Before the Selwyn District Council

under: the Resource Management Act 1991

in the matter of: Proposed Private Plan Change 73 to the Operative District Plan: Dunns Crossing Road, Rolleston

and: **Rolleston West Residential Limited**
Applicant

Summary of evidence of Mark Lewthwaite (Acoustic)

Dated: 28 September 2021

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SUMMARY OF EVIDENCE OF MARK LEWTHWAITE

1 My name is Mark Lewthwaite and I am an acoustic consultant with 15 years of experience. I lead the Powell Fenwick acoustic team.

2 My evidence concludes that reverse sensitivity noise effects due to the proposed intensification of residential activities in the Holmes Block and Skellerup sites can be acceptably mitigated.

3 SH1 noise and Main South Line affecting the Holmes Block should be subject to rules 4.9.3. and 4.9.4. of the Selwyn District Plan. This is consistent with the adjacent Stonebrook subdivision, and equal to or better than wider design guidance for road traffic noise. This would impose a 40 m setback from SH1 to residential dwellings, and internal design sound levels of 35 dB $L_{Aeq(24hr)}$ in bedrooms and 40 dB $L_{Aeq(24hr)}$ in living areas.

4 In order to assist in achieving the internal design noise level criteria and to provide reasonably practicable mitigation of the SH1 noise to reduce outdoor noise levels, a 3 m high acoustic fence/bund alongside SH1 is recommended.

5 The AES noise peer review by Dr Jeremy Trevathan concluded, with regards to SH1 noise mitigation proposed, that "… *the situation represents an improvement over which could happen currently (in regards to worst case noise levels), and is consistent with the setback for the buffer area in the Waka Kotahi Guidelines*."

6 I note the presence of the Main South Line immediately north of SH1. Given the additional distance to the Holmes Block and occasional rail movements only (noting the Midland Line rail traffic diverts approximately 2 km to the north-east) the noise effects will be less than that of SH1, and in any case attenuated by the proposed SH1 mitigation measures.

7 There was no observable noise from the Resource Recovery Park (RRP) at the closest corner of the Holmes Block amidst the ambient noise environment. I do not consider onsite activities are likely to have any effect even in lower ambient noise situations given the separation of over 300 m from the RRP dumping location to the closest corner of the Holmes Block, with setbacks to the boundary also proposed.

8 To mitigate sleep disturbance from RRP truck and trailer units passing along the south boundary of the Holmes Block along Burnham School Rd or the east boundary up Dunns Crossing Rd before 0800 h each day, I recommended the construction of a 2 m high acoustic fence.

9 With reference to the AES noise peer review s1.2, Dr Trevathan comes to the same conclusion with regards to mitigation acceptability, however preferred an assessment method which compared predicted noise levels favourably to a very low noise criteria of 45 dB L_{Aeq}. I prefer the approach to consider maximum noise levels, as maximum noise levels more directly correlate with sleep disturbance events.

10 Since the application was lodged, the Officer's Report noted a preference to avoid an acoustic fence along Burnham School Road to improve urban design outcomes by providing access onto that road from the Holmes Block. It is anticipated this would result in a speed reduction to 60km/h. I have therefore recommended an alternative acoustic treatment in the shape of a proposed rule:

> *Any bedroom in the Holmes Block shall:*
>
> *(i) be set back at least 15 m from the sealed carriageway of Burnham School Road or Dunns Crossing Road; or*
>
> *(ii) have an external to internal noise reduction of 30 dB $D_{tr,2m,nT,w}$ + C_{tr}, as assessed by a suitably qualified and experienced acoustic engineer. The noise reduction must be achieved in conjunction with NZBC Clause G4 compliant ventilation in operation which, as windows would typically need to be closed to achieve the noise reduction, alternative compliant means of ventilation shall be installed such as mechanical ventilation. A ventilation system shall generate noise no greater than 30 dB $L_{Aeq(10sec)}$ measured at 1.5 m from the diffuser, at 1.5 m above floor level, and at least 1 m from any wall, with the system providing a design airflow compliant with NZBC Clause G4/AS1.*

11 I consider this to be an acceptable form of mitigation from a noise perspective. While Mr Trevathan's review preceded the alternative noise setback and acoustic insulation mitigation option for Burnham School Rd, I understand Mr Trevathan to be generally comfortable with this approach.

12 The WWTP located approximately 800 m from the boundary of the Holmes Block, in operation, along with associated vehicle movements and irrigation closer to the Holmes Block would not be expected to have observable noise effects within the Block.

13 Poultry farming north of the Skellerup site created noise estimated to be 46 dB L_{Aeq} at the measurement position 70 m from the sheds, identifiable in between road traffic and natural environmental noise sources. We understand due to odour concerns, the closest housing proposed will be 150 m from the sheds and therefore noise levels would be expected to be in the order of 40 dB L_{Aeq}. This level is reasonable and common in a residential context and meets NZS 6802:2008 Acoustics – Environmental noise guidance of 55 dB L_{Aeq} and 45 dB L_{Aeq} during the day-time period and the more stringent night-time period respectively.

14 With reference to the AES noise peer review s2.0, Dr Trevathan agrees that "…*provided the 150 metre setback was implemented we would expect the effects from the noise levels from the poultry farm when received on the Skellerup Block to be minimal.*"

15 Otherwise, the general noise environment is typical of rural environments with modest traffic volume rural roads, notwithstanding the potential for seasonal farming activities to be part of the sound environment. This is typical of residential to rural

boundaries and is an acceptable environment for residential dwellings.

16 Increased noise due to future demand on infrastructure will not be significant, as current levels from the RRP and WWTP are very low and there is headroom for upscaling activities without reaching levels offensive in a residential environment. Those activities already have to meet District Plan noise limits with the current Living 3 zoning.

17 With reference to the AES noise peer review s4.0, Dr Trevathan concludes that "*Overall, provided the mitigation outlined in the PFC report and the application is implemented we consider the rezoning of the site from Living 3 to Living Z to be an improvement over which could happen currently in regard to worst-case noise levels from the State Highway, and generally appropriate from a noise point of view from the other nearby noise sources.*"

Dated: 28 September 2021

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Mark Lewthwaite