

Environmental Noise Assessment

Teichert Martis Valley Aggregate Facility Quarterly Compliance Noise Monitoring – Spring 2023

Truckee, California

BAC Job # 2022-001

Prepared For:

Town of Truckee

Attn: Chantal Birnberg
Town of Truckee
Planning Department

Prepared By:

Bollard Acoustical Consultants, Inc.



Dario Gotchet, Principal Consultant

June 14, 2023



Executive Summary

The use-permit for the Teichert Inc. Martis Valley aggregate plant requires that quarterly noise measurements be conducted to determine the compliance of Teichert operations with the noise standards of the Town of Truckee Development Code. Bollard Acoustical Consultants, Inc. (BAC) was retained by the Town of Truckee to prepare these analyses for the 2023 calendar year.

The results of the continuous noise level measurements and BAC observations conducted for the Spring 2023 quarter on June 8, 2023, indicate that noise levels attributable to Teichert Martis Valley sand and gravel operations did not exceed the applicable Town of Truckee daytime and nighttime noise level criteria at the noise measurement locations.

Criteria for Acceptable Noise Exposure

Town of Truckee Development Code

The Town of Truckee Development Code noise element contains criteria for acceptable exterior noise exposures in terms of day (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods in terms of various statistical descriptors. The Truckee noise standards are graduated, meaning that higher noise levels are allowed if the noise source is only generated for a short period of time, and the greater the percentage of time the noise is generated, the lower the noise level standard. For example, if the noise source is present for more than 50% of an hour, the noise level standard used for assessing compliance is the L_{50} . During daytime hours, the L_{50} noise level standard applicable to residential uses is 55 dB. Conversely, the noise level which is not to be exceeded for any duration of the hour (denoted L_{max} for maximum), is 75 dB during daytime hours.

Due to the nature of the activities at the Teichert Martis Valley site, this analysis focuses on compliance with both the L_{50} and L_{max} noise level standards for both daytime and nighttime periods. Those standards are shown in Table 1.

Table 1
Truckee Municipal Code Noise Standards for Residential Uses

Noise Level Descriptor (dB)	Number of Minutes Per Hour	Daytime Standard (dB)	Nighttime Standard (dB)
L_{max}	0	75	70
L_{50}	30	55	50

Source: Truckee Municipal Code, Title 18, Development Code, Table 3-7.

Evaluation of Current Noise Environment

Methodology

BAC conducted noise level measurements on June 8, 2023, at the two locations shown in Appendix A. The measurements were performed to evaluate the ambient noise environment at the outdoor activity areas of the residences located nearest to the Teichert Martis Valley facility. Specifically, measurements conducted at site 1 (near the residence at 14492 Royal Way) were intended to be representative of the ambient noise environment of the residences located off Royal Way and Cavalier Rise. Measurement site 2 was selected to be representative of the ambient noise environment at residences located near the terminus of Foxboro Drive (i.e., closest residences to the Teichert plant equipment). BAC staff conducted observations of Teichert operations during the noise survey to identify noise sources which contributed to the measured noise levels.

Larson Davis Laboratories (LDL) Model LxT precision integrating sound level meters were used for the continuous noise measurements. The meters were calibrated immediately before and after use with an LDL CAL-200 acoustical calibrator and meet all pertinent specifications of the American National Standards Institute (ANSI S1.4) for precision sound level measurement systems. The microphones were oriented vertically at a height of 5 feet above ground.

Weather conditions prior to 12:00 p.m. on June 8, 2023 consisted of moderate temperatures, cloudy skies, moderate humidity, and calm wind speeds (0-5 mph). However, beginning around 12:00 p.m., a storm system moved into the area which brought sustained wind speeds of 10-15 mph with gusts up to 20 mph. As a result, the data collected after 12:00 p.m. on the day of the measurements were significantly influenced by noise of wind in the trees and thunder events.

Noise Level Measurement Results

The sound level meters were programmed to report maximum (L_{max}) and median (L_{50}) levels for every ½ hour interval. The results of the continuous noise level measurements are provided in Appendix B in terms of these descriptors. Photographs of the measurement sites are provided in Appendix C.

Based on BAC field observations, and upon analysis of the measurement data, it was determined that maximum (L_{max}) noise levels recorded at measurement sites 1 and 2 were significantly influenced by high winds and thunder events from approximately 12:00 p.m. until the end of the monitoring period. As a result, the maximum noise level measurements obtained after 12:00 p.m. are considered to be unreliable. However, measured maximum noise levels obtained during the hours of 6:00 a.m. to 12:00 p.m. were relatively uninfluenced by the incoming storm system. As a result, BAC measurements from 6:00 a.m. to 12:00 p.m. were used in the analysis of Teichert equipment noise levels at sites 1 and 2 on June 8, 2023.

Finally, according to Town of Truckee planning staff (via Teichert representative), the Teichert facility asphalt operations (hot plant) and rock crushing equipment operations (rock plant) were from 7:00 a.m. to 4:00 p.m. on the day of the monitoring effort (June 8, 2023). Teichert staff has

also indicated the original rock plant was dismantled and a portable rock plant was constructed further to the south for the 2023 construction season. The approximate locations of the previous and relocated rock plants are shown in Figure 1.

Maximum Noise Levels (L_{\max}):

Because the nearest residences are located a considerable distance from Teichert operations, recorded maximum noise levels in the vicinity of those locations were generally not attributable to the Teichert equipment. Specifically, BAC field staff observations indicated that many of the recorded maximum levels were caused by other sources such as wind, traffic, aircraft overflights, and train horns.

As indicated in Appendix B, measured maximum noise levels at site 1 ranged from a low of 51 dB L_{\max} during the 6:30 a.m. to 7:00 a.m. period to a high of 71 dB L_{\max} during the 8:00 a.m. to 8:30 a.m. period. The measured maximum noise levels at site 2 ranged from a low of 53 dB L_{\max} during the 6:30 a.m. to 7:00 a.m. period to a high of 76 dB L_{\max} during the 11:00 a.m. to 11:30 a.m. period. However, after a comparison of BAC field notes with the measurement data, it was determined that the measured maximum noise level of 76 dB L_{\max} during the 11:00 a.m. to 11:30 a.m. period was attributed to a helicopter overflight. Excluding consideration of the helicopter overflight event, the highest measured maximum noise level at site 2 was 64 dB L_{\max} during the 9:30 a.m. to 10:00 a.m. period.

Based on the results and analysis provided above, measured maximum noise levels due to Teichert operations did not exceed the Town of Truckee Development Code 70 dB L_{\max} prior to 7:00 a.m. or 75 dB L_{\max} after 7:00 a.m. at either of the monitoring locations.

Median Noise Levels (L_{50}):

Because the Teichert operations typically occur continuously throughout any given hour, the noise level descriptor most suitable for addressing compliance with the Town of Truckee standards is the L_{50} , or median noise level.

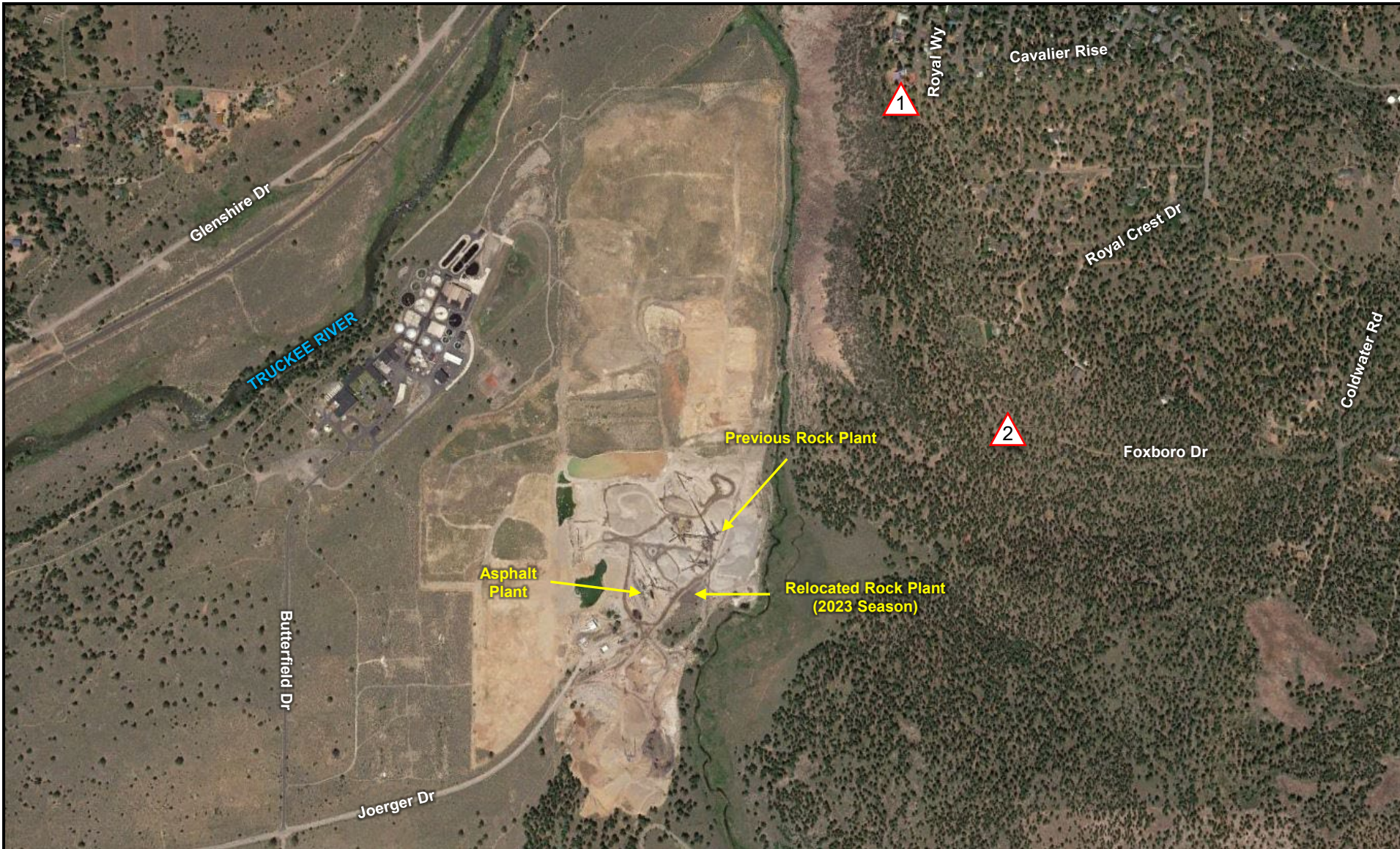
The data contained in Appendix B indicate that measured median noise levels at site 1 ranged from a low of 39 dB L_{50} during the 11:00 a.m. to 11:30 a.m. period to a high of 47 dB L_{50} during the 7:30 a.m. to 8:00 a.m. period. The measured median noise levels at site 2 ranged from a low of 43 dB L_{50} during the 10:30 a.m. to 11:00 a.m. period to high of 51 dB L_{50} during the 7:00 a.m. to 7:30 a.m., 7:30 a.m. to 8:00 a.m., and 8:00 a.m. to 8:30 a.m. periods.

Based on the results provided above, measured median noise levels due to Teichert operations did not exceed the Town of Truckee Development Code standards of 50 dB L_{50} prior to 7:00 a.m. or 55 dB L_{50} after 7:00 a.m. at either of the monitoring locations.


