



Noise & Vibration Monthly Report

Barangaroo Cutaway Cultural Facility
3847.11

NoiseNet Operations Pty Ltd
ABN: 26 624 212 175
noisenet.com.au
P: 1800 266 479

Customer Name: FDC Construction
Report Number: 3847.11
Reporting Period: 27/02/2025 to 26/02/2025
Issue Date: 31/03/2025

Compiled By: Jake Donovan-Parker

Reviewed By: Jonathan South

1 Executive Summary

Noise and vibration associated with construction activities were monitored between 27th of February and 26th of March 2025 (inclusive).

There were eighteen instances where noise levels exceeded the alarm level for high noise emission, with levels reducing significantly after 3 hours of site activity. Respite periods were observed on most days, but some days work was carried out during the respite periods. There were also multiple periods of elevated noise not associated with works at the Barangaroo Cutaway Cultural Facility. Due to the installation of the skylights, the data from monitors 5037 and 5048 cannot be used in this report leaving one residential receiver, 5038, which was intermittently online for this monitoring period. The commercial receiver, 5039, was online for most of the monitoring period but also had a couple of periods where it was offline. NoiseNet cannot comment on the impact to nearby residents when 5038 was offline and to commercial properties when 5039 was offline.

There were six instances where vibration levels exceeded established alerting or alarming levels. There was at most one vibration sensor active for this monitoring period (with some periods having zero active vibration sensors). Analysis of the vibration magnitude and proximity of works to the vibration device led to the conclusion that the vibration levels are not expected to pose a potential threat to nearby residential or heritage buildings. 1002V and 1001V had to be removed due to skylight installation works and 1004V has been offline due to charging issues which means only 1000V can be used for this monitoring period, and this sensor has been offline since 20/3/2025. NoiseNet cannot comment on compliance during periods there were no operational vibration sensors.

This reporting period saw a high volume of works performed in the skylights which has meant many devices have needed to be turned on/off for periods of time or removed all together. NoiseNet will be conducting a site visit as soon as possible to get all noise monitors and vibration sensors operational again.

Receiver noise level adjustments were reviewed based on attended measurements, and the alerting and alarming schedule was revised based on feedback.

NoiseNet should be informed in advance of any planned activities likely to cause high levels of vibration, such as piling or rock breaking. Key personnel should continue to observe alerting and alarming via email and SMS, as established in installation report reference *3847_Installation_Report_Barangaroo_Cutaway_FDC_Construction_R02*.

2 Revision of Receiver Noise Level Adjustment

Attended measurements of construction activity were obtained on 27/02/2025. The measurements were analysed to calculate a revised correction factor to be applied to noise monitors installed in the skylights (5037, 5048, 5038), so reported noise levels reflect those that would be present at the façade of sensitive receivers along Merriman Street.

Although additional screening has been installed around the skylight openings (2.2m high plywood shrouds), increased activity within the skylights means worst case effects remain similar. Ultimately, the existing -16dB correction factor is recommended to be retained.

Monitor install location and any associated correction factors should be revised when skylight coverings are installed.

3 Alerts & Alarms

Alarm thresholds for noise were revised based on feedback, shown in Table 1 for residential and commercial receivers. In addition to threshold revision in accordance with Tables 4, 10 and 14 in Acoustic Studios Report reference 20240418 FDC3564 Rep.0001-CNVMP_v1.0.docx, sending of alerts to end users has been constrained to one hour either side of approved construction hours (NoiseNet will continue to receive alerts at all times).

Vibration thresholds remain the same, and alerts to end users also constrained to one hour either side of approved construction hours.

