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**Attention:** Mr Ben Gawehn

16 May 2019

**Atkins Acoustics and Associates Pty Ltd.**  
Consulting Acoustical & Vibration Engineers

**HIGHLAND PINE PRODUCTS**  
**ENVIRONMENTAL NOISE AUDIT**  
**MAY 2019**

**1.0 INTRODUCTION**

*Atkins Acoustics* was retained by *Highland Pine Products Pty Ltd* to conduct an environmental noise audit for the Oberon plant.

This report presents results and findings of attended noise measurements conducted on Monday 13 and Tuesday 14 May 2019. Inquiries prior to the audit confirmed that HPP was not fully operational during the day audit and operating at normal capacity during the evening and night audits.

Noise from HPP plant/equipment/activities identified during the audit included general industrial hum, onsite trucks, log yard (impact loading and transfer), pneumatic venting, steel conveyor rubbing and timber impact (sorter/stacker/green mill building). The reference locations (*Attachment 1*) selected for noise monitoring are summarised in *Table 1*. Other industrial noise sources identified during the attended audit included activities associated with BORG

***Table 1. Noise Monitoring Locations***

Reference Measurement Location	Description
NM1	26 Cunynghame Street West
NM2	12 Herborn Street
NM3	Oorong (O'Connell Road)

## 2.0 INSTRUMENTATION

The noise measurement instrumentation comprised a Svan 949 Sound and Vibration Analyser. The Svan meter was programmed to record and store 1/3 octave and statistical sound pressure levels. The reference calibration level of the meter was checked prior to and after the measurements with a Bruel & Kjaer Sound Level Calibrator Type 4230 and remained within  $\pm 1\text{dB(A)}$ . The instrument satisfies Class 1 performance requirements of AS IEC 61672.1 - 2004: Electro acoustics - Sound Level Meters - Sound Level Meters.

## 3.0 WEATHER CONDITIONS

Prevailing weather conditions (*Attachment 2*) during the audit varied with light west-south-west to west-north-west breeze ( $<1\text{m/sec}$ ), light cloud cover, night temperatures between  $4\text{-}5^{\circ}\text{C}$  and temperature inversion.

## 4.0 NOISE CONDITIONS

HPP is the holder of Environmental Protection Licence No 11269 under the *Protection Operations Act 1997*. The licence authorises the carrying out 'Wood or timber milling or processing and 'Wood preservation' at Gate 3, Albion Street, Oberon. Noise conditions referenced on the Licence are summarised in *Table 2* together with noise limits referenced in Development Approval DA 403-11-00.

**Table 2. Assessment Noise Limits**

Reference	Assessment Location	Sound Pressure Levels $L_{Aeq\ 15min}\ \text{dB}\ 20\times 10^{-6}\ \text{Pa}$		
		Day (7.00am - 6.00pm)	Evening (6.00pm - 10.00pm)	Night (10.00pm- 7.00am)
EPL 11229	Oorong or any other noise sensitive location (such as residence/school along Herbourne or West Cunynghame Street	55	50	50
		Sound Pressure Levels $L_{A10\ 15min}\ \text{dB}\ 20\times 10^{-6}\ \text{Pa}$		
DA 403-11-00	Residential areas within Oberon	46	41	36
	Residential areas adjacent to industrial areas or main roads	51	46	41
	Residences within industrial areas	56	51	46

NOTES:

- To determine compliance with EPL, noise must be measured at or computed for, at 'Oorong' or any other noise sensitive locations (such as a residence/school along Herbon or West Cunyngham Street, Oberon).
- A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the 'Environmental Noise Management - NSW Industrial Noise Policy (January 2000).
- The noise limits identified in the licence apply under all meteorological conditions except:
  - during rain and wind speeds (at 10m height) greater than  $3\text{m/sec}$ : and
  - under 'non -significant weather conditions

#### **4.1 Assessment Meteorological Conditions**

Reference to the reported weather analysis for Oberon (Heggie, February 2006), the area is subject to Class F temperature inversions during nighttime hours, south-westerly nighttime winds during winter and spring and are considered to be a feature of the area as they occur for 30% or more of the time.

#### **5.0 MEASUREMENT RESULT**

*Table 3* presents a summary of the measured ambient sound pressure levels, noise approval conditions, estimated noise contributions from HPP and noted observations.