Conclusions

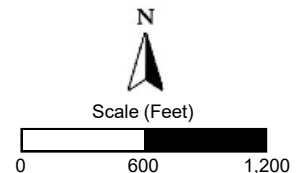
Based on the analysis of the results from the noise level survey conducted June 8, 2023, noise levels generated from operations at the Teichert Martis Valley aggregate facility were found to comply with the applicable Town of Truckee daytime and nighttime noise level criteria at the measurement sites.

This concludes our environmental noise assessment for the Teichert Martis plant operations in Truckee, California. Please contact BAC at (530) 537-2328 or info@bacnoise.com with any questions.



Legend

 Continuous Noise Measurement Sites



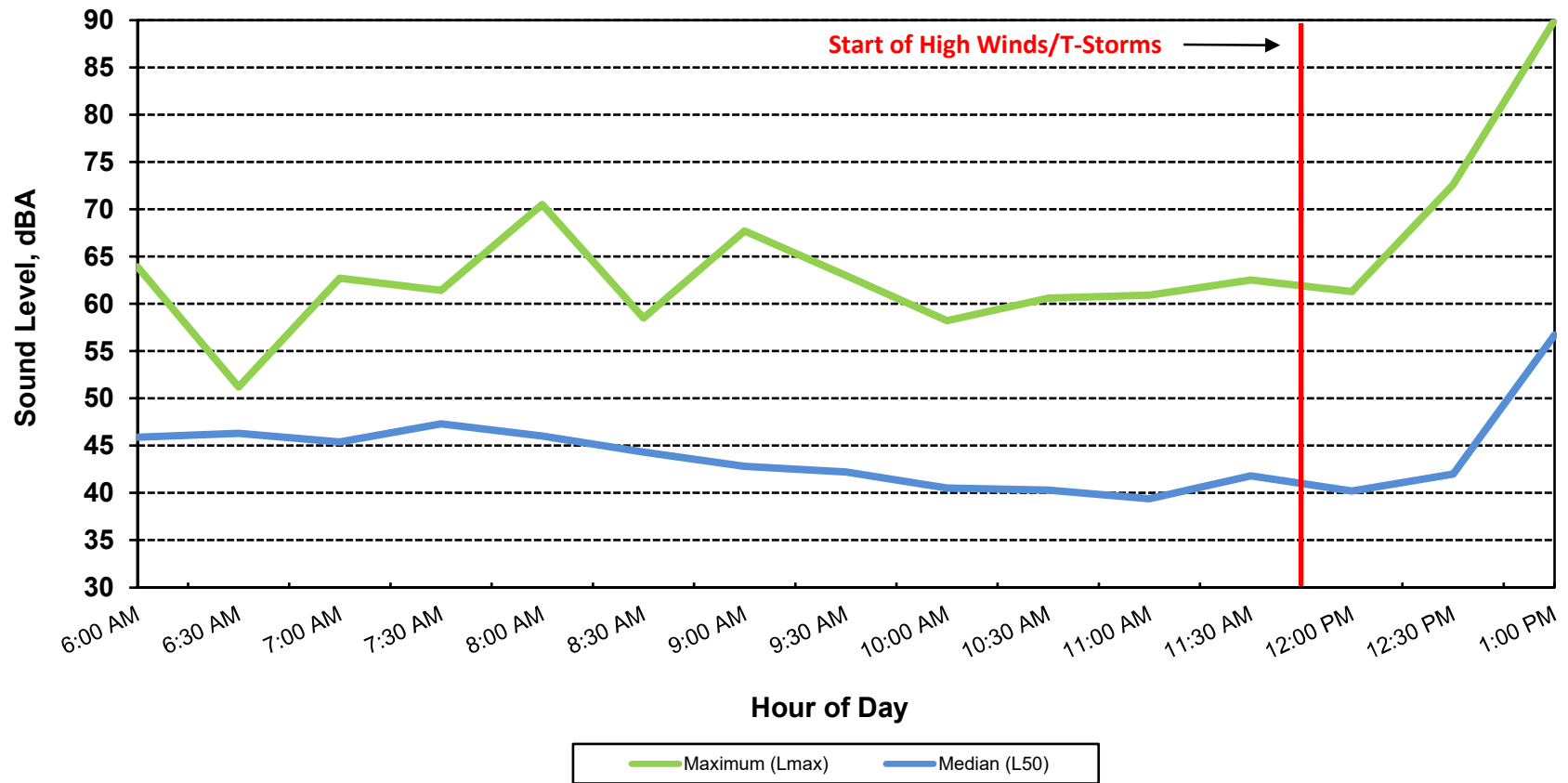
Teichert Martis Valley Aggregate Facility
Quarterly Noise Monitoring – Spring 2023
Truckee, California

Noise Measurement Locations

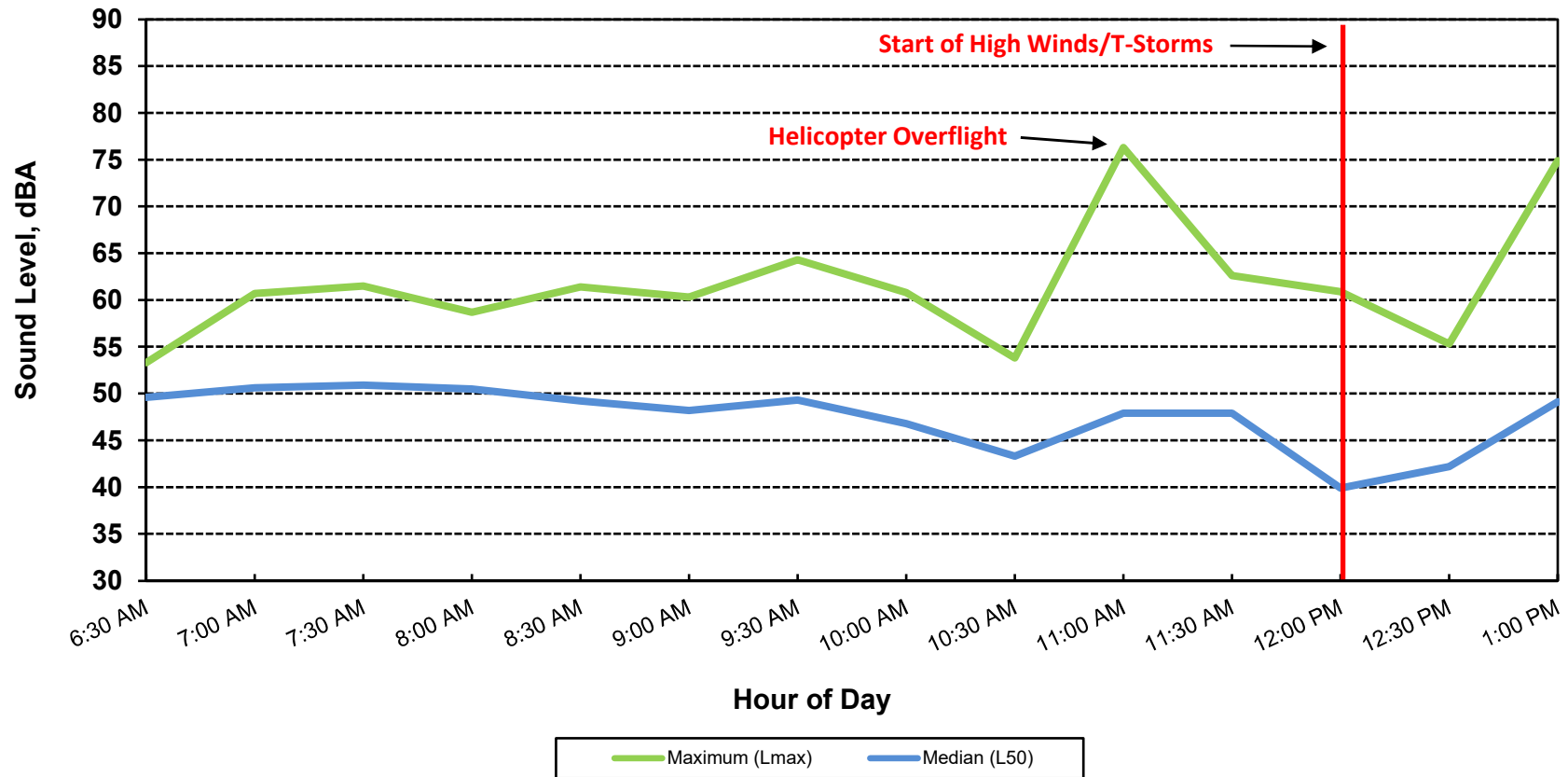
Appendix A



Appendix B-1
Noise Monitoring Results - Site 1
Teichert Martis Valley Quarterly Compliance - Spring 2023
Thursday, June 08, 2023



Appendix B-2
Noise Monitoring Results - Site 2
Teichert Martis Valley Quarterly Compliance - Spring 2023
Thursday, June 08, 2023





A



B

Legend

- A: Site 1: Noise monitoring location near Royal Way and Cavalier Rise
 B: Site 2: Noise monitoring location near the terminus of Foxboro Drive

Teichert Martis Valley Aggregate Facility
 Quarterly Noise Monitoring – Spring 2023
 Truckee, California

Noise Survey Photographs

Appendix C



Environmental Noise Assessment

Teichert Martis Valley Aggregate Facility Quarterly Compliance Noise Monitoring – Summer 2023

Truckee, California

BAC Job # 2023-001

Prepared For:

Town of Truckee

Attn: Chantal Birnberg
Town of Truckee
Planning Department

Prepared By:

Bollard Acoustical Consultants, Inc.



Dario Gotchet, Principal Consultant

September 10, 2023



Executive Summary

The use-permit for the Teichert Inc. Martis Valley aggregate plant requires that quarterly noise measurements be conducted to determine the compliance of Teichert operations with the noise standards of the Town of Truckee Development Code. Bollard Acoustical Consultants, Inc. (BAC) was retained by the Town of Truckee to prepare these analyses for the 2023 calendar year.

The results of the continuous noise level measurements and BAC observations conducted for the Summer 2023 quarter on August 29th, 2023, indicate that noise levels attributable to Teichert Martis Valley sand and gravel operations did not exceed the applicable Town of Truckee daytime and nighttime noise level criteria at the noise measurement locations.

Criteria for Acceptable Noise Exposure

Town of Truckee Development Code

The Town of Truckee Development Code noise element contains criteria for acceptable exterior noise exposures in terms of day (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods in terms of various statistical descriptors. The Truckee noise standards are graduated, meaning that higher noise levels are allowed if the noise source is only generated for a short period of time, and the greater the percentage of time the noise is generated, the lower the noise level standard. For example, if the noise source is present for more than 50% of an hour, the noise level standard used for assessing compliance is the L_{50} . During daytime hours, the L_{50} noise level standard applicable to residential uses is 55 dB. Conversely, the noise level which is not to be exceeded for any duration of the hour (denoted L_{max} for maximum), is 75 dB during daytime hours.

Due to the nature of the activities at the Teichert Martis Valley site, this analysis focuses on compliance with both the L_{50} and L_{max} noise level standards for both daytime and nighttime periods. Those standards are shown in Table 1.

Table 1
Truckee Municipal Code Noise Standards for Residential Uses

Noise Level Descriptor (dB)	Number of Minutes Per Hour	Daytime Standard (dB)	Nighttime Standard (dB)
L_{max}	0	75	70
L_{50}	30	55	50

Source: Truckee Municipal Code, Title 18, Development Code, Table 3-7.

