

August 2020

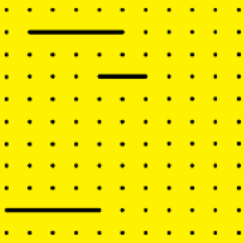
Notification Team

Environment, Planning and Sustainable Development Directorate

**Response to s165 Conditions of Notice of Decisions for Application ID: 201936510**

This letter has been prepared in response to the Notice of Decision dated 25 May 2020 for Conditions of Approval of 201936510.

Elements	Response
<b>PART A – CONDITIONS OF APPROVAL</b>	
<b>1. Approval does not take effect – Environment Protection Authority</b>	
<p>a) This approval does not take effect unless the lessee/applicant has obtained the written approval from the Environment Protection Authority (EPA) in relation to the air quality and noise management measures for the development and any other issues identified by the EPA, and submits such approval to the planning and land authority as satisfying this condition of approval under s165 of the Planning and Development Act 2007.</p> <p>The EPA may require additional information, clarification, or further review of matters identified by the EPA prior to providing its advice or decision. The EPA may also impose further conditions in addition to the conditions of this decision.</p> <p>Notes: Any additional conditions imposed, and any amended drawings or environmental reports relied on for the EPA's support must be included to the information submitted to the planning and land authority. Any substantial changes to the development required for EPA approval will need to be submitted for the consideration of the planning and land authority with an application to amend the approval under s197 of the Planning and Development Act 2007.</p>	<p>On Tuesday 4 August 2020 the EPA provided written confirmation (via email) that Condition A1 has been satisfied.</p> <p>Northstar Air Quality Pty Ltd have been engaged as the independent expert reviewer (IER) of the SLR odour study. The review has covered the technical aspects of the SLR report and have considered recommendations made in the ERM Report.</p> <p>The following documentation was provided to the EPA to satisfy Condition A1:</p> <ul style="list-style-type: none"> <li>– Cover Letter from the proponent setting out the happenings in the review and context of the consultant advice presented,</li> <li>– Two letters from the Independent Expert representing initial commentary on the modelling performed by SLR and recommendations to progress and update the modelling and resultant report as well as the final acceptance from the expert consultant that all matters have been successfully addressed in the remodelled work.</li> <li>– The SLR report representing the remodelled advice.</li> </ul>
b) The lessee / application must comply with any additional conditions imposed by the EPA.	Noted.
<b>2. Compliance with condition 1 (EPA) – approval will end</b>	
Noted.	
<b>3. Approval does not take effect – Grant of Crown Lease</b>	
<p>This approval does not take effect until a Crown lease that permits the approved development is granted over Block 67 Section 22 Division of Hume and registered at Access Canberra (Land Titles and Rental Bonds).</p>	<p>A Crown Lease has now been granted over Block 67 Section 22 Hume. Please refer to Crown Lease and Title provided with this submission.</p>
<b>4. Compliance with condition 3 – approval will end</b>	
Noted.	
<b>5. Commencement and completion of development</b>	
Noted.	
<b>6. Works not to comment – ICON Water</b>	
<p>No works in relation to this development approval is to commence until the lessee/applicant has obtained written approval (Statement of Compliance) from ICON Water and submits such approval to the</p>	<p>Please refer to the hydraulic masterplan stamped in principle by Icon Water.</p>



Elements	Response
<p>planning and land authority as satisfying this condition of approval under s165 of the Planning and Development Act 2007.</p> <p>(b) The lessee/applicant must comply with any additional conditions imposed by ICON Water.</p> <p>Notes: Refer to ICON Water "Failed to Comply" statement included with this decision.</p> <p>Endorsed plans may not be released prior to compliance with this condition - to the discretion of the planning and land authority. Any substantial changes to the development required for ICON Water approval will need to be submitted for the consideration of the planning and land authority with an application to amend the approval under s197 of the Planning and Development Act 2007. A resubmission to Icon Water will be required and be approved prior to commencement.</p>	<p>Please refer to the hydraulic masterplan stamped in principle by Icon Water.</p>

**7. Further Information**

Within 28 days from the date of this decision, or within such further time as may be approved in writing by the planning and land authority, the applicant shall lodge with the planning and land authority for approval:

Revised plans and any other relevant documentation, based on the relevant drawings submitted as part of the application, showing:

<p>(i) storage capacities for any liquid storage on the site to the satisfaction of the planning and land authority,</p> <p>Note: As this approval has been granted in the Merit track, the planning and land authority cannot support any storage that involve the storage of the placard quantity of a Schedule 11 (Work Health and Safety Regulation 2011) hazardous chemical – refer to Schedule 4 of the Planning and Development Act 2007.</p>	<p>Further information will be subject to a s197 amendment which is to be submitted shortly. We will provide further advice in relation to this condition as soon as the s197 is in assessment.</p>
<p>(ii) fencing details to the satisfaction of the planning and land authority, with a preference for a less impermeable fence type for areas visible from the public domain, and</p>	<p>Further information will be subject to a s197 amendment which is to be submitted shortly. We will provide further advice in relation to this condition as soon as the s197 is in assessment.</p>
<p>(iii) external lighting to building frontages, to all pathways, roads/laneways and car parking areas in accordance with Australian Standard 1158.1.3 Pedestrian Lighting and AS 4282 Control of the Obtrusive Effects of Outdoor Lighting, and to the satisfaction of the planning and land authority.</p> <p>Note: Exterior lighting including of the production facility must ensure that there is no/minimum light spill, so as not to distract aircraft approaching or departing Canberra Airport. Further evidence to this end may be required by the planning and land authority.</p>	<p>Further information will be subject to a s197 amendment which is to be submitted shortly. We will provide further advice in relation to this condition as soon as the s197 is in assessment.</p>

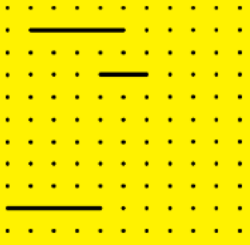
Overall, the proposed development remains consistent with all other planning requirements.

If you have any questions, please contact me on [REDACTED].

This letter is for the use only of the party to whom it is addressed and for no other parties. No responsibility is accepted to any third party who may use or rely on the whole or any part of the content of this letter.

Your sincerely,





Alexia Foster-Bohm  
**Town Planner**



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31 July 2020

Robin Brown  
Environmental Protection Authority  
TransACT House, 470 Northbourne Ave  
Dickson, 2602, ACT

Robin Brown,

**RE: Development Application 201936510**

At 9:00am on the 30<sup>th</sup> of June 2020 a meeting was held through Microsoft Teams to discuss the Hume Asphalt Plant development; specifically, the discrepancies between two reports provided from SLR and ERM. The primary agenda of the meeting was the resolution of the EPA's concerns regarding odour emissions.

Meeting Attendees:

Name	Company
Pieter Van Der Walt	Canberra Town Planning
Alexia Foster-Bohm	Canberra Town Planning
David Power	EPA
Narelle Sargent	EPA
Chris Bimrose	Capital Asphalt
Sam Hodson	Capital Asphalt

David and Narelle provided an email raising their primary concerns that needed to be addressed. The two reports (SLR and ERM) as well as the email from the EPA were to be provided to an Independent Expert to review.

The findings from the Independent Expert Review were to be used to update the SLR report. The IER findings as well as the updated SLR report were to be supplied back to the EPA for a final review.

Capital Asphalt has completed the actions detailed above. Additionally, to assist the EPA in their final review, Capital Asphalt has had the revised SLR report reviewed by the IER (at an expensive of [REDACTED]) to ensure all concerns have been addressed adequately.

Complementing this cover letter, please see the following attached:

1. Independent Expert Review (Northstar Air Quality) of SLR and ERM reports.
2. Addendum from SLR with revised modelling
3. Independent Expert Review (Northstar Air Quality) of revised SLR Report.

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I hope the provided reports provide clarity and confidence for the proposed asphalt plant in Hume.

We look forward to receiving your endorsement for this project.

Regards,



Chris Bimrose

Business Development Manager

M: [REDACTED]

E: [REDACTED]@capitalasphalt.com.au

# Letter



Date: Friday, 31 July 2020

Capital Asphalt  
4/8 Victoria Street, Hall ACT 2618

FAO: Chris Bimrose

**Project Name: Proposed Asphalt Plant, Hume – Independent Expert Review 2**  
**Reference: 21.1004.L1V1**

Northstar Air Quality Pty Ltd (Northstar) provided an independent expert review on behalf of Capital Asphalt in relation to air quality matters relating to the proposed asphalt plant, 5 Paspaley Street, Hume ACT (our ref 21.1004.FR1V1, dated 15 July 2020).

Capital Asphalt has since provided a response to that review which has included additional information and dispersion modelling (SLR Consulting, ref 670.11108-L01-v1.1, dated 30 July 2020).

Additional information has been provided which addresses the concerns raised in the initial review. Of relevance to this review, the additional information relates to provision of further detail regarding the operation of the plant, and how emissions (specifically odour) would be managed.

The sensitivity assessment provided as part of that additional information provides confidence that the plant can be operated to not result in unacceptable odour impacts at surrounding residential receptor locations, should the controls be implemented as outlined.

I trust this meets your requirements, but if you require any further information or clarification, please do not hesitate to contact the undersigned at your convenience.

For and on behalf of

**Northstar Air Quality Pty Ltd**



**Martin Doyle**

**Director**

Reviewed by: GCG

# Letter Report

Date: Wednesday, 15 July 2020

Capital Asphalt

4/8 Victoria Street, Hall ACT 2618

FAO: Chris Bimrose

<b>Project Name:</b>	<b>Proposed Asphalt Plant, Hume – Independent Expert Review</b>
<b>Reference:</b>	<b>21.1004.FR1V1</b>

The following letter report has been prepared by Northstar Air Quality on behalf of Capital Asphalt in relation to air quality matters relating to the proposed asphalt plant, 5 Paspaley Street, Hume ACT.

## Document Status

Northstar References		Issue Status	Report Reference	Version
Reference	Job Number	(Draft: Final)	(R.x)	(V.x)
21	1004	F	R1	V1
Based upon the above, the specific reference for this version of the report is:				21.1004.FR1V1

If you require any further information or clarification, please do not hesitate to contact the undersigned at your convenience.

For and on behalf of

**Northstar Air Quality Pty Ltd**



**Martin Doyle**

**Director & Air Quality Scientist**

Reviewed by: Gary Graham

This report has been prepared with the due care and attention of a suitably qualified consultant. Information is obtained from sources believed to be reliable, but is in no way guaranteed. No guarantee of any kind is implied or possible where predictions of future conditions are attempted. This report (including any enclosures and attachments) has been prepared for the exclusive use and benefit of the addressee(s) and solely for the purpose for which it is provided. Unless we provide express prior written consent, no part of this report should be reproduced, distributed or communicated to any third party. We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report.

Capital Asphalt has engaged Northstar Air Quality Pty Ltd (Northstar) to provide an independent expert review (IER), in response to a requirement provided by Construction, Environment and Workplace Protection, ACT Government, regarding a development application (DA 201936510) for a proposed asphalt plant to be located at Block 67 Section 22 Hume ACT:

*“Northstar Air Quality Pty Ltd, as the Independent Expert Reviewer (IER) are to undertake an independent expert review of the SLR odour study (SLR Ref: 670.11108-R02, March 2020) commissioned by the Southern Asphalt Services Pty Ltd.*

*The review will cover the technical aspects of the SLR report and any other technical aspects that the IER may identify, including specific reference to any inputs and data. In undertaking this review the IER must consider the recommendations made in the attached ERM Report dated 1 May 2020.*

*The main role of the IER is to review and verify the assumptions in the SLR report and that the conclusions reached are sound in engineering/scientific terms, and are consistent with best available technology and best environmental practice.*

*In the event that the IER recommends modifications to the study then the amendment should be implemented and documented by SLR if they are convinced of the merit of the change. If there is disagreement between the IER and SLR, then the matter should be noted and referred to the EPA for consideration.”*

This letter provides a summary of the independent expert review (IER) of the following report:

- SLR Consulting Australia Pty Ltd, Proposed Asphalt Plant, Hume, 5 Paspaley Street (Block 67 Section 22), Air Quality Impact Assessment. 670.11108-R02-v1.0, dated 17 March 2020 (the SLR report).

The IER also considers the recommendations as presented in a review of the SLR report performed on behalf of Village Building Company by ERM Australia Pacific Pty Ltd (ERM):

- ERM Australia Pacific Pty Ltd, Review of Air Quality and Noise assessments completed for Capital Asphalt Plant, Hume ACT. Ref 0523454, dated 1 May 2020 (the ERM review).

A summary of the findings of the IER are provided in **Table 1**.

A qualitative evaluation of the significance of the observation has been provided. This is not intended to reflect an opinion of “error” but highlight where the observation has the potential to change the conclusions drawn from the report (in a beneficial or adverse manner). The following scale has been used:

High	The observation has a significant potential to influence the conclusions drawn from the report.
Medium	The observation has a reasonable potential to influence the conclusions of the report.
Low	The observation has a low potential to influence the conclusions of the report.
Observation	The observation has no potential to change the conclusions of the report. Provided as a note only.

A more detailed description of the observations is also provided following **Table 1**.

The ERM review presented several issues for consideration following review of the SLR report. Briefly, these are summarised as:

1. The air quality impact assessment (AQIA) has not provided enough information on the proposed air quality mitigation measures that will be implemented as part of the design and operation of the plant.
2. The AQIA has underestimated odour emission rates.
3. The AQIA has underestimated predicted odour impacts.
4. The AQIA has not adequately addressed cumulative impacts from the nearby Downer EDI asphalt plant.
5. Inadequate characterisation of local meteorology.

This IER has considered the issues above, as requested by ACT Government.

Table 1 Independent Expert Review Observations

Issue	Issue	Suggestion / Recommendation	Significance
1	The sources of odour excluded from the assessment have not been appropriately justified.	Additional information is recommended to be provided which describes in detail the operation of the proposed plant, and where emissions of odour may be anticipated. Importantly, where no emissions are anticipated, the reasons for this should be fully discussed in terms of the materials being handled, best practice control measures to be implemented, and/or the contingencies in place should any failures in those measures eventuate.	Medium
2	Adoption of odour emissions data limited to review of one study per emissions source.	In the first instance, a detailed review of odour emissions data for the relevant processes is recommended to be performed. Reliance on one source of emissions data <u>may</u> be appropriate, should those data be reflective of the operation of the proposed plant. However, should they not be demonstrably directly related, then a more detailed review of <u>measured</u> (not derived) odour emissions data for those processes should be performed. Consideration should be given to plant throughputs, stack exhaust temperatures, plant types and age, for example. If the review does not provide sufficiently robust data on which to base the modelling assessment, a campaign of site-specific monitoring of a similar plant may also be considered.	High
3	Exclusion of odour emissions during truck tarping	It is recommended that emissions of odour during truck tarping be included in the modelling assessment.	Low
4	Exclusion of odour emissions from the bitumen tank	If considered appropriate, following detailed review of the plant emissions in [1], it is recommended that emissions of odour from the bitumen tank (breathing losses) are included. It is noted that emissions of toluene from the bitumen tank have been modelled, although a corresponding odour emission has not been derived or assessed.	Low
5	Cumulative impact assessment with the Downer EDI plant	Based on the outcomes of issues 1 to 4, it is recommended that the cumulative assessment should be re-performed. In addition, it is suggested that Council be approached to assess whether the supporting documentation for the Downer plant might be released, and whether any odour complaints data might be available to allow 'ground-truthing' of any modelling assessment.	Medium
6	Meteorological input data	Provide a validation of the meteorological data used as input to the modelling assessment against observations.	Medium

### **Selection of appropriate odour emissions data**

At the outset, it is noted that the application of odour emission rates for the purposes of one assessment which are lower than those adopted for the purposes of other assessments may not necessarily indicate an error or underestimation in odour emissions and subsequent impacts. However, adoption of less conservative emission rates should be fully justified and supported with reference to the proposed plant and operations, particularly if the rates are comparatively lower. The emission rates used should be ideally supported by laboratory olfactometry reports which clearly indicate the basis for any odour emission rates adopted (e.g. stack temperature, throughputs). Where this justification and support cannot be provided, the uncertainty in the adopted odour emission rate is recommended to be offset by conservatism, and a full review of odour emissions data for other similar plant and processes should be presented and discussed.

### **Consideration of the basis for odour emission rates**

In relation to odour emissions monitoring data, no detail is provided, in reference to the studies adopted to support the SLR report or the ERM review, in relation to the number of odour samples taken to arrive at the adopted emission rates. It is important to consider the level of uncertainty involved with olfactometry, with a greater number of samples required to reduce that uncertainty. Where information on the sample size associated with an odour measurement is not available, emission rates from multiple studies might be considered to be adopted, or a site-specific monitoring campaign of the same or similar plant performed, to derive appropriate and defensible emission rates.

### **Justify the sources included and excluded from quantitative assessment**

Odour emissions have been quantified for two sources at the proposed site: the dryer stack; and the asphalt load out process. A detailed description of the proposed plant, and the justification for excluding sources of odour emissions from (for example) the hot mix silos, and conveyor to the silos, should be provided. Where measures are included to mitigate emissions from a process, these should be fully described and their potential effect on the emissions of odour from that process should be discussed. Where removal of an odour source is proposed (i.e. 100 % control), the measures implemented to ensure that odour from these sources would not be emitted to atmosphere should be fully described and discussed, and where capture of emissions is proposed, the fate of these emissions should be assessed (e.g. through the dryer stack).

The description of proposed management measures and/or engineered controls should be linked to a discussion of best practice measures.

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## Odour emissions data

### *Dryer stack odour emissions*

The odour emission rate adopted for the dryer stack in the SLR report (table 11, section 5.1.1) is based on monitoring data adopted in an SLR report to support the Bushells Ridge Asphalt Plant (SLR, 2016) which was in turn sourced 'from a facility in Rutherford, NSW'. Review of the AQIA for the Bushells Ridge Asphalt Plant does not provide any further information on the derivation of those odour emissions data, other than that they are 'measured data from Rutherford site' and that they relate, on face value, to operations at 240 tph throughput.

The temperature of the dryer stack emissions in the Bushells Ridge Asphalt Plant AQIA (SLR, 2016) associated with the odour emission rate from Rutherford is noted as being 81.75°C, with the temperature of the dryer stack emission in the SLR report being noted as 130°C (table 11, section 5.1.1), although it is understood from Capital Asphalt that this is the maximum temperature of the dryer stack emission. The odour emission rates adopted for this study therefore relate to an odour emission rate with a temperature approximately 50°C lower than that proposed, which may have an impact on the volatilisation of VOCs, and therefore odour. As indicated by the UK Environment Agency (2013) in their statutory guidance for bitumen processes (PGN 6/42[13]), the rate of fume emission doubles for approximately every 11°C rise in temperature.

In addition to the data provided in table 2.2 of the ERM review, a limited review of odour emissions data from dryer stacks at asphalt plants to support this IER has included:

- Proposed Temporary Asphalt Plant – Orange Grove, Air Quality Assessment. Air Assessments (2013)<sup>1</sup>

Air Assessments (2013) included odour emission rates associated with a 150 tph batching process producing 14 mm and 10 mm asphalt. Odour emission rates for those two products were presented as being 20 000 OU ·s<sup>-1</sup> (at 78°C exit temperature) and 35 000 OU·s<sup>-1</sup> (at 74°C exit temperature), respectively. In line with the findings of the ERM review, these odour emissions are noted as being significantly higher than those adopted in the SLR report.

### *Load out odour emissions*

The odour emission rate adopted for the load out area in the SLR report (table 12, section 5.1.2) is based on monitoring data adopted in an SLR report to support the Bushells Ridge Asphalt Plant (SLR, 2016) which was in turn sourced from measured data 'from Wesley Vale site'. Review of the AQIA for the Bushells Ridge Asphalt Plant does not provide any information on the derivation of those odour emissions data, other than that they are 'measured data from Wesley Vale site' and that they, on face value, relate to operations at 40 tph

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<sup>1</sup> [http://www.gosnells.wa.gov.au/files/218f453a-3e92-4f34-b40c-a2a1009e8414/Technical\\_Documentation.pdf](http://www.gosnells.wa.gov.au/files/218f453a-3e92-4f34-b40c-a2a1009e8414/Technical_Documentation.pdf)

throughput. It is assumed that those data represent asphalt dumping and not tarping, although review of Air Assessments (2013) indicated that (based on measured data) odour emissions from the tarping process represented approximately 6.5 % of load out emissions, which would warrant inclusion of these emissions in any quantitative assessment.

### ***Bitumen tanks***

Emissions of odour from bitumen tanks have not been included in the SLR report (as vapour recovery is proposed during loading) although emissions of toluene have been used as a marker for presumably breathing losses, with those emissions modelled and reported against its health-related standard. As toluene has published odour detection threshold values (i.e. it can be odorous at concentration thresholds), it is not stated why this has been excluded from the odour study.

### **Performance of the cumulative assessment including impacts associated with the Downer EDI plant**

The issues described above in relation to the scope and determination of odour emission rates from the proposed plant are relevant to the assessment of odour emissions from the Downer EDI plant, as the same emission rates scaled to the Downer EDI plant throughput have been adopted.

Although the SLR report states that no publicly available information is available on emissions to air from the Downer EDI plant, given the potential for cumulative impacts, it is considered to be critical to examine in detail these potential emissions and impacts. It is recommended that Council be approached to allow provision of the relevant supporting documentation for the Downer EDI plant. Additionally, any complaints history for the surrounding area might be requested from Council to determine whether any adverse impacts are likely from that operation as these observations may assist in 'ground truthing' of any model outputs.

It is important that any management measures adopted in the assessment of odour emissions from the proposal are relevant to the Downer EDI plant, and are not assumed to be included by default.

### **Meteorological data used as model input**

It is noted from the SLR report that meteorological monitoring data collected at the Tuggeranong AWS has been assimilated into the TAPM meteorological model, with TAPM outputs subsequently being used as input to CALMET. The SLR report does not provide any discussion regarding meteorological model validation, and it is recommended that this be included to provide confidence that the model is performing appropriately. As indicated in the ERM review, observations at both the Tuggeranong AWS and Canberra Airport AWS indicate more frequent winds from the northwest quadrant which are not replicated in the meteorological data adopted in the SLR report. Given that Hume is located between those two AWS, it might be reasonable to expect that similar wind patterns would be observed.

30 July 2020

670.11108-L01-v1.1.docx

Southern Asphalt Services Pty Ltd  
4/8 Victoria Street  
Hall ACT 2618

**Attention: Chris Bimrose**

Dear Chris

**Proposed Asphalt Plant, HUME  
5 Paspaley Street (Block 67 Section 22)**

An Air Quality Impact Assessment (AQIA) was completed by SLR Consulting (SLR) for a proposed asphalt plant to be located at 5 Paspaley Street, Hume, in March 2020 (SLR Report). A peer review of the SLR Report was conducted by Northstar Air Quality Consultants (Northstar) on 15 July 2020.

