

URS

EfW CHP Facility, Devonport

Non-Destructive Testing
Noise Report

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Prepared for:



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EXECUTIVE SUMMARY

On Tuesday 7th January 2014 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): 45 dB $L_{Aeq,50min}$ (façade): 2 dB above the baseline; and
- At Cardinal Ave: 51 dB $L_{Aeq,50min}$ (free-field)/ 54 dB $L_{Aeq,50min}$ (façade): 3 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.

Noise was dominated by road traffic and noise from HMNB. No site noise was noticeable at Cardinal Ave or Talbot Gardens and minor site noise was recorded at Savage Road – 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 Tuesday 7th January 2014, 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 _{Aeq,4hr} (dB)		Noise Limits (based on façade measurement)	
		Free Field	Façade	L _{Aeq,4hr} *1 dB	L _{Aeq,1hr} 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_{Aeq,4hr} noise limit shall be applied to all 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 of 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⁻¹.

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_{Aeq} and L_{AFmax} 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 7th January 2014 (weekday)	18:00 – 18:50
R15	Talbot Gardens	Representative of the closest noise sensitive properties to the north (approx. 60 metres from the Site).	Tuesday 7th January 2014 (weekday)	19:00 – 19:50
-	Cardinal Ave	Representative of the closest noise sensitive properties to the north-east (approx. 200 metres from the Site).	Tuesday 7th January 2014 (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 B&K 2238 sound level meter, serial number 2562627 was used

Full calibration details are available upon request.

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

- B&K 4231 field calibrator, serial number 2217876 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	07/01/2014 18:00 – 18:50	3.0	SW	10°C	None
R15	07/01/2014 19:00 – 19:50	0.5	SW	10°C	None
Cardinal Ave	07/01/2014 20:00 – 20:50	0.5	SW	10°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); and a range of noise from HMNB. Noises from HMNB were varied and included: loudspeaker announcements, vehicle noise, and unidentified humming and whirring noises (possibly a ship's engine). In addition, there was also noise from passing trains; noise from residents and pedestrians parking up and/or walking past; as well as noise from within a residential property close to the SLM. A number of light clangs were noted by the surveyor, which was presumed to originate from site, as well as other quiet unidentified noises, presumed to be noise from NDT operatives moving around within the building. It was noted that this site noise was not louder than other background noise, and potentially unnoticeable to those unaware that NDT was occurring.
- At R15 (Talbot Gardens) the noise climate was dominated by a range of noise from HMNB. Noises from HMNB were varied and included: loudspeaker announcements, vehicle noise, and unidentified humming and whirring noises (possibly a ship's engine), as well as noise from the sports pitch. In addition, there was also noise from road traffic from surrounding roads (particularly Savage Road and Wolseley Road); passing trains; and occasional noise from vehicles and pedestrians 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 7th January 2014 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 _{Aeq,50min} (dB)		NDT Noise Level L _{AFmax} (dB)	Baseline Noise Level L _{Aeq,4hr} (dB)		Noise Limits (based on façade measurement)	Difference between NDT Noise Level (L _{Aeq,50min}) and Baseline (L _{Aeq,4hr}) (dB)
		Free Field	Façade	Façade	Free Field	Façade	L _{Aeq,4hr} dB	
R3	07/01/2014 18:00 – 18:50	-	53	83	-	51	61	2
R15	07/01/2014 19:00 – 19:50	-	45	71	-	43	58	2
Cardinal Ave	07/01/2014 20:00 – 20:50	51	54	86	48	51	61	3

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.

