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Mt Atkinson & Tarneit Plains
Precinct Structure Plan
Planning Scheme Amendment C162
Acoustic Evidence

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Rigby Cooke Lawyers

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Precinct Structure Plan

Planning Scheme Amendment C162

Acoustic Evidence

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Short Curriculum Vitae – Jim Antonopoulos

INTRODUCTION

1. My name is Jim Antonopoulos and I am a Principal grade acoustical consultant employed by SLR Consulting Australia Pty Ltd at Suite 6, 131 Bulleen Road, Balwyn North, Victoria. I have worked as an acoustical consultant in Melbourne since 1996, originally with Graeme E. Harding & Associates (1996 to 2003) and Heggies Pty Ltd (2003 to 2010). SLR Consulting Australia Pty Ltd acquired Heggies Pty Ltd in 2010.
2. My academic qualifications include a Bachelor of Applied Science (Applied Physics) and I am a Member of the Australian Acoustical Society (M.A.A.S). A short CV is provided in **Appendix A**.
3. My areas of expertise include building and environmental acoustics. I have been involved in numerous assessments of industrial, commercial and traffic noise in accordance with the relevant noise policies and guidelines, and in planning related matters associated with commercial to residential interface uses, including presentation at VCAT and previous Panel Hearings on such matters. I have also acted as a regular expert peer reviewer (and provided VCAT representation) for the last three years on acoustical matters relating to planning for the City of Yarra Council.
4. This statement provides a summary of my site investigations, findings and opinions in relation to the proposed Mt Atkinson and Tarneit Plains Precinct Structure Plan (PSP) and associated Planning Scheme Amendment C162.
5. My works have included:
 - (a) Attendance at site on 26 and 29 August 2016, for deployment and collection of noise logging equipment and for general inspection of the site.
 - (b) Review of the provided material.
 - (c) Calculation of indicative SEPP N-1 noise limits at the subject site, based on the proposed zoning.
 - (d) Consideration of the sources of noise that could impact the site, and review and consideration of any relevant acoustical criteria that I see as appropriate for the site to protect the amenity of proposed future uses.

SUPPLIED INFORMATION AND INFORMATION RELIED UPON

6. My instructions were provided by Rigby Cooke Lawyers in phone discussions and were to provide a high level review of the provided material relating to the PSP and offer my opinions and recommendations as I see relevant. I have been provided with a large number of documents associated with the PSP as well as information relating to the adjacent Boral quarry and landfill operations. The more documents that relate to my review are listed below.
 - Mt Atkinson & Tarneit Plains Precinct Structure Plan, *Metropolitan Planning Authority, April 2016 (PSP)*.
 - Mt Atkinson & Tarneit Plains Precinct Structure Plan Background Report, *Metropolitan Planning Authority, April 2016 (PSP Background Report)*.
 - Schedule 9 to the Urban Grown Zone Mt. Atkinson & Tarneit Plains Precinct Structure Plan, Melton Planning Scheme (Schedule 9 to the UGZ).
 - Melbourne Regional Landfill Extension Planning Permit Application Report, *Tract Consultants 19 February 2016 (Tract MRL Extension Planning Report 2016)*.

- Melbourne Regional Landfill Noise Assessment, and Addendum report, *Marshall Day Acoustics 10 February 2016 and 12 February 2016 respectively* (MDA MRL Landfill Noise Assessment Report 2016)
 - Correspondence from VicTrack “Amendment C162 to the Melton Planning Scheme – Mt Atkinson and Tarneit Plains Precinct Structure Plan”, dated 14 June 2016.
 - Melton Rail Corridor Potential Acoustic Impact Assessment, Report 01, *Arup 15 March 2016*. (Arup Melton Rail Corridor Report 2016)
 - State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1).
 - Australian New Zealand Standard AS/NZS 2107:2000 “Acoustics—Recommended design sound levels and reverberation times for building interiors” (AS/NZS 2107).
 - ISO 9613-2 1996 “Acoustics - Attenuation of sound during propagation outdoors Part 2: General method of calculation”.
 - VicRoads Traffic Noise Reduction Policy 2005.
7. The main aims of my assessment and works were to:
- Identify sources of noise impact to the site that could affect the amenity of future residential uses.
 - Review and comment on the PSP in relation to acoustics matters.
 - Develop any noise design targets for the site if necessary, based on appropriate guidelines and policies.
 - Determine if any existing commercial or industrial uses could impact the site and determine if these impacts have the potential to exceed SEPP N-1 noise limits at future residents.

