Appendix C

ABD Engineering & Design

Architectural Acoustics ▪ AV Design ▪ Noise & Vibration

Report on:

Cadman Canby Pit/Barlow Road Aggregate Mine, Phase 4 Noise Study

Prepared for:
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ABD Project Number: P2502

August 30, 2019

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Executive Summary

Cadman Materials is seeking permits to extract aggregate materials from approximately 99 acres of land located immediately south of its existing mining area (Phase 3) under the Oregon Statewide Planning Goal 5 rule. The proposed mining area is located near Canby, Oregon on the west side of Barlow Road directly across from Cadman's existing mining and processing area known as the Canby/Barlow Road Aggregate Mine. The proposed mining area will be known as the Phase 4 mining area.

ABD Engineering & Design, Inc. (ABD) was asked to assist in the development of materials needed as part of the land use application by conducting a study of the mining activities proposed in the Phase 4 mining area and determine a mitigation plan that would ensure the noise radiating from mining activities at the mine site will meet the requirements of the DEQ Noise Regulations for Industry and Commerce, and thereby meet the requirements of Oregon's Statewide Planning Goal 5.

The results of ABD's environmental noise study demonstrate that, with the use of noise mitigation measures, noise levels radiating from equipment operating at the aggregate mine and within the proposed Phase 4 area will be in compliance with the Oregon Department of Environmental Quality (DEQ) Noise Control Regulations. Also, as required by Oregon's Goal 5 rule, noise produced by mining operations at the Canby Pit Phase 4/Barlow Road Aggregate Mine will be minimized through the use of reasonable and practicable noise control measures.

Table of Contents

1. Introduction

Cadman Materials (Cadman) currently operates an aggregate mine west of the Molalla River and south of Pacific Highway 99E known as the Canby/Barlow Road Aggregate Mine. The mine is located approximately one and a half miles southwest of Canby, Oregon (see Figure 1). The aggregate mine was originally operated by Wilmes Sand and Gravel, but in 1997, Pacific Rock Products began operations in 155 acres of the site under permit from the Department of Geology and Mineral Industries (DOGAMI). In 1999/2000, Pacific Rock Products received approval from Clackamas County to increase the annual amount of material extracted from the site to 3 million cubic yards, and in 2006/2007, the company received approval to extend excavation operations into a Phase 2 mining area, a 38 acre parcel immediately west of and contiguous to the original mining area, under the revised implementing rule of the Oregon Statewide Planning Goal 5. In 2011, the Phase 3 expansion was approved, which included approximately 90 acres of land on the west side of Barlow Road, immediately north of and adjacent to the proposed Phase 4 area.

Cadman now desires to extend excavation operations into approximately 99 acres of land located directly south of the Phase 3 mining area (see Figure 2) and is requesting permits to extend excavation operations into the Phase 4 mining area under Oregon's Goal 5 rule.

ABD Engineering & Design (ABD) conducted a noise study to assess the mining plan to assure that sound levels for all existing and approved noise-sensitive land uses around the Phase 4 mining area will be in compliance with Oregon Department of Environmental Quality (DEQ) noise standards as required by the Goal 5 rule. This report presents the results of that study.

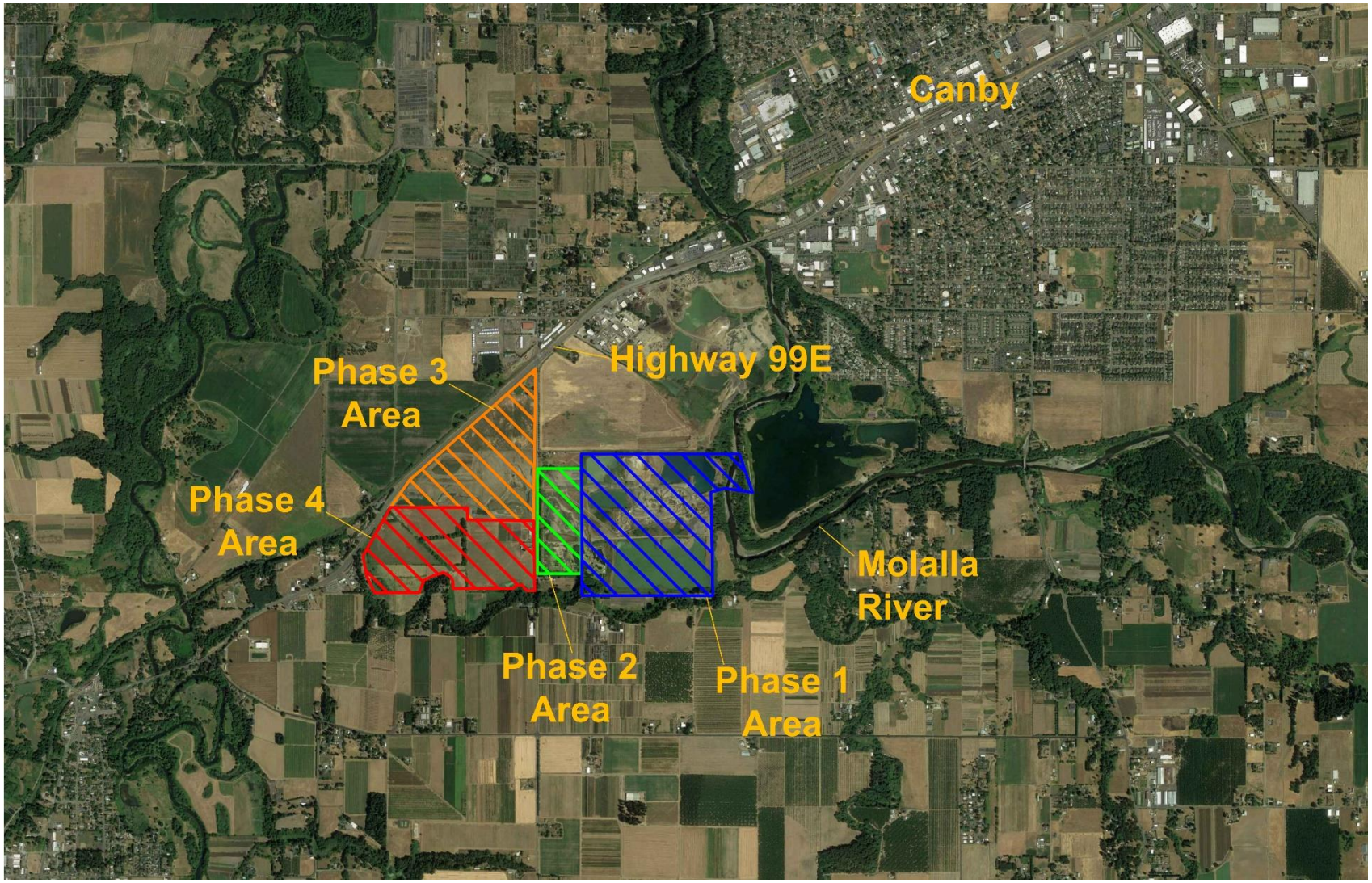

Figure 1. Canby Pit/Barlow Road Mine vicinity map

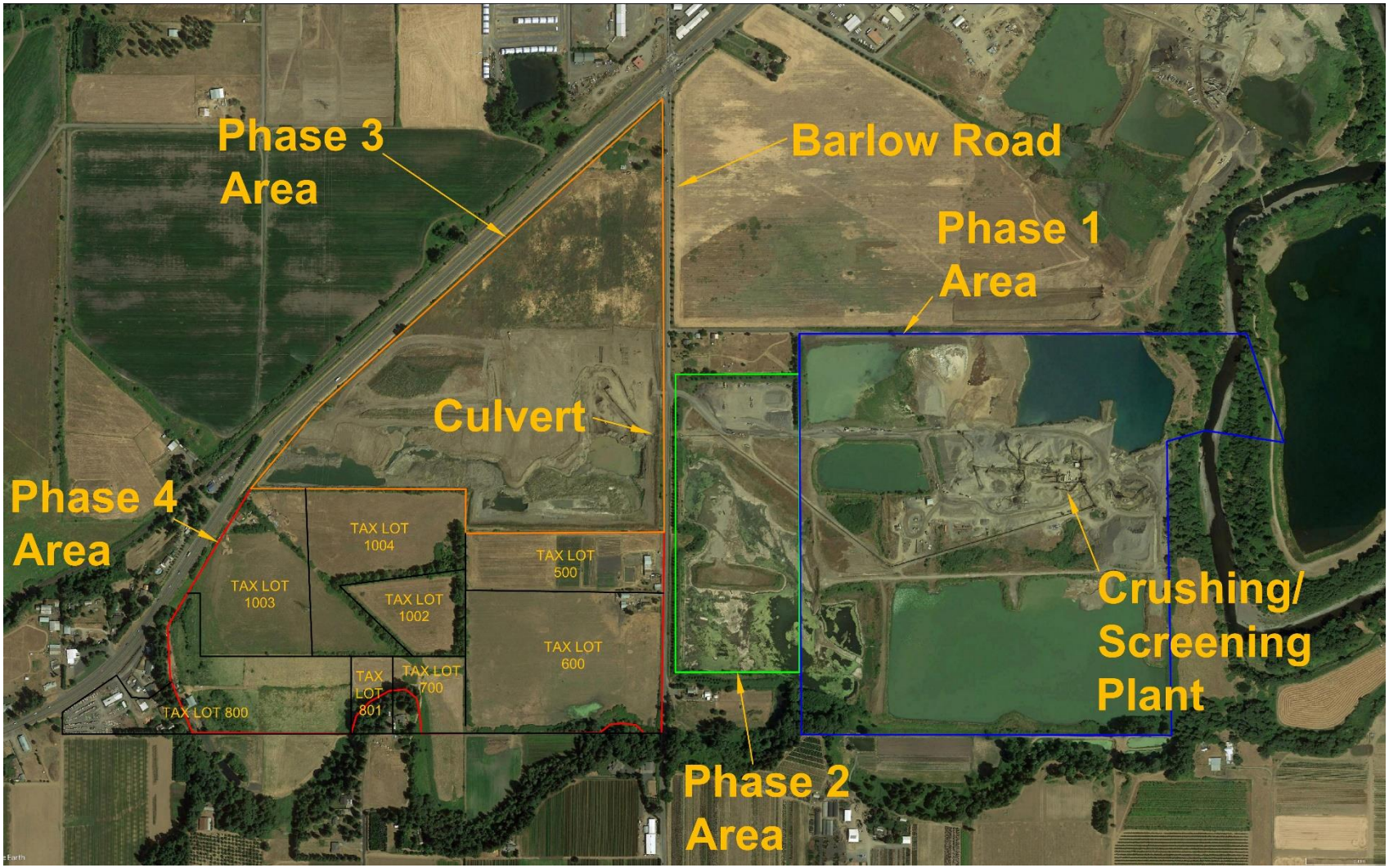

Figure 2. Area map

2. Noise Descriptors

Sound is the term given to variations in air pressure capable of being detected by the human ear. Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). A change of 3 dB is just perceptible, and an increase of 10 dB is perceived as a doubling of the apparent loudness.

The human auditory response to sound is a function of the magnitude of the sound, the frequency spectrum of the sound (the specific pitch components of the sound), the duration of the sound, and the existence of other sounds. It is difficult to describe the perceived level of a sound with a single number because of the many parameters that influence the human auditory response. However, over the past several decades, there have been a significant number of acoustic studies which have helped provide noise descriptors that correlate well with the human response.

Studies have shown conclusively that at equal sound pressure levels, people are generally more sensitive to certain higher frequency sounds (such as made by speech, horns, and whistles) than lower-frequency sounds (such as made by motors and engines)[1]. To address this preferential response to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the human auditory system does. Thus, the A-weighted sound level (referred to as "dBA") becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound.

Since noise tends to fluctuate over time, especially for environmental measurements, the A-weighted sound level alone is not sufficient to describe the noise environment at a given location. Therefore, statistical levels (also called percentile levels or L_n) are used to describe the time-varying characteristics of the sound. The relevant statistical metrics for this project are the hourly L_{01}, L_{10}, and L_{50} levels, which represent the sound level exceeded for 1% (30 seconds), 10% (6 minutes), and 50% (30 minutes) of an hour. For instance, if the hourly L_{10} of a measurement is 55 dBA, this means the sound level was 55 dBA or louder for a total of 6 minutes of the hour (usually spread out over the hour), and quieter than 55 dBA for 54 minutes of the hour. The L_{01} level generally corresponds to short-term noise events such as loud horns or aircraft pass-bys, the L_{10} level provides an idea of loud sounds that occur more frequently, and the L_{50} level represents the more continuous noise.

3. Noise Criteria

This noise study was conducted to support a land use application requesting permits to mine aggregate within an expansion area at the Cadman Canby Pit/Barlow Road Aggregate Mine under the revised implementing rule for Oregon Statewide Planning Goal 5 (Oregon Administrative Rule 660-023-0180). The Goal 5 regulation requires noise conflicts be identified and mitigated within 1500 feet of a mining site unless there is factual information demonstrating the presence of significant potential conflicts requiring the impact area to be extended further

[1] D.W. Robinson and R.S. Dadson, "A Re-Determination of the Equal-Loudness Relations for Pure Tones," British Journal of Applied Physics, vol. 7, pp. 166 - 181, 1956. (Adopted by the International Standards Organization as Recommendation R-226.)

than 1500 feet. Noise conflicts are considered minimized under the rule (OAR 660-023-0180(1)(f)) when the relevant sections of DEQ noise regulation OAR 340-035-0035 are met. Therefore, to address the requirements of the Goal 5 regulation, the noise study was conducted using the criteria set forth in the DEQ noise regulation OAR 340-035-0035, "Noise Control Regulations for Industry and Commerce."

Historically, the DEQ ruled that when a mine site was expanded into contiguous property, the noise criteria which applied to the mining equipment operating in the original area would also apply to the equipment when operating inside the expansion area (see Appendix A for a copy of a letter from Mr. John Hector, the first manager of the DEQ noise control enforcement group). Under this DEQ policy, the Cadman Canby/Barlow Road mine site is considered a DEQ noise regulation *existing noise source* because it is part of the original Wilmes Sand and Gravel site, which was in operation prior to January 1, 1975. The regulation for an *existing noise source* stipulates that noise radiating from the source is regulated by what is commonly referred to as the "maximum allowable noise rule" [340-035-0035(1)(a)].

The maximum allowable noise rule prohibits the generation of *hourly statistical noise levels* (as measured at an *appropriate measurement point*) exceeding the levels shown in Table 1.

Table 1. Maximum allowable received noise levels generated by an existing industrial or commercial noise source (OAR 340-035-0035, Table 7)

Hourly Statistical Noise Level	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
L_{50}	55 dBA	50 dBA
L_{10}	60 dBA	55 dBA
L_{01}	75 dBA	60 dBA

The hourly L_{50}, L_{10}, and L_{01} noise levels are the levels equaled or exceeded 50%, 10%, and 1% of an hour, respectively. A copy of the complete text of the DEQ Noise Control Regulations for Industry and Commerce and the pertinent tables referred to are included in Appendix B of this report.

The following noise sources typically found on a mine site are exempt from the noise limits specified in the DEQ noise regulations when the noise generated by the source is regulated by the maximum allowable noise rule:

- Sounds created by tires and the motor of licensed road vehicles, entering and leaving the site to transport product to market (trucks) [OAR 340-035-0035(5)(c)].
- Sounds from backup alarms or beepers [OAR 340-035-0035(5)(b)].
- The stripping of overburden and the construction of berms are considered to be construction activities in the Oregon DEQ noise regulations. Noise generated by construction activity is exempt from the limits specified in the regulations for industry and commerce.