A total of six issues were raised by Northstar, with two issues raised as low significance, three as medium significance and one as high a significance. This letter report aims to address all six issues raised by Northstar, and should be read in conjunction with the SLR Report (March 2020).

Yours sincerely



VARUN MARWAHA  
Associate Air Quality Consultant

Reviewed by:  
KL (30-07-20)

## 1 Issue 1 - The sources of odour excluded from the assessment have not been appropriately justified (Medium)

### Northstar Recommendation

*Additional information is recommended to be provided which describes in detail the operation of the proposed plant, and where emissions of odour may be anticipated. Importantly, where no emissions are anticipated, the reasons for this should be fully discussed in terms of the materials being handled, best practice control measures to be implemented, and/or the contingencies in place should any failures in those measures eventuate.*

### SLR Response

The Benninghove/Wirtgen ECO 2000 Asphalt Plant proposed for the Project Site comes with a number of factory-fitted mitigation measures. An overview of the proposed plant is provided below:

1. All raw materials are metered into the dryer drum at the required quantities dependent upon the asphalt blend.
2. The asphalt blend is heated via the hot air flow in the dryer drum.
3. The air filtration system separates entrained dust particles from the hot air stream in a baghouse, allowing only the steam to exhaust to the atmosphere.
4. The dried and heated raw material blend (aggregates/crusher dust and sand) then enters the next phase of the process via the bucket elevator and passes over a set of sieves/screens into a graded hot material storage area.
5. The separated hot aggregate sizes and sand are metered into a receiving weigh hopper at the appropriate mix design quantities for the asphalt blend.
6. The required quantities of each component are fed into the mixing chamber (pugmill) and mixed for a fixed period of time (normally 30 seconds).
7. Bitumen is then mixed in within the pugmill, normally for a period of 45 to 60 seconds. The hot mix then drops into 2 x 26 tonne (and 1 x 8 tonne) insulated hot storage bins.

The SLR Report included quantification and modelling of dust, odour and VOC emissions from dryer stack, load out area, bitumen tanks, material handling and material transportation. The sources referred to by Northstar as being excluded are the hot mix silos and the conveyor from the drum to the hot mix silos.

The pugmill and hot mix silos in Benninghoven plants are fully enclosed and through the design of the plant are subject to negative pressure to ensure that no dust or vapours escape. This vacuum is maintained by the filtration system through a series of ducts and is a factory standard inclusion in Benninghoven plants. If there are any light ends (bitumen vapours) emitted from the hot mix within the hot mix bins, they must travel through a controlled dense build-up of dust attracted to the filtration fibre (known as 'filter cake') where they become trapped. The captured dust is pulsed (bags shaken) into the reclaimed dust cycles for reuse within the process.

In summary, the proposed plant will be an enclosed process with the emissions captured in the baghouse and residual emissions released through the dryer stack as assessed in SLR Report. If the filtration system or baghouse is inoperable for any reason, the plant would not operate until it is fixed.

The following additional information has been provided from the asphalt plant supplier:

*The Benninghoven ECO2000 has a series of technologies which allows it to have multiple points of differentiation from alternative asphalt plants (new and old). One point of difference is the closed negative pressure system which ensures all contaminated air (dust, odour and emissions) can only leave the asphalt plant after passing through the baghouse filter.*

*Below is brief description of each component and a very simplistic explanation of how the closed system works.*

**1. Burner dryer drum:** *The ECO2000 burner drum is connected to the baghouse filter system via ducting. The baghouse filtration vacuum system creates 6 Pa of negative pressure in the drum ensuring that all dust and moisture is removed. There are two openings, one for raw aggregates to enter and a second where the material exits the drum, both of which are also subject to negative pressure to ensure no air escapes from these openings. The quantity of suction from the baghouse filter will vary automatically via the electronic sensor to ensure no escaping contaminated air is possible from the dryer drum. Lower quality/older asphalt plants do not have the monitoring sensor connected in closed loop to a latest technology Variable Frequency Drive (VFD) for the main suction fan maintaining the negative pressure from the baghouse filter system. Without this feature, when the high moisture aggregates enter the drum, the moisture expands rapidly resulting in contaminated air leaving through the entry and exit point of the raw aggregates.*

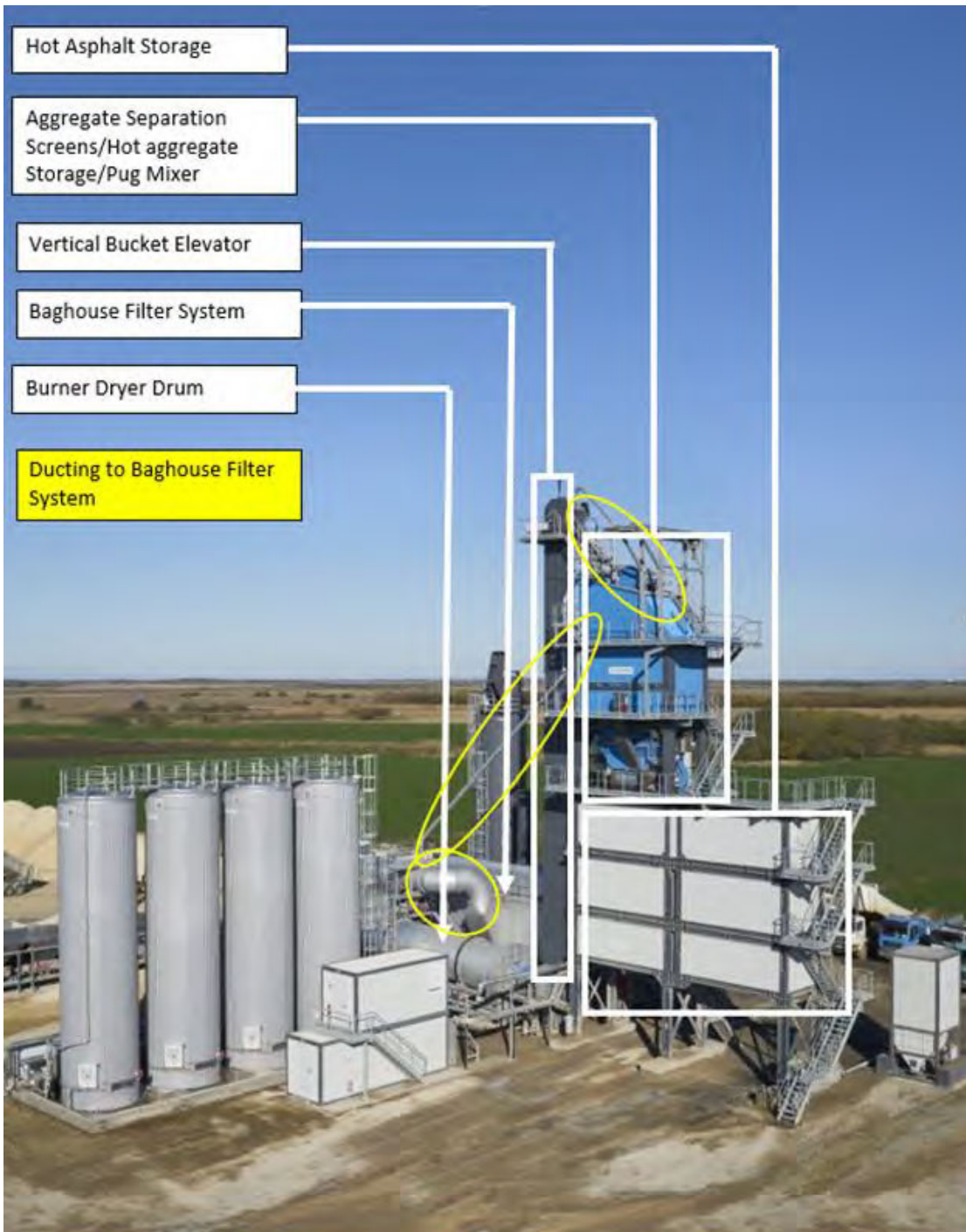
**2. Vertical bucket elevator:** *The entire vertical bucket elevator is enclosed and sealed. The bottom of the elevator is connected to the burner dryer drum allowing the 6 Pa of negative pressure to extend into the vertical bucket elevator. At the top of the vertical bucket elevator additional ducting is connected directly back to the baghouse filter system ensuring the top of the bucket elevator is also subject to 6 Pa of negative pressure. Some lower quality/older asphalt plants do not seal the vertical bucket elevator or maintain negative pressure resulting in the dust particles being released to the atmosphere (as well as increased loss of temperature which decreases the plants efficiency).*

**3. Aggregate separation screens/Hot aggregate storage/Pug mixer:** *The top portion of the tower which includes the aggregate screens, hot aggregate storage and the pug mill mixer are all air sealed and is also connected via a duct running to the baghouse filter system. This maintains a 6 Pa of negative pressure. Lower quality/older asphalt plants do not have the aggregate separation screens/hot aggregate storage/pug mixer sealed under negative pressure. This results in quantities of dust to be released to the atmosphere during screening and mixing as well as the bitumen odour released during the mixing process.*

**4. Hot Asphalt Storage:** *The transfer of asphalt from the pug mixer to the hot asphalt storage occurs in an enclosed and electronically interlocked space. When the pug mixer releases the asphalt, the negative pressure in the mixing tower causes the odour/emissions to be drawn back into the mixer which in turn makes its way to the baghouse filter system. Lower quality/older asphalt plants do not have an enclosed transfer location between the mixer and the storage or the residual negative pressure. This can result in escaping and possibly odorous hot air when each mixed load is dropped especially if the mix temperature is not controlled via a closed loop modern computer-controlled system.*

Figure 1 shows each process component described above and shows the connection points to the baghouse Filter System.

Figure 1 Air Extraction and Ducting System for Dust/Odour Emissions Control



## 2 Issue 2 - Adoption of odour emissions data limited to review of one study per emissions source (High)

### Northstar Recommendation

*In the first instance, a detailed review of odour emissions data for the relevant processes is recommended to be performed. Reliance on one source of emissions data may be appropriate, should those data be reflective of the operation of the proposed plant. However, should they not be demonstrably directly related, then a more detailed review of measured (not derived) odour emissions data for those processes should be performed. Consideration should be given to plant throughputs, stack exhaust temperatures, plant types and age, for example.*

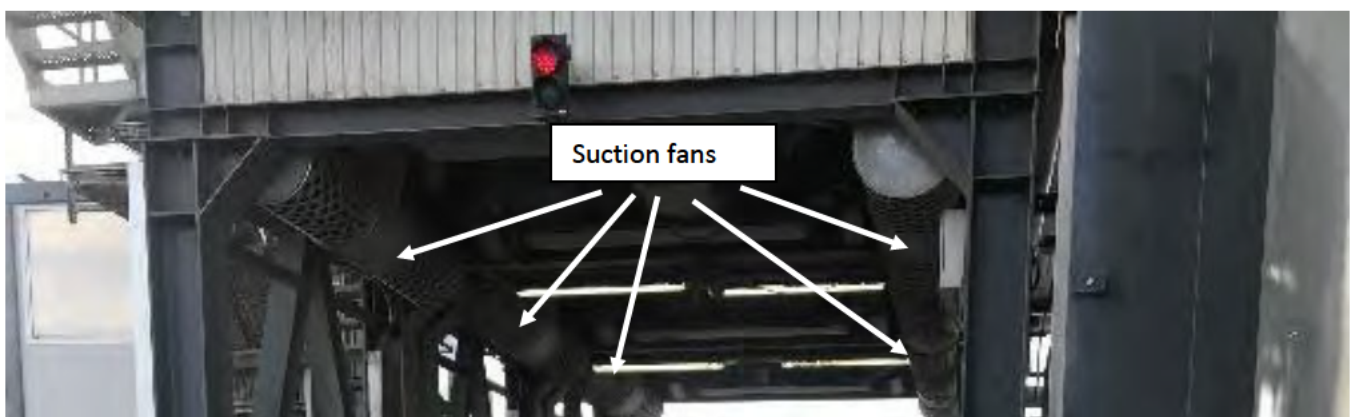
*If the review does not provide sufficiently robust data on which to base the modelling assessment, a campaign of site-specific monitoring of a similar plant may also be considered.*

### SLR Response

A detailed literature review of publicly available odour emission rates for asphalt plants has been conducted as presented in Table 1. This table indicates that the odour emission rates used in the SLR Report are consistent with emissions data used in other assessments for reasonably recent asphalt plant technologies (eg in the last 5 years). Table 1 also includes emission rates for the Orange Grove plant that were provided by Northstar in their peer review which shows notably higher odour emissions from the dryer stack and load out area. The emissions estimation methodology in these publicly available air quality assessments indicate that these odour emission rates were adopted based on historic stack test reports, however the detailed stack test reports are not made publicly available.

Asphalt plant designs and emissions control systems can vary significantly, and the emission rates shown in Table 1 are not all necessarily representative of the plant proposed at the Project Site. In some cases, this means the emission rates presented in Table 1 would overestimate the actual expected odour emissions for the proposed plant at the Project site, for example at the load out area. The load out area at the Project Site will have suction fans installed to create negative pressure during truck loading and extract any fumes and dust generated during this process. The emissions will be ducted to the baghouse where they will be absorbed into the filter cake and eventually fed back into the asphalt product. These extraction fans are shown in Figure 2. Other points of difference for exhaust air capture for the Benninghoven ECO2000 plant are listed in Section 1.

Figure 2 Ventilation System of the Proposed Load Out Area



While the emissions used in the original modelling are expected to be representative of the actual emissions that would be expected from the proposed plant (Benninghoven ECO2000) due to the reasons outlined in Section 1, the dryer stack and load out emissions have been remodelled based on:

- a. Rich River asphalt plant (Ektimo 2017) and
- b. Orange Grove asphalt plant (Air Emissions 2013).

These emissions data (see Table 1) have been used in the modelling to assess the sensitivity of the predicted downwind odour concentrations (modelling results are presented in Section 5) to the assumed emission rates from the dryer stack and load out area. The maximum throughput of the Rich River and Orange Grove asphalt plants are 100 tph and 150 tph respectively, therefore the emissions used in the re-modelling (purple shaded cells) have been scaled proportionally to 130 tph (throughput at the Project Site).

The total site odour emission rates calculated based on the Rich River and Orange Grove data are approximately 80% and 500% higher than the previously modelled values. As noted above, the higher emission rates calculated for the load out area are expected to be highly conservative because of the proposed use of suction fans in the load out area to control any fugitive emissions from this area.

**Table 1 Asphalt Plant Emissions Assessment Summary: Odour**

Parameter	Units	Project Site - Original Modelling	Rich River <sup>1</sup>	Boral <sup>2</sup>	Downer <sup>2</sup>	Bushells Ridge <sup>3</sup>	Orange Grove <sup>4</sup>	Project Site Re-modelling (SCALED)	
								Rich River <sup>5</sup>	Orange Grove <sup>5</sup>
Plant capacity	(t/h)	130	100	200	100	160	150	130	130
Dryer stack	(ou.m <sup>3</sup> /s)	4,473	3,833	2,000	1,000	5,505	35,000	4,983	30,333
Load out area	(ou.m <sup>3</sup> /s)	1,300	4,000	4,333	2,167	1,600	4,333	5,200	3,755
Bitumen tanks	(ou.m <sup>3</sup> /s)	NA	NA	NA	NA	NA	NA	NA	NA
Tarpping	(ou.m <sup>3</sup> /s)	NA	NA	282	141	NA	283	183	245

<sup>1</sup> Ektimo 2017

<sup>2</sup> GHD 2017

<sup>3</sup> SLR 2016

<sup>4</sup> Air Assessments 2013

<sup>5</sup> These emissions have been modelled at 90° C (rather than 130°C as in the SLR report), which is the minimum exhaust air temperature nominated by the manufacturer.

NA – Not assessed

In regard to the maximum throughput adopted for the Project Site (130 t/h), an asphalt plant's maximum capacity is based on mixing speed of the pug mill. The proposed Benninghoven ECO 2000 has a pug mixer capacity of 2 t and a mix time of 45 seconds, which results in a maximum mixing capacity of 160 t/hr. However, moisture in the raw aggregate materials is the limiting factor during production due to the duration required to dry and heat. This results in a plant capacity reduction of approximately 20%. As such, 130 t/hr was adopted for the assessment of odour impacts from the Project Site.

### 3 Issue 3 - Exclusion of odour emissions during truck tarping (Low)

#### Northstar Recommendation

*It is recommended that emissions of odour during truck tarping be included in the modelling assessment.*

#### SLR Response

Odour emissions during truck tarping have been included in the re-modelling. The emission rates for tarping were adopted from the Boral Asphalt plant data and scaled to 130 tph, also shown in **Table 1**.

The modelled emission rates for tarping represent a net increase of 183 ou.m<sup>3</sup>/s to the total odour emissions from the Project Site, which represents approximately 3% of the original emissions inventory. These emissions are therefore minor and not expected to have a material impact on the conclusions of the study, but have been included for completeness.

### 4 Issue 4 - Exclusion of odour emissions from the bitumen tank (Low)

#### Northstar Recommendation

*If considered appropriate, following detailed review of the plant emissions in [1], it is recommended that emissions of odour from the bitumen tank (breathing losses) are included. It is noted that emissions of toluene from the bitumen tank have been modelled, although a corresponding odour emission has not been derived or assessed.*

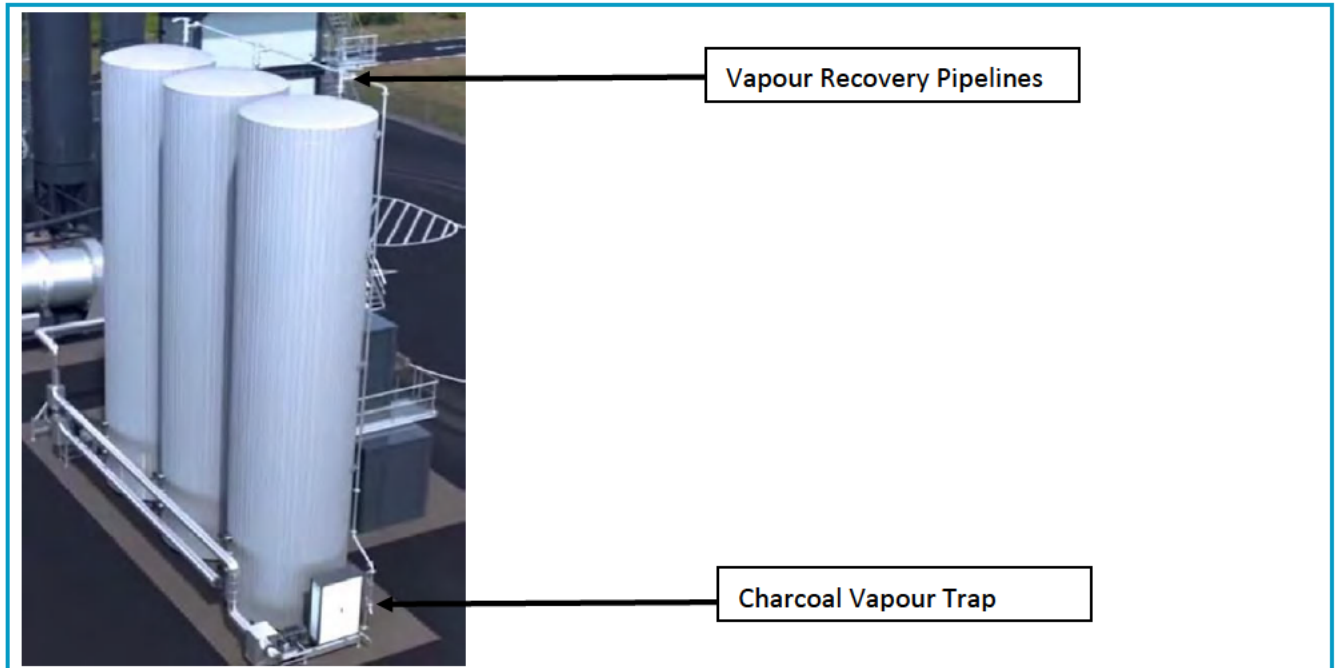
#### SLR Response

Vapours/fumes from the heated bitumen tanks will be captured using a series of pipelines connecting each bitumen storage tank to a charcoal vapour trap located at ground level. This trap treats any vapours emanating from the bitumen tanks during the loading from the bitumen delivery tankers (working losses), and from maintaining the bitumen temperature during storage (breathing losses). This is illustrated in **Figure 3**.

BTEX emissions from the bitumen tanks, dryer stack and load out area were modelled in the SLR report to provide a conservative assessment. The results indicated that the predicted BTEX concentrations at the maximum impacted receptor will be approximately between 0.01% (ethylbenzene) to 12% (xylene) for the respective criterion, which are designed to protect against air toxicity (benzene and ethylbenzene) and odour nuisance (toluene and xylene) impacts. Also, it is noted that these results are reflective of BTEX emissions from all processes, therefore the predicted contribution from the bitumen tank emissions would be even lower.

BTEX emissions from the bitumen tanks were modelled in the SLR report to provide a conservative assessment. With the additional information provided regarding the carbon filter system that will be installed to control these emissions, this is no longer expected to be a potential VOC discharge point for the proposed plant.

Figure 3 Bitumen Tanks and Vapour Recovery Pipeline



## 5 Issue 5 - Cumulative impact assessment with the Downer EDI plant (Medium)

### Northstar Recommendation

*Based on the outcomes of issues 1 to 4, it is recommended that the cumulative assessment should be re-performed. In addition, it is suggested that Council be approached to assess whether the supporting documentation for the Downer plant might be released, and whether any odour complaints data might be available to allow 'ground-truthing' of any modelling assessment.*

### SLR Response

Additional modelling has been performed using the emission rates calculated based on the Rich River and Orange Grove data as per Table 1 to assess the sensitivity of the predicted off-site odour impacts to the odour emission rates assumed for the dryer stack and load out area.

Using the same methodology as in the original assessment, the emission rates used in the modelling for the existing Downer EDI plant located north of the Project Site were also updated by scaling the emissions estimated for the Project Site based on the respective plant throughputs ie (200 tph for the Downer EDI plant, compared to 130 tph for the Project Site).

The odour impacts predicted using emission rates adopted from the Rich River and Orange Grove asphalt plants are presented in Table 2 and Table 3 respectively. It is noted that the cumulative predictions do not necessarily match the sum of the Project impacts plus Downer EDI impacts because the maximum predicted impacts from the Project and the Downer EDI plant may not occur on the same hour.

