Lot 811, 233 Drumpellier Drive, Whiteman

Home Fire Creative Industries

Native Vegetation Clearing Permit Supporting Document

150877 | 63168

8 June 2023

We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.

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1. Introduction

Home Fire Creative Industries Pty Ltd are proposing to develop a screen production facility within the western portion of Lot 811, 233 Drumpellier Drive, Whiteman (the Malaga site; Development envelope; Figure 1.1).

The site forms part of the broader Whiteman Park area within the City of Swan and comprises predominately cleared grassland with remnant scattered trees.

The screen production facility (the Project) is approximately 17.1 ha in size and comprises sound stages, a workshop, car park, back lot and offices.

The site is reserved as 'Parks and Recreation' under the Metropolitan Region Scheme (MRS) with the broader Lot 811 identified as a Planning Investigation Area as part of the Perth and Peel @ 3.5 Million North-East sub-regional planning framework (WAPC 2018). A minor amendment to the MRS was initiated by the WAPC on 29 March 2023, to rezone the site to Public Purposes – Special Use. The proposed amendment was pre-referred to a number of State Government agencies, including DWER, with no objections raised.

1.1 Project background

This report has been prepared by JBS&G Pty Ltd on behalf of the Department of Local Government, Sports and Cultural Industries (DLGSCI) c/- the proponent being Home Fire Creative Industries (hereafter referred to as 'Home Fire').

In August 2020, the State Government through the DLSCG called for innovative solutions for the location, development, and operation of a Screen Production Facility, comprising sound stages and ancillary facilities, with Home Fire subsequently been invited to Stage 3 of the Market Led Proposal (MLP) process to negotiate and finalise its offer to the State.

Given the current status of the project, Home Fire is now progressing in consultation and negotiation with the State, regulatory authorities, and key stakeholders; investigations on-site, detailed design, development approvals, with the reclassification of the existing wetlands being a key item to be resolved prior to lodgement of the Development Application in March 2023.

State agencies involved in the State project team include:

- Market Led Proposals - Department of Planning Lands Heritage;
- Client Agency – Department of Local Government Sport and Cultural Industries;
- Delivery Agency – Department of Finance;
- Other State Agencies involved – Treasury, State Solicitors Office (SSO); and
- Key Stakeholder – Screenwest.

The objective of this project is to deliver and operate a globally competitive film and television studio within Western Australia. The project is largely driven by an identified gap of studio infrastructure, where without adequate studio infrastructure Western Australia will continue to miss out on significant screen production and the associated spending that drives economic growth and employment. Malaga has been selected as the preferred site for the studio due to a number of technical efficiencies relating to layout, functionality, access and proximity to infrastructure. The Screen Production Facility layout proposed for Malaga will include a range of sound stages, production offices, construction workshops, office space and supporting amenities.

Overall, the Screen Production Facility will be a state-of-the-art facility, which will underpin the growth of Western Australia's film and creative industries. The Screen Production Facility will be an asset for the emerging Malaga precinct, bringing status and employment opportunities, whilst supporting the transition and repurposing of the area associated with the delivery of the METRONET Malaga Station currently under construction.

1.2 Purpose and scope

This document has been prepared to support the Native Vegetation Clearing permit application for assessment under the *Environmental Protection Act 1986* (EP Act) and includes the following information relating to clearing areas:

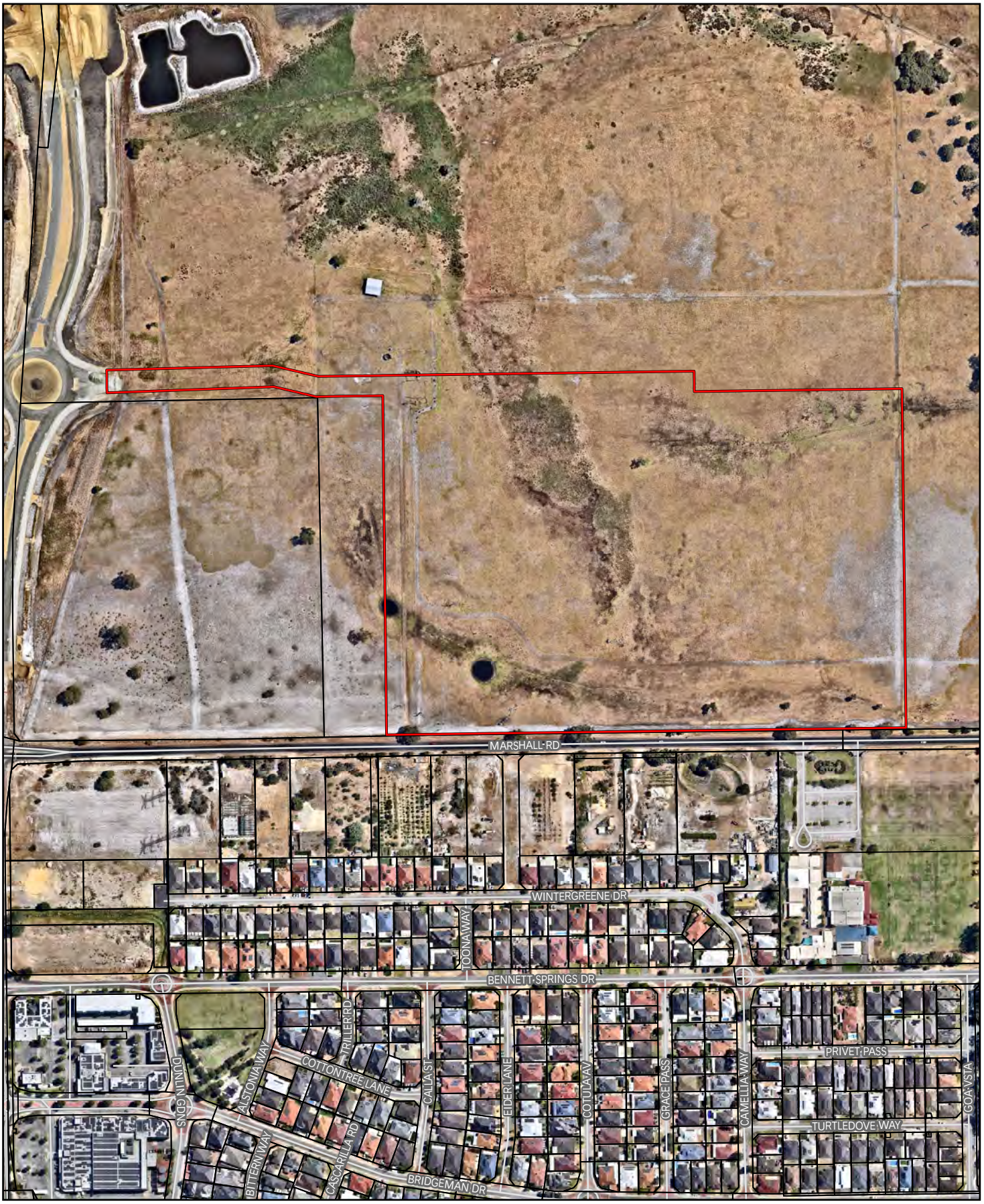
- An overview of the existing environmental conditions and values of the areas;
- An evaluation of the proposed clearing against the 'Ten Clearing Principles' listed under Schedule 5 of the EP Act; and
- Environmental approvals and management requirements.

1.3 Location, ownership and tenure

Site identification details for the proposed clearing area are provided in Table 1.