The DEQ noise regulations do apply to the mining vehicles such as the front-end loaders and excavators.

4. Overview of Proposed Mining Operations

4.1 Site Location

The proposed Phase 4 mining area consists of Tax Lots 500, 1002, 1003, and 1004, and parts of Tax Lots 600, 700, 800, and 801. The area is contiguous to Cadman's existing Phase 3 mining area, which is located immediately north of the proposed Phase 4 area. The Canby Pit/Barlow Road Aggregate Mine Phase 1 and Phase 2 mining are located west of the Molalla River and south of the intersection of Highway 99E and Barlow Road outside Canby, Oregon, immediately east of Barlow Road (see Figure 2). The Phase 3 mining area is located to the west of the Phase 2 area.

4.2 Overview of Mining Activities

Operations in the Phase 4 mining area will include the stripping of overburden material, the excavation of the desired aggregate materials, the transportation of excavated material by conveyor to the existing and permitted crushing and screening plant in the Phase 1 mining area (shown in Figure 2), and the reclamation of the site once the aggregate materials have been removed. There will be no blasting or processing of materials within the Phase 4 mining area. In addition, the proposed extension of the mining area will not change, or increase in any way, the number of currently permitted trucks entering and leaving the existing permitted processing site. The proposal is to simply transition excavation operations from the Phase 3 mining area into the Phase 4 mining area. Proposed operating hours in the Phase 4 mining area will be 7:00 AM to 6:00 PM Monday through Friday and 8:00 AM to 5:00 PM Saturday. No operations will be conducted on Sundays or designated holidays, except during an emergency.

4.2.1 Excavation Operations

The proposed Phase 4 mining plan calls for aggregate materials to be excavated from four areas, referred to as Cells 4A, 4B, 4C, and 4D (see Figure 3). Excavation operations in each of the four cells will generally occur in a series of sub-cells, with each sub-cell being excavated down to its final depth (between 35 feet and 60 feet below existing grade) before excavation operations move into the adjacent sub-cell. The material within each sub-cell will be excavated in one or two "lifts" (layers), each 10 to 30 feet thick, depending on the thickness of the resource material within the sub-cell.

The mining plan calls for excavation operations to begin at the western edge of Cell 4A with the removal of enough overburden material (estimated to be approximately 10 feet thick) to allow the excavation of resource material for an approximately one-year period. The removal of overburden material will be accomplished using a CAT 390F excavator[2], which is the same excavator proposed for the removal of resource material. At that time, overburden material will be hauled by truck to locations around the site to construct any required safety berms and/or noise control barriers. Once the necessary berms have been constructed and all overburden has been removed from the area of interest, the excavation of resource material will begin at the western edge of Cell 4A and move from west to east. Each subsequent year, overburden material will be removed from enough of the remaining cell area to allow for the excavation of resource

[2] Mining equipment listed is considered typical only; specific makes and models listed could be replaced by other equivalent machines that emit equal or lesser noise without affecting the conclusions of this study.

material for another year. During those times, overburden material will be used to begin reclamation of areas already completed or stockpiled in areas for future reclamation.

Once excavation operations in Cell 4A have been completed, excavation operations will move back to the western edge of Cell 4B and Cell 4C in turn and move from west to east as described for Cell 4A. Cell 4D will be excavated last from south to north as the conveyor is moved back north out of the cell.

Due to the resource thickness difference across the site, two different excavation techniques will be used within the site. In the western half of the site (see Figure 3), the resource material is approximately 15 to 30 feet thick, so the material will be removed by the excavator in a "single lift" using what is referred to as a "wet" mining approach ("wet" mining is when the excavator extracts materials located below the water table and the material comes out wet; in addition, "wet" mining results in a lake developing as the excavation proceeds). During the "wet" mining operation, the excavator will place the extracted material onto the ground adjacent to the excavation operation so the water can drain from the material before it is transported to the crushing plant. Once a sufficient amount of water has drained from the temporary stockpile of wet material, front-end loaders will be used to haul the material from the excavation area to a material transport system (described in Section 4.2.2 below). During "wet" mining, the mining plan calls for the excavator to operate in a "retreating" mode, where the excavator backs up, working from north to south.

On the eastern half of the site, the resource material is approximately 50 to 60 feet thick, so the material will be excavated in two lifts; the first lift will be excavated in what is considered a "dry" mining approach and the second lift will be excavated in a "wet" mining approach. During the "dry" mining lift, the mining plan indicates that the excavator will initially be positioned on top of the resource material to extract material out of an area of sufficient size that will allow the excavator to be moved down to an elevation below the top of the resource material. This initial excavation activity will form a floor in the mining area that may be below the elevation of the water table, so if needed, a pump will be lowered down onto the lower floor of the sub-cell area and water will be pumped from the lower floor area to allow the excavator to move down and operate on dry ground. Any water extracted from the lower floor area of the sub-cell will either be pumped to a recharging trench located on the southern edge of the mining area or will be pumped to a holding pond located elsewhere on the Cadman properties. The dewatering pumps will be driven by electric motors powered from the electric power grid.

With the floor of the sub-cell dewatered, the excavator can operate at an elevation below the top of the resource material and pull the material down to the lower elevation. According to the mining plan, dry mining will start at the north end of the sub-cell and work southward in a "forward" mode. The excavator will pull material down to the lower floor, and the front-end loaders will scoop up the material and transport it to the conveyor feed hopper.

The second lift in the sub-cells of the eastern half of the site will occur using the "wet" mining approach described for the western half of the site.

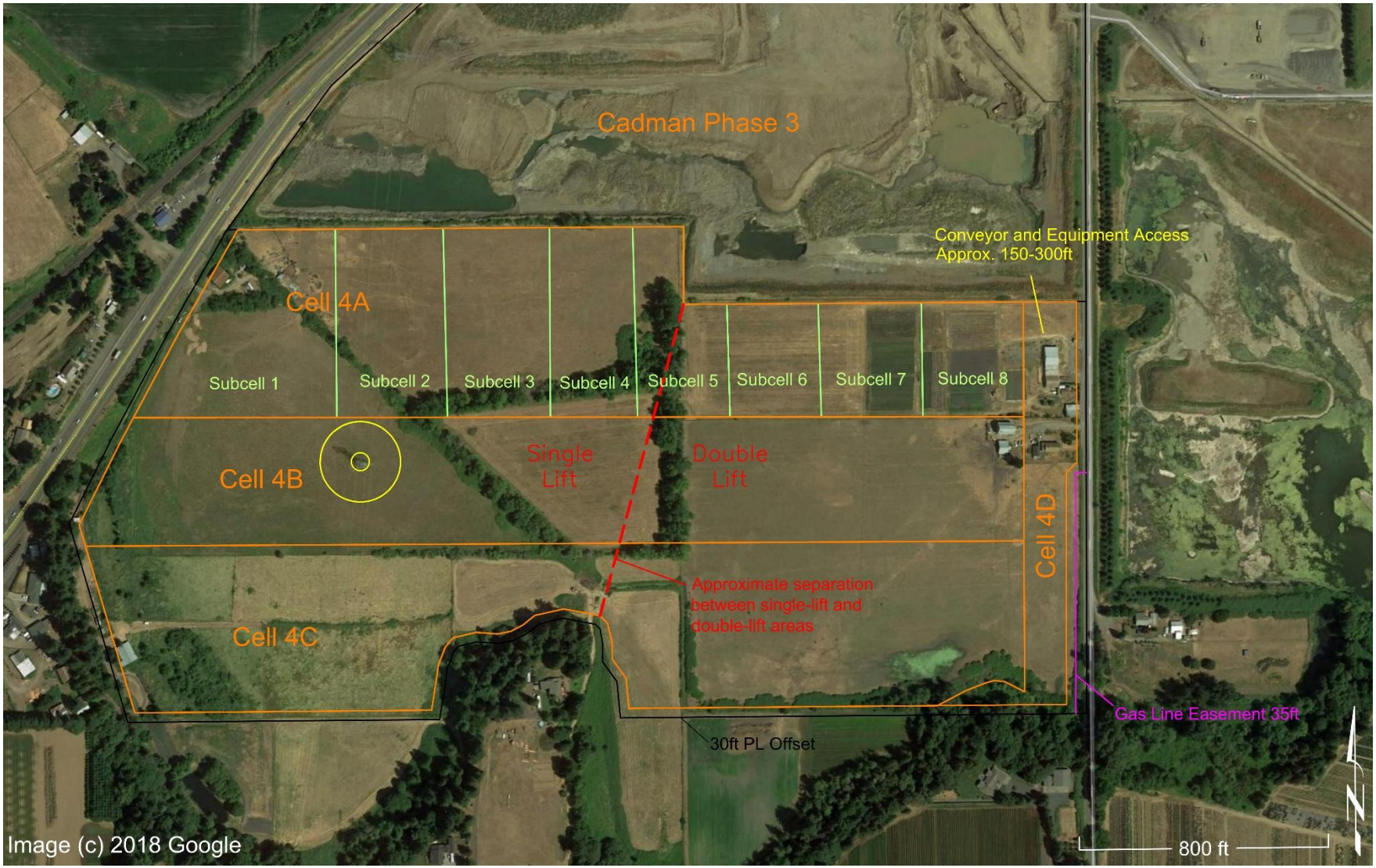

Figure 3. Phase 4 mining plan

4.2.2 Material Transport Operations

The mining plan indicates that a material conveyor system will be used to transport aggregate resource material from the Phase 4 area to the existing crushing plant located on the east side of Barlow Road. Cadman proposes to extend a belt conveyor out along the southern boundary of Cell 4A and place a conveyor feed hopper on top of the resource material at the end of the conveyor. Two front-end loaders, a CAT 980G and 988B[3], will be used to transport resource material from the excavation area to the conveyor feed hopper. It is expected that the conveyor and feed hopper will be repositioned as needed to keep the hopper within approximately 300 feet of the active excavation operation.

Once the resource material has been completely extracted from Cell 4A, the mining plan calls for the conveyor to be re-extended out along approximately the northern boundary of Cell 4B (the southern boundary of Cell 4A) to allow material to be transported by front-end loader from the excavation area in Cell 4B to the conveyor feed hopper, as described for Cell 4A. In turn, the conveyor for Cell 4C will be extended out along the northern boundary of Cell 4C to allow material to be transported by front-end loader from the excavation area in Cell 4C to the conveyor feed hopper. Finally, as Cell 4D is excavated from south to north, the conveyor system will be progressively shortened.

5. Overview of the Noise Analysis

In conducting the environmental noise study for the proposed mining operations, the following steps were taken:

1. The loudest hourly statistical noise levels that could ever radiate from the proposed mining operations were predicted at residences in the vicinity of the site. The residences chosen were considered representative of the residences in the area with the greatest potential of receiving noise that could exceed the appropriate criteria.
2. The loudest hour noise levels predicted at the residences were compared to the limits specified in the DEQ "Noise Control Regulation for Industry and Commerce" (OAR Chapter 340, Division 035).
3. Noise mitigation measures were identified where needed to ensure the noise would meet the DEQ noise regulation limits and thus minimize noise as required by the Goal 5 rule.
4. In addition to predicting noise levels at individual noise sensitive receivers, noise level predictions were made to determine what ABD calls the "DEQ Noise Compliance Boundary" for the site. The "DEQ Noise Compliance Boundary" is defined as the boundary around the mine site within which noise radiating from the site will exceed the DEQ noise regulation limits. Outside the boundary, the noise levels will be less than or equal to those specified by the noise regulations. In this study, ABD considers the area where noise levels will exceed the DEQ regulation limits as the noise impact area addressed in the Goal 5 rule.

[3] Mining equipment listed is considered typical only; specific makes and models listed could be replaced by other equivalent machines that emit equal or lesser noise without affecting the conclusions of this study.

6. Existing Environment Around Proposed Mining Site

6.1 Topography and Vegetation

The proposed Cadman Phase 4 mining area is located directly south of the existing Phase 3 mining area. Both the Phase 3 and Phase 4 mining areas are on flat land at an elevation of approximately 100 feet above sea level[4] (see Figure 4). Most of the land east of the proposed Phase 4 mining area is roughly at the same elevation as the mining area, while the excavated Phase 3 area to the north will be at an elevation of approximately 40 feet. To the south and west of the site, the land rises sharply to an elevation of about 160 feet above sea level within a horizontal distance of about 250 feet. Beyond that point, the land is relatively flat again.

Vegetation on the land surrounding the Phase 4 mining area consists largely of agricultural crops. There are no significant stands of trees that would act as a noise barrier for residences near the mining area.

6.2 Land Use

Other than the existing Phase 1 and 2 mining areas to the east and Phase 3 mining area to the north, the land surrounding the Phase 4 mining area is mainly used for agricultural purposes (zoned EFU-20), with residences scattered throughout the surrounding farm properties (see Figure 5).

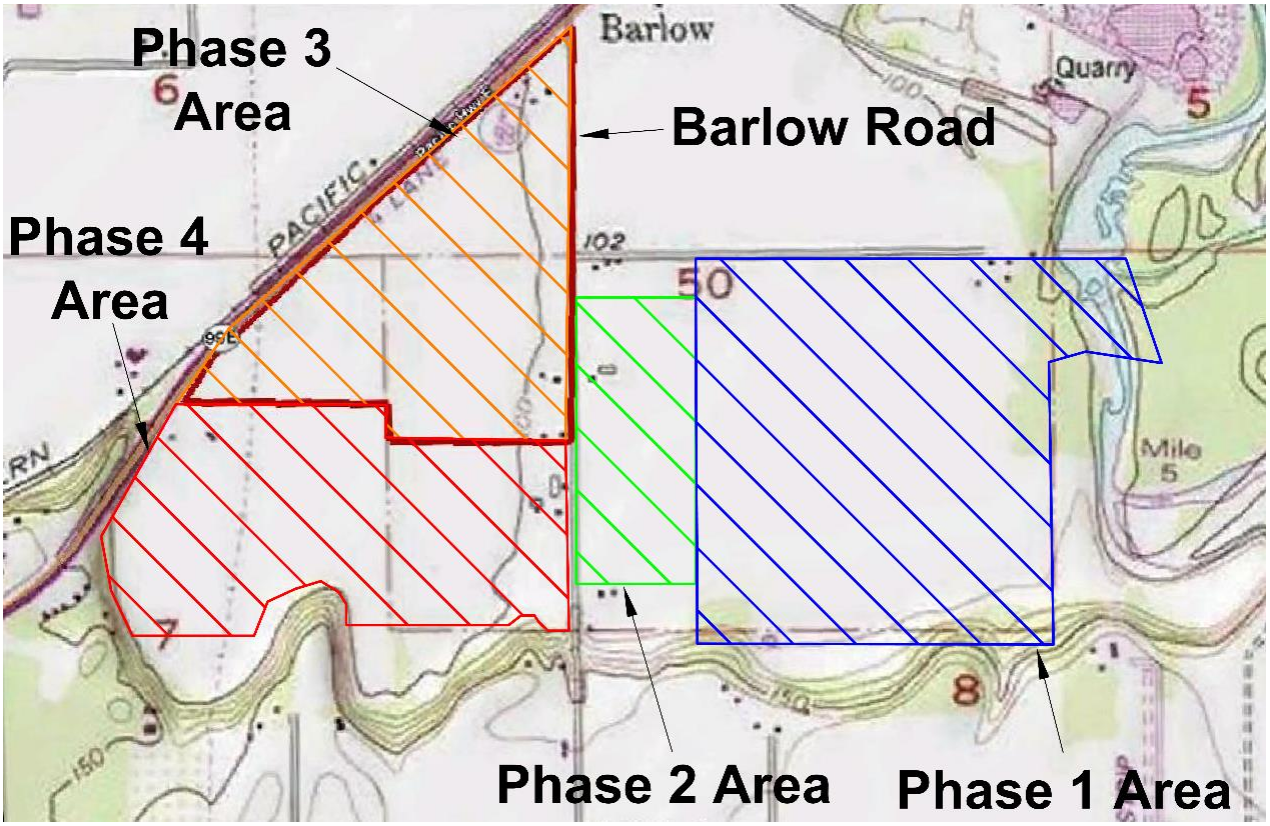

Figure 4. Topography

[4] Elevations are in feet above mean sea level, unless otherwise noted.

