Noise Variance Consultation

Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street
Noise Variance Consultation
Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street

Noise Regulations

• HAR Title 11, Chapter 46 sets the rules and restrictions on sound levels for construction projects. It states:

  “No permit shall allow any construction activities which emit noise:
  • Monday thru Friday before 7 a.m. and after 6 p.m. of the same day
  • Saturday before 9 a.m. and after 6 p.m.
  • Sundays and on Holidays”

• A Noise Variance must be obtained for any construction activities to occur outside the permissible hours (i.e. after 6 p.m. weekdays).
Noise Variance Consultation
Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street

Waokanaka St to Kamehameha Hwy
Obtained approved Noise Variance for Pali Highway Improvements project from Waokanaka Street to Kamehameha Highway from DOH

Work hours covered under approved Noise Variance:
• Sunday Midnight to midnight
• Monday to Friday Midnight to 5:00 am, 7:00 pm to midnight
• Saturday Midnight to 8:00 am, 8:00 pm to midnight

Restrictions:
• Use of *hoe ram, walk behind saw* and *handheld jackhammers* are prohibited after 10:00 pm within 500 feet of residences
• The use of *excavators, backhoes, loaders, vibratory rollers, and cold planers* are prohibited after midnight within 500 feet of residences
HDOT is applying a Noise Variance for Pali Highway Improvements project from VINEYARD BOULEVARD to WAOKANAKA STREET
Noise Variance Consultation
Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street

Scope of Work
Vineyard Boulevard to Waokanaka Street

- Resurface/Reconstruct highway surface
- Construct concrete median barrier in some locations
- Replace all guardrails and crash cushions
- Replace all regulatory and warning signs and pavement markings
- Upgrade highway lighting
- Improve pedestrian facilities
- Widen Honolulu-bound roadway for highway lighting replacement and Dowsett Highlands Relief Sewer project
Noise Variance Consultation
Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street

Schedule (2 Phases):

- Anticipated Construction Start: Fall 2017
- Anticipated Construction End: Winter 2020
Proposed Noise Variance

- Noise Variance Application for Pali Highway Improvements (Por.) Vineyard Boulevard to Waokanaka Street was submitted to DOH
  - Requested that work be allowed 24 hours, 7 days a week from Fall 2017 to Winter 2020
- We anticipate that most of the work will occur during the day, but night work may be required
- We will work with the Contractor to decide on the least impactful schedule
# Proposed Noise Variance

Prohibition within 500 feet of residences:

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>Proposed Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoe Ram, Walk Behind Saw, and Jackhammers</td>
<td>Prohibited after 10 PM</td>
</tr>
<tr>
<td>Cold Planers</td>
<td>Prohibited after midnight</td>
</tr>
<tr>
<td>Excavators, Backhoes, Loaders, and Vibratory Rollers</td>
<td>No Restriction</td>
</tr>
</tbody>
</table>
Noise Variance Consultation
Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street

• As sound travels away from its source, it becomes quieter.

• More sound is received by an ear 10 feet from a source than at 20 feet from the source.

• For construction, noise decreases at a rate of 6 to 8 dBA each time the distance from the source doubles.
Noise Variance Consultation
Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street

Construction Equipment Noise Level
50’ DISTANCE FROM CONSTRUCTION
(~85 dB outdoor)
(~80 dB indoor – garbage disposal)
VINEYARD BLVD TO WYLLIE ST

100’ DISTANCE FROM CONSTRUCTION
(~79 dB outdoor)
(~74 dB indoor – toilet, vacuum)
VINEYARD BLVD TO WYLLIE ST

200’ DISTANCE FROM CONSTRUCTION
(~73 dB outdoor)
(~68 dB indoor – shower, dishwasher)
50' DISTANCE FROM CONSTRUCTION
(~85 dB outdoor)
(~80 dB indoor – garbage disposal)
100' DISTANCE FROM CONSTRUCTION
(~79 dB outdoor)
(~74 dB indoor – toilet, vacuum)
200’ DISTANCE FROM CONSTRUCTION
(~73 dB outdoor)
(~68 dB indoor – shower, dishwasher)
Noise Abatement

• All equipment with an exhaust of gas or air will be equipped with mufflers
• HDOT field personnel and the Contractor will monitor all equipment and construction activities on the job site
• Instructional meetings will be held for construction crews and truck drivers
• A job-site representative will be designated to whom immediate complaints can be forwarded for prompt response and who will have the general responsibility of monitoring quiet work procedures
• The Contractor will have a corrective action program
Noise Variance Consultation
Pali Highway Improvements (Por.)
Vineyard Boulevard to Waokanaka Street

Potential impact if Noise Variance is not granted:

- Increase construction duration by at least 2 years
- Increase construction cost
- Prolong duration of lane closure period
- Domino delay effect on all projects on Pali Highway
Any comments regarding the proposed Noise Variance for HDOT’s Pali Highway Improvement (Por.) Vineyard Blvd to Waokanaka St?

