

APPENDIX 6
DUST MANAGEMENT PLAN



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DUST MANAGEMENT PLAN **Prepared for Westwall Holdings Pty Ltd** **2038 Donnybrook Boyup Brook Road, Yabberup** **Shire of Donnybrook-Balingup**

1. INTRODUCTION

This Dust Management Plan (DMP) has been prepared in accordance with guidelines published by the Department of Environment and Conservation (DEC) (Jan. 2011), now the Department of Water and Environmental Regulation (DWER). This Dust Management Plan should be read in conjunction with the report entitled *“Extractive Industries Licence Application and Environmental Management Plan 2038 Donnybrook Boyup Brook Road, Yabberup, Shire of Donnybrook-Balingup”*, prepared for Westwall Holdings Pty Ltd by Lundstrom Environmental Consultants Pty Ltd in April 2022.

The objectives of this DMP are as follows:

- To describe the nature of the proposed operation;
- To identify any sources of dust that might arise from these operations;
- To identify the proximity of any sensitive premises in this regard;
- To identify measures that will limit the generation of dust from the operations;
- To identify measures that will limit the impact of dust on sensitive premises.

2. SITE BACKGROUND

Locality: 2038 Donnybrook Boyup Brook Road, Yabberup, Shire of Donnybrook-Balingup
Ownership: Old Valley Pty Ltd

Figure 1 is a recent aerial photograph showing the property and its surrounds. Figure 2 indicates the proposed operations areas covered by this application.

2.1 Land Use

The property is currently used as a vineyard. The extraction area will be rehabilitated back to pastures after completion of operations (Figure 1).

2.2 Geology and Soils

The underlying geology of a metamorphic/granitic rocks of the Yilgarin craton. In places, weathered granitic materials are overlain by ferruginous duricrust, massive to rubbly; includes iron-cemented reworked products. In some areas the laterite is covered by up to greater than a metre by sand and sandy loam ((GeoVIEW, 2022), (Dawe, 1998), (EPP, 2014)).

The excavation depth would be one metre below current ground level.

2.3 Nuisance Potential of materials

The crushed material texture is predominantly gravel with moderate amounts of sand and trace amounts of fines (clays and silts), with grain size distribution (ISO 14688-1) being approximately as follows:

Gravel (>2.0mm):	58%
Sand (0.063<2.0mm):	33%
Fines (Silt & Clay; <0.063mm):	9%

Although there will be some uplift of the finer particle component of this soil during stripping and stockpiling operations, this will be limited due to the low proportion of fines. During strong winds the potential exists for fine particles (including fine sand) to become airborne especially when they are disturbed by excavation activities.

In its in-situ state, the laterite is a cemented pisolitic material and has no loose fines. However, during the crushing operation very fine particles of less than PM50 (particulate matter with diameter 50 micrometres) are produced as fugitive dust and require suppression as is discussed in Section 4 below.

Whilst the analysis presented above does not determine the quantity of PM50 particles, it is estimated that the potential for total suspended particles (TSP) less than PM50 is approximately 7.5%. Mitigation measures are discussed in Section 4 below.

Potentially significant sources of airborne particulates from the site have been assessed as being limited to:

- Dust lift-off from exposed extraction areas or rehabilitated surfaces
- Dust lift-off from stockpiles (topsoil and extracted product)
- Dust lift-off from haul roads and tracks resulting from light vehicle and heavy earthmoving traffic
- Dust generation from crushing and screening processes, loading and transportation of extracted material.

The majority of airborne particulates from the site are likely to be visible dust.

Mitigation measures for the operations are discussed in Section 4 below.

2.4 Potentially Sensitive Receptors

The Environmental Protection Authority (EPA) draft Environmental Assessment Guidelines “Separation distances between Industrial and sensitive land uses” lists the generic buffer for extractive industries grinding and milling works but no blasting as 500 - 1 000m depending on the type of processing. As this operation would be considered to be a “low scale” operation, the minimum generic buffer would be likely to apply.

The details of the closest dwellings are presented in Table 1 along with locations shown on Figure 1.

