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**MEMORANDUM**

From	Martin Bowman	Date	30 <sup>th</sup> March 2020
To	NLV Tuart Lakes Expansion:		
Subject	Findings of Vegetation Survey Tuart Lakes Lifestyle Village		

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**1.0 Background**

Serenitas Communities Holdings Pty Ltd is the owner of the lifestyle village located at Lots 1, 3, 700 and 703 Mandurah Road Baldivis. The facility operates as the Tuart Lakes Lifestyle village, and is managed by Serenitas Management Pty Ltd under contract from the landowner Serenitas Communities Holdings Pty Ltd.

The development of the Tuart Lakes facility has been conducted in stages, following approvals for the development to proceed issued by the City of Rockingham.

The first stage of development, which was commenced in 2008, included the establishment of approximately 150 living units with an internal road system and supporting community facilities and amenities. This development area consumed approximately 60% of the total landholding.

Figure 1 presents a recent aerial photograph of the site and shows where development has already occurred.

Serenitas Communities Holdings Pty Ltd now proposes a second stage of development of living units and road system within the site.

The landowner has applied to the City of Rockingham for a Development Approval to establish the next stage of the facility.

Figure 1 also depicts those areas within the site which are proposed for the second stage of development.

Under town planning and environmental legislation, there is a requirement for a Development Approval for this second stage of site development, to be accompanied by an approval for the Department of Water and Environmental Regulation for the land to be cleared, prior to the implementation of earthworks and infrastructure installation.

This document provides the findings of an investigation of the botanical characteristics of the land to be developed for this next stage as required by Form C1 Application for A Clearing Permit (Area Permit).

The document sets out the information on which the survey was based, and its findings in regard to any constraints to development which derive from the botanical characteristics of the site.

## **2.0 Survey Method**

The investigation was based on several stages of work including:

- a detailed review of a flora and vegetation survey conducted by specialist environmental consultants ENV, dated March 2007, which was prepared in support of the original application for development,( a copy can be supplied on request),
- a detailed review of a Tree Survey conducted by Paperbark Technologies in 2005 in which the location species and condition of each significant tree (>150mm ABH) within the site was surveyed and documented,( a copy can be supplied on request),
- a site inspection conducted by Bowman and Partners Environmental Pty Ltd on 23<sup>rd</sup> December 2019 to confirm the present condition of the vegetation in the context of recent aerial photography and previous botanical surveys.

## **3.0 General Description of the Proposed Development Area**

Of the total site area of 29 ha approximately 60% has previously been developed to a lifestyle village facility including an internal road system, living units, a boat and caravan parking area, maintenance facilities, public recreation and community facilities.

The surrounding land uses are as follows:

- to the west is Mandurah Road and the land beyond is land within the Rockingham Lakes Regional Park and Lake Coo loongup,
- to the north the land is market garden undergoing residential development,
- to the south there is the Coo loongup Recreational Park and remnant Tuart and Banksia woodland,
- to the east the land is undeveloped grasslands and weeds which has the appearance of having been mined for limestone.

The balance of the site remains in the form it had prior to development of the lifestyle village which comprised a market garden now completely developed, and residential and outhouse buildings associated with horticulture and agriculture.

There are areas of remnant open woodland of tuart, areas with grassy/weedy understory, open grasslands and weeds, and a dense stand of coastal heath and woodland mapped and described by ENV as *Acacia rostellifera* shrubland and *Banksia attenuata*, *Allocasuarina* woodland and Open Woodland of *Eucalyptus gomphocephala*, *E marginata*, *Allocasuarina fraseriana*, *Banksia attenuata* and *B grandis*.

The land is zoned rural under the City of Rockingham town planning scheme.

#### **4.0 Environmental Characteristics of the land.**

The land is located to the immediate east of Mandurah Road and its western boundary is some 200m east of the eastern edge of Lake Coo loongup which is a conservation category wetland and part of the Rockingham Lakes Regional Park.

It is located on landform described as Spearwood Dunes and is typical for this landform type in this locality and in the district and region.

In the west of the site the ground rises steeply from Mandurah Road to a north south trending limestone and sand ridge, before falling more gently to the east into a broad gentle valley, then rising slightly again to a lower north south trending ridge on the eastern site boundary.

