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Shoalhaven Starches Pty Ltd  
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Reference: 1909010e-l.docx

Attention: Mr Stephen Richardson  
Telephone: 02 4423 6198  
Email: stephen@cowmanstoddart.com.au

5 November, 2019

Dear Stephen,

**SHOALHAVEN STARCHES - PROPOSED MODIFICATION TO PROJECT APPROVAL 06\_0228**  
**ACOUSTICAL IMPACT ASSESSMENT**

In 2009 Shoalhaven Starches received Project Approval from the Minister for Planning for the Shoalhaven Starches Expansion Project (SSEP), reference 06\_0228, at its existing facility on Bolong Road, Bomaderry, NSW

Subsequent to the initial approval modified approvals have been granted for various amendments to the Expansion Project. Recently Shoalhaven Starches has received a modified approval, MP06\_0228 MOD 16, from the Minister for Planning. Modification 16 included, among other things, approval for the construction of a new baghouse to be associated with Starch Dryer number 5.

At the time of the modification application Harwood Acoustics prepared an Environmental Noise Impact Assessment to accompany the application, reference 1802010E-R, Rev A dated June 2018 (the NIA). The NIA assessed noise emission from all noise sources associated with the proposed modification, including the new baghouse, and provided recommendations to reduce the level of noise, where necessary, to meet specific noise design goals. The noise design goals are established to ensure that the overall level of noise emission from the facility continues to meet the noise limits contained in Environment Protection Licence 883.

It is now proposed to seek approval for an additional modification that incorporates the following:-



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- To modify the location of the baghouse for the No. 5 Starch Dryer,
- To install a 'services lift' to the outside of the existing staircase adjacent to the No. 5 Starches Dryer Building to allow on-going access for personnel and customers to the floors within the building.
- To modify the service conduit extending from the Shoalhaven Starches factory site on the southern side of Bolong Road to the proposed Packing Plant on the northern side of Bolong Road by elevating a section of the conduit above ground level.

Shoalhaven Starches has commissioned Harwood Acoustics to undertake that assessment. Section 1 of this short-form Report provides that assessment.

Additionally, Shoalhaven Starches has recently completed construction of Flour Mill B which was approved under modified approval MP06\_0228 MOD 10. Following construction of Flour Mill B Harwood Acoustics carried out a noise validation assessment as required under Condition 14J of the modified approval. The level of noise emission from the operation of Flour Mill B, including all associated items of plant and equipment was found to meet the design noise goals and consequently acceptable noise limits. Each of the requirements of Condition 14 J were also met, with the exception of a specific Condition 14 J (e) relating to the noise emission from acoustically silenced ventilation fans. This specific condition was not met for one particular fan / silencer combination (B4263). This did not impact the overall level of noise from the Flour Mill B or the Site, however it is considered that the Mill is technically non-compliant with the wording of the specific condition. It is proposed to have the wording of the condition amended to better reflect the existing situation. Section 2 of this short-form report provides that suggested amendment.

## **1.0 NOISE IMPACT FROM PROPOSED MODIFICATION**

I am pleased to advise that I have reviewed Manildra Group's building design plans, drawing numbers MN6531-002, 003 and 004 and MN262-019 and 020 which show the proposed modifications.

There are no significant noise producing items of plant and equipment associated with the service lift or service conduit and the level of noise from the operation of the Site will not be increased by these proposed modifications.

The baghouse servicing starch dryer number 5 was included in the NIA prepared for Modification 16 and the assessment addressed noise arising from the pneumatic pulse. The proposed new location is not significantly different from the approved location. There will therefore be no appreciable change to previously predicted noise levels from the baghouse based on the new location compared with the approved location.

The noise level predictions previously made therefore remain valid for this proposal. There were no specific noise control recommendations necessary for the baghouse. The level of noise emission from the operation of the baghouse is predicted to be well below the design noise goals at all receptor locations. This is based on the assumed sound power level for the pneumatic pulse of 100 dBA which is based on measurements of similar items of plant.