Evaluation of Current Noise Environment

Methodology

BAC conducted noise level measurements on August 29th, 2023, at the two locations shown in Appendix A. The measurements were performed to evaluate the ambient noise environment at the outdoor activity areas of the residences located nearest to the Teichert Martis Valley facility. Specifically, measurements conducted at site 1 (near the residence at 14492 Royal Way) were intended to be representative of the ambient noise environment of the residences located off Royal Way and Cavalier Rise. Measurement site 2 was selected to be representative of the ambient noise environment at residences located near the terminus of Foxboro Drive (i.e., closest residences to the Teichert plant equipment). BAC staff conducted observations of Teichert operations during the noise survey to identify noise sources which contributed to the measured noise levels.

Larson Davis Laboratories (LDL) Model LxT precision integrating sound level meters were used for the continuous noise measurements. The meters were calibrated immediately before and after use with an LDL CAL-200 acoustical calibrator and meet all pertinent specifications of the American National Standards Institute (ANSI S1.4) for precision sound level measurement systems. The microphones were oriented vertically at a height of 5 feet above ground.

Weather conditions prior to 9:00 a.m. on August 29th, 2023 consisted of moderate temperatures, clear skies, moderate humidity, and calm wind speeds (0-5 mph). However, from approximately 9:00 a.m. to 11:30 a.m., wind speeds increased to 10-15 mph (sustained) with gusts up to 25 mph. As a result, the data collected during the 9:00 a.m. to 11:30 a.m. time period on the day of the measurements were significantly influenced by noise of wind in the trees.

Noise Level Measurement Results

The sound level meters were programmed to report maximum (L_{max}) and median (L_{50}) levels for every ½ hour interval. The results of the continuous noise level measurements are provided in Appendix B in terms of these descriptors. Photographs of the measurement sites are provided in Appendix C.

Based on BAC field observations, and upon analysis of the measurement data, it was determined that maximum (L_{max}) noise levels recorded at measurement sites 1 and 2 were significantly influenced by high wind speeds from approximately 9:00 a.m. to 11:30 a.m. As a result, the maximum noise level measurements from 9:00 a.m. to 11:30 a.m. are considered to be unreliable. However, measured maximum noise levels obtained during the hours of 6:45 a.m. to 9:00 a.m. and 11:30 a.m. to 1:30 p.m. (end of monitoring period) were relatively uninfluenced by the increased wind speeds. As a result, BAC measurements from 6:45 a.m. to 9:00 a.m. and 11:30 a.m. to 1:30 p.m. were used in the analysis of Teichert equipment noise levels at sites 1 and 2 on August 29th, 2023.

Finally, it is our understanding that Teichert facility asphalt operations (hot plant) and rock crushing equipment operations (rock plant) were from 6:45 a.m. to 4:00 p.m. on the day of the

monitoring effort (August 29th, 2023). As noted in the Spring 2023 BAC monitoring report, the original Teichert rock plant was dismantled and a portable rock plant was constructed further to the south for the 2023 construction season. The approximate locations of the previous and relocated rock plants are shown in Figure 1.

Maximum Noise Levels (L_{\max}):

Because the nearest residences are located a considerable distance from Teichert operations, recorded maximum noise levels in the vicinity of those locations were generally not attributable to the Teichert equipment. Specifically, BAC field staff observations indicated that many of the recorded maximum levels were caused by other sources such as wind, traffic, aircraft overflights, and train horns.

As indicated in Appendix B, measured maximum noise levels at site 1 ranged from a low of 50 dB L_{\max} during the 12:00 p.m. to 12:30 p.m. period to a high of 66 dB L_{\max} during the 7:30 a.m. to 8:00 a.m. period. The measured maximum noise levels at site 2 ranged from a low of 57 dB L_{\max} during the 12:30 p.m. to 1:00 p.m. period to a high of 68 dB L_{\max} during the 7:00 a.m. to 7:30 a.m. period.

Based on the results provided above, measured maximum noise levels due to Teichert operations did not exceed the Town of Truckee Development Code 70 dB L_{\max} prior to 7:00 a.m. or 75 dB L_{\max} after 7:00 a.m. at either of the monitoring locations.

Median Noise Levels (L_{50}):

Because the Teichert operations typically occur continuously throughout any given hour, the noise level descriptor most suitable for addressing compliance with the Town of Truckee standards is the L_{50} , or median noise level.

The data contained in Appendix B indicate that measured median noise levels at site 1 ranged from a low of 43 dB L_{50} during the 12:00 p.m. to 12:30 p.m. period to a high of 55 dB L_{50} during the 1:00 p.m. to 1:30 p.m. period. The measured median noise levels at site 2 ranged from a low of 46 dB L_{50} during the 6:45 a.m. to 7:00 a.m. period to high of 53 dB L_{50} during the 7:00 a.m. to 7:30 a.m. and 7:30 a.m. to 8:00 a.m. periods.

Based on the results provided above, measured median noise levels due to Teichert operations did not exceed the Town of Truckee Development Code standards of 50 dB L_{50} prior to 7:00 a.m. or 55 dB L_{50} after 7:00 a.m. at either of the monitoring locations.

Conclusions

Based on the analysis of the results from the noise level survey conducted August 29th, 2023, noise levels generated from operations at the Teichert Martis Valley aggregate facility were found to comply with the applicable Town of Truckee daytime and nighttime noise level criteria at the measurement sites.

This concludes our environmental noise assessment for the Teichert Martis plant operations in Truckee, California. Please contact BAC at (530) 537-2328 or info@bacnoise.com with any questions.



Legend



Continuous Noise Measurement Sites

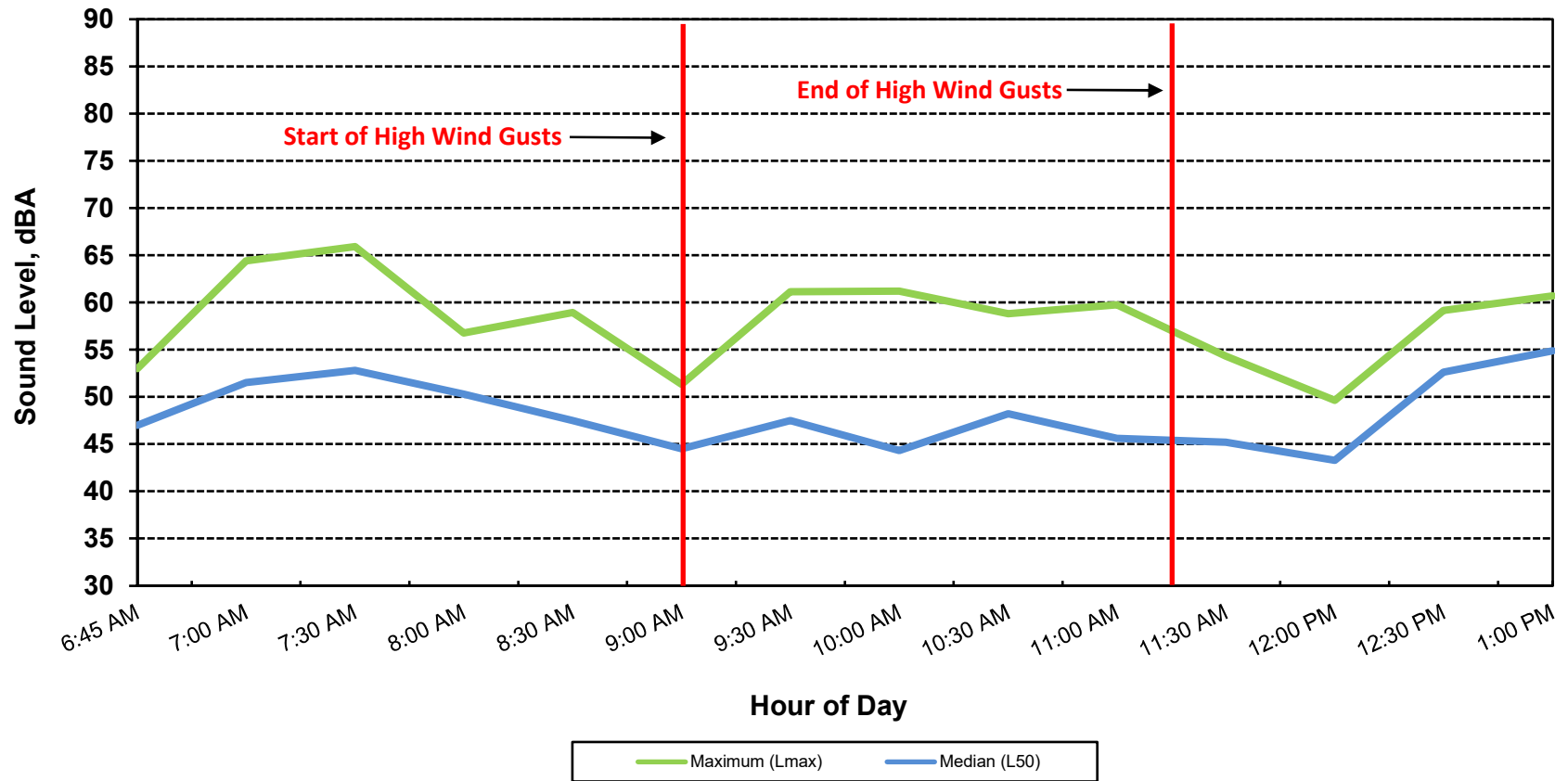
Teichert Martis Valley Aggregate Facility
Quarterly Noise Monitoring – Summer 2023
Truckee, California

