

3 April 2018

Mr Ben Lusher
Director, Key Sites
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Ben,

**SSDA 7561 Sydney Theatre Company internal refurbishment works –
Addendum to Response to Submissions**

I refer to your recent query in relation to the Sydney Theatre Company's existing and proposed hours of operation.

It is acknowledged that whilst it was intended that the subject application indicate that no change was proposed to the existing hours of operation, this information has inadvertently not been included in the documentation submitted as part of the application to date. Accordingly we submit this addendum to the Response to Submissions (MG Planning, March 2017) to clarify the hours of operation sought as part of the subject development application SSDA 7561.

The Sydney Theatre Company's existing and proposed hours of operation at Wharf 4/5 and the shore sheds are as set out below. In this regard you will note that no change is proposed to the existing hours rather the only change proposed is formalising the existing procedure of closing the western balcony at 12 midnight to limit any potential noise impacts to residents to the west.

Hours of Operation

Land Use	Existing Hours of Operation	Proposed Hours of Operation
Offices	24 hours	24 hours
Teaching, Rehearsals and Performances	6am to 12 midnight	6am to 12 midnight
Restaurant and Bar	7am to 12 midnight	7am to 12 midnight
Special Functions	7am to 3am	7am to 3am (excluding western balcony which operates 7am to 12 midnight)
Loading Dock Activities and Deliveries	6am to 12 midnight	6am to 12 midnight

As you are aware the subject development application seeks internal refurbishment works to allow for the continued operation of the Sydney Theatre Company within Wharf 4/5 and the shoredocks with upgraded facilities. The proposal provides for a minor increase in patron numbers within the venue as follows:

Venue capacity

	Theatre Seating	Bar / Function Space	Employees
Existing	550 seats	500 persons	165 staff
Proposed	+100 seats	+200 persons	+35 staff
Total	650 seats	700 persons	200 staff

The proposal therefore provides for a notional increase in the capacity of patrons on site of 300 persons although due to performance timetabling and the running of functions post performance it is unlikely that this capacity would be reached other than on rare occasions.

Impact Assessment

The Department has raised concern that the impact of the additional 200 patrons within the Bar / Function space after midnight has not been addressed as part of the application particularly in relation to noise impacts. In this regard it is noted that the noise criteria which currently applies, and which will continue to apply, is that the venue must not exceed the background noise level at the boundary of any affected residence between the hours of 12 midnight and 7am.

The Sydney Theatre Company has advised that as proposed the bar / restaurant will continue to cease to trade at 12 midnight and that only guests of invited functions would be on the premises between 12 midnight and 3am. Further, function guests would be limited to the existing number of a maximum of 500 persons. There will

therefore be no increase in numbers of patrons on site between 12 midnight and 3am. It is proposed that this cap would be included in the operational management plan to be prepared for the venue. Accordingly there would be no intensification of the existing use (or associated increase in noise impacts) post-midnight. Further it is proposed that the existing western balcony would continue to be closed at midnight, as is done currently, to limit any potential adverse noise impacts on residents to the west.

Notwithstanding that no intensification of the existing use is proposed post-midnight, ARUP has undertaken further analysis of the potential noise impact of the venue between 12 midnight and 3am. A copy of ARUP's advice is provided at Attachment A. It is intended as an addendum to the SEARs Noise and Vibration Impact Assessment (NVIA) "*2017-02-10 SEARS Acoustics Issue 4.docx*" (Arup, February 2017), as well as the "*SEARS Issue 4 Explanatory Note_revB*" (Arup, May 2017).

In summary, the ARUP assessment indicates that:

- Noise levels from mechanical plant noise operating during the night-time period, including 12:00am to 3:00am, will comply with Project Specific Noise Criteria (PSNCs)
- Noise emissions from events and performances between 12:00am to 3:00am will comply with night-time criteria. Breakout noise levels even local to the façade and roof of the acoustically insulated spaces are significantly below the PSNCs at noise sensitive receivers
- An assessment of cumulative noise impacts from plant and events show no exceedances of PSNC between 12:00am and 3:00am

Mitigation Measures

In summary to mitigate any potential adverse impacts from the proposal the following mitigation measures will be applied to the future operations:

- Hours of operation to be retained as existing (refer above)
- Capacity of the venue to be limited to a maximum of 500 patrons between midnight and 3am
- Western balcony to be closed at 12 midnight 7 days per week, and
- Existing onsite monitoring of noise levels to be continued on the Bar's western balcony and western walkway as per STC Noise Management Plan.