7. Predicted Future Mining Noise Levels

Future mine-generated hourly statistical noise levels were predicted at 17 noise-sensitive receivers located in the vicinity of the proposed Phase 4 mining area. The receivers selected for analysis represent the nearest residences in each general direction of the mine that have the greatest potential of receiving noise levels from the mining operations above the applicable DEQ noise limits. Figure 5 shows the locations of the receivers included in the predictions and Table 2 provides a description of the receivers with some information as to why they were selected for the analysis.

Table 2. Description of residence locations[1]

Receiver	Address[2]	Elevation	Description[3]
R1	25040 S Barlow Road	102 ft	This residence is located east of Barlow Rd. and north of the existing Phase 2 mining area. It is 130 feet east of the Phase 3 area.
R2	25460 S Barlow Road	109 ft	This residence is located east of Barlow Rd. and south of the existing Phase 2 mining area. It is 160 feet east of the Phase 4 area.
R3	7285 S Lone Elder Road	165 ft	This residence is located east Barlow Rd. and directly south of the existing Phase 2 area, approximately 1500 feet southeast of the site.
R4	25541 S Barlow Road	150 ft	This residence is located west of Barlow Rd. on the plateau 160 feet south of the site.
R5	25571 S Barlow Road	152 ft	This residence is located off S Rhoten Rd. on the plateau south of the site and is 715 feet south of the site.
R6	25588 S Rhoten Road	153 ft	This residence is located off S Rhoten Rd. on the plateau south of the site and is 600 feet south of the site.
R7	25490 S Rhoten Road	132 ft	This residence is located off S Rhoten Rd. on the spit of land projecting into the south edge of the site. It is located approximately 140 feet from the site.
R8	25563 S Rhoten Road	150 ft	This residence is located off S Rhoten Rd. on the plateau south of the site and is 390 feet south of the site.
R9	25581 S Rhoten Road	149 ft	This residence is located off S Rhoten Rd. on the plateau south of the site and is 530 feet south of the site.

Receiver	Address[2]	Elevation	Description[3]
R10	25420 Pacific Highway E	142 ft	This residence is located near the southwest corner of the site, approximately 100 feet from the west property line.
R11	25408 Pacific Highway E[4]	145 ft	This residence is located off Pacific Highway to the west of the site and is 230 feet west of the site.
R12	25408 Pacific Highway E[4]	140 ft	This residence is located off Pacific Highway to the west of the site and is 120 feet west of the site.
R13	25408 Pacific Highway E[4]	132 ft	This residence is located off Pacific Highway to the west of the site and is 70 feet west of the site. It overlooks the site and is the closest property to the site.
R14	25363 Pacific Highway E[4]	150 ft	This residence is located on a bluff overlooking Pacific Highway and the site and is 240 feet west of the site.
R15	25363 Pacific Highway E[4]	150 ft	This residence is located on a bluff overlooking Pacific Highway and the site and is 200 feet west of the site.
R16	25363 Pacific Highway E[4]	150 ft	This residence is located on a bluff overlooking Pacific Highway and the site and is 170 feet west of the site.
R17	25201 Pacific Highway E	100 ft	This residence is located 315 feet west of Hwy. 99E and 80 feet west of the nearby railroad tracks. The residence is 410 feet west of the site.

Note 1: See Figure 5 below for receiver locations.
Note 2: All addresses come from Clackamas County's online "CMap" system.
Note 3: All distances are approximate and given to the site property line.
Note 4: In some areas, several residences occupy a single tax lot, and as such, only one address is provided in the CMap system.

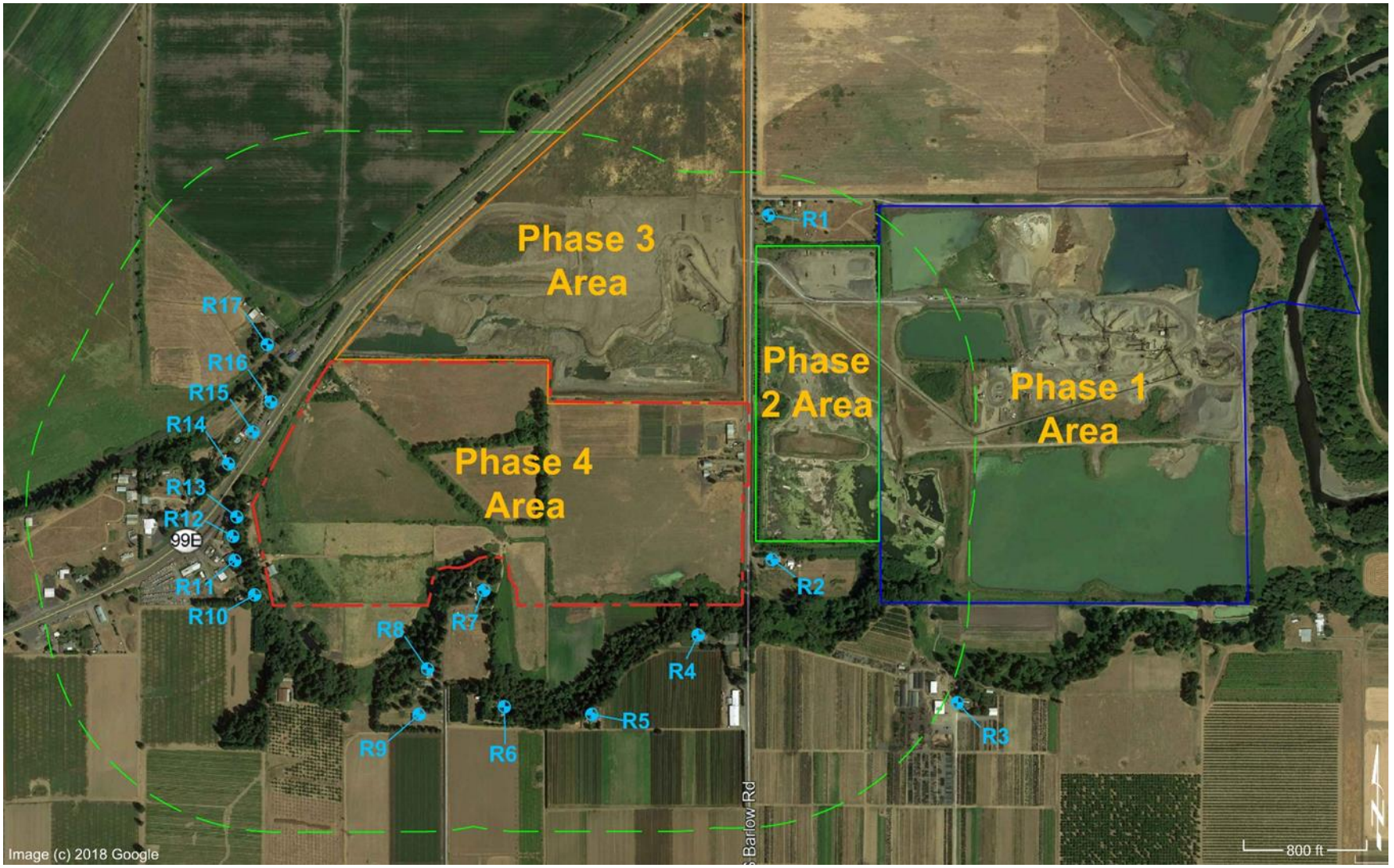

Figure 5. Receiver locations and 1500' impact area (dashed green line)

7.1 Noise Prediction Methodology

A computer modeling software called "SoundPLAN" was used to predict the noise levels that will radiate from the excavation and processing operations in the proposed mine expansion area. SoundPLAN calculates the sound pressure level at a receiver caused by any number of noise sources and it accounts for the attenuation (reduction) due to distance, atmospheric conditions, barriers, and vegetation. SoundPLAN uses accepted international standard procedures in the modeling and calculation of noise levels.

7.2 Mining Equipment Noise Reference Data

According to Cadman, an excavator (CAT 390F) and one or two front-end loaders (CAT 980G or 988B) will be used in Phase 4 cells. In addition to the mining equipment proposed in the Phase 4 mining area, the existing rock crushing and processing equipment will continue to operate in the Phase 1 mining area.

Reference noise level data for the excavator, conveyance equipment, and crushing equipment was measured onsite on 1/15/2019 and 7/12/2019. The overall sound level for the excavator was provided in the CAT specifications document, and the spectrum and polar radiation pattern were measured by ABD for a similar excavator on 1/15/2019. The reference noise level data used in this analysis are shown in Table 3.

Table 3. Mining equipment reference sound pressure levels

Noise levels expressed in decibels (dB) re. 20 µPa

Source	Ref. Dist. (ft)	Octave Band Center Frequency (Hz) Levels (dB)								Total (dBA)
		63	125	250	500	1000	2000	4000	8000	
CAT 988B Front End Loader[1]	40	81	80	82	80	80	76	73	62	84
CAT 390F Excavator[2]	54	73	77	76	74	76	74	69	61	80
Hopper[3]	38	72	79	71	71	68	66	63	58	74
Rock Crusher[3]	240	75	68	68	63	63	65	66	62	72

Note 1: Data measured by ABD on a previous project.
Note 2: The overall sound level for this excavator comes from the manufacturer's specifications. The spectrum is adjusted from measurements of a similar excavator taken by ABD at the Cadman site.
Note 3: Data measured at Cadman site by ABD for this project.

Most of the equipment discussed herein (except for the excavator, which will be a new piece of equipment for the site) is the equipment used within the currently permitted Phase 3 mining area. ABD has used the sound data associated with that equipment in the analysis because, at this time, it is the equipment most likely to be used in the Phase 4 area. It should be noted that whether the existing equipment is used in Phase 4 or that equipment is replaced with other equipment, replacing any of the equipment with equipment producing similar noise levels will not significantly change the conclusions of this report. Replacing the equipment with newer equipment could reduce the predicted noise levels since newer equipment tends to be quieter than older equipment.

7.3 Assumptions Used in Predicting Future Mining Noise Levels

The following assumptions were used to predict the loudest hourly statistical noise levels that might radiate from the Canby Pit/Barlow Road Aggregate Mine with excavation operations occurring in the Phase 4 mining area:

- The rock crushing and screening plant will operate continuously where currently allowed in the Phase 1 mining area during the hours when excavation is occurring in the Phase 4 area.
- Overburden depth across the site is approximately 10 feet so that the top of the resource is approximately 10 feet below the existing grade.
- The surrounding land is assumed to be an acoustically soft surface with a Ground Factor of 0.8 (ISO 9613 parameters), which corresponds to significant vegetation cover.
- For the excavator, the mining area is assumed to be an acoustically hard surface with a Ground Factor of 0 (ISO 9613 parameters), since the equipment will be operating next to an open water area. For all other equipment operating in the Phase 4 area, a Ground Factor of 0.5 is used in the analysis because that equipment will be located on acoustically mixed ground.
- In the sub-cells on the west side of the site where material will be mined in a single lift, the excavator will operate on the top of the resource (10 feet below grade) and extract material traveling from north to south using retreat mining.
- In those sub-cells on the east side of the site where the material will be mined in two separate lifts, the excavator will operate at the floor elevation of the first lift (20 feet below existing grade), and move north to south across the sub-cell as it pulls material down from the south wall of the sub-cell. For the second lift, the excavator will operate on the floor formed by the first lift (20 feet below existing grade), and extract material traveling from north to south using retreat mining.
- As discussed earlier in this report, the noise generated by trucks used to haul product off-site will not be regulated by the DEQ Noise Regulations for Industry and Commerce. Therefore, off-site dump truck noise was not assessed in this study.
- The effects of atmospheric absorption and topography on sound propagation are included in the model where appropriate. 70% humidity and 50° Fahrenheit are assumed in predicting the noise levels because those conditions result in the highest amount of sound transmission through the air. The predicted noise level at the receivers would be slightly lower if the humidity was lower or if the temperature was higher (i.e. during peak summer operations).
- The noise model assumes downwind propagation for all calculations. Downwind propagation is considered a favorable condition for sound propagation in that it typically results in the minimum amount of sound attenuation. Upwind propagation can result in significantly higher amounts of attenuation, and thus significantly lower noise levels at a receiver.

The assumptions listed above provide for a very conservative prediction of the noise levels that will be generated by mining and processing activities at the site.

7.4 Analysis Results

Typically, of the three statistical noise level criteria specified in the DEQ regulation (the hourly L_{01}, L_{10}, and L_{50} noise level limits), the hourly L_{50} noise level limit is the most difficult criterion to meet for mining operations. This is due to the fact that the noise

associated with a mining site that has excavation and crushing operations is typically fairly steady in level and duration. Consequently, the difference in the hourly L_{10} and the hourly L_{50} noise levels generated by equipment operating at a mine site is generally less than the difference between the DEQ hourly L_{10} and L_{50} criteria. For example, the hourly L_{10} noise level is typically around 2 to 3 dB higher than the hourly L_{50} noise level generated at a mine site with excavation and crushing operations, while the DEQ noise level criteria allow the hourly L_{10} noise level to be 5 dB higher than the L_{50} noise level. Because we have assumed a "worse case" operating environment with all machinery operating concurrently and continuously, the hourly L_{50} noise level criterion will have a more restrictive effect on operations than the hourly L_{10} noise level criterion. In assessing the noise that will be generated with mining operations in the proposed Phase 4 mining area, the discussion is limited to the hourly L_{50} noise criterion. In our professional judgment, given the nature of the operations at the site, the ability of the operation to meet the hourly L_{50} criterion ensures that the hourly L_{10} and L_{01} criteria are met as well.

Calculations were made to determine the hourly L_{50} noise levels that will reach the nearest residences around the Phase 4 mining area with excavation operations in the Phase 4 mining area and processing operations in the Phase 1 mining area without the use of any noise mitigation measures other than the noise barrier effects of the safety berms that will be constructed at the beginning of operations in the Phase 4 area. The results of the predictions are shown in Table 4. More detailed results are given in Appendix C.

Table 4. Predicted loudest hour noise levels at nearest residences without mitigation

Receiver[1]	Loudest Hourly L_{50} Noise Level[2] (dBA)			DEQ Daytime Hourly L_{50} Noise Level Limit (dBA)
	Conveyor & Processing	Excavation	Total	
R1	37	44	45	55
R2	43	51	51	
R3	35	38	40	
R4	43	55	**56**	
R5	37	45	45	
R6	39	48	48	
R7	45	61	**61**	
R8	41	52	53	
R9	39	49	50	
R10	42	67	**67**	
R11	41	57	**57**	
R12	42	66	**66**	
R13	43	70	**70**	
R14	36	50	50	
R15	38	53	53	
R16	42	57	**57**	
R17	37	51	51	

Note 1: See Figure 5 above for receiver locations.
Note 2: Levels shown in **bold red** exceed the DEQ noise limit.

From a review of the data in Table 4, it can be seen that the noise at several residences could exceed the DEQ hourly L_{50} noise level criteria if the mine plan does not include mitigation beyond that provided by the safety berms.

Modeling results (details in Appendix C) indicate that, with the proposed mining plan, one residence to the northwest of the site (R16 in Figure 5) will receive sound levels from mining operations that exceed the DEQ limits when excavation activities occur in the northwest corner of Phase 4. This exceedance is due to a combination of sound radiating from the excavator operating in the north-to-south retreat mode and from the two front-end loaders hauling material from the excavator to the conveyor feed-hopper.