SITE CONTEXT AND POTENTIAL NOISE ISSUES

8. The subject site is a 1,532 ha site located approximately 23 km west of Melbourne CBD. The proposal is to transform the area into a suburban hub which will include residential, commercial and industrial uses.
9. The site is located adjacent to existing extractive and future landfill uses to the east, and is in close proximity to the Western Freeway and the Ballarat Rail Line (northern end of site) and the future proposed Outer Metropolitan Ring (OMR) road reservation to the west of the site.
10. The PSP Background Report identifies the potential sources of noise impact to the development site as follows:
- Road noise from the Western Freeway, Hopkins Road and Middle Road.
 - Rail noise.
 - Industrial noise from quarry including blasting.
 - Industrial noise associated with the landfill.
11. I agree that the above represents the main potential sources of noise to the site and address these separately in the sections below.

RAIL NOISE IMPACTS

12. The PSP Background Report refers to the Arup Melton Rail Corridor Report 2016 which identifies a railway noise amenity area (based on rail noise acoustic modelling). The PSP Background Report indicates that an acoustic assessment is required for the application of any development as per the requirements of Schedule 9 to the UGZ.
13. Clause 3.5 of Schedule 9 to the UGZ includes prescriptive rail noise assessment requirements. The Clause requires assessment of both existing and future noise levels associated with the operation of the railway line and calls up the following numerical criteria:
 - Bedroom noise levels not to exceed 65 dBA, Lmax and 40 dBA LAeq,8h for the night period from 10 pm to 6 am.
14. The Clause provides a high level consideration of the rail noise impacts, and provision of minimum amenity design targets. The nominated targets are based on the previously adopted Regional Rail Link targets and would be readily achievable with basic building constructions and acoustic upgrades. I would normally recommend more stringent targets than the above, and would also address non-bedroom areas. The targets recommended in the Arup Melton Rail Corridor Report 2016 are more in agreement with my own opinion being:
 - Bedroom noise levels not to exceed 55 dBA, Lmax.
 - Living Rooms not to exceed 60 dBA, Lmax.
15. The response from VicTrack dated 14 June 2016 also requests consideration of lower (i.e. more stringent) noise criteria in preference to those adopted in the Regional Rail Link project.
16. In summary, my opinion is that the PSP responds to the potential for rail noise impact on the site and provides a rail amenity zone that triggers a rail noise assessment. The prescribed noise criteria are considered absolute minimum amenity targets, which may be acceptable for a high level assessment. Better amenity targets are recommended.

ROAD NOISE IMPACTS

17. The PSP Background Report indicates there could be potential traffic noise impacts to the site. No formal response is provided in the PSP.
18. Clause 3.3 of the Schedule 9 to the UGZ refers to a Traffic Impact Assessment, but it is not clear if this may trigger a noise assessment.
19. Noise impacts from the Western Freeway would normally be addressed under the requirements of VicRoads Traffic Noise Reduction Policy, which requires noise from VicRoads controlled freeways and highways to not exceed 63 dBA, L10(18h) at residential uses. An assessment or consideration of traffic noise impacts from a VicRoads controlled road is usually triggered at Planning Permit Stage where the application needs to be referred to VicRoads.
20. The PSP shows only commercial and industrial uses within 500 m of the freeway alignment, with the nearest mixed use approximately 550 m from the freeway. Given the extensive buffer distance involved, and the likely shielding provided by the commercial and industrial buildings in this area, it is unlikely that the VicRoads traffic noise criteria will be exceeded at any residential uses.
21. Where the 63 dBA VicRoads target cannot be met, as is often the case for any multi-storey developments overlooking freeways, VicRoads allows treatment of buildings to achieve

internal design targets. The internal design targets are based on Australian/New Zealand Standard AS/NZS 2107:2000 "Acoustics—Recommended design sound levels and reverberation times for building interiors". AS/NZS2107 is widely used for setting traffic noise design criteria in Victoria in the absence of any other guidelines or policies addressing internal noise amenity for traffic noise.

