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Reference: 2201012e-l.docx

Attention: Mr Aaron Ticehurst
Telephone: 02 4423 8200
Email: aaron.ticehurst@manildra.com.au

1 February, 2022

Dear Aaron,

**SHOALHAVEN STARCHES - PROPOSED MODIFICATION 9 TO MP 06_0228 – NORTH
PACKING PLANT**

DESIGN NOISE VERIFICATION REPORT

Shoalhaven Starches received a modified approval MP06_0228 MOD 9 from the Minister for Planning for proposed changes to the approved packing plant and container storage yard to be constructed at Lot 16 DP 1121337 and Lot 2 DP 538289 Bolong Road, Bomaderry, NSW.

At the time of the initial Modification 9 application, an Environmental Noise Impact Assessment was prepared by Day Design Pty. Ltd. reference 5843-1.1R, dated March 2016 (the Day Design 2016 NIA). I was the author of that report.

Subsequent to the submission of the Mod 9 application, draft consent conditions for the packing plant and container storage yard development were provided to Shoalhaven Starches by the Department for Planning, Industry and Environment. Harwood Acoustics Pty. Ltd. prepared responses to the draft conditions, including an assessment of noise impacts during the night time period (as requested by the Department at the time). Report, reference 1609016E-R, dated November 2016 (the Harwood 2016 NIA).

Following submission of the application a modified approval was granted and Condition 14F of the modified approval requires that a Noise Design Verification report be prepared prior to the commencement of construction works.

This report provides that assessment and I am pleased to offer the following comments.



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1.0 MODIFIED APPROVAL CONDITIONS

The modification to the minister's approval for application MP 06_0228 MOD 9 states:-

14F.

Prior to the commencement of operation of the packing plant, the Applicant shall provide evidence to the satisfaction of the Secretary to confirm that the design specifications detailed in the EA for MOD 9 have been implemented. The design specifications include:

- a) the walls and ceiling of the packing plant building have a minimum weighted sound reduction index of R_w 33, unless otherwise agreed in writing by the Secretary,*
- b) all external doors are a minimum 44 millimetres thick, solid core timber construction, or equivalent material, in well-sealed frames;*
- c) building openings without acoustic treatments shall not exceed 36 square metres and shall be located in the south-eastern part of the packing plant building, as shown in Appendix 2I,*
- d) external motors on the five storage silos shall have a maximum sound power level of 78dB(A), unless otherwise agreed to by the Secretary in accordance with condition 14H,*
- e) permanent sound barriers a minimum 11 m high relative to the finished ground level of the container storage yard. Barriers shall extend along the entire length of the north-western boundary of the container storage area, connecting to the packing plant along the north-eastern boundary (see the figure in Appendix 2I);*
- f) permanent sound barriers a minimum 9 m high relative to the finished ground level of the container storage yard, along the south-western side of the rail spur lines, as shown in the figure in Appendix 2I, and*
- g) sound barriers shall be constructed as solid masonry walls, or other equivalent material, without holes or gaps, other than a maximum of 50 mm at the base.*

14H.

Prior to the construction of any external mechanical plant exceeding a sound power level of 78dB(A), the Applicant shall prepare a noise validation report to demonstrate that operation of the mechanical plant meets the noise limits in condition 12.

The noise validation report shall:

- a) be prepared by an appropriately qualified and experienced noise expert,*
- b) be approved by the Secretary, prior to the installation of external mechanical plant,*
- c) demonstrate that the location, design and operation of external mechanical plant would achieve the noise limits in Condition 12,*
- d) describe any acoustic treatments required to ensure compliance with the noise limits in Condition 12, and*
- e) if necessary, recommend, prioritise and implement measures to improve noise controls on-site to ensure the Development meets relevant criteria and protects off-site receivers from excess noise.*

2.0 PROPOSED DESIGN AND NOISE CONTROL RECOMMENDATIONS

The requirements of Condition 14F are very specific and relate back to the acoustical recommendations made in the Day Design 2016 NIA and the Harwood 2016 NIA.

The design of the packing plant building has been changed significantly since the preparation of the 2016 assessment.

Some of the specific conditions from previous recommendations may not be applicable or appropriate for the current design of the building.

However, this assessment addresses the requirements of Condition 14F based on the current proposed design of the building to ensure that the current design meets the specific requirement, where appropriate, or at least satisfies the intent of those requirements with respect to minimising noise emission.