Table 1: Site identification details

Subject	Detail
Lot address	Part Lot 811, 233 Drumpellier Drive, Whiteman
Common name of site	The Malaga Site
Current site owner	WAPC
Local Government Authority	City of Swan
Current MRS Zoning	Parks and Recreation



Legend

- Development envelope
- Cadastral boundary
- Major road
- Minor road

Scale: 1:5,000 at A4

0 25 50
metres

Coord. Sys. GDA2020 MGA Zone 50

Job Number: 63168

Client: Hesperia Property Pty Ltd

Version: A | Date: 07-Jun-2023

Drawn By: jcrute | Checked By: RM

Part lot 811, 823 Drumpellier Drive Whiteman, WA

THE SITE

FIGURE 1.1

JBS&G

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2. Existing Environment

2.1 Land use

The Malaga site forms part of the broader Whiteman Park area within the City of Swan. It is approximately 17.1 ha in size, comprising predominately cleared grassland with remnant scattered trees.

The earliest aerial imagery available of the site is from 1953 and shows that the site was extensively cleared for agriculture activities before this time (Landgate 2022).

Surrounding land use to the site include:

- grasslands and native vegetated areas as part of the broader Whiteman Park to the north and east,
- bound to the south by Marshall Rd, beyond which were light commercial/industrial style properties (i.e., sports facilities, recycling centre) then low-density residential dwellings to the south;
- Lot 13 Marshall Rd is directly west of the southern site portion of the site, beyond which is Beechboro Rd and a place of worship; and
- construction activities associated with the proposed METRONET Malaga Station and Malaga to Ellenbrook Rail works to the west and north.

2.2 Topography, geology and soils

Regional topographic mapping indicates that the site is relatively flat and low, with gently declining land from the west to the east with elevation ranging from 28 m Australian Height Datum (AHD) in the west to 24 m AHD in the east (Figure 2.1). The regional topography appeared to slope gently down to the east, towards Bennett Brook situated approximately 1.8 km from the site.

The site is located within the Perth Swan Coastal Plain 2 (SWA 2) subregion of Western Australia, as defined by the Interim Biogeographic Regionalisation for Australia (Mitchell et al. 2002). Beard (1990) describes the Swan Coastal Plain as a low-lying coastal plain, often swampy, with sandhills also containing dissected country rising to the duricrust Dandaragan plateau on Mesozoic, mainly sandy, yellow soils.

The Swan Coastal Plain comprises five major geomorphologic systems that lie parallel to the coast, the Quindalup Dunes, Spearwood Dunes, Bassendean Dunes, Pinjarra Plain and Ridge Hill Shelf (Churchward & McArthur 1980; Gibson et al. 1994). Each major system is further subdivided into detailed geomorphologic units (Churchward & McArthur 1980; Semeniuk 1990; Gibson et al. 1994). The subject site lies within the Bassendean Dunes system, characterised by sand dunes and sand plains comprising swamps and flats on sandy alluvium over sedimentary rocks (DPIRD 2018). The soils of this system typically have low fertility and are susceptible to leaching, consist of pale deep sand, semi-wet soil and wet soil (Safstrom and Short 2012). The site is located within the Bassendean soil and landform system and overlies the following subsystems (Figure 2.1).

- 212Bs Ja: Low dunes with minor slopes (< 10% with more than 5 m relief); grey sand over pale yellow sands generally underlain by humic and iron podsols; *Banksia* spp. low open woodland with a dense shrub layer; and
- 212Bs Ya: Flat, poorly drained complex landscape; soils include shallow sand over limestone or ferruginous pan, deep leached sand, and saline soils; dense *Melaleuca* spp. along drainage lines.

Regional surface geological mapping Figure 2.1) indicates the Project area contains four soil types, Described as:

- Swamp deposits Peaty Clay (Cps): dark grey and black with variable sand content of lacustrine origin,

- Bassendean Sands (S8): white to pale grey at surface, yellow at depth, fine to medium grained, moderately sorted, subangular to subrounded, minor heavy minerals, of eolian origin,
- Bassendean Sands over Guildford Formation (S10): Sands as described above occur over sandy clay to clayey sand of the Guildford Formation, of eolian origin, and
- Guildford Formation Pebbly Silt (Mgs1): strong brown silt with common, fine to occasionally coarse grained, sub-rounded laterite quartz heavily weather granite pebble, some fine to medium-grained quartz sand of alluvial origin.

2.3 Acid Sulfate soils

Acid Sulfate Soils (ASS) are naturally occurring, iron-sulphide rich soils, sediments, or organic substrates, formed under waterlogged conditions. If exposed to air, these sulphides can oxidise and release sulphuric acid and heavy metals. This process can occur due to drainage, dewatering or excavation.

The risk of Acid Sulfate Soils (ASS) occurring within the Project area was assessed through analysing the ASS risk mapping available from the Department of Water and Environmental Regulation (DWER 2017). According to DWER (2017) portions of the site is classed as having a 'moderate to low risk' of ASS occurring within 3 m of the natural soil surface (Figure 2.2).