Table 2 shows that if the Rich River emission rates are used, the odour concentrations predicted at all of the nearest sensitive receptors are below the adopted odour criterion of 2 ou, with the exception of R8 and I5. However, it is noted that the exceedance predicted at receptor R8 is dominated by the predicted contribution from the Downer plant due to the close proximity of that receptor to the Downer plant. The proposed Project has only a very slight impact (0.2 ou) on the 99.9<sup>th</sup> percentile odour concentration predicted at this location.

The exceedance predicted at receptor I5 is dominated by the contribution from the Project Site. Receptor I5 is an industrial receptor, and a criterion of 2 ou is considered to be overly conservative for an industrial receptor.

**Table 2 Predicted Odour Concentrations at Sensitive Receptors (Based on Rich River Asphalt Plant)**

Receptor ID	(ou, 99.9 <sup>th</sup> Percentile 3-minute Average)		
	Project Site Increment	Downer EDI Increment	Cumulative
R1	0.1	0.1	0.1
R2	0.1	0.1	0.1
R3	0.1	0.1	0.1
R4	0.2	0.1	0.2
R5	0.1	0.3	0.3
R6	0.1	0.6	0.6
R7	0.2	0.9	0.9
R8	0.2	1.9	2.1
I1	1.6	0.1	1.6
I2	0.7	0.1	0.7
I3	1.5	0.1	1.7
I4	1.7	0.1	1.8
I5	4.8	0.2	4.9
Criterion	2.0	2.0	2.0

Table 3 shows that if the Orange Grove emission rates are used, the odour concentrations predicted at the nearest sensitive receptors are above the adopted odour criterion of 2 ou at residential receptors R6, R7 and R8, and industrial receptors I1 and I5. However, as above, the predicted exceedances at residential receptors (R6, R7 and R8) are dominated by the predicted contribution from the Downer plant due to the close proximity of those receptors to the Downer plant. The proposed Project has no impact on the 99.9<sup>th</sup> percentile odour concentration predicted at R5 and R6 and only a very slight impact (0.2 ou) at R8.

The predicted exceedances at receptors I1 and I5 are dominated by the contribution from Project Site. Receptors I1 and I5 are industrial receptors and as discussed above, a criterion of 2 ou is considered to be overly conservative for an industrial receptor.

Receptors I1 and I5, where the exceedances are predicted to occur, are located on industrially zoned land (IN1 Zone, General Industrial) and one of the objectives of industrial zones is to support and protect industrial land for industrial uses. For this reason, a range of sensitive uses (eg educational establishments, child care facilities, health services facilities, residential accommodation etc) are prohibited in this zone.

**Table 3 Predicted Odour Concentrations at Sensitive Receptors (Based on Orange Grove Asphalt Plant)**

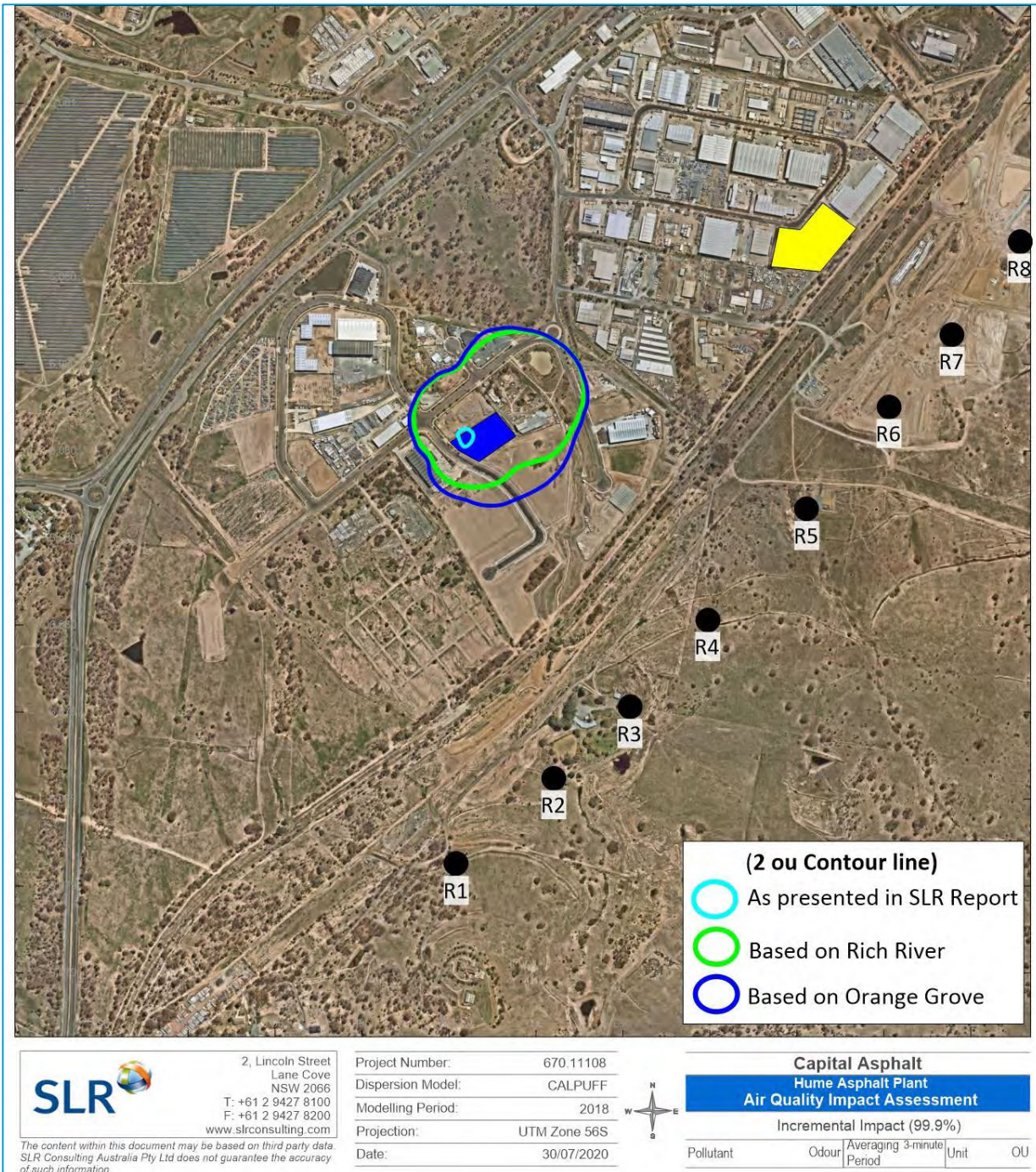
Receptor ID	(ou, 99.9 <sup>th</sup> Percentile 3-minute Average)		
	Project Site Increment	Downer EDI Increment	Cumulative
R1	0.2	0.2	0.3
R2	0.3	0.2	0.3
R3	0.4	0.3	0.4
R4	0.6	0.5	0.7
R5	0.4	1.0	1.0
R6	0.4	2.2	2.2
R7	0.3	2.9	2.9
R8	0.3	6.6	6.8
I1	2.9	0.5	2.9
I2	1.6	0.4	1.6
I3	1.9	0.4	2.2
I4	1.8	0.4	1.9
I5	4.9	0.5	4.9
Criterion	2.0	2.0	2.0

Section 7.1.2 of the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* also states that the impact assessment criteria for odour are to be applied at the nearest existing or likely future off-site sensitive receptor, not (for example) at the site boundary, as in the case of the impact assessment criteria for toxic air pollutants. On this basis, it is SLR's opinion that the odour criterion should not be applied to the industrially zoned land around the Project Site, as it should not be categorised as a potentially sensitive receptor.

The respective odour contour plots are shown in Figure 3. A larger impact area within 2 ou (Project odour criterion) is predicted when emissions are adopted from Orange Grove or Rich River asphalt plants. However, no significant difference is noted between the Orange Grove or Rich River asphalt plants impacts despite a large difference in emissions from dryer stack (ie 30,333 ou for Orange Grove compared to 4,983 ou for Rich River). This shows that the difference in downwind impacts is attributed to the load out area which was modelled as a volume source. As mentioned above, the modelling of load out area is conservative in nature due to the proposed suction fans (see Figure 2).

It should also be noted that these results reflect a conservative scenario, especially with respect to emissions from the load out area. In the proposed plant, the load out area will be fitted with suction fans (see Section 2) that will extract any odours or dust generated during load out activities and pass them to the baghouse where they will be captured within the filter cake with the cleaned airflow being discharged at height from the dryer stack. However, these modelling results indicate that even if there was no control of load out emissions, there would be no significant risk of odour impact at the residential receptors.

**Figure 4 Contour Plots showing 2 ou Contours (99.9<sup>th</sup> percentile)**



Note: The 3-minute average contour presented in the SLR Report (March 2020) (reproduced here in light blue) is slightly less than 2 ou, as the 9<sup>th</sup> highest offsite impacts do not exceed 2 ou. This is done for comparison purposes only.

In summary, the additional modelling performed using odour emission rates based on data sourced from the Rich River and Orange Grove asphalt plant, predicts a higher level off site impacts, with exceedances of the adopted odour criterion for sensitive receptors predicted to be exceed in a localised area close to the site boundary. No significant impacts from the proposed plant are predicted for neighboring residential areas.

## 6 Issue 6 - Meteorological input data (Medium)

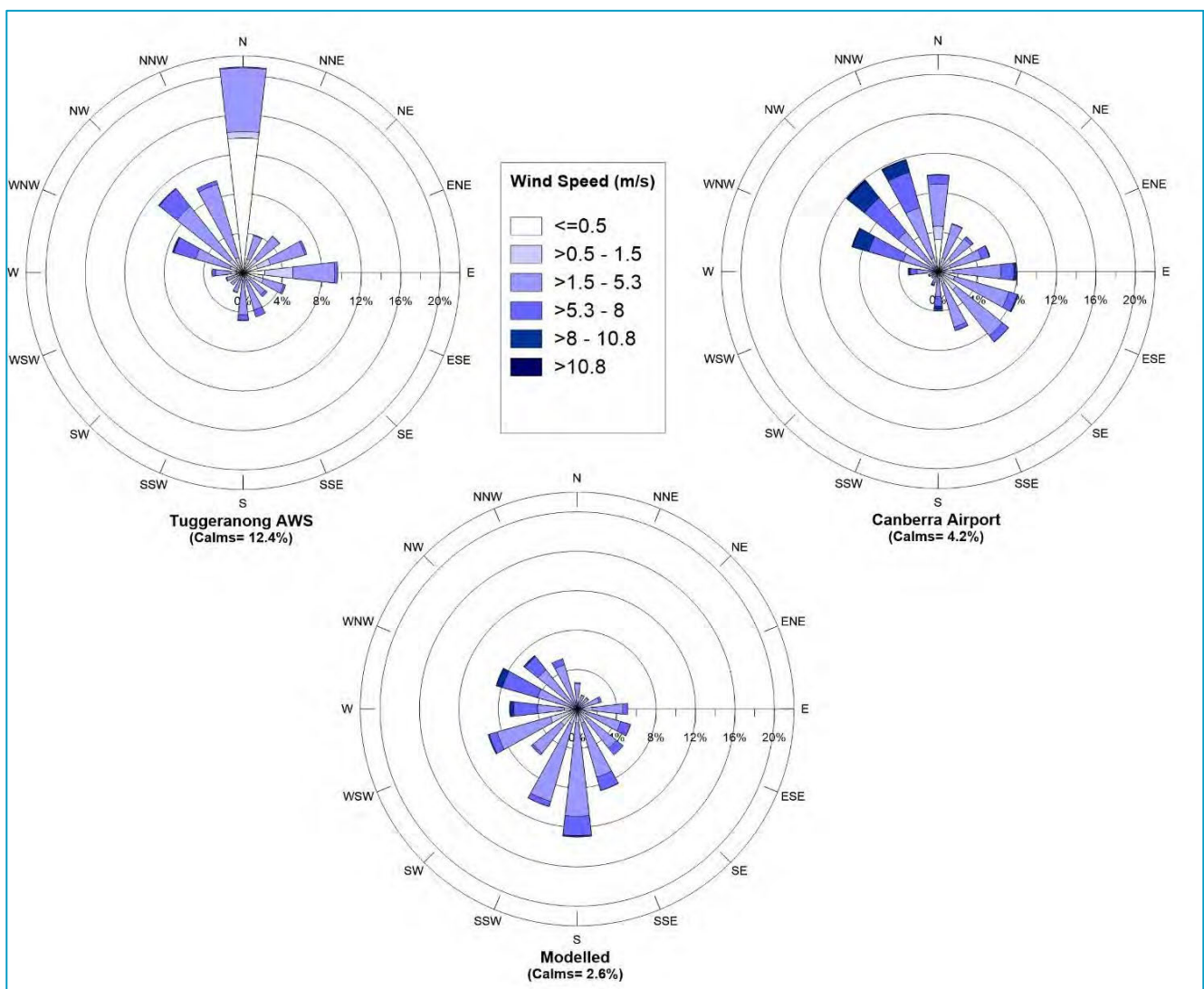
### Northstar Recommendation

Provide a validation of the meteorological data used as input to the modelling assessment against observations.

### SLR Response

A comparison of the wind patterns for the observed data at Tuggeranong Automatic Weather Station (AWS), Canberra Airport AWS and modelled meteorological data at the Project Site are shown in **Figure 5**.

**Figure 5 Comparison of the Observed data at Tuggeranong AWS and Canberra Airport AWS (2018)**



Note: As Tuggeranong AWS was used in the modelling, it is not appropriate to extract data at Tuggeranong AWS to validate meteorological modelling.

Tuggeranong AWS data was used as an input to the meteorological modelling however Canberra Airport data was excluded based on the large separation distance between Canberra Airport and Project Site (~11 km). An appreciable difference is noted in the observed wind patterns at the Tuggeranong AWS, Canberra Airport AWS and the modelled meteorological data at the Project Site.

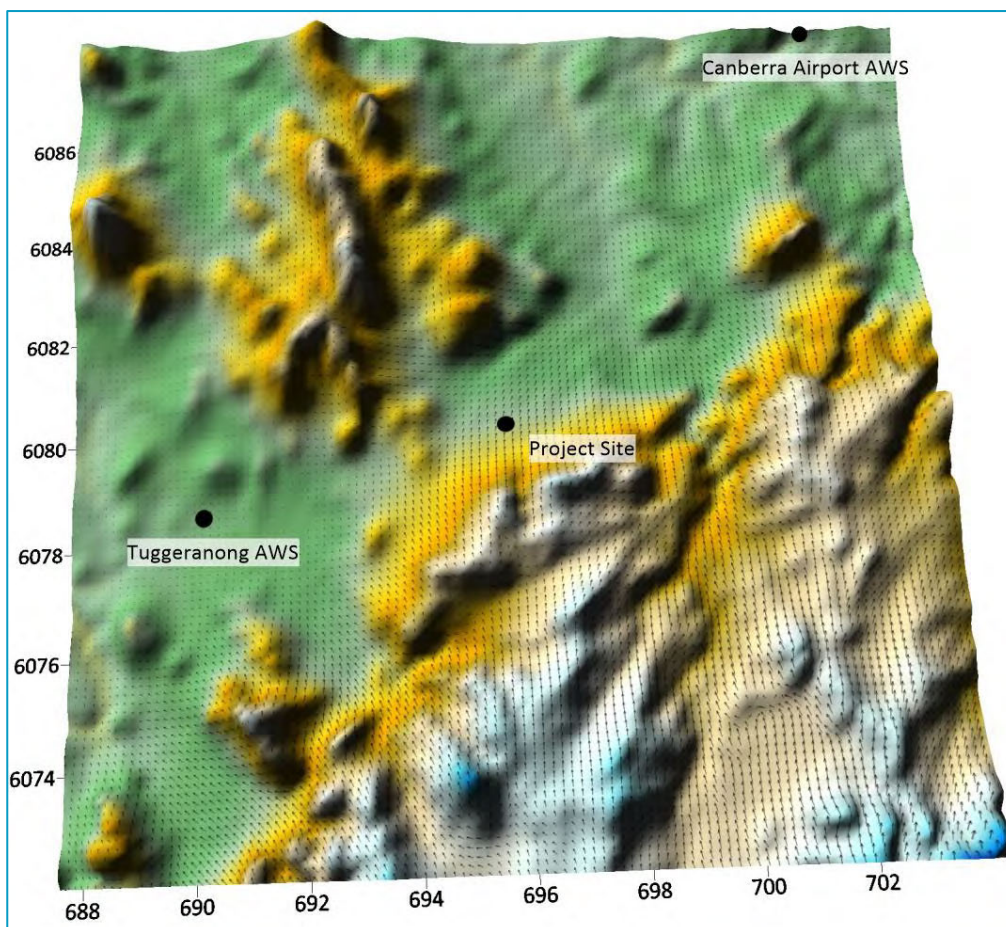
The difference between the observed data and the modelled data can be attributed to the significant terrain features that exist in the region influencing the wind patterns. An example of the existing terrain features and the resultant shifts in local wind patterns is shown in **Figure 6**.

This figure shows the following:

- Significant terrain features located to the south and the northwest of the Project Site create a drainage channel, with the Project Site located within that drainage channel.
- Due to the presence of terrain features located to the south of the Project Site, the night time conditions create 'slope flows' which contribute towards the higher percentage of southerly wind conditions predicted at the Project Site.
- Due to the presence of terrain features to the northwest/north of the Project Site, the northwest/north wind component is predicted to occur less frequently compared to Tuggeranong AWS and the Canberra Airport AWS.

In summary, due to the varying topography surrounding the respective locations, the winds at one location may not necessarily be similar in nature at other locations. This is especially evident from **Figure 6**, which shows the spatial variability in the wind patterns during a given hour across the modelling domain. During the shown hour, the Tuggeranong AWS and Canberra Airport AWS are predicted to experience calm conditions whereas the Project Site is predicted to experience strong southerly wind conditions.

**Figure 6 Existing Terrain Features and the Resultant Wind Patterns**



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## 7 References

- Air Emissions 2013, APPENDIX X – ORANGE GROVE AIR QUALITY ASSESSMENT - Proposed Temporary Asphalt Plant – Orange Grove Air Quality Assessment, prepared for Emission Assessments Pty Ltd, December 2013, available online at: [http://www.gosnells.wa.gov.au/files/218f453a-3e92-4f34-b40c-a2a1009e8414/Technical\\_Documentation.pdf](http://www.gosnells.wa.gov.au/files/218f453a-3e92-4f34-b40c-a2a1009e8414/Technical_Documentation.pdf).
- Ektimo 2017, Emission Testing Report – Rich River Asphalt Pty Ltd Echuca, report number R002907-2.
- GHD 2017, Greater Shepparton City Council – North East Precinct Structure Plan – Buffer Constraint and Odour Impact Assessment, June 2017, available online at: <https://vpa-web.s3.amazonaws.com/wp-content/uploads/2018/03/Buffer-and-Odour-Assessment-GHD-June-2017.pdf>.
- SLR 2016, Bushells Ridge Asphalt Plant, Air Quality and Greenhouse Gas Impact Assessment, report number 610.16808-R01, 13 December 2016, available online at: [http://wsconline.n.centralcoast.nsw.gov.au/applicationtracking/modules/DocumentMaster/ViewDocument\\_Normal.aspx?key=qlzn%2bY4%2frJ7nWigcBVVsng%3d%3d&size=8017059](http://wsconline.n.centralcoast.nsw.gov.au/applicationtracking/modules/DocumentMaster/ViewDocument_Normal.aspx?key=qlzn%2bY4%2frJ7nWigcBVVsng%3d%3d&size=8017059).

**From:** [Sargent, Narelle](#)  
**To:** [EPD, Customer Services](#)  
**Cc:** [George, Emil](#); [EPAPlanningLiaison](#)  
**Subject:** REFERRAL-EPA-201936510-67/22 HUME-01 [SEC=UNCLASSIFIED]  
**Date:** Thursday, 23 January 2020 3:13:35 PM  
**Attachments:** [image001.png](#)  
[plans.obr](#)  
[supporting\\_docs.obr](#)  
[image002.png](#)  
**Importance:** High

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Environment Planning & Sustainable Development Directorate,  
The Environment Protection Authority (EPA) has reviewed the development application (DA) 201936510 Block:67 Section: 22 Division: Hume and does not support the DA. The proposed asphalt plant has not sufficiently demonstrated compliance with required water management and noise and air emission controls as outlined below:  
EPA provide the following:

No comments	
Recommend Conditions of Approval	
Advice for the applicant	
Recommend Lease Conditions	
Recommend Not Supported	X
Further Information/amendments Required	

**Further information required:**

The Noise Management Plan must be revised to include an assessment of the anticipated/predicted noise levels from the plant equipment at the boundary and from trucks operating on the site.

The Air Quality Report (AQR) must include further details about the proposed management of air and odour emissions. The recommendations in the AQR must ensure emissions meet the required standards.

It must be demonstrated that any potentially contaminated water will not be discharged to stormwater.

For further information please contact Robin Brown, the Environment Protection Authority Planning Liaison, at [EPAPlanningLiaison@act.gov.au](mailto:EPAPlanningLiaison@act.gov.au) or on 6207 5642.

Regards

Narelle

**Narelle Sargent | the Environment Protection Authority**

**Office of the Environment Protection Authority (EPA)**

**Access Canberra | Chief Minister Treasury and Economic Development Directorate | ACT**

Phone: 02 6207 5782 | Mobile: [REDACTED] | Email: [narelle.sargent@act.gov.au](mailto:narelle.sargent@act.gov.au)

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**From:** EPD, Customer Services

**Sent:** Friday, 3 January 2020 10:59 AM

**To:** EPAPlanningLiaison <[EPAPlanningLiaison@act.gov.au](mailto:EPAPlanningLiaison@act.gov.au)>

**Subject:** REFERRAL-EPA-201936510-67/22 HUME-01 [SEC=UNCLASSIFIED]

**DEVELOPMENT APPLICATION NO:** 201936510

**BLOCK:** 67 **SECTION:** 22 **DIVISION:** HUME

**Description - PROPOSAL FOR A INDUSTRIAL BUILDING - Construction of new asphalt plant including ancillary buildings and structures, signage, site services,**

**landscaping, bulk earthworks, retaining walls and associated on-site and off-site works.**

Pursuant to Section 148(1) of the *Planning and Development Act 2007* the ACT Planning and Land Authority requests that you consider the abovementioned development application and provide any written advice no later than **15 working days** after the date of this notice **(24/01/2020)**.

In accordance with Section 150 of the *Planning and Development Act 2007* If advice is not received within the prescribed time it will be taken that you have supported the application.

