Decision Report

Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W6621/2021/1
Applicant	Asphaltech Pty Ltd
ACN	064 520 869
File number	DER2021/000589
Premises	Asphaltech Picton 2 Sutherland Way PICTON WA 6229 Legal description Part of Lot 55 on Diagram 22200 Certificate of Title Volume 2119 Folio 623 As defined by the coordinates in Schedule 2 of the works approval Shown on the premises map attached to the works approval
Date of report	8 March 2022
Decision	Works approval granted

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of an asphalt manufacturing plant to be located at 2 Sutherland Way in Picton Western Australia (Premises). As a result of this assessment, works approval W6621/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Delegated Officer has considered and given due regard to the Department of Water and Environmental Regulation's (department) regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of premises

On 14 October 2021, Asphaltech Pty Ltd (applicant) applied for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The Premises relate to categories 35 - asphalt manufacturing and 61A – solid waste facility of Schedule 1 of the Environmental Protection Regulations 1987 (EP Regulations). The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with Guideline: Risk Assessments (DWER 2020) are outlined in works approval W6621/2021/1.

The applicant proposes to construct and operate an asphalt manufacturing plant with an assessed production capacity of not more than 437,000 tonnes of asphalt produced per annual period, at the Premises. The maximum design capacity of the asphalt plant is 50 t/hr. The Premises is within an industrial area which is zoned General Industry.

The asphalt plant that is to be located on the site was previously licensed and operated in an industrial area in Malaga.

For the Category 61A Solid waste facility, the proposed throughput is for the acceptance of up to 1000 tonnes of solid waste, being reclaimed asphalt pavement (RAP). Unprocessed RAP may be accepted on the Premises from jobs in the region, prior to being trucked to Neerabup where the applicant has a designated RAP processing plant. The applicant did not apply or plan for the ability to process RAP on site and therefore this activity was not assessed. Should the works approval holder wish to process RAP in the future, a works approval or licence amendment would be required.

2.3 Development approval

The City of Bunbury provided a development approval on 10 December 2021 for the proposed asphalt plant at the Premises. The applicant is required to submit to the City of Bunbury a Stormwater and Drainage Management Plan. This plan is to address stormwater management of the site.

3. Risk assessment

The Delegated Officer assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in

Table **1** below. The table also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Emissions, sources and proposed applicant controls (from Application)

Emission	Sources	Potential pathways	Applicant's proposed controls
Construction			
Dust	Vehicle movements, lift-off from earthworks etc.	Air / windborne	During construction dust will be controlled through use of a water cart.
Noise	Construction of the asphalt plant	Air / windborne	Construction of the hard stand, asphalt plant and related infrastructure will occur during daytime with not excessive noise expected during construction.
Operation			
Waste gases, including dust from stack	Asphalt manufacturing plant	Air / windborne	Baghouse filter that will reduce: - particulate emissions to be less than 50mg/m^3. -Carbon monoxide (CO) to less than 500 mg/m^3 -Nitrogen oxides (NOx) to less than 350 mg/m^3. Air from the pug mill and from the load out area, near the load out chute will be extracted and filtered through the bag house filter prior to discharge into atmosphere.
Odours	Use of bitumen in the asphalt manufacturing process	Air / windborne	Odours are controlled by extracting air from the pugmill and around the load out chute and then emitted from the stack. Also, an improved asphalt manufacturing process control will reduce excessive release of odour as the temperature of the asphalt is better controlled and no so-called blue smoke that causes excessive odour is emitted. Loading bay will be fitted with side skirts (shields) to reduce fugitive odours during loading of asphalt into trucks. The bitumen tanks shall be be suitably insulated and have thermostatically controlled electrical heating system. The thermostats shall be set to control bitumen in the range, 150-180^{0}C and never to more than 190^{0}C During extended periods where there is no