The modeling results show residences overlooking the site near the southwest corner of the Phase 4 area (R10, R11, R12, and R13 in Figure 5) will receive sound levels above the DEQ limits with the proposed mining plan when excavation activities occur across much of the western portion of Phase 4. This exceedance is primarily due to sound radiating from the excavator operating in the north-to-south retreat mode. At some excavation locations, sound from the two front-end loaders transporting material to the hopper also contributes to the exceedance.

Finally, the results indicate that the two closest residences to the south of the site (R4 and R7 in Figure 5) will receive sound levels from mining operations that exceed the DEQ limits when excavation activities occur in the southeast corner of Phase 4. As before, this exceedance is due to a combination of noise from the excavator and the front-end loaders.

Section 8 below presents a discussion regarding mitigation measures that can be used to reduce the sound reaching all residential receivers to a level that will be in compliance with the DEQ noise regulation hourly L_{50} noise level limit.

8. Noise Mitigation

8.1 Potential Noise Mitigation Measures

ABD typically considers three types of noise controls for mining operations: source noise control, noise barriers, and administrative controls. Source noise controls usually consist of using better mufflers and sometimes using measures to reduce noise radiating from equipment engine radiator fans. The use of noise barriers typically includes the use of earthen berms, sound walls, or a combination of berms and walls around the perimeter of a site. The use of administrative controls includes limiting the amount of equipment that operates simultaneously within certain areas of the site.

In the Phase 3 area, Cadman used barriers to control noise radiating from the mining area to residential receivers, so as a first review, ABD analyzed the effects of using sound barriers as a noise control measure for the Phase 4 area. From the results of that analysis, it was determined that barriers alone may not always be feasible to achieve the desired results, so an analysis was made to determine administrative controls that could be used in conjunction with noise barriers to ensure compliance with the DEQ noise regulations at all residences.

Through the use of the barriers described below and shown in Figure 6, along with the equipment operating restrictions listed below, compliance with the DEQ noise regulation limits will be achieved at all receivers.

- Noise levels at R4 will remain in compliance with the DEQ noise regulation limit with the excavation and two front-end loader hauling operations occurring as proposed if a 20 foot high barrier[5] is constructed at the southeast corner of the site where shown in Figure 6.
- Noise levels at R7 will remain in compliance with the DEQ noise regulation limit with the excavation and two front-end loader hauling operations occurring as proposed if a 25 foot high barrier is constructed where shown in Figure 6 at the east and north sides of receiver R7, and also a 20 foot high barrier is constructed where shown on the north and west sides of R7.
- Noise levels at R10 – R13 will remain in compliance with the DEQ noise regulation limit if a 35 foot high barrier is constructed where shown in Figure 6 in the southwest corner of the site in the vicinity of residences R10 – R13, and an administrative control is used that requires the excavator to use retreat mining traveling from south to north in the blue cross-hatched portions of Cells 4A, 4B, and 4C. Additionally, when operations occur within the red-dotted overlay, only one FEL may be used to transport material to the conveyor feed-hopper.
- Noise levels at R16 will remain in compliance with the DEQ noise regulation limits if a 20 foot high barrier is constructed along the perimeter of the site where shown in Figure 6 in the northwest part of the site, and an administrative control is used that requires the excavator to use retreat mining traveling from south to north in the blue cross-hatched portions of Cells 4A, 4B, and 4C. Additionally, when operations occur within the red-dotted overlay, only one FEL may be used to transport material to the conveyor feed-hopper.

[5] Barrier heights are relative to the existing grade elevation of the site, 100 feet above sea level.

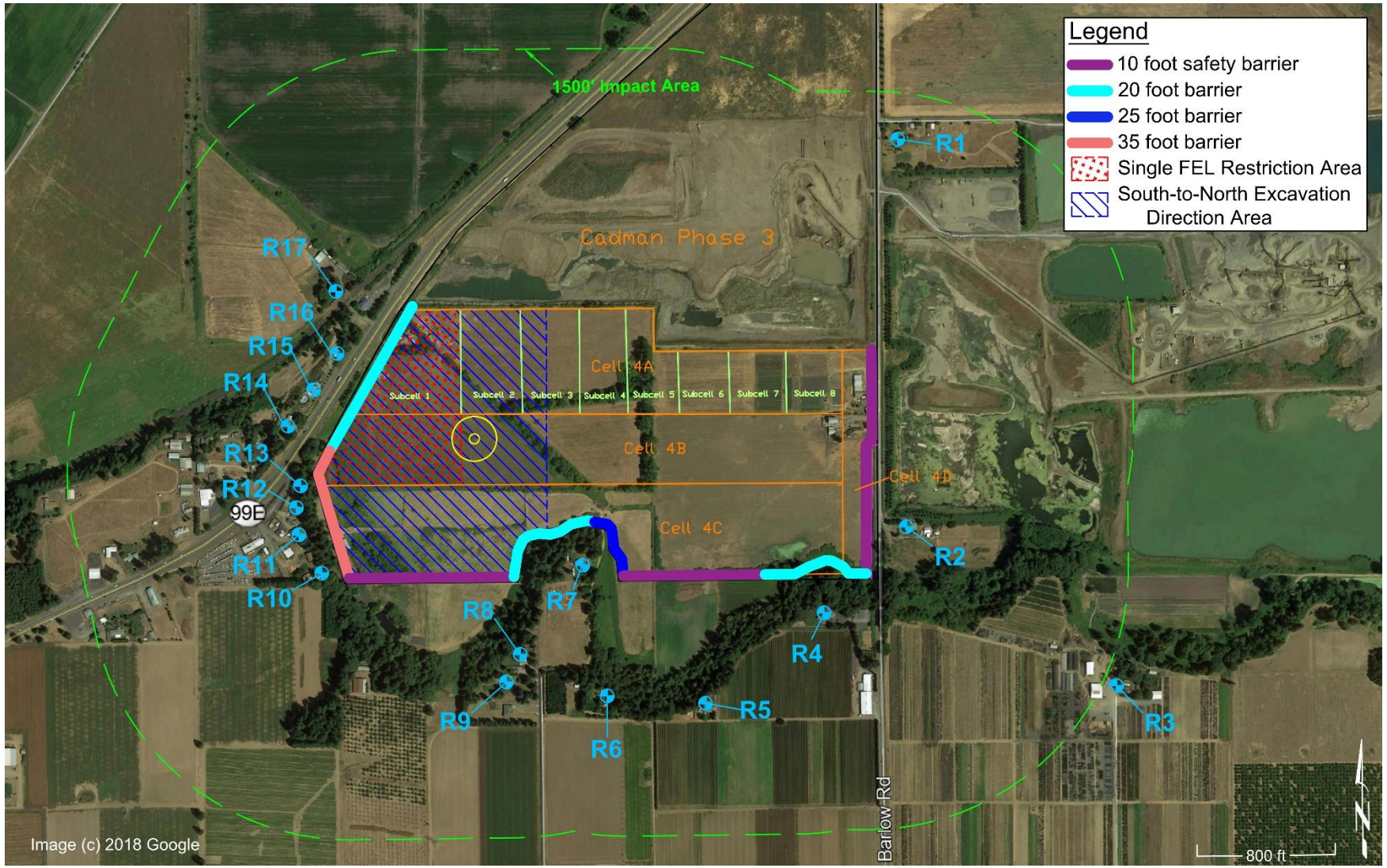

Figure 6. Proposed mitigation

8.2 Predicted Noise Levels with Mitigation

Table 5 presents the predicted noise levels at the 17 residences with the effect of noise mitigation included in the analysis (shown in Figure 6).

Table 5. Predicted loudest hour noise levels at nearest residences with mitigation[1]

Receiver[1]	Loudest Hourly L_{50} Noise Level (dBA)			DEQ Daytime Hourly L_{50} Noise Level Limit (dBA)
	Conveyor & Processing	Excavation	Total	
R1	37	47	47	55
R2	43	51	52	
R3	35	38	39	
R4	43	54	55	
R5	37	45	45	
R6	39	48	49	
R7	42	54	55	
R8	41	51	51	
R9	39	47	48	
R10	40	54	54	
R11	38	52	52	
R12	42	54	54	
R13	42	55	55	
R14	36	49	49	
R15	38	51	51	
R16	42	54	54	
R17	36	47	48	

Note 1: See Figure 6 above for proposed mitigation measures and receiver locations.

In addition to predicting the noise levels shown in Table 5, calculations were made to determine the area around the mine site where the sound radiating from mining and processing activities would be in compliance with the DEQ hourly L_{50} noise regulation limit with the use of the proposed noise mitigation measures. Figure 7 shows the DEQ hourly L_{50} noise level compliance boundary for excavation operations occurring in the Phase 4 mining area and processing and batching operations occurring in the Phase 1 mining area. The figure should be interpreted in the following manner:

> Outside the noise compliance boundary, the loudest hour noise levels will be in compliance with the DEQ noise level limits. Inside the boundary, the loudest hour mine related noise levels could, at times, exceed the DEQ noise regulation limits. However, it is important to note that the Goal 5 rule does not require the minimization of noise or other conflicts within the mining area.

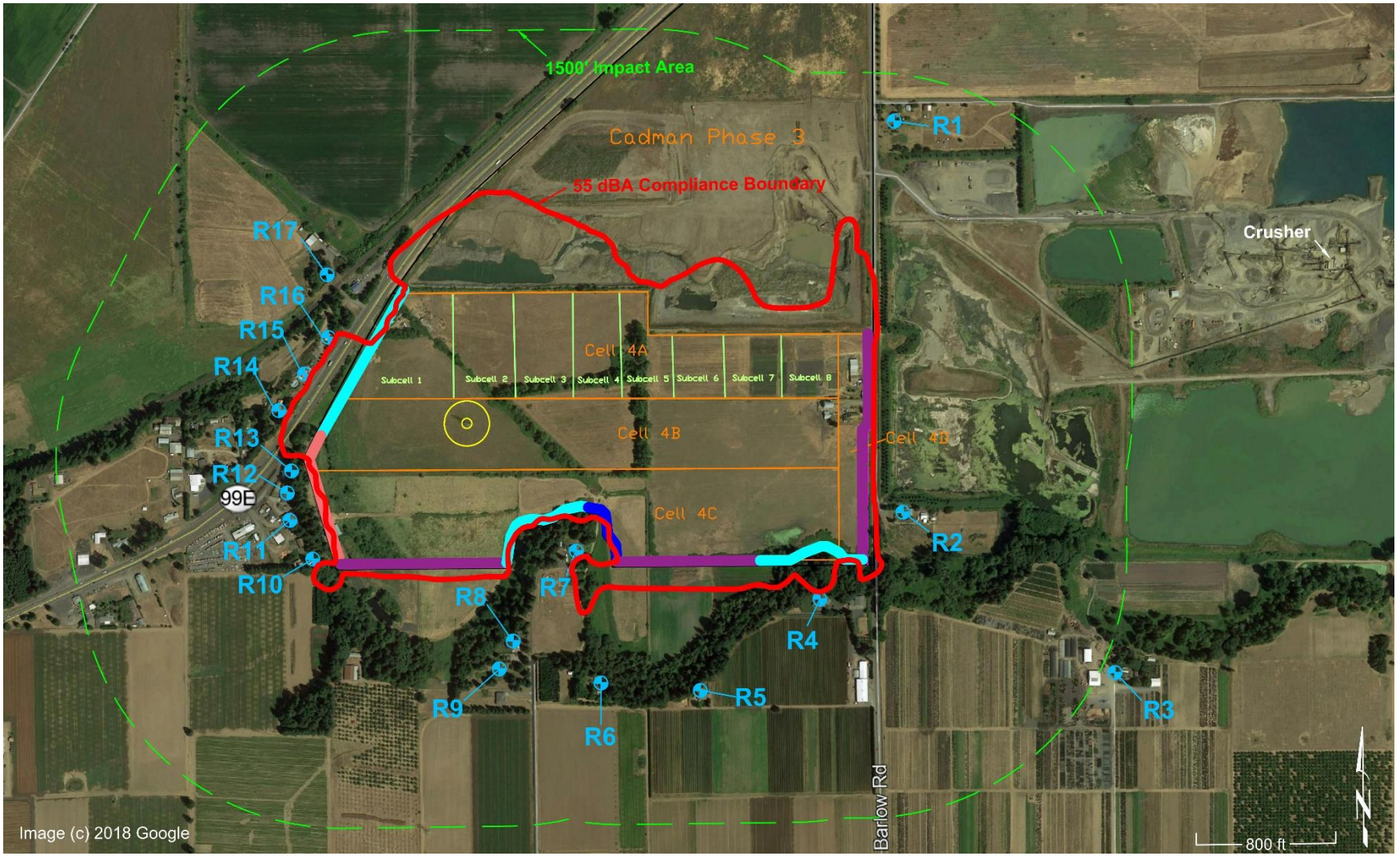

Figure 7. DEQ regulation noise compliance boundary (red) and 1500' impact area (dashed green)

9. Conclusions

Based on the results of the study conducted by ABD, if mitigation measures such as those discussed in this report are included in the mining plan, the noise associated with the Canby Pit/ Barlow Road Aggregate Mine will be in compliance with the DEQ noise regulations, and thus all mining noise conflicts will be minimized as required by the Oregon Statewide Planning Goal 5.

Appendix A
Letters Concerning Expansion

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Bryant Lovlien & Lynch
ATTORNEYS AT LAW

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Alvin J. Gray,
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December 7, 1993

VIA FACSIMILE 388-8283

JOHN HECTOR
DEPT OF ENVIRONMENTAL QUALITY
2146 NE 4TH
BEND OR 97701

Re: Cascade Pumice Co. / SM Site Plan / Our File No. 4674.2

Dear Mr. Hector:

As I said on the phone, we would greatly appreciate your help in responding to a question raised by County staff regarding the appropriate DEQ standards to apply in our situation. Cascade Pumice and its predecessors have operated a mining site since 1947. On or about 1982, the operation expanded to an adjacent section. Kerrie Standlee prepared a noise report for our site plan application and applied the standards for an existing industrial noise source. At the time he prepared the noise study, he conferred with you regarding the appropriate standards. The information he received was that you were previously employed with the DEQ in the Noise Division. The Noise Division no longer has staffing. The DEQ has in the past considered expansion of an existing site as an "existing source" and accordingly, must meet the DEQ standards for existing industrial noise source.

What I would like from you is confirmation of that interpretation. It can be in the form of a short letter stating the above interpretation or even a letter stating that you concur with the statement in my letter dated today.

I appreciate your help. As I said on the phone, we have a hearing scheduled for Thursday, December 9th at 7:00 p.m. If at all possible, I would like your response by then. If not, when we can request to keep the record open and submit your response whenever you have a chance to prepare it.

If you have any questions at all, please call me.

Sincerely,

SHARON R. SMITH

mh
(CASC09)

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

CENTRAL REGION

December 7, 1993

Sharon R. Smith
Holmes Hurley Bryant Lovlien & Lynch
P.O. Box 1151
Bend, OR 97709

Re: Cascade Pumice Co.

Dear Ms. Smith:

I have reviewed your letter of December 7th and agree with your understanding of our noise control regulations, OAR 340 Division 35. I would add the following clarification; the interpretation of an expansion (existing) versus a new noise source requires that the expansion be onto property that is contiguous to the existing operation in order for the expansion to be considered "existing" rather than it being regulated as a "new" source of noise.

If you have any questions, feel free to contact me.