Please forward any written advice via email to Customer Services  
[EPDcustomerservices@act.gov.au](mailto:EPDcustomerservices@act.gov.au)

Please use the following format in the subject line of the email when providing advice:

COMM-Agency Name-20140XXXX-Block XX Section XX SuburbXXXXX-01

**Example: COMM-TAMS-201401234-10/10 Dickson-01**

Kind Regards

Emil George

Phone 6207 1923

[EPDCustomerServices@act.gov.au](mailto:EPDCustomerServices@act.gov.au)

[www.act.gov.au/accesscbr](http://www.act.gov.au/accesscbr)

**Access Canberra | ACT Government**

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*Access Canberra is an ACT Government service that brings together customer and regulatory services, including the former Environment and Planning Directorates Customer Services Team. Access Canberra has been set up to make it easier for business, community organisations and individuals to work with ACT Government and deliver a more seamless experience.*

**From:** [David Carswell](#)  
**To:** [Weller, Craig](#)  
**Cc:** [Beate Jansen](#); [Peter Tegart](#); [Michael Thompson](#)  
**Subject:** Submission - Asphalt Plant Hume  
**Date:** Monday, 13 April 2020 9:38:34 AM  
**Attachments:** [image001.jpg](#)  
[Submission \(signed\) to EPSD Directorate ACT - Capital Asphalt Plant.pdf](#)

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Craig

Thank you for the opportunity to comment. Please find QPRC's submission as attached.

Should you have any questions please contact M/s Beate Jansen on 62856276.

**David Carswell**

Service Manager - Land-Use Planning

**Queanbeyan-Palerang Regional Council**

**Tel:** 02 6285 6128 **Mob:** [REDACTED]

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13 April 2020

Environment, Planning and  
Sustainable Development Directorate  
GPO Box 158  
Canberra City ACT 2601

Dear Sir/Madam

**Block 67 Section 22 Hume, Capital Asphalt Services (DA 201936510)**

Thank you for the opportunity to provide comment on the above Development Application for a new Asphalt Plant at Block 67 Section 22 Hume. Council staff have reviewed the documentation and provide the following comments:

- The subject site is located in close proximity to current and future residential development at South Jerrabomberra within our Local Government Area as identified by the Queanbeyan Residential and Economic Strategy 2031 which has been endorsed by the NSW Department of Planning, Industry and Environment.
- When the area known as South Tralee was rezoned the ACT Government made a strong submission to Council and raised concerns that this proposed residential development may adversely impact on the industrial development at Hume and as a result an appropriate buffer zone was created. Consequently Council questions whether at a minimum a similar buffer zone should not be provided from the ACT/NSW boundary for the proposed development.
- The proposed development does not appear to comply with the Environment, Planning and Sustainable Development Directorate's document 'Separation Distance Guidelines for Air Emissions' dated November 2018 which recommends appropriate separation distances between various emitters and sensitive land uses. A separation distance of 1,000m is recommended for Hot Mix asphalt preparation.
- These guidelines also state that where the recommended separation distances cannot be achieved, extra precautions would be required to minimise potential impacts of the activity. No detail is provided as to what precautions, if any are proposed for the development.
- Additionally the guidelines require that where the separation distances cannot be complied with the DA should address a number of criteria set out in the guide with supporting evidence (such as odour modelling) why a lesser separation distance sought.
- Council is concerned that the proposed development may have an adverse impact on the adjacent residential development at South Jerrabomberra. There is already an existing asphalt plant located in close proximity to the site of the proposed new plant. An additional plant may compound issues of noise and odour for adjacent residential development.
- Independent noise and odour assessment should be carried or at the very least a peer review be undertaken of the documentation submitted with the development application in regard to noise, air quality and odour assessment.

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Council is concerned about potential land use conflicts and the impacts of the proposed asphalt plant on the existing and future residential development at South Jerrabomberra, particularly in regard to noise and odour impacts.

Should you wish to discuss the above comments please contact the undersigned or Ms Beate Jansen on 6285 6276.

Yours sincerely,



**David Carswell**  
**Service Manager**  
**Land Use Planning**  
**Queanbeyan-Palerang Regional Council**  
CC CEO – Peter Tegart  
Senior Strategic Planner – Beate Jansen

**From:** [EPD Customer Services](#)  
**To:** [EPAPanningLiaison](#)  
**Subject:** REFERRAL-EPA-201936510-67/22 HUME-01 [SEC=UNCLASSIFIED]  
**Date:** Friday, 3 January 2020 10:59:00 AM  
**Attachments:** [image001.png](#)  
[plans.obr](#)  
[supporting docs.obr](#)

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**DEVELOPMENT APPLICATION NO:** 201936510

**BLOCK:** 67 **SECTION:** 22 **DIVISION:** HUME

**Description - PROPOSAL FOR A INDUSTRIAL BUILDING - Construction of new asphalt plant including ancillary buildings and structures, signage, site services, landscaping, bulk earthworks, retaining walls and associated on-site and off-site works.**

Pursuant to Section 148(1) of the *Planning and Development Act 2007* the ACT Planning and Land Authority requests that you consider the abovementioned development application and provide any written advice no later than **15 working days** after the date of this notice (**24/01/2020**).

In accordance with Section 150 of the *Planning and Development Act 2007* If advice is not received within the prescribed time it will be taken that you have supported the application.

Please forward any written advice via email to Customer Services  
[EPDcustomerservices@act.gov.au](mailto:EPDcustomerservices@act.gov.au)

Please use the following format in the subject line of the email when providing advice:

COMM-Agency Name-20140XXXX-Block XX Section XX SuburbXXXXX-01

**Example: COMM-TAMS-201401234-10/10 Dickson-01**

Kind Regards

Emil George

Phone 6207 1923

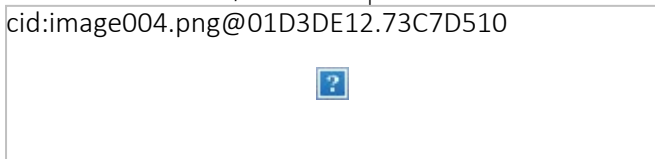
[EPDCustomerServices@act.gov.au](mailto:EPDCustomerServices@act.gov.au)

[www.act.gov.au/accesscbr](http://www.act.gov.au/accesscbr)

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16 Challis Street, Dickson | GPO Box 158 Canberra ACT 2601

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**From:** [EPD Customer Services](#)  
**To:** [council@gprc.nsw.gov.au](mailto:council@gprc.nsw.gov.au)  
**Cc:** [@gcc.nsw.gov.au](#)  
**Subject:** REFERRAL-QPRC-201936510-67/22 HUME-01 [SEC=UNCLASSIFIED]  
**Date:** Friday, 27 March 2020 2:10:00 PM  
**Attachments:** [image001.png](#)

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**An invitation to Objective Connect has been sent to view the plans and documents**

DEVELOPMENT APPLICATION NO: 201936510

BLOCK: 67 SECTION: 22 DIVISION: HUME

Description - PROPOSAL FOR A INDUSTRIAL BUILDING - Construction of new asphalt plant including ancillary buildings and structures, signage, site services, landscaping, bulk earthworks, retaining walls and associated on-site and off-site works.

Pursuant to Section 148(1) of the [Planning and Development Act 2007](#) the ACT Planning and Land Authority requests that you consider the abovementioned development application and provide any written advice no later than 15 working days after the date of this notice

21/04/2020.

In accordance with Section 150 of the [Planning and Development Act 2007](#) If advice is not received within the prescribed time it will be taken that you have supported the application.

Please forward any written advice via email to Customer Services

[EPDcustomerservices@act.gov.au](mailto:EPDcustomerservices@act.gov.au)

Please use the following format in the subject line of the email when providing advice:

COMM-Agency Name-20140XXXX-Block XX Section XX SuburbXXXXX-01

Example: COMM-TAMS-201401234-10/10 Dickson-01

Kind Regards

Ceara Farr

Phone 6207 1923

[EPDCustomerServices@act.gov.au](mailto:EPDCustomerServices@act.gov.au)

[www.act.gov.au/accesscbr](http://www.act.gov.au/accesscbr)

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**From:** [Sargent, Narelle](#)  
**To:** [Cilliers, George](#)  
**Cc:** [EPAPanningLiaison](#); [Power, David](#); [Green, Ben](#); [Michael, Tara](#); [EPD, Customer Services](#)  
**Subject:** Southern Asphalt Services DA Ref 201936510 , 5 Paspaley St., Block 67 Section 22, Hume ACT 2620  
**Date:** Tuesday, 12 May 2020 11:03:12 AM  
**Attachments:** [0523454 VBC South Jerrabomberra AQ and Noise submission F3.pdf](#)  
[Air Report 670.11108-R02-v1.0 200320.pdf](#)  
[Noise Report-R01-v3.0 200305.pdf](#)  
[0523454 VBC South Jerrabomberra AQ Capital Review FINAL.PDF](#)  
[0523454 VBC South Jerrabomberra Noise Capital Review FINAL.PDF](#)  
[image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.jpg](#)  
[image005.jpg](#)

---

Dear George  
Sorry – reports attached.

Warm regards  
Narelle

---

**From:** Sargent, Narelle  
**Sent:** Tuesday, 12 May 2020 9:50 AM  
**To:** Cilliers, George <[George.Cilliers@act.gov.au](mailto:George.Cilliers@act.gov.au)>  
**Cc:** EPAPanningLiaison <[EPAPanningLiaison@act.gov.au](mailto:EPAPanningLiaison@act.gov.au)>; Power, David <[DAVID.POWER@act.gov.au](mailto:DAVID.POWER@act.gov.au)>; Green, Ben <[Ben.Green@act.gov.au](mailto:Ben.Green@act.gov.au)>; Michael, Tara <[Tara.Michael@act.gov.au](mailto:Tara.Michael@act.gov.au)>; EPD, Customer Services <[EPDCustomerServices@act.gov.au](mailto:EPDCustomerServices@act.gov.au)>  
**Subject:** Southern Asphalt Services DA Ref 201936510 , 5 Paspaley St., Block 67 Section 22, Hume ACT 2620

Dear George

The Environment Protection Authority (EPA) has received the attached reports from the Village Building Company regarding DA201936510 for a proposed asphalt plant at 5 Paspaley Street, Block 67 Section 22, Hume ACT 2620. The Village Building Company have raised significant land use compatibility concerns due to the proximity of the proposed asphalt plant to their residential development in NSW. The conclusion in the reports commissioned by the Village Building Company are significantly different to the conclusions in the reports submitted by the applicant.

It is recommended that the Planning Authority engage a suitably qualified independent consultant undertake a review of the DA, the applicants reports and the Village Building Company's submission.

The review should also include the residential developments ongoing impacts to other current and permitted industrial activities in the Hume industrial precinct and whether planning changes should be made to the Hume precinct.

Following review of the independent report, the EPA will be able to provide further comment in relation to the proposed development.

For further information please contact Robin Brown, Environment Protection Authority Planning Liaison at [EPAPanningLiaison@act.gov.au](mailto:EPAPanningLiaison@act.gov.au) or on 02 6207 5642.

Yours sincerely  
Narelle Sargent  
Environment Protection Authority

**Narelle Sargent | the Environment Protection Authority**  
**Office of the Environment Protection Authority (EPA)**

**Access Canberra | Chief Minister Treasury and Economic Development Directorate | ACT**

Phone: 02 6207 5782 | Mobile [REDACTED] | Email: [narelle.sargent@act.gov.au](mailto:narelle.sargent@act.gov.au)

470 Northbourne Avenue, Dickson | GPO Box 158 Canberra ACT 2601 | [www.act.gov.au/accessCBR](http://www.act.gov.au/accessCBR)

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**From:** Ronan Pringle [[mailto:\[REDACTED\]@villagebuilding.com.au](mailto:[REDACTED]@villagebuilding.com.au)]

**Sent:** Friday, 1 May 2020 1:09 PM

**To:** Brown, Robin <[Robin.Brown@act.gov.au](mailto:Robin.Brown@act.gov.au)>

**Cc:** Sargent, Narelle <[Narelle.Sargent@act.gov.au](mailto:Narelle.Sargent@act.gov.au)>

**Subject:** Southern Asphalt Services DA Ref 201936510 , 5 Paspaley St., Block 67 Section 22, Hume ACT 2620

Hi Robin

I am writing in regards to the pending Development Application, Ref 201936510, for a new asphalt batching facility at the above address, which I understand you are the officer reviewing on behalf of the EPA.

Village Building Company is in the process of developing the new residential suburb of South Jerrabomberra, which is directly across the NSW border from Hume and will be the location of at least 1500 homes as well as childcare and aged care facilities. In addition to these new homes there will be a Regional sports facility, new high school and significant employment lands in North Tralee, to the immediate north of South Jerrabomberra.

We are concerned that a problem may emerge due to the potential escape of odour and noise from the proposed new asphalt plant, which could have a detrimental impact to both South Jerrabomberra and North Tralee. Due to our concerns we engaged specialist consultants ERM Australia Pacific Pty Ltd to provide us with advice, in regard to both the new proposed asphalt plant as well as the existing asphalt plant in Hume.

Our initial advice is that both the existing and new asphalt plants may emit an offensive odour that interferes unreasonably with the comfort or rest of residents in South Jerrabomberra. Therefore, the operators of the asphalt plants could be in breach of the ACT Environment Act 1997, the NSW Protection of the Environment Operations Act 1997 as well as their Sublease obligations, for causing the emission of an offensive odour which interferes unreasonably with the comfort of a person outside the premise.

Following that advice we lodged an objection to the Development Application on 3 February 2020, a copy of our submission is attached for your reference.

The basis for the objection was due to the following issues:

1. Non compliance with the ACT Government Separation Distance Guidelines for Air Emissions 2018.
2. Failure to submit an assessment in accordance with the South Australian Environmental Protection (Air Quality) Policy 2016 and associated South Australian EPA modelling Guidelines.
3. Failure to take into account the sensitive land uses of South Jerrabomberra for air quality and noise.
4. Inadequate Noise Management Plan.
5. Potential for sleep disturbance noise impacts from 24hr operation.
6. Our modelling demonstrates there may be odour impacts at South Jerrabomberra.
7. Inadequate level of control of proposed plant for odour emissions.

Subsequent to our objection we received from the applicant, on 21 April 2020 and attached for your reference, Odour and Noise reports prepared by SLP Consulting Australia Pty Ltd.

We have had these reports reviewed by our consultant ERM. ERM have found these reports to be inadequate in addressing the issues we raised in our objection. In addition they do not demonstrate compliance with the above mentioned Regulations and Acts.

Copies of the ERM review reports are attached and you will note the following issues as detailed in the ERM reports:

- Odour
  - If the plant proposed to be installed is as per the diagram in the SLR report, the key sources of fumes are not enclosed as is assumed by SLR in the report.
  - Odour emission rates assumed appear to be extremely low without adequate justification.
  - Dispersion modelling appears to be overly optimistic due to low odour emission rates assumed in modelling.
  - Cumulative impacts from existing sources have not been factored in.
  - Weather observations from Canberra airport have not been considered in the modelling.
- Noise
  1. SLR have assumed a single point over our large housing estate, the location of which is not identified. Therefore, the claims made by SLR cannot be reviewed and are deemed insufficient for impacts across the large area of South Jerrabomberra.
  2. Night time operations assumptions require to be clarified as unclear.
  3. Modelling of meteorological conditions should be considered on impacts to South Jerrabomberra.

We have spoken with the applicants and provided them with copies of the ERM reports.

Our position remains that the proposed asphalt plant DA should not be approved for this location.

We look forward to your review of the attached reports and consideration of the points raised.

Regards

**Ronan Pringle**  
Chief Operating Officer

**P** 02 6241 6844

**M** 

**W** [www.villagebuilding.com.au](http://www.villagebuilding.com.au)

**A** Argyle Corner, 92 Hoskins Street Mitchell ACT 2911



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Environment, Planning and Sustainable Development Directorate  
GPO Box 158  
Canberra City  
ACT 2601

Ms Elizabeth Slapp  
Canberra Town Planning Pty Ltd  
5/32 Lonsdale Street  
Dickson  
ACT 2602

3 February 2020

Reference: 0523454

Dear Sir/Madam,

**Subject: Letter of submission for DA 201936510 – Capital Asphalt Plant, Hume ACT**

## 1. INTRODUCTION

ERM Australia Pacific Pty Ltd (ERM) has been commissioned by Village Building Company (VBC) to review Capital Asphalt Services Pty Ltd (Capital) Development Application (Application Number 201936510) for the proposed asphalt plant located at Block 67 Section 22, Hume, ACT (“the proposed asphalt plant”).

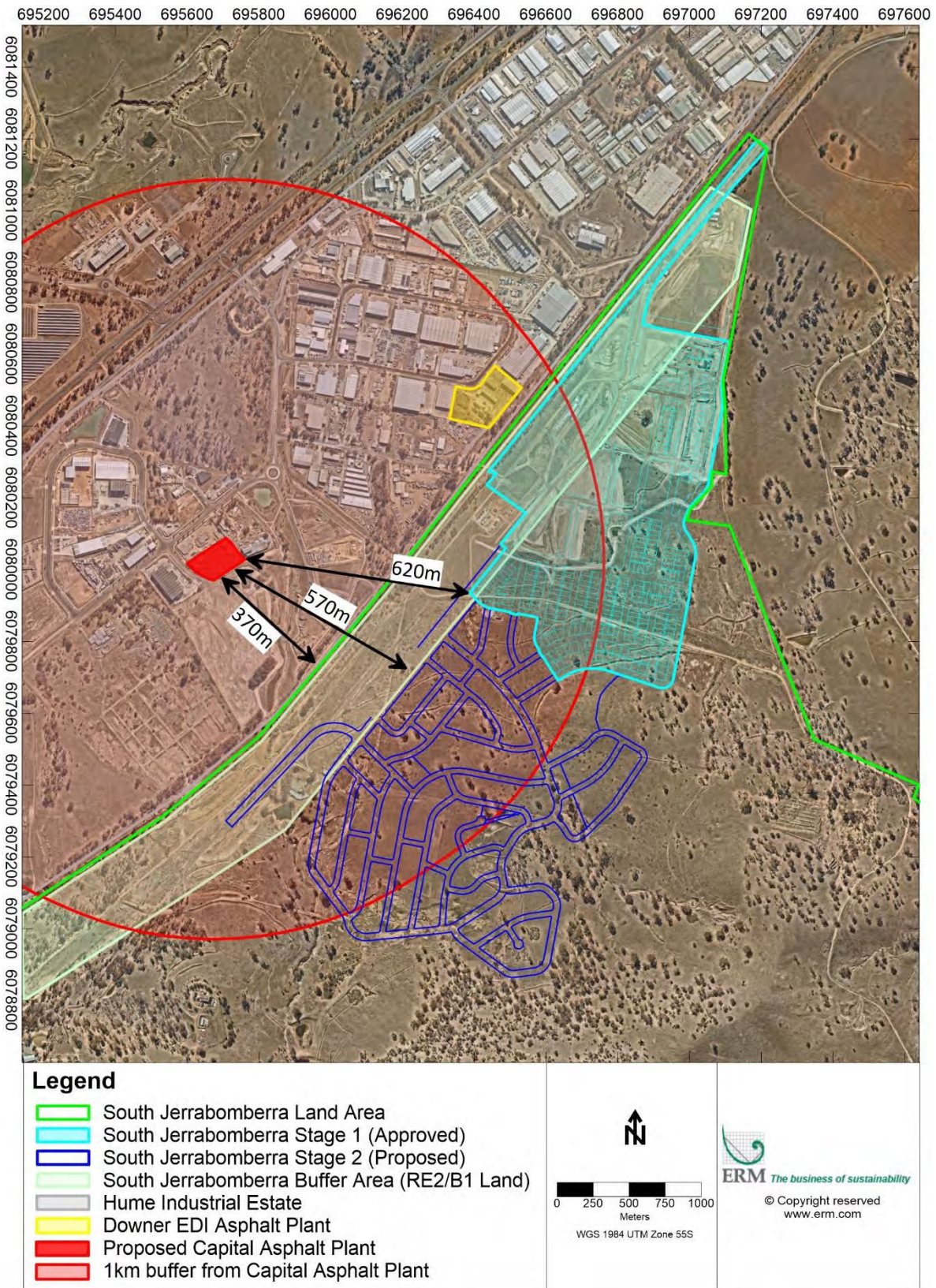
This letter report provides a review of air quality, odour and noise aspects associated with the proposed asphalt plant, referencing the documentation currently on public exhibition (ACT Government, 2020).

### 1.1 Background

In 2012 the then Queanbeyan City Council rezoned land now referred to as South Jerrabomberra for residential purposes under the Queanbeyan Local Environmental Plan (South Tralee) 2012. South Jerrabomberra, previously known as South Tralee, is located in NSW and will be home to 1,500 residences once developed. South Jerrabomberra abuts the NSW/ACT border and on the ACT side of the border is Hume Industrial Estate. A ‘buffer area’ to the Hume Industrial Estate will be developed up to 200m into the South Jerrabomberra land area incorporating land uses permissible in the RE2 and B1 zones

Contained within the Hume Industrial Estate is the existing Downer EDI asphalt plant. There is concern that the development of another asphalt plant in Hume Industrial Estate in addition to the continued operation to the existing Downer EDI asphalt plant could lead to harmful odour impacts at the future residences of South Jerrabomberra.

The locations of the proposed asphalt plant, the existing Downer EDI asphalt plant and the VBC site (South Jerrabomberra) are shown in Figure 1-1.



**Figure 1-1: Study area**

## 1.2 Reviewed Documents

This letter report has reviewed the available documentation currently on exhibition for the proposed asphalt plant (ACT Government, 2020) as well as other relevant legislation and guidelines.

Table 1-1 provides a summary of the documents reviewed as part of this study.

**Table 1-1: Summary of reviewed documents**

Author	Year	Title
<b>Air Quality</b>		
ACT Government	2020	Development applications open for public comment
ACT Government	2018	Separation Distance Guidelines for Air Emissions.
Robson Environmental	2019	Air Quality Emissions – Capital Asphalt
ACT Government	2019	Pre-Application meeting Notes for Proposal Number 201935370
South Australia Environment Protection Authority (SA EPA)	2016	Ambient air quality assessment
Queanbeyan-Palerang Regional Council	2015	South Jerrabomberra DCP 2015 Amended Parts 1 and 2 Preliminary and Context
South Australia Environment Protection Authority (SA EPA)	2016	Environment Protection (Air Quality) Policy
NSW EPA	2006	Technical framework – Assessment and management of odor from stationary sources in NSW
Environment Agency (UK)	2011	H4 Odour Management – How to comply with your environmental permit
SRF Consulting Group	2004	A Review of National and International Odor Policy, Odor Measurement Technology and Public Administration.
Bureau of Meteorology (BoM)	2018,2019	Canberra Airport automatic weather station (station number 070351)
<b>Noise</b>		
ACT Government	2010	Noise Environment Protection Policy
Access Canberra	2019	Snapshot - Noise in residential areas
NSW EPA, 2000,	2000	NSW Industrial Noise Policy
NSW EPA, 2000,	2017	NSW Noise Policy for Industry
SLR Consulting	2019	Block67 Section 22 Hume Proposed Asphalt plant Noise Management Plan

## 2. ENVIRONMENTAL ASPECTS REVIEW

### Issue 1: The Development Application for the proposed asphalt plant does not take into consideration the recommended buffer distances between air emissions and sensitive land uses.

