Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence Number	L9078/2017/1
Licence Holder	Roads 2000 Pty Ltd
ACN	081 677 778
Registered business address	Suite 8 / 88 Walters Drive OSBORNE PARK WA 6017
File Number	DER2017/001311
Duration	18/10/2017 to 17/10/2021
Date of issue	17/10/2017
Prescribed Premises	Category Number 35 – Asphalt Manufacturing
Premises	Moylan Road Asphalt Manufacturing Plant Lot 55 and Lot 712 Moylan Road HOPE VALLEY WA 6165 Legal description Lot 55 on Diagram Number 38261 Certificate of Title Volume 1443 Folio 977; and Lot 712 on Deposited Plan 250228 Certificate of Title Volume 2194 Folio 386

This Licence is granted to the Licence Holder, subject to the following conditions, on 17 October 2017, by:

Date signed: 17 October 2017
Caron Goodbourn
A/Manager Licensing (Process Industries)
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Explanatory notes

These explanatory notes do not form part of this Licence.

Defined terms

Definition of terms used in this Licence can be found at the start of this Licence. Terms which are defined have the first letter of each word capitalised throughout this Licence.

Department of Water and Environmental Regulation

The Department of Water and Environmental Regulation (DWER) is 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 *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences, takes enforcement action and develops and implements licensing and industry regulation policy.

Licence

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased, or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered, or permitted to be altered, from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Licence does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007;*
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Licence Holder to ensure that any action or activity referred to in this Licence is permitted by, and is carried out in compliance with, other statutory requirements.

The Licence Holder must comply with the Licence. Contravening a Licence Condition is an offence under s.58 of the EP Act.

Responsibilities of a Licence Holder

Separate to the requirements of this Licence, general obligations of Licence Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Licence Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under section 61; and
- restrictions on making certain changes to Prescribed Premises unless the changes are in accordance with a works approval, Licence, closure notice or environmental protection notice (s.53).

Strict penalties apply for offences under the EP Act.

Reporting of incidents

The Licence Holder has a duty to report to DWER all discharges of waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

Offences and defences

The EP Act and its regulations set out a number of offences, including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with prescribed standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA).*
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA).*

Section 53 of the EP Act provides that a Licence Holder commits an offence if Emissions are caused, or altered from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a Closure Notice or an Environmental Protection Notice.

Defences to certain offences may be available to a Licence Holder and these are set out in the EP Act. Section 74A(b)(iv) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Licence Holder can prove that an Emission or Discharge occurred in accordance with a Licence.

This Licence specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of Specified Emissions and Discharges, in order for the defence to offence provision to be available.

Authorised Emissions and Discharges

The Specified and General Emissions and Discharges from Primary Activities conducted on the Prescribed Premises are authorised to be conducted in accordance with the Conditions of this Licence.

Emissions and Discharges caused from other activities not related to the Primary Activities at the Premises have not been Conditioned in this Licence. Emissions and Discharges from other activities at the Premises are subject to the general provisions of the EP Act.

Amendment of licence

The Licence Holder can apply to amend the Conditions of this Licence under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Licence at any time on the initiative of the CEO without an application being made.

Amendment Notices constitute written notice of the amendment in accordance with s.59B(9) of the EP Act.

Duration of Licence

The Licence will remain in force for the duration set out on the first page of this Licence or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

Suspension or revocation

The CEO may suspend or revoke this Licence in accordance with s.59A of the EP Act.

Fees

The Licence Holder must pay an annual licence fee. Late payment of annual licence fees may result in the licence ceasing to have effect.

Late fees are a component of annual licence fees and should a Licence Holder fail to pay late fees within the time specified the licence will similarly cease to have effect.

Definitions and interpretation

Definitions

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

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
agl	above ground level
Amendment Notice	means an amendment granted under s.59 of the EP Act in accordance with the procedure set out in s.59B of the EP Act.
Annual Period	means a 12 month period commencing from 1 July until 30 June.
Condition	means a condition to which this Licence is subject under s.62 of the EP Act.
Books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info-der@dwer.wa.gov.au
Compliance Report	means a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO (guidelines and templates may be available on the Department's website).
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.
Department Request	means a request for Books or other sources of information to be produced, made by an Inspector or the CEO to the Licence Holder in writing and sent to the Licence Holder's address for notifications, as described at the front of this Licence, in relation to: (a) compliance with the EP Act or this Licence; (b) the Books or other sources of information maintained in accordance with this Licence; or (c) the Books or other sources of information relating to Emissions from the Premises.

Discharge	has the same meaning given to that term under the EP Act.
DWER	Department of Water and Environmental Regulation.
Emission	has the same meaning given to that term under the EP Act.
Environmental Harm	has the same meaning given to that term under the EP Act.
EP Act	means the *Environmental Protection Act 1986* (WA).
EP Regulations	means the *Environmental Protection Regulations 1987* (WA).
Freeboard	means the vertical height between the lowest point on the crest of the perimeter of the retaining structure and the normal operating sump level.
Implementation Agreement or Decision	has the same meaning given to that term under the EP Act.
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act.
Licence	refers to this document, which evidences the grant of a Licence by the CEO under s.57 of the EP Act, subject to the Conditions.
Licence Holder	refers to the occupier of the premises being the person to whom this Licence has been granted, as specified at the front of this Licence.
Material Change	means a change to the activities carried out on the Premises as described by the Primary Activities set out in Schedule 2 that may result in an increased risk to public health, amenity or the environment.
Material Environmental Harm	has the same meaning given to that term under the EP Act.
Pollution	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Licence applies, as specified at the front of this Licence and as shown on the Premises map in Schedule 1 to this Licence.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Primary Activities	refers to the Prescribed Premises activities listed on the front of this Licence as described in Schedule 2, at the locations shown in Schedule 1.
Reportable Event	means an exceedance above the target limit specified in Column 4

	of Table 6, in Schedule 3.
Serious Environmental Harm	has the same meaning given to that term under the EP Act.
Unreasonable Emission	has the same meaning given to that term under the EP Act.
USEPA	United States Environmental Protection Agency
USEPA Method 5	refers to the document Method 5 - Determination of Particulate Matter Emissions From Stationary Sources
USEPA Method 17	refers to the document Method 17 Determination of Particulate Matter Emissions from Stationary Sources
Waste	has the same meaning given to that term under the EP Act.

Interpretation

In this Licence:

(a) the words 'including', 'includes' and 'include' will be read as if followed by the words 'without limitation';

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a Condition, each row in a table constitutes a separate Condition;

(d) any reference to an Australian or other standard, guideline or code of practice in this Licence means the version of the standard, guideline or code of practice in force at the time of granting of this Licence and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Licence; and

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.

Conditions

Emissions

1. The Licence Holder must not cause any Emissions from the Primary Activities on the Premises except for specified Emissions and general Emissions described in Column 1 of Table 2 subject to the exclusions, limitations or requirements specified in Column 2 of Table 2.

Table 2: Authorised Emissions table

Column 1	**Column 2**
Emission type	**Exclusions/Limitations/Requirements**
Specified Emissions	
Emissions to air from the baghouse stack	Subject to compliance with Column 2 of Table 3 and Conditions 3(d), 3(e) and 3(f).
Fugitive emissions	Subject to compliance with Column 2 of Table 3 and Conditions 3(a) and 3(b).
General Emissions (excluding Specified Emissions)	
Emissions which: • arise from the Primary Activities set out in Schedule 2; or • arise from a Material Change	Emissions excluded from General Emissions are: • Unreasonable Emissions; or • Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or • Discharges of Waste in circumstances likely to cause Pollution; or • Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or • Emissions or Discharges which do not comply with an Approved Policy; or • Emissions or Discharges which do not comply with a prescribed standard; or • Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or Decision; or • Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the Environmental *Protection (Unauthorised Discharges) Regulations 2004*.

Infrastructure and equipment

2. The Licence Holder must ensure that the infrastructure and equipment specified in Column 1 of Table 3 is maintained in good working order and operated in accordance with the requirements specified in Column 2 of Table 3.

Table 3: Infrastructure and equipment controls table

Column 1	Column 2
Site infrastructure and equipment	**Operational requirements**
Whole of operational area	(a) Operational area built up with compacted asphalt profilings preventing clean stormwater entering the operational area. (b) Compacted asphalt profilings base for all operational areas (including the mobile asphalt plant, raw materials stockpile area and waste storage bay) sloped to direct any leaks, spills or stormwater to the geofabric lined sump in the SE corner.
Mobile Asphalt Manufacturing Plant	(c) Side walls on the cold feed bins. (d) Sand and aggregates from the cold feed bins will be conveyed to the mixing drum by an enclosed conveyor system. (e) Reverse pulse baghouse dust extraction system attached to the mixing drum. (f) Filtered air (from the baghouse) is released to atmosphere through a 5.72 m agl stack. (g) Inbuilt switch to ensure the hot oil system on the bitumen tank will not operate with incorrectly mixed fuel/air ratios. (h) Alarm to alert operators if there is an issue with the bitumen tank. (i) Self bunded diesel trailer mounted tank with mechanical overfill protection and audible overfill alarm. (j) Bitumen trailer mounted storage tank (up to 60,000 L) with a high level float / proximity switch and float indicator.
Geofabric lined sump	(k) A sump lined with geofabric (Profab Ultra 600X geofabric) to capture and contain hydrocarbons and sediment contaminated stormwater from the operational area located SE (downslope) of the mobile asphalt manufacturing plant. (l) 300 mm freeboard marker.
Waste storage bay and raw materials storage area (stockpile area)	(m) Compacted asphalt profilings base of the waste storage bay and raw materials storage area (stockpile area) to be graded towards the front of the bays (towards the operational area) with a channel in front of the bays and waste storage area to direct any contaminated stormwater to the geofabric lined sump.

Specified Actions

3. The Licence Holder must ensure that:

(a) a water truck is readily available and utilised to water unsealed surfaces and raw materials (sand and aggregates) stockpiles to prevent fugitive dust from leaving the Premises;

(b) raw material (sand and aggregate) stockpiles will not exceed the height of the concrete block side walls for each bay (1.8 m for dust/sand and 1 m for other aggregates);

(c) a minimum of 300 mm freeboard is maintained in the geofabric lined sump;

(d) the baghouse is operational prior to start-up of the mixing drum and operated continuously whilst the mixing drum is operating;

(e) the baghouse filters are inspected regularly; and

(f) when detected, blocked, frayed or leaking baghouse filters are immediately replaced.

Emissions to Air Monitoring and Reporting

4. The Licence Holder must undertake the monitoring in Table 4 according to the specifications in that table.

Table 4: Emissions to Air Monitoring

Monitoring point reference	Parameter	Units	Frequency	Method
P1 (baghouse stack)	Total particulate matter	mg/m^3	Annually	USEPA Method 5 or USEPA Method 17

Note 1: All units are referenced to STP dry and 6% O_2
Note 2: Monitoring shall be undertaken to reflect normal operating conditions and any limits or conditions on inputs or production.

5. Upon request by the CEO, the Licence Holder must provide such information as reasonably necessary to demonstrate compliance with monitoring requirements specified in Condition 4.

6. Upon request by the CEO, the Licence Holder must provide a report that includes:

(a) a summary of the monitoring results recorded under Condition 4; and

(b) a list of any original monitoring reports submitted to the Licence Holder from third parties from any monitoring undertaken as specified in Condition 4.

Record-keeping

7. The Licence Holder must maintain accurate and auditable Books including the following records, information, reports and data required by this Licence:

(a) the calculation of fees payable in respect of this Licence;

(b) the maintenance of infrastructure required to ensure that it is kept in good working order in accordance with Condition 2 of this Licence;

(c) monitoring undertaken in accordance with Condition 4 of this Licence;

(d) complaints received under Condition 8 of this Licence; and

(e) any Material Change.

In addition, the Books must:

(f) be legible;

(g) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;

(h) be retained for at least 3 years from the date the Books were made; and

(i) be available to be produced to an Inspector or the CEO.

8. The Licence Holder must record the number and details of any complaints received by the Licence Holder relating to its obligations under this Licence and its compliance with Part V of the EP Act at the Premises, and any action taken by the Licence Holder in response to the complaint. Details of complaints must include:

(a) an accurate record of the concerns or issues raised, for example a copy of any written complaint or a written note of any verbal complaints made;

(b) the name and contact details of the complainant, if provided by the complainant;

(c) the date of the complaint; and

(d) the details and dates of the actions taken by the Licence Holder in response to the complaints.