**Table 2. Attended Statistical Noise Measurements**  
*dBA re: 20 x 10<sup>-6</sup> Pa*

Location	Measured Ambient Sound Pressure Levels 20 x 10 <sup>-6</sup> Pa					Assessment Goals	Estimated Contribution	Comments
	L <sub>Aeq</sub>	L <sub>A90</sub>	L <sub>A50</sub>	L <sub>A10</sub>	L <sub>A1</sub>			
Daytime (2.45pm – 4.20pm)								
Location M1	49.3	45.3	47.5	51.7	56.8	55	<40	HPP not audible; BORG Log impact L <sub>Amax</sub> 52/4dBA and processing Leq42/3; Intermittent local traffic; Birds.
Location M2	48.6	46.5	48.1	50.3	55.8	55	<45	HPP not audible; BORG Log impact L <sub>Amax</sub> 47/50dBA; Intermittent distant traffic; L <sub>Amax</sub> 55/8dBA; Insects; Birds; Light breeze in trees
Location M3	51.3	37.9	45.7	51.1	67.9	55	<40	HPP not audible; Off site trucks L <sub>Amax</sub> 58/66dBA, cars 54/60dBA; Insects; Birds. Light breeze in tree
Evening (7.40pm - 8.35pm)								
Location M1	38.9	35.5	37.0	40.6	47.8	50	<38	HPP and BORG controlled ambient; HPP Log impact L <sub>Amax</sub> 47/8, Truck reversing alarm L <sub>Amax</sub> 41/2, Conveyor rattle, compressed air pulse: Insects
Location M2	47.6	45.1	47.0	49.6	52.6	50	<48*	HPP and BORG audible; HPP air pulse L <sub>Amax</sub> 46/7, Impact sources L <sub>Amax</sub> 50/2, Timber impact (sorter/stacker/green mill) L <sub>Amax</sub> 48/56, Reversing alarm L <sub>Amax</sub> 46/7; Insects
Location M3	47.1	45.2	46.5	48.8	51.7	50	<45	HPP and BORG audible; HPP air pulse L <sub>Amax</sub> 43/4; Insects
Night (11.00pm - 0040am)								
Location M1	47.7	44.8	47.3	49.6	52.4	50	<48*	HPP and BORG controlled ambient; HPP impact L <sub>Amax</sub> 46/53
Location M2	47.1	46.6	46.9	48.3	49.6	50	<48*	HPP and BORG controlled ambient; HPP air pulses L <sub>Amax</sub> 44/7, Timber impact (sorter/stacker/green mill) L <sub>Amax</sub> 42/5.
Location M3	41.9	38.7	40.8	44.2	48.4	50	<47*	HPP general hum; Log impact L <sub>Amax</sub> 49/51; Onsite mobile plant L <sub>Amax</sub> 44/5; Sorter/stacker/green mill building; Insects

NOTES: \* Includes +5dB modifying factor correction for intermittency (INP Table 4.1)

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## 6.0 DISCUSSION

*Table 3* presents the results and findings from attended environmental noise audits conducted for HPP Oberon on Monday 13 and Tuesday 14 May 2019. Inquiries prior to the audit confirmed that HPP was not fully operational during day audit and operating at normal capacity during the evening and night audits.

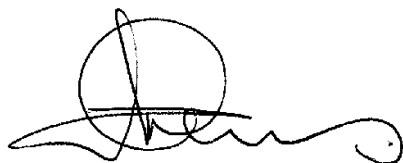
HPP plant/equipment/activities identified during the audit included general industrial hum, trucks, log yard (impact loading and transfer), pneumatic pulsing venting, sorter/stacker/green mill building, steel conveyor rubbing and onsite mobile plant. The reference locations (*Attachment 1*) selected for noise monitoring are summarised in *Table 1*. Other industrial noise sources identified included activities associated with BORG

Prevailing weather conditions (*Attachment 2*) during the audit varied with light west-south-west to west-north-west breeze (<1m/sec), light cloud cover, night temperatures between 4-5°C and a temperature inversion.

The audit results show that the  $L_{Aeq, 15 \text{ min}}$  contributions to the ambient noise from HPP could not be measured directly for comparison with the Licence Conditions. Predicted adjusted levels for the assessment locations (*Table 2*) demonstrated compliance with the Licence Noise Conditions at the assessment locations.

The audit identified that noise emitted from HPP contained intermittent and low level tonal characteristics. In accordance with INP assessment procedures a +5dBA correction factor was applied to the HPP  $L_{Aeq}$  evening and nighttime noise contributions.

