Attachment 8:
Additional Supporting Information

R & L Bitumen Services Pty Ltd
a division of Spinifex Crushing and Screening Services Pty Ltd
ACN 135 324 551 128 Albany Highway, Albany WA 6330

Prepared for:
Department of Water and Environmental Regulation
Locked Bag 10, Joondalup DC WA 6919

Report Date: 25/03/26
Version: 1.0

Authorised by:
Martin Shuttleworth
Managing Director

Attachment 8: Additional Supporting Information
Applicant: Spinifex Crushing and Screening Services Pty Ltd
Premises: Rocky Crossing Asphalt Plant (Category 35)

The following documents are provided in support of the licence application for the Rocky Crossing Asphalt Plant (Category 35). To ensure that only information relevant to the current operational phase of the plant is made available for public advertisement, full modelling reports and detailed works approval assessment documents have been removed. Instead, only extracts containing operational details, controls, and conclusions have been included**.**

Documents Provided

- **Works Approval Decision Report W6384/2020/1** – extract only (relevant operational conditions and Table 1 only).
- **Ektimo Odour Assessment Report R009424 (July 2020)** – extract only (relevant operational odour controls and conclusions, not the full modelling).
- **Air Quality Assessment Report R003902** – extract only (summary of expected emissions and controls).
- **Herring Storer Acoustics Report 2017** – extract only (summary of noise controls and conclusions).
- **Environmental Compliance Report (ECR)** – Rocky Crossing Asphalt Plant, February 2026 (full report, 52 pages, including as-constructed plans, & photographic evidence). This report confirms that all infrastructure has been installed and is ready for licensed operation.

Note
These extracts contain only information relevant to the current operation of the plant, including operational emissions, discharges, and management controls

Works Approval Decision Report W6384/2020/1 – Table 1

Table 1: Design and construction requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Mobile asphalt plant comprising: A rotary dryer A pug mill A gob hopper Control room	• Must have a maximum design capacity of 40 m^3/hr. • MAP infrastructure must be located on a compacted gravel hardstand and designed to direct all runoff to the sump. • Insulated and clad rotary dryer generated by diesel fuel. • Pug-mill for mixing heated aggregate and liquid bitumen. • Loadout conveyor must be covered. • MAP infrastructure must be constructed such that vapours are directed to the baghouse. • MAP infrastructure (excluding the boiler) must be capable of achieving a noise level of no greater than 102 dB(A) at 1 m. • Boiler located within a metal clad shed with the opening to the east.	As depicted in Schedule 1, Figure 3. Labelled as: III. Aggregate drying and heating V. Filler & bitumen VII. Elevating of asphalt to storage tank Control room As depicted in Schedule 1, Figure 2. Labelled as: Bunded fuel storage area Material bins Front end loader area, Asphalt plant
2.	Noise mitigation bund	Noise mitigation earth bund must be a minimum of 4m high and 130m long and located on the east side of the MAP.	As depicted in Schedule 1, Figure 2. Labelled as: 4m high bund
3.	5 x Raw material storage bays	• Storage bays must be constructed with three walls. • Sprinkler system installed on storage bays which provides adequate coverage of the bays for dust suppression of contained materials.	As depicted in Schedule 1, Figure 2. Labelled as: Material bins
4.	Bag house filter stack	• Minimum stack height 12m above ground level • Stack is to be fitted with a sampling port that meets requirements of AS 4323.1. • Piping system and / or stack is fitted with a silencer for noise reduction • Stack must be capable of be capable of achieving a noise level of no greater than 98 dB(A) at 1 m.	As depicted in Schedule 1, Figure 3. Labelled as: Chimney
5.	Baghouse	• The baghouse will be installed with a filter which: (i) has a design capacity of 27,000 m^3/hour; (ii) has a design capacity for particulates of less than 20mg/m^3; and (iii) is fitted with a minimum of 224 filter bags with a filter area of at least 240m^2. • The baghouse will be fitted with an automatic reverse-cycle cleaning system. • The baghouse will be fitted with a broken bag detection system. • The baghouse will be fitted with an air temperature control system with built in alarms and cut off controls.	As depicted in Schedule 1, Figure 3. Labelled as: Cyclone dust filter
6.	40,000L heated bitumen tanker	• Enclosed storage tank to be located on a gravel hardstand within a bunded area. • A condenser to be fitted on the sealed lid to direct condensate back into the tank.	As depicted in Schedule 1, Figure 3. Labelled as: Asphalt heating tank
7.	MAP stormwater treatment system.	• Stormwater treatment system will comprise of a minimum of 20m^3 collection sump filled with cages of spongoilte rocks and discharge to a reed bed.	As depicted in Schedule 1, Figure 2. Labelled as: Sump and reed bed

Ektimo Odour Assessment Report R009424 (July 2020)
Relevant operational odour controls and conclusions

1 PROJECT OVERVIEW

Great Southern Sands (GSS) operate a small 30 metric tonnes per hour mobile asphalt batch plant. The plant is currently operating at Manypeaks, 38 km north-east of Albany, and is to be re-located to the proposed site at Lot 104 Rocky Crossing Road, Willyung, just beyond the northern fringes of the greater Albany area.

Note **Figure 1** for an outline of the region including the site boundary, the proposed location for the plant and the nearest rural residences. The closest rural residents are located 350 metres to east-north-east of the proposed plant activity area, with others further distant to the south-east, south, and west.

In 2017, Ektimo prepared a desktop air quality and odour assessment to inform the Department of Water and Environment Regulation (DWER) approvals for the plant re-location. This is attached in **Appendix Section 7**. Based on odour emissions data from a comparable plant and peak predictions of ground level odour using the AERMOD dispersion model, Ektimo assessed the risk of odour disamenity at the nearest rural residential receivers as being **Low**.

DWER have subsequently requested that the odour assessment be updated to reflect the current guideline:

- Guideline for Odour emissions (June 2019) for activities regulated under the Environmental Protection Act 1986 and the Environmental Protection Regulations 1987.

DWER have provided instructions to GSS on the assessment requirements to the guideline, requiring specifically a ***screening analysis*** followed by an ***operational odour analysis***, a ***location review***, and an ***odour source analysis***. Ektimo have informed the latter with the odour emission data from the comparable plant as per the original assessment.

The diesel fuelled mobile plant operates predominantly during daylight hours only (nominally 7am to 5pm) and is forecast to produce up to 5,000 metric tonnes per annum which would take approximately 170 hours per year at the design production rate, with this limited production time further reducing the risk of off-site odour dis-amenity. Raw aggregate materials are to be sourced from local quarries and standard low sulphur Class 320 bitumen is to be periodically delivered by tanker truck and stored in a diesel fuelled heated 25 cubic metre bitumen storage tank.

The main sources of odorous emission is from the drum dryer/mixer baghouse vent stack and from the load out process when the batch produced asphalt is progressively transferred via bucket elevator to an elevated 8 cubic metre storage container until a measured quantity of asphalt is dropped directly into a tray truck beneath. A lesser source of odour is the bitumen storage tank from where heated bitumen is pumped into the mixing drum during each production batch.

Odour emission testing and an odour field assessment is proposed at the commissioning stage after this relatively small plant has been installed at the proposed site.

(Relevant operational odour controls and conclusions cont'd)

Q1. Description of odour emissions	
Activity / odour source	**Description, including controls**
Mobile asphalt plant for the production of hot or cold mix asphalt.	• Diesel fuelled drum drier and mixer, 30 tonne per hour. • Diesel fuelled heated bitumen storage tank. • To operate during daylight hours only (nominally 7am to 5pm). • Forecast to produce up to 5,000 metric tonnes per annum taking approximately 170 hours per year at design production rate. • Plant to be maintained in a clean and functional condition as per manufacturer specifications. • Drum fume sealed during mixing then blown to baghouse, inducing negative pressure on the opening for asphalt discharge to bucket elevator and so reducing fugitive releases of odours. Odorous volatile organic compounds are adsorbed onto particulate surfaces and therefore an effective baghouse can partially reduce odours. • Baghouse stack 6.1 metre tall discharging at >10 m/s. • Temperature monitors on bitumen kettle and mixing drum, maintained <180˚C. • Temperature immediately reduced if blue smoke is detected. • The plant is fuelled by refined distillate rather than heavier fuel oil, reducing the emission of partially combusted organics, volatile organic compounds, and combustion gases. The diesel will be low sulphur (<500ppm) to reduce sulphurous emissions. • The binder product to be used is a low sulphur bitumen that has been "cut" during production of shorter chain odorous hydrocarbons specifically to reduce odour. This is now widely used in asphalt manufacture around Australia. • Baghouse checked to be operational prior to start up and operated continuously whilst the drum is operating. • Baghouse filters regularly inspected. When detected, blocked, frayed or leaking baghouse filters are immediately replaced. Batch operations cease immediately if baghouse malfunction or fault is detected. • Works instruction to bitumen carrier drivers that tanker breathers are clear, and the tank hatch unlocked, but remain closed during the discharge operation, with headspace return line fitted where this is available. • Bitumen storage tank head space odorous emissions minimised by the use of a condenser ***(to be fitted)*** on the sealed tank lid with condensate returned to the tank. • Asphalt is progressively discharged from the drum via a bucket elevator to a 9 cubic metre storage silo taking approximately 15 minutes to fill. • When the silo is at a measured capacity this asphalt is dropped into a tray truck positioned beneath the silo. This truck is then immediately tarped and driven from the site. • The production of asphalt and loading sequence takes approximately 30 minutes for a typical truck size, with two drops from the silo.

Q2. Screening distance
The distance from the plant activity area to the nearest sensitive receiver (rural dwelling) is 350 metres. The default screening distance for this activity is 1000 metres. Hence, a detailed analysis is required. *Ektimo note that a typical plant production capacity that this separation distance is based on is 200 tonne per hour. This plant has only a 30 tonne per hour capacity and so a separation distance in the order of 200 metres would be more representative.*

(Relevant operational odour controls and conclusions cont'd)

Odour emission operations review		Operational Condition
Batch production with Class 170 bitumen		**Normal at up to 30 tonne/hour**
Odour sources and emissions	• Dryer and mixer drum baghouse exhaust stack during operation. • Bucket elevator to storage and loadout onto tray trucks (fugitive emission). • Heated bitumen storage tank head space venting, mainly during loading from tanker truck.	
Process controls	• The plant is to operate predominantly during daylight hours (nominally 7am to 5pm). This will avoid periods of poor dispersion during night-time (i.e. light wind stable atmospheric conditions). There will be limited periods of early morning production based on client demand. • Forecast to produce up to 5,000 metric tonnes per annum taking approximately 170 hours per year at design production rate which is approximately 4% of the potential operational hours. • Plant to be maintained in a clean and functional condition as per manufacturer specifications. • Drum fume sealed during mixing then the fume is blown to a baghouse, inducing negative pressure on the opening for asphalt discharge to bucket elevator and so reducing fugitive releases of odours. Odorous volatile organic compounds are adsorbed onto particulate surfaces and therefore an effective baghouse can partially reduce odours. • Baghouse exhaust stack is 6.1 m tall, discharging at >10 m/s, providing for initial separation from ground level to improve downwind dilution beyond the site boundary. • Temperature monitors on bitumen kettle and mixing drum, maintained <180˚C. • Low sulphur content diesel fuel (<500ppm) to reduce odour from exhaust emissions. • Low sulphur bitumen binder product that has been "cut" during production of shorter chain odorous hydrocarbons specifically to reduce odour. • Baghouse checked to be operational prior to start up and operated continuously whilst the drum is operating. • Works Instruction to bitumen carrier drivers that tanker breathers are clear, and the tank hatch is unlocked but remains closed during the discharge operation, with headspace return line fitted where this is available. • Bitumen storage tank head space odorous emissions minimised by the use of a condenser ***(to be fitted)*** on the sealed tank lid with condensate returned to the tank. • Asphalt is progressively discharged from the drum via a bucket elevator to a 9 cubic metre storage silo taking approximately 15 minutes to fill. • When the silo is at a measured capacity this asphalt is dropped into a tray truck positioned beneath the silo. This truck is then immediately tarped and driven from the site. • The production of asphalt and loading sequence takes approximately 30 minutes for a typical truck size, with two drops from the elevated silo into the truck tray. • Daily downwind boundary screening for odour when the plant is in operation. • Compliments and complaints facility provided via community engagement with nearest sensitive receiver rural residences.	

(Relevant operational odour controls and conclusions cont'd)

Triggers and corrective actions	• Temperature of stored bitumen or of asphalt mix is immediately reduced if blue smoke is detected or if the monitored temperature exceeds 180˚C. • Baghouse filters regularly inspected. When detected, blocked, frayed or leaking baghouse filters are immediately replaced. Batch operations cease immediately if baghouse malfunction or fault is detected. • If blue smoke emissions are observed, then immediately reduce operating temperature before commencement of next batch. • If asphalt odour is readily recognisable at the downwind boundary during screening, then inspect all activity sources of odour for the cause: - Loading bitumen storage tank – tanker truck return line fitted where available and hatched closed. - Bitumen storage tank – check and maintain condenser ***(to be fitted)*** and hatch seal, storage temperature, quality of bitumen binder. - Dryer/mixing – operating temperature, quality of bitumen binder, baghouse. - Loadout – prompt and correct tarping and departure from site. Cease batch operation if odour emissions persist. • If complaints of offensive odours are received from a rural resident then immediately conduct downwind screening at facility boundary for presence of readily recognisable asphalt odours. Inspect all activity sources of odour for cause. Cease batch operation immediately if complaint validated. Provide feedback to resident on actions and outcomes.
Corrective action evaluation	• No observed blue smoke emissions. • No readily recognisable asphalt odours observed during daily downwind boundary screening whilst plant is operational. • No observable particulate emissions from the baghouse stack. • No community complaints.
Contingency actions	• Halt batch production and thoroughly inspect plant for source and cause of odour. Plant cleaned and maintained as per vendor specifications. Repeat downwind odour survey during next batch operation. • Extend vent stack height to 12 metres above ground level to increase separation of downwind plume from ground level.

Residual odour impact potential (note DWER Guidance statement for risk assessments, 2016)

Operation / odour source	Consequence	Likelihood	Impact potential
Mobile asphalt plant	Minor – low level impact to amenity	Rare – the risk event may only occur in exceptional circumstances	Low

Air Quality Assessment Report R003902 - Ektimo
Summary of expected emissions and controls.