Each of the items in Condition 14F are responded to below.

a) the walls and ceiling of the packing plant building have a minimum weighted sound reduction index of R_w 33, unless otherwise agreed in writing by the Secretary,

- The external walls of the packing plant will be constructed using 200 mm thick tilt up concrete panels which are acceptable,
- The access panels for each of the container pods in the southern façade of the building will be fitted with *TRU-THERM* insulated sectional doors with a minimum weighted sound reduction index rating (R_w) of 24,
 - The calculated composite acoustical performance of the southern façade wall will achieve a minimum R_w 33 which is acceptable,
- The roof of the packing plant building will be constructed using the *Kingspan Eurobond Roofspan* proprietary roof panelling system (minimum 100 mm thick) with a minimum R_w 33*, which will be acceptable

* based on manufacturer's acoustical performance data.

b) all external doors are a minimum 44 millimetres thick, solid core timber construction, or equivalent material, in well-sealed frames,

- All external pedestrian access (PA) doors will be of solid, fire rated steel construction (or equivalent) and will achieve the same, or greater, acoustical performance as 44 mm solid core timber doors.
- External roller doors are addressed under item c) below.

c) building openings without acoustic treatments shall not exceed 36 square metres and shall be located in the south-eastern part of the packing plant building, as shown in Appendix 2I,

- All container pods opening in the southern façade of the building will be acoustically treated as detailed in item a).
- There are two doors, emergency exit PA and a truck entry roller door on both the North East and North west corners of the truckload out area on the northern side of the packing plant building.

- The truck loadout area will be acoustically enclosed with external cladding material that achieves a minimum weighted sound reduction index (R_w) rating of 25 which will be acoustically acceptable.
 - The truck entry doors will be interlocked with each other as well as being interlocked with the acoustically treated internal 3 doors to the Packing floor, which is acoustically acceptable.
 - There are three roller doors proposed in the northern façade of the packing plant building which will open to the truckload out area. The design of the acoustically enclosed truckload out area will be such that either of the three roller doors in the northern concrete façade of the building will only ever be open when the truck loadout area is closed.
 - This design acoustically satisfies the intent of this condition with respect to acoustically treated openings whilst maintaining the acoustical integrity of the building façade.
- d) *external motors on the five storage silos shall have a maximum sound power level of 78dB(A), unless otherwise agreed to by the Secretary in accordance with condition 14H,*
- There will not be any external motors associated with Modification 9.
- e) *permanent sound barriers a minimum 11 m high relative to the finished ground level of the container storage yard. Barriers shall extend along the entire length of the north-western boundary of the container storage area, connecting to the packing plant along the north-eastern boundary (see the figure in Appendix 2I),*
- The current design drawings and proposal adequately reflects the approved sound barrier screening
- f) *permanent sound barriers a minimum 9 m high relative to the finished ground level of the container storage yard, along the south-western side of the rail spur lines, as shown in the figure in Appendix 2I, and*
- The current design drawings and proposal adequately reflects the approved sound barrier screening
- g) *sound barriers shall be constructed as solid masonry walls, or other equivalent material, without holes or gaps, other than a maximum of 50 mm at the base.*
- Both the Day Design 2016 NIA and the Harwood 2016 NIA provided recommendations in relation to the construction of the sound barrier walls. The Harwood 2016 NIA revised the recommended heights of the walls to the 11 metres and 9 metres respectively. However, both assessments recommended a variety of example construction materials that could be suitable, providing that the chosen material achieved a minimum weighted sound reduction index (R_w) rating of 20. There is no requirement acoustically for the sound barrier walls to be of masonry (or acoustically equivalent) construction.
 - It is proposed to construct each of the sound barrier walls as follows:-
 - 0.48 mm thick profiled sheet steel (*Trimdeck*) on both sides of a 200 mm (minimum) thick steel frame

- This construction will achieve an R_w 25 – 28 which will be acoustically acceptable.

Condition 14H are responded to below.

Prior to the construction of any external mechanical plant exceeding a sound power level of 78dB(A), the Applicant shall prepare a noise validation report to demonstrate that operation of the mechanical plant meets the noise limits in condition 12.

- There is no mechanical plant associated with the operation of the packing plant or facility to be located externally as all mechanical plant will now be located within the packing plant building or within the silo building structures.
- The only mechanical plant that will be located externally will be the air condition condenser units associated with the office building to be constructed on the eastern side of the packing plant building.
 - The make and model of AC units has not been finalised at this stage, however the design noise goal for any air conditioning condensers will be a sound power level of 78 dBA which will be readily achievable for a typical split system or ducted system AC condenser.

Please do not hesitate to contact the undersigned should you require any further information or clarification.

Yours faithfully,



Matthew Harwood, MAAS
Principal Acoustical Consultant

Attachments: -
Important note

Important Note

All products and materials suggested by Harwood Acoustics are selected for their acoustical properties only.

*Recommendations made in this report are intended to resolve acoustical problems only, therefore all other properties such as aesthetics, air flows, chemical, corrosion, combustion, construction details, decomposition, expansion, fire rating, fumes, grout or tile cracking, loading, shrinkage, smoke, ventilation etc. are outside Harwood Acoustic's fields of expertise and **must** be checked with the supplier or suitably qualified specialist before purchase.*

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