This will be validated within 12 months of construction as required by the approval.

## 2.0 FLOUR MILL B NOISE VALIDATION CONDITION 14J

The modification to the minister's approval for application MP 06\_0228 MOD 10, condition 14J, states:-

"Validation

*14J. Prior to the commencement of operation of flour mill B and the mill feed structure, the Proponent shall provide evidence to the satisfaction of the Secretary to confirm that the design specifications detailed in the EA for MOD 10 have been implemented. The design specifications include:*

- a) the walls of the flour mill B building have a minimum weighted sound reduction index of Rw 24;*
- b) the ceiling of the flour mill B building has a minimum weighted sound reduction index of Rw 23;*
- c) no penetrations in the building walls, or ceiling have occurred without acoustic treatment;*
- d) sections of the northern and eastern walls only may be fitted with acoustic louvres to provide natural ventilation, if required. The required insertion loss of acoustic louvres must be evaluated through a final design noise verification, required under Condition 14L;*
- e) silencers fitted to each exhaust fan must not exceed a sound pressure level of 65 dB(A) when measured at a distance of 3 m from the discharge silencer. The level of noise reduction achieved must be demonstrated through a final design noise verification required under Condition 14L; and*
- f) a sound barrier to the south of external mechanical plant at the mill feed structure, as determined by the final design noise verification required under Condition 14L.*

A combination of visual inspections and noise measurements was carried out at Flour Mill B between March 2019 and June 2019.

At the time of the preparation of the original Noise Impact Assessment, the manufacturer of the silencers specified a design that would achieve a noise level of 65 dBA at 3 metres for each of the fans. This stated level was more than adequate to achieve the design noise goals at all receptor locations and was consequently included as part of the noise control recommendations. The stated level is equivalent to a noise level of **74 dBA** for all fans combined.

By the time of construction and installation, the specific fan and silencer in question (B4263) was re-selected as a higher air flow capacity was required. The initial silencer did not achieve the stated level due to the higher noise level of the re-selected fan. The silencer was then replaced and was measured on site to have achieved a level of 68 dBA at 3 metres, again due to the larger fan. This level is also acceptable to ensure that the overall noise emission from the site achieves the design noise goals, as is evidenced by noise compliance testing at each receptor whilst the fans are running.

Notwithstanding this, the level of noise emission from the fan with silencer B4263 is technically not compliant with the specified noise level in Condition 14 J (e).

In order to resolve the technical noncompliance with this condition, it is proposed to have the specific condition reworded.

Firstly, it is worth noting that the difference is not significant and for all fans combined, would not be discernible.

For example, based on the initial design goal for nine fans:-

- 8 fans at 65 dBA = **74 dBA** (from  $65 + 10 \log_{10} (8) = 74$ ),  
whereas
- 1 fan at 68 dBA plus 8 fans at 65 dBA = **75 dBA** (from  $10 \log_{10} 10^{(68/10)} + 10^{(74/10)}$   
= 75).

However, several of the fan / silencer combinations were below the specified level of 65 dBA at 3 metres, meaning that the inclusion of the B4263 silencer at 68 dBA does not increase the overall design goal for all fans combined above the initial 74 dBA equivalent combined level.

As such, the condition may be reworded as follows:-

*“silencers fitted to each exhaust fan must not exceed a sound pressure level such that the cumulative level of noise emission from all fans combined does not exceed a total sound pressure level of **74 dBA** when measured or calculated at a distance of 3 m from the discharge silencers. The level of noise reduction achieved must be demonstrated through a final design noise verification required under Condition 14L”*

This equivalent level of noise reduction for all fans combined has been demonstrated through a final design noise verification assessment under Condition 14L. Therefore the reworded Condition 14 J (e), which is acoustically equivalent to the current condition is satisfied.

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

Yours faithfully



**Matthew Harwood**, MAAS  
Principal Acoustical Consultant