22. Noise impacts from other roads (eg. Hopkins Road) do not fall under VicRoads jurisdiction, and there are no formal guidelines or policies in Victoria to address traffic noise impacts from non-VicRoads controlled freeways or highways. The PSP incorporates a 500 m buffer between any residential use and Hopkins Road. This would likely be sufficient to control traffic noise from this road source.
23. Noise impacts from the future Outer Metropolitan Ring Road would likely be controlled at the source through the implementation of freeway barriers.
24. In summary, the PSP includes appropriate buffer distances and shielding from commercial and industrial uses between any future residential use building and the existing major roads in the area (Wester Freeway and Hopkins Road).

RAVENHALL QUARRY OPERATIONS

25. The PSP Background Report and PSP address the quarry operations via responding to the existing quarry buffers. The following buffers are in place:
 - A 200 m blasting buffer.
 - A 500 m quarry sensitive use buffer.
26. The PSP and Schedule 9 to the UGZ nominates restricted use in the 500 m zone from the western edge of Hopkins Road, being the Hopkins Road Business Precinct. These are non-residential uses (commercial / industrial only).
27. The information I have relating to actual noise emissions and noise generating activities from the quarry is minimal, but I have reviewed the available material and provide my comments below.
28. The approved quarry area is documented in the Tract Landfill Planning Report 2016, figure 3, which is reproduced below. The current landfill area is also shown in the south-east of the Boral site, south of the quarry processing plant area. The figure suggests the entire Boral site is generally approved for quarry operations, to within 100 m of Hopkins Road and most other boundaries. The quarry plant will be relocated north of the existing location.

Figure 1 Tract 19 February 2016 report Figure 3 showing Boral site and approved quarry extents



29. The above figure also provides a good indication of the existing nearest residential receivers to the quarry, located to the south-west and the north-west. There is also a prison to the direct east of the site, which is a noise sensitive receiver.

30. As a preliminary high level assessment, it would appear that the existing quarry extraction operations have been undertaken (or are currently being undertaken) within 500 m from the existing nearest residential receiver to the south-west of the quarry site, and will in future also occur in a 500 m proximity of residential uses to the north-west of the quarry site. The quarry

processing plant is also within 2 km of the nearest existing south-western residence. On the assumption that the quarry can operate and meet its existing environmental noise obligations (i.e. compliance with SEPP N-1, and control of any blasting noise and vibration) at the current existing nearest residents, it would be expected that compliance at the nearest residential uses within the Mt Atkinson PSP (approximately 600 m from nearest quarry point and over 2.5 km from the quarry processing plant) would also be readily achievable.

31. I have further referred to previously collected quarry noise measurements and indicative calculations and am comfortable that at distances of approximately 600 m from a quarry, SEPP N-1 compliant noise levels are achievable.
32. In summary, given the buffer distances involved, and existing obligations set by existing residential uses in the area, the quarry operations are likely to be compliant with SEPP N-1 noise limits at the Mt Atkinson precinct.

Quarry Blasting

33. I am not aware of specific blasting details for this quarry, but from previous experience I am aware that blasting can occur weekly on such sites. Blasting can create high airborne noise levels (referred to air-blast overpressure) as well as vibration.
34. Blasting noise and vibration impacts are controlled via provision of buffer distances, and by limitations on the time and number of blasts conducted.
35. The level of noise and vibration is readily controllable via appropriate use of explosive charge size. I would expect that the quarry is well aware and able to control their blast levels at the nearest residential uses, and also to the boundaries of their site (i.e. where there are public roads).
36. In summary, given the 200 m blast buffer implemented at the site, and further 500 m buffer to the nearest residential use within the PSP, I do not see any issue with quarry blasting noise and vibration affecting the Mt Atkinson precinct.

LANDFILL OPERATIONS

37. Landfill operations currently occur to the direct south and west of the quarry plant area. Refer to **Figure 1** of this Statement.
38. The Mt Atkinson precinct residential uses are over 2 km from the existing landfill operations. The landfill operations are currently in the order of 1 km from the existing nearest residential dwelling at 522 Middle Road (the dwelling to the south-west of the quarry).
39. On the basis that the existing landfill can operate with SEPP N-1 compliant noise levels at the nearest existing residence, and considering the significant additional distance to the Mt Atkinson precinct, I would expect that the current landfill operations would result in SEPP N-1 compliance at the Mt Atkinson precinct residential uses.
40. I am aware of the application for extension of the landfill (MRL Extension), which seeks expansion of the landfill to the west and north of the existing landfill. The extension places the landfill operations within 100 m of the western boundary of the Boral site, which is significantly closer to the Mt Atkinson precinct than existing landfill operations (although there is a further step-in in the proposed landfill area to the north of the site). The landfill would occur in parallel with quarrying operations on the Boral site, and also includes night operations. The landfill will also include elevated mobile noise sources (as will occur during final site capping). As such, there is some risk of higher noise impacts from the landfill expansion to the Mt Atkinson precinct and this needs to be further considered.

