

15 July 2022

El Dorado County
c/o Dermody Properties
Dermody Properties
5500 Equity Avenue
Reno, NV 89502

Re: Acoustical Analyses —Sound Study
Proposed Distribution Facilities
El Dorado County, CA
OAA Project 4519A

Dear Sir/Madam:

Ostergaard Acoustical Associates (OAA) was retained by Dermody Properties to conduct a sound study to evaluate the acoustical impact of the proposed distribution facilities located along Latrobe Road in the El Dorado Hills section of El Dorado County, California.

The proposed project site fronts on Latrobe Road at the edge of a mixed-use area about one mile south of the El Dorado Freeway (US Route 50); the site currently comprises undeveloped grassland. To the northeast are single-family residences and to the northwest are various commercial uses including a dentist office, a public charter school, and a data management company. A storage facility and trucking facility are directly southwest of the site, while vast stretches of undeveloped land are in the remaining directions. Zoning for the site and surrounding is not clear but land use designations call for the site and land northwest to be a Research and Development use district. Southwest of the site is designated as Industrial Use. Residences to the northeast are in the Valley View – Specific Plan district. Of note is that there is a single-family residential development farther northwest currently under construction, in the Carson Creek – Specific Plan district, but these receptors are significantly far from the site and therefore are not an acoustical concern. The residences to the northeast and the nearby school are of primary concern given their proximity to the site and potential noise sensitivity. The nearby office to the northwest is of secondary concern.

Plans call for the construction of two rectangular distribution facilities somewhat centrally positioned on the site. A new roadway is planned along the northern boundary of the site; this will connect to Latrobe Road at Royal Oaks Drive and provide access to both sites. The eastern distribution facility will be approximately 649,653 ft², parallel with Latrobe Road, and will have truck docks along the southwest and northwest facades. The western distribution facility will be approximately 1,086,178 ft², have the long sides of the building run east-west, and have truck docks on the south and west

facades. Trailer parking is provided outboard of the docks and in areas adjacent to each building. Personnel vehicle parking is provided in a lot fronting on Latrobe Road and along the planned access road. Primary truck access for each building is provided via the proposed access road. Secondary truck access is provided via another new road along the southern boundary of the development which connects directly to Latrobe Road. Personnel vehicles will access their respective segregated parking areas for either buildings using driveways on Latrobe Road or the new access roads.

As part of our study, we reviewed the El Dorado County noise ordinances, found in Chapter 9.16 - *Noise* and Chapter 130.37 - *Noise Standards*. Chapter 9.16 discusses noise qualitatively, prohibiting loud or raucous noise and the operation of a motor vehicle without a working muffler, but no quantitative limits are provided. Chapter 130.37, on the other hand, provides quantitative limits on sound emissions for both transportation noise sources, including motor vehicles and non-transportation noise sources, such as HVAC equipment. Limits for transportation noise sources are provided for various receptor land uses in the form of the L_{dn} (Day-Night Average Sound Level) and the CNEL (Community Noise Equivalent Level), which are 24-hour averages with a ten-decibel penalty for the nighttime hours of 2200-to-0700; CNEL also contains a five-decibel penalty for the evening hours of 1900-to-2200. In general, the limits for residential receptors are 60 dB outdoors and 45 dB indoors. School receptors have a 60 dB L_{dn} /CNEL outdoor limit as well as a one-hour average limit of 40 dB for indoors. These limits do not apply to traffic on public roadways meaning that these limits only apply to on-site transportation sources. Non-transportation noise sources in Community and Rural Centers are limited to an average hourly level of 55 dB(A) during the daytime, 50 dB(A) during the evening, and 45 dB(A) during the corresponding nighttime hours. The limits for Rural Regions are 5 dB(A) lower. These centers and regions are not specifically defined in the code; OAA has interpreted Community and Rural Centers to be developed towns and areas of the County, whereas Rural Regions are remote, non-developed areas of the county. In addition, the maximum limits are 70 dB(A) during the daytime, 60 dB(A) during the evening, and 55 dB(A) during the nighttime. Maximum limits for rural receptors are also 5 dB(A) lower, except for the daytime hours which is 10 dB(A) lower. The site and surrounding area are developed and considered as a Community/Rural Center.

The State of California regulates motor vehicle noise in California Vehicle Code Sections 27150 and 27200. These codes require all motor vehicles to have exhaust mufflers and provide maximum allowable sound levels for various types of vehicles at a distance of 50 feet. In particular, for heavy trucks manufactured after 1987, a maximum sound pressure level of 80 dB(A) at 50 feet is permitted. This limit is readily met by vehicles in good working condition. The California Environmental Quality Act (CEQA) Review guidelines generally evaluate noise impacts in relation to applicable limits

provided by local noise ordinances or standards provided by other agencies, but provide no meaningful limits.