Sincerely,

John Hector
Region Manager

JH:nw

2146 NE 4th Street
Suite 104
Bend, OR 97701
(503) 388-6146
DEQ/CR-101

Appendix B
DEQ Noise Regulations

OAR 340-035

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 35

NOISE CONTROL REGULATIONS

General

340-035-0005

Policy

In the interest of public health and welfare, and in accordance with ORS 467.010, it is declared to be the public policy of the State of Oregon:

(1) To provide a coordinated state-wide program of noise control to protect the health, safety, and welfare of Oregon citizens from the hazards and deterioration of the quality of life imposed by excessive noise emissions;
(2) To facilitate cooperation among units of state and local governments in establishing and supporting noise control programs consistent with the state program and to encourage the enforcement of viable local noise control regulations by the appropriate local jurisdiction;
(3) To develop a program for the control of excessive noise sources which shall be undertaken in a progressive manner, and each of its objectives shall be accomplished by cooperation among all parties concerned.

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.010
Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 77, f. 9-5-74, ef. 9-25-74 340-035-0010

Exceptions

(1) Upon written request from the owner or controller of a noise source, the Department may authorize exceptions as specifically listed in these rules.
(2) In establishing exceptions, the Department shall consider the protection of health, safety, and welfare of Oregon citizens as well as the feasibility and cost of noise abatement; the past, present, and future patterns of land use; the relative timing of land use changes; and other legal constraints. For those exceptions which it authorizes the Department shall specify the times during which the noise rules can be exceeded and the quantity and quality of the noise generated, and when appropriate shall specify the increments of progress of the noise source toward meeting the noise rules.

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030
Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 77, f. 9-5-74, ef. 9-25-74

340-035-0015 Definitions As used in this division:

(1) "Air Carrier Airport" means any airport that serves air carriers holding Certificates of Public Convenience and Necessity issued by the Civil Aeronautic Board.

(2) "Airport Master Plan" means any long-term development plan for the airport established by the airport proprietor.

(3) "Airport Noise Abatement Program" means a Commis-sion-approved program designed to achieve noise compatability between an airport and its environs.

(4) "Airport Proprietor" means the person who holds title to an airport.

(5) "Ambient Noise" means the all-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.

(6) "Annual Average Day-Night Airport Noise Level" means the average, on an energy basis, of the daily Day-Night Airport Noise Level over a 12-month period.

(7) "Any One Hour" means any period of 60 consecutive minutes during the 24-hour day.

(8) "Closed Course Motorcycle Racing Vehicle" means any motorcycle racing vehicle that is operated in competition or practice session on a closed course motor sports facility, i.e., where public access is restricted and admission is generally charged.

(9) "Commission" means the Environmental Quality Commission.

(10) "Construction" shall mean building or demolition work and shall include all activities thereto such as clearing of land, earthmoving, and landscaping, but shall not include the production of construction materials.

(11) "Day-Night Airport Noise Level (Ldn)" means the Equivalent Noise Level produced by airport/aircraft operations during a 24-hour time period, with a 10 decibel penalty applied to the level measured during the nighttime hours of 10 p.m. to 7 a.m.

(12) "Department" means the Department of Environmental Quality.

(13) "Director" means the Director of the Department.

(14) "Drag Racing Vehicle" means any racing vehicle used to compete in any acceleration competition initiated from a standing start and continued over a straight line course.

(15) "Emergency Equipment" means noise emitting devices required to avoid or reduce the severity of accidents. Such equipment includes, but is not limited to, safety valves and other unregulated pressure relief devices.

(16) "Equivalent Noise Level (Leq)" means the equivalent steady state sound level in A-weighted decibels for a stated period of time which contains the same acoustic energy as the actual time-varying sound level for the same period of time.

(17) "Existing Industrial or Commercial Noise Source" means any industrial or commercial noise source for which installation or construction was commenced prior to January 1, 1975.

(18) "Farm Tractor" means any motor vehicle designed primarily for use in agricultural operations for drawing or operating plows, mowing machines, or other implements of husbandry.

(19) "Four Wheel Drive Racing Vehicle" means any four-wheeled racing vehicle with at least one wheel on the front and rear axle driven by the engine or any racing vehicle participating in an event with predominantly four wheel drive racing vehicles.

(20) "Go-Kart Racing Vehicle" means a light-weight four-wheeled racing vehicle of the type commonly known as a go-kart.

(21) "Impulse Sound" means either a single pressure peak or a single burst (multiple pressure peaks) for a duration of less than one second as measured on a peak unweighted sound pressure measuring instrument or "C" weighted, slow response instrument and specified by dB and dBC respectively.

(22) "In-Use Motor Vehicle" means any motor vehicle which is not a new motor vehicle.

(23) "Industrial or Commercial Noise Source" means that source of noise which generates industrial or commercial noise levels.

(24) "Industrial or Commercial Noise Levels" means those noises generated by a combination of equipment, facilities, operations, or activities employed in the production, storage, handling, sale, purchase, exchange, or maintenance of a product, commodity, or service and those noise levels generated in the storage or disposal of waste products.

(25) "Motorboat" as used in OAR 340-035-0025 means a watercraft propelled by an internal combustion engine but does not include a boat powered by an outboard motor or an inboard/outboard power package designed to exhaust beneath the surface of the water.

(26) "Motorcycle" means any motor vehicle, except farm tractors, designed to travel on not more than three wheels which are in contact with the ground.

(27) "Motor Sports Advisory Committee" means a committee appointed by the Director, from among the nominees, for the purpose of technical advice on racing activities and to recommend Exceptions to these rules as specified in OAR 340-035-0040(12). This Committee shall consist of

(a) One permanent public member nominated by a noise impacted group or association; and

(b) One representative of each of the racing vehicle types identified in OAR 340-035-0040(2) as nominated by the respective sanctioning bodies; and

(c) The program manager of the Department's noise pollution control section who shall also serve as the departmental staff liaison to this body; and (d) An attorney; and (e) An acoustical engineer.

(28) "Motor Sports Facility" means any facility, track or course upon which racing events are conducted.

(29) "Motor Sports Facility Noise Impact Boundaries" means the daily 55 dBA day-night (Ldn) noise contours around the motor sports facility representing events that may occur on the day of maximum projected use.

(30) "Motor Sports Facility Owner" means the owner or operator of a motor sports facility or an agent or designee of the owner or operator. When a Racing Event is held on public land, the event organizer (i.e., promoter) shall be considered the motor sports facility owner for the purposes of these rules.

(31) "Motor Vehicle" means any vehicle which is, or is designed to be self-propelled or is designed or used for transporting persons or property. This definition excludes airplanes, but includes watercraft.

(32) "New Airport" means any airport for which installation, construction, or expansion of a runway commenced after January 1, 1980.

(33) "New Industrial or Commercial Noise Source" means any industrial or commercial noise source for which installation or construction was commenced after January 1, 1975 on a site not previously occupied by the industrial or commercial noise source in question.

(34) "New Motor Sports Facility" is any permanent motor sports facility for which construction or installation was commenced after January 1, 1982. Any recreational park or similar facility which initiates sanctioned racing after this date shall be considered a new motor sports facility.

(35) "New Motor Vehicle" means a motor vehicle whose equitable or legal title has never been transferred to a person who in good faith purchases the new motor vehicle for purposes other than resale. The model year of such vehicle shall be the year so specified by the manufacturer, or if not so specified, the calendar year in which the new motor vehicle was manufactured.

(36) "Noise Impact Boundary" means a contour around the airport, any point on which is equal to the airport noise criterion.

(37) "Noise Level" means weighted sound pressure level measured by use of a metering characteristic with an "A" frequency weighting network and reported as dBA.

(38) "Noise Sensitive Property" means real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries. Property used in industrial or agricultural activities is not Noise Sensitive Property unless it meets the above criteria in more than an incidental manner.

(39) "Octave Band Sound Pressure Level" means the sound pressure level for the sound being measured within the specified octave band. The reference pressure is 20 micropascals (20 micronewtons per square meter).

(40) "Off-Road Recreational Vehicle" means any motor vehicle, including water craft, used off public roads for recreational purposes. When a road vehicle is operated off-road the vehicle shall be considered an off-road recreational vehicle if it is being operated for recreational purposes.

(41) "One-Third Octave Band Sound Pressure Level" means the sound pressure level for the sound being measured within the specified one-third octave band at the preferred frequencies. The reference pressure is 20 micropascals (20 micronewtons per square meter).

(42) "Open Course Motorcycle Racing Vehicle" means any motorcycle racing vehicle that is operated in competition on an open course motor sports facility, i.e., where public access is not generally restricted. This definition is intended to include the several types of motorcycles such as "enduro" and "cross country" that are used in events held in trail or other off-road environments.

(43) "Oval Course Racing Vehicle" means any racing vehicle, not a motorcycle and not a sports car, which is operated upon a closed, oval-type motor sports facility.

(44) "Person" means the United States Government and agencies thereof, any state, individual, public or private corporation, political subdivision, governmental agency, municipalty, industry, co-partnership, association, firm, trust, estate, or any other legal entity whatever.

(45) "Practice Sessions" means any period of time during which racing vehicles are operated at a motor sports facility, other than during racing events. Driver training sessions or similar activities which are not held in anticipation of a subsequent racing event, and which include only vehicles with a stock exhaust system, shall not be considered practice sessions.

(46) "Preferred Frequencies" means those mean frequencies in Hertz preferred for acoustical measurements which for this purpose shall consist of the following set of values: 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, 10,000, 12,500.

(47) "Previously Unused Industrial or Commercial Site" means property which has not been used by any industrial or commercial noise source during the 20 years immediately preceding commencement of construction of a new industrial or commercial source on that property. Agricultural activities and silvicultural activities generating infrequent noise emissions shall not be considered as industrial or commercial operations for the purposes of this definition.

(48) "Propulsion Noise" means that noise created in the propulsion of a motor vehicle. This includes, but is not limited to, exhaust system noise, induction system noise, tire noise, cooling system noise, aerodynamic noise, and, where appropriate in the test procedure, braking system noise. This does not include noise created by road vehicle auxiliary equipment such as power take-offs and compressors.

(49) "Public Roads" means any street, alley, road, highway, freeway, thoroughfare, or section thereof in this state used by the public or dedicated or appropriated to public use.

(50) "Quiet Area" means any land or facility designated by the Commission as an appropriate area where the qualities of serenity, tranquility, and quiet are of extraordinary significance and serve an important public need, such as, without being limited to, a wilderness area, national park, state park, game reserve, wildlife breeding area, or amphitheater. The Department shall submit areas suggested by the public as quiet areas, to the Commission, with the Department's recommendation.

(51) "Racing Events" means any time, speed or distance competition using motor vehicles, conducted under a permit issued by the governmental authority having jurisdiction or under the auspices of a recognized sanctioning body. This definition includes, but is not limited to, events on the surface of land and water. Any motor sports event not meeting this definition shall be subject to the ambient noise limits of OAR 340-035-0030(1)(d).

(52) "Racing Vehicle" means any Motor Vehicle that is designed to be used exclusively in Racing Events or any New Motor Vehicle that has not been certified by its manufacturer as meeting the applicable noise limits of OAR 340-035-0025 or any vehicle participating in or practicing for a Racing Event.

(53) "Recreational Park" means a facility open to the public for the operation of off-road recreational vehicles.

(54) "Road Vehicle" means any motor vehicle registered for use on public roads, including any attached trailing vehicles.

(55) "Road Vehicle Auxiliary Equipment" means those mechanical devices which are built in or attached to a road vehicle and are used primarily for the handling or storage of products in that motor vehicle. This includes, but is not limited to, refrigeration units, compressors, compactors, chippers, power lifts, mixers, pumps, blowers, and other mechanical devices.

(56) "Sound Pressure Level" (SPL) means 20 times the logarithm to the base 10 of the ratio of the root-mean-square pressure of the sound to the reference pressure. SPL is given in decibels (dB). The reference pressure is 20 micropascals (20 micronewtons per square meter).

(57) "Special Motor Racing Event" means any racing event in which a substantial or significant number of out-of-state racing vehicles are competing or any event which has a special significance to the community and which has been recommended as a special motor racing event by the motor sports advisory committee and approved by the Department.

(58) "Sports Car Racing Vehicle" means any racing vehicle which meets the requirements and specifications of the competition rules of any sports car organization.

(59) "Statistical Noise Level" means the noise level which is equalled or exceeded a stated percentage of the time. An L10 = 65 dBA implies that in any hour of the day 65 dBA can be equalled or exceeded only 10% of the time, or for 6 minutes.

(60) "Stock Exhaust System" means an original equipment manufacturer exhaust system or a replacement for original equipment for a street legal vehicle whose noise emissions do not exceed those of the original equipment.

(61) "Temporary Autocross or Solo Course" means any area upon which a paved course motor sports facility is temporarily established. Typically such courses are placed on parking lots, or other large paved areas, for periods of one or two days.

(62) "Top Fuel-Burning Drag Racing Vehicle" means a drag racing vehicle that operates using principally alcohol (more than 50 percent) or utilizes nitromethane as a component of its operating fuel and commonly known as top fuel and funny cars.

(63) "Trackside" means a sound measuring point of 50 feet from the racing vehicle and specified in Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPCS-35.

(64) "Warning Device" means any device which signals an unsafe or potentially dangerous situation.

(65) "Watercraft Racing Vehicle" means any racing vehicle which is operated upon or immediately above the surface of water.

(66) "Well Maintained Muffler" means a device or combination of devices which effectively decreases the sound energy of internal combustion engine exhaust without a muffler by a minimum of 5 dBA at trackside. A well maintained muffler shall be free of defects or modifications that reduce its sound reduction capabilities. Each outlet of a multiple exhaust system shall comply with the requirements of this subsection, notwithstanding the total engine displacement versus muffler length requirements. Such a muffler shall be a:

(a) Reverse gas flow device incorporating a multitube and baffle design; or a

(b) Perforated straight core device, fully surrounded from beginning to end with a sound absorbing medium, not installed on a rotary engine:

(A) At least 20 inches in inner core length when installed on any drag race engine exceeding 1600 cc (96.7 cubic inches) displacement; or

(B) At least 12 inches in inner core length when installed on any non-motorcycle drag race engine equal to or less than 1600 cc (96.7 cubic inches) displacement; or

(C) At least 6 inches in inner core length and installed at the outlet end of any four-cycle motorcycle drag race engine; or

(D) At least 8 inches in inner core length when installed on any two-cycle motorcycle drag race engine; or an

(c) Annular swirl flow (auger-type) device of:

(A) At least 16 inches in swirl chamber length when installed on any drag race engine exceeding 1600 cc (96.7 cubic inches) displacement; or

(B) At least 10 inches in swirl chamber length when installed on any drag race engine equal to or less than 1600 cc (96.7 cubic inches) displacement; or a

(d) Stacked 360° diffuser disc device; or a

(e) Turbocharger; or a

(f) Go-kart muffler as defined by the International Karting Federation as specified in Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPCS-35; or an

(g) Original equipment manufacturer motorcycle muffler when installed on a motorcycle model such muffler was designated for by the manufacturer; or

(h) Boat motor whose exhaust exits beneath the water surface during operation; or a

(i) Formula Vee four-into-one header/collector when installed on a Formula Vee sports car racing vehicle; or a

(j) Hughes-type Racing muffler; or

(k) Any other device demonstrated effective and approved by the motor sports advisory committee and the Department.

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030
Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 77, f. 9-5-74, ef. 9-25-74; DEQ 119, f. & ef. 9-1-76; DEQ 135, f. & ef 6-7-77; DEQ 33-1979, f. & ef. 11-27-79; DEQ 17-1980, f. & ef. 5-28-80; DEQ 33-1980, f. 12-2-80, ef. 1-1-82; DEQ 7-1983, f. & ef. 4-22-83 340-035-0025

Noise Control Regulations for the Sale of New Motor Vehicles

(1) Standards and Regulations:

(a) No person shall sell or offer for sale any new motor vehicle designated in this rule which produces a propulsion noise exceeding the noise limits specified in Table 1, except as otherwise provided in these rules.