The Air Quality Assessment in support of the proposed asphalt plant (Robson Environmental, 2019; “the Robson AQ assessment”) states:

“Odour emissions are highly unlikely to impact the amenity of the nearest residential zoned areas due to:… Sufficient distance to the nearest “Residential” zoned area.”.

No distance to the nearest residential areas has been provided within the Robson AQ assessment to allow for adequate evaluation of this statement.

Within the ACT, buffer distances are referenced as the minimum separation distances between various industrial air emission sources and sensitive land uses.

Sensitive land uses include residential (including detached dwellings, multiple dwellings, semi-detached dwellings) and parklands, recreation areas or reserves (regular public use) (ACT Government, 2018)

The recommended buffer distance for a hot mix asphalt plant is provided in *Separation Distance Guidelines for Air Emissions* (ACT Government, 2018), and shown in Table 2-1. This distance (and the requirement to conduct a detailed air quality assessment) is clearly stated in the *Pre-Application meeting Notes for Proposal Number 201935370* (dated 02/04/2019) (ACT Government, 2019).

As the proposed asphalt plant is located within 1,000m of the VBC site (see Figure 1-1) it triggers the requirement for an air quality assessment to be completed in “accordance with the South Australian EPA Ambient air quality assessment guideline”.

**Table 2-1: Recommended separation distances for hot mix asphalt plant preparation (ACT Government, 2018)**

Type of activity	Description	Distance
Hot mix asphalt plant preparation	Conduct of works at which crushed or ground rock aggregates are mixed with bituminous or asphaltic materials for the purposes of producing road building mixtures	1,000m

A buffer distance of 1,000m radius has been applied to the proposed asphalt plant boundary and is shown in Figure 1-1. It can be seen that the South Jerrabomberra land release, zoned for residential and recreation uses falls within the 1,000m prescribed buffer distance.

*Recommendation 1: Buffer distances should be appropriately referenced to reflect current and future land uses located within NSW, including and not limited to South Jerrabomberra.*

### Issue 2: The Robson AQ assessment has not been completed in accordance with South Australian Environment Protection (Air Quality) Policy 2016 (“the Air EPP”) and associated South Australian EPA modelling guidelines (SA EPA, 2016).

As noted within the *Pre-Application meeting Notes for Proposal Number 201935370* (dated 02/04/2019) (ACT Government, 2019), it is ACT planning policy that air quality assessments should be completed in accordance with the South Australian EPA Ambient air quality assessment guideline (SA EPA, 2016; “the SA EPA AQ guidelines”).

SA EPA, 2016 provides a risk flow chart (reproduced in Appendix A) that defines the prescribed assessment process. The first step is to determine if the proposed industry falls within the prescribed buffer distance (in this case, the buffer distance is not met), after which the first risk assessment approach is to conduct atmospheric modelling and/or monitoring.

The Robson AQ assessment appears to be largely opinion based and does not contain any reference to atmospheric dispersion modelling to assess odour propagation.

***Recommendation 2:** Consistent with ACT buffer distance guidance, a revised air quality assessment should be completed in accordance with the South Australian EPA Ambient air quality assessment guideline.*

*Dispersion modelling should reference representative air emissions data and be used to determine the potential air quality/odour impacts of the proposed asphalt plant upon all current and proposed sensitive land uses. Modelling should be representative of seasonal variation within the study area with the view that mitigation at the plant may be compromised at certain times of the year.*

**Issue 3: The proposed asphalt plant Development Application does not take into account the sensitive land uses of South Jerrabomberra as specified in the *Pre-Application meeting Notes for Proposal Number 201935370* (dated 02/04/2019) (ACT Government, 2019).**

As discussed in Section 1.1, the Hume Industrial Estate abuts the NSW border where the zoned urban area of South Jerrabomberra is located. South Jerrabomberra is zoned for 1,500 residential dwellings and should also be considered in the assessments of air quality and noise impacts.

For example, the Noise Assessment (SLR, 2019) has only considered a single residence on the NSW side of the NSW/ACT border and not considered the current or future land uses.

***Recommendation 3:** Predictions of air quality, odour and noise impacts should consider all current and future sensitive land use locations located in the vicinity of the proposed asphalt plant, including South Jerrabomberra.*

**Issue 4: As the Noise Management Plan has not consider sensitive land uses of South Jerrabomberra and future residential land use in this area, the plan has not established suitable noise criteria for this area, nor predicted or presented potential noise impact levels on this area.**

In the case where noise generated within the ACT is received in NSW, the Noise Environmental Protection Policy (EPP) states:

*“To the extent that noise generated in the ACT affects persons in NSW, the Act should be administered so as to deliver equivalent protection to residents of both jurisdictions...”*

*“While NSW residents and businesses are not subject to ACT legislation as far as their noise generating activities are concerned, they may be affected by noise originating from the ACT.*

*To provide them with protection from ACT noise, Schedule 2 of the Regulation establishes noise zones in NSW which are equivalent to those in the ACT and enables NSW residents to be recognised as an 'affected person' under ACT legislation.*

The assessment would need to consider future dwellings in South Jerrabomberra and aim to demonstrate compliance with the recommended 45 dB daytime and 35 dB night time criteria.

***Recommendation 4:** Predictions of noise impacts should consider future sensitive land use located in the vicinity of the proposed asphalt plant, including South Jerrabomberra. Noise management and mitigation measures should be implemented to achieve criteria for residential areas consistent with ACT land use zonings as per Schedule 2 of the EPP regulation.*

**Issue 5: Potential for sleep disturbance noise impacts from 24hr operation of proposed asphalt plant.**

With the proposed 24hr operation of the asphalt plant, there is the risk of short term peak noise emissions resulting in sleep disturbance impacts in the South Jerrabomberra area. The NSW Noise Policy for Industry (EPA 2017) provides the most recent guidance on the assessment of potential sleep disturbance in the form of an assessment of both L<sub>Amax</sub> (maximum events) and L<sub>Aeq</sub> (average) noise levels. Results of this assessment would inform noise management and mitigation measures to avoid sleep disturbance.

***Recommendation 5:** Predictions of noise impacts should consider sleep disturbance impacts with consideration to NSW Noise Policy for Industry (2017). Noise management and mitigation measures should be implemented to achieve sleep disturbance criteria.*

**Issue 6: Under the currently proposed control measures for the asphalt plant, there are likely to be odour impacts at South Jerrabomberra.**

Previous studies conducted by ERM on the odour impacts from asphalt plants have shown that odour can travel up to 600m from the source.

The proposed asphalt plant is located 370m from the South Jerrabomberra land boundary, 370m- 570m from the Hume Industrial Estate 'buffer area', and 570m from the first residential development. Under this assumption, there is potential for odour from the proposed Capital Asphalt Plant to impact existing and future residential, recreation and commercial areas.

ERM has completed preliminary odour dispersion modelling of the proposed asphalt plant using the CALMET/CALPUFF dispersion model. The primary sources of odour emissions have been compiled based on existing odour emission inventories for the asphalt industry. These are expected to be from:

- The aggregate drying system, including the site's baghouse stack;
- The loading hopper;
- Loading of trucks with asphalt from the hopper; and
- Tarping of the idle asphalt trucks once filled.

Odour emissions have been estimated based on publicly available and reviewed odour emissions data for asphalt plants in Australia.

Consistent with the description provided in the Robson AQ assessment, the proposed asphalt plant is assumed to not be enclosed. Therefore the only potential odour abatement specified would be from the baghouse which has been included in the emission inventory.

The SA odour assessment criteria are population dependent. This approach is based on the principle that, as population increases, the number of sensitive individuals also increase.

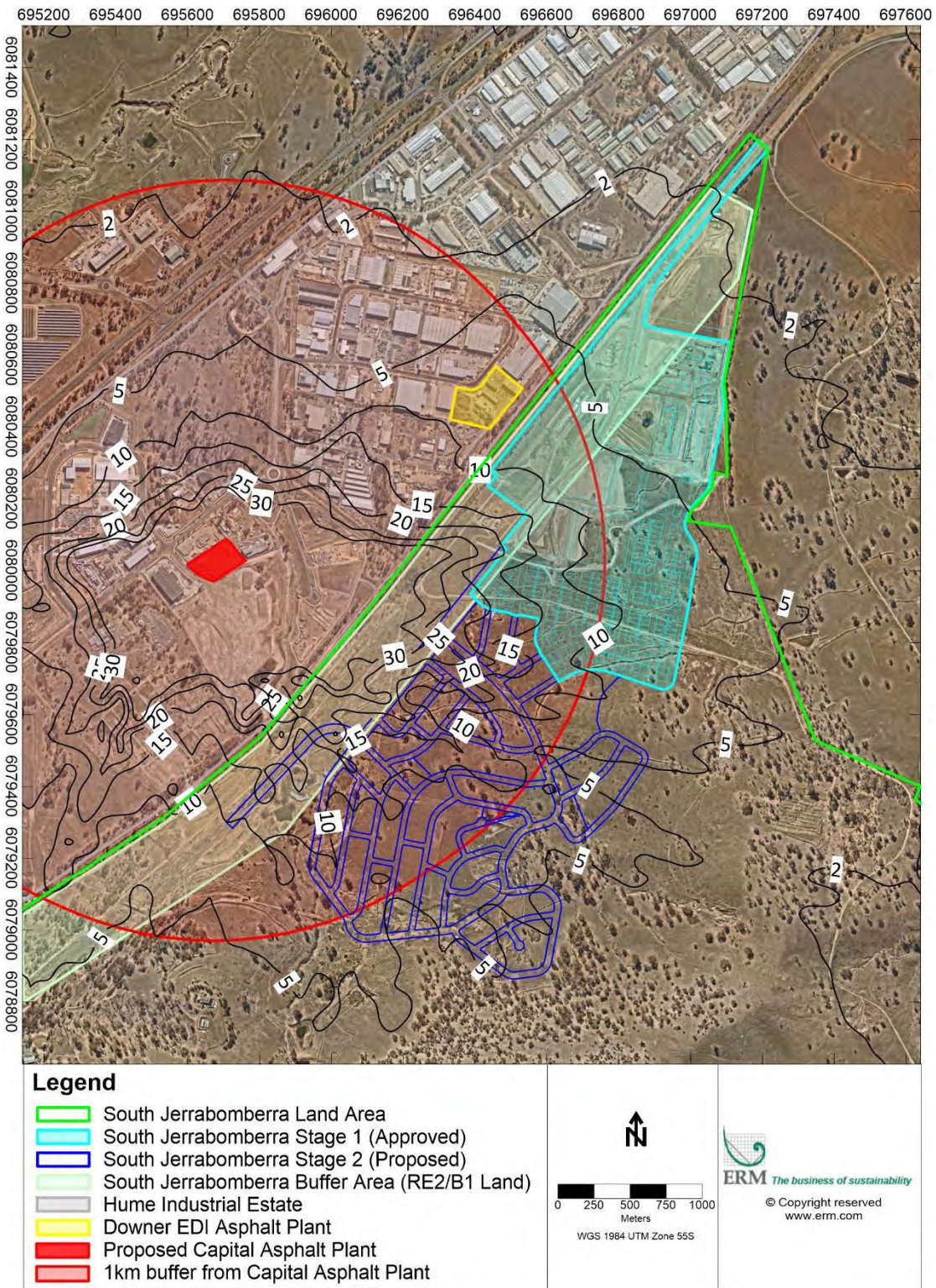
The odour assessment criteria defined by SA EPA are presented in Table 2-2. These criteria apply to 99.9<sup>th</sup> percentile dispersion modelling results calculated as 3 minute averages.

**Table 2-2: Odour assessment criteria (South Australia, 2016)**

<b>Number of People</b>	<b>Odour Units (ou) (3 min average, 99.9%)</b>
<b>2,000 or more</b>	<b>2</b>
350 – 1,999 (inclusive)	4
60 – 349 (inclusive)	6
12 – 59 (inclusive)	8
Single residence (fewer than 12)	10

In accordance with the SA EPP Air Assessment guidelines an odour unit objective of 2 odour units (OU) for the 99.9<sup>th</sup> percentile is considered appropriate.

The results of the odour modelling are presented in Figure 2-1.



**Figure 2-1: Odour dispersion modelling results for the 99.9<sup>th</sup> percentile 3-minute average**

It can be seen from Figure 2-1 that maximum odour predictions are anticipated to significantly encroach upon South Jerrabomberra, with the 5 OU contour incorporating the entire residential area. Areas of significantly higher odour predictions occur closer to the plant; 10 – 20 OU at the western edges of the residential areas, and up to 30 OU occurring within the 'buffer area', all well above the recommended level of 2 OU.

*Recommendation 6: Detailed odour dispersion modelling should clearly show where there are predicted to be odour impacts from the proposed asphalt plant. The odour emission inventory should reference a similar plant operating in Australia and appropriate mitigation measures should be committed to and be included in the modelling.*

**Issue 7: The recommended level of control for the proposed asphalt plant is not considered adequate for the management of odour emissions from a modern facility in proximity to sensitive land uses.**

The Robson AQ assessment explains that there is no available documentation for odour abatement in Australia and has relied solely on the *Environmental Practices Guide – Ontario Hot Mix Asphalt Plants* (Ontario Hot Mix Producers Association, 2015).

Contrary to the above, the NSW EPA provides a technical framework on the assessment and management of odour from stationary sources (NSW EPA, 2006). Additional guidance by international agencies (UK Environment Agency, 2011& SRF Consulting Group, 2004) are also valid sources of odour abatement for asphalt plants. A review of these mitigation strategies is included in the following subsections.

## 2.1 Best management practice

- Best management practice generally involves adopting particular operational procedures that minimise odour while retaining or improving production efficiency. The following best management practices may be applied separately or in combination:
  - Materials Selection
    - Where possible, use materials that minimise the generation of odour, including raw materials for processes.
  - Appropriate works scheduling
    - Conduct odour generating activities or use odour-generating equipment during the least sensitive time of day or under the most favourable weather conditions.
    - Where a number of odour generating processes operate on a site, it may be possible to schedule them so they occur separately rather than concurrently.
  - Appropriate management and maintenance regimes
    - Design maintenance programs to minimise the risk of incidents or accidents and the emissions of puffs or incidental/accidental emissions.
    - Establish management programs that provide incentives for employees to minimise incidences of poor environmental performance.

- Conduct programs to educate staff about work practises that can help to minimise odour, and about the physical and psychological impacts of odour on neighbours.

## 2.2 Use of air pollution control technology

Where management practices fail to achieve the required odour reduction by themselves, the use of best available control technology should be considered. These can include:

- Cooling of odorous gases prior to release;
- Elevation of the stack;
- Reduction of stack flow rate;
- Addition of masking compounds to odorous air; and
- Containment of facility within cladding

A significant source of odour from the proposed asphalt plant is considered to be the controlled emissions from the plant's stack. The constraints on emissions include a number of plant parameters such as location, temperature, pressure, stack diameter and height, exit velocity, aggregate moisture content, the efficacy of arrestment items, plant load/capacity, and operating hours. The proportion and types of recycled aggregates used may also influence odour concentrations.

Uncontrolled emissions may result from a variety of on-site processes, including process venting and loading into trucks, and are not usually included in these assessments unless their contribution is considered significant.

- Out of the above options, the following should be considered:
  - **Improving dispersion through elevation of the stack height:**
    - High stacks may be used to allow odorous emissions to disperse before they reach the ground. This overall reduces the concentrations of odour at surface receptors. Raising the stack height has historically been effective at reducing odour concentrations at surface level (Environment Agency, 2011).
  - **Reduction of odour causing gases**
    - Odorous chemicals can be controlled (at least partly) by reducing their rate of evaporation. The methods to do so can be either chemical or physical (UK Environment Agency, 2011). These can include lowering the temperature to reduce the release of dissolved odorous chemicals, (in the normal temperature range, fume emissions double with every 10°C rise in temperature), and increasing humidity in the immediate environment to reduce evaporation.
  - **Review of materials used in asphalt production:**
    - The asphalt plant incorporates recycled asphalt into its asphalt production line. This recycled asphalt can often be polluted with components that, when reheated in the aggregate drying plant, can become volatile and odorous. Methods of counteracting

this could involve reducing the proportion of recycled material (currently approximately 10%) in the asphalt feed or treating the recycled aggregate with an odour treatment (described further below) to reduce their odour potential.

- **Containment of facility:**

- It is understood that the proposed asphalt plant's hopper system is anticipated to be exposed. When operational the hopper plant releases fugitive emissions at two levels: at around 10m height where the mixing system is located, and at ground level where the asphalt is loaded into trucks. Enclosing the hopper plant in cladding and putting it under slightly negative pressure would minimise the amount of smoke and odour emissions from the mixing and loading processes (UK Environment Agency, 2011).
- Adding an extraction system and releasing the emissions at height, or rerouting the emissions to the plant's stack would also be expected to reduce odour concentrations at surface level.
- Enclosure of the hopper plant is an option currently marketed by asphalt manufacturers (Ammann), and has been successfully employed as an odour, dust and noise control for various plants (GHD, 2009).

### 2.3 Management of odours in the pathway

In addition to managing odour at the source, consideration should be given to options aimed at minimising or reducing odour impacts between the asphalt plant and the receptors at the project. These mitigation strategies can include:

- Increasing the height of the boundary wall at the asphalt plant to the height of the stack or above. This acts as a barrier that directs odour emissions away from any sensitive areas or maximising odour dilution before the vapour stream reaches them;
- Establishing a strand of trees or shrubs can help disperse odour before it reaches the boundary of a facility or reduce the wind over an odour source. The effectiveness of a vegetation barrier is determined by its height, thickness and width, as well as the appropriateness of its location. This solution is particularly useful where other odour-source controls are impractical or too costly.

*Recommendation 7: It is recommended that the best practice odour control measures that are intended to be used by the proposed asphalt plant are reviewed to provide a higher level of control. This may include the enclosure of the hopper and load-out facility to control fugitive emissions at the source.*

We trust that the above submission provides adequate detail to enable the augmentation of the currently proposed asphalt plant and its associated Development Application to ensure that air quality, odour and noise emissions are adequately mitigated to avoid future land use conflict with nearby sensitive land uses.

Do not hesitate to contact the undersigned, or Stacey Quayle, Senior Development Manager at VBC on 6129 7060, if you would like any additional clarification.

Yours sincerely,



Damon Roddis  
Partner – Air Quality and Greenhouse

**ATTACHMENT A    OUTLINE OF THE SA EPA'S RISK-BASED APPROACH  
FOR AIR QUALITY ASSESSMENT**

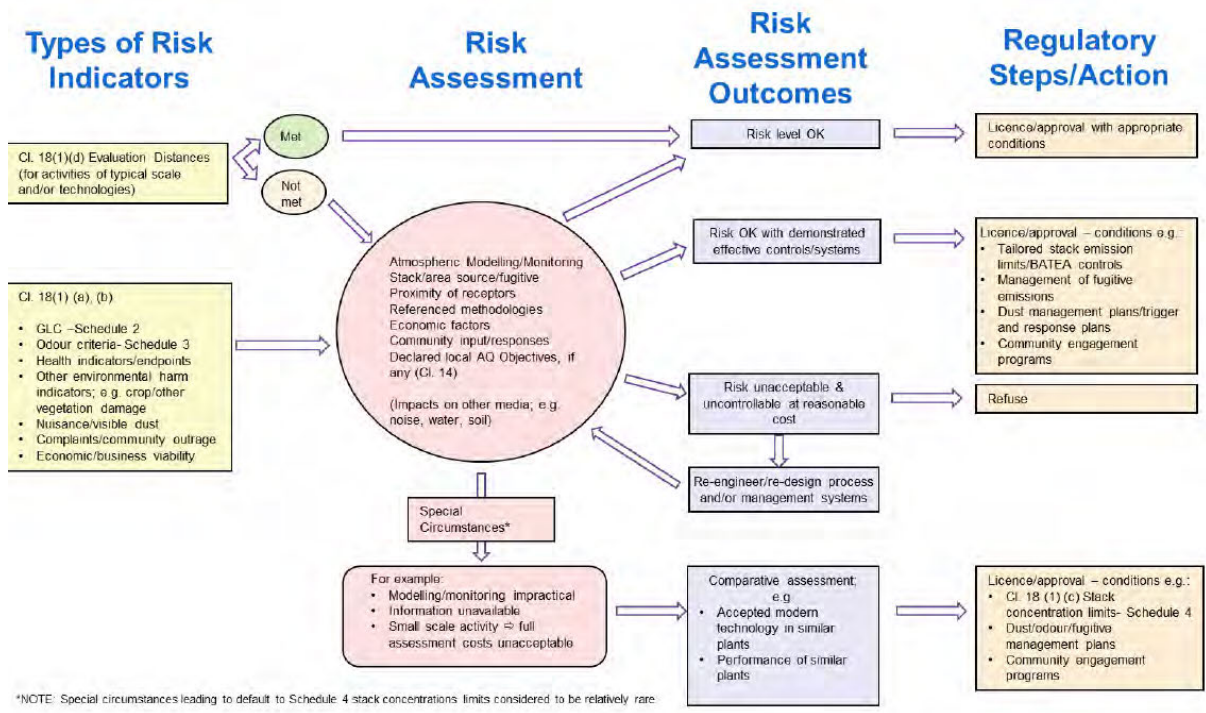


Figure 1 Outline of the EPA's risk-based approach for air quality assessment

# BLOCK 67 SECTION 22, HUME

## Proposed Asphalt Plant Noise Management Plan

### Prepared for:

Capital Asphalt  
4/8 Victoria Street  
Hall ACT 2618

SLR Ref: 670.11108-R01  
Version No: -v3.0  
March 2020



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## BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Capital Asphalt (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

## DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
670.11108-R01-v3.0	4 March 2020			
670.11108-R01-v2.0	2 March 2020			
670.11108-R01-v1.0	14 November 2019			

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## 1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has undertaken an assessment of noise emissions associated with the proposed asphalt plant (“the Facility”) to be located on land known as 5 Paspaley Street (Block 67 Section 22), Hume in the Australian Capital Territory (ACT).

This report considers noise emissions associated with the Facility with regard to zone noise standards determined in accordance with the ACT *Environmental Protection Regulation 2005* (“the Regulations”).

