



# NOISE MONITORING REPORT

## ABERCROMBIE PRECINCT REDEVELOPMENT

PREPARED FOR

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MONITORED ON:




10<sup>th</sup> December 2013

CONTRACT NO C13 6219  
REPORT NO EMS 13 2169

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**REVISION HISTORY**

Revision No	Date Issued	Reason/ Comments
0	11.12.2013	

**DISTRIBUTION**

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## 1 Introduction

### 1.1 Project Description

EMS was commissioned by John Holland Pty Ltd to conduct attended noise monitoring for the construction/earth works held at the University of Sydney Abercrombie Precinct redevelopment area (the site). The purpose of the proposed works is to erect a six storey business school and a four storey student accommodation building with underground car parking.

Noise monitoring conditions for the project are outlined in the Construction Noise and Vibration Management Plan (CNVMP) prepared by Marshall Day Acoustics (reference: JH-B834-PLN-EMP-NVECP-012-A). It outlines 'attended noise monitoring will be conducted for a representative period during each of the four identified construction phases'; this includes Site Establishment works, Bulk works, piling phase and detailed works.

The three phases of work will consist of a 30-35 Tonne excavators, 20 tonne-24 excavators, 12 Tonne Excavators, 2 Tonne Anchor Rig, D9 Dozer, 2 Static concrete line pumps and trucks occupying the site. This assessment will monitor the construction noise from 5 monitoring locations outlined in the CNVMP and compare the noise results against relevant noise criteria.

### 1.2 Site Location

The project site is bounded by Abercrombie Street (South Side), Codrington Street (East Side) and Rose Street (North Side). It should be noted that the construction/earth works extend farther North and are also found between Rose Street and Darlington Lane which is located on the north side of the site.


The first monitoring location is at 109 Darlington Road, Redfern and is classified as Receiver A in the CNVMP. The receiver's property is a two storey residential dwelling and is approximately 60 meters north from the earth works site between Rose Street and Boundary Lane. There are also earthworks found between Darlington Lane and Rose Street and these are 15 to 20 meters away.

The other four noise monitoring locations are located along the South side of the project site and are found between Boundary Lane and Abercrombie Street. Outlined below are the other noise monitoring locations, their classification according to the CNVMP and a brief site description:

- Receiver B: Darlington Public School located at 415 Abercrombie Street south west of the project site
- Receiver C: Boundary Lane Childcare Centre located at 405 Abercrombie Street, south of the site
- Receiver D: The Shepherd Centre (Education facility for hearing impaired children) located at 391 Abercrombie Street south of the site.
- Receiver E: Mandelbaum House (residential college) located at 385 Abercrombie Street, north east of the main project site.

Below outlines the receivers' location and the project site.



	<p><b>Legends</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #4F81BD; border: 1px solid black; margin-right: 5px;"></span> Construction Site</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> Noise Monitoring Location</li> </ul>	<p>Site Address:              University of Sydney              Abercrombie Precinct              Redevelopment Site</p> <p>Contract No.: C13 6219</p> <p>Report No.: EMS 13 2169</p>
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## 2 Noise Monitoring

### 2.1 Noise Measurement

An attended noise measurement was conducted on the 10<sup>th</sup> of December 2013 at approximately 9:30am using the B&K 2260 noise logger to measure the construction/earth work noise level. The logger was set to record the 'A' weighted statistical sound pressure level using a 'fast response.' The unit was calibrated prior to and after each noise measurement and no significant drift was found.

Noise Measurements were taken thirty minutes at each monitoring location and all noise measurements conducted for receivers found on the south side were taken along Boundary Lane, beside each property wall (no less than 3 meters from the wall)

The  $L_{Aeq}$  will be used to assess the noise emitted from the construction site in comparison with the criteria established in the Construction Noise and Vibration Management Plan (JH-B834-EMP-NVECP-012-A). The  $L_{Aeq}$  represents the equivalent continuous noise level – the level of noise equivalent to the energy average of noise levels occurring over a measurement period.

## 3 Noise Criteria

### 3.1 Policy and Guideline

The noise criteria found in the CNVMP are established using 'The Interim Construction Noise Guideline; regulated by the OEH. This Guideline is aimed to manage noise from construction work and provides guidelines for the following:

- To protect the majority of residences and other sensitive land uses from noise pollution most of the time.
- Identify and minimise noise from construction works.
- Applying 'feasible' and 'reasonable' work practices to minimise construction noise.
- Encouraging construction to be undertaken only during least sensitive noise periods.