(b) Subsequent to the adoption of a Federal Environmental Protection Agency procedure to determine sound levels of passenger cars and light trucks, or a nationally accepted procedure for these vehicles not similar to those specified and approved under subsection (2)(a) of this rule, the Department shall conduct an evaluation under such new procedure.

(c) After an appropriate evaluation of noise emission data measured under the procedure specified under subsection (1)(b) of this rule, the Department shall make recommendations to the Commission on the adequacy of the procedure and the necessity of amendments to this rule for incorporation of the procedure and associated standards.

(d) No person shall sell or offer to sell any new motorcycle, new motorcycle exhaust system or new motorcycle exhaust system component manufactured after January 1, 1983 unless the motorcycle, exhaust system, or exhaust component is properly labeled or marked in accordance with federal noise regulations specified in Part 205 Subpart E of Title 40 of the Code of Federal Regulations.

(2) Measurement:

(a) Sound measurements shall conform to test procedures adopted by the Commission in Motor Vehicle Sound Measurement Procedures Manual (NPCS-21), or to standard methods approved in writing by the Department. These measurements will generally be carried out by the motor vehicle manufacturer on a sample of either prototype or production vehicles. A certification program shall be devised by the manufacturer and submitted to the Department for approval within 60 days after the adoption of this rule;

(b) Nothing in this rule shall preclude the Department from conducting separate or additional noise level tests and measurements on new motor vehicles being offered for sale. Therefore, when requested by the Department a new motor vehicle dealer or manufacturer shall cooperate in reasonable noise testing of a specific class of motor vehicle being offered for sale.

(3) Manufacturer's Certification:

(a) Prior to the sale of or offer for sale of any new motor vehicle designated in Table 1, the manufacturer or a designated representative shall certify in writing to the Department that vehicles listed in Table 1 made by that manufacturer and offered for sale in the State of Oregon meet applicable noise limits. Such certification will include a statement by the manufacturer that:

(A) The manufacturer has tested sample or prototype vehicles;

(B) That such samples or prototypes met applicable noise limits when tested in accordance with the procedures specified;

(C) That vehicles offered for sale in Oregon are substantially identical in construction to such samples or prototypes.

(b) Nothing in this rule shall preclude the Department from obtaining specific noise measurement data gathered by the manufacturer on prototype or production vehicles for a class of vehicles for which the Department has reasonable grounds to believe is not in conformity with the applicable noise limits.

(4) Exceptions: Upon prior written request from the manufacturer or designated representative, the Department may authorize an exception to this noise rule for a class of motor vehicles, if it can be demonstrated to the Department that for that specific class a vehicle manufacturer has not had adequate lead-time or does not have the technical capability to either bring the motor vehicle noise into compliance or to conduct new motor vehicle noise tests.

(5) Exemptions:

(a) All racing vehicles, except racing motorcycles and racing motorboats, shall be exempt from the requirements of this rule provided that such vehicles are operated only at facilities used for sanctioned racing events;

(b) Racing motorcycles and racing motorboats shall be exempt from the requirements of this rule provided that racing motorcycles are operated only at facilities used for sanctioned racing events, racing motorboats are operated only at areas designated by the State Marine Board for testing or at an approved racing event, and the following conditions are complied with:

(A) Prior to the sale of a racing motorcycle or racing motorboat, the prospective purchaser shall file a notarized affidavit with the Department, on a Departmentally approved form, stating that it is the intention of such prospective purchaser to operate the vehicle only at facilities used for sanctioned racing events; and

(B) No racing vehicle shall be displayed for sale in the State of Oregon without notice prominently affixed thereto:

(i) That such vehicle will be exempt from the requirements of this rule only upon demonstration to the Department that the vehicle will be operated only at facilities used for sanctioned racing events, and

(ii) That a notarized affidavit will be required of the prospective purchaser stating that it is the intention of such prospective purchaser to operate the vehicle only at facilities used for sanctioned racing events; and

(C) No racing vehicle shall be locally advertised in the State of Oregon as being for sale without notice included:

(i) Which is substantially similar to that required in subparagraph (B)(i) and (ii) of this subsection; and

(ii) Which is unambiguous as to which vehicle such notice applies.

[ED. NOTE: The Table(s) referenced in this rule are not printed in the OAR Compilation. Copies are available from the agency.]

[Publication: The Publication(s) referred to or incorporated by reference in this rule are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030
Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 119, f. & ef. 9-1-76; DEQ 135, f. & ef. 6-7-77; DEQ 143, f. & ef. 9-30-77; DEQ 146, f. & ef. 11-3-77; DEQ 18-1978, f. & ef. 12-1-78; DEQ 20-1978, f. & ef. 12-27-78; DEQ 3-1979, f. & ef. 2-2-79; DEQ 10-1980, f. & ef. 4-3-80; DEQ 17-1980, f. & ef. 5-28-80; DEQ 13-1982, f. & ef. 7-21-82; DEQ 7-1983, f. & ef. 4-22-83

340-035-0030

Noise Control Regulations For In-Use Motor Vehicles

(1) Standards and Regulations:

(a) Road Vehicles:

(A) No person shall operate any road vehicle which exceeds the noise level limits specified in Table 2 or in such a manner to exceed the noise level limits specified in Table 3, except as otherwise provided in these rules.

(B) No person shall operate a road vehicle with any of the following defects:

(i) No muffler;

(ii) Leaks in the exhaust system;

(iii) Pinched outlet pipe.

(C) Non-conforming "classic" and other "special interest" vehicles may be granted an exception to this rule, pursuant to OAR 340-035-0010, for the purpose of maintaining authentic equipment.

(b) Off-Road Recreational Vehicles:

(A) No person shall operate any off-road recreational vehicle which exceeds the stationary noise level limits specified in Table 4 or in such a manner as to exceed the moving vehicle noise level limits specified in Table 4;

(B) No person shall operate an off-road recreational vehicle with any of the following defects:

(i) No muffler;

(ii) Leaks in the exhaust system;

(iii) Pinched outlet pipe.

(c) Trucks Engaged in Interstate Commerce. Motor vehicles with a GVWR or GCWR in excess of 10,000 pounds which are engaged in interstate commerce by trucking and are regulated by Part 202 ofTitle 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-574, shall be:

(A) Free from defects which adversely affect sound reduction;

(B) Equipped with a muffler or other noise dissipative device;

(C) Not equipped with any "cut-out" devices, "by-pass" devices, or any other similar devices; and

(D) Not equipped with any tire which as originally manufactured or newly retreaded has a tread pattern composed primarily of cavities in the tread, excluding sipes and local chunking, not vented by grooves to the tire shoulder or vented circumferentially to each other around the tire.

(d) Ambient Noise Limits:

(A) No person shall cause, allow, permit, or fail to control the operation of motor vehicles, including motorcycles, on property which he owns or controls, nor shall any person operate any such motor vehicle if the operation thereof increases the ambient noise level such that the appropriate noise level specified in Table 5 is exceeded as measured from either of the following points, if located within 1,000 feet (305 meters) of the motor vehicle:

(i) Noise sensitive property; or

(ii) A quiet area.

(B) Exempt from the requirements of this section shall be:

(i) Motor vehicles operating in racing events;

(ii) Motor vehicles initially entering or leaving property which is more than 1,000 feet (305 meters) from the nearest noise sensitive property or quiet area;

(iii) Motor vehicles operating on public roads; and

(iv) Motor vehicles operating off-road for non-recreational purposes.

(e) Auxiliary Equipment Noise Limits:

(A) No person shall operate any road vehicle auxiliary equipment which exceeds the noise limits specified in Table 6, except as otherwise provided in these rules;

(B) No person shall cause, allow, permit, or fail to control the operation of any road vehicle auxiliary equipment that exceeds 50 dBA for more than 30 minutes between 10 p.m. and 7 a.m.

at any appropriate noise sensitive property measurement point as specified in OAR 340-035-0035(3)(b).

(f) Motorcycles manufactured after December 31, 1982 to Federal Noise Regulations (40 CFR Part 205):

(A) No person shall remove or render inoperative, or cause to be removed or rendered inoperative, other than for the purposes of maintenance, repair, or replacement of any device or element of design incorporated in the motorcycle for the purpose of noise control;

(B) No person shall remove or deface any noise label or mark required by federal law which is affixed to any motorcycle or motorcycle part for purposes of identifying the motorcycle or motorcycle part as a federally regulated product;

(C) No person shall operate any road or off-road motorcycle manufactured to federal noise law that does not bear a label or mark on the exhaust system that matches the model specific code of the motorcycle on which the system is installed;

(D) No person shall operate, nor shall any person cause, allow, permit or fail to control the operation of any competition motorcycle identified for "competition use only" by the noise label or mark required by federal law on any property other than a motor sports facility in a practice session or a racing event;

(E) No person shall operate, nor shall any person cause, allow, permit or fail to control the operation of any motorcycle fitted with an exhaust system or exhaust system component identified for "competition motorcycles only" by the noise label or mark required by federal law on any property other than a motor sports facility in a practice session or a racing event.

(2) Measurement. Sound measurement shall conform to test procedures adopted by the Commission in Sound Measurement Procedures Manual (NPCS-1) and Motor Vehicle Sound Measurement Procedures Manual (NPCS-21) or to standard methods approved in writing by the Department.

(3) Exemptions:

(a) Motor vehicles registered as antique or historical motor vehicles licensed in accordance with ORS 481.205(4) are exempt from these regulations;

(b) Motor vehicle warning devices are exempt from these regulations;

(c) Vehicles equipped with at least two snowtread tires are exempt from the noise limits of Table 3;

(d) Motor vehicles described in subsection (1)(c) of this rule, which are demonstrated by the operator to be in compliance with the noise levels in Table 3, for operation greater than 35 mph, are exempt from these regulations;

(e) Auxiliary equipment operated on construction sites or in the maintenance of capital equipment or to avoid or reduce the severity of accidents or operated on a farm for agricultural purposes or operated on forest land as defined in subsection (1) of ORS 526.324 for activities related to the growing or harvesting of forest tree species are exempt from these regulations.

(4) Equivalency:

(a) The in-use motor vehicle standards specified in Table 2 and 3 have been determined by the Department to be substantially equivalent to the 25 foot stationary test standards set forth in 1977 Oregon, Laws, Chapter 273;

(b) Tests shall be conducted according to the procedures in Motor Vehicle Sound Measurement Procedures Manual (NPCS-21) or to standard methods approved in writing by the Department.

[ED. NOTE: The Table(s) referenced in this rule are not printed in the OAR Compilation. Copies are available from the agency.]

[Publication: The Publication(s) referred to or incorporated by reference in this rule are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030
Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 119, f. & ef. 9-1-76; DEQ 135, f. & ef. 6-7-77; DEQ 147(Temp), f. & ef. 12-1-77; DEQ 2-1978, f. & ef. 3-1-78; DEQ 7-1983, f. & ef. 4-22-83

340-035-0035

Noise Control Regulations for Industry and Commerce

(1) Standards and Regulations:

(a) Existing Noise Sources. No person owning or controlling an existing industrial or commercial noise source shall cause or permit the operation of that noise source if the statistical noise levels generated by that source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 7, except as otherwise provided in these rules.

(b) New Noise Sources:

(A) New Sources Located on Previously Used Sites. No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies.

(B) New Sources Located on Previously Unused Site:

(i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).

(ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

(iii) For noise levels generated or caused by a wind energy facility:

(I) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level .

(II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with windspeed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.

(III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.

(IV) For purposes of determining whether a proposed wind energy facility would satisfy the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are predicted assuming that all of the proposed wind facility's turbines are operating between cut-in speed and the wind speed corresponding to the maximum sound power level established by IEC 61400-11 (version 2002-12). These predictions must be compared to the highest of either the assumed ambient noise level of 26

dBA or to the actual ambient background L10 and L50 noise level, if measured. The facility complies with the noise ambient background standard if this comparison shows that the increase in noise is not more than 10 dBA over this entire range of wind speeds.

(V) For purposes of determining whether an operating wind energy facility complies with the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are measured when the facility's nearest wind turbine is operat ing over the entire range of wind speeds between cut-in speed and the windspeed corresponding to the maximum sound power level and no turbine that could contribute to the noise level is disabled. The facility complies with the noise ambient background standard if the increase in noise over either the assumed ambient noise level of 26 dBA or to the actual ambient background L10 and L50 noise level, if measured, is not more than 10 dBA over this entire range of wind speeds.

(VI) For purposes of determining whether a proposed wind energy facility would satisfy the Table 8 standards, noise levels at the appropriate measurement point are predicted by using the turbine's maximum sound power level following procedures established by IEC 61400-11 (versi on 2002-12), and assuming that all of the proposed wind facility's turbines are operating at the maximum sound power level.

(VII) For purposes of determining whether an operating wind energy facility satisfies the Table 8 standards, noise generated by the energy facility is measured at the appropriate measurement point when the facility's nearest wind turbine is operating at the windspeed corresponding to the maximum sound power level and no turbine that could contribute to the noise level is disabled.

(c) Quiet Areas. No person owning or controlling an industrial or commercial noise source located either within the boundaries of a quiet area or outside its boundaries shall cause or permit the operation of that noise source if the statistical noise levels generated by that source exceed the levels specified in Table 9 as measured within the quiet area and not less than 400 feet (122 meters) from the noise source.

(d) Impulse Sound. Notwithstanding the noise rules in Tables 7 through 9, no person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if an impulsive sound is emitted in air by that source which exceeds the sound pressure levels specified below, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule:

(A) Blasting. 98 dBC, slow response, between the hours of 7 a.m. and 10 p.m. and 93 dBC, slow response, between the hours of 10 p.m. and 7 a.m.

(B) All Other Impulse Sounds. 100 db, peak response, between the hours of 7 a.m. and 10 p.m. and 80 dB, peak response, between the hours of 10 p.m. and 7 a.m.

(e) Octave Bands and Audible Discrete Tones. When the Director has reasonable cause to believe that the requirements of subsection (1)(a), (b), or (c) of this rule do not adequately protect the health, safety, or welfare of the public as provided for in ORS Chapter 467, the Department may require the noise source to meet the following rules:

(A) Octave Bands. No person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if such operation generates a median octave band sound pressure level which, as measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceeds applicable levels specified in Table 10.

(B) One-third Octave Band. No person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if such operation generates a median one-third octave band sound pressure level which, as measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, and in a one-third octave band at a preferred frequency, exceeds the arithmetic average of the median sound pressure levels of the two adjacent one-third octave bands by:

(i) 5 dB for such one-third octave band with a center frequency from 500 Hertz to 10,000 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band; or

(ii) 8 dB for such one-third octave band with a center frequency from 160 Hertz to 400 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band; or

(iii) 15 dB for such one-third octave band with a center frequency from 25 Hertz to 125 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band;

(iv) This rule shall not apply to audible discrete tones having a one-third octave band sound pressure level 10 dB or more below the allowable sound pressure levels specified in Table 10 for the octave band which contains such one-third octave band.

(2) Compliance. Upon written notification from the Director, the owner or controller of an industrial or commercial noise source operating in violation of the adopted rules shall submit a compliance schedule acceptable to the Department. The schedule will set forth the dates, terms, and conditions by which the person responsible for the noise source shall comply with the adopted rules.

(3) Measurement:

(a) Sound measurements procedures shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1), or to such other procedures as are approved in writing by the Department;

(b) Unless otherwise specified, the appropriate measurement point shall be that point on the noise sensitive property, described below, which is further from the noise source:

(A) 25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source;

(B) (B) That point on the noise sensitive property line nearest the noise source.