The soils comprise Spearwood Sands at the surface, being yellow, brown to grey siliceous sands which are well drained.

Beneath the surficial sands there is Tamala Limestone which extends to depth.

There is an unconfined aquifer developed in the limestone sediments with a water table at about 1m AHD and a westerly flow direction towards Lake Coo loongup.]

Water quality is inferred to be fresh and suitable for irrigation and stock.

#### **5.0 Description of the Clearing Areas**

There are three areas where clearing is required to support expansion of the lifestyle village. These are shown on Figure 1 and are described as below. The total proposed clearing area totals 2.2779 ha.

Figure 1 also provides a vegetation map for the clearing areas whilst figure 2 presents a vegetation condition map.

## 5.1 Area A.

This area is located on the western slopes and crest of the tall ridge and has an open woodland canopy area of 0.3811 ha, comprising mainly mature and scattered tuart, jarrah and casuarina trees but also scattered peppermints and a copse of *Acacia rostellifera* shrubland along its northern extent.

The condition of the Tuart Jarrah Allocasuarina woodland is degraded as it is in parkland cleared format with understory totally dominated by weeds and grasses.

The condition of the *Acacia rostellifera* shrubland is good to very good notwithstanding it is likely a regrowth stand.

At the time of the botanical survey conducted by ENV in 2008, the vegetation of this area was described as Open Woodland of *Eucalyptus gomphocephala*, *E marginata*, *Allocasuarina fraseriana*, *Banksia attenuata* and *B grandis* over *Macrozamia riedlei*, *Hibbertia hypericoides*, *Hardenbergia compontoniana* and weeds.

Ongoing degrading processes associated with occupation of the land and its use as a lifestyle facility has rendered this botanical description superceded.

Colour photographs attached to this report present a fair representation of the overall condition of Area A as at December 2019.

## 5.2 Area B

This area is located on the western slopes of the ridge has an open canopy area of 0.4449 ha. The vegetation is an open woodland of mature remnant native trees over grasses and weeds. There are both tuarts and jarrah with occasional *Banksia attenuata* and *Acacia rostellifera* and exotic shrubs.

The condition of this vegetation is degraded.

At the time of the botanical survey conducted by ENV in 2008, the vegetation of this area was described as Open Woodland of *Eucalyptus gomphocephala*, *E marginata*, *Allocasuarina fraseriana*, *Banksia attenuata* and *B grandis* over *Macrozamia riedlei*, *Hibbertia hypericoides*, *Hardenbergia compontoniana* and weeds.

Colour photographs attached to this report depict a fair representation of the appearance of the vegetation within Area B as at December 2019.

## 5.3 Area C

The area is located along the eastern boundary of the site and occupies a low ridge which rises to the south.

In its northern extent the vegetation comprises a dense shrubland of *Acacia rostellifera* with occasional *Banksia sessilis* with a weedy understorey and edges.

In its southern extent the vegetation is an open woodland comprising *Banksia attenuata* and *Allocasuarina fraseriana* over *Allocasuarina humilis*, *Macrozamia riedlei*, *Acacia pulchella*, *Gompholobium tomentosum*, *Conostylis aculeata*, *Cryptandra nutans*, *Jacksonia furcellata*, *Dryandra sessilis*, *Dryandra lindleyana* and weeds.

The condition of the vegetation in Area C is good to very good.

Colour photographs attached to this report depict a fair representation of the condition of the vegetation within Area C as at December 2019.

#### **5.4 Rare and Priority Flora**

ENV (2007) conducted a detailed flora survey which found that no plant taxa gazetted as Declared Rare pursuant to subsection (2) of section 23F of the Wildlife Conservation Act (1950) or Priority Flora species (Department of Conservation and Land Management 2000) were located during the field survey. No Endangered or Vulnerable species, pursuant to s178 of the Environmental Protection and Biodiversity Conservation Act, 1999 were located during the survey.

Whilst this database is dated, the fact that the survey was undertaken over the whole of the site and at a time when the lifestyle village land use had not been implemented, and ongoing use of the land now to be cleared indicate that it is unlikely that any rare or priority species could have established within the site in the intervening period.

