

# URS

## EfW CHP Facility, Devonport

Non-Destructive Testing  
Noise Report

7<sup>th</sup> November 2013

Prepared for:



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IRELAND



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**EXECUTIVE SUMMARY**

On Thursday 7<sup>th</sup> November 2013 noise monitoring was undertaken for MVV Environment Devonport Ltd (MVV) at three sensitive residential receptors close to the site boundary, to determine the noise levels during Non-Destructive Testing (NDT).

The following noise levels were recorded:

- At R3 (Savage Road): 53 dB  $L_{Aeq,35min}$  (façade): 2 dB above the baseline;
- At R15 (Talbot Gardens): 42 dB  $L_{Aeq,50min}$  (façade): 1 dB below the baseline; and
- At Cardinal Ave: 52 dB  $L_{Aeq,50min}$  (free-field)/ 55 dB  $L_{Aeq,50min}$  (façade): 4 dB above the baseline.

Noise levels recorded were within the Plymouth City Council's Code of Construction Practice noise limits for weekday evening work and within 5dB of the baseline noise level. The noise level at Cardinal Ave was 4 dB above the baseline, however, this was unrelated to NDT works on Site.

Noise was dominated by road traffic and unknown noises from HMNB. No site noise was noticeable at any receptor.

**1. INTRODUCTION**

MVV Environment Devonport Ltd (MVV) undertook Non-Destructive Testing (NDT) outside usual working hours on 7<sup>th</sup> November 2013, between 18:00 and 21:00. MVV commissioned URS to undertake noise monitoring at three sensitive residential receptors close to the site boundary.

This report describes the methodology and findings of the noise survey undertaken on this day.

**1.1 Baseline Noise Limits**

Baseline noise levels were monitored prior to NDT works commencing; with noise limits set based on Plymouth City Council’s Code of Construction Practice. Table 1 shows baseline noise levels and the noise limits.

TABLE 1: BASELINE NOISE LEVELS AND NOISE LIMITS FOR NDT					
Location	Time	Ambient L <sub>Aeq,4hr</sub> (dB)		Noise Limits (based on façade measurement)	
		Free Field	Façade	L <sub>Aeq,4hr</sub> *1 dB	L <sub>Aeq,1hr</sub> dB
R3 (Savage Road)	Weekend	-	54	64	67
	Weekday	-	51	61	64
R15 (Talbot Gardens)	Weekend	-	45	60	63
	Weekday	-	43	58	61
Cardinal Ave	Weekend	51	54	64	67
	Weekday	48	51	61	64

\*1 The L<sub>Aeq,4hr</sub> noise limit shall be applied to both the 3 hour and 4 hour noise measurements of NDT

**2. SITE DESCRIPTION**

The EfW CHP facility is currently being constructed in the North Yard of Her Majesty’s Naval Base (HMNB), beside Camels Head junction (the junction between the A3064 and Wolseley Road). The development is located close to a number residential properties, most noticeably those in Barne Barton to the north of the site, as well as on Cardinal Ave to the north-east.

**3. METHODOLOGY AND ASSESSMENT CRITERIA**

The monitoring procedure conformed to BS 7445: 2003 ‘Description and Measurement of Environmental Noise’, with measurements at Savage Road and Talbot Gardens taken 1 metre from the façade of residential receptors at a height of 1.5 metres. At Cardinal Ave, the measurement was taken free-field, over 3.5 metres from the façade. Average wind speeds were below 5 ms<sup>-1</sup>.

**4. NON-DESTRUCTIVE TESTING NOISE SURVEY**

**4.1 Protocol**

Due to the lack of secure monitoring locations, it was not possible to leave equipment unattended. Consequently, manned noise monitoring has been undertaken.

Monitoring was undertaken at three locations representative of the closest receptors to the site, logging L<sub>Aeq</sub> and L<sub>AFmax</sub> levels in contiguous 5-minute periods. Monitoring was undertaken for a 50 minute period at both Talbot Gardens (R15) and Cardinal Ave; while monitoring was undertaken for only 35 minutes at Savage Road, due to heavy rain between 20:00-20:25.