A summary of noise and vibration alarms is given in Table 2

Noise Alert Thresholds for Residential Receivers LEQ-10 (dBA)				
	Day of week			
Time	Monday to Friday	Saturday	Sunday	
0:00	47	47	47	
1:00				
2:00				
3:00				
4:00				
5:00				
6:00	47	55	55	
7:00	62			
8:00	62			
9:00	75			75
10:00				
11:00				
12:00				
13:00	62	53	53	
14:00				
15:00	75			
16:00				
17:00	62	53	53	
18:00	53			
19:00	53	53		
20:00				
21:00	47	47	47	
22:00				
23:00				

Noise Alert Thresholds for Commercial Receivers LEQ-10 (dBA)				
	Day of week			
Time	Monday to Friday	Saturday	Sunday	
0:00	70	70	70	
1:00				
2:00				
3:00				
4:00				
5:00				
6:00	70	70	70	
7:00	70			70
8:00				70
9:00				
10:00				
11:00				
12:00	70	70	70	
13:00	70			
14:00				
15:00				
16:00				
17:00	70	70	70	
18:00		70		
19:00	70	70	70	
20:00				
21:00				
22:00				
23:00				

Construction Hours

Notifications Active

Table 1: Noise alarm thresholds by day/time for residential and commercial receivers.

Construction Hours

Notifications Active

Sensor Type	Threshold	Level	Action Required
Noise	Per Table 1	Alarm – High Noise Levels	Managers aware that current activities are beyond allowed limits for noise. Respite periods will very likely have to be observed, or noise generating activities ceased. NoiseNet analysts to review and advise.
Vibration	2mm/s (1000v, 1001v, 1002v)	Warning - Vibration	Monitor the situation and liaise with plant operators to advise that the alarm level is being approached. Understand the cause of vibration and mitigate where practical.
	3mm/s (1000v, 1001v, 1002v)	Alarm - Vibration	Stop work. Contact NoiseNet to review. Prepare for inspection of structures for signs of damage.
	5mm/s (1004v)	Warning – Site Vibration	Monitor the situation, particularly vibration levels at other vibration sensors.

Table 2: Noise and vibration alerting and alarming summary and actions.

4 Noise

Over the reporting period, there were eighteen instances where noise exceeded the established levels for high emission.

Noise during general work hours was typically observed to be from drilling and/or jackhammering, movement of plant and equipment as well as general construction noise such as reverse beepers and power tools.

High noise emissions outside site hours were usually found to be rain, wind, vehicle and airplane noise not related to activities being carried out by FDC.

It should be noted that noise monitors 5048 and 5037 were removed from their monitoring location due to works occurring in the skylights and have not yet been installed in appropriate locations. For this reason, their data will be excluded from this report.

It should be noted that the Munn Street noise monitor, 5039, had a few temporary power outages which are being investigated by NoiseNet (see Table 3 for start and end times of offline periods).

Start of offline period	End of offline period
10:00 3/3/2025	22:05 3/3/2025
22:00 15/3/2025	10:00 16/3/2025

Table 3: Offline periods for monitor 5039.

It should be noted that, due to skylight installation works being conducted, skylight noise monitor 5038 had its power turned off and on multiple times over the monitoring period (see Table 4 for start and end times of offline periods).

Start of offline period	End of offline period
10:00 4/3/2025	11:50 14/3/2025
8:24 19/3/2025	9:12 19/3/2025
10:30 19/3/2025	10:51 19/3/2025
13:00 19/3/2025	14:36 19/3/2025
16:53 19/3/2025	18:38 19/3/2025
19:37 19/3/2025	22:03 19/3/2025
22:55 19/3/2025	23:48 19/3/2025
1:30 20/3/2025	6:20 20/3/2025
8:58 20/3/2025	9:31 20/3/2025
10:40 20/3/2025	Did not come online again in this monitoring period.

Table 4: Offline periods for monitor 5038.

Given these outages and the fact that the data from 5048 and 5037 were removed due to skylight works, there are periods where there is no available data from residential or commercial receivers. Therefore, NoiseNet cannot comment on the impact to nearby residents when 5038 was offline and to commercial properties when 5039 was offline. Noisenet will be attending the site as soon as possible to re-install all devices.

All periods of high noise emissions are outlined in Table 5.

Noise impacts are primarily to sensitive receivers along Merriman Street, with relatively little impact to commercial receivers near Munn Street. In most cases, noise levels returned to acceptable levels within a reasonable time and most required respite periods were observed. There were some instances where construction activity was observed either before 9:00 am or during the respite period from 12:00-2:00 pm with most instances being due to general plant movement/machinery near monitor 5038.

