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Project No.: P00941

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Dear Oscar,

## **849, 853 & 859 Pacific Highway, 2 & 8 Wilson Street, Acoustics – Letter for Rail Noise & Vibration**

### **1. INTRODUCTION**

This letter presents the assessment undertaken as part of the SSDA Noise and Vibration Impact Assessment, specific to rail noise and vibration impacts, for the mixed-use development to be located at 849, 853 and 859 Pacific Highway and 2-8 Wilson Street, Chatswood under SSD-74319707).

We refer to the following documents:

- E-LAB Consulting “Noise and Vibration Impact Assessment” dated 15<sup>th</sup> November 2024 (NVIA);
- State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021;
- Development Near Rail Corridors and Busy Roads – Interim Guideline; and
- Assessing vibration: A Technical Guideline 2006.

### **2. PROJECT OVERVIEW**

The development is located at 849, 853 and 859 Pacific Highway and 2-8 Wilson Street, Chatswood within the City of Willoughby local government area (LGA). This includes the following lots:

- Lot 1 DP 1189541 (8 Wilson Street (Lot 1 O’Brien Street))
- SP 52947 (2 Wilson Street)
- SP 1496 (849 Pacific Highway)
- SP 60178 (853 Pacific Highway)
- SP 10110 (859 Pacific Highway)
- SP2 land fronting Pacific Highway

The location of the proposal, noise monitoring and measurement positions, and the surrounding noise-sensitive receivers are shown in Figure 1. The noise-sensitive receivers have been delineated into receiver catchments (RCs) as noted in Figure 1. Receiver catchments have been identified with a detailed description in Table 1 below.

Figure 1: Acoustic site plan identifying the surrounding noise-sensitive receivers and noise monitoring locations

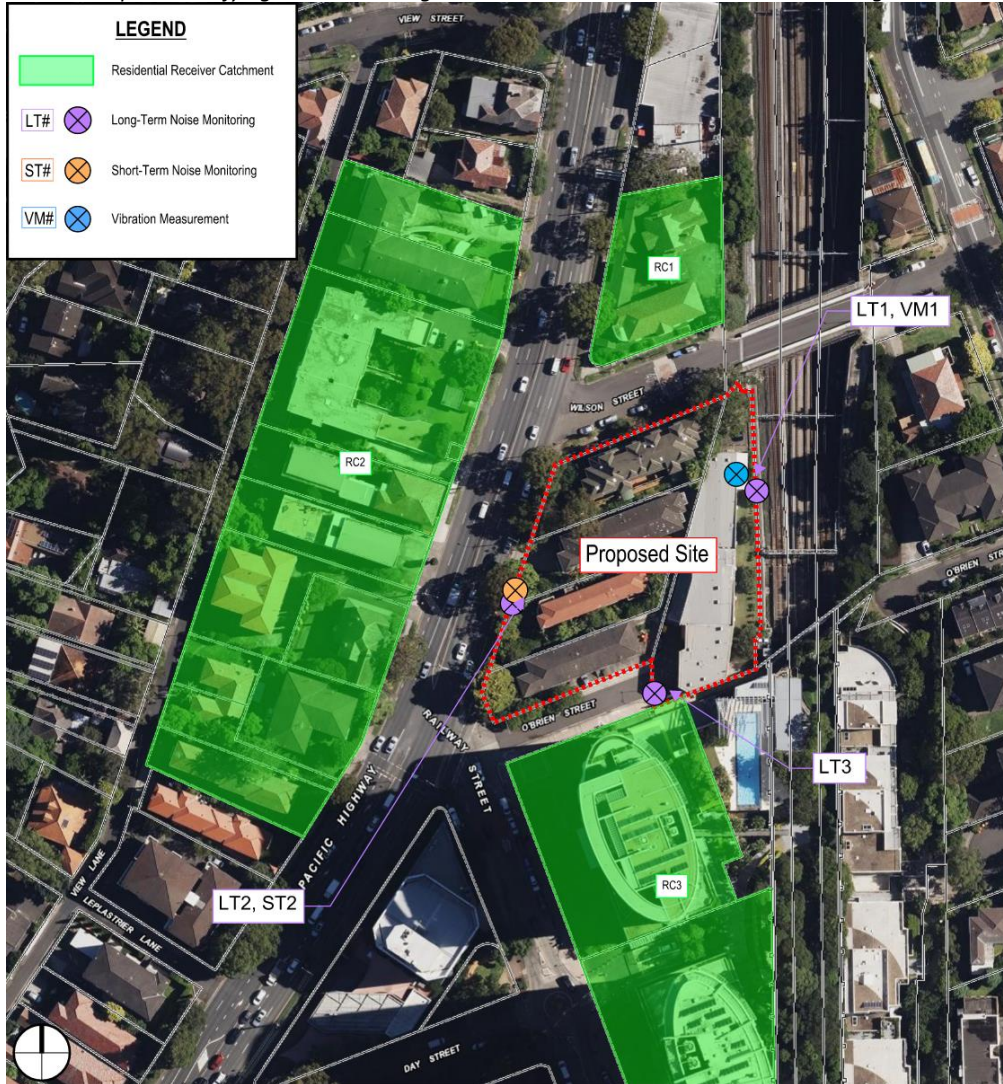


Table 1: Description of nearby noise sensitive receiver catchments

RECEIVER CATCHMENT	DESCRIPTION
RC1 – Mixed-use	Future mixed-use multi-storey development (including residential) situated north across Wilson Street.
RC2 – Residential	Existing multi-storey residential developments situated west across the Pacific Highway.
RC3 – Mixed-use	Existing mixed-use multi-storey development (including residential) situated south across O'Brien Street.