Emission	Sources	Potential pathways	Applicant's proposed controls
			production, the bitumen tanks shall be kept as full as possible to reduce oxidation and heat loss. Venting of headspace air of the bitumen tank will occur at the top of the bitumen tank.
Fugitive Dust	Delivery of aggregates and RAP to the site Stockpiles of aggregate and RAP on the site Hydrated lime and baghouse fines storage	Air / windborne	Trucks delivering raw materials to the site to be covered Cold feed bins are screened and roofed to prevent dust from aggregate and raw materials are stored in 3-sided bins and height of stockpiles is limited to the top of these walls. In dry windy conditions the stockpile aggregate is kept damp by means of an automated sprinkler system to reduce wind-blown dust both from the surface of the stockpile and from aggregate when being tipped into the cold feed bins Misting system on top of the walls of these bins to reduce fugitive dust. Aggregates are to be placed promptly in the correct storage bins Fines shall be stored in sealed silos The silos are equipped with a filtered, air pulse vent system, and overfill alarm system which directs vented material into a suitable container to prevent dust emissions Hardstand to be swept or hosed down after each day production to reduce dust emissions
	Stockpiles of unprocessed and processed RAP		Unprocessed and processed RAP are stored in 3 sided bins and the height of these stockpiles will be limited to the top of these walls. Misting system on top of the walls of these bins to reduce fugitive dust.
Noise	Asphalt manufacturing plant, front end loader and trucks on site	Air / windborne	Plant and equipment are fitted with appropriate noise suppression equipment to reduce noise levels, as far as practicable. All plant machines are regularly inspected, serviced and maintained to ensure maximum optimum performance.
Contaminated stormwater (sediment, hydrocarbons)	Spills from refueling, engine oil drips spills from trucks and front-end loader, bitumen spills	Soil/overland flows	Stormwater is managed on site as part of a stormwater management plan that is required under the development approval. Any spills will be cleaned up as soon as possible, with spill kits on site. Trafficable areas will be regularly swept by a road sweeper. Any sediment and hydrocarbons that are in the stormwater are separated from this stormwater by a double interceptor prior to release into a

Emission	Sources	Potential pathways	Applicant's proposed controls
			stormwater drainage retention settling pond, where this water is soaked into ground and partially evaporated. Part of the filtered water is diverted to a tank for dust suppression on site. There is no cleaning of trucks occurring on site. Process and stockpile areas will be covered in a hard stand (100% Recycled Cold Emulsion Asphalt).

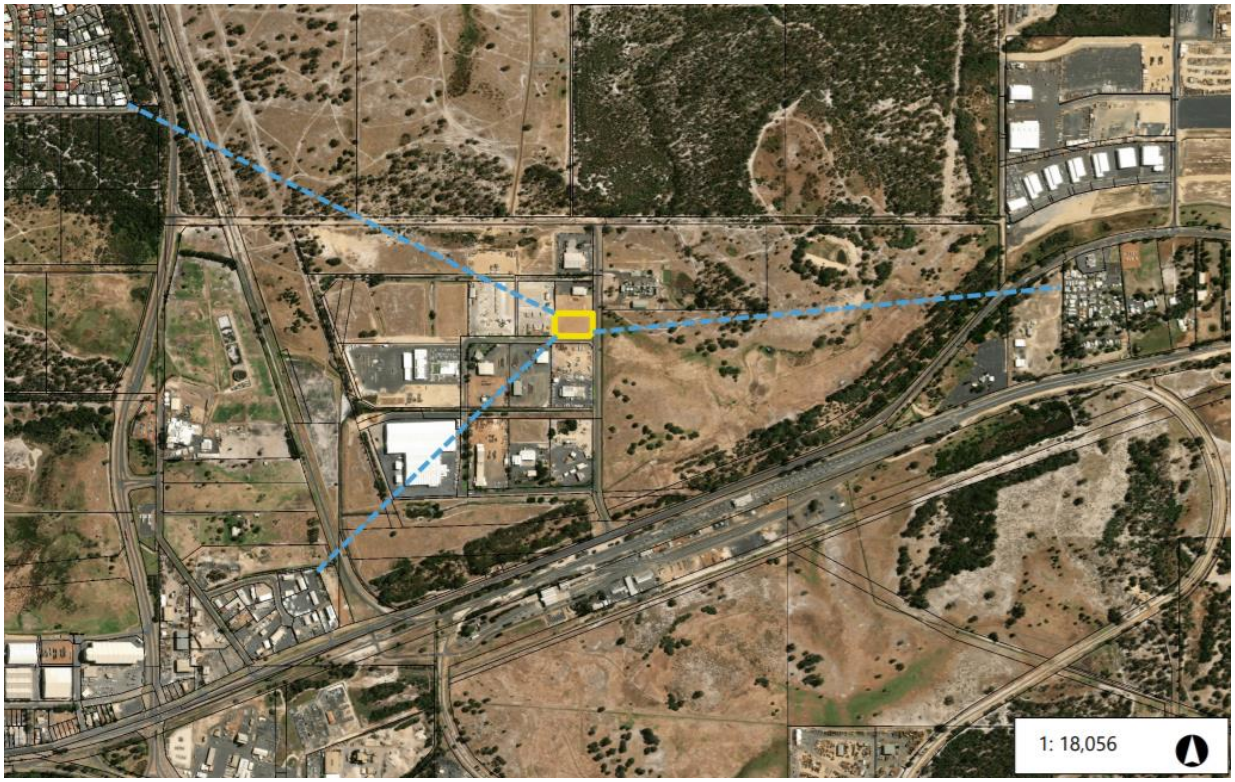
3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 2 and Figure 1 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from the Premises