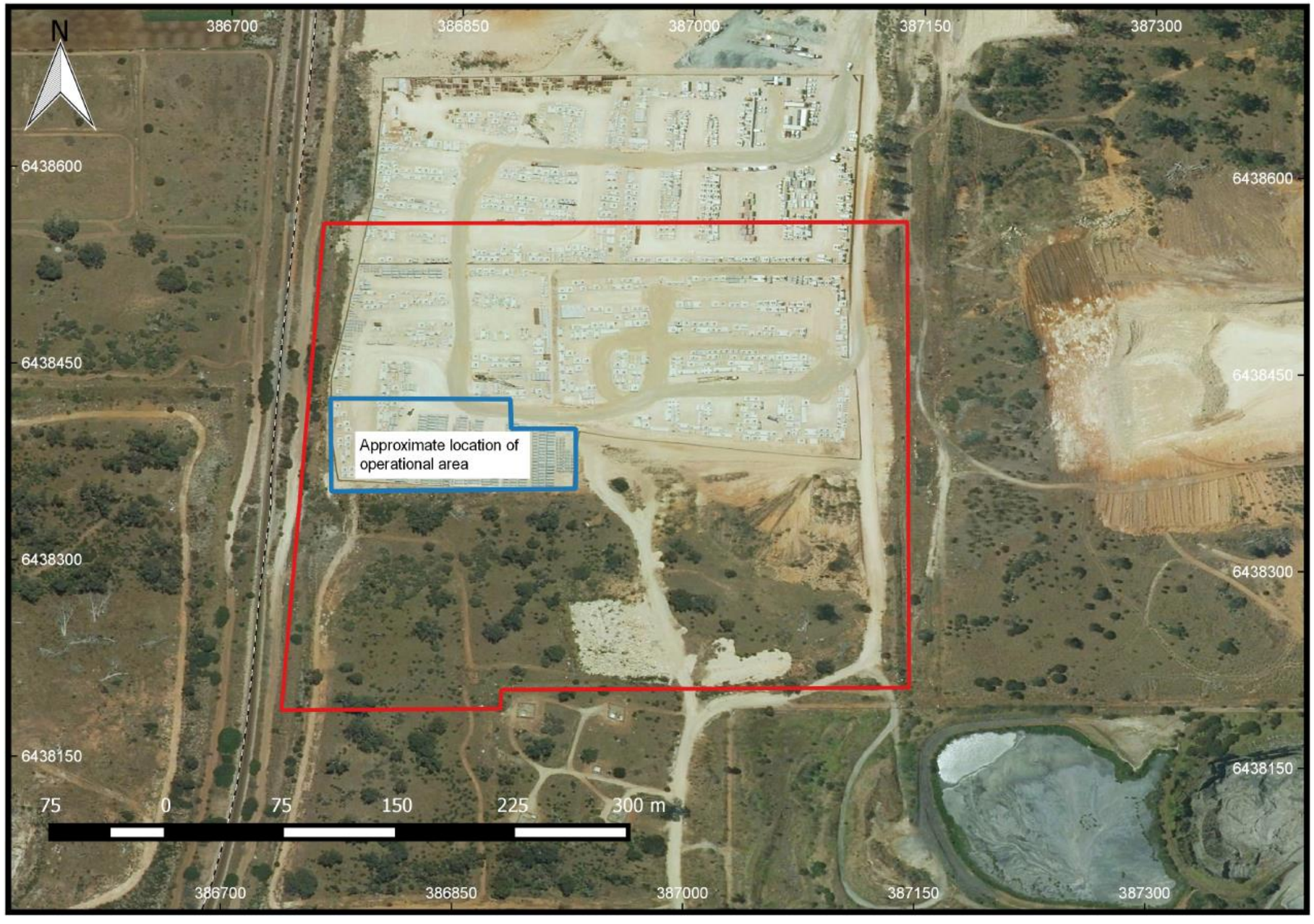
9. The Licence Holder must submit to the CEO, no later than 31 August, a Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for the preceding Annual Period.

10. The Licence Holder must comply with a Department Request, within 14 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

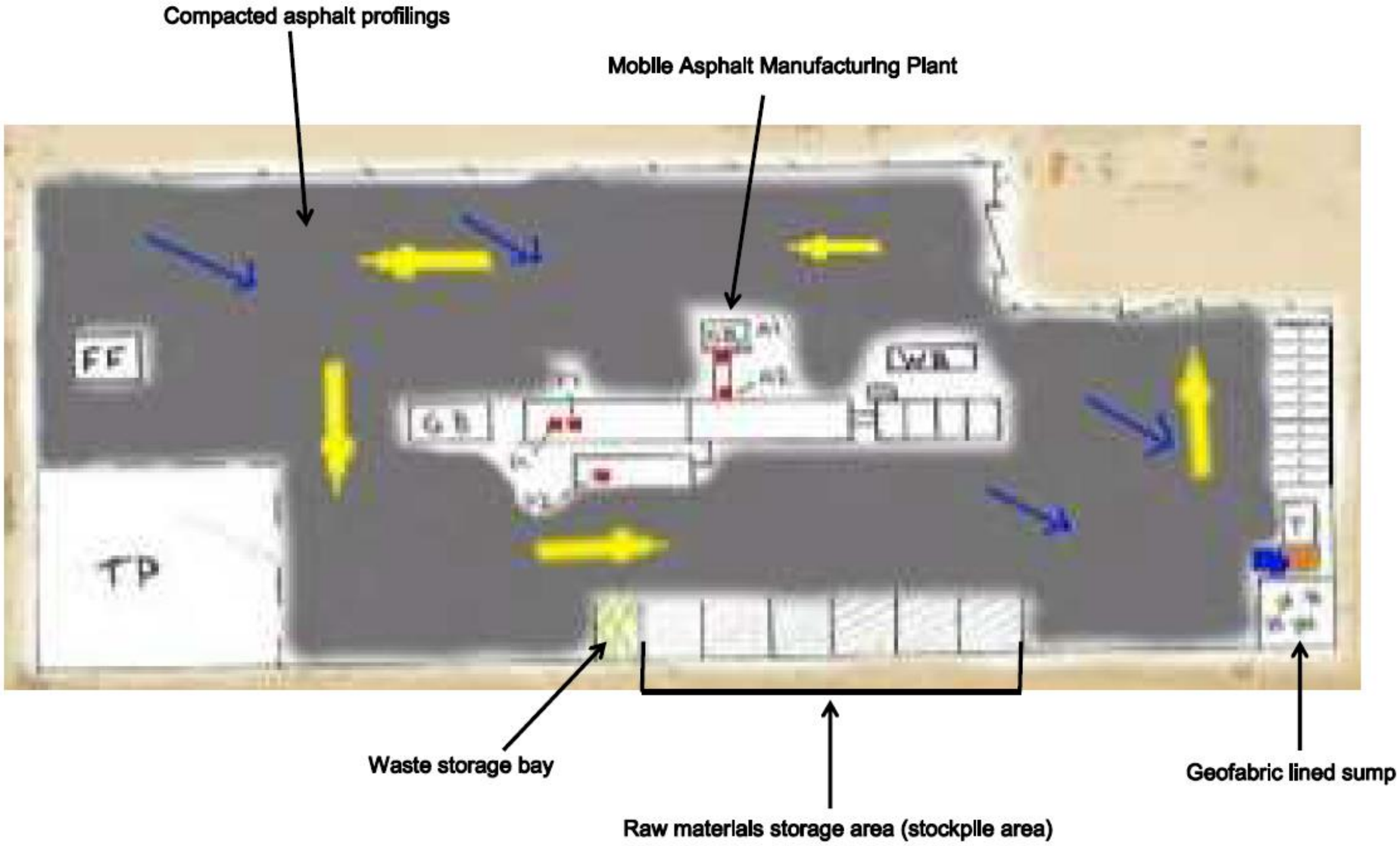
Schedule 1: Maps

Premises map

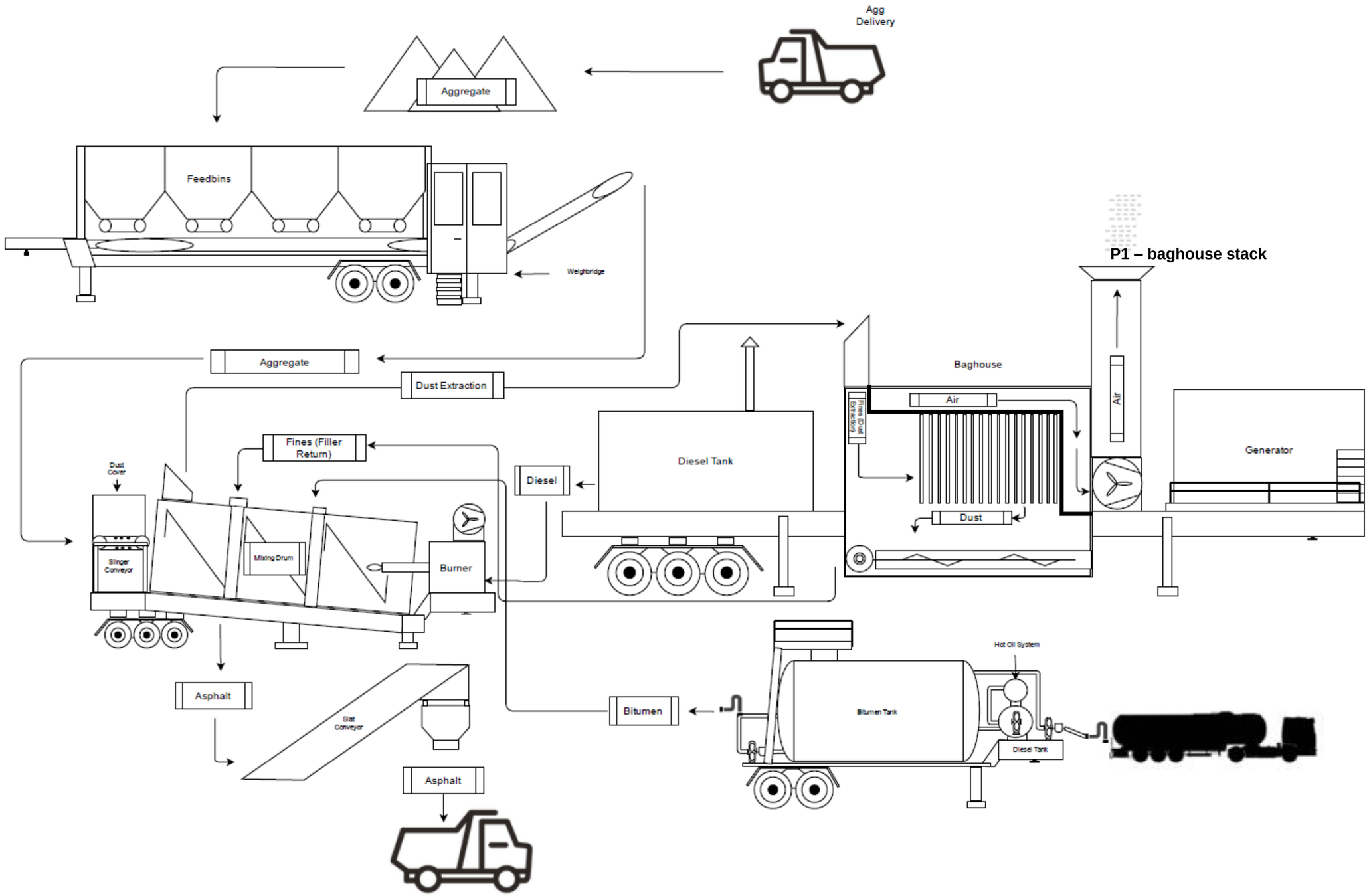
The Premises are shown in the map below. The red line depicts the Premises boundary.



General layout plan – operational area



Monitoring of Emissions to Air



Schedule 2: Primary Activities

At the time of assessment, Emissions and Discharges from the following Primary Activities were considered in the determination of the risk and related Conditions for the Premises.

The Primary Activities are listed in Table 5:

Table 5: Primary Activities

Primary Activity	Premises production or design capacity
Category 35 – Asphalt Manufacturing: premises on which hot or cold mix asphalt is produced using crushed or ground rock aggregates mixed with bituminous or asphaltic materials for use at places or premises other than those premises.	≤50,000 tonnes per year

Infrastructure and equipment

The Primary Activity infrastructure and equipment situated on the Premises is listed in Table 6.

Table 6: Infrastructure and equipment

Infrastructure and equipment	Plan reference
Compacted asphalt profilings (whole of operational area)	Schedule 1 Maps: General Layout Plan
Mobile asphalt manufacturing plant incorporating: • Cold feed trailer (raw aggregate input) • Drum trailer (mixing, bitumen input and heating) • Baghouse trailer (filtration, power and fuel); and • Bitumen trailer (bitumen supply).	
Raw materials storage area (stockpile area)	
Waste storage bay	
Geofabric lined sump	

Site layout

The Primary Activity infrastructure and equipment is set out on the Premises in accordance with the site layout specified on the General Layout Map in Schedule 1.

Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Concurrent application for Works Approval and Licence

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number	W6074/2017/1
Licence Number	L9078/2017/1
Applicant	Roads 2000 Pty Ltd
ACN	081 677 778
File Number	DER2017/001308 and DER2017/001311
Premises	Moylan Road Asphalt Manufacturing Plant Lot 55 and Lot 712 Moylan Road HOPE VALLEY WA 6165 Legal description - Lot 55 on Diagram Number 38261 Certificate of Title Volume 1443 Folio 977; and Lot 712 on Deposited Plan 250228 Certificate of Title Volume 2194 Folio 386
Date of Report	17 October 2017
Status of Report	Final

Table of Contents

1. Definitions of terms and acronyms 5
2. Purpose and scope of assessment 7
   2.1 Application details 7
3. Background 7
4. Overview of Premises 8
   4.1 Construction and Operational aspects 8
      4.1.1 Construction 8
      4.1.2 Operational aspects (from Application) 8
   4.2 Infrastructure 1
   4.3 Exclusions to the Premises 1
5. Legislative context 1
   5.1 Contaminated sites 1
   5.2 Other relevant approvals 1
      5.2.1 Planning approvals 1
   5.3 Part III of the EP Act 2
   5.4 Part V of the EP Act 2
      5.4.1 Applicable regulations, standards and guidelines 2
      5.4.2 Clearing 3
      The clearing of native vegetation is not approved under the Issued Works Approval ... 3
6. Assessment of operator 3
7. Consultation 3
8. Location and siting 3
   8.1 Siting context 3
   8.2 Residential and sensitive Premises 3
   8.3 Specified ecosystems 3
   8.4 Groundwater and water sources 4
   8.5 Soil type 4
   8.6 Meteorology 5
      8.6.1 Wind direction and strength 5
      8.6.2 Rainfall and temperature 5
9. Risk assessment 7
   9.1 Determination of emission, pathway and receptor 7
   9.2 Consequence and likelihood of risk events 11
   9.3 Acceptability and treatment of Risk Event 12
   9.4 Risk Assessment – fugitive dust impact 12

9.4.1 Description of risk event 12
9.4.2 Identification and general characterisation of emission 12
9.4.3 Description of potential adverse impacts from the emission 12
9.4.4 Criteria for assessment 12
9.4.5 Applicant controls 13
9.4.6 Key findings 14
9.4.7 Consequence 14
9.4.8 Likelihood of Risk Event 14
9.4.9 Overall rating 14
9.5 Risk Assessment – particulate emissions impact analysis – normal and abnormal operations 14
9.5.1 Description of risk event 14
9.5.2 Identification and general characterisation of emission 14
9.5.3 Description of potential adverse impact from the emission 14
9.5.4 Criteria for assessment 15
9.5.5 Applicant controls 15
9.5.6 Key findings 15
9.5.7 Consequence – Normal operation 15
9.5.8 Likelihood of Risk Event – Normal operation 16
9.5.9 Overall rating – Normal operation 16
9.5.10 Consequence – Abnormal operation 16
9.5.11 Likelihood of Risk Event – Abnormal operation 16
9.5.12 Overall rating – Abnormal operation 16
9.6 Risk Assessment - point source odour impact analysis – normal and abnormal operations 16
9.6.1 Description of risk event 16
9.6.2 Identification and general characterisation of emission 16
9.6.3 Description of potential adverse impact from the emission 17
9.6.4 Criteria for assessment 17
9.6.5 Applicant controls 17
9.6.6 Key findings 18
9.6.7 Consequence – normal operations 18
9.6.8 Likelihood of Risk Event – normal operations 18
9.6.9 Overall rating – normal operations 18
9.6.10 Consequence – abnormal operations 18
9.6.11 Likelihood of Risk Event – abnormal operations 18
9.6.12 Overall rating – abnormal operations 18
9.7 Risk Assessment – Leaks or spills of hazardous liquids impact analysis 19

9.7.1 Description of risk event 19
9.7.2 Identification and general characterisation of emission 19
9.7.3 Description of potential adverse impacts from the emission 19
9.7.4 Criteria for assessment 19
9.7.5 Applicant controls 19
9.7.6 Key findings 20
9.7.7 Consequence 20
9.7.8 Likelihood of Risk Event 21
9.7.9 Overall rating of release of hazardous liquids 21
9.8 Summary of acceptability and treatment of Risk Events 21
10. Regulatory controls 23
10.1 Summary of controls 23
10.2 Works Approval controls 23
10.2.1 Fugitive dust management infrastructure and equipment 23
10.2.2 Stack particulate and odour (point source) emissions management, infrastructure and equipment 24
10.2.3 Leaks or spills of hazardous liquids 24
10.3 Licence controls 25
10.3.1 Specified actions 25
10.3.2 Monitoring requirements 26
10.3.3 Monitoring reports 26
11. Determination of Works Approval conditions 26
12. Determination of Licence conditions 26
13. Applicant's comments 27
14. Conclusion 27
Appendix 1: Key documents 29
Appendix 2: Site Plan 31
General layout plan 31
Appendix 3: Summary of applicant's comments on risk assessment and draft conditions 32
Attachment 1: Issued Works Approval W6074/2017/1 33

Table 1: Definitions 5
Table 2: Documents and information submitted during the assessment process 7
Table 3: Prescribed Premises Categories 8
Table 4: MRAMP facility Category 35 infrastructure 1
Table 5: Receptors and distance from activity boundary 3

Table 6: Environmental values 4
Table 7: Groundwater and water sources 4
Table 8. Identification of emissions, pathway and receptors *during construction* 7
Table 9: Identification of emissions, pathway and receptors *during operation* 8
Table 10: Risk rating matrix 11
Table 11: Risk criteria table 11
Table 12: Risk treatment table 12
Table 13: NEPM standards 13
Table 14: Kwinana ambient air quality standards and limits for TSP 13
Table 15: Applicant proposed controls for fugitive dust 13
Table 16: Applicant proposed controls for stack particulate emissions 15
Table 17: Applicant proposed controls for point source odour emissions 17
Table 18: Applicant proposed controls for leaks or spills of hazardous liquids 19
Table 19: Risk assessment summary 21
Table 20: Summary of regulatory controls to be applied 23
Table 21: Fugitive dust infrastructure requirements 23
Table 22: Stack particulate and odour (point source) emissions infrastructure requirements 24
Table 23: Leaks and spills of hazardous liquids infrastructure requirements 24
Table 24: Summary of works approval conditions to be applied 26
Table 25: Summary of conditions to be applied 26

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
agl	above ground level
Applicant	Roads 2000 Pty Ltd
Mobile Plant 1	means the asphalt manufacturing plant produced by Astec, type Voyager 120 with the following trailer components identifiable by the registration plates 1TQN298, 1TQN299, 1TQW804 and 1TQW805
Mobile Plant 2	means the asphalt manufacturing plant produced by Astec, type Voyager 120 with the following trailer components identifiable by the registration plates 1TRI424, 1TRI425, 1TRI426 and 1TRI427
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	Chief Executive Officer, Department Div. 3 Pt. V EP Act
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.
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.
EP Act	*Environmental Protection Act 1986* (WA)
EP Noise Regulations	*Environmental Protection (Noise) Regulations 1997*
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Issued Licence	The licence to be issued under Part V, Division 3 of the EP Act following submission of the compliance certification required under the Issued Works Approval

Issued Works Approval	The works approval issued under Part V, Division 3 of the EP act
Kwinana EPP	*Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999*
Kwinana Regulations	*Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992*
mg/L	milligrams per litre
mg/m^3	milligrams per cubic metre
m^3	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MRAMP	Moylan Road Asphalt Manufacturing Plant
NEPM	National Environmental Protection Measure
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*
RIWI Act	*Rights in Water and Irrigation Act 1914*
TSP	total suspended particulates
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
$µg/m^3$	micrograms per cubic metre
µg/L	micrograms per litre
VOC	volatile organic compounds
WAPC	Western Australian Planning Commission
Waste	Has the same meaning given to that term under the EP Act.

2. Purpose and scope of assessment

The Department of Water and Environment Regulation received a concurrent application (the Application) from Roads 2000 Pty Ltd (the Applicant) for a works approval and licence under Division 3, Part V of the *Environmental Protection Act 1986* (EP Act) on 20 June 2017. The Application sought approval to establish and operate the Moylan Road Asphalt Manufacturing Plant (MRAMP) (category 35), located at Lots 55 and 712 Moylan Road, Hope Valley (the Premises). The asphalt plant is an existing mobile plant to be relocated from a site in Wangara, Western Australia.

This Decision Report presents an assessment of potential environmental and public health risks associated with asphalt manufacture. The assessment of the application has been undertaken in accordance with DWER's published Regulatory Framework. The advice of relevant Government agencies has been considered as a part of the assessment.

2.1 Application details

On 20 June 2017, the Applicant applied for a works approval and licence to establish and operate an asphalt manufacturing plant at the Premises. An application form, along with supporting information was submitted. Further information was provided by the applicant during the assessment process in response to DWER's queries to clarify aspects of the application as detailed in Table 2 below.

DWER advised the Applicant on 7 August 2017 that it would refer the Application to parties with a direct interest and seek their comments.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Roads 2000 Pty Ltd, Concurrent works approval and licence application and supporting documentation for an asphalt manufacturing plant at Lots 55 and 712 Moylan Road, Hope Valley	20 June 2017
Roads 2000 Pty Ltd, Updated concurrent works approval and licence application and supporting documentation for an asphalt manufacturing plant at Lots 55 and 712 Moylan Road, Hope Valley	13 July 2017
E-mail from Tom Riseley (Roads 2000) to Department of Water and Environmental Regulation with subject *RE: Moylan Rd Application* dated 21 August 2017 (DWER records A1508206)	21 August 2017
Emails from Tom Riseley (Roads 2000) to Department of Water and Environmental Regulation with subject *RE: Roads 2000 – Moylan Road Asphalt Manufacturing Plant – W6074 and L9078* dated 6 September 2017 (DWER records A1517300, A1517461 and A1517930)	6 September 2017

3. Background

The Applicant currently operates a mobile asphalt manufacturing plant in Wangara under licence L7793/2002/7. The Applicant is proposing to relocate this plant to Lots 55 and 712 Moylan Rd, Hope Valley to cut down transport time and costs by supplying asphalt in and around the Rockingham area from a more localised position.

The premises will operate approximately for 3-4 months of the year initially over a five-year timeframe with intention to extend this subject to the limitations of planning regulations. The Applicant intends to increase the operating period to year round in the future.

The Delegated Officer has determined that Category 35: Asphalt manufacturing applies to the

activities undertaken on the premises. A description of the prescribed premises category which applies to this application, as defined in Schedule 1 of the *Environmental Protection Regulations 1987*, is presented in Table 3.

Table 3: Prescribed Premises Categories

Classification of Premises	Description	***Approved Premises production or design capacity or throughput***
Category 35	Asphalt manufacturing: premises on which hot or cold mix asphalt is produced using crushed or ground rock aggregates mixed with bituminous or asphaltic materials for use at places or premises other than those premises.	≤50,000 tonnes per year

4. Overview of Premises

4.1 Construction and Operational aspects

4.1.1 Construction

The MRAMP will be located on a site previously used as a laydown yard and is within an industrial area with the following existing infrastructure:

- boundary fence;
- unlined sump;

Construction will include the following:

- Installation of a mobile asphalt manufacturing plant* (relocating from Wangara), including the following components:
    - Cold feed trailer (raw aggregate input);
    - Drum trailer (mixing, bitumen input and heating);
    - Baghouse trailer (filtration, power and fuel) (includes a diesel tank and generator); and
    - Bitumen trailer (bitumen supply).
- Enlarging and lining of the existing sump with Profab 600X Geotextile;
- Compacted asphalt profiling (ground/crushed asphalt) pad for plant, stockpile area and waste storage bay;
- Placement of concrete blocks to act as partitions for the stockpile area;
- Three sided 8 m x 5 m waste storage bay.

Construction is expected to take approximately one week.

The Applicant has not proposed to undertake any native vegetation clearing as part of the Application.

*The Applicant owns and operates two mobile asphalt plants at the Wangara premises: Mobile Plant 1 and Mobile Plant 2. The two mobile plants are similar and where there are differences, DWER has assessed the larger of the two mobile plants that would have the higher potential for emissions.

4.1.2 Operational aspects (from Application)

The MRAMP will manufacture 35,000 to 40,000 tonnes of asphalt per year initially operating for 3-4 months of the year (from the Application). The plant will typically operate five days per week (Monday to Friday) during daylight hours (6am to 6pm) but will occasionally operate on weekends if required by customer demands. Heavy vehicle movements will be restricted to 7am to 6pm Monday to Saturday and 9am to 6pm on Sunday. The plant has a maximum throughput of 120 tonnes per hour which, based on operating hours, equates to a design capacity of 468,000 tonnes per year.