The proposed development at 849, 853 and 859 Pacific Highway and 2-8 Wilson Street, Chatswood seeks approval for the construction and operation of a 36-storey mixed use development with residential and commercial uses, on site car parking, landscaping and public domain works. Specifically, the SSDA seeks development consent for:

- Site preparation works including the demolition of existing structures and tree removal.
- Bulk excavation to accommodate the proposed 6 level basement structure
- Construction of a 36-storey mixed use development comprising –

- Retail and commercial uses
- Childcare centre
- Two residential towers with 332 apartments including 308 residential apartments and 24 x live-work units
- 6 levels of basement with access from O’Brien Street
- Public domain works, including landscaping, street trees, and publicly accessible open spaces
- Reticulation of site services and infrastructure

### 3. PROJECT NOISE AND VIBRATION CRITERIA

The project noise and vibration criteria has been established considering the following documents:

- State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021;
- Development Near Rail Corridors and Busy Roads – Interim Guideline;
- Assessing vibration: A Technical Guideline 2006;

#### 3.1. INTERNAL NOISE LEVELS

The Interim Guideline details the application of the SEPP 2007, which we note has been superseded by SEPP 2021. In addition, the Interim Guideline also recommends the following in relation to the assessment of ventilation by means of opened windows or doors:

*If internal noise levels with windows or doors open exceed the criteria by more than 10dBA, the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia.*

Table 2 provides a summary of the criteria established in accordance with the Interim Guideline and SEPP 2021.

Table 2: Summary of internal noise criteria from the Interim Guideline and SEPP 2021

TYPE OF HABITABLE SPACE	APPLICABLE TIME PERIOD	INTERNAL NOISE LEVEL CRITERIA – WINDOWS/DOORS CLOSED	INTERNAL NOISE LEVEL CRITERIA – WINDOWS/DOORS OPEN
Sleeping areas (bedrooms)	10:00pm – 7:00am	35 dB(A) <sub>L<sub>Aeq</sub>(9hour)</sub>	45 dB(A) <sub>L<sub>Aeq</sub>(9hour)</sub>
Living rooms	At any time	40 dB(A) <sub>L<sub>Aeq</sub>(15hour)</sub>	50 dB(A) <sub>L<sub>Aeq</sub>(15hour)</sub>

#### 3.2. GROUNDBORNE NOISE AND VIBRATION

Internal ground/structure borne noise and vibration levels to the proposal should be controlled to within the requirements of SEPP 2021 and the AVTG.

As per the AVTG, a detailed ground borne noise and vibration impact assessment of the existing railway corridor is required in accordance with SEPP 2021 as the rail corridor is located within 40m of the project site boundary.

Recommended Vibration Dose Values (VDVs) for intermittent vibration as scheduled in the AVTG are summarised in Table 3.

Table 3: Acceptable vibration dose values (VDV) for intermittent vibration

LOCATION	PREFERRED VALUES		MAXIMUM VALUE	
	DAY	NIGHT	DAY	NIGHT
Residential areas	0.20 m/s <sup>1.75</sup>	0.13 m/s <sup>1.75</sup>	0.40 m/s <sup>1.75</sup>	0.26 m/s <sup>1.75</sup>

The DoP Guideline states in Section 3.6.2:

*“Generally, ground borne noise is associated more closely with rail operations than roads. Where buildings are constructed over or adjacent to land over tunnels, ground-borne noise may be present without the normal masking effect of airborne noise. In such cases, residential buildings should be designed so that the 95th percentile of train pass-bys complies with a ground-borne  $L_{Amax}$  noise limit of 40dBA (daytime) or 35dBA (night-time) measured using the “slow” response time setting on a sound level meter.”*

#### 4. NOISE AND VIBRATION ASSESSMENT

A detailed assessment of noise impacts on the proposed development from the rail and metro corridors has been undertaken in the SSDA NVIA against criteria outlined above. This includes the following:

- Long-term unattended noise monitoring along the property boundary facing the rail and metro corridors (refer to Figure 1 above, and Section 5 of the NVIA).
- Detailed 3D noise modelling of the proposed building envelope (refer to Appendix A of the NVIA).
- Identification of mitigation measures incorporated in the design of the development to ensure mandatory noise criteria is achieved, including glazed façade sound insulation performance and the provision of alternative means of ventilation to highly noise affected facades (refer to Appendix B and C of the NVIA).
- In addition to the above, the development incorporates fully enclosed wintergardens on the eastern façade facing the rail and metro corridors to address throw risk requirements, but will also provide noise shielding to residential facades from rail and metro noise impacts.

Further to the above, a detailed assessment of vibration impacts from the rail and metro corridors has been undertaken in the SSDA NVIA against criteria outlined above. This includes the following:

- Attended vibration measurements during rail and metro pass-bys along the future building façade line (refer to Figure 1 above).
- Assessment of ground borne noise in-line with the NSW Department of Planning guideline (refer to Section 7.5 of the NVIA).
- Assessment of tactile vibration (vibration dose value - VDV), using data obtained from attended measurements, against criteria set out in the NSW Department of Environment and Conservation “Assessing Vibration: A Technical Guideline”.
- These assessments concluded that no specific mitigation measures were required to address vibration impacts from the operation of the rail and metro corridors.

**5. CONCLUSION**

E-LAB Consulting have prepared this letter for the mixed-use development to be located at 849, 853 and 859 Pacific Highway and 2-8 Wilson Street, Chatswood under SSD-74319707), to present the assessment undertaken as part of the SSDA Noise and Vibration Impact Assessment, specific to rail noise and vibration impacts.

Mitigation measures to ensure the amenity of residents have been provided in the SSDA NVIA, to be incorporated in the design of the development.

If you have any questions, please don't hesitate to contact the undersigned.

Kind Regards,

**E-LAB Consulting**



**Brandon Notaras | Director**