Human receptors	Distance from the Premises
Neighboring industries	Directly adjacent
Residents in Glen Iris	~1.3km from the Premises boundary to the north-west
Residents	~1.3km from the Premises boundary to the east
Light industrial/commercial area in Picton	~950m from the Premises boundary to the south-west
Environmental receptors	**Distance from prescribed activity**
Superficial Groundwater	~3m below ground level
Wetland (Dampland SCP Win ID 9389)	~ 220m to the north (outside industrial area)



3.2 Figure 1: Distance to human receptors Air emissions screening and modelling

The applicant provided in their application asphalt plant stack emission rates for particulates (PM), oxides of nitrogen (NOx), carbon monoxide (CO) and volatile organic compounds (VOCs, speciated). These emission rates were from stack testing conducted when the asphalt plant was operating in Malaga.

These emissions were screened by the applicant as per the Draft Guideline: Air Emissions against the relevant ambient air quality guideline value (AGV), which was verified by the Delegated Officer. The results of the screening were that NOx was not deemed insignificant, although just over the screening levels, and neither were the VOCs, when assessed as asphalt fumes (there is no AGV for Total VOCs). Then the speciated VOCs (Benzene, Toluene, Ethylene and Xylene) were screened by the Delegated Officer and these were deemed insignificant.

The applicant further provided a simplified modelling assessment of NOx emissions, conducted by Environmental & Air Quality Consulting Pty Ltd. The predicted maximum 1-hour concentration at the nearest sensitive receptors is 7.41% of the AGV and the predicted maximum annual concentration at the nearest sensitive receptor is less than 1% of the AGV.

The modelling by Environmental & Air Quality Consulting Pty Ltd also included an assessment for the nearest industrial receptors and the maximum 1-hour is predicted at 35.93% of the AGV and the predicted maximum annual concentration is 6.39% of the AGV. Using the AGV for industrial receptors is a more than conservative approach as occupational health and safety standards are much higher.

As such the Delegated Officer concludes that based upon the information provided emissions to air from the proposed asphalt plant will be acceptable and are unlikely to cause any negative health impacts on receptors outside the Premises.

3.3 Odour risk assessment screening

The applicant provided odour screening with the application, as per the department's Guideline: Odour emissions. The applicant states that the main sources of odour during the operation of the asphalt

plant are the bitumen tank vent during hot bitumen transfer from a road tanker to the storage tank and the hot asphalt discharge into the trucks from the pugmill mixing chamber (asphalt plant). This is in addition to the stack emissions, as air from the pugmill and load out area is extracted to the stack via the baghouse filter.

The application odour screening concluded that there are no special case factors and that the distance to the nearest residential receptor is sufficient (>1000m). Therefore, there was no detailed odour analysis required as per the department's Guideline: Odour emissions. The applicant assumed with this screening that the industrial and/or commercial premises within the same industrial area as the Premises were not deemed sensitive receptors as per the guideline.

This view is in principle supported by the Environmental Protection Authority's *Guidance for the Assessment of Environmental Factors (in accordance with the Environmental Protection Act 1986) Separation Distances between Industrial and Sensitive Land Uses NO. 3*. However, the Delegated Officer also assesses whether or not there will be an unreasonable impact on neighboring industrial/commercial premises.

The applicant states in the odour screening report that during the period that this asphalt plant had been operating in Malaga that there were no confirmed complaints about this plant, with residential premises closer and more industrial/commercial premises nearby. The applicant mentioned that there had been some complaints during the period of commissioning of the new plant, however that was resolved.

A search in the department's Incidents and Complaints Management System suggests that the department received 5 odour related complaints since 2018, in respect to the Malaga plant, with the latest complaint in 2019. Prior to this there were a couple of odour complaints, but nothing to indicate a significant or ongoing odour issue from the plant, with most complaints to be relating to some short term issue or incident/malfunction at the time.