2.4 Hydrology

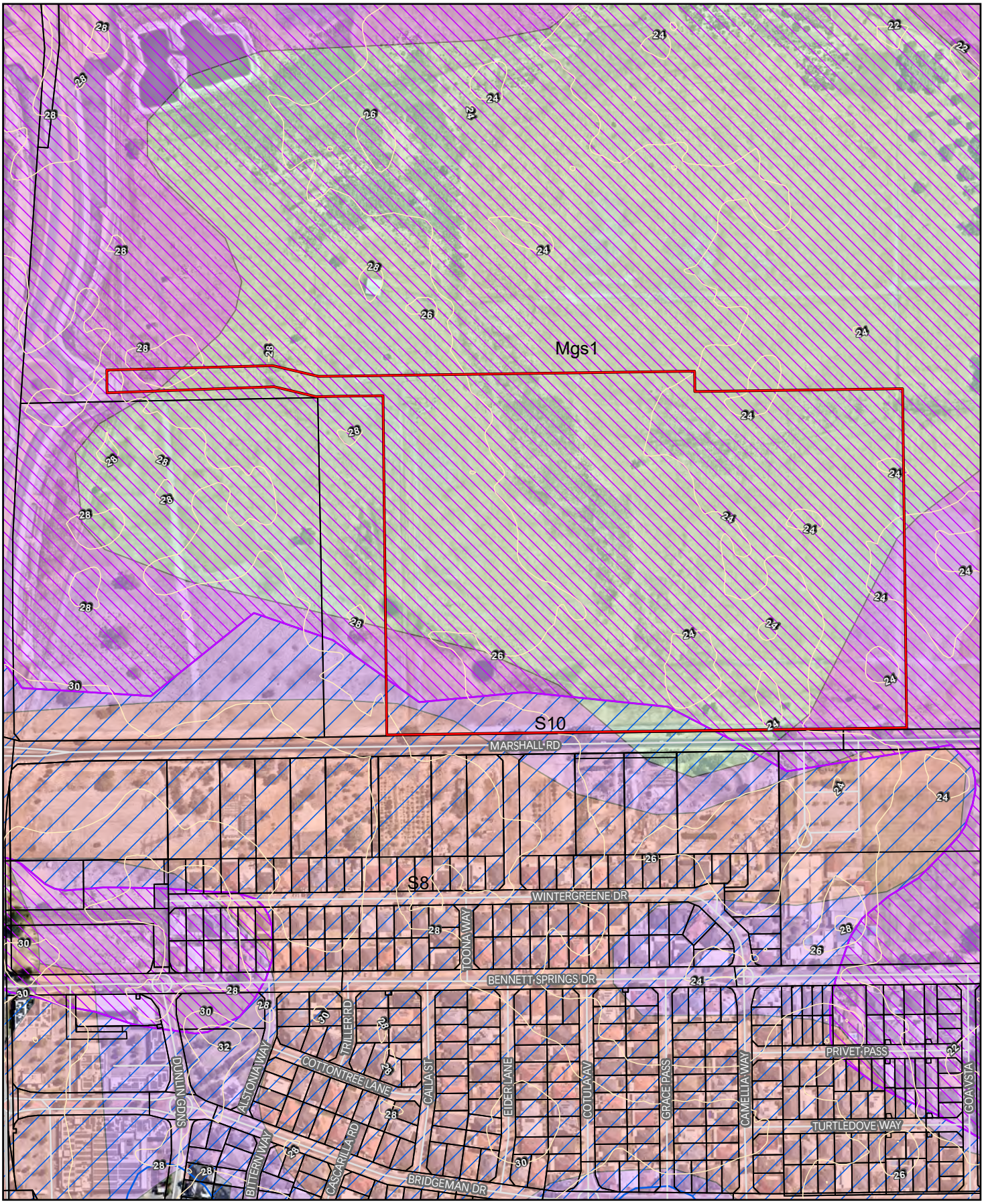
2.4.1 Groundwater

A review of regional groundwater contours across the site indicates minimum groundwater levels range between 30 m AHD in the north-west corner of the site to 23.5 m AHD in the southeast corner, with a general flow direction southeast. Maximum groundwater levels range from 30 m AHD to 24 m AHD with a general easterly flow direction (Figure 2.3). Hyd2o installed three bores (HM1-HM3) within the site in March 2022. These bores were used together with seven existing bores within the site and on adjacent land to refine groundwater mapping. Refined groundwater contours from these bores show the site AAMGL ranging from 27.5 mAHD in the west of the site to 23.5 mAHD along its eastern boundary. Groundwater is therefore likely to be at the surface during winter periods across large parts of the site, and within 3 m of the surface throughout the year.

The majority of the site comprises swamp and lacustrine deposits comprising peat, peaty sand and clay, with a drainage potential that has been identified as very poor to poor and as having a water logging risk of moderate to very high (DWER 2022).

2.4.2 Public drinking water source area

The Site does not lie within a Public Drinking Water Source Area; however, the Priority 1 Gnangara Underground Water Pollution Control Area (Figure 2.3) is located 800 m northwest of the site boundary.



Legend

- Development envelope
- Cadastral boundary

Surface geology (DMP)

- Mgs1
- S10
- S8

Soil Landscape Units (DPIRD)

- 212Bs__Ja
- 212Bs__Ya

- Topographic contours (mAHD)
- Major road
- Minor road

Scale: 1:5,000 at A4 (0 25 50 metres)		**Part lot 811, 823 Drumpellier Drive Whiteman, WA**
Coord. Sys. GDA2020 MGA Zone 50		**TOPOGRAPHY, GEOLOGY AND SOILS**
Job Number: 63168		
Client: Hesperia Property Pty Ltd		**FIGURE 2.1**
Version: A	Date: 07-Jun-2023	JBS&G
Drawn By: jcrute	Checked By: RM	

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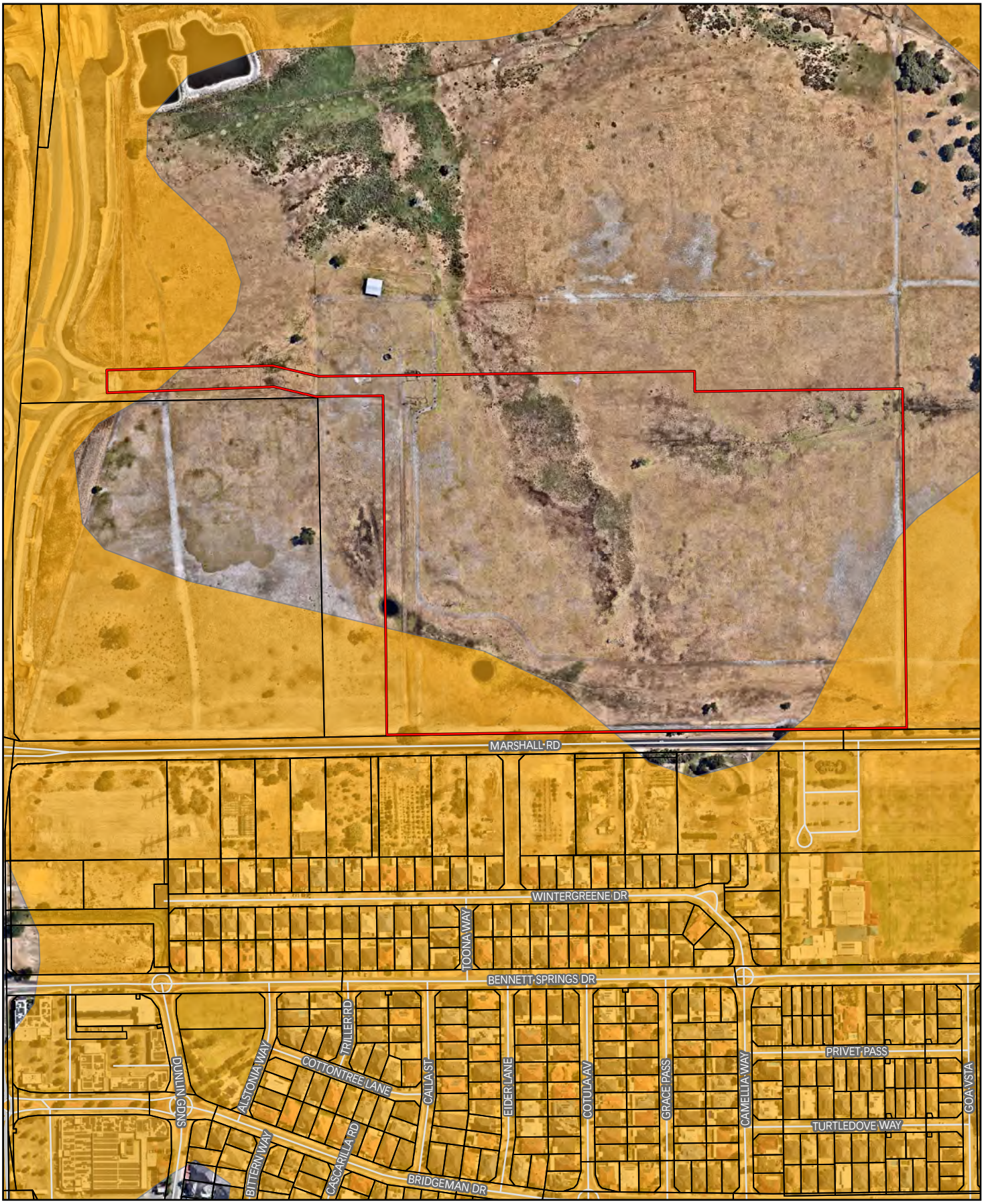

Legend

- Development envelope
- Cadastral boundary

Acid sulfate soil (DWER)

- Moderate to low risk
- Major road
- Minor road

Scale: 1:5,000 at A4 (0 25 50 metres)		**Part lot 811, 823 Drumpellier Drive Whiteman, WA**
Coord. Sys. GDA2020 MGA Zone 50		**ACID SULFATE SOILS**
Job Number: 63168		
Client: Hesperia Property Pty Ltd		**FIGURE 2.2**
Version: A	Date: 07-Jun-2023	JBS&G
Drawn By: jcrute	Checked By: RM	

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Image Reference: www.nearmap.com© - Imagery Date: 26 February 2023.