The above mitigation measures will be included in the operational management plan to be prepared for the venue and approved by the Department as required by the proposed condition of consent.

Summary

The proposed hours of operation for the Sydney Theatre Company as outlined in SSDA 7561 will remain as existing and no change is proposed. Further, no intensification of the use is proposed post-midnight with patron numbers to be capped at the existing number of 500 at this time. The venue will operate in function mode between 12 midnight and 3am and will accommodate invited guests only generally post-performance. The continuation of function trading to 3am allows patrons to exit the venue in a staggered manner and minimises any potential impacts from crowds exiting at any one time.

Should you require any further information regarding the above matters or wish to discuss please do not hesitate to contact either Jono Perry at STC on 0414 305 476 or myself. We now look forward to you issuing the final consent at your earliest convenience.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Nicola Gibson', written in a cursive style.

Nicola Gibson
Director

cc Cameron Sargent

Attachment A

Supplementary Acoustic Advice

Your ref
Our ref 250601
File ref

ARUP

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3 April 2018

Dear Jono,

Sydney Theatre Company - Acoustic Assessment 12:00am - 3:00am

This letter addresses the request from the Department of Planning and Environment for additional information regarding noise impacts from the operation of the Sydney Theatre Company (STC) between the hours of 12:00am and 3:00am. This letter is intended as an addendum to the SEARs Noise and Vibration Impact Assessment (NVIA) “2017-02-10 SEARS Acoustics Issue 4.docx” (Arup, February 2017), as well as the “SEARS Issue 4 Explanatory Note_revB”(Arup, May 2017).

1 Noise criteria

Project Specific Noise Criteria (PSNC) have been established in Table 2 of the NVIA (Arup, Feb 2017), which are reproduced in Table 1.

Table 1: Summary of Project Specific Noise Criteria (free-field noise criteria to be met at boundary of receiver) – Extract of Table 2 from NVIA (Arup, Feb 2017).

Location	Time Period	Project Specific Noise Criteria ($L_{Aeq} 15min$)
Receiver R1: Residential Apartments	Day (7:00 – 18:00)	57
	Evening (18:00 – 22:00)	52
	Night (22:00 – 7:00)	44
Receiver R2: Terraced houses	Day (7:00 – 18:00)	57
	Evening (18:00 – 22:00)	52
	Night (22:00 – 7:00)	51
Receiver R3: The Sebel Hotel	Day (7:00 – 18:00)	57
	Evening (18:00 – 22:00)	52
	Night (22:00 – 7:00)	51
Receiver R4: McMahons Point	Day (7:00 – 18:00)	54
	Evening (18:00 – 22:00)	47
	Night (22:00 – 7:00)	42
Receiver R5: McMahons Point	Day (7:00 – 18:00)	54
	Evening (18:00 – 22:00)	47
	Night (22:00 – 7:00)	42
Receiver C1: Café Restaurants (applicable only when in use)	Day (7:00 – 18:00)	65
	Evening (18:00 – 22:00)	60
	Night (22:00 – 7:00)	58
Receiver C2: Shops and Cafes (applicable only when in use)	Day (7:00 – 18:00)	62
	Evening (18:00 – 22:00)	60
	Night (22:00 – 7:00)	58
Receiver C3: Shops and Cafes and Offices (applicable only when in use)	Day (7:00 – 18:00)	55
	Evening (18:00 – 22:00)	54
	Night (22:00 – 7:00)	44

2 Noise impacts

Within the STC development, significant noise sources have been identified as:

- Mechanical plant
- Events and performances
- Set building and workshop activities – these activities will not take place between the hours of 12:00am and 3:00am hence have not been assessed.

2.1 Mechanical plant

Noise impacts from mechanical plant operating between 12:00am and 3:00am have been predicted to nearby surrounding receivers, with the worst affected receiver identified as residential Pier 6/7 apartments. An allowance of 5 dB is included for the potential additive

effects of the WBAP plant at relevant receivers along with appropriate engineering margins.

In order to meet established PSNCs, maximum sound power levels for industrial noise sources have been provided in Table 5 of the NVIA (Arup, Feb 2017), and extract of which is presented in Table 2.