Table 3a: Individual pollutant emissions from the asphalt plant vent stack

Classified Indicator Species	Emission Factor (kg/tonne) (USEPA AP42 March 2004, Emission Estimation Tables Hot Mix Asphalt Plant - Batch Mix with No. 2 Fuel Oil	Source Notes	kg/hr species emission rate for 30 tonnes/hour production	grams/second species emission rate for 30 tonnes/hour production
PM10	0.0135	Table 11.1-1 for Fabric Filter	0.41	0.11
PM2.5	0.00905	67% of PM10, Table 11.1-2	0.27	0.075
CO	0.20	Table 11.1-5	6.0	1.7
NOX as NO2	0.060	Table 11.1-5	1.8	0.50
SO2	0.044	Table 11.1-5	1.3	0.37
Asphalt Fume (as non-methane VOC's)	0.0041	Table 11.1-6 for non-methane VOC	0.12	0.034
Arsenic	0.00000023	Table 11.1-11	0.0000069	0.0000019
Beryllium	0.000000075	Table 11.1-11	0.0000023	0.00000063
Cadmium	0.00000031	Table 11.1-11	0.0000092	0.0000025
Chromium (total)	0.00000029	Table 11.1-11	0.0000086	0.0000024
Hexavalent Chromium	0.000000024	Table 11.1-11	0.00000072	0.00000020
Copper fume and mists	0.0000014	Table 11.1-11	0.000042	0.000012
Lead	0.00000089	Table 11.1-11	0.000027	0.0000074
Managanese	0.0000065	Table 11.1-11	0.00021	0.000058
Mercury (organic)	0.00000021	Table 11.1-11	0.0000062	0.0000017
Nickel	0.0000015	Table 11.1-11	0.000045	0.000013
Selenium	0.00000025	Table 11.1-11	0.0000074	0.0000020
Zinc	0.0000034	Table 11.1-11	0.00010	0.000028
Acetaldehyde	0.00016	Table 11.1-9	0.0048	0.0013
Benzene	0.00014	Table 11.1-9	0.0042	0.0012
Ethylbenzene	0.0011	Table 11.1-9	0.033	0.0093
Formaldehyde	0.00037	Table 11.1-9	0.011	0.0031
Toluene	0.00050	Table 11.1-9	0.015	0.0042
Xylene	0.0014	Table 11.1-9	0.041	0.011
Total PAH's (assumed as BaP TEQ)	0.000055	Table 11.1-9 for PAH HAP's	0.0017	0.00046

Notes:
The plant will operate only during daylight hours, nominally from 7am to 5pm, which is <5% of time between 7am-5pm; and <2% overall.
The plant will typically work with Class 170 bitumen which is low sulphur.

Table 3b: Individual pollutant emissions from the heated bitumen tank

Classified Indicator Species	Emission Factor (kg/L)	kg/hr species emission rate	grams/sec species emission rate	Comments
Particulates as PM10 and as PM2.5	2.4E-04	0.014	0.0039	
SO2	8.9E-03	0.52	0.15	Specifications from a typical vendor (Astec) for a diesel fired heated bitumen tank based on use of 59.1 L/hour use of No. 2 Fuel Oil. These are based on AP42 Table 11.1-13, 1995. These emissions are assumed constant, 7am to 5pm, 7 days per week. Note specifications provided in Appendix.
CO	6.3E-04	0.037	0.010	
NOX as NO2	2.4E-03	0.14	0.039	
Asphalt Fume (as 100% of C5-C20 VOC's)	6.4E-04	0.038	0.011	
Formaldehyde	4.2E-07	0.000025	0.0000069	
Total PAH's (assessed as BaP TEQ)	2.7E-06	0.00016	0.000044	

Table 3c: Odour emission from the asphalt plant and from the heated bitumen tank

Odour	OUV/min odour emission rate	OUV/sec odour emission rate	Time	Source
Mobile Asphalt Plant Baghouse Vent Stack	1,300,000	22,000	Day work only. Typically 7am to 5pm	Emission rate for odour based on EML Air test report 98172 for a comparably sized batch plant (40 tonnes/hour HMA production) using a comparable type of Class 170 bitumen for road use.
Loadout emissions from elevated storage silo.	24,000	400		Emission rate for odour based on EML Air test report 98172 for a comparably sized batch plant (40 tonnes/hour HMA production) using a comparable type of Class 170 bitumen for road use. This occurs for approximate 2 minutes per load before the truck departs the site. The maximum truck loads per hour would be 4 or every 15 minutes on average resulting in a maximum of 8 minutes per hour of odour emissions. However, this is assumed constant for the hour within this assessment.

(Summary of expected emissions and controls. Cont'd)

ABATEMENT MEASURES

Emissions from the site of fugitive odour and dust will be abated using a range of design and management methods that will include the following:

- Defined unsealed internal access roads will be maintained for vehicle ingress and egress from the site. These will be surfaced with coarse aggregate rock and regularly maintained and watered when necessary to minimise surface silt that may be eroded by winds. Roads constructed like this are less prone to dust emissions.
- Trucks entering the site are to have covered loads and will travel at reduced speeds of 10 km/hr or less to avoid vehicle-induced dust emissions.
- Component aggregate will typically be sourced from regional suppliers and stored onsite in managed stockpiles no more than 4 m in height. The stockpiles will be subject to water mist or sprays to maintain surface moisture to dust extinction levels, particularly during warm and windy weather.
- A single front end loader is to be used on site to manage the stockpiles and to load component aggregate into the individual pug mill hoppers as required. The material within the pug mill hoppers will be subject to water mist or sprays to maintain surface moisture to dust extinction levels, particularly during warm and windy weather.
- The bitumen product to be used is a low sulphur bitumen that has been "cut" during production of shorter chain odorous hydrocarbons specifically to reduce odour. This is now widely used in asphalt manufacture around Australia.
- The bitumen is stored in heated storage tanks which are fitted with condensers on the head-space vents so that any volatile odorous emissions are condensed to liquid that drops back to the tank.
- The plant is fuelled by refined distillate rather than heavier fuel oil, further reducing the emission of partially combusted organics and volatile organic compounds, and combustion gases.
- Flue gas from the aggregate drying process and bitumen mixing are recirculated through the burner combustion zone to further reduce volatile organic emissions, before being ducted through a baghouse fabric filter system, then to atmosphere via a 6.1 m stack.
- The asphalt product will be produced at temperatures typically less than 175°C which is below the threshold of 180°C for blue smoke emissions that can contain excessive odours and volatile organics.
- The covered load-out conveyor (that transports asphalt upwards into the small storage bucket) will mitigate any residual odours from dispersing into the atmosphere.
- The manufactured asphalt will typically be loaded out into trucks direct from the batch process. A small 8 cubic metre elevated bucket may temporarily hold a single produced batch for short periods until a truck arrives for loadout. The duration of the fugitive emissions from the loadout process are reduced by the speed of the loading from the batch process onto tray trucks, which usually takes less than two minutes before the tray is covered and the truck driven from site.
- Trucks with asphalt are to leave the site with the trays tarped to reduce residual odour emissions.

Herring Storer Acoustics Report 2017
Summary of noise controls and conclusions- *Works Approval Decision Report W6384/2020/1*

8.2 Residential and sensitive receptors

The distances to residential and sensitive receptors are detailed in Table 9. Figure 2 illustrates the rural residential receptors within a 1 km radius from the centre of the MAP.

Table 9: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Rural residential, 359 Rocky Crossing Road	400m east of the source (MAP)
Rural residential, 361 Rocky Crossing Road	490m northeast of the source
Rural residential, 310 Rocky Crossing Road	820m east of the source
Rural residential, 227 Menang Drive	690 and 770m west of the source
Rural residential, 439 Rocky Crossing Road	1053m north of the source
Rural residential, 119 Kinjarling Road	1090 and 1130 m north, northwest of the source
Rural residential, 235 Rocky Crossing Road	740m south of the source
Rural residential, 280 Rocky Crossing Road	860m south of the source
Rural residential, 266 Rocky Crossing Road	989m south of the source
Rural residential, 250 Rocky Crossing Road	1045m south of the source
Warrenup rural residential estate	720m south of the source

Figure 2: 1km radius from the centre of the MAP to rural residential receptors

(Summary of noise controls and conclusions Cont'd)

9.1.1 Applicant controls

The Applicant's air emissions and odour controls are listed in Table 17 below.

Table 14: Applicant's proposed controls for air emission and odour emissions.

Site infrastructure	Control Description
Mixing of aggregates-rotary dryer, baghouse, pug mill and steel storage bins	Mixed aggregate batches are feed from a cold feed unit into a sealed, insulated, and clad rotary dryer. The aggregate is stockpiled in steel bins before transferred to the feed unit via a loader. In the diesel fired dryer, the aggregate is heated to 160^{0}C, transferred to an insulated pug mill. Bitumen is injected into the pug mill and mixed with the hot aggregate. Combusted air is exhausted through the baghouse prior to discharge to the environment via 12 m high stack. The filter consists of 224 bags with a filter area of 240m^2 and a total filter capacity of 27, 000m^3 per hour. Baghouse has an automatic reverse-pulse cleaning system with fine particulate matter returned to a mixer via a screw conveyor.
Management	Bitumen product used is a low sulphur bitumen that has shorter chain odorous hydrocarbons. Plant is fuelled by refined distillate that reduces the emission of partially combusted organics and volatile organic compounds and combustion gases. Flue gas from the aggregate drying process and bitumen mixing are recirculated through the burner combustion zone to further reduce volatile organic emissions before being ducted through a baghouse fabric filter system to the 6.1m stack. The baghouse is fitted with air temperature control system. A short-term limit of 220°C is allowed with an over temperature cut-out at 230°C. An alarm is set to alert the operator of temperature drops to 80°C. The over temperature stop device consists of a cold fan valve on the inlet of the baghouse. If temperature exceeds the cut-out value, the control system will cut off fuel to the burner in the dryer/heater drum. Asphalt product will be produced at temperatures less than 175°C which is below the threshold of 180°C for blue smoke emissions that can contain odours and volatile organics. If blue smoke is detected the temperature will be immediately reduced. The Applicant may consider completing an odour field assessment once operational to confirm stack height and raise the stack from 6.1 to 12magl as a contingency action to odour emissions.

Environmental Compliance Report (ECR)

Environmental Compliance Report

Rocky Crossing Asphalt Plant
Lot 104 Rocky Crossing Road,
Willyung WA 6330

R & L Bitumen Services Pty Ltd
a division of Spinifex Crushing and Screening Services Pty Ltd

ACN 135 324 551
128 Albany Highway, Albany WA 6330

Prepared for:
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Report Date: 18th February 2026
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Authorised by:
Martin Shuttleworth
Managing Director

Contents

1. Introduction

This Environmental Compliance Report (ECR) demonstrates compliance with the requirements of Works Approval W6384/2020/1 (as amended) issued under Part V, Division 3 of the Environmental Protection Act 1986 (EP Act). It addresses Condition 2, which mandates submission within 60 calendar days of completing construction or installation, and Condition 3, which specifies minimum content including a qualified person's certification and as-constructed plans.

The report verifies that all infrastructure and equipment have been installed in accordance with Condition 1 and Table 1 of the works approval. The mobile asphalt plant is pre-manufactured and has been placed on a concrete slab, with supporting infrastructure constructed on-site. All works were completed on 10 December 2025, and no operations have commenced pending licence issuance. This ECR supports the validation of the licence application as required under section 57(2)(ii) of the EP Act, confirming satisfactory completion of works.

Report Date: 26 February 2026

Prepared by: Spinifex Crushing and Screening Services Pty Ltd

Contact: Martin Shuttleworth, Managing Director [redacted]

2. Premises and Works Approval Details

Premises: Rocky Crossing Asphalt Plant, Lot 104 (No. 303) Rocky Crossing Road, Willyung, WA 6330

Legal Description: Lot 104 on Deposited Plan 49239, Certificate of Title Volume 2616 Folio 525

- **Works Approval Number:** W6384/2020/1

Duration: 16 November 2020 to 15 November 2025 (extended via amendment dated 13 November 2023)

Amendments:

- 22 September 2021: Limited production to 5,000 metric tonnes per annum and 300 metric tonnes per day; amended to 'Assessed production capacity' (Reference: Amendment Report dated 22 September 2021).
- 13 November 2023: Extended expiry date by two years and amended premises boundary (Reference: Amended Works Approval dated 13 November 2023).

Category: 35 (Asphalt Manufacturing), Assessed Production Capacity: 5,000 metric tonnes per annum

Audit Methodology: Site inspections conducted on 5-9 December 2025 by internal team and qualified person, including review of installation records, manufacturer certificates, functionality tests (e.g., noise levels, runoff direction, baghouse operation), and cross-verification against Table 1 requirements. No deviations identified.

3. Compliance Audit Condition 1 (Table 1)

This section audits compliance with Table 1 of Condition 1, confirming installation against design requirements. Status is noted as "Compliant" unless otherwise stated. Evidence includes references to attachments. The audit covers all items specified in the works approval, ensuring alignment with the assessed Category 35 activities.

Item	Infrastructure/Equipment	Requirements	Location	Compliance	Evidence/Attachments
1	Mobile asphalt plant (rotary dryer, pug mill, gob hopper, control room)	- Maximum design capacity 40 t/hr. - Placed on concrete slab (adapted from gravel hardstand for stability) directing runoff to sump. - Insulated/clad rotary dryer, diesel-powered. - Pug-mill for mixing aggregate/bitumen. - Production ≤5,000 tpa/300 tpd (2021 amendment). - Loadout conveyor covered; vapours to baghouse. - Noise ≤102 dB(A) at 1 m (excluding boiler); boiler in east-opening clad shed.	III. Aggregate drying/heating; V. Filler/bitumen; VII. Elevating to storage; Control room (Figure 1: Bunded fuel storage, material bins, front end loader area, asphalt plant).	Compliant. Pre-made equipment placed securely; capacity/noise verified; runoff functional.	Section 6: Installation photos. Section 7: Equipment Information .
2	Noise mitigation bund	- Minimum 4 m high, 130 m long, east of plant.	4 m high bund (Figure 1).	Compliant. Constructed to dimensions.	Section 6: Construction records/photos.
3	5 x Raw material storage bays	- Three walls. - Sprinkler system for dust suppression with full coverage.	Material bins (Figure 1).	Compliant. Bays built; sprinklers tested.	Section 6: Sprinkler test report/photos.

4	Baghouse filter stack	- Minimum 12 m height. - Sampling port per AS 4323.1. - Silencer fitted. - Noise ≤98 dB(A) at 1 m.	Chimney.	Compliant. Installed to specifications; tested.	Attachments: Manufacturer specifications. Section 6: photos. Section 7: Equipment Information
	Baghouse	- Capacity 27,000 m³/hr. - Particulates <20 mg/m³. - ≥224 filter bags (≥240 m² area). - Automatic reverse-cycle cleaning. - Broken bag detection. - Temperature controls with alarms/cut-off.	Cyclone dust filter.	Compliant. Pre-made unit installed; systems operational.	Attachments: Manufacturer specifications. Section 6: photos. Section 7: Equipment Information
6	40,000 L heated bitumen tanker	- Enclosed tank on concrete within bunded area. - Condenser on sealed lid returning condensate.	Asphalt heating tank.	Compliant. Placed in bund; verified.	Attachments: Manufacturer specifications. Section 6: photos. Section 7: Equipment Information
7	MAP stormwater treatment system	- Minimum 20 m³ collection sump with spongolite rocks; discharge to reed bed.	Sump and reed bed.	Compliant. System installed; functionality confirmed.	Section 6: photos.