Legend

- Development envelope
- Cadastral boundary
- Groundwater contours (max)
- Groundwater contours (min)
- Major road
- Minor road
- DWER registered bores

Scale: 1:5,000 at A4 (0 25 50 metres)	**Part lot 811, 823 Drumpellier Drive Whiteman, WA**
Coord. Sys. GDA2020 MGA Zone 50	**GROUNDWATER FEATURES**
Job Number: 63168	
Client: Hesperia Property Pty Ltd	**FIGURE 2.3**
Version: A / Date: 07-Jun-2023	JBS&G
Drawn By: jcrute / Checked By: RM	

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2.4.3 Surface water and wetlands

Surface water

There is no mapped watercourse across the site.

The site is within the Swan-Avon – Lower Swan regional catchment and the western sub-catchment cover area. The western sub-catchment features generally flat ground with undefined flow paths and some artificial drains extending to Bennett Brook. Bennett Brook (UFI 15259) is a 17 km long watercourse that is the dominant surface water feature that occurs 1.8 km east of the site. Its headwaters originate in Whiteman Park, where it is fed by several tributaries that are generally considered to be ephemeral and flow in response to groundwater seepage from the Gnangara groundwater mound. The system has been significantly modified over the years as a result of agricultural land use, modifications to drainage lines, groundwater abstraction at its headwaters and increased flow in the south and east due to increased runoff from urban development.

There are two surface dams located in the southwest corner of the site. The primary use for these dams appears to be as watering holes for cattle (Figure 2.4).

As most of the site has been cleared for cattle grazing, drains and dams appear to have been installed to facilitate this use.

Wetlands

Wetlands within the Swan Coastal Plain are protected and managed by the management category assigned by Department of Biodiversity, Conservation and Attractions (DBCA), as per the existing wetland management methodologies (DBCA 2017). These management categories and their objectives are outlined in Table 2.

Table 2: Wetland management categories and management objectives

Category	Objective (DBCA 2017)
Conservation (C Category) Wetlands	To preserve wetland (natural) attributes and functions. No development or clearing that may lead to further loss or degradation is considered appropriate.
Resource Enhancement (R Category) Wetland	To manage, restore and protect wetlands with the aim of improving their conservation value and hydrological regime, through maintenance and enhancement of wetland functions and attributes.
Multiple Use (M Category) Wetland	To use, develop and manage wetlands in the context of ecologically sustainable development and best practice catchment planning.

Conservation Category Wetlands (CCWs) are regarded the highest priority wetlands and are described as those that support a high level of attributes and functions. There are no wetlands classified as CCWs present on the site (EPA 2008).

Resource Enhancement Wetlands (REWs) are wetlands which may have been partially modified but still support substantial ecological attributes and functions. Potentially, these wetlands can be restored, improving the wetlands' function, structure, and biodiversity. Protection of REWs is recommended (EPA 2008).

Multiple Use Wetlands (MUWs) are the lowest management category assigned to wetlands by the DWER, and are generally considered appropriate for development, provided the hydrological regime is not disturbed (EPA 2008).

DBCA geomorphic wetlands database indicates that the entire site comprises a portion of a larger REW (UFI 15752; Figure 2.5), with several other wetlands within close proximity to the site including MUW UFI 15751 adjacent to the southwestern boundary and CCW UFI 8429 approximately 250m to the northwest.

The REW is described as palusplain, a seasonally waterlogged, flat wetland typical of the duplex and sandy soils found on the Bassendean and Pinjarra Plain soil systems that are typical toward the eastern portion of the Swan Coastal Plain.

Wetland assessment

A wetland assessment of the portion of UFI 15752 intersecting the site has recently been undertaken by JBS&G in accordance with DBCA's guidance '*A methodology for the evaluation of wetlands on the Swan Coastal Plain, Western Australia*' (DBCA 2017) and included:

- A desktop assessment including a review of information from available datasets to identify relevant ecological and hydrological values within the Malaga site and surrounding areas,
- A field survey to ground truth and compliment the results of the desktop survey and to characterise the features, attributes, functions, values and condition of the wetlands and watercourses intersecting the survey area. The field assessment focused on the portion of UFI 15752 occurring with the site boundary and the surrounding area, and
- Preparation of a technical report with suitable maps to summarise methods and results of the assessment.

The results of the desktop and field assessments were used to complete the preliminary and secondary evaluations as appropriate for the portion of UFI 15752 occurring within the assessment area, following the DBCA (2017) procedure.

The results of the preliminary evaluation indicated that UFI 15752 could not be considered Conservation Category and that a secondary assessment was required. A summary of the results of the secondary assessment are provided in Table 3.

Table 3: Summarised result of the secondary assessment

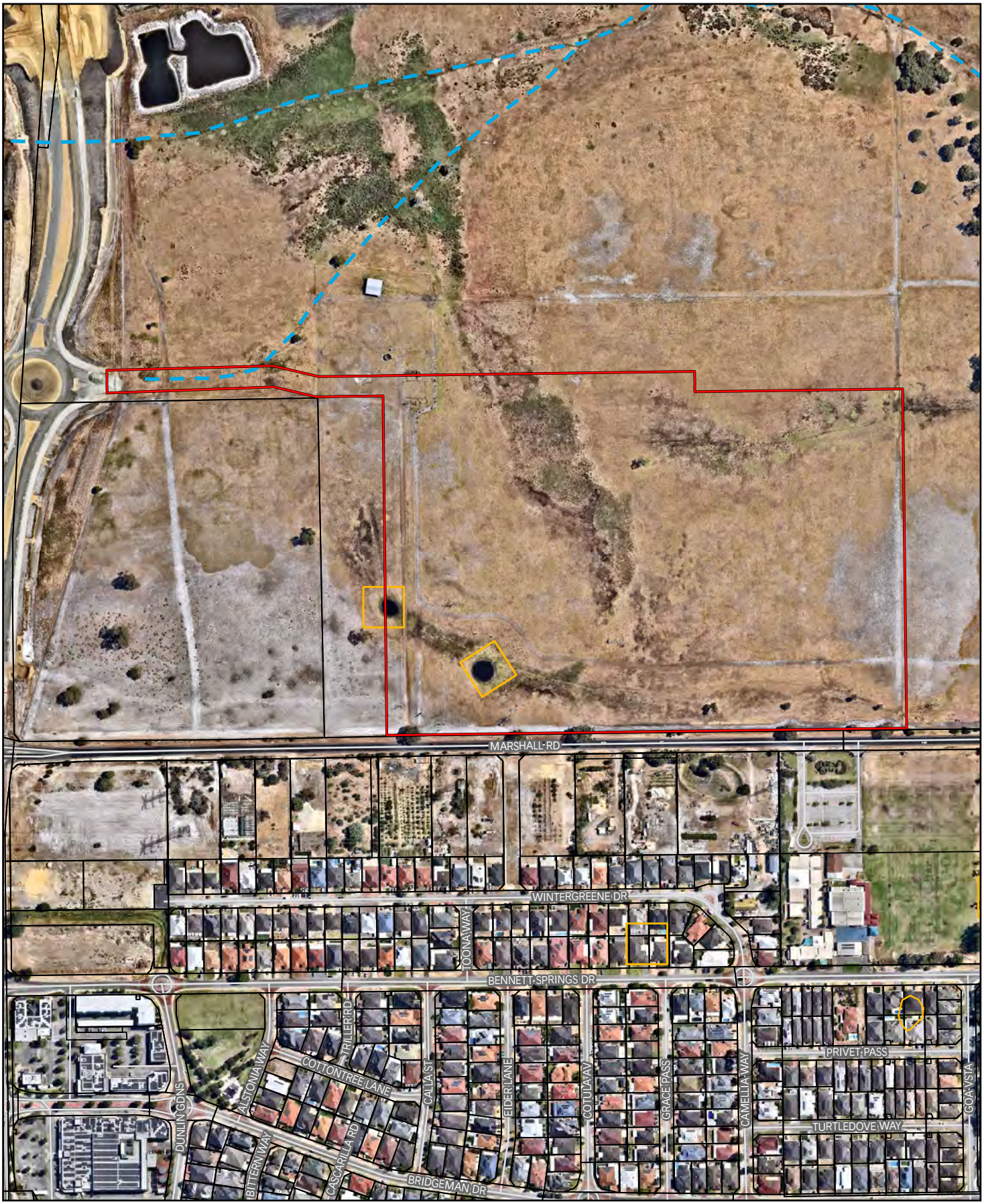
Attributes / Functions / Values	Scores		
	High	Intermediate	Low
UFI 15752			
Geomorphology	III	I	
Wetland processes		I	I
Linkages			I
Habitats			I
Flora	I		III
Fauna			I
Cultural	I		I
Scientific and educational			
Total score	5	2	8
Defining attributes / functions / values	Geomorphology		
Applicable management category	Multiple Use		