The Delegated Officer acknowledges that there are the two main odour sources and that odours are mainly generated as VOCs from the hot bitumen/asphalt. There is no data on odour emissions from the bitumen tank during transfer into the bitumen tank from a road tanker, however, based upon the stack test of this plant in Malaga, there is information about VOC emissions from the stack. There is no AGV for total VOCs but there are for some of the individual compounds (such as benzene, toluene, ethylene and xylene). As outlined in section 3.2, screening of the individual compounds resulted in an insignificant rating.

The Delegated Officer considers that, although it is possible that odours can be detected outside the Premises, it is unlikely, with the additional proposed odour controls as outlined in Table 1, that this would be at such levels that it causes negative health impacts.

3.4 Acoustic assessment

The simplified acoustic screening assessment submitted with the application showed that the asphalt plant has a predicted sound power level of L_{wA} 92.1 dB. However, it has to be noted this is without trucks or front-end loader operating at the Premises.

The predicted noise impact, as a direct sound propagation calculation without barriers or reduction of vegetation, at the nearest sensitive residential receptor is 21.82 dB, which is well below the assigned noise level at nighttime for these premises (set at 35 dB as LA_{10}). See Figure 2 for the screened potential noise impacts from the Premises.

The Delegated Officer conducted a similar sound propagation calculation where the sound power level of a front-end loader was used of 105 dB. The predicted noise impact at 1300m would then be 33.9 dB, which is still below the assigned noise level for the residential premises.

Predicted impact on neighboring industries and commercial premises is expected to meet the assigned noise level of 65 dB (LA_{10}) with a predicted noise impact beyond 25m from the equipment to be less than 56dB as can been seen in Figure 2.

The Delegated Officer notes that noise from traffic on a public road outside the Premises falls outside the scope of this assessment as it is not an emission or a discharge from the Premises.

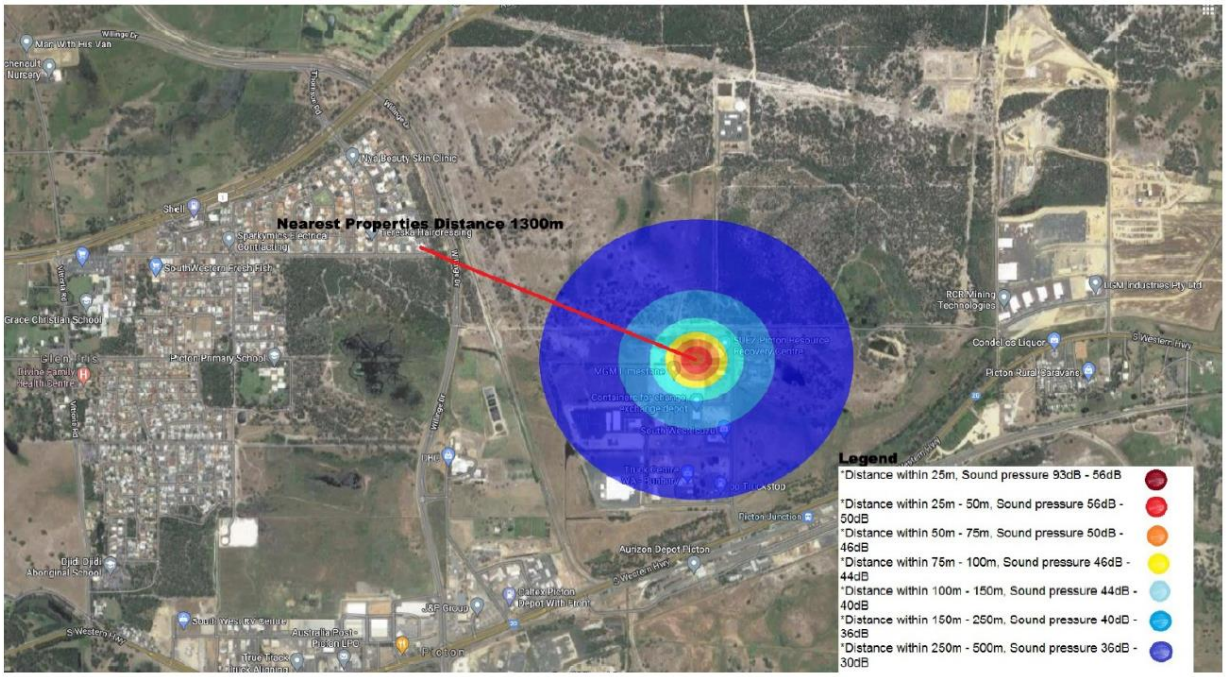


Figure 2: Results of noise screening assessment

3.5 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6621/2021/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises A risk assessment for the operational phase has been included in this decision report., however licence conditions will not be finalised until the department assesses the licence application.