#### **5.5 Tuart Woodlands and Forests of the Swan Coastal Plain Threatened Ecological Community**

Areas A and B contain isolated individual remnant Tuart trees in a parkland setting and it is necessary to examine whether these occurrences meeting the patch criteria set down under the Conservation Advice published by the Commonwealth Government.

The relevant criterion is that patch sizes must exceed 0.5 ha regardless of condition and that there should be less than 60 m separation distance between individual tree trunks before an extant area of Tuart trees can be classified as “patch” as defined by the Conservation Advice.

Given that Area A is 0.3811 ha, and Area B is 0.4449 ha and the trunk separation distances between the two areas are approximately 100 m, it is reasonable to conclude that Areas A and B do not meet the criteria for this TEC.

#### **5.6 Banksia Woodlands of the Swan Coastal Plain TEC**

There is an area in the south of Area C where there is a woodland vegetation which supports some *Banksia attenuata* mixed low open woodland.

It has an area of approximately 0.5631 ha and is in good to very good condition.

Under the conservation advice for this Threatened Ecological Community, patch sizes for Banksia woodland vegetation in good to very good condition must be greater than 1 ha to be captured by the EPBC regulations.

This area of vegetation therefore does not present a constraint in terms of the acceptability of clearing.

### **5.7 Black Cockatoo habitat**

Areas A and B have the largest trees on the site with the potential to support hollows for nesting. Effectively all of these trees, whilst being mature, are too young to support any significant potential to support hollows of sufficient size to accommodate the nesting requirements of any black cockatoo species. A search of the vegetation and inspection of each large tree did not reveal any large hollows.

The *Banksia attenuata Allocasuarina fraseriana* low open woodland area in Area C supports some Banksia trees which could provide foraging habitat for black cockatoos. The area is small and could not be reasonably expected to form a foraging habitat upon which the survival of any black cockatoo populations could be dependent.

It is noted there is a more significant area of similar vegetation to the south of Area C which, whilst it remains extant, could provide occasional foraging habitat for black cockatoo species.

### **6.0 Conclusion**









Evaluation of the areas of remnant native vegetation, their floristic composition, condition and conservation status has not identified any significant characteristics which could constrain the development of the proposed expansion areas in the context of the requirements for a Clearing Permit to be approved.