Vehicles onsite will include a staff and visitor vehicles, front end loader and forklift, with trucks parking occasionally when working in the area. It is anticipated that there will be approximately 20 truck movements per day during operational periods.

Raw materials will be transported to site by trucks and stockpiled on the ground in bays. The stockpile area will have a base of compacted asphalt profilings (sloped towards the operational area) with each stockpile bay separated by concrete block walls, approximately 2 m high (for quarry dust / sand bays) and 1 m high (for the other bays). Raw materials will include 14mm, 10mm, 5/7mm (half 5mm and half 7mm) granite and -2mm manufactured sand (quarry dust and stone up to the size of 2mm). Stockpiles, roads and other exposed surfaces will be kept moist through the use of an onsite water cart.

The raw materials will be transported from the stockpiles to cold feed bins (open at the top) with a front end loader. The raw materials are then weighed on a belt weighbridge as they are fed into the mixing drum via an enclosed conveyor for moisture removal (heating produced by an internal diesel fired burner). After the raw materials are dry, bitumen is then added into the mixing drum to produce asphalt. The asphalt is loaded onto trucks using an enclosed slat conveyor and gob hopper.

A reverse pulse baghouse dust extraction system is attached to the mixing drum to remove combustion gases, moisture and fine particles. Any exhaust fumes from the internal diesel burner on the drum trailer are also captured. Any fines collected by the baghouse are returned to the mixing drum. The filtered air is released to atmosphere through a 5.75m agl stack.

Bitumen is stored in a trailer mounted tank with a hot oil system run by diesel (small tank also on the trailer).

The MRAMP is powered by a self bunded diesel generator that is bunded to a minimum of 100% of its total fluid capacity. Diesel is stored in a self bunded tank, with a capacity of 10,000 L. Both the diesel tank and generator are located on the baghouse trailer.

The waste storage bay, with a compacted asphalt profilings base and three concrete sides (approximately 1 m high) will be able to store up to 50 tonnes of waste asphalt. Waste asphalt is the leftover asphalt at the end of a laying job. The Applicant expects approximately 5 tonnes of waste asphalt per week with the waste asphalt being removed for recycling by the landowner.

The whole of the operational area will have a base of compacted asphalt profilings sloped towards an existing sump in the SE corner of the operational area. The waste storage bay and stockpile area bases will be sloped towards the front of the bays (towards the operational area) and a graded channel in front of the bays will direct any contaminated stormwater toward the sump. The existing sump may be enlarged slightly, to at least approximately 13 m x 11 m and 2.5 m deep, and will be lined with geofabric (Profab Ultra 600X). The sump will capture sediments and hydrocarbons from the operational area. As the operational area will be built up with the asphalt profilings, any clean stormwater falling outside the operational area will not be able to flow into the operational area.

A process flow diagram is shown below in Figure 1.

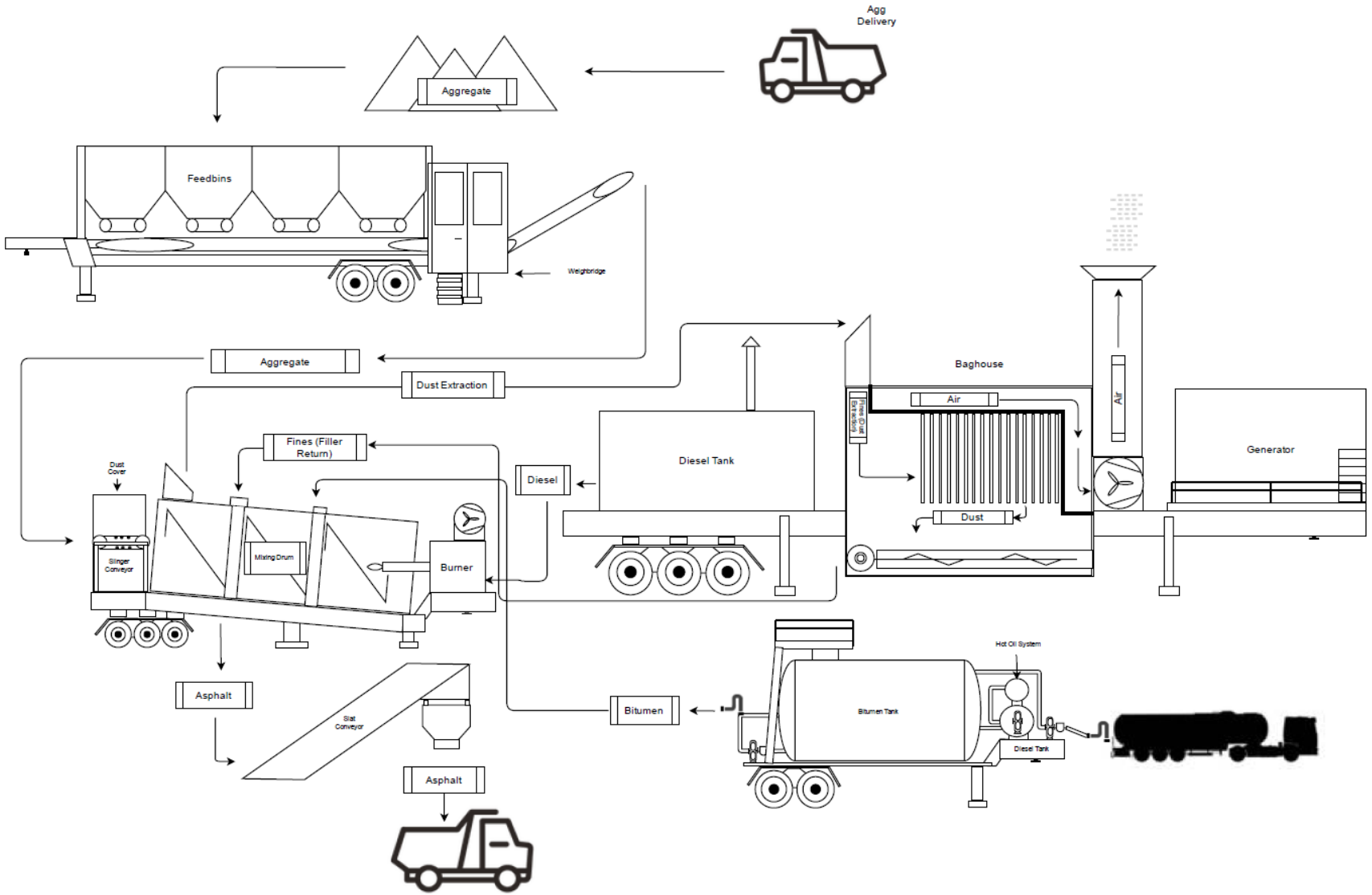


Figure 1: Moylan Road Asphalt Manufacturing Plant process flow diagram.

4.2 Infrastructure

The MRAMP facility infrastructure, as it relates to Category 35 activities, is detailed in Table 4 and with reference to the Site Plan. The information in this table has been provided by the Applicant.

Table 4: MRAMP facility Category 35 infrastructure

	Infrastructure	**Site Plan Reference**
	Prescribed Activity Category 35	
The Applicant will relocate a mobile asphalt manufacturing plant with a design capacity of 120 tonnes per hour.		
1	Compacted asphalt profilings (whole of operational area)	Appendix 2: Site Plan – General Layout Plan
2	Mobile asphalt manufacturing plant incorporating: • Cold feed trailer (raw aggregate input); • Drum trailer (mixing, bitumen input and heating); • Baghouse trailer (filtration, power and fuel) (includes the diesel tank and generator); and • Bitumen trailer (bitumen supply).	
3	Raw materials storage area (stockpile area)	
4	Waste storage bay	
5	Geofabric lined sump	

4.3 Exclusions to the Premises

The Applicant proposes to establish a site office, crib room and ablutions facility on the premises in the future. A transportable donga and suitable sewage treatment system will be established on the site within 24 months of the mobile asphalt plant being established. These activities do not meet the description of a prescribed premises therefore this Decision Report does not consider emissions associated with this infrastructure. The Applicant has no plans at this stage to construct a fuel farm on the premises.

5. Legislative context

5.1 Contaminated sites

Part of the premises (the whole of Lot 712) is classified as "Possibly contaminated – investigation required" under the *Contaminated Sites Act 2003*.

5.2 Other relevant approvals

5.2.1 Planning approvals

Zoning in the area under the City of Kwinana is not currently defined. The premises is located within the Latitude 32 industry zone. The Latitude 32 area is established under the *Hope Valley-Wattleup Redevelopment Act 2000* with any enquiries relating to existing and future classification of land, building or demolition licences to be referred to the Western Australian Planning Commission (WAPC). The applicant submitted planning approval and a latitude 32 development approval to the City of Kwinana on 20 June 2017. Temporary planning approval,

subject to conditions, was granted to the Applicant on 17 August 2017 by the City of Kwinana and expires on 17 August 2022. Conditions include that stormwater drainage is to be contained and disposed of onsite and dust control measures (in accordance with the Dust Management Plan submitted to the City of Kwinana) to be implemented – this includes regularly wetting unsealed roads and stockpiles and controlling dust so that particles do not move off-site. In accordance with DWER's *Guidance Statement: Licence duration* the works approval and licence will not be granted for a duration that exceeds the planning approval duration.

The application for works approval and licence was referred to the City of Kwinana on 7 August 2017 as a direct interest stakeholder as outlined in section 7. No comments were received.

5.3 Part III of the EP Act

Environmental Protection Policies (EPPs) are statutory policies developed under Part III of the EP Act. The *Environmental Protection (Kwinana) (Atmospheric Wastes) Policy Approval Order 1999* (Kwinana EPP) and *Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992* (Kwinana Regulations) provide ambient air quality standards and ambient air quality limits for sulphur dioxide and particulates.

The Kwinana EPP defines three areas (Area A, B and C) where:

- Area A is the area of land on which heavy industry is located;
- Area B is outside Area A and is zoned for industrial purposes from time to time under a Metropolitan Region Scheme or town planning scheme; and
- Area C is beyond Areas A and B; predominantly rural and residential.

The proposed mobile asphalt manufacturing plant will be located within Area B. Schedule 2 of the Kwinana Regulations provides emissions standards and limits.

5.4 Part V of the EP Act

5.4.1 Applicable regulations, standards and guidelines

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

DWER 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)*
- *Guidance Statement: Publication of Annual Audit Compliance Reports (May 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

Other applicable legislation includes:

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

- *Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992*

5.4.2 Clearing

The clearing of native vegetation is not approved under the Issued Works Approval or Issued Licence.

6. Assessment of operator

The applicant currently holds a licence, L7793/2002/4, for asphalt manufacturing (category 35) at 229 and 217 Gnangara Rd, Wangara. There has been two to three dust complaints each year for the past four years relating to the Wangara premises. DWER has visited the Wangara premises on several occasions and dust was not observed leaving the premises. The complaints were not verified and have been closed.

7. Consultation

DWER referred the application on 7 August 2017 to the City of Kwinana as the Delegated Officer considered that they have a direct interest in the application.

The application was publicly advertised on 7 August 2017 in *The West Australian* newspaper and on the DWER website inviting public comment on the application. DWER did not receive any comments.

8. Location and siting

8.1 Siting context

The MRAMP will be located on Lot 712 (with the Premises boundary including Lot 55) Moylan Rd, Hope Valley within the City of Kwinana. The Premises is currently used as a laydown yard. Surrounding land uses include a quarry (crushing and screening), vacant land, lay-down yards, market gardening, bulk train line and residences.

8.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 5.

Table 5: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential premises	One residence located approximately 400 m NNW Three residences located approximately 490 m WNW One residence located approximately 530 m NW Two residences located approximately 570 m W Two residences located approximately 710 m N (all measured from the premises boundary)
Neighbouring commercial / industrial premises	Adjacent premises include land owned by a quarry company. Quarry activities located approximately 120 m E of the premises boundary.

8.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The

distances to specified ecosystems are shown in Table 6.

Table 6: Environmental values

Specified ecosystems	**Distance from the Premises**
Bush Forever	Brownman Swamp, Mt Brown Lake and adjacent bushland, Henderson/Navel Base – Bush Forever Site 346 located approximately 600 m W (measured from premises boundary)
State Environment Policy (SEP) Cockburn Sound Policy Boundary 2005	Premises located within the boundary of this policy
Geomorphic Wetlands	A conservation use wetland is located 900 m south of the premises boundary.
Threatened Ecological Communities and Priority Ecological Communities	Premises boundary located 110 m E of buffer zone for priority ecological communities. Premises boundary is located 120 m N of buffer zone for threatened ecological communities (Banksia woodland of the Swan Coastal Plain).
Biological component	**Distance from the Premises**
Threatened/Priority Fauna	Priority 4 listed mammals have been recorded at a site 200 m WSW of the premises boundary.
Other relevant ecosystem values	**Distance from the Premises**
Kwinana – Atmospheric Wastes	The premises is located within the Kwinana EPP Area B and the Kwinana Regulations are applicable to the operations of the premises with regards to total suspended particulates.