SUMMARY AND CONCLUSIONS

41. I have reviewed the PSP and provided material in relation to the Mt Atkinson & Tarneit Plains precinct.
42. The PSP addresses the key environmental noise sources that could impact the site, being rail and quarry / landfill operations.
43. I have reviewed the PSP response to the rail impacts, and am comfortable with the response but note that numerical targets have been nominated in Schedule 9 to the UGZ based on those adopted in the Regional Rail Link. I would recommend more stringent targets, as proposed by Arup Acoustics, and requested by VicTrack.
44. Traffic noise impacts to the site have been noted but not specifically responded to in the PSP. Given the substantial buffer distances indicated in the PSP (500 m from Western Highway and from Hopkins Road to nearest potential residential use), and the likely significant shielding that will be provided by the commercial and industrial buildings in the PSP, the traffic noise impacts are likely to be acceptable. The future Outer Metropolitan Ring Road also runs along the western boundary of the subject site. Noise from this road is best addressed via road side noise barriers that would be constructed as part of the road development (there are also already existing residential uses along this road corridor which would necessitate this).
45. I have reviewed the PSP response to the adjacent existing quarry and landfill operations. I am satisfied that the provided buffer zones within the PSP will provide the necessary noise amenity outcomes for the site.
46. I have made all the enquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

Prepared by:



Jim Antonopoulos BAppSc MAAS
Principal – Acoustics

JIM ANTONOPOULOSPrincipal Project Consultant - Acoustics

QUALIFICATIONS

Bachelor of Applied Science (BAppSc), Applied Physics

MEMBERSHIP

Member of Australian Acoustical Society (MAAS)

BACKGROUND

Jim Antonopoulos graduated from the Royal Melbourne Institute of Technology (RMIT) with a Bachelor of Applied Science in Applied Physics in 1996. Jim undertook his final year specialising in acoustics and developing a low frequency Helmholtz resonator.

CONSULTING EXPERIENCE

Jim has been working as an acoustical consultant in Melbourne since 1996. Prior to working for SLR Consulting, Jim worked at Graeme E Harding & Associates Pty Ltd for 7 years and gained much experience in building and architectural acoustics, environmental noise assessment, industrial noise control and vibration assessment.

In recent years, Jim has provided high level planning and noise assessment advice to Councils, been involved in numerous VCAT and Panel Hearings and has also been invited to lecture on acoustics fundamentals at VUT University.

SPECIAL EXPERTISE

- Architectural and Building Acoustics
- Mechanical Services Noise Control Design
- Industrial Noise Control and Occupational Noise Assessment
- Environmental Noise Assessment
- Sound power measurement, sound and impact insulation testing, FFT analysis
- Expert Testimony at VCAT
- Noise Modelling (SoundPLAN)
- Vibration measurement and assessment

SELECTED PLANNING AND ENVIRONMENTAL ASSESSMENT WORK**Newport Village – Blackshaws Road**

Rezoning and Master Plan Assessments. Planning Panel and VCAT testimony, DDO10 development.

Ballarat Saleyards

Environmental Assessment and presentation as an expert witness to Planning Panel.

City of Yarra

Expert peer review services and representation for City of Yarra on numerous planning related matters from 2012 to 2015.

153 Lockwood Road Kangaroo Flat

Environmental Assessment and preparation of expert witness statement for proposed land subdivision.

Kensington K1 and K2

Rezoning environmental noise assessment and subsequent review of design to achieve DDO requirements.

Elkington Road Bellbrae Chocolaterie

Assessment of environmental noise impacts for proposed facility.

Donald Mineral Sands Mining Project

Preparation of Noise Impact Assessment for EIS

Lao PDR Copper Expansion Project

Project Management of Noise Impact Assessment for EIS. Copper and Gold refinery plant and mining expansion.

Cranbourne Terminal Station

Environmental Noise Assessment including transformer noise control design.

Stramit facility relocation study (Dandenong)

Environmental noise assessment of proposed site and impacts

Black Rock Biosolids Treatment Facility

Full Environmental Noise Impact Assessment of proposed facility, including conceptual noise control requirements and equipment specification