Table 2: Summary of maximum sound power levels for industrial noise sources - – Extract of Table 5 from NVIA (Arup, Feb 2017).

Plant	Octave Band Centre Frequency, Hz							
	63	125	250	500	1k	2k	4k	8k
Rooftop Chiller	73	74	75	72	74	74	70	63
Rooftop Boiler and Plant	83	81	82	79	79	75	73	72
Theatre 1 O/A Vertical Discharge	84	82	83	80	80	76	74	73
Enclosed Plant O/A and E/A Grilles	84	82	83	80	80	76	74	73
Theatre 1 SEF Exhaust Duct Discharge 1	83	81	82	79	79	75	73	72
Theatre 1 SEF Exhaust Duct Discharge 2	83	81	82	79	79	75	73	72
Theatre 2 SEF Vertical Discharge	84	82	83	80	80	76	74	73
Theatre 2 AHU O/A Duct	84	82	83	80	80	76	74	73
O/A Grilles for Meeting Room FCUs	83	81	82	79	79	75	73	72
E/A for Scenic Art Air Extraction	84	82	83	80	80	76	74	73

The maximum sound power levels given above will be used to provide necessary noise mitigation measures to control operational plant noise to the project specific limits at the nearest noise sensitive receivers.

A summary of predicted noise levels from mechanical plant are presented in Table 3.

Table 3: Summary of modelled noise levels – Extract from Table 2 of Explanatory Note (Arup, May 2017)

Location	Time Period	Project Specific Noise Criteria (L _{Aeq} 15min)	Modelled plant noise level (all plant operating, L _{Aeq} 15min)	Acceptable?
Receiver R1: Residential Apartments	Day (7:00 – 18:00)	57	44	complies
	Evening (18:00 – 22:00)	52	44	complies
	Night (22:00 – 7:00)	44	44	complies
Receiver R2: Terraced houses	Day (7:00 – 18:00)	57	33	complies
	Evening (18:00 – 22:00)	52	33	complies
	Night (22:00 – 7:00)	51	33	complies
Receiver R3: The Sebel Hotel	Day (7:00 – 18:00)	57	<30	complies
	Evening (18:00 – 22:00)	52	<30	complies
	Night (22:00 – 7:00)	51	<30	complies
Receiver R4: McMahon's Point	Day (7:00 – 18:00)	54	<30	complies
	Evening (18:00 – 22:00)	47	<30	complies
	Night (22:00 – 7:00)	42	<30	complies
Receiver R5: McMahon's Point	Day (7:00 – 18:00)	54	<30	complies
	Evening (18:00 – 22:00)	47	<30	complies
	Night (22:00 – 7:00)	42	<30	Complies
Receiver C1: Café Restaurants (applicable only when in use)	Day (7:00 – 18:00)	65	<30	Complies
	Evening (18:00 – 22:00)	60	<30	Complies
	Night (22:00 – 7:00)	58	<30	Complies
Receiver C2: Shops and Cafes (applicable only when in use)	Day (7:00 – 18:00)	62	31	Complies
	Evening (18:00 – 22:00)	60	31	Complies
	Night (22:00 – 7:00)	58	31	Complies
Receiver C3: Shops and Cafes and Offices (applicable only when in use)	Day (7:00 – 18:00)	55	<30	Complies
	Evening (18:00 – 22:00)	54	<30	Complies
	Night (22:00 – 7:00)	44	<30	Complies

Results show noise levels from mechanical plant noise operating during the night-time period, including 12:00am to 3:00am, complies with PSNCs.

2.2 Events and performances

The original NVIA provided an assessment of noise emissions from events and performances held at the STC.

As the envelope of the Wharf 4/5 building is largely being left 'as is' because of the heritage constraints, the design of new internally located constructions such as separating walls, floors and ceilings incorporate the necessary sound insulation performance to adequately control disturbance to both external receivers and other tenancies within Wharf 4/5. These constructions are documented in the Charcoal Blue Acoustic Concept Design report.

The level of noise breakout for the STC50 facilities is shown below in terms of the expected maximum sound pressure level at 1 m from the façade (Figure 1 and Figure 2). These assessments are based on an assumed worst-case noise level in the performance venues of 94 dBL_{Aeq} and similar levels in the WBAP spaces.