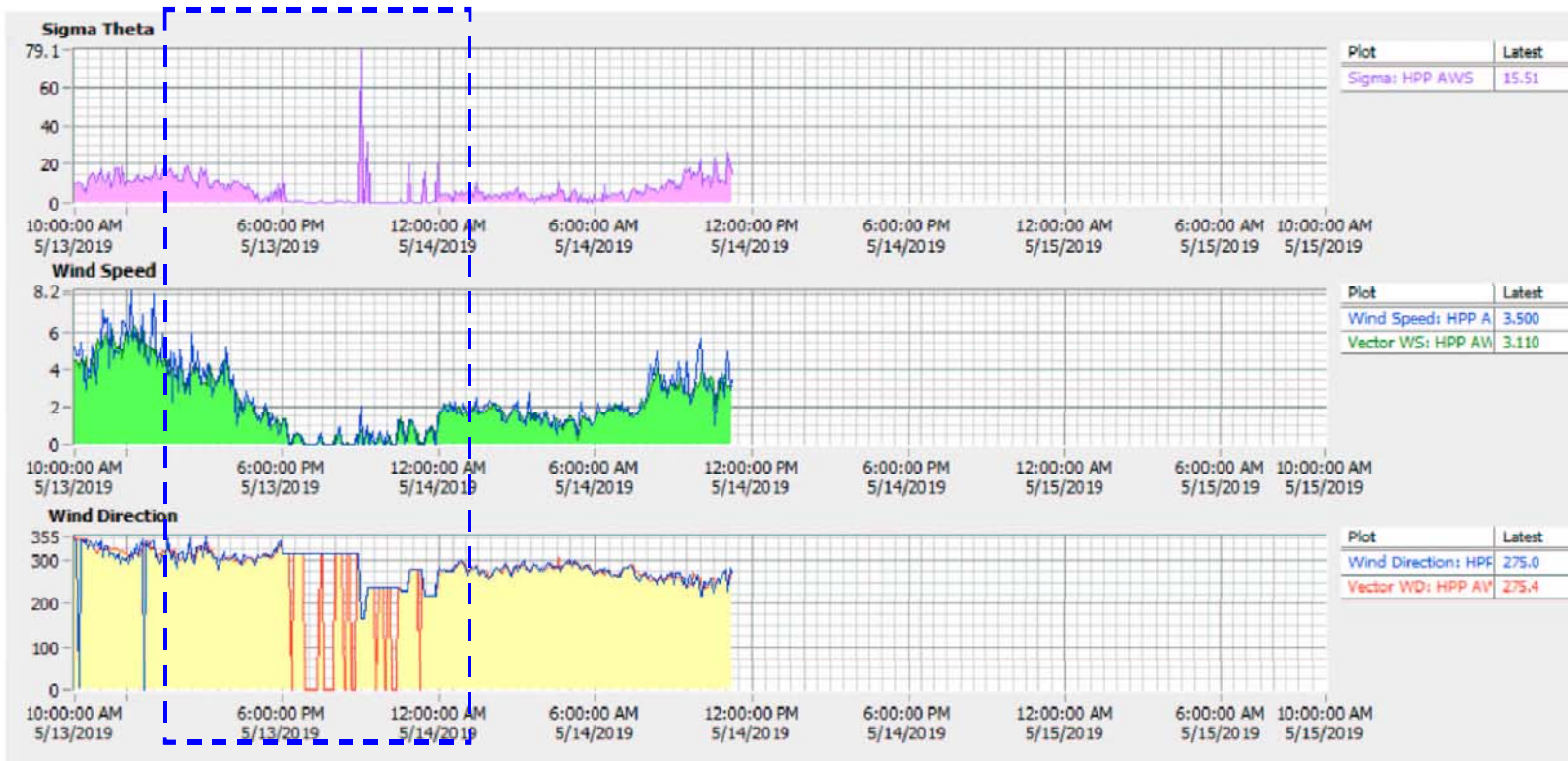
### **ATKINS ACOUSTICS & ASSOCIATES PTY LTD.**

A handwritten signature in black ink, consisting of a large, stylized initial 'A' followed by a cursive name.

## ATTACHMENT 1. REFERENCE NOISE MEASUREMENT LOCATIONS



## ATTACHMENT 2. PREVAILING WEATHER CONDITIONS



NOTE: Noise monitoring periods highlighted in blue box