The results of this wetland assessment determined that the assessment area has generally been subject to alteration as a consequence of clearing, historically for agriculture and more recently for urban development. Hydrology and drainage within the wetland, has been modified through clearing and construction of artificial drains to alleviate flooding and rising water tables following clearing for agriculture (JBS&G 2022). The more

recent METRONET project works to the north and east of the site have further impacted hydrology and drainage to facilitate constructure activities and the ultimate operation of Malaga Station and the rail line. Wetland processes and functions have therefore been disrupted as a result of these activities. Furthermore, the portion of UFI 15752 under assessment presented little to no flora, vegetation and fauna habitat value due to it being a cleared paddock in a completely degraded condition.

The wetland assessment concluded that the wetland attributes, functions and/or values present of the portion of UFI 15752 were more representative of a Multiple Use category wetland and was recommended that in consultation with DBCA, this portion of UFI 15752 be re-classified to a Multiple Use management category.

The wetland assessment was submitted to DBCA on 7 December 2022 with a request to reclassify the portion of UFI 15752 to a Multiple Use Category. In consultation with DBCA, the boundary was refined as shown in Figure 2.6 and approval granted for the portion of REW to be downgraded to a MUW (Appendix A).



Legend

- Development envelope
- Cadastral boundary
- Drain - minor
- Earth dam
- Major road
- Minor road

Scale: 1:5,000 at A4

0 25 50
metres

Coord. Sys. GDA2020 MGA Zone 50

Job Number: 63168

Client: Hesperia Property Pty Ltd

Version: A | Date: 07-Jun-2023

Drawn By: jcrute | Checked By: RM

Part lot 811, 823 Drumpellier Drive Whiteman, WA

SURFACE WATER FEATURES

FIGURE 2.4

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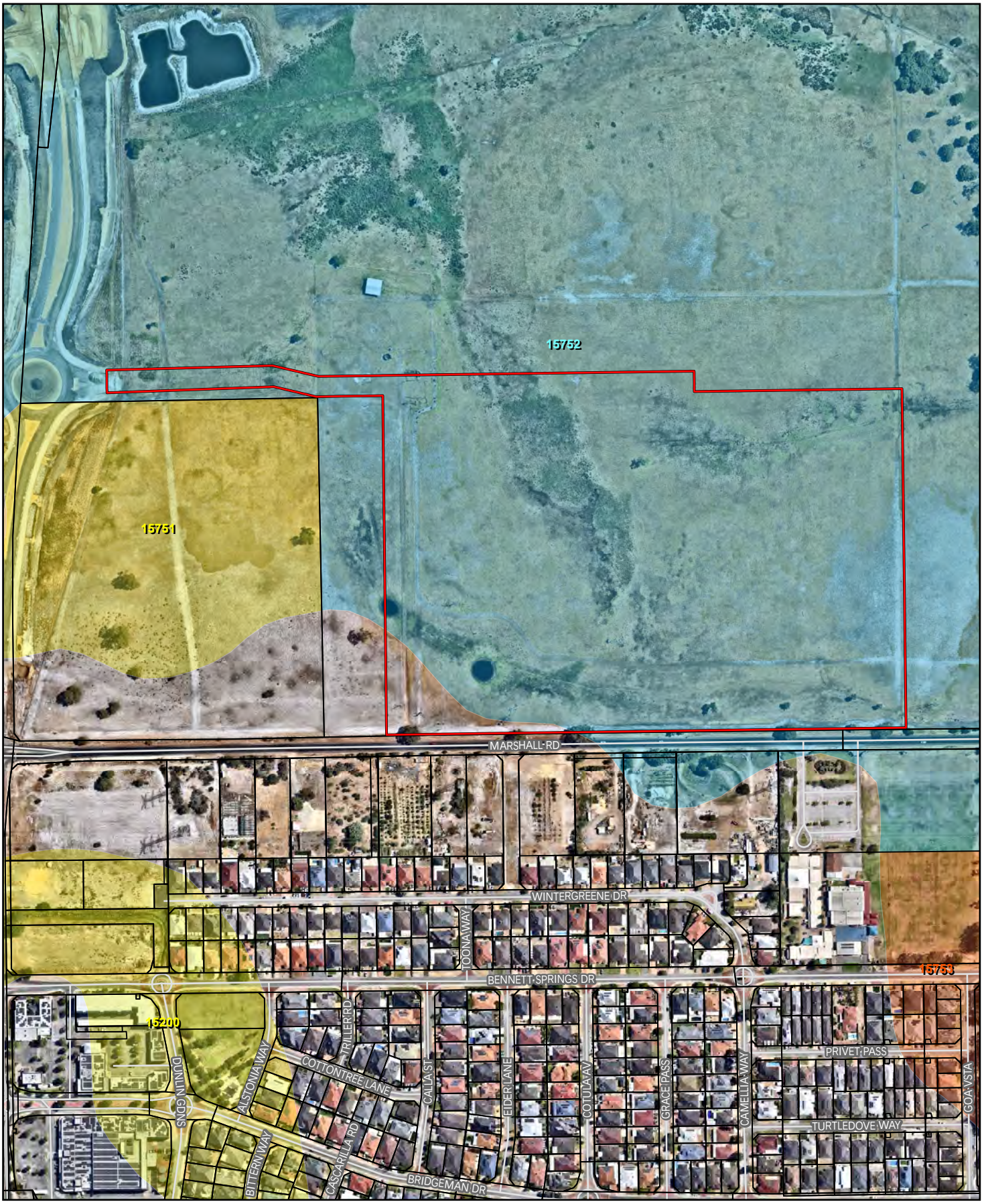

Legend

- Development envelope
- Cadastral boundary

Geomorphic wetlands (DBCA)