Table 1 lists the noise monitoring locations as well as the time monitoring was undertaken.

TABLE 2: NOISE MONITORING LOCATION AND TIMINGS				
Location*	Road	Details	Date	Time
R3	Savage Road	Representative of the closest noise sensitive properties to the north west (approx. 100 metres from the Site).	Thursday 7 <sup>th</sup> November 2013 (weekday)	20:25 – 21:00
R15	Talbot Gardens	Representative of the closest noise sensitive properties to the north (approx. 60 metres from the Site).	Thursday 7 <sup>th</sup> November 2013 (weekday)	19:00 – 19:50
-	Cardinal Ave	Representative of the closest noise sensitive properties to the north-east (approx. 200 metres from the Site).	Thursday 7 <sup>th</sup> November 2013 (weekday)	18:00 – 18:50

\* Correlates with residential receptors for the Environmental Statement for the EfW CHP facility (11/00750/FUL)

#### 4.2 Instrumentation

The sound level meter utilised for the monitoring:

- A Rion NL52 sound level meter, serial number 00620802 was used

Full calibration details are available upon request.

The calibration levels were checked prior to and following the measurements with a:

- Rion NC-74 field calibrator, serial number 34672983 and no significant drift was noted (+/- 0.1 dB).

#### 4.3 Meteorological Conditions

Weather conditions during the measurements were as shown below in Table 3.

TABLE 3: WEATHER CONDITIONS DURING NOISE MONITORING					
Location	Date/Time	Max Wind Speed (m/s)	Wind Direction	Temperature	Precipitation
R3	07/11/2013 20:25 – 21:00	< 0.3	W	10°C	None (Heavy rain between 20:00-20:25)
R15	07/11/2013 19:00 – 19:50	< 0.3	W	11°C	None
Cardinal Ave	07/11/2013 18:00 – 18:50	< 0.3	W	11°C	None



#### 4.4 Commentary

The following observations of local noise sources were made whilst at the site during monitoring:

- At R3 (Savage Road) the noise climate was dominated by local road traffic noise on Savage Road (vehicles and motorbikes) and other surrounding roads (particularly Wolseley Road); noise from residents parking up and walking past; trains; as well as a unidentified whirring and humming noise, which was presumed to originate from HMNB. There was also the sound of water falling down a drainpipe located approximately 2 metres from the SLM. No site noise was noticeable at Savage Road.
- At R15 (Talbot Gardens) the noise climate was dominated by a mixture of noise from: road traffic from surrounding roads (particularly Savage Road and Wolseley Road); passing trains; and raised voices from the Sports Pitch on HMNB. The surveyor also noted noise from HMNB, which was more noticeable than previous monitoring occasions. This took the form of a continuous whirring/humming noise. Also present was occasional noise from vehicles passing on Talbot Gardens. No site noise was noticeable at Talbot Gardens.
- At Cardinal Ave the noise climate was dominated by a mixture of noise from: road traffic on Cardinal Ave (cars manoeuvring, parking and passing etc...); as well as from surrounding roads (particularly Wolseley Road); and passing trains. Also there was occasional noise from pedestrians and residents walking past the SLM. No site noise was noticeable at Cardinal Ave.

#### 4.5 Results

The results of noise monitoring undertaken on 7<sup>th</sup> November 2013 are given below in Table 4.

The full noise survey data for all three sites are provided in Appendix A, Tables A1 to A3.