## 4 Results

Table 4.1 outlines the construction noise level at each location along with the relevant noise criteria and the description of noise during the noise measurement. The noise level will also be compared against the predicted 'average' and 'worst case' noise emissions from the bulk excavation work phase made by Marshal Day Acoustics as outlined in the CNVMP.

**Table 4.1 – Construction Noise Level in comparison with the relevant noise criteria**

Receiver	Location	SPL (L <sub>Aeq</sub> )	Worst Case	Average Predict	Criteria	Description of Noise
A	109 Darlington Road	65.5	73	68	54	<b>Dominant noise:</b> Excavation works <b>Intermittent noise:</b> beep noise, trucks and small excavator nearby, grinding
B	415 Abercrombie Street	58.3	71	63	55	<b>Dominant noise:</b> Nearby excavation works, compressor <b>Intermittent noise:</b> trucks, excavators, beep, compressor
C	405 Abercrombie Street	57.3	78	66	55	<b>Dominant noise:</b> Nearby excavation works <b>Intermittent noise:</b> beep noise, trucks, loading works, grinding
D	391 Abercrombie Street	63.8	79	64	55	<b>Dominant noise:</b> Nearby excavation works <b>Intermittent noise:</b> beep noise, trucks, distant drilling works
E	385 Abercrombie Street	<b>69.7</b>	75	65	55	<b>Dominant noise:</b> Nearby excavation works <b>Intermittent noise:</b> beep noise, trucks, loading works, drilling works, grinder,

Bold value denotes the highest noise level during the assessment.

## 5 Discussion

### 5.1 Noise Analysis

Noise measurements were conducted at surrounding receivers between 9:30am and approximately 12:00pm. The noise results for receivers along Abercrombie Street were found within 57dB – 70dB. Receiver 'E' was exposed to the highest noise level due to excavators and drills operating continuously near the receiver's location and the shorter barrier on south side of the site, however the noise results were similar to the average predicted noise level as outlined in the CNVMP.

Major earth works were undertaken along the South side of the site and the excavators were continuously operating between Boundary Lane and Rose Street. Trucks and light vehicles were intermittently used on site. Should be noted all noise levels were found below the worst case noise prediction.

Majority of the noise results were found below the average predicted noise level extracted from Marshal Day Acoustic CNVMP, except for the Receiver 'E'. Section 5.2 provides noise controls methods to help reduce the noise impact to nearby receivers. The majority of the noise results were lower than the noise measurement conducted on the 23<sup>rd</sup> of October during the stock piling works, as shown in the noise monitoring report EMS13 2047.

## 5.2 Noise Control

Best Management Practice (BMP) is the adoption of particular operational procedures that minimise noise while retaining productive efficiency. BMP procedures include:

- Limiting noisy activities on Monday to Friday to provide respite to surrounding receivers.
- Keep truck drivers informed of noise control practices such as minimising the use of engine brakes and no extended periods of engine idling.
- Place as much distance from static noise sources to receivers or implement noise enclosures on static noise sources.
- Equipment maintenance – Regularly inspect and maintain equipment to ensure it is in good working order and also checking mufflers

Additional noise control can be found in Section 5 of the Marshal Day Acoustic CNVMP report (JH-B834-PLN-EMP-NVECP-012-A).

## 6 Conclusions

An attended noise measurement for the construction/earth for the Abercrombie Precinct Redevelopment project was carried out by EMS on the 10<sup>th</sup> of December 2013. The purpose of this report was to assess the noise level emitted from the project site and compare the results with the established noise criterion.

As shown in Table 4.1, the high noise levels were found at receivers 'E' but was still found below the worst case predicted noise level. Section 5.2 provides a noise control steps to reduce the noise impact to nearby receivers.

## 7 References

Marshall Day Acoustics' Construction Noise and Vibration Management Plan (CNVMP) (reference: JH-B834-PLN-EMP-NVECP-012-A)

OEH's publication Interim Construction Noise Guideline

OEH's NSW Industrial Noise Policy

AS 2659.1 (1988) Guide to the Use of Sound Measuring Equipment – Portable Sound Level Meters  
Association of Australia, North Sydney