All periods of high noise emissions that were observed over the reporting period are shown in Table 5 below, with reference recordings provided.

Filename	Date	Time	Description	Merriman Street Receiver Levels		Munn Street Offices Receiver Levels	
				LA _{eq} (dB)	LA _{max} (dB)	LA _{eq} (dB)	LA _{max} (dB)
2025-03-03T05_57_08.wav	3/3/2025	5:45-6:20	Monitor 5038. Bird noise.	51	68	-	-
2025-03-03T12_44_42.wav	3/3/2025	12:20-13:30	Monitor 5038. Heavy machinery and general plant movement.	65	91	-	-
2025-03-04T04_11_58.wav	4/3/2025	3:25-5:08	Monitor 5038. Rain.	58	85	60	72
2025-03-04T06_51_07.wav	4/3/2025	6:38-6:58	Monitor 5038. A few small bursts of heavy machinery, general plant movement, bird noise and rain.	55	86	-	-
2025-03-15T07_57_25.wav	15/3/2025	6:53-8:00	5038. Heavy machinery and general plant movement.	59	76	-	-
2025-03-15T12_59_49.wav	15/3/2025	13:00-13:15	Monitor 5038. Loud reverse beeper and general plant movement.	59	78	-	-
2025-03-15T22_02_36.wav	15/3/2025	22:00-22:14	Monitor 5038. A loud vehicle (car or motorbike perhaps) not related to FDC activities.	50	62	-	-
2025-03-17T00_56_50.wav	17/3/2025	0:43-1:06	Monitor 5038. Rain and wind.	48	68	61	73
2025-03-17T13_55_28.wav	17/3/2025	13:44-14:00	Monitor 5038. Heavy machinery/power tools (likely drilling) and general plant movement.	67	85	-	-
2025-03-18T06_04_34.wav	18/3/2025	5:58-6:19	Monitor 5038. Bird noise.	47	64	-	-
2025-03-18T06_58_37.wav	18/3/2025	6:52-7:00	Monitor 5038. General plant movement.	49	73	-	-
2025-03-18T13_56_52.wav	18/3/2025	13:36-14:00	Monitor 5038. Heavy machinery.	76	92	-	-
2025-03-18T14_02_53.wav	18/3/2025	14:00-14:42	Monitor 5038. Drilling in the skylights.	76	92	-	-
2025-03-18T22_02_37.wav	18/3/2025	22:00-22:04	Monitor 5038. Plane pass by.	49	60	69	80
2025-03-18T08_09_12.wav	19/3/2025	7:48-8:18	Monitor 5038. Banging, heavy machinery and general plant movement.	68	92	-	-
2025-03-19T12_29_41.wav	19/3/2025	12:00-13:00	5038. Loud reverse beeper, power tools and general plant movement.	66	81	-	-
2025-03-20T06_57_14.wav	20/3/2025	6:54-7:00	5038. Nearby movement (likely on the scaffolding platform near the noise monitor), and general plant movement.	50	70	-	-
2025-03-20T07_33_17.wav	20/3/2025	7:23-8:54	5038. Heavy machinery and banging.	73	87	-	-

Table 5: Most notable noises during the reporting period.

5 Vibration

Over the reporting period, there were six instances where vibrations from construction activities at the Barangaroo Cutaway exceeded warning or alarm levels.

For this monitoring period there was one operational vibration sensor, 1000V, and this device was offline from 10:00 am 20/3/2025 due to works occurring in the skylight. So, past this date there is no vibration data to analyse for this report and therefore compliance in this period cannot be confirmed by NoiseNet.

Sensor 1001V and 1002V have been removed due to works occurring directly in the skylights and have not yet been re-installed. Sensor 1004V is experiencing charging issues and so has been offline. These devices will all be fixed/re-installed when NoiseNet conducts our site visit.

NoiseNet should be informed in advance of any planned activities likely to cause high levels of vibration, such as piling or rock breaking.

The most notable vibrations observed are reported in Table 6 below.

Vibration events on 12/3/2025 occurred during a period that noise monitor 5038 (located directly next to 1000V) was offline, but FDC has stated that there was activity happening in close proximity to 1002V. Given this information, we do not expect these low short spikes of vibration to pose threat to nearby heritage listed buildings.