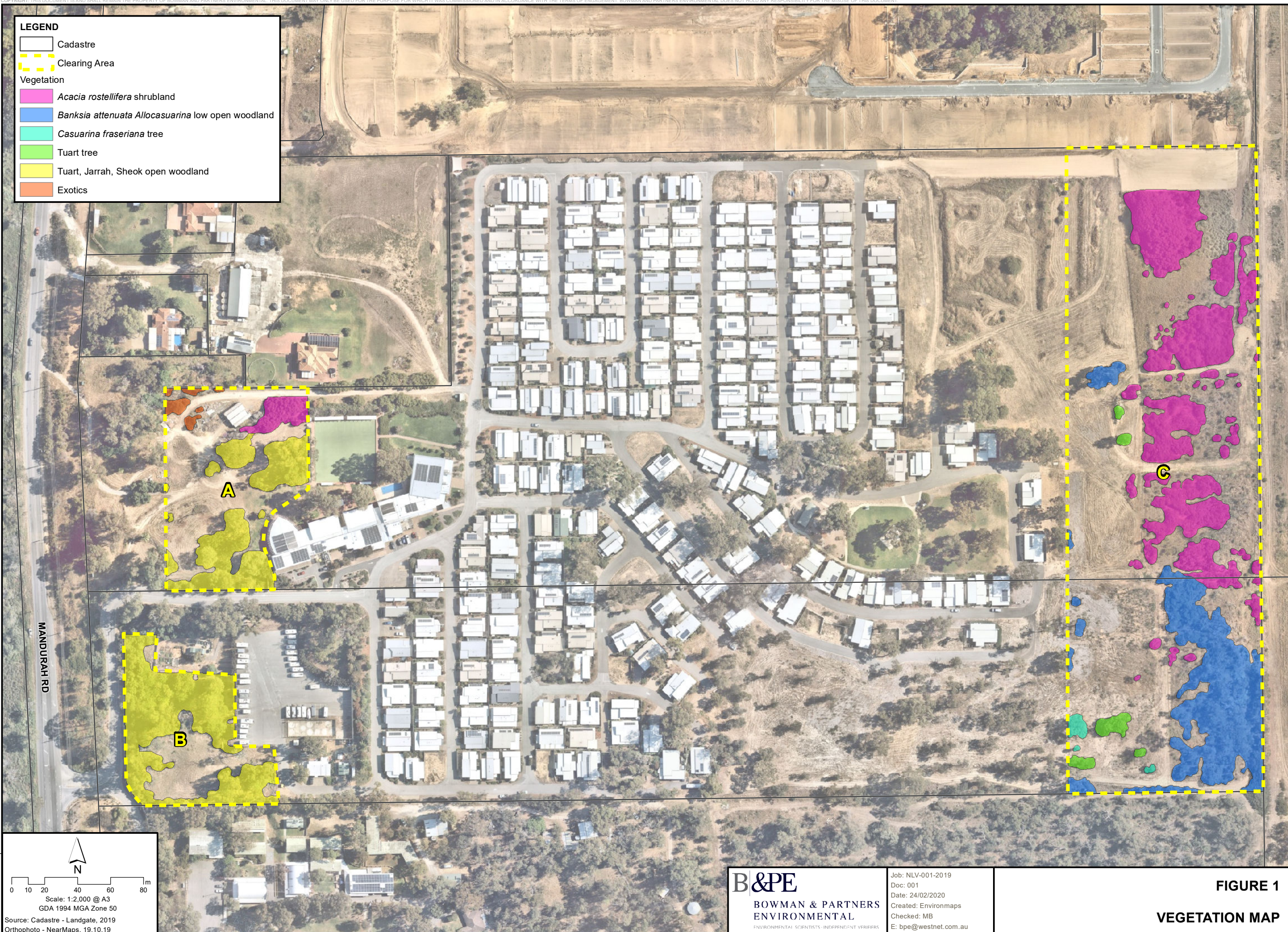
### **References**

Lots 1, 3, 700 and 703 Mandurah Road Baldivis Flora and Vegetation Survey, ENV 06.095/RP001, February 2007

Tuart Lakes Village 831 Mandurah Road Baldivis, Tree Survey, Paperbark Technologies Pty Ltd, December 2015.

**LEGEND**

-  Cadastre
-  Clearing Area
- Vegetation
-  *Acacia rostellifera* shrubland
-  *Banksia attenuata Allocasuarina* low open woodland
-  *Casuarina fraseriana* tree
-  Tuart tree
-  Tuart, Jarrah, Sheok open woodland
-  Exotics



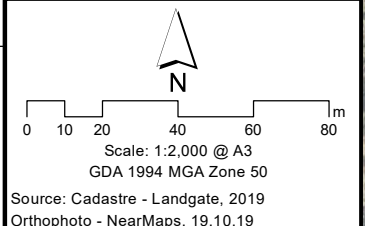
MANDURAH RD

A

B

C

ENVIRONMAPS t: 0496 590 006  
Environmental Mapping Solutions www.environmentmaps.com.au