8.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 9.

Table 7: Groundwater and water sources

Groundwater and water sources	**Distance from Premises**	**Environmental value**
Groundwater	The application states that groundwater levels are approximately 9-11 m below ground level. The Perth Groundwater Atlas indicates that the depth to groundwater beneath the premises ranges from 11 m below the natural surface in the southwestern corner of the premises to 22 m below the natural surface in the southeastern corner of the premises. The premises is located within the Cockburn groundwater area (Wattleup subarea) proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act).	The Perth Groundwater Atlas indicates that the groundwater in the area is 500 – 1,000 mg/L which is considered marginal. Groundwater is considered suitable for garden bores and has beneficial use for industrial and bore water users.

8.5 Soil type

The MRAMP is located within the Tamala limestone area of the Swan Coastal Plain. Soil type in the area is categorised by undulating dune landscape underlain by aeolianite with chief soils being siliceous and smaller areas of brown and leached sands. There is no acid sulfate soil

risk within the premises.

8.6 Meteorology

8.6.1 Wind direction and strength

The Bureau of Meteorology provides the following wind roses, shown in Figure 2, for wind direction versus wind speed (9am and 3pm – 1983 to 2016) for the Medina Station.

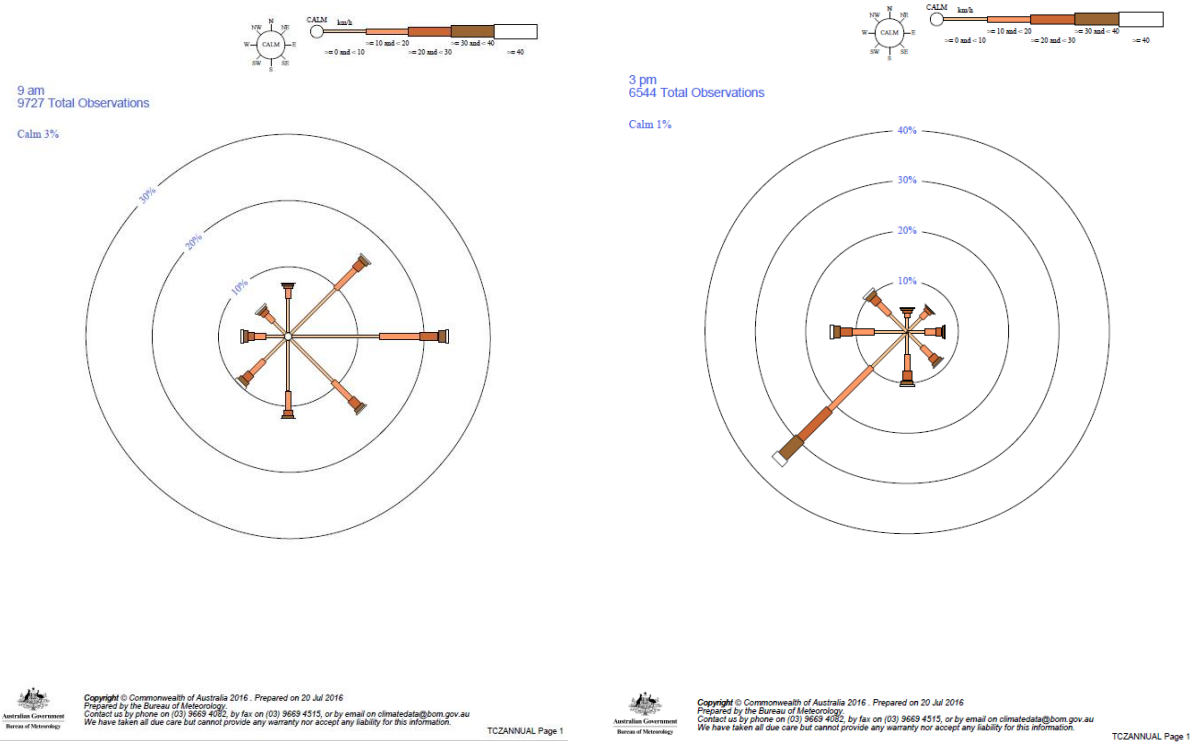


Figure 2: Wind Rose, Medina based on 1 April 1983 to 24 September 2016 annual average

It is important to note that these wind roses show historical wind speed and wind direction data for Medina weather station and should not be used to predict future data.

8.6.2 Rainfall and temperature

The Bureau of Meteorology provides the mean rainfall and maximum temperature, shown in Figure 3 below, for Medina (1983 to 2016).

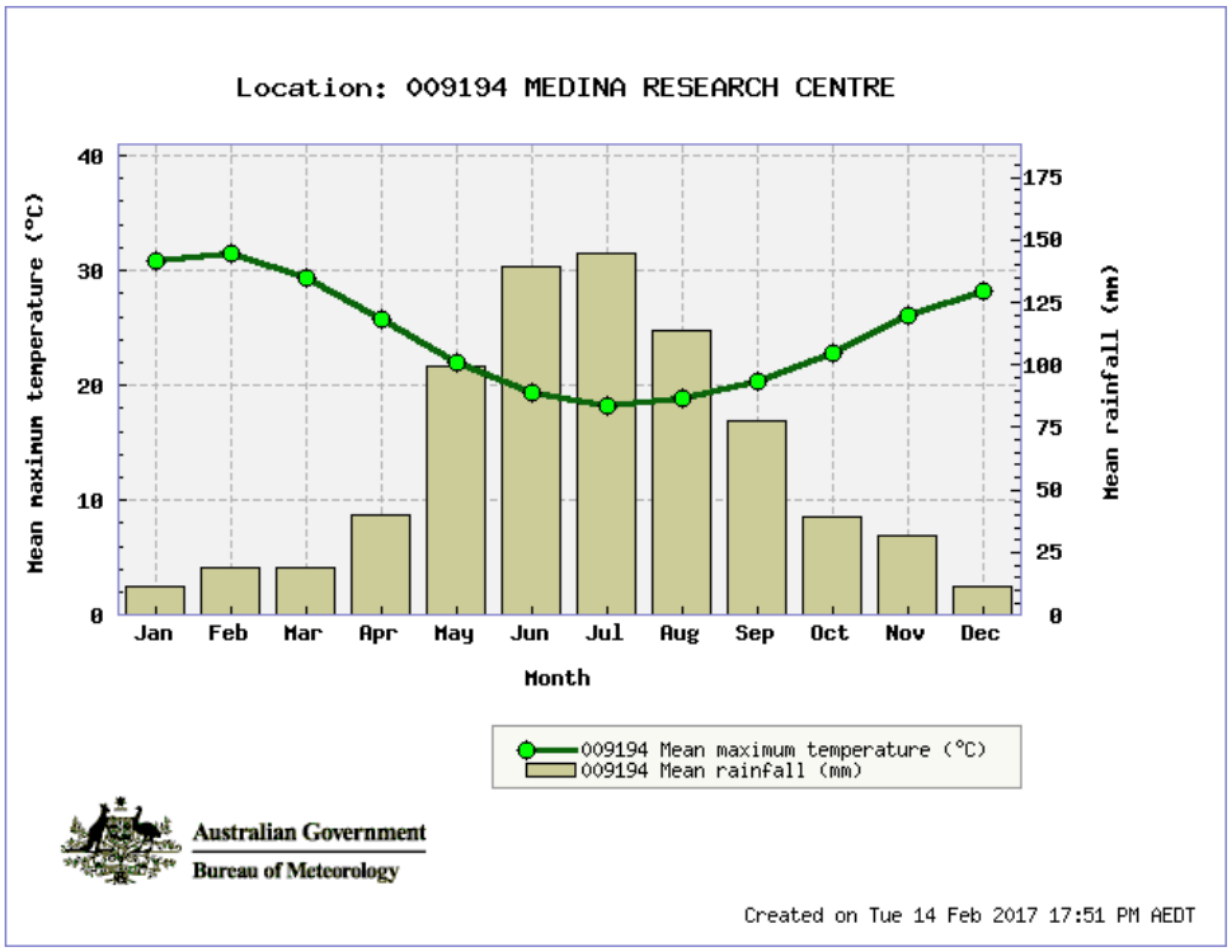


Figure 3: Mean rainfall and maximum temperature for Medina (1983 to 2016)

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 8 or Table 9.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 8 and Table 9 below.

Table 8. Identification of emissions, pathway and receptors *during construction*

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Construction, mobilisation and positioning of infrastructure	Vehicle movements and installation of infrastructure, compacted asphalt profiling base of operational area, extension and lining of sump	Noise	Closest residential premises located 400 m NNW and three residential premises located 490 m WNW of the premises boundary. Commercial / industrial properties located immediately adjacent to the premises including quarry activities 120 m E of the premises boundary.	Air / wind dispersion	Potential amenity impacts	No	The Delegated Officer considers that the separation distance between the source and potential receptors is sufficient and the activity will be carried out in an industrial area therefore noise and dust emissions are unlikely to cause any amenity or health impacts. The EP Noise Regulations apply to noise emissions.
		Dust			Potential amenity and health impacts		

Table 9: Identification of emissions, pathway and receptors *during operation*

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Delivery and storage of raw materials	Vehicle movements	Noise	Closest residential premises located 400 m NNW and three residential premises located 490 m WNW of the premises boundary. Commercial / industrial properties located immediately adjacent to the premises including quarry activities 120 m E of the premises boundary.	Air / wind dispersion	Potential amenity impacts	No	The Delegated Officer considers that the separation distance between the source and potential receptors is sufficient and the activity will be carried out in an industrial area therefore noise emissions are unlikely to cause any amenity impact. The EP Noise Regulations apply to noise emissions.
		Dust			Potential amenity and health impacts	Yes	See section 9.4
	Storage of aggregates and sand in stockpiles	Dust	Closest residential premises located 400 m NNW and three residential premises located 490 m WNW of the premises boundary. Commercial / industrial properties located immediately adjacent to the premises including quarry activities 120 m E of the premises boundary.	Air / wind dispersion	Potential amenity and health impacts	Yes	See section 9.4
	Storage of bitumen in 60,000L tank and diesel fuel in a 10,000L self bunded tank	Leaks or spills of hazardous liquids (fuel and bitumen outside of containment)	Land	Direct discharge to land Discharge to land via stormwater	Land and soil contamination	Yes	See section 9.7
			Groundwater beneath the premises ranging from 11 mbgl to 22 mbgl.	Infiltration to groundwater	Groundwater contamination		
Blending of materials	Transfer of raw materials from stockpiles to	Noise	Closest residential premises located 400 m NNW and three residential premises located 490 m WNW of the	Air / wind dispersion	Potential amenity impacts	No	The Delegated Officer considers that the separation distance between the source and potential receptors is sufficient and the activity will be carried out in an industrial area therefore noise emissions are unlikely

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
	mixing drum		premises boundary. Commercial / industrial properties located immediately adjacent to the premises including quarry activities 120 m E of the premises boundary.				to cause any amenity impact. The EP Noise Regulations apply to noise emissions.
		Dust			Potential amenity and health impacts	Yes	See Section 9.4
	Mixing of materials in drum dyer	Odour emissions from baghouse stack, diesel burners and generator	Closest residential premises located 400 m NNW and three residential premises located 490 m WNW of the premises boundary. Commercial / industrial properties located immediately adjacent to the premises including quarry activities 120 m E of the premises boundary.	Air / wind dispersion	Potential amenity impacts	Yes	See Section 9.6
		Particulates from baghouse stack			Potential amenity and health impacts	Yes	See Section 9.5
		Noise			Potential amenity impacts	No	The Delegated Officer considers that the separation distance between the source and potential receptors is sufficient and the activity will be carried out in an industrial area therefore noise emissions are unlikely to cause any amenity impact. The EP Noise Regulations apply to noise emissions.
Dispatch of asphalt	Dispatch of asphalt onto slat conveyor and from slat conveyor into trucks	Odour	Closest residential premises located 400 m NNW and three residential premises located 490 m WNW of the premises boundary. Commercial / industrial properties located immediately adjacent to the premises including quarry activities 120 m E of the premises boundary.	Air / wind dispersion	Potential amenity impacts	No	The Delegated Officer considers the scale of the operation and the separation distance between the source and potential receptors to be sufficient.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Storage of waste asphalt	Storage of waste asphalt in the waste storage bay	Leaks or spills of hydrocarbons outside of containment area.	Land	Direct discharge to land Discharge to land via stormwater	Land and soil contamination	Yes	See section 9.7
			Groundwater beneath the premises ranging from 11 mbgl to 22 mbgl.	Infiltration to groundwater	Groundwater contamination		
Storage of contaminated stormwater	Storage of contaminated stormwater in the sump	Leaks or spills of hydrocarbons outside of containment through failure of liner or overtopping of sump	Land	Direct discharge to land	Land and soil contamination	Yes	See section 9.7
			Groundwater beneath the premises ranging from 11 mbgl to 22 mbgl.	Infiltration to groundwater	Groundwater contamination		

9.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 10 below.