Make comments here tonight or take home a comment form and mail it to us on or before August 25, 2017

Please be respectful to those speaking
Please keep focused on the Noise Variance
HDOT

dotpao@hawaii.gov
hidot.hawaii.gov
HDOT Facebook & Twitter
(808) 587-2160
Question?
Dowsett Highlands Relief Sewer Noise Variance Consultation

July 26, 2017 - 6:30-8:30 pm
Nuuanu Elementary School

City & County of Honolulu
Department of Environmental Services
Department of Design & Construction

Website: http://palisewer.org
Scope of work as presented in the PIM presentation to install relief sewer along Nuuanu Avenue from School Street to Wyllie Interchange.

Open cut excavation which includes trenching, excavation and backfill, paving, new sewer line and manholes, traffic controls, and pavement markings shall be utilized along Nuuanu Avenue from School Street to Wyllie Interchange.
NOISE VARIANCE CONSULTATION
PROJECT SCOPE OF WORK
PALI HIGHWAY

• Scope of work as presented in the PIM presentation to install relief sewer along Pali Highway from Wyllie Interchange to Nuuanu Pali Drive.

• Utilization of Pilot Tube Microtunneling (PTMT) for relief sewers along Pali Highway where possible. PTMT is trenchless however will require excavated 10’ diameter pits strategically situated at new sewer manhole locations for the tunneling / jacking machine.

• Contractor shall have an option to install sewer line via open-cut excavation in Pali Highway.
NOISE VARIANCE CONSULTATION

Noise Regulations

• HAR Title 11, Chapter 46 sets the rules and restrictions on sound levels for construction projects. It states:

  “No permit shall allow any construction activities which emit noise:
  • Monday thru Friday before 7 a.m. and after 6 p.m. of the same day
  • Saturday before 9 a.m. and after 6 p.m.
  • Sundays and on Holidays”

• A Noise Variance must be obtained for any construction activities to occur outside the permissible hours (i.e. after 6 p.m. weekdays).
Noise Variance Application for construction has been submitted to DOH.

Requesting work be allowed 24 hours, 7 days a week during project schedule of June 2018 to June 2020.

Night work will be required to meet Consent Decree deadline.

Night work will increase safety to both motorists and pedestrians in the construction area to minimize the interaction between construction equipment and passenger vehicles.
NOISE VARIANCE CONSULTATION

Project Limit Nuuanu Ave/School St to Wyllie St

Pali Hwy Dowsett Ave to Nuuanu Pali Drive

Project Limit Nuuanu Pali Dr

Dowsett Ave (City ROW)

Pali Hwy Wyllie St to Dowsett Ave

Wyllie Street Burbank St to Nuuanu Ave

Jack Lane 500’ in from Pali Hwy

Nuuanu Ave School St to Wyllie St
NOISE VARIANCE CONSULTATION

Schedule:
• Advertise: December 2017
• Anticipated Construction Start: June 2018
• Anticipated Construction End: June 2020
• Once a Contractor has been awarded the project, coordination will begin to establish a viable construction schedule which minimizes impact to the public.

• Contractor shall notify residents of construction in their neighborhood with at least one week advance notice.

• Contractor shall have a hotline phone number available 24 hours to receive inquiries and any complaints answered by a live person.
Sound propagates uniformly outward in a spherical pattern and decreases with distance and shielding.

As sound propagates over a distance, it changes in level and frequency. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from the point source.

As sound propagates over terrain with large objects or barriers in the path between a source and a receiver, the sound level can decrease at least 5 dB.
NOISE VARIANCE CONSULTATION
CONSTRUCTION EQUIPMENT SOUND LEVEL

This table illustrates sound levels of typical construction equipment anticipated to be used during construction.

Most of the equipment generates sound at levels in the mid 80s at a distance of 50 feet however the distance is typically greater which reduces the sound level.
# Noise Variance Consultation

