

4 September 2013

The University of Sydney
Campus Infrastructure Services
Level 1, Services Building (G12)
22 Codrington Street
Darlington NSW 2008

Attention: Barbara Beier

Dear Barbara

ABERCROMBIE PRECINCT NOISE IMPACT REVIEW

Marshall Day Acoustics Pty Ltd (MDA) have previously conducted a noise impact assessment for the Abercrombie Precinct Development associated with The University of Sydney (report reference Rp001 R06 201009de dated 2 April 2012). MDA has been requested to review proposed changes to the development and advise on the potential noise impact associated with the alternative scheme.

The following changes are proposed to the Abercrombie Precinct development:

- Relocation of the driveway access to the basement car parking to Darlington Lane
- Increase the number of apartments for student accommodation from 188 to 200.

With respect to noise from the development, only the relocation of the driveway is expected to alter the potential noise impact from the site. Accordingly we have reassessed the potential noise impact associated with vehicles using the relocated driveway. Our assessment is provided in the following sections. Refer to our previous report for all details relating to the derivation of noise criteria.

CAR PARK AND LOADING DOCK ACCESS - REVISED ASSESSMENT

The entry and exit to the car park and loading dock is proposed to be relocated from Abercrombie Street to Darlington Lane.

It is understood that the development will include basement and ground level car parking for approximately 82 vehicles. The car park will also contain a loading dock.

Access to the car park will be available to USYD staff and students 24 hours a day, 7 days a week. It is anticipated that the majority of the car parking activity will occur during the daytime period. The loading dock is expected to be utilised during the daytime period only.

The basement car park will be fully enclosed therefore the nearest noise sensitive receivers will be screened from noise within the car park. The main source of noise from the car park will be from cars and trucks entering and exiting the car park and loading dock.

The nearest noise sensitive receivers to the proposed driveway are 120 Darlington Road (defined as Receiver A in our report Rp001 R06 201009de) and Darlington Public School (defined as Receiver C in our previous report). Receivers on Abercrombie Street will be shielded from the driveway by the development structure as will the USYD Services Building (Receivers B and D respectively). These receivers have not been included in our assessment as noise emissions from vehicles accessing the car park are not expected to be above background noise levels.

In order to provide an indication of potential noise levels, we have calculated noise levels from cars and trucks entering and exiting the site based on the assumptions in Table 1.

Table 1: Car park and loading dock access assumptions

Time period	Assumptions
Day	<p>The car park will be full during the day</p> <p>70% of car spaces will be occupied by arriving vehicles during the peak hour period, representing 17% of car spaces in the busiest 15 minute period</p> <p>One large truck will access the site during the day time period</p>
Evening	<p>50% of car spaces will be occupied by arriving vehicles during the evening period</p> <p>It is expected 25% of car spaces will be occupied in the busiest 15 minute period of the evening</p>
Night	<p>30% of car spaces will be occupied by arriving vehicles during the evening period</p> <p>It is expected 5% of car spaces will be occupied in the busiest 15 minute period of the evening</p>

Table 2 presents the calculated vehicle and truck noise levels at Receiver A. Table 3 presents the calculated noise levels at Receiver C.

Table 2: Car park and loading dock access noise levels at Receiver A

Time period	Intrusiveness Criteria $L_{Aeq\ 15mins}$ dB			Amenity Criteria $L_{Aeq\ period}$ dB		
	Calculated level	Criteria	Compliance?	Calculated level	Criteria	Compliance?
Day	39	49	✓	3	58	✓
Evening	16	48	✓	7	44	✓
Night	8	44	✓	<1	38	✓

Table 3: Car park and loading dock access noise levels at Receiver C

Time period	Amenity Criteria $L_{Aeq \text{ period}}$ dB		
	Calculated level	Criteria	Compliance?
When in use ¹	28	39	✓

Note 1: Internal noise levels through an open window when in use. We have assumed a reduction of 10dB through an open window.

Noise emissions from vehicle access to the car park and loading dock have been calculated to be well below the nominated criteria for Receiver A during all periods and Receiver C at any time when in use.

CUMULATIVE NOISE LEVELS - REVISED ASSESSMENT

We have revised the cumulative noise levels from all noise sources at the site for Receivers A and C, taking into account the proposed new location for the car park driveway and loading dock access. Cumulative noise levels include outdoor activity and mechanical services environmental noise emissions as per our previous report. Based on the previous report, environmental noise emissions from mechanical services should be designed to meet the most stringent noise criterion of 38dB L_{Aeq} at the nearest noise sensitive receiver.

The cumulative noise levels are presented in Table 4 and Table 5.

Table 4: Cumulative noise levels at Receiver A

Time period	Intrusiveness Criteria $L_{Aeq \text{ 15mins}}$ dB			Amenity Criteria $L_{Aeq \text{ period}}$ dB		
	Calculated level	Criteria	Compliance?	Calculated level	Criteria	Compliance?
Day	42	49	✓	38	58	✓
Evening	38	48	✓	38	44	✓
Night	38	44	✓	38	38	✓

Table 5: Cumulative noise levels at Receiver C

Time period	Amenity Criteria $L_{Aeq\ period}$ dB		
	Calculated level	Criteria	Compliance?
When in use ¹	38	39	✓

The cumulative noise levels have been calculated to be below the nominated criteria for Receiver A during all periods and Receiver C when in use.

SLEEP DISTURBANCE - REVISED ASSESSMENT

To assess the potential for sleep disturbance, we have predicted car parking and outdoor activity maximum noise levels at the nearest affected receivers in Table 6.

Table 6: Sleep disturbance assessment

Noise sources	Calculated level, L_{Amax} dB	
	Receiver A	Receiver B
Standard vehicle	40	NA
"Modified" car (worst case)	48	NA
Loud car stereo	33	NA
Rowdy voice	49	64

The calculated maximum noise levels from car parking activity and rooftop activity on site range from 33dB L_{Amax} to 49dB L_{Amax} at Receiver A, complying with the RNP criteria of 65dB L_{Amax} .

At Receiver B, the predicted maximum noise levels from rooftop activity is 64dB L_{Amax} , complying with the RNP criterion of 65dB L_{Amax} . Receiver B is located on the opposite side of the development to the car park entry, therefore we expect maximum noise levels from car park access to be significantly less than for Receiver A.

Based on the above we conclude that the development is unlikely to impact significantly on the nearest receivers.

We trust this information is satisfactory. If you have any further questions please do not hesitate to contact us.

Yours faithfully

MARSHALL DAY ACOUSTICS LTD



Sandy Marshall

Consultant