Table 10: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 11 below.

Table 11: Risk criteria table

Likelihood		**Consequence**		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		**The following criteria has been used to determine the consequences of a Risk Event occurring:**		
			Environment	**Public health* and amenity (such as air and water quality, noise, and odour)**
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **onsite impacts**: mid-level • **offsite impacts local scale**: low level • **offsite impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **onsite impacts**: low level • **offsite impacts local scale**: minimal • **offsite impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*

"onsite**"** means within the Prescribed Premises boundary.

9.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment Table 12 below:

Table 12: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

9.4 Risk Assessment – fugitive dust impact

9.4.1 Description of risk event

Fugitive dust emissions from delivery, storage and processing of materials impacting on the amenity and health of receptors.

9.4.2 Identification and general characterisation of emission

Fugitive dust generated by operations onsite including, vehicle movements onsite, storage of raw materials (sand and aggregates) in stockpiles and the transfer of raw materials from stockpiles to the mixing drum.

9.4.3 Description of potential adverse impacts from the emission

Potential impacts from fugitive dust emissions include decreased local air quality. Nuisance, health and amenity impacts on residential receptors located 400 m NNW and three residences located 490 m WNW of the premises and commercial and industrial receptors adjacent to the premises.

9.4.4 Criteria for assessment

General provisions of the EP Act make it an offence to cause or allow pollution. National Environmental Protection (Ambient Air Quality) Measure (NEPM) 2003 recommends that PM_{10} does not exceed 50 µg/m^3 over a 24 hour averaging period. Ambient monitoring at receptors has not, however, been undertaken to determine current air quality.

The assessment criteria for ambient air quality standards are detailed in the NEPM and are shown in Table 13.

Table 13: NEPM standards

Pollutant	Averaging period	Maximum concentration ($\mu g/m^3$)
Particulates as PM_{10}	24-hours	50
	Annual	25

The premises is within Area B of the Kwinana EPP. The Kwinana EPP sets assessment criteria for total suspended particulates (TSP) that are summarised in Table 14 below.

Table 14: Kwinana ambient air quality standards and limits for TSP

Area	TSP standard ($\mu g/m^3$)	TSP limit ($\mu g/m^3$)	Averaging period
Policy Area	-	1,000	15 minutes
A	150	260	24 hours
B	90	260	24 hours
C	90	150	24 hours

9.4.5 Applicant controls

This assessment has reviewed the controls set out in Table 15 below.

Table 15: Applicant proposed controls for fugitive dust

Control	Description
Infrastructure	Side walls on the cold feed bins. Sand and aggregates from the cold feed bins will be conveyed to the mixing drum by an enclosed conveyor system. 2 m concrete block side walls for dust/sand stockpiles bays and 1 m concrete block side walls for other raw material aggregate bays.
Management	Low vehicle speed limit with traffic delineated from dusty areas and bollards erected to stop vehicles accessing certain areas. Water truck will be utilized to water unsealed surfaces and raw material (sand and aggregate) stockpiles. The frequency of watering will depend upon wind intensity, temperature and visual monitoring of surfaces during vehicle movements. Stockpiles and loading of raw materials into cold feed bins will be visually monitored and the water truck used if required. Raw material (sand and aggregate) stockpiles will not exceed the height of the concrete block side walls for each bay.

9.4.6 Key findings

The Delegated Officer has reviewed the information regarding the fugitive dust impacts from the premises and has found:

Applicant infrastructure and management controls are suitable to minimise the risk of dust emissions and may be conditioned as regulatory controls in the works approval or licence subject to the risk assessment outcomes.

9.4.7 Consequence

The Delegated Officer has had regard to the nature and scale of fugitive dust emission activities onsite and has determined that low level impacts to amenity of residential receptors located 400 m NNW and 490 m WNW of the premises boundary and nearby commercial / industrial properties may be experienced. Therefore the Delegated Officer considers the consequence to be **Minor**.

9.4.8 Likelihood of Risk Event

Based upon the Applicant's proposed controls, the Delegated Officer has determined that the likelihood of low level impact to amenity will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood of fugitive dust emissions causing impacts to amenity to be **Unlikely**.

9.4.9 Overall rating

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 10) and determined that the overall rating for the risk of fugitive dust emissions on residential receptors and commercial/industrial properties is **Medium**.

9.5 Risk Assessment – particulate emissions impact analysis – normal and abnormal operations

9.5.1 Description of risk event

Particulate emissions being generated from the MRAMP baghouse stack due to normal or abnormal operations impacting on the amenity and health of receptors.

9.5.2 Identification and general characterisation of emission

The Applicant has stated that emissions from the baghouse stack of the MRAMP will consist of oxides of nitrogen (NO_x), carbon dioxide (CO_2), carbon monoxide (CO), sulfur dioxide (SO_2), volatile organic compounds (VOC's) and particulate matter (PM_{10}). The main emissions of concern for asphalt manufacturing plants are PM_{10} and VOC's.

Abnormal operations

Particulate emissions may be generated from abnormal operations onsite from the failure of the dust filtration equipment (baghouse).

9.5.3 Description of potential adverse impact from the emission

Potential impacts from particulate emissions include reduced local air quality, nuisance, health and amenity impacts on residential receptors located 400 m NNW and three residences 490 m WNW of the premises and quarrying adjacent to the premises. Particulate matter has the potential to impact public health and affects the respiratory and cardiovascular systems

following both long and short term exposures.

9.5.4 Criteria for assessment

Assessment criteria for TSP and PM_{10} are available in the Kwinana EPP and NEPM. Refer to section 9.4.4.

Other similar asphalt manufacturing plants licensed by DWER have a PM limit of 50 mg/m^3 from the dust extraction system stack, including the Applicant's current prescribed premises in Wangara.

The Applicant has provided a stack emissions report (Etkimo Report Number R003775) for Mobile Plant 2 that was tested on 15 November 2016 during operation at the Wangara premises. The testing showed that the concentration of total particulate matter was 6.3 mg/m^3.

9.5.5 Applicant controls

This assessment has reviewed the controls set out in Table 16 below.

Table 16: Applicant proposed controls for stack particulate emissions

Control	Description
Infrastructure	Reverse pulse baghouse dust extraction system is attached to the mixing drum to remove combustion gases, moisture and fine particles. Filtered air (from the baghouse) is released to atmosphere through a 5.75 m agl stack.
Management	Any fines collected by the baghouse are returned to the mixing drum. Regular inspection and maintenance of the baghouse. Replacement bags are stocked onsite. Baghouse filter failure can be detected through gauges in the batch cabin and visually out of the stack. In the event of baghouse failure, operation will cease and the bag replaced. Baghouse will be operational prior to start up and while the plant is going. The baghouse is interlocked with the burner circuit; when the burner is on, the baghouse has to be operational. When the baghouse stops, the system will shut down if it hasn't been shut down prior to the baghouse.

9.5.6 Key findings

The Delegated Officer has reviewed the information regarding stack particulate emission impacts from the premises during normal and abnormal operations and has found:

Applicant infrastructure and management controls are suitable to minimise the risk of stack particulate emissions and may be conditioned as regulatory controls in the works approval or licence subject to the risk assessment outcomes.

9.5.7 Consequence – Normal operation

The Delegated Officer has had regard to the nature and scale of potential stack particulate emissions and has determined that low level impacts to amenity of residential receptors located 400 m NNW and 490 m WNW of the premises boundary and nearby commercial /

industrial properties may be experienced. Therefore, the Delegated Officer considers the consequence to be **Minor**.

9.5.8 Likelihood of Risk Event – Normal operation

Based upon the Applicant's proposed controls, the Delegated Officer has determined that the likelihood of low level impact to amenity could occur at some time. Therefore, the Delegated Officer considers the likelihood to be **Possible**.

9.5.9 Overall rating – Normal operation

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 10) and determined that the overall rating for the risk of stack particulate emissions during normal operations on residential receptors and commercial / industrial properties is **Medium**.

9.5.10 Consequence – Abnormal operation

Based upon the premises being adjacent to commercial / industrial premises and 400 m to residential premises, the Delegated Officer has determined that stack particulate emissions during abnormal operations may have a mid-level impact to amenity on a local scale. Therefore, the Delegated Officer considers the consequence to be **Moderate**.

9.5.11 Likelihood of Risk Event – Abnormal operation

Based upon the Applicant's proposed controls and management measures, the Delegated Officer has determined that the likelihood of impacts from stack particulate emissions from abnormal operations could occur at some time. Therefore, the Delegated Officer considers the likelihood to be **Possible**.

9.5.12 Overall rating – Abnormal operation

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 10) and determined that the overall rating for the risk of stack particulate emissions during abnormal operations on residential receptors and commercial / industrial properties is **Medium**.

9.6 Risk Assessment - point source odour impact analysis – normal and abnormal operations

9.6.1 Description of risk event

Point source odour emissions being generated from the MRAMP baghouse stack, diesel burners and generator due to normal and abnormal operations impacting on the amenity and health of receptors.

9.6.2 Identification and general characterisation of emission

Normal operations

There is potential for point source odour emissions from the baghouse stack, diesel burners and generator with the most significant being odour emissions from the baghouse stack. Bitumen has a characteristic odour which some people may find offensive. The odour is caused by volatile organic compounds emitted when the bitumen is heated. The heated bitumen is mixed with the raw materials inside the mixing drum. A reverse pulse baghouse dust extraction system is attached to the mixing drum to remove combustion gases (including VOC's), moisture and fine particles. Any exhaust fumes from the internal diesel burner on the drum trailer are also captured.

The emissions from the internal diesel burner on the mixing drum trailer are directed into the mixing drum and filtered through the baghouse. The hot oil system used on the bitumen tank and the generator both have exhaust outlets.

Abnormal operations

Point source odour emissions may be generated from abnormal operations onsite from the failure of the baghouse.

9.6.3 Description of potential adverse impact from the emission

Potential impacts from odour emissions include increased degradation of local air quality. Nuisance, health and amenity impacts on residential receptors located 400 m NNW and 490 m WNW of the premises boundary and quarrying adjacent to the premises.

9.6.4 Criteria for assessment

General provisions of the EP Act make it an offence to cause or allow pollution, including odour that unreasonably interferes with the health, welfare, convenience, comfort or amenity of any person.

9.6.5 Applicant controls

This assessment has reviewed the controls set out in Table 17 below.

Table 17: Applicant proposed controls for point source odour emissions

Site infrastructure	Description
Controls for odour	
Infrastructure	Reverse pulse baghouse dust extraction system is attached to the mixing drum to remove combustion gases (including VOC's), moisture and fine particles. Filtered air (from the baghouse) is released to atmosphere through a 5.75 m agl stack. Inbuilt switch to ensure the hot oil system on the bitumen tank will not operate with incorrectly mixed fuel/air ratios. Alarm to alert operators if there is an issue with the bitumen tank.
Management	Regular inspection and maintenance of the baghouse. Replacement bags are stocked onsite. Baghouse filter failure can be detected through gauges in the batch cabin and visually out of the stack. In the event of baghouse failure, operation will cease and the bag replaced. Pre-start checks (including oil and coolant levels), daily inspection and regular maintenance of the generator. The generator will be shut down and any issues rectified prior to operating again. Pre-start checks and daily inspection of the hot oil system on the bitumen tank. The hot oil system will be monitored for early indicators of not running correctly (i.e. carbon build up at the exhaust outlet). Baghouse will be operational prior to start up and while the plant is going.

Site infrastructure	Description
	The baghouse is interlocked with the burner circuit; when the burner is on, the baghouse has to be operational. When the baghouse stops, the system will shut down if it hasn't been shut down prior to the baghouse. Diesel generator and bitumen heater will be operated in accordance with manufacturer specifications.

9.6.6 Key findings

The Delegated Officer has reviewed the information regarding point source odour impacts from the premises during normal and abnormal operations and has found:

Applicant infrastructure and management controls are suitable to minimise the risk of odour emissions and may be conditioned as regulatory controls in the works approval or licence subject to the risk assessment outcomes.