Table 3: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval W6621/2021/1	Reason/Justification for additional regulatory controls/decision
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Creating hardstand and construction of the asphalt plant with associated infrastructure, including vehicle movements	Fugitive dust Noise	Air / windborne pathway causing impacts to health and amenity	Residences 1300m to the north-east and neighboring industries. Commercial premises 950m to the south-west. Immediately adjoining industrial premises	Refer to Section 3.1 Table 1 of this report	C = Slight L = Unlikely **Low Risk**	Yes	N/A	N/A
Operation (including time-limited-operations operations)								
Asphalt manufacturing	Fugitive Dust Noise Air emissions (fumes and particulate) from the asphalt plant stack	Air / windborne pathway causing impacts to health and amenity	Residences 1300m to the north-east. Commercial premises 950m to the south-west. Immediately adjoining industrial premises	Refer to Section 3.1 Table 1 of this report	C = Moderate L = Unlikely **Medium Risk**	Yes	Condition 6, Table 2 **Condition 7, Table 3** **Condition 8, Table 4** Condition 9, Table 5 Condition 13 and 14	Additional regulatory controls imposed include limits on particulate matter from the bag house stack and exit velocity of exhaust gases from the stack (Condition 8 Table 4) And the requirement for stack testing of contaminants from the stack condition 7, Table 3).
	Fugitive odour emissions							No additional regulatory controls imposed other than applicant's proposed controls being imposed as regulatory controls
	Potentially contaminated stormwater (sediment and hydrocarbons)	Soil or overland flows	Groundwater ~3m below ground Wetland located 220m north of the site		C = Moderate L = Unlikely **Medium Risk**	Yes.	Condition 1. Table 1 Condition 6, Table 2	No additional regulatory controls imposed other than applicant's proposed controls being imposed as regulatory controls

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 4 provides a summary of the consultation undertaken by the Delegated Officer.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 24 November 2021	Received four public submissions during the public comment period in response to the advertisement of the application.	The Delegated Officer's response to the issues raised has been included in Schedule 1.
City of Bunbury advised of proposal on 24 November 2021	None received	*N/A*
Applicant was provided with draft documents on the 4th and 8th February 2022	The applicant provided feedback on 22 February 2022 on the draft documents, objecting to the proposed particulate limit of 20mg/m^3 from the main stack. The applicant sought for DWER to consider 40mg/m^3 as a limit as this limit was practical and consistently achievable given the bag house to be installed. The applicant was provided with a further revised draft for comment, where they responded they were happy with the revisions.	The Delegated Officer has reviewed the information provided by the applicant and agrees that based upon the risk and the management of the bag house filter at the Premises that a limit of 40 mg/m^3 can be set.

5. Decision

Based on the assessment in this decision report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

The Delegated Officer considered for point source emissions to air (emissions from the stack), specifically particulates, NOx and VOCs emissions, that the predicted impact on receptors outside the Premises are expected to be well below the relevant AGVs. Therefore, the Delegated Officer deems the inclusion of conditions specifying the infrastructure, particulate emission limit and stack testing appropriate to control the risk.

With regards to odour emissions from the asphalt manufacturing plant, the Delegated Officer expects that the proposed infrastructure and manner of operation will ensure that odour emissions are kept to a level that would not cause an unreasonable impact on receptors outside the Premises.

The Delegate Officer does not expect, based upon the provided information, that noise emissions from the Premises will cause an unreasonable impact on receptors outside the Premises and that any potential issues in the future can be managed through the *Environmental Protection (Noise) Regulations 1997*.