## 2 Project Site and Description

The Facility site and surrounds are shown in **Figure 1**. The site is industrial with several nearby areas undeveloped at the time of this assessment.

The asphalt plant will have a capacity of 160 tonnes per hour.

The asphalt plant uses a batch mixing process. The burner operating within the drum is used only to dry aggregate. As the drum rotates the aggregate moves towards the end of the drum and is discharged into a hot elevator. The aggregate then proceeds to a screening process, where it is screened into hot stone bins. From these bins, aggregate is weighed then discharged into a pugmill, where bitumen is added after being weighed in a separate kettle. When the mixing time has elapsed, the mix is discharged into the hot storage bins where it is released as required into delivery trucks.

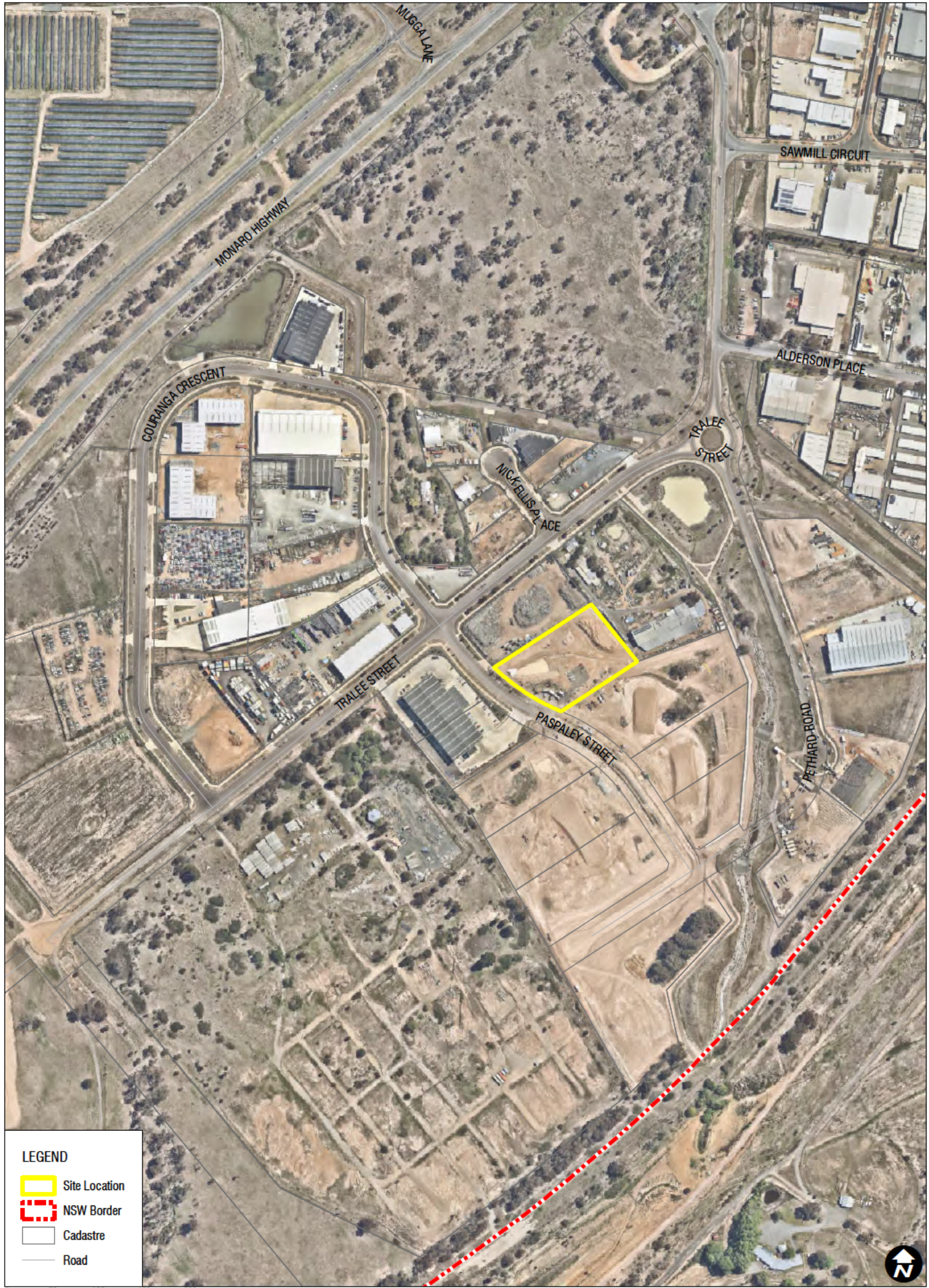
Raw material feed for the asphalt plant is supplied by road. Aggregate deliveries are made by either truck and dog or semi-trailers. The bitumen deliveries are made by bitumen tankers to the site, where they are mixed and despatched by either semi-trailers or truck and dog combinations. Excess material may be stockpiled during the day to allow a front-end loader to maintain the cold feed bins during night-time operations.

It is understood that standard operating hours will be from 6:00 am to 4:00 pm. Occasional night shift works will occur between 8:00 pm and 5:00 am. It is understood that during the off-peak night periods, not all plant would be required to operate at the same time, with either the asphalt plant operating or the mobile plant being in use.

There would be approximately seven trucks per hour during the peak delivery times.





The planned layout of the site including the ingress, egress and movements of the trucks around the site has been shown in **Figure 2**.

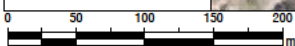
The site will include large shed structures for the workshop/office and cover for the material bins.



H:\Projects-SL\670-66-57D\670-CAN\670-11108 Home Alpha 1\Plan\670-11108 Home Asphalt.mxd

**LEGEND**

-  Site Location
-  NSW Border
-  Cadastre
-  Road

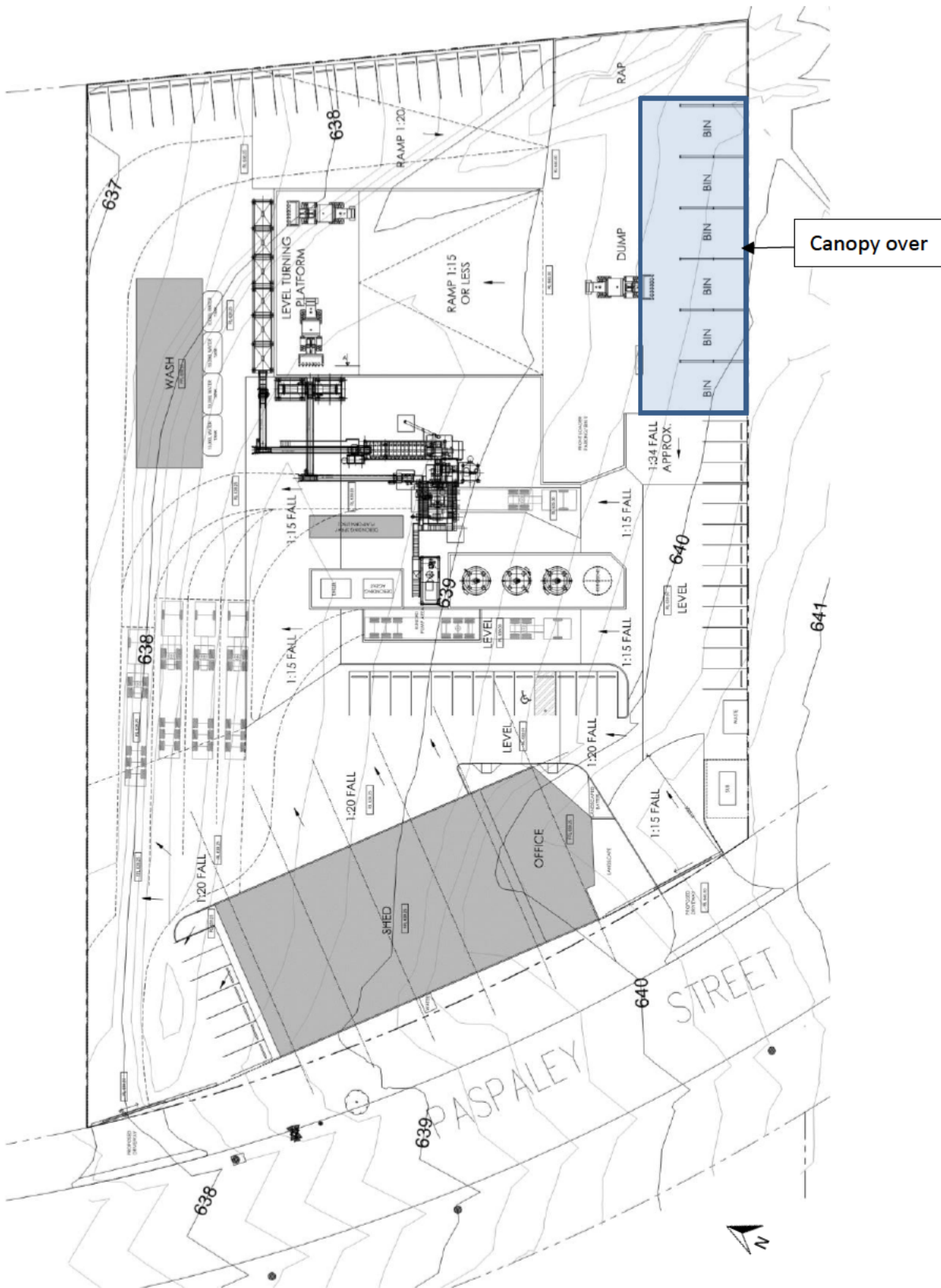


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Figure 2 Site Layout



### 3 Noise Criteria

#### 3.1 ACT Zoning Noise Standards

With regard to noise, Part B – General Development Controls, Element 5: Amenity, Item 5.2 of the *ACT Industrial Zones Development Code* (effective 25 May 2018) states the following:

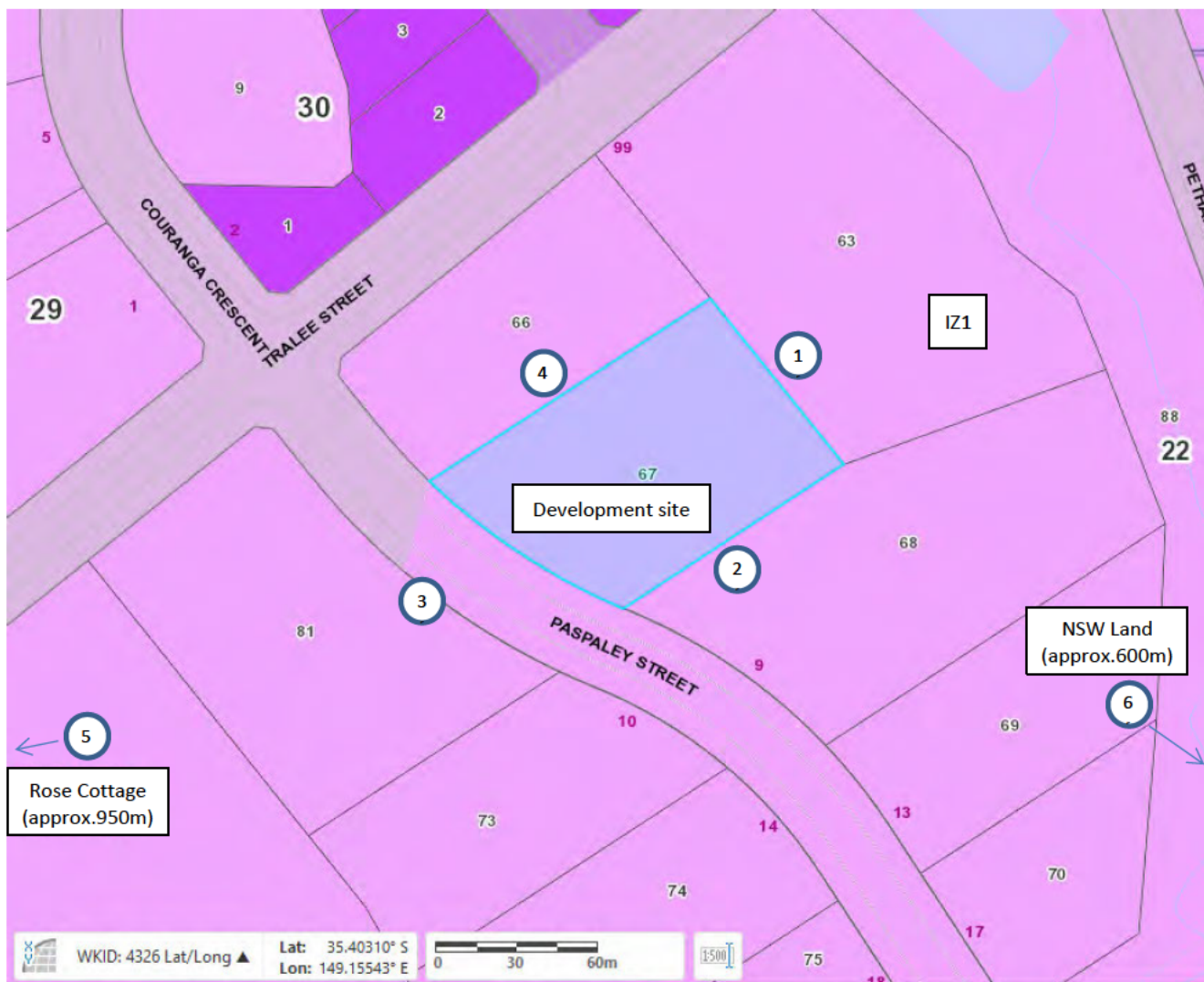
Rules	Criteria
<p><i>There is no applicable rule.</i></p>	<p><b>C33</b></p> <p><i>Where the proposed use is adjacent to, or is, a noise producing activity, noise attenuation measures are utilised to protect the amenity of the area and promote compatibility of uses.</i></p>
<p><b>R34</b></p> <p><i>A Noise Management Plan, prepared by an accredited acoustic specialist who is a member of the Australian Acoustical Society, endorsed by Environment Protection is provided for the following uses:</i></p> <ul style="list-style-type: none"> <li>- club</li> <li>- drink establishment</li> <li>- hotel</li> <li>- industry (except light industry)</li> <li>- indoor entertainment facility</li> <li>- restaurant</li> </ul> <p><i>The Noise Management Plan details the design, siting and construction methods, which will be used to minimise the impact of noise on neighbours.</i></p>	<p><b>C34</b></p> <p><i>If an endorsed Noise Management Plan is not provided, the application will be referred to the relevant agency in accordance with the requirements of the Planning and Development Act 2007.</i></p>

In relation to operational noise, there are no requirements relating to noise contained within the *ACT Hume Precinct Map and Code* or the objectives of the *IZ1 General Industrial Zone*.

To demonstrate that noise (from “industry”) would not impact on neighbours, noise emanating from the facility should comply with the *ACT Environmental Protection Regulation 2005 (EPR)* which provides criteria based on ACT land zonings.

The land zonings of the project site and surrounds as per the ACT Territory Plan have been shown in **Figure 3**.

Figure 3 Territory Plan Excerpt Indicating the Proposed Facility Site



Source: <http://www.actmap.act.gov.au/> (Territory Plan)

Based on the land zones, the EPR zone noise standards for the site and surrounds are provided in Table 1.

Table 1 Zone Noise Standards

Noise Zone	ACT Land	Zone Noise Standard, dBA LA10,T			
		Monday – Saturday 7 am – 10 pm	Sunday and public holiday 8 am – 10 pm	Monday – Saturday 10 pm – 7 am	Sunday and public holiday 10 pm – 8 am
A	land in an industrial zone (IZ1)	65	55	65	55
F	land (other than land in the city centre, town centres and group centres) in a: - leisure and accommodation zone (ie CZ6) - TSZ2 services zone	Same as the noise standard for the adjoining noise zone with the loudest noise standard for the time period, ie			
		65	55	65	55
G	all other NSW land	45	35	45	35

The main assessment locations will be at the property boundaries described in **Table 2** and shown in **Figure 3**.

**Table 2 Assessment Locations**

Assessment Location	Description
Location 1	99 Tralee Street (Block 63 Section 22, IZ1)
Location 2	1 Paspaley Street (Block 66 Section 22, IZ1)
Location 3	6 Paspaley Street (Block 81 Section 22, IZ1)
Location 4	9 Paspaley Street (Block 68 Section 22, IZ1)
Location 5	“Rose Cottage” (nearest residential use), Section 79, CZ6
Location 6	Residence on NSW land, Tralee <sup>1</sup>

1. Representative of future dwellings associated with the South Jerrabomberra residential development, including a 200 m buffer.

Based on the land zoning and the applicable zone noise standards, the zone noise standards that will be specific to this assessment are shown in **Table 3**.

It should be noted that a services zone (TSZ2, “noise zone F”) exists at the NSW border and separates the ACT Industrial zoned-land (on which the project is located, “noise zone A”) and the NSW land (“noise zone G”).

This assessment has relied upon advice provided to SLR by the ACT EPA which stipulated that as the NSW land does not directly adjoin the ACT industrial land, the zone noise standard for the NSW land (“noise zone G”) applies<sup>1</sup>.

**Table 3 Assessment-Specific Zone Noise Standards**

Assessment Location	Assessment-Specific Noise Standard, dBA LA10			
	Monday – Saturday 7 am – 10 pm	Sunday, public hols 8 am – 10 pm	Monday – Saturday 10 pm – 7 am	Sunday, public hols 10 pm – 8 am
Location 1	65	55	65	55
Location 2	65	55	65	55
Location 3	65	55	65	55
Location 4	65	55	65	55
Location 5	65	55	65	55
Location 6	45	35	45	35

<sup>1</sup> It could also be interpreted that the zone noise standard for the TSZ2 land would be the same as the noise standard for the adjoining noise zone with the loudest noise standard for the time period, as required by the EPR, and the applicable zone noise standard at the NSW land would be the average of the noise standards for the noise zones.

This would mean that the zone noise standard for the NSW land would be the average of the noise zones for the lands, ie noise zone A and noise zone G, which would result in daytime and night-time zone noise standards of 55 dBA LA10 and 45 dBA LA10, respectively. This would provide a “noise buffer” at the interface of the residential and industrial lands, which would be consistent with other jurisdictions including the NSW EPA and not place existing and proposed industrial sites in Hume at a significant disadvantage due to the encroaching NSW residential development.

## 3.2 Short-term Events

It is common, but not specifically required in the ACT, where activities may occur during the night period to assess the effects of short-term “maxima” noise with regard to published sleep disturbance criteria.

As there are no applicable criteria in the regulations of the ACT, the ‘screening’ criteria within the NSW *Noise Policy for Industry 2017* (NPfI) may be used. Without noise monitoring to establish the existing ambient background noise levels, the minimum threshold under the NPfI would be 52 dBA LAF<sub>max</sub>, above which further investigations would be required.

# 4 Operational Noise Assessment

## 4.1 Noise Modelling

In order to predict noise levels associated with the Facility, a SoundPLAN computer model was developed. SoundPLAN is a software package which enables compilation of a computer model comprising a digitised ground map (containing ground contours and significant structures, where appropriate), the location and acoustic power levels of significant noise sources, and the location of sensitive receptors.

Noise from the Facility was predicted using the ISO 9613<sup>2</sup> algorithms within SoundPLAN.

## 4.2 Modelling Inputs

### 4.2.1 Operational Scenario

For the purposes of this assessment, it has been assumed that all sources occur at the same time (thus representing a “worst-case” scenario) for the day period, including:

- Continuous operation of the asphalt plant and associated equipment.
- The frontend Loader operating between the material dump and the hoppers.
- One truck idling in the waiting area.
- One truck idling in the delivery area.
- One truck idling whilst being loaded under the asphalt plant.

It is assumed that either the asphalt plant or the mobile plant would be operating during the night period.

### 4.2.2 Noise Sources

The acoustically-significant sources of noise and their associated sound power level (SWL) at the Facility have been described in **Table 4**.

Information relating to acoustically-significant noise sources and the SWL values have been provided to SLR and/or obtained from measurements undertaken by SLR and others at similar facilities in Australia.

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<sup>2</sup> International Organisation for Standardisation (ISO) 9613-2:1996 “Acoustics –Attenuation of sound during propagation outdoors – Part 2: General method”.

All fixed noise sources associated with the asphalt plant itself are assumed to operate continuously for the 10 minute assessment period. The trucks and the frontend loader may be used for shorter periods.

Noise from short-term ‘maxima’ type events, such as loading hoppers or trucks may be approximately 5 dBA higher than those in Table 4.

**Table 4 Noise Sources**

Noise Source	Number	Height, m	SWL, dBA, per item
Burner	1	4	94
Other plant	1	2	94
Asphalt plant	1	13	101
Frontend loader <sup>1</sup>	1	2	105
Truck (mobile) <sup>2</sup>	1	3.5	110
Truck (idling) <sup>3</sup>	3	2	102

1. It is assumed that the FEL manoeuvres between the hopper and the material dump for all of the assessment period.
2. Modelled at 10 km/h
3. Trucks may idle at the waiting areas and asphalt weighbridge for a total of 5 minutes each.

### 4.2.3 Modelling Procedures and Information

Topography and layout configuration for the site has been provided to SLR. Topographical information was obtained from publicly available sources. All ground on the site was modelled as acoustically “hard ground” with minimal noise absorption.

The assessment locations are very near to the Facility and associated noise sources, which means that meteorological conditions would have little influence on noise propagation. Therefore, the effect of neutral meteorological conditions only has been considered.

## 4.3 Noise Modelling Results

The results of the noise predictions are shown in Table 5.

**Table 5 Predicted Facility Noise Levels and Assessment**

Assessment Location	Address	Zone Noise Standard, dBA LA10(10minute)		Predicted Noise Level, dBA LA10(10minute)	
		Day	Night	Day	Night
1	99 Tralee Street	65	55	66	58 – 66
2	1 Paspaley Street	65	55	67	59 – 67
3	6 Paspaley Street	65	55	47	43 – 46
4	9 Paspaley Street	65	55	67	60 – 63
5	“Rose Cottage”	65	55	33	27 – 31
6	Residence on NSW land, Tralee	45	35	40	33 – 36

It can be seen that noise from the Facility was predicted to comply with the zone noise standards at the two residential receptors (Locations 5 and 6) during the daytime. Daytime compliance at Location 3 (6 Paspaley Street) was also predicted.

Night-time compliance was also predicted at Location 5 (the Rose Cottage), however a 1 dBA exceedance was predicted at the NSW land (Location 6). Such an exceedance would be considered negligible.

The predicted noise levels at the boundaries shared with Receptors 1, 2 and 4 may exceed the daytime zone noise standard by 1 dBA – 2 dBA. Exceedances of that magnitude would be considered negligible to marginal.

