



NORTH MARE ISLAND EXISTING NOISE REPORT

Project Zeus


Mare Island, Vallejo, California

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.

May 1, 2017

Project No. 6166150082



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Project Zeus
Confidential Client

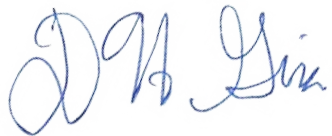
Subject: North Mare Island Existing Noise Report
Project Zeus
Mare Island Site
Vallejo, California
Project No. 6166150082

Dear Project Zeus Client Team:

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) is pleased to present this North Mare Island Existing Noise Report for the Project Zeus (Project) Mare Island site, located in Vallejo, California. We appreciate the opportunity to work with you on this project. If you have any questions or require additional information, please feel free to contact Dan Gira at daniel.gira@amecfw.com or (805) 962-0992.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.



Dan Gira
Project Manager
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1.0 INTRODUCTION

This report has been prepared to support the California Environmental Quality Act (CEQA) and planning process for development of the North Mare Island site. Specifically, it has been prepared to characterize the existing noise environment on and adjacent to the site.

1.1 Overview of Sound Measurement

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB, and a sound that is 10 dB less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dB change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources (such as industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dB per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dB per doubling of distance.

In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq).

The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measuring period, and Lmin is the lowest RMS sound pressure level within the measuring period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the day. Two commonly used noise metrics – the Day-Night average level (Ldn) and the Community Noise Equivalent Level (CNEL) – recognize this fact by weighting hourly Leqs over a 24-hour period. The Ldn is a 24-hour average noise level that adds 10 dB to actual nighttime (10 p.m. to 7 a.m.) noise levels to account for the greater sensitivity to noise during that time period. The CNEL is identical to the Ldn, except it also adds a 5 dB penalty for noise occurring during the evening (7 p.m. to 10 a.m.).

1.2 Project Site Setting

The Project site is located in the northeastern most region of Mare Island, adjacent and south of SR-37 and within Reuse Area 1A. On-island noise generally varies from that of a quiet nature near recreational and residential areas, to noise greater than a 60 day-night average noise level (Ldn) near centers for commercial and industrial uses. Traffic is the dominant source of noise within the Project vicinity due to the close proximity to primary Mare Island access features (e.g., SR-37, Mare Island Causeway). Due to the proximity of these major traffic thoroughfares, island arterials which transect the Project site, and adjacent industrial developments, the Project site experiences a substantial degree of noise which has been measured to exceed an ambient noise level of 62.3 CNEL dBA at 50 feet from the roadway centerline. No activities associated with stationary noise generators currently occur on the Project site due to the vacant setting. As such, onsite noise generation is limited to mobile sources along arterial roadways.

1.3 Existing Noise Environment

As previously described, measured noise levels within the Project site and vicinity are generally limited to mobile sources from automobile traffic. Short-term noise measurements were taken by Amec Foster Wheeler at seven monitoring locations bordering the Project site on October 5th and 6th, 2016 to document the existing noise environment within the Project site (refer to Tables 1 and 2 and Figure 1). Noise measurements were conducted during the 6:00 – 9:00 AM and 4:00 – 7:00 PM Peak hours. Each monitoring site was located at least 50 feet away from the edge of the nearest roadway. Each site was measured for 10 minutes using a SoundPro SE sound level meter (SLM) I from Quest Technologies. The quantities measured are in Leq, Lmin, and Lmax. The noise measurement results for these seven monitoring locations are summarized in Tables 1 and 2. Figure 1 shows noise measurement locations.

