period when mining activities at the perimeter of the quarry are within view of at the nearest Imola Avenue receptors.
- As the mining progresses downward to the quarry floor, the top of the quarry slope would shield these activities from the view of these receptors, which would in turn reduce potential noise due to shielding by intervening topography.



Mining Noise at Trails within Skyline Wilderness Park – Pasini Knoll

- Noise levels would exceed the Noise Ordinance limits at vantage points where users go “off-trail” to observe aggregate mining operations. The impact is less than significant because:
 - trail users are directed by Skyline Wilderness Park to stay on mapped trails,
 - the Quarry has mined areas adjacent to these trails for many years and trail users may be accustomed to the noise,
 - the transitory nature of the use limits the cumulative exposure of the receptor to the noise at any given point, and
 - there are many other established trails or use areas that would be shielded from mining noise and exposed to noise levels below the Noise Ordinance limits.



Blasting and Vibration

- Draft EIR Impact 4.11-2 evaluates vibration levels due to blasting.
 - Calculations indicate that blasting using a worst-case charge weight/delay could generate “distinctly perceptible” groundborne vibration levels exceeding the 0.20 in/sec PPV limit.
 - Draft EIR Mitigation Measure 4.11-2 identifies blasting vibration reduction measures including monitoring during each blast, blast modification procedures, and notification requirements to reduce the impact to a less than significant level.



Mitigation Measures

- Mitigation Measure 4.11-1 restricts the hours and locations of noise production such that the project would not violate noise standards established by Napa County. Monitoring and reporting are required to confirm adherence to the noise limits.
- Mitigation Measure 4.11-2 maintains acceptable levels of blasting vibration such that sensitive structures and receptors would not experience excessive or damaging vibration. Monitoring and reporting are required to confirm adherence to the vibration limits.



Quantitative Comparison of Noise and Vibration Levels between DEIR Project and Proposed Modifications to the Project

- Reduces the size of the expansion areas.
- Limits overburden removal activities to the hours of 7:00 am to noon on weekdays and blasting to the hours of 10:00 am to 4:00 pm weekdays.
- Provides notice 48 hours in advance of blasting.
- Modifications to project and the incorporation of mitigation measures reduce noise and vibration impacts to a less than significant level.



Summary of Appellant Comments

- Document fails to disclose significant noise impact by relying exclusively on the County's noise ordinance.
- Document fails to account for meteorological conditions in noise modeling.
- Document does not provide raw data of noise testing.



Appellant Comment 1

- Document fails to disclose significant noise impact by relying exclusively on the County's noise ordinance.
- Response to comment.
 - A review of the quantitative noise limits established in the County's General Plan and Noise Ordinance found that the L50 (the noise level exceeded 30 minutes or more per hour) was the critical threshold to be applied to the analysis of fairly steady-state noise.
 - The General Plan and Noise Ordinance requires that noise levels not exceed 50 dBA L50 from 7:00 AM to 10:00 PM and 45 dBA L50 from 10:00 PM to 7:00 AM in the rural noise zone classification (most-conservative classification).
 - Conformance with the hourly L50 limits, and Conditioned hours of operation, would result in aggregate mining Ldn noise levels 1 dBA above existing Ldn noise levels. When the aggregate mining noise is added to the existing noise, the daily average noise level would increase by less than 4 dBA, below the 5 dBA Ldn significance threshold.



Appellant Comment 2

- Document fails to account for meteorological conditions in noise modeling.
- Response to comment.
 - The calculated noise levels summarized in Table 4.11-8 of the DEIR assume hemispherical spreading losses over a hard ground plane and the excess attenuation due to atmospheric absorption. The factors that could potentially be affected by wind conditions, including excess ground absorption and acoustical shielding provided by intervening terrain, were not included in the calculations of noise levels produced by aggregate mining activities in order to represent a credible worst-case scenario. Since excess ground absorption and acoustical shielding provided by intervening terrain were not included in the calculations, there is no reason to adjust the noise levels assuming a south wind.



Appellant Comment 3

- Document does not provide raw data of noise testing.
- Response to comment.
 - A complete description of the noise/blasting surveys and results are presented in the setting section of the DEIR. DEIR Draft EIR Figure 4.11-1 shows the approximate locations of long-term and short-term noise measurements made in areas surrounding the quarry that were determined to adequately represent the various noise environments in the project vicinity. The raw noise data is summarized graphically, by long-term measurement location, on Draft EIR Figures 4.11-2 through 4.11-33. Datasheets, raw noise and vibration data, and traffic noise modelling input and output were also provided. Substantial evidence, of credible and solid value, has been presented to support conclusions made when establishing the environmental baseline in terms of noise and vibration.