



# EfW CHP Facility, Devonport

Non-Destructive Testing  
Noise Report

15<sup>th</sup> October 2013

Prepared for:



UNITED  
KINGDOM &  
IRELAND



Rev	Date	Details	Prepared by	Checked by	Approved by
0	16.10.13	Final	<b>Daniel Ellis</b> Graduate Environmental Consultant	<b>Alf Maneylaws</b> Associate Noise & Vibration	<b>Ian Roach</b> Associate Environment and Planning

URS Infrastructure & Environment UK Limited  
Mayflower House  
Armada Way  
Plymouth  
PL1 1LD

+44 (0)1752 676 700

**Limitations**

URS Infrastructure & Environment UK Limited ("URS") has prepared this Report for the sole use of MVV Environment Devonport Limited ("Client") in accordance with the agreed MVV Professional Service Contract dated 28 May 2009, novated to MVV Environment Devonport Ltd 9 May 2011. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by URS.

The methodology adopted and the sources of information used by URS in providing its services are outlined in this Report. The work described in this Report was undertaken 15<sup>th</sup> October 2013 and is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

URS disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to URS' attention after the date of the Report.

Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward looking statements and even though they are based on reasonable assumptions as of the date of the Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. URS specifically does not guarantee or warrant any estimate or projections contained in this Report.

Where field investigations are carried out, these have been restricted to a level of detail required to meet the stated objectives of the services.

**Copyright**

© This Report is the copyright of URS Infrastructure & Environment UK Limited. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.

TABLE OF CONTENTS	EXECUTIVE SUMMARY .....	1
	1. INTRODUCTION.....	2
	1.1 Baseline Noise Limits.....	2
	2. SITE DESCRIPTION.....	3
	3. METHODOLOGY AND ASSESSMENT CRITERIA .....	3
	4. NON-DESTRUCTIVE TESTING NOISE SURVEY.....	3
	4.1 Protocol .....	3
	4.2 Instrumentation .....	4
	4.3 Meteorological Conditions.....	4
	4.4 Commentary.....	4
	4.5 Results .....	5
	APPENDIX A: FULL NOISE MONITORING RESULTS.....	

## EXECUTIVE SUMMARY

On Wednesday 15<sup>th</sup> October 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  $L_{Aeq50min}$  (façade): 2 dB above the baseline;
- At R15 (Talbot Gardens): 47 dB  $L_{Aeq50min}$  (façade): 4dB above the baseline; and
- At Cardinal Ave: 48 dB  $L_{Aeq50min}$  (free-field)/ 51 dB  $L_{Aeq50min}$  (façade): equal to 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 4dB increase above the baseline at Talbot Gardens was not due to NDT works.

Noise was dominated by road traffic. No site noise was noticeable at Cardinal Ave and only very occasional instantaneous noises were recorded at Savage Road and Talbot Gardens, which took the form of quiet individual rattles– this was noted as not being louder than other background noises, and potentially unnoticeable to those unaware that NDT was occurring.

## 1. INTRODUCTION

MVV Environment Devonport Ltd (MVV) undertook Non-Destructive Testing (NDT) outside usual working hours on 15<sup>th</sup> October 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> * <sup>1</sup> 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

\*<sup>1</sup> 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 for a 50 minute period at each of the three locations representative of the closest receptors to the site. The measurements at the three locations were carried out consecutively, therefore covering the whole period of NDT works occurring on site; logging L<sub>Aeq</sub> and L<sub>AFmax</sub> levels in contiguous 5-minute periods. 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).	Tuesday 15 <sup>th</sup> October 2013 (weekday)	19:00 – 19:50
R15	Talbot Gardens	Representative of the closest noise sensitive properties to the north (approx. 60 metres from the Site).	Tuesday 15 <sup>th</sup> October 2013 (weekday)	18:00 – 18:50
-	Cardinal Ave	Representative of the closest noise sensitive properties to the north-east (approx. 200 metres from the Site).	Tuesday 15 <sup>th</sup> October 2013 (weekday)	20:00 – 20:50

\* 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 drift was noted.

## 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	15/10/2013 19:00-19:50	<0.3	E	12°C	None
R15	15/10/2013 18:00-18:50	0.3	E	12°C	None
Cardinal Ave	15/10/2013 20:00-20:50	<0.3	E	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); trains; and noise from residents parking up and walking past, as well



as from within the residential properties. Occasional rattling noises were noted by the surveyor, which were presumed to originate from site. It was noted that these site noises were not louder than other background noise, and potentially unnoticeable to those unaware that NDT was occurring. An unidentified whirring/humming noise was noted by the surveyor, only noticeable when more dominant noise was quieter, this is presumed to originate from HMNB.

- 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; as well as the noise of birds in Blackie Wood. Also present was occasional noise from vehicles passing on Talbot Gardens; and occasional rattling noises, presumed to originate from site. It was noted that these site noises were not louder than other background noise, and potentially unnoticeable to those unaware that NDT was occurring. An unidentified whirring/humming noise was noted by the surveyor, only noticeable when more dominant noise was quieter, this is presumed to originate from HMNB.
- 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. No site noise was noticeable at Cardinal Ave.

No long-term site noise was noticed at any receptor, any instantaneous noises from site were noted and are shown in Appendix A, Table A1 to A3.