Summary: All items compliant with no deviations. Premises align with amended boundary (2023). Infrastructure supports Category 35 activities, with controls for emissions, noise, and stormwater as assessed in the Decision Report.

4. Certification Statement

I, Martin Shuttleworth, confirm that the equipment and infrastructure detailed in Table 1 have been installed and commissioned in full accordance with the requirements set forth in Works Approval W6384/2020/1 (as amended). This is verified through on-site inspections from 5 to 9 December 2025, inspections of construction activity and supplier certificates. Special attention was given to the adaptation of the mobile asphalt plant from its original gravel hardstand design to a concrete base for improved durability and environmental containment, alongside ensuring seamless interconnections and operational readiness across all systems. To further substantiate this certification, the following key verification aspects are highlighted:

- **Site Inspections:** Conducted daily from 5 to 9 December 2025, involving physical walkthroughs to confirm equipment positioning, structural integrity, and alignment with as-constructed drawings, with no variations noted from the approved plans in Schedule 1.
- **Documentation Review:** Thorough analysis of manufacturer certificates, installation logs, and inspections, cross-referenced against the works approval specifications, including production capacity limits from the 2021 amendment and boundary adjustments from the 2023 amendment.
- **Functionality Testing:** Targeted assessments of operational parameters, such as noise levels, stormwater runoff direction to designated sump, and baghouse emission controls.
- **Environmental Safeguards:** Confirmation that all controls for emissions, noise, and stormwater are operational and integrated, supporting the risk assessments in the Decision Report for Category 35 activities, with emphasis on the noise mitigation bund and bitumen tanker bunding integrity.
- **Overall Compliance Assurance:** No identifiable non-conformances identified, ensuring the premises are fully prepared for licensing under section 57(2)(ii) of the Environmental Protection Act 1986, with all systems tested under simulated conditions to mimic operational scenarios.

Martin Shuttleworth
Managing Director
Date: 15 February 2026

5. As-Constructed Plans

Per Condition 3(b), attached are as-constructed drawings showing dimensions, materials, locations, and integration.

- As-constructed site layout plan for mobile asphalt plant in attachments.

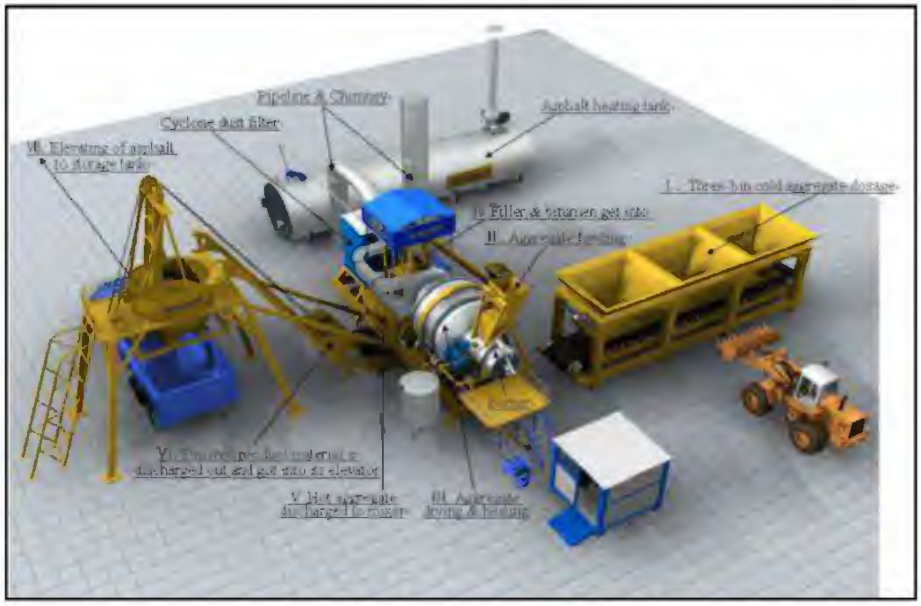


Figure 1 Diagrammatic of the proposed MAP layout

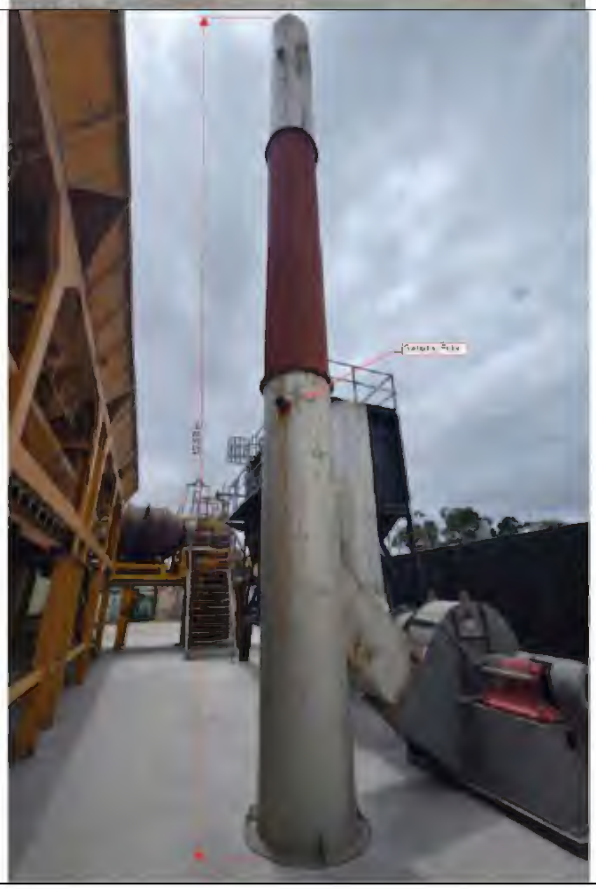
Figure 2 Rocky Crossing Road MAP Site Plan

6. Photographic Evidence

This section provides visual verification of installation. Photographs are dated, geo-tagged, and annotated for clarity. High-resolution images attached with captions referencing Table 1 items.

Item	Description	Image/s
1	Mobile asphalt plant placement on concrete slab, showing runoff direction	 

2	Noise mitigation bund	 
3	Raw material storage bays with three walls and sprinkler system.	

		 
4	Baghouse filter stack at 12.5 m height with sampling port	

5	Baghouse internal components, including filter bags and detection system	
6	Self bunded bitumen tank.	
7	Stormwater treatment system sump and reed bed	

7. Equipment Information

Details for each Table 1 item, including manufacturer data, serial numbers, installation notes, and compliance verification.

1: Mobile Asphalt Plant

- Manufacturer: Fujian Tie Tuo Machinery
- Model/Serial: QLB40
- Installation Date: September 2025
- Specs: Capacity 17 m^3 (40t)/hr, diesel fuel; noise ≤102 dB(A); vapours directed to baghouse.

Sheet 2: Noise Mitigation Bund

- Constructor: R & L Bitumen Services Pty Ltd
- Construction Date: November 2024
- Specs: 4+ m high

Sheet 3: Raw Material Storage Bays

- Manufacturer: R & L Bitumen Services Pty Ltd
- Installation Date: January 2026
- Specs: Three-sided, concrete block construction with dust suppression sprinkler system.

Sheet 4: Baghouse Filter Stack

- Manufacturer: Fujian Tie Tuo Machinery
- Installation Date: September 2025
- Specs: 12.5m AGL, fitted with sampling ports

Sheet 5: Baghouse

- Manufacturer: Fujian Tie Tuo Machinery
- Installation Date: September 2025
- Specs: See attached.

Sheet 6: Heated Bitumen Tanker (65,000 L)

- Manufacturer: TEC
- Installation Date: September 2025
- Specs: See attached

Sheet 7: MAP Stormwater Treatment System

- Constructor: R & L Bitumen Services Pty Ltd
- Installation Date: November 2025
- Specs: 20 m^3 sump with Spongolite rocks (10-30 mm); reed bed discharge. Functionality tested.

8. Sign-Off Check Sheet

This check sheet confirms review and approval for all Table 1 items. Tick boxes and sign.

Item	Description	Checked (Yes/No)	Comments	Sign-Off (Initials/Date)
1	Mobile asphalt plant installation compliant	Yes	Verified placement and functionality.	MS / 12/12/2025
2	Noise bund dimensions verified	Yes	Survey confirms exceeding 4 m height, 130 m length.	MS / 12/12/2025
3	Storage bays and sprinklers functional	Yes	Sprinklers tested for coverage.	MS / 12/12/2025
4	Baghouse stack height and noise	Yes	Noise ≤98 dB(A); AS 4323.1 compliant.	MS / 12/12/2025
5	Baghouse systems operational	Yes	Cleaning, detection, and temp controls functional.	MS / 12/12/2025
6	Bitumen tanker bund integrity	Yes	Bund tested for leaks.	MS / 12/12/2025
7	Stormwater system functionality	Yes	Runoff to sump and reed bed verified.	MS / 12/12/2025
Overall	Full compliance confirmed	Yes	No deviations noted.	MS / 12/12/2025

Final Sign-Off:

I confirm the above checks are complete and accurate.

Martin Shuttleworth,
Managing Director
Date: 3 March 2026

9. Conclusion

This Environmental Compliance Report (ECR) confirms the satisfactory completion of all construction and installation works in strict accordance with Works Approval W6384/2020/1 (as amended), as evidenced by

- The compliance audit detailed in Section 3,
- The qualified person's certification in Section 4,
- As-constructed plans in Section 5,
- Photographic evidence in Section 6,
- Equipment information in Section 7,
- And the sign-off check sheet in Section 8.

No deviations from Condition 1 (Table 1) have been identified, confirming full alignment with the environmental risk assessment in the Decision Report dated 16 November 2020 for Category 35 (Asphalt Manufacturing) activities. Emissions, noise and stormwater controls meet approved standards, as verified by functionality tests and site inspections conducted between 5 and 9 December 2025.

The premises at Lot 104 Rocky Crossing Road, Willyung WA 6330, are now fully prepared for operational commencement under the environmental licence. All required infrastructure is installed to mitigate impacts on air quality, the acoustic environment and water resources, as previously assessed and approved.

This Environmental Compliance Report is submitted to the Chief Executive Officer of the Department of Water and Environmental Regulation (DWER) in accordance with the Request for Further Information dated 20 November 2025. It supports validation of the licence application pursuant to section 57(2)(ii) of the Environmental Protection Act 1986 and enables finalisation of the assessment process.

All supporting documentation, including attachments and references, has been compiled to provide a complete and transparent record, underscoring Spinifex Crushing and Screening Services Pty Ltd's commitment to environmental stewardship and regulatory adherence.

Should any additional clarification be required, please contact:

Martin Shuttleworth
Managing Director
[redacted]

10. Attachments

1. Application for a licence under the *environmental protection act 1986* – RFI
2. Application for works approval
3. Rocky crossing asphalt plant
4. Tec high capacity storage bitutainer data sheet
5. Bag house filter data sheet

Government of Western Australia
Department of Water and Environmental Regulation

Instrument No.: TBA
Reference: APP-0032368
Tandin Do Tandin Dorji
Phone: 9941 6105
Email: info@dwer.wa.gov.au

Martin Shuttleworth
Managing Director
Spinifix Crushing and Screening Services Pty Ltd

via email: [redacted]
Attn: Chris Bonett

Dear Martin Shuttleworth

APPLICATION FOR A LICENCE UNDER THE *ENVIRONMENTAL PROTECTION ACT 1986* – REQUEST FOR FURTHER INFORMATION

I refer to your application for a licence under Part V Division 3 of the *Environmental Protection Act 1986* (EP Act), at Lot 104 Rocky Crossing Road Willyung for operation of the Rocky Crossing Asphalt Plant, constructed under works approval W6384/2020/1. The department is validating your application and has taken into account information provided in your application.

In accordance with section 57 of the EP Act, an application for a licence is to be made in the form and manner approved by the Chief Executive Officer (CEO) and supported by plans, specifications and other documents and information as the CEO requires. The current application submitted still relates to an amendment request for extending the duration of works approval W6384/2020/1, not a new licence application and does not include description of proposed activities, plans, specifications and other documents such as proof of occupancy, planning approval etc. As new licence applications are required to be advertised publicly, detailed descriptions of proposed activities and other supporting documents are required with the application.

I also note an Environmental Compliance Report (ECR) was not submitted to the department as required by condition 2 of the works approval to demonstrate works at the premises have been completed in accordance with the requirements of the works approval. Under section 57(2)(ii) of the EP Act, the department must ensure when accepting licence applications that works at the premises have been completed satisfactorily in accordance with the requirements of the works approval for those works undertaken subject to a works approval. The department notes from your application that all construction works at the premises have been completed and the premises is ready for operation. Please note that operation of prescribed premises without a licence is an offense under section 56(1) of the EP Act.

To allow the department to continue assessing your application please submit;

- The ECR in accordance with condition 2 of the works approval; and
- A revised licence application along with all relevant supporting documents as outlined in the application form;

by **22 December 2025.** You may request an extension from the department, should you require additional time.

Until further information has been received, the department has suspended the assessment timeframe for your application validation (stop the clock). This timeframe will recommence upon receipt of your information. Please note that if the required information is not provided, or an extension requested, by the date set out above, the CEO may decline to deal with your application.

Information related to licence applications and requirements can be accessed from the department's website Licence and works approval applications | Western Australian Government.

If you have any queries regarding the above information, please contact the Environmental Officer listed above.

Yours sincerely

[redacted]
MANAGER, PROCESS INDUSTRIES

Officer delegated under section 20
of the Environmental Protection Act 1986

20 November 2025

Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	W6384/2020/1
Applicant	Spinifex Crushing and Screening Services Pty Ltd
ACN	135 324 551
File Number	DER2020/000143
Premises	Rocky Crossing Asphalt Plant Lot 104 (No.303) Rocky Crossing Road, Willyung Legal description - Lot 104 on Deposited Plan 49239 Certificate of Title Volume 2616 Folio 525
Date of Report	16 November 2020
Status of Report	Final

Chris Malley
Manager, Process Industries
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Table of Contents

1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
AEROD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AS	Australian standards
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CS Act	*Contaminated Sites Act 2003* (WA)
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DER	Department of Environment Regulation
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Low sulphur bitumen	means standard low Sulphur Class 320 bitumen.
m^3	cubic metres
MAP	means mobile asphalt manufacturing plant
Minister	the Minister responsible for the EP Act and associated regulations
magl	meters above ground level
mtpa	million tonnes per annum
NEPM-AAQ	National Environmental Protection Measures for Ambient Air Quality
NEPM	National Environmental Protection Measure
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
NSW Criterion	means NSW EPA, 2016. Approved methods for the modelling and assessment of air pollutants in New South Wales, Environmental Protection Authority, Sydney
Occupier	has the same meaning given to that term under the EP Act.
PM	Particulate Matter
PM_{10}	used to describe particulate matter that is smaller than 10 microns (µm) in diameter
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	As described in *Guidance Statement: Risk Assessment*
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
$\mu g/m^3$	micrograms per cubic metre
µg/L	micrograms per litre
Works Approval Holder	Spinifex Crushing and Screening Services Pty Ltd

2. Purpose and scope of assessment

This decision report sets out the assessment and decision on the application for a works approval (the Application) submitted by Spinifex Crushing and Screening Services Pty Ltd (the Applicant) under Part V of the *Environmental Protection Act 1986* (EP Act).