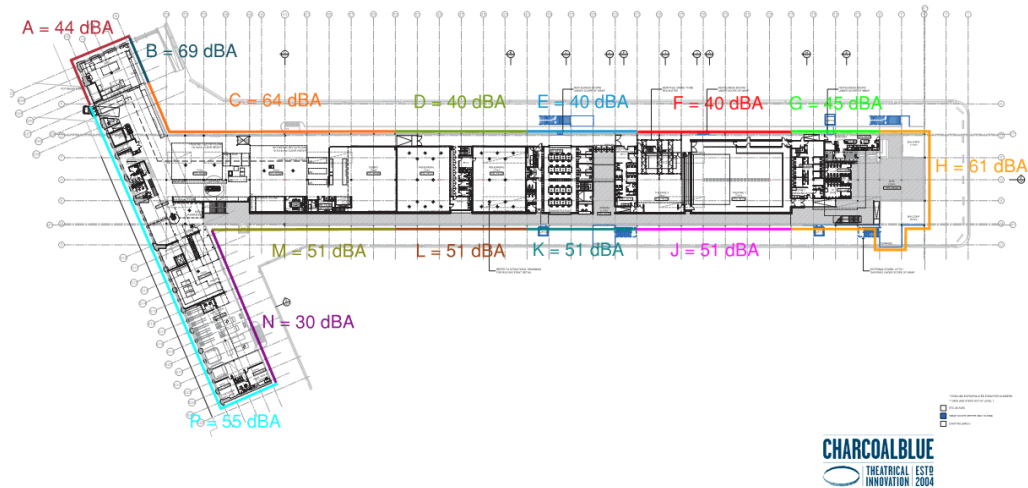


Figure 1: Sound Pressure Level at 1 m from facade of STC50 facilities (image courtesy of Charcoal Blue) – Figure 4 of NVIA

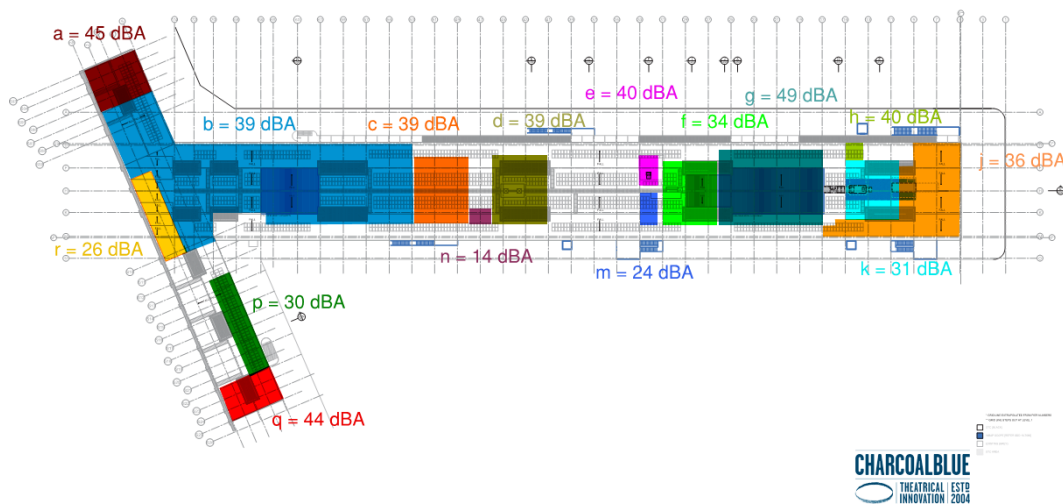


Figure 2: Sound Pressure Level at 1 m from roof of STC50 facilities (image courtesy of Charcoal Blue) - Figure 5 from NVIA

Assuming events and performances continue from 12:00am to 3:00am, noise emissions presented in the Figures above comply with night-time criteria, showing breakout noise levels even local to the façade and roof of the acoustically insulated spaces are significantly below the PSNCs at noise sensitive receivers.