## **4.5**

### **Results**

The results of noise monitoring undertaken on 15<sup>th</sup> October 2013 are given below in Table 4.

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

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

Location	Date & Time	NDT Noise Level LAeq,50min (dB)		NDT Noise Level LAFmax (dB)	Baseline Noise Level LAeq,4hr (dB)		Noise Limits (based on façade measurement)	Difference between NDT Noise Level (LAeq,50min) and Baseline (LAeq,4hr) (dB)
		Free Field	Façade		Free Field	Façade	LAeq,4hr dB	
R3	15/10/2013 19:00-19:50	-	53	78	-	51	61	2
R15	15/10/2013 18:00-18:50	-	47	62	-	43	58	4
Cardinal Ave	15/10/2013 20:00-20:50	48	51	79	48	51	61	0

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

The noise level at Talbot Gardens was 4dB above the baseline, the cause for this is unknown. However, this was not due to NDT works.

It was noted by all surveyors that NDT works were not the dominant noise source at any location; in particular at Cardinal Ave no NDT works noise was picked up by the surveyor. The only site noise that was noted, at Savage Road and Talbot Gardens was the occasional rattle, these were all recorded by the surveyor and included in Appendix A, Table A1 and A2. The noises were not intrusive and unlikely to be heard by residents.

It was noted by surveyors that if residents were unaware of NDT occurring, they would unlikely have noticed these minor site noises.

## 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
15/10/2013 19:00	05:00.0	53.9	68.1	47.8	Resident leaving property
15/10/2013 19:05	05:00.0	51.5	62	48.4	Train, intermittent quiet rattling noise on site (like the rattling of scaffolding or fencing)
15/10/2013 19:10	05:00.0				2 residents walking past SLM talking Car pulling up and people getting out and talking loudly
15/10/2013 19:15	05:00.0	54.7	69.2	48.5	Pedestrian with child passes on road talking; distant siren; someone getting out of car; quiet rattling noises on site (like the rattling of scaffolding or fencing)
15/10/2013 19:20	05:00.0	52.4	67.8	47.9	Car idling and people getting out talking; distant motorbike; quiet rattling noises on site (like the rattling of scaffolding or fencing)
15/10/2013 19:25	05:00.0	52.8	68.1	47.6	Car passing revving engine; distant motorbike; loudspeaker on HMNB; quiet rattling noise on site (like the rattling of scaffolding or fencing)
15/10/2013 19:30	05:00.0	55.1	77.6	47.8	Two residents walking up steps making lots of noise; train; two residents leaving building and passing SLM; car with loud music passing
15/10/2013 19:35	05:00.0	52.6	62.9	47.1	Train; pedestrian and child talking while walking on road; couple of quiet rattling noise on site (like the rattling of scaffolding or fencing)
15/10/2013 19:40	05:00.0	52.5	66.3	48.2	Motorbike passing; siren on HMNB
15/10/2013 19:45	05:00.0	51.8	62	48	Possible TV noise from flat by SLM; 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
15/10/2013 18:00	05:00.0	46.6	53.3	44.7	
15/10/2013 18:05	05:00.0	45.2	55.8	44	
15/10/2013 18:10	05:00.0	46	56.2	43.7	Raised voices from site; train; engine noise from shuttle bus
15/10/2013 18:15	05:00.0	44.7	51.2	43.3	Distant motorbike
15/10/2013 18:20	05:00.0	45.8	57.2	43	Loudspeaker on HMNB; distant motorbike; children shouting in distance; train; two quiet rattling noises on site (like the rattling of scaffolding or fencing)
15/10/2013 18:25	05:00.0	45.5	52.4	43.7	Distant motorbike; two quiet rattling noises on site (like the rattling of scaffolding or fencing)
15/10/2013 18:30	05:00.0	46.1	53.4	44.1	Car passing on Talbot Gardens; dog barking in distance; distant motorbike
15/10/2013 18:35	05:00.0	46.5	58.6	43.4	Lively bird song; train; man smoking on balcony besides SLM; dog barking in distance
15/10/2013 18:40	05:00.0	45.7	53.5	43.8	Distant siren; car on Talbot Gardens with loud exhaust
15/10/2013 18:45	05:00.0	50.4	62	44.3	Trains; van on Talbot Gardens

**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
15/10/2013 20:00	05:00.0	49.2	65.7	42.1	Car passing and turning around
15/10/2013 20:05	05:00.0	43.4	51.4	41.6	
15/10/2013 20:10	05:00.0	51.9	69.7	42.2	Intermittent siren reasonably close by
15/10/2013 20:15	05:00.0	50.8	78.9	41.8	Surveyor making loud bang; motorbike on Savage Road
15/10/2013 20:20	05:00.0	45.1	53	42.3	Pedestrians walking past on opposite side of the road talking; distant motorbike
15/10/2013 20:25	05:00.0	44.8	56.7	42.2	Train
15/10/2013 20:30	05:00.0	46	58.6	41.4	Train
15/10/2013 20:35	05:00.0	43.2	49.8	41.2	
15/10/2013 20:40	05:00.0	49.1	65.9	41.7	Pedestrians walking past on opposite side of the road talking; two cars passing and turning around
15/10/2013 20:45	05:00.0	45.7	59.1	41.1	Train; Car passing and turning around