The Application is for a proposed mobile asphalt manufacturing plant (MAP) that was submitted to DWER on the 20 March 2020.

The assessment of this application has been undertaken in accordance with DWER's published Regulatory Framework. The scope of the assessment includes the risk of emissions during the construction and operational phases of the MAP at the premises.

The Applicant applied for a production capacity of 10,000 tonnes per annum at a maximum plant rate of 400 tonnes per day. However, the Applicant's supporting documentation and emission studies were based on 5,000 tonnes per annum. This decision report therefore considers the risk of emissions associated with a daily capacity rate of 400 tonnes and an annual production capacity of 5,000 tonnes.

2.1 Application details

Table 2 lists the documents submitted during the assessment process the Applicant.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Email application including the following documents: •Application form •Certificate of title •Supporting document including annexures-compressed •Spinifex Crushing & Screening ASIC Extract •Site Plan Compressed	20/03/2020 DWER records A1878126
Email Breakdown of infrastructure and works costs	2/04/2020 DWER records DWERDT269393
Email Request for further information on noise assessment	26/06/2020 DWER records A1907812
Email Request for further information on odour assessment	10/07/2020 DWER records DWERDT306475

3. Background

The proposed MAP will be located on Lot 104 on Plan 49239, 303 Rocky Crossing Road, Willyung. The premises are owned by the Applicant's subsidiary company Achilles Pty Ltd. The MAP is currently located at a premise in Mindijup Road, Palmdale (constructed under works approval W5913/20158/1) and will be relocated to the premises at Lot 104 Rocky Crossing Road.

Table 3: Prescribed Premise Category for Proposed works approval

Classification of Premises	Description	Approved Premises throughput
Category 35	Asphalt manufacturing: premises on which hot or cold mix asphalt is produced using crushing or ground rock aggregates mixed with bituminous or asphaltic materials for use at places or premises other than those premises.	Throughput up to 5,000 metric tonnes per annum

4. Overview of Premises

4.1 Construction and operational aspects (from application)

4.1.1 Construction

The proposed MAP is a transportable semi-mobile plant. The Applicant will dismantle it from its current location in Palmdale and deliver it to the premises and secure the facility on a firm hard surface (stabilised gravel hardstand). The Applicant indicates that the construction period will take less than 6 months.

When built the MAP will cover an area of approximately 400m^2. The infrastructure is outlined in Section 4.1.3 and also include a workshop and office. Figure 1 outlines proposed layout of the MAP.

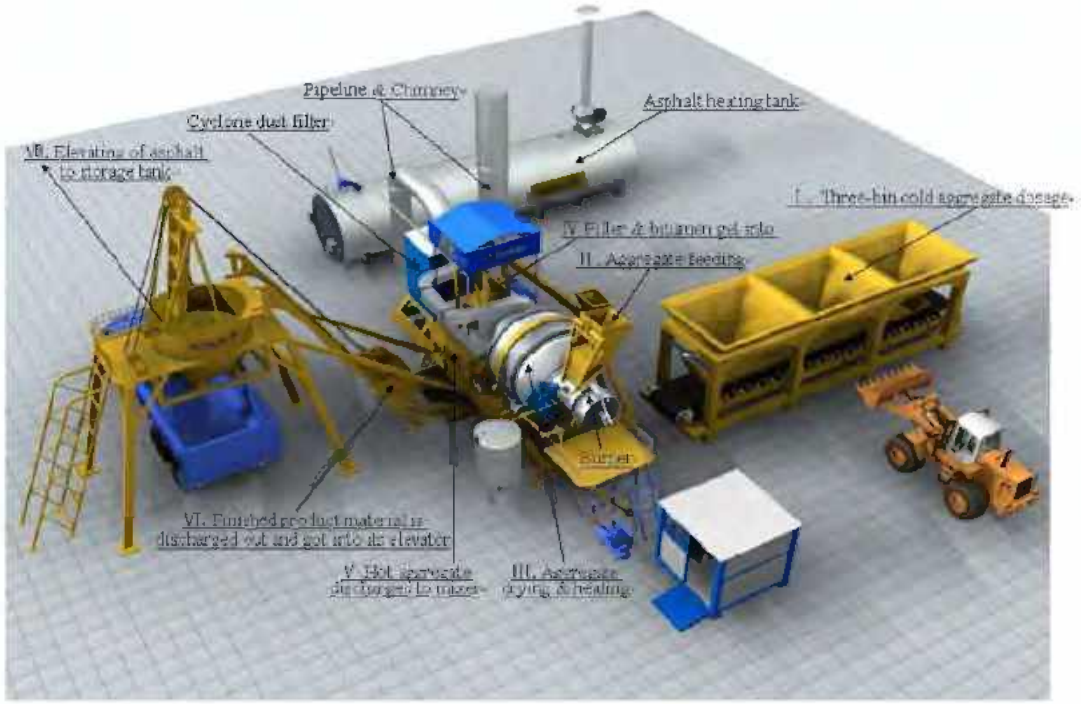


Figure 1 Diagrammatic of the proposed MAP layout

4.1.2 Operational

The asphalt plant has a capacity of 400 tonnes per day which the Applicant equates to approximately 10,000 tonnes per annum. The works approval has been assessed at 5,000 tonnes/annum in line with the assessments provided for air, odour and noise emissions. The operation of the MAP and maintenance of plant and equipment will occur between the

hours of 7:00am to 5:00pm Monday to Saturday.

The Applicant describes the manufacturing process as follows:

- Aggregate is mixed in batches, supplied by a cold feed unit into a sealed, insulated and clad rotary dryer. The aggregate is stockpiled in steel bins before transferred to the feed unit via a loader.
- In the diesel fired dryer, aggregate is heated to 160^{0}C, and transferred to an insulated pug mill. Bitumen is injected into the pug mill and mixed with the hot aggregate to produce asphalt. Bitumen is stored on site in a sealed 40,000L tank that is heated.
- The asphalt mixture is deposited to a diesel heated tank for discharge into asphalt trucks for transport.
- Combusted air from the pug mill is exhausted through the baghouse prior to discharge to the environment via 6.1 m high stack. The filter consists of 224 bags with a filter area of 240m^2 and a total filter capacity of 27,000m^3 per hour. The baghouse has an automatic reverse-pulse cleaning system with fine particulate matter returned to a mixer via a screw conveyor.
- Diesel to run the generators is supplied from the 60,000L tank.

4.2 Infrastructure

The proposed premises infrastructure, as it relates to Category 35 activities, is detailed in Table 4 and with reference to the Site Plan (attached in the Works Approval).

Table 4: Rocky Crossing Road asphalt facility Category 35 infrastructure

	Infrastructure	**Site Plan Reference** **Appendix 2 Figure 5**
	Prescribed Activity Category 35	
The Applicant will install a 40 tonne per hour MAP. Asphalt is manufactured by mixing heated aggregate batches in a dryer before directed them into a pug mill where they are mixed with bitumen. The asphalt is then stored in a heated tank before transport from site.		
1	40 t/h mobile asphalt manufacturing plant comprising: • Cold aggregate feeder bins • Rotating heater/dryer drum • Pug-mill for mixing heated aggregate and liquid bitumen • Gob-hopper for loading trucks • Bag house • 6.1 m stack (from bag house) • Control room	Labelled as: Asphalt plant
2	40,000L heated mobile bitumen tanker 3.76m heated bitumen vent stack	
3	Diesel generator 400Kva	
4	5 x 3-sided steel raw material storage bins (includes four for aggregate and one for sand)	Labelled as: Material bins

	Infrastructure	Site Plan Reference Appendix 2 Figure 5
5	4m high noise mitigation bunded wall	4m High Bund
6	60,000 L diesel storage tank	Labelled as: Bunded fuel storage area
7	Washdown bay Retention basin Stormwater sump Reed bed	Labelled as: Washdown bay Stormwater retention Sump and reed bed

4.3 Exclusions to the Premises

The Applicant proposes to construct car and truck parking, a water tank, office, workshop and amenities. This infrastructure is not directly related to the Category 35 primary activity and not within the scope of this assessment.

5. Legislative context

Table 5 summarises approvals relevant to the assessment.

Table 5: Relevant approvals and tenure

Legislation	Number	Subsidiary	Approval
Planning and Development Act 2005	P2180244	Spinifex Crushing and Screening Pty Ltd	Development approval for a 5000 tonne/annum mobile asphalt plant.
Dangerous Goods and Safety Act 2004	N/A	N/A	Proposed storage of diesel exceeds 10,000 L therefore the Applicant will be required to obtain a Dangerous Goods licence for the storage and handling of combustible liquids.

5.1 Other relevant approvals

5.1.1 Planning approvals

The local government authority for the proposal is the City of Albany. The Premises is located within an area zoned '*General Agriculture*' under the City of Albany Local Planning Scheme No.1 (LPS 1). The City of Albany was sent a direct letter of interest on the 20 April 2020.

The City of Albany approved Amendment No. 4 to the LPS 1 for the purpose of designating an additional use rights (AU32) to allow for a mobile asphalt plant. Planning approval P2180244 was issued on 20 February 2019 to operate a 5,000 tonnes/annum mobile asphalt processing plant. The City of Albany advised if the proponent intends to operate a 10,000 tonnes/annum operation then a new development approval would be required, no new applications have been received.

5.2 Part V of the EP Act

5.2.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guideline: Decision Making (June 2019)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

EP Act subsidiary legislation relevant to this assessment includes the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004*
- *Environmental Protection (Noise) Regulations 1997*

6. Modelling and monitoring data

6.1 Monitoring and modelling of odour and air emissions

Odour

An air quality assessment was conducted by Ektimo in 2017 for the Applicant (*Air Quality Assessment of Various Emissions to Air from a Hot Mix Asphalt Plant near Albany, Western Australia, Report R003902, 2017*) that modelled air emissions including odour.

The Delegated Officer notes that the air dispersion modelling included odour modelling against criteria. While the department's *Guideline: Odour Emissions* list optional odour assessment tools such as computer modelling to compare different odour emission scenarios, it states that this does not include odour modelling against criteria and that criterion modelling is not accepted. This relates to the weaknesses and uncertainty in odour modelling for odour assessments. The Delegated Officer has therefore not had material regard to the outcomes of the Applicant's criterion odour modelling in the assessment of odour emissions

However, the Application did include an odour screening analysis, operational odour analysis, location odour review and an odour source analysis using methodology's and tools outlined in DWERs *Guideline: Odour Emissions* (DWER 2019). This information has been considered for in this assessment.

Point source odour emissions were identified coming from the 6.1 m high asphalt baghouse vent stack and fugitive odour emissions from the load out via the elevated storage tank. The assessment determined the consequence of odour emissions to be acceptable with a low level risk of amenity impact at the nearest residence (rural residential, 359 Rocky Crossing Road, located 400m from source). This outcome was principally driven by the small size of the plant and proposed production of 5,000 tonnes/annum, operating 170 hours/year.

The Applicant's primary proposed controls to minimise odour include: daylight operation hours, production limits, low sulfur bitumen, distillate refined fuel, baghouse monitoring, producing asphalt at temperatures below the blue smoke threshold of 180^0C, bitumen storage tank fitted with a condenser, asphalt loading on truck with time limits, covers on trucks exiting

the Premises and an increase in stack height to 12magl if required.

Assessment of the wind speed and direction (see section 8.6.1. for further information) determined that poor air dilution of emissions (odour and air) from the site would occur with lighter wind speeds of 3.6 m/s (13 km/h) or less. This occurs 38% of the time during the day. There was uncertainty in the appropriateness of the stack height to elevate plumes and no air-field assessment to verify the outcomes.

Air quality modelling

The Applicant's report R003902: "*Air Quality Assessment of Various Emissions to Air from a Hot Mix Asphalt Plant near Albany, Western Australia – Great Southern Sands*" (27 February 2017, Ektimo) was reviewed.

Dispersion modelling was undertaken using AERMOD for a diesel fueled MAP operating between 7:00am to 5:00pm producing 5,000 tonnes/year which is equivalent to 170 hours/year of operation. Emissions sources considered in the assessment report include:

- the 6.1 m high asphalt plant baghouse vent stack (chemical pollutants, odour);
- a 3.76 m heated bitumen vent stack (chemical pollutants);
- fugitive emissions from the load-out process elevated storage silo (odour), and
- fugitive emissions from roads and storage areas (dust).

The Delegated Officer noted that model predicted ground level concentrations (GLCs) are significantly lower than respective short and long-term comparative reference standards as shown in Table 6.

Table 6: NEPM / DWER criteria compared to Applicants modelled predictions

Substance	**Averaging period**	**[d]Applicants peak predictions** **Maximum concentration µg/m^3 at 25^{0}C**	**Guideline** **Maximum concentration µg/m^3 at 25^{0}C**	**Guideline**
Carbone monoxide (CO)	1-hour	316	30,000	NEPM 2016, 2011and DWER 2019
	8-hour	164	10,000	
Nitrogen dioxide (NO_2)	1-hour	103	226	
	Annual	0.15	56	
Sulphur Dioxide (SO_2)	1-hour	129	524	
	24-hour	39	210	
	Annual	0.26	52	
PM_{10}	24-hour [a,b]	4.9	46	DWER 2019, where a = NEPM 2016 b = EPA NSW 2016
	Annual [a]	0.029	23	
$PM_{2.5}$	24-hour [a,b]	3.4	23	
	Annual[a,b]	0.021	7	

Substance	Averaging period	[d]Applicants peak predictions Maximum concentration µg/m^3 at 25^{0}C	Guideline Maximum concentration µg/m^3 at 25^{0}C	Guideline
Benzene	1-hour [b]	0.21	29	c= NEPM 2011
Ethylbenzene		1.7	8,000	
Toulene	24-hour [c]	0.18	3,770	
Xylene		0.48	1,080	

Note the published documents supporting DWERs draft *Guideline: Air Emission* (2019) are as follows:

[a] = National Environmental Protection Council 2016, National Environment Protection (Ambient Air Quality) Measure, (NEPM 2016)

[b] = Environmental Protection Authority,2016, *Approved methods for the modelling and assessment of air pollutants in New South wales*, Department of Environment and Conservation Sydney (EPA NSW 2016)

[c] = National Environmental Protection Council 2011, National Environment Protection (Air Toxics) Measure (NEPM 2011)

[d] = Based on NSW EPA99.9th percentiles

6.2 Noise monitoring and modelling

An acoustic assessment (Herring Storer Acoustics, 2017) (HSA) has been undertaken by the Applicant to model the noise propagation from the proposed plant, the predicted noise received by the closest sensitive receptor and investigated noise control options to reduce noise emissions. The modelling was reviewed and found to be appropriate with reasonable inputs and assumptions.