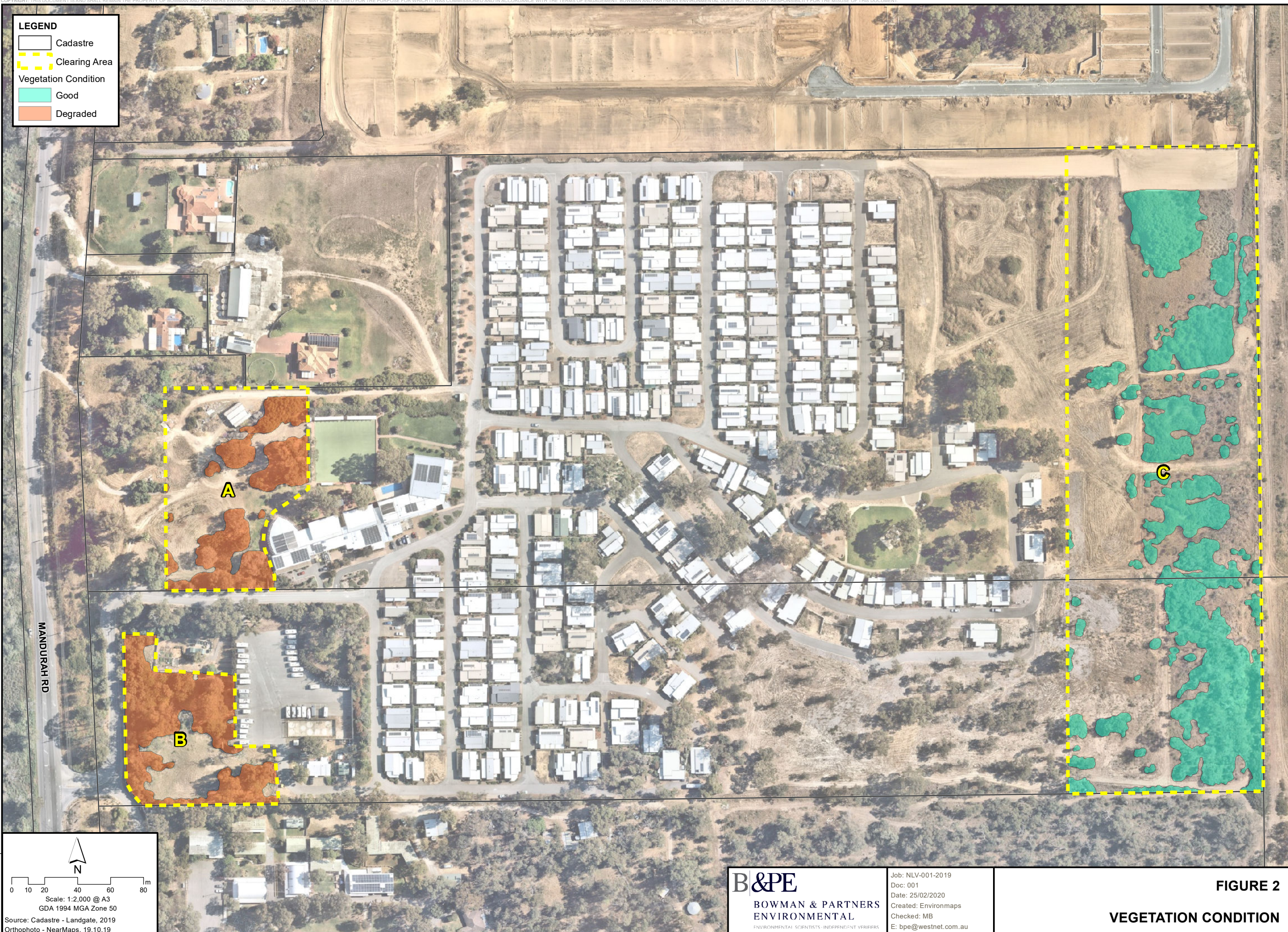
**B&PE**  
**BOWMAN & PARTNERS**  
**ENVIRONMENTAL**  
ENVIRONMENTAL SCIENTISTS - INDEPENDENT VERIFIERS

Job: NLV-001-2019  
 Doc: 001  
 Date: 24/02/2020  
 Created: Environmaps  
 Checked: MB  
 E: bpe@westnet.com.au

**FIGURE 1**  
**VEGETATION MAP**

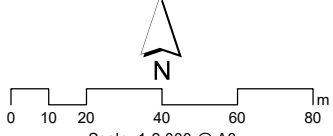
**LEGEND**

-  Cadastre
-  Clearing Area
- Vegetation Condition
-  Good
-  Degraded



ENVIRONMAPS t: 0496 590 006  
Environmental Mapping Solutions www.environmentmaps.com.au

Scale: 1:2,000 @ A3  
GDA 1994 MGA Zone 50  
Source: Cadastre - Landgate, 2019  
Orthophoto - NearMaps, 19.10.19



**B&PE**  
BOWMAN & PARTNERS  
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**FIGURE 2**  
**VEGETATION CONDITION**





Keep lids closed.  
Do not overload.

Cardboard & Paper



CLEANING









Keep lids closed.  
Do not overload.

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CLEANING