9.6.7 Consequence – normal operations

The Delegated Officer has had regard to the scale, operational controls and proximity of receptors and has determined that low level impacts to amenity of residential receptors located 400 m NNW and 490 m WNW of the premises and commercial / industrial receptors adjacent to th premises may be experienced. Therefore, the Delegated Officer considers the consequence to be **Minor**.

9.6.8 Likelihood of Risk Event – normal operations

Based upon the Applicant's proposed controls, the Delegated Officer has determined that the likelihood of low level impacts to amenity could occur at some time. Therefore, the Delegated Officer considers the likelihood to be **Possible**.

9.6.9 Overall rating – normal operations

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 10) and determined that the overall rating for the risk of point source emissions during normal operations on residential receptors and commercial / industrial properties is **Medium**.

9.6.10 Consequence – abnormal operations

Based upon the premises being adjacent to commercial / industrial premises and 400 m to residential premises, the Delegated Officer has determined that the impact of decreased air quality and reduce amenity during abnormal operations may have a mid-level impact to amenity on a local scale. Therefore, the Delegated Officer considers the consequence to be **Moderate**.

9.6.11 Likelihood of Risk Event – abnormal operations

Based upon the Applicant's proposed controls and management measures, the Delegated Officer has determined that the likelihood of impacts from point source odour emissions from abnormal operations could occur at some time. Therefore, the Delegated Officer considers the likelihood to be **Possible**.

9.6.12 Overall rating – abnormal operations

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 10) and determined that the overall rating for the risk of point source odour emissions during abnormal operations impacting on residential receptors and commercial / industrial properties is **Medium**.

9.7 Risk Assessment – Leaks or spills of hazardous liquids impact analysis

9.7.1 Description of risk event

Failure of containment of bitumen, diesel and contaminated stormwater causing land, soil and groundwater contamination affecting ecosystem health.

9.7.2 Identification and general characterisation of emission

Bitumen will be stored in either a 35,000 L (Mobile Plant 1) or 60,000 L (Mobile Plant 2) trailer mounted tank. Diesel fuel will be stored in a 10,000 L self bunded trailer mounted tank. Leaks or spills may occur if the containment of bitumen or diesel fails. There is potential for stormwater to become contaminated if it comes into contact with leaks or spills or with waste asphalt from the waste storage bay.

Contaminated stormwater will be stored in a sump in the SE corner of the operational area. There is potential for impacts to land, soil and groundwater if the liner of the sump fails or the sump overtops.

9.7.3 Description of potential adverse impacts from the emission

Sediments and hydrocarbons from leaks and spills of bitumen, diesel or contaminated stormwater could lead to contamination of land, soil and groundwater.

9.7.4 Criteria for assessment

General provisions of the EP Act make it an offence to cause or allow pollution. Additionally, it is an offence to discharge petrol, diesel or other hydrocarbon into the environment under regulation 3 of the EP Unauthorised Discharges Regulations.

9.7.5 Applicant controls

This assessment has reviewed the controls set out in Table 18 below.

Table 18: Applicant proposed controls for leaks or spills of hazardous liquids

Control	Description
Infrastructure	Operational area built up with compacted asphalt profilings preventing clean stormwater entering the operational area. Compacted asphalt profilings base for all operational areas including the mobile asphalt plant, stockpile area and waste storage bay, sloped to direct any leaks, spills or stormwater to the geofabric lined sump in the SE corner. Waste storage bay will be approximately 8 m x 5 m with three concreted side walls approximately 1 m in height. Stockpile bays and waste storage bay graded towards the front of the bays (towards the operational area) with a channel in front of the bays and waste storage area to direct any contaminated stormwater to the

Control	Description
	geofabric lined sump in the SE corner. An existing sump, to be at least 13 m x 11 m x 2.5 m deep, to be lined with Profab Ultra 600X geofabric to filter potential hydrocarbons and sediment. Self-bunded diesel trailer mounted tank with mechanical overfill protection and an audible overfill alarm. High level float/proximity switch and float indicator on the bitumen trailer.
Management	Pre-start inspection of the geofabric and sump. The geofabric will be inspected on a daily basis for damage and sediment removed from the sump as required. The geofabric will be replaced as required. Any sediment, removed from the sump, will be visually assessed and either used in the asphalt manufacturing process (by mixing with the sand raw material) or stored in drums and disposed of using a waste disposal company. The Applicant has advised that the MRAMP will operate approximately 3 – 4 months of the year for 5 years. In the case that the diesel tank leaks into the bund, a half IBV (500-600L) is able to be placed under the bunded area of the diesel tank to capture any overflow. Hot bitumen (from the tank) that may leak onto the ground will solidify in the lower temperatures and be able to be removed from the ground. Any recovered bitumen not able to be reused in the asphalt manufacturing process will be stored in drums and disposed of using a waste disposal company.

9.7.6 Key findings

The Delegated Officer has reviewed the information regarding leaks or spills of hazardous liquids impacts from the premises and has found:

1. Depth to groundwater at the site is 11 – 22 mbgl with chief soils being siliceous sands with smaller areas of brown and leached sands.
2. Applicant infrastructure and management controls may be conditioned as regulatory controls in the works approval or licence subject to the risk assessment outcomes.
3. No water balance has been provided for the site to demonstrate that the sump is of an adequate size for storm events. Additional controls may be included in the works approval and licence subject to risk assessment outcomes.

9.7.7 Consequence

Based upon any leaks or spills and potentially contaminated stormwater being directed to a sump that is designed to filter for sediments and hydrocarbons, it is unknown if the sump is of adequate size for storm events, the depth to groundwater at the premises and the short

duration of the operation (3 – 4 months of the year for 5 years), the Delegated Officer has determined that the impact of leaks and spills of hazardous liquids on land, soils and groundwater will have low level on-site impact. Therefore, the Delegated Officer considers the consequence to be **Minor**.

9.7.8 Likelihood of Risk Event

Groundwater at the premises is 11 to 22 mbgl and the design of the operational area is such that the compacted asphalt profilings base is sloped towards a sump in the SE corner; however, it is unknown if the size of the sump is adequate for storm events, therefore, the Delegated Officer has determined that the likelihood of impacts from leaks or spills of hazardous liquids could occur at some time. Therefore, the Delegated Officer considers the likelihood to be **Possible**.

9.7.9 Overall rating of release of hazardous liquids

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matric (Table 10) and determined that the overall risk of leaks and spills of hazardous liquids impacting on land, soils and groundwater during operation is **Medium**.

9.8 Summary of acceptability and treatment of Risk Events

A summary of the risk assessment and the acceptability or unacceptability of the risk events set out above, with the appropriate treatment and control, are set out in Table 18 below. Controls are described further in section 11.

Table 19: Risk assessment summary

	Description of Risk Event			**Applicant controls**	**Risk rating**	**Acceptability with controls (conditions on instrument)**
	Emission	**Source**	**Pathway/ Receptor (Impact)**			
1.	Fugitive Dust	Vehicle movements Storage of raw materials Transfer of raw materials	Air/Wind dispersion Closest residential premises 400 m NNW and three residential premises 490 m WNW from the premises boundary. Commercial / industrial properties located immediately adjacent.	Infrastructure (enclosed conveyor) and Management (low vehicle speeds, water truck) controls	Minor consequence Unlikely **Medium risk**	Acceptable, subject to applicant controls conditioned
2.	Stack particulates	MRAMP Stack	Air/Wind dispersion Closest residential premises 400 m NNW and three residential premises 490 m WNW from the premises boundary. Commercial / industrial properties located immediately adjacent.	Infrastructure (reverse pulse baghouse dust extraction system) and management (regular inspections and maintenance, visual and gauge detection of filter failure) controls	**Normal operations:** Minor consequence Possible **Medium risk** **Abnormal operations:** Moderate	Acceptable, generally subject to regulatory controls

	Description of Risk Event			Applicant controls	Risk rating	Acceptability with controls (conditions on instrument)
	Emission	**Source**	**Pathway/ Receptor (Impact)**			
					consequence Possible **Medium risk**	
3.	Odour (point source)	Baghouse stack Diesel burners Generator	Air/Wind dispersion Closest residential premises 400 m NNW and three residential premises 490 m WNW from the premises boundary. Commercial / industrial properties located immediately adjacent.	Infrastructure (reverse pulse baghouse dust extraction system and alarms) and management (regular inspection, pre-start checks and maintenance) controls	**Normal operations:** Minor consequence Possible **Medium risk** **Abnormal operations** Moderate consequence Possible **Medium risk**	Acceptable, subject to applicant controls conditioned
4.	Leaks or spills of hazardous liquids	Storage of bitumen Storage of diesel	Direct discharge to land and discharge to land via stormwater Direct seepage to groundwater beneath the premises	Infrastructure (geofabric lined sump, bunded containment, graded base of operational area) and management (pre-start checks, inspections and maintenance) controls	Minor consequence Possible **Medium risk**	Acceptable, subject to applicant controls conditioned and additional regulatory controls.

10. Regulatory controls

10.1 Summary of controls

A summary of regulatory controls determined to be appropriate for the Risk Events is set out in Table 20. The risks are set out in the assessment in section 9 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Applicant. The conditions of the Works Approval and Licence will be set to give effect to the determined regulatory controls.

Table 20: Summary of regulatory controls to be applied

		Controls (references are to sections below, setting out details of controls)			
		10.2 Infrastructure and equipment (construction)	**10.3.1 Specified actions (operation)**	**10.3.2 Monitoring requirements (operations)**	**10.3.3 Monitoring reports (operation)**
Risk Items (see section 9.8)	**Fugitive dust**	●	●		
	Stack particulates	●	●	●	●
	Odour (point source)	●	●		
	Leaks or spills of hazardous liquids	●	●		

10.2 Works Approval controls

10.2.1 Fugitive dust management infrastructure and equipment

The following infrastructure and equipment should be maintained and operated onsite for fugitive dust emissions management. The requirements in Table 21 are derived from Applicant controls as described in section 9.4.

Table 21: Fugitive dust infrastructure requirements

Infrastructure	**Requirements (design and construction)**
MRAMP	Side walls on cold feed bins. Sand and aggregates from the cold feed bins will be conveyed to the mixing drum by an enclosed conveyor system. 2 m concrete block side walls for dust/sand stockpiles bays and 1 m

Infrastructure	Requirements (design and construction)
	concrete block side walls for other raw material aggregate bays.

Grounds: The approved infrastructure and equipment will suitably minimise the risk of fugitive dust emissions entering the environment.

10.2.2 Stack particulate and odour (point source) emissions management, infrastructure and equipment

The following infrastructure and equipment should be maintained and operated onsite for stack particulate and odour (point source) emissions management. The requirements in Table 22 are derived from applicant controls as described in sections 9.5 and 9.6.

Table 22: Stack particulate and odour (point source) emissions infrastructure requirements

Infrastructure	Requirements (design and construction)
MRAMP (stack particulate and odour (point source) emissions)	Reverse pulse baghouse dust extraction system is attached to the mixing drum to remove combustion gases, moisture and fine particles. Filtered air (from the baghouse) is released to atmosphere through a 5.75 m agl stack.
MRAMP (odour (point source) emissions)	Inbuilt switch to ensure the hot oil system on the bitumen tank will not operate with incorrectly mixed fuel/air ratios. Alarm to alert operators if there is an issue with the bitumen tank.

Grounds: The approved infrastructure and equipment will suitably minimise the risk of stack particulate and odour (point source) emissions entering the environment.

10.2.3 Leaks or spills of hazardous liquids

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for leaks and spills of hazardous liquids management.

Table 23: Leaks and spills of hazardous liquids infrastructure requirements

Infrastructure	Requirements (design and construction)
MRAMP	Operational area built up with compacted asphalt profilings preventing clean stormwater entering the operational area. Compacted asphalt profilings base for all operational areas including the mobile asphalt plant, stockpile area and waste storage bay, sloped to direct any leaks, spills or stormwater to the geofabric lined sump in the SE corner. Waste storage bay will be approximately 8 m x 5 m with three concreted side walls approximately 1 m in height. Stockpile bays and waste storage bay graded towards the front of the bays (towards the operational area) with a channel in front of the bays and waste storage area to direct any contaminated stormwater to the geofabric lined sump in the SE corner.

Infrastructure	Requirements (design and construction)
	An existing sump, to be at least, 13 m x 11 m x 2.5 m deep, to be lined with Profab Ultra 600X geofabric to filter potential hydrocarbons and sediment. Self bunded diesel trailer mounted tank with mechanical overfill protection and an audible overfill alarm. High level float/proximity switch and float indicator on the bitumen trailer. Applicant to install freeboard markers in the sump to indicate minimum freeboard of 300 mm.