(4) Monitoring and Reporting:

(a) Upon written notification from the Department, persons owning or controlling an industrial or commercial noise source shall monitor and record the statistical noise levels and operating times of equipment, facilities, operations, and activities, and shall submit such data to the Department in the form and on the schedule requested by the Department. Procedures for such measurements shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1);

(b) Nothing in this rule shall preclude the Department from conducting separate or additional noise tests and measurements. Therefore, when requested by the Department, the owner or operator of an industrial or commercial noise source shall provide the following:

(A) (A) Access to the site;

(B) Reasonable facilities, where available, including but not limited to, electric power and ladders adequate to perform the testing;

(C) Cooperation in the reasonable operation, manipulation, or shutdown of various equipment or operations as needed to ascertain the source of sound and measure its emission.

(5) Exemptions: Except as otherwise provided in subparagraph (1)(b)(B)(ii) of this rule, the rules in section (1) of this rule shall not apply to:

(a) Emergency equipment not operated on a regular or scheduled basis;

(b) Warning devices not operating continuously for more than 5 minutes;

(c) Sounds created by the tires or motor used to propel any road vehicle complying with the noise standards for road vehicles;

(d) Sounds resulting from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad only to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576; but this exemption does not apply to any standard, control, license, regulation, or restriction necessitated by special local conditions which is approved by the Administrator of the EPA after consultation with the Secretary of Transportation pursuant to procedures set forth in Section 17(c)(2) of the Act;

(e) Sounds created by bells, chimes, or carillons;

(f) Sounds not electronically amplified which are created by or generated at sporting, amusement, and entertainment events, except those sounds which are regulated under other noise standards.

An event is a noteworthy happening and does not include informal, frequent, or ongoing activities such as, but not limited to, those which normally occur at bowling alleys or amusement parks operating in one location for a significant period of time;

(g) Sounds that originate on construction sites.

(h) Sounds created in construction or maintenance of capital equipment;

(i) Sounds created by lawn care maintenance and snow removal equipment;

(j) Sounds generated by the operation of aircraft and subject to pre-emptive federal regulation. This exception does not apply to aircraft engine testing, activity conducted at the airport that is not directly related to flight operations, and any other activity not pre-emptively regulated by the federal government or controlled under OAR 340-035-0045;

(k) Sounds created by the operation of road vehicle auxiliary equipment complying with the noise rules for such equipment as specified in OAR 340-035-0030(1)(e);

(l) Sounds created by agricultural activities;

(m) Sounds created by activities related to the growing or harvesting of forest tree species on forest land as defined in subsection (1) of ORS 526.324.

(6) Exceptions: Upon written request from the owner or controller of an industrial or commercial noise source, the Department may authorize exceptions to section (1) of this rule, pursuant to rule 340-035-0010, for:

(a) Unusual and/or infrequent events;

(b) Industrial or commercial facilities previously established in areas of new development of noise sensitive property;

(c) Those industrial or commercial noise sources whose statistical noise levels at the appropriate measurement point are exceeded by any noise source external to the industrial or commercial noise source in question;

(d) Noise sensitive property owned or controlled by the person who controls or owns the noise source;

(e) Noise sensitive property located on land zoned exclusively for industrial or commercial use.

[ED. NOTE: Tables referenced are available from the agency.]

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030 Hist.: DEQ 77, f. 9-5-74, ef. 9-25-74; DEQ 135, f. & ef. 6-7-77; DEQ 8-1980, f. & ef. 3-11-80; DEQ 7-1983, f. & ef. 4-22-83; DEQ 5-2004, f. & cert. ef. 6-11-04

340-035-0040

Noise Control Regulations for Motor Sports Vehicles and Facilities

(1) Statement of Purpose:

(a) The Commission finds that the periodic noise pollution caused by Oregon motor sports activities threatens the environment of citizens residing in the vicinity of motor sports facilities. To mitigate motor sports noise impacts, a coordinated statewide program is desirable to ensure that effective noise abatement programs are developed and implemented where needed. This abatement program includes measures to limit the creation of new noise impacts and the reduction of existing noise impacts to the extent necessary and practicable;

(b) Since the Commission also recognizes the need of Oregon's citizens to participate in recreational activities of their choice, these rules balance those citizen needs which may conflict when motor sports facilities are in operation. Therefore, a policy of continuing participation in standards development through the active cooperation of interested parties is adopted. The choice of these parties is to limit the noise emission levels of racing and recreational vehicles, to designate equipment requirements, and to establish appropriate hours of operation. It is anticipated that safety factors, limited technology, special circumstances, and special events may require exceptions to these rules in some instances; therefore, a mechanism to accommodate this necessity is included in this rule;

(c) This rule is designed to encourage the motor sports facility owner, the vehicle operator, and government to cooperate to limit and diminish noise and its impacts. These ends can be accomplished by encouraging compatible land uses and controlling and reducing the racing vehicle noise impacts on communities in the vicinity of motor sports facilities to acceptable levels;

(d) This rule is enforceable by the Department and civil penalties ranging from a minimum of $25 to a maximum of $500 may be assessed for each violation. The motor sports facility owner, the racing vehicle owner and the racing vehicle driver are held responsible for compliance with provisions of this rule. A schedule of civil penalties for noise control may be found under OAR 340-012-0052.

(2) Standards:

(a) Drag Racing Vehicle. No motor sports facility owner and no person owning or controlling a drag racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well maintained muffler;

(b) Oval Course Racing Vehicle. No motor sports facility owner and no person owning or controlling an oval course racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;

(c) Sports Car Racing Vehicle. No motor sports facility owner and no person owning or controlling a sports car racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;

(d) Closed Course Motorcycle Racing Vehicle. No motor sports facility owner and no person owning or controlling a closed course motorcycle racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside or 105 dBA at 20 inches (.5 meter) from the exhaust outlet during the stationary measurement procedure;

(e) Open Course Motorcycle Racing Vehicle. No motor sports facility owner and no person owning or controlling an open course motorcycle racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions do no exceed 105 dBA at 20 inches (.5 meter) from the exhaust outlet during the stationary measurement procedure;

(f) Four Wheel Drive Racing Vehicles. No motor sports facility owner and no person owning or controlling a four wheel drive racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;

(g) Watercraft Racing Vehicle. No motor sports facility owner and no person owning or controlling a watercraft racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;

(h) Autocross or Solo Racing Vehicle. No motor sports facility owner and no person owning or controlling an autocross or solo racing vehicle shall cause or permit its operation on any temporary autocross or solo course unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 90 dBA at trackside. Autocross and solo events conducted on a permanent motor sports facility, such as a sports car or go-kart course, shall comply with the requirements for sports car racing vehicles specified in subsection (2)(c) of this rule;

(i) Go-Kart Racing Vehicle. No motor sports facility owner and no person owning or controlling a go-kart racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside.

(3) New Motor Sports Facilities. Prior to the construction or operation of any permanent new motor sports facility, the facility owner shall submit for Department approval the projected motor sports facility noise impact boundaries. The data and analysis used to determine the boundary shall also be submitted to the Department for evaluation. Upon approval of the boundaries, this

information shall be submitted to the appropriate local planning unit and the Department of Land Conservation and Development for their review and appropriate action.

(4) Practice Sessions. Notwithstanding section (2) of this rule, all racing vehicles in order to operate in practice sessions, shall comply with a noise mitigation plan which shall have been submitted to and approved by the motor sports advisory committee and the Director. Such plans may be developed and submitted prior to each racing season. An approved plan may be varied with prior written approval of the Department.

(5) Recreational Park. When a motor sports facility is used as a recreational park for the operation of off-road recreational vehicles, the ambient noise limits of OAR 340-035-0030(1)(d) shall apply.

(6) Operations:

(a) General. No motor sports facility owner and no person owning or controlling a racing vehicle shall permit its use or operation at any time other than the following:

(A) Sunday through Thursday during the hours 8 a.m. to 10 p.m. local time; and

(B) Friday through Saturday, state and national holidays and the day preceding, not to exceed three consecutive days, during the hours 8 a.m. to 11 p.m. local time.

(b) Overruns. Each motor sports facility may overrun the specified curfew times, including the time specified in subsection (11)(c) of this rule, not to exceed 30 minutes, no more than six days per year due to conditions beyond the control of the owner. Each overrun shall be documented to the Department within ten days of the occurrence;

(c) Special Events. Any approved special motor racing event may also be authorized to exceed this curfew pursuant to subsection (12)(a) of this rule.

(d) Continued Special Events. Any approved special event that cannot be completed within established curfew times due to circumstances beyond the control of the owner, such as but not limited to oil spills and accidents, may be continued the following day under the same conditions provided in the special event exception. The Department shall be notified within ten days of any continued special event.

(7) Measurement and Procedures. All instruments, procedures and personnel involved in performing sound level measurements shall conform to the requirements specified in Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPCS-35, or to standard methods approved in writing by the Department.

(8) Monitoring and Reporting:

(a) It shall be the responsibility of the motor sports facility owner to measure and record the required noise level data as specified under subsections (2)(b) - (i) of this rule and the Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPCS-35. The owner shall either keep such recorded noise data available for a period of at least one calendar year or submit such data to the Department for storage. Upon request the owner shall make such recorded noise data available to the Department;

(b) When requested by the Department, any motor sports facility owner shall provide the following:

(A) Free access to the facility;

(B) Free observation of noise level monitoring;

(C) Cooperation and assistance in obtaining the reasonable operation of any Racing Vehicle using the facility as needed to ascertain its noise emission level.

(9) Vehicle standards. No motor sports facility owner and no person owning or controlling a racing vehicle shall cause or permit a racing event or practice session unless the vehicle is equipped and operated in accordance with these rules.

(10) Vehicle Testing. Nothing in this section shall preclude the motor sports facility owner from testing or barring the participation of any racing vehicle for non-compliance with these rules.

(11) Exemptions:

(a) Any motor sports facility whose racing surface is located more than 2 miles from the nearest noise sensitive property shall be exempt from this rule;

(b) Any top fuel-burning drag racing vehicle shall be exempt from the requirements of subsection (2)(a) of this rule. No later than January 31, 1985 the Department shall report to the Commission on progress toward muffler technology development for this vehicle class and propose any necessary recommendations to amend this exemption;

(c) Operation of non-complying jet powered dragsters between the hours of 11 a.m. and 10 p.m.;
(d) Operation of non-muffled racing vehicles at practice sessions between 12 noon and 3 p.m. as part of an approved plan as required pursuant to section (4) of this rule.

(12) Exceptions. The Department shall consider the majority and minority recommendations of the motor sports advisory committee prior to the approval or denial of any exception to these rules. Exceptions may be authorized by the Department for the following pursuant to OAR 340- 035-0010:
(a) Special motor racing events;
(b) Race vehicle or class of vehicles whose design or mode of operation makes operation with a muffler inherently unsafe or technically unfeasible;
(c) Motor sports facilities previously established in areas of new development of noise sensitive property;
(d) Noise sensitive property owned or controlled by a motor sports facility owner;
(e) Noise sensitive property located on land zoned exclusively for industrial or commercial use;
(f) Any motor sports facility owner or race sanctioning body that proposes a racing vehicle noise control program that accomplishes the intended results of the standards of section (2) of this rule, the measurement and procedures of section (7) of this rule, the monitoring and the reporting of section (8) of this rule;
(g) Any motor sports facility demonstrating that noise sensitive properties do not fall within the motor sports facility noise impact boundaries may be except from the curfew limits of section (6) of this rule and the monitoring and reporting requirements of section (8) of this rule;
(h) Any practice session for non-muffled racing vehicles that does not meet the exemption requirements specified in subsection (11)(d) of this rule.

(13) Motor Sports Advisory Committee Actions. The committee shall serve at the call of the chairman who shall be elected by the members in accordance with the rules adopted by the committee for its official action.

(14) Effective Date. These rules shall be effective January 1, 1982.

[Publication: The Publication(s) referred to or incorporated by reference in this rule are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030
Hist.: DEQ 33-1980, f. 12-2-80, ef. 1-1-82; DEQ 7-1983, f. & ef. 4-22-83

340-035-0045

Noise Control Regulations for Airports

(1) Statement of Purpose:
(a) The Commission finds that noise pollution caused by Oregon airports threatens the public health and welfare of citizens residing in the vicinity of airports. To mitigate airport noise impacts a coordinated statewide program is desirable to ensure that effective Airport Noise Abatement Programs are developed and implemented where needed. An abatement program includes measures to prevent the creation of new noise impacts or the expansion of existing noise impacts to the extent necessary and practicable. Each abatement program will primarily focus on airport operational measures to prevent increased, and to lessen existing, noise levels. The program will also analyze the effects of aircraft noise emission regulations and land use controls;
(b) The principal goal of an airport proprietor who may be required to develop an Airport Noise Abatement program under this rule should be to reduce noise impacts caused by aircraft operations, and to address in an appropriate manner the conflicts which occur within the higher noise contours;
(c) The Airport Noise Criterion is established to define a perimeter for study and for noise sensitive use planning purposes. It is recognized that some or many means of addressing aircraft/airport noise at the Airport Noise Criterion Level may be beyond the control of the airport proprietor. It is therefore necessary that abatement programs be developed, whenever possible, with the cooperation of federal, state and local governments to ensure that all potential noise abatement measures are fully evaluated;

(d) This rule is designed to encourage the airport proprietor, aircraft operator, and government at all levels to cooperate to prevent and diminish noise and its impacts. These ends may be accomplished by encouraging compatible land uses and controlling and reducing the airport/aircraft noise impacts on communities in the vicinity of airports to acceptable levels.

(2) Airport Noise Criterion. The criterion for airport noise is an Annual Average Day-Night Airport Noise Level of 55 dBA. The Airport Noise Criterion is not designed to be a standard for imposing liability or any other legal obligation except as specifically designated within this section.

(3) Airport Noise Impact Boundary:

(a) Air Carrier Airports. Within 12 months of designation, the proprietor of any Air Carrier Airport shall submit for Department approval, the existing airport Noise Impact Boundary. The data and analysis used to determine the boundary shall also be submitted to the Department for evaluation;

(b) Existing Non-Air Carrier Airports. After an unsuccessful effort to resolve a noise problem pursuant to section (5) of this rule, the Director may require the proprietor of any existing non-air carrier airport to submit for Department approval, all information reasonably necessary for the calculation of the existing airport Noise Impact Boundary. This information is specified in the Department's Airport Noise Control Procedure Manual (NPCS-37), as approved by the Commission. The proprietor shall submit the required information within twelve months of receipt of the Director's written notification;

(c) New Airports. Prior to the construction or operation and any required local government land-use approval of any New Airport, the proprietor shall submit for Department approval the projected airport Noise Impact Boundary for the first full calendar year of operation. The data and analysis used to determine the boundary shall also be submitted to the Department for evaluation. The Department shall notify the appropriate local planning unit of the results of their evaluation;

(d) Airport Master Planning. Any airport proprietor who obtains funding to develop an airport Master Plan shall submit for Department approval an existing noise impact boundary and projected noise impact boundaries at five, ten, and twenty years into the future. The data and analysis used to determine the boundaries shall also be submitted to the Department for evaluation;

(e) Impact Boundary Approval. Within 60 days of the receipt of a completed airport noise impact boundary, the Department shall either consider the boundary approved or provide written notification to the airport proprietor of deficiencies in the analysis.