## Sound Levels and Loudness

<table>
<thead>
<tr>
<th>dBA</th>
<th>Example</th>
<th>Home &amp; Yard Appliances</th>
<th>Workshop &amp; Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>healthy hearing threshold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>a pin dropping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>rustling leaves</td>
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<tr>
<td>30</td>
<td>whisper</td>
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</tr>
<tr>
<td>40</td>
<td>babbling brook</td>
<td>computer</td>
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<td>50</td>
<td>light traffic</td>
<td>refrigerator</td>
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<tr>
<td>60</td>
<td>conversational speech</td>
<td>air conditioner</td>
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</tr>
<tr>
<td>70</td>
<td>shower</td>
<td>dishwasher</td>
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<tr>
<td>75</td>
<td>toilet flushing</td>
<td>vacuum cleaner</td>
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<tr>
<td>80</td>
<td>alarm clock</td>
<td>garbage disposal</td>
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</tr>
<tr>
<td>85</td>
<td>passing diesel truck</td>
<td>snow blower</td>
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</tr>
<tr>
<td>90</td>
<td>squeeze toy</td>
<td>lawn mower</td>
<td>arc welder</td>
</tr>
<tr>
<td>95</td>
<td>inside subway car</td>
<td>food processor</td>
<td>belt sander</td>
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<tr>
<td>100</td>
<td>motorcycle (riding)</td>
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<td>handheld drill</td>
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<td>105</td>
<td>sporting event</td>
<td>table saw</td>
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<td>110</td>
<td>rock band</td>
<td></td>
<td>jackhammer</td>
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<tr>
<td>115</td>
<td>emergency vehicle siren</td>
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<td>riveter</td>
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<td>120</td>
<td>thunderclap</td>
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<td>oxygen torch</td>
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<td>130</td>
<td>peak stadium crowd noise</td>
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<td>135</td>
<td>air raid siren</td>
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<td>jet engine at takeoff</td>
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<tr>
<td>194</td>
<td>sound waves become shock waves</td>
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</tbody>
</table>
50’ DISTANCE FROM CONSTRUCTION
(~85 dB outdoor)
(~80 dB indoor – garbage disposal)
NUUANU AVE (SCHOOL ST TO WYLLIE ST)

100’ DISTANCE FROM CONSTRUCTION
(~79 dB outdoor)
(~74 dB indoor – toilet, vacuum)
NUUANU AVE (SCHOOL ST TO WYLLIE ST)

200’ DISTANCE FROM CONSTRUCTION
(~73 dB outdoor)
(~68 dB indoor—shower, dishwasher)
NUUANU AVE (SCHOOL ST TO WYLLIE ST)

400’ DISTANCE FROM CONSTRUCTION
(~67 dB outdoor)
(~62 dB indoor—AC, conversation)
800' DISTANCE FROM CONSTRUCTION
(~61 dB outdoor)
(~56 dB indoor – refrigerator)
PALI HWY (WYLLIE TO NUUANU PALI DRIVE)

50’ DISTANCE FROM CONSTRUCTION
(~85 dB outdoor)
(~80 dB indoor – garbage disposal)
PALI HWY (WYLLIE TO NUUANU PALI DRIVE)

100’ DISTANCE FROM CONSTRUCTION
(~79 dB outdoor)
(~74 dB indoor – toilet, vacuum)
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800’ DISTANCE FROM CONSTRUCTION
(~61 dB outdoor)
(~56 dB indoor – refrigerator)
NOISE VARIANCE CONSULTATION

NOISE ABATEMENT

• Limit excavation work at night along the project areas.

• The louder construction equipment (such as hoe rams, jackhammers, walk behind saw, etc.) and activities would be limited to be used no later than 10:00 PM.

• Pilot Tube Microtunneling Work continuing uninterrupted from day operations into the night hours optimizes construction progress. PTMT equipment such as the Horizontal Boring Hydraulic Jack Machine will be located at bottom of ~20’ deep excavated pit which provides a solid barrier all around and reduces the sound level at least an additional 5dB.
NOISE VARIANCE CONSULTATION
NOISE ABATEMENT

Noise Abatement measures include the following:

- Contractor will be required to maintain all equipment in good working order.

- All equipment with an exhaust of gas or air will have mufflers.

- City personnel and Contractor will monitor all equipment and construction activities to ensure utilization of noise abatement measures.

- Instructional training sessions for construction crews and truck drivers to discuss proper noise abatement procedures for use of engine brakes, loading and unloading cargo, shouting, use of signal callers, and best management practices to reduce sound.

- A job-site representative will be designated to immediately field any complaints for prompt response and will have the responsibility of monitoring quiet work procedures. The Contractor will have a corrective action program to respond to complaints and correct deficiencies.
NOISE VARIANCE CONSULTATION

Potential impact if Noise Variance is not granted:

• Interaction between construction equipment and the public will increase.
• Project will not meet Consent Decree deadline.
• Construction time and traffic duration will increase.
• Delay for all projects on Pali Highway.
NOISE VARIANCE CONSULTATION
PUBLIC COMMENTS AND QUESTIONS

• Q&A SESSION

• Please be respectful to those speaking

• Please keep focused on the Noise Variance

• Any other project-related questions will be answered once we complete discussing the Noise Variance

• Any comments regarding the proposed Noise Variance for the City’s Dowsett Highlands Relief Sewer Project?

• Make comments here tonight or take home a comment form and mail it to us on or before August 25, 2017

• Website: www.palisewer.org
Questions?