Noise monitor 5038 was operational during the vibration events on 19/3/2025 and the audio indicates nearby activity was occurring which was also corroborated by FDC's notes. Given this information, we do not expect these vibration events to pose threat to nearby heritage listed buildings.

Date	Time	Description	Street Level Peak Vibration	Site Ground Level
			Velocity Peak mm/s	Velocity Peak mm/s
12/3/2025	8:59	Sensor 1000V. Banging, General plant movement near monitor.	2.89	Offline
12/3/2025	12:02	Sensor 1000V. Banging and general plant movement near monitor.	6.25	Offline
12/3/2025	13:08	Sensor 1000V. Banging and general plant movement near monitor.	2.12	Offline
19/3/2025	13:46-14:11	Sensor 1000V. General plant movement.	2.52	Offline
19/3/2025	14:58-15:03	Sensor 1000V. Skylight drilling.	36.49	Offline
19/3/2025	15:13-15:21	Sensor 1000V. Skylight drilling.	65.56	Offline

Table 6: Most notable vibrations during the reporting period.

6 Report Issue Log

Document Title	Reference	Reporting Period	Issue Date
3847_Installation_Report_Barangaroo_Cutaway_FDC_Construction_R01 (Superseded)	3847	13/06/2024	24/06/2024
3847_01_NVMR_Barangaroo_Cutaway_FDC_Construction_R01	3847_01	13/06/2024 to 24/06/2024	24/06/2024
3847_Installation_Report_Barangaroo_Cutaway_FDC_Construction_R02	3847	11/07/2024	25/07/2024
3847_02_NVMR_Barangaroo_Cutaway_FDC_Construction_R01	3847_02	25/06/2024 to 24/07/2024	25/07/2024
3847_03_NVMR_Barangaroo_Cutaway_FDC_Construction_R01 (Superseded)	3847_03	25/07/2024 to 26/08/2024	26/08/2024
3847_03_NVMR_Barangaroo_Cutaway_FDC_Construction_R02	3847_03	25/07/2024 to 26/08/2024	26/08/2024
3847_04_NVMR_Barangaroo_Cutaway_FDC_Construction	3847_04	26/08/2024 to 25/09/2024	25/09/2024
3847_05_NVMR_Barangaroo_Cutaway_FDC_Construction (Superseded)	3847_05	26/09/2024 to 25/10/2024	25/10/2024
3847_05_NVMR_Barangaroo_Cutaway_FDC_Construction_R02	3847_05	26/09/2024 to 25/10/2024	31/10/2024
3847_06_NVMR_Barangaroo_Cutaway_FDC_Construction	3847_06	25/10/2024 to 11/11/2024	12/11/2024
3847_07_NVMR_Barangaroo_Cutaway_FDC_Construction (Superseded)	3847_07	12/11/2024 to 26/11/2024	26/11/2024
3847_07_NVMR_Barangaroo_Cutaway_FDC_Construction_R02	3847_07	12/11/2024 to 26/11/2024	27/11/2024
3847_08_NVMR_Barangaroo_Cutaway_FDC_Construction	3847_08	27/11/2024 to 18/12/2024	18/12/2024
3847_09_NVMR_Barangaroo_Cutaway_FDC_Construction (Superseded)	3847_09	19/12/2024 to 26/1/2025	27/1/2025
3847_09_NVMR_Barangaroo_Cutaway_FDC_Construction_R02	3847_09	19/12/2024 to 26/1/2025	28/1/2025
3847_10_NVMR_Barangaroo_Cutaway_FDC_Construction_R02	3847_10	27/1/2024 to 26/2/2025	27/2/2025
3847_11_NVMR_Barangaroo_Cutaway_FDC_Construction_R02	3847_11	27/1/2024 to 26/2/2025	27/3/2025

Compiled By:

Jake Donovan-Parker



Reviewed By:

Jonathan South



7 Noise and Vibration Data

7.1 27/2/2025 – 5/3/2025



7.2 6/3/2025 – 12/3/2025



7.3 13/3/2025 – 19/3/2025



7.4 20/3/2025 – 26/3/2025

