URS

EfW CHP Facility, Devonport

Non-Destructive Testing
Noise Report

23rd October 2013

Prepared for:

MVV Environment
Devonport Ltd

UNITED
KINGDOM &
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EXECUTIVE SUMMARY

On Wednesday 23rd 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): 52 dB $L_{Aeq,50min}$ (façade): 1 dB above the baseline;
- At R15 (Talbot Gardens): 46 dB $L_{Aeq,50min}$ (façade): 3dB above the baseline; and
- At Cardinal Ave: 46 dB $L_{Aeq,50min\ r}$ (free-field)/ 49 dB $L_{Aeq,50min}$ (façade): 2dB below 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. 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 clangs– 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 23rd 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 $L_{Aeq,4hr}$ (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 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^{-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).	Wednesday 23rd October 2013 (weekday)	18:00 – 18:50
R15	Talbot Gardens	Representative of the closest noise sensitive properties to the north (approx. 60 metres from the Site).	Wednesday 23rd October 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).	Wednesday 23rd 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 significant drift was noted (+/- 0.2 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	23/10/2013 18:00-18:50	<0.3	SW	13°C	None
R15	23/10/2013 19:00-19:50	<0.3	SW	12°C	None
Cardinal Ave	23/10/2013 20:00-20:50	<0.3	SW	12°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; noise from residents parking up and walking past; as well as from within the residential properties (TV, vacuuming, children talking). Occasional clang 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. There was also some noise from the sports pitch on 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); and passing trains. Also present was occasional noise from vehicles passing on Talbot Gardens; residents talking on Talbot Gardens; noise from within the residential properties; and occasional clang 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 and an intermittent beeping 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. Also occasional noise from pedestrians and residents walking past the SLM. 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, Tables A1 to A3.

4.5 Results

The results of noise monitoring undertaken on 23rd October 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 $L_{Aeq,50min}$ (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		Free Field	Façade	$L_{Aeq,4hr}$ dB	
R3	23/10/2013 18:00-18:50	-	52	78	-	51	61	1
R15	23/10/2013 19:00-19:50	-	46	66	-	43	58	3
Cardinal Ave	23/10/2013 20:00-20:50	46	49	73	48	51	61	-2

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 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 clang, 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_{Aeq} (dB)	L_{AFmax} (dB)	L_{AF90} (dB)	Notes
23/10/2013 18:00	05:00.0	50	64.1	42.3	Train; residents walking past SLM talking and entering building.
23/10/2013 18:05	05:00.0	51.8	71.1	43.4	Resident talking in entrance and leaving, walking past SLM; resident hovering and children talking in 2nd floor flat.
23/10/2013 18:10	05:00.0	52.7	64.5	46.7	resident hovering and children talking in 2nd floor flat; train.
23/10/2013 18:15	05:00.0	49.2	65.5	43	resident hovering and children talking in 2nd floor flat; car horn (x3) in distance.
23/10/2013 18:20	05:00.0	46.8	59.5	42	
23/10/2013 18:25	05:00.0	50.5	62.4	43.4	Train; noise from HMNB sports pitch; car pulled up below SLM.
23/10/2013 18:30	05:00.0	50.8	64.8	43.8	Train; three vans passing; clang from site
23/10/2013 18:35	05:00.0	55.3	77.6	45	Car pulled up below SLM – car horn, talking and unloading; train.
23/10/2013 18:40	05:00.0	52.6	66	43.9	Child laughing and shouting in car below SLM; and car leaves.
23/10/2013 18:45	05:00.0	53.7	71.1	43.5	Children walking up the road talking, shouting and singing loudly; couple clangs from site; train; man running past.

TABLE A2: TALBOT GARDENS MEASURED NOISE LEVELS					
Date & Start time	Duration	L_{Aeq} (dB)	L_{AFmax} (dB)	L_{AF90} (dB)	Notes
23/10/2013 19:00	05:00.0	40.3	53.3	36.3	Clang from site; train
23/10/2013 19:05	05:00.0	38.3	48.1	35.8	Raised voices from HMNB
23/10/2013 19:10	05:00.0	40.8	55.8	36.4	Clang on site; train
23/10/2013 19:15	05:00.0	40.1	59	37.7	Clangs on site (x3); vehicle starting up on Talbot Gardens; TV/Music in flat by SLM
23/10/2013 19:20	05:00.0	40.3	50.4	38	
23/10/2013 19:25	05:00.0	40.4	47.9	38.2	Dog barking in the distance; car passing on Talbot Gardens with music playing; clang on site; residents talking on Talbot Gardens.
23/10/2013 19:30	05:00.0	53.5	66.1	39.1	Clang on site; two trains passing very loudly.
23/10/2013 19:35	05:00.0	45.7	59.5	40.8	
23/10/2013 19:40	05:00.0	43	62.6	40.4	Car horn on Talbot Gardens.
23/10/2013 19:45	05:00.0	45.7	60.2	40	Distant motorbike; clang on site; train.

TABLE A3: CARDINAL AVENUE MEASURED NOISE LEVELS					
Date & Start time	Duration	L_{Aeq} (dB)	L_{AFmax} (dB)	L_{AF90} (dB)	Notes
23/10/2013 20:00	05:00.0	43.8	59.1	41.7	Pedestrian and dog walking past SLM
23/10/2013 20:05	05:00.0	47.2	64.1	41.8	
23/10/2013 20:10	05:00.0	43.6	55.2	41.6	
23/10/2013 20:15	05:00.0	44.6	61.6	41.6	Man walking past SLM
23/10/2013 20:20	05:00.0	45.8	73.1	42.3	Resident putting bin out opposite SLM
23/10/2013 20:25	05:00.0	48.9	64.7	42.1	
23/10/2013 20:30	05:00.0	-	-	-	Train; pedestrian talking loudly by SLM
23/10/2013 20:35	05:00.0	44	54.9	42	Two pedestrians walking past SLM
23/10/2013 20:40	05:00.0	46.3	58.1	42.1	Resident getting into/out of car <20m – rattling keys, banging doors etc…; train
23/10/2013 20:45	05:00.0	47.1	58.5	42	Train; distant motorbike.