Table 1: Aspects and Impacts of Dust Generating Activities

Reference No. on Figure 2	Lot no.	Distance to closest area of pit (metres)
Structure 1	144	330 NE
Structure 2	2482	450 W
Structure 3	800	460 N
Structure 4	3594	460 NE
Structure 5	11	530 NW
Structure 6	143	550 N
Structure 7	6	645 NE
Structure 8	1	840 W
Structure 9	539	860 N
Structure 10	74	930 NE

Four structures are within 500m from the closest point from the operation area. The nearest structure S1 is 330m from the closest point from the operation area.

2.5 Prevailing Winds

The nearest weather station to the property with wind speed data is Donnybrook. Wind speed data has been obtained for 9 am and 3 pm.

The wind speed and direction data in the drier months from October to March show that winds in this area are strongest in the afternoon, with prevailing winds predominantly from the west and north-west. Morning winds are predominantly from the east and south-east.

Wind roses for Donnybrook have been included in Annexures 1 and 2 (Bureau of Meteorology, 2022).

3. PROPOSED WORKS AND POTENTIAL IMPACTS

Westwall Holdings Pty Ltd intend to extract approximately 76,000 tonnes/year of gravel from the area indicated on Figure 2 in six approximately equal stages of approximately 6.3ha each. The total area to be disturbed is 38ha and excavation will proceed to a depth of approximately one metre. The EIL application is for 10 years.

3.1 Plant and Equipment to be used

Equipment to be used in these operations includes:

- D10 Bulldozer
- Large Front-End Loader (CAT 980 or equivalent)
- Striker 1320 Crusher
- Finlay Screen 693
- Striker 25m Stacker
- Single Semi-loader (26 tonnes)
- Road Train (55 tonnes)

3.2 Summary of Mining Actions

Table 2 provides a description of all activities, their duration, aspect and an assessment of potential for dust impacts.

Table 2: Aspects and Impacts of Dust Generating Activities

Activity	Duration	Aspect	Impact
Construction of internal driveway / access road	1 week	Actions may release dust into the atmosphere	Dust may create an amenity issue with nearby residents
Topsoil Stripping and stockpiling	Up to 1 week per annum in 6 stages.	Disturbance of grass and soil exposes ground to wind erosion	Dust may create an amenity issue with nearby residents
Rip and blade laterite to crusher site	Up to 3 weeks per annum in 6 stages.	Actions may release dust into the atmosphere	Fine red dust may create an amenity issue with nearby residents
Crushing, screening and stockpiling of gravel	Up to 4 weeks per annum in 6 stages.	Crushing and screening actions may release dust into the atmosphere	Fine red dust may create an amenity issue with nearby residents
Loading of trucks from stockpiles	10 years at a maximum of 17 loaded trucks per day.	Loading of gravel may release dust into the atmosphere	Fine red dust may create an amenity issue with nearby residents
Transport of gravel from site	10 years at a maximum of 17 loaded trucks per day.	Dust could escape from trucks in transit	Amenity, health or traffic safety issue
Rehabilitation of completed stages	Up to 2 weeks per year from 2023 onwards	Disturbance of topsoil could release dust into the atmosphere	Dust may create an amenity issue with nearby residents

3.3 Site Risk Assessment and Classification

Based on the risk assessment conducted (Annexure 3), the classification derived is “low risk” (Classification 2). Measures for managing dust impacts are discussed in Section 4 below.

4. MEASURES PROPOSED FOR MANAGING DUST

This report has identified the potential dust generating activities associated with the proposed development and has also identified the potentially sensitive receptors. The measures that are proposed to manage dust impacts are listed below:

- Activities likely to generate the most dust including construction of access roads, topsoil stripping and crushing and screen activities will be timed to occur in winter.

- A water cart will be on site during periods when the internal access road is being constructed, material is being moved or crushing is being conducted. When dust is caused to occur during these periods, the water cart will be employed to damp down the areas of concern.
- If necessary, loads will be dampened prior to loading/unloading.
- If dust can be seen to be carried outside The Site, the source of dust will be identified and measures implemented to prevent or minimise further dust emissions.
- If there are high winds and conditions are dusty, then operations will be stopped until such time as adequate wetting down has occurred or conditions have changed.
- Stockpiles will be located where lift-off from the prevailing wind is minimised. If necessary stockpiles will be treated with sprays or polymer binders.
- Handling of materials will be kept to a minimum.
- Internal roads will be surfaced with gravel. A 20km per hour speed limit will apply to trucks on these internal roads at all times.
- Truck loads will be covered for preventing dust generation in transit.
- Employees and contractors working on site will be provided with information on how to minimise dust emissions.
- No burning of waste will occur.
- A notice will be erected at the front gate that provides emergency contact details for the Operations Manager.
- A complaints system will be put in place and these will be recorded by the Operations Manager and acted on promptly.

Visual monitoring will be undertaken to confirm dust management measures are effectively maintaining dust emissions at acceptable levels.

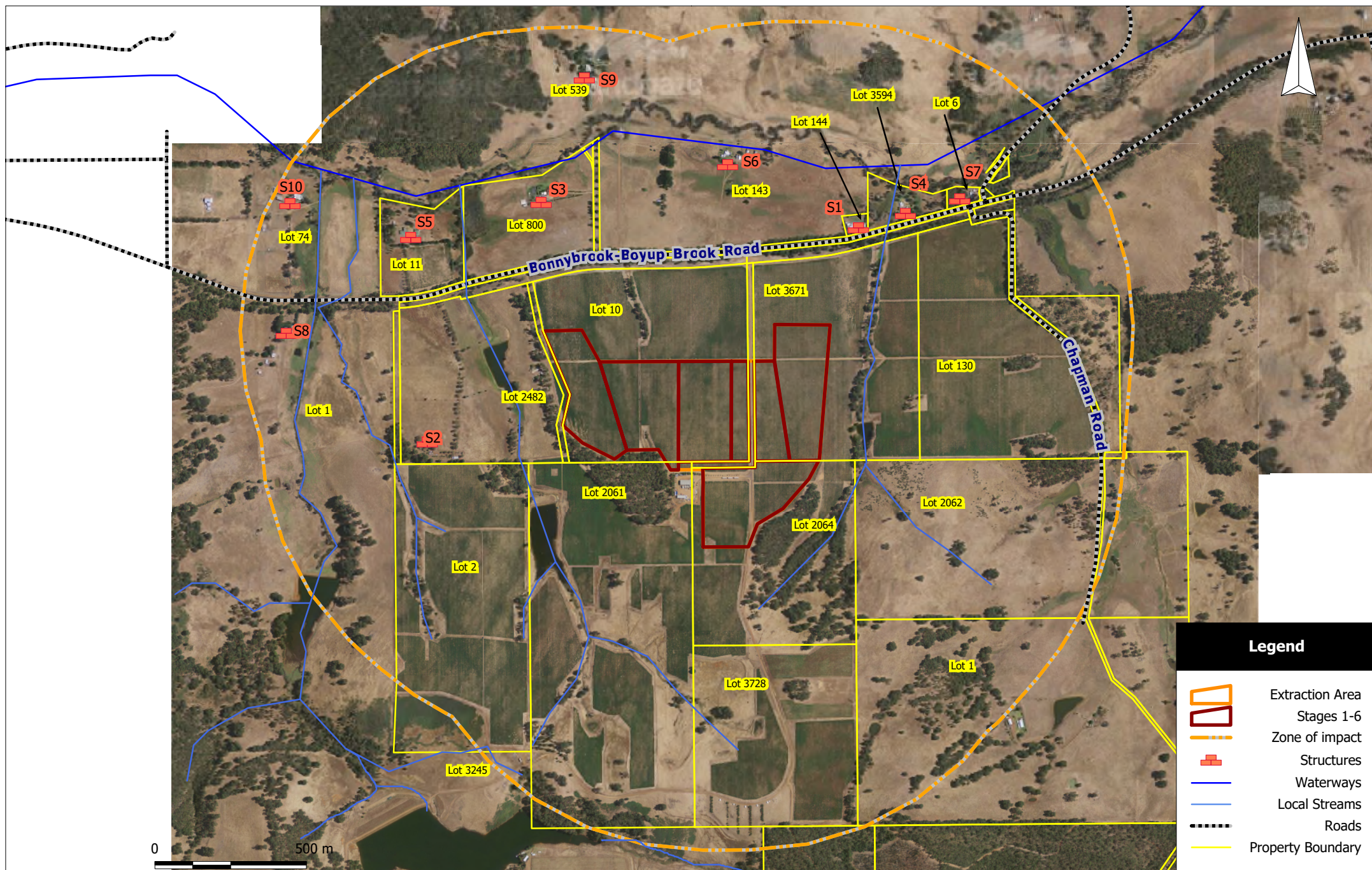
5. REFERENCES

Bureau of Meteorology (BOM) (2022). *Wind roses for Donnybrook*. Website: www.bom.gov.au

Department of Environment and Conservation (DEC) (2011). *A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities*.

Department of Agriculture, Water, and the Environment (DAWE) (1998). Assessment of Mineral and Hydrocarbon Resources in the South-West Forest Region of Western Australia. https://www.awe.gov.au/sites/default/files/sitecollectiondocuments/rfa/regions/wa/resources/wa_res_rfa.pdf
 Edge Planning and Property (EPP) (2014). Shire of Donnybrook-Balingup. Local Planning Strategy. <https://www.dplh.wa.gov.au/getmedia/dac64431-2c09-4e86-9a60-bb267ce6f71f/LST-Donnybrook-Balingup-local-planning-strategy>

FIGURES



**Lundstrom Environmental
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Scale: 1:16000
Original Size: A4
Air Photo Source: Landgate Feb 2017
Datum: GDA94
Projection: Australia MGA94 (50)

Client: Westwall Holdings
Project: Gravel Extraction
Location: 2038 Donnybrook Boyup Brook Road
Yabberup

Figure 1:
Site and Surrounds

ANNEXURE 1

Afternoon Wind Roses for Donnybrook

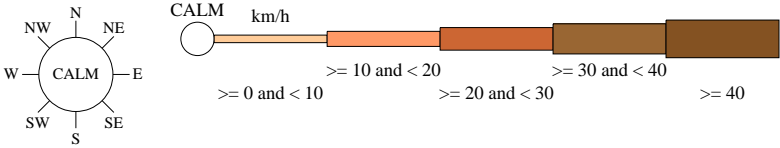
Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 10 Aug 2021)

Custom times selected, refer to attached note for details

DONNYBROOK

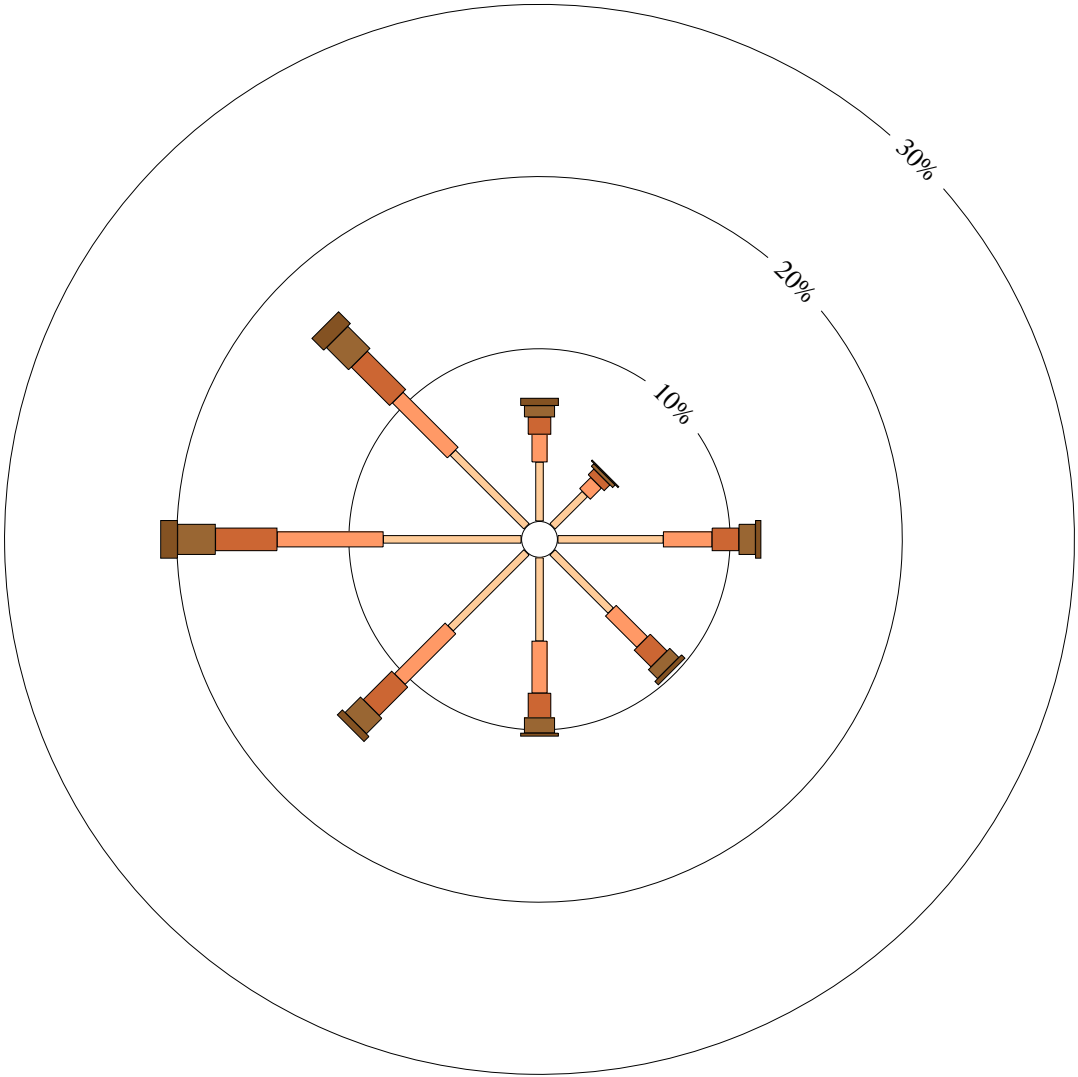
Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



3 pm
20359 Total Observations

Calm 5%



ANNEXURE 2

Morning Wind Roses for Donnybrook

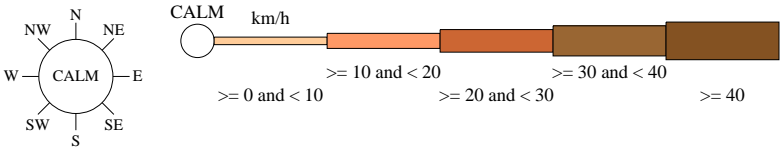
Rose of Wind direction versus Wind speed in km/h (01 Jan 1957 to 10 Aug 2021)

Custom times selected, refer to attached note for details

DONNYBROOK

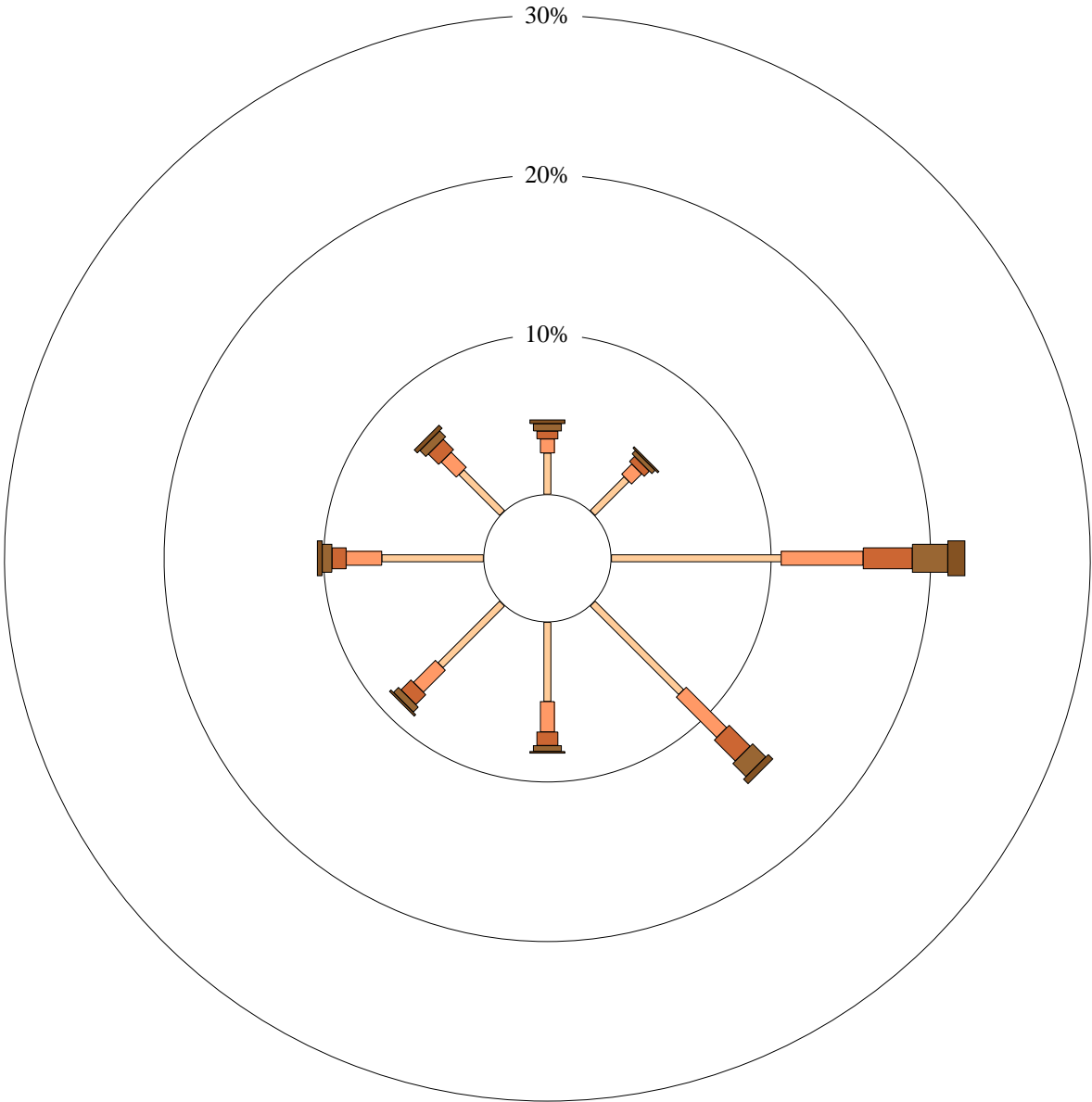
Site No: 009534 • Opened Jan 1900 • Still Open • Latitude: -33.5719° • Longitude: 115.8247° • Elevation 63m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



9 am
22826 Total Observations

Calm 20%



ANNEXURE 3

Site Classification Assessment Chart

Appendix 1: Site risk assessment/classification for activities generating uncontaminated dust

Sheet 1: Site classification assessment chart

Part A. Nature of site

Item	Score options				Allocated score
1. Nuisance potential of soil. when disturbed	Very low1	Low.....2	Medium.....4	High.....6	2
2. Topography and protection provided by undisturbed vegetation	Sheltered and screened.....1	Medium screening....6	Little screening.....12	Exposed and wind prone.....18	6
3. Area of site disturbed by the works	Less than 1ha.....1	Between 1 and 5ha..3	Between 5 and 10ha.....6	More than 10ha.....9	9
4. Type of work being done	Roads or shallow trenches.....1	Roads, drains and medium depth sewers.....3	Roads, drains, sewers and partial earthworks.....6	Bulk earthworks and deep trenches.....9	1
TOTAL score for Part A					18

Part B. Proximity of site to other land uses

Item	Score options				Allocated score
1. Distance of other land uses from site	More than 1km.....1	Between 1km and 500m.....6	Between 100m and 500m.....12	Less than 100m.....18	12
2. Effect of prevailing wind direction (at time of construction) on other land uses	Not affected.....1	Isolated land uses affected by one wind direction.....6	Dense land uses affected by one wind direction.....12	Dense/ sensitive land uses highly affected by prevailing winds.....18	6
TOTAL score for Part B					18

SITE CLASSIFICATION SCORE (A X B) = 324