The acoustic assessment by Herring Storer Acoustics (2017) modeled nighttime operations indicating potential impacts at night. The Delegated Officer noted that the City of Albany development approval (P20180244) restricts the hours of operation to between 7:00am to 5:00pm therefore the Delegated Officer has only assessed the risk of noise impacts related to day time operations.

It was predicted by HSA that the proposed operation would not comply with the assigned noise levels, where the closest sensitive receptor (rural residential, 359 Rocky Crossing Road) may exceed assigned levels specified in the *Environmental Protection (Noise) Regulations 1997* for all hours .Consequently, HSA proposed the following noise controls:

- Baghouse stack attenuated by 14dB(A) to a sound power level of 98bdb(A).
- Boiler to be located within a metal clad shed, with the opening to the east.
- A 4 metre noise mitigation bund located along the eastern side of the plant.
- Sound power of the plant (excluding boiler) be limited to 102dB(A).

By incorporating the above noise mitigation measures, HSA predicted that noise from the propose operation would comply with assigned noise levels during day as summarised in Table 7.

Table 7: Summary of predicted noise levels at receptors (from Table 12 Herring Storer Acoustics, 2017) compared to assigned levels

Location	[B]Predicted noise level dB(A)	[A]assigned L_{A10} Noise Level (db) From 0700 – 1900 hours Monday to Saturday
Lot 3 Rocky Crossing	43	50
Lot 7 Rocky crossing	41	47
Lot 105 Rocky Crossing	40	48
Lot 61 Menang Drive	39	40
Lot 62 Menang Drive	37	45
Lot 63 Menang Drive	37	46
Lot 64 Menang Drive	37	46
Lot 65 Menang Drive	38	47
Lot 66 Menang Drive	39	47
Lot 202 Menang Drive	43	47
Lot 5318 Menang Drive	40	47
Lot 5319 menang drive	40	47

[A] L_{A10} is the noise level exceeded for 10% of the time.

[B] Applicable adjustments and assessable noise levels for full operations

The Applicant provided additional information on the implementation of noise control recommendations as follows:

- The proposed size and scale of the plant is smaller than the basis for the acoustic assessment therefore is expected to achieve plant sound power level objective of 102 dB(A). This also means the stack fan/blower will also be smaller than what was modelled.
- Localised screening using vegetation and earth bund of sections of the plant are expected to reduce noise (The Delegated Officer noted this but does not expect vegetation screening to reduce noise).
- The installation of a silencer within the piping system and / or stack is an option to reduce noise, should noise levels be found to exceed requirements.

Key findings:

1. The Applicant modelled nighttime operations however, development approval P20180244 from the City of Albany restricts operational hours to 7am to 5pm and therefore the Delegated Officer did not further considered the risk of nighttime noise impacts.

7. Consultation

7.1 Stakeholder consultation

The Application was advertised for public comment on the DWER website on 14 April 2020. DWER received 21 submissions from residents within the Albany region. The Delegated Officer had regard to all submission points raised in this assessment. Table 8 provides a summary of the key issues raised in submissions.

Table 8: Summary of public submissions

Issue	Number of submissions	Public concerns
Odour	20	Concerns relate to potential impacts of odour on surrounding residents. Northwest winds are common and blow odour directly over special rural subdivision.
Traffic	6	Concerns relate to additional number of trucks on Rocky Crossing and Merang Roads to and from the asphalt plant. Highlighted that Merang Road is a ring road and not designed as an industrial road to service industrial activities.
Planning approvals and zoning	18	Concerns over the City of Albany's lack of community engagement in the rezoning and development approval processes. It was noted that the Applicant has increased the size of the plant from 5,000 tonnes/annum to 10,000 tonnes/annum between the City of Albany approval to the works approval application that the Applicant submitted to DWER. Concerns relate to the unsuitable location for the proposed asphalt plant as it lies within an agriculture area. Asphalt plant should be located at Pendeen or Down Road Industrial estates.
Dust and toxic emissions	15	Concerns relate to health impacts from particulate matter on surrounding residents especially carcinogens and hydrocarbons.
Rainwater collection	4	Residents have raised concerns relating to air emissions from the asphalt plant deposited into rainwater tanks and impacting on human health and vegetation.
Noise	15	Concerns with noise from heavy plant and equipment associated with the asphalt plant and truck movement, especially breaking and acceleration on and off Merang Road.
Operating Hours	3	The asphalt plant will operate 6 days per week causing disturbance on weekends (Saturdays).
Health and wellbeing (including asthma)	12	Residents have raised that their lifestyle and health and wellbeing will be impacted upon by the asphalt plant.
Flora and fauna	1	Impacts on flora and fauna from spills and air pollution.
Parker Brook water quality	8	Concerns of stormwater runoff downhill impacting on waterway health.
Light emission	1	Concern that security lights at night will impact on neighbouring properties.
Aboriginal Heritage	2	Concerns that the significance of Mt Willyung to aboriginal communities, particularly burial sites on the north side of Mt Willyung have not been formally investigated.
Impacts on agricultural land	3	Concerns relate to potential impacts on grazing lands and animals from toxic emissions.
Devaluation of property	8	Concerns that the value of their property will be reduced from the location of the asphalt plant and the emissions from the plant.
Inappropriate buffer	7	Concerns that the EPA 1000m buffer distance has not been applied, nor could it be applied as numerous properties occur within the buffer area.
Fire risk	8	Concerns that the vegetative screening will increase fuel loads creating fire risk to the local area. The operation of the asphalt manufacturing plant itself, will increase fire risk to local communities.
Policing of site	6	Concerns that the Applicant has received prior infringements under the EP Act. No confidence that the Applicant will manage the site appropriately. Lack of confidence with government agencies in policing and auditing the operations of the site.

The Delegated Officer notes that matters relating to traffic, health and wellbeing, and devaluation of property are impacts that are outside of the Premises boundary and assessment scope under Part V of the EP Act. Fire risk, zoning and operating hours are outside of the Part V assessment scope but managed through local government development approval process under the *Planning and Development Act 2005*. Matters relating to odour, dust, light, water quality, flora and fauna, stormwater, noise, buffer distances and policing of the site were taken into consideration in this decision report. Aboriginal relics are considered by Part V, however no registered sites occur within the Premises boundary and therefore not considered further within the scope of the assessment.

8. Location and siting

8.1 Siting context

The Premises is located on the South Coast of Western Australia in the locality of Willyung in the City of Albany and is zoned 'General Agriculture' within undulating farmland. The Albany town centre is located 7.5 km south east of the Premises. The rural residential subdivision of Warrenup lies 180 m south and the nearest residence is located 50 m east of the Premises boundary. The Premises is bordered by Menang and Rocky Crossing Roads. Holcim (Australia) Pty Ltd operates a quarry approximately 190m north of the Premises under L4739/1981/10.

8.2 Residential and sensitive receptors

The distances to residential and sensitive receptors are detailed in Table 9. Figure 2 illustrates the rural residential receptors within a 1 km radius from the centre of the MAP.

Table 9: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Rural residential, 359 Rocky Crossing Road	400m east of the source (MAP)
Rural residential, 361 Rocky Crossing Road	490m northeast of the source
Rural residential, 310 Rocky Crossing Road	820m east of the source
Rural residential, 227 Menang Drive	690 and 770m west of the source
Rural residential, 439 Rocky Crossing Road	1053m north of the source
Rural residential, 119 Kinjarling Road	1090 and 1130 m north, northwest of the source
Rural residential, 235 Rocky Crossing Road	740m south of the source
Rural residential, 280 Rocky Crossing Road	860m south of the source
Rural residential, 266 Rocky Crossing Road	989m south of the source
Rural residential, 250 Rocky Crossing Road	1045m south of the source
Warrenup rural residential estate	720m south of the source

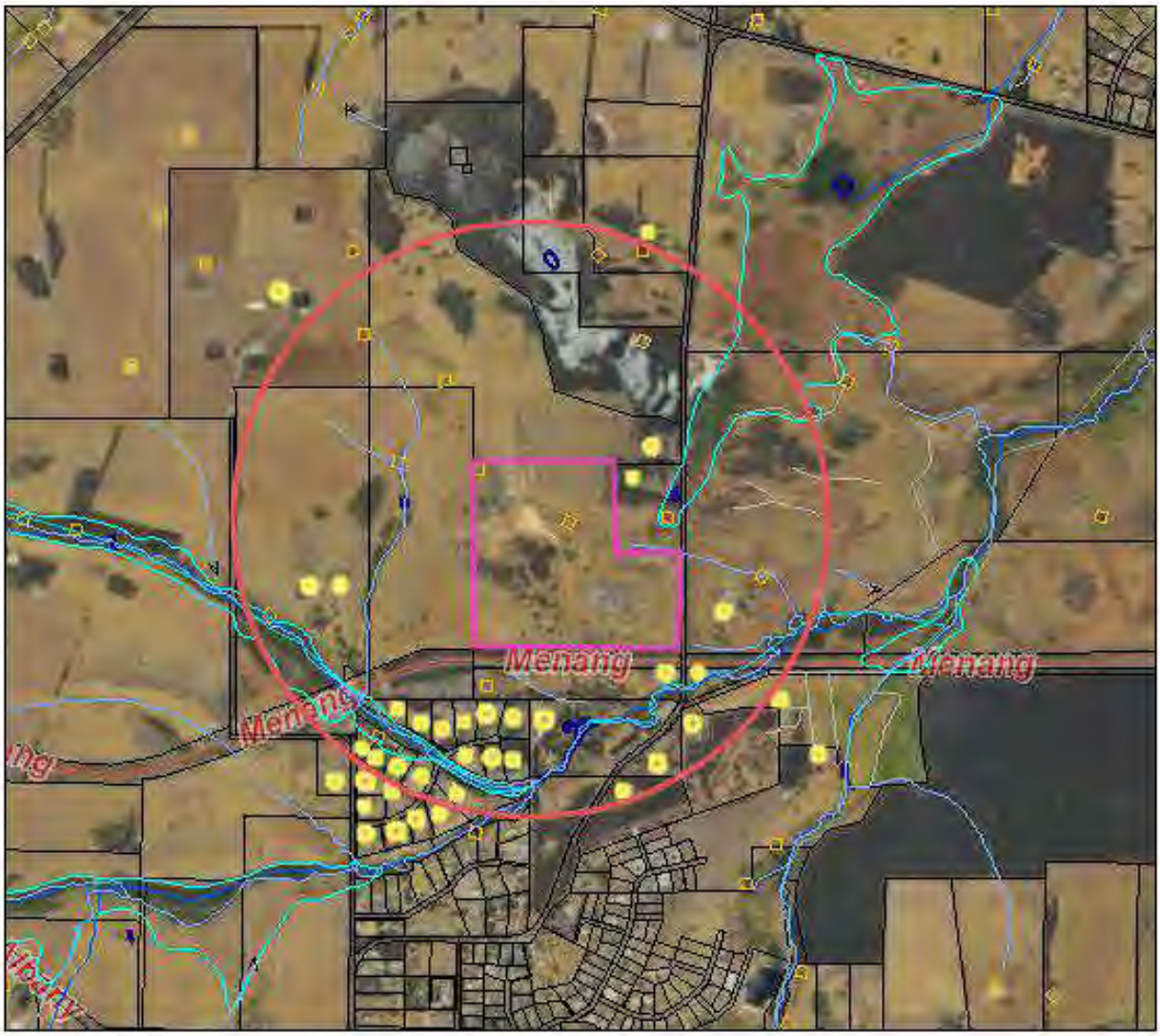


Figure 2: 1km radius from the centre of the MAP to rural residential receptors

Note: Premise is outlined in pink, 1km radius is outlined in a red circle and residents are indicated as yellow circles (not all residents outside 1km radius have been indicated.)

8.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted because of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table10. Table 10 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The table has also been modified to align with the *Guidance Statement: Environmental Siting.*

Table 10: Environmental values

Specified ecosystems	Distance from the Premises boundary
Waterways Conservation Areas	Entire Premises is located within the declared management area of the Albany Waterways Management Area.
Biological component	**Distance from the Premises boundary**
Threatened/Priority Flora - PRI	Located 1.1 km on the northern boundary of the Premise on 385 Rocky Crossing Road
Conservation reserve (Reserve No. 22892) For the conservation and protection of flora	Located 930 m on the south-eastern boundary of the Premises.

8.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 11.

Table 11: Groundwater and water sources

Groundwater and water sources	Distance from Premises boundary	Environmental value
Major watercourses / waterbodies Parker Brook (King River)	Parker Brook (King River) 160m from the south-eastern boundary of the Premises. All surface water flows are contained within the Parker Brook (King River) catchment	Classified as a significant waterway within the Kent River catchment. A section of the Parker Brook is a registered site under the Aboriginal Heritage Act 1972.
Groundwater source - Unproclaimed Karri groundwater aquifer	DWERs *Geocortex WA Now* aerial image for January 2019 indicates three soaks on the Premises containing groundwater. This indicates that groundwater is within 1m of the surface across the Premises. This is a result of the perched groundwater table across the site from the duplex soil that lies beneath the Premises. No bores located within 1km of Premises with data available (based on available GIS dataset –WIN Groundwater Sites).	Groundwater system linked to Parker Brook (King River) surface water ecosystem. Groundwater is used as an agriculture water resource by surrounding properties.

8.5 Soil type

Table 12 details soil types and characteristics relevant to the assessment.

Table 12: Soil and sub-soil characteristics

Groundwater and water sources	Distance from Premises	Environmental Value
Soil type classification based on DPIRD Natural Resource Information (2020) is described as the South Coast and hinterland landforms and soils. The Premises consists of the Barrow lower slope phases (242PrBAf) of yellow duplex soils, sands, gravels.	The soil type covers the entire site and extends north from the Premises boundary.	The soil type is prime agriculture land and rated as having moderate to very high capability for annual horticulture, perennial horticulture, vineyards, grazing and dry land cropping (DPIRD Natural Resource Information, 2020).
Acid sulfate soil risk	Entire premise is classified as have no known risk.	

8.6 Meteorology

8.6.1 Wind direction and strength

The Bureau of Meteorology Albany weather station (ID 94802) is located 2.8km west of the Premises. The wind roses shown in Figure 3 indicate wind direction versus speed for 9:00am and 3:00pm in January and July for the Albany weather station over the last 10 years. It is important to note that these wind roses show historical wind speed and wind direction data for Albany weather station and should not be used to predict future data. Figure 4 illustrates the wind speed and direction distribution of hourly readings for the entire 2015 between 7:00am and 5:00pm.