- Resource enhancement
- Multiple use
- Not applicable
- Major road
- Minor road

Scale: 1:5,000 at A4 (0 25 50 metres)		**Part lot 811, 823 Drumpellier Drive Whiteman, WA**
Coord. Sys. GDA2020 MGA Zone 50		**GEOMORPHIC WETLANDS**
Job Number: 63168		
Client: Hesperia Property Pty Ltd		**FIGURE 2.5**
Version: A	Date: 07-Jun-2023	JBS&G
Drawn By: jcrute	Checked By: RM	

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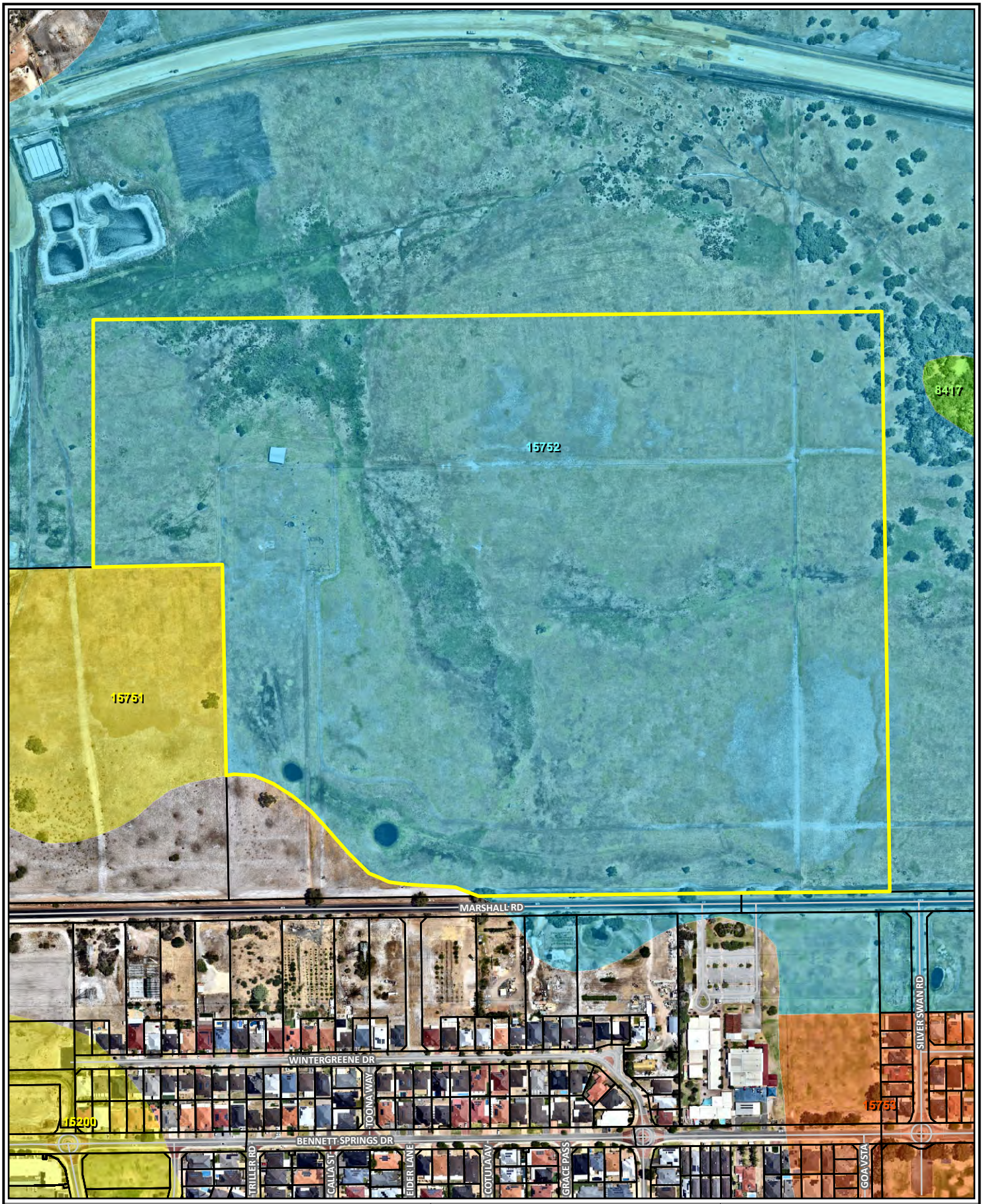

Legend

- Wetland assessment area
- Cadastral boundary

Geomorphic wetlands (DBCA)

- Conservation
- Resource enhancement
- Multiple use
- Not applicable
- Minor road

Scale 1:5,000 at A4

0 50 100 metres

Coord. Sys. GDA2020 MGA Zone 50

Job No: 62870

Client: Hesperia Property Pty Ltd

Version: A | Date: 27-Feb-2023

Drawn By: ianandagoda | Checked By: RM

Part Lot 811,
233 Drumpellier Drive,
Whiteman, WA

THE WETLAND ASSESSMENT AREA

FIGURE 2.6

strategen JBS&G

File Name: \\008PMPMR004V001.jbsg.aust\JBS Perth\Projects\1)Open\Hesperia\62870 Home Fire Studios Environmental Support\GIS\Maps\R01_Rev_A\62870_01_02_AssessmentArea.mxd
Image Reference: www.nearmap.com© - Imagery Date: 18 January 2023.

2.5 Bush Forever and conservation reserves

Bush Forever identifies regionally significant bushland for protection within the Swan Coastal Plain portion of the Perth metropolitan region. Bush Forever sites have been identified on the basis of criteria relating to their conservation value and a target of protecting at least 10% of each vegetation complex, which is representative of regional ecosystems and habitats. Bush Forever aims to protect a comprehensive representation of all ecological communities originally occurring in the region.

There is no Bush Forever located within the site. Bush Forever site 304, associated with Whiteman Park, is located to the north and east of the site. At its closest point, the Bush Forever site 304 is approximately 840m from the northwestern corner of the site.

No DBCA or local government conservation reserves have been identified within site. One DBCA Managed Lands and Reserves is located north of Gnangara Road the Gnangara-Moore River State Forest. The nearest regional parks, Herdsman Lake Regional Park and Yellagonga Regional Park lie approximately 5 km and 9 km respectively, to the west of the site.

2.6 Environmentally sensitive areas

A desktop assessment identified that no environmentally sensitive areas intersect with the site (DWER n.d).

2.7 Vegetation and flora

2.7.1 Regional Vegetation

The site is located in the Perth subregion of the Swan Coastal Plain bioregion under the Interim Biogeographic Regionalisation for Australia.

The site is thought to have originally contained vegetation of the Southern River Complex (DBCA 2018). The Southern River Complex consists of an open-woodland of marri, jarrah and *Banksia* on the elevated areas and a fringing woodland of *Eucalyptus rudis* (flooded gum) and *Melaleuca rhaphiophylla* (swamp paperbark) along the streams, with peppermint tree south of the Swan River (Webb et al. 2016).

There are two pre-European vegetation associations described for the site (DPIRD 2019):

- Bassendean 1001, described as low forest, woodland or low woodland with scattered trees of jarrah (*Eucalyptus marginata*), *Banksia* species. and *Allocasuarina* species; and
- Bassendean 1018, described as a mosaic of medium jarrah-marri forest, low Banksia woodland, low *Melaleuca* woodland and low woodland of *Casuarina obesa*.

State-wide, 22% and 17% of these vegetation associations remain respectively, with 26% and 16% remaining in the City of Swan (Government of Western Australia 2018).