Noise Measurement Locations

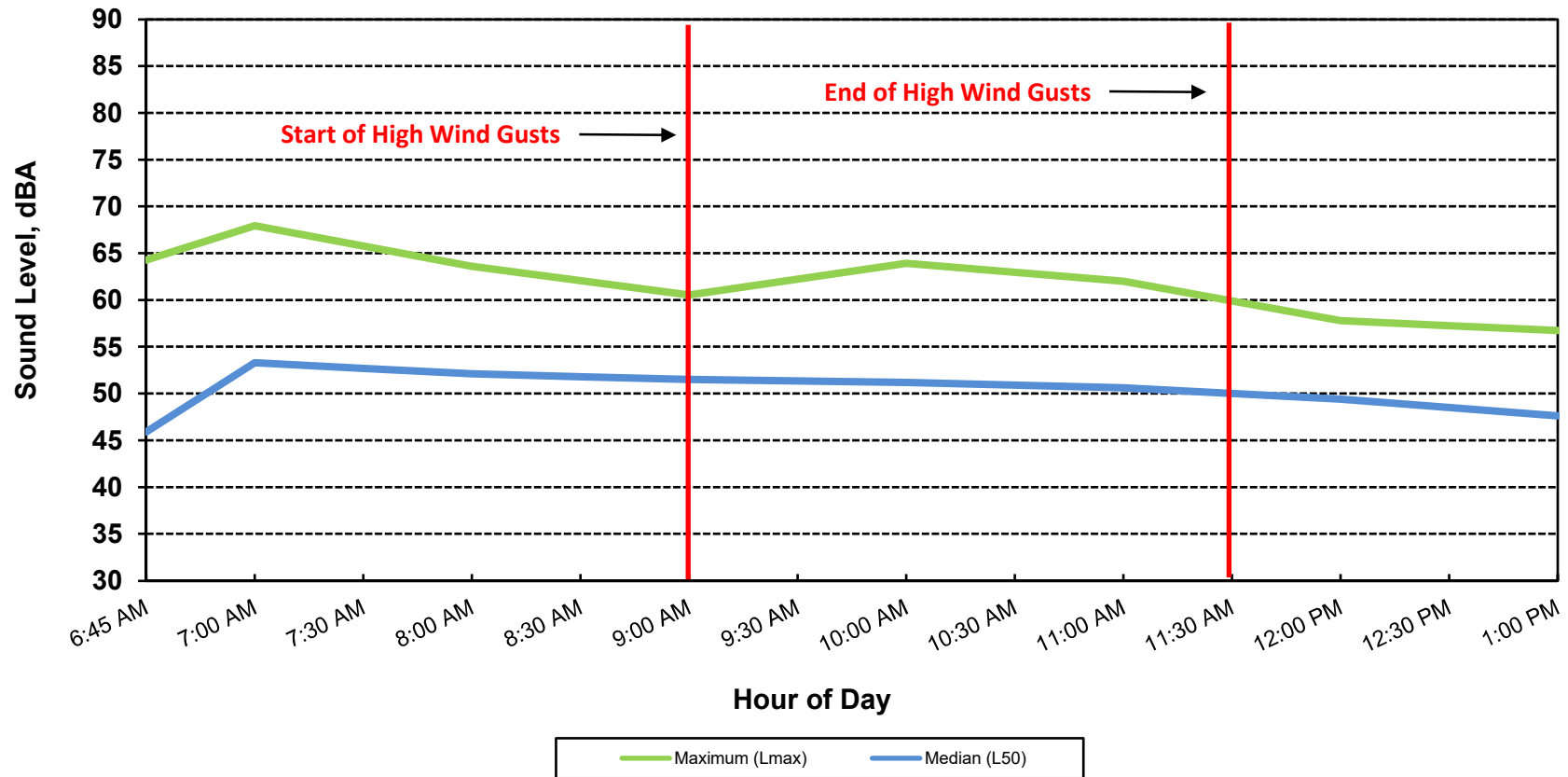
Appendix A



Appendix B-1
Noise Monitoring Results - Site 1
Teichert Martis Valley Quarterly Compliance - Summer 2023
Tuesday, August 29, 2023



Appendix B-2
Noise Monitoring Results - Site 2
Teichert Martis Valley Quarterly Compliance - Summer 2023
Tuesday, August 29, 2023





A



B

Legend

- A: Site 1: Noise monitoring location near Royal Way and Cavalier Rise
- B: Site 2: Noise monitoring location near the terminus of Foxboro Drive

Teichert Martis Valley Aggregate Facility
Quarterly Noise Monitoring – Summer 2023
Truckee, California

Noise Survey Photographs

Appendix C

Environmental Noise Assessment

Teichert Martis Valley Aggregate Facility Quarterly Compliance Noise Monitoring – Spring 2024

Truckee, California

BAC Job # 2024-003

Prepared For:

Town of Truckee

Attn: Chantal Birnberg
Town of Truckee
Planning Department

Prepared By:

Bollard Acoustical Consultants, Inc.



Dario Gotchet, Principal Consultant

June 4, 2024



Executive Summary

The use-permit for the Teichert Inc. Martis Valley aggregate plant requires that quarterly noise measurements be conducted to determine the compliance of Teichert operations with the noise standards of the Town of Truckee Development Code. Bollard Acoustical Consultants, Inc. (BAC) was retained by the Town of Truckee to prepare these analyses for the 2024 calendar year.

The results of the continuous noise level measurements and BAC observations conducted for the Spring 2024 quarter on May 29th, 2024, indicate that noise levels attributable to Teichert Martis Valley sand and gravel operations did not exceed the applicable Town of Truckee daytime and nighttime noise level criteria at the noise measurement locations.

Criteria for Acceptable Noise Exposure

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Due to the nature of the activities at the Teichert Martis Valley site, this analysis focuses on compliance with both the L_{50} and L_{max} noise level standards for both daytime and nighttime periods. Those standards are shown in Table 1.

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Noise Level Descriptor (dB)	Number of Minutes Per Hour	Daytime Standard (dB)	Nighttime Standard (dB)
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Source: Truckee Municipal Code, Title 18, Development Code, Table 3-7

Evaluation of Current Noise Environment

Methodology

BAC conducted noise level measurements on May 29th, 2024, at the two locations shown in Appendix A. The measurements were performed to evaluate the ambient noise environment at the outdoor activity areas of the residences located nearest to the Teichert Martis Valley facility. Specifically, measurements conducted at site 1 (near the residence at 14492 Royal Way) were intended to be representative of the ambient noise environment of the residences located off Royal Way and Cavalier Rise. Measurement site 2 was selected to be representative of the ambient noise environment at residences located near the terminus of Foxboro Drive (i.e., closest residences to the Teichert plant equipment). BAC staff conducted observations of Teichert operations during the noise survey to identify noise sources which contributed to the measured noise levels.

Larson Davis Laboratories (LDL) Model LxT precision integrating sound level meters were used for the continuous noise measurements. The meters were calibrated immediately before and after use with an LDL CAL-200 acoustical calibrator and meet all pertinent specifications of the American National Standards Institute (ANSI S1.4) for precision sound level measurement systems. The microphones were oriented vertically at a height of 5 feet above ground. The sound level meters were programmed to report maximum (L_{max}) and median (L_{50}) levels for every ½ hour interval.

Weather conditions on May 29th, 2024 consisted of cool morning temperatures with moderate afternoon temperatures, fair to partly cloudy skies, moderate humidity, and calm wind speeds (0-5 mph).

Noise Level Measurement Results

The results of the continuous noise level measurements on May 29th, 2024, are provided in Appendix B in terms of the Town's maximum (L_{max}) and median (L_{50}) noise level descriptors. Photographs of the measurement sites are provided in Appendix C.

According to a Teichert facility staff representative, little or no mining will occur during this season of operations (due to depleted reserves). Further, the facility will continue to accept and crush recycle material as well as operate the asphalt plant. Finally, operation of the jaw crusher this season is not anticipated. It is our understanding that Teichert facility operations were 7:00 a.m. to 3:00 p.m. on the day of the monitoring effort (May 29th, 2024).

Maximum Noise Levels (L_{max}):

Because the nearest residences are located a considerable distance from Teichert operations, recorded maximum noise levels in the vicinity of those locations were generally not attributable to the Teichert equipment. Specifically, BAC field staff observations indicated that many of the recorded maximum levels were caused by other sources such as wind, traffic, aircraft overflights, and train horns.

As indicated in Appendix B, measured maximum noise levels at site 1 ranged from a low of 50 dB L_{\max} during the 9:00 a.m. to 9:30 a.m. period to a high of 74 dB L_{\max} during the 11:30 a.m. to 12:00 p.m. period. However, after a review of BAC field notes, it was determined that the measured maximum of 74 dB L_{\max} during the 11:30 a.m. to 12:00 p.m. period at site 1 was attributed to a nearby BAC staff interaction with a neighbor, and not attributed to Teichert operations. Excluding this affected data, the highest measured maximum noise level at site 1 during the monitoring period was 70 dB L_{\max} during the 11:00 a.m. to 11:30 a.m. period. The measured maximum noise levels at site 2 ranged from a low of 51 dB L_{\max} during the 10:00 a.m. to 10:30 a.m. period to a high of 67 dB L_{\max} during the 9:30 a.m. to 10:00 a.m. period.

Based on the results provided above, measured maximum noise levels due to Teichert operations did not exceed the Town of Truckee Development Code 70 dB L_{\max} prior to 7:00 a.m. or 75 dB L_{\max} after 7:00 a.m. at either of the monitoring locations.

Median Noise Levels (L_{50}):

Because the Teichert operations typically occur continuously throughout any given hour, the noise level descriptor most suitable for addressing compliance with the Town of Truckee standards is the L_{50} , or median noise level.

The data contained in Appendix B indicate that measured median noise levels at site 1 ranged from a low of 36 dB L_{50} during the 10:00 a.m. to 10:30 a.m. period to a high of 47 dB L_{50} during the 7:00 a.m. to 7:30 a.m. period. The measured median noise levels at site 2 ranged from a low of 37 dB L_{50} during the 10:00 a.m. to 10:30 a.m. period to high of 50 dB L_{50} during the periods of 7:30 a.m. to 8:30 a.m., 11:00 a.m. to 11:30 a.m., and 12:00 p.m. to 12:30 p.m.

Based on the results provided above, measured median noise levels due to Teichert operations did not exceed the Town of Truckee Development Code standards of 50 dB L_{50} prior to 7:00 a.m. or 55 dB L_{50} after 7:00 a.m. at either of the monitoring locations.

Conclusions

Based on the analysis of the results from the noise level survey conducted May 29th, 2024, noise levels generated from operations at the Teichert Martis Valley aggregate facility were found to comply with the applicable Town of Truckee daytime and nighttime noise level criteria at the measurement sites.

This concludes our environmental noise assessment for the Teichert Martis plant operations in Truckee, California. Please contact BAC at (530) 537-2328 or info@bacnoise.com with any questions.



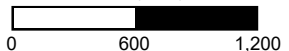
Legend



Continuous Noise Measurement Sites



Scale (Feet)



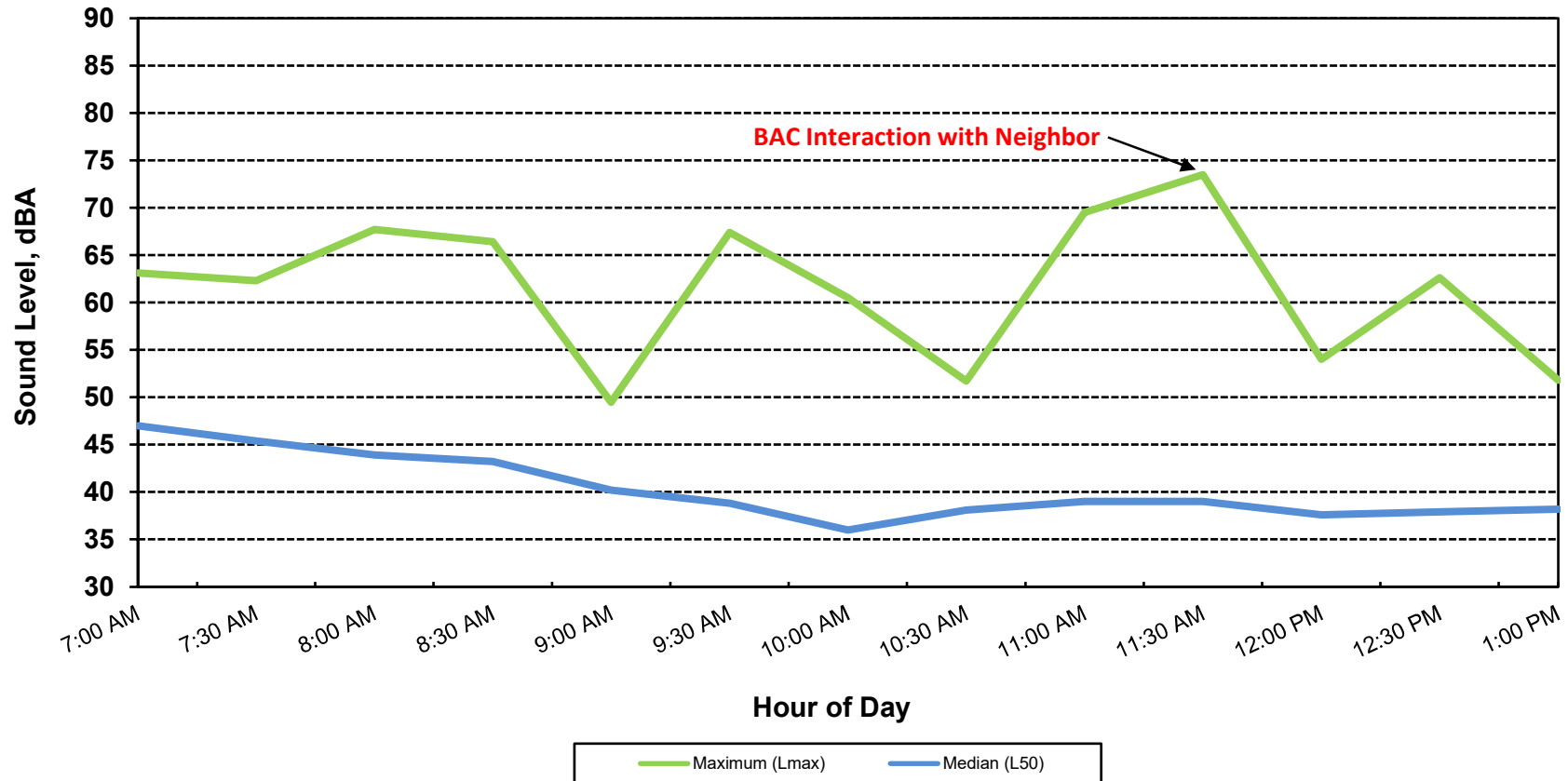
Teichert Martis Valley Aggregate Facility
 Quarterly Noise Monitoring – Spring 2024
 Truckee, California