It was noted by the surveyor that NDT works were not the dominant noise source at any location; in particular at Cardinal Ave and Talbot Gardens no NDT works noise was picked up by the surveyor. All site noise from Savage Road was recorded by the surveyor and included in Appendix A, Table A1. The noise was 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 _{Aeq} (dB)	L _{AFmax} (dB)	L _{AF90} (dB)	Notes
07/01/204 18:00:00	05:00.0	54.7	73.1	47	Two cars park up below SLM, one sounding car horn and talking; loudspeaker announcement in HMNB
07/01/204 18:05:00	05:00.0	55.7	83	46.5	Car horn below SLM; Resident talking below SLM; Two car starts up and leave below SLM.
07/01/204 18:10:00	05:00.0	52	67.6	46	Train; couple of light bangs presumed to originate from HMNB.
07/01/204 18:15:00	05:00.0	49.8	66.1	46	loudspeaker announcement in HMNB; Car horn on Talbot Gardens; two clangs on site
07/01/204 18:20:00	05:00.0	-	-	-	Residents (including children) enter building talking loudly; numerous ship horn noises from HMNB
07/01/204 18:25:00	05:00.0	51.8	72.2	44.5	Ship horn noise from HMNB; Car pulls up below SLM; train.
07/01/204 18:30:00	05:00.0	49.8	62.1	44.5	Noise from site – presumed to be workers moving around in the building
07/01/204 18:35:00	05:00.0	51.5	63.5	45.5	Child crying with a residential property close to SLM
07/01/204 18:40:00	05:00.0	49.6	64.5	45	Child crying with a residential property close to SLM; resident talking loudly from property close to SLM; unidentified bang (not from site).
07/01/204 18:45:00	05:00.0	54	71.6	45	Pedestrian (including child) passing and talking loudly; unidentified bang (not from site); train.

TABLE A2: TALBOT GARDENS MEASURED NOISE LEVELS

Date & Start time	Duration	L _{Aeq} (dB)	L _{AFmax} (dB)	L _{AF90} (dB)	Notes
07/01/2014 19:00	05:00.0	43.8	52.2	41	Resident unloading van and talking on Talbot Gardens; Train.
07/01/2014 19:05	05:00.0	43.7	65.9	42	Train; Van door closing; van starting up and leaving on Talbot Gardens.
07/01/2014 19:10	05:00.0	43	52.9	41.5	
07/01/2014 19:15	05:00.0	43.8	52.3	41.5	Train
07/01/2014 19:20	05:00.0	42.8	49.7	41	
07/01/2014 19:25	05:00.0	45.4	65.1	41.5	Louder speaker announcement in HMNB.
07/01/2014 19:30	05:00.0	46.1	60	41.5	
07/01/2014 19:35	05:00.0	44.4	54.5	41	Louder speaker announcement in HMNB; Train
07/01/2014 19:40	05:00.0	-	-	-	Noise from residents in property and balcony close to SLM
07/01/2014 19:45	05:00.0	49	71.3	41	Louder speaker announcement in HMNB; shouting from sports pitch in HMNB.

TABLE A3: CARDINAL AVENUE MEASURED NOISE LEVELS

Date & Start time	Duration	L _{Aeq} (dB)	L _{AFmax} (dB)	L _{AF90} (dB)	Notes
07/01/2014 20:00	05:00.0	-	-	-	Car passing; moped starting up and idling close to SLM
07/01/2014 20:05	05:00.0	53.3	79.4	43	Resident putting bins out close to SLM; three car pass by SLM, with one idling in front of SLM.
07/01/2014 20:10	05:00.0	45.9	60.1	43.5	Noise from cats fighting on Wolseley Road; Resident putting bins out.
07/01/2014 20:15	05:00.0	44.7	51.9	42.5	
07/01/2014 20:20	05:00.0	44.9	60.4	43	
07/01/2014 20:25	05:00.0	44	58.7	41.5	
07/01/2014 20:30	05:00.0	57.6	85.6	42.5	Three car pass by SLM, with one idling in front of SLM; loudspeaker announcement from HMNB
07/01/2014 20:35	05:00.0	44.1	49.7	41.5	
07/01/2014 20:40	05:00.0	46.9	60.8	41.5	Train
07/01/2014 20:45	05:00.0	52.1	71	42.5	