2.7.2 Surveys

A detailed Flora and Vegetation Assessment (RPS 2020) has previously been undertaken to inform the Malaga to Ellenbrook METRONET works which intersect the site. This study is contemporary and applicable to the assessment area and therefore has been used to inform flora and vegetation values applicable to the site. A copy of this survey report is available via the Index of Biodiversity Surveys for Assessments (IBSA) portal (IBSA-2020-0238).

Furthermore, a Senior Ecologist and Senior Consultant from JBS&G visited the site on 8 March 2022 to undertake a site inspection, wetland assessment and ground truth the findings form the RPS (2020) report. The survey was undertaken by traversing the site on foot and noting flora taxa evident and recording GPS coordinates of significant trees and Declared Pest plants.

The results of both the RPS (2020) survey and the JBS&G (2022) survey have been discussed below.

2.7.3 Vegetation and Flora

RPS (2020) described the vegetation units at the Malaga site as follows:

> "CC./Mp.Er.Cleared – Isolated remnant *Corymbia calophylla, Melaleuca preissiana* and/or *Eucalyptus rudis* over pasture/weeds - previously cleared"

Vegetation within the Malaga site was assessed as being in a 'Completely Degraded' condition (RPS 2020) in accordance with Keighery (1994) scale.

As part of the 2017, 2018 and 2019 spring surveys conducted by RPS, targeted searches for threatened flora and Priority flora were conducted. Additionally, a *Caladenia huegelii* (Grand Spider Orchid) search was also carried out as a separate targeted survey during the species' documented flowering period. The survey consisted of a systematic search of suitable habitat within the survey area. However, no *Caladenia huegelii* individuals were recorded.

RPS (2020) did not record any Threatened Flora species listed under the BC Act or the EPBC Act at the Malaga site.

The site visit conducted by JBS&G in 2022 confirmed the findings from the RPS (2022) survey, recording degraded patches of rushes and isolated paddock trees remaining throughout (see Plate 1 and Plate 2). The JBS&G (2022) site visit identified nine native flora taxa occurring at the site, none of which are conservation significant:

- *Centella asiatica;*
- *Corymbia calophylla;*
- *Euphorbia australis* (naturalised);
- *Juncus pallidus;*
- *Melaleuca preissiana;*
- *Melaleuca raphiophylla;*
- *Podotheca gnaphalioides;*
- *Portulaca oleracea* (naturalised); and
- *Xanthorrhoea brunonis.*

Plate 1. Patches of *Juncus pallidus* in the west of the site

Plate 2. Isolated marri (*Corymbia calophylla*) and cropped *Xanthorrhoea brunonis* hummocks in the south west of the site facing north east

Introduced flora

JBS&G (2022) also found that most of the Malaga site was dominated by pasture weeds. Additionally, two of the weed taxa present are Declared Pest plants under the *Biosecurity and Agriculture Management Act 2007* (BAM Act). These are:

- *Solanum linnaeanum* (apple of Sodom); and
- *Moraea miniata* (two-leafed cape tulip).

2.8 Fauna habitat

Given the highly degraded nature of the site and historical use for agricultural purposes it is considered highly unlikely that the site holds habitat values for threatened or priority fauna species.

2.8.1 Black Cockatoo Habitat Value

Given the broader area (Whiteman Park) is known to contain foraging habitat for Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo species (collectively referred to as 'black cockatoos' herein), the site survey included a preliminary assessment of black cockatoo habitat values.

As noted above it is suggested that black cockatoos may be potential visitors to the site. During the JBS&G site visit, the site was traversed on foot to record any flora species with the potential to provide a food source for black cockatoos. The site contained only one known native forage species, *Corymbia calophylla* (marri) and this was present at very low densities. No evidence of Black Cockatoo foraging, such as marri fruit bearing characteristic bite patterns, was found during the survey.

The DAWE 2022 guidelines identifies potential breeding habitat as all trees of all ages and sizes within a woodland stand with trees of a suitable diameter, but specifically defines breeding habitat as tree species known to support breeding (DSEWPaC 2012). Black cockatoos breed in trees of suitable species, with a diameter at breast height (DBH) greater than 500 mm (> 300 mm for salmon gum and wandoo) (DSEWPaC 2012). Trees with a DBH greater than 500 mm (or >300 mm for salmon gum and wandoo) are large enough to potentially contain hollows suitable for nesting black cockatoos or have the potential to develop suitable hollows over the next 50 years. Trees of this size may also be large enough to provide roosting habitat (i.e., trees which provide a roost or rest area for the birds). The locations of such trees within the Survey Area were recorded using a GPS.

JBS&G (2022) recorded three trees with a DBH of >50cms within the Malaga site; .one live tree and two dead (Table 4).

Table 4: Potentially significant trees

Taxa	Latitude	Longitude	DBH (mm)
Corymbia calophylla	-31.8546	115.9287	563
Unknown	-31.8553	115.9293	802
Corymbia calophylla (dead)	-31.8546	115.9287	>500

3. Assessment against the EP Act clearing principles

An assessment of the proposed clearing against the ten clearing principles is provided in Table 5.

The ten clearing principles are defined under Schedule 5 of the EP Act and are considered prior to the decision being made to issue a clearing permit.

This assessment demonstrates that the proposed clearing of native vegetation is not at variance with any of the clearing principles. On this basis, it is anticipated that the proposed clearing at the site can be permitted to occur.

Table 5: Assessment against the ten principles of the EP Act Schedule 5 for clearing native vegetation

Principle	Assessment	Conclusion
(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	The application area was subject to a flora and vegetation Site assessment undertaken in 2022 by JBS&G as well as a detailed flora and vegetation assessment for the METRONET Morley to Ellenbrook region undertaken by RPS Group in 2020. The application area is located within the Bassendean 1001 and Bassendean 1018 vegetation association and Southern River complex, which have a current extent above the 10% retention target for constrained areas within the Swan Coastal Plain. The site degraded patches of rushes and isolated paddock trees remain. The site is in a 'Completely Degraded' condition. Based on the condition of vegetation in relation to the Keighery scale (Keighery 1994), vegetation in 'Completely degraded' condition and has been significantly altered by disturbances, likely in relation to the historical use for agricultural purposes. Based on the poor condition of vegetation within the application area, it is considered that the native vegetation remaining is of poor biological diversity. Therefore, clearing of this vegetation is unlikely to be at variance with this principle.	Not at variance.
(b) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	Given the highly degraded nature of the site and historical use for agricultural purposes it is considered highly unlikely that the site holds habitat values for threatened or priority fauna species. The site survey conducted by JBS&G in 2022 also included a preliminary assessment of black cockatoo habitat values given the broader area (Whiteman Park) is known to contain foraging habitat for Black Cockatoos. The site was found to contain only one known native forage species, *Corymbia calophylla* (marri), which is present at very low densities. No evidence of Black Cockatoo foraging, such as marri fruit bearing characteristic bite patterns, was found during the survey. JBS&G recorded three trees with a DBH > 500mm within the site. Given the 'Completely Degraded' condition, lack of foraging species, low densities of forage species and the presence of large patches of habitat within nearby land managed by Whiteman Park, DBCA or through Bush Forever designation the impact to Black Cockatoo foraging habitat is not considered significant. The proposed clearing area is not considered to represent habitat critical for fauna species, therefore the nature and scale of vegetation to be cleared is not considered to be significant at a local or regional scale in regard to indigenous fauna habitat.	Not at variance.