Noise Measurement Locations

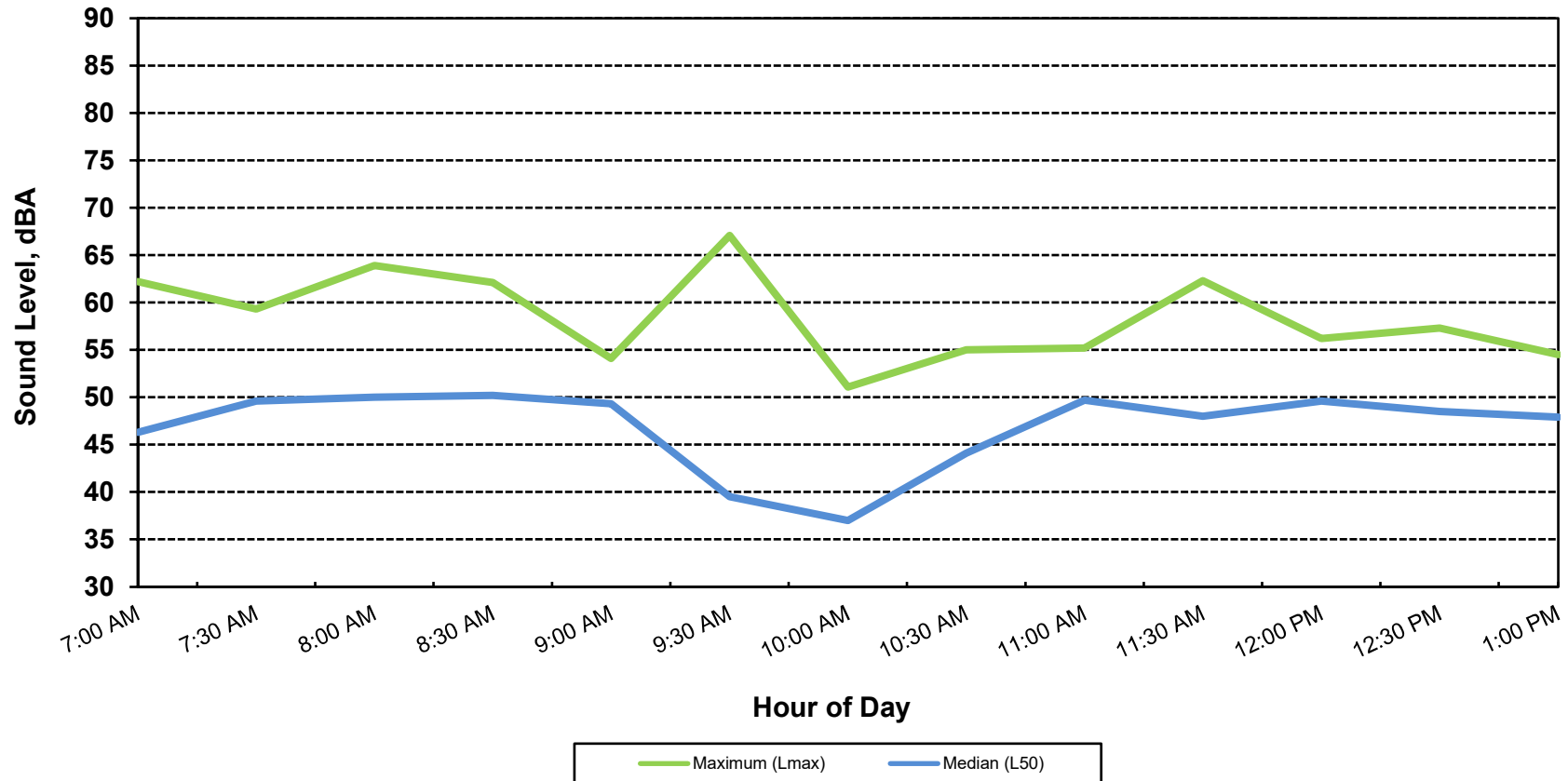
Appendix A



Appendix B-1
Noise Monitoring Results - Site 1 (Royal Way)
Teichert Martis Valley Quarterly Compliance - Spring 2024
Wednesday, May 29, 2024



Appendix B-2
Noise Monitoring Results - Site 2 (Foxboro Drive)
Teichert Martis Valley Quarterly Compliance - Spring 2024
Wednesday, May 29, 2024





A



B

Legend

- A: Site 1: Noise monitoring location near Royal Way and Cavalier Rise
- B: Site 2: Noise monitoring location near the terminus of Foxboro Drive

Teichert Martis Valley Aggregate Facility
 Quarterly Noise Monitoring – Spring 2024
 Truckee, California

Noise Survey Photographs

Appendix C



Environmental Noise Assessment

Teichert Martis Valley Aggregate Facility Quarterly Compliance Noise Monitoring – Summer 2024

Truckee, California

BAC Job # 2024-003

Prepared For:

Town of Truckee

Attn: Chantal Birnberg
Town of Truckee
Planning Department

Prepared By:

Bollard Acoustical Consultants, Inc.



Don Bollard, Associate

September 4, 2024



Executive Summary

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Criteria for Acceptable Noise Exposure

Town of Truckee Development Code

The Town of Truckee Development Code noise element contains criteria for acceptable exterior noise exposures in terms of day (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods in terms of various statistical descriptors. The Truckee noise standards are graduated, meaning that higher noise levels are allowed if the noise source is only generated for a short period of time, and the greater the percentage of time the noise is generated, the lower the noise level standard. For example, if the noise source is present for more than 50% of an hour, the noise level standard used for assessing compliance is the L_{50} . During daytime hours, the L_{50} noise level standard applicable to residential uses is 55 dB. Conversely, the noise level which is not to be exceeded for any duration of the hour (denoted L_{max} for maximum), is 75 dB during daytime hours.

Due to the nature of the activities at the Teichert Martis Valley site, this analysis focuses on compliance with both the L_{50} and L_{max} noise level standards for both daytime and nighttime periods. Those standards are shown in Table 1.

Table 1
Truckee Municipal Code Noise Standards for Residential Uses

Noise Level Descriptor (dB)	Number of Minutes Per Hour	Daytime Standard (dB)	Nighttime Standard (dB)
L_{max}	0	75	70
L_{50}	30	55	50

Source: Truckee Municipal Code, Title 18, Development Code, Table 3-7

Evaluation of Current Noise Environment

Methodology

BAC conducted noise level measurements on August 6th, 2024, at the two locations shown in Appendix A. The measurements were performed to evaluate the ambient noise environment at the outdoor activity areas of the residences located nearest to the Teichert Martis Valley facility. Specifically, measurements conducted at site 1 (near the residence at 14492 Royal Way) were intended to be representative of the ambient noise environment of the residences located off Royal Way and Cavalier Rise. Measurement site 2 was selected to be representative of the ambient noise environment at residences located near the terminus of Foxboro Drive (i.e., closest residences to the Teichert plant equipment). BAC staff conducted observations of Teichert operations during the noise survey to identify noise sources which contributed to the measured noise levels.

Larson Davis Laboratories (LDL) Model LxT precision integrating sound level meters were used for the continuous noise measurements. The meters were calibrated immediately before and after use with an LDL CAL-200 acoustical calibrator and meet all pertinent specifications of the American National Standards Institute (ANSI S1.4) for precision sound level measurement systems. The microphones were oriented vertically at a height of 5 feet above ground. The sound level meters were programmed to report maximum (L_{max}) and median (L_{50}) levels for every ½ hour interval.

Weather conditions on August 6th, 2024 consisted of cool morning temperatures with moderate afternoon temperatures, fair to partly cloudy skies, and moderate humidity. Wind speeds were calm in the morning up until 12:00 p.m. (0-5 mph), and then increased to moderate/high in the afternoon (15-20+ mph).

Noise Level Measurement Results

The results of the continuous noise level measurements on August 6th, 2024, are provided in Appendix B in terms of the Town's maximum (L_{max}) and median (L_{50}) noise level descriptors. Photographs of the measurement sites are provided in Appendix C.

According to a Teichert facility staff representative, little or no mining will occur during this season of operations (due to depleted reserves). Further, the facility will continue to accept and crush recycle material as well as operate the asphalt plant. Finally, operation of the jaw crusher this season is not anticipated. It is our understanding that Teichert facility operations were 7:00 a.m. to 3:00 p.m. on the day of the monitoring effort (August 6th, 2024).

Maximum Noise Levels (L_{max}):

Because the nearest residences are located a considerable distance from Teichert operations, recorded maximum noise levels in the vicinity of those locations were generally not attributable to the Teichert equipment. Specifically, BAC field staff observations indicated that many of the recorded maximum levels were caused by other sources such as wind, traffic, aircraft overflights, and train horns.

As indicated in Appendix B, measured maximum noise levels at site 1 ranged from a low of 57 dB L_{max} during the periods of 7:00 a.m. to 7:30 a.m., 10:30 a.m. to 11:00 a.m., and 11:30 a.m. to 12:00 p.m., to a high of 69 dB L_{max} during the periods of 7:30 a.m. to 8:00 a.m. and 10:00 a.m. to 10:30 a.m. The measured maximum noise levels at site 2 ranged from a low of 54 dB L_{max} during the 9:30 a.m. to 10:00 a.m. period to a high of 70 dB L_{max} during the 12:00 a.m. to 12:30 p.m. period.

As mentioned previously, wind speeds increased significantly at 12:00 p.m. during the survey period, reaching speeds of 20+ mph. The measured maximum of 70 dB L_{max} at site 2 occurred during the 12:00 p.m. to 12:30 p.m. period, and was determined to be attributed to wind (not Teichert operations). Excluding this affected data, the highest measured maximum noise level at site 2 during the monitoring period was 68 dB L_{max} during the 11:00 a.m. to 11:30 a.m. period.