Table 1. Project Vicinity Ambient Noise Measurements – PM Peak Hours

| # | Monitoring Location | Measured Ambient Noise (dBA) | | | Dominant Noise Source | Atypical Noise Source* |
|---|--|------------------------------|------------------|------------------|---|---|
| | | L _{eq} | L _{max} | L _{min} | | |
| 1 | Along SR-37 near Railroad Avenue | 60.2 | 70.2 | 48.6 | Traffic on SR-37 | Two homeless women talking/yelling, slamming car trunk throughout the 10 minutes. Backup beeper in distance. Occasional motorcycle or loud truck on SR-37. |
| 2 | Along SR-37 near Azuar Drive | 62.1 | 69.8 | 52.3 | Traffic on SR-37 | 0:00 – Papers ruffing in wind and footsteps. Car honking @ 3:00, 4:00, & 7:00. Motorcycle @ 6:00. Big truck @ 7:00, 8:00. Bus @ 9:00. Truck on rumble strip @ 9:00. |
| 3 | Azuar Drive & J Street | 49.0 | 63.0 | 41.6 | Cars on Azuar Dr & in background on SR-37 | Car accelerating onto Azuar Drive from J Street @ 1:30, 6:45, & 9:45. Wind gusting @ 4:00, 6:30, 8:45, 9:05. Crane across SR-37 clanking @ 4:00, 7:30, 8:15, 9:00, 9:50. Car honking on SR-37 @ 4:45. Airplane overhead from 5:40 – 6:30. Clang on building @ 6:00. |
| 4 | G Street between Azuar Drive and Walnut Street | 55.0 | 65.1 | 43.9 | Cars on G St | Schoolbus @ 0:45. Captured some acceleration at stop signs. Truck @ 9:10. |
| 5 | G Street & Nimitz | 55.2 | 66.5 | 43.7 | Cars on G St | Radio from car @ 0:15 and 3:10. Motorcycle in distance @ 0:25. Loud truck @ 2:10. Truck accelerating @ 3:00. Crane in distance on other side of SR-37 @ 3:30, 4:00. Truck on Railroad Avenue @ 5:10, 8:20, 8:40. Truck on SR-37 @ 9:00. |
| 6 | Corner of lot near Mare Island Strait | 48.0 | 56.6 | 43.8 | Cars on SR-37, Railroad Ave | Crane across from SR-37 @ 1:40, 2:20, 3:00, 6:40. Crickets close by entire 10 minutes. |
| 7 | Path near Vallejo Heights & Mare Island Strait | 50.0 | 59.9 | 46.6 | Cars on SR-37, Wilson Ave | Woman walking away on path 0:00-0:10. Car accelerating on SR-37 @ 4:40. |

*Time (0:00 minutes) atypical noise occurred during each 10-minute noise measurement.

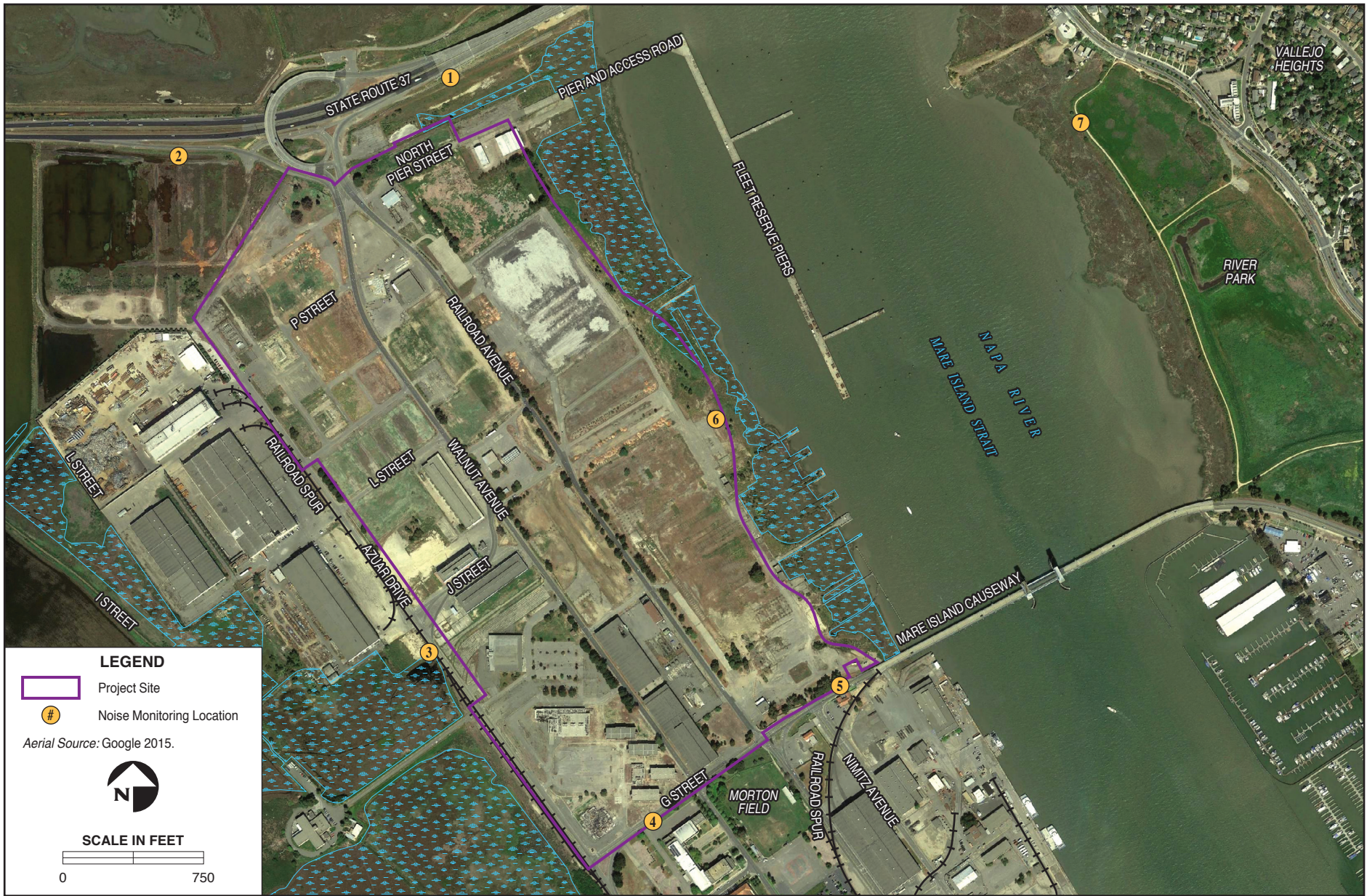
Source: Amec Foster Wheeler Field Visit on 10/5/16 using SoundPro SE SLM I.