Winds at the Premises are distributed with slightly higher frequencies from the south-east in summer and from the north-west in winter for morning and afternoons. Least frequent breezes are from the south. Poor air dilution of emissions from the site will occur with lighter wind speeds of 3.6 m/s (13 km/h) or less. This occurs 38% of the time during the day.

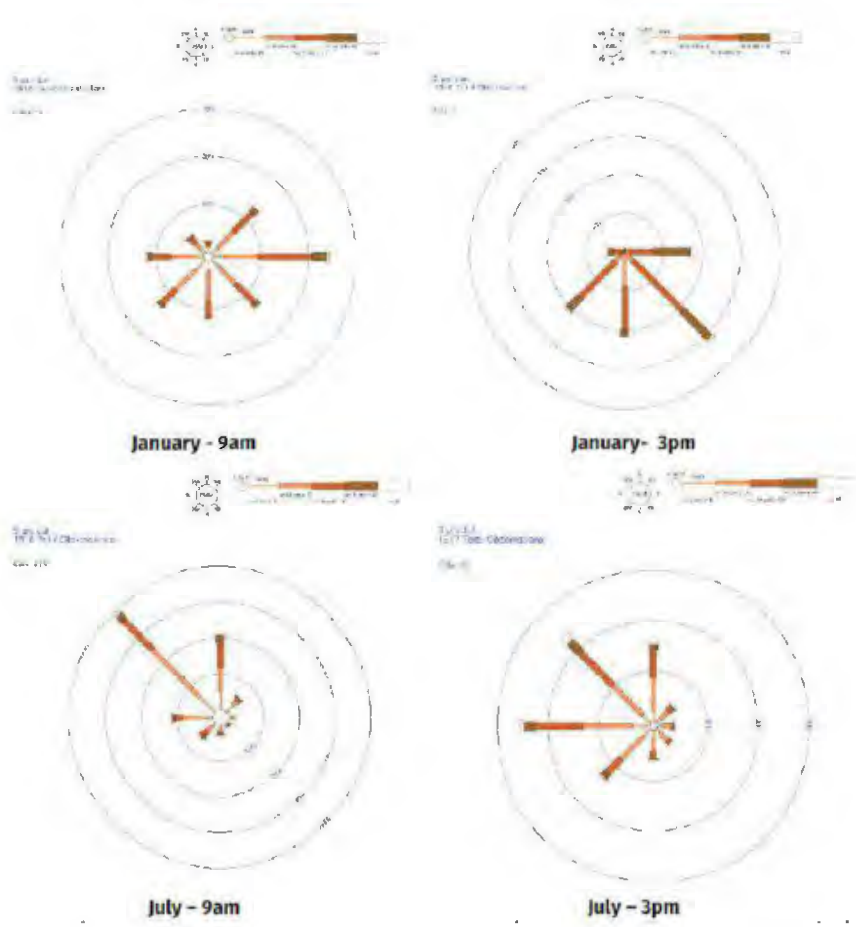


Figure 3 Wind rose, Albany weather station (10 years of data 2009-2018)

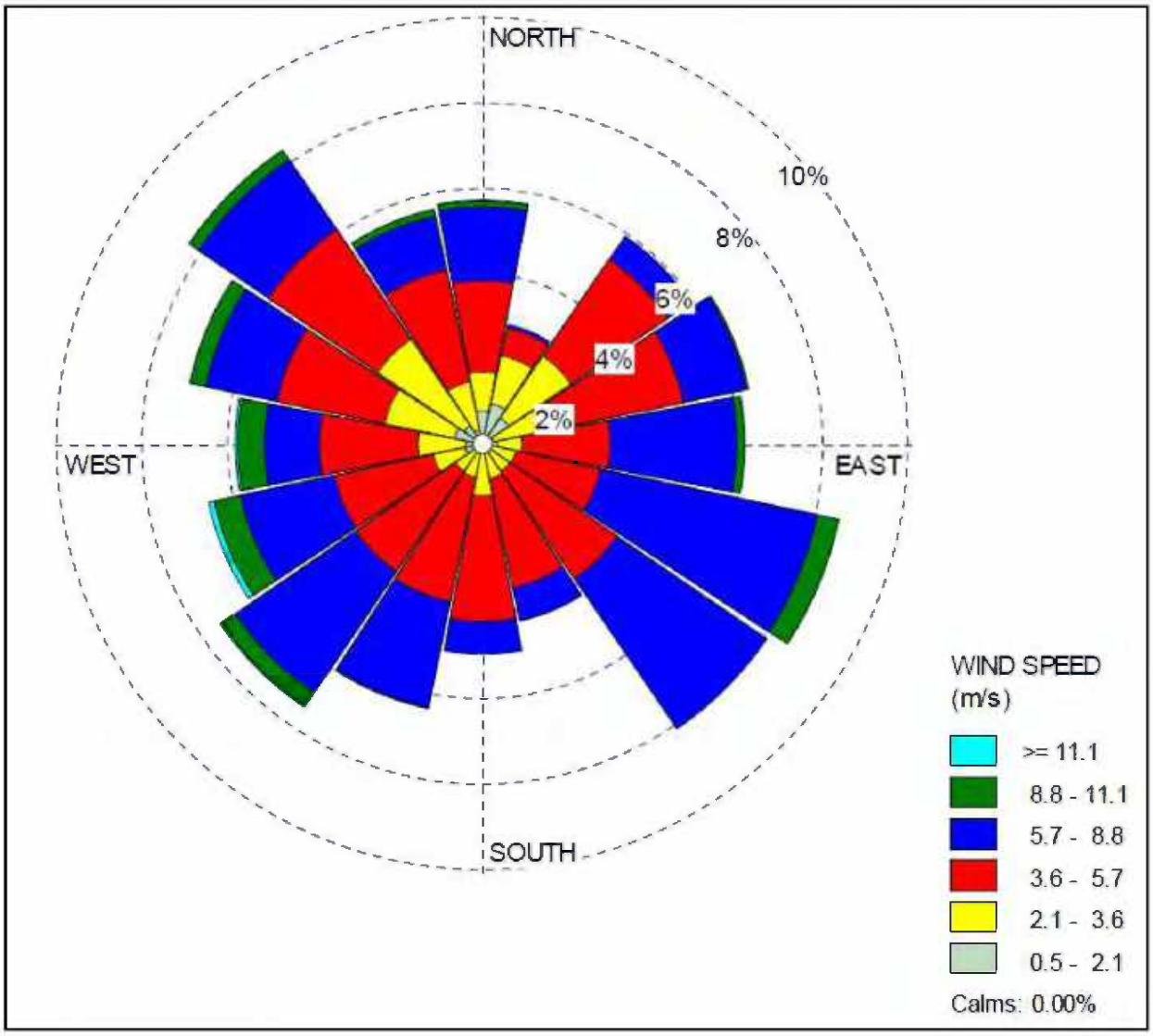


Figure 4 Wind speed and direction distribution of hourly recordings at the BoM Albany Airport weather station for 2015 between 7:00am and 5:00pm.

8.6.2 Climate

Albany has a Mediterranean climate, characterised by dry summers and wet winters. The Albany weather station indicates that the average rainfall for is 929mm, with most of the rain falling between May to September.

9. Risk assessment

9.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

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. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 13.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 13 below.

Table 13: Risk assessment of potential emissions and discharges from the Premises during construction and time limited operation

Risk Event					**Risk rating[1]** **C = consequence** **L = likelihood**	**Applicant controls sufficient?**	**Conditions[2] of works approval**	**Justification for additional regulatory controls**
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction and installation of mobile asphalt plant including: • **Vehicle movement** • **Construction of new plant**	Dust	Air/windborne pathway causing impacts to amenity.	Closest rural residential area 400m from the operational area. Eleven additional rural residential areas located between 490 and 1090m from the operational area. Special rural residential area in Warrenup located 720m south of operational area.	• All vehicle movements will be limited to 10km/hr to reduce dust.	C = Slight L = Unlikely **Low Risk**	Y	Condition 1	The Delegated Officer considers that vehicle movement and construction works are of short duration only and that the separation distance between the source and potential receptors is sufficient to prevent amenity impacts. The Noise Regulations apply to noise emissions.
	Noise			• Operational hours 7:00am to 5:00pm Monday to Saturday. (Regulated by City of Albany under local government development approvals). • A 4-metre high noise mitigation bund is already established on the eastern side of the plant.	*C = Slight* *L =Unlikely* ***Low Risk***	Y		
Operation ***(including time-limited-operations)***								
Delivery and storage of raw materials including: •**Vehicle movements** •**Storage of aggregates and fillers**	Noise	Air / wind dispersion Potential amenity impacts	Closest rural residential area 400m from the operational area. Eleven additional rural residential areas located between 490 and 1090m from the operational area. Special rural residential area in Warrenup located 720m south of operational area.	• A 4m high noise mitigation bund is already established on the eastern side of the plant.	*C = Minor* *L = Unlikely* ***Medium Risk***	*Y*	*Condition 1,6*	Operational hours are restricted to 7am to 5pm by a City of Albany's development approval. The Delegated Officer expects that noise will comply with assigned levels during daytime operations, if the Applicant's controls are implemented.
	Fugitive dust			• Gravel hardstand watered with a water cart from November –April (inclusive) to suppress dust. • Sand and aggregate must be stored within the bays. • Materials stored in the bays shall not be stored higher than the bay walls. • Sprinkler system is maintained and operated on storage bins to prevent windblown dust. • All sand and aggregate to be damp upon delivery. • All sand and aggregate deliveries to be tarped.	*C = Minor* *L = Unlikely* ***Medium Risk***	*Y*	*Condition 1,6*	The Delegated Officer considers that dust emissions associated with the delivery and storage of raw materials is sufficiently controlled and managed with the Applicant's controls.
Storage of bitumen in heated tanks	Leaks or spills of liquid bitumen outside of containment	Direct discharge to land	*None*	• 40,000-litre mobile diesel-heated and stirred bitumen tanker. • Tanks in bunded areas or self bunded in accordance with Australian Standards (noted that that standard not referenced by Applicant)	*C= Slight* *L= Unlikely* ***Low risk***	*Y*	*None*	Due to the rapid setting of bitumen to a solid state as it cools, a bitumen spill will be localised to the immediate area. There are no identified receptors or potential adverse impacts identified. The Delegated Officer considers the risk is low and the Applicant controls appropriate.
Blending of materials - transfer of raw materials from storage	*Noise*	Air / wind dispersion Potential amenity	Closest rural residential area 400m from the operational area.	• Operational hours 7:00am to 5:00pm Monday to Saturday. (Regulated by City of Albany under local government development approvals).	*C = Minor* *L = Unlikely*	*Y*	*Condition1, 6*	Operational hours are restricted to 7am to 5pm by a City of Albany's development approval. The Delegated Officer expects that noise will

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
to mixing drum		impacts	Eleven additional rural residential areas located between 490 and 1090m from the operational area. Special rural residential area in Warrenup located 720m south of operational area.	• Vehicle speeds on site will be restricted to 10km/hr. • A 4 metre high noise mitigation bund will be established on the eastern side of the plant. • All mobile equipment will be fitted with appropriate muffler systems.	***Medium Risk***			comply with assigned levels during daytime operations, if the Applicant's controls are implemented.
	Fugitive dust			• Stockpiles to be subject to water mist or sprays to maintain surface moisture to dust extinction levels. • Component aggregate stored onsite in three sided bins and managed in stockpiles no higher than the bin height.	*C = Minor* *L = Unlikely* ***Medium Risk***	*Y*	*Condition 6*	The Delegated Officer considers that dust emissions associated with the transfer of raw materials from storage to drum mixer is sufficiently controlled and managed with the Applicant's controls.
Blending of materials-mixing of materials in drum dryer and baghouse emissions via stack	*Odour*	Air/windborne pathway causing impacts on amenity and health.	Closest rural residential area 400m from the operational area. Eleven additional rural residential areas located between 490 and 1090m from the operational area. Special rural residential area in Warrenup located 720m south of operational area	See section 9.4.5, Table 17 for controls	*C = Minor* *L = Unlikely* ***Medium Risk***	*N*	*Condition 1* ***Condition 1 (4)*** ***Condition 6 (3)***	The Delegated Officer using the precautionary principle considers that infrastructure construction for controls to manage odours are insufficient. A level of doubt from the Applicant on the appropriateness of the stack height to elevate plumes and no air field assessment to verify the outcomes creates uncertainty and requires further controls. See section 9.4
	Noise			• Operational hours 7:00am to 5:00pm Monday to Saturday. (Regulated by City of Albany under local government development approvals). • A 4-metre-high noise mitigation bund will be located on the eastern side of the plant. • Plant stack attenuated by 14dB(A) to a sound power level of 98bdb(A). • Boiler to be located within a metal clad shed, with the opening to the east. • Sound power of the plant (excluding boiler) be limited to 102dB(A). • Installation of a silencer within the piping system and / or stack.	*C = Minor* *L = Unlikely* ***Medium Risk***	*Y*	*Condition 1,2,3,6*	Operational hours are restricted to 7am to 5pm by a City of Albany's development approval. The Delegated Officer expects that noise will comply with assigned levels during daytime operations, if the Applicant's controls are implemented.
	Combustion gases, particulates, and VOCs			• The baghouse installed with a filter that: (i) has a design capacity of 27,000 m^3/hour; (ii) has a design capacity for particulates of less than 20mg/m^3; and (iii) is fitted with a minimum of 224 filter bags with a filter area of at least 240m^2. • The baghouse is fitted with an automatic reverse-cycle cleaning system. • The baghouse is fitted with a broken bag detection system. • The baghouse will be fitted with an air temperature control system with built in alarms and cut off controls. • Stack is to be fitted with a sampling port that meets requirements of AS 4323.1. • A condenser to be fitted on the sealed lid to direct condensate back into the tank. • Stack height on baghouse is 6.1m • If blue smoke is detected the temperature will be immediately reduced.	*C = Minor* *L = Unlikely* ***Medium Risk***	*Y*	*Condition 1,2,3, 6, 7, 8, 9, 10*	The Delegated Officer does not expect air emission impacts to occur if the Applicant's controls are implemented.
Dispatch of asphalt,	*Odour*	Air/windborne	Closest rural residential area	• 40,000-litre mobile diesel-heated and stirred bitumen tanker.	*C = Minor*	*Y*	*Condition*	The Delegated Officer considers that emissions

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
including the storage of hot mix asphalt and truck loadout		pathway causing impacts amenity and health.	400m from the operational area. Eleven additional rural residential areas located between 490m and 1090m from the operational area. Special rural residential area in Warrenup located 720m south of operational area	• Condensers on head-space vents for condensing volatiles to liquid back into the tank • Asphalt will be transferred through a covered load-out conveyor • Trucks with asphalt leave premises with trays tarped • Tanks in bunded areas or self bunded in accordance with Australian Standards (noted that that standard not reference by Applicant)	*L = Unlikely* ***Medium Risk***		*1,2,3,6*	to air from the dispatch of asphalt are sufficiently controlled and managed with Applicant's controls.
Stormwater from MAP	*Contaminated stormwater running overland to nearby waterways.*	Direct discharge to land and potential seepage to groundwater. Causing soil contamination inhibiting vegetation growth and survival. Groundwater contamination. Surface water contamination.	Infiltration to soil, perched groundwater system. Overland runoff to Parker Brook (King River) 160m from the south-eastern boundary of the Premises.	• Hardstand areas are maintained to capture spills, solids or liquids including contaminated stormwater and directed to the stormwater treatment system. • Stormwater treatment system comprises of a minimum of 20m^{3}collection sump filled with cages of spongoilte rocks (10mm to 30mm). • Spongolite within the rock gabions are replaced annually. • Stormwater is infiltrated through a reed bed and directed to a built retention basin. • All clean stormwater is diverted away from the MAP	*C = Minor* *L = Possible* ***Medium Risk***	*Y*	*Condition 1, 2,3, 6*	The Delegated Officer considers that emissions to land from stormwater are sufficiently controlled and managed with Applicant's controls.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

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

9.1.1 Applicant controls

The Applicant's air emissions and odour controls are listed in Table 17 below.

