

7 March 2013

610.11518 L02 On EPA Comments 20130307.doc

Capital Insight
Level 6, 77 Berry Street
NORTH SYDNEY NSW 2060

Attention: Frank Tong

Dear Frank

**UNSW MS&E Building - State Significant Development Application
Addendum to Acoustics Report
Response to EPA Comments on EIS**

We refer to EPA’s letter reference DOC 12/48939, dated 21/12/12, which refers to our “Acoustic Report in Response to DGRs” (reference 610.11518-R2) issued 15/9/12.

1 Further Noise Monitoring

Matters relating to environmental noise logging undertaken at the site appear to be chief amongst the EPA’s concerns. It should be noted that, following the issue of our report (that is the subject of the EPA’s comments) further noise monitoring was conducted – from Thursday 4/10/12 to Friday 12/10/12 – this time on the roof of the nearest affected UNSW residential accommodation, approximately 65m from, and overlooking, the proposed MS&E Building.

The results of the monitoring are presented in **Table 1**, and are consistent with that stated in our earlier report.

Table 1 Summary of Noise Logging Results

	RBL (dBA)			LAeq (dBA)		
	Day	Evening	Night	Day	Evening	Night
From 4/10/12 to 12/10/12						
All measurements	54	53	52	58	57	55
Excluding rain-affected ¹	54	53	52	58	57	55
Excluding wind and rain-affected ²	54	53	52	58	56	55
Previously reported						
(23/7/12 to 1/8/12)	54	53	53	60	58	58

Note 1: Noise data is excluded where the rain, as recorded at Sydney Airport, was greater than 0.5mm /hour

Note 2: Noise data is excluded where the rain was greater than 0.5mm /hour, and wind speed was greater than 5m/s – both as recorded at Sydney Airport.

It is noted, however, that due to the difficulties associated with the site (the lack of secure locations for noise loggers and the presence of numerous items of mechanical plant) the results were again influenced by the noise of mechanical plant.

1.1 Summarised Criteria

The recently obtained data gives no reason to revise the previously developed criteria:

Closest Residential Accommodation

- Day 52 dBA (Externally)
- Evening 42 dBA (Externally)
- Night 37 dBA (Externally)

Closest Educational Accommodation

While the existing Materials Sciences Building is in use: 45 LAeq (Externally - openable glazing)

1.2 Over-riding Criterion

Given the increased distance to the residential accommodation (approximately 65m) compared to the adjacent educational areas (as close as 10m), complying with the noise criterion of 45 dBA at the nearby educational areas will also result in compliance at the residential accommodation – during the daytime and evening.

Further, given that the some plant will not operate during the night-time, controlling noise to the daytime and evening criteria at the adjacent educational areas will guarantee compliance at the residential accommodation during the night-time.

Thus the over-riding criterion for noise emissions from the proposed building is:

- 45 dBA (externally), at the existing Materials Sciences Building.

1.3 Relative Levels

It is noted that complying with this criterion at the existing Materials Sciences Building will result in levels that are well below the existing night-time levels measured at the site.

2 Construction Noise at Sensitive Receivers

It is agreed that construction noise has not been assessed at the on-campus student accommodation or educational facilities. However, it is recommended (Section 8.2 of the report) that, the University may wish to consider implementing a Construction Noise (and Vibration) Management Plan to minimise the disruption /interference to their own, nearby, accommodation and the risk of damage to the closest of the University buildings and / or interference to the operation of nearby vibration-sensitive equipment.

3 Other EPA Comments

We deal below with the EPA's bullet points listed under "Acoustic Report – Technical Issues".

3.1 Justification of Noise Monitoring Locations

The logger location was selected with consideration to: other noise sources which may have influenced the readings – including wind, rustling trees; and security issues for the noise monitoring equipment; and, in the case of the follow-up survey of October 2012, gaining permission for access from residents.

In practice, ideal noise monitoring locations are rarely found and a compromise is often necessary.

Given that the developed criteria are all below the measured background noise levels for all the measurement periods (and 11 dBA and 16 dBA below the background levels for the evening and night-time periods), we consider there should be no cause for concern that the chosen locations might have led to inappropriately lenient criteria.