(c)	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	RPS (2020) did not record any Threatened Flora species listed under the BC Act or the EPBC Act at the Malaga site, nor did JBS&G (2022). The 'Completely Degraded' condition of the site, and the ongoing disturbance by grazing cattle means that it is highly unlikely that the site provides habitat for conservation significant flora. The JBS&G (2022) site visit identified nine native flora taxa occurring at the site, including: • *Centella asiatica;* • *Corymbia calophylla;* • *Euphorbia australis* (naturalised); • *Juncus pallidus;* • *Melaleuca preissiana;* • *Melaleuca raphiophylla;* • *Podotheca gnaphalioides;* • *Portulaca oleracea* (naturalised); and • *Xanthorrhoea brunonis.* The low number of plant genera recorded reflects the disturbed nature of the site. Based on the absence of conservation significant flora and highly degraded condition of vegetation within the site, the proposed clearing is unlikely to be at variance with this principle.	Not at variance.
(d)	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.	The site contains scattered trees with patches of rushes (RPS 2020; JBS&G 2022). Therefore there are no Threatened or Priority Ecological Communities present within the site As a result, the proposed clearing will not be at variance with this principle.	Not at variance.
(e)	Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The site is thought to have originally contained vegetation of the Southern River Complex (DBCA 2018). The Southern River Complex consists of an open-woodland of marri, jarrah and *Banksia* on the elevated areas and a fringing woodland of *Eucalyptus rudis* (flooded gum) and *Melaleuca rhaphiophylla* (swamp paperbark) along the streams, with peppermint tree south of the Swan River (Webb et al. 2016). There are two pre-European vegetation associations described for the site (DPIRD 2019): • Bassendean 1001, described as low forest, woodland or low woodland with scattered trees of jarrah (*Eucalyptus marginata*), *Banksia* species. and *Allocasuarina* species. • Bassendean 1018, described as a mosaic of medium jarrah-marri forest, low Banksia woodland, low *Melaleuca* woodland and low woodland of *Casuarina obesa*. State-wide, 22% and 17% of these vegetation associations remain respectively, with 26% and 16% remaining in the City of Swan (Government of Western Australia 2018). Based on the already extensively cleared nature and absence of remnant vegetation within the surrounding land, the proposed clearing is unlikely to be at variance with this principle.	Not at variance.
(f)	Native vegetation should not be cleared if it is growing in or in association with a watercourse or wetland.	DBCA geomorphic wetlands database indicates that the entire site comprises a portion of a larger REW (UFI 15752). However, the results of a wetland assessment undertaken at the site by JBS&G (2022) determined that the wetland attributes, functions and/or	Not at variance.

		values present of the portion of UFI 15752 were more representative of a Multiple Use category wetland. DBCA has since provided support of the findings of this assessment, with the portion UFI 15752 intersecting the site reclassified to a Multiple Use Category (Appendix A). Multiple Use wetlands are considered to have few remaining important attributes and functions, with the use, development, and management to be considered in the context of ecologically sustainable development and best management practice catchment planning (DBCA 2017). The proposed clearing is therefore unlikely to be at variance with this principle.	
(g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The area surrounding the application area has been heavily modified for rural land uses, the proposed clearing is not expected to increase salinity, waterlogging, nutrient export, water erosion, wind erosion, or soil acidity. There is a 'moderate to low' risk of disturbing ASS within 3m of the natural soil surface, however it is unlikely that the small scale of proposed clearing will impact soil acidity. Based on the above, the proposed clearing is unlikely to be at variance with this principle.	Not at variance.
(h)	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	There is no Bush Forever located within the site. Bush Forever site 304, associated with Whiteman Park, is located to the north and east of the site. At its closest point, the Bush Forever site 304 is approximately 840m from the north-western corner of the site. No DBCA or local government conservation reserves have been identified within site. One DBCA Managed Lands and Reserves is located north of Gnangara Road the Gnangara-Moore River State Forest. The nearest regional parks, Herdsman Lake Regional Park and Yellagonga Regional Park lie approximately 5 km and 9 km respectively, to the west of the site. Given the distance between the site and nearby conservation areas, the proposed clearing is unlikely to be at variance with this principle.	Not at variance.
(i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	The small scale of clearing required is not expected to cause sediment or nutrient impacts to wetlands, soil acidity or increased salinity. Therefore, the proposed clearing is unlikely to be at variance with this principle.	Not at variance.
(j)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the intensity of flooding.	The small scale of clearing required is not expected to alter hydrological processes to the extent that it is likely to cause or exacerbate the incidence of flooding. Therefore, the proposed clearing is unlikely to be at variance with this principle.	Not at variance.

4. Environmental approvals and management

4.1 Environmental approvals

The key approval identified as being required and/or potentially required to support the proposed clearing include the following:

- Native vegetation clearing permit determination under Part IV of the EP Act; and
- Development Application in accordance with the Metropolitan Region Scheme zoning development requirements.

Based on the known environmental values of the site and the proposed clearing areas, a referral under the *Environmental Protection and Biodiversity Conservation Act 1999* is not required.

The assessment against the 10 clearing principles concluded that the proposed clearing will not result in a significant impact to any flora or fauna species, or TECs particularly with consideration of the proposed mitigation and management measures outlined below.

4.2 Environmental mitigation and management

Given the proposed clearing areas are within a broader area of already cleared and developed land, incidental impacts to the surrounding environment are not expected. The proposed clearing will be undertaken in a manner that effectively manages dust and hygiene, and that will avoid impacts to retained vegetation and fauna in the surrounding area. Management actions will include:

- Stabilise cleared areas with methods such as wetting, mulching or other sealing material;
- Ensure vehicles and machinery are clean prior to clearing; and
- Clearly marking the vegetation required to be cleared.

5. Conclusion

The proposed development will result in the clearing off 2.47 ha of native vegetation within a 17.1 ha development envelope, the majority of which is in a Completely Degraded condition. An assessment against the ten clearing principles listed in Schedule 5 of the EP Act has indicated that the proposed clearing is not at variance with any of the principles and can therefore be permitted to occur.

6. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

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www.jbsg.com.au

JBS&G

Adelaide
Kaurna Country | 100 Hutt St,
Adelaide, SA 5000
T: 08 8431 7113

Brisbane
Turrbal/Yuggera Country | Level 37, 123
Eagle Street, Brisbane, QLD 4000
T: 07 3211 5350

Bunbury
Wardandi Noongar Country | 177
Spencer Street Bunbury, WA 6230
T: 08 9792 4797

Canberra
Ngunnawal Country | Level 1, The Realm
18 National Circuit Barton, ACT 2600
T: 02 6198 3278

Darwin
Larrakia Country | Suite G1, Level 1
48-50 Smith Street, Darwin NT 0800
T: 08 8943 0600

Hobart
Muwununa/Nuenon Country | Level 6,
111 Macquarie Street Hobart, TAS 7000
T: 03 6108 9054

Melbourne
Kulin Country | Level 5, 10 Queen
Street, Melbourne, VIC 3000
T: 03 9642 0599

Newcastle
Awabakal/Worimi Country | 61 / 63
Parry Street Newcastle West, NSW 2302
T: 02 8245 0300

Perth
Whadjuk Nyoongar Country | Allendale Square,
Level 9, 77 St Georges Terrace, WA 6000
T: 08 9380 3100

Sydney
Gadigal Country | Level 1, 50
Margaret Street, Sydney, NSW 2000
T: 02 8245 0300

Wollongong
Dharawal Country | Suite 1A, 280 - 286
Keira Street, Wollongong, NSW 2500
T: 02 4225 2647