A brief discussion of the relevant noise codes is needed. County code language clearly regulates the usage of steady noise sources, such as HVAC. During the nighttime hours, steady sound produced by the project should not exceed an average sound level of 45 dB(A) at the nearest residential receptor, and not exceed a maximum sound level of 55 dB(A). For mobile sources, regulations are in place but provide mixed usefulness. The County code regulates mobile sources using 24-hour long-term metrics which are not particularly useful when evaluating the impact of intermittent maximum sound levels from the site and are also not very practical for enforcement purposes. The State code regulates motor vehicle sound relative to the source, not the receptor, and similarly are not useful to evaluate potential impacts. Therefore, OAA recommends setting a project noise goal to minimize the acoustical impact of on-site mobile noise sources at surrounding noise-sensitive receptors. Specifically, we recommend that on-site sound not contribute maximum sound levels more than 54 dB(A) at nearby residential receptor facades and the school. This limit was specifically chosen because a steady, 24-hour sound level of 54 dB(A) would result in an L_{dn} of 60 dB(A) and a CNEL of 61 dB(A). Meeting this goal is especially critical at residential receptors during the noise-sensitive nighttime hours. OAA is not able to utilize any of the indoor noise code limits as the construction of receptor's buildings is unknown. Meeting the OAA project goals will conservatively ensure that all 24-hour code limits provided by the County are met and will minimize the potential for complaints. It should be noted that a specific analysis was not carried out for personal motor vehicles. Based on experience, while they may be greater in quantity, from an acoustical aspect they are significantly lower in level than heavy trucks. Hence, if on-site truck analyses are shown to meet project goals, then personal motor vehicles will as well.

OAA has surveyed multiple facilities similar to this site and maintains a robust database of site sound sources. Rooftop HVAC equipment produces noise that is steady in nature, and hence will not vary over time. Using a mechanical design template for each building, these noise sources were evaluated from their preliminary locations on the rooftop of the buildings. While a variety of HVAC equipment is proposed, the focus of this study is on the large HVAC units, those with a heating/cooling capacity of 25-tons or greater. Smaller HVAC equipment was included in the model but produces lower sound levels and is of less concern. In all, across both buildings there will be approximately 122 HVAC units that are 25-tons or larger. The majority of these units are in the 25-to-36-ton range and were each modelled with a sound power level of 93 dB(A) re 1 picowatt based on typical manufacturer's sound data; five units are 55-tons and were each modeled with a sound power level of 96 dB(A).

In a truck court, 18-wheel line-haul trucks have potential to produce maximum sound pressure levels of 79 dB(A) at 50 feet, due to the occurrence of back-up alarms, air brakes, coupling/decoupling, etc. These types of noise are short in duration, normally under 1 second. A driving truck produces slightly lower maximum sound levels of 74 dB(A) at 50 feet. Box trucks can cause excursions of 70 dB(A) at 50 feet.

These on-site noise sources were projected to nearby receptors using state-of-the-art 3-dimensional acoustical modeling software, CadnaA. The model takes into account relevant parameters between the noise source and receptor positions of interest to predict how sound will propagate. In addition to distance attenuation, the model accounts for the effects of terrain, various types of ground cover, shielding by structures, and reflections from buildings. The following table shows the resulting worst-case sound emissions at nearby noise-sensitive receptors.

Noise Source	Attenuation Details	Maximum Sound Levels
Rooftop HVAC equipment	900-to-3250 feet away and screened by building parapets from residences	37-to-43 dB(A)
Six trucks at various onsite locations nearest receptors and rooftop HVAC equipment	450-to-7250 feet away. Shielding generally provided by intervening topography and by buildings from residences	43-to-53 dB(A)

All model results tabulated above are below the project goals of 45 dB(A) for steady sound and 55 dB(A) for intermittent sound. Site sound emissions also comply with all L_{dn} and CNEL criteria provided by the County, conservatively assuming they occur steadily for an entire 24-hour period. Further, it is important to point out that the above analysis reflects maximum sound and not average sound. Maximum sound levels are short in duration and not expected to dramatically lift the existing average sound levels in the area. Maximum site sound emissions ranging from 43-to-53 dB(A) will also be equal to or below the sound level of existing motor vehicles driving along nearby roadways. Given this analysis, no mitigation, such as the installation of a sound wall, is recommended or warranted as the expected use of this site will have no negative impact on the area.

While the acoustical aspect of off-site truck routes is not regulated by code, they were reviewed to evaluate their potential for acoustical impact. Actual truck routes are not known but it is logical to assume that all trucks will travel to and from the site via Latrobe Road to access El Dorado Freeway (U.S. Route 50) to the north. While this route is in proximity to certain residences along the north side of Latrobe Road, there are large sound walls between the dwellings and the road already

installed, therefore road noise is not a concern. The surrounding area also appears to be expanding and developing which will bring additional noise sources into the surroundings. Given all the above, the impact associated with offsite routes is not expected to have any negative impact on the area. Any impact from the change in traffic flow from this site will lessen over time as receptors become accustomed to new noise sources and the area continues to develop.

Overall, the proposed distribution facilities are appropriately designed to place the more active areas of the site appropriately far away from potentially noise-sensitive receptors. In addition, the building layout affords some shielding for off-site residential receptors for a good portion of the dock area. Intervening topography also provides significant attenuation. Applicable quantitative codes are not useful for evaluating the impact of intermittent noise onsite, so more appropriate project goals were set to minimize the impact of the site and conservatively meet the intent of said limits. Conservative analyses show that noise from HVAC equipment and truck activity across the site will meet all project goals. The short duration maximum sound levels created on site will be equal to or lower in level than existing traffic flow sounds along surrounding public roadways in the area. Based on the expected usage of this site, no mitigation recommendations are warranted at this time. Overall, this site is a suitable location for the expected type of operation proposed, from an acoustical point of view.

I trust that the above is helpful. As always, if there are any questions, please let me know.

Regards,

OSTERGAARD ACOUSTICAL ASSOCIATES



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