3.2 Wind /Foilage Noise

Refer to **Section 3.1**.

3.3 Source of Weather Data

Weather data is provided on the graphs in Appendix A of the report. The data was obtained from the Bureau of Meteorology weather station at Sydney Airport.

3.4 Effect of Wind and Rain Noise

Our review of the data (the graphs in Appendix A of the report) shows the “noise data obtained does not appear correlated with wind speed” (eg, Sunday 29/7/12: wind speed of between 4m/s and 9m/s, with no change in measured LA90), Section 4.1 of the report states. Accordingly, the data has not been filtered based on wind – or rain.

Further, given the analysis of determination of the Rating Background Level (the INP’s “background noise” level) is biased towards the lower (LA90) values measured during the relevant periods, we are confident the criteria developed will not have been influenced by wind or rain noise.

(Refer also to the final paragraph of **Section 3.1**.)

3.5 Noise Criterion at Law and Chemistry Buildings

Section 5.1.4 of the report stated:

Law and Chemistry Buildings

The nearby (but slightly further away) Law and Chemistry Buildings have closed glazing, which can be expected to provide an outside-to-inside noise reduction of (at least) 20 dBA, thereby requiring the external levels to be no greater than 65 LAeq.

This (65 LAeq) was an error. However, it is entirely irrelevant, as the text that immediately followed (also in bold in the report) stated:

Therefore, the over-riding criterion will be that external levels incident on the current Materials Sciences Building are to be no greater than 45 LAeq.

3.6 Compliance Measurements

Compliance noise monitoring would normally be undertaken, upon completion of the building.

3.7 Noise Monitoring at Residences in Doncaster Avenue

Noise monitoring was indeed not conducted at residences in Doncaster Avenue, and neither have noise criteria been developed for these residences.

Bearing in mind the proximity of these residences to road traffic noise from Anzac Parade, and the shielding that will be afforded by buildings between the proposed site and these residences, we stand by our previous statement (Section 5.1.4 of the report):

Given the increased distance (a further 100 m) to the stables to the north, and (a further 270 m) to the residential accommodation to the west, complying with the noise criteria at the University's residential accommodation will also result in compliance at the neighbouring premises.

The logger location was selected with consideration to: other noise sources which may have influenced the readings – including wind, rustling trees; and security issues for the noise monitoring equipment; and, in the case

4 EPA Recommended Conditions of Approval

We deal below, in turn, with the EPA's "Recommended Conditions of Approval".

4.1 Construction Hours

It is for others to agree to, or otherwise comment on, the suitability or appropriateness of undertaking the construction works during "standard construction hours".

4.2 Operational Noise Levels

The EIS report is based upon the building being designed to meet the requirements of the INP.

4.3 Additional Noise Monitoring

Additional noise monitoring has been completed – **Section 1**, above, refers.

4.4 Construction Vibration

These criteria are already included in the EIS report, and the report is based upon the building being constructed to meet them.

4.5 Construction Noise and Vibration Management Plan

The EIS report recommends "*the University may wish to consider implementing a Noise (and Vibration) Management Plan to minimise the disruption /interference to their own, nearby, accommodation and the risk of damage to the closest of the University buildings and / or interference to the operation of nearby vibration-sensitive equipment*".

We see no need for a CNVMP to be developed for off-site receivers – the EIS report shows "*there will clearly be no risk of vibration damage to off-site buildings*".

4.6 Construction Noise and Vibration Compliance Measurements

Compliance noise monitoring would normally be undertaken, upon completion of the building (**Section 3.6** refers).

However, we see requirement for vibration monitoring ("*at each one of the locations identified in the Acoustic Report and any additional locations identified during any additional monitoring*") due to the normal operation of the proposed building. In which case compliance with *Operational Noise Levels* (**Section 4.2** refers) is all that is required.

4.7 Construction Vibration at Sensitive Receivers (Student Accommodation) Measurements

We understand this to be an internal matter for UNSW – **Section 2**, above, refers.

Yours sincerely

A handwritten signature in black ink, appearing to read "H Gwatkin". The signature is written in a cursive, slightly slanted style.

HOWARD GWATKIN
Principal – Building Acoustics