Note: The above design and construction requirements are derived from Applicant controls as described in section 9.7.5 except for the requirement to install freeboard markers in the sump.

Grounds: Operations of the MRAMP may include leaks or spills of hazardous liquids and the storage of contaminated stormwater where there is a risk to land, soil and groundwater affecting ecosystem health if not managed appropriately. As no water balance has been provided for the site to demonstrate that the sump is of an adequate size for storm events, the Delegated Officer has included construction requirements to install freeboard markers and a condition requiring that this freeboard is maintained will be required in the licence (see section 10.3.1). Additionally it is an offence to discharge petrol, diesel or other hydrocarbon into the environment under regulation 3 of the EP Unauthorised Discharges Regulations.

10.3 Licence controls

10.3.1 Specified actions

The following actions should be undertaken for the management of fugitive dust emissions, stack particulate emissions, odour (point source) emissions and leaks and spills of hazardous liquids:

- Water truck to be utilised to water unsealed surfaces and raw materials (sand and aggregates) stockpiles as required based upon visual assessment;
- Raw material (sand and aggregate) stockpiles will not exceed the height of the concrete block side walls for each bay (1.8 m for dust/sand and 1 m for other aggregates);
- A minimum of 300 mm freeboard is maintained in the geofabric lined sump;
- The baghouse is operational prior to start-up of the mixing drum and operated continuously whilst the mixing drum is operating;
- The baghouse filters are inspected regularly; and
- When detected, blocked, frayed or leaking baghouse filters are immediately replaced.

Note: Specified management/procedure requirements are derived from those currently undertaken by the applicant as described in sections 9.4.5, 9.5.5 and 9.6.5 except for the requirement to ensure the operational level of the sump does not exceed the freeboard markers.

Grounds: Operations of the MRAMP includes fugitive dust emissions and emissions to air (particulates and odour) where there is a risk to the health and amenity of nearby residential receptors if not managed appropriately. The operations of the MRAMP include the storage of contaminated stormwater where there is a risk to land, soil and groundwater affecting ecosystem health if not managed appropriately. As no water balance has been provided for the site to demonstrate that the sump is of an adequate size for storm events, the Delegated

Officer has included construction requirements to install freeboard markers in the works approval (see section 10.2.3) and a condition requiring that this freeboard is maintained will be required in the licence.

10.3.2 Monitoring requirements

Stack emissions, during normal operation, will be monitored for total particulate matter on an annual basis.

Grounds: The Applicant has provided a stack emissions report (see section 9.5.4) for the mobile asphalt manufacturing plant. The Delegated Officer considers the result of the concentration of total particulate matter to be acceptable; however, stack emissions will be required to be monitored (for total particulate matter) on an annual basis to ensure the MRAMP is being maintained and emissions minimised.

10.3.3 Monitoring reports

Monitoring information required in section 10.3.2 will be provided to DWER at the CEO's request as per conditions 5 and 6 of the Licence.

11. Determination of Works Approval conditions

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

Table 24: Summary of works approval conditions to be applied

Condition Ref	Grounds
Infrastructure and Equipment Conditions 1, 2, 3, 4 and 5	These conditions are valid, risk based and contain appropriate controls.
Emissions Condition 6	This condition is valid, risk based and consistent with the EP Act.
Record Keeping Conditions 7 and 8	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 approval under the EP Act.

12. Determination of Licence conditions

The conditions in the Licence have been determined in accordance with the *Guidance Statement: Setting Conditions*.

Table 25: Summary of conditions to be applied

Condition Ref	Grounds
Emissions Condition 1	This condition is valid and is necessary to mitigate unreasonable emissions and to ensure compliance with the EP Act.
Infrastructure and Equipment Condition 2	This condition is valid, risk based and contains appropriate controls.

Specified Actions Condition 3	This condition is valid, risk based and contains appropriate controls (see sections 9 and 10.3.1 of this decision report).
Emissions to Air Monitoring and Reporting Conditions 4, 5 and 6	These conditions are valid, risk-based and necessary to monitor infrastructure performance (see sections 9.5 and 10.3 of this decision report).
Record Keeping Conditions 7, 8, 9 and 10	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 licence under the EP Act.

13. Applicant's comments

The Applicant was provided with the draft decision report, draft works approval and draft licence on 14 September 2017. The Applicant provided comments on 15 September 2017. These are summarised in Appendix 3.

14. Works Approval Compliance

Works Approval, W6074/2017/1, was granted on 18 September 2017. The Applicant provided documentation to show compliance with works approval, W6074/2017/1, on 13 October 2017 and additional information on 16 October 2017 as per condition 4 of the Works Approval. As per condition 5 of the Works Approval, two departures from the requirements in the Works Approval were detailed. These include:

- The baghouse stack is 5.72 m above ground level (rather than 5.75 m agl) due to hydraulic pads altering the drum trailer height (to achieve the required operating angles). The baghouse trailer than has to match the height of the drum trailer to ensure the dust ducting seals properly. Therefore, the baghouse stack is 3 cm lower than when it was measured at the mobile plant's previous location.
- The concrete block side walls of the dust/sand bays have been measured at 1.8 m (rather than 2 m) due to the way they were measured for the submission of the works approval information. An engineer has confirmed the concrete block side walls have been constructed at 1.8 m high.

The Delegated Officer considers the above two departures to be minor with neither of the departures increasing the risk to public health, public amenity or the environment. The Delegated Officer considers a baghouse stack height of 5.72 m to be sufficient for the premises and the Applicant has committed to ensuring the stockpile heights do not exceed the side walls of the raw materials bays.

Section 10.3 of this document and the Issued Licence have been updated to reflect the constructed height of the baghouse stack and dust/sand bay side walls.

15. Conclusion

This assessment of the risks of activities on the premises has been undertaken with due consideration of a number of 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 for 1 year subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Based on this assessment, it has been determined that the Issued Licence will be granted with an expiry date of no later than 17 August 2022, upon compliance with conditions of Works Approval W6074/2017/1 and subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Caron Goodbourn
A/ Manager Licensing – Industry Regulation (Process Industries)
Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

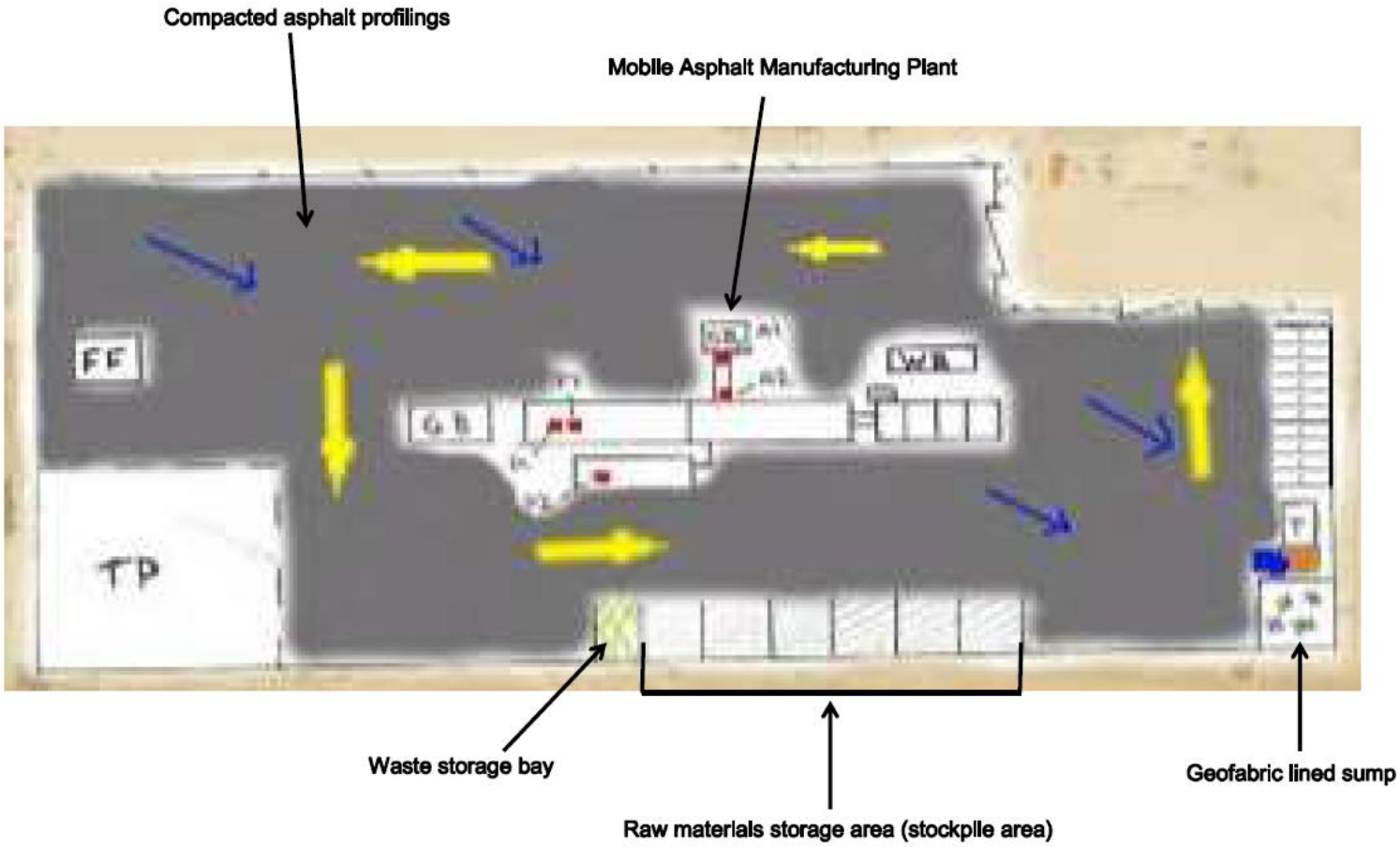
Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Roads 2000 – Application form and supporting documents	The Application	DWER records (A1456144)
2.	Roads 2000 – Updated concurrent works approval and licence application form and supporting documents		DWER records (A1474661)
3.	Roads 2000 – Response to Department of Water and Environmental Regulation information request		DWER records (A1508206)
4.	Roads 2000 – Response to Department of Water and Environmental Regulation information request		DWER records (A1517300)
5.	Politis – Roads 2000 – Wind-Borne Particulate (Dust) Management Procedure – PRO-4A-09		DWER records (A1517461)
6.	Roads 2000 – Response to Department of Water and Environmental Regulation information request		DWER records (A1517930)
7.	Roads 2000 – Works Approval Infrastructure Sign-Off email including attachments, dated 13 October 2017.		DWER records (A1541164)
8.	Roads 2000 – Additional information for Works Approval compliance, dated 16 October 2017		DWER records (A1541166)
9.	Perth Groundwater Atlas		Accessed at: http://atlases.water.wa.gov.au/idelve/gwa
10.	DWER *Guidance Statement on Regulatory Principles*, July 2015		Accessed at: www.der.wa.gov.au
11.	DWER *Guidance Statement on Decision Making*, February 2017		

12.	DWER *Guidance Statement on Risk Assessments*, February 2017		
13.	DWER *Guidance Statement on Setting Conditions*, October 2015		
14.	DWER *Guidance Statement on Environmental Siting*, November 2016		
15.	DWER *Guidance Statement on Licence Duration*, August 2016		
16.	DWER *Guidance Statement on Publication of Annual Audit Compliance Reports*, May 2016		
17.	DWER *Guidance Statement on Land Use Planning*, February 2017		
18.	*Environmental Protection (Kwinana) Atmospheric Wastes) Policy 1992*	Kwinana EPP	Accessed at: http://www.epa.wa.gov.au/wa-government-policies
19.	*Environmental Protection (Kwinana)(Atmospheric Wastes) Regulations 1992*	Kwinana Regulations	*Accessed at: www.slp.wa.gov.au*

Appendix 2: Site Plan

General layout plan



Appendix 3: Summary of applicant's comments on risk assessment and draft conditions

Comments received	DWER response
Roads 2000 Pty Ltd – Tom Riseley, 15 September 2017 • The concrete blocks are 1 m in height; previously we thought they were 1.2 m. This will change the bay [stockpile bays] heights for dust/sand to 2 m and other bays [including the waste bay] to 1 m wall heights. • The waste bay will have internal dimensions of 8 m x 5 m (5 m wide, 8 m long).	As the Applicant has committed to managing the stockpiles to the heights of the concrete blocks, the Delegated Officer considers that the concrete block heights are sufficient. This Decision Report, Works Approval and draft Licence have been updated to reflect stockpile concrete walls of 2 m (for dust/sand) and 1 m (for other stockpiles, including the waste bay). The draft documents have been updated to include the information provided by the Applicant.

Attachment 1: Issued Licence L9078/2017/1