The Delegated Officer considered that the applicant controls to prevent fugitive dust emissions and fugitive odour emissions are sufficient to ensure that any potential off site impacts are kept to a minimum.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. DWER 2019b, Guideline: Odour emissions, Perth, Western Australia.
5. DWER 2020, Guideline: Risk assessments, Perth, Western Australia.
6. Department of Water and Environmental Regulation (DWER) 2019a, Draft Guideline: Air emissions, Perth, Western Australia.
7. National Environmental Protection Council 2021, National Environment Protection (Ambient Air Quality) Measure, Canberra, Australian Capital Territory.
8. Attachment 3A 1 Odour Risk Assessment (part of the application)
9. Attachment 3A 2 Acoustic Assessment (part of the application)
10. Attachment 6A Emissions and Discharges (part of the application)
11. Environmental and Air Quality Consulting Pty Ltd report 20005, 16 November 2021 – Asphaltech (Picton): Dispersion Modelling Assessment of NOx (additional information to the application).
12. Asphaltech Proposed Asphalt Plant – stormwater management (part of the application, updated information)
13. Asphalt Plant Layout Hardstand Drainage Design – V2.0.pdf (part of the application, updated information)

Appendix 1 – Submissions received on the application

Table 5 : Public comments and Delegated Officer's response

Aspect	Summary of concerns raised	Department's response
Stormwater management	Potential contaminants may include sediment from aggregate storage and hydrocarbons. In addition to an interception and detention basin, a greater preventative control of sediment would be a permanently covered aggregate storage area Distance to a wetland 200m from the premises is worrying.	The applicant's proposed stormwater management controls are outlined in Table 1 and the departments risk assessment and imposed regulatory controls in relation to potentially contaminated stormwater is outlined in Table 3.
Fumes - bitumen ventilation, particularly from elevated bitumen temperatures	Fumes generated during asphalt production. The International Agency for Research on Cancer has listed bitumen emissions during road paving as possibly carcinogenic to humans inferring from this finding, it is likely that it is a possible carcinogen during the production of Asphalt. The consequences and controls of this needs to be considered.	Asphalt fumes (VOC's) have been considered in this assessment report and can be found in section 3.2 of this decision report. The applicants proposed fume controls are outlined in Table 1 Some of the VOCs that are deemed a possible carcinogen (benzene, toluene, ethylene and xylene) have been monitored from this plant at the previous location. Screening of these emissions against their relevant AGV resulted in an insignificant rating. As the AGVs are selected by the department also based upon health impacts, the conclusion of this is that the predicted impact of asphalt fumes is unlikely to cause any negative health impacts at receptors outside the Premises.
Proximity of asphalt plant to other industries/commercial premises	Health and safety concerns for staff and customers visiting a nearby commercial outlet	The risk assessment in this decision report included neighboring industrial and commercial premises as receptors. Based upon the risk assessment the Delegated Officer considers any potential impact on receptors outside the Premises to be acceptable. The applicant's proposed emission related controls are outlined in Table 1
Dust emissions	The production of asphalt will generate dust emissions. Potential sources include the loading of aggregates, feeding belt, movement of vehicles and aggregate storage piles. Dust may impact staff and visitors negatively at neighboring industrial / commercial premises.	The applicant's proposed dust management controls are outlined in Table 1 and the departments risk assessment and imposed regulatory controls in relation to dust emissions is outlined in Table 3. As such the Delegated Officer believes that fugitive dust emissions are sufficiently controlled to ensure that dust from the Premises will not be deposited on neighboring premises.

Odour from asphalt fumes	Odour may impact staff and visitors negatively at neighboring industrial / commercial premises.	The applicant's proposed fume (odour) management controls are outlined in Table 1 and the departments risk assessment and imposed regulatory controls in relation to odour and fume emissions is outlined in Table 3. Based upon stack testing the odour generating emissions (VOCs) are possible able to be detected on occasions, however expected to below health standards outside the Premises.
Traffic	Increased traffic due to this plant may impact traffic flow in the area, which is already below adequate as is.	The Delegated Officer notes that this comment relates to an issue outside the boundary of the Premises and does not relate to the emissions and discharges from the Premises, as such this matter is outside the scope of this assessment.
Location	The asphalt plant should not be erected in this area.	The Delegated Officer notes that planning approval has been provided for the asphalt plant at the Premises. As the assessment only relates to whether or not emissions and discharges are acceptable from the Premises. The environmental risk assessment outlined in this report concludes that the risk is acceptable considering the regulatory controls imposed.
Noise	Noise of the asphalt plant may negatively impact staff and visitors at neighboring industrial / commercial premises.	The applicant's proposed noise management controls are outlined in Table 1 and the departments risk assessment in relation to noise emissions from both the construction and the operation of the plant is outlined in Table 3. Modelling undertaken indicates that noise emissions from the ongoing operation of the plant are predicted to be compliant with the *Environmental Protection (Noise) Regulations 1997*. See section 8 of this decision report.