In terms of the short-term maxima noise events, the associated level at the residential locations would not be expected to exceed 46 dBA LA<sub>Fmax</sub>. That level would comply with the NSW NPfl screening threshold for sleep disturbance.

The mobile plant, ie the trucks and frontend loader, were the dominant noise sources due to their close proximity to the shared boundaries.

## 5 Discussion

The predicted noise levels at the future South Jerrabomberra development during the night period, up to 36 dBA LA<sub>10(10minute)</sub>, rely on only the asphalt plant or mobile plant operating at any one time but not both together. In the context of the ambient environment adjacent to an industrial estate and a significant road traffic network, the predicted exceedance is insignificant and it is not proposed to provide noise mitigation treatments. It is noted that as the Hume Industrial Precinct develops over time, substantial building structures would be erected between the south boundary of the site and the NSW land, further reducing noise levels from the proposal to compliant levels when observed at the future South Jerrabomberra development.

It is also noted that the daytime operations, with all items operating concurrently, are predicted to result in a noise level of 40 dBA LA<sub>10(10minute)</sub>, which would comply with a noise limit that is based on land zoning and considers the proximity of the residential land to existing industrial operations, ie the interface between industrial and residential zones.

Given the existing and ongoing development of land in the Hume Industrial Precinct, and future residents of South Jerrabomberra would be moving to an area adjacent to an existing industrial area, it is expected that a predicted noise level of 40 dBA LA<sub>10(10minute)</sub>, would be unlikely to result in noise-related complaints. In addition, as the sites between the proposal and the NSW border are developed, further screening from buildings would further reduce noise. Therefore it is expected that all sources at the site could operate concurrently and remain in compliance with project noise limits at noise-sensitive locations at all times

Noise at the shared boundary locations (Receptors 1, 2 and 4) exceeded the daytime zone noise standard by up to 2 dBA and the night-time zone standard by up to 12 dBA, primarily due to truck/frontend loader movements.

It is important to recognise that where noise standards or limits are not, or cannot be achieved, then it does not automatically follow that impacts would occur, or the noise is unacceptable.

It is noted that the purpose of the area is industrial and is frequently utilised by heavy vehicle traffic, and the prevailing ambient environment is likely to be dominated by high levels of traffic noise from vehicles on the Monaro Highway and nearby industrial site activities. It was observed that most of the sites adjoining the proposed development site include activities involving similar plant to the asphalt plant, ie large haulage/delivery trucks and frontend loaders.

In addition, the activities at the boundary locations of the adjoining sites include carparking, material storage and waste stockpiles, which are not considered noise sensitive uses and occupants would not be expected to spend significant amounts of time or expect a high degree of acoustic amenity.

Further, due to the minimal separation distance between the truck loop route and frontend loader use and the site boundary/assessment locations, compliance will be difficult to achieve by conventional mitigation treatments. An effective noise barrier would be of the order of 4 m high and would run almost the entire length of the boundary. Such a noise barrier would not be considered reasonable or feasible. Other noise mitigation options are not readily available.

In the context of these circumstances and the development location, it is reasonable to conclude that the predicted exceedances during the daytime and night-time period exceedance would be negligible and highly unlikely to result in noise-related complaints or indeed any type of environmental noise impact.

Notwithstanding the above conclusion, it is recommended that drivers and personnel be mindful of noise produced at the asphalt plant. Management and supervision should brief the work team (ie tool box talks etc) in accordance with Facility Plan of Management to minimise the generation of noise. Recommendations to achieve this include drivers limit idling time and turn off engines where possible, together with positioning vehicles as far from the site boundaries as possible.

## 6 CONCLUSION

SLR has undertaken an assessment of operational noise associated with a proposed Asphalt Plant to be located at 5 Paspaley Street (Block 67 Section 22) in Hume, ACT.

The assessment included the following components:

- Establish applicable noise assessment locations and ACT zone noise standards.
- Prediction of operational noise from the site based on SWL data of plant/equipment and their proposed locations.
- Assessment of the predicted noise levels.

Compliance with the daytime zone noise standards is expected at all times at residential (or future residential) receptors located in the vicinity of the site. Negligible/marginal exceedances up to 2 dBA were predicted for the daytime at the three of the four boundary assessment locations. Although it is not likely that noise sensitive activities would occur at those locations, an excess of that magnitude would not be likely to result in noise-related complaints or any adverse impact.

Noise from activities that occur during the night-time period, generally between 5:30 am and 7:00 am would also exceed the zone noise standards at the assessment locations at the shared site boundaries. However it is not expected that adverse impacts would occur at those times.

The noise from the night-time operations can comply with project noise limits at the future South Jerrabomberra residential development provided the asphalt plant and mobile plant do not operate simultaneously. Notwithstanding that outcome, were the plant to operate at the same time, it is not likely that noise-related complaints or adverse impact would occur. Additionally, the noise would comply with noise limits that take the land zoning and existing uses into consideration.

Therefore, it is concluded that the noise would be acceptable based on:

- The noise sources would be considered typical and common for the site and surrounds, ie the Hume industrial area.
- Most of the adjoining sites include similar activities with similar plant (ie large trucks and frontend loaders).
- The use of the boundary locations of adjoining sites are generally unoccupied and not noise sensitive and include waste stockpiles, storage and carparking, and therefore adverse effects are not likely.
- Mitigation options have been considered however is not readily available for large mobile plant. Noise barriers on property boundaries are not expected to be reasonable or feasible.

Therefore, even though the zone noise standards may not be achieved at times, adverse effects of the noise would be negligible and highly unlikely to result in noise-related complaints or indeed any type of environmental impact.

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Mr Ronan Pringle  
Village Building Company  
Argyle Corner, 92 Hoskins Street  
Mitchell  
ACT 2911

1 May 2020

Reference: 0523454

Dear Ronan,

**Subject: Review of Air Quality and Noise assessments completed for Capital Asphalt Plant, Hume ACT**

## 1. INTRODUCTION

ERM Australia Pacific Pty Ltd (ERM) has been commissioned by Village Building Company (VBC) to review Capital Asphalt Services Pty Ltd (Capital) revised air quality and noise assessments completed for Development Application (Application Number 201936510) for the proposed asphalt plant located at Block 67 Section 22, Hume, ACT ("the proposed asphalt plant"), lodged in December 2019.

In February 2020, ERM provided a letter report that reviewed the air quality, odour and noise aspects associated with the proposed asphalt plant "*Letter of submission for DA 201936510 – Capital Asphalt Plant, Hume ACT*" ("the ERM submission letter"; ERM, 2020).

In response to the issues raised by ERM regarding the adequacy of the air quality and odour assessment, Capital have now provided supplementary documentation for the assessment of potential air quality and odour impacts of the proposed asphalt plant.

This letter report provides a review of air quality and odour aspects associated with the proposed asphalt plant, now referencing:

- Proposed Asphalt Plant, Hume: 5 Paspaley Street (Block 67 Section 22) Air Quality Impact Assessment ("Capital AQIA"; SLR 2020a)

### 1.1 Background

In 2012 the then Queanbeyan City Council rezoned land now referred to as South Jerrabomberra for residential purposes under the Queanbeyan Local Environmental Plan (South Tralee) 2012. South Jerrabomberra, previously known as South Tralee, is located in NSW and will be home to 1,500 residences once developed. South Jerrabomberra abuts the NSW/ACT border and on the ACT side of the border is Hume Industrial Estate. A 'buffer area' to the Hume Industrial Estate will be developed up to 200m into the South Jerrabomberra land area incorporating land uses permissible in the RE2 and B1 zones

Contained within the Hume Industrial Estate is the existing Downer EDI asphalt plant. There is concern that the development of another asphalt plant in Hume Industrial Estate in addition to the continued operation to the existing Downer EDI asphalt plant could lead to harmful odour impacts at the future residences of South Jerrabomberra.

The locations of the proposed asphalt plant, the existing Downer EDI asphalt plant and the VBC site (South Jerrabomberra) are shown in **Figure 1-1**.

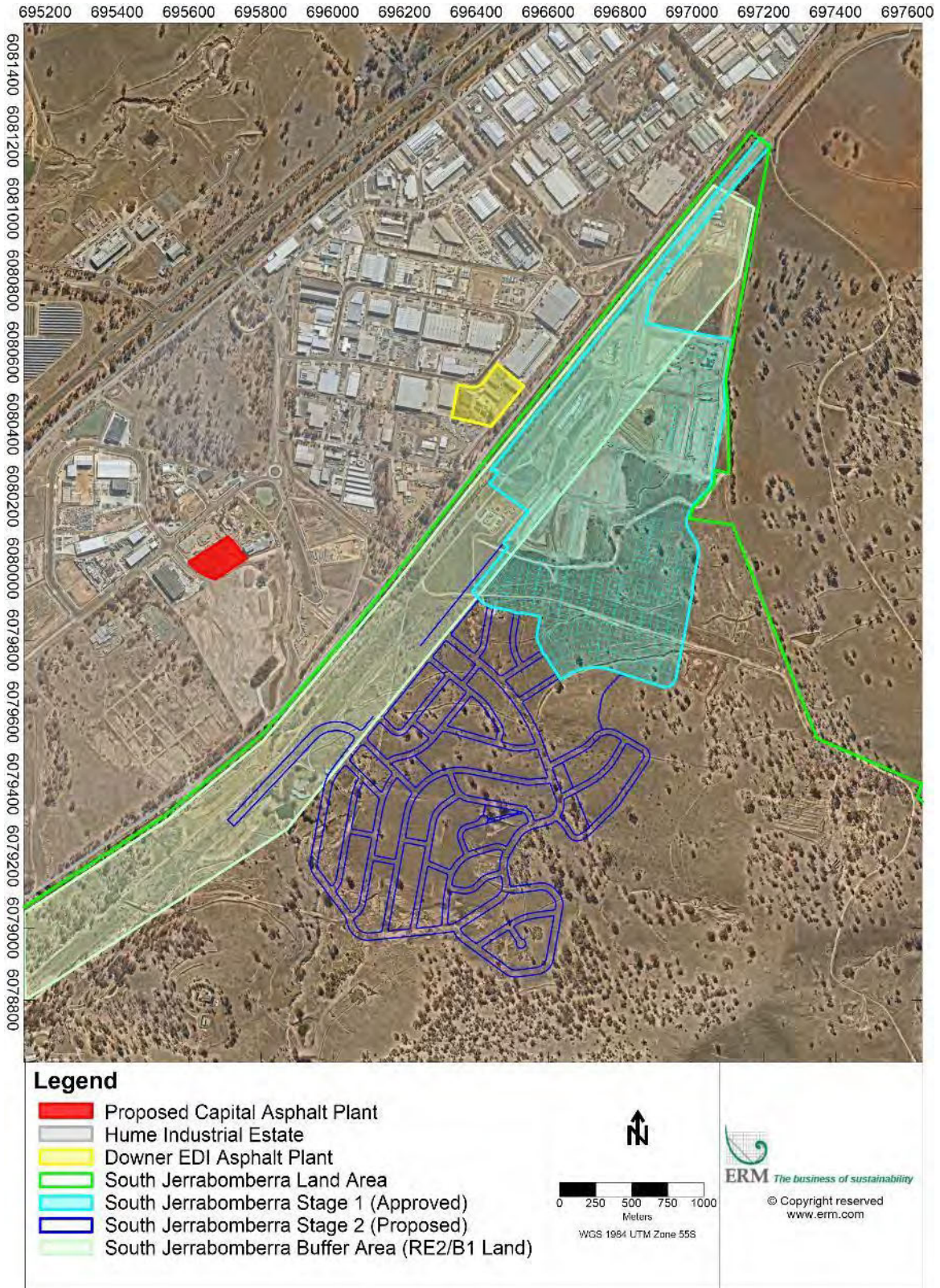


Figure 1-1: Study area

## 2. ENVIRONMENTAL ASPECTS REVIEW

**Issue 1: The Capital AQIA (SLR 2020a) has not provided enough information on the proposed air quality mitigation measures that will be implemented as part of the design and operation of the plant.**

The proposed mitigation and management measures described in Section 8 of the capital AQIA are limited and do not reference the best practice measures described in the ERM submission letter.

The Capital AQIA states that “*Fumes from the load out area will be extracted with the use of suction pipes, directed to the baghouse and released to the atmosphere via the baghouse stack*”, however no other detail is provided.

Further detail on the design of such a system, as well as the anticipated control efficiency of the abatement of odour and other air quality metrics should be provided. This should reference empirical data from an equivalent facility.

An image of the proposed asphalt plant, derived from an internet image search, is presented in Figure 2-1. As seen in Figure 2-1, both the hopper and load-out components of the plant appear to be exposed and as such would typically be expect to result in an element of fugitive air emissions.



**Figure 2-1: Proposed asphalt plant (Benninghove/Wirtgen Semi Mobile ECO 2000 Batch Asphalt Plant) (SLR, 2020)**

Figure 2-1 appears to be very similar in configuration to the Downer EDI asphalt plant at Hume (the “Downer EDI plant”). This plant operates with no abatement of the fugitive air emissions released from the hopper, load out and truck tarping areas.

Comparison between the two batch plant configurations indicates that the two facilities appear to be comparable in their design, with no evidence of best practice odour abatement evident for the Capital facility.

The atmospheric emission inventory presented in the Capital AQIA appears to use an assumption of 100% control efficiency at the hopper and load-out components of the plant.

However, without appropriate targeted abatement, these two emission sources are typically a significant (dominant) source of off-site odour.

The SLR AQIA should therefore either be amended to include these sources, or should justify why they are not included.

Furthermore, fugitive emissions from trucks waiting to be tarped has not been included in the emission estimates within the Capital AQIA.

**Recommendation 1: Emissions from the hopper, load-out and tarping of trucks should either be included in the air quality and odour emissions estimates or sufficient evidence to support 100% abatement of these sources should be demonstrated.**

## **Issue 2: The Capital AQIA has underestimated odour emission rates.**

Recommendation 6 of the ERM submission letter states “*The odour emission inventory should reference a similar plant operating in Australia and appropriate mitigation measures should be committed to and be included in the modelling*” (ERM, 2020).

The Capital AQIA acknowledges that it has only sourced limited odour emissions data. However, it is considered that the proponent should have access to defensible odour data (i.e. based on measurement of equivalent plant), given this is a potentially limiting parameter for the development.

In the absence of site representative odour emissions data, the Capital AQIA has based the odour emissions inventory on publicly available data. This was published as part of the for the AQIA for the Bushells Ridge Asphalt Plant (SLR, 2016) that in turn references measured data from the Rutherford Asphalt Plant and Wesley Vale Asphalt Plant. However, no laboratory results are provided to substantiate the measurement of odour emission rates and the identification of all odour sources has been provided in either AQIA (SLR, 2016; 2020).

The adopted method by the Capital AQIA has been to scale the reported odour emission rates from the Rutherford and Wesley Vale asphalt plants. It is understood, from the Capital AQIA, that the Rutherford plant operates at a production rate of 240 tonnes per hour (tph) and Wesley Vale 40 tph. The proposed asphalt plant is intended to operate at a maximum of 130 tph. A comparison of the referenced and proposed asphalt plant parameters, including odour emission rates by source, is presented in Table 2-1.

**Table 2-1: Comparison of parameters presented in Capital (and other SLR) Assessments**

Odour emission source	Rutherford <sup>a</sup>	Wesly Vale <sup>b</sup>	Capital (130 tph)	Unit
Production rate	240	40	130	tph
Dryer stack	8,257.25	n/a	4,473	Ou.m <sup>3</sup> /s
Load out	n/a	40	1,300	Ou.m <sup>3</sup> /s

Notes: a: SLR (2020)  
b: SLR (2016)

As seen in Table 2-1, only two sources of odour have been identified in the Capital AQIA, as the adopted approach in the referenced Bushells Ridge Asphalt Plant (SLR, 2016). This would appear to underestimate the potential fugitive sources for a conventional asphalt plant that does not employ best practice odour control technologies / techniques.

ERM has completed a review of other publicly available asphalt plant AQIAs in Australia. Emissions have been characterised using emission testing and assessments for the following drum dryer plants:

- Downer EDI Flagstaff, TAS (AllUrbanPlanning, 2016),
- Downer EDI Oberon, NSW (Umwelt, 2015),
- Downer EDI Hume, ACT (Ektimo, 2015, 2016, 2018)
- Archerfield, QLD (JT, 2009)
- Ulverstone, TAS (GHD, 2009a),
- Cameron Park, NSW (PAE Holmes, 2011a)
- Townsville, QLD (PAE Holmes, 2011b), and
- Enfield, NSW (Holmes Air Sciences, 2004a/b)
- Montrose, VIC (GHD, 2009b)
- Scoresby, VIC (GHD, 2011), and
- Fulton Hogan Rutherford, NSW (The Odour Unit, 2013)

Table 2.2, Table 2.3 and Table 2.4 show the odour emission rates (OERs) adopted for the dryer stack, truck load out and tarping activities (respectively) at each of these sites, as well as a comparison with the OERs adopted within the Capital AQIA.

**Table 2.2: Comparison of baghouse stack exhaust odour emission rates at other asphalt plants**

Reference	Project location	Plant make / model	Capacity (tpa)	Diameter (m)	Temperature (°C)	Exit velocity (m/s)	Odour Units (OU)	OER (OU m <sup>3</sup> /s)
AUP (2016)	Flagstaff, TAS	Ammann Contimix 140	140	0.835	70	8.1	4,138*	12,093, 14,345, 15,679
Umwelt (2015)	Oberon, NSW	Ammann Contimix 140	140	0.835	70	8.1	-	-
				0.835	77	11	-	-
JT (2009)	Archerfield, QLD	Ammann Uniglobe 240	Unknown	-	-	11.5	-	-
GHD (2009)	Ulverstone, TAS	SPECO TSAP-1000FFW	80	0.9	140	15	2,560	17,333
PAEH (2011a)	Cameron Park, NSW	Unknown	Unknown	1.2	65	11	180, 210 (200 average.)	2,167
PAEH (2011b)	Townsville, QLD	Unknown	Unknown	0.601	50	13	9,300	38,000
				0.601	53	16.1	43,800	118,000
HAS (2004)	Enfield, NSW	Unknown	Unknown	0.8	120	22.5	2,390	24,718
EML (2014)	Hume, ACT	Ammann Uniglobe 240	Unknown	1.090	60	16	n/a	n/a
Ektimo (2015)	Hume, ACT	Ammann Uniglobe 240	Unknown	1.090	59	9.1	n/a	n/a
Ektimo (2016)	Hume, ACT	Ammann Uniglobe 240	Unknown	1.090	59	15	n/a	n/a
Ektimo (2018)	Hume, ACT	Ammann Uniglobe 240	Unknown	1.090	51	12	n/a	n/a
SLR (2020)	Hume, ACT	Benninghove/Wirtgen Semi Mobile ECO 2000 Batch Asphalt Plant	130 tph	1.05	130	21.5		4,473

**Table 2.3: Comparison of product load-out odour emission rates at other asphalt plants**

Reference	Source	OER
GHD(2005)	Montrose, VIC	8,500
GHD (2011)	Scoresby, VIC (Mobil Bitumen)	33,300
GHD (2011)	Scoresby, VIC (Shell Bitumen)	4,300
TOU (2013)	Rutherford, NSW	5,930
HAS (2004a)	Enfield, NSW	27,900
HAS (2004a)	Enfield, NSW	16,350
HAS (2004b)	Enfield, NSW	11,400
SLR (2020)	Hume, NSW	1,300

**Table 2.4: Comparison of tarping odour emission rates at other asphalt plants**

Reference	Source	OER
HAS (2004a/b)	Boral Enfield	4,050
GHD (2009) ref. GHD(2005)	Victorian Plant	500
SLR (2020)	Hume, NSW	Not included as a source

With the exception of the odour emissions from the dryer stack at Cameron Park (PAEH, 2011), the dryer stack emission rates adopted in the Capital AQIA equate to between 4% and 26% of odour emission rates adopted within for all other dryer stacks in publicly available AQIAs in Australia. Similarly, the load out emissions are between 4% and 30% of all other AQIA values available for review.

A typical approach to AQIA is to adopt a level on conservatism in the odour emission estimate to provide a reasonable worst-case assessment. There is no evidence that this has been completed, nor any justification for the, at face value, extremely low odour emission rates adopted within the Capital AQIA.

**Recommendation 2: The odour emission rates for the proposed asphalt adopted in the Capital AQIA require additional justification or more appropriate and representative odour emission rates should be adopted. A comprehensive review and justification of all potential odour emissions sources from the proposed plant should be completed.**

**Issue 3: Underestimation of predicted odour impacts from the dispersion modelling.**

Recommendation 6 of the ERM submission letter states “*Detailed odour dispersion modelling should clearly show where there are predicted to be odour impacts from the proposed asphalt plant*” (ERM, 2020).

Issues 1 and 2 as they relate to the odour emission inventory for the Capital AQIA appear to result in extremely low odour predictions within the Capital AQIA.

The odour contours presented page 8 of the Appendix D of the Capital AQIA have been reproduced in Figure 2-2.