**TABLE 4: BASELINE NOISE LEVELS AND NOISE LIMITS FOR NDT**

Location	Date & Time	NDT Noise Level L <sub>Aeq,50min</sub> (dB)		NDT Noise Level L <sub>AFmax</sub> (dB)	Baseline Noise Level L <sub>Aeq,4hr</sub> (dB)		Noise Limits (based on façade measurement)  L <sub>Aeq,4hr</sub> dB	Difference between NDT Noise Level (L <sub>Aeq,50min</sub> ) and Baseline (L <sub>Aeq,4hr</sub> ) (dB)
		Free Field	Façade		Free Field	Façade		
R3	07/11/2013 20:25-21:00	-	53 (L <sub>Aeq,35min</sub> )	75	-	51	61	2
R15	07/11/2013 19:00-19:50	-	42	68	-	43	58	-1
Cardinal Ave	07/11/2013 18:00-18:50	52	55	81	48	51	61	4

The recorded noise levels at all three receptors were below the adopted noise limits and within 5dB of the baseline level. The  $L_{AFmax}$  events included in Table 4 were not a result of NDT testing, but instead due to off-site noises.

The  $L_{Aeq,50min}$  at Cardinal Avenue and the  $L_{Aeq,35min}$  at Savage Road (R3) were 4dB and 2dB above the recorded baseline levels. This was unrelated to site NDT works. The  $L_{Aeq,50min}$  at Talbot Gardens was 1 dB below the baseline level.

No NDT works were noticeable at any location.

## APPENDIX A: FULL NOISE MONITORING RESULTS

Tables A1 to A3 list the full suite of measured noise data.

TABLE A1: SAVAGE ROAD MEASURED NOISE LEVELS					
Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
07/11/2013 20:25	05:00.0	56.8	69.7	44.7	Resident walked by SLM; Loud car passes
07/11/2013 20:30	05:00.0	53.7	69.3	44.5	Resident walked by SLM with a dog; Train
07/11/2013 20:35	05:00.0	53.6	74.7	44.8	
07/11/2013 20:40	05:00.0	50.1	67.5	44.5	Train; Car parking up below SLM
07/11/2013 20:45	05:00.0	52.4	71.8	44.2	Resident walked by SLM with a dog; Loud car passes twice; Car horn
07/11/2013 20:50	05:00.0	48.7	62.5	43.9	Train
07/11/2013 20:55	05:00.0	48.6	61.8	43.6	Train

**TABLE A2: TALBOT GARDENS MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
07/11/2013 19:01	05:00.0	41.3	57.6	37.8	
07/11/2013 19:06	05:00.0	39.7	52.3	37.8	
07/11/2013 19:11	05:00.0	41	55.1	38	
07/11/2013 19:16	05:00.0	42.2	68.1	37.5	
07/11/2013 19:21	05:00.0				Residents on balcony close to SLM talking
07/11/2013 19:26	05:00.0				Residents on balcony close to SLM talking
07/11/2013 19:31	05:00.0	38.7	49	36.7	
07/11/2013 19:36	05:00.0	43.9	55.2	36.3	
07/11/2013 19:41	05:00.0	38.8	57.5	36.4	
07/11/2013 19:46	05:00.0	43.5	54	37.5	

**TABLE A3: CARDINAL AVENUE MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
07/11/2013 18:00	05:00.0	50.2	63.9	45.7	Pedestrian passes SLM; Train
07/11/2013 18:05	05:00.0	51.3	70.6	44.2	
07/11/2013 18:10	05:00.0	54.1	66.5	44.3	Resident getting into car and driving off approx. 2 metres away; Train
07/11/2013 18:15	05:00.0	49.6	68.4	43.5	Residents walking past SLM
07/11/2013 18:20	05:00.0	54	76.5	43.9	Car pulls up and residents get out - children shouting goodbye
07/11/2013 18:25	05:00.0	49.5	63.8	44.2	Car idling for 1 minute approx. 20 metres away, then passes SLM
07/11/2013 18:30	05:00.0	56.7	77.5	43.9	6 cars pass SLM consecutively
07/11/2013 18:35	05:00.0	47	59.9	43.4	Train
07/11/2013 18:40	05:00.0	50.7	69	44.1	
07/11/2013 18:45	05:00.0	46.2	58.1	43.9	Distant motorbike; car turning in road approx. 10 metres away