(4) Airport Noise Abatement Program and Methodology:

(a) Abatement Program. The proprietor of an existing or new airport whose airport Noise Impact Boundary includes Noise Sensitive Property, or may include Noise Sensitive Property, shall submit a proposed Airport Noise Abatement Program for Commission approval within 12 months of notification, in writing, by the Director. The Director shall give such notification when the Commission has reasonable cause to believe that an abatement program is necessary to protect the health, safety or welfare of the public following a public informational hearing on the question of such necessity. Reasonable cause shall be based upon a determination that:

(A) Present or planned airport operations cause or may cause noise impacts that interfere with noise sensitive use activities such as communication and sleep to the extent that the public health, safety or welfare is threatened;

(B) These noise impacts will occur on property presently used for noise sensitive purposes, or where noise sensitive use is permitted by zone or comprehensive plan; and

(C) It appears likely that a feasible noise abatement program may be developed.

(b) Program Elements. An Airport Noise Abatement Program shall consist of all of the following elements, but if it is determined by the Department that any element will not aid the development of the program, it may be excluded:

(A) Maps of the airport and its environs, and supplemental information, providing:

(i) Projected airport noise contours from the Noise Impact Boundary to the airport property line in 5 dBA increments under current year of operations and at periods of five, ten, and twenty years into the future with proposed operational noise control measures designated in paragraph (4)(b)(B);

(ii) All existing Noise Sensitive Property within the airport Noise Impact Boundary;

(iii) Present zoning and comprehensive land use plan permitted uses and related policies;

(iv) Physical layout of the airport including the size and location of the runways, taxiways, maintenance and parking areas;
(v) Location of present and proposed future flight tracks;
(vi) Number of aircraft flight operations used in the calculation of the airport noise levels. This information shall be characterized by flight track, aircraft type, flight operation, number of daytime and nighttime operations, and takeoff weight of commercial jet transports.

(B) An airport operational plan designed to reduce airport noise impacts at Noise Sensitive Property to the Airport Noise Criterion to the greatest extent practicable. The plan shall include an evaluation of the appropriateness and effectiveness of the following noise abatement operations by estimating potential reductions in the airport Noise Impact Boundary and numbers of Noise Sensitive Properties impacted within the boundary, incorporating such options to the fullest extent practicable into any proposed Airport Noise Abatement Program:
(i) Takeoff and landing noise abatement procedures such as thrust reduction or maximum climb on takeoff;
(ii) Preferential and priority runway use systems;
(iii) Modification in approach and departure flight tracks;
(iv) Rotational runway use systems;
(v) Higher glide slope angles and glide slope intercept altitudes on approach;
(vi) Dispaced runway thresholds;
(vii) Limitations on the operation of a particular type or class of aircraft, based upon aircraft noise emission characteristics;
(viii) Limitations on operations at certain hours of the day;
(ix) Limitations on the number of operations per day or year;
(x) Establishment of landing fees based on aircraft noise emission characteristics or time of day;
(xi) Rescheduling of operations by aircraft type or time of day;
(xii) Shifting operations to neighboring airports;
(xiii) Location of engine run-up areas;
(xiv) Times when engine run-up for maintenance can be done;
(xv) Acquisition of noise suppressing equipment and construction of physical barriers for the purpose of reducing aircraft noise impact;
(xvi) Development of new runways or extended runways that would shift noise away from populated areas or reduce the noise impact within the Airport Noise Impact Boundary.

(C) A proposed land use and development control plan, and evidence of good faith efforts by the proprietor to obtain its approval, to protect the area within the airport Noise Impact Boundary from encroachment by non-compatible noise sensitive uses and to resolve conflicts with existing unprotected noise sensitive uses within the boundary. The Plan is not intended to be a community-wide comprehensive plan; it should be airport-specific, and should be of a scope appropriate to the size of the airport facility and the nature of the land uses in the immediate area. Affected local governments shall have an opportunity to participate in the development of the plan, and any written comments offered by an affected local government shall be made available to the Commission. The Department shall review the comprehensive land use plan of the affected local governments to ensure that reasonable policies have been adopted recognizing the local government's responsibility to support the proprietor's efforts to protect the public from excessive airport noise. The plan may include, but not be limited to, the following actions within the specified noise impact zones:
(i) Changes in land use through non-noise sensitive zoning and revision of comprehensive plans, within the Noise Impact Boundary (55 dBA);
(ii) Influencing land use through the programing of public improvement projects within the Noise Impact Boundary (55 dBA);
(iii) Purchase assurance programs within the 65 dBA boundary;
(iv) Voluntary relocation programs within the 65 dBA boundary;
(v) Soundproofing programs within the 65 dBA boundary, or within the Noise Impact Boundary (55 dBA) if the governmental entity with land use planning responsibility desires, and will play a major role in implementation.

(vi) Purchase of land for airport use within the 65 dBA boundary;
(vii) Purchase of land for airport related uses within the 65 dBA boundary;
(viii) Purchase of land for non-noise sensitive public use within the Noise Impact Boundary (55 dBA);
(ix) Purchase of land for resale for airport noise compatible purposes within the 65 dBA boundary;
(x) Noise impact disclosure to purchaser within the Noise Impact Boundary (55 dBA);
(xi) Modifications to Uniform State Building Code for areas of airport noise impact within the Noise Impact Boundary (55 dBA).

(c) Federal Aviation Administration Concurrence. The proprietor shall use good faith efforts to obtain concurrence or approval for any portions of the proposed Airport Noise Abatement Program for which the airport proprietor believes that Federal Aviation Administration concurrence or approval is required. Documentation of each such effort and a written statement from FAA containing its response shall be made available to the Commission;

(d) Commission Approval. Not later than twelve months after notification by the Director pursuant to subsection (4)(a) of this rule, the proprietor shall submit a proposed Airport Noise Abatement Program to the Commission for approval. Upon approval, the abatement program shall have the force and effect of an order of the Commission. The Commission may direct the Department to distribute copies of the approved abatement program to interested federal, state and local governments, and to other interested persons, and may direct the Department to undertake such monitoring or compliance assurance work as the Commission deems necessary to ensure compliance with the terms of its order. The Commission shall base its approval or disapproval of a proposed Noise Abatement Program upon:

(A) The completeness of the information provided;
(B) The comprehensiveness and reasonableness of the proprietor's evaluation of the operational plan elements listed under paragraph (4)(b)(B) of this rule;
(C) The presence of an implementation scheme for the operational plan elements, to the extent feasible;
(D) The comprehensiveness and reasonableness of the proprietor's evaluation of land use and development plan elements listed under paragraph (4)(b)(C) of this rule;
(E) Evidence of good faith efforts to adopt the land use and development plan, or obtain its adoption by the responsible governmental body, to the extent feasible;
(F) The nature and magnitude of existing and potential noise impacts;
(G) Testimony of interested and affected persons; and (H) Any other relevant factors.

(e) Program Renewal. No later than six months prior to the end of a five-year period following the Commission's approval, each current airport Noise Abatement Program shall be reviewed and revised by the proprietor, as necessary, and submitted to the Commission for consideration for renewal.

(f) Program Revisions. If the Director determines that circumstances warrant a program revision prior to the scheduled five year review, the Airport Proprietor shall submit to the Commission a revised program within 12 months of written notification by the Director. The Director shall make such determination based upon an expansion of airport capacity, increase in use, change in the types or mix of various aircraft utilizing the airport, or changes in land use and development in the impact area that were unforeseen in earlier abatement plans. Any program revision is subject to all requirements of this rule.

(5) Consultation. The Director shall consult with the airport proprietor, members of the public, the Oregon Departments of Transportation, Land Conservation and Development and any affected local government in an effort to resolve informally a noise problem prior to issuing a notification under subsections (3)(b), (4)(a) and (4)(f) of this rule.

(6) Noise Sensitive Use Deviations. The airport noise criterion is designed to provide adequate protection of noise sensitive uses based upon out-of-doors airport noise levels. Certain noise sensitive use classes may be acceptable within the airport Noise Impact Boundary if all measures necessary to protect interior activities are taken.

(7) Airport Noise Monitoring. The Department may request certification of the airport Noise Impact Boundary by actual noise monitoring, where it is deemed necessary to approve the boundary pursuant to subsection (3)(e) of this rule.

(8) Exceptions. Upon written request from the Airport Proprietor, the Department may authorize exceptions to this rule, pursuant to OAR 340-035-0010, for:

(a) Unusual or infrequent events;
(b) Noise sensitive property owned or controlled by the airport;
(c) Noise sensitive property located on land zoned exclusively for industrial or commercial use.

[Publication: Publications referenced are available from the agency.] Stat. Auth.: ORS 467
Stats. Implemented: ORS 467.030 Hist.: DEQ 33-1979, f. & ef. 11-27-79; DEQ 7-1983, f. & ef. 4-22-83

340-035-0100

Variances

(1) Conditions for Granting. The Commission may grant specific variances from the particular requirements of any rule, regulation, or order to such specific persons or class of persons or such specific noise source upon such conditions as it may deem necessary to protect the public health and welfare, if it finds that strict compliance with such rule, regulation, or order is inappropriate because of conditions beyond the control of the persons granted such variance or because of special circumstances which would render strict compliance unreasonable, or impractical due to special physical conditions or cause, or because strict compliance would result in substantial curtailment or closing down of a business, plant, or operation, or because no other alternative facility or method of handling is yet available. Such variances may be limited in time.
(2) Procedure for Requesting. Any person requesting a variance shall make his request in writing to the Department for consideration by the Commission and shall state in a concise manner the facts to show cause why such variance should be granted.
(3) Revocation or Modification. A variance granted may be revoked or modified by the Commission after a public hearing held upon not less than 20 days notice. Such notice shall be served upon the holder of the variance by certified mail and all persons who have filed with the Commission a written request for such notification.

Stat. Auth.: ORS 467

Stats. Implemented: ORS 467.030

Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74

340-035-0110

Suspension of Commission and Department Responsibilities

In 1991, the Legislative Assembly withdrew all funding for implementing and administering ORS Chapter 467 and the Department's noise program. Accordingly, the Commission and the Department have suspended administration of the noise program, including but not limited to processing requests for exceptions and variances, reviewing plans, issuing certifications, forming advisory committees, and responding to complaints. Similarly, the public's obligations to submit plans or certifications to the Department are suspended.

Stat. Auth.: ORS 467
Stats. Implemented: ORS 467
Hist.: DEQ 5-2004, f. & cert. ef. 6-11-04

TABLE 7
(340-35-035)

Existing Industrial and Commercial Noise Source Standards

Allowable Statistical Noise Levels in Any One Hour

7am – 10 pm	10 pm – 7am
L_{50} – 55 dBA	L_{50} – 50 dBA
L_{10} – 60 dBA	L_{10} – 55 dBA
L_{1} – 75dBA	L_{1} – 60 dBA

TABLE 8
(340-35-035)

New Industrial and Commercial Noise Source Standards

Allowable Statistical Noise Levels in Any One Hour

7 am – 10 pm	10 pm – 7am
L_{50} – 55 dBA	L_{50} – 50 dBA
L_{10} – 60 dBA	L_{10} – 55 dBA
L_{1} - 75 dBA	L_{1} – 60 dBA

TABLE 9
(340-35-035)

Industrial and Commercial Noise Source Standards for Quiet Areas

Allowable Statistical Noise Levels in Any One Hour

7 am – 10 pm	10 pm – 7 am
L_{50} – 50 dBA	L_{50} – 45 dBA
L_{10} – 55 dBA	L_{10} – 50 dBA
L_1 – 60 dBA	L_1 – 55 dBA

TABLE 10
(340-35-035)

Median Octave Band Standards for Industrial and Commercial Noise Sources

Allowable Octave Band Sound Pressure Levels

Octave Band Center Frequency, Hz	7am – 10 pm	10 pm – 7 am
31.5	68	65
63	65	62
125	61	56
250	55	50
500	52	46
1000	49	43
2000	46	40
4000	43	37
8000	40	34

Appendix C
Noise Propagation Analysis
Printed Worksheets

Predicted Hourly L50 Mining Noise Levels, Unmitigated

Receiver	Maximum Sound Pressure Level Received At Residence (dBA)							
	Crusher Plant	Conveyor[1]	Conveyor-Feed Hopper[2]	Excavator[2]	Front-End Loaders[2]	Processing Total	Excavation Total	Overall Total
R1	26.1	33.9	32.1	41.4	40.8	36.5	44.1	44.8
R2	26.2	38.8	40.6	47.7	47.8	42.9	50.8	51.4
R3	32.7	27.5	29.0	35.1	34.2	35.1	37.7	39.6
R4	38.1	39.9	37.6	52.8	51.6	43.4	55.3	55.5
R5	32.9	33.5	29.1	42.2	41.2	37.0	44.7	45.4
R6	34.6	35.5	29.1	46.2	42.9	38.6	47.9	48.4
R7	32.9	43.0	41.3	60.5	53.8	45.5	61.3	61.5
R8	31.9	37.3	37.2	49.5	49.1	40.8	52.3	52.6
R9	32.9	35.1	34.3	46.5	45.7	39.0	49.1	49.5
R10	29.8	40.7	34.4	66.6	55.1	41.9	66.9	66.9
R11	30.3	39.7	31.8	56.1	49.3	40.7	56.9	57.0
R12	30.8	41.2	33.7	65.1	55.6	42.2	65.6	65.6
R13	30.7	41.5	33.9	69.7	56.0	42.5	69.9	69.9
R14	27.6	34.4	27.1	48.7	45.2	35.8	50.3	50.5
R15	28.9	36.2	29.4	51.2	47.6	37.7	52.8	52.9
R16	32.2	40.8	33.7	55.6	50.5	42.1	56.8	56.9
R17	29.9	35.4	29.8	48.9	45.6	37.3	50.6	50.8

Note 1: Sum of full length of conveyor system in Phase 4 area.

Note 2: Equipment at loudest location relative to each residence.

Predicted Hourly L50 Mining Noise Levels, With Mitigation

Receiver	Maximum Sound Pressure Level Received At Residence (dBA)[4]							
	Crusher Plant	Conveyor[1]	Conveyor-Feed Hopper[2]	Excavator[2,3]	Front-End Loaders[2,3]	Processing Total	Excavation Total	Overall Total
R1	26.1	33.9	32.1	45.5	40.8	36.5	46.8	47.2
R2	26.2	38.9	40.6	47.8	48.1	42.9	51.0	51.6
R3	32.7	27.9	29.0	35.1	34.4	35.2	37.8	39.7
R4	38.1	39.7	37.4	52.1	50.5	43.3	54.4	54.7
R5	32.9	33.7	28.7	42.3	41.1	37.0	44.8	45.4
R6	34.6	35.4	29.1	46.3	43.3	38.6	48.1	48.5
R7	32.9	39.8	37.6	53.5	47.6	42.3	54.5	54.8
R8	31.9	37.0	37.2	45.0	49.1	40.7	50.5	51.0
R9	32.9	35.1	34.3	42.7	45.7	39.0	47.5	48.0
R10	29.8	38.7	31.6	52.3	49.8	39.9	54.2	54.4
R11	30.3	37.1	28.0	49.7	47.2	38.3	51.6	51.8
R12	30.8	40.5	32.4	51.1	51.1	41.5	54.1	54.3
R13	30.7	40.7	32.0	52.6	51.2	41.6	55.0	55.2
R14	27.6	34.4	27.1	46.4	45.2	35.8	48.9	49.1
R15	28.9	36.2	29.4	48.5	47.6	37.7	51.1	51.3
R16	32.2	40.8	33.7	51.6	49.6	42.1	53.7	54.0
R17	29.9	34.0	27.2	46.2	41.5	36.0	47.5	47.8

Note 1: Sum of full length of conveyor system in Phase 4 area.

Note 2: Equipment at loudest location relative to each residence.

Note 3: Administrative controls applied as shown in Figure 6.

Note 4: Barriers installed as shown in Figure 6.