Based on the results provided above, measured maximum noise levels due to Teichert operations did not exceed the Town of Truckee Development Code 70 dB L_{max} prior to 7:00 a.m. or 75 dB L_{max} after 7:00 a.m. at either of the monitoring locations.

Median Noise Levels (L_{50}):

Because the Teichert operations typically occur continuously throughout any given hour, the noise level descriptor most suitable for addressing compliance with the Town of Truckee standards is the L_{50} , or median noise level.

The data contained in Appendix B indicate that measured median noise levels at site 1 ranged from a low of 41 dB L_{50} during the 10:30 a.m. to 11:00 a.m. period to a high of 54 dB L_{50} during the periods of 12:00 p.m. to 12:30 p.m. and 1:00 to 1:30 p.m.

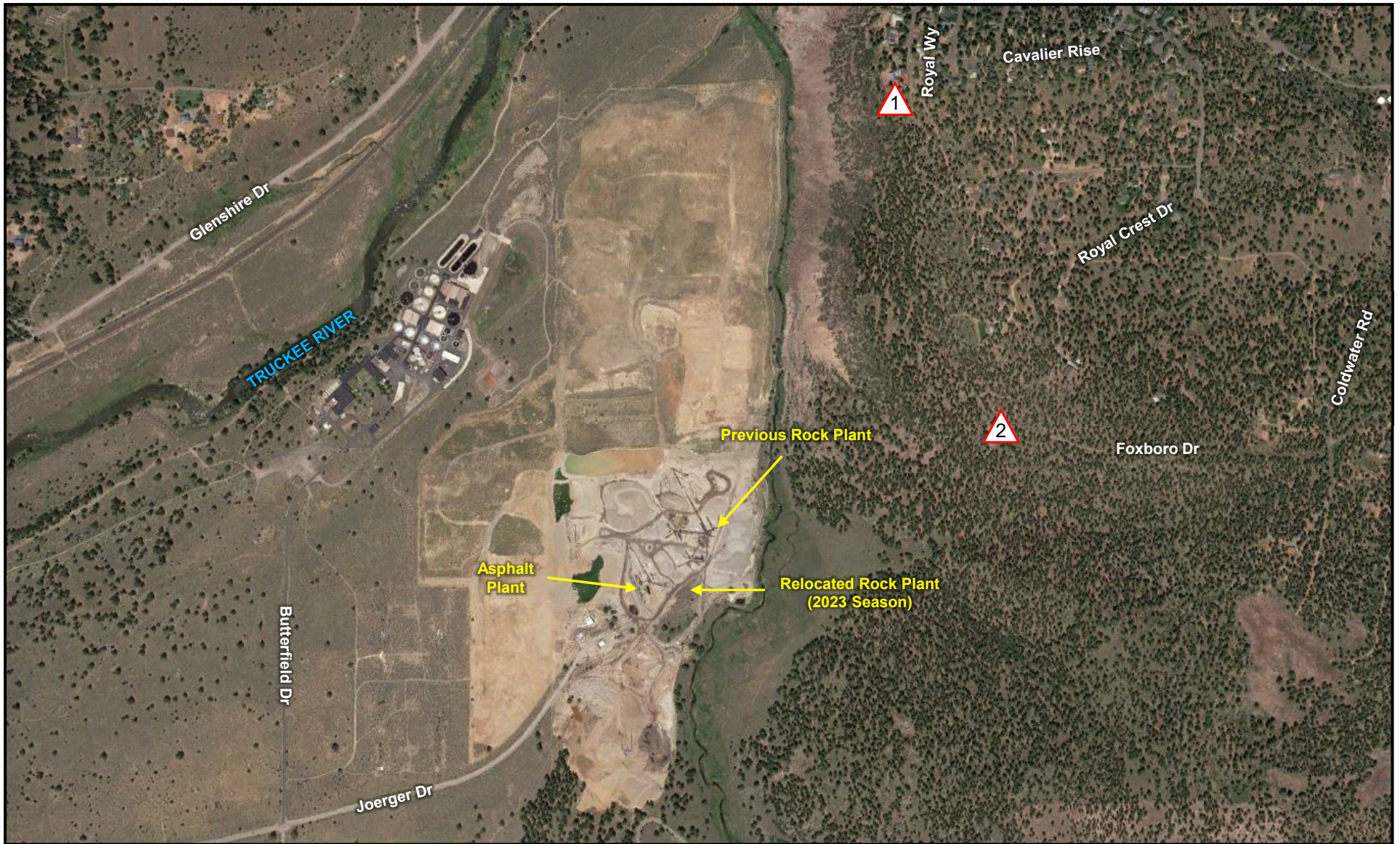
The measured median noise levels at site 2 ranged from a low of 44 dB L_{50} during the 6:30 a.m. to 7:00 a.m. period to high of 53 dB L_{50} during the 1:00 p.m. to 1:30 p.m. period.

Even after considering the elevated L_{50} values due to high winds, the measured median noise levels due to Teichert operations did not exceed the Town of Truckee Development Code standards of 50 dB L_{50} prior to 7:00 a.m. or 55 dB L_{50} after 7:00 a.m. at either of the monitoring locations.


Conclusions

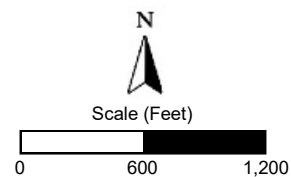
Based on the analysis of the results from the noise level survey conducted August 6th, 2024, noise levels generated from operations at the Teichert Martis Valley aggregate facility were found to comply with the applicable Town of Truckee daytime and nighttime noise level criteria at the measurement sites.

This concludes our environmental noise assessment for the Teichert Martis plant operations in Truckee, California. Please contact BAC at (530) 537-2328 or info@bacnoise.com with any questions.



Legend

 Continuous Noise Measurement Sites



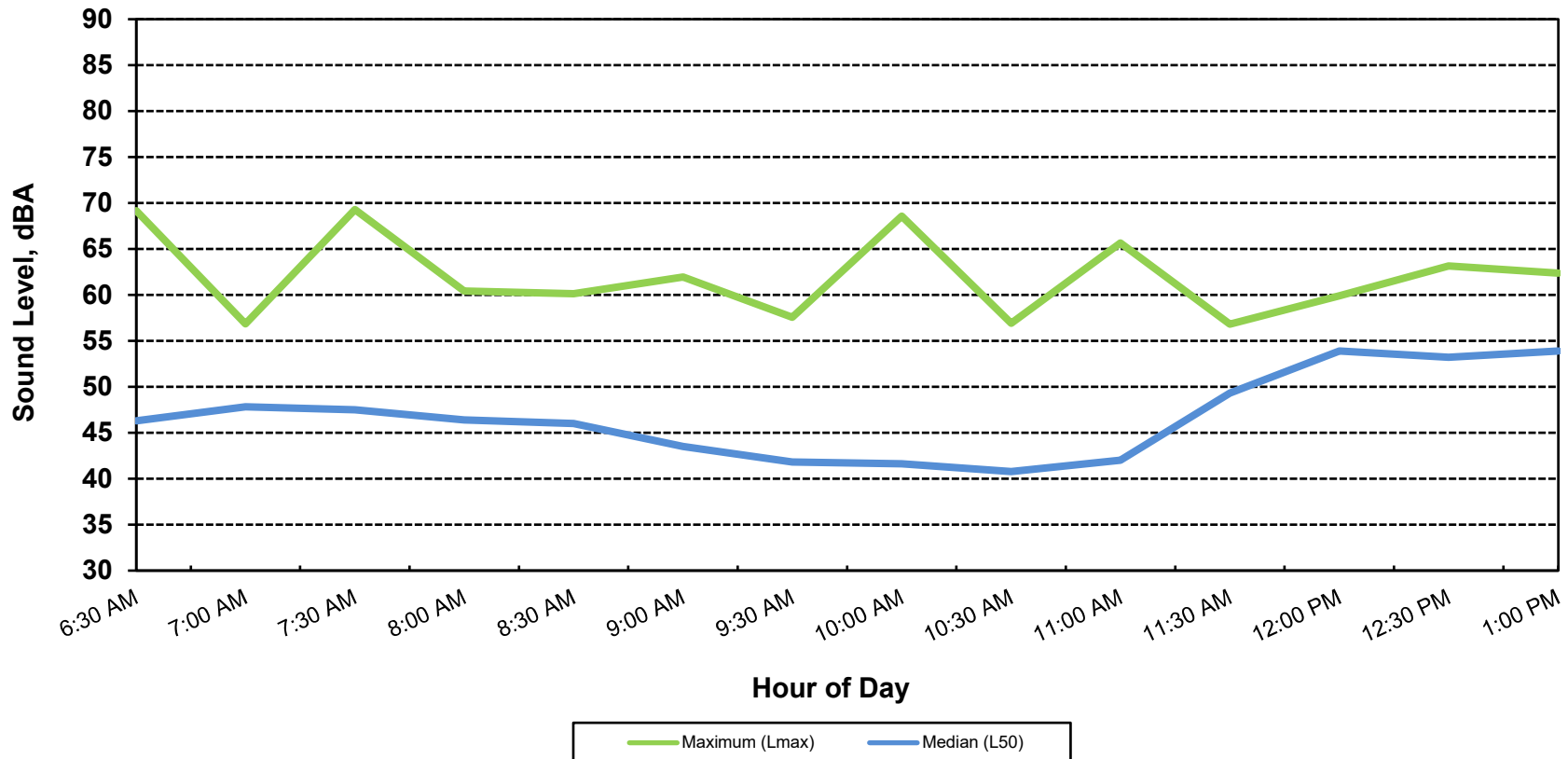
Teichert Martis Valley Aggregate Facility
Quarterly Noise Monitoring – Summer 2024
Truckee, California