Table 4: Summary of event noise levels – Extract of Table 3 of Explanatory Note (Arup, May 2017)

Location	Time Period	Project Specific Noise Criteria (L _{Aeq} 15min)	Modelled Event noise level (L _{Aeq} 15min)	Acceptable?
Receiver R1: Residential Apartments	Day (7:00 – 18:00)	57	<49	complies
	Evening (18:00 – 22:00)	52	<49	complies
	Night (22:00 – 7:00)	44	<35	complies
Receiver R2: Terraced houses	Day (7:00 – 18:00)	57	<30	complies
	Evening (18:00 – 22:00)	52	<30	complies
	Night (22:00 – 7:00)	51	<30	complies
Receiver R3: The Sebel Hotel	Day (7:00 – 18:00)	57	<30	complies
	Evening (18:00 – 22:00)	52	<30	complies
	Night (22:00 – 7:00)	51	<30	complies
Receiver R4: McMahon's Point	Day (7:00 – 18:00)	54	<30	complies
	Evening (18:00 – 22:00)	47	<30	complies
	Night (22:00 – 7:00)	42	<30	complies
Receiver R5: McMahon's Point	Day (7:00 – 18:00)	54	<30	complies
	Evening (18:00 – 22:00)	47	<30	complies
	Night (22:00 – 7:00)	42	<30	Complies
Receiver C1: Café Restaurants (applicable only when in use)	Day (7:00 – 18:00)	65	<30	Complies
	Evening (18:00 – 22:00)	60	<30	Complies
	Night (22:00 – 7:00)	58	<30	Complies
Receiver C2: Shops and Cafes (applicable only when in use)	Day (7:00 – 18:00)	62	<30	Complies
	Evening (18:00 – 22:00)	60	<30	Complies
	Night (22:00 – 7:00)	58	<30	Complies
Receiver C3: Shops and Cafes and Offices (applicable only when in use)	Day (7:00 – 18:00)	55	<45	Complies
	Evening (18:00 – 22:00)	54	<45	Complies
	Night (22:00 – 7:00)	44	<40	Complies

Results show noise levels from internal events and performances during the night-time period, including 12:00am to 3:00am, complies with PSNCs.

3 Cumulative noise

The total noise level (plant noise plus event noise) is shown in Table 5.

Table 5: Cumulative noise emission levels - Extract from Explanatory Note (Arup, May 2017)

Location	Time Period	Project Specific Noise Criteria (L _{Aeq} 15min)	Total noise level (all plant operating, L _{Aeq} 15min)	Acceptable?
Receiver R1: Residential Apartments	Day (7:00 – 18:00)	57	50	complies
	Evening (18:00 – 22:00)	52	50	complies
	Night (22:00 – 7:00)	44	44 ¹	complies
Receiver R2: Terraced houses	Day (7:00 – 18:00)	57	35	complies
	Evening (18:00 – 22:00)	52	35	complies
	Night (22:00 – 7:00)	51	35	complies
Receiver R3: The Sebel Hotel	Day (7:00 – 18:00)	57	<30	complies
	Evening (18:00 – 22:00)	52	<30	complies
	Night (22:00 – 7:00)	51	<30	complies
Receiver R4: McMahons Point	Day (7:00 – 18:00)	54	<30	complies
	Evening (18:00 – 22:00)	47	<30	complies
	Night (22:00 – 7:00)	42	<30	complies
Receiver R5: McMahons Point	Day (7:00 – 18:00)	54	<30	complies
	Evening (18:00 – 22:00)	47	<30	complies
	Night (22:00 – 7:00)	42	<30	complies
Receiver C1: Café Restaurants (applicable only when in use)	Day (7:00 – 18:00)	65	31	complies
	Evening (18:00 – 22:00)	60	31	complies
	Night (22:00 – 7:00)	58	31	complies
Receiver C2: Shops and Cafes (applicable only when in use)	Day (7:00 – 18:00)	62	32	complies
	Evening (18:00 – 22:00)	60	32	complies
	Night (22:00 – 7:00)	58	32	complies
Receiver C3: Shops and Cafes and Offices (applicable only when in use)	Day (7:00 – 18:00)	55	45	complies
	Evening (18:00 – 22:00)	54	45	complies
	Night (22:00 – 7:00)	44	40	complies

Notes: 1. Corrected from Explanatory Note (Arup, May 2017) as logarithmic addition of 44 dB and 34 dB is 44 dB.

Results show no exceedances of PSNC are predicted between 12:00am and 3:00am

Yours sincerely

A handwritten signature in black ink, appearing to read 'Mathew Simon', with a stylized, flowing script.

Mathew Simon
Senior Acoustician

cc Nick Boulter (Arup)