Table 14: Applicant's proposed controls for air emission and odour emissions.

Site infrastructure	Control Description
Mixing of aggregates-rotary dryer, baghouse, pug mill and steel storage bins	Mixed aggregate batches are feed from a cold feed unit into a sealed, insulated, and clad rotary dryer. The aggregate is stockpiled in steel bins before transferred to the feed unit via a loader. In the diesel fired dryer, the aggregate is heated to 160^{0}C, transferred to an insulated pug mill. Bitumen is injected into the pug mill and mixed with the hot aggregate. Combusted air is exhausted through the baghouse prior to discharge to the environment via 12 m high stack. The filter consists of 224 bags with a filter area of 240m^2 and a total filter capacity of 27, 000m^3 per hour. Baghouse has an automatic reverse-pulse cleaning system with fine particulate matter returned to a mixer via a screw conveyor.
Management	Bitumen product used is a low sulphur bitumen that has shorter chain odorous hydrocarbons. Plant is fuelled by refined distillate that reduces the emission of partially combusted organics and volatile organic compounds and combustion gases. Flue gas from the aggregate drying process and bitumen mixing are recirculated through the burner combustion zone to further reduce volatile organic emissions before being ducted through a baghouse fabric filter system to the 6.1m stack. The baghouse is fitted with air temperature control system. A short-term limit of 220^{o}C is allowed with an over temperature cut-out at 230^{o}C. An alarm is set to alert the operator of temperature drops to 80^{o}C. The over temperature stop device consists of a cold fan valve on the inlet of the baghouse. If temperature exceeds the cut-out value, the control system will cut off fuel to the burner in the dryer/heater drum. Asphalt product will be produced at temperatures less than 175^{o}C which is below the threshold of 180^{o}C for blue smoke emissions that can contain odours and volatile organics. If blue smoke is detected the temperature will be immediately reduced. The Applicant may consider completing an odour field assessment once operational to confirm stack height and raise the stack from 6.1 to 12magl as a contingency action to odour emissions.

10. Regulatory controls

10.1 Works Approval controls

10.1.1 Noise infrastructure and equipment (construction and operational)

The works approval will require the asphalt plant and associated equipment necessary to produce asphalt to be equipped with noise suppression based on the Applicant's and consultants proposed controls for noise which include:

- Boiler to be located within a metal clad shed, with opening to the east.
- 4 metre noise mitigation bund to be located along the eastern side of the plant
- Sound power of the plant (excluding boiler) to be limited to 102dB(A).
- Plant stack attenuated to a sound power level of 98bD(A)
- Installation of a silencer within the piping system and / or stack.

Grounds: It was determined that without controls noise levels from the operation were predicted to exceed Noise Regulations**.** Noise emissions were assessed with Applicant controls and have been assessed as being medium risk. The infrastructure and equipment control will suitably minimise the risk of noise on surrounding residents. The requirements are derived from noise controls proposed by the Applicant in the application and consultants' reports.

10.1.2 Dust infrastructure and equipment (construction and operational)

The following requirements will be specified in the works approval and or time limited operation:

- Sprinkler system installed on storage bays which provides adequate coverage of the bays for dust suppression of contained materials.
- Component aggregate stored onsite in three sided bins and managed in stockpiles no higher than the bin height.
- Sand and aggregate delivery vehicles will be tarped to prevent windblown dust.
- Gravel hardstand areas will be watered with a water cart in drier months (November to April) to suppress dust as required.
- Sand and aggregates will be preconditioned to ensure they are damp upon delivery to site.

Grounds: Dust emissions from the asphalt plant have been assessed as low risk with Applicant controls. The use of dedicated infrastructure to contain the specified dust forming materials will suitably minimise the risk of generating airborne dust from the storage and handling of raw materials and throughout the production process and load of asphalt. The requirements are derived from controls outlined by the Applicant in the application.

10.1.3 MAP stormwater infrastructure and equipment (construction and operational)

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for stormwater infrastructure and equipment:

- Stormwater treatment system will comprise of a minimum of 20m^3 collection sump filled with cages of spongoilte rocks (sized 10 to 30mm). The spongolite gabion cages are replaced annually.

- Contaminated stormwater from the MAP is directed to the sump filled with cages of spongolite rocks and is discharged through a reed bed into a retention basin.
- All clean stormwater is diverted away from the MAP areas.

Grounds: Stormwater and wastewater emissions from the asphalt plant have been assessed as medium risk with Applicant controls. The use of dedicated infrastructure to contain and treat storm/wastewater will suitably minimise the risk of contaminating ground and surface water receiving waterbodies. The requirements are derived from controls outlined by the Applicant in the application.

10.1.4 Odour infrastructure and equipment (construction and operational)

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for odour management:

- Bitumen product used in MAP is a low sulphur bitumen (shorter chain odorous hydrocarbons).
- Pug mill must be directed to the baghouse for treatment and discharge via the stack.
- The baghouse shall be operated with:
    i. a automatic reverse -cycle cleaning system;
    ii. a broken bag detection system;
    iii. operator shuts down plant when broken bags are detected, and
    iv. an air temperature monitoring and control system which alarms at temperatures above 180^{o}C or below 80^{o}C and ceases fuel supply at 230^{o}C.
- If blue smoke is detected the temperature will be immediately reduced.
- Covered loadout conveyor will mitigate any residual odours from dispersing into the atmosphere.
- Trucks with asphalt leave premises with trays tarped.
- Air emissions are to be vented through a12 magl stack to disperse odorous emissions.

Grounds: Odour emissions from the asphalt plant have been assessed as medium risk. The Delegated Officer notes the Applicant's additional optional control to increase stack height from the proposed 6m to 12m, subject to odour survey validation once operational. Given the close proximity to receptors, the Delegated Officer has specified a 12m stack height to improve dispersion and expects that this will reduce the risk of odour and air impacts on receptors.

10.1.5 Combustion gases, particulate and VOC's infrastructure and equipment (operational)

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for combustion gases particulates and VOC emission management:

- MAP infrastructure must be constructed such that vapours are directed to the baghouse.
- The baghouse will be installed and operated with a filter which:
    i. has a design capacity of 27,000 m^3/hour;
    ii. has a design capacity for particulates of less than 20mg/m^3; and
    iii. is fitted with a minimum of 224 filter bags with a filter area of at least 240m^2.

- The baghouse will be fitted and operated with an automatic reverse-cycle cleaning system.
- The baghouse will be fitted and operated with a broken bag detection system and shut down by an operator when broken bags are detected.
- The baghouse will be fitted and operated with an air temperature control system with built in alarms and cut off controls
- The baghouse shall be operated with:
    i. an automatic reverse -cycle cleaning system;
    ii. a broken bag detection system;
    iii. operator shuts down plant when broken bags are detected, and
    iv. an air temperature monitoring and control system which alarms at temperatures above 180oC or below 80oC and ceases fuel supply at 230oC.
- If blue smoke is detected the temperature will be immediately reduced.
- The works approval will require the installation of a sampling port in the baghouse filter stack that is compliant with AS4323.1 so that accurate stack monitoring can be obtained.

Grounds: Combustion, particulate and VOC emissions from the asphalt plant have been assessed as medium risk with Applicant controls. The use of use of dedicated infrastructure to contain the specified gas/particulate forming materials will suitably minimise the risk of generating airborne emissions from the baghouse stack through the production process of asphalt. The requirements are derived from controls outlined by the Applicant in the application.

10.1.6 Combustion gases, particulate and VOC's monitoring (operational)

Monitoring of air emissions will be included in the works approval as a validation stack sampling event from the baghouse filter stack to be conducted within four (4) weeks from the commencement of time limited operation. Monitoring will consist of the following parameters: PM; NOx; CO; Total VOCs; stack flow rate and stack velocity.

Grounds: Stack monitoring will determine the acceptability of the constructed works and the accuracy of the estimated emission for PM. The forthcoming Licence will require the monitoring of PM stack emissions for the asphalt plant on an annual basis to ensure the baghouse filter is being maintained and emissions controlled. The requirements are Delegated Officer initiated.

10.1.7 Reporting requirements

The following reporting requirements on construction, time limited operation and environmental performance should be undertaken in time limited operations and consist of:

- Requirement to submit performance in course of complying with infrastructure equipment construction and operation.
- Requirement to submit a report on air emissions monitoring specified in the works approval and licence conditions including the sample analysis report and a comparison of results against any limits specified.
- Requirements for the operation of infrastructure and equipment during time limited operations consistent with the outcomes of design and installation of infrastructure requirements.

Grounds: Requirements reflect Applicant's controls and relate to risk derived outcomes of

requirements for the design and construction of infrastructure and equipment. The stack monitoring will be required in the works approval and future licence conditions.

11. Determination of Works Approval conditions

The conditions in the issued Works Approval in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

Table 18 provides a summary of the conditions to be applied to this works approval.

Table 15: Summary of conditions to be applied

Condition Ref	Grounds
Infrastructure and Equipment Condition 1	These conditions are valid, risk-based and contain appropriate controls.
Environmental Compliance Condition 2 and 3	Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the works approval and the EP Act.
Time Limited Operations 4,5 and 6	These conditions are valid, risk-based and enable flexibility in operations.
Monitoring 7, 8, 9 and 10	These conditions are valid, risk-based and consistent with the EP Act.
Compliance Reporting 11 and 12	These conditions are valid, risk-based and consistent with the EP Act.
Information and Reporting 13, 14, and 15	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the works approvals under the EP Act.

12. Applicant's comments

The Applicant provided comments on the draft decision report and works approval on the 7 October and 9 November 2020. The Applicant provided details on the stormwater management system and this information was updated within the decision report and works approval.

13. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of several factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Issued Works Approval will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

The Works Approval will allow for 180 days of time limited operation on completion of the works subject to Condition 4 and 5. During this time the Works Approval Holder will be required to apply for a Licence to continue to have authorisation to operate.

Appendix 1: Key documents

	Document title	Availability
1.	DER, July 2018. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au
2.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	
3.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	
4.	DER, November 2016. *Guidance Statement: Risk Assessments.* Department of Environment Regulation, Perth.	
5.	DER, November 2016. *Guideline: Environmental Siting.* Department of Water and Environmental Regulation, Perth.	
6.	DWER, June 2019. *Guideline: Industry Regulation Guide to Licenisng.* Department of Water and Environmental Regulation, Perth.	
7.	DWER, June 2019. *Guideline: Decision Making.* Department of Water and Environmental Regulation, Perth.	
8.	DWER May 2017. *Technical Expert Report Advice on air Quality Assessment for an asphalt Plant at Lot 104 Rocky crossing Road, Willyung*, Department of Water and Environmental Regulation, Perth	DWER records
9.	DWER June 2019. *Guideline: Odour Emissions* Department of Water and Environmental Regulation, Perth	accessed at www.dwer.wa.gov.au
10.	Ektimo, 2017. *Air Quality Assessment of Various Emissions to Air from a Hot Mix Asphalt Plant near Albany*, Western Australia, Report R003902.	DWER records
11.	Ektimo, 2020. *Update to odour assessment for a proposed small asphalt plant at Albany, WA* , Report R009424	DWER records
12.	Harley Dykstra, 2018. *DWER Works Approval and Licence Application Lot 104 Rocky Crossing Road, Willyung* (Application).	DWER records
13.	Herring Storer Acoustics, 2017. *Proposed Asphalt Plant Lot 104 Rocky Crossing Road Willyung, Albany, Noise Assessment* Ref: 21354-1-17005	DWER records
14.	NSW EPA, 2016. *Approved methods for the modelling and assessment of air pollutants in New South Wales*, Environmental Protection Authority, Sydney	accessed at www.epa.nsw.gov.au
15.	NEPM 2011. National Environmental Protection Council 2011, National Environment Protection (Air Toxics) Measure	accessed at www.nepc.gov.au
16.	NEPM 2016. National Environmental Protection Council 2016, National Environment Protection (Ambient Air Quality) Measure,	