Noise Measurement Locations

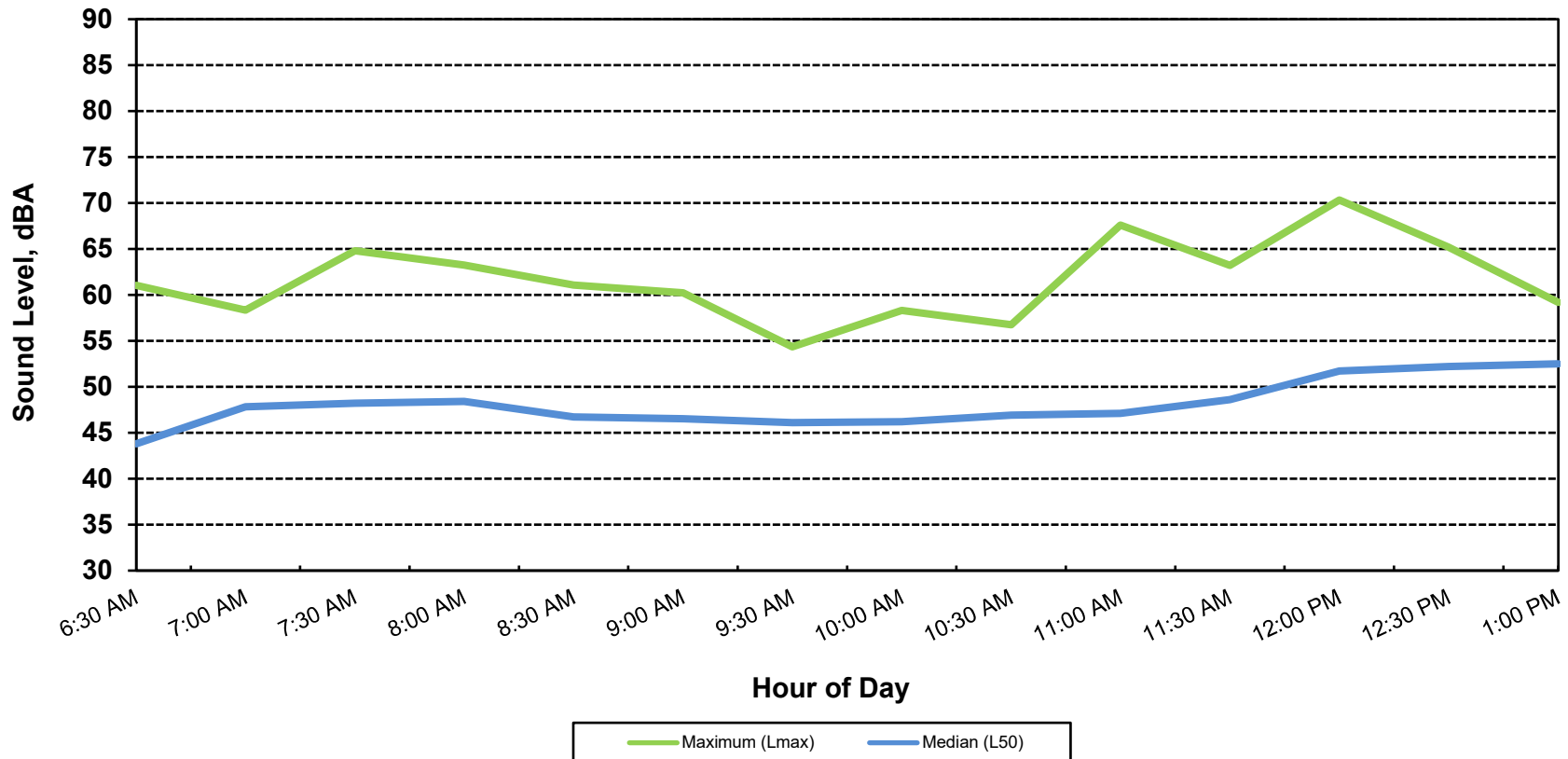
Appendix A



Appendix B-1
Noise Monitoring Results - Site 1 (Royal Way)
Teichert Martis Valley Quarterly Compliance - Summer 2024
Tuesday, August 6, 2024



Appendix B-2
Noise Monitoring Results - Site 2 (Foxboro Drive)
Teichert Martis Valley Quarterly Compliance - Summer 2024
Tuesday, August 6, 2024





Legend

- A: Site 1: Noise monitoring location near Royal Way and Cavalier Rise
 B: Site 2: Noise monitoring location near the terminus of Foxboro Drive

Teichert Martis Valley Aggregate Facility
 Quarterly Noise Monitoring – Summer 2024
 Truckee, California

Noise Survey Photographs

Appendix C



Environmental Noise Assessment

Teichert Martis Valley Aggregate Facility Quarterly Compliance Noise Monitoring – Fall 2024

Truckee, California

BAC Job # 2024-003

Prepared For:

Town of Truckee

Attn: Chantal Birnberg
Town of Truckee
Planning Department

Prepared By:

Bollard Acoustical Consultants, Inc.



Don Bollard, Associate

November 5, 2024



Executive Summary

The use-permit for the Teichert Inc. Martis Valley aggregate plant requires that quarterly noise measurements be conducted to determine the compliance of Teichert operations with the noise standards of the Town of Truckee Development Code. Bollard Acoustical Consultants, Inc. (BAC) was retained by the Town of Truckee to prepare these analyses for the 2024 calendar year.

The results of the continuous noise level measurements and BAC observations conducted for the Fall 2024 quarter on October 3rd, 2024, indicate that noise levels attributable to Teichert Martis Valley sand and gravel operations did not exceed the applicable Town of Truckee daytime or nighttime noise level criteria at the noise measurement locations.

Criteria for Acceptable Noise Exposure

Town of Truckee Development Code

The Town of Truckee Development Code noise element contains criteria for acceptable exterior noise exposures in terms of day (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods in terms of various statistical descriptors. The Truckee noise standards are graduated, meaning that higher noise levels are allowed if the noise source is only generated for a short period of time, and the greater the percentage of time the noise is generated, the lower the noise level standard. For example, if the noise source is present for more than 50% of an hour, the noise level standard used for assessing compliance is the L_{50} . During daytime hours, the L_{50} noise level standard applicable to residential uses is 55 dB. Conversely, the noise level which is not to be exceeded for any duration of the hour (denoted L_{max} for maximum), is 75 dB during daytime hours.

Due to the nature of the activities at the Teichert Martis Valley site, this analysis focuses on compliance with both the L_{50} and L_{max} noise level standards for both daytime and nighttime periods. Those standards are shown in Table 1.

Table 1
Truckee Municipal Code Noise Standards for Residential Uses

Noise Level Descriptor (dB)	Number of Minutes Per Hour	Daytime Standard (dB)	Nighttime Standard (dB)
L_{max}	0	75	70
L_{50}	30	55	50

Source: Truckee Municipal Code, Title 18, Development Code, Table 3-7

Evaluation of Current Noise Environment

Methodology

BAC conducted noise level measurements on October 3rd, 2024, at the two locations shown in Appendix A. The measurements were performed to evaluate the ambient noise environment at the outdoor activity areas of the residences located nearest to the Teichert Martis Valley facility. Specifically, measurements conducted at site 1 (near the residence at 14492 Royal Way) were intended to be representative of the ambient noise environment of the residences located off Royal Way and Cavalier Rise. Measurement site 2 was selected to be representative of the ambient noise environment at residences located near the terminus of Foxboro Drive (i.e., closest residences to the Teichert plant equipment). BAC staff conducted observations of Teichert operations during the noise survey to identify noise sources which contributed to the measured noise levels.

Larson Davis Laboratories (LDL) Model LxT precision integrating sound level meters were used for the continuous noise measurements. The meters were calibrated immediately before and after use with an LDL CAL-200 acoustical calibrator and meet all pertinent specifications of the American National Standards Institute (ANSI S1.4) for precision sound level measurement systems. The microphones were oriented vertically at a height of 5 feet above ground. The sound level meters were programmed to report maximum (L_{max}) and median (L_{50}) levels for every ½ hour interval.

Weather conditions on October 3rd, 2024 consisted of cool morning temperatures with moderate afternoon temperatures, fair skies, and moderate humidity. Wind speeds were calm in the morning up until 10:00 a.m. (0-5 mph), and then increased to moderate/high in the afternoon (15-20+ mph).

Noise Level Measurement Results

The results of the continuous noise level measurements on October 3rd, 2024, are provided in Appendix B in terms of the Town's maximum (L_{max}) and median (L_{50}) noise level descriptors. Photographs of the measurement sites are provided in Appendix C.

According to a Teichert facility staff representative, little or no mining will occur during this season of operations (due to depleted reserves). Further, the facility will continue to accept and crush recycle material as well as operate the asphalt plant. Finally, operation of the jaw crusher this season is not anticipated. It is our understanding that Teichert facility operations were 7:00 a.m. to 3:00 p.m. on the day of the monitoring effort (October 3rd, 2024).

Maximum Noise Levels (L_{max}):

Because the nearest residences are located a considerable distance from Teichert operations, recorded maximum noise levels in the vicinity of those locations were generally not attributable to the Teichert equipment. Specifically, BAC field staff observations indicated that many of the recorded maximum levels were caused by other sources such as wind, traffic, aircraft overflights, and train horns.

As indicated in Appendix B, measured maximum noise levels at site 1 ranged from a low of 56 dB L_{max} during the 7:00 a.m. to 7:30 a.m. period to a high of 76 dB L_{max} during the periods of 6:30 a.m. to 7:00 a.m. and 12:30 p.m. to 1:00 p.m. The measured maximum noise levels at site 2 ranged from a low of 55 dB L_{max} during the 1:00 p.m. to 1:30 p.m. period to a high of 72 dB L_{max} during the 9:30 a.m. to 10:00 a.m. period.

As mentioned previously, it is our understanding that the Teichert plant operations were 7:00 a.m. to 3:00 p.m. on October 3rd, 2024, and therefore the measured maximum noise level of 76 dB L_{max} that occurred at site 1 during the 6:30 a.m. to 7:00 a.m. period was not attributed to Teichert operations. Additionally, after a comparison of BAC field notes with measurement data, it was revealed that the measured maximum noise level of 76 dB L_{max} at site 1 during the 12:30 p.m. to 1:00 p.m. period was attributed to aircraft overflights within the area, and not associated with Teichert operations. Excluding this affected data, the highest measured maximum noise level at site 1 during the monitoring period was 70 dB L_{max} during the 10:00 a.m. to 10:30 a.m. period.

Based on the results provided above, measured maximum noise levels due to Teichert operations did not exceed the Town of Truckee Development Code 70 dB L_{max} prior to 7:00 a.m. or 75 dB L_{max} after 7:00 a.m. at either of the monitoring locations.

Median Noise Levels (L_{50}):

Because the Teichert operations typically occur continuously throughout any given hour, the noise level descriptor most suitable for addressing compliance with the Town of Truckee standards is the L_{50} , or median noise level.

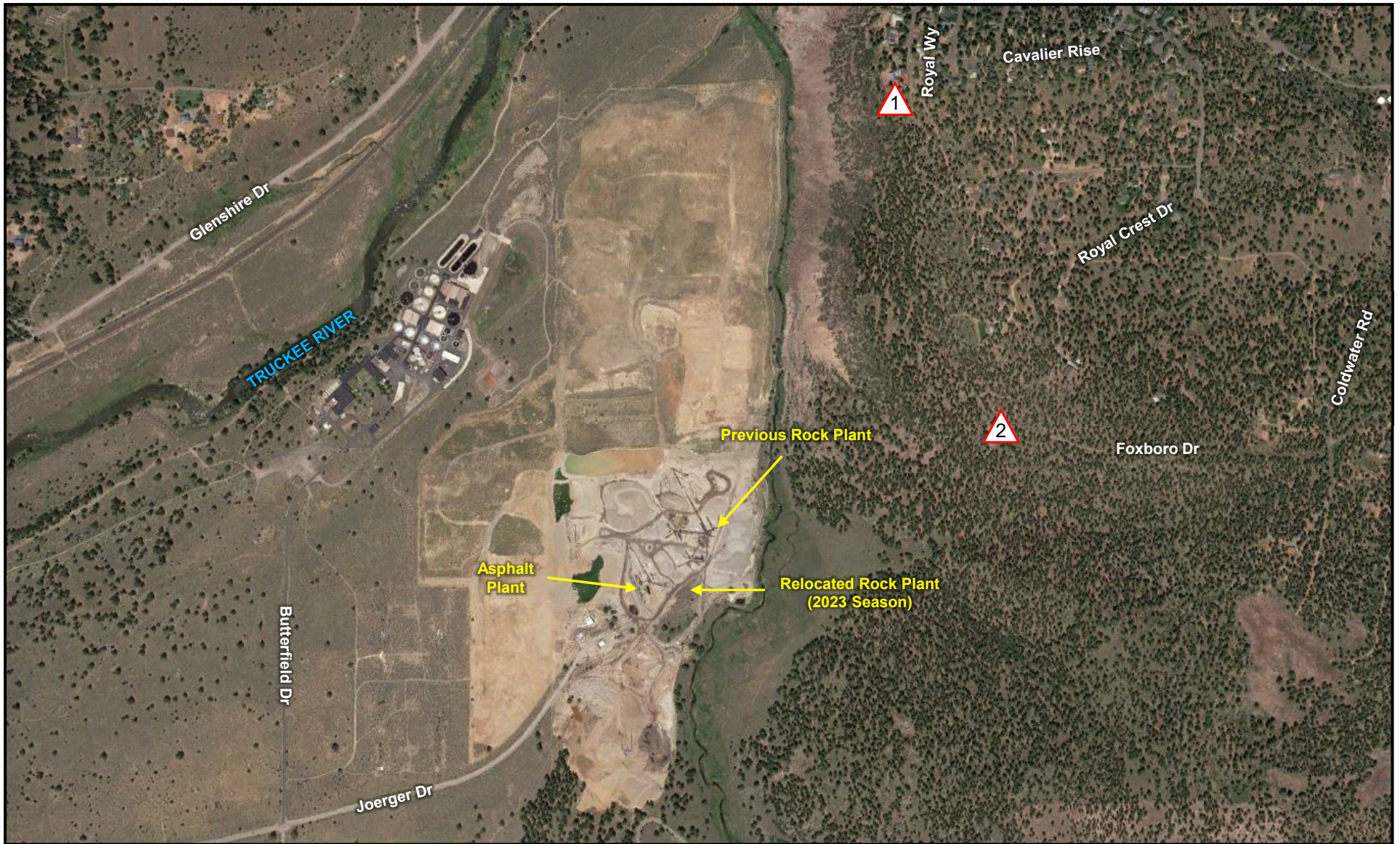
The data contained in Appendix B indicate that measured median noise levels at site 1 ranged from a low of 46 dB L_{50} during the periods of 6:30 a.m. to 7:00 a.m. and 10:30 a.m. to 11:00 a.m. to a high of 53 dB L_{50} during the 11:30 a.m. to 12:00 p.m. period. The measured median noise levels at site 2 ranged from a low of 43 dB L_{50} during the 6:30 a.m. to 7:00 a.m. period to high of 52 dB L_{50} during the 7:30 a.m. to 8:00 a.m. period.