Table 2. Project Vicinity Ambient Noise Measurements – AM Peak Hours

| # | Monitoring Location | Measured Ambient Noise (dBA) | | | Dominant Noise Source | Atypical Noise Source* |
|---|--|------------------------------|------------------|------------------|---|--|
| | | L _{eq} | L _{max} | L _{min} | | |
| 1 | Along SR-37 near Railroad Avenue | 66.1 | 76.8 | 47.8 | Traffic on SR-37 | Car horn @ 0:55. Noise at 5:15. Truck @ 2:00, 2:30, 2:38, 2:57, & 4:25. Big truck @ 9:15. Man talking @ 8:00 – 8:45. Man walking away @ 8:45 – 9:00. Brakes squeaking from trucks in traffic. |
| 2 | Along SR-37 near Azuar Drive | 62.1 | 70.6 | 48.5 | Traffic on SR-37 | Music from car radio @ 0:20 – 0:50, 8:50 – 9:05. Footsteps @ 0:05 – 0:15. Honk @ 5:40, 5:45. Rumble strip @ 1:10 & 7:50. Big truck @ 1:50, 2:20, 2:30, 3:40, 3:50, 4:40, 7:37, 10:00. Brakes “whoosh” @ 6:20. |
| 3 | Azuar Drive & J Street | 54.0 | 65.3 | 45.6 | Cars on Azuar Dr & in background on SR-37, EPS building | Car accelerating onto Azuar Drive from J Street @ 5:50. Backup beeper @ 1:10 – 1:20. Crane @ 1:30. Metallic noise @ 3:50. EPS building hissing @ 7:45 -10:00. Honk @ 8:30. |
| 4 | G Street between Azuar Drive and Walnut Street | 59.4 | 66.8 | 47.4 | Cars on G St | Accelerating truck @ 4:30. Car squeaking @ 8:35. |
| 5 | G Street & Nimitz | 57.4 | 66.4 | 49.8 | Cars on G St | Car crossing railroad tracks on Nimitz @ 0:20, 1:45, 3:50, 8:30. UPS truck accelerating @ 1:30. Footsteps @ 2:40, 3:00. Truck on Railroad Ave @ 4:40, 4:50, 6:30, 7:45, 7:50, 9:45, 9:57. Car accelerating on G Street @ 5:50, 8:50. Tow truck @ 7:30. Truck scraping @ 7:30. |
| 6 | Corner of lot near Mare Island Strait | 48.7 | 65.9 | 44.5 | Cars on SR-37, Railroad Ave, birds/crickets | Footsteps 0:00 – 0:10 and 3:40 – 3:50. Backup beeper in distance 0:10 – 1:00. Birds and crickets chirping entire time. Crow @ 6:15, 6:20, 6:26 – 6:32. Loud chirp @ 6:45, 6:55, 7:00. Airplane overhead @ 1:15 – 2:00. Truck on Railroad Avenue @ 5:40, 6:00. Horn on Railroad Avenue @ 7:05. Beeping noise @ 8:35 – 8:45. |
| 7 | Path near Vallejo Heights & Mare Island Strait | 51.6 | 61.0 | 47.5 | Cars on SR-37, Wilson Ave | Footsteps @ 0:05 – 0:10. Birds chirping. Beeping @ 0:55. Siren @ 1:10 – 1:25, 1:50. Horn from boat on the water @ 2:00, 2:10, 2:22, 2:32, 2:42 (every 10 seconds). Car alarm @ 4:45 – 5:10. Talking to hiker @ 7:15 – 7:30. Hiker walking @ 7:40 – 8:10. Couple hikers talking/walking @ 9:05 – 9:50. |

*Time (0:00 minutes) atypical noise occurred during each 10-minute noise measurement.

Source: Amec Foster Wheeler Field Visit on 10/6/16 using SoundPro SE SLM I.



North Mare Island Noise Monitoring Locations

FIGURE 1