Appendix 2: Site Plans

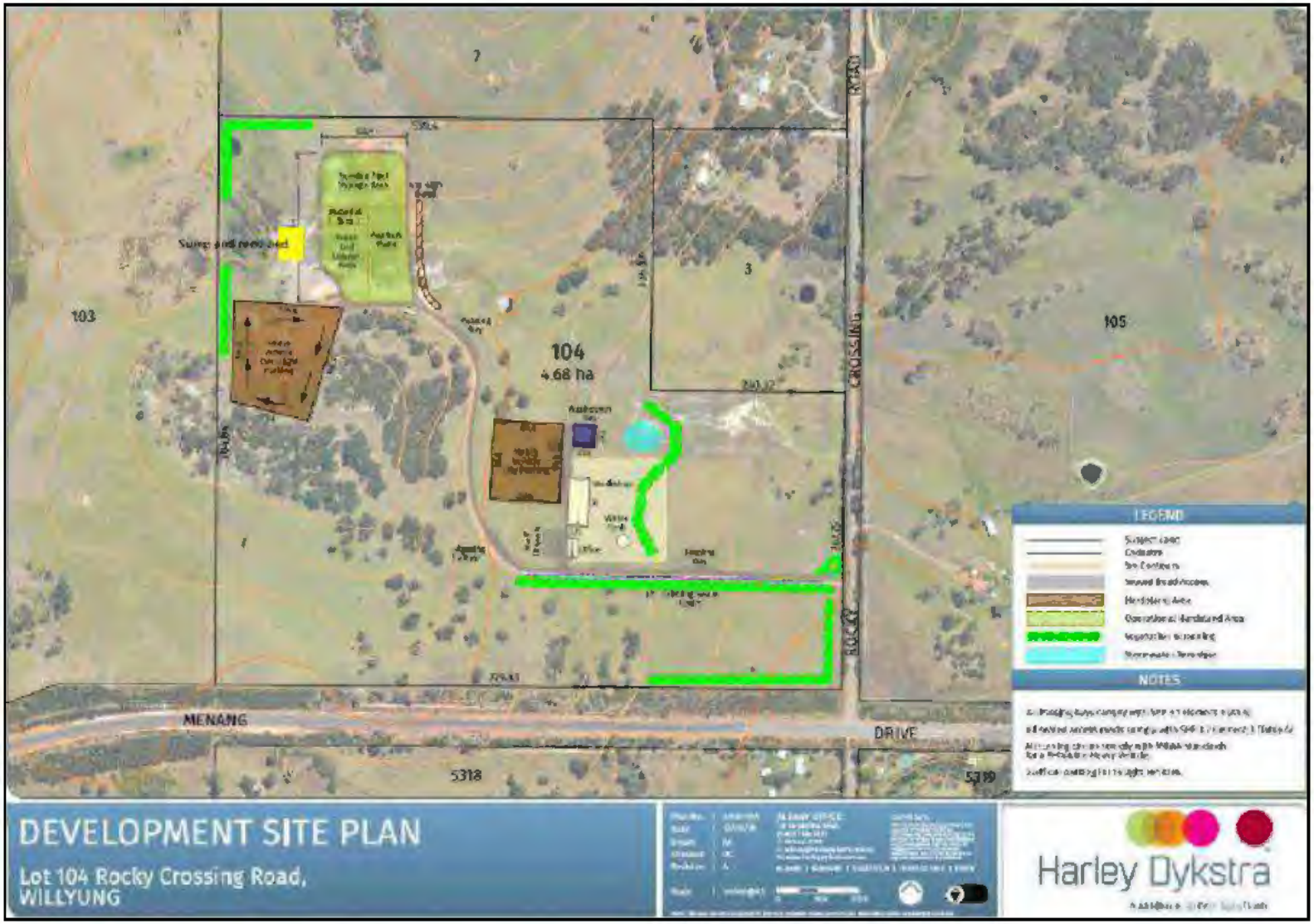


Figure 5 Rocky Crossing Road MAP Site Plan

Raw material storage bays

2mm

7MM

10MM

LAT

14MM

Bitumen Tank

Bag Houses / Extraction Fan

Exhaust Stack

Cold Feed Bins

Dryer & pugmill

Burner

Switch Board

Control

Batch Cabin

Load out bin

Storage Container

Light Pole / Switchboard

Single Block Ret wall

Generator

MSB

Stormwater treatment collection sump

200mm 40mpa concrete slab

DG14 Asphalt Surface

Indicates runoff flow direction

0 2m 10m 20m

Rocky Crossing Asphalt Plant

Lot 104 (No.303) Rocky Crossing Road, Willyung

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TEC
CONTAINER SOLUTIONS

HIGH CAPACITY STORAGE BITUTAINER™

AN INNOVATIVE, VERSATILE AND EFFICIENT SOLUTION FOR TEMPORARY BITUMEN STORAGE

Features & Benefits

Ease of Installation
Quicker and easier to install than conventional storage tanks, with minimal civil work and commissioning required

Modular/Scalable
For storage requirements from 60t to 5000t, capacity can easily be increased or decreased based on changes in demand, with simple pipework providing common fill/discharge points

Low Operating Cost
Product can be allowed to cool and heated only when required for discharge. This reduces heating overheads commonly associated with large scale storage

Self-Contained
Double-walled design and sealed cavity provides secondary containment, which can eliminate the need for costly external bunding

Mobile & Versatile
Easy to lift, transport and relocate, being transported as a standard 40ft container

Uses Include

Project based or intermediary storage for road construction.

Ideal for small to midscale storage requirements.

Can be used for bulk buying and price hedging against fluctuations.

Technical Data

External dimensions - Length x Width x Height: (mm)	12,192 x 2,438 x 2,896
Max. capacity: (m3)	65
Max. gross weight for transport (Kg)	10000
Tare weight : (Kg)	<9600
Payload: (Kg)	N/A
Working Pressure: (Bar)	Atmospheric
Test Pressure: (Bar)	0.14
Certifications & Approvals:	CSC, TIR, ISO 1496

Container Features

Construction

1.	Weather resistant carbon steel internal tank and protective outer wall
2.	Insulated cavity (Mineral Wool 50mm min thickness)
3.	Walkway chequer plate
4.	High temperature paint system (black colour as standard)

Handling

5.	Fully Intermodal dimensions - ISO 668 compliant
6.	Corner castings for lifting - ISO 1161 compliant
7.	Stacking as per ISO standards when empty (192,000kg)

Access

8.	600mm Manway with galvanised cover and removable safety grille (double manway optional)

Filling & Discharge

9.	3" or 4" Discharge nozzle above heater
10.	Low level fill nozzle with internal anti-syphon riser
11.	Drain Connection below heater tubes

Pressures & Relief

12.	Roof mounted double 4" venting nozzle with goose neck pipe fitting

Monitoring

13.	½ " BSP Thermowells fitted – compatible with PT100 probes
14.	Nozzles for level control instruments (customisable)

Container Variants & Options

Direct Fire Heating

15A. 10" & 8" Seamless Pipe heater tubes, complete with burner attachment fittings and collapsible exhaust flues

16. Complete Burner Set & Control Panel (Diesel or Gas powered) (*)

17. Flame Liners (Carbon or Stainless steel) (*)

Steam/Thermal Fluid Heating

15. 2" Seamless Pipe heating coil complete with ANSI Class 150 flanges

18. Thermal circuit Isolation valves (*)

Electrical Heating

15C. 2" Seamless Pipe heating tubes

19. Heating Element Set (*)

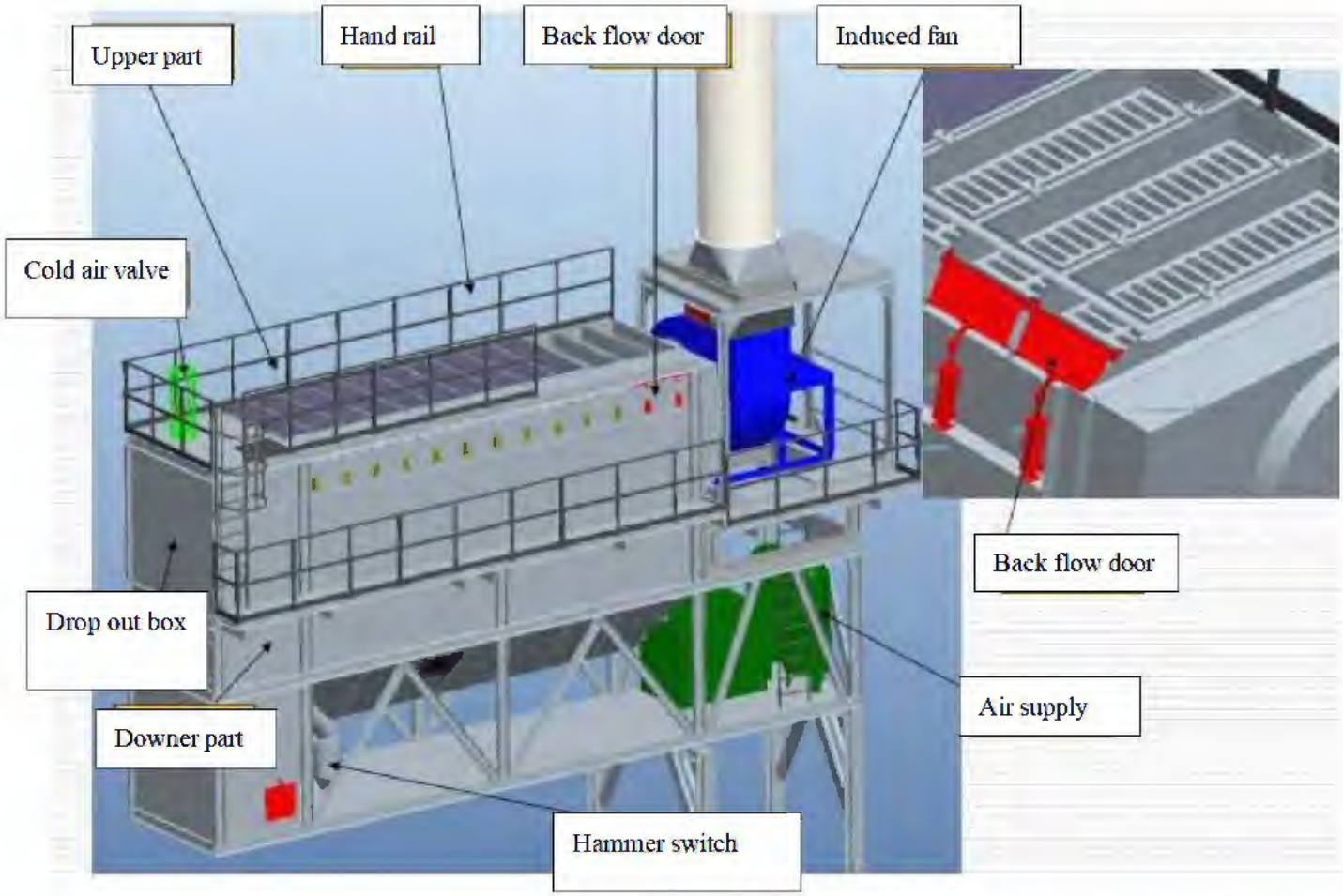
20. Control Panel (*)

(*) Optional Heating Equipment

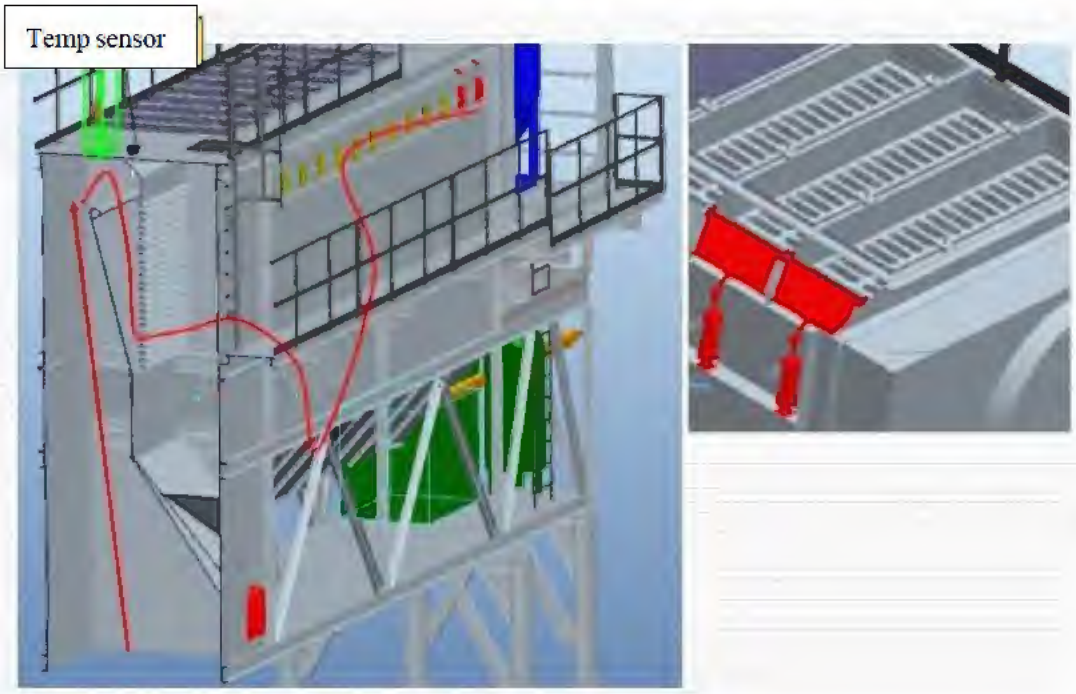
Optional Extras Available: Level Control Packages, Agitator Mounts, Recirculation Lines, Filtration Devices, Internal Access Ladders and more. Please get in touch for bespoke requirements.

Bag house filter

This system employs a two-stage dust collection system (combining gravity dust collection and atmospheric reverse-air baghouse dust collectors). The front stage is a gravity dust collector, and the rear stage is an atmospheric reverse-jet baghouse dust collector. The dust recovered from the gravity dust collector is directly conveyed to the aggregate elevator by a screw conveyor unit to meet the requirements of asphalt mixture proportioning.



The filter bags used in the baghouse dust collector are made of NOMEX high-temperature resistant material manufactured by DuPont, with a maximum instantaneous temperature resistance of 235°C. All bag openings are equipped with elastic clamps, which, together with a specially designed bag support frame, ensure quick and secure bag installation. The baghouse top cover is easily opened for convenient inspection and replacement of the bags. An atmospheric backflushing cleaning device is installed on one side of the baghouse dust collector, and differential pressure display instruments are installed on the upper and lower chambers of the dust collector. The values on these instruments indicate the degree of dust adsorption on the bags. Operators can adjust the backflushing interval and time based on the differential pressure gauge readings to ensure the baghouse dust collector is always in optimal working condition. The backflushing cleaning device of the baghouse dust collector works by using ambient atmospheric pressure air to backflush the bags in a specific sequence. During cleaning, the working area of the bags remains above 96%, ensuring the optimal working condition of the baghouse dust collector and the equipment's efficient and continuous production capacity.



Dust collected by the baghouse dust collector settles in the lower chamber and is discharged through a spiral conveyor within the lower chamber. It is then transported to a recovery powder hopper via a screw conveyor and a recovery powder elevator. To ensure the safe and reliable operation of the filter bags, a temperature control system, an over-limit shutdown device, and a cold air valve are installed on the inlet flue of the gravity dust collector. This ensures that the temperature of the inlet flue gas does not exceed the set temperature (generally around 220°C, with a short-term tolerance of 250°C). If overheating occurs, the control system will forcibly cut off the fuel supply system, effectively guaranteeing the safe operation of the filter bags. A flue gas temperature measurement system between the induced draft fan and the dust collector also indicates the combustion efficiency to the operator. When the flue gas temperature drops below 80°C, the control system will alert the operator, indicating that this temperature is detrimental to the filter bags.

Specification of bag filter (320 m^2)	
Filter area： 320 m^2	
Dust removal method: atmospheric reverse-flushing (8 air chambers)	
Working temperature: 110℃ - 180℃	
Maximum temperature: 230℃	
Dust discharge auger: 3kW	
Bag quantity: 304 pc	
Bag size: 2130 x 216.8 x 61mm	
Processing air volume: <= 3200 m^3 /h, total pressure: 3500 pa, Exhaust fan power: 37 kW	
Additionally: This filter bag is equipped with a gravity dust collector, capable of handling dust particles with a diameter of ≥6 micrometers.	
This bag filter can handle dust particles with a diameter of 0.1-6 micrometers.	
Smoke and dust emission concentration ≤20 mg / Nm^3	