The measured median noise levels due to Teichert operations did not exceed the Town of Truckee Development Code standards of 50 dB L_{50} prior to 7:00 a.m. or 55 dB L_{50} after 7:00 a.m. at either of the monitoring locations.


Conclusions

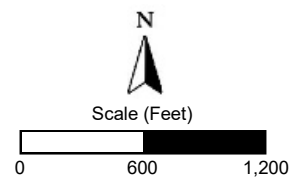
Based on the analysis of the results from the noise level survey conducted October 3rd, 2024, noise levels generated from operations at the Teichert Martis Valley aggregate facility were found to comply with the applicable Town of Truckee daytime and nighttime noise level criteria at the measurement sites.

This concludes our environmental noise assessment for the Teichert Martis plant operations in Truckee, California. Please contact BAC at (530) 537-2328 or info@bacnoise.com with any questions.



Legend

 Continuous Noise Measurement Sites



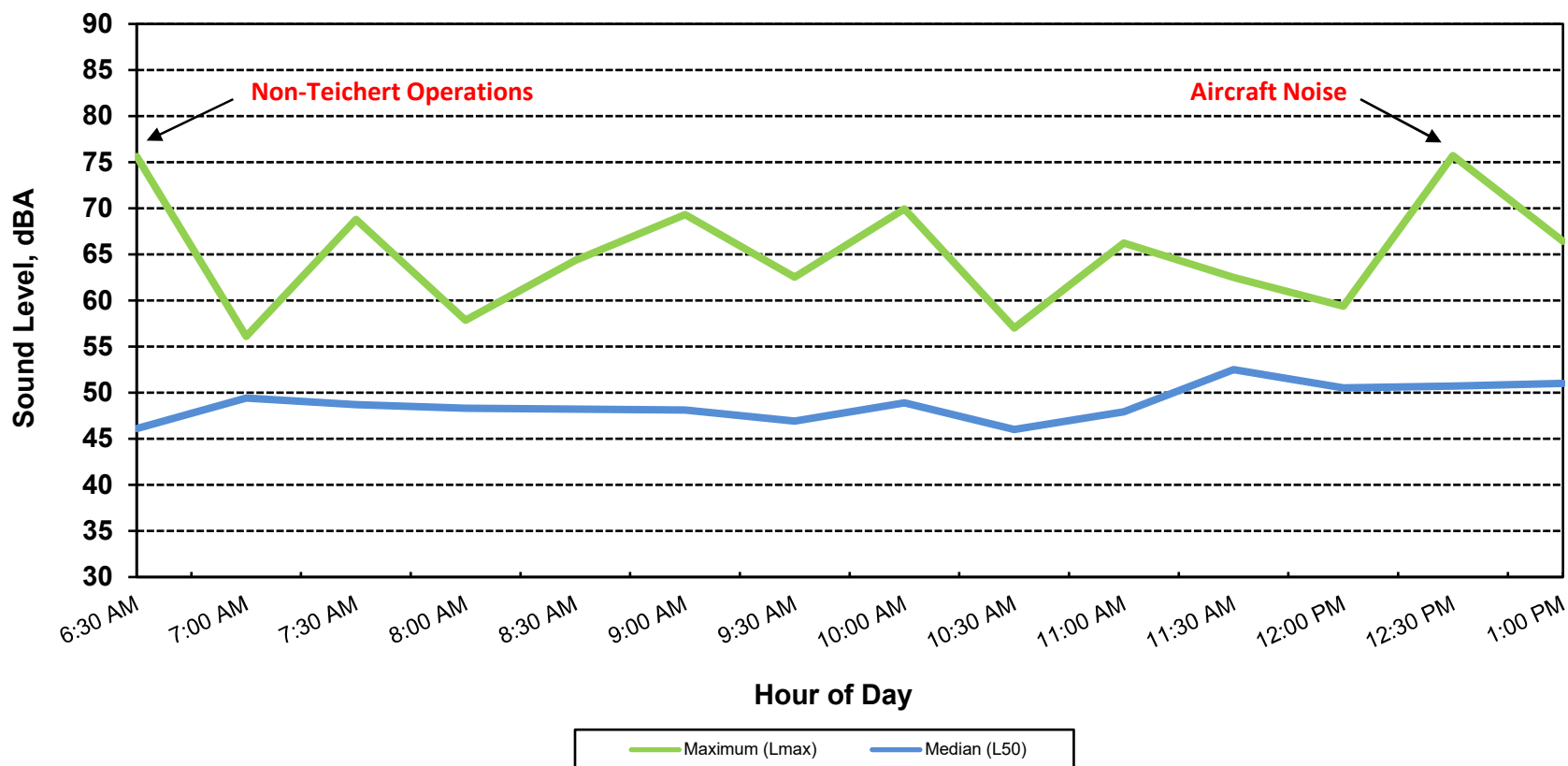
Teichert Martis Valley Aggregate Facility
Quarterly Noise Monitoring – Fall 2024
Truckee, California

Noise Measurement Locations

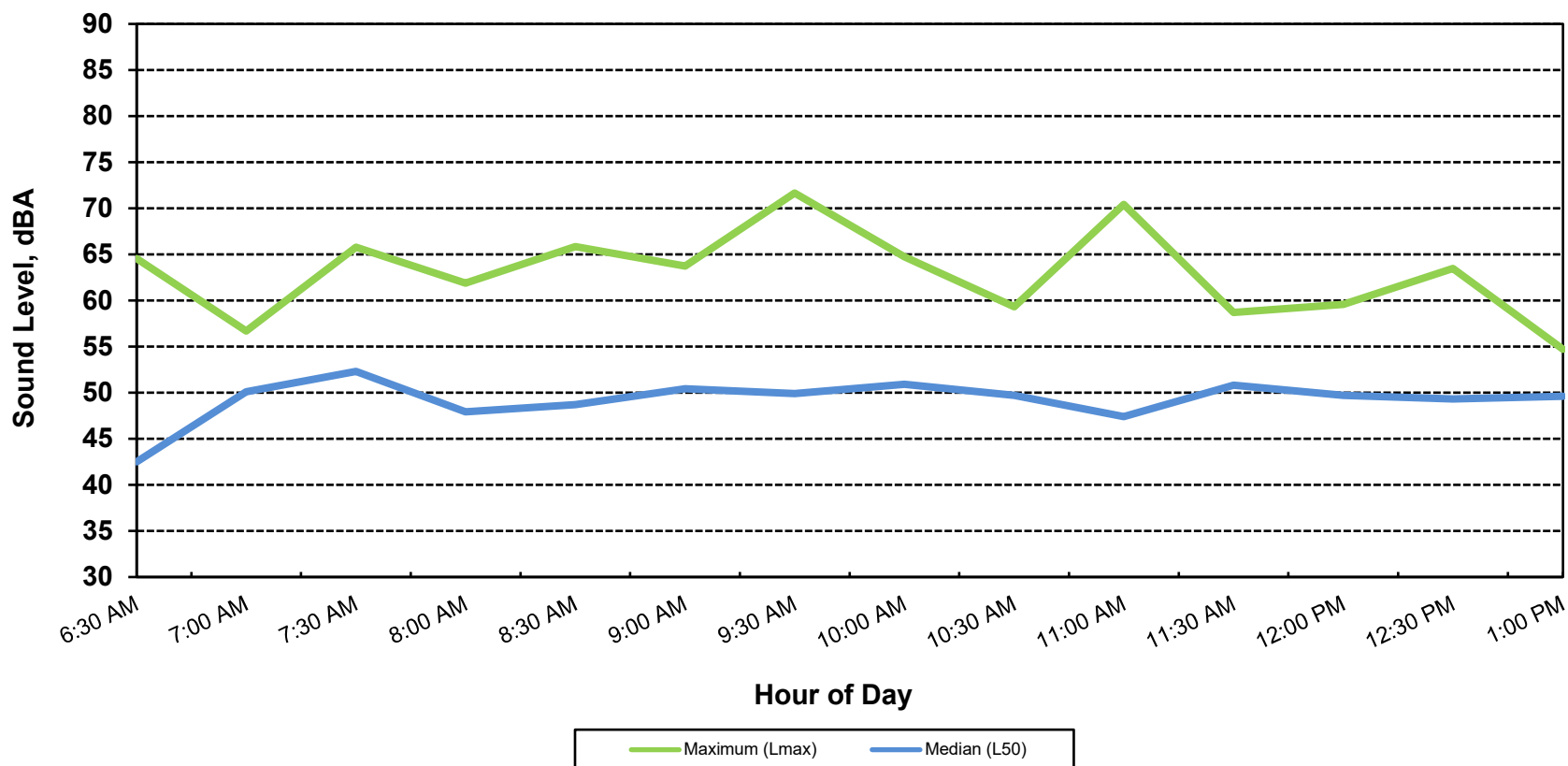
Appendix A



Appendix B-1
Noise Monitoring Results - Site 1 (Royal Way)
Teichert Martis Valley Quarterly Compliance - Fall 2024
Thursday, October 3, 2024



Appendix B-2
Noise Monitoring Results - Site 2 (Foxboro Drive)
Teichert Martis Valley Quarterly Compliance - Fall 2024
Thursday, October 3, 2024





Legend

- A: Site 1: Noise monitoring location near Royal Way and Cavalier Rise
- B: Site 2: Noise monitoring location near the terminus of Foxboro Drive

Teichert Martis Valley Aggregate Facility
 Quarterly Noise Monitoring – Fall 2024
 Truckee, California

Noise Survey Photographs

Appendix C

