

1 November 2019

TL204-01F01 Acoustic Letter of Support for Extended Construction Hours (r0)

Damien Williams
Cancer Care Associates
Level 3, 533 Kingsway,
Miranda, NSW, 2228

Dear Damien,

Northern Beaches Cancer Care Centre - Acoustic Letter of Support for Extended Construction Hours

The Northern Beaches Cancer Care Centre is located at 49 Frenchs Forest Road, Frenchs Forest. The Centre is proposing the installation of additional LINAC machine for diagnostic imaging and preventative care.

Due to the treatment requirements of their patients (who are undergoing cancer treatment), it is not possible to close the Centre to allow for construction works. Further, the site is surrounded by other commercial receivers who could be adversely impacted by noisy work during business hours. As such, it is proposed that enabling works (construction hoarding and roof) would be conducted during the normal construction hours, but "noisy" works would be conducted over 4 weekends (i.e. outside of normal construction hours). This letter is to support the proposal from an acoustic perspective.

The NSW *Interim Construction Noise Guideline* (ICNG, 2009) provides guidelines for assessing noise generated during the construction phase of developments.

The key components of the guideline that are incorporated into this assessment include:

- Use of L_{Aeq} as the descriptor for measuring and assessing construction noise.

NSW noise policies, including the INP, RNP and RING have moved to the primary use of L_{Aeq} over any other descriptor. As an energy average, L_{Aeq} provides ease of use when measuring or calculating noise levels since a full statistical analysis is not required as when using, for example, the L_{A10} descriptor.

- Application of reasonable and feasible noise mitigation measures
- As stated in the ICNG, a noise mitigation measure is feasible if it is capable of being put into practice, and is practical to build given the project constraints.

- Selecting reasonable mitigation measures from those that are feasible involves making a judgement to determine whether the overall noise benefit outweighs the overall social, economic and environmental effects.

The ICNG provides two methods for assessment of construction noise, being either a quantitative or a qualitative assessment. A quantitative assessment is recommended for major construction projects of significant duration, and involves the measurement and prediction of noise levels, and assessment against set criteria. A qualitative assessment is recommended for small projects with a duration of less than three weeks and focuses on minimising noise disturbance through the implementation of reasonable and feasible work practices, and community notification.

Given the sensitivity of outside of hours construction works, a quantitative assessment is carried out herein, consistent with the ICNG requirements.

Table 1, reproduced from the ICNG, sets out the noise management levels and how they are to be applied for residential receivers.

Table 1: ICNG noise management levels at residential receivers

Time of day	Management level L _{Aeq} (15 min) *	How to apply
Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	Noise affected RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured L_{Aeq} (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences) 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5dB(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see section 7.2.2 <i>[of the ICNG]</i>.

Time of day	Management level L_{Aeq} (15 min) *	How to apply
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* Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

On site unattended noise measurements have not been undertaken as part of these works, however long term unattended noise monitoring was undertaken at 58 Frenchs Forest Road, Frenchs Forest (NL11) as part of the Northern Beaches Hospital Roadworks Operational Noise Review, prepared by AECOM (Document Number: NBHRDC-REP-20-2000-EN-023A_F00, dated 27-Mar-2017). This location is representative of the nearest residential receivers at 52 Frenchs Forest Road.

At NL11, the AECOM graphs show a background noise level of 45dB(A) L_{90} between 7am and 4pm on Saturday and Sunday.

Table 2: Construction noise management levels at residential receivers

ID	Location description	L_{A90} rating background level (RBL) - Weekend	Noise management level $L_{Aeq}(15min)^1$ - Weekend
		Day (7am - 4pm)	Day (7am - 4pm)
R1	52 Frenchs Forest Road, Frenchs Forest	45	50
R2	1 Romford Road, Frenchs Forest	45	50

Notes: 1. Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5m above ground level. If the property boundary is more than 30m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

Table 3: Noise management levels at other noise sensitive land uses

Land use	Where objective applies	Management level L_{Aeq} (15 min)
Commercial premises	External noise level	70 dB(A)
Industrial premises	External noise level	75 dB(A)

Notes: Noise management levels apply when receiver areas are in use only.

The builder has proposed to construct an external shell around the works area. It is to be constructed of timber framed walls with 12mm plywood lining both sides and cavity insulation. A metal roof over is proposed, with a plywood or plasterboard ceiling (but no cavity insulation). Construction doors are proposed to be constructed of 12mm plywood.

The construction shell is proposed to be built during normal construction hours, allowing for "noisy works" such as concrete sawing and use of bobcat/excavator (which is proposed in the basement) to be conducted outside of standard construction hours, behind the hoarding.

The following table presents the equipment proposed to be used after hours and the proposed location of use.

Table 4 - Proposed equipment and use locations

Plant item	Plant description	Sound power levels dB(A) L_{eq} (15min)	Location of Use
1	Concrete Saw	121	Behind Hoarding Only
2	Small excavator with hydraulic hammer (in basement)	118	Behind hoarding only
3	Hand tools	107	Occasional use in exposed areas, predominantly behind hoarding
4	Bobcat (in basement)	105	Behind hoarding only

Taking into account the above equipment and use locations, the following table presents the predicted noise levels at the nearest residential receivers.

Table 5 - Proposed equipment and use locations

Plant item	Plant description	Sound power levels dB(A) L_{eq} (15min)	Location of Use	Predicted noise levels dB(A) L_{eq} (15min)	Compliance
Receiver 1 - 52 Frenchs Forest Rd					
1	Concrete Saw	121	Behind hoarding only	35-52	Marginal Compliance
2	Small excavator with hydraulic hammer (in basement)	118	Behind hoarding only	30-46	Yes
3	Hand tools	107	External	30-46	Yes
			Ground floor behind hoarding	22-38	Yes
			Basement behind hoarding	19-35	Yes
4	Bobcat (in basement)	105	Behind hoarding only	17-33	
Receiver 2 - 1 Romford Rd					
1	Concrete Saw	121	Behind hoarding only	25-41	Yes
2	Small excavator with hydraulic hammer (in basement)	118	Behind hoarding only	22-35	Yes
3	Hand tools	107	External	22-35	Yes
			Ground floor behind hoarding	14-27	
			Basement behind hoarding	11-24	Yes
4	Bobcat (in basement)	105	Behind hoarding only	9-22	Yes

The results of the noise emitted from the proposed outside of standard construction hours works presented above show that the proposed works are predicted to comply with the ICNG noise

management levels with only one exception, when concrete sawing is undertaken in the North West corner of the site. At that location, the exceedance is 2dB which is considered marginal compliance. The builder has already taken reasonable and feasible measures to reduce the noise and the exceedance is minor so no further controls are recommended.

Noise emissions from the proposed outside of hours works are predicted to be generally compliant with the ICNG, hence it is supported acoustically.

Regards,



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