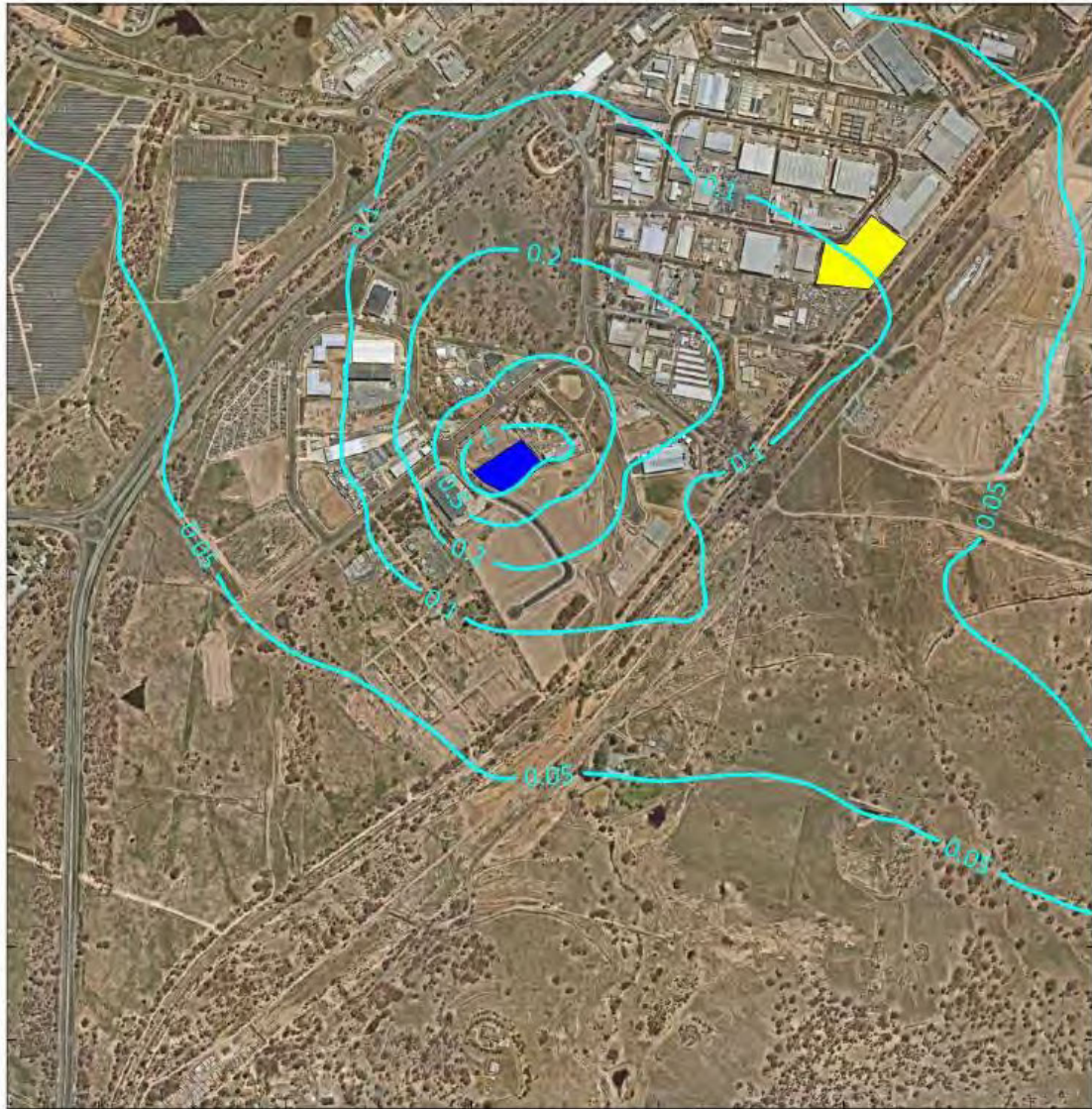
The ERM submission letter additionally provided equivalent modelling of the 99.9<sup>th</sup> percentile, 3-minute odour predictions, which are shown in Figure 2-3.



At the closest South Jerrabomberra receptor point (approximately 600m southeast) the odour concentration predictions made within (ERM, 2020) are approximately 30 OU.

One can see the odour predictions in the Capital AQIA (Figure 2-2) at the equivalent location are approximately 0.1 OU.

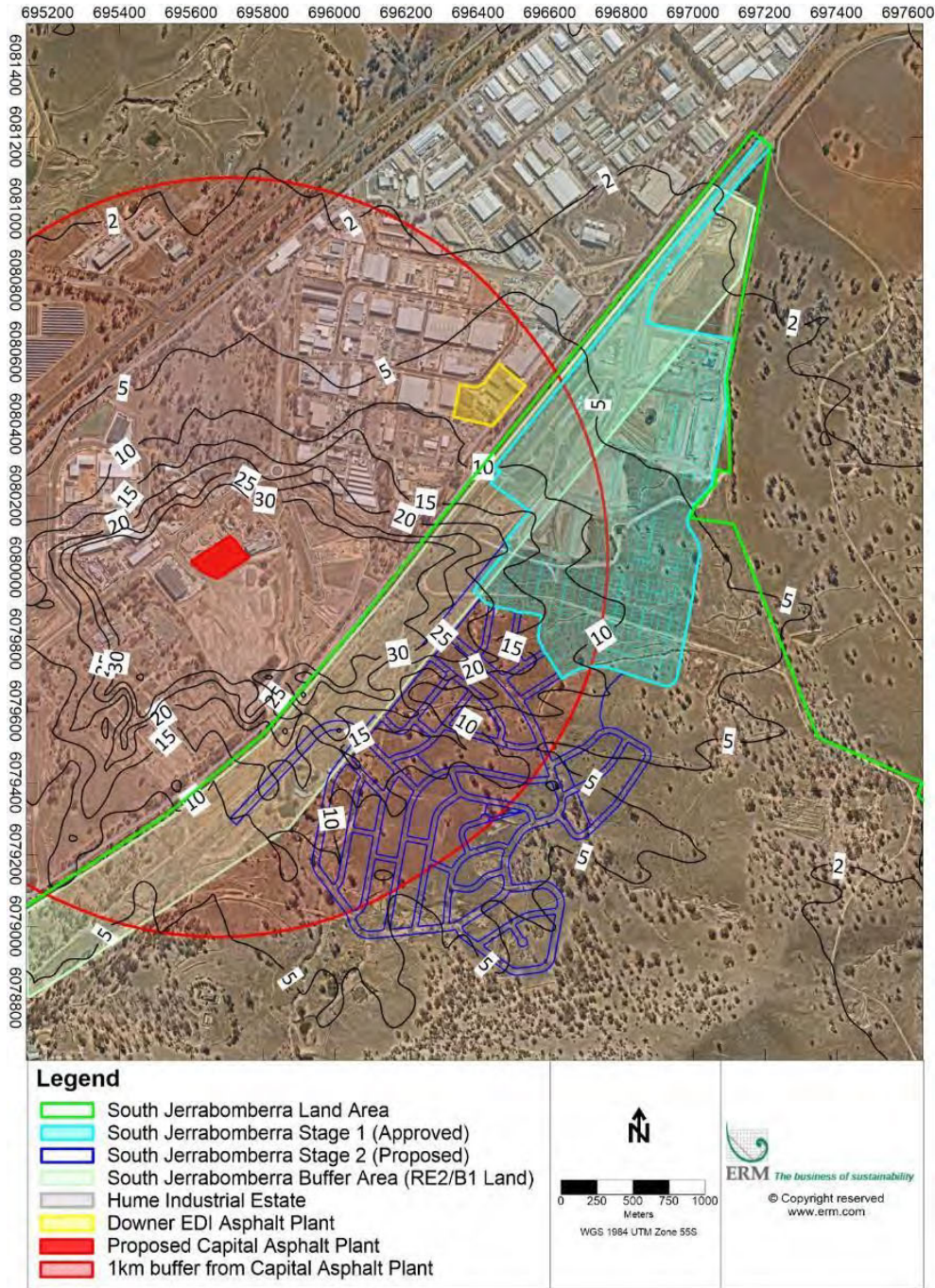
This 300 fold decrease in predicted odour impacts within the Capital AQIA requires additional explanation and justification.

*Recommendation 3: Air dispersion modelling should be reviewed so as to reflect a conservative approach to estimation of off-site impacts. Any significant decreases in odour predictions compared to conventional odour modelling presented in ERM, 2020 should be explained and justified.*



 <p>2, Lincoln Street Lane Cove NSW 2066 T. +61 2 9427 8100 F. +61 2 9427 8200 www.slrconsulting.com</p> <p><small>The content within this document may be based on third party data. SLR Consulting Australia Pty Ltd does not guarantee the accuracy of such information.</small></p>	<p>Project Number: 670 11108</p> <p>Dispersion Model: CALPUFF</p> <p>Modelling Period: 2018</p> <p>Projection: UTM Zone 58S</p> <p>Date: 16/03/2020</p>		<p><b>Capital Asphalt</b> <b>Hume Asphalt Plant</b> <b>Air Quality Impact Assessment</b></p> <p>Incremental Impact (99.9%)</p>											
	<table border="1"> <thead> <tr> <th>Pollutant</th> <th>Odour</th> <th>Averaging 3-minute Period</th> <th>Limit</th> <th>OU</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Pollutant	Odour	Averaging 3-minute Period	Limit	OU							
Pollutant	Odour	Averaging 3-minute Period	Limit	OU										

**Figure 2-2: Predicted odour 99.9<sup>th</sup> percentile 3-minute average impacts from the proposed asphalt plant (SLR, 2020)**



**Figure 2-3: Odour dispersion modelling results for the 99.9<sup>th</sup> percentile 3-minute average (ERM, 2020)**

**Issue 4: The AQIA has not adequately assessed cumulative impacts from nearby Downer EDI asphalt plant.**

Cumulative odour impacts are assessed when there are two or more locations with a similar odour character. As both the proposed asphalt plant and the existing Downer EDI asphalt plant would be operational at the same time, it is important to address cumulative odour impacts and as such the Downer EDI plant should be included in the dispersion modelling.

ERM has previously identified that the Downer EDI plant does not incorporate abatement of fugitive emissions from the hopper, load-out and tarping and as such these three odour sources, as a minimum, should be accounted for within the site's emission inventory and subsequent cumulative assessment.

*Recommendation 4: It is recommended that the cumulative odour assessment is revised to capture all sources of odour from the Downer EDI site and adopt conservative, defensible odour emission rates within the cumulative assessment.*

**Issue 5: Characterisation of local meteorology**

The dispersion meteorology is key to predicting odour impacts that are representative of the local topographical and meteorological conditions.

The annual and seasonal wind roses adopted within the Capital AQIA and wind data measured at the nearest Bureau of Meteorology (BoM) automatic weather stations (AWS) at Tuggeranong and Canberra Airport are shown in Figure 2-4, Figure 2-5 and Figure 2-6, respectively.

The wind patterns measured at the two BoM AWSs show that the area is characterised by winds originating from the northwestern and southeastern quadrants. It is particularly important for winds from the northwestern quadrant are adequately characterised as this is the prevailing wind direction that will transport atmospheric emissions towards the South Jerrbomberra site.

Based on the Tuggeranong and Canberra Airport wind roses, this would be approximately 30% of the time. By comparison, the annual wind rose produced by CALMET in the Capital AQIA (Figure 2-4) appears to estimate northwesterly winds around 20% of the time.

It is noted that the Capital AQIA has not included the Canberra Airport data in the assimilation of the CALMET file. Given that both BoM AWSs are located a similar distance from the proposed asphalt plant, and that airport data is typically considered of high quality it is unclear why the Canberra Airport dataset has not been used.

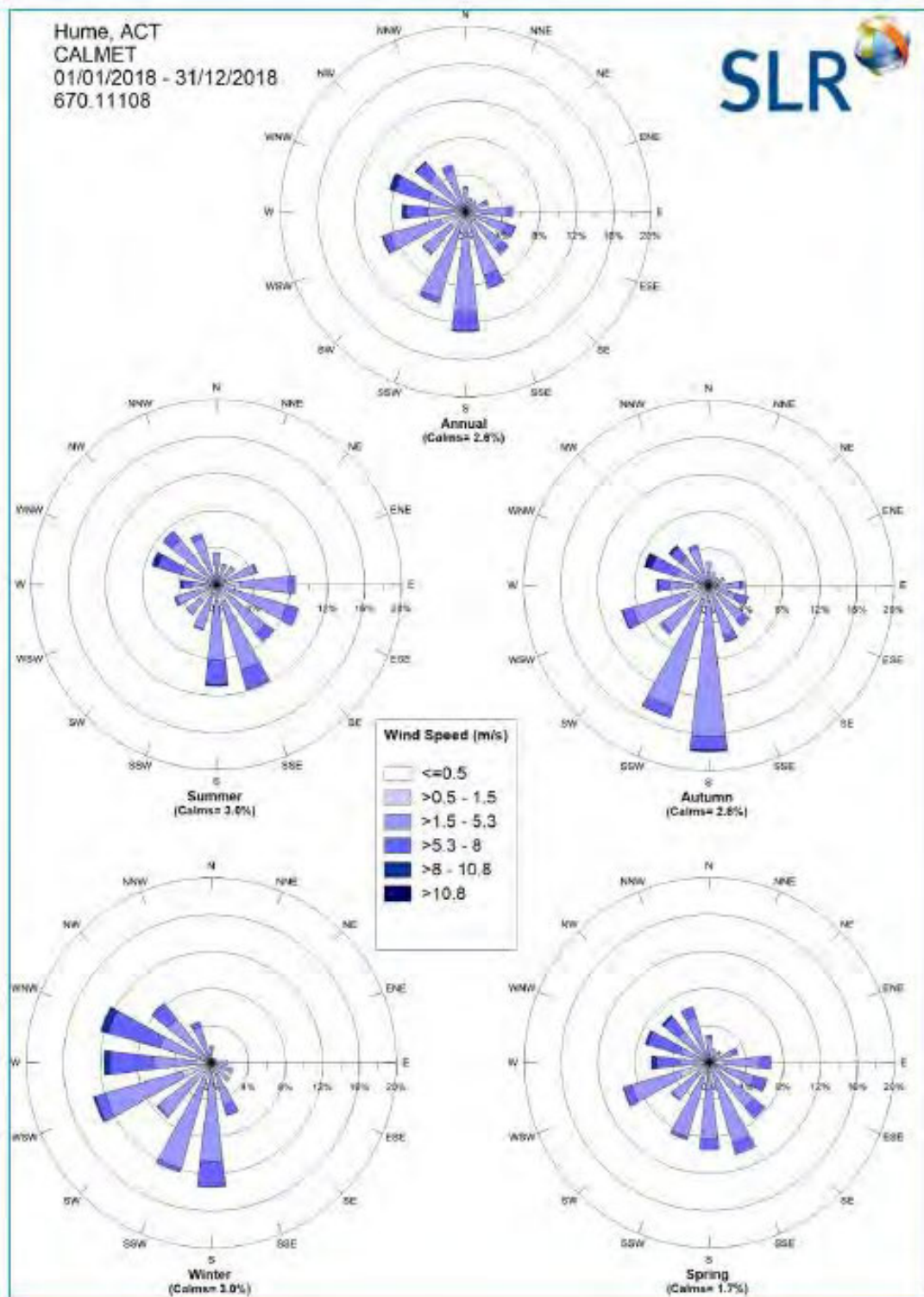
It is anticipated that incorporation of Canberra Airport data, along with appropriate CALMET set-up, will improve the current Capital AQIA characterisation of local meteorology.

Predictions of the mixing height (height of the boundary layer of the atmosphere) as presented in Figure 9 of the Capital AQIA. It would be anticipated that for an area that experiences cooler winters and prevalent inversion conditions, that the average height of the atmosphere would be lower than 300 to 400 metres during the night time hours.

In over-predicting the height of the boundary layer emissions are allowed to be efficiently dispersion, resulting in lower ground level concentrations and under prediction of air quality and odour concentrations.

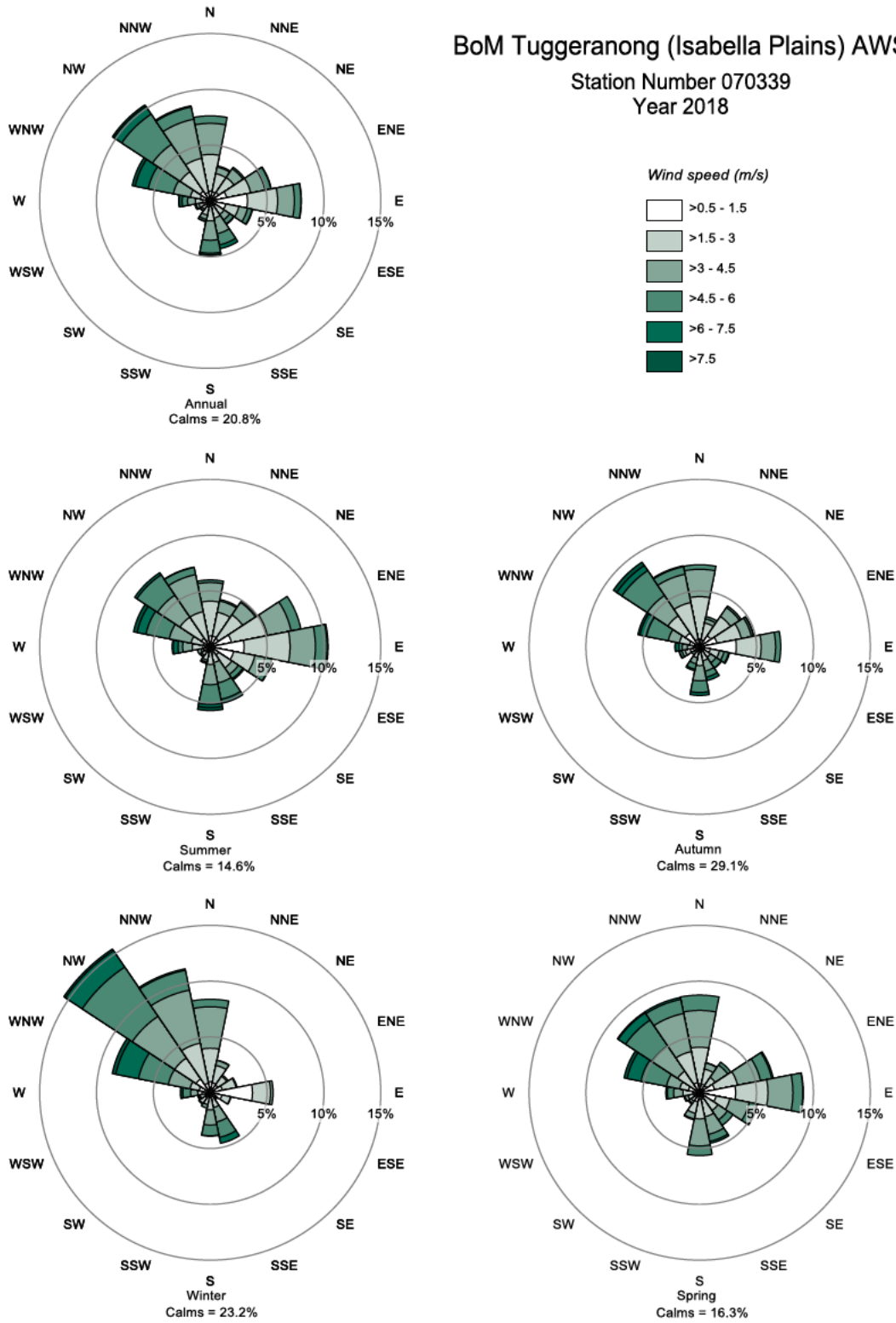
It is further considered that the Stability Class distributions should be reviewed, as they do not appear to be reflective of the inland, cooler climate locality.

*Recommendation 5: The simulation of local meteorological conditions should be reviewed so that they can be demonstrated to be representative of the Hume and South Jerrabomberra area.*

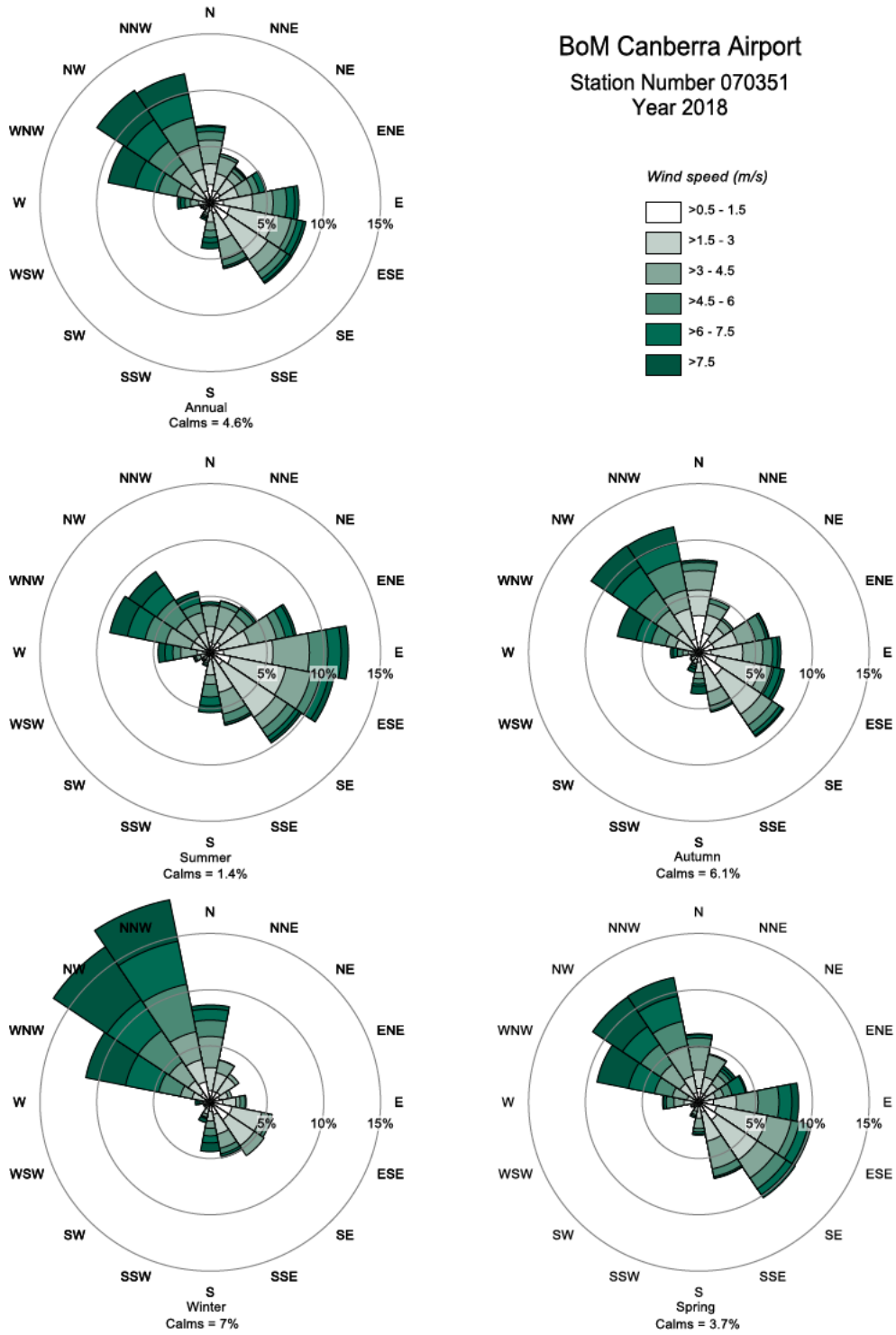


**Figure 2-4: Annual and seasonal windroses for Capital AQIA CALMET extract (2018)**

**BoM Tuggeranong (Isabella Plains) AWS**  
Station Number 070339  
Year 2018



**Figure 2-5: Annual and seasonal windroses for Bureau of Meteorology AWS at Tuggeranong (2018)**



**Figure 2-6: Annual and seasonal windroses for Bureau of Meteorology AWS at Canberra Airport (2018)**

I trust that the above provides suitable commentary on the Capital AQIA, particularly as it relates to the estimation of odour impact. Do not hesitate to contact the undersigned if you have any queries.

Yours sincerely,



Damon Roddis  
Partner – Air Quality and Greenhouse

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