

PART LOT 650 THOMAS ROAD, CASUARINA

ENVIRONMENTAL MANAGEMENT PLAN

Prepared for: Aigle Royal Developments

Report Date: 8 May 2017

Version: 1

Report No. 2017-323



pgv ENVIRONMENTAL

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1 INTRODUCTION

1.1 Background

Aigle Royal Developments is proposing to stockpile sand on part of Lot 605 Thomas Road, Casuarina in preparation for future development on the 'Urban' zoned land. The site is located 30km to the south of the Perth Central Business District (Figure 1). The proposal is being submitted as a Development Application to the City of Kwinana. The footprint of the proposed stockpile site is 5ha (Figure 2).

The stockpile site currently contains some native vegetation which will be required to be removed prior to the works. A Clearing Permit Application has been submitted for the works (Reference CPS xxx/1).

Clearing on Lot 605 and adjoining Lots 3 and 1199 has been assessed by the Department of the Environment and Energy (DotEE) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2016/7735) as 'Not a Controlled Action'.

1.2 Scope of Works

The Environmental Management Plan aims to manage environmental factors that may be impacted by the stockpiling operation and addresses the following items:

- A description of the vegetation type and condition, wetland and fauna values;
- Description of the clearing operations;
- Dust management protocols; and
- Stabilisation methods.

The Environmental Management Plan also addresses the City of Kwinana's Local Planning Policy 1: Landscape Feature and Tree Retention (LPP1) (CoK, 2016).

2 EXISTING ENVIRONMENT

2.1 Land Use

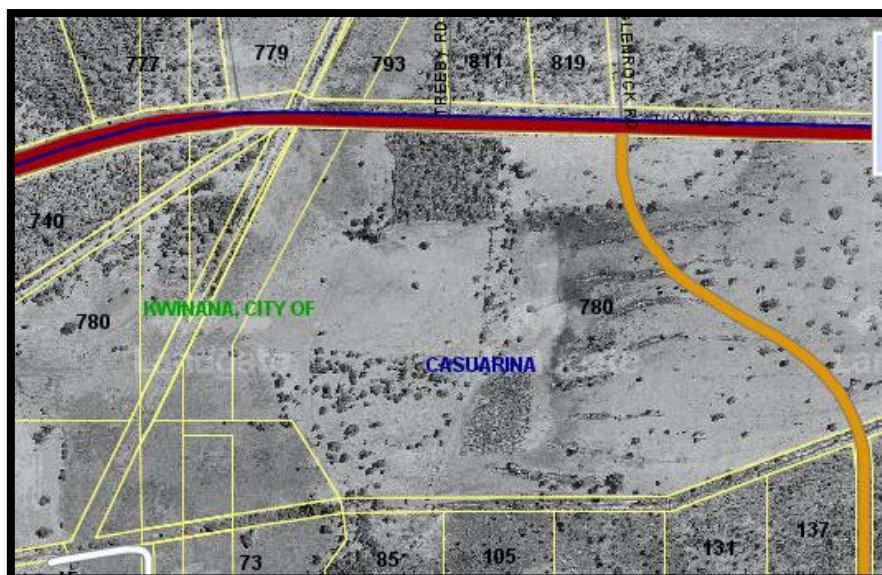
Approximately 3.2ha of the 5ha application area is currently completely cleared of native vegetation and was previously used for agricultural purposes. The native vegetation contains two distinct stands around 0.7ha and 1.1ha in size as well as some scattered native shrubs and trees (Figure 2). The site is no longer used for agricultural purposes. Some dumping of domestic rubbish has occurred on the site (Plate 1).

Plate 1: Dumping on the site



Aerial photography from 1965 shows that more of the site was cleared in earlier years. The eastern portion of native vegetation that exists now was nearly completely cleared in 1965 (Plate 2). The vegetation in this area has regenerated from the few remaining trees.

Plate 2: Aerial photography from 1965 (Landgate, 2017a).



The January 2008 aerial photography shows both vegetated areas were burnt (Plate 3).

Plate 3: Aerial photography from January 2008 (Landgate, 2017a).



2.2 Surrounding Land Use

The surrounding area of the proposed stockpile site is generally vacant cleared land with some isolated trees and shrubs. The nearest residence and therefore sensitive receptor is approximately 330m to the south.

2.3 Topography and Landscape Features

The LSP ARea is flat and is at 17m Australian Height Datum (AHD). There are no ridgelines or other topographical features that are unique or identifiable. The entire site is mapped as wetland, however the wetland is in a flat and has no distinguishing features such as a basin, surface water or wetland banks.

2.4 Geology and Soils

The site is mapped as part of the Bassendean System, the oldest of the three dune systems on the Swan Coastal Plain (Bolland, 1998). The major soils are naturally poorly drained (Table 1).

Table 1: Soil descriptions

| Soil Type | Description |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bassendean B6 Phase (212Bs_B6) | Imperfectly drained sandplain and broad extremely low rises. Deep or very deep grey siliceous sands. |
| Bassendean B3 Phase (212Bs_B3) | Closed depressions and poorly defined stream channels. Poorly to very poorly drained. Moderately deep, bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam |

2.5 Hydrology

2.5.1 Groundwater

The proposed stockpile site has groundwater approximately 3m below ground level at 14mAHD (DoW, 2017). Groundwater flows from the east to the west (DoW, 2017).

2.5.2 Surface Water

There are no watercourses passing through the site.

2.5.3 Wetlands

The proposed stockpile area is all mapped as wetland according to the Geomorphic Wetlands of the Swan Coastal Plain database (Landgate, 2017b). The north-west and south-east are mapped as parts of two Multiple Use Damplands (Unique Feature Identifier (UFI) 15937 and 15938). The central vegetated part of the site is mapped as a Resource Enhancement Dampland (UFI 6667) (Landgate, 2017b). A dampland is defined as a 'seasonally waterlogged' wetland and does not contain any above ground water in an average rainfall year (Hill *et al.*, 1996).

2.6 Vegetation

2.6.1 Vegetation Complex

The 1.8ha of vegetation on the site is part of the Bassendean – Central and South vegetation complex which has approximately 27% of the original extent remaining on the Swan Coastal Plain and is therefore not regionally significant in the Perth Metropolitan Region.

2.6.2 Vegetation Type

Two stands of native vegetation occur in the area. The larger stand of around 1.1ha in the north-east part contains a Flooded Gum (*Eucalyptus rudis*) woodland over a weedy understorey (Plate 1). A flora survey of the area by Bennett Environmental Consulting in spring 2012 identified only four native species in the whole stand (Bennett Consulting, 2012). The main weed species present were *Lotus subbiflorus*, *Carpobrotus edulis* and *Romulea rosea*. Most of the Flooded Gum trees are thin, and at a relatively high density indicating regeneration from past disturbance. The area was burnt in the summer of 2007/08.

The smaller stand of around 0.6ha in the south-west part of the area contains a dense *Melaleuca raphiophylla* Closed Tall Scrub with *Melaleuca teretifolia* also common in part. Bennett only recorded three native species in this stand and an abundance of weeds.

The native vegetation is too degraded to accurately assign a Floristic Community Type. However, it is likely to be representative of FCT 11 'Wet Forests and Woodlands' which is not a Threatened or Priority Ecological Community.

2.6.3 Vegetation Condition

The native vegetation was rated as Good-Degraded in 2012 (GHD, 2012 and Bennett Consulting, 2012). Evaluation of the site by PGV Environmental in 2016 confirmed the rating as accurate.

2.7 Flora

No Threatened or Priority flora species have been recorded on Lot 650 (GHD, 2012 and Bennett Consulting, 2012).

2.8 Significant Trees

LPP1 defines a significant tree as one that has a diameter at breast height of greater than 50cm. The proposed stockpiling area has been partially cleared in the past and then more recently burnt (Plate 3). There are less than 10 Flooded Gums that meet the 50cm diameter criteria and those that do have been damaged by fire and would not be recommended to be retained.

The trees were rated according to the following characteristics that the City of Kwinana uses to prioritise the retention of significant trees. The trees are:

- Not located in a prominent position;
- Do not provide habitat and support to a threatened or endangered species; and
- Are not identified as culturally significant.

Therefore under the LPP the trees are not a priority for retention.

2.9 Fauna

The previous clearing and fragmented native vegetation that has been impacted by degrading processes is considered to be low value fauna habitat and is likely to contain a highly-modified fauna assemblage. The stands of Flooded Gum and Paperbark do not provide habitat for threatened fauna species.

2.10 Phytophthora Dieback

The *Common Indicator Species for the Presence of Disease caused by Phytophthora cinnamomi* list compiled by the Department of Parks and Wildlife (DPaW, 2013) (then the Department of Environment and Conservation, DEC) gives a number of species that are impacted by *Phytophthora* Dieback. The proposed stockpile site does not have indicator species present and is considered to be 'Uninterpretable'.

3 ENVIRONMENTAL MANAGEMENT PLAN

3.1 Site access

The site will have a controlled perimeter and will be fenced. Truck access to the stockpile area will be from the east off Bombay Boulevard.

3.2 Rubbish Removal

Prior to clearing the rubbish located on the site will be cleared. The rubbish will be disposed of will be as per all relevant legislation and protocols.

3.3 Contamination

The site is not known to be contaminated, however there is dumped domestic rubbish which will be removed at the start of the operation. Caution should be used if there are any drums, car batteries or material that may be asbestos or other identified rubbish that is considered to present a risk. If during clearing potentially hazardous waste is encountered the management of the waste will be as per all relevant legislation and protocols.

3.4 Landscape Feature and Tree Retention Plan

In accordance with the City of Kwinana's Local Planning Policy 1: Landscape Feature and Tree Retention (LPP1) the site was examined; however, no suitable trees or landscape features have been identified for retention. The construction and stockpiling will result in the vegetation being cleared and the wetlands filled. There will be no impact of the stockpiling on any significant landscape features.

3.5 Native Vegetation

3.5.1 Flagging

Prior to the commencement of stockpiling, the proposed footprint will be accurately surveyed, pegged and flagged. Prior to any clearing activities the site supervisor and clearing manager will induct all clearing contractors on the site showing the extent of clearing and providing information regarding the importance of clearing within the prescribed footprint only.

3.5.2 Monitoring and Contingencies

The boundary of the footprint will be inspected every 6 months to ensure there is no damage to the vegetation outside the clearing permit area. If vegetation is impacted outside of the footprint, the matter will be reported to the Supervisor, and corrective action taken to ensure no repeat instances. Any area(s) impacted may be subsequently replanted.

3.6 Clearing of Native Vegetation

The Supervisor will require contractors and subcontractors to adhere to the following clearing procedures within the development area:

- Native vegetation to be cleared will be removed in a systematic manner and stockpiled on-site for mulching and/or chipping for later use.
- Cleared areas will be temporarily stabilised with water, hydro-mulch or other stabilising material as necessary until further works are implemented.
- No burning of cleared vegetation will be permitted at any stage during clearing or stockpiling activities.

3.7 Weed Management

Bare, open stockpiles and areas ready for future stockpiles provide a space within which weed recruitment will occur. Bare areas will be inspected six monthly for the presence of weeds declared under the *Biosecurity Agriculture Management Act, 2007* (BAM Act) until the construction of the urban development commences. Any Declared weeds will be removed from the site.

3.8 Fauna

3.8.1 Relocation Program

Birds will fly away to other nearby vegetation as soon as clearing commences. A one day systematic active search will be undertaken in the native vegetation on the site for reptile species by a suitably qualified zoologist prior to any clearing. The search for reptiles will occur as close to the planned clearing date as possible to minimise the chance of reintroduction from surrounding areas. Active searching would include digging out holes, removing bark from logs and trees, and sorting through leaf litter with rakes. Any reptiles caught during the search will be conducted under the appropriate DPaW licence. The reptiles will be relocated as directed by the licence conditions. The location selected by DPaW is usually an appropriate DPaW-managed nature reserve.

3.8.2 Clearing Procedure

To avoid any inadvertent impacts on native fauna during clearing operations the Site Supervisor/Superintendent will require contractors and nominated subcontractors to adhere to 'fauna friendly' clearing procedures. Any tall trees to be cleared will require machine operators to bump or shake the tree to be cleared before removal to allow fauna to relocate. If native fauna is encountered during clearing it will be allowed to make its own way from the works area. If this is not possible, a relevant specialist (e.g. zoologist) will be contracted to remove it.

If any injured wildlife fauna are encountered on the site the Contractor will contact the DPaW's Wild Care 24 hour hotline on (08) 9474 9055 or a local veterinary hospital so that arrangements can be made for the welfare of the injured animal.

3.9 Dieback

The site is currently 'Uninterpretable' for dieback disease presence. The spread of *Phytophthora* Dieback is more prevalent in the winter months when the soil is wet and overland flows can spread the disease quickly. To avoid the spread of dieback from vehicle movement on site. Timing for the proposed clearing and preparing the stockpiling area will be in drier months.

3.10 Dust Management

3.10.1 Site Classification

The native soil and stockpiled sand were considered when evaluated in accordance with the *A Guideline for Managing the Impacts of Dust and Associated Contaminants from Land Development Sites, Contaminated Sites Remediation and other Related Activities* (DEC, 2011). The Site Classification Assessment Chart for Uncontaminated Dust (Appendix 1) results in the stockpiling to be graded as Classification 1.

3.10.2 Requirements

In accordance with the *Land Development Sites and Impacts on Air Quality - A Guideline for the Prevention of Dust and Smoke Pollution from Land Development Sites in Western Australia* (DEC, 2011) there are no requirements provisions or contingency arrangements for the management of dust.

3.10.3 Dust Minimisation

Dust minimisation will include:

- Laying down limestone for the track into the site from Bombay Boulevard;
- Treatment of stockpiles with hydro-mulch or chip mulch to stabilise the surface; and
- Ensuring all loads entering the site are covered.

3.11 Erosion and Sedimentation

All stockpiles will be stabilised as soon as possible with hydro mulch or chip mulch. Stabilisation will also minimise water erosion and sand washed into the outside of the stockpiling footprint.

3.12 Hours of Operation

The working hours on site will be in daylight from 07:00 to 17:30, Monday to Saturday.

3.13 Induction

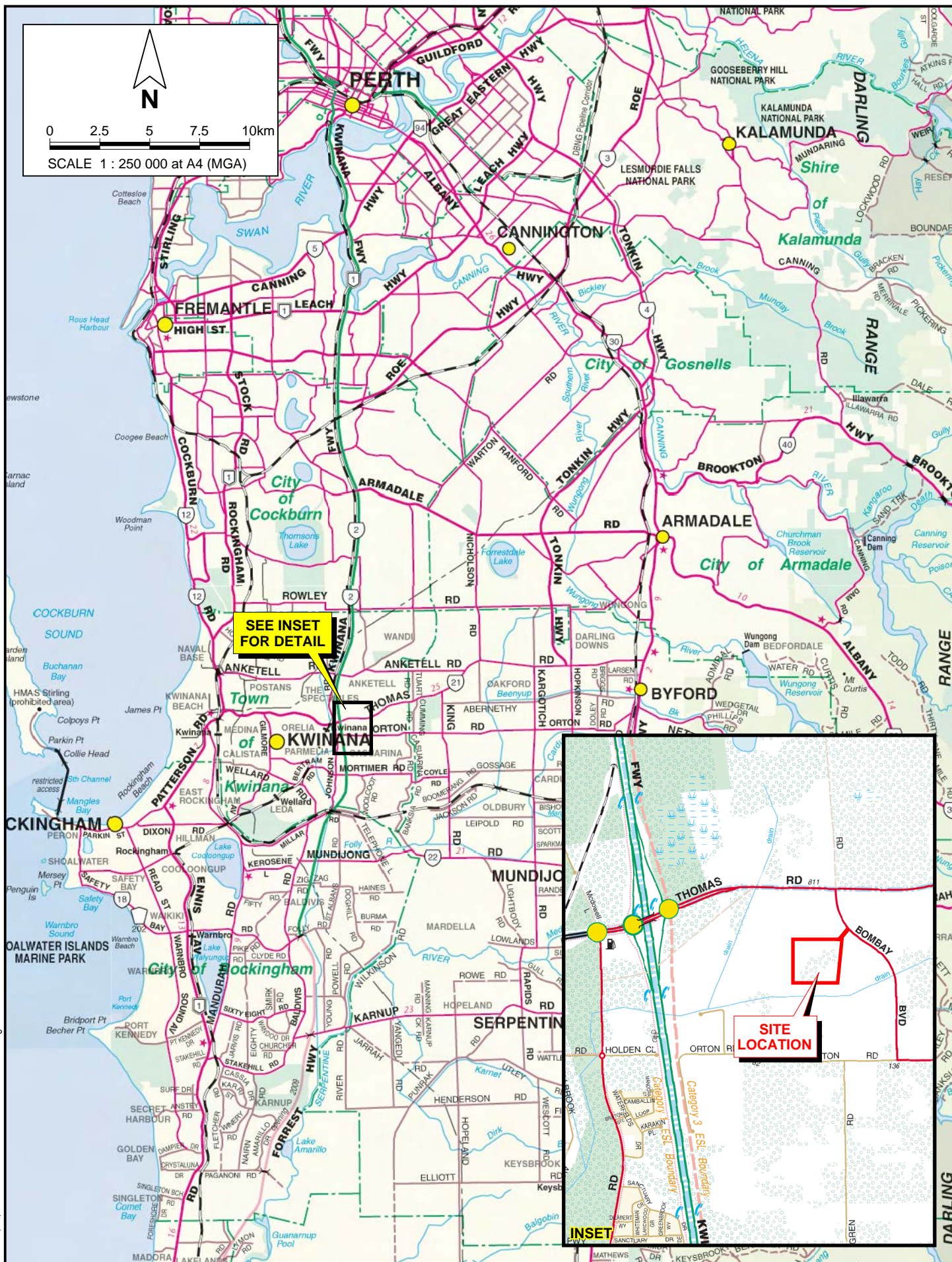
The Environmental Management Plan will be supplied by the Construction Superintendent to contractors on the site and the induction will address all management procedures and requirements outlined in this plan.

All proposed employees and contractors shall be made aware, through a site induction process, of this document and its implications for their duties.

4 REFERENCES

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- Bolland, M. (1998) *Soils of the Swan Coastal Plain*. Department of Agriculture. Bunbury, Western Australia.
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- Hill, A.L., Semeniuk, C.A., Semeniuk, V. and Del Marco, A. (1996) Wetlands of the Swan Coastal Plain. Vol. 2A Wetland Mapping, Classification and Evaluation Main Report. Perth, Western Australia.
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- Landgate (2017b) WA Atlas Shared Land Information Platform. Accessed May 2017 <https://www2.landgate.wa.gov.au/bmvf/app/waatlas/> Government of Western Australia, Perth.

FIGURES



pgv ENVIRONMENTAL

Aigle Royal
ENVIRONMENTAL MANAGEMENT PLAN
PART LOT 650 THOMAS ROAD CASUARINA

Drawn: J. Cabot

Date: 16 Nov 2018

Job: 10247 Rpt: 2017-323

Revision: A

SITE LOCATION

Figure 1



Legend

- Site Boundary
- Former Lot 650 Boundary
- Cadastral Boundary
- - - Easement Boundary

N

0 25 50 75 100m

SCALE 1 : 3 500 at A3 (MGA)

2017-323-102.dgn
PINPOINT CARTOGRAPHICS (08) 9562 7136

CADASTRAL SOURCE: Landgate, November 2018.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown November 2018.

| | | | |
|--------------------------|--|------------------------------------------------------------------------------------|--|
| | | Aigle Royal ENVIRONMENTAL MANAGEMENT PLAN PART LOT 650 THOMAS ROAD CASUARINA | |
| Drawn: J. Cabot | | Date: 16 Nov 2018 | |
| Job: 10247 Rpt: 2017-323 | | Revision: A | |
| | | SITE BOUNDARY | |

Figure 2

APPENDIX 1

Site Classification Assessment Chart for Uncontaminated Dust

ADDENDUM

The Department of Environment and Conservation (DEC) released an updated dust guideline in January 2011, “*A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities, January 2011*”. An error was identified in Appendix 1 on page 35. This error has since been corrected (See below). This document is the corrected version published in March 2011.

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 low.....1 | Low.....2 | Medium.....4 | High.....6 | 1 |
| 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 | 3 |
| 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 | 9 |
| TOTAL score for Part A | | | | | 19 |

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 | 1 |
| 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.....9 | Dense/sensitive land uses highly affected by prevailing winds.....12 | 6 |
| TOTAL score for Part B | | | | | 7 |

| |
|-----------------------------------------|
| SITE CLASSIFICATION SCORE